City of Biddeford
Planning Board

July 1, 2026 at 6:00 PM
City Hall Council Chambers & Teams
Planning Board Meeting (LIVE) | Meeting-Join | Microsoft Teams
Teams Instructions

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
3. Adjustment(s) to Agenda
4. Planner's Business
   - 4.a Staff Review Committee Meeting Minutes from June 16, 2026
5. Consent Agenda
   - 5.a Approval of Meeting Minutes from June 17, 2026
6. Unfinished Business
   - 6.a 2026.22 The Biddeford Planning Board will review the requested Waivers for Biddeford Auto Wash located at 547 Alfred Street (Tax Map 2, Lot 34-1) in the Business 2 zone.
7. New Business
   - 7.a 2026.19 The Planning Board will review an application for a 1 lot Private Way for Robert Laverriere of 34 Proctor Road. The applicant wants to create a 1 lot private way in order to gain access to an internal lot. The address of the property is on Proctor Road (Tax Map 3, Lot 12-3) in the RF zone.
   - 7.b 2025.10 The Planning Board will review a Final Application for Fiber Materials Inc. The applicant plans a 104,000 SF addition to the existing structure to add manufacturing capacity and the associated infrastructure. The address of the property is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 zone.
   - 7.c 2026.25 The Planning Board will review a Site Plan Application for 41 Main Street. LLC. The applicant wants to demolish the existing structure in order to create 54 parking spaces. The address of the property is 41 Main Street (Tax Map 41, Lot 138) in the MSRD 1 zone.
8. Other Business
9. Adjourn

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

David C.M. Galbraith, City Planner, Deputy Director
of Planning &Economic Development

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INTERNAL DEVELOPMENT REVIEW
MEETING MINUTES
June 16, 2026

Declaration of voting members/quorum

Staff- Craig Chekan & Tom Miligan from Engineering, David Galbraith & Nan Whitten from Planning

1. **2026.01 Popeye's Fast-Food Restaurant 584 Alfred Street**
   - **The City needs confirmation that the dishwasher has a watering tempering kit.**
2. **2026.22 BAW Holdings, LLC 547 Alfred Street, Minor Site Plan Amendment**
   - **Site Design Engineering shall certify that all was built according to plan.**
   - **Clarification is needed on the calculations on gravel and the guardrail.**
3. **2025.10 FMI, LLC 389 Hill Street**
   - **Questions on vernal pools: who delineated them, and when**
4. **2026.25 Bateman, 41 Main Street**
   - **Curb Cuts were discussed**
   - **The Gate will need to be moved and documented on the plan**
   - **Curb cuts on Main Street to be delineated on plan.**
5. **2026.27 Walmart**
   - **Engineering has no worries**
   - **Preliminary & Final can be held in one meeting.**
6. **2026.09 574 Alfred Street, LLC**
7. **2026.30 Prescott Materials**
   - **Parking numbers are needed.**

Signature-City Planner **Date** 6-24-26

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

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City of Biddeford Government

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PLANNING BOARD MEETING MINUTES
June 17, 2026
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1. **Pledge of Allegiance**
2. **Declaration of Quorum**
   Planning Board: John McCurry, Roch Angers, Leah Schaffer, Chico Potvin (Alternate Member) & Rob Nicoll (Alternate Member)
   Staff: David Galbraith & Nan Whitten
   Chico Potvin & Rob Nicoll will vote this evening in place of Kayla Lewis & Matt Sargent-Dubois
3. **Adjustments to Agenda-none**
4. **Planner's Business**
   4.a. Galbraith talked to the applicants and Board about a scam that has been escalating where applicants are approached via email saying they owe more money and it should be wired to the city. Galbraith asserted that the city will never ask for fees to be paid via wire. The FBI has issued an alert about this action; the alert is on the Planning Board webpage if anyone would like to read it.
5. **Consent Agenda**
   5.a. Approval of Meeting Minutes from June 3, 2026
   MOTIONS: 6:01 PM
   Motion-Schaffer-Motion to approve Meeting Minutes as presented
   Second-Nicoll
   Vote: Motion passed unanimously
6. **Unfinished Business-none**
7. **New Business**
   7.a. 2026.20 Review of a Conditional Use Permit request by Bakhita Saabino to open Helping Hand Learning at 123 Summer Street (Tax Map 35, Lot 48) in the R-2 Zone. Helping Hand Learning will provide childcare for children aged 6 weeks to 12 years of age; the maximum capacity will be 12 children.
   - **Galbraith introduced the project explaining that the applicant is in the middle of applying for her license from DHHS and will bring us a copy upon approval from DHHS.**
   - **The play area on this parcel is a challenge but there are 10' in the backyard and there is an area in front of the garage.**
   - **Galbraith read all the Conditions of Approval to the Board stating that the staff supports approval.**
   - **Bakhita Saabino represented herself**

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- **Schaffer asked about the play area**
- **Galbraith said there is room in front of the garage in addition to the area for 2 cars to park.**
- **Potvin stated that he is struggling with the site. There is no parking on 1 side of the street, the street is very narrow and there is no parking directly across from the site.**
- **Potvin asked where the employees will park. He stated that the siding is asbestos, there is no playing in the front yard, out back is an alley and that is not good.**
- **Potvin would like to see a plan. Because this is such a tiny lot, he would like to see the applicant find a better location.**
- **Potvin is very worried about the safety of the children. He suggests the project be tabled.**
- **Nicoll feels the project should be tabled until the applicant received DHHS approval.**
- **Saabino spoke to the Board, she told them that she had spoken with DHHS and they were fine with her location. Saabino has been a pre-K teacher for the City of Portland for 23 years.**
- **Saabino will work with the City and Neighborhood. She is working with DHHS, she has been working with Cathy, but the supervisor Bob has stated he has no concerns about the location.**
- **Saabino said the children's safety is her #1 priority. There is a playground 2 blocks away and they do plan on using this playground.**
- **Nicoll asked if DHHS was ok with going to Community Center Playground? Yes**
- **Potvin asked about the employee parking. There are no employees yet and will get help from her daughter and cousin if she needs help. These two women live in the neighborhood and will walk to the site.**
- **McCurry confirmed with the applicant that DHHS had no problem with the house. Correct.**
- **Schaffer commented that there is no play area, Saabino said they will utilize the Community Center.**
- **Potvin commented that the Community Center is a good alternative but can be difficult at times. Saabino reiterated that she does have help.**
- **Anger asked if the staff has heard from any neighbors, the police or fire departments? He thinks the property is tight and he is a little concerned about fire, he has a problem**

  MOTIONS: 6:28 PM

  Motion-Schaffer- A. Motion to Approve project #2026.20 a Conditional Use Permit for Bakhita Saabino to open a home day care called Helping Hand Learning at 123 Summer Street (Tax Map 35, Lot 48) within the Residential 2 zone, with the above recommended Conditions of Approval (COA). Clarify item D any feedback we received from DHHS, she will return to the Planning Board for this additional review.

  Second-Nicoll

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Vote: Motion passed 3-1 (Schaffer, Nicoll, Potvin in favor, Angers opposed)

7.b. 2025.24 Review of a Conditional Use Permit request by Amanda Keddy to open Mandi's Munchkins Daycare at 2 Hutchins Drive (Tax Map 4, Lot 61-1) in the RF Zone. Mandi's Munchkins Daycare will be a licensed daycare for up to 12 children.

- **Galbraith introduced the project**
- **Galbraith listed the Day Care requirements and said that the HHE-200 will be submitted to Code Enforcement to enforce item F of the requirements.**
- **Amanda Keddy represented the application, Keddy said she was a Biddeford public school teacher for years until COVID.**
- **Keddy has been licensed for up to 6 children and wants to help more and will get licensed for up to 12 children.**
- **Keddy has no plans to hire at this time, and this will be a structured preschool.**
- **Potvin asked if the well water had been tested. Yes**
- **Potvin asked if there was a road maintenance agreement with the neighbors. Keddy does not feel it is necessary as the other houses on the street are all family.**
- **Keddy mentioned that the day care center will be open from 7-5 M-F**
- **Nicoll asked about the extra traffic deteriorating the dirt road. Keddy does not anticipate this being a problem as the center is the first house and they have made landscaping changes for site distance.**
- **Schaffer asked about expanding the septic, it is not necessary at this time, but they have the area if it is needed.**
- **If Keddy plans to expand and take in more children, she will need to go back to DHHS and Planning Board.**

MOTIONS: 6:42 PM

Motion-Schaffer- Motion to Approve project #2025.24 a Conditional Use Permit for Amanda Keddy to open a day care center called Mandi's Munchkins Child Care Center, LLC located at 2 Hutchins Drive (Tax Map 4, Lot 61-1) within the Rural Farm (RF) zone, with the above listed Conditions of Approval (COA).
Second-Angers
Vote: Motion passed unanimously

7.c 2026.22 Review of a Minor Site Plan Amendment for widening of the drive approaching the wash entrances for BAW Holdings (Biddeford Auto Wash) located at 547 Alfred Street (Tax Map 2, Lot 34-1) in the Business 2 zone.

- **Tom Saucier of Site Design represented the application.**
- **Saucier gave a Power Point presentation**
- **Saucier spoke of the waivers they are requesting**
- **The applicant is requesting preliminary and final approval at this meeting.**
- **McCurry mentioned that the driveway is a nightmare with Aroma Joe's being so busy bigger pick-up trucks can't make it, will this relieve this line? This is the first step in alleviating the problem.**

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- **Potvin doesn't see why this can't get done tonight.**
- **Nicoll said this was a minor expansion and he wants to make sure they don't create a secondary problem.**
- **Saucier answered that is why they are doing this first**
- **Galbraith said the staff wants certification from Saucier that the wall is structurally sound for extra vehicles**
- **Potvin asked the width of the travelled way, 19'**

MOTIONS: 7:01 PM

Motion-Nicoll- Motion to Approve project #2026.22 a Site Plan Amendment for BAW Holdings, LLC to make minor amendments to improve the functionality of Biddeford Auto Wash (BAW) at 547 Alfred Street (Tax Map 2, Lot 34-1) within the Business 2 (B-2) zone.

Second-Angers

Vote: Motion passed unanimously

7.d. Case # 2026.01 Preliminary Plan Review for Golden Chicken of Biddeford, LLC for a proposed 2,536 SF Popeye's Fast-Food restaurant located at 584 Alfred Street (Tax Map 2, Lot 23) in the B-2 Zone.

- **Galbraith introduced the project**
- **Kaleb Bourassa, P.E. of Gorrill Palmer represented the application**
- **Kaleb went over the Site Plan with the Board saying that the exit will be through Old Dogs Lane**
- **There will be 2 separate water services, 1 domestic, 1 for fire**
- **The sewer will go into Old Dogs Lane**
- **The capacity to serve letters is to come**
- **To date, they have received no comments from Public Works or Code Enforcement.**
- **The applicant is asking for a waiver for Section 5.B.(i)(3) of the Site Design Criteria which requires paved parking, drive aisle, and walkway areas to occupy <30% of the proposed developed area. This project proposes approximately 64% paved area within the development footprint.**
- **Applicant is hoping to get Preliminary Approval tonight**
- **McCurry asked if there is any crossing of Alfred Street for utilities. Yes, water will create a 2-lane closure, it will be bored not trenched. Lane closures are a concern.**
- **Galbraith said they would work with fire, police and public works so that the construction in the road can be done at night. He will check about making it a condition of approval.**
- **Schaffer mentioned that she had asked for a big plan from Chick-fil-A to this project. Galbraith showed her what he had created.**
- **McCurry asked if the lights would be on a timer or sensor, a loop detection system**
- **Bourassa said there will be more than enough vehicle storage, no free flow traffic there will be stop bars.**

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- **Potvin asked if there would be a walking path to the Devine project, if there is a sidewalk to connect the two projects.**
- **Nicoll asked if they could get more details on the landscaping at the next meeting to reduce impervious surface. Yes**
- **Bourassa asked if they could get a final approval prior to the Traffic Movement Permit coming in. The TMP will be a Condition of Approval.**

MOTIONS: 7:33PM

Motion-Nicoll- Motion to Approve Case # 2026.01 Preliminary Plan Review for Golden Chicken of Biddeford, LLC for a proposed 2,536 SF Popeye's Fast-Food restaurant located at 584 Alfred Street (Tax Map 2, Lot 23) in the B-2 Zone.
Second-Angers
Vote-Motion passed unanimously
Public Comments from Richard Rhames 10 West Loop Road

8. Open Public Hearing 7:40 PM

- **Galbraith talked about the changes being made such as Town Landing is 49' not 15'**
- **There were 2 lots on the Future Land Use Map that the Board talked about changing and the City Council wants those 2 lots to be Transitional Zone**
- **Public comments by Denis Rioux of 677 South Street & Richard Rhames (address above)**

8.a. The Planning Board will review and vote on the Natural Resources Chapter of the Comprehensive Plan
Motion
Motion-Nicholl-Motion to approve the Natural Resources Chapter of the Comprehensive Plan
Second-Schaffer
Vote-Motion passed unanimously

8.b The Planning Board will review and vote on the Natural Water Resources Chapter of the Comprehensive Plan.
Motion
Motion-Nicholl-Motion to approve the Natural Water Resources Chapter of the Comprehensive Plan
Second-Anger
Schaffer asked if the comments on the side of the chapter would be removed, yes
Vote-Motion passed unanimously

8.c The Planning Board will review and vote on the Existing Land Use Chapter of the Comprehensive Plan.
Motions
Motion-Nicholl-Motion to approve the Existing Land Use Chapter of the Comprehensive Plan
Second-Angers

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Public Comments by Richard Rhames
Galbraith explained about a section being downgraded from a growth area to Transitional Zone
Schaffer explained how she sees Transitional Zoning
Vote: Motion passed unanimously

8.d The Planning Board will review and vote on the Future Land Use Chapter of the Comprehensive Plan.

Motion
Motion-Nicholl-Motion to approve the Future Land Use Chapter of the Comprehensive Plan and letting Council decide changes on the map
Second-Schaffer
Public Comments by Richard Rhames
Vote-Motion passed 3-2 (Potvin, Anger & McCurry in favor, Nicholl & Schaffer Against)
Nicholl-Motion to amend previous motion to include changes to Barra Road to go Growth to Rural Transitional Zone
Second-Schaffer
Vote on Amendment Motion failed 2-3 (Nicholl & Schaffer in favor, Angers, Potvin & McCurry against)
Potvin said he voted against it because he feels like where it's only 2 lots it feels like Spot zoning. The owner of the lots was at the last two workshops and no one Mentioned this change to him.

8.e The Planning Board will review and vote on the Historic Archeological Resources Chapter of the Comprehensive Plan.

Motions
Motion-Nicholl-Motion to approve the Historic Archeological Resources Chapter of The Comprehensive Plan
Second-Schaffer
Public Comments by Richard Rhames
Vote-Motion passed unanimously

8.f The Planning Board will review and vote on the Marine Resources Chapter of the Comprehensive Plan.

Motions
Motion-Nicholl-Motion to approve the Marine Resources Chapter of the Comprehensive Plan
Second-Schaffer
Vote-Motion passed unanimously
Motion-Angers- Motion to approve the second reading of the Marine Resources Chapter of the Comprehensive Plan
Second-Potvin

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Vote-Motion passed unanimously

9. Close Public Hearing

10. Other Business

Nicholl talked about Main Street in Saco

11. Adjourn

MOTIONS: 8:32 PM
Motion-Angers-Motion to adjourn
Second-Nicoll
Vote-Motion passed unanimously

_____ _____

Signature-Planning Board Chair **Date**

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PLANNING BOARD STAFF REPORT

TO: Chair McCurry and Members of the Biddeford Planning Board

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

DATE: June 2, 2026

RE: Case # 2026.22 Preliminary Review of a Minor Site Plan Amendment for widening of the drive approaching the wash entrances for BAW Holdings (Biddeford Auto Wash) located at 547 Alfred Street (Tax Map 2, Lot 34-1) in the Business 2 zone.

MEETING DATE: June 17, 2026, 6:00 PM

1. **INTRODUCTION:**

This Minor Site Plan Amendment request is being presented by Tom Saucier, P.E. of Site Design Associates, the agent, to widen the drive approaching the entrances to the car wash at Biddeford Auto Wash, at 547 Alfred Street (Tax Map 2, Lot 34-1) which is located within the B-2 Zone. As outlined in the Applicant's cover letter *"The changes involve improving the functionality of the facility with some minor pavement widening, installation of curb, a minor relocation of two light poles, and removal of a portion of guard rail to accommodate the widening."* The car wash, a conditional use, was a previously approved site plan so the proposed amendment requires Planning Board review and approval.

Case # 2026.20 Preliminary Review of a Site Plan Amendment request by BAW Holdings, LLC to make minor amendments to improve the functionality of Biddeford Auto Wash (BAW) at 547 Alfred Street (Tax Map 2, Lot 34-1) within the Business 2 (B-2) zone. Planning Board Sketch Plan Review Date: June 17, 2026.

2. PROJECT DATA/INFORMATION:

1.		Applicant:	BAW Holdings, LLC 4 Scamman Street, Suite 19-311 Saco, ME 04072
2.		Owner of Property:	Same as applicant
3.		Agent:	Tom Saucier, P.E. Site Design Associates 23 Whitney Way Topsham, ME
4.		Surveyor:	Same as Agent
5.		Project Location:	547 Alfred Street
6.		Project Tax Map #/Lot #:	Tax Map 2, Lot 34-1
7.		Lot Size:	1 Acre
8.		Base Zoning:	Business 2
9.		Overlay Zoning:	N/A
10.		Existing Use:	Car Wash
11.		Proposed Use:	Car Wash
12.		Approvals Required:	Article VI Performance Standards, Section 14 Car Wash
13.		Uses in the Vicinity:	Commercial
14.		Waivers Needed:	a. Article XI.II.5.B.4.f.1 No paving, parking or storage within setback of rear property line. b. Article XI.II.5.B.1. Requirement for a written engineering report for stormwater
15.		Waivers Granted:	a. None
16.		Other Non-City Permits Required:	
17.		LDR Attachment A: Fees Paid	All fees have been paid
18.		Planning Board Review History: Site Plan Amendment 6-17-26	

3. REVIEW PROCESS:

Per City ordinance, this application is subject to Article VI (Performance Standards) Section 14 Car Wash which is a Site Plan Amendment which require approval by the Planning Board.

4. APPLICATION COMPLETENESS: This application is being presented for preliminary site plan amendment approval. A number of items have been identified by Staff as elements that should be provided prior to Planning Board action is taken.

5. ZONING: The subject property is zoned Business 2 Zone (B-2), and the car wash is a conditional use within the zone.

6. WAIVERS:

The applicant is seeking two (2) waivers related to this proposed project, namely:

A. Article XI.II.5.B.4.f.1 No paving, parking or storage within setback of rear property line.

The property is required to provide a ten foot (10') setback and the proposed amendment is requesting a four foot (4') encroachment leaving approximately six feet (6') from the property line. Article XI.II.5.B. allows the Planning Board to grant a waiver of that standard.

B. Article XI.II.5.B.1. Requirement for a written engineering report for stormwater.

1) From discussing the proposed amendment with Staff Review Committee (SRC) the Planning Office was informed that the previously approved site plan was already at its maximum stormwater threshold and that a Department of Environmental Protection (DEP) permit amendment would be required.

2) The Engineering Department has also indicated that a Stormwater Management Plan should be provided as it relates to item #1 listed above.

3) Staff are concerned about how construction of the proposal will be completed without negatively impacting the adjacent wetlands (wetlands protection). Prior to further Planning Board action information related to wetland protection shall be provided.

Staff recommend that the proposed waivers are not acted upon until the above concerns have been adequately addressed.

7. STAFF RECOMMENDATION:

Staff are in general supportive of the proposed expansion as it will aid in better circulation of the site, which will meet the needs of the property owner. We further review the setback waiver as fairly minor due to the minimal four-foot (4') encroachment and due to the abutter being the Maine Turnpike. The proposal is fairly minor in nature, but concerns remain about the items outlined in the waiver section of this report. The Planning Board could do one of the following options:

A. The Board could grant preliminary site plan amendment approval at this time, with the understanding that the concerns outlined above are adequately addressed prior to final plan review.

B. The Board could table the proposal until these concerns have been addressed, and once provided, grant preliminary approval at that time.

C. The Board could table the proposal until these concerns have been addressed, and once provided, could opt to grant both preliminary and final approval at the same time.

8. Sample Motions

A. Motion to Approve project #2026.22 a Site Plan Amendment for BAW Holdings, LLC to make minor amendments to improve the functionality of Biddeford Auto Wash (BAW) at 547 Alfred Street (Tax Map 2, Lot 34-1) within the Business 2 (B-2) zone.

B. Motion to Deny project #2026.22 a Site Plan Amendment for BAW Holdings, LLC to make minor amendments to improve the functionality of Biddeford Auto Wash (BAW) at 547 Alfred Street (Tax Map 2, Lot 34-1) within the Business 2 (B-2) zone for the following reasons:

1. _____
2. _____
3. _____

C. Motion to Table project #2026.22 a Site Plan Amendment for BAW Holdings, LLC to make minor amendments to improve the functionality of Biddeford Auto Wash (BAW) at 547 Alfred Street (Tax Map 2, Lot 34-1) within the Business 2 (B-2) zone for the following reasons:

1. _____
2. _____
3. _____

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PLANNING BOARD STAFF REPORT

To: Chair McCurry and Members of the Biddeford Planning Board

From: David C.M. Galbraith, Director of Planning / City Planner

Date: June 23, 2026

RE: Case # 2026.19 Preliminary & Final Review for a 1 Lot Private Way for Robert Laverriere over 34 Proctor Road (Map 3, Lot 12-8) to 0 Katana Lane (Map 3 Lot 12-8) located in the RF zone.

MEETING DATE: July 1, 2026, 6:00 PM

1. INTRODUCTION

This project is being presented by Paul P. Gadbois Professional Engineer, and Agent for Robert Lavierriere, the subject property owner. The subject property is approximately 1.65 acres in area and has an existing single-family home, owned by Robert Laverriere, which is accessed by Proctor Road. The proposal seeks to create a 1-Lot Private Way in order access Lot B as shown on the submitted plan entitled "Proposed Lot Division for Robert Laverriere" by Lower Village Survey Company. The proposed private way shall be designed to meet or exceed the standards outlined with the City's Code of Ordinances, Part III – Land Development Regulations, Article VI – Performance Standards, Section 51 – Private ways and roads standards. It should be noted that as a "private way" the City of Biddeford will not assume responsibility for roadway construction, ongoing roadway maintenance, snow removal, or trash collection. Revised plans shall include a statement of this nature and shall also state that the private way shall not be petitioned for street acceptance. The Applicant's project narrative is shown below in italics:

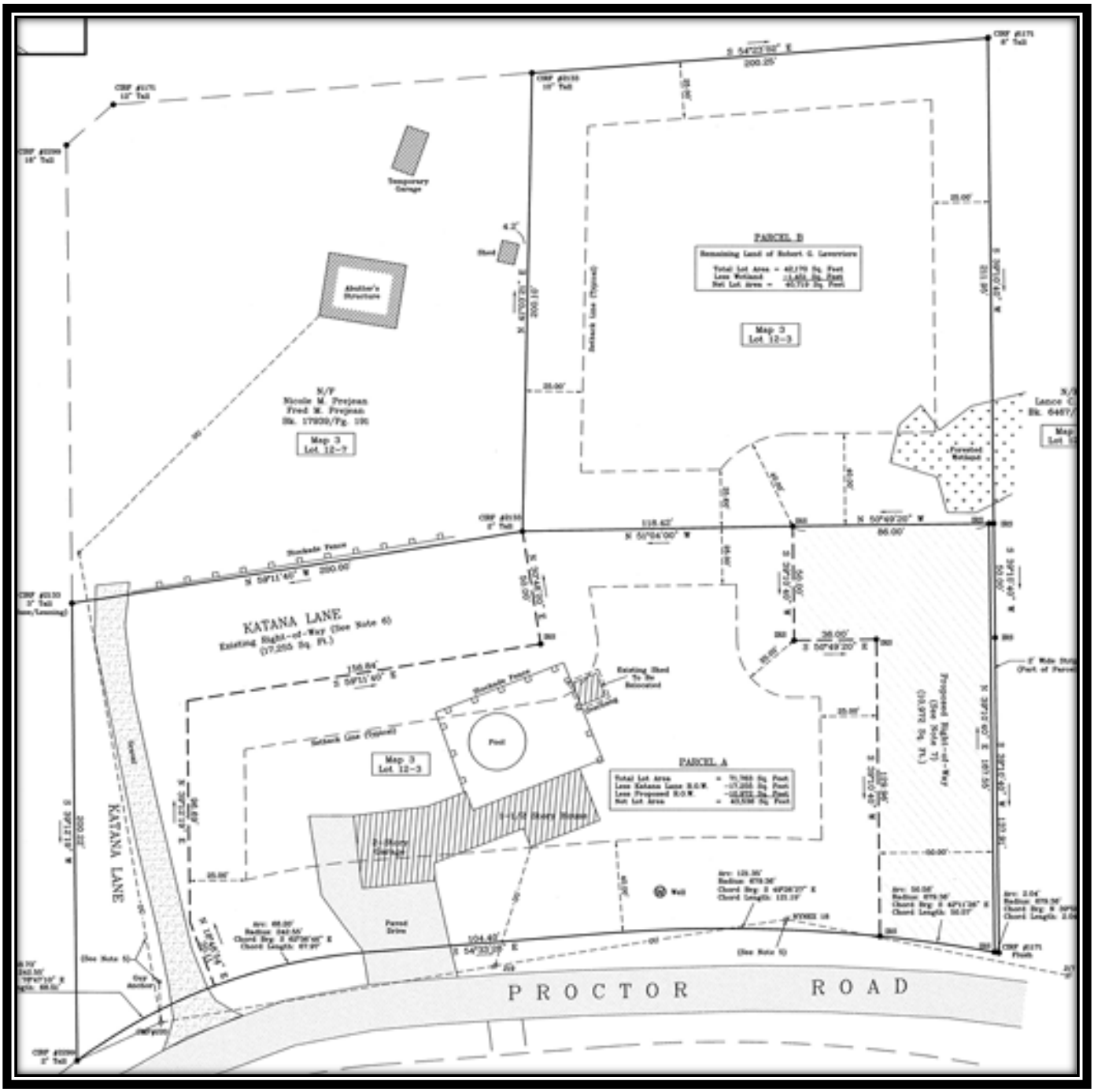
The owner / applicant Robert Laverriere wishes to create a 1-Lot Private Way in order to access Lot B as shown on plan entitled "Proposed Lot Division for Robert Laverriere" by Lower Village Survey Company and recorded in the York County Registry of Deeds on December 31, 2025, in Plan Book 453, Page 16.

The owner intends to sell the property and require the buyers to construct the private way as part of the sale agreement. In lieu of providing a surety bond the applicant is requesting that no building permits be issued until the roadway is constructed to the approved private way.

The property will be serviced by drilled well, private septic and from the proposed power pole the option to go underground or overhead utilities to the residence. The proposed lot are not located in the FEMA Flood Zone. No wetland fill is proposed for this project.

RE: Case # 2026.19 Preliminary & Final Review for a 1 Lot Private Way for Robert Laverriere over 34 Proctor Road (Map 3, Lot 12-8) to 0 Katana Lane (Map 3 Lot 12-8) located in the RF zone.

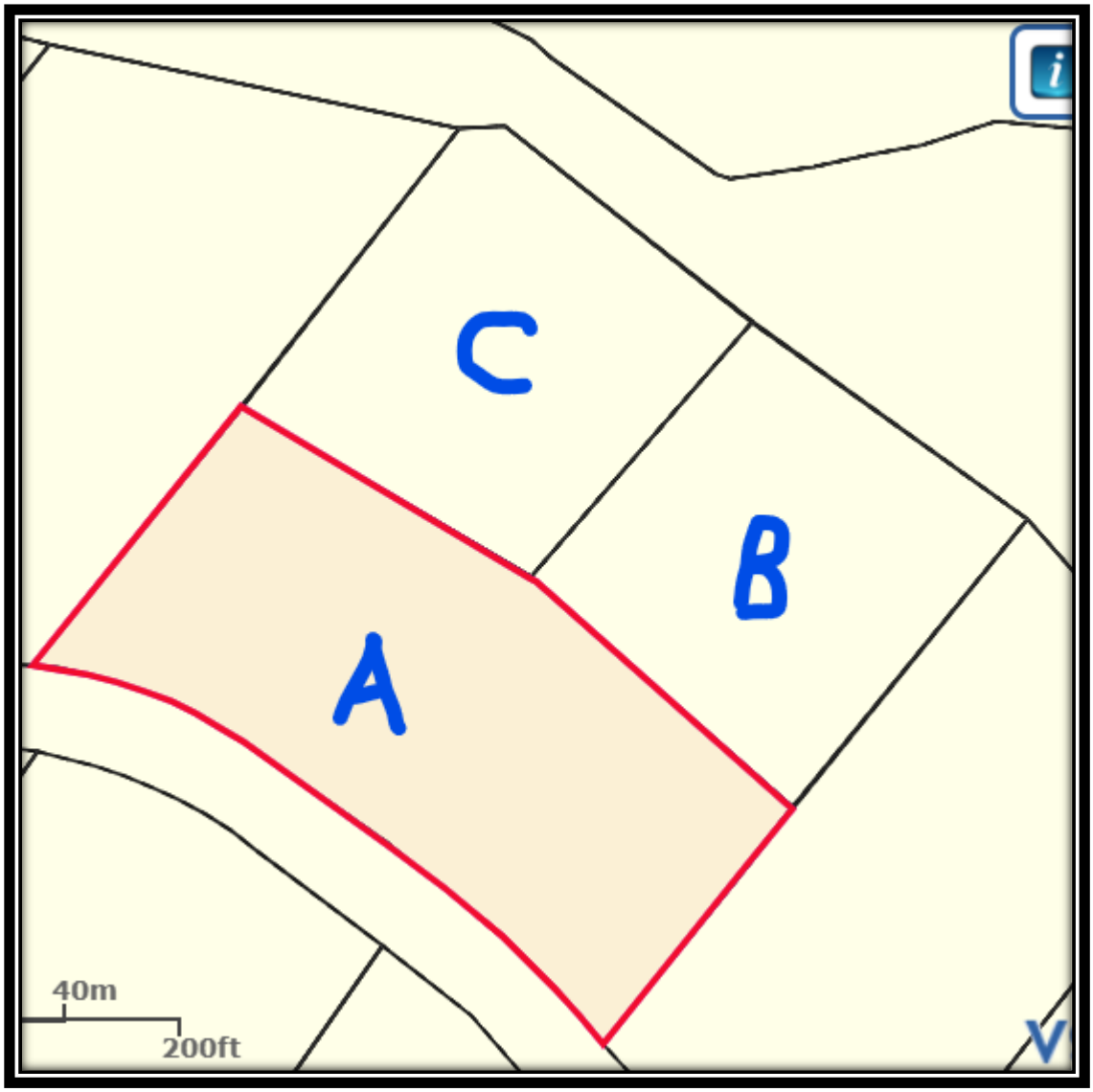
MEETING DATE: July 1, 2026, 6:00 PM



One (1) Lot Private Way Plan Accessing "Parcel B"

RE: Case # 2026.19 Preliminary & Final Review for a 1 Lot Private Way for Robert Laverriere over 34 Proctor Road (Map 3, Lot 12-8) to 0 Katana Lane (Map 3 Lot 12-8) located in the RF zone.

MEETING DATE: July 1, 2026, 6:00 PM



The three lots shown above were originally one parcel with Parcel "A" being the master parcel. Some years ago (2003) 1 Katana Lane (Map 3 Lot 12-7), identified as "C" above, was created by creating street frontage and creating a private way accessing the lot. The lot met all of the City's dimensional standards. Parcel "A", (34 Proctor Road – Map 3 Lot 12-3) as proposed would have a fifty foot (50') private way easement over it proposed to access the subject parcel (Map 3 Lot 12-8) illustrated above as Lot "B" where they seek to construct a single-family home.

The subject parcel (identified in City Assessors records as 0 Katana Lane – Map 3 Lot 12-8), an existing lot of record, will be accessed by a one (1) lot private way which gets its required 200' street frontage from a two-foot (2') wide strip of land from Proctor Road along the proposed fifty-foot (50') right-of-way (ROW) which connects to and is part of Lot B. The property meets or exceeds the City's dinensional standards for the Rural Farm (RF) zoning district. The lot, to be

developed into a single-family house has been reviewed by the City's Director of Code Enforcement for compliance.

2. PROJECT DATA/INFORMATION

1.	Applicant:	Robert Laverriere 448 Ross Corner Road Shapleigh, ME 04076
2.	Owner of Property:	Same as applicant
3.	Agent:	Paul Gadbois PO Box 327 Saco, ME 04072
4.	Surveyor:	Same as Agent

5.	Project Location:	34 Proctor Road (master parcel) – 0 Katana Lane - subject property
6.	Project Tax Map #/Lot #:	Tax Map 3, Lot 12-8
7.	Lot Size:	0.96-Acres (42,170 Sq. FT)
8.	Base Zoning:	RF
9.	Overlay Zoning:	N/A
10.	Existing Use:	Single Family Home
11.	Proposed Use:	Building a private way to provide access to the rear lot
12.	Approvals Required:	Private Way Review Application
13.	Uses in the Vicinity:	Residential
14.	Waivers Request:	None Requested
15.	Waivers Granted:	N/A
16.	Other Non-City Permits Required:	N/A
17.	LDR Attachment A: Fees Paid:	Application Fees Paid
18.	Planning Board Review History:	July 1, 2026

3. REVIEW PROCESS

Zoning: The proposed use is for the construction of a new private way to service the rear lot, which is a permitted use within the RF Zoning District. Per City ordinance, this application is subject to review and approval by the Planning Board for conformance with Sec. 51, Private Ways and Roads (Article VI, Performance Standards).

4. **APPLICATION COMPLETENESS:** This application is for preliminary & final plan review, so the purpose of this memorandum is to provide information to the Board assisting in making a decision on the proposal.

5. **ZONING:** The subject property is located within the City's Rural Farm (RF) zoning district, and the proposed creation of a single-family house lot is a permitted use within the district.

6. **WAIVERS:** None requested at this time.

7. **Staff Review Committee (SRC) Preliminary Comments**:

A. The proposed private way illustrates the driveway serving the existing single-family house 34 Proctor Road. The Fire Department prohibits driveways from extending off the ends off private ways or their designated turnarounds.

B. Prior to the issuance of a building permit for the proposed new house lot the applicant's project engineer shall submit a letter to the City's Planning and Engineering Departments certifying that the constructed Private Way has been constructed to the City's private way standards. This letter shall be signed and stamped by the applicant's project engineer.

8. STAFF RECOMMENDATION

The Application is for preliminary & final review of a 1-lot private way accessing an existing lot of record, identified in City Assessors records as 0 Katana Lane – Map 3 Lot 12-8. Staff recommend approval of the proposed private way to create a buildable single-family house lot. It should be noted that without the construction of a 1 lot private way the subject parcel is considered "unbuildable".

9. SAMPLE MOTIONS

A. **Motion to Approve**: I motion to APPROVE Case # 2026.19 a one (1) lot private way application for the proposal located over 34 Proctor Road (Tax Map 3, Lot 12-3) to 0 Katana Lane (Map 3 Lot 12-8) located within the Rural Farm zone, with the recommended Conditions of Approval (COA) listed below:

1. *The one-lot private way shall be constructed in conformance with the City's Code of Ordinances, Part III – Land Development Regulations, Article VI – Performance Standards, Section 51 – Private ways and roads standards.*

2. *Prior to the issuance of a Building Permit for the proposed single-family home, the applicant's project engineer shall submit a letter to the City's Planning, Code Enforcement and Engineering Departments certifying that the constructed private way has been built to the City's private way standards. This letter shall be signed and stamped by the applicant's project engineer.*

3. *The private way shall remain privately owned and maintained, and the City will not be responsible for any plowing, maintenance, repair or reconstruction.*

4. *The private way shall be maintained in passable condition to accommodate emergency vehicles to the satisfaction of the Biddeford Fire Department.*

5. *City Assessors records identify the subject property as 0 Katana Lane (Map 3 Lot 12-8) an existing lot of record. The subject property is NOT proposed to be accessed from Katana Lane therefore, the proposed private way will be required to named and addressed as approved by the City's E-911 Addressing Officer (Police Department). Once the proposed private way name and address has been officially assigned, the City's Assessing Department shall be notified, in writing, of the new address.*

B. Motion to Deny I motion to DENY Case # 2026.19 a one (1) lot private way application for the proposal located over 34 Proctor Road (Tax Map 3, Lot 12-3) to 0 Katana Lane (Map 3 Lot 12-8) located within the Rural Farm zone, for the following reasons:

1) _____.
2) _____.
3) _____.

C. Motion to Table: I motion to TABLE Case # 2026.19 a one (1) lot private way application for the proposal located over 34 Proctor Road (Tax Map 3, Lot 12-3) to 0 Katana Lane (Map 3 Lot 12-8) located within the Rural Farm zone, within the Rural Farm zone, for the following reasons:

1) _____.
2) _____.
3) _____.

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

Type of Application:

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

Applicant Information:

Name: _____
Mailing Address: 448 Ross Corner Road Shapleigh, Maine 04076
Telephone: [redacted]
Email: [redacted]
What is your legal interest in the property?
_X_ Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:

Name: Same as Applicant
Mailing Address: _____
Telephone: _____
Email: _____

Agent's Information:

Name: Paul P. Gadbois Engineering
Mailing Address: _____
Telephone: [redacted]
Email: [redacted]

Engineer/Surveyor's Information:

Name: Same as Agent
Mailing Address: _____
Telephone: _____
Email: _____

Project Location and Lot Information:

Street Address: Proctor Road Drainage Watershed: Saco River
Tax Map: 3 Lot: 12-3
Current Zoning: RF Shoreland Zoning: N/A
Size of Lot: 42,170 ( )acres (X)s.f. Lot Frontage: 223 feet
Existing Use of Property: Vacant

Property currently serviced by:

_X_ 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) _X_Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? _X_ (Yes)__(No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes)_X_(No) if yes attach information
Do you plan to bring fill onto the lot? _X_(Yes) __(No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:
Single Family

Property to be Serviced by:

__ City Road __ Public Sewer __ Public Water _X_ Public Trash
_X_ Private Road _X_ Septic System _X_ Private Well __ Private Hauler

Limits of Disturbance: 21,000 ( )acres (X)s.f.
Net change in impervious cover: 7,500 ( )acres (X)s.f.
Is this project part of a larger project? __(Yes) _X_(No)
Is the project proposing a new Private or Public Road? _X_(Yes, Private) __(Yes, Public) __(No)
Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) __(Yes) _X_(No)
Is the project proposing any Stormwater facilities/BMPs? __(Yes) _X_(No)
Will a Traffic Movement Permit (TMP) be required?: __(Yes) _X_(No)

__ **If in a Shoreland Zone:**
Percent of residential lot coverage (Max 20%): _____
Percent of structure expansion (Max 30%): _____
__ **If Subdivision Review, number of lots proposed:** _____
__ **If a Private Way is proposed, number of lots served:** _____

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

Total new square feet footprint of structure: _____
Total new square feet paving/parking: _____

Waiver Requests (attach details):

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

Required Submittal Attachments:

A. Letters of Approval
_X_ Fire Department – Contact Chief or Deputy Chief – 282-9986
__ Ability to Serve for Water Service – Maine Water – 282-1543
__ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
_X_ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127
__ Ability to Serve for Electrical Service-CMP-1-866-225-4200
_X_ Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.
B. Photographs of Site.
C. Architectural renderings/drawings of proposed buildings, as required.
D. Engineering Plans, as required.
E. Stormwater Management Report, as required.

Fees (Due at time of Submission):

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

Required Signatures:

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

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

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

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

Signature of Applicant: _____ **Date** _____

Signature of Property Owner: _____ **Date** _____

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

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

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

The City of Biddeford's Planning Department will never ask for fees to be paid by wire transfer. All invoices from the City of Biddeford will come from email addresses ending in "@biddefordmaine.org".

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST *LAST REVISED: 11/26/2024*

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	
Planning Board # (if available):	
Applicant Name/Info:	
Submittal #/Type (Prelim/Final):	
Submittal Date:	

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE			CITY REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	**GENERAL PLAN REQUIREMENTS**					
A	Drawing specific legends (linetypes, hatches, etc.)	Yes	Sh 2			
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	Yes				
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks	Yes	Sh 2			
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	Yes				
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	Yes				
2	**COVER SHEET**					
A	Project Name & Property Address	Yes	Sh 2			
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	Yes	"			
C	Site Location Map	Yes	Sh 1			
D	Sheet Set List of Drawings	Yes	Sh 1			
E	Tax Map and Lot ID	Yes	Sh 2			
F	Zoning & Shoreland Zone Information	N/A				
G	Existing Use Description	Yes		Cover Letter		
H	Proposed Use Description	Yes	Sh 2	Cover Letter		
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting					
J	Name of Drainage Watershed	Yes		Application		
K	Within the MS4 Urbanized Area (Yes/No)	No		Application		
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	Yes	Recorded Survey Plan			
M	Within the 100-year Flood Zone (Yes/No)	No	Sh 2			
N	Public Road Proposed (Yes/No)	No				
O	Private Road Proposed (Yes/No)	Yes				
P	Public Sewer Connection (Yes/No)	No				
Q	Public Storm Drain Connection (Yes/No)	No				
R	Limits of Disturbance in square feet and acres	Yes		Application		
S	Pervious Land Cover square footage, existing and proposed	N/A				
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	Yes		Application		
U	Building Roof square footage existing and proposed	N/A				
V	Assigned Planning Board Number					
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	N/A				
3	**EXISTING CONDITIONS PLAN**					
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	Yes	Sh 2			
B	Property & Right-of-Way Lines	Yes	Survey Plan & Sh 2			
C	Boundary line information (bearings, distances, etc.)	Yes	"			
D	Property pin and monumentation locations	Yes	"			
E	Existing easements with proper ownership identified	Yes	Survey Plan			
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	Yes	Sh 2			
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	Yes	Survey Plan & Sh 2			
H	100-year Flood Zone Limits & Elevation	N/A				
I	Existing contours with adequate contour labelling; minimum 1' contour interval	No		2' topo shown not required for a 1-lot private way		
J	Existing building FFEs annotated	N/A				
K	Spot elevations for all tie-in locations (curb cuts, property line)	N/A				
L	Existing buildings & structures	Yes	Survey Plan & Sh 2			
M	Existing pavement areas & number of parking spaces	N/A				
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	N/A				
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	N/A				
P	Existing signage and striping	N/A				
Q	Existing underground utility locations (storm sewer force main water gas elec tele)	N/A				
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers riprap)	Yes	Survey Plan & Sh 2			
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	Yes	Sh 2			
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	N/A		Site is wooded.		
U	Location of any borings, drinking wells, and monitoring wells	N/A				
4	**SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN**	N/A				
A	Limits-of-disturbance outlined and acreage annotated					
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)					
C	100-year Flood Zone Limits					
D	Callout existing site features to be demolished/removed/replaced					
E	Callout existing utilities to be demolished/removed/abandoned-in-place					
F	Hatch existing buildings and pavement to be removed					
G	Construction Entrance location(s)					
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)					
I	Stockpile and staging area(s) identified (with proper perimeter control)					
J	Inlet protection location(s)					
K	Note requiring contractor to implement dust control measures throughout construction					
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event					
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing					
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed					
5	**SITE PLAN/SUBDIVISION PLAN**	N/A				

A	Partial Site Plans needed for any viewport scale greater than 1"=20'	Yes	Sh 2			
B	Existing property and right-of-way lines	Yes	Survey Plan & Sh 2			
C	Proposed subdivision lot lines and labels	Yes	"			
D	Required Zoning Setbacks shown with dimensions and annotation	Yes	Survey Plan			
E	Bulk requirement summary table (zoning/parking calculations)	N/A				
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	Yes	Survey Plan			
G	100-year Flood Zone Limits	N/A				
H	Proposed building outlines, door entrances and loading docks	N/A				
I	Proposed building labels	N/A				
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	Yes		Private Road		
K	Proposed parking and accessible parking locations; annotate parking space counts	N/A				
L	Proposed signage parking striping and traffic striping	N/A				
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	N/A				
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	Yes		Proposing power pole at entrance to private way.		
O	Proposed landscaping; detailed landscaping design should be shown on separate plans	N/A				
P	Designated snow storage areas	N/A				
Q	Proposed dumpster locations and trash removal access	N/A				
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	N/A				
S	Radial dimensions for all curbs landscaped islands sidewalks	N/A				
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	Yes	Sh 2			
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	Yes	Sh 2			
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	Yes	Sh 2			
W	Planning Board signature block for final recording	Yes				
6	**GRADING PLAN**	Yes				
A	Partial Grading Plans needed for any viewport greater than 1"=20'	Yes	Sh 2			
B	Limits-of-disturbance outlined and acreage annotated	No		Location to be determined by lot owner.		
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	N/A				
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	Yes	Sh 2	2' existing 1' proposed		
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	Yes	Sh 2			
F	Detailed grading for all ditches, swales, outfalls, and riprap	Yes	Sh 2			
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	N/A				
H	Existing spot elevations for all asphalt curb and SWM BMP tie-in locations	N/A				
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	Yes	Survey Plan & Sh 2			
J	100-year Flood Zone Limits					
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)	N/A				
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	N/A				
M	Proposed % slope arrows for all ADA parking spaces and sidewalks	N/A				
N	Proposed longitudinal % slope arrows for drainage ditch centerlines	N/A				
O	Proposed % slope arrows for roads parking areas and landscape tie-in areas	N/A				
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	N/A				
7	**ROAD PROFILES (if public/private road proposed)**	Yes	Sh 2			
A	Existing surface; dashed and screened	Yes	"			
B	Proposed surface; continuous and bold	Yes	"			
C	Road design speed must be clearly identified	N/A				
D	Corresponding centerline stationing and curve data annotation	Yes	Sh 2			
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37	No		Profile not required for a 1-lot private way		
F	Clear annotation if proposed road will be public or private	Yes	Sh 2			
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	Yes	"			
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance repair plowing or trash removal of proposed private roads	Yes	"			
8	**UTILITY PLAN**					
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	N/A				
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	Yes	Sh 2			
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	N/A				
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom lighting)	N/A				
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers riprap)	Yes	Sh 2			
F	Proposed storm culverts, outfalls, and riprap locations and sizes	Yes	"			
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N E S W)	N/A				
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	N/A				
I	Flow directional arrows for storm & sewer pipes	Yes	"			
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles bollards foundations guiderails)	N/A				
K	All storm drains must be sized to convey the 25-year storm	N/A				
L	Sewer force main sizes and invert elevations	N/A				
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.	N/A				
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells	N/A				
O	Proposed water sizes labelled	N/A				
9	**UTILITY PROFILES**	N/A				
A	Utility profiles required for **all** gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins					
B	Existing surface; dashed and screened	Yes	Sh 2			
C	Proposed surface; continuous and bold	Yes	"			
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N E S W)	N/A				
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	N/A				

F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	N/A				
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	N/A				
10	**DETAILS**					
A	Road section detail, including pavement/gravel depths & cross slopes	Yes	Sh 2			
B	Sidewalk, paver, crosswalk, and any other pavement section details	N/A				
C	Pavement sawcut & shiplap details	Yes	Sh 3			
D	Utility trench/backfill detail	Yes	Sh 3			
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	N/A				
F	Signage, striping, and ADA details	N/A				
G	E&S notes and details	Yes	Sh 3			
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	N/A				
I	Storm outfall & riprap details	Yes	Sh 2			
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	Yes				
K	Pump station, grease trap, oil-water separator, septic, drinking well details	N/A				
L	Conduit section details	N/A				
11	**LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS**	N/A				
A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	"				
B	Landscaping & lighting details	"				
12	**DOCUMENTS/REPORTS/CALCULATIONS**	N/A				
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction	Yes				
B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	N/A				
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	N/A				
D	A Performance Guarantee Cost Estimate utilizing Planning's template					
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	N/A				
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	N/A				
K	Public sewer pump station sizing calculations and maintenance plan	N/A				
M	Grease trap sizing calculations	N/A				
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A				
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals	N/A				

PAUL P. GADBOIS PE, PLS

Civil Engineering, Surveying, Land Planning
Structural Engineering, DEP Permitting

P.O. Box 327
Saco, ME 04072
Phone & Fax (207) 283-3980
Email: pgadbois53@gmail.com

April 8, 2026

David Galbraith, Planner
City of Biddeford
205 Main Street
Biddeford, Maine

Re: Robert Laverriere, Proctor Road, Portion Tax Map 3, Lot 12-3.

Dear Mr. Galbraith,

The owner / applicant Robert Laverriere wishes to create a 1-Lot Private Way in order to access Lot B as shown on plan entitled "Proposed Lot Division for Robert Laverriere" by Lower Village Survey Company and recorded in the York County Registry of Deeds on December 31, 2025, in Plan Book 453, Page 16.

The owner intends to sell the property and require the buyers to construct the private way as part of the sale agreement. In lieu of providing a surety bond the applicant is requesting that no building permits be issued until the roadway is constructed to the approved private way.

The property will be serviced by drilled well, private septic and from the proposed power pole the option to go underground or overhead utilities to the residence.

The proposed lot are not located in the FEMA Flood Zone.

No wetland fill is proposed for this project.

Fire Department: Attached is the cover letter dated April 7th sent to the fire department.

Engineering Department: The project is not connected to public sewer.

Police Department: Blackberry Lane has been approved (See Email from Joanne Fiske dated April 8th)

Utilities: The project proposes to install a power at the entrance to the proposed project. We are proposing that the owner has the option to install underground or overhead utilities to the residence.

We look forward to discussing this plan's submission with the staff.

PAUL P. GADBOIS PE, PLS

Civil Engineering, Surveying, Land Planning
Structural Engineering, DEP Permitting

P.O. Box 327
Saco, ME 04072
Phone & Fax (207) 283-3980
Email: pgadbois53@gmail.com

Very truly yours,

Paul P. Gadbois

Paul P. Gadbois, P.E., P.L.S.

PAUL P. GADBOIS PE, PLS

Civil Engineering, Surveying, Land Planning
Structural Engineering, DEP Permitting

P.O. Box 327
Saco, ME 04072
Phone & Fax (207) 283-3980
Email: pgadbois53@gmail.com

April 7, 2026

Kenneth Thorpe, Assistant Chief
Fire Department
152 Alfred Street
Biddeford, Maine

Re: Private Way Robert Laverrire, Proctor Rd.

Mr. Thorpe,

The city requires an ability to serve from your department.

The owner Robert Laverrire wishes to construct a private way in order to provide access to Parcel B as shown on the Survey Plan. The property is a portion on Map 3, Lot 12-3.

The hammerhead was designed in accordance with the private road construction requirements which states “The cross piece of the “T” shall have the same width as its associated road and shall extend a minimum of 40 feet to either side of the center line of the dead-end Street.

I realize that in the past the department has been asking for 60 feet. The turnaround needs to be located within the existing right of way which does not accommodate the increase in length.

We sincerely hope that since the private way will provide access to only 1-Lot that the minimum is acceptable.

Attached are the recorded survey plan and the proposed private way plan.

Please do not hesitate to call or email if you have any questions.

Very truly yours,

Paul P. Gadbois

Paul P. Gadbois, P.E., P.L.S.

BK 17372 PGS 813 - 814
INSTR # 2016051049
RECEIVED YORK SS
11/28/2016 02:59:47 PM
DEBRA ANDERSON
REGISTER OF DEEDS

QUITCLAIM DEED

KNOW ALL MEN BY THESE PRESENTS that I, **DONNA MARIE LAVERRIERE,** of 310 Blanchard Road, Sanford, North Carolina, for good and valuable consideration the receipt whereof is hereby acknowledged, do hereby give, grant bargain, sell and convey with quitclaim covenants unto **ROBERT G. LAVERRIERE,** of Biddeford, York County, Maine, all of my right, title and interest in and to a certain lot or parcel of land with the buildings thereon, situated on the northeasterly side of the Proctor Road, so called, in the City of Biddeford, County of York and State of Maine, and bounded and described as follows:

BEGINNING at a point on the northeasterly side of Proctor Road, said point being six hundred (600) feet northwesterly of land now or formerly of Mathieus and at land now or formerly of Norman R. Ruck, et al.;

THENCE northwesterly by the Ruck land four hundred (400) feet to a point;

THENCE at right angles southeasterly along the said Ruck land a distance of four hundred (400) feet to a point;

THENCE southwesterly along remaining land now or formerly of Jean Paul Cote four hundred (400) feet to the Proctor Road;

THENCE northwesterly along said Proctor Road four hundred (400) feet to the point of beginning.

No R E Transfer Tax Paid

Being the same premises conveyed to me and to Robert G. Laverriere, husband and wife, by Quitclaim Deed With Covenant dated March 28, 1998, recorded in the York County Registry of Deeds in Book 8719, Page 149, but excepting therefrom the premises associated with the property conveyed by the Grantor herein and Robert G. Laverriere to Robert G. Laverriere, Donna Marie Laverriere and Nicole (Small) Prejean by a deed dated December 2, 2002 and recorded in said Registry in Book 12248, Page 333.

This conveyance is made notwithstanding and in waiver of the provisions of provisions of a divorce judgment issued by the Biddeford District Court, Docket # FM-2015-153, dated July 13, 2015.

WITNESS my hand and seal this 30th day of July, 2016.

Witness

x Donna M Laverriere
Donna Marie Laverriere

STATE OF Maine

York Cty, **ss.** Date: 7-30-16

Then personally appeared the above named Donna Marie Laverriere, and, having made herself known to me, acknowledged the foregoing instrument to be her free act and deed, before me.

x Cathy O'B

Notary Public/Justice of the Peace/Maine
Attorney-at-Law Cathy O'Brien
May 06, 2018

Return after recording to:
Nadeau Legal PLLC
311 Alfred Street
Biddeford, ME 04005-3127

2pp

Seal

CATHY O'BRIEN NOTARY PUBLIC STATE OF MAINE MY COMMISSION EXPIRES MAY 06, 2018

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19741 PG 84**
Instr # 2025032781
09/15/2025 01:29:01 PM
Pages 3 YORK CO

AFTER RECORDING RETURN TO:
Jens-Peter W. Bergen, Esq.
LAW OFFICE OF JENS W. BERGEN
79 Portland Road
Kennebunk, Maine 04043

DLN: 3207078

No Transfer Tax

WARRANTY DEED
(Maine short form)

KNOW ALL PERSONS BY THESE PRESENTS, that I, ***NEIL R. LAVERRIERE,*** of Biddeford, County of York and State of Maine, for consideration paid, ***GRANT*** to ***ROBERT G. LAVERRIERE,*** whose mailing address is 448 Ross Corner Road, Shapleigh, ME 04076, with ***WARRANTY COVENANTS,*** a portion of the real property situated in the Town of Biddeford, County of York and State of Maine, described as follows:

See EXHIBIT A attached hereto and
Incorporated herein by reference.

IN WITNESS WHEREOF, the said ***NEIL R. LAVERRIERE,*** has hereunto set his hand and seal this 12th day of September 2025.

Witness

NEIL R. LAVERRIERE

STATE OF MAINE
YORK, SS.

September 12, 2025

Personally appeared the above-named ***NEIL R. LAVERRIERE,*** and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~/ Attorney at Law
Print Name: Nicholas J. Morrill
Nicholas J. Morrill

EXHIBIT A

(Portion of 34 Proctor Road, Biddeford, Maine – Biddeford Tax Map 3, Block 12, Lot 3)

A certain lot or parcel of land situated on the northeasterly side of and adjoining Proctor Road in the City of Biddeford, County of York and State of Maine, more particularly bounded and described as follows:

BEGINNING at a point marked by an iron rod with survey cap #1171 found flush in the ground at the westerly corner of land now or formerly of Lance C. Ruck, described in a deed recorded in the York County Registry of Deeds in Book 6467, Page 300;

Thence turning and running North 39°10'40" East, by said land of Ruck, a distance of 137.91 feet to a point to be marked with a 5/8" rebar with survey cap #2374 to be set;

Thence continuing North 39°10'40" East, by said land of Ruck, a distance of 50.00 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set at the southerly corner of land of Robert G. Laverriere shown as ("Parcel B") on the Plan titled "Plan of Proposed Lot Division and Revised Right of Way, 34 Proctor Road, Biddeford, Maine Prepared for Robert G. Laverriere" dated May 23, 2019, revised October 3, 2022 (hereinafter referred to as "the said Plan");

Thence turning and running North 50°49'20" West, by land of said Robert G. Laverriere ("Parcel B"), a distance of 2.0 feet more or less, to a point marked by a 5/8" rebar with survey cap #2374 to be set;

Thence turning and running along remaining land of the Grantor herein in a direction South 39°10'40" West a distance of 187.55 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set;

Thence turning and running along a curve to the right having a radius of 679.36 feet, arc length of 2.04 feet, and chord bearing South 39°58'18" East to the capped iron rod #1171 at the ***point of beginning***.

The aforesaid described premises conveyed herein are also conveyed together with the benefit of a 50-foot wide easement for ingress to and egress from the aforesaid Parcel "B" owned by Robert G. Laverriere as depicted on the said Plan, together with the right of installation, maintenance, repair and replacement of any and all utility easements which may now be, or later become, available for the benefit of the said Robert G. Laverriere lot. Such access and utility easement is more particularly bounded and described as follows:

BEGINNING at a point along the northeasterly side of said Proctor Road marked by a 5/8" rebar with survey cap #2374 to be set, said point being the most southwesterly corner of the lot hereinabove described;

Thence running along the hereinbefore described parcel of land conveyed herein in a direction North 39°10'40" East a distance of 187.55 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set, said point being situated in a direction North 50°49'20" West a distance of 2.0 feet from the extreme southeasterly corner of land of Robert G. Laverriere identified as Parcel "B" on the said Plan;

Thence from said point running along said Robert G. Laverriere's land in a direction North 50°49'20" West a distance of 86.00 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set;

Thence turning and running along remaining land of the Grantor herein in a direction South 39°10'40" West a distance of 50.00 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set;

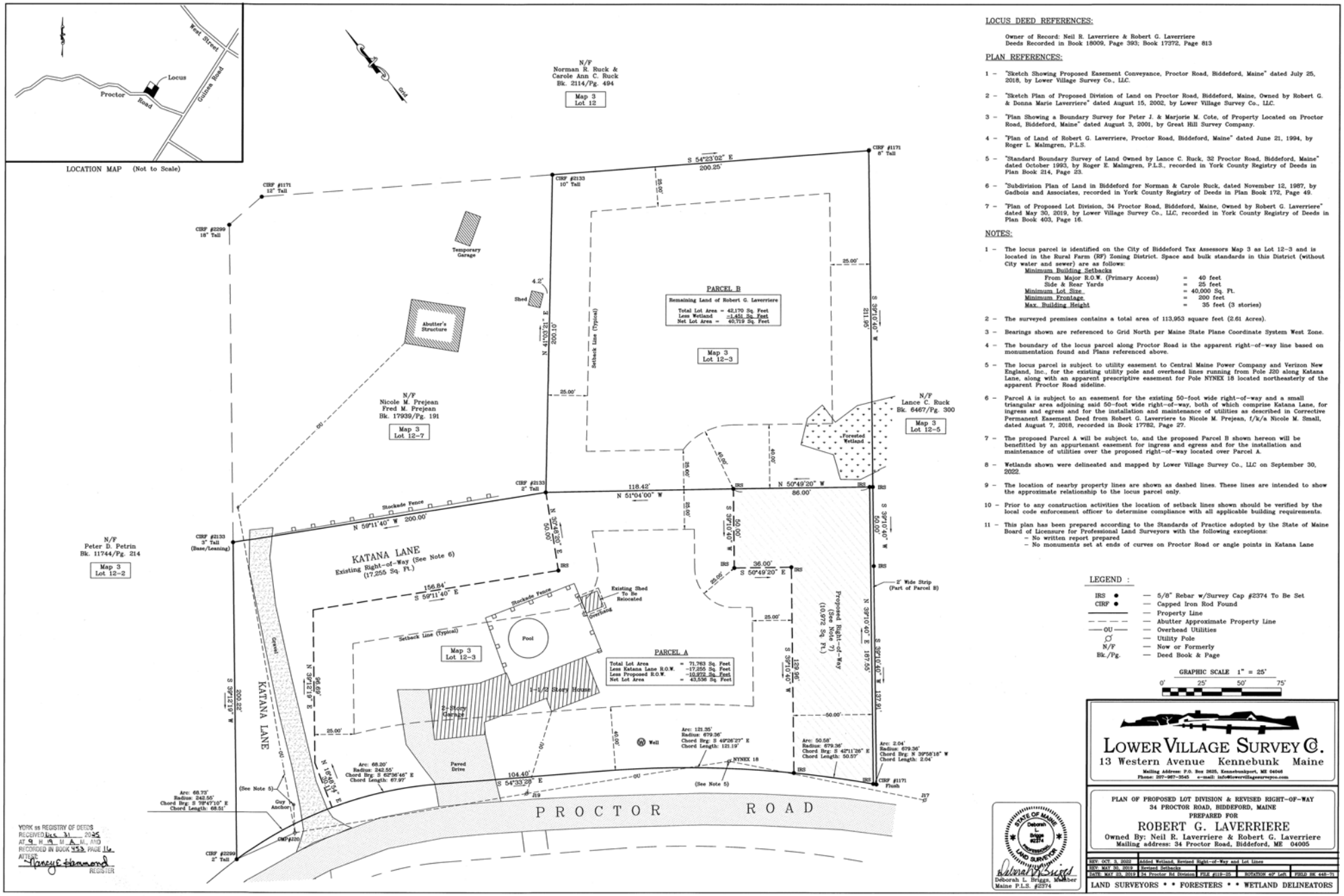
Thence continuing along remaining land of the Grantor herein running in a direction South 50°49'20" East a distance of 36.00 feet to a point marked by a 5/8" rebar with survey cap #2374 to be set;

Thence still running along remaining land of the Grantor herein in a direction South 39°10'40" West a distance of 129.96 feet to a point along the northeasterly side of Proctor Road marked by a 5/8" rebar with survey cap #2374;

Thence running along said Proctor Road by a curve to the right having a radius of 679.36 feet, an arc length of 50.58 feet, and chord bearing South 42°11'26" East to the 5/8" rebar with survey cap #2374 at the ***point of beginning***.

MEANING and ***INTENDING*** to convey, and hereby conveying a portion only of the same premises conveyed to Neil R. Laverriere by virtue of a quitclaim deed from Robert G. Laverriere and Neil R. Laverriere dated July 23, 2019, and recorded in the York County Registry of Deeds in Book 18009, Page 393.

END OF DOCUMENT



YORK ss REGISTRY OF DEEDS
RECEIVED Dec 31 2025
AT 9 H 19 M A M., AND
RECORDED IN BOOK 553, PAGE 116
ATTEST:
Nancy C. Hammond
REGISTER

LOCUS DEED REFERENCES:

Owner of Record: Neil R. Laverriere & Robert G. Laverriere
Deeds Recorded in Book 18009, Page 393; Book 17372, Page 813

PLAN REFERENCES:

1 – "Sketch Showing Proposed Easement Conveyance, Proctor Road, Biddeford, Maine" dated July 25, 2018, by Lower Village Survey Co., LLC.

2 – "Sketch Plan of Proposed Division of Land on Proctor Road, Biddeford, Maine, Owned by Robert G. & Donna Marie Laverriere" dated August 15, 2002, by Lower Village Survey Co., LLC.

3 – "Plan Showing a Boundary Survey for Peter J. & Marjorie M. Cote, of Property Located on Proctor Road, Biddeford, Maine" dated August 3, 2001, by Great Hill Survey Company.

4 – "Plan of Land of Robert G. Laverriere, Proctor Road, Biddeford, Maine" dated June 21, 1994, by Roger L. Malmgren, P.L.S.

5 – "Standard Boundary Survey of Land Owned by Lance C. Ruck, 32 Proctor Road, Biddeford, Maine" dated October 1993, by Roger E. Malmgren, P.L.S., recorded in York County Registry of Deeds in Plan Book 214, Page 23.

6 – "Subdivision Plan of Land in Biddeford for Norman & Carole Ruck, dated November 12, 1987, by Gadbois and Associates, recorded in York County Registry of Deeds in Plan Book 172, Page 49.

7 – "Plan of Proposed Lot Division, 34 Proctor Road, Biddeford, Maine, Owned by Robert G. Laverriere" dated May 30, 2019, by Lower Village Survey Co., LLC, recorded in York County Registry of Deeds in Plan Book 403, Page 16.

NOTES:

1 – The locus parcel is identified on the City of Biddeford Tax Assessors Map 3 as Lot 12–3 and is located in the Rural Farm (RF) Zoning District. Space and bulk standards in this District (without City water and sewer) are as follows:

Minimum Building Setbacks		
From Major R.O.W. (Primary Access)	=	40 feet
Side & Rear Yards	=	25 feet
Minimum Lot Size	=	40,000 Sq. Ft.
Minimum Frontage	=	200 feet
Max. Building Height	=	35 feet (3 stories)

2 – The surveyed premises contains a total area of 113,953 square feet (2.61 Acres).

3 – Bearings shown are referenced to Grid North per Maine State Plane Coordinate System West Zone.

4 – The boundary of the locus parcel along Proctor Road is the apparent right–of–way line based on monumentation found and Plans referenced above.

5 – The locus parcel is subject to utility easement to Central Maine Power Company and Verizon New England, Inc., for the existing utility pole and overhead lines running from Pole J20 along Katana Lane, along with an apparent prescriptive easement for Pole NYNEX 18 located northeasterly of the apparent Proctor Road sideline.

6 – Parcel A is subject to an easement for the existing 50–foot wide right–of–way and a small triangular area adjoining said 50–foot wide right–of–way, both of which comprise Katana Lane, for ingress and egress and for the installation and maintenance of utilities as described in Corrective Permanent Easement Deed from Robert G. Laverriere to Nicole M. Prejean, f/k/a Nicole M. Small, dated August 7, 2018, recorded in Book 17782, Page 27.

7 – The proposed Parcel A will be subject to, and the proposed Parcel B shown hereon will be benefitted by an appurtenant easement for ingress and egress and for the installation and maintenance of utilities over the proposed right–of–way located over Parcel A.

8 – Wetlands shown were delineated and mapped by Lower Village Survey Co., LLC on September 30, 2022.

9 – The location of nearby property lines are shown as dashed lines. These lines are intended to show the approximate relationship to the locus parcel only.

10 – Prior to any construction activities the location of setback lines shown should be verified by the local code enforcement officer to determine compliance with all applicable building requirements.

11 – This plan has been prepared according to the Standards of Practice adopted by the State of Maine Board of Licensure for Professional Land Surveyors with the following exceptions:
- No written report prepared
- No monuments set at ends of curves on Proctor Road or angle points in Katana Lane

LEGEND :

IRS ●	—	5/8" Rebar w/Survey Cap #2374 To Be Set
CIRF ●	—	Capped Iron Rod Found
———	—	Property Line
— — —	—	Abutter Approximate Property Line
—OU—	—	Overhead Utilities
∅	—	Utility Pole
N/F	—	Now or Formerly
Bk./Pg.	—	Deed Book & Page

GRAPHIC SCALE 1" = 25'
0' 25' 50' 75'

STATE OF MAINE
Deborah L. Briggs
#2374
REGISTERED PROFESSIONAL
LAND SURVEYOR
Deborah L. Briggs, Member
Maine P.L.S. #2374

LOWER VILLAGE SURVEY Co.
13 Western Avenue Kennebunk Maine
Mailing Address: P.O. Box 2825, Kennebunkport, ME 04046
Phone: 207-967-3545 e-mail: info@lowervillagesurveyco.com

PLAN OF PROPOSED LOT DIVISION & REVISED RIGHT–OF–WAY
34 PROCTOR ROAD, BIDDEFORD, MAINE
PREPARED FOR
ROBERT G. LAVERRIERE
Owned By: Neil R. Laverriere & Robert G. Laverriere
Mailing address: 34 Proctor Road, Biddeford, ME 04005

REV. OCT. 3, 2022	Added Wetland, Revised Right–of–Way and Lot Lines			
REV. MAY 30, 2019	Revised Setbacks			
DATE: MAY 23, 2019	34 Proctor Rd Division	FILE #119–25	ROTATION 40° Left	FIELD BK 448–71

LAND SURVEYORS • • FORESTERS • • WETLAND DELINEATORS

MAINE STATE PLANE

LOCATION MAP
1"= 200'

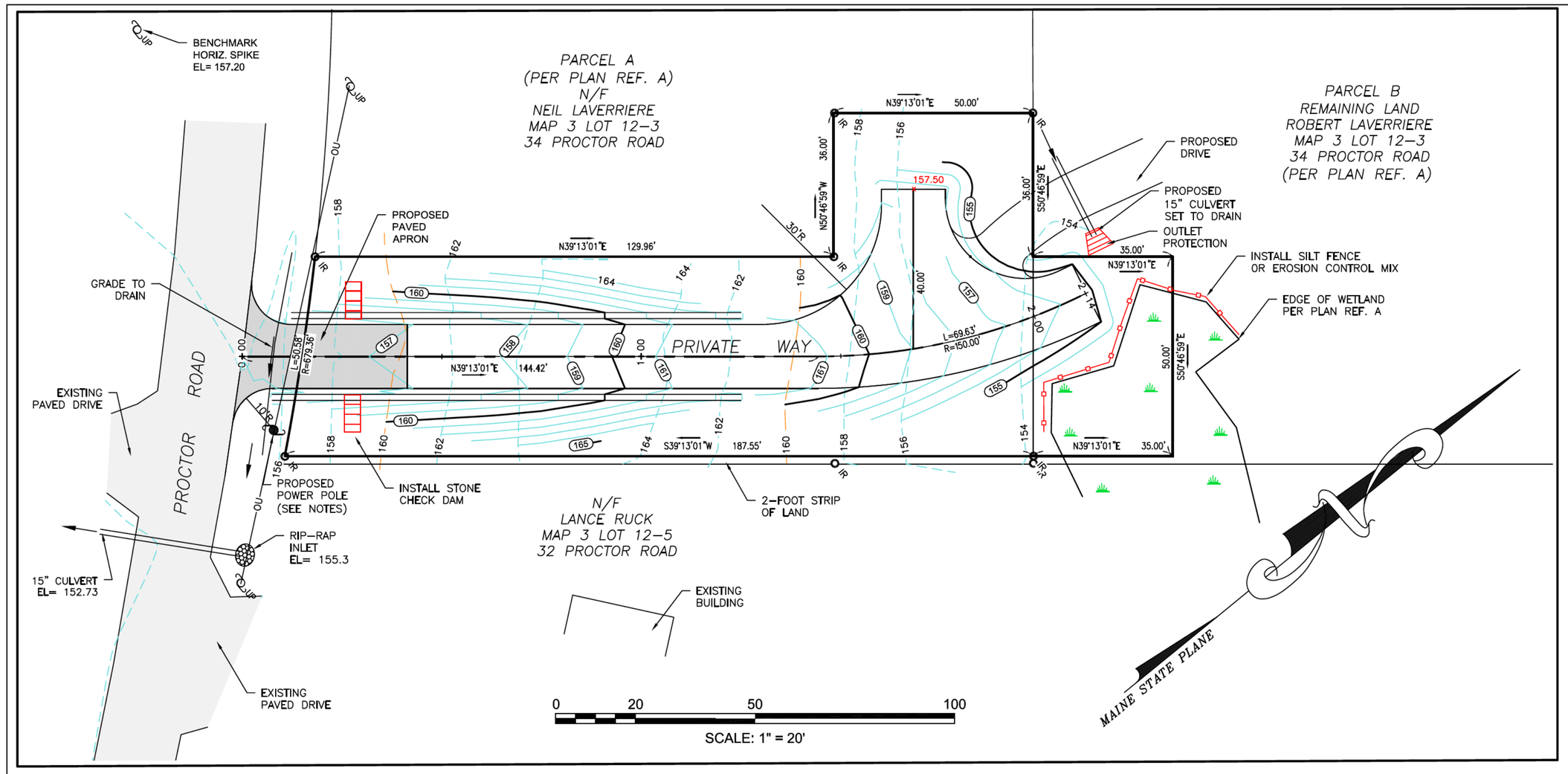
PLAN INDEX
1. SURVEY PLAN
2. COVER SHEET
3. PLAN & PROFILE
4. EROSION & DETAIL

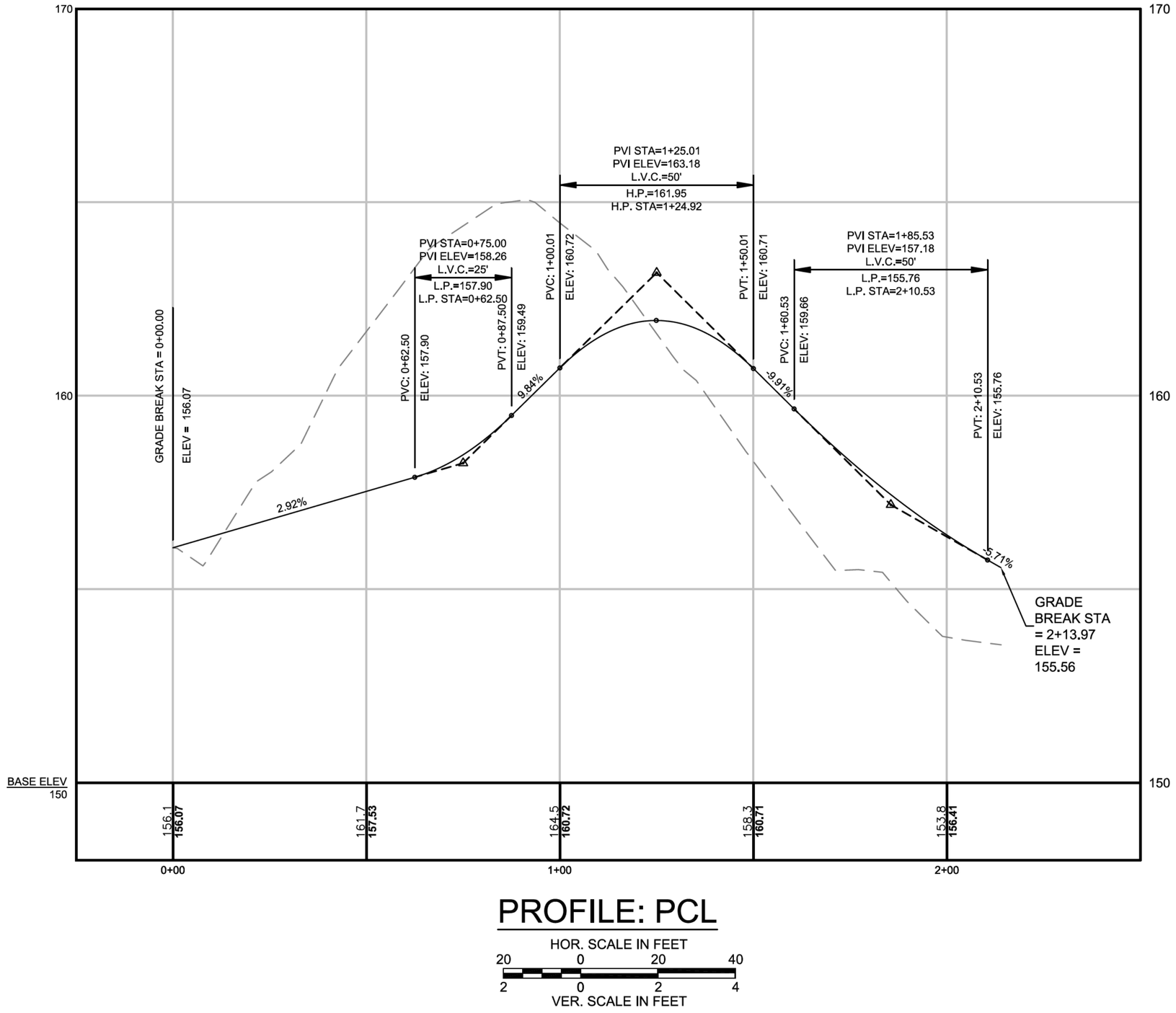
PAUL P. GADBOIS
ENGINEERING SURVEYING
LAND PLANNING
P.O. BOX 327, SACO, MAINE 04072
(207) 283-3980

PRIVATE WAY PLAN
ROBERT G. LAVERRIERE
PROCTOR ROAD
BIDDEFORD, MAINE

RECORD OWNER
ROBERT G. LAVERRIERE
448 ROSS CORNER ROAD
SHAPLEIGH, MAINE 04076

DRAWN: P.P.G.	REVISIONS:
CHECKED: P.P.G.	
SCALE: 1"= 200'	
FIELD BOOK:	
DATE: 04-06-2026	
JOB NO. 1916	
SHEET 1 OF 3	





PROFILE: PCL

HOR. SCALE IN FEET
20 0 20 40
2 0 2 4
VER. SCALE IN FEET

LEGEND

- SURVEYORS TRAVERSE POINT
- FOUND IRON ROD OR PIPE
- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- SETBACK LINE
- N/F NOW OR FORMERLY
- UTILITY POLE
- OU OVERHEAD UTILITIES
- DRAINAGE DIRECTION
- x43.9 PROPOSED SPOT GRADES
- (155) PROPOSED CONTOUR ELEV

NOTES:

1. RECORD OWNER: ROBERT G. LAVERRIERE
   448 ROSS CORNER
   SHAPLEIGH, MAINE
2. PORTION MAP / LOT: 3 / 12/ 3
3. TOTAL AREA OF PROPERTY 42,170 SQUARE FEET PER PLAN REFERENCE A.
4. PROPOSED USE: SINGLE FAMILY.
5. PROPERTY IS LOCATED IN (RF) RURAL FARM ZONE.
6. PROPERTY IS NOT LOCATED WITHIN A FEMA FLOOD ZONE
7. THE LOT TO BE SERVICED BY PRIVATE ROAD, ON LOT SEPTIC, ON LOT DRILLED WELL AND OVERHEAD UTILITIES. THE OWNER SHALL INSTALL POWER POLE AT ENTRANCE AND HAVE THE OPTION TO PROVIDE UNDERGROUND OR OVERHEAD UTILITIES TO RESIDENCE.
8. THE PROJECT HORIZONTAL DATUM: MAINE STATE PLANE COORDINATE SYSTEM, MAINE WEST ZONE. PROJECT VERTICAL DATUM: NORTH AMERICAN DATUM 1988 (NAVD88). ALL DATA WAS DERIVED USING LEICA GS14 REAL TIME KINEMATICS GPS.
9. PRIOR TO ANY CONVEYANCE OR BUILDING DESIGN THIS PLAN SHALL BE REVIEWED BY THE CODE DEPARTMENT TO DETERMINE THE APPROPRIATE SETBACKS, LOT CONFIGURATION AND PROPOSED ACCESS.
10. WETLANDS SHOWN ON THIS PLAN WAS DERIVED FROM PLAN REFERENCE A.
11. BOUNDARY INFORMATION IS AS DEPICTED ON PLAN REFERENCE A, PAUL P. GADBOIS ENGINEERING HAS NOT PERFORMED AN INDEPENDENT BOUNDARY RETRACEMENT SURVEY.
12. TOPOGRAPHIC INFORMATION WAS DERIVED FROM THE MAINE GIS WEBSITE.
13. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTOR AND / OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO BUILDING DESIGN, CONSTRUCTION AND/OR EXCAVATION.
14. THE PROPOSED PRIVATE ROAD IS TO PROVIDE ACCESS TO ONE LOT. THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ANY KIND, SNOW PLOWING, OR TRASH PICKUP OF THE PRIVATE WAY AND THAT FURTHER LOT DIVISION UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE PLANNING BOARD. NOT CITY TRASH TRUCK WILL ENTER THE PRIVATE ROAD. THE OWNERS WILL BE REQUIRED TO WHEEL TRASH TO PROCTOR ROAD.
15. THE PROPOSED PRIVATE ROAD WILL NOT BE SUBMITTED IN THE FUTURE FOR PUBLIC ACCEPTANCE.
16. NO WETLAND FILL IS PROPOSED FOR THIS PROJECT.

LOCUS DEED REFERENCE:

A. QUITCLAIM DEED FROM DONNA MARIE LAVERRIERE TO ROBERT G. LAVERRIERE DATED JULY 30, 2016 AND RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 17372, PAGE 813.

B. WARRANTY DEED FROM NEIL R. LAVERRIERE TO ROBERT G. LAVERRIERE DATED SEPTEMBER 12, 2025 AND RECORDED IN SAID REGISTRY IN BOOK 19741, PAGE 84.

PLAN REFERENCE:

A. PLAN OF PROPOSED DIVISION AND REVISED RIGHT OF WAY PREPARED FOR ROBERT G. LAVERRIERE BY LOWER VILLAGE SURVEY COMPANY REVISED OCTOBER 3, 2022 AND RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 453, PAGE 16.

WAIVER OF PERFORMANCE GUARANRTEE:

A. NO PERMIT SHALL BE ISSUED FOR THE CONSTRUCTION UNTIL THE ROADWAY IS BUILT TO THE PRIVATE WAY STANDARDS.

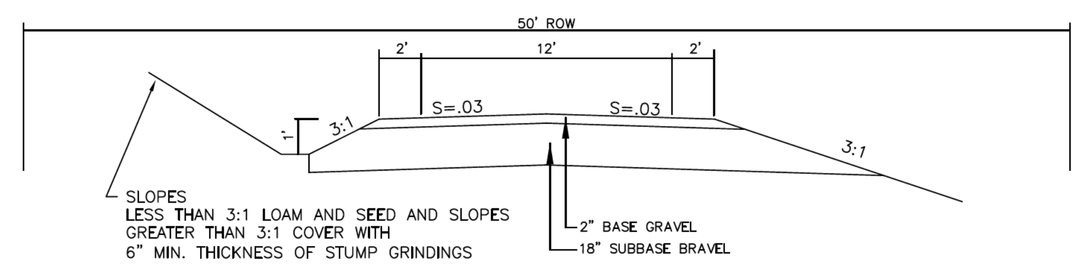
ZONE REQUIREMENTS: (RF) RURAL FARM

NO WATER NO SEWER

MIN. LOT AREA	40,000 SF
MIN. STREET FRONTAGE	200 FEET
MIN. FRONT YARD	40 FEET
MIN. REAR AND SIDE YARD	25 FEET

PRIVATE WAY NOTES:

1. THE PROPOSED RIGHT OF WAY IS TO BE A PRIVATE ROAD. THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF ANY KIND, SNOW PLOWING, OR TRASH PICKUP OF THE PRIVATE WAY AND THAT FURTHER LOT DIVISION UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE BOARD.
2. NO NEW STREET LIGHTS ARE PROPOSED FOR THIS PROJECT.
3. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACORDANCE WITH THE EROSION PREVENTION PROVISIONS AS OUTLINED IN THE MAINE EROSION CONTROL AND SEDIMENTATION HANDBOOK FOR CONSTRUCTION "BEST MANAGEMENT PRACTICES, "LATEST REVISION".
4. DRIVEWAY APRONS MUST COMPLY WITH CHAPTER 62 SECTION 62-111 OF THE BIDDEFORD ORDINANCE.
5. IN LIEU OF A FULL PERFORMANCE GUARANTEE, THE APPLICANT SHALL NOT RECEIVE A BUILDING PERMIT UNTIL THE PRIVATE WAY IS CONSTRUCTED ACCORDING TO THE APPROVED PLAN AND ACCEPTED BY THE CITY ENGINEER'S OFFICE, OR A LETTER OF CREDIT IS SUBMITTED TO THE CITY FOR 150% OF THE RIGHT OF WAY IMPROVEMENT COSTS. AT A MINIMUM AN EROSION CONTROL BOND WILL BE REQUIRED.
6. NOTIFY THE ENGINEERING DEPARTMENT TO SCHEDULE INSPECTION OF WORK AS REQUIRED BY BIDDEFORD CITY ORDINANCES.
7. THE PRIVATE WAY PLAN SHALL BE RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS WITHIN 30 DAYS OF THE DATE OF THE PLANNING BOARD APPROVAL. IF THE PLAN IS NOT RECORDED WITHIN THIS TIME PERIOD, THE APPROVAL OF THE BOARD SHALL BE NULL AND VOID.
8. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH MDOT STANDARDS FOR ROADWAY EXCAVATION AND THE PLACEMENT OF FILL.
9. NO LOT MAY BE ACCESSED FROM EITHER ENDS OF THE HAMMERHEAD.
10. THE PROPOSED PRIVATE WAY WILL NOT BE SUBMITTED IN THE FUTURE FOR PUBLIC ACCEPTANCE.
11. TRASH SHALL BE BROUGHT TO PROCTOR ROAD FOR PICKUP BY THE CITY.
12. ALL DISTURBED AREAS NOT COVERED BY BUILDINGS, DRIVEWAYS, LANDSCAPING OR FOR GARDENING SHALL BE LOAM AND SEEDED.



CROSS SECTION

PROGRESS PLAN
NOT FOR CONSTRUCTION

THIS DOCUMENT IS ISSUED FOR INFORMATIONAL PURPOSES ONLY. THE DATA SHOWN HEREON IS SUBJECT TO REVISION.

YORK,ss REGISTRY OF DEEDS
Received _____
at____h____m____M.,and
Filed in Plan Book____Page____
ATTEST:
_____
Register

I HEREBY CERTIFY THAT THE INFORMATION SHOWN ON THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE.

STATE OF MAINE
PAUL P. GADBOIS 4521
LICENSED PROFESSIONAL ENGINEER

Paul P. Gadbois 04-08-26
PAUL P. GADBOIS, P.E. # 4521 DATE

APPROVAL
CITY OF BIDDEFORD
PLANNING BOARD

_____ DATE
_____ CHAIRPERSON

REVISIONS:
DRAWN: P.P.G.
CHECKED: P.P.G.
SCALE: 1"= 20'
FIELD BOOK:
DATE: 04-06-2026
JOB NO. 1916
SHEET 2 OF 3

RECORD OWNER
ROBERT G. LAVERRIERE
448 ROSS CORNER ROAD
SHAPLEIGH, MAINE 04076

PLAN OF A PRIVATE WAY
ROBERT G. LAVERRIERE
PROCTOR ROAD
BIDDEFORD, MAINE

PAUL P. GADBOIS
ENGINEERING SURVEYING
LAND PLANNING
P.O. BOX 327, SACO, MAINE 04072
(207) 283-3980

C:\Users\pgadb\OneDrive\Projects\Civil 3D Projects\1916-c3d-26\Dwg\1916-SITE REV 04-06-26.dwg, 4/8/2026 12:16:46 PM, Adobe PDF

EROSION AND SEDIMENTATION NOTES:

1. The Site Contractor shall follow the "Maine Erosion and Sediment Control BMPs" published by the Maine DEP in 2003 and the "Maine Erosion and Sediment Control Practices Field Guide for Contractors published in 2015". The manuals can be found on the Maine DEP web site. A Link to the field guide is shown below:

http://www.maine.gov/dep/land/erosion/escbmps/index.html

THE CONTRACTOR SHALL ALSO FOLLOW THE GUIDELINES LISTED IN APPENDICES A, B, C IN MAINE DEP CHAPTER 500 RULES (2015 NOTES PROVIDED ON THIS SHEET).

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES:

EROSION/SEDIMENT CONTROL DEVICES:
THE FOLLOWING EROSION SEDIMENTATION CONTROL DEVICES ARE PROPOSED FOR CONSTRUCTION ON THIS PROJECT. INSTALL THESE DEVICES AS INDICATED ON THE PLANS.

1 SILT FENCE: SILT FENCE WILL BE INSTALLED ALONG THE DOWN GRADING EDGES OF DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE SITE IS STABILIZED. IN AREAS WHERE STORMWATER DISCHARGES THE SILT FENCE WILL BE REINFORCED WITH HAY BALES TO HELP MAINTAIN THE INTEGRITY OF THE SILT FENCE AND TO PROVIDE ADDITIONAL TREATMENT.

2. HAY BALES: HAY BALES TO BE PLACED IN LOW FLOW DRAINAGE SWALES AND PATHS TO TRAP SEDIMENTS AND REDUCE RUNOFF VELOCITIES. DO NOT PLACE HAY BALES IN FLOWING WATER OR STREAMS.

3. RIPRAP: PROVIDE RIPRAP IN AREAS WHERE CULVERTS DISCHARGE OR AS SHOWN ON THE PLANS.

4. LOAM, SEED, & MULCH: ALL DISTURBED AREAS, WHICH ARE NOT OTHERWISE TREATED, SHALL RECEIVE PERMANENT SEEDING AND MULCH TO STABILIZE THE DISTURBED AREAS. THE DISTURBED AREAS WILL BE REVEGETATED WITHIN 5 DAYS OF FINAL GRADING. SEEDING REQUIREMENTS ARE PROVIDED AT THE END OF THIS SPECIFICATION.

5. STRAW AND HAY MULCH: USED TO COVER DENUDED AREAS UNTIL PERMANENT SEED OR EROSION CONTROL MEASURES ARE IN PLACE. MULCH BY ITSELF CAN BE USED ON SLOPES LESS THAN 15% IN SUMMER AND 8% IN WINTER. JUTE MESH IS TO BE USED OVER MULCH ONLY. CURLEX II AND EXCELSIOR MAY BE USED IN PLACE OF JUTE MESH OVER MULCH.

6. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%

TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES:
PROVIDE THE FOLLOWING TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION OF THE DEVELOPMENT:

1. SILTATION FENCE ALONG THE DOWNGRADIENT SIDE OF THE PARKING AREAS AND OF ALL FILL SECTIONS. THE SILTATION FENCE WILL REMAIN IN PLACE UNTIL THE SITE IS 85% REVEGETATED. REMOVE SILTATION FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENT AND STABILIZE.

2. HAY BALES PLACED AT KEY LOCATIONS TO SUPPLEMENT THE SILT FENCE.

3. PROTECT TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION AS FOLLOWS:
   A. SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED 2:1.
   B. AVOID PLACING TEMPORARY STOCKPILES IN AREAS WITH SLOPES OVER 10 PERCENT, OR NEAR DRAINAGE SWALES. SEE ITEM 3 IN CONSTRUCTION PHASE NOTES BELOW.
   C. STABILIZE STOCKPILES WITHIN 15 DAYS BY TEMPORARILY SEEDING WITH A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH.
   D. SURROUND STOCKPILE SOIL WITH SILTATION FENCE AT BASE OF PILE.

4. ALL DENUDED AREAS WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN THE BUILDING PAD, OR PARKING AND DRIVEWAY SUBBASE AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS SHALL RECEIVE MULCH OR NON-ERODABLE COVER. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OR THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST. IN THE EVENT THE CONTRACTOR COMPLETES FINAL GRADING AND INSTALLATION OF LOAM AND SOD WITHIN THE TIME PERIODS PRESENTED ABOVE, INSTALLATION OF MULCH AND NETTING, WHERE APPLICABLE, IS NOT REQUIRED.

5. IF WORK IS CONDUCTED BETWEEN OCTOBER 15 AND APRIL 15, ALL DENUDED AREAS ARE TO BE COVERED WITH HAY MULCH, APPLIED AT TWICE THE NORMAL APPLICATION RATE, AND ANCHORED WITH FABRIC NETTING. THE PERIOD BETWEEN FINAL GRADING AND MULCHING SHALL BE REDUCED TO A 15 DAY MAXIMUM.

6. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE HAS BEEN STABILIZED OR IN AREAS WHERE PERMANENT EROSION CONTROL MEASURES HAVE BEEN INSTALLED.

PERMANENT EROSION CONTROL MEASURES:
THE FOLLOWING PERMANENT CONTROL MEASURES ARE REQUIRED BY THIS EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.), WILL BE LOAMED, LIMED, FERTILIZED AND SEEDED. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. IF AN AREAS 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, SOIL, AND MOISTURE 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 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 SEEDED AND MULCHED AGAIN IF GERMINATION IS SPARCE, 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 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 a 90% cover of healthy vegetation, with a well-graded riprap lining, or with another non-erosive lining such as concrete or asphalt pavement. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

3. SLOPES GREATER THAN 2:1 WILL RECEIVE RIPRAP.

POST-CONSTRUCTION REVEGETATION:

THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING.

1. A MINIMUM OF 4" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE, OR STONE WILL BE PLACED ON SLOPES TO STABILIZE SURFACES.

2. IF FINAL GRADING IS REACHED DURING THE NORMAL GROWING SEASON (4/15 TO 9/15), PERMANENT SEEDING WILL BE DONE AS SPECIFIED BELOW. PRIOR TO SEEDING, LIMESTONE SHALL BE APPLIED AT A RATE OF 138 LBS/1000 SQ. FT. AND 10:20:20 FERTILIZER AT A RATE OF 18.4 LBS/1000 SQ.FT WILL BE APPLIED. BROADCAST SEEDING AT THE FOLLOWING RATES:

LAWNS	SWALES
KENTUCKY BLUEGRASS 0.46 LBS/1000 SF.	RED TOP 0.05 LBS/1000 SF.
CREEPING RED FESCUE 0.46 LBS/1000 SF.	TALL FESCUE 0.46 LBS/1000 SF.
PERENNIAL RYE GRASS 0.11 LB/1000 SF.	

3. AN AREA SHALL BE MULCHED IMMEDIATELY AFTER IS HAS BEEN SEEDED. MULCHING SHALL CONSIST OF HAY MULCH, HYDRO-MULCH, JUTE NET OVER MULCH, PRE-MANUFACTURED EROSION MATS OR ANY SUITABLE SUBSTITUTE DEEMED ACCEPTABLE BY THE DESIGNER.
   A. HAY MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. HAY MULCH SHALL BE SECURED BY EITHER: (NOTE: SOIL SHALL NOT BE VISIBLE)
   I. BEING DRIVEN OVER BY TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
   II. BLANKETED BY TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING, OR WITH SPRAY, ON GRADES GREATER THAN 5%
   III. SEE NOTE 6, GENERAL NOTES, AND NOTE 8, WINTER CONSTRUCTION.
   B. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF EITHER ASPHALT, WOOD FIBER OR PAPER FIBER AND WATER SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 9/15 AND 4/15.

4. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN SEPTEMBER 15 AND APRIL 15. SHOULD SEEDING BE NECESSARY BETWEEN SEPTEMBER 15 AND APRIL 15 THE FOLLOWING PROCEDURE SHALL BE FOLLOWED. ALSO REFER TO NOTE 9 OF WINTER CONSTRUCTION.
   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 SQ.FT) SHALL BE ADDED TO THE PREVIOUSLY NOTED AREAS.
   D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.6 LBS/1000 SQ. FT.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   E. FERTILIZING, SEEDING AND MULCHING SHALL BE APPLIED TO LOAM THE DAY THE LOAM IS SPREAD BY MACHINERY.
   F. ALTERNATIVE HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE.

5. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 85% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE ENGINEER THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE:

THE CONTRACTOR IS 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. ON A WEEKLY BASIS OR AFTER EACH RAINFALL, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. HAY BALE BARRIERS, SILT FENCE, AND STONE CHECK DAMS SHALL BE INSPECTED AND REPAIRED ONCE A WEEK OR IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING. SHOULD THE HAY BALE BARRIERS PROVE TO BE INEFFECTIVE, THE CONTRACTOR SHALL INSTALL SILT FENCE BEHIND THE HAY BALES.

2. VISUALLY INSPECT RIPRAP ONCE A WEEK OR AFTER EACH SIGNIFICANT RAINFALL AND REPAIR AS NEEDED. REMOVE SEDIMENT TRAPPED BEHIND THESE DEVICES ONCE IT ATTAINS A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE DAM OR RISER. DISTRIBUTE REMOVED SEDIMENT OFF-SITE OR TO AN AREA UNDERGOING FINAL GRADING.

3. REVEGETATION OF DISTURBED AREAS WITHIN 25' OF DRAINAGE-COURSE/STREAM WILL BE SEEDED WITH THE "MEADOW AREA MIX" AND INSPECTED ON A WEEKLY BASIS OR AFTER EACH SIGNIFICANT RAINFALL AND RESEEDED AS NEEDED. EXPOSED AREAS WILL BE RESEEDED AS NEEDED UNTIL THE AREA HAS OBTAINED 100% GROWTH RATE. PROVIDE PERMANENT RIPRAP FOR SLOPES IN EXCESS OF 3:1 AND WITHIN 25' OF DRAINAGE COURSE.

4. THE OWNER/ DEVELOPER / CONTRACTOR SHALL RETAIN A COPY OF THE EROSION CONTROL PLAN 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.

5. THE OWNER/ DEVELOPER / CONTRACTOR WILL MAINTAIN INSPECTION RECORDS (MAINTENANCE LOG SHEET) WITH RECORDINGS OF CONDITION OF BASINS, PIPES AND ANNOTATION OF SUBSTANTIAL PRECIPITATION EVENTS OR MITIGATING CIRCUMSTANCES IN THE INTERVENING TIME FOR TRENDING TO DEVELOP THE ANTICIPATED PREVENTIVE MAINTENANCE SCHEDULE.

6. THE CONTRACTOR'S SITE INSPECTION LOGS SHALL BE MAINTAINED ONSITE AND AVAILABLE FOR REVIEW UPON REQUEST FROM MDEP OR LOCAL GOVERNMENT OFFICIALS WHICH IDENTIFIES INSPECTIONS COMPLETED, EROSION PROBLEMS FOUND, WHEN CORRECTIVE ACTION WAS TAKEN, AND WHO COMPLETED THE WORK.

EROSION CONTROL DURING WINTER CONSTRUCTION:

1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.

2. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

3. EXPOSED AREA SHALL BE LIMITED TO THOSE AREAS TO BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. AT THE END OF EACH WORK WEEK NO AREAS MAY BE LEFT UNSTABILIZED OVER THE WEEKEND.

4. 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.

5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1000 S.F. (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ANCHORED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH. NOTE: AN AREA IS ALSO CONSIDERED STABLE IF SODDED, COVERED WITH GRAVEL (PARKING LOTS) OR STRUCTURAL SAND.

6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, 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 SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED 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, SILT FENCE OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS SHOWN ON THE DESIGN DRAWINGS. NOTE: DORMANT SEEDING SHOULD NOT BE ATTEMPTED UNLESS SOIL TEMPERATURE REMAINS BELOW 50 DEGREES AND DAY TIME TEMPERATURES REMAIN IN THE 30'S.

7. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8% VEGETATED DRAINAGE SWALES SHALL BE LINED WITH EXCELSIOR OR CURLEX.

8. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1 THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%

9. BETWEEN THE DATES OF OCTOBER 15 TO NOVEMBER 1, WINTER RYE IS RECOMMENDED FOR STABILIZATION. AFTER NOVEMBER 1, WINTER RYE IS NOT EFFECTIVE. AROUND NOVEMBER 15 OR LATER, ONCE TEMPERATURES OF THE AIR AND SOIL PERMIT, DORMANT SEEDING IS EFFECTIVE.

10. IN THE EVENT OF SNOWFALL (FRESH OR CUMULATIVE) GREATER THAN 1 INCH DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM THE AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

CONSTRUCTION PHASE:

THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION DURING CONSTRUCTION OF THIS PROJECT.

1. PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWN GRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWN GRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE THE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.

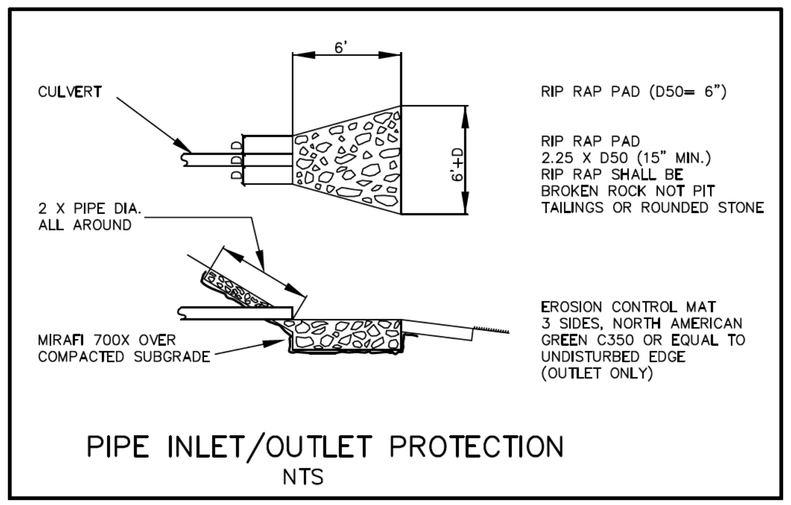
2. PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZATION PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROW'S. MAINTAIN UNTIL ALL DISTURBED AREA ARE STABILIZED.

3. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM THE EXISTING DRAINAGE COURSE. NO STOCKPILE SHALL BE CLOSER THEN 100' OF A RESOURCE INCLUDING, BUT NOT LIMITED TO, WETLANDS, STREAMS, AND OPEN WATER BODIES. ALL STOCKPILES SHALL HAVE A SILTATION FENCE BELOW THEM REGARDLESS OF TIME OF PRESENCE. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 15 DAYS SHALL BE:
   A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
   B. SEEDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
   C. INSTALL SILT FENCE AROUND STOCKPILE AT BASE OF PILE. STOCKPILES TO HAVE SILT FENCE INSTALLED AT TIME OF ESTABLISHMENT AT BASE OF PILE.

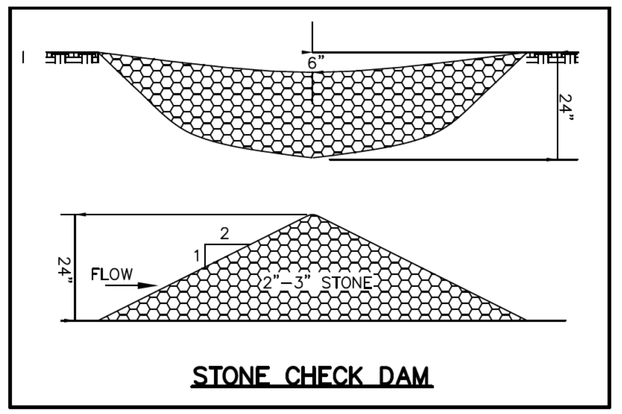
4. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS SHALL BE EITHER:
   A. TREATED WITH ANCHORED MULCH IMMEDIATELY, OR
   B. SEEDED WITH CONSERVATION MIX OF ANNUAL RYE GRASS (0.9 LBS/1000 SQ. FT) AND MULCHED IMMEDIATELY.

5. ALL GRADING WILL BE HELD TO A MAXIMUM 2:1 SLOPE WHERE PRACTICAL. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEEDING, OR WITH STONE, WITHIN 7 DAYS AFTER FINAL GRADING IS COMPLETE. (SEE POST-CONSTRUCTION REVEGETATION FOR SEEDING SPECIFICATION.)

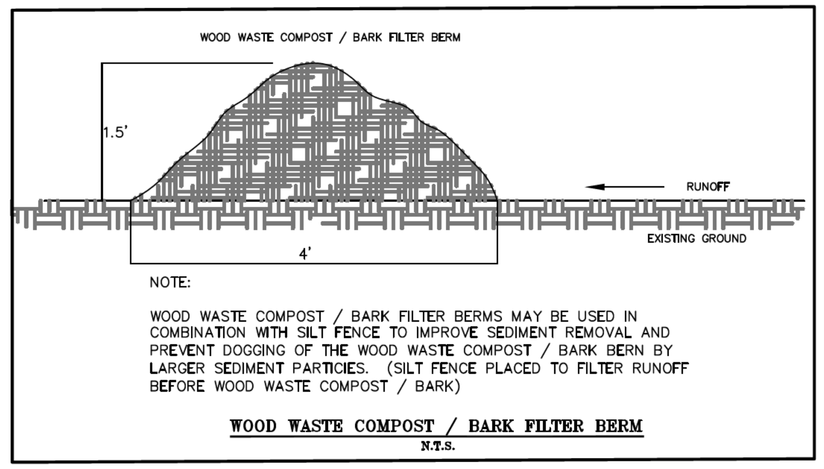
6. ALL CULVERTS WILL BE PROTECTED WITH STONE RIPRAP (D50 = 6" UNLESS OTHERWISE SPECIFIED) AT INLETS AND OUTLETS.



PIPE INLET/OUTLET PROTECTION
NTS



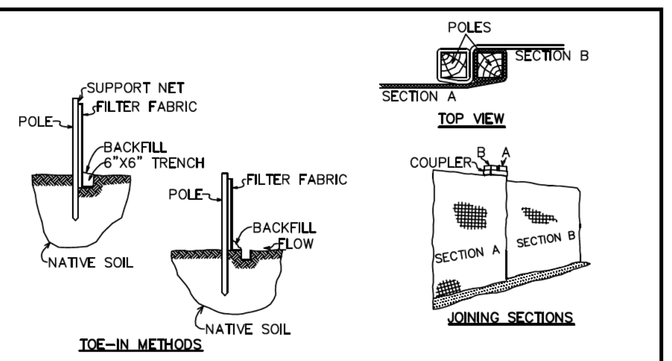
STONE CHECK DAM



NOTE:

WOOD WASTE COMPOST / BARK FILTER BERMS MAY BE USED IN COMBINATION WITH SILT FENCE TO IMPROVE SEDIMENT REMOVAL AND PREVENT DOGGING OF THE WOOD WASTE COMPOST / BARK BERM BY LARGER SEDIMENT PARTICIES. (SILT FENCE PLACED TO FILTER RUNOFF BEFORE WOOD WASTE COMPOST / BARK)

WOOD WASTE COMPOST / BARK FILTER BERM
N.T.S.



SILTATION FENCING

1. INSTALL DOWNSLOPE OF ALL CONSTRUCTION ACTIVITIES AS NECCESSARY.

2. INSPECTION SHOULD BE FREQUENT AND REPAIR OR REPLACEMENT MADE PROMPTLY AS NEEDED. CHECK AFTER EACH RAINFALL.

3. BARRIERS SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

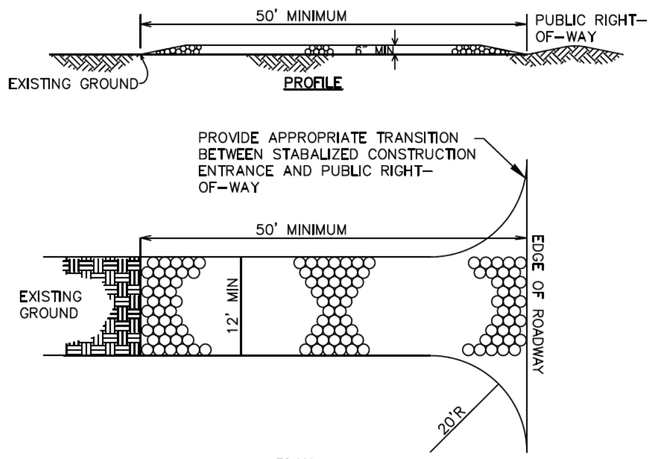
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT STABILIZED IN SOME OTHER MANNER SHALL BE RE-ESTABLISHED AS FOLLOWS:

LIME	140# PER 1000 SF
FERTILIZER	30# PER 1000 SF
HAY MULCH	2 BALES PER 1000 SF

SEED SHALL BE SCS MIXTURE #5 OR #6 SOWN AT 1 1/2# PER 1000 SF

5. IF WORK IS COMPLETED BETWEEN SEPTEMBER 15 AND APRIL 15 OF ANY CALENDER YEAR, A TEMPORARY HAY MULCH AND EROSION CONTROL MESH SHALL BE INSTALLED OVER DENUDED AREAS TO PROTECT THEM FROM EROSION UNTIL PERMANENT REVEGETATION MEASURES CAN BE UNDERTAKEN.

STABALIZED CONSTRUCTION ENTRANCE
(NOT TO SCALE)

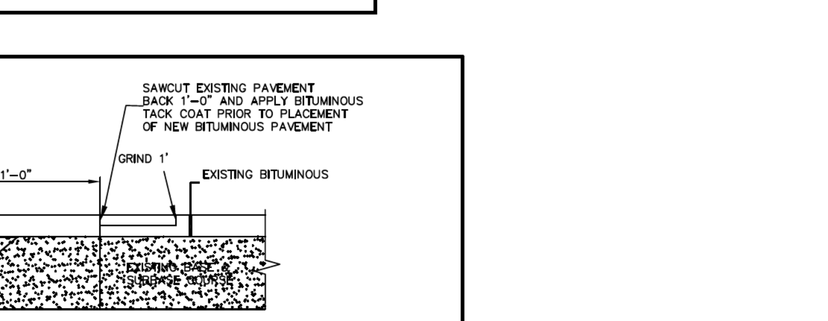


PLAN

CONSTRUCTION SPECIFICATIONS

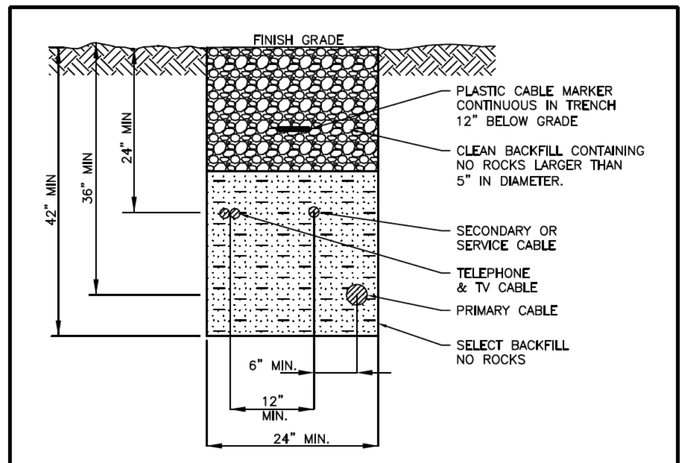
1. THE ENTRANCE/EXIT PAD SHOULD HAVE A LENGTH OF 50 FEET OR MORE AND A 12 FOOT MINIMUM WIDTH (OR AS APPROPRIATE TO CONTAIN THE WHEEL BASE OF CONSTRUCTION VEHICLES PLUS 3 FEET ON EITHER SIDE).
2. THE PAD SHOULD BE 6 INCHES OR MORE THICK WITH ANGULAR AGGREGATE (2-3 INCH DIAMETER). APPROPRIATE RECLAIMED CONCRETE MATERIAL MAY BE USED.
3. THE AGGREGATE SHOULD BE PLACED OVER A GEOTEXTILE FILTER TO PREVENT THE STONES FROM PUSHING INTO THE NATIVE SOIL.
4. AT THE BOTTOM OF SLOPES, A DIVERSION RIDGE SHOULD BE PROVIDED TO INTERCEPT RUNOFF.
5. BERMS MAY BE NECESSARY TO DIVERT WATER AROUND ANY EXPOSED SOIL, AND RUNOFF SHOULD BE DIRECTED TO A SEDIMENT TRAP.
6. THE WHEELS OF CONSTRUCTION EQUIPMENT MAY BE WASHED PRIOR TO EXITING THE SITE. WASHING SHOULD BE PERFORMED IN AN AREA THAT DRAINS TO A SEDIMENT TRAP OR BASIN.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF WAY MUST BE REMOVED IMMEDIATELY.

STANDARD SYMBOL SCE



PAVEMENT SAWCUT DETAIL
N.T.S.

PAVEMENT RESTORATION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL FULL DEPTH PLACEMENT OF BINDER PAVEMENT TO MATCH EXISTING PAVEMENT THICKNESS. BINDER PAVEMENT SHALL BE IN 2" THICK MAXIMUM LIFTS COMPACTED. THE MINIMUM BINDER PAVEMENT COURSE THICKNESS SHALL BE 4". THE TOP OF THE BINDER PAVEMENT MATERIAL SHALL MATCH THE SURROUNDING EXISTING ROADWAY SURFACE PAVEMENT. THE EXISTING PAVEMENT JOINT SHALL RECEIVE A TACK COAT BEFORE PLACEMENT OF THE BINDER PAVEMENT.



NOTES:
1. INSTALL CABLES IN SCHEDULE 40 CONDUIT UNDER ALL PAVED AREAS.
2. BEDDING AND BACKFILL SHALL BE FREE OF ROCKS, STUMPS AND OTHER DEBRIS.

TYPICAL ELECTICAL TRENCH

I HEREBY CERTIFY THAT THE INFORMATION SHOWN ON THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE.

STATE OF MAINE
PAUL P. GADBOIS 4521
LICENSED PROFESSIONAL ENGINEER

Paul P. Gadbois 04-08-26
PAUL P. GADBOIS, P.E. # 4521 DATE

DRAWN: P.P.G.
CHECKED: P.P.G.
SCALE: 1"= 20'
FIELD BOOK:
DATE: 04-08-2026
JOB NO. 1916
SHEET 3 OF 3

REVISIONS:

RECORD OWNER
ROBERT G. LAVERRIERE
448 ROSS CORNER ROAD
SHAPLEIGH, MAINE 04076

PRIVATE WAY PLAN
ROBERT G. LAVERRIERE
PROCTOR ROAD
BIDDEFORD, MAINE

PAUL P. GADBOIS
ENGINEERING SURVEYING
LAND PLANNING
P.O. BOX 327, SACO, MAINE 04072
(207) 283-3980

C:\Users\pgadb\OneDrive\Projects\Civil 3D Projects\1916-Civil 3D Projects\1916-c3d-26\Dwg\1916-SITE REV 04-06-26.dwg, 4/8/2026 12:17:40 PM, Adobe PDF

Required Signatures:

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

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

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

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

Signature of Applicant: _____ **Date** _____

Signature of Property Owner: [signature] **Date** 4-14-26

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

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

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

The City of Biddeford's Planning Department will never ask for fees to be paid by wire transfer. All invoices from the City of Biddeford will come from email addresses ending in "@biddefordmaine.org".

David C.M. Galbraith, City Planner / Deputy Director Planning and Development

David.Galbraith@biddefordmaine.org

205 Main Street / PO Box 586 • Biddeford, ME

(207) 571-0700 • www.biddefordmaine.org

City of Biddeford Government

@CityofBiddeford

PLANNING BOARD STAFF REPORT

TO: Chair McCurry and Members of the Biddeford Planning Board

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

DATE: June 23, 2026

RE: Case #2025.10 Review of a Final Site Plan Amendment application for Fiber Materials Inc. The applicant plans for a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure to add manufacturing capacity and the associated infrastructure. The location of the project is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.

MEETING DATE: July 1, 2026, 6:00 PM

1. INTRODUCTION

This project was previously reviewed as a "Sketch Plan" at the September 17, 2024, Planning Board meeting and Preliminary at the May 20, 2026, Planning Board Meeting. This Final application is being presented by Tom Saucier of Site Design Associates for a Site Plan for the FMI property located at 389 Hill Street (Tax Map 74, and Lot 7) located within the I-2 (Industrial 2) Zoning District.

RE: **Case #2025.10 Review of a Final Site Plan Amendment application for Fiber Materials Inc. The applicant plans for a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure to add manufacturing capacity and the associated infrastructure. The location of the project is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.**

Planning Board Hearing Date: July 1, 2026

The applicant has provided the below project narrative (shown in italics) regarding his business operations and the proposed addition:

With facilities in Maine and Rhode Island and over 400 employees, FMI designs, develops, and manufactures composite materials and components that perform in the most demanding applications and the most extreme environments. FMI's core strength is the ability to weave the most intricate fiber reinforcement designs and convert them to products which perform beyond the capabilities of conventional laminate composites, ceramics, and metals. Leveraging these fabrication technologies since 1969, FMI has grown to be the leading supplier of propulsion hot components and thermal protection system materials in the aerospace industry. FMI's products enable the most difficult missions, survive at the most extreme temperatures, and provide the greatest reliability to their customers. FMI proudly serves the U.S. Armed Forces, NASA, and aerospace and industry customers. The proposed expansion will result in increased production and updated technology. Approximately 42 new jobs will be created with employees working on 2 shifts.

The project involves the construction of the 50,395 s.f. addition and the creation of 1.94 acres of new paving and parking. The site and the perimeter access roads are laid out to allow an addition to the building at some point in the indeterminate future. The net increase in impervious area will be 3.10 acres, which exceeds the Site location of Development Act (SLODA) threshold of 3 acres of new structure area. The city has municipal capacity to review the relevant information. Included as Attachment 2 is a Traffic Impact Study by Sewall. The study was based on a 104,000 sf addition and 87 additional employees. The current proposal is for a 50,395 sf addition and 42 additional employees. The analysis factored in a phase 2 expansion which is not being contemplated at this time. Note that Sewall concludes that the project will have no impact on the operating conditions of the streets in the vicinity of the project, and that a MDOT Traffic Movement Permit is not required.

2. PROJECT DATA/INFORMATION

1.		Applicant:	Fiber Materials, Inc. 5 Morin Street Biddeford, ME 04005
2.		Owner of Property:	Same as Applicant
3.		Agent:	Tom Saucier, P.E. Site Design Associates, Inc. 23 Whitney Way Topsham, ME 04086
4.		Surveyor:	Same as Agent
5.		Project Location:	389 Hill Street
6.		Project Tax Map #/Lot #:	Tax Map 74, and Lot 7
7.		Lot Size:	14.04 AC
8.		Base Zoning:	I-2 (Industrial)

9.		Overlay Zoning:	Thatcher Brook
10.		Existing Use:	Industrial Manufacturing
11.		Proposed Use:	Expansion of existing operation
12.		Approvals Required:	Site Plan Approval
13.		Uses in the Vicinity:	Commercial / Residential
14.		Waivers Requested:	a. Article XI, II section 5 B.4.f.1., Approved by Planning Board 9-17-25 b. Article VI.26.F. Slopes within 10 ft property line; no slope steeper than 3 H:IV c. Article XI.II.5.B.I.e.3. No slopes steeper than 2 ft horizontal to 1 ft vertical
15.		Waivers Granted:	a. All listed waivers approved May 20, 2026.
16.		Other Non-City Permits Required:	a. MDEP Site Location of Development Act b. MDEP Stormwater Law Permit c. Army Corp of Engineering d. Maine Construction General Permit
17.		LDR Attachment A: Fees Paid	Planning Board Fees Paid Thacher Brook Impact Fee to be paid prior to building permit.
18.		Planning Board Review History: Sketch Plan- September 17, 2024 Preliminary– May 20, 2026. Final-July 1, 2026.	

3. REVIEW PROCESS

Per City ordinance, this application is subject to the following:
Part III Land Development Regulations, Article XI Site Plan Review

The above Ordinances require approval by the Planning Board. This process involves Sketch Plan review, followed by Preliminary Plan Review, and ultimately Final Plan review / approval.

4. GENERAL REVIEW COMMENTS:

APPLICATION COMPLETENESS: This application is for Preliminary Site Plan review.

5. **ZONING:** The subject property is zoned I-2 (Industrial), industrial manufacturing is a Conditional Use within the district.

6. **WAIVERS:** The below waivers are being sought by the applicant:

RE: **Case #2025.10 Review of a Final Site Plan Amendment application for Fiber Materials Inc. The applicant plans for a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure to add manufacturing capacity and the associated infrastructure. The location of the project is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.**

Planning Board Hearing Date: July 1, 2026

A. Waiver Sought: Article VI.26.F. The top of a cut or the bottom of a fill section shall not be closer than 10 feet to an adjoining property, nor shall said cut or fill exceed the three-to-one slope unless the Planning Board waives either or both requirements upon the applicant's demonstration, certified by a Maine licensed professional engineer (P.E.), that a steeper slope, whether or not closer than 10 feet to the adjoining property, is stable, will not result in excessive downstream erosion or sedimentation, nor cause any additional adverse impact on the adjoining property.

Waiver Justification: This is a waiver historically granted by the planning board. Protections for slopes steeper than three horizontal to one vertical are specified on the drawings and include erosion control blanket, turf reinforcement mat, and riprap. These methods ensure slope stability and minimize the potential for any erosion or sedimentation in accordance with MDEP Best Management Practices.

This waiver was granted by the Planning Board on May 20, 2026.

B. Waiver Sought: Article XI.II.5.B.1.e.3. No slope shall be created which results in a slope of more than two feet horizontal to one foot vertically unless proper retaining walls are proposed.

Waiver Justification: This is another waiver historically granted by the planning board. Rather than design and build a retaining wall in lieu of steeper slopes, products such as turf reinforcement mats and riprap can be used to successfully stabilize the slopes. These methods ensure slope stability and minimize the potential for any erosion or sedimentation in accordance with MDEP Best Management Practices.

This waiver was granted by the Planning Board on May 20, 2026.

C. Waiver Sought: Article XI, II. section 5.B.4.f.1 No paving, parking, or storage shall be permitted within the required setback of any side or rear property line;

This waiver, in relation to this project was granted by the Planning Board on 09/17/24 during Sketch Plan Review and was reaffirmed by the Planning Board on May 20, 2026.

7. **Staff Review Committee (SRC) Final Comments:**

The below comments have been incorporated into the project's recommended Findings of Fact (FOF) and Conditions of Approval (COA):

A. Peer review comments prepared by Wright-Pierce Engineering Consultants dated May 13, 2026, have been addressed and the responses are in the packet. The following items have been incorporated into the projects Findings of Fact (FOF) and Conditions of Approval (COA).

1) The application's boundary survey includes a number of references to "Vernal Pools". The Applicant has indicated that "*further investigations were undertaken, and it has been determined that these features are not vernal pools*". The boundary survey shall be amended to remove all references to "vernal pools". This revision shall be stamped and signed by the project engineer.

2) The project requires the issuance of a stormwater permit from the Maine Department of Environmental Protection (MDEP). To date this permit has not been issued by MDEP. Upon receipt of the required stormwater permit the applicant shall submit a copy to the Planning, Engineering and Code Enforcement Departments. Copies of this permit shall be received by the three (3) named department directors prior to the issuance of an Occupancy Permit for the expansion project.

3) Section 61 Stormwater Management comments #2 and #3, listed in Wright-Pierce comments shall be addressed to the satisfaction of the City Engineer prior to the scheduling of the required pre-construction meeting.

4) Prior to the scheduling of the required pre-construction meeting the applicant shall coordinate with City Engineering Department regarding the pump station, and meet the following comments to the satisfaction of the City Engineer and Public Works Director:

- The City would like to review the selected pumps to be installed, the layout of the station, and any valving proposed.
- The City requests a valve be inserted exterior of the pump station that could be used to throttle down or shut off the flow if any unforeseen conditions arise.
- The wet well should be adequately sized to hold the proposed flow in case of both a need to throttle the station back or any power outages; however, it is assumed standby power will be provided to the pump station.
- The City would like to review the pump submissions to be provided prior to installation of the pumps and station, additional data may need to be provided.

5) Whenever gas, either natural or propane or other type, is proposed to be used on-site, a separate external shutoff valve shall be provided for each building on the site. The valve location shall be approved by the City's Fire Chief prior to building permit issuance.

B. The property is located within the Thatcher Brook Watershed, and applicable fees are listed below. This property was previously developed; therefore, Staff has only calculated the fee based on new impervious areas only. This fee shall be paid prior to the issuance of a Building Permit.

Type of Surface	Compensation Fee (per acre)	Proposed Area (acres)	Compensation Fee
Non-roof Area	$ 12,500.00	1.94	$ 24,250.00
Roof	$ 5,000.00	1.16	$ 5,800.00
Landscaped Area	$ 2,500.00	0	$ -
Total			$ 30,050.00

RE: **Case #2025.10 Review of a Final Site Plan Amendment application for Fiber Materials Inc. The applicant plans for a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure to add manufacturing capacity and the associated infrastructure. The location of the project is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.**

Planning Board Hearing Date: July 1, 2026

8. STAFF RECOMMENDATION

Although a few minor comments, listed above, require resolution Staff recommend the Planning Board grant Final Site Plan approval with the attached Conditions of Approval (COA).

9. SAMPLE MOTIONS

A. Motion to Approve Case # 2025.10 for Final Site Plan approval for the construction of a 50,395 square foot addition and the creation of 1.94 acres of new paving and parking located at 389 Hill Street (Tax Map 74, Lot 7), within the Industrial 2 (I-2) zoning district, with the above listed and attached Findings of Fact (FOF) and Conditions of Approval (COA).

.

B. Motion to Deny Case # 2025.10 for Final Site Plan approval for the construction of a 50,395 square foot addition and the creation of 1.94 acres of new paving and parking building at 389 Hill Street (Tax Map 74, Lot 7), within the Industrial 2 (I-2) zoning district, for the following reasons:

1) _____

2) _____

3) _____

C. Motion to Table Case # 2025.10 for Final Site Plan approval for the construction of a 50,395 square foot addition and the creation of 1.94 acres of new paving and parking at 389 Hill Street (Tax Map 74, Lot 7), within the Industrial 2 (I-2) zoning district, for the following reasons

1) _____

2) _____

3) _____

David C.M. Galbraith, City Planner
Director of Planning
David.Galbraith@biddefordmaine.org
205 Main Street / PO Box 586 • Biddeford, ME
City of Biddeford Government
(207) 571-0700 • www.biddefordmaine.org
@CityofBiddeford

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Case #2025.10
Fiber Materials Inc.
Final Site Plan
50,395 SF addition and the creation of 1.94 acres of new paving and parking
389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.
May 20, 2026

RE: Case #2025.10 Review of a Final Site Plan Amendment application for Fiber Materials Inc. The applicant plans for a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure to add manufacturing capacity and the associated infrastructure. The location of the project is 389 Hill Street (Tax Map 74, Lot 7) in the I-2 (Industrial 2) zone.

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

1. PROJECT DATA/INFORMATION

1.		Applicant:	Fiber Materials, Inc. 5 Morin Street Biddeford, ME 04005
2.		Owner of Property:	Same as Applicant
3.		Agent:	Tom Saucier, P.E. Site Design Associates, Inc. 23 Whitney Way Topsham, ME 04086
4.		Surveyor:	Same as Agent
5.		Project Location:	389 Hill Street
6.		Project Tax Map #/Lot #:	Tax Map 74, and Lot 7
7.		Lot Size:	14.04 AC
8.		Base Zoning:	I-2 (Industrial)
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10.		Existing Use:	Industrial Manufacturing
11.		Proposed Use:	Expansion of existing operation
12.		Approvals Required:	Site Plan Approval
13.		Uses in the Vicinity:	Commercial / Residential

14.		Waivers Requested:	a. Article XI, II section 5 B.4.f.1., Approved by Planning Board 9-17-25 b. Article VI.26.F. Slopes within 10 ft property line; no slope steeper than 3 H:IV c. Article XI.II.5.B.I.e.3. No slopes steeper than 2 ft horizontal to 1 ft vertical
15.		Waivers Granted:	a. All listed waivers approved May 20, 2026.
16.		Other Non-City Permits Required:	a. MDEP Site Location of Development Act b. MDEP Stormwater Law Permit c. Army Corp of Engineering d. Maine Construction General Permit
17.		LDR Attachment A: Fees Paid	Planning Board Fees Paid Thacher Brook Impact Fee to be paid prior to building permit.
18.		Planning Board Review History: Sketch Plan- September 17, 2024 Preliminary– May 20, 2026. Final-July 1, 2026.	

2. CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements outlined in this ordinance and would comply with applicable state or federal laws.

2. The proposed use would not create fire safety hazards by providing adequate access to the site or the buildings for emergency vehicles. It would not develop hazards through the storage of chemicals and wastes.

3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets, is adequate for the safety of occupants or users of the site, or would not damage the value and diminish the usability of neighboring properties.

4. The provisions for buffers and on-site landscaping adequately protect neighboring properties from the development's detrimental or unsightly features.

5. The proposed use would not significantly affect the use and peaceful enjoyment of abutting property due to noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes.

6. The provisions for vehicular loading, unloading, parking, and vehicular and pedestrian circulation on the site and adjacent public streets would not create hazards to public safety or traffic congestion.

7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, would not create unreasonable traffic hazards, would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion.

8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties, which could be avoided by reasonably modifying the proposal.

9. The proposed use would not adversely impact the privacy of the residents of the immediate area (within 500 feet), which could be avoided by reasonable modification of the proposal.

10. The proposed use would comply with Biddeford's Comprehensive Plan.

11. The proposed use would not adversely impact the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal.

12. The site's design would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements.

13. Adequate provision has been made for disposing of wastewater or solid waste or for preventing ground or surface water contamination.

14. Adequate provision has been made to control erosion or sedimentation.

15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site, and the proposed development will not unduly burden off-site surface water systems.

16. The proposed water supply would meet the demands of the proposed use for fire protection purposes.

17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law.

18. The proposed use would not adversely impact scenic vistas, significant wildlife habitat, wetland areas, or water bodies, which could be avoided by reasonable modification of the proposal.

19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

3. APPROVAL GRANTED:

Based on the evidence and conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report. Under the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), the Biddeford Planning Board has approved the application of Site Plan Review. Herby approves the proposed construction of a 50,395 SF addition and the creation of 1.94 acres of new paving and parking to the existing structure at 389 Hill Street (Tax Map 74, Lot 7) with the Findings of Fact (FOF) with the following Conditions of Approval (COA):

1. Standard Conditions of Approval apply.

2. Bonding and Inspection Fees: Bonding and inspection fees shall be established before the Pre-construction meeting.

3. Modifications to Approved Development Plans: The project shall be constructed according to the approved development plans. If any site changes are needed, the applicant must submit a letter requesting a “Minor Modification” to the approved development plans. The applicant must adequately justify the reasons for those deviations. The narrative shall include the current approved plans and the proposed modifications, which the City Planner shall agree to in writing before construction. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board.

4. Once the As-Built drawings are submitted to the Planning Department (clearly identifying what deviations and variances were installed based on the approved permit drawings), the City Engineering Department will conduct an inspection. The “as-built Checklist” shall be submitted for review and approval prior to the final performance guarantee release.

5. As-built drawings and CAD Files must be submitted to the Planning & Engineering Departments before a ‘Site Punchlist Inspection’ and any bond release**.**

6. York County Recorded Drawings: The applicant must submit recorded copies, from the York County Registry of Deeds, of the Planning Board signed site plan drawings to the Planning, Code Enforcement and Engineering Departments prior to the issuance of any building permits for the project.

7. Sewer Permit fees must be paid to the City's Engineering Department prior to Building Permit issuance.

8. The application's boundary survey includes a number of references to "Vernal Pools". The Applicant has indicated that "*further investigations were undertaken, and it has been determined that these features are not vernal pools*". The boundary survey shall be amended to remove all references to "vernal pools". This revision shall be stamped and signed by the project engineer.

9. The project requires the issuance of a stormwater permit from the Maine Department of Environmental Protection (MDEP). To date this permit has not been issued by MDEP. Upon receipt of the required stormwater permit the applicant shall submit a copy to the Planning, Engineering and Code Enforcement Departments. Copies of this permit shall be received by the three (3) named department directors prior to the issuance of an Occupancy Permit for the expansion project.

10. Section 61 Stormwater Management comments #2 and #3, listed in Wright-Pierce comments shall be addressed to the satisfaction of the City Engineer prior to the scheduling of the required pre-construction meeting.

11. Prior to the scheduling of the required pre-construction meeting the applicant shall coordinate with City Engineering Department regarding the pump station, and meet the following comments to the satisfaction of the City Engineer and Public Works Director:

- The City would like to review the selected pumps to be installed, the layout of the station, and any valving proposed.
- The City requests a valve be inserted exterior of the pump station that could be used to throttle down or shut off the flow if any unforeseen conditions arise.
- The wetwell should be adequately sized to hold the proposed flow in case of both a need to throttle the station back or any power outages; however, it is assumed standby power will be provided to the pump station.
- The City would like to review the pump submissions to be provided prior to installation of the pumps and station, additional data may need to be provided.

1) Whenever gas, either natural or propane or other type, is proposed to be used on-site, a separate external shutoff valve shall be provided for each building on the site.

The valve location shall be approved by the City's Fire Chief prior to building permit issuance.

12. The property is located within the Thatcher Brook Watershed, and applicable fees are listed below. This property was previously developed; therefore, Staff has only calculated the fee based on new impervious areas only. This fee shall be paid prior to the issuance of a Building Permit.

Type of Surface	Compensation Fee (per acre)	Proposed Area (acres)	Compensation Fee
Non-roof Area	$ 12,500.00	1.94	$ 24,250.00
Roof	$ 5,000.00	1.16	$ 5,800.00
Landscaped Area	$ 2,500.00	0	$ -
Total			$ 30,050.00

13. Required Inspections:

i. Erosion & Sediment Control Inspections
1. It needs to be completed by a city-approved third-party Inspector and paid by the Applicant via the inspection fee escrow held by the city.
2. Initial, monthly, and final inspections.
3. At a minimum, the City's Engineering Department shall be notified for an initial E&S inspection before breaking ground.

ii. Right-of-way Inspections
1. Needs to be completed by the City Engineering Department.
2. For all public roads, storm, and sewer connections.
3. **Private right-of-way inspections:** The design engineer shall complete private right-of-way/road and utility inspections and certify that they have been constructed as approved before the full or partial release of established bonding.

iii. Stormwater BMP Installation Inspections
1. Needs to be completed by the design engineer.
2. Confirming stormwater facilities are installed correctly per design.
3. Inspection reports need to be submitted to the Engineering Department.

iv. Post-construction BMP Maintenance Annual Inspections
1. Needs to be completed annually by the design engineer or 3rd third-party inspector.
2. Needs to assess the current condition of each BMP, what repairs are needed, and confirm ongoing maintenance has occurred.

3. Upon completing each inspection, copies of all inspection reports must be submitted to the Engineering Department.

_____

John McCurry, Planning Board Chair

_____

Date

CITY OF BIDDEFORD, MAINE

SITE PLAN APPLICATION

Project:

INTERMAT PROPOSED EXPANSION
389 HILL STREET

Applicant:

FIBER MATERIALS INC.
5 MORIN STREET
BIDDEFORD, MAINE 04005

JUNE 10, 2026

Prepared by:

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

Site Design Associates
Consulting Engineering and Land Planning

June 10, 2026

David Galbraith, City Planner
City of Biddeford
P.O. Box 586
205 Main Street
Biddeford, ME 04005

RE: Fiber Materials Inc. (FMI) – Intermat Expansion
389 Hill Street
Parcel 74-7

Dear David:

On behalf of Fiber Materials Inc., Site Design Associates is pleased to submit the enclosed plans and documentation in support of a request for site plan approval for a proposed 50,395 s.f. addition to an existing manufacturing facility at 389 Hill Street. The project site is located in the Airport Industrial Zone (I2) where manufacturing is a permitted use.

We have included the following information in support of this application:

- Attachment 1 - Formal Site Plan Review Application
- Attachment 2 - City Drawing Checklist
- Attachment 3 - Letter of Agent Authorization
- Attachment 4 – Location Map
- Attachment 5- Traffic Impact Study
- Attachment 6 - Stormwater Management Plan
- Attachment 7 - Utility ability to serve letters
- Attachment 8 – Lighting specifications
- Attachment 9 – Maine Historic Preservation Commission Clearance
- Attachment 10 – SLODA Sections
- Drawings
  - Cover Sheet
  - Boundary and Topographic Survey (2 sheets)
  - C-100 Overall Existing Conditions Plan
  - C-101 Site Removals Plan
  - C-200 Site Plan
  - C-201 Site Layout and Utility Plan
  - C-300 Overall Grading Plan
  - C-301 Grading and Drainage Plan
  - C-302 Stormwater BMP Layout Plan
  - C-303 Erosion & Sedimentation Control Plan

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

- C-400 Erosion & Sedimentation Control Notes and Details
- C-401 Civil Details
- C-402 Civil Details
- C-403 Civil Details
- C-404 Civil Details
- FD-100 Fire Truck Maneuvering Plan
- L-1 Landscape Plan
- L-2 Landscape Plan
- L-1 Photometric Plan
- A1.1 Floor Plan
- A2.1 Elevations
- A2.2 Pumphouse Plan

With facilities in Maine and Rhode Island and over 400 employees, FMI designs, develops, and manufactures composite materials and components that perform in the most demanding applications and the most extreme environments. FMI's core strength is the ability to weave the most intricate fiber reinforcement designs and convert them to products which perform beyond the capabilities of conventional laminate composites, ceramics, and metals. Leveraging these fabrication technologies since 1969, FMI has grown to be the leading supplier of propulsion hot components and thermal protection system materials in the aerospace industry. FMI's products enable the most difficult missions, survive at the most extreme temperatures, and provide the greatest reliability to their customers. FMI proudly serves the U.S. Armed Forces, NASA, and aerospace and industry customers. The proposed expansion will result in increased production and updated technology. Approximately 42 new jobs will be created with employees working on 2 shifts.

The project involves the construction of the 50,395 s.f. addition and the creation of 1.94 acres of new paving and parking. The site and the perimeter access roads are laid out to allow an addition to the building at some point in the indeterminate future. The net increase in impervious area will be 3.10 acres, which exceeds the Site location of Development Act (SLODA) threshold of 3 acres of new structure area. The city has municipal capacity to review the relevant information.

Included as Attachment 2 is a Traffic Impact Study by Sewall. The study was based on a 104,000 sf addition and 87 additional employees. The current proposal is for a 50,395 sf addition and 42 additional employees. The analysis factored in a phase 2 expansion which is not being contemplated at this time. Note that Sewall concludes that the project will have no impacts on the operating conditions of the streets in the vicinity of the project, and that a MDOT Traffic Movement Permit is not required.

The following addresses Land Use Code Site Design Criteria in separate sections:

Site Plan Approval/Site Design Criteria

1. **Drainage**
   A detailed stormwater management plan which demonstrates compliance with local and state rules and regulations has been prepared for the project. Because Biddeford does not have DEP municipal capacity for stormwater, a stormwater permit application was submitted to DEP on March 18, 2026. See Attachment 3. DEP has indicated they expect to complete their review before the statutory deadline of July 7, 2026. All drives and access ways have been designed in accordance with city requirements.

2. **Utilities**
   New domestic water and fire, sewer, natural gas, and electrical services will be installed to support the addition. Booster pumps are required for the domestic service. Attachment 4 includes ability to serve letters from the utilities. The proposed utilities are shown on the project drawings, including sizes and materials.

   The most recent fixture count estimates a peak water consumption of 100 gpm. Based on the Maine State plumbing code we have estimated a daily sanitary sewage flow of 2,500 gpd. A dual submersible pump station will convey the sewage to the gravity system in Hill Street.

   The electricity and communication lines will be installed from the site overhead to a riser pole on the site, and distributed from there underground.

3. **Parking**
   The site currently has 83 parking spaces, which will be increased to a total of 222 spaces as a result of the construction. The plans also reflect 24 "future" spaces that have been incorporated into the design and permitting documents, in the event this parking is required at some point in the future. Parking is designed and laid out in accordance with city standards. The parking lot lighting design is designed to minimize offsite glare and utilizes cut off fixtures. A photometric plan is included in the plan set, and fixture specifications are included as Attachment 5.

4. **Structural Layout and Design**
   a) Design of Buildings

      The existing building located at 389 Hill Street Biddeford, ME is a pre-engineered metal building with corrugated metal panels and a standing seam roof. There is a larger portion of the building that bumps up for the manufacturing process. The expansion that we are proposing will blend into this building by utilizing insulated metal panels, to achieve a higher R-value, that have a corrugated aesthetic.

We are using two panel profiles along with three color options that utilize the grey tones of the existing building while also modernizing the industrial appearance.

The roof has been updated to a thermoplastic polyolefin (TPO) for insulation qualities but is partially hidden by parapets and we are using the canopies to match the standing seam roofs on the existing building. The building will also have a connector that joins to the existing building. Our goal is to create a harmoniously blended building by incorporating existing building material and aesthetics into a modern and more energy efficient design.

b) The building will be sited in conformance with all setback requirements.

c) Fire Protection & Safety

A sprinkler system is proposed and access is provided in accordance with city requirements. The system will include a 114,000 gallon water storage tank and a pump house. A site plan was sent to the fire department for comment early in the design process and comments were incorporated into the documents as required. An updated site plan was distributed to the fire and police departments in December of 2025 and no comments were received.

d) Landscaping

A detailed landscape plan is provided.

e) Service, Storage, and Utility Areas

These areas have been located to the side and rear of the proposed addition and are laid out based on the manufacturing requirements.

f) Paving, Parking, and Storage Areas

Paving and parking is shown within the required side setback. As previously noted, the 100 ft buffer provided for the wetland to the east limits our expansion in that direction. Therefore, it is necessary to encroach into the setbacks with the parking and the access drive. A waiver of the prohibition on parking and paving in the side setback was granted by the planning board on September 17, 2025.

There is no parking shown within 25 ft of the front property line.

g) Handicapped Accessibility

The building will be accessible both externally and internally.

h) Loading Facilities

Loading facilities are located to the side and rear of the facility and are designed in accordance with all applicable regulations.

i) Parking, Loading, and Protective Buffers

All parking and loading is situated on the same tract of land as the building. The non-vegetated area on the site will be 39.7% of the lot area, well below the 75% maximum of the code. The total area of parking and paving will be 26% which is less than the 30% permitted under the code. Buildings are sited in conformance with setback requirements.

j) Open Space

The project is sited to limit wetland impacts and preserve the larger wetland complex to the east.

k) External Lighting

Proposed lighting is shown on the plans and a photometric plan is included in the plan set. Fixture specifications are included in Attachment 4.

l) Signs

Any signs will be designed in compliance with applicable codes, and application for sign permits would be made if required.

m) Historic and Archeological Resources.

MHPC reviewed the project and indicated that no historic properties would be affected. Please see Attachment 5.

Waivers

Waivers granted by the planning board at the May 20, 2026 meeting:

Article VI.26.F. The top of a cut or the bottom of a fill section shall not be closer than 10 feet to an adjoining property, nor shall said cut or fill exceed the three-to-one slope unless the Planning Board waives either or both requirements upon the applicant's demonstration, certified by a Maine licensed professional engineer (P.E.), that a steeper

slope, whether or not closer than 10 feet to the adjoining property, is stable, will not result in excessive downstream erosion or sedimentation, nor cause any additional adverse impact on the adjoining property.

Article XI.II.5.B.1.e.3. No slope shall be created which results in a slope of more than two feet horizontal to one foot vertical unless proper retaining walls are proposed.

Granted by the planning board on 09/17/25:

Article XI, II. section 5.B.4.f.1 No paving, parking, or storage shall be permitted within the required setback of any side or rear property line;

Responses to Staff Comments:

Comment: The proposed property is located within the Thatcher Brook Watershed and applicable fees will be imposed at Final Plan review.

Response: Acknowledged.

Comment: The applicant shall contact the City's Fire Department Staff Review Committee (SRC) to discuss fire protection requirements and systems being proposed.

Response: We have reached out to the Fire Department SRC to discuss the requirements.

Comment: The proposal includes a 114,000 gallon water tank adjacent to a 14' x 16' fire pumphouse. Revised plans shall include a narrative explaining the need, use, and discharge of the storage water and where water will be released.

Response: A stored water supply and fire pump are necessary because the existing city water system cannot provide the flow and pressure required for the fire sprinkler system. The tank size has been revised to 114,000 gallons. The most hydraulically demanding area of the system requires 1,250 GPM at 90 PSI, plus an additional 500 GPM hose demand when connected to the city water supply. Currently, the city water supply can only provide approximately 7 PSI at 1,750 GPM, which is insufficient to meet these requirements. For testing of the fire pump, water will be released through the test header located at the back of the fire pump building. The max flow rate for the test will be 1,875gpm. A flow meter and a recirculating 8-inch bypass line will be installed and routed back to the fire pump suction piping. This arrangement will allow the system to operate without discharging water to the exterior. However, periodic discharge to the exterior through the test header will be required during fire pump commissioning and in situations where flow meter discrepancies require calibration.

This water tank is only for fire protection purposes and is not used as process water.

Responses to Peer Review Engineer Comments:

Comment: Wetlands are proposed to be filled. Have these been permitted by the Maine DEP and US Army Corps of Engineers?

Response: A total of 1,677 sf of wetlands will be impacted by the proposal, which is below the thresholds for DEP permitting. Per the new ACOE General Permit, an ACOE pre-construction notification is not required for this project resulting in less than 4,356 square feet of wetland fill.

Comment: The boundary survey shows a "manmade drainage ditch vernal pool", which is just noted as a "manmade drainage ditch" on other sheets. This is proposed to be filled for the building addition but not noted as a wetland impact on the overall grading plan. Clarify what this is and if this fill needs to be permitted.

Response: As noted, the feature is a manmade drainage ditch, and impacts to it do not require a permit from the regulators.

Comment: A vernal pool is also noted on the boundary survey to the east of the "manmade drainage ditch vernal pool", which is just noted as wetland on other sheets. Are vernal pools proposed to be filled?

Response: Since the date of the survey, further investigations were undertaken, and it has been determined that the feature is not a vernal pool.

Comment: On previous submissions, vernal pools were called out and indicated as, "Vernal Pool (non-significant)". On the survey plans they are called out as "Vernal Pools" and on the current site plan they are not called out, and they are identified as wetlands. If the vernal pools have been determined to be "non-significant", it is recommended they be called out as "Vernal Pool (non-significant)" to limit confusion

Response: As indicated above, further investigations were undertaken, and it has been determined that these features are not vernal pools.

Comment: Fill is proposed right up to the southerly property line and cut is proposed right up to the northerly property line. This does not comply with Section 29.F, which states the following: "The top of a cut or the bottom of a fill section shall not be closer than 10 feet to an adjoining property, nor shall said cut or fill exceed the three-to-one slope unless the Planning Board waives either or both requirements upon the applicant's demonstration, certified by a Maine licensed professional engineer (P.E.), that a steeper slope, whether or not closer than 10 feet to the adjoining property, is stable, will not result in excessive downstream erosion or sedimentation, nor cause any additional adverse impact on the adjoining property." The applicant is requesting a waiver of this requirement, which appears reasonable.

Response: A waiver was granted by the planning board on May 20, 2026.

Comment: Prior to any final approval by the Biddeford Planning Board all state and federal permits must be received and reviewed by the City; modification to plans required by the additional permits must be indicated on the final plans. Submit permit approvals when available.

Response: The only outstanding permit related to the site plan is a stormwater permit from DEP. We do not expect any significant revisions to the plan as a result of the DEP review. We suggest that it the planning board is so inclined, this could be a condition of approval.

Comment: Provide parking calculations on the plan showing how many parking spaces are required and proposed.

Response: A parking calculation has been included on the site plan. The code requires 1 space per employee on the maximum working shift, which would be 102 spaces, but this does not include spaces for contractors, visitors, and motorcycles, which are incorporate into the site plan. It also does not consider the requirements for a shift change when second shift employees arrive while the first shift is still on site. Additionally, the parking includes additional spaces for a phase 2 project in the future, along with the associated stormwater infrastructure.

Comment: Provide comment on how the parking lot meets the requirements of § VI-49A.10. Large parking lots covering more than 1/4 acre shall be provided with deciduous shade trees designed to reduce solar heating in the summer and provide for windbreaks. All parking or outdoor storage areas shall be separated from a public road by a landscaped buffer strip at least 15 feet wide, planted with shade trees a minimum two inches diameter at breast height and dense medium height shrubs to screen parked vehicles.

Response: Given the layout of the parking adjacent to the building, there is no concern relative to the lack of windbreaks. The stormwater runoff will be cooled significantly in the chamber system located below grade. Given the layout of the below grade chamber system there is little opportunity to provide shade trees. Shade trees are provided outside the footprint of the chamber system at the west end of the lot. Plantings are now shown between the existing and proposed parking and the public way.

Comment: Provide Town with the Maine DEP stormwater permit approval when available.

Response: Acknowledged. We request that this be a condition of approval if the planning board is so inclined.

Comment: Provide comment on how the stormwater design meets the requirements of § VI-61A.1. It appears that peak runoff rates are mitigated but there is an increase in volume at AP2

Response: As we believe the peer review engineer is aware, whenever vegetated areas are converted to impervious surface, there is an increase in the peak rate and volume of stormwater runoff. This section of the city code is poorly written, and the vast majority of large and small development projects in the city that involve the conversion of vegetated areas to impervious areas involve an increase in the volume of runoff from the development sites. DEP chapter 500 regulations require stormwater detention for larger projects; i.e. reducing the post-development rate of runoff from development sites, but not volume. The project is designed in accordance with those regulations. This section of the code states that stormwater systems shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff. Our design meets this standard. If staff believes a waiver of this standard is required, please consider this a request for the waiver. However, this would mean that most site plan review and subdivision projects in the city would require the waiver as well. The planning staff and board have not typically required that such a request be made for projects under review.

Comment: Provide comment on how the stormwater design meets the requirements of § VI-61C. Stormwater runoff systems should be designed to facilitate aquifer recharge when it is advantageous to compensate for groundwater withdrawals or reductions in infiltration. Conversely, designs should avoid recharge where groundwater effects might be harmful. Was infiltration considered? Is the liner proposed to mitigate groundwater inflow to the system?

Response: Infiltration was not considered because DEP chapter 500 rules prohibit infiltration of stormwater from large impervious areas and from vegetated and roof areas where manufacturing occurs, there is no aquifer under the site that would benefit from recharge, and there will be no withdrawal of groundwater.

Comment: We recommend reviewing the plans and model to confirm they match. We found a few inconsistencies that should be revised:

a. The outlet of FI-3 for Filterra F3 was modeled as a 6" storm drain but the plans call for a 24" outlet.
   Response: It is our opinion that this node is modeled correctly. The 6" outlet is for the outlet from the filtered runoff through the treatment media. The 24" outlet is the overflow outlet.
b. The outlet of FI-3 for Filterra F5 was modeled as an 18" storm drain but the plans call for a 24" outlet.
   Response: The HydroCAD model has been corrected to include the 24" outlet.
c. Filterra F6 ponding storage was modeled as a 4'x'8 area but the plans note it as 4'x6'.

Response: The detail has been corrected to indicate a 4'x8' Filterra vault in this location.

d. The Post Development Drainage Plan shows subcatchment 2.7 draining to pond C4. Based on the routing diagram in HydroCAD, it appears this should be C8.

Response: The C4 label on the north side of the drainage plan was a drafting error and has been removed. Catch basin CB-4 is a secondary drainage inlet in the case that snow plowing along the access drives blocks runoff from entering the adjacent vegetated swale.

Comment: The table of contents under Supporting Data and Calculations of the Stormwater Management Report does not match what is appended. For example, the table of contents says Appendix D is the Inspection & Maintenance Plan, but this is actually Appendix E. Appendix D is the USDA Soil Map

Response: The table of contents has been revised.

Comment: We offer the following comments on the Inspection and Maintenance Plan:

a. The Filterra bioretention systems should be described within the body of the Plan. They are only referenced in the initial introduction and on the checklist.

Response: A paragraph has been added referencing the manufacturer's Operation and Maintenance manual, which has been included in the revised I&M plan for the project.

b. The Plan should reference Part II, Chapter 34 Environment, Article VI Post-Construction Stormwater Discharge of City Code.

Response: The reference has been added to the document.

c. The 5-year recertification process with Maine DEP should be referenced within the Plan.

Response: This was included in the "Recertification Requirement" section of the I&M plan.

d. It should be made clearer who is being referred to as the "Department" throughout the Plan. It should be clearly defined what the requirements are for documentation submitted to the City Engineering Department versus the Maine Department of Environmental Protection.

Response: This has been clarified in the document.

e. The Plan should note that annual certifications be provided to the Engineering Department on or by March 1 of each year. It is recommended that the required annual certification form [Annual Stormwater Management Facilities Certification Form (Appendix 1 of the Post-Construction Stormwater Management Ordinance), Attachment 2 of Chapter 34] be included in the Plan

Response: The information has been added to the I&M plan for the project.

Comment: The applicant is requesting a waiver for § XI-II.-5B.1.e.3 for the creation of slopes of more than 2:1 without retaining walls, which appears reasonable.

Response: The planning board granted the waiver on May 20, 2026.

1. **Comment:** A private pump station is proposed. Based on a cursory review, we offer the following comments:
    a. Provide design and peak flows. Confirm whether flow from the potential future expansion has been considered in the sizing of the pump station.
    b. Provide recommended model of pumps.
    c. Confirm pump capacity operating requirements including pumping rate and head. Provide pump curve.
    d. Confirm pump control elevations are set appropriately to not short cycle the pumps.
    e. It is recommended to locate the valves outside of the operating range of the pump station for ease of maintenance
    f. Where will the pump power and signal cables be terminated? Will this be routed underground?

Response: The peak design peak flow as noted on the updated drawings is 65 gpm at 15 ft TDH. This was based on the first shift at 102 employees. We typically provide the design flow and static head on the drawings, along with relevant elevations, and let the general contractor and vendor provide submittals for review. The submittals will include pump curves, brand, model, control specifications, etc. We expect that if the phase 2 expansion moves forward an analysis of the pumps provided will be undertaken, and adjustments to the floats/sensors made if necessary. The pump control elevations are set to provide five minutes of run time approximately four cycles per hour at peak flow.

We are comfortable with the layout of the pumps as shown on the drawings. This is an industrial setting and we do not expect the need for frequent maintenance such as that associated with a municipal pump station. The power and cables will likely be located underground. The control panel will be located at the pump station along with a strobe and alarm, and an alarm will be located inside the building. The electrical design is ongoing, and as is the case with the projects of this magnitude, the development of those plans lags behind the site drawings.

Comment: We recommend a minimum slope on all storm drain of 0.5% or greater. There are several storm drains with slopes less than this. Is it feasible to increase the slope?

Response: We are comfortable with the slopes for the storm drains shown on the drawings. Given the need to move stormwater across the site, steeper slopes are not viable.

Comment: The following items must be specified in application narrative and on the plan, per § XI-II.-5B.2.e:

a. Rated normal capacity and gallons per minute at prime use time.
b. Rated maximum capacity and gallons per minute at prime use time.
c. Residual pressure of proposed tap line.

Response: The cover letter reflects the domestic peak flow based on the fixture counts of 100 gpm. A hydrant flow test was conducted in January of 2025. The designers are working closely with Maine Water in the development of plans for the domestic water supply. Boosters will be provided. Maine Water has verified their ability to serve the project. Our designers are unsure of what prime use time is, nor do we understand the relevance of this requirement. The system is being designed by professional engineers in conjunction with Maine Water. Based on our experience in the city of Biddeford, we have not seen this information in planning board applications. If a waiver of this is required, please consider this a request for the waiver.

Comment: Fire protection

a. Coordinate with the Fire Department and submit coordination showing they approve of the proposed design.
b. Submit vehicle turning diagrams showing emergency vehicle circulation throughout the parking lot and around the building for the City of Biddeford's largest truck.
c. Whenever gas, either natural or propane or other type, is proposed to be used on-site, a separate external shutoff valve shall be provided for each building on the site. The valve location shall be indicated on the plat and approved in writing by the fire chief/fire marshal.

Response: Coordination with the fire department is ongoing. They were given several opportunities to review the plan previously and no comments were received. We will provide the most recent documents to them. A plan with the BFD aerial apparatus is included with this response, and demonstrates the access is appropriately designed. The fire department will be consulted regarding the valve location and it will be shown on the final plan submission to the appropriate authorities, including the SFMO and city fire and codes departments. If not resolved by the planning board meeting, we request the planning board consider this as a condition of approval.

Comment: External lighting

a. Indicate the actual model and options intended to be used on the light fixture specification sheets. We are particularly interested in the BUG

rating of each fixture for evaluation of uplighting and glare.

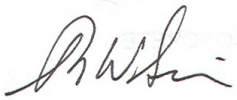
b. The northwesterly entrance is not illuminated. Per § XI-II.-5B.4.k.2 entrances from roadways should be illuminated.

Response: This information is provided in Attachment 8.

We are currently soliciting proposals from site contractors to undertake the site work and would prefer to provide the performance guarantee cost estimate when the contractors are on board and have priced it. We are in hopes that the planning board could consider this as a condition of approval.

Please let me know if staff has any questions, comments, or suggestions relative to this proposal. We look forward to meeting with the staff review committee at the next available meeting to discuss final approval of this project.

Sincerely,
Site Design Associates



Tom Saucier, P.E.
President

Attachment 1
Formal Site Plan Review Application

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

Type of Application:

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

Applicant Information:

Name: Fiber Materials, Inc.
Mailing Address: 5 Morin Street, Biddeford, ME
Telephone: [redacted]

What is your legal interest in the property?
_X_ Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:

Name: Same as Applicant above.
Mailing Address: _____
Telephone: _____
Email: _____

Agent's Information:

Name: Tom Saucier, PE, Site Design Associates, Inc.
Mailing Address: _____
Telephone: 207-449-4275
Email: _____

Engineer/Surveyor's Information:

Name: Tom Saucier, PE, Site Design Associates, Inc.
Mailing Address: 23 Whitney Way, Topsham, ME 04086
Telephone: [redacted]
Email: tsaucier@sitedesignassociates.biz

Project Location and Lot Information:

Street Address: 389 Hill Street Drainage Watershed: Thatcher Brook
Tax Map: 74 Lot: 7
Current Zoning: I-2 Shoreland Zoning: n/a
Size of Lot: 14.04 (x)acres ( )s.f. Lot Frontage: 394 feet
Existing Use of Property: Industrial manufacturing

Property currently serviced by:

_X_ City Road _x_ Public Sewer _x_ Public Water __ Public Trash
__ Private Road __ Septic System__ Private Well _x_ Private Hauler

Slope Conditions in Area of Construction (if applicable):
_X_ Flat (0-3% slope) __Rolling (3-8% slope) __Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? _x_ (Yes)__(No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes)_x_(No) if yes attach information
Do you plan to bring fill onto the lot? _x_(Yes) __(No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

Building expansion for additional manufacturing capacity and associated infrastructure.

Property to be Serviced by:

x City Road x Public Sewer x Public Water __ Public Trash

__ Private Road __ Septic System __ Private Well x Private Hauler

Limits of Disturbance: 6.9 +/- (x)acres ( )s.f.

Net change in impervious cover: 3.1 +/- (x)acres ( )s.f.

Is this project part of a larger project? __(Yes) x (No)

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

Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) __(Yes) x (No)

Is the project proposing any Stormwater facilities/BMPs? _x_(Yes) __(No)

Will a Traffic Movement Permit (TMP) be required?: __(Yes) x (No)

__ **If in a Shoreland Zone:**

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

Percent of structure expansion (Max 30%): _____

__ **If Subdivision Review, number of lots proposed:** _____

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

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

Total new square feet footprint of structure: 50,619+/-

Total new square feet paving/parking: 84,417 +/-

Waiver Requests (attach details):

1. Article XI, II. section 5.B.4.f.1., Approved by planning board 9/17/25
2. Article VI.26.F. Slopes within 10 ft of property line; no slope steeper than 3H:1V
3. Article XI.II.5.B.1.e.3. No slopes steeper than 2 ft horizontal to 1 ft vertical.
4. 2 and 3 apprived by planning board 5/20/26
5. _____

Required Submittal Attachments:

A. Letters of Approval

* x Fire Department – Contact Chief or Deputy Chief – 282-9986

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

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

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

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

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

B. Photographs of Site.

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

D. Engineering Plans, as required.

E. Stormwater Management Report, as required.

Fees (Due at time of Submission):

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

* Submitted request for review on 12/3/25 - No repsonse received

Required Signatures:

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

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

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

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

Signature of Applicant: _____ (Agent) **Date** 6/10/26

Signature of Property Owner: _____ (Agent) **Date** 6/10/26

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

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

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

Attachment 2
Checklist

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST *LAST REVISED: 11/26/2024*

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	INTERMAT PROPOSED EXPANSION
Planning Board # (if available):	2025.1
Applicant Name/Info:	FIBER MATERIALS, INC.
Submittal #/Type (Prelim/Final):	FINAL
Submittal Date:	10-Jun-26

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE			CITY REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	**GENERAL PLAN REQUIREMENTS**					
A	Drawing specific legends (linetypes, hatches, etc.)	YES	ALL SHEETS			
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	YES	ALL SHEETS			
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks	YES	ALL SHEETS			
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	YES	ALL SHEETS			
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES	ALL SHEETS			
2	**COVER SHEET**					
A	Project Name & Property Address	YES	COVER			
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES	COVER			
C	Site Location Map	YES	COVER			
D	Sheet Set List of Drawings	YES	COVER			
E	Tax Map and Lot ID	YES	COVER			
F	Zoning & Shoreland Zone Information	YES	COVER			
G	Existing Use Description	YES	COVER			
H	Proposed Use Description	YES	COVER			
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES	COVER			
J	Name of Drainage Watershed	YES	COVER			
K	Within the MS4 Urbanized Area (Yes/No)	YES	COVER			
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES	COVER			
M	Within the 100-year Flood Zone (Yes/No)	YES	COVER			
N	Public Road Proposed (Yes/No)	YES	COVER			
O	Private Road Proposed (Yes/No)	YES	COVER			
P	Public Sewer Connection (Yes/No)	YES	COVER			
Q	Public Storm Drain Connection (Yes/No)	YES	COVER			
R	Limits of Disturbance in square feet and acres	YES	COVER			
S	Pervious Land Cover square footage, existing and proposed	YES	COVER			
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES	COVER			
U	Building Roof square footage, existing and proposed	YES	COVER			
V	Assigned Planning Board Number	YES	COVER			
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	NARRATIVE	NOT IN FLOOD ZONE		
3	**EXISTING CONDITIONS PLAN**					
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES	C-100			
B	Property & Right-of-Way Lines	YES	C-100			
C	Boundary line information (bearings, distances, etc.)	YES	BOUNDARY SURVEY			
D	Property pin and monumentation locations	YES	BOUNDARY SURVEY			
E	Existing easements with proper ownership identified	YES	C-100			
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES	C-100			
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-100			
H	100-year Flood Zone Limits & Elevation	YES	C-100			
I	Existing contours with adequate contour labelling; minimum 1' contour interval	YES	C-100			
J	Existing building FFEs annotated	YES	C-100			
K	Spot elevations for all tie-in locations (curb cuts, property line)	YES	C-100			
L	Existing buildings & structures	YES	C-100			
M	Existing pavement areas & number of parking spaces	YES	C-100			
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES	C-100			
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES	C-100			
P	Existing signage and striping	YES	C-100			
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES	C-100			

R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-100			
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-100			
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	YES	C-100			
U	Location of any borings, drinking wells, and monitoring wells	YES	C-100			
4	**SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN**					
A	Limits-of-disturbance outlined and acreage annotated	YES	C-101			
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-101			
C	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.		
D	Callout existing site features to be demolished/removed/replaced	YES	C-101			
E	Callout existing utilities to be demolished/removed/abandoned-in-place	YES	C-101			
F	Hatch existing buildings and pavement to be removed	YES	C-101			
G	Construction Entrance location(s)	YES	C-303			
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES	C-303			
I	Stockpile and staging area(s) identified (with proper perimeter control)	YES	C-303			
J	Inlet protection location(s)	YES	C-303			
K	Note requiring contractor to implement dust control measures throughout construction	YES	C-303			
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	YES	C-101			
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	YES	C-303			
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed	YES	C-303			
5	**SITE PLAN/SUBDIVISION PLAN**					
A	Partial Site Plans needed for any viewport scale greater than 1"=20'	N/A				
B	Existing property and right-of-way lines	YES	C-200/C-201			
C	Proposed subdivision lot lines and labels	N/A		NOT A SUBDIVISION PROJECT		
D	Required Zoning Setbacks shown with dimensions and annotation	YES	C-200/C-201			
E	Bulk requirement summary table (zoning/parking calculations)	YES	C-200/C-201			
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-200/C-201			
G	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.		
H	Proposed building outlines, door entrances and loading docks	YES	C-200/C-201			
I	Proposed building labels	YES	C-200/C-201			
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	N/A				
K	Proposed parking and accessible parking locations; annotate parking space counts	YES	C-200/C-201			
L	Proposed signage, parking striping, and traffic striping	YES	C-200/C-201			
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	YES	C-200/C-201			
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES	C-200/C-201			
O	Proposed landscaping; detailed landscaping design should be shown on separate plans	YES	C-200/C-201			
P	Designated snow storage areas	YES	C-200/C-201			
Q	Proposed dumpster locations and trash removal access	YES	C-200/C-201			
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	YES	C-200/C-201			
S	Radial dimensions for all curbs, landscaped islands, sidewalks	YES	C-200/C-201			
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	N/A	C-200/C-201			
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	N/A		NO ROADS PROPOSED		
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	N/A		NO ROADS PROPOSED		
W	Planning Board signature block for final recording	YES	C-200			
6	**GRADING PLAN**					
A	Partial Grading Plans needed for any viewport greater than 1"=20'	YES	C-302			
B	Limits-of-disturbance outlined and acreage annotated	YES	C-300/C-301			
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	YES	C-300/C-301			
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	YES	C-300/C-301			
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	YES	C-300/C-301			
F	Detailed grading for all ditches, swales, outfalls, and riprap	YES	C-300/C-301			
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	YES	C-300/C-301			
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations	YES	C-300/C-301			
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-300/C-301			
J	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.		
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)	YES	C-300/C-301			
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	YES	C-300/C-301			
M	Proposed % slope arrows for all ADA parking spaces and sidewalks	YES	C-301			

N	Proposed longitudinal % slope arrows for drainage ditch centerlines	YES	C-301			
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	YES	C-301			
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	NARRATIVE	NOT IN FLOOD ZONE		
7	**ROAD PROFILES (if public/private road proposed)**	N/A		NO ROADS PROPOSED		
A	Existing surface; dashed and screened					
B	Proposed surface; continuous and bold					
C	Road design speed must be clearly identified					
D	Corresponding centerline stationing and curve data annotation					
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37					
F	Clear annotation if proposed road will be public or private					
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance					
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads					
8	**UTILITY PLAN**					
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES	C-201			
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES	C-201			
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-201			
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES	C-201			
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-201			
F	Proposed storm culverts, outfalls, and riprap locations and sizes	YES	C-201			
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-201			
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-201			
I	Flow directional arrows for storm & sewer pipes	YES	C-201			
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES	C-201			
K	All storm drains must be sized to convey the 25-year storm	YES	C-201			
L	Sewer force main sizes and invert elevations	YES	C-201			
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.	YES	C-201			
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells	N/A		THESE ITEMS NO PROPOSED		
O	Proposed water sizes labelled	YES	C-201			
9	**UTILITY PROFILES**					
A	Utility profiles required for **all** gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins	YES	C-201			
B	Existing surface; dashed and screened	YES	C-201			
C	Proposed surface; continuous and bold	YES	C-201			
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-201			
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-201			
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	YES	C-201			
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	YES	C-201			
10	**DETAILS**					
A	Road section detail, including pavement/gravel depths & cross slopes	N/A		NO ROADS PROPOSED		
B	Sidewalk, paver, crosswalk, and any other pavement section details	YES	C-400 THRU C-404			
C	Pavement sawcut & shiplap details	YES	C-400 THRU C-404			
D	Utility trench/backfill detail	YES	C-400 THRU C-404			
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES	C-400 THRU C-404			
F	Signage, striping, and ADA details	YES	C-400 THRU C-404			
G	E&S notes and details	YES	C-400 THRU C-404			
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES	C-400 THRU C-404			
I	Storm outfall & riprap details	YES	C-400 THRU C-404			
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	YES	C-400 THRU C-404			
K	Pump station, grease trap, oil-water separator, septic, drinking well details	YES	C-400 THRU C-404			
L	Conduit section details	YES	C-402			
11	**LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS**					

A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	YES	C-201/PHOTOMETERIC PLAN			
B	Landscaping & lighting details	YES	L-1/L-2			
12	**DOCUMENTS/REPORTS/CALCULATIONS**					
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	Submitted				
B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	YES	STORMWATER REPORT			
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)					
D	A Performance Guarantee Cost Estimate utilizing Planning's template					
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	Yes				
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	YES				
K	Public sewer pump station sizing calculations and maintenance plan	YES				
M	Grease trap sizing calculations	N/A		NO GREASE TRAPS PROPOSED		
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A		NO HOA PROPOSED		
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals			NONE REQUIRED		

Attachment 3
Agent Authorization

08/07/2025

Agent Authorization Letter

Principal
Fiber Materials, Inc.
5 Morin Street, Biddeford, ME 04005
Designated Principal POC: David Arnst
Email: DArnst@fibermaterialsinc.com
Phone: 207-294-7293

Agent
Site Design Associates
23 Whitney Way, Topsham, ME 04086
Designated Agent POC: Tom Saucier
Email: tsaucier@sitedesignassociates.biz
Phone: 207-756-0068

This Letter of Authority ("Agreement") is made between Fiber Materials, Inc. ("Principal"), located at 5 Morin Street, Biddeford, ME 04005, and Site Design Associates ("Agent"), located at 23 Whitney Way, Topsham, ME 04086.

Fiber Materials, Inc. hereby authorizes Site Design Associates to perform all site design and permitting activities related to proposed construction projects at Intermat, located at 389 Hill Street, Biddeford, ME 04005. This includes but is not limited to the scope specified in Section A below.

Section 1: Scope of Authority:

1.A Development and submission of all required documents, forms, and permit applications;
1.B Communication and coordination with federal, state, and local government and regulatory authorities;
1.C Detailed site design and civil engineering documentation;
1.D Representation in interactions with local and state officials regarding

permitting and compliance;
1.E Participation in site planning reviews, meetings, and presentations as required by permitting agencies.

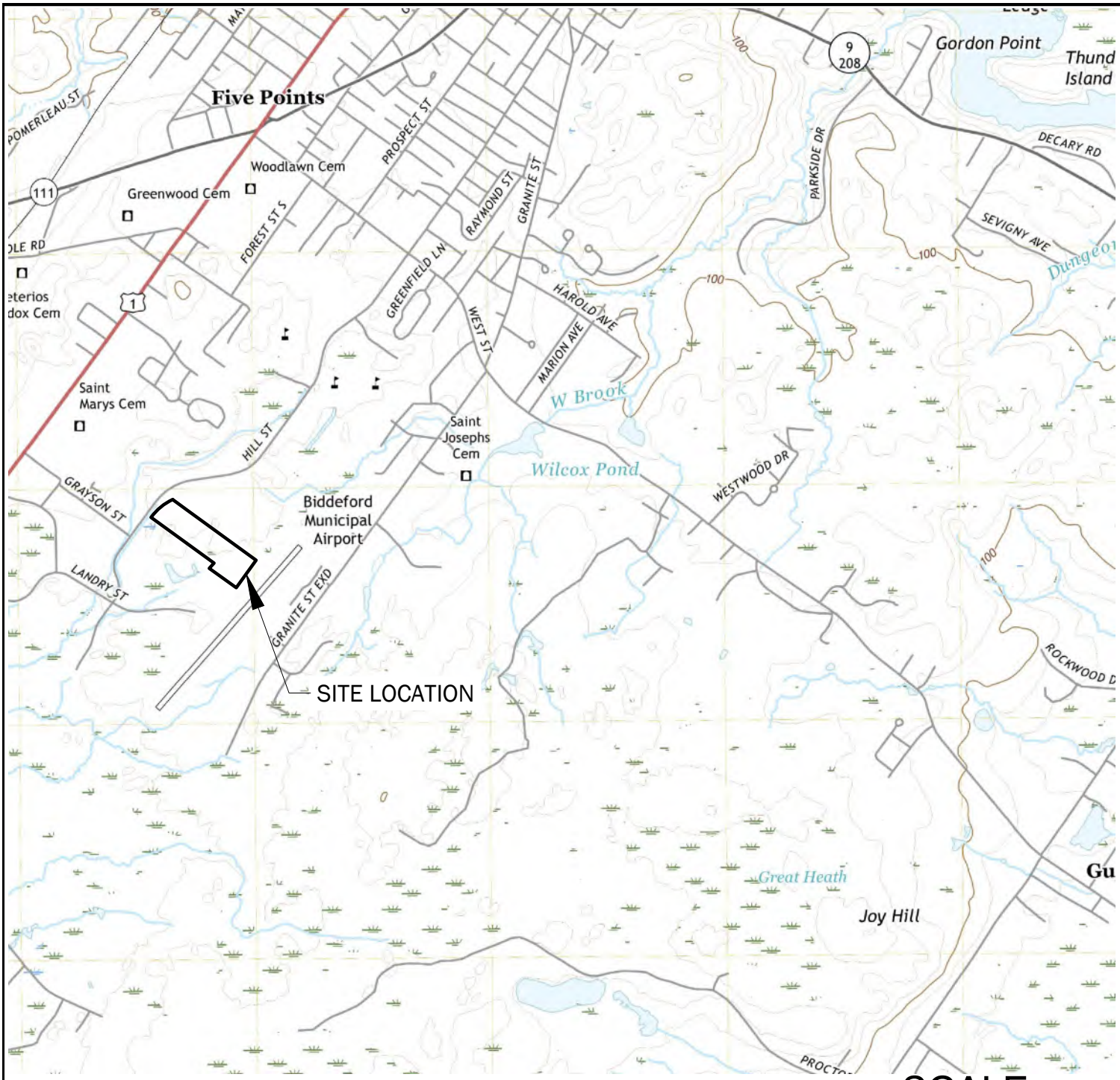
The “Agent” is authorized to represent the “Principal” solely in relation to the scope described above and may act within that scope to fulfill the requirements of related government contract projects. Any action taken beyond the defined scope requires prior written approval from the “Principal”.

Section 2: Agent Authorization Validity
This authority shall commence on June 26, 2025, and remain in effect through December 30, 2027, unless earlier revoked in writing by the “Principal”.

This letter is a copy intended for City of Biddeford recordkeeping

Angela Commeau
Angela Commeau
Fiber Materials, Inc.
Subcontract Administrator

Attachment 4
Location Map



USGS BIDDEFORD, MAINE 24K TOPOGRAPHIC MAP, 2021

NORTH

SCALE

0 1000 2000 4000

SCALE in FEET
1"=2000'

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

DESIGN DEPT.	INTERMAT PROPOSED EXPANSION
DRAWN DEPT.	389 HILL STREET, BIDDEFORD, ME 04005
CHKD TWS	LOCATION PLAN
DATE DEC. 2025	PROJ. NO. 24-211-01
SCALE 1"=2,000'	DWG. NO. --
	REV. A

FIBER MATERIALS INC.
5 MORIN ST, BIDDEFORD, ME 04005

Drawing Name: C:\CCC Projects\25204 - Intermat - Biddeford\3. CAD\25204 - Base_Phase 2 | Plot Date / Time: Dec. 16, 25 / 12:52 PM

Attachment 5
Traffic Impact Study

TRAFFIC IMPACT STUDY

INTERMAT MANUFACTURING FACILITY EXPANSION

389 HILL STREET, BIDDEFORD, MAINE

December 5, 2025

Prepared for:

Site Design Associates
23 Whitney Way
Topsham, ME 04086

Prepared by:

Sewall
The evolution of expertise

A TFIC Company
14 York Street · Portland, Maine 04101 · +1.207.817.5440 · sewall.com · info@sewall.com

INTRODUCTION

The purpose of this report is to summarize a traffic impact study performed by James W. Sewall Company (Sewall) for a proposed expansion of the Intermat manufacturing facility at 389 Hill Street in Biddeford, Maine. The site location is shown on the map in Figure 1.

The existing manufacturing building is 32,895 square feet (S.F.) in size. The proposed expansion will add 104,234 S.F. of manufacturing space for a total expanded facility of 137,129 S.F. Intermat currently employs 83 persons at the existing facility. The proposed expansion is expected to result in 87 additional employees, for a total of 170 after expansion.

This report details the traffic analysis completed to determine the expected number of trips to be generated by the expansion and any off-site impacts on level of service or safety for the local City of Biddeford approval process.

The site is currently served by a primary entrance/exit drive to the parking lots. This drive will be relocated approximately 50' southerly. There is a secondary access drive to the loading dock for trucks, which will remain in the current location.

Construction of the expansion is expected to begin in spring of 2026 with occupancy planned for mid-2027. Hence, 2027 was selected as the study year for traffic analysis purposes.

TRAFFIC VOLUMES

Turning movement/classification counts were conducted by Sewall at the site drive intersection on Hill Street to determine existing traffic volumes and travel patterns during both the weekday AM and PM peak hour periods. MaineDOT had recently performed a turning movement count at the signalized intersection of Route 1, Precourt Street and the Biddeford Connector under peak summer conditions in 2024. The results are summarized below:

Intersection	Count Date/Period	Peak Hour
Intermat Drive and Hill Street	10/14/25 – AM	7:00 – 8:00
Intermat Drive and Hill Street	10/14/25 – PM	3:30 – 4:30
Route 1, Precourt Street & Biddeford Connector	8/20/24 - AM	7:30 – 8:30
Route 1, Precourt Street & Biddeford Connector	8/20/24 – PM	3:30 – 4:30

The count records are included in the appendix.

Existing average annual daily traffic (AADT) data for the area was obtained from MaineDOT's interactive traffic map and MaineDOT's "Traffic Volume Counts, 2014 Annual Report". This data is summarized below:

	Average Annual Daily Traffic					
Location Description	2010	2013	2019	2022	2023	2024
Hill Street, SW/O West Street	5030	4150	4800	4590	4660	--
Precourt Street, N/O Landry Street	--	--	2170	--	2380	--
Precourt Street, SE/O Carver Street	--	--	2660	2870	2920	2430
Precourt Street, NW/O Route 1	13180	12500	13690	--	12490	14050
Route 1, N/O Carver Street	13260	--	11790	12490	12440	11730
Route 1, SW/O Precourt Street	13590	14630	14930	14010	13950	12680

As seen above, traffic volumes have grown in some area locations but declined in most. The average annual growth rate over the long term was less than ½ %. Given this, a ½ % annual traffic growth rate was utilized to project the 2024 MaineDOT count to 2025 conditions. The existing summer 2025 volumes are summarized in Figure 2.

The City of Biddeford Planner was contacted to determine if there are any other approved (but unbuilt) developments expected to significantly impact study area traffic volumes in the future, which should be considered in the traffic analysis. The only other development project identified expected to impact area traffic volumes is the expansion of the middle school. It is understood that no traffic study was performed for the school expansion so trip assignments could not be obtained. A higher 0.75 % annual rate was used to project the 2025 volumes to 2027 No Build conditions to be conservative and allow for growth associated with other development projects. The projected 2027 No Build volumes are shown in Figure 3.

TRIP GENERATION ANALYSIS

The Institute of Transportation Engineers (ITE) "Trip Generation, 11th Edition" was utilized for the trip generation analysis. The results obtained using land use code 140 – manufacturing for the existing 32,895 S.F. and 83 employees are summarized, along with the actual measured site trips, in the following table:

Existing Trip Generation (One-Way Trip-Ends)

Time Period	Actual Measured	ITE Estimates S.F.	ITE Estimates Employee	ITE Estimates Avg.
Weekday	--	156	274	216
AM Peak Hour – Adjacent Street	13	22	49	36
Entering	12	17	36	27
Exiting	1	5	13	9
AM Peak Hour – Intermat	20	26	58	42
Entering	20	19	48	34
Exiting	0	7	10	8
PM Peak Hour – Adjacent Street	26	24	51	38
Entering	2	8	19	14
Exiting	24	16	32	24
PM Peak Hour – Intermat	28	26	48	37
Entering	6	11	19	15
Exiting	22	15	29	22

The above results show that the ITE data overestimated actual site trips. The average of the ITE S.F. and employee bases will be utilized for the analysis to be conservative. These results for the proposed expansion are shown below:

Time Period	Existing Facility	Expanded Facility S.F.	Expanded Facility Employee	Expanded Facility Avg.	New Trips
Weekday	216	652	518	586	370
AM Peak Hour – Adjacent Street	36	93	70	82	46
Entering	27	71	51	61	34
Exiting	9	22	19	21	12
AM Peak Hour – Intermat	42	110	84	97	55
Entering	34	80	69	75	41
Exiting	8	30	15	22	14
PM Peak Hour – Adjacent Street	38	101	69	85	47
Entering	14	31	26	28	14
Exiting	24	70	43	57	33
PM Peak Hour – Intermat	37	110	80	95	58
Entering	15	46	31	38	23
Exiting	22	64	49	57	35

Based upon the preceding results, the proposed expansion will generate from 46 to 58 new one-way trips in peak hours. Based upon this, the proposed expansion would not require a traffic movement permit from MaineDOT since trips do not exceed the 100-trip threshold. However, the trips for TMPs are defined in terms of passenger car equivalents (PCEs) so the above trips need to be converted to PCEs. ITE also provides truck estimates. The ITE results for truck trips at the expanded manufacturing facility are summarized below:

	Projected Truck Trips Expanded Facility		
Time Period	S.F.	Employee	Avg.
AM Peak Hour – Adjacent Street	4	5	5
Entering	2	3	3
Exiting	2	2	2
AM Peak Hour – Intermat	4	5	5
Entering	2	3	3
Exiting	2	2	2
PM Peak Hour – Adjacent Street	4	3	4
Entering	2	1	2
Exiting	2	2	2
PM Peak Hour – Intermat	7	7	7
Entering	3	3	3
Exiting	4	4	4

As seen above, converting the projected truck trips to PCEs, where each truck counts as two PCEs, results in far fewer than 100 PCEs in any peak hour so a TMP is not required from MaineDOT for the proposed Intermat expansion.

The trip assignments were assigned based upon the Intermat travel patterns recorded during the counts. The resulting trip assignments are shown in Figure 4. Based upon the trip assignments, the expanded facility is expected to have a minimal impact on off-site traffic operations. Generally, a project won't have a significant impact on traffic operations off-site unless it generates more than 25 left or 50 through or right lane hour trips. Based upon the trip assignments, the expansion will generate a maximum of 27 lane hour trips on Hill Street. And again, based upon the measured Intermat trips, these trip assignments, based upon ITE data, are expected to be conservative. Lastly, the projected Build 2027 volumes are shown in Figure 5.

CAPACITY ANALYSIS

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for signalized intersections is based upon the average control or signal delay per vehicle. These criteria are defined in the following table excerpted from the "Highway Capacity Manual":

Signalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 20.0
C	> 20.0 and <= 35.0
D	> 35.0 and <= 55.0
E	> 55.0 and <= 80.0
F	> 80.0

The level of service for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement, as defined in the following table:

Unsignalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

SIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was determined for the signalized intersection of Precourt Street, the Biddeford Connector and Elm Street (Route 1) for projected 2027 No Build and Build conditions, using Synchro 12 and SimTraffic. The signal phasings and timings were estimated from field measurements. The results, based upon the average of ten (10) runs, are provided in the appendix and are summarized in the following tables:

Elm Street, Precourt Street and Biddeford Connector
AM Peak Hour Level of Service

Approach/Movement	No Build 2027	Build 2027
Eastbound Biddeford Connector Lefts/Thrus	D (36.3)	D (38.2)
Eastbound Biddeford Connector Rights	A (1.7)	A (1.7)
Eastbound Biddeford Connector Approach	**C (20.4)**	**C (21.9)**
Westbound Precourt Street Lefts/Thrus	D (39.5)	D (40.7)
Westbound Precourt Street Rights	A (2.7)	A (2.3)
Westbound Precourt Street Approach	**D (36.1)**	**D (37.2)**
Northbound Elm Street Lefts	C (30.5)	C (32.9)
Northbound Elm Street Thrus	B (15.8)	B (18.2)
Northbound Elm Street Thrus/Rights	B (11.1)	B (12.6)
Northbound Elm Street Approach	**C (24.1)**	**C (26.5)**
Southbound Elm Street Lefts	D (50.3)	D (47.8)
Southbound Elm Street Thrus	C (30.2)	C (32.3)
Southbound Elm Street Rights	A (6.2)	A (6.9)
Southbound Elm Street Approach	**C (20.6)**	**C (21.9)**
Intersection Overall	**C (22.4)**	**C (24.1)**

PM Peak Hour Level of Service

Approach/Movement	No Build 2027	Build 2027
Eastbound Biddeford Connector Lefts/Thrus	E (74.3)	E (72.1)
Eastbound Biddeford Connector Rights	A (2.5)	A (2.5)
Eastbound Biddeford Connector Approach	**D (41.6)**	**D (40.4)**
Westbound Precourt Street Lefts/Thrus	E (63.2)	E (72.8)
Westbound Precourt Street Rights	A (2.3)	A (2.6)
Westbound Precourt Street Approach	**E (58.8)**	**E (68.8)**
Northbound Elm Street Lefts	D (49.4)	D (50.0)
Northbound Elm Street Thrus	D (51.8)	D (46.6)
Northbound Elm Street Thrus/Rights	C (31.7)	C (31.7)
Northbound Elm Street Approach	**D (48.7)**	**D (46.8)**
Southbound Elm Street Lefts	F (89.4)	F (80.7)
Southbound Elm Street Thrus	D (53.1)	D (53.9)
Southbound Elm Street Rights	B (13.4)	B (14.5)
Southbound Elm Street Approach	**C (34.7)**	**C (35.0)**
Intersection Overall	**D (43.6)**	**D (43.7)**

As seen in the preceding table, the signalized intersection of Elm Street, Precourt Street and Biddeford Connector will operate at LOS "C" overall during the weekday AM peak hour period, under both 2027 No Build and Build conditions. All lanes and approaches will operate at LOS "D" or better during the AM peak hour showing no capacity constraints during this period.

The signalized intersection will operate at an acceptable LOS "D" overall during the weekday PM peak hour, under both 2027 No Build and Build conditions. The westbound Precourt Street approach will operate at LOS "E" overall, which is the lesser volume side street approach. All other approaches will operate at LOS "D" or better. There are no changes in LOS going from No Build to Build volumes during either the AM or PM peak hour, demonstrating the minimal effect the additional trips from the proposed Intermat expansion will have on off-site traffic operations.

UNSIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was determined for the unsignalized site drive (assuming all trips at a single site drive to represent "worst case") intersection for projected 2027 conditions, also using Synchro 12 and SimTraffic. The results are provided in the appendix and are summarized below:

Hill Street and Site Drive
AM Peak Hour Level of Service

Approach/Movement	No Build 2027	Build 2027
Westbound Site Drive Lefts/Rights	A (8.4)	A (5.8)
Northbound Hill Street Thrus/Rights	A (0.3)	A (0.6)
Southbound Hill Street Lefts/Thrus	A (0.8)	A (1.2)

PM Peak Hour Level of Service

Approach/Movement	No Build 2027	Build 2027
Westbound Site Drive Lefts/Rights	A (6.5)	A (6.9)
Northbound Hill Street Thrus/Rights	A (0.4)	A (0.5)
Southbound Hill Street Lefts/Thrus	A (0.6)	A (0.7)

As seen above, all lanes at the site drive intersection will continue to operate at LOS "A" during both the weekday AM and PM peak hour periods after the expansion in 2027. These results demonstrate that there is plenty of capacity on Hill Street to accommodate the additional Intermat trips.

SAFETY ANALYSIS

CRASH REVIEW

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher than expected crash rate. The expected rate is calculated as a statewide average of similar facilities. The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location.

Accident data was obtained from MaineDOT for an extended vicinity of the site for the most recent three-year period (2022 – 2024). The data is summarized below:

Precourt Street Location Description	# of Crashes	CRF
Intersection of Morin Street	7	1.20
Between Morin Street and 0.28 miles south of Morin Street	2	0.14
Non-Intersection 0.29 miles south of Morin Street	1	0.33

Landry Street Location Description	# of Crashes	CRF
Between Precourt Street and Elm Street	2	0.45

Hill Street Location Description	# of Crashes	CRF
Intersection of Landry Street	1	0.48
Between Landry Street and Grayson Street	1	0.27
Intersection of Grayson Street	1	0.18
Between Grayson Street and West Street	9	0.56
Intersection of West Street	6	0.38

Route 1 (Elm Street) Location Description	# of Crashes	CRF
Intersection of Landry Street	1	0.19
Between Landry Street and Grays Lane	2	0.31
Intersection of Grays Lane	1	0.19
Non-Intersection 0.02 miles west of Precourt Street	4	1.19
Intersection of Precourt Street	13	0.58
Between Precourt Street and 0.05 miles north of Precourt Street	1	0.43
Intersection of Carver Street	1	0.31
Between 0.05 miles north of Precourt Street and Grayson Street	3	0.60
Intersection of Grayson Street	1	0.18

As seen in the preceding tables, there are no high crash locations within the vicinity of the site. As a result, no further crash review or evaluation is needed.

DRIVE SIGHT DISTANCE

One of the most important safety factors to consider for a project is sight distance from the access drive. This sight distance is measured ten feet back from the edge of travel way at a driver's eye height of 3.5 feet to an object height of 4.25 feet. According to the MaineDOT Map Viewer, the speed limit is posted at 35-mph on Hill Street in the vicinity of the site. Sewall recommends a minimum of 350' of sight distance for this speed limit. The City of Biddeford requires the same minimum of 350'.

Sewall measured the sight distances from the two proposed exit drives. Sight distances from both drive locations (existing truck access and relocated primary drive) exceeded 375' in both directions. As a result, there are no sight distance concerns. It is important that no signage or landscaping be located in the driveway sight triangles which could obscure or limit the driveway sight distances in the future.

SUMMARY AND RECOMMENDATIONS

To summarize, the proposed expansion of Intermat manufacturing facilities is expected to generate 370 new one-way trips daily or 185 roundtrips, based upon ITE data. In peak hours, the expansion is expected to generate from 46 to 58 new one-way trips. Based upon measured site trips, these ITE estimates are expected to be high so all analysis in the study was conservative. Given this level of additional trips, a traffic movement permit is not required from MaineDOT.

The study area for capacity purposes was defined as extending from the site through the signalized intersection of Elm Street, Biddeford Connector and Precourt Street to assure adequate capacity at area intersections. The signalized intersection of Elm Street and Precourt Street/Biddeford Connector will operate at LOS "C" overall during the weekday AM peak hour period, under both 2027 No Build and Build conditions, showing no capacity constraints during this period. The intersection will operate at an acceptable LOS "D" overall during the weekday PM peak hour, under both 2027 No Build and Build conditions. The westbound Precourt Street approach will operate at LOS "E" overall, which is the lesser volume side street approach. All other approaches will operate at LOS "D" or better. There are no changes in LOS going from No Build to Build volumes during either the AM or PM peak hour, demonstrating the minimal effect the additional trips will have off-site on traffic operations.

The site drive will continue to operate at LOS “A” in 2027, during both the AM and PM peak hours, after the expansion, showing no capacity concerns on Hill Street and demonstrating that Hill Street has the capacity to accommodate the added Intermat trips.

In terms of safety, there are no high crash locations within the extended study area. Sight distances from the proposed exit drives exceed the recommended standard so there are no sight distance concerns. It is important that no signage or landscaping be located in the driveway sight triangles that could restrict sight distances in the future.

Figure 1

Site Location Map

Intermat Expansion

Biddeford, Maine

Sewall
The evolution of expertise
A TFIC Company

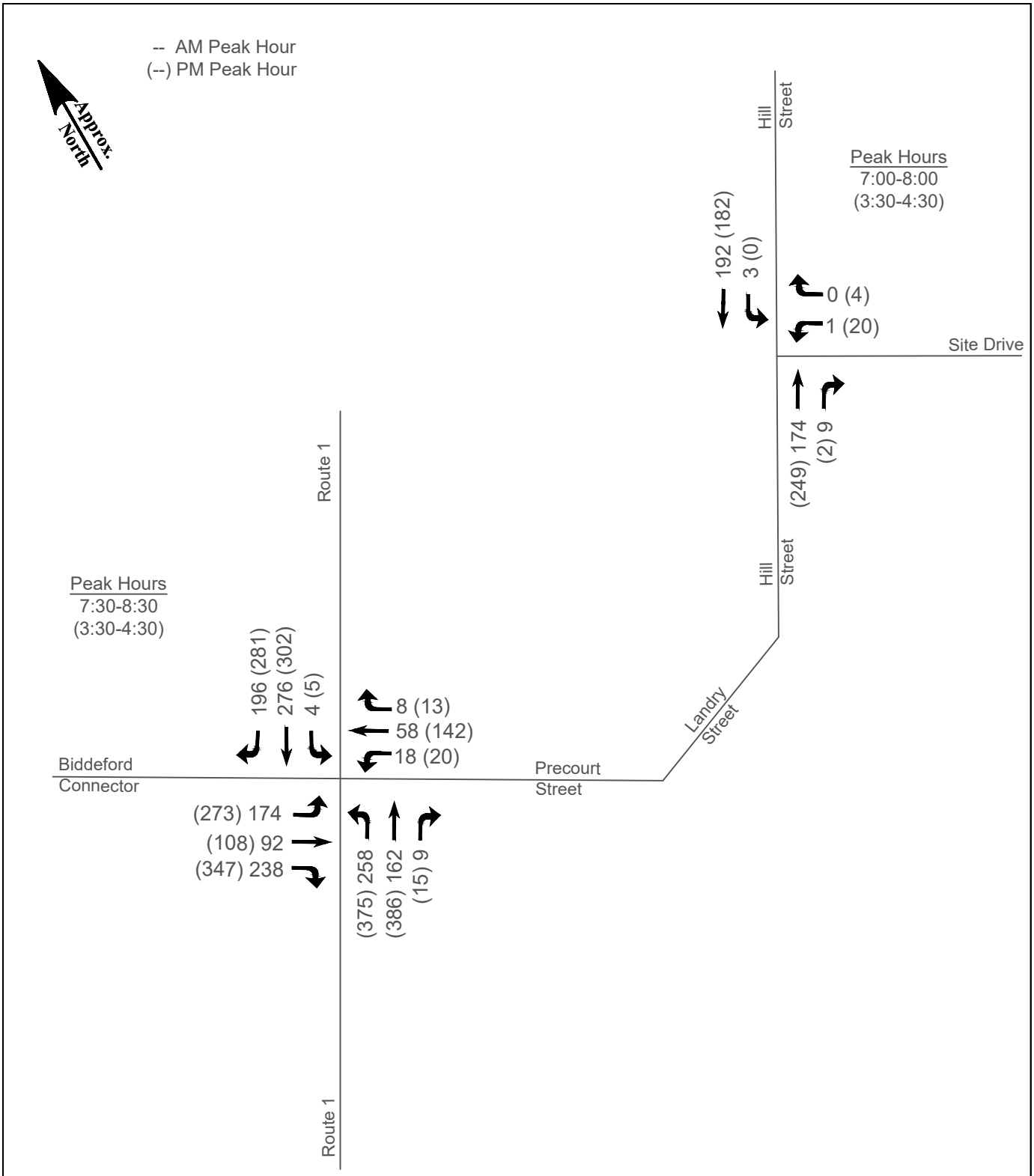


Figure 2

2025 Existing Volumes
Intermat Expansion
Biddeford, Maine

Sewall
The evolution of expertise

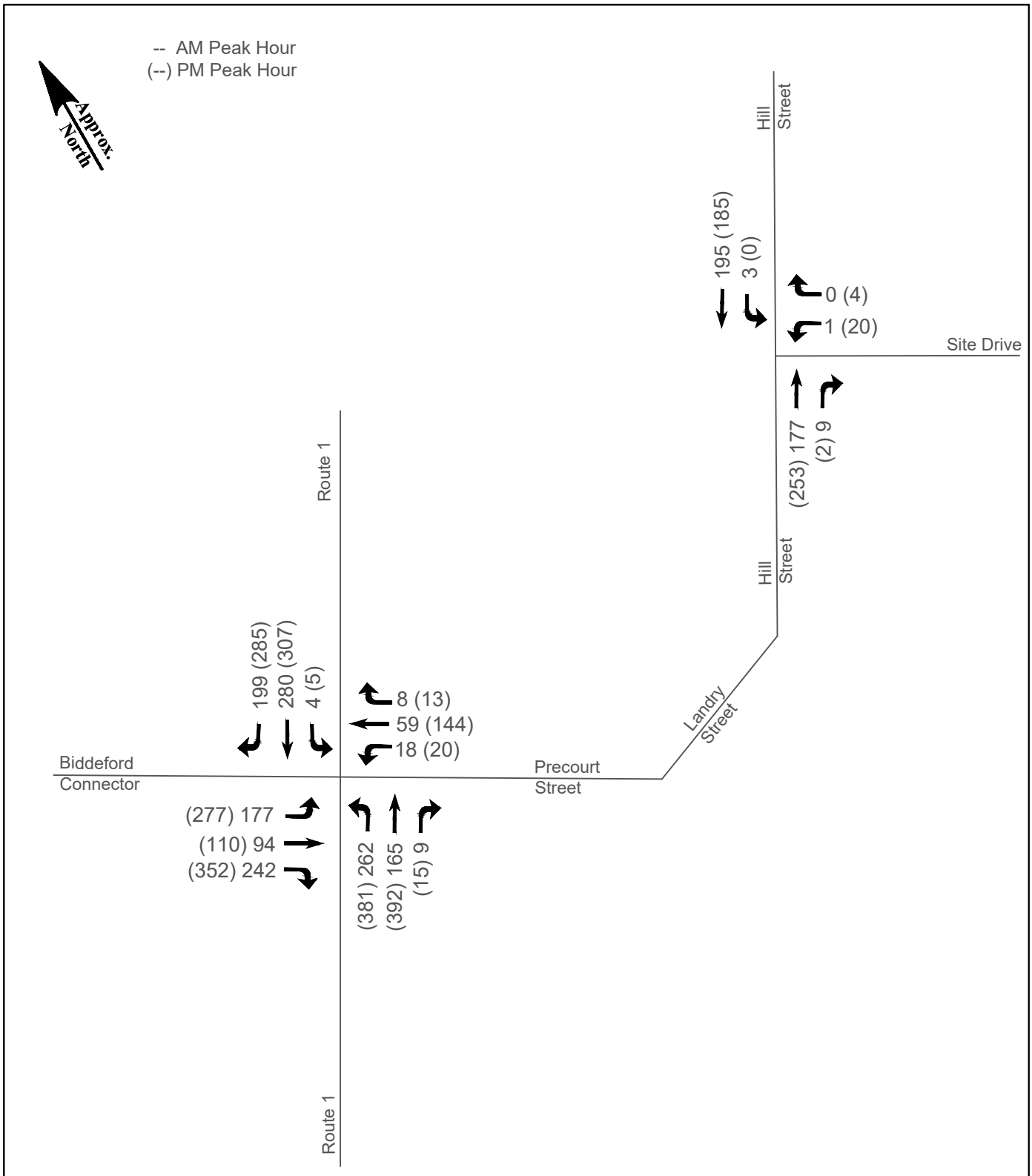


Figure 3

2027 No Build Volumes
Intermat Expansion
Biddeford, Maine

Sewall
The evolution of expertise

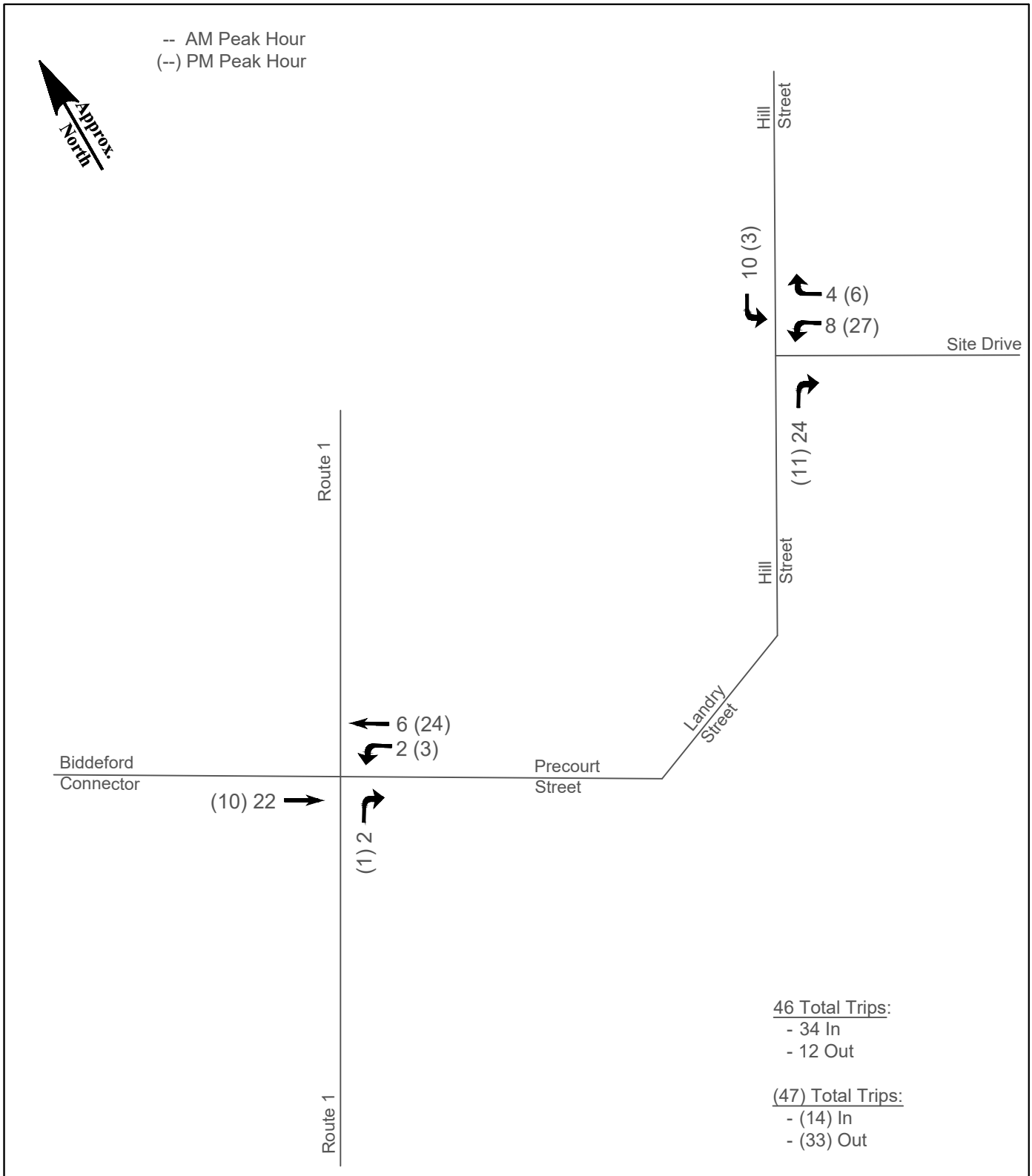


Figure 4

AM & PM Trip Assignments
Intermat Expansion
Biddeford, Maine

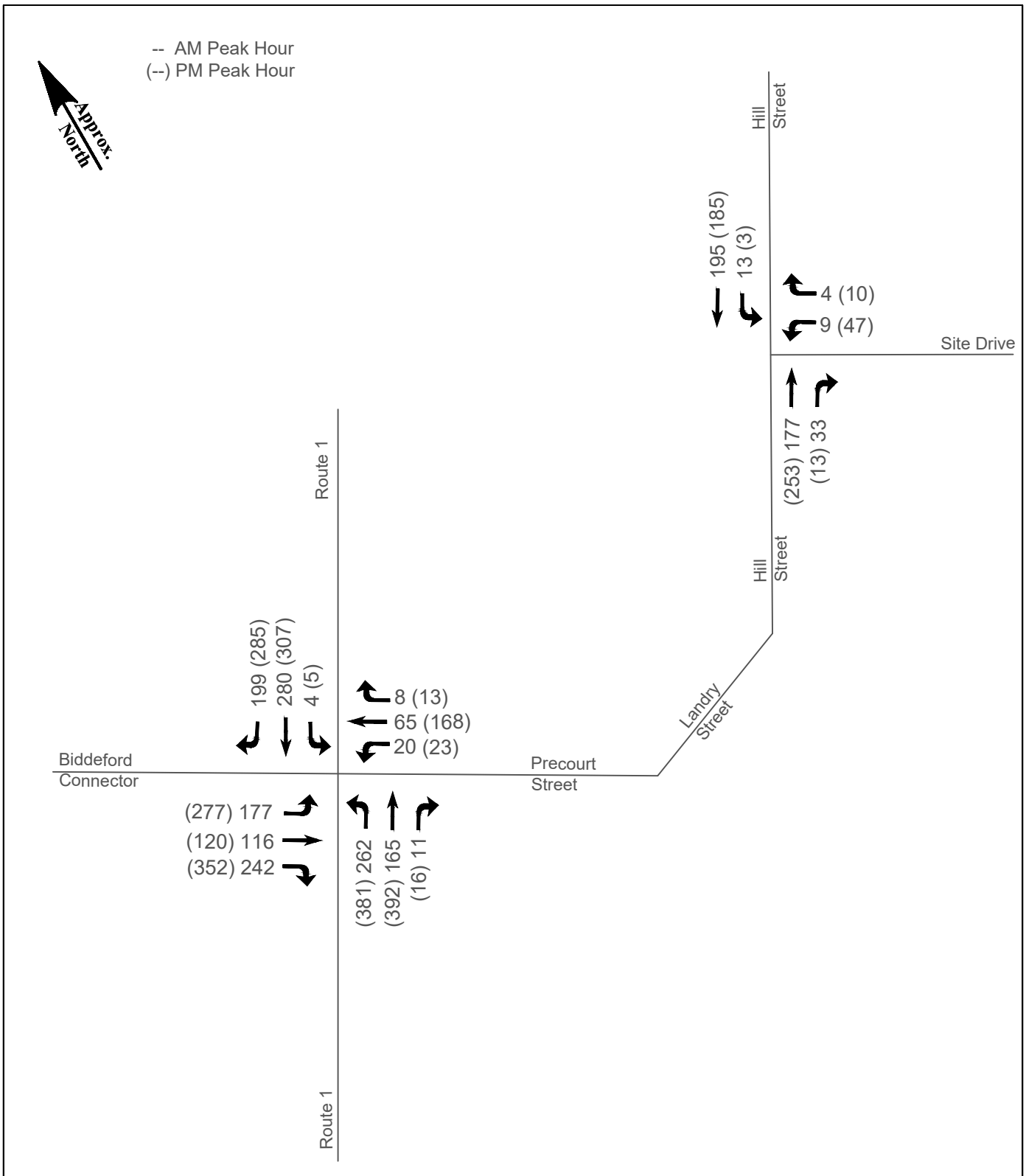


Figure 5

2027 Build Volumes
Intermat Expansion
Biddeford, Maine

Sewall
The evolution of expertise

APPENDIX

Turning Movement Counts

Capacity Analysis

Crash Data

Preliminary Site Plan

Sewall

14 York Street
Portland, ME 04101

TITLE: Hill St & Intermat Dr
TOWN: Biddeford
COUNTER: JM
WEATHER: Overcast

File Name : HillIntermatAM
Site Code : 11363291
Start Date : 10/14/2025

Group 1

Group 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Southbound					Hill Street Westbound					Intermat Drive Northbound					Hill Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	20	4	0	24	0	0	0	0	0	5	15	0	0	20	44
06:45 AM	0	0	0	0	0	0	39	3	0	42	0	0	0	0	0	2	17	0	0	19	61
Total	0	0	0	0	0	0	59	7	0	66	0	0	0	0	0	7	32	0	0	39	105
07:00 AM	0	0	0	0	0	0	28	2	0	30	0	0	0	0	0	1	45	0	0	46	76
07:15 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	3	48	0	0	51	71
07:30 AM	0	0	0	0	0	0	44	1	0	45	0	0	0	0	0	3	45	0	0	48	93
07:45 AM	0	0	0	0	0	0	94	0	0	94	0	0	1	0	1	2	30	0	0	32	127
Total	0	0	0	0	0	0	186	3	0	189	0	0	1	0	1	9	168	0	0	177	367
08:00 AM	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	1	40	0	0	41	74
08:15 AM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	2	20	0	1	23	59
08:30 AM	0	0	0	0	0	0	52	0	0	52	0	0	1	0	1	1	17	0	0	18	71
08:45 AM	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	2	13	0	0	15	44
Total	0	0	0	0	0	0	150	0	0	150	0	0	1	0	1	6	90	0	1	97	248
Grand Total	0	0	0	0	0	0	395	10	0	405	0	0	2	0	2	22	290	0	1	313	720
Apprch %	0	0	0	0		0	97.5	2.5	0		0	0	100	0		7	92.7	0	0.3		
Total %	0	0	0	0	0	0	54.9	1.4	0	56.2	0	0	0.3	0	0.3	3.1	40.3	0	0.1	43.5	
Passenger Vehicles	0	0	0	0	0	0	380	10	0	390	0	0	2	0	2	22	274	0	0	296	688
% Passenger Vehicles	0	0	0	0	0	0	96.2	100	0	96.3	0	0	100	0	100	100	94.5	0	0	94.6	95.6
Light Trucks	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	16	0	0	16	31
% Light Trucks	0	0	0	0	0	0	3.8	0	0	3.7	0	0	0	0	0	0	5.5	0	0	5.1	4.3
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.3	0.1

No trips at 2nd access drive (truck access) in AM count period.

Group 1 Seaonal Adjustment Factor: 0.90 / 0.87 = 1.034

Sewall

14 York Street
Portland, ME 04101

TITLE: Hill St & Intermat Dr
TOWN: Biddeford
COUNTER: JM
WEATHER: Overcast

File Name : HillIntermatAM
Site Code : 11363291
Start Date : 10/14/2025
Page No : 2

	Southbound					Hill Street Westbound					Intermat Drive Northbound					Hill Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	28	**2**	0	30	0	0	0	0	0	1	45	0	0	46	76
07:15 AM	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	**3**	**48**	0	0	**51**	71
07:30 AM	0	0	0	0	0	0	44	1	0	45	0	0	0	0	0	3	45	0	0	48	93
07:45 AM	0	0	0	0	0	0	**94**	0	0	**94**	0	0	**1**	0	**1**	2	30	0	0	32	**127**
Total Volume	0	0	0	0	0	0	186	3	0	189	0	0	1	0	1	9	168	0	0	177	367
% App. Total	0	0	0	0		0	98.4	1.6	0		0	0	100	0		5.1	94.9	0	0		
PHF	.000	.000	.000	.000	.000	.000	.495	.375	.000	.503	.000	.000	.250	.000	.250	.750	.875	.000	.000	.868	.722
							192	3					1			9	174				

Sewall

14 York Street
Portland, ME 04101

TITLE: Hill Street & Intermat Drive
TOWN: Biddeford
COUNTER: JM
WEATHER: Overcast

File Name : HillIntermatPM
Site Code : 23261132
Start Date : 10/14/2025

Group 1

Group 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Southbound					Hill St Westbound					Intermat Drive Northbound					Hill St Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	36	2	0	38	0	0	2	0	2	1	24	0	0	25	65
03:15 PM	0	0	0	0	0	0	61	0	0	61	1	0	1	0	2	2	25	0	0	27	90
03:30 PM	0	0	0	0	0	0	71	0	0	71	2	0	16	0	18	1	61	0	0	62	151
03:45 PM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	60	0	0	60	96
Total	0	0	0	0	0	0	204	2	0	206	3	0	19	0	22	4	170	0	0	174	402
04:00 PM	0	0	0	0	0	0	38	0	0	38	0	0	2	0	2	0	47	0	0	47	87
04:15 PM	0	0	0	0	0	0	31	0	0	31	2	0	2	0	4	1	73	0	0	74	109
04:30 PM	0	0	0	0	0	0	40	0	0	40	0	0	1	0	1	1	57	0	0	58	99
04:45 PM	0	0	0	0	0	0	31	0	0	31	1	0	4	0	5	0	59	0	0	59	95
Total	0	0	0	0	0	0	140	0	0	140	3	0	9	0	12	2	236	0	0	238	390
05:00 PM	0	0	0	0	0	0	26	0	0	26	1	0	2	0	3	1	56	0	0	57	86
05:15 PM	0	0	0	0	0	0	23	1	0	24	0	0	0	0	0	0	51	0	0	51	75
05:30 PM	0	0	0	0	0	0	26	0	0	26	0	0	3	0	3	1	55	0	0	56	85
05:45 PM	0	0	0	0	0	0	16	0	0	16	0	0	6	0	6	0	39	0	0	39	61
Total	0	0	0	0	0	0	91	1	0	92	1	0	11	0	12	2	201	0	0	203	307
Grand Total	0	0	0	0	0	0	435	3	0	438	7	0	39	0	46	8	607	0	0	615	1099
Apprch %	0	0	0	0		0	99.3	0.7	0		15.2	0	84.8	0		1.3	98.7	0	0		
Total %	0	0	0	0	0	0	39.6	0.3	0	39.9	0.6	0	3.5	0	4.2	0.7	55.2	0	0	56	
Passenger Vehicles	0	0	0	0	0	0	427	3	0	430	7	0	38	0	45	8	594	0	0	602	1077
% Passenger Vehicles	0	0	0	0	0	0	98.2	100	0	98.2	100	0	97.4	0	97.8	100	97.9	0	0	97.9	98
Light Trucks	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	12	0	0	12	19
% Light Trucks	0	0	0	0	0	0	1.6	0	0	1.6	0	0	0	0	0	0	2	0	0	2	1.7
Heavy Trucks	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	3
% Heavy Trucks	0	0	0	0	0	0	0.2	0	0	0.2	0	0	2.6	0	2.2	0	0.2	0	0	0.2	0.3

Group 1 Seaonal Adjustment Factor: 0.90 / 0.87 = 1.034

Sewall

14 York Street
Portland, ME 04101

TITLE: Hill Street & Intermat Drive
TOWN: Biddeford
COUNTER: JM
WEATHER: Overcast

File Name : HillIntermatPM
Site Code : 23261132
Start Date : 10/14/2025
Page No : 2

	Southbound					Hill St Westbound					Intermat Drive Northbound					Hill St Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	**71**	0	0	**71**	**2**	0	**16**	0	**18**	**1**	61	0	0	62	**151**
03:45 PM	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	60	0	0	60	96
04:00 PM	0	0	0	0	0	0	38	0	0	38	0	0	2	0	2	0	47	0	0	47	87
04:15 PM	0	0	0	0	0	0	31	0	0	31	2	0	2	0	4	1	**73**	0	0	**74**	109
Total Volume	0	0	0	0	0	0	176	0	0	176	4	0	20	0	24	2	241	0	0	243	443
% App. Total	0	0	0	0		0	100	0	0		16.7	0	83.3	0		0.8	99.2	0	0		
PHF	.000	.000	.000	.000	.000	.000	.620	.000	.000	.620	.500	.000	.313	.000	.333	.500	.825	.000	.000	.821	.733
							182					4	20				2 249				

Cover

MAINE_DOT_TM - 000031050036 - US 1 (ELM ST), PRECOURT ST, 2024-08-20 - Tuesday, August 20, 2024

Study Name US 1 (ELM ST), PRECOURT ST, 2024-08-20

Study Description US 1 (ELM ST), PRECOURT ST, 2024-08-20 turning movement

Date of Survey Tuesday, August 20, 2024

Time Period 00:00 - 00:00

Comments -

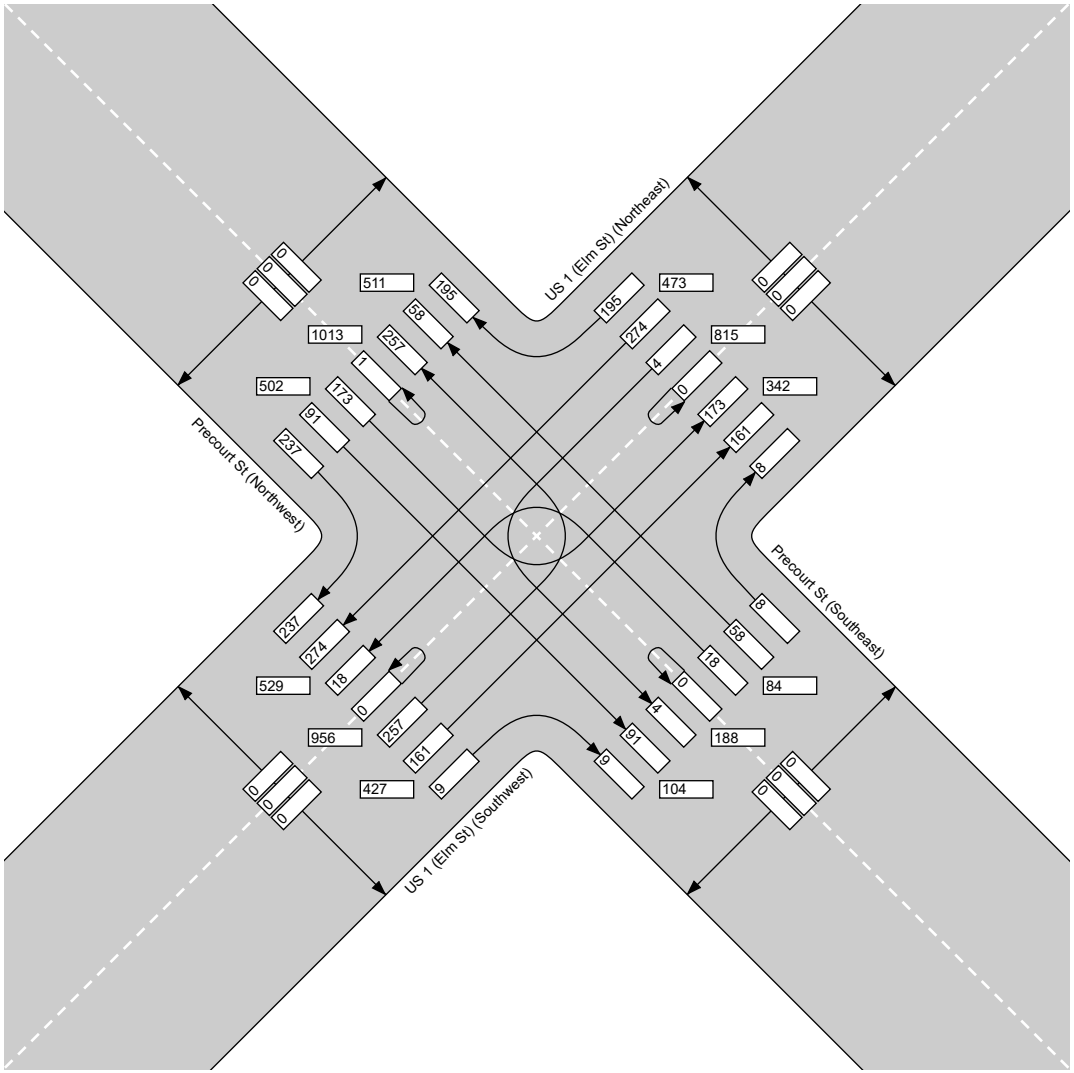
Location

Classes

Mcl
Car
Bus
SUT
Semis
Bicycle

Diagram

MAINE_DOT_TM - 000031050036 - US 1 (ELM ST), PRECOURT ST, 2024-08-20 - Tuesday, August 20, 2024



Time Period:

- ○ All times
- ○ AM Peak Hour:11:00 - 12:00
- ○ PM Peak Hour:15:30 - 16:30
- ○ Overall Peak Hour:15:30 - 16:30
- ◉ Custom: 07:30 - 08:30

Traffic Bins:

- ☑ Mcl
- ☑ Car
- ☑ Bus
- ☑ SUT
- ☑ Semis
- ☑ Bicycle

Crossing Bins:

- ☑ Bicycle
- ☑ Ped

Traffic total: 1486

Cover

MAINE_DOT_TM - 000031050036 - US 1 (ELM ST), PRECOURT ST, 2024-08-20 - Tuesday, August 20, 2024

Study Name US 1 (ELM ST), PRECOURT ST, 2024-08-20

Study Description US 1 (ELM ST), PRECOURT ST, 2024-08-20 turning movement

Date of Survey Tuesday, August 20, 2024

Time Period 00:00 - 00:00

Comments -

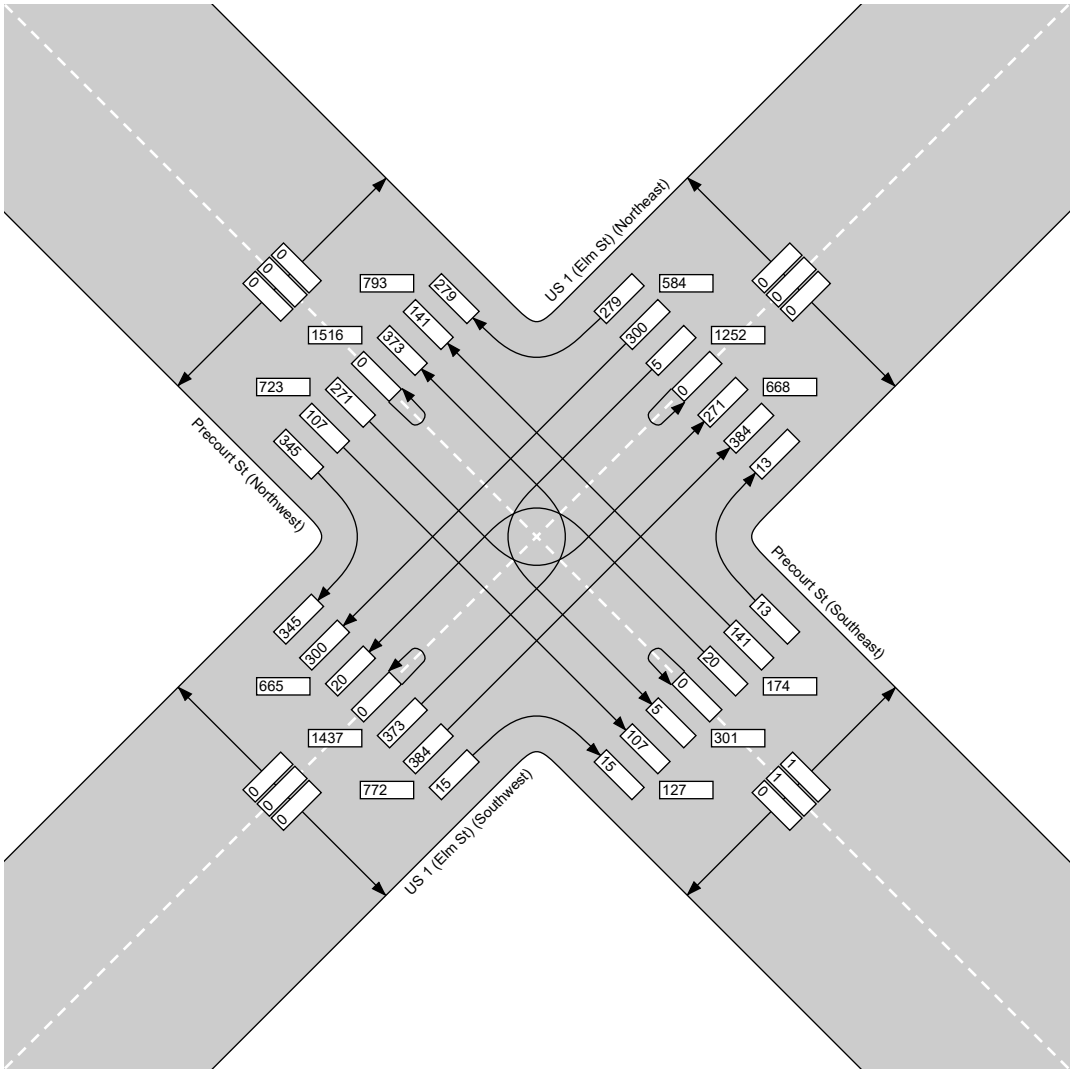
Location

Classes

Mcl
Car
Bus
SUT
Semis
Bicycle

Diagram

MAINE_DOT_TM - 000031050036 - US 1 (ELM ST), PRECOURT ST, 2024-08-20 - Tuesday, August 20, 2024



Time Period:

- ○ All times
- ○ AM Peak Hour:11:00 - 12:00
- ◉ PM Peak Hour:15:30 - 16:30
- ○ Overall Peak Hour:15:30 - 16:30
- ○ Custom: 00:00 -

Traffic Bins:

- ☑ Mcl
- ☑ Car
- ☑ Bus
- ☑ SUT
- ☑ Semis
- ☑ Bicycle

Crossing Bins:

- ☑ Bicycle
- ☑ Ped

Traffic total: 2253

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1949	1895	1852	1876	1825	2009	1873
Vehs Exited	1921	1892	1883	1872	1804	2011	1851
Starting Vehs	75	85	104	75	75	83	72
Ending Vehs	103	88	73	79	96	81	94
Travel Distance (mi)	2664	2585	2577	2590	2474	2810	2540
Travel Time (hr)	86.5	85.1	84.4	84.6	79.8	93.2	82.6
Total Delay (hr)	13.8	14.1	13.6	13.9	12.4	16.1	12.9
Total Stops	961	927	929	966	905	1030	924
Fuel Used (gal)	77.0	75.0	74.3	74.9	71.6	81.2	73.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	1928	1856	1896	1895
Vehs Exited	1940	1827	1914	1892
Starting Vehs	81	66	99	83
Ending Vehs	69	95	81	86
Travel Distance (mi)	2653	2555	2585	2603
Travel Time (hr)	86.5	84.4	84.1	85.1
Total Delay (hr)	13.9	14.6	13.4	13.9
Total Stops	954	976	891	947
Fuel Used (gal)	76.9	74.1	74.9	75.4

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	458	420	416	432	415	440	426
Vehs Exited	456	446	435	429	426	431	421
Starting Vehs	75	85	104	75	75	83	72
Ending Vehs	77	59	85	78	64	92	77
Travel Distance (mi)	630	623	612	604	583	641	588
Travel Time (hr)	20.3	20.6	19.8	19.5	18.9	21.0	18.8
Total Delay (hr)	3.1	3.4	3.1	3.0	3.1	3.3	2.6
Total Stops	229	227	209	228	235	251	214
Fuel Used (gal)	18.3	18.4	17.7	17.4	16.8	18.5	16.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	470	432	452	435
Vehs Exited	475	409	471	439
Starting Vehs	81	66	99	83
Ending Vehs	76	89	80	76
Travel Distance (mi)	680	623	650	623
Travel Time (hr)	22.1	20.7	21.2	20.3
Total Delay (hr)	3.6	3.7	3.4	3.2
Total Stops	246	258	229	233
Fuel Used (gal)	19.6	18.1	18.4	18.0

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	449	441	412	433	387	497	435
Vehs Exited	440	414	433	431	384	506	425
Starting Vehs	77	59	85	78	64	92	77
Ending Vehs	86	86	64	80	67	83	87
Travel Distance (mi)	635	590	592	605	549	702	582
Travel Time (hr)	20.6	19.1	19.1	20.1	17.0	23.7	18.8
Total Delay (hr)	3.2	3.0	2.8	3.3	2.2	4.4	2.9
Total Stops	244	217	220	224	182	251	213
Fuel Used (gal)	18.3	17.1	17.1	17.7	15.5	20.6	16.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	402	424	419	429
Vehs Exited	410	452	438	435
Starting Vehs	76	89	80	76
Ending Vehs	68	61	61	76
Travel Distance (mi)	554	608	582	600
Travel Time (hr)	17.7	20.0	18.6	19.5
Total Delay (hr)	2.4	3.3	2.8	3.0
Total Stops	203	229	196	219
Fuel Used (gal)	16.0	17.8	16.8	17.4

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	577	583	568	585	573	628	570
Vehs Exited	562	564	533	548	540	598	557
Starting Vehs	86	86	64	80	67	83	87
Ending Vehs	101	105	99	117	100	113	100
Travel Distance (mi)	729	727	719	741	718	817	749
Travel Time (hr)	23.7	23.8	23.8	24.1	23.6	27.4	25.5
Total Delay (hr)	3.8	4.0	4.0	4.0	3.8	4.9	4.7
Total Stops	243	252	262	279	246	302	286
Fuel Used (gal)	20.9	20.8	20.8	21.3	21.1	23.4	22.2

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	618	589	559	586
Vehs Exited	581	545	537	556
Starting Vehs	68	61	61	76
Ending Vehs	105	105	83	99
Travel Distance (mi)	764	743	712	742
Travel Time (hr)	25.4	24.8	23.2	24.5
Total Delay (hr)	4.4	4.6	3.7	4.2
Total Stops	259	261	239	264
Fuel Used (gal)	22.0	21.6	20.8	21.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	465	451	456	426	450	444	442
Vehs Exited	463	468	482	464	454	476	448
Starting Vehs	101	105	99	117	100	113	100
Ending Vehs	103	88	73	79	96	81	94
Travel Distance (mi)	670	645	654	640	625	650	621
Travel Time (hr)	22.0	21.6	21.7	20.9	20.4	21.1	19.6
Total Delay (hr)	3.7	3.7	3.8	3.6	3.3	3.5	2.8
Total Stops	245	231	238	235	242	226	211
Fuel Used (gal)	19.5	18.7	18.6	18.5	18.2	18.6	18.0

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	438	411	466	444
Vehs Exited	474	421	468	462
Starting Vehs	105	105	83	99
Ending Vehs	69	95	81	86
Travel Distance (mi)	655	581	642	638
Travel Time (hr)	21.4	18.9	21.1	20.9
Total Delay (hr)	3.5	2.9	3.5	3.4
Total Stops	246	228	227	234
Fuel Used (gal)	19.3	16.7	18.9	18.5

3: Route 1 & Biddeford Connector/Precourt Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LT	R	L	T	TR	L	T	R	
Denied Del/Veh (s)											0.2
Total Del/Veh (s)	36.3	1.7	39.5	2.7	30.5	15.8	11.1	50.3	30.2	6.2	22.4

8: Hill Street & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	8.4	0.3	0.8	0.6

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	24.9

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	271	97	169	72	224	250	75	52	296	109
Average Queue (ft)	132	3	63	10	142	59	16	4	135	45
95th Queue (ft)	224	58	128	44	229	161	53	29	247	88
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	1		22	0	6				18	
Queuing Penalty (veh)	1		2	0	11				37	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	25	6
Average Queue (ft)	1	0
95th Queue (ft)	11	5
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	64	56
Average Queue (ft)	6	5
95th Queue (ft)	33	31
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	75	82
Average Queue (ft)	9	16
95th Queue (ft)	42	58
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 51

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	39.3	18.7	16.3	19.4	9.4
g/C Ratio	0.51	0.23	0.20	0.25	0.09
Cycles Skipped (%)	0	4	4	0	25
Cycles @ Minimum (%)	0	0	0	11	0
Cycles Maxed Out (%)	21	2	2	9	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 77.5

Number of Complete Cycles : 42

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1949	1895	1852	1876	1825	2009	1873
Vehs Exited	1921	1892	1883	1872	1804	2011	1851
Starting Vehs	75	85	104	75	75	83	72
Ending Vehs	103	88	73	79	96	81	94
Travel Distance (mi)	2664	2585	2577	2590	2474	2810	2540
Travel Time (hr)	86.5	85.1	84.4	84.6	79.8	93.2	82.6
Total Delay (hr)	13.8	14.1	13.6	13.9	12.4	16.1	12.9
Total Stops	961	927	929	966	905	1030	924
Fuel Used (gal)	77.0	75.0	74.3	74.9	71.6	81.2	73.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	1928	1856	1896	1895
Vehs Exited	1940	1827	1914	1892
Starting Vehs	81	66	99	83
Ending Vehs	69	95	81	86
Travel Distance (mi)	2653	2555	2585	2603
Travel Time (hr)	86.5	84.4	84.1	85.1
Total Delay (hr)	13.9	14.6	13.4	13.9
Total Stops	954	976	891	947
Fuel Used (gal)	76.9	74.1	74.9	75.4

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	458	420	416	432	415	440	426
Vehs Exited	456	446	435	429	426	431	421
Starting Vehs	75	85	104	75	75	83	72
Ending Vehs	77	59	85	78	64	92	77
Travel Distance (mi)	630	623	612	604	583	641	588
Travel Time (hr)	20.3	20.6	19.8	19.5	18.9	21.0	18.8
Total Delay (hr)	3.1	3.4	3.1	3.0	3.1	3.3	2.6
Total Stops	229	227	209	228	235	251	214
Fuel Used (gal)	18.3	18.4	17.7	17.4	16.8	18.5	16.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	470	432	452	435
Vehs Exited	475	409	471	439
Starting Vehs	81	66	99	83
Ending Vehs	76	89	80	76
Travel Distance (mi)	680	623	650	623
Travel Time (hr)	22.1	20.7	21.2	20.3
Total Delay (hr)	3.6	3.7	3.4	3.2
Total Stops	246	258	229	233
Fuel Used (gal)	19.6	18.1	18.4	18.0

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	449	441	412	433	387	497	435
Vehs Exited	440	414	433	431	384	506	425
Starting Vehs	77	59	85	78	64	92	77
Ending Vehs	86	86	64	80	67	83	87
Travel Distance (mi)	635	590	592	605	549	702	582
Travel Time (hr)	20.6	19.1	19.1	20.1	17.0	23.7	18.8
Total Delay (hr)	3.2	3.0	2.8	3.3	2.2	4.4	2.9
Total Stops	244	217	220	224	182	251	213
Fuel Used (gal)	18.3	17.1	17.1	17.7	15.5	20.6	16.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	402	424	419	429
Vehs Exited	410	452	438	435
Starting Vehs	76	89	80	76
Ending Vehs	68	61	61	76
Travel Distance (mi)	554	608	582	600
Travel Time (hr)	17.7	20.0	18.6	19.5
Total Delay (hr)	2.4	3.3	2.8	3.0
Total Stops	203	229	196	219
Fuel Used (gal)	16.0	17.8	16.8	17.4

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	577	583	568	585	573	628	570
Vehs Exited	562	564	533	548	540	598	557
Starting Vehs	86	86	64	80	67	83	87
Ending Vehs	101	105	99	117	100	113	100
Travel Distance (mi)	729	727	719	741	718	817	749
Travel Time (hr)	23.7	23.8	23.8	24.1	23.6	27.4	25.5
Total Delay (hr)	3.8	4.0	4.0	4.0	3.8	4.9	4.7
Total Stops	243	252	262	279	246	302	286
Fuel Used (gal)	20.9	20.8	20.8	21.3	21.1	23.4	22.2

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	618	589	559	586
Vehs Exited	581	545	537	556
Starting Vehs	68	61	61	76
Ending Vehs	105	105	83	99
Travel Distance (mi)	764	743	712	742
Travel Time (hr)	25.4	24.8	23.2	24.5
Total Delay (hr)	4.4	4.6	3.7	4.2
Total Stops	259	261	239	264
Fuel Used (gal)	22.0	21.6	20.8	21.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	465	451	456	426	450	444	442
Vehs Exited	463	468	482	464	454	476	448
Starting Vehs	101	105	99	117	100	113	100
Ending Vehs	103	88	73	79	96	81	94
Travel Distance (mi)	670	645	654	640	625	650	621
Travel Time (hr)	22.0	21.6	21.7	20.9	20.4	21.1	19.6
Total Delay (hr)	3.7	3.7	3.8	3.6	3.3	3.5	2.8
Total Stops	245	231	238	235	242	226	211
Fuel Used (gal)	19.5	18.7	18.6	18.5	18.2	18.6	18.0

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	438	411	466	444
Vehs Exited	474	421	468	462
Starting Vehs	105	105	83	99
Ending Vehs	69	95	81	86
Travel Distance (mi)	655	581	642	638
Travel Time (hr)	21.4	18.9	21.1	20.9
Total Delay (hr)	3.5	2.9	3.5	3.4
Total Stops	246	228	227	234
Fuel Used (gal)	19.3	16.7	18.9	18.5

3: Route 1 & Biddeford Connector/Precourt Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.5	0.0	0.0	0.2
Total Del/Veh (s)	20.4	36.1	24.1	20.6	22.4

8: Hill Street & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.2	0.2
Total Del/Veh (s)	8.4	0.3	0.8	0.6

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	24.9

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	271	97	169	72	224	250	75	52	296	109
Average Queue (ft)	132	3	63	10	142	59	16	4	135	45
95th Queue (ft)	224	58	128	44	229	161	53	29	247	88
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	1		22	0	6				18	
Queuing Penalty (veh)	1		2	0	11				37	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	25	6
Average Queue (ft)	1	0
95th Queue (ft)	11	5
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	64	56
Average Queue (ft)	6	5
95th Queue (ft)	33	31
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	75	82
Average Queue (ft)	9	16
95th Queue (ft)	42	58
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 51

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	39.3	18.7	16.3	19.4	9.4
g/C Ratio	0.51	0.23	0.20	0.25	0.09
Cycles Skipped (%)	0	4	4	0	25
Cycles @ Minimum (%)	0	0	0	11	0
Cycles Maxed Out (%)	21	2	2	9	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 77.5

Number of Complete Cycles : 42

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2852	2737	2822	2646	2742	2780	2687
Vehs Exited	2832	2714	2810	2661	2722	2749	2682
Starting Vehs	124	113	143	144	113	120	123
Ending Vehs	144	136	155	129	133	151	128
Travel Distance (mi)	4041	3834	3989	3804	3886	3909	3806
Travel Time (hr)	158.2	140.7	146.3	134.9	145.8	144.3	141.1
Total Delay (hr)	47.3	35.0	37.6	31.0	39.3	37.5	36.8
Total Stops	2114	1765	1790	1602	1935	1825	1844
Fuel Used (gal)	123.1	114.8	119.5	112.5	116.4	117.7	114.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2805	2793	2726	2758
Vehs Exited	2829	2796	2733	2751
Starting Vehs	150	132	140	130
Ending Vehs	126	129	133	137
Travel Distance (mi)	4006	3992	3843	3911
Travel Time (hr)	148.2	146.5	138.8	144.5
Total Delay (hr)	38.5	37.4	33.4	37.4
Total Stops	1925	1848	1750	1840
Fuel Used (gal)	120.3	119.6	114.8	117.3

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	678	623	700	603	612	639	646
Vehs Exited	658	594	703	632	604	624	628
Starting Vehs	124	113	143	144	113	120	123
Ending Vehs	144	142	140	115	121	135	141
Travel Distance (mi)	950	876	1021	897	864	905	912
Travel Time (hr)	34.5	31.7	36.6	30.7	30.1	32.3	31.4
Total Delay (hr)	8.3	7.5	8.8	6.2	6.3	7.6	6.5
Total Stops	448	412	416	341	360	400	354
Fuel Used (gal)	28.4	25.9	30.3	26.2	24.8	26.8	26.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	647	685	619	646
Vehs Exited	651	666	630	639
Starting Vehs	150	132	140	130
Ending Vehs	146	151	129	135
Travel Distance (mi)	945	976	896	924
Travel Time (hr)	34.7	35.6	30.5	32.8
Total Delay (hr)	8.8	9.0	6.0	7.5
Total Stops	445	431	366	396
Fuel Used (gal)	28.4	29.3	26.4	27.3

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	688	646	589	604	667	649	609
Vehs Exited	686	645	627	611	647	648	621
Starting Vehs	144	142	140	115	121	135	141
Ending Vehs	146	143	102	108	141	136	129
Travel Distance (mi)	996	931	853	883	950	929	879
Travel Time (hr)	36.8	33.1	28.7	30.6	33.1	32.7	30.5
Total Delay (hr)	9.6	7.6	5.4	6.5	7.1	7.4	6.5
Total Stops	455	411	304	355	406	394	364
Fuel Used (gal)	29.6	27.8	24.8	26.1	28.0	27.4	25.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	694	644	607	642
Vehs Exited	691	662	641	648
Starting Vehs	146	151	129	135
Ending Vehs	149	133	95	129
Travel Distance (mi)	1011	943	895	927
Travel Time (hr)	36.4	34.2	30.8	32.7
Total Delay (hr)	8.8	8.4	6.2	7.4
Total Stops	458	418	343	392
Fuel Used (gal)	30.0	28.7	26.3	27.5

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	821	790	852	797	850	808	792
Vehs Exited	765	762	779	734	787	758	738
Starting Vehs	146	143	102	108	141	136	129
Ending Vehs	202	171	175	171	204	186	183
Travel Distance (mi)	1084	1055	1108	1057	1114	1075	1066
Travel Time (hr)	44.5	39.9	41.1	38.3	46.4	41.1	42.0
Total Delay (hr)	14.7	10.7	10.9	9.5	16.1	11.5	12.6
Total Stops	633	502	511	503	715	548	630
Fuel Used (gal)	33.2	31.9	33.3	31.4	34.4	32.7	32.8

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	809	801	825	814
Vehs Exited	783	778	736	762
Starting Vehs	149	133	95	129
Ending Vehs	175	156	184	182
Travel Distance (mi)	1098	1086	1036	1078
Travel Time (hr)	41.8	40.0	38.3	41.3
Total Delay (hr)	11.9	10.3	9.8	11.8
Total Stops	579	543	530	569
Fuel Used (gal)	33.1	32.1	31.0	32.6

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	665	678	681	642	613	684	640
Vehs Exited	723	713	701	684	684	719	695
Starting Vehs	202	171	175	171	204	186	183
Ending Vehs	144	136	155	129	133	151	128
Travel Distance (mi)	1011	972	1007	968	958	999	950
Travel Time (hr)	42.4	36.1	40.0	35.2	36.2	38.3	37.2
Total Delay (hr)	14.8	9.1	12.5	8.8	9.8	11.0	11.1
Total Stops	578	440	559	403	454	483	496
Fuel Used (gal)	31.8	29.2	31.1	28.9	29.3	30.7	29.4

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	655	663	675	660
Vehs Exited	704	690	726	704
Starting Vehs	175	156	184	182
Ending Vehs	126	129	133	137
Travel Distance (mi)	952	987	1017	982
Travel Time (hr)	35.3	36.8	39.2	37.7
Total Delay (hr)	9.1	9.7	11.3	10.7
Total Stops	443	456	511	484
Fuel Used (gal)	28.8	29.5	31.2	30.0

3: Route 1 & Biddeford Connector/Precourt Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LT	R	L	T	TR	L	T	R	
Denied Del/Veh (s)											0.2
Total Del/Veh (s)	74.3	2.5	63.2	2.3	49.4	51.8	31.7	89.4	53.1	13.4	43.6

8: Hill Street & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	6.5	0.4	0.6	0.7

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	46.1

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	B11	SB	SB	SB	B9
Directions Served	LT	R	LT	R	L	T	TR	T	L	T	R	T
Maximum Queue (ft)	794	325	291	66	225	629	431	16	91	405	204	16
Average Queue (ft)	332	118	145	13	209	322	109	1	8	207	81	1
95th Queue (ft)	675	375	263	55	259	643	314	16	46	341	159	16
Link Distance (ft)	4206		1582			1115		2383		502		4923
Upstream Blk Time (%)						0				0		
Queuing Penalty (veh)						0				0		
Storage Bay Dist (ft)		250		50	175		800		100		375	
Storage Blk Time (%)	19		56	0	40	2				39		
Queuing Penalty (veh)	69		7	0	164	12				113		

Intersection: 8: Hill Street & Site Drive

Movement	WB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	15
95th Queue (ft)	41
Link Distance (ft)	468
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	104	90
Average Queue (ft)	25	30
95th Queue (ft)	72	79
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	93	81
Average Queue (ft)	22	29
95th Queue (ft)	66	77
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 365

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	59.9	33.0	30.1	27.7	16.4
g/C Ratio	0.46	0.26	0.23	0.21	0.13
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	81	56	57	41	37
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 129.1

Number of Complete Cycles : 24

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2852	2737	2822	2646	2742	2780	2687
Vehs Exited	2832	2714	2810	2661	2722	2749	2682
Starting Vehs	124	113	143	144	113	120	123
Ending Vehs	144	136	155	129	133	151	128
Travel Distance (mi)	4041	3834	3989	3804	3886	3909	3806
Travel Time (hr)	158.2	140.7	146.3	134.9	145.8	144.3	141.1
Total Delay (hr)	47.3	35.0	37.6	31.0	39.3	37.5	36.8
Total Stops	2114	1765	1790	1602	1935	1825	1844
Fuel Used (gal)	123.1	114.8	119.5	112.5	116.4	117.7	114.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2805	2793	2726	2758
Vehs Exited	2829	2796	2733	2751
Starting Vehs	150	132	140	130
Ending Vehs	126	129	133	137
Travel Distance (mi)	4006	3992	3843	3911
Travel Time (hr)	148.2	146.5	138.8	144.5
Total Delay (hr)	38.5	37.4	33.4	37.4
Total Stops	1925	1848	1750	1840
Fuel Used (gal)	120.3	119.6	114.8	117.3

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	678	623	700	603	612	639	646
Vehs Exited	658	594	703	632	604	624	628
Starting Vehs	124	113	143	144	113	120	123
Ending Vehs	144	142	140	115	121	135	141
Travel Distance (mi)	950	876	1021	897	864	905	912
Travel Time (hr)	34.5	31.7	36.6	30.7	30.1	32.3	31.4
Total Delay (hr)	8.3	7.5	8.8	6.2	6.3	7.6	6.5
Total Stops	448	412	416	341	360	400	354
Fuel Used (gal)	28.4	25.9	30.3	26.2	24.8	26.8	26.8

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	647	685	619	646
Vehs Exited	651	666	630	639
Starting Vehs	150	132	140	130
Ending Vehs	146	151	129	135
Travel Distance (mi)	945	976	896	924
Travel Time (hr)	34.7	35.6	30.5	32.8
Total Delay (hr)	8.8	9.0	6.0	7.5
Total Stops	445	431	366	396
Fuel Used (gal)	28.4	29.3	26.4	27.3

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	688	646	589	604	667	649	609
Vehs Exited	686	645	627	611	647	648	621
Starting Vehs	144	142	140	115	121	135	141
Ending Vehs	146	143	102	108	141	136	129
Travel Distance (mi)	996	931	853	883	950	929	879
Travel Time (hr)	36.8	33.1	28.7	30.6	33.1	32.7	30.5
Total Delay (hr)	9.6	7.6	5.4	6.5	7.1	7.4	6.5
Total Stops	455	411	304	355	406	394	364
Fuel Used (gal)	29.6	27.8	24.8	26.1	28.0	27.4	25.8

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	694	644	607	642
Vehs Exited	691	662	641	648
Starting Vehs	146	151	129	135
Ending Vehs	149	133	95	129
Travel Distance (mi)	1011	943	895	927
Travel Time (hr)	36.4	34.2	30.8	32.7
Total Delay (hr)	8.8	8.4	6.2	7.4
Total Stops	458	418	343	392
Fuel Used (gal)	30.0	28.7	26.3	27.5

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	821	790	852	797	850	808	792
Vehs Exited	765	762	779	734	787	758	738
Starting Vehs	146	143	102	108	141	136	129
Ending Vehs	202	171	175	171	204	186	183
Travel Distance (mi)	1084	1055	1108	1057	1114	1075	1066
Travel Time (hr)	44.5	39.9	41.1	38.3	46.4	41.1	42.0
Total Delay (hr)	14.7	10.7	10.9	9.5	16.1	11.5	12.6
Total Stops	633	502	511	503	715	548	630
Fuel Used (gal)	33.2	31.9	33.3	31.4	34.4	32.7	32.8

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	809	801	825	814
Vehs Exited	783	778	736	762
Starting Vehs	149	133	95	129
Ending Vehs	175	156	184	182
Travel Distance (mi)	1098	1086	1036	1078
Travel Time (hr)	41.8	40.0	38.3	41.3
Total Delay (hr)	11.9	10.3	9.8	11.8
Total Stops	579	543	530	569
Fuel Used (gal)	33.1	32.1	31.0	32.6

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	665	678	681	642	613	684	640
Vehs Exited	723	713	701	684	684	719	695
Starting Vehs	202	171	175	171	204	186	183
Ending Vehs	144	136	155	129	133	151	128
Travel Distance (mi)	1011	972	1007	968	958	999	950
Travel Time (hr)	42.4	36.1	40.0	35.2	36.2	38.3	37.2
Total Delay (hr)	14.8	9.1	12.5	8.8	9.8	11.0	11.1
Total Stops	578	440	559	403	454	483	496
Fuel Used (gal)	31.8	29.2	31.1	28.9	29.3	30.7	29.4

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	655	663	675	660
Vehs Exited	704	690	726	704
Starting Vehs	175	156	184	182
Ending Vehs	126	129	133	137
Travel Distance (mi)	952	987	1017	982
Travel Time (hr)	35.3	36.8	39.2	37.7
Total Delay (hr)	9.1	9.7	11.3	10.7
Total Stops	443	456	511	484
Fuel Used (gal)	28.8	29.5	31.2	30.0

3: Route 1 & Biddeford Connector/Precourt Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.6	0.4	0.0	0.0	0.2
Total Del/Veh (s)	41.6	58.8	48.7	34.7	43.6

8: Hill Street & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.2	0.2
Total Del/Veh (s)	6.5	0.4	0.6	0.7

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	46.1

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	B11	SB	SB	SB	B9
Directions Served	LT	R	LT	R	L	T	TR	T	L	T	R	T
Maximum Queue (ft)	794	325	291	66	225	629	431	16	91	405	204	16
Average Queue (ft)	332	118	145	13	209	322	109	1	8	207	81	1
95th Queue (ft)	675	375	263	55	259	643	314	16	46	341	159	16
Link Distance (ft)	4206		1582			1115		2383		502		4923
Upstream Blk Time (%)						0				0		
Queuing Penalty (veh)						0				0		
Storage Bay Dist (ft)		250		50	175		800		100		375	
Storage Blk Time (%)	19		56	0	40	2				39		
Queuing Penalty (veh)	69		7	0	164	12				113		

Intersection: 8: Hill Street & Site Drive

Movement	WB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	15
95th Queue (ft)	41
Link Distance (ft)	468
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	104	90
Average Queue (ft)	25	30
95th Queue (ft)	72	79
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	93	81
Average Queue (ft)	22	29
95th Queue (ft)	66	77
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 365

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	59.9	33.0	30.1	27.7	16.4
g/C Ratio	0.46	0.26	0.23	0.21	0.13
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	81	56	57	41	37
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 129.1

Number of Complete Cycles : 24

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2004	2024	1990	2022	1893	2042	1964
Vehs Exited	1989	2044	1989	2013	1880	2039	1947
Starting Vehs	84	89	101	77	74	84	85
Ending Vehs	99	69	102	86	87	87	102
Travel Distance (mi)	2695	2723	2667	2748	2525	2760	2619
Travel Time (hr)	88.3	90.4	89.7	91.5	83.1	92.0	86.6
Total Delay (hr)	14.6	15.5	16.0	16.0	13.8	16.0	14.6
Total Stops	954	1049	1034	1055	937	1048	1000
Fuel Used (gal)	78.4	79.7	77.5	80.2	73.5	80.0	76.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2018	1953	1968	1987
Vehs Exited	2018	1926	1963	1980
Starting Vehs	94	69	80	81
Ending Vehs	94	96	85	87
Travel Distance (mi)	2718	2638	2608	2670
Travel Time (hr)	89.9	87.4	86.1	88.5
Total Delay (hr)	15.1	15.3	14.6	15.1
Total Stops	1030	1010	984	1008
Fuel Used (gal)	79.4	76.6	75.6	77.7

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	460	455	451	464	425	460	472
Vehs Exited	470	468	472	448	438	455	465
Starting Vehs	84	89	101	77	74	84	85
Ending Vehs	74	76	80	93	61	89	92
Travel Distance (mi)	639	647	642	645	590	651	644
Travel Time (hr)	20.9	21.3	21.3	21.0	19.1	21.2	21.2
Total Delay (hr)	3.4	3.5	3.6	3.3	3.0	3.2	3.5
Total Stops	223	249	237	241	202	242	264
Fuel Used (gal)	18.7	18.8	18.7	18.6	17.1	18.8	18.6

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	484	452	470	460
Vehs Exited	507	427	470	461
Starting Vehs	94	69	80	81
Ending Vehs	71	94	80	80
Travel Distance (mi)	685	626	645	641
Travel Time (hr)	22.3	20.3	21.6	21.0
Total Delay (hr)	3.5	3.3	3.8	3.4
Total Stops	235	225	254	238
Fuel Used (gal)	19.9	18.0	18.3	18.5

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	453	468	409	471	432	479	433
Vehs Exited	443	457	428	482	408	482	440
Starting Vehs	74	76	80	93	61	89	92
Ending Vehs	84	87	61	82	85	86	85
Travel Distance (mi)	621	628	572	655	588	655	568
Travel Time (hr)	20.2	20.5	18.5	21.9	18.8	21.6	18.7
Total Delay (hr)	3.2	3.3	2.7	3.8	2.8	3.6	3.0
Total Stops	224	232	228	248	219	237	193
Fuel Used (gal)	17.8	18.3	16.6	19.2	16.8	19.2	16.5

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	423	471	455	448
Vehs Exited	411	480	454	449
Starting Vehs	71	94	80	80
Ending Vehs	83	85	81	81
Travel Distance (mi)	566	648	585	609
Travel Time (hr)	18.0	21.2	19.1	19.8
Total Delay (hr)	2.4	3.6	3.0	3.1
Total Stops	216	245	225	226
Fuel Used (gal)	16.5	18.9	16.9	17.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	590	632	639	630	599	643	573
Vehs Exited	583	606	581	599	568	606	562
Starting Vehs	84	87	61	82	85	86	85
Ending Vehs	91	113	119	113	116	123	96
Travel Distance (mi)	737	776	776	771	739	800	737
Travel Time (hr)	24.1	25.8	26.9	25.8	25.3	27.3	24.9
Total Delay (hr)	3.9	4.5	5.5	4.6	4.7	5.2	4.5
Total Stops	255	292	313	309	297	319	287
Fuel Used (gal)	21.2	22.6	22.8	22.4	21.8	23.4	21.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	637	587	585	610
Vehs Exited	611	555	570	583
Starting Vehs	83	85	81	81
Ending Vehs	109	117	96	108
Travel Distance (mi)	777	748	748	761
Travel Time (hr)	26.3	25.9	24.9	25.7
Total Delay (hr)	4.8	5.3	4.4	4.7
Total Stops	305	314	272	295
Fuel Used (gal)	22.7	21.9	21.9	22.2

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	501	469	491	457	437	460	486
Vehs Exited	493	513	508	484	466	496	480
Starting Vehs	91	113	119	113	116	123	96
Ending Vehs	99	69	102	86	87	87	102
Travel Distance (mi)	698	673	678	678	608	655	670
Travel Time (hr)	23.2	22.9	22.9	22.8	19.9	21.9	21.8
Total Delay (hr)	4.1	4.2	4.2	4.3	3.2	3.9	3.5
Total Stops	252	276	256	257	219	250	256
Fuel Used (gal)	20.6	19.9	19.4	20.0	17.7	18.6	19.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	474	443	458	466
Vehs Exited	489	464	469	486
Starting Vehs	109	117	96	108
Ending Vehs	94	96	85	87
Travel Distance (mi)	690	616	630	659
Travel Time (hr)	23.4	20.0	20.5	21.9
Total Delay (hr)	4.4	3.2	3.3	3.8
Total Stops	274	226	233	251
Fuel Used (gal)	20.3	17.9	18.5	19.2

3: Route 1 & Biddeford Connector/Precourt Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LT	R	L	T	TR	L	T	R	
Denied Del/Veh (s)											0.2
Total Del/Veh (s)	38.2	1.7	40.7	2.3	32.9	18.2	12.6	47.8	32.3	6.9	24.1

8: Hill Street & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	5.8	0.6	1.2	1.0

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	26.0

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	315	97	172	71	224	310	98	76	289	123
Average Queue (ft)	143	3	72	9	147	74	20	5	140	47
95th Queue (ft)	249	58	141	43	232	197	66	35	250	92
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	1		27	0	7	0			19	
Queuing Penalty (veh)	3		2	0	12	0			40	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	37	52
Average Queue (ft)	10	4
95th Queue (ft)	34	25
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	56	60
Average Queue (ft)	5	6
95th Queue (ft)	28	35
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	69	68
Average Queue (ft)	11	16
95th Queue (ft)	44	57
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 57

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	40.9	20.5	17.7	19.8	10.2
g/C Ratio	0.49	0.24	0.21	0.24	0.10
Cycles Skipped (%)	0	2	2	0	17
Cycles @ Minimum (%)	0	0	0	10	0
Cycles Maxed Out (%)	22	5	2	12	2
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 83.8

Number of Complete Cycles : 39

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2004	2024	1990	2022	1893	2042	1964
Vehs Exited	1989	2044	1989	2013	1880	2039	1947
Starting Vehs	84	89	101	77	74	84	85
Ending Vehs	99	69	102	86	87	87	102
Travel Distance (mi)	2695	2723	2667	2748	2525	2760	2619
Travel Time (hr)	88.3	90.4	89.7	91.5	83.1	92.0	86.6
Total Delay (hr)	14.6	15.5	16.0	16.0	13.8	16.0	14.6
Total Stops	954	1049	1034	1055	937	1048	1000
Fuel Used (gal)	78.4	79.7	77.5	80.2	73.5	80.0	76.2

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2018	1953	1968	1987
Vehs Exited	2018	1926	1963	1980
Starting Vehs	94	69	80	81
Ending Vehs	94	96	85	87
Travel Distance (mi)	2718	2638	2608	2670
Travel Time (hr)	89.9	87.4	86.1	88.5
Total Delay (hr)	15.1	15.3	14.6	15.1
Total Stops	1030	1010	984	1008
Fuel Used (gal)	79.4	76.6	75.6	77.7

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	460	455	451	464	425	460	472
Vehs Exited	470	468	472	448	438	455	465
Starting Vehs	84	89	101	77	74	84	85
Ending Vehs	74	76	80	93	61	89	92
Travel Distance (mi)	639	647	642	645	590	651	644
Travel Time (hr)	20.9	21.3	21.3	21.0	19.1	21.2	21.2
Total Delay (hr)	3.4	3.5	3.6	3.3	3.0	3.2	3.5
Total Stops	223	249	237	241	202	242	264
Fuel Used (gal)	18.7	18.8	18.7	18.6	17.1	18.8	18.6

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	484	452	470	460
Vehs Exited	507	427	470	461
Starting Vehs	94	69	80	81
Ending Vehs	71	94	80	80
Travel Distance (mi)	685	626	645	641
Travel Time (hr)	22.3	20.3	21.6	21.0
Total Delay (hr)	3.5	3.3	3.8	3.4
Total Stops	235	225	254	238
Fuel Used (gal)	19.9	18.0	18.3	18.5

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	453	468	409	471	432	479	433
Vehs Exited	443	457	428	482	408	482	440
Starting Vehs	74	76	80	93	61	89	92
Ending Vehs	84	87	61	82	85	86	85
Travel Distance (mi)	621	628	572	655	588	655	568
Travel Time (hr)	20.2	20.5	18.5	21.9	18.8	21.6	18.7
Total Delay (hr)	3.2	3.3	2.7	3.8	2.8	3.6	3.0
Total Stops	224	232	228	248	219	237	193
Fuel Used (gal)	17.8	18.3	16.6	19.2	16.8	19.2	16.5

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	423	471	455	448
Vehs Exited	411	480	454	449
Starting Vehs	71	94	80	80
Ending Vehs	83	85	81	81
Travel Distance (mi)	566	648	585	609
Travel Time (hr)	18.0	21.2	19.1	19.8
Total Delay (hr)	2.4	3.6	3.0	3.1
Total Stops	216	245	225	226
Fuel Used (gal)	16.5	18.9	16.9	17.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	590	632	639	630	599	643	573
Vehs Exited	583	606	581	599	568	606	562
Starting Vehs	84	87	61	82	85	86	85
Ending Vehs	91	113	119	113	116	123	96
Travel Distance (mi)	737	776	776	771	739	800	737
Travel Time (hr)	24.1	25.8	26.9	25.8	25.3	27.3	24.9
Total Delay (hr)	3.9	4.5	5.5	4.6	4.7	5.2	4.5
Total Stops	255	292	313	309	297	319	287
Fuel Used (gal)	21.2	22.6	22.8	22.4	21.8	23.4	21.7

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	637	587	585	610
Vehs Exited	611	555	570	583
Starting Vehs	83	85	81	81
Ending Vehs	109	117	96	108
Travel Distance (mi)	777	748	748	761
Travel Time (hr)	26.3	25.9	24.9	25.7
Total Delay (hr)	4.8	5.3	4.4	4.7
Total Stops	305	314	272	295
Fuel Used (gal)	22.7	21.9	21.9	22.2

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	501	469	491	457	437	460	486
Vehs Exited	493	513	508	484	466	496	480
Starting Vehs	91	113	119	113	116	123	96
Ending Vehs	99	69	102	86	87	87	102
Travel Distance (mi)	698	673	678	678	608	655	670
Travel Time (hr)	23.2	22.9	22.9	22.8	19.9	21.9	21.8
Total Delay (hr)	4.1	4.2	4.2	4.3	3.2	3.9	3.5
Total Stops	252	276	256	257	219	250	256
Fuel Used (gal)	20.6	19.9	19.4	20.0	17.7	18.6	19.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	474	443	458	466
Vehs Exited	489	464	469	486
Starting Vehs	109	117	96	108
Ending Vehs	94	96	85	87
Travel Distance (mi)	690	616	630	659
Travel Time (hr)	23.4	20.0	20.5	21.9
Total Delay (hr)	4.4	3.2	3.3	3.8
Total Stops	274	226	233	251
Fuel Used (gal)	20.3	17.9	18.5	19.2

3: Route 1 & Biddeford Connector/Precourt Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.4	0.0	0.0	0.2
Total Del/Veh (s)	21.9	37.2	26.5	21.9	24.1

8: Hill Street & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.2	0.2
Total Del/Veh (s)	6.3	0.6	1.2	1.0

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	26.0

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	315	97	172	71	224	310	98	76	289	123
Average Queue (ft)	143	3	72	9	147	74	20	5	140	47
95th Queue (ft)	249	58	141	43	232	197	66	35	250	92
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	1		27	0	7	0			19	
Queuing Penalty (veh)	3		2	0	12	0			40	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	37	52
Average Queue (ft)	10	4
95th Queue (ft)	34	25
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	56	60
Average Queue (ft)	5	6
95th Queue (ft)	28	35
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	69	68
Average Queue (ft)	11	16
95th Queue (ft)	44	57
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 57

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	40.9	20.5	17.7	19.8	10.2
g/C Ratio	0.49	0.24	0.21	0.24	0.10
Cycles Skipped (%)	0	2	2	0	17
Cycles @ Minimum (%)	0	0	0	10	0
Cycles Maxed Out (%)	22	5	2	12	2
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 83.8

Number of Complete Cycles : 39

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2880	2920	2749	2912	2820	2862	2765
Vehs Exited	2896	2916	2780	2907	2785	2864	2741
Starting Vehs	137	137	150	136	120	130	118
Ending Vehs	121	141	119	141	155	128	142
Travel Distance (mi)	4025	4077	3866	3987	3920	3958	3858
Travel Time (hr)	148.2	154.0	149.9	148.3	144.7	147.6	137.4
Total Delay (hr)	37.9	41.7	43.2	38.8	37.2	38.5	31.7
Total Stops	1841	1996	2011	1887	1893	1930	1719
Fuel Used (gal)	120.6	123.5	118.6	120.5	117.5	118.4	114.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2880	2820	2814	2842
Vehs Exited	2863	2836	2862	2845
Starting Vehs	113	149	164	132
Ending Vehs	130	133	116	134
Travel Distance (mi)	4003	3972	3960	3963
Travel Time (hr)	147.9	146.0	146.0	147.0
Total Delay (hr)	37.5	36.7	36.9	38.0
Total Stops	1831	1846	1863	1882
Fuel Used (gal)	120.4	118.7	118.6	119.1

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	627	684	625	675	662	655	638
Vehs Exited	636	683	650	666	659	664	632
Starting Vehs	137	137	150	136	120	130	118
Ending Vehs	128	138	125	145	123	121	124
Travel Distance (mi)	891	959	921	927	926	910	892
Travel Time (hr)	31.3	34.5	32.4	34.2	33.5	32.1	30.7
Total Delay (hr)	6.9	8.1	7.1	8.5	8.1	6.9	6.1
Total Stops	358	407	380	422	421	392	374
Fuel Used (gal)	26.7	28.5	27.4	27.8	27.7	26.9	25.9

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	680	670	683	660
Vehs Exited	653	678	725	665
Starting Vehs	113	149	164	132
Ending Vehs	140	141	122	129
Travel Distance (mi)	936	974	1014	935
Travel Time (hr)	34.0	36.3	37.6	33.7
Total Delay (hr)	8.4	9.7	9.6	8.0
Total Stops	439	490	485	416
Fuel Used (gal)	28.3	29.6	30.3	27.9

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	714	707	622	697	642	698	621
Vehs Exited	677	702	626	711	632	664	622
Starting Vehs	128	138	125	145	123	121	124
Ending Vehs	165	143	121	131	133	155	123
Travel Distance (mi)	1004	991	888	1000	922	978	893
Travel Time (hr)	36.6	36.2	30.7	36.6	31.2	36.0	30.6
Total Delay (hr)	9.1	8.8	6.1	9.1	6.1	9.1	6.4
Total Stops	441	455	351	453	360	476	379
Fuel Used (gal)	29.6	29.9	26.2	30.0	26.9	29.3	26.4

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	685	672	675	673
Vehs Exited	686	678	677	668
Starting Vehs	140	141	122	129
Ending Vehs	139	135	120	137
Travel Distance (mi)	957	966	927	953
Travel Time (hr)	34.7	34.7	33.3	34.1
Total Delay (hr)	8.3	8.2	7.6	7.9
Total Stops	397	435	389	413
Fuel Used (gal)	28.5	28.8	27.6	28.3

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	870	836	865	897	859	880	845
Vehs Exited	861	810	780	832	779	837	777
Starting Vehs	165	143	121	131	133	155	123
Ending Vehs	174	169	206	196	213	198	191
Travel Distance (mi)	1161	1107	1088	1122	1088	1128	1088
Travel Time (hr)	43.8	43.2	45.2	43.6	42.5	44.0	40.0
Total Delay (hr)	12.2	12.7	15.1	12.8	12.6	12.9	10.0
Total Stops	557	598	673	590	629	621	514
Fuel Used (gal)	34.8	34.0	34.1	34.5	32.8	34.0	32.3

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	859	845	799	856
Vehs Exited	826	809	747	807
Starting Vehs	139	135	120	137
Ending Vehs	172	171	172	186
Travel Distance (mi)	1138	1098	1054	1107
Travel Time (hr)	44.2	41.2	39.8	42.7
Total Delay (hr)	12.7	10.7	10.9	12.3
Total Stops	593	542	543	585
Fuel Used (gal)	34.7	32.7	31.7	33.6

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	669	693	637	643	657	629	661
Vehs Exited	722	721	724	698	715	699	710
Starting Vehs	174	169	206	196	213	198	191
Ending Vehs	121	141	119	141	155	128	142
Travel Distance (mi)	970	1021	968	936	985	942	985
Travel Time (hr)	36.4	40.1	41.6	34.0	37.5	35.6	36.1
Total Delay (hr)	9.7	12.0	15.0	8.3	10.4	9.5	9.2
Total Stops	485	536	607	422	483	441	452
Fuel Used (gal)	29.4	31.1	30.9	28.1	30.0	28.2	29.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	656	633	657	654
Vehs Exited	698	671	713	707
Starting Vehs	172	171	172	186
Ending Vehs	130	133	116	134
Travel Distance (mi)	971	933	965	968
Travel Time (hr)	35.0	33.8	35.4	36.5
Total Delay (hr)	8.1	8.0	8.7	9.9
Total Stops	402	379	446	462
Fuel Used (gal)	29.0	27.6	29.1	29.3

3: Route 1 & Biddeford Connector/Precourt Street Performance by lane

Lane	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	All
Movements Served	LT	R	LT	R	L	T	TR	L	T	R	
Denied Del/Veh (s)											0.2
Total Del/Veh (s)	72.1	2.5	72.8	2.6	50.0	46.6	31.7	80.7	53.9	14.5	43.7

8: Hill Street & Site Drive Performance by lane

Lane	WB	NB	SB	All
Movements Served	LR	TR	LT	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	6.9	0.5	0.7	1.3

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	45.4

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	738	325	362	75	225	602	434	137	370	182
Average Queue (ft)	321	113	175	14	211	308	100	10	206	87
95th Queue (ft)	608	368	332	56	256	581	279	62	335	153
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	18		60	0	40	2			40	
Queuing Penalty (veh)	66		8	0	167	10			116	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	60	23
Average Queue (ft)	26	1
95th Queue (ft)	54	11
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	100	90
Average Queue (ft)	22	26
95th Queue (ft)	70	74
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	135	100
Average Queue (ft)	23	30
95th Queue (ft)	77	81
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 367

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	61.2	33.2	30.3	27.6	17.7
g/C Ratio	0.47	0.26	0.23	0.21	0.14
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	81	56	52	44	52
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 129.2

Number of Complete Cycles : 24

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	3:50	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2880	2920	2749	2912	2820	2862	2765
Vehs Exited	2896	2916	2780	2907	2785	2864	2741
Starting Vehs	137	137	150	136	120	130	118
Ending Vehs	121	141	119	141	155	128	142
Travel Distance (mi)	4025	4077	3866	3987	3920	3958	3858
Travel Time (hr)	148.2	154.0	149.9	148.3	144.7	147.6	137.4
Total Delay (hr)	37.9	41.7	43.2	38.8	37.2	38.5	31.7
Total Stops	1841	1996	2011	1887	1893	1930	1719
Fuel Used (gal)	120.6	123.5	118.6	120.5	117.5	118.4	114.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2880	2820	2814	2842
Vehs Exited	2863	2836	2862	2845
Starting Vehs	113	149	164	132
Ending Vehs	130	133	116	134
Travel Distance (mi)	4003	3972	3960	3963
Travel Time (hr)	147.9	146.0	146.0	147.0
Total Delay (hr)	37.5	36.7	36.9	38.0
Total Stops	1831	1846	1863	1882
Fuel Used (gal)	120.4	118.7	118.6	119.1

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	627	684	625	675	662	655	638
Vehs Exited	636	683	650	666	659	664	632
Starting Vehs	137	137	150	136	120	130	118
Ending Vehs	128	138	125	145	123	121	124
Travel Distance (mi)	891	959	921	927	926	910	892
Travel Time (hr)	31.3	34.5	32.4	34.2	33.5	32.1	30.7
Total Delay (hr)	6.9	8.1	7.1	8.5	8.1	6.9	6.1
Total Stops	358	407	380	422	421	392	374
Fuel Used (gal)	26.7	28.5	27.4	27.8	27.7	26.9	25.9

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	680	670	683	660
Vehs Exited	653	678	725	665
Starting Vehs	113	149	164	132
Ending Vehs	140	141	122	129
Travel Distance (mi)	936	974	1014	935
Travel Time (hr)	34.0	36.3	37.6	33.7
Total Delay (hr)	8.4	9.7	9.6	8.0
Total Stops	439	490	485	416
Fuel Used (gal)	28.3	29.6	30.3	27.9

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	714	707	622	697	642	698	621
Vehs Exited	677	702	626	711	632	664	622
Starting Vehs	128	138	125	145	123	121	124
Ending Vehs	165	143	121	131	133	155	123
Travel Distance (mi)	1004	991	888	1000	922	978	893
Travel Time (hr)	36.6	36.2	30.7	36.6	31.2	36.0	30.6
Total Delay (hr)	9.1	8.8	6.1	9.1	6.1	9.1	6.4
Total Stops	441	455	351	453	360	476	379
Fuel Used (gal)	29.6	29.9	26.2	30.0	26.9	29.3	26.4

Interval #2 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	685	672	675	673
Vehs Exited	686	678	677	668
Starting Vehs	140	141	122	129
Ending Vehs	139	135	120	137
Travel Distance (mi)	957	966	927	953
Travel Time (hr)	34.7	34.7	33.3	34.1
Total Delay (hr)	8.3	8.2	7.6	7.9
Total Stops	397	435	389	413
Fuel Used (gal)	28.5	28.8	27.6	28.3

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	870	836	865	897	859	880	845
Vehs Exited	861	810	780	832	779	837	777
Starting Vehs	165	143	121	131	133	155	123
Ending Vehs	174	169	206	196	213	198	191
Travel Distance (mi)	1161	1107	1088	1122	1088	1128	1088
Travel Time (hr)	43.8	43.2	45.2	43.6	42.5	44.0	40.0
Total Delay (hr)	12.2	12.7	15.1	12.8	12.6	12.9	10.0
Total Stops	557	598	673	590	629	621	514
Fuel Used (gal)	34.8	34.0	34.1	34.5	32.8	34.0	32.3

Interval #3 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF.

Run Number	8	9	10	Avg
Vehs Entered	859	845	799	856
Vehs Exited	826	809	747	807
Starting Vehs	139	135	120	137
Ending Vehs	172	171	172	186
Travel Distance (mi)	1138	1098	1054	1107
Travel Time (hr)	44.2	41.2	39.8	42.7
Total Delay (hr)	12.7	10.7	10.9	12.3
Total Stops	593	542	543	585
Fuel Used (gal)	34.7	32.7	31.7	33.6

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	669	693	637	643	657	629	661
Vehs Exited	722	721	724	698	715	699	710
Starting Vehs	174	169	206	196	213	198	191
Ending Vehs	121	141	119	141	155	128	142
Travel Distance (mi)	970	1021	968	936	985	942	985
Travel Time (hr)	36.4	40.1	41.6	34.0	37.5	35.6	36.1
Total Delay (hr)	9.7	12.0	15.0	8.3	10.4	9.5	9.2
Total Stops	485	536	607	422	483	441	452
Fuel Used (gal)	29.4	31.1	30.9	28.1	30.0	28.2	29.5

Interval #4 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	656	633	657	654
Vehs Exited	698	671	713	707
Starting Vehs	172	171	172	186
Ending Vehs	130	133	116	134
Travel Distance (mi)	971	933	965	968
Travel Time (hr)	35.0	33.8	35.4	36.5
Total Delay (hr)	8.1	8.0	8.7	9.9
Total Stops	402	379	446	462
Fuel Used (gal)	29.0	27.6	29.1	29.3

3: Route 1 & Biddeford Connector/Precourt Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.6	0.4	0.0	0.0	0.2
Total Del/Veh (s)	40.4	68.8	46.8	35.0	43.7

8: Hill Street & Site Drive Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.2	0.2
Total Del/Veh (s)	6.9	0.5	0.7	1.3

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	45.4

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	TR	L	T	R
Maximum Queue (ft)	738	325	362	75	225	602	434	137	370	182
Average Queue (ft)	321	113	175	14	211	308	100	10	206	87
95th Queue (ft)	608	368	332	56	256	581	279	62	335	153
Link Distance (ft)	4206		1582			1115			502	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		250		50	175		800	100		375
Storage Blk Time (%)	18		60	0	40	2			40	
Queuing Penalty (veh)	66		8	0	167	10			116	

Intersection: 8: Hill Street & Site Drive

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	60	23
Average Queue (ft)	26	1
95th Queue (ft)	54	11
Link Distance (ft)	468	1816
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	100	90
Average Queue (ft)	22	26
95th Queue (ft)	70	74
Link Distance (ft)	502	502
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Bend

Movement	SW	SW
Directions Served	T	
Maximum Queue (ft)	135	100
Average Queue (ft)	23	30
95th Queue (ft)	77	81
Link Distance (ft)	1115	1115
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

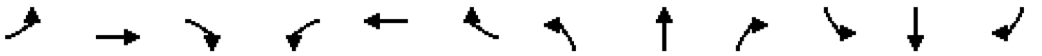
Network wide Queuing Penalty: 367

Intersection: 3: Route 1 & Biddeford Connector/Precourt Street

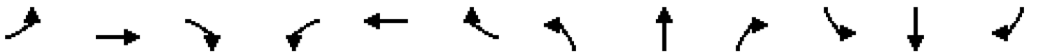
Phase	2	4	5	6	8
Movement(s) Served	NBT	EBTL	NBL	SBT	WBTL
Maximum Green (s)	51.0	37.0	34.0	32.0	20.0
Minimum Green (s)	10.0	5.0	5.0	10.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	61.2	33.2	30.3	27.6	17.7
g/C Ratio	0.47	0.26	0.23	0.21	0.14
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	81	56	52	44	52
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 129.2

Number of Complete Cycles : 24



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	94	242	18	59	8	262	165	9	4	280	199
Future Volume (vph)	177	94	242	18	59	8	262	165	9	4	280	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		50	175		800	100		375
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.992				0.850
Flt Protected		0.968			0.989		0.950			0.950		
Satd. Flow (prot)	0	1752	1538	0	1648	1417	1671	3316	0	1719	1810	1538
Flt Permitted		0.968			0.989		0.950			0.950		
Satd. Flow (perm)	0	1752	1538	0	1648	1417	1671	3316	0	1719	1810	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			257			130		4				240
Link Speed (mph)		45			30			40			40	
Link Distance (ft)		4256			1630			1171			573	
Travel Time (s)		64.5			37.0			20.0			9.8	
Peak Hour Factor	0.94	0.94	0.94	0.78	0.78	0.78	0.89	0.89	0.89	0.83	0.83	0.83
Heavy Vehicles (%)	5%	5%	5%	14%	14%	14%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	188	100	257	23	76	10	294	185	10	5	337	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	288	257	0	99	10	294	195	0	5	337	240
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1		2	1	1	2		1	2	1
Detector Template		Thru	Right		Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20		100	20	20	100		20	100	20
Trailing Detector (ft)		0	0		0	0	0	0		0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0		0	0	0
Detector 1 Size(ft)		6	20		6	20	20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	

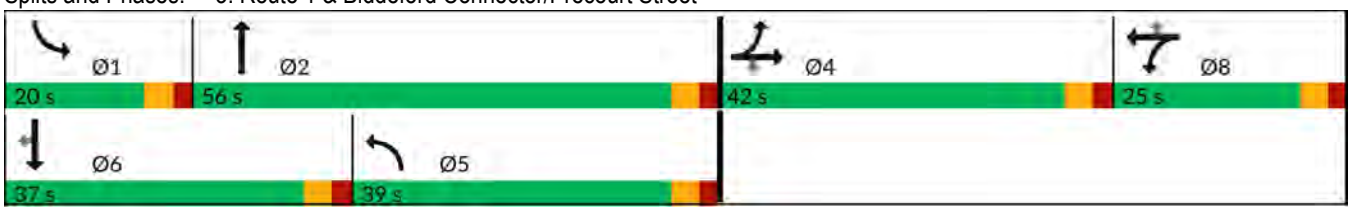


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8						6
Detector Phase	4	4	4	8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	10.0	10.0	10.0	10.0	15.0		10.0	15.0	15.0
Total Split (s)	42.0	42.0	42.0	25.0	25.0	25.0	39.0	56.0		20.0	37.0	37.0
Total Split (%)	29.4%	29.4%	29.4%	17.5%	17.5%	17.5%	27.3%	39.2%		14.0%	25.9%	25.9%
Maximum Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	51.0		15.0	32.0	32.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)		24.6	24.6		12.6	12.6	24.9	54.5		6.3	26.1	26.1
Actuated g/C Ratio		0.22	0.22		0.12	0.12	0.23	0.50		0.06	0.24	0.24
v/c Ratio		0.73	0.47		0.52	0.04	0.77	0.12		0.05	0.78	0.44
Control Delay (s/veh)		53.6	7.9		61.8	0.3	57.1	17.0		62.0	55.5	8.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		53.6	7.9		61.8	0.3	57.1	17.0		62.0	55.5	8.0
LOS		D	A		E	A	E	B		E	E	A
Approach Delay (s/veh)		32.0			56.1			41.1			35.9	
Approach LOS		C			E			D			D	
90th %ile Green (s)	37.0	37.0	37.0	19.2	19.2	19.2	34.0	59.0		7.0	32.0	32.0
90th %ile Term Code	Max	Max	Max	Gap	Gap	Gap	Max	Hold		Gap	Max	Max
70th %ile Green (s)	30.9	30.9	30.9	15.3	15.3	15.3	31.6	68.6		0.0	32.0	32.0
70th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Max	Max
50th %ile Green (s)	24.6	24.6	24.6	12.5	12.5	12.5	25.9	59.7		0.0	28.8	28.8
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
30th %ile Green (s)	19.5	19.5	19.5	10.0	10.0	10.0	20.5	47.7		0.0	22.2	22.2
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
10th %ile Green (s)	13.7	13.7	13.7	7.2	7.2	7.2	14.4	35.3		0.0	15.9	15.9
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
Queue Length 50th (ft)		194	0		68	0	198	34		4	222	0
Queue Length 95th (ft)		340	70		125	0	359	84		18	379	49
Internal Link Dist (ft)		4176			1550			1091			493	
Turn Bay Length (ft)			250			50	175			100		375
Base Capacity (vph)		629	717		319	380	551	1823		250	562	643
Starvation Cap Reductn		0	0		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.46	0.36		0.31	0.03	0.53	0.11		0.02	0.60	0.37

Intersection Summary	
Area Type:	Other
Cycle Length: 143	
Actuated Cycle Length: 109.4	

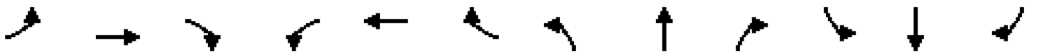
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay (s/veh): 37.4	Intersection LOS: D
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	
90th %ile Actuated Cycle: 142.2	
70th %ile Actuated Cycle: 129.8	
50th %ile Actuated Cycle: 111.8	
30th %ile Actuated Cycle: 92.2	
10th %ile Actuated Cycle: 71.2	

Splits and Phases: 3: Route 1 & Biddeford Connector/Precourt Street

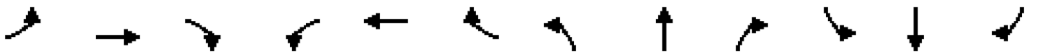


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	0	177	9	3	195
Future Volume (vph)	1	0	177	9	3	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1787	0	1782	0	0	1791
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1787	0	1782	0	0	1791
Link Speed (mph)	30		35			35
Link Distance (ft)	499		978			1842
Travel Time (s)	11.3		19.1			35.9
Peak Hour Factor	0.50	0.50	0.86	0.86	0.50	0.50
Heavy Vehicles (%)	1%	1%	6%	6%	6%	6%
Adj. Flow (vph)	2	0	206	10	6	390
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	216	0	0	396
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	277	110	352	20	144	13	381	392	15	5	307	285
Future Volume (vph)	277	110	352	20	144	13	381	392	15	5	307	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		50	175		800	100		375
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.994				0.850
Flt Protected		0.965			0.994		0.950			0.950		
Satd. Flow (prot)	0	1763	1553	0	1834	1568	1752	3484	0	1770	1863	1583
Flt Permitted		0.965			0.994		0.950			0.950		
Satd. Flow (perm)	0	1763	1553	0	1834	1568	1752	3484	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			340			130		3				317
Link Speed (mph)		45			30			40			40	
Link Distance (ft)		4256			1630			1171			573	
Travel Time (s)		64.5			37.0			20.0			9.8	
Peak Hour Factor	0.89	0.89	0.89	0.71	0.71	0.71	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	311	124	396	28	203	18	433	445	17	6	341	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	435	396	0	231	18	433	462	0	6	341	317
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1		2	1	1	2		1	2	1
Detector Template		Thru	Right		Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20		100	20	20	100		20	100	20
Trailing Detector (ft)		0	0		0	0	0	0		0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0		0	0	0
Detector 1 Size(ft)		6	20		6	20	20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8						6
Detector Phase	4	4	4	8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	10.0	10.0	10.0	10.0	15.0		10.0	15.0	15.0
Total Split (s)	42.0	42.0	42.0	25.0	25.0	25.0	39.0	56.0		20.0	37.0	37.0
Total Split (%)	29.4%	29.4%	29.4%	17.5%	17.5%	17.5%	27.3%	39.2%		14.0%	25.9%	25.9%
Maximum Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	51.0		15.0	32.0	32.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)		36.1	36.1		19.4	19.4	34.1	65.7		6.1	29.0	29.0
Actuated g/C Ratio		0.26	0.26		0.14	0.14	0.25	0.47		0.04	0.21	0.21
v/c Ratio		0.95	0.60		0.90	0.05	1.00	0.28		0.08	0.88	0.55
Control Delay (s/veh)		81.7	12.0		95.0	0.3	96.9	23.3		67.4	76.6	8.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		81.7	12.0		95.0	0.3	96.9	23.3		67.4	76.6	8.4
LOS		F	B		F	A	F	C		E	E	A
Approach Delay (s/veh)		48.5			88.1			58.9			44.0	
Approach LOS		D			F			E			D	
90th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	58.8		7.2	32.0	32.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Gap	Max	Max
70th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	71.0		0.0	32.0	32.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Max	Max
50th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	71.0		0.0	32.0	32.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Max	Max
30th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	67.5		0.0	28.5	28.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Gap	Gap
10th %ile Green (s)	32.4	32.4	32.4	17.0	17.0	17.0	34.0	60.2		0.0	21.2	21.2
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Max	Hold		Skip	Gap	Gap
Queue Length 50th (ft)		401	40		215	0	~434	127		6	304	0
Queue Length 95th (ft)		#602	141		238	0	#625	190		21	#455	82
Internal Link Dist (ft)		4176			1550			1091			493	
Turn Bay Length (ft)			250			50	175			100		375
Base Capacity (vph)		472	664		265	338	431	1653		192	431	610
Starvation Cap Reductn		0	0		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.92	0.60		0.87	0.05	1.00	0.28		0.03	0.79	0.52

Intersection Summary

Area Type: Other

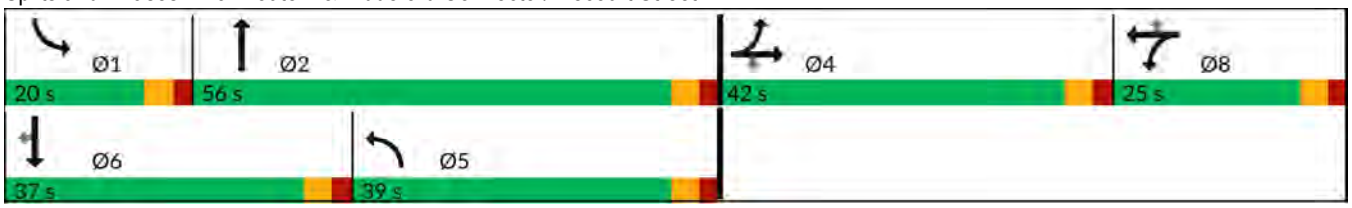
Cycle Length: 143

Actuated Cycle Length: 138.6

Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay (s/veh): 54.6	Intersection LOS: D
Intersection Capacity Utilization 83.7%	ICU Level of Service E
Analysis Period (min) 15	
90th %ile Actuated Cycle: 143	
70th %ile Actuated Cycle: 143	
50th %ile Actuated Cycle: 143	
30th %ile Actuated Cycle: 139.5	
10th %ile Actuated Cycle: 124.6	

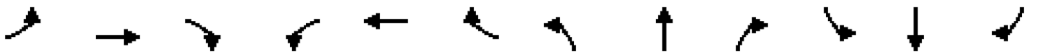
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Route 1 & Biddeford Connector/Precourt Street

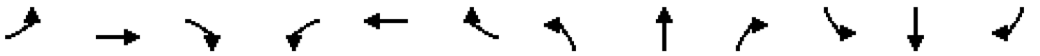


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	4	253	2	0	185
Future Volume (vph)	20	4	253	2	0	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977		0.999			
Flt Protected	0.960					
Satd. Flow (prot)	1764	0	1825	0	0	1845
Flt Permitted	0.960					
Satd. Flow (perm)	1764	0	1825	0	0	1845
Link Speed (mph)	30		35			35
Link Distance (ft)	499		978			1842
Travel Time (s)	11.3		19.1			35.9
Peak Hour Factor	0.50	0.50	0.82	0.82	0.62	0.62
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Adj. Flow (vph)	40	8	309	2	0	298
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	311	0	0	298
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.4%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	116	242	20	65	8	262	165	11	4	280	199
Future Volume (vph)	177	116	242	20	65	8	262	165	11	4	280	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		50	175		800	100		375
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.991				0.850
Flt Protected		0.971			0.988		0.950			0.950		
Satd. Flow (prot)	0	1757	1538	0	1647	1417	1671	3313	0	1719	1810	1538
Flt Permitted		0.971			0.988		0.950			0.950		
Satd. Flow (perm)	0	1757	1538	0	1647	1417	1671	3313	0	1719	1810	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			257			130		5				240
Link Speed (mph)		45			30			40			40	
Link Distance (ft)		4256			1630			1171			573	
Travel Time (s)		64.5			37.0			20.0			9.8	
Peak Hour Factor	0.94	0.94	0.94	0.78	0.78	0.78	0.89	0.89	0.89	0.83	0.83	0.83
Heavy Vehicles (%)	5%	5%	5%	14%	14%	14%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	188	123	257	26	83	10	294	185	12	5	337	240
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	311	257	0	109	10	294	197	0	5	337	240
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1		2	1	1	2		1	2	1
Detector Template		Thru	Right		Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20		100	20	20	100		20	100	20
Trailing Detector (ft)		0	0		0	0	0	0		0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0		0	0	0
Detector 1 Size(ft)		6	20		6	20	20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8						6
Detector Phase	4	4	4	8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	10.0	10.0	10.0	10.0	15.0		10.0	15.0	15.0
Total Split (s)	42.0	42.0	42.0	25.0	25.0	25.0	39.0	56.0		20.0	37.0	37.0
Total Split (%)	29.4%	29.4%	29.4%	17.5%	17.5%	17.5%	27.3%	39.2%		14.0%	25.9%	25.9%
Maximum Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	51.0		15.0	32.0	32.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)		26.2	26.2		13.4	13.4	25.4	55.2		6.3	26.4	26.4
Actuated g/C Ratio		0.23	0.23		0.12	0.12	0.23	0.49		0.06	0.23	0.23
v/c Ratio		0.76	0.46		0.56	0.04	0.78	0.12		0.05	0.79	0.44
Control Delay (s/veh)		55.6	7.7		63.5	0.3	59.1	17.8		63.5	58.1	8.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		55.6	7.7		63.5	0.3	59.1	17.8		63.5	58.1	8.1
LOS		E	A		E	A	E	B		E	E	A
Approach Delay (s/veh)		34.0			58.2			42.5			37.5	
Approach LOS		C			E			D			D	
90th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	59.0		7.0	32.0	32.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Gap	Max	Max
70th %ile Green (s)	33.3	33.3	33.3	16.6	16.6	16.6	32.5	69.5		0.0	32.0	32.0
70th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Max	Max
50th %ile Green (s)	27.6	27.6	27.6	13.5	13.5	13.5	26.7	61.3		0.0	29.6	29.6
50th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
30th %ile Green (s)	21.0	21.0	21.0	10.7	10.7	10.7	20.9	48.5		0.0	22.6	22.6
30th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
10th %ile Green (s)	14.7	14.7	14.7	7.6	7.6	7.6	14.6	35.8		0.0	16.2	16.2
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap	Gap	Gap	Hold		Skip	Gap	Gap
Queue Length 50th (ft)		220	0		79	0	210	37		4	235	0
Queue Length 95th (ft)		373	70		136	0	362	85		17	#383	50
Internal Link Dist (ft)		4176			1550			1091			493	
Turn Bay Length (ft)			250			50	175			100		375
Base Capacity (vph)		612	703		310	372	535	1781		242	546	631
Starvation Cap Reductn		0	0		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.51	0.37		0.35	0.03	0.55	0.11		0.02	0.62	0.38

Intersection Summary	
Area Type:	Other
Cycle Length: 143	
Actuated Cycle Length: 112.6	

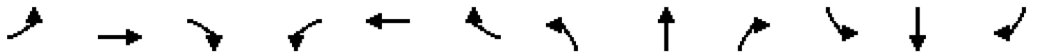
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay (s/veh): 39.2	Intersection LOS: D
Intersection Capacity Utilization 64.3%	ICU Level of Service C
Analysis Period (min) 15	
90th %ile Actuated Cycle: 143	
70th %ile Actuated Cycle: 134.4	
50th %ile Actuated Cycle: 117.4	
30th %ile Actuated Cycle: 95.2	
10th %ile Actuated Cycle: 73.1	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

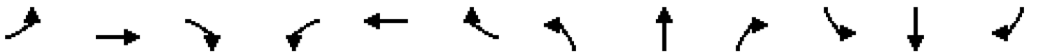
Splits and Phases: 3: Route 1 & Biddeford Connector/Precourt Street

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	4	177	33	13	195
Future Volume (vph)	9	4	177	33	13	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958		0.979			
Flt Protected	0.967					0.997
Satd. Flow (prot)	1743	0	1755	0	0	1787
Flt Permitted	0.967					0.997
Satd. Flow (perm)	1743	0	1755	0	0	1787
Link Speed (mph)	30		35			35
Link Distance (ft)	499		978			1842
Travel Time (s)	11.3		19.1			35.9
Peak Hour Factor	0.50	0.50	0.86	0.86	0.50	0.50
Heavy Vehicles (%)	1%	1%	6%	6%	6%	6%
Adj. Flow (vph)	18	8	206	38	26	390
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	244	0	0	416
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	277	120	352	23	168	13	381	392	16	5	307	285
Future Volume (vph)	277	120	352	23	168	13	381	392	16	5	307	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		250	0		50	175		800	100		375
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.994				0.850
Flt Protected		0.966			0.994		0.950			0.950		
Satd. Flow (prot)	0	1765	1553	0	1834	1568	1752	3484	0	1770	1863	1583
Flt Permitted		0.966			0.994		0.950			0.950		
Satd. Flow (perm)	0	1765	1553	0	1834	1568	1752	3484	0	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			130		3				317
Link Speed (mph)		45			30			40			40	
Link Distance (ft)		4256			1630			1171			573	
Travel Time (s)		64.5			37.0			20.0			9.8	
Peak Hour Factor	0.89	0.89	0.89	0.71	0.71	0.71	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	311	135	396	32	237	18	433	445	18	6	341	317
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	446	396	0	269	18	433	463	0	6	341	317
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1		2	1	1	2		1	2	1
Detector Template		Thru	Right		Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20		100	20	20	100		20	100	20
Trailing Detector (ft)		0	0		0	0	0	0		0	0	0
Detector 1 Position(ft)		0	0		0	0	0	0		0	0	0
Detector 1 Size(ft)		6	20		6	20	20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8						6
Detector Phase	4	4	4	8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	10.0	10.0	10.0	10.0	15.0		10.0	15.0	15.0
Total Split (s)	42.0	42.0	42.0	25.0	25.0	25.0	39.0	56.0		20.0	37.0	37.0
Total Split (%)	29.4%	29.4%	29.4%	17.5%	17.5%	17.5%	27.3%	39.2%		14.0%	25.9%	25.9%
Maximum Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	51.0		15.0	32.0	32.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag							Lag	Lag		Lead	Lead	Lead
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	Min	Min
Act Effct Green (s)		37.0	37.0		20.0	20.0	34.0	65.8		6.1	29.2	29.2
Actuated g/C Ratio		0.26	0.26		0.14	0.14	0.24	0.47		0.04	0.21	0.21
v/c Ratio		0.96	0.61		1.03	0.05	1.02	0.28		0.08	0.88	0.55
Control Delay (s/veh)		83.8	12.8		121.5	0.3	100.7	23.7		67.4	77.8	8.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)		83.8	12.8		121.5	0.3	100.7	23.7		67.4	77.8	8.4
LOS		F	B		F	A	F	C		E	E	A
Approach Delay (s/veh)		50.4			113.9			60.9			44.6	
Approach LOS		D			F			E			D	
90th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	58.8		7.2	32.0	32.0
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Gap	Max	Max
70th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	71.0		0.0	32.0	32.0
70th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Max	Max
50th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	71.0		0.0	32.0	32.0
50th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Max	Max
30th %ile Green (s)	37.0	37.0	37.0	20.0	20.0	20.0	34.0	67.5		0.0	28.5	28.5
30th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Hold		Skip	Gap	Gap
10th %ile Green (s)	36.8	36.8	36.8	20.0	20.0	20.0	34.0	60.8		0.0	21.8	21.8
10th %ile Term Code	Gap	Gap	Gap	Max	Max	Max	Max	Hold		Skip	Gap	Gap
Queue Length 50th (ft)		415	46		~272	0	~434	127		6	304	0
Queue Length 95th (ft)		#625	149		#307	0	#625	191		21	#455	82
Internal Link Dist (ft)		4176			1550			1091			493	
Turn Bay Length (ft)			250			50	175			100		375
Base Capacity (vph)		466	654		261	335	425	1636		189	425	606
Starvation Cap Reductn		0	0		0	0	0	0		0	0	0
Spillback Cap Reductn		0	0		0	0	0	0		0	0	0
Storage Cap Reductn		0	0		0	0	0	0		0	0	0
Reduced v/c Ratio		0.96	0.61		1.03	0.05	1.02	0.28		0.03	0.80	0.52

Intersection Summary

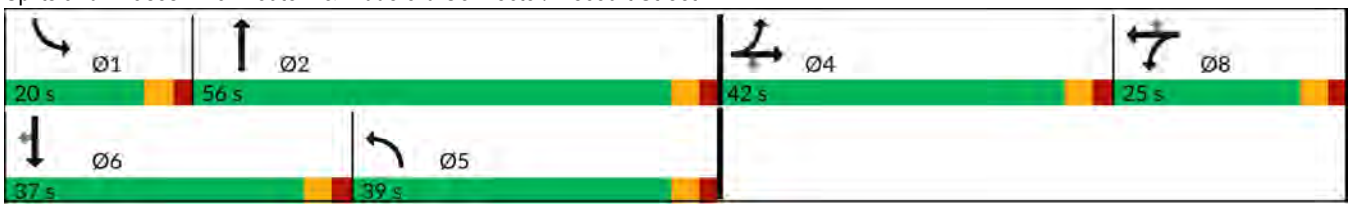
Area Type: Other

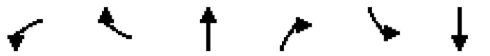
Cycle Length: 143

Actuated Cycle Length: 140.2

Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay (s/veh): 59.2	Intersection LOS: E
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	
90th %ile Actuated Cycle: 143	
70th %ile Actuated Cycle: 143	
50th %ile Actuated Cycle: 143	
30th %ile Actuated Cycle: 139.5	
10th %ile Actuated Cycle: 132.6	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: Route 1 & Biddeford Connector/Precourt Street





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	10	253	13	3	185
Future Volume (vph)	47	10	253	13	3	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976		0.993			
Flt Protected	0.960					0.999
Satd. Flow (prot)	1763	0	1814	0	0	1843
Flt Permitted	0.960					0.999
Satd. Flow (perm)	1763	0	1814	0	0	1843
Link Speed (mph)	30		35			35
Link Distance (ft)	499		978			1842
Travel Time (s)	11.3		19.1			35.9
Peak Hour Factor	0.50	0.50	0.82	0.82	0.62	0.62
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Adj. Flow (vph)	94	20	309	16	5	298
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	0	325	0	0	303
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.1%		ICU Level of Service A	
Analysis Period (min) 15			

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
Hill St-Landry St-Elm St-Precourt St area

REPORT PARAMETERS

Year 2022, Start Month 1 through Year 2024 End Month: 12

Route: 3110078	Start Node: 58401	Start Offset: 0	☐ Exclude First Node
	End Node: 58434	End Offset: 0	☐ Exclude Last Node
Route: 3110229	Start Node: 57130	Start Offset: 0	☐ Exclude First Node
	End Node: 58401	End Offset: 0	☑ Exclude Last Node
Route: 0001X	Start Node: 57130	Start Offset: 0	☑ Exclude First Node
	End Node: 56617	End Offset: 0	☐ Exclude Last Node
Route: 0001S	Start Node: 56616	Start Offset: 0	☑ Exclude First Node
	End Node: 56615	End Offset: 0	☑ Exclude Last Node
Route: 0001S	Start Node: 56615	Start Offset: 0	☑ Exclude First Node
	End Node: 65572	End Offset: 0	☑ Exclude Last Node
Route: 0001S	Start Node: 65572	Start Offset: 0	☑ Exclude First Node
	End Node: 65567	End Offset: 0	☑ Exclude Last Node
Route: 3110239	Start Node: 56615	Start Offset: 0	☑ Exclude First Node
	End Node: 57131	End Offset: 0	☑ Exclude Last Node
Route: 3110220	Start Node: 56615	Start Offset: 0	☑ Exclude First Node
	End Node: 57720	End Offset: 0	☐ Exclude Last Node
Route: 3202046	Start Node: 65566	Start Offset: 0	☑ Exclude First Node
	End Node: 65571	End Offset: 0	☑ Exclude Last Node
Route: 3202046	Start Node: 65571	Start Offset: 0	☑ Exclude First Node
	End Node: 56615	End Offset: 0	☑ Exclude Last Node
Route: 3202048	Start Node: 65571	Start Offset: 0	☐ Exclude First Node

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
Hill St-Landry St-Elm St-Precourt St area

REPORT PARAMETERS

Year 2022, Start Month 1 through Year 2024 End Month: 12

End Node: 65572 End Offset: 0 ☐ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF	
58399	3110078 - 0.19	Int of GRAYSON ST HILL ST	2	0	0	0	0	0	0	0.0	1.834	0.00	0.44	0.00	
												Statewide Crash Rate:	0.13		
58434	3110078 - 1.29	Int of HILL ST WEST ST	9	6	0	0	0	2	4	33.3	4.299	0.47	1.25	0.00	0.38
												Statewide Crash Rate:	0.69		
58401	3110078 - 0	Int of HILL ST LANDRY ST MARCEL AV	2	1	0	0	0	0	1	0.0	1.482	0.22	0.46	0.00	0.48
												Statewide Crash Rate:	0.13		
57132	3110229 - 0.43	Non Int LANDRY ST	2	0	0	0	0	0	0	0.0	1.195	0.00	0.48	0.00	
												Statewide Crash Rate:	0.13		
57130	3110229 - 0	Int of ELM ST LANDRY ST	2	1	0	0	0	0	1	0.0	5.029	0.07	0.37	0.00	0.19
												Statewide Crash Rate:	0.15		
57131	3110229 - 0.37	Int of LANDRY ST PRECOURT ST	2	1	0	0	1	0	0	100.0	1.231	0.27	0.48	0.00	0.56
												Statewide Crash Rate:	0.13		
56614	0001X - 31.65	Int of ELM ST, GRAYS LN	2	1	0	0	0	0	1	0.0	5.084	0.07	0.37	0.00	0.19
												Statewide Crash Rate:	0.15		
65567	0001X - 31.71	Non Int ELM ST	2	0	0	0	0	0	0	0.0	5.044	0.00	0.37	0.00	
												Statewide Crash Rate:	0.15		
56615	0001X - 31.79	Int of ELM ST PRECOURT ST	9	13	0	0	0	7	6	53.8	6.565	0.66	1.15	0.58	
												Statewide Crash Rate:	0.69		
54351	0001X - 31.82	Int of CARVER ST ELM ST	2	1	0	0	0	0	1	0.0	2.443	0.14	0.45	0.00	0.31
												Statewide Crash Rate:	0.15		
56616	0001X - 31.84	Non Int ELM ST	2	0	0	0	0	0	0	0.0	4.553	0.00	0.38	0.00	
												Statewide Crash Rate:	0.15		
56617	0001X - 31.91	Int of ELM ST GRAYSON ST	2	1	0	0	0	1	0	100.0	4.680	0.07	0.38	0.00	0.18
												Statewide Crash Rate:	0.15		
58395	3110239 - 0.13	Int of BOOTH ST PRECOURT ST	2	0	0	0	0	0	0	0.0	1.122	0.00	0.49	0.00	
												Statewide Crash Rate:	0.13		
54352	3110239 - 0.07	Int of CARVER ST PRECOURT ST	2	0	0	0	0	0	0	0.0	1.143	0.00	0.49	0.00	
												Statewide Crash Rate:	0.13		
57720	3110220 - 0.31	Int of MORIN ST PRECOURT ST	2	7	0	0	1	1	5	28.6	5.251	0.44	0.37	1.20	
												Statewide Crash Rate:	0.15		
65566	3110220 - 0.03	Non Int PRECOURT ST	2	0	0	0	0	0	0	0.0	4.559	0.00	0.38	0.00	
												Statewide Crash Rate:	0.15		
65572	3202048 - 0.02	Int of ELM ST RD INV 3202048	2	4	0	0	0	0	4	0.0	2.498	0.53	0.45	1.19	
												Statewide Crash Rate:	0.15		
65571	3202048 - 0	Int of PRECOURT ST RD INV 3202048	2	1	0	0	0	0	1	0.0	2.279	0.15	0.46	0.00	0.33
												Statewide Crash Rate:	0.15		
Study Years:	3.00	NODE TOTALS:		37	0	0	2	11	24	35.1	60.291	0.20	0.34	0.61	

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
58399	58401	3132472	0 - 0.19	3110078 - 0	0.19	2	1	0	0	0	0	1	0.0	0.00269	123.82	452.73	0.00 0.27
Int of GRAYSON ST HILL ST				RD INV 31 10078											Statewide Crash Rate: 156.29		
58434	58399	3940951	0 - 1.10	3110078 - 0.19	1.10	2	9	0	0	1	0	8	11.1	0.01897	158.17	282.51	0.00 0.56
Int of HILL ST WEST ST				RD INV 31 10078											Statewide Crash Rate: 156.29		
57130	57131	5084659	0 - 0.37	3110229 - 0	0.37	2	2	0	0	0	0	2	0.0	0.00151	440.75	978.87	0.00 0.45
Int of ELM ST LANDRY ST				RD INV 31 10229											Statewide Crash Rate: 361.74		
57131	57132	3114465	0 - 0.06	3110229 - 0.37	0.06	2	0	0	0	0	0	0	0.0	0.00070	0.00	620.32	0.00
Int of LANDRY ST PRECOURT ST				RD INV 31 10229											Statewide Crash Rate: 156.29		
57132	58401	3114467	0 - 0.11	3110229 - 0.43	0.11	2	0	0	0	0	0	0	0.0	0.00134	0.00	539.93	0.00
Non Int LANDRY ST				RD INV 31 10229											Statewide Crash Rate: 156.29		
56614	57130	3114264	0 - 0.09	0001X - 31.56	0.09	2	2	0	0	0	0	2	0.0	0.00452	147.38	482.14	0.00 0.31
Int of ELM ST, GRAYS LN				US 1											Statewide Crash Rate: 203.52		
56614	65567	3116613	0 - 0.06	0001X - 31.65	0.06	2	0	0	0	0	0	0	0.0	0.00306	0.00	532.79	0.00
Int of ELM ST, GRAYS LN				US 1											Statewide Crash Rate: 203.52		
65567	56615	3116616	0 - 0.08	0001X - 31.71	0.08	2	0	0	0	0	0	0	0.0	0.00208	0.00	588.87	0.00
Non Int ELM ST				US 1											Statewide Crash Rate: 203.52		
54351	56615	3116617	0 - 0.03	0001X - 31.79	0.03	2	0	0	0	0	0	0	0.0	0.00069	0.00	768.66	0.00
Int of CARVER ST ELM ST				US 1											Statewide Crash Rate: 203.52		
54351	56616	3116618	0 - 0.02	0001X - 31.82	0.02	2	0	0	0	0	0	0	0.0	0.00046	0.00	831.43	0.00
Int of CARVER ST ELM ST				US 1											Statewide Crash Rate: 203.52		
56616	56617	3116611	0 - 0.07	0001X - 31.84	0.07	2	3	0	0	0	2	1	66.7	0.00318	314.62	527.43	0.00 0.60
Non Int ELM ST				US 1											Statewide Crash Rate: 203.52		
56616	56615	3123691	0 - 0.05	0001S - 23.74	0.05	2	1	0	0	0	0	1	0.0	0.00113	295.31	687.39	0.00 0.43
Non Int ELM ST				US 1 SB											Statewide Crash Rate: 203.52		
56615	65572	3123141	0 - 0.02	0001S - 23.79	0.02	2	0	0	0	0	0	0	0.0	0.00029	0.00	874.59	0.00
Int of ELM ST PRECOURT ST				US 1 SB											Statewide Crash Rate: 203.52		
65572	65567	3121925	0 - 0.06	0001S - 23.81	0.06	2	0	0	0	0	0	0	0.0	0.00150	0.00	640.39	0.00
Int of ELM ST RD INV 3202048				US 1 SB											Statewide Crash Rate: 203.52		
54352	56615	3119932	0 - 0.07	3110239 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00067	0.00	626.41	0.00
Int of CARVER ST PRECOURT ST				RD INV 31 10239											Statewide Crash Rate: 156.29		
54352	58395	3114920	0 - 0.06	3110239 - 0.07	0.06	2	0	0	0	0	0	0	0.0	0.00065	0.00	629.67	0.00
Int of CARVER ST PRECOURT ST				RD INV 31 10239											Statewide Crash Rate: 156.29		
57131	58395	3114466	0 - 0.19	3110239 - 0.13	0.19	2	0	0	0	0	0	0	0.0	0.00167	0.00	511.42	0.00
Int of LANDRY ST PRECOURT ST				RD INV 31 10239											Statewide Crash Rate: 156.29		
56615	65566	3139815	0 - 0.03	3110220 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00068	0.00	771.16	0.00
Int of ELM ST PRECOURT ST				RD INV 31 10220											Statewide Crash Rate: 203.52		
65566	57720	3116612	0 - 0.28	3110220 - 0.03	0.28	2	2	0	1	0	0	1	50.0	0.01276	52.23	378.26	0.00 0.14
Non Int PRECOURT ST				RD INV 31 10220											Statewide Crash Rate: 203.52		
65566	65571	3123771	0 - 0.01	3202046 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00023	0.00	877.66	0.00
Non Int PRECOURT ST				RD INV 3202046											Statewide Crash Rate: 203.52		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
65571	56615	2842365	0 - 0.02	3202046 - 0.01	0.02	2	0	0	0	0	0	0	0.0	0.00025	0.00	878.78	0.00
Int of PRECOURT ST	RD INV 3202048			RD INV 3202046											Statewide Crash Rate: 203.52		
65571	65572	3139854	0 - 0.02	3202048 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00021	0.00	873.61	0.00
Int of PRECOURT ST	RD INV 3202048			RD INV 3202048											Statewide Crash Rate: 203.52		
Study Years: 3.00				Section Totals:	2.99		20	0	1	1	2	16	20.0	0.05923	112.55	266.87	0.42
				Grand Totals:	2.99		57	0	1	3	13	40	29.8	0.05923	320.76	385.40	0.83

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
58399	58401	3132472	0 - 0.19	3110078 - 0	1	0	0	0	0	1	2024-13584	05/15/2024	0.11	PD
58434	58399	3940951	0 - 1.10	3110078 - 0.19	9	0	0	1	0	8	2023-8343	03/14/2023	0.36	PD
											2023-11415	04/13/2023	0.43	PD
											2022-39380	12/05/2022	0.51	PD
											2023-14996	05/26/2023	0.65	PD
											2023-38993	12/24/2023	0.66	PD
											2024-34073	11/20/2024	0.79	PD
											2023-11419	04/10/2023	0.95	PD
											2023-36845	11/30/2023	1.17	PD
											2023-26813	09/14/2023	1.24	B
57130	57131	5084659	0 - 0.37	3110229 - 0	2	0	0	0	0	2	2024-28359	10/07/2024	0.33	PD
											2022-9292	03/16/2022	0.35	PD
57131	57132	3114465	0 - 0.06	3110229 - 0.37	0	0	0	0	0	0				
57132	58401	3114467	0 - 0.11	3110229 - 0.43	0	0	0	0	0	0				
56614	57130	3114264	0 - 0.09	0001X - 31.56	2	0	0	0	0	2	2022-27286	09/16/2022	31.61	PD
											2023-30521	10/19/2023	31.61	PD
56614	65567	3116613	0 - 0.06	0001X - 31.65	0	0	0	0	0	0				
65567	56615	3116616	0 - 0.08	0001X - 31.71	0	0	0	0	0	0				
54351	56615	3116617	0 - 0.03	0001X - 31.79	0	0	0	0	0	0				
54351	56616	3116618	0 - 0.02	0001X - 31.82	0	0	0	0	0	0				
56616	56617	3116611	0 - 0.07	0001X - 31.84	3	0	0	0	2	1	2024-23080	08/16/2024	31.85	C
											2022-16140	06/11/2022	31.85	C
											2022-8423	03/09/2022	31.86	PD
56616	56615	3123691	0 - 0.05	0001S - 23.74	1	0	0	0	0	1	2022-24154	08/19/2022	23.78	PD
56615	65572	3123141	0 - 0.02	0001S - 23.79	0	0	0	0	0	0				
65572	65567	3121925	0 - 0.06	0001S - 23.81	0	0	0	0	0	0				
54352	56615	3119932	0 - 0.07	3110239 - 0	0	0	0	0	0	0				
54352	58395	3114920	0 - 0.06	3110239 - 0.07	0	0	0	0	0	0				
57131	58395	3114466	0 - 0.19	3110239 - 0.13	0	0	0	0	0	0				
56615	65566	3139815	0 - 0.03	3110220 - 0	0	0	0	0	0	0				
65566	57720	3116612	0 - 0.28	3110220 - 0.03	2	0	1	0	0	1	2022-33072	11/06/2022	0.20	PD
											2022-12809	04/30/2022	0.26	A
65566	65571	3123771	0 - 0.01	3202046 - 0	0	0	0	0	0	0				
65571	56615	2842365	0 - 0.02	3202046 - 0.01	0	0	0	0	0	0				
65571	65572	3139854	0 - 0.02	3202048 - 0	0	0	0	0	0	0				
				Totals:	20	0	1	1	2	16				

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	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	0	1	0	0	1	0	0	7
MONDAY	0	0	0	1	0	0	0	0	0	2	1	0	1	0	1	2	1	0	1	0	0	0	0	1	0	11
TUESDAY	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0	2	0	0	0	0	0	0	7
WEDNESDAY	0	0	0	0	0	1	0	0	1	2	0	1	1	0	0	2	1	0	0	1	0	0	0	0	0	10
THURSDAY	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	0	3	1	0	0	0	0	0	0	0	8
FRIDAY	0	0	0	0	0	0	1	1	0	0	1	1	2	0	0	3	1	0	1	0	1	0	0	0	0	12
SATURDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Totals	0	0	1	1	0	1	2	2	1	5	4	4	5	0	4	8	7	2	5	2	1	0	1	1	0	57

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	39
2-(Sport) Utility Vehicle	41
3-Passenger Van	2
4-Cargo Van (10K lbs or Less)	3
5-Pickup	15
6-Motor Home	0
7-School Bus	2
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	7
25-Other	0
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	110

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	8	40	1	0	0	0	49
Ran Off Roadway	4	0	0	0	0	0	4
Failed to Yield Right-of-Way	11	1	0	0	0	0	12
Ran Red Light	3	0	0	0	0	0	3
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	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	3	0	0	0	0	0	3
Improper Turn	1	0	0	0	0	0	1
Improper Backing	0	0	0	0	0	0	0
Improper Passing	1	1	0	0	0	0	2
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	7	0	0	0	0	0	7
Failed to Keep in Proper Lane	2	0	0	0	0	0	2
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	9	0	0	0	0	0	9
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	6	0	0	0	0	0	6
Unknown	1	1	0	0	0	0	2
Total	57	43	1	0	0	0	101

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	52	43	1	0	0	0	96
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	4	0	0	0	0	0	4
Other	0	0	0	0	0	0	0
Total	57	43	1	0	0	0	101

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	8	0	0	0	0	8
20-24	8	0	0	0	0	8
25-29	7	0	0	0	0	7
30-39	18	0	0	0	0	18
40-49	22	0	0	0	0	22
50-59	16	0	0	0	0	16
60-69	11	0	0	0	0	11
70-79	8	0	0	0	0	8
80-Over	3	0	0	0	0	3
Unknown	2	0	0	0	0	2
Total	103	0	0	0	0	103

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	103
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	5		
13-Motor Vehicle in Transport	91		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	3		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	3		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	1		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	3	5
C	13	17
PD	40	0
Total	57	23

Road Character

Road Grade	Total
1-Level	48
2-On Grade	9
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	57

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	23
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	1
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	14
6-Yield Sign	2
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	17
14-Other	0
Total	57

Light

Light Condition	Total
1-Daylight	44
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	9
5-Dark - Not Lighted	2
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	57

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2022	2023	2024	Total
JANUARY	1	1	2	4
FEBRUARY	2	2	0	4
MARCH	2	4	1	7
APRIL	1	3	3	7
MAY	1	1	1	3
JUNE	3	2	0	5
JULY	1	0	1	2
AUGUST	3	1	2	6
SEPTEMBER	2	3	0	5
OCTOBER	0	1	2	3
NOVEMBER	2	3	1	6
DECEMBER	1	3	1	5
Total	19	24	14	57

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	5	0	7	14	0	0	0	0	0	0	0	0	0	0	26
Head-on - Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Intersection Movement	0	0	8	6	0	4	0	0	0	0	0	0	0	0	18
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	4	1	1	0	1	0	0	0	0	0	0	0	0	7
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	3	2	0	0	0	0	0	0	0	0	0	0	0	0	5
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	9	6	16	21	0	5	0	0	0	0	0	0	0	0	57

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	6	0	0	0	0	0	0	0	0	0	0	6
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	29	0	0	0	0	0	0	0	0	0	2	31
Dusk	2	0	0	0	0	0	0	0	0	0	0	2
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	1	1
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	8	0	0	0	0	0	0	0	0	0	1	9
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

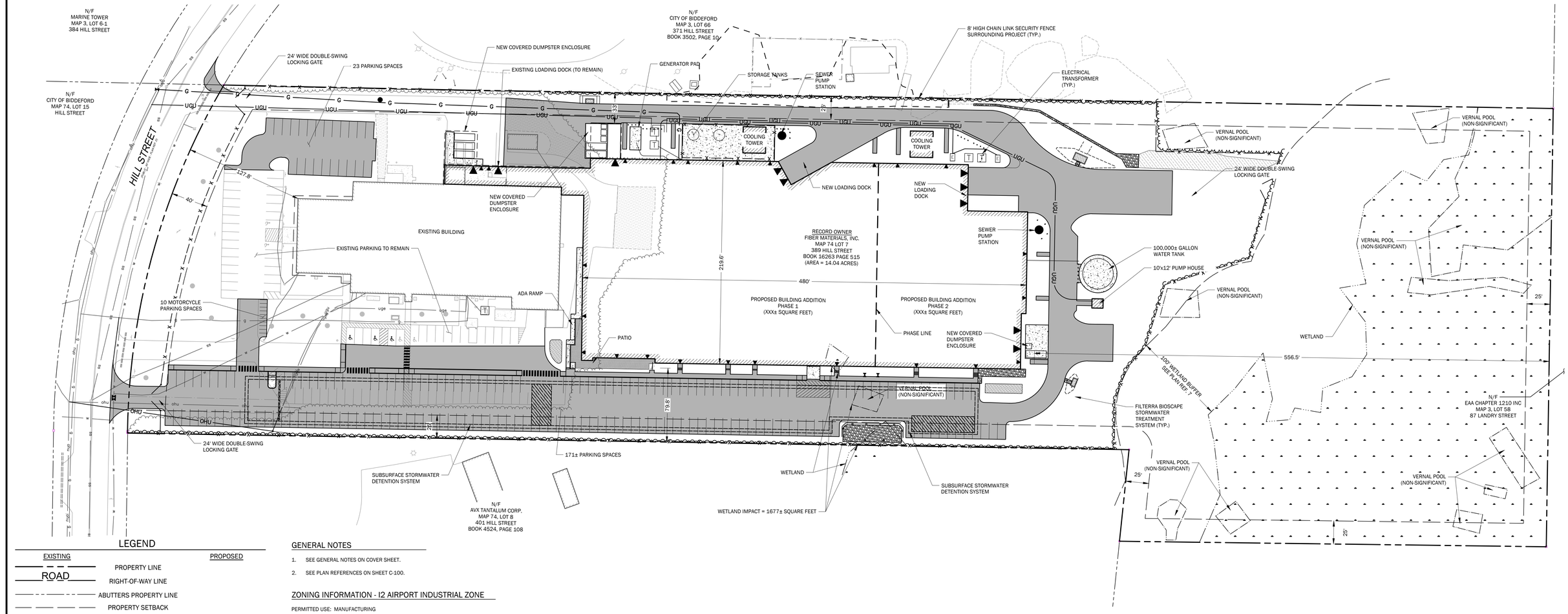
Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	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	1	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	3	3
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	2	0	0	0	2
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	1	0	0	0	1
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	46	0	0	0	0	0	0	3	0	0	8	57

BIDDEFORD
ARUNDEL
Elm St
Hill St
Alfred St
Cole Rd
Forest St
Woodland Dr
Parker Ridge Rd
Tiger Way
US BICYCLE ROUTE 1
Granite St
Ponderosa Ln
Commodore Dr
Commercial St
Digital Dr
Landry St
Grayson St
Precourt St
Bakers Way
Airport Village
Wilcox Pond
West St
Raymond St
Prospect St
Greenfield Ln
Winding Creek Ln
West Brook
Parkside Dr
Twisted Oaks Ln
Papoose Dr
EASTERN TRAIL
CSX Transportation, Freight Main
ABANDONED, POSS NO TRACK
Scale: 1:16914
0.2mi



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	STORM DRAIN TYPE F BASIN	
S	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	RD
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	
	LIGHT POLE	
	LIGHT FIXTURE	
	GUARD RAIL	
x x	METAL FENCE	X X
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	BOLLARD	
	MAN DOOR / BAY DOOR	

GENERAL NOTES

1. SEE GENERAL NOTES ON COVER SHEET.
2. SEE PLAN REFERENCES ON SHEET C-100.

ZONING INFORMATION - I2 AIRPORT INDUSTRIAL ZONE

PERMITTED USE: MANUFACTURING

I-2 ZONE STANDARDS

1. MIN. LOT SIZE: N/A
2. MIN. STREET FRONTAGE: 50 FEET
   EXISTING = 394 FEET
   PROPOSED = NO CHANGE
3. MIN. FRONT SETBACK: 40 FEET
   EXISTING = 127.8 FEET
   PROPOSED = NO CHANGE
4. MIN. SIDE SETBACK: 25 FEET
   PROPOSED: = 36.5 FEET
5. MIN. REAR SETBACK: 25 FEET
   PROPOSED = 556.5 FEET
6. MAX. BUILDING HEIGHT: 6 STORIES, 60 FEET
   PROPOSED = 2 STORIES, 45'±
6. MAX. IMPERVIOUS AREA: 75%
   PROPOSED = 47%

PRELIMINARY - NOT FOR CONSTRUCTION

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

SCALE

0 25 50 100

SCALE in FEET
1"=50'

NORTH

TAX MAP I.D.
74 – 7

REV.	DATE	STATUS	BY	CHKD.	APPD.
B	10/22/2025	ISSUED FOR SCHEMATIC DESIGN SUBMISSION	DEPT.	TWS	TWS
A	8/7/2025	ISSUED FOR SKETCH PLAN REVIEW	DEPT.	TWS	TWS

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

PHASE 2 SITE PLAN

PROJ. NO. 24–211–01
DWG. NO. C–200
REV. B

Drawing Name: C:\CDC Projects\25204 – Intermat – Biddeford\3. CAD\25204 – Base_Phase 2 | Plot Date / Time: Nov. 21, 25 / 1:30 PM

Attachment 6
Stormwater Management Plan

STORMWATER MANAGEMENT REPORT

INTERMAT EXPANSION
389 Hill Street, Biddeford, Maine
April 15, 2026
Rev. 1: June 10, 2026

Introduction

Site Design Associates (SDA) was retained to assist Fiber Materials Inc. (FMI) (Applicant) with the design and permitting for the construction of a building expansion and associated infrastructure at the Intermat manufacturing facility at 389 Hill Street in Biddeford, Maine. The proposed project includes the construction of a 50,395± square foot building expansion and the associated access drive, parking lot, landscaping, and stormwater amenities.

This Stormwater Management Report assesses both pre-development and post-development peak runoff rates and stormwater treatment practices for the redevelopment area in accordance with the Maine DEP Chapter 500 regulations and the City of Biddeford land use code.

Methodology

The stormwater runoff analysis has been undertaken utilizing the HydroCAD Stormwater Modeling System software (Version 10.2) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire. 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 undertaken for the 2, 10, 25, 50 and 100-year frequencies (3.3, 4.9, 6.2, 7.3, and 8.7 inches, respectively). Twenty-four hour storms with a Type III distribution were the basis for the analysis.

All storm drainage piping and stormwater treatment BMPs have been sized for the 100-year, 24-hour storm utilizing the HydroCAD program. Copies of the pre and post development HydroCAD output are included in the Appendix A and Appendix B of this report, respectively.

Pre-Development Conditions

The site of the proposed project is located on 14.04 acre Intermat lot accessed from Hill Street. The westerly 1/3 of the parcel is developed with the existing 32,894 square foot building and associated parking, utility, and landscaping infrastructure. There are no stormwater treatment BMPs for the existing facility. The easterly 2/3 of the lot is undeveloped. Tree clearing (without grubbing) was performed in January 2026. Multiple small wetlands are located in the easterly portion of the site. A 100-foot buffer from the large wetland on the east will remain undeveloped, as requested by the Maine IFW. As taken from the website of the *"Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey,"* the predominant soil types in the redevelopment area are Adams loamy sand (Ad) (HSG A), Naumburg sand (Na) (HSG A/D), and Lyman-Rock outcrop complex (Ly) (HSG D). The USDA soil map is included in Appendix D of this report. The soil boundaries are shown on drawings D-

100 Pre-development Drainage Plan and D-200 Post-development Drainage Plan in Appendix F of this report.

Stormwater runoff from the site drains to three analysis points on the southerly side of the property. The westerly half of the developed portion of the site drains towards Hill Street and into the roadside ditch where it leaves the property at the southeasterly corner (AP1). A small offsite subcatchments from the south also drains to AP1. The easterly half of the developed area and the approximate center of the parcel drain to the south to a wetland at the center of the southerly property line (AP2). An offsite, upgradient subcatchment (OS2) also drains through the site (R2) to AP1. The easterly portion of the site drains to the large wetland on the westerly side of the site and leaves the property at the southwesterly corner (AP3).

Stormwater peak runoff flow rates from the site for the 2, 10, 25, 50, and 100-year storm events were analyzed at each analysis point and are summarized in Table 1 in the Stormwater Quantity section of this report. Pre-development HydroCAD calculations are included in Appendix A. Sheet D-100 – Pre Development Drainage Plan is included in Appendix F.

Post-Development Conditions

The proposed project includes the construction and redevelopment of approximately 6.9± acres of the site for the 50,395± square foot building expansion and associated parking lot, utilities, stormwater and landscaping amenities. The project will result in the construction and redevelopment of 3.80 acres of impervious area and 6.71 acres of developed area. Because a portion of the site is being redeveloped, the net increase in impervious area will be 3.10 acres and the net increase of developed area will be 5.87 acres.

Stormwater runoff from the westerly side of the site will flow overland to Hill Street. Runoff from the new development area will generally be collected in multiple Filterra Bioscape filtration systems and then directed to an R-Tank subsurface stormwater detention system under the parking lot, prior to ouletting to a level spreader at the southerly property line. Minimal development is proposed on the easterly portion of the site flowing to the large wetland on the east.

Post-development stormwater peak runoff flow rates for the 2, 10, 25, 50, and 100-year storm events at each of the analysis points are summarized in Table 1 in the Stormwater Quantity section of this report.

Stormwater Quantity (Chapter 500 Flooding Standard)

Stormwater quantity at AP1 will be slightly reduced due to redirecting a portion of the existing subcatchments towards AP2.

Stormwater quantity at AP2 will be managed by collection and detention of stormwater runoff in an R-Tank subsurface detention basin under the new parking lot and a dry surface detention basin at the southeasterly corner of the development. Both detention basins outlet to a level spreader at AP2.

Minimal development is proposed in the AP3 watershed and peak flows will not increase.

Stormwater runoff peak flow rates for the 2, 10, 25, 50, and 100-year storm events were analyzed at the analysis points for both the pre and post development conditions to verify that the peak flow rates are maintained or reduced in the post development condition. Table 1 below summarizes the peak flow rates at the analysis point.

Table 1
Pre and Post Development Peak Runoff Rates (cfs)

Storm Frequency	2-Year	10-Year	25-Year	50-Year	100-Year
AP1					
Pre-Development	2.2	3.2	4.1	5.1	6.6
Post-Development	2.1	3.1	4.1	5.0	6.4
AP2					
Pre-Development	8.6	13.2	16.9	20.2	24.4
Post-Development	8.0	12.4	16.2	18.9	21.9
AP3					
Pre-Development	1.1	2.3	3.4	4.3	5.5
Post-Development	1.1	2.2	3.2	4.1	5.3

As shown in Table 1, the peak runoff rate at the analysis points under the post-development conditions are at or below the peak pre-development runoff rates for the 2, 10, 25, 50, and 100-year storm events. Based on this analysis, we do not anticipate any adverse impact on downgradient drainage systems due to the proposed development.

Note that the stormwater detention system has been oversized to accommodate a potential future expansion of the facility. However, the future expansion, if ever constructed, will be permitted at a later date.

Stormwater Quality (Chapter 500 General Standard)

The project has been designed to meet the Maine DEP Chapter 500 Basic, and General stormwater treatment standards, which require treatment of 95% of the impervious area and 80% of the developed area.

The total new and redeveloped impervious area onsite subject to stormwater treatment will be 3.80 acres. The proposed new and redeveloped developed area onsite will be 6.71 acres.

Stormwater runoff from the majority of the new developed area and a portion of the existing untreated developed area will be collected in six (6) Filterra Bioscape filtration systems throughout the site. Treated and overflow runoff from the Filterra units is directed to the subsurface R-Tank detention system to hold the channel protection volume and control peak flows. Due to elevation constraints, it is not practical to capture and treat runoff from only the new developed area.

Therefore, a portion of the existing untreated impervious and developed area is treated to meet the overall treatment area requirements.

The proposed stormwater management plan will collect and treat stormwater runoff from 3.72 acres of impervious area and 5.66 acres of developed area, which results in treatment of an area equal to 98.1% of the new/redeveloped impervious area and 84.3% of the new/redeveloped developed area. Stormwater treatment calculations are summarized below in Table 2.

Table 2
Water Quality Treatment Calculations

Subcatchment ID	Existing Impervious Area (SF)	New Impervious Area (SF)	Total Impervious Area (SF)	Existing Landscaped Area (SF)	New Landscaped Area (SF)	Total Landscaped Area (SF)	Existing Developed Area (SF)	New Developed Area (SF)	Total Developed Area (SF)	BMP
1.1	31,410	10,000	41,410	36,323	2,604	38,927	67,733	12,604	80,337	NONE
2.1	0	10,451	10,451	0	3,770	3,770	0	14,221	14,221	F1
2.2	0	21,143	21,143	0	20,749	20,749	0	41,892	41,892	F2
2.3	0	7,032	7,032	5,853	4,491	10,344	5,853	11,523	17,376	F3
2.4.1	0	33,986	33,986	0	0	0	0	33,986	33,986	F4
2.4.2	0	19,559	19,559	0	4,848	4,848	0	24,407	24,407	
2.4.3	0	642	642	0	34,531	34,531	0	35,173	35,173	
2.5	37,581	25,361	62,942	8,064	1,605	9,669	45,645	26,966	72,611	F5
2.6	0	6,396	6,396	0	452	452	0	6,848	6,848	F6
2.7	0	18,654	18,654	0	19,726	19,726	0	38,380	38,380	NONE
2.8	16,038	12,141	28,179	3,572	0	3,572	19,610	12,141	31,751	NONE
2.9	0	0	0	0	12,914	12,914	0	12,914	12,914	NONE
2.10	0	0	0	0	8,078	8,078	0	8,078	8,078	NONE
3.1	0	0	0	0	13,277	13,277	0	13,277	13,277	NONE
TOTAL NEW AREAS		**165,365**			**127,045**			**292,410**		
TOTAL TREATED AREA			**162,151**						**246,514**	
PERCENT IMPERVIOUS & DEVELOPED AREA TREATED		**98.1%**						**84.3%**		

Notes:
Treated Impervious Area
Treated Developed Area
Chapter 500 Requires treatment of 95% of impervious area and 80% of developed area.

Stormwater BMP sizing calculations are provided in Appendix C.

Note that some of the Filterra stormwater filters have been oversized to accommodate a potential future expansion of the facility. However, the future expansion, if ever constructed, will be permitted at a later date.

Erosion Control (Chapter 500 Basic Standard)

BMPs such as a stabilized construction entrance, silt fence and/or filter berms of erosion control mix, riprap pipe inlet and outlet protection, turf reinforcement matting, mulch, and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures and erosion and sedimentation control notes and details are shown on the design drawing set.

Urban Impaired Stream Standard

The project is located within the Thatcher Brook Urban Impaired Stream (UIS) watershed, as identified by the Maine DEP. The project is subject the City of Biddeford Urban Impaired Stream impact fee standards. The necessary fee will be paid by the Applicant to the City of Biddeford, as calculated below based on the city of Biddeford fee schedule.

Number of new roofs = 1 x $5,000/roof = **$5,000**
New non-roof impervious area = 1.95 acres x $12,500/acre = **$24,375**
New landscaped area = 2.92 acres x $2,500/acre = **7,300**

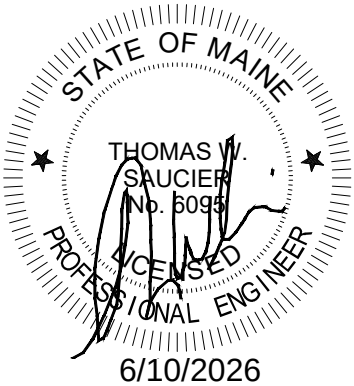
Total fee = $36,675

Inspection & Maintenance

FMI will be responsible for maintaining the stormwater facilities for the project. An Inspection and Maintenance Plan is included as Appendix E.

Conclusions

The stormwater management for this project includes a variety of BMPs to control both the quantity and quality of stormwater runoff. The HydroCAD calculations show that the peak runoff rates at the analysis points under post-development conditions are estimated to be equal to or less than the peak pre-development runoff rates for the 2, 10, 25, 50, and 100-year storm events. This meets the stormwater quantity requirements of the City of Biddeford ordinance and the Maine DEP Chapter 500 Flooding Standard. Stormwater treatment BMPs have been designed to treat stormwater runoff from an area equal to 98.1% of the new/redeveloped impervious area and 84.3% of the new/redeveloped developed area. Based on the information provided, no adverse impacts to downstream receiving bodies are anticipated.



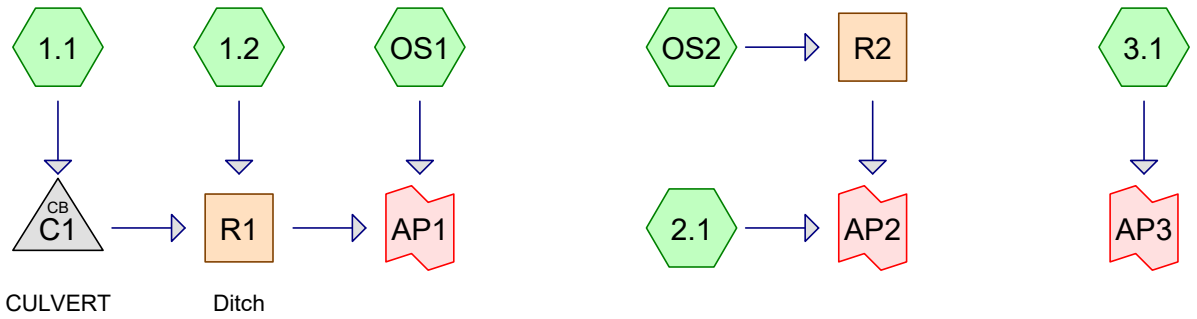
6/10/2026

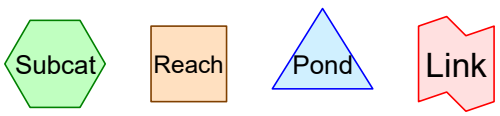
SUPPORTING DATA AND CALCULATIONS

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

Appendix A: Pre-Development HydroCAD Calculations
Appendix B: Post-Development HydroCAD Calculations
Appendix C: Stormwater BMP Calculations
Appendix D: USDA NRCS Soil Map and Stormwater BMP Test Pits
Appendix E: Inspection & Maintenance Plan
Appendix F: Drainage Plans
D-100 – Pre Development Drainage Plan
D-200 – Post Development Drainage Plan
D-300 – Stormwater Treatment Plan

Appendix A:
Pre-Development HydroCAD Calculations





Routing Diagram for 24102 - Pre-Development
Prepared by Canavan Civil Consultants, Inc, Printed 3/17/2026
HydroCAD® 10.20-8a s/n 13843 © 2025 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=81,129 sf 39.18% Impervious Runoff Depth=1.20"
Flow Length=535' Tc=19.3 min CN=WQ Runoff=1.62 cfs 8,132 cf

Subcatchment 1.2: Runoff Area=34,883 sf 43.19% Impervious Runoff Depth=1.33"
Tc=5.0 min CN=WQ Runoff=1.14 cfs 3,853 cf

Subcatchment 2.1: Runoff Area=296,846 sf 20.48% Impervious Runoff Depth=0.74"
Flow Length=390' Tc=72.9 min CN=WQ Runoff=1.90 cfs 18,291 cf

Subcatchment 3.1: Runoff Area=253,948 sf 0.00% Impervious Runoff Depth=1.06"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=1.13 cfs 22,503 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.00 cfs 0 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=2.85"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=7.17 cfs 31,090 cf

Reach R1: Ditch Avg. Flow Depth=0.32' Max Vel=1.68 fps Inflow=2.17 cfs 11,985 cf
n=0.022 L=65.0' S=0.0038 '/' Capacity=209.58 cfs Outflow=2.16 cfs 11,985 cf

Reach R2: Avg. Flow Depth=0.17' Max Vel=1.41 fps Inflow=7.17 cfs 31,090 cf
n=0.022 L=380.0' S=0.0079 '/' Capacity=305.28 cfs Outflow=6.70 cfs 31,090 cf

Pond C1: CULVERT Peak Elev=160.15' Inflow=1.62 cfs 8,132 cf
18.0" Round Culvert n=0.025 L=38.0' S=0.0050 '/' Outflow=1.62 cfs 8,132 cf

Link AP1: Inflow=2.16 cfs 11,985 cf
Primary=2.16 cfs 11,985 cf

Link AP2: Inflow=7.34 cfs 49,381 cf
Primary=7.34 cfs 49,381 cf

Link AP3: Inflow=1.13 cfs 22,503 cf
Primary=1.13 cfs 22,503 cf

Total Runoff Area = 816,462 sf Runoff Volume = 83,869 cf Average Runoff Depth = 1.23"
71.92% Pervious = 587,194 sf 28.08% Impervious = 229,268 sf

Summary for Subcatchment 1.1:

Runoff = 1.62 cfs @ 12.25 hrs, Volume= 8,132 cf, Depth= 1.20"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	31,789	98	Impervious
	41,987	39	>75% Grass cover, Good, HSG A
	7,353	30	Woods, Good, HSG A
	81,129		Weighted Average
	49,340		60.82% Pervious Area
	31,789		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.3	535	Total			

Summary for Subcatchment 1.2:

Runoff = 1.14 cfs @ 12.07 hrs, Volume= 3,853 cf, Depth= 1.33"
Routed to Reach R1 : Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	15,066	98	Impervious
	13,891	39	>75% Grass cover, Good, HSG A
	5,926	30	Woods, Good, HSG A
	34,883		Weighted Average
	19,817		56.81% Pervious Area
	15,066		43.19% Impervious Area

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

Summary for Subcatchment 2.1:

Runoff = 1.90 cfs @ 12.95 hrs, Volume= 18,291 cf, Depth= 0.74"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	60,781	98	Existing Impervious
	12,215	39	>75% Grass cover, Good, HSG A
	198,110	30	Woods, Good, HSG A
	25,740	77	Woods, Good, HSG D
	296,846		Weighted Average
	236,065		79.52% Pervious Area
	60,781		20.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	120	0.0125	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
21.5	270	0.0070	0.21		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
72.9	390	Total			

Summary for Subcatchment 3.1:

Runoff = 1.13 cfs @ 15.09 hrs, Volume= 22,503 cf, Depth= 1.06"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

Area (sf)	CN	Description
43,594	30	Woods, Good, HSG A
210,354	77	Woods, Good, HSG D
253,948		Weighted Average
253,948		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 7.17 cfs @ 12.17 hrs, Volume= 31,090 cf, Depth= 2.85"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R1: Ditch

Inflow Area = 116,012 sf, 40.39% Impervious, Inflow Depth = 1.24" for 2-Yr Storm event
Inflow = 2.17 cfs @ 12.10 hrs, Volume= 11,985 cf
Outflow = 2.16 cfs @ 12.12 hrs, Volume= 11,985 cf, Atten= 0%, Lag= 0.7 min
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.68 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 1.9 min

Peak Storage= 83 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 4.94'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 209.58 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 65.0' Slope= 0.0038 '/'
Inlet Invert= 60.00', Outlet Invert= 59.75'

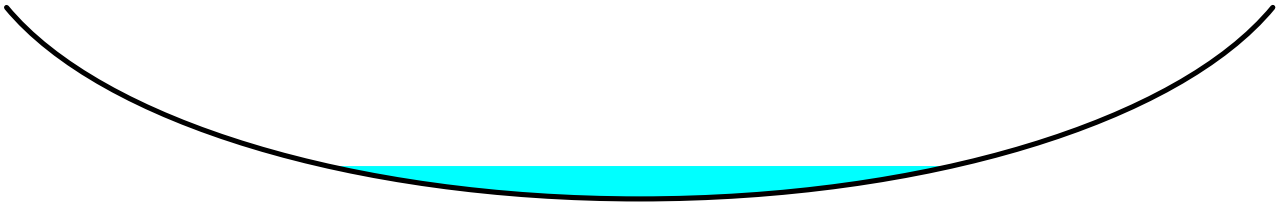
Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 2.85" for 2-Yr Storm event
Inflow = 7.17 cfs @ 12.17 hrs, Volume= 31,090 cf
Outflow = 6.70 cfs @ 12.22 hrs, Volume= 31,090 cf, Atten= 7%, Lag= 3.0 min
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.41 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 13.9 min

Peak Storage= 1,800 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 41.42'
Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 305.28 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 380.0' Slope= 0.0079 '/'
Inlet Invert= 161.00', Outlet Invert= 158.00'



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Summary for Pond C1: CULVERT

Inflow Area = 81,129 sf, 39.18% Impervious, Inflow Depth = 1.20" for 2-Yr Storm event
Inflow = 1.62 cfs @ 12.25 hrs, Volume= 8,132 cf
Outflow = 1.62 cfs @ 12.25 hrs, Volume= 8,132 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.25 hrs, Volume= 8,132 cf
Routed to Reach R1 : Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.15' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	159.31'	**18.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.31' / 159.12' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=1.61 cfs @ 12.25 hrs HW=160.15' TW=60.32' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.61 cfs @ 2.29 fps)

Summary for Link AP1:

Inflow Area = 134,640 sf, 34.80% Impervious, Inflow Depth = 1.07" for 2-Yr Storm event
Inflow = 2.16 cfs @ 12.12 hrs, Volume= 11,985 cf
Primary = 2.16 cfs @ 12.12 hrs, Volume= 11,985 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 427,874 sf, 42.63% Impervious, Inflow Depth = 1.38" for 2-Yr Storm event
Inflow = 7.34 cfs @ 12.23 hrs, Volume= 49,381 cf
Primary = 7.34 cfs @ 12.23 hrs, Volume= 49,381 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 253,948 sf, 0.00% Impervious, Inflow Depth = 1.06" for 2-Yr Storm event
Inflow = 1.13 cfs @ 15.09 hrs, Volume= 22,503 cf
Primary = 1.13 cfs @ 15.09 hrs, Volume= 22,503 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=81,129 sf 39.18% Impervious Runoff Depth=1.92"
Flow Length=535' Tc=19.3 min CN=WQ Runoff=2.42 cfs 12,986 cf

Subcatchment 1.2: Runoff Area=34,883 sf 43.19% Impervious Runoff Depth=2.09"
Tc=5.0 min CN=WQ Runoff=1.71 cfs 6,065 cf

Subcatchment 2.1: Runoff Area=296,846 sf 20.48% Impervious Runoff Depth=1.18"
Flow Length=390' Tc=72.9 min CN=WQ Runoff=3.01 cfs 29,289 cf

Subcatchment 3.1: Runoff Area=253,948 sf 0.00% Impervious Runoff Depth=2.10"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=2.31 cfs 44,525 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.00 cfs 4 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=4.34"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=10.72 cfs 47,409 cf

Reach R1: Ditch Avg. Flow Depth=0.40' Max Vel=1.90 fps Inflow=3.24 cfs 19,050 cf
n=0.022 L=65.0' S=0.0038 '/' Capacity=209.58 cfs Outflow=3.23 cfs 19,050 cf

Reach R2: Avg. Flow Depth=0.21' Max Vel=1.61 fps Inflow=10.72 cfs 47,409 cf
n=0.022 L=380.0' S=0.0079 '/' Capacity=305.28 cfs Outflow=10.14 cfs 47,409 cf

Pond C1: CULVERT Peak Elev=160.36' Inflow=2.42 cfs 12,986 cf
18.0" Round Culvert n=0.025 L=38.0' S=0.0050 '/' Outflow=2.42 cfs 12,986 cf

Link AP1: Inflow=3.23 cfs 19,054 cf
Primary=3.23 cfs 19,054 cf

Link AP2: Inflow=11.17 cfs 76,698 cf
Primary=11.17 cfs 76,698 cf

Link AP3: Inflow=2.31 cfs 44,525 cf
Primary=2.31 cfs 44,525 cf

Total Runoff Area = 816,462 sf Runoff Volume = 140,277 cf Average Runoff Depth = 2.06"
71.92% Pervious = 587,194 sf 28.08% Impervious = 229,268 sf

Summary for Subcatchment 1.1:

Runoff = 2.42 cfs @ 12.25 hrs, Volume= 12,986 cf, Depth= 1.92"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	31,789	98	Impervious
	41,987	39	>75% Grass cover, Good, HSG A
	7,353	30	Woods, Good, HSG A
	81,129		Weighted Average
	49,340		60.82% Pervious Area
	31,789		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.3	535	Total			

Summary for Subcatchment 1.2:

Runoff = 1.71 cfs @ 12.07 hrs, Volume= 6,065 cf, Depth= 2.09"
Routed to Reach R1 : Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	15,066	98	Impervious
	13,891	39	>75% Grass cover, Good, HSG A
	5,926	30	Woods, Good, HSG A
	34,883		Weighted Average
	19,817		56.81% Pervious Area
	15,066		43.19% Impervious Area

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

Summary for Subcatchment 2.1:

Runoff = 3.01 cfs @ 12.95 hrs, Volume= 29,289 cf, Depth= 1.18"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	60,781	98	Existing Impervious
	12,215	39	>75% Grass cover, Good, HSG A
	198,110	30	Woods, Good, HSG A
	25,740	77	Woods, Good, HSG D
	296,846		Weighted Average
	236,065		79.52% Pervious Area
	60,781		20.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	120	0.0125	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
21.5	270	0.0070	0.21		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
72.9	390	Total			

Summary for Subcatchment 3.1:

Runoff = 2.31 cfs @ 15.07 hrs, Volume= 44,525 cf, Depth= 2.10"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

Area (sf)	CN	Description
43,594	30	Woods, Good, HSG A
210,354	77	Woods, Good, HSG D
253,948		Weighted Average
253,948		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.00 cfs @ 24.06 hrs, Volume= 4 cf, Depth= 0.00"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 10.72 cfs @ 12.17 hrs, Volume= 47,409 cf, Depth= 4.34"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R1: Ditch

Inflow Area = 116,012 sf, 40.39% Impervious, Inflow Depth = 1.97" for 10-Yr Storm event
Inflow = 3.24 cfs @ 12.10 hrs, Volume= 19,050 cf
Outflow = 3.23 cfs @ 12.11 hrs, Volume= 19,050 cf, Atten= 0%, Lag= 0.6 min
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.90 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 1.6 min

Peak Storage= 110 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 5.42'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 209.58 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 65.0' Slope= 0.0038 '/'
Inlet Invert= 60.00', Outlet Invert= 59.75'

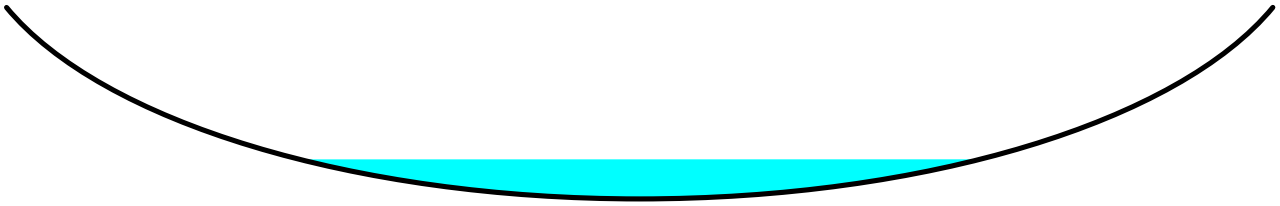
Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 4.34" for 10-Yr Storm event
Inflow = 10.72 cfs @ 12.17 hrs, Volume= 47,409 cf
Outflow = 10.14 cfs @ 12.22 hrs, Volume= 47,409 cf, Atten= 5%, Lag= 2.7 min
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.61 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 12.3 min

Peak Storage= 2,399 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 45.58'
Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 305.28 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 380.0' Slope= 0.0079 '/'
Inlet Invert= 161.00', Outlet Invert= 158.00'



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Summary for Pond C1: CULVERT

Inflow Area = 81,129 sf, 39.18% Impervious, Inflow Depth = 1.92" for 10-Yr Storm event
Inflow = 2.42 cfs @ 12.25 hrs, Volume= 12,986 cf
Outflow = 2.42 cfs @ 12.25 hrs, Volume= 12,986 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.42 cfs @ 12.25 hrs, Volume= 12,986 cf
Routed to Reach R1 : Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.36' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	159.31'	**18.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.31' / 159.12' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=2.41 cfs @ 12.25 hrs HW=160.36' TW=60.40' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.41 cfs @ 2.58 fps)

Summary for Link AP1:

Inflow Area = 134,640 sf, 34.80% Impervious, Inflow Depth = 1.70" for 10-Yr Storm event
Inflow = 3.23 cfs @ 12.11 hrs, Volume= 19,054 cf
Primary = 3.23 cfs @ 12.11 hrs, Volume= 19,054 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 427,874 sf, 42.63% Impervious, Inflow Depth = 2.15" for 10-Yr Storm event
Inflow = 11.17 cfs @ 12.22 hrs, Volume= 76,698 cf
Primary = 11.17 cfs @ 12.22 hrs, Volume= 76,698 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 253,948 sf, 0.00% Impervious, Inflow Depth = 2.10" for 10-Yr Storm event
Inflow = 2.31 cfs @ 15.07 hrs, Volume= 44,525 cf
Primary = 2.31 cfs @ 15.07 hrs, Volume= 44,525 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=81,129 sf 39.18% Impervious Runoff Depth=2.61"
Flow Length=535' Tc=19.3 min CN=WQ Runoff=3.14 cfs 17,615 cf

Subcatchment 1.2: Runoff Area=34,883 sf 43.19% Impervious Runoff Depth=2.79"
Tc=5.0 min CN=WQ Runoff=2.18 cfs 8,115 cf

Subcatchment 2.1: Runoff Area=296,846 sf 20.48% Impervious Runoff Depth=1.62"
Flow Length=390' Tc=72.9 min CN=WQ Runoff=3.94 cfs 40,109 cf

Subcatchment 3.1: Runoff Area=253,948 sf 0.00% Impervious Runoff Depth=3.04"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=3.35 cfs 64,402 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.09"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.01 cfs 147 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=5.57"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=13.61 cfs 60,822 cf

Reach R1: Ditch Avg. Flow Depth=0.46' Max Vel=2.05 fps Inflow=4.14 cfs 25,730 cf
n=0.022 L=65.0' S=0.0038 '/' Capacity=209.58 cfs Outflow=4.14 cfs 25,730 cf

Reach R2: Avg. Flow Depth=0.23' Max Vel=1.73 fps Inflow=13.61 cfs 60,822 cf
n=0.022 L=380.0' S=0.0079 '/' Capacity=305.28 cfs Outflow=12.96 cfs 60,822 cf

Pond C1: CULVERT Peak Elev=160.53' Inflow=3.14 cfs 17,615 cf
18.0" Round Culvert n=0.025 L=38.0' S=0.0050 '/' Outflow=3.14 cfs 17,615 cf

Link AP1: Inflow=4.14 cfs 25,877 cf
Primary=4.14 cfs 25,877 cf

Link AP2: Inflow=14.31 cfs 100,931 cf
Primary=14.31 cfs 100,931 cf

Link AP3: Inflow=3.35 cfs 64,402 cf
Primary=3.35 cfs 64,402 cf

Total Runoff Area = 816,462 sf Runoff Volume = 191,210 cf Average Runoff Depth = 2.81"
71.92% Pervious = 587,194 sf 28.08% Impervious = 229,268 sf

Summary for Subcatchment 1.1:

Runoff = 3.14 cfs @ 12.26 hrs, Volume= 17,615 cf, Depth= 2.61"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	31,789	98	Impervious
	41,987	39	>75% Grass cover, Good, HSG A
	7,353	30	Woods, Good, HSG A
	81,129		Weighted Average
	49,340		60.82% Pervious Area
	31,789		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.3	535	Total			

Summary for Subcatchment 1.2:

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 8,115 cf, Depth= 2.79"
Routed to Reach R1 : Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	15,066	98	Impervious
	13,891	39	>75% Grass cover, Good, HSG A
	5,926	30	Woods, Good, HSG A
	34,883		Weighted Average
	19,817		56.81% Pervious Area
	15,066		43.19% Impervious Area

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

Summary for Subcatchment 2.1:

Runoff = 3.94 cfs @ 12.95 hrs, Volume= 40,109 cf, Depth= 1.62"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	60,781	98	Existing Impervious
	12,215	39	>75% Grass cover, Good, HSG A
	198,110	30	Woods, Good, HSG A
	25,740	77	Woods, Good, HSG D
	296,846		Weighted Average
	236,065		79.52% Pervious Area
	60,781		20.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	120	0.0125	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
21.5	270	0.0070	0.21		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
72.9	390	Total			

Summary for Subcatchment 3.1:

Runoff = 3.35 cfs @ 15.06 hrs, Volume= 64,402 cf, Depth= 3.04"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

Area (sf)	CN	Description
43,594	30	Woods, Good, HSG A
210,354	77	Woods, Good, HSG D
253,948		Weighted Average
253,948		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.01 cfs @ 15.66 hrs, Volume= 147 cf, Depth= 0.09"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 13.61 cfs @ 12.17 hrs, Volume= 60,822 cf, Depth= 5.57"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R1: Ditch

Inflow Area = 116,012 sf, 40.39% Impervious, Inflow Depth = 2.66" for 25-Yr Storm event
Inflow = 4.14 cfs @ 12.11 hrs, Volume= 25,730 cf
Outflow = 4.14 cfs @ 12.12 hrs, Volume= 25,730 cf, Atten= 0%, Lag= 0.5 min
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.05 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 1.5 min

Peak Storage= 131 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 5.77'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 209.58 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 65.0' Slope= 0.0038 '/'
Inlet Invert= 60.00', Outlet Invert= 59.75'

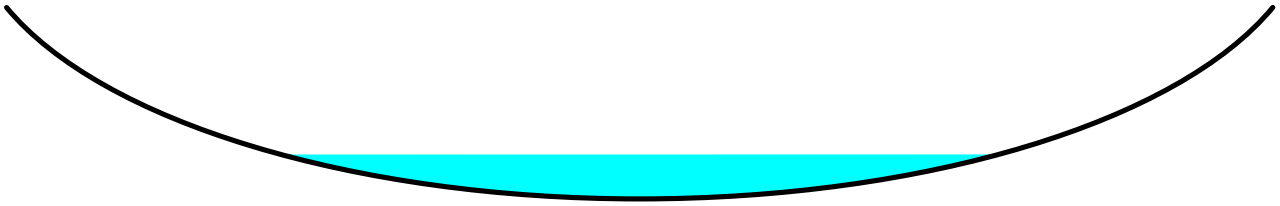
Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 5.57" for 25-Yr Storm event
Inflow = 13.61 cfs @ 12.17 hrs, Volume= 60,822 cf
Outflow = 12.96 cfs @ 12.21 hrs, Volume= 60,822 cf, Atten= 5%, Lag= 2.5 min
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.73 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 11.5 min

Peak Storage= 2,843 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.23' , Surface Width= 48.23'
Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 305.28 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 380.0' Slope= 0.0079 '/'
Inlet Invert= 161.00', Outlet Invert= 158.00'



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Summary for Pond C1: CULVERT

Inflow Area = 81,129 sf, 39.18% Impervious, Inflow Depth = 2.61" for 25-Yr Storm event
Inflow = 3.14 cfs @ 12.26 hrs, Volume= 17,615 cf
Outflow = 3.14 cfs @ 12.26 hrs, Volume= 17,615 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.14 cfs @ 12.26 hrs, Volume= 17,615 cf
Routed to Reach R1 : Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.53' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	159.31'	**18.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.31' / 159.12' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=3.13 cfs @ 12.26 hrs HW=160.53' TW=60.46' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.13 cfs @ 2.78 fps)

Summary for Link AP1:

Inflow Area = 134,640 sf, 34.80% Impervious, Inflow Depth = 2.31" for 25-Yr Storm event
Inflow = 4.14 cfs @ 12.12 hrs, Volume= 25,877 cf
Primary = 4.14 cfs @ 12.12 hrs, Volume= 25,877 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 427,874 sf, 42.63% Impervious, Inflow Depth = 2.83" for 25-Yr Storm event
Inflow = 14.31 cfs @ 12.22 hrs, Volume= 100,931 cf
Primary = 14.31 cfs @ 12.22 hrs, Volume= 100,931 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 253,948 sf, 0.00% Impervious, Inflow Depth = 3.04" for 25-Yr Storm event
Inflow = 3.35 cfs @ 15.06 hrs, Volume= 64,402 cf
Primary = 3.35 cfs @ 15.06 hrs, Volume= 64,402 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=81,129 sf 39.18% Impervious Runoff Depth=3.25"
Flow Length=535' Tc=19.3 min CN=WQ Runoff=3.91 cfs 21,941 cf

Subcatchment 1.2: Runoff Area=34,883 sf 43.19% Impervious Runoff Depth=3.44"
Tc=5.0 min CN=WQ Runoff=2.70 cfs 10,013 cf

Subcatchment 2.1: Runoff Area=296,846 sf 20.48% Impervious Runoff Depth=2.06"
Flow Length=390' Tc=72.9 min CN=WQ Runoff=4.79 cfs 51,011 cf

Subcatchment 3.1: Runoff Area=253,948 sf 0.00% Impervious Runoff Depth=3.89"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=4.27 cfs 82,244 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.27"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.02 cfs 415 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=6.62"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=16.09 cfs 72,255 cf

Reach R1: Ditch Avg. Flow Depth=0.52' Max Vel=2.18 fps Inflow=5.13 cfs 31,955 cf
n=0.022 L=65.0' S=0.0038 '/' Capacity=209.58 cfs Outflow=5.12 cfs 31,955 cf

Reach R2: Avg. Flow Depth=0.25' Max Vel=1.83 fps Inflow=16.09 cfs 72,255 cf
n=0.022 L=380.0' S=0.0079 '/' Capacity=305.28 cfs Outflow=15.40 cfs 72,255 cf

Pond C1: CULVERT Peak Elev=160.71' Inflow=3.91 cfs 21,941 cf
18.0" Round Culvert n=0.025 L=38.0' S=0.0050 '/' Outflow=3.91 cfs 21,941 cf

Link AP1: Inflow=5.12 cfs 32,369 cf
Primary=5.12 cfs 32,369 cf

Link AP2: Inflow=17.02 cfs 123,266 cf
Primary=17.02 cfs 123,266 cf

Link AP3: Inflow=4.27 cfs 82,244 cf
Primary=4.27 cfs 82,244 cf

Total Runoff Area = 816,462 sf Runoff Volume = 237,879 cf Average Runoff Depth = 3.50"
71.92% Pervious = 587,194 sf 28.08% Impervious = 229,268 sf

Summary for Subcatchment 1.1:

Runoff = 3.91 cfs @ 12.26 hrs, Volume= 21,941 cf, Depth= 3.25"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	31,789	98	Impervious
	41,987	39	>75% Grass cover, Good, HSG A
	7,353	30	Woods, Good, HSG A
	81,129		Weighted Average
	49,340		60.82% Pervious Area
	31,789		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.3	535	Total			

Summary for Subcatchment 1.2:

Runoff = 2.70 cfs @ 12.07 hrs, Volume= 10,013 cf, Depth= 3.44"
Routed to Reach R1 : Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	15,066	98	Impervious
	13,891	39	>75% Grass cover, Good, HSG A
	5,926	30	Woods, Good, HSG A
	34,883		Weighted Average
	19,817		56.81% Pervious Area
	15,066		43.19% Impervious Area

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

Summary for Subcatchment 2.1:

Runoff = 4.79 cfs @ 12.96 hrs, Volume= 51,011 cf, Depth= 2.06"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	60,781	98	Existing Impervious
	12,215	39	>75% Grass cover, Good, HSG A
	198,110	30	Woods, Good, HSG A
	25,740	77	Woods, Good, HSG D
	296,846		Weighted Average
	236,065		79.52% Pervious Area
	60,781		20.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	120	0.0125	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
21.5	270	0.0070	0.21		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
72.9	390	Total			

Summary for Subcatchment 3.1:

Runoff = 4.27 cfs @ 15.06 hrs, Volume= 82,244 cf, Depth= 3.89"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

Area (sf)	CN	Description
43,594	30	Woods, Good, HSG A
210,354	77	Woods, Good, HSG D
253,948		Weighted Average
253,948		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.02 cfs @ 13.95 hrs, Volume= 415 cf, Depth= 0.27"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 16.09 cfs @ 12.17 hrs, Volume= 72,255 cf, Depth= 6.62"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R1: Ditch

Inflow Area = 116,012 sf, 40.39% Impervious, Inflow Depth = 3.31" for 50-Yr Storm event
Inflow = 5.13 cfs @ 12.23 hrs, Volume= 31,955 cf
Outflow = 5.12 cfs @ 12.24 hrs, Volume= 31,955 cf, Atten= 0%, Lag= 0.3 min
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.18 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 1.4 min

Peak Storage= 153 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 6.10'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 209.58 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 65.0' Slope= 0.0038 '/'
Inlet Invert= 60.00', Outlet Invert= 59.75'

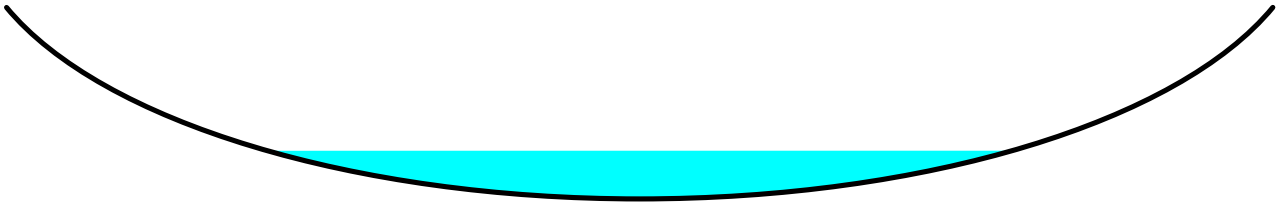
Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 6.62" for 50-Yr Storm event
Inflow = 16.09 cfs @ 12.17 hrs, Volume= 72,255 cf
Outflow = 15.40 cfs @ 12.21 hrs, Volume= 72,255 cf, Atten= 4%, Lag= 2.4 min
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 10.9 min

Peak Storage= 3,202 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.25' , Surface Width= 50.19'
Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 305.28 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 380.0' Slope= 0.0079 '/'
Inlet Invert= 161.00', Outlet Invert= 158.00'



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Summary for Pond C1: CULVERT

Inflow Area = 81,129 sf, 39.18% Impervious, Inflow Depth = 3.25" for 50-Yr Storm event
Inflow = 3.91 cfs @ 12.26 hrs, Volume= 21,941 cf
Outflow = 3.91 cfs @ 12.26 hrs, Volume= 21,941 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.91 cfs @ 12.26 hrs, Volume= 21,941 cf
Routed to Reach R1 : Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.71' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	159.31'	**18.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.31' / 159.12' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=3.90 cfs @ 12.26 hrs HW=160.71' TW=60.51' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.90 cfs @ 2.96 fps)

Summary for Link AP1:

Inflow Area = 134,640 sf, 34.80% Impervious, Inflow Depth = 2.88" for 50-Yr Storm event
Inflow = 5.12 cfs @ 12.24 hrs, Volume= 32,369 cf
Primary = 5.12 cfs @ 12.24 hrs, Volume= 32,369 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 427,874 sf, 42.63% Impervious, Inflow Depth = 3.46" for 50-Yr Storm event
Inflow = 17.02 cfs @ 12.22 hrs, Volume= 123,266 cf
Primary = 17.02 cfs @ 12.22 hrs, Volume= 123,266 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 253,948 sf, 0.00% Impervious, Inflow Depth = 3.89" for 50-Yr Storm event
Inflow = 4.27 cfs @ 15.06 hrs, Volume= 82,244 cf
Primary = 4.27 cfs @ 15.06 hrs, Volume= 82,244 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=81,129 sf 39.18% Impervious Runoff Depth=4.13"
Flow Length=535' Tc=19.3 min CN=WQ Runoff=5.07 cfs 27,896 cf

Subcatchment 1.2: Runoff Area=34,883 sf 43.19% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=WQ Runoff=3.43 cfs 12,609 cf

Subcatchment 2.1: Runoff Area=296,846 sf 20.48% Impervious Runoff Depth=2.70"
Flow Length=390' Tc=72.9 min CN=WQ Runoff=6.14 cfs 66,852 cf

Subcatchment 3.1: Runoff Area=253,948 sf 0.00% Impervious Runoff Depth=5.01"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=5.48 cfs 105,937 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.59"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.07 cfs 923 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=7.96"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=19.30 cfs 86,894 cf

Reach R1: Ditch Avg. Flow Depth=0.59' Max Vel=2.35 fps Inflow=6.63 cfs 40,505 cf
n=0.022 L=65.0' S=0.0038 '/' Capacity=209.58 cfs Outflow=6.62 cfs 40,505 cf

Reach R2: Avg. Flow Depth=0.27' Max Vel=1.93 fps Inflow=19.30 cfs 86,894 cf
n=0.022 L=380.0' S=0.0079 '/' Capacity=305.28 cfs Outflow=18.54 cfs 86,894 cf

Pond C1: CULVERT Peak Elev=161.00' Inflow=5.07 cfs 27,896 cf
18.0" Round Culvert n=0.025 L=38.0' S=0.0050 '/' Outflow=5.07 cfs 27,896 cf

Link AP1: Inflow=6.63 cfs 41,427 cf
Primary=6.63 cfs 41,427 cf

Link AP2: Inflow=20.52 cfs 153,746 cf
Primary=20.52 cfs 153,746 cf

Link AP3: Inflow=5.48 cfs 105,937 cf
Primary=5.48 cfs 105,937 cf

Total Runoff Area = 816,462 sf Runoff Volume = 301,110 cf Average Runoff Depth = 4.43"
71.92% Pervious = 587,194 sf 28.08% Impervious = 229,268 sf

Summary for Subcatchment 1.1:

Runoff = 5.07 cfs @ 12.27 hrs, Volume= 27,896 cf, Depth= 4.13"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	31,789	98	Impervious
	41,987	39	>75% Grass cover, Good, HSG A
	7,353	30	Woods, Good, HSG A
	81,129		Weighted Average
	49,340		60.82% Pervious Area
	31,789		39.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
1.9	250	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.3	535	Total			

Summary for Subcatchment 1.2:

Runoff = 3.43 cfs @ 12.07 hrs, Volume= 12,609 cf, Depth= 4.34"
Routed to Reach R1 : Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	15,066	98	Impervious
	13,891	39	>75% Grass cover, Good, HSG A
	5,926	30	Woods, Good, HSG A
	34,883		Weighted Average
	19,817		56.81% Pervious Area
	15,066		43.19% Impervious Area

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

Summary for Subcatchment 2.1:

Runoff = 6.14 cfs @ 12.97 hrs, Volume= 66,852 cf, Depth= 2.70"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	60,781	98	Existing Impervious
	12,215	39	>75% Grass cover, Good, HSG A
	198,110	30	Woods, Good, HSG A
	25,740	77	Woods, Good, HSG D
	296,846		Weighted Average
	236,065		79.52% Pervious Area
	60,781		20.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
51.4	120	0.0125	0.04		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
21.5	270	0.0070	0.21		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
72.9	390	Total			

Summary for Subcatchment 3.1:

Runoff = 5.48 cfs @ 15.05 hrs, Volume= 105,937 cf, Depth= 5.01"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

Area (sf)	CN	Description
43,594	30	Woods, Good, HSG A
210,354	77	Woods, Good, HSG D
253,948		Weighted Average
253,948		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.07 cfs @ 12.75 hrs, Volume= 923 cf, Depth= 0.59"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 19.30 cfs @ 12.17 hrs, Volume= 86,894 cf, Depth= 7.96"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R1: Ditch

Inflow Area = 116,012 sf, 40.39% Impervious, Inflow Depth = 4.19" for 100-Yr Storm event
Inflow = 6.63 cfs @ 12.24 hrs, Volume= 40,505 cf
Outflow = 6.62 cfs @ 12.24 hrs, Volume= 40,505 cf, Atten= 0%, Lag= 0.3 min
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 1.3 min

Peak Storage= 184 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.59' , Surface Width= 6.55'
Bank-Full Depth= 3.00' Flow Area= 36.0 sf, Capacity= 209.58 cfs

3.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 21.00'
Length= 65.0' Slope= 0.0038 '/'
Inlet Invert= 60.00', Outlet Invert= 59.75'

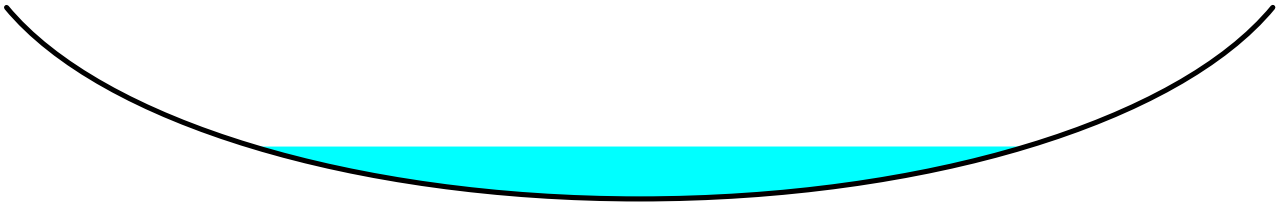
Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 7.96" for 100-Yr Storm event
Inflow = 19.30 cfs @ 12.17 hrs, Volume= 86,894 cf
Outflow = 18.54 cfs @ 12.21 hrs, Volume= 86,894 cf, Atten= 4%, Lag= 2.3 min
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.93 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 10.3 min

Peak Storage= 3,642 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.27' , Surface Width= 52.38'
Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 305.28 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 380.0' Slope= 0.0079 '/'
Inlet Invert= 161.00', Outlet Invert= 158.00'



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Summary for Pond C1: CULVERT

Inflow Area = 81,129 sf, 39.18% Impervious, Inflow Depth = 4.13" for 100-Yr Storm event
Inflow = 5.07 cfs @ 12.27 hrs, Volume= 27,896 cf
Outflow = 5.07 cfs @ 12.27 hrs, Volume= 27,896 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.07 cfs @ 12.27 hrs, Volume= 27,896 cf
Routed to Reach R1 : Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.00' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	159.31'	**18.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.31' / 159.12' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=5.06 cfs @ 12.27 hrs HW=161.00' TW=60.59' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.06 cfs @ 3.18 fps)

Summary for Link AP1:

Inflow Area = 134,640 sf, 34.80% Impervious, Inflow Depth = 3.69" for 100-Yr Storm event
Inflow = 6.63 cfs @ 12.24 hrs, Volume= 41,427 cf
Primary = 6.63 cfs @ 12.24 hrs, Volume= 41,427 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 427,874 sf, 42.63% Impervious, Inflow Depth = 4.31" for 100-Yr Storm event
Inflow = 20.52 cfs @ 12.22 hrs, Volume= 153,746 cf
Primary = 20.52 cfs @ 12.22 hrs, Volume= 153,746 cf, Atten= 0%, Lag= 0.0 min

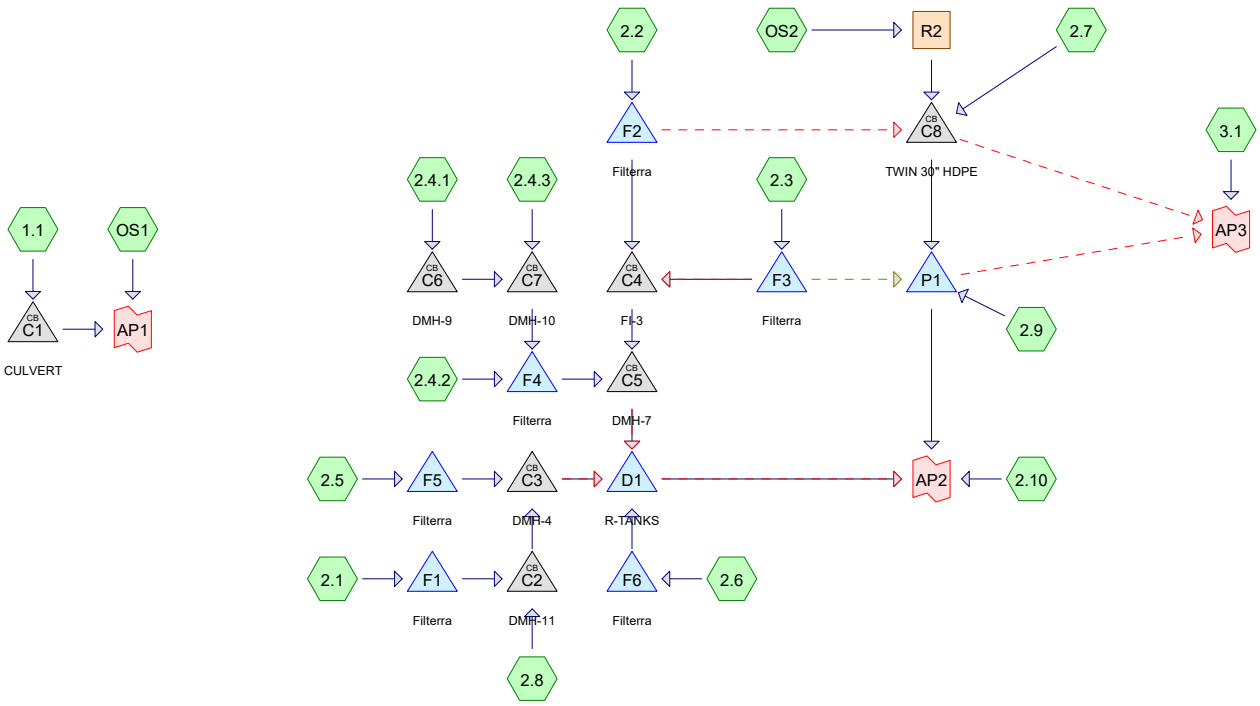
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 253,948 sf, 0.00% Impervious, Inflow Depth = 5.01" for 100-Yr Storm event
Inflow = 5.48 cfs @ 15.05 hrs, Volume= 105,937 cf
Primary = 5.48 cfs @ 15.05 hrs, Volume= 105,937 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Appendix B:
Post-Development HydroCAD Calculations



Subcat Reach Pond Link

Routing Diagram for 24102 - Post-Development
Prepared by Canavan Civil Consultants, Inc, Printed 6/10/2026
HydroCAD® 10.20-9a s/n 13843 © 2026 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=94,085 sf 44.04% Impervious Runoff Depth=1.35"
Flow Length=575' Tc=19.6 min CN=WQ Runoff=2.09 cfs 10,597 cf

Subcatchment 2.1: Runoff Area=14,221 sf 73.49% Impervious Runoff Depth=2.25"
Tc=5.0 min CN=WQ Runoff=0.79 cfs 2,672 cf

Subcatchment 2.10: Runoff Area=8,078 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=39 Runoff=0.00 cfs 1 cf

Subcatchment 2.2: Runoff Area=41,892 sf 50.47% Impervious Runoff Depth=1.74"
Flow Length=205' Slope=0.0130 '/' Tc=15.1 min CN=WQ Runoff=1.35 cfs 6,089 cf

Subcatchment 2.3: Runoff Area=12,885 sf 54.58% Impervious Runoff Depth=1.67"
Tc=5.0 min CN=WQ Runoff=0.53 cfs 1,798 cf

Subcatchment 2.4.1: Runoff Area=33,986 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=98 Runoff=2.57 cfs 8,687 cf

Subcatchment 2.4.2: Runoff Area=24,407 sf 80.14% Impervious Runoff Depth=2.46"
Tc=5.0 min CN=WQ Runoff=1.48 cfs 5,000 cf

Subcatchment 2.4.3: Runoff Area=35,173 sf 1.83% Impervious Runoff Depth=0.06"
Flow Length=305' Tc=17.7 min CN=WQ Runoff=0.03 cfs 169 cf

Subcatchment 2.5: Runoff Area=72,611 sf 86.68% Impervious Runoff Depth=2.66"
Tc=5.0 min CN=WQ Runoff=4.77 cfs 16,089 cf

Subcatchment 2.6: Runoff Area=6,848 sf 93.40% Impervious Runoff Depth=2.86"
Tc=5.0 min CN=WQ Runoff=0.48 cfs 1,635 cf

Subcatchment 2.7: Runoff Area=38,380 sf 48.60% Impervious Runoff Depth=1.82"
Flow Length=530' Slope=0.0025 '/' Tc=25.2 min CN=WQ Runoff=1.05 cfs 5,831 cf

Subcatchment 2.8: Runoff Area=31,751 sf 88.75% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=WQ Runoff=2.13 cfs 7,203 cf

Subcatchment 2.9: Runoff Area=12,914 sf 0.00% Impervious Runoff Depth=0.64"
Flow Length=320' Tc=17.4 min CN=WQ Runoff=0.16 cfs 687 cf

Subcatchment 3.1: Runoff Area=239,575 sf 0.00% Impervious Runoff Depth=1.09"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=1.09 cfs 21,722 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.00 cfs 0 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=2.85"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=7.17 cfs 31,090 cf

Reach R2: Avg. Flow Depth=0.65' Max Vel=1.70 fps Inflow=7.17 cfs 31,090 cf
n=0.040 L=560.0' S=0.0050 '/' Capacity=50.15 cfs Outflow=6.57 cfs 31,090 cf

Pond C1: CULVERT Peak Elev=161.32' Inflow=2.09 cfs 10,597 cf
18.0" Round Culvert n=0.025 L=58.0' S=0.0050 '/' Outflow=2.09 cfs 10,597 cf

Pond C2: DMH-11 Peak Elev=160.61' Inflow=2.92 cfs 9,875 cf
24.0" Round Culvert n=0.025 L=246.0' S=0.0025 '/' Outflow=2.92 cfs 9,875 cf

Pond C3: DMH-4 Peak Elev=160.03' Inflow=7.65 cfs 25,964 cf
Primary=7.52 cfs 25,937 cf Secondary=0.12 cfs 27 cf Outflow=7.65 cfs 25,964 cf

Pond C4: FI-3 Peak Elev=159.94' Inflow=1.23 cfs 7,475 cf
24.0" Round Culvert n=0.025 L=79.0' S=0.0025 '/' Outflow=1.23 cfs 7,475 cf

Pond C5: DMH-7 Peak Elev=159.88' Inflow=4.95 cfs 21,331 cf
Primary=4.95 cfs 21,331 cf Secondary=0.00 cfs 0 cf Outflow=4.95 cfs 21,331 cf

Pond C6: DMH-9 Peak Elev=163.14' Inflow=2.57 cfs 8,687 cf
30.0" Round Culvert n=0.025 L=210.0' S=0.0025 '/' Outflow=2.57 cfs 8,687 cf

Pond C7: DMH-10 Peak Elev=162.53' Inflow=2.60 cfs 8,856 cf
30.0" Round Culvert n=0.025 L=119.0' S=0.0025 '/' Outflow=2.60 cfs 8,856 cf

Pond C8: TWIN 30" HDPE Peak Elev=160.25' Inflow=7.92 cfs 37,244 cf
Primary=7.92 cfs 37,244 cf Secondary=0.00 cfs 0 cf Outflow=7.92 cfs 37,244 cf

Pond D1: R-TANKS Peak Elev=159.04' Storage=25,554 cf Inflow=13.03 cfs 48,929 cf
Outflow=1.81 cfs 46,379 cf

Pond F1: Filterra Peak Elev=162.55' Storage=54 cf Inflow=0.79 cfs 2,672 cf
Outflow=0.79 cfs 2,672 cf

Pond F2: Filterra Peak Elev=162.30' Storage=190 cf Inflow=1.35 cfs 6,089 cf
Primary=0.99 cfs 5,766 cf Secondary=0.49 cfs 323 cf Outflow=1.48 cfs 6,089 cf

Pond F3: Filterra Peak Elev=161.55' Storage=49 cf Inflow=0.53 cfs 1,798 cf
Primary=0.16 cfs 1,561 cf Secondary=0.23 cfs 148 cf Tertiary=0.14 cfs 89 cf Outflow=0.53 cfs 1,798 cf

Pond F4: Filterra Peak Elev=161.97' Storage=743 cf Inflow=4.08 cfs 13,856 cf
Outflow=3.98 cfs 13,856 cf

Pond F5: Filterra Peak Elev=161.86' Storage=341 cf Inflow=4.77 cfs 16,089 cf
Outflow=4.74 cfs 16,089 cf

Pond F6: Filterra Peak Elev=163.34' Storage=20 cf Inflow=0.48 cfs 1,635 cf
Outflow=0.49 cfs 1,635 cf

Pond P1: Peak Elev=159.53' Storage=4,206 cf Inflow=8.11 cfs 38,020 cf
Primary=6.26 cfs 38,020 cf Secondary=0.00 cfs 0 cf Outflow=6.26 cfs 38,020 cf

Link AP1: Inflow=2.09 cfs 10,597 cf
Primary=2.09 cfs 10,597 cf

Link AP2: Inflow=7.95 cfs 84,400 cf
Primary=7.95 cfs 84,400 cf

Link AP3: Inflow=1.09 cfs 21,722 cf
Primary=1.09 cfs 21,722 cf

Total Runoff Area = 816,462 sf Runoff Volume = 119,271 cf Average Runoff Depth = 1.75"
54.43% Pervious = 444,412 sf 45.57% Impervious = 372,050 sf

Summary for Subcatchment 1.1:

Runoff = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf, Depth= 1.35"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	31,434	98	Ex. Impervious
*	10,000	98	New Impervious
*	42,694	39	Existing Lawn, Good, HSG A
*	2,604	39	New Lawn, Good, HSG A
	7,353	30	Woods, Good, HSG A
	94,085		Weighted Average
	52,651		55.96% Pervious Area
	41,434		44.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
2.2	290	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.6	575	Total			

Summary for Subcatchment 2.1:

Runoff = 0.79 cfs @ 12.07 hrs, Volume= 2,672 cf, Depth= 2.25"
Routed to Pond F1 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	10,451	98	Impervious
	3,770	39	>75% Grass cover, Good, HSG A
	14,221		Weighted Average
	3,770		26.51% Pervious Area
	10,451		73.49% Impervious Area

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

Summary for Subcatchment 2.10:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 1 cf, Depth= 0.00"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	8,078	39	New Lawn, Good, HSG A
	8,078		100.00% Pervious Area

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

Summary for Subcatchment 2.2:

Runoff = 1.35 cfs @ 12.20 hrs, Volume= 6,089 cf, Depth= 1.74"
Routed to Pond F2 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	21,143	98	Impervious
*	15,215	39	New Lawn, Good, HSG A
*	5,534	80	New Lawn, Good, HSG D
	41,892		Weighted Average
	20,749		49.53% Pervious Area
	21,143		50.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	135	0.0130	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
0.5	70	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
15.1	205	Total			

Summary for Subcatchment 2.3:

Runoff = 0.53 cfs @ 12.07 hrs, Volume= 1,798 cf, Depth= 1.67"
Routed to Pond F3 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	7,032	98	Impervious
	5,853	39	>75% Grass cover, Good, HSG A
	12,885		Weighted Average
	5,853		45.42% Pervious Area
	7,032		54.58% Impervious Area

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

Summary for Subcatchment 2.4.1:

Runoff = 2.57 cfs @ 12.07 hrs, Volume= 8,687 cf, Depth= 3.07"
Routed to Pond C6 : DMH-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	33,986	98	New Impervious
	33,986		100.00% Impervious Area

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

Summary for Subcatchment 2.4.2:

Runoff = 1.48 cfs @ 12.07 hrs, Volume= 5,000 cf, Depth= 2.46"
Routed to Pond F4 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	19,559	98	New Impervious
*	4,848	39	New Lawn, Good, HSG A
	24,407		Weighted Average
	4,848		19.86% Pervious Area
	19,559		80.14% Impervious Area

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

Summary for Subcatchment 2.4.3:

Runoff = 0.03 cfs @ 12.23 hrs, Volume= 169 cf, Depth= 0.06"
Routed to Pond C7 : DMH-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	642	98	New Impervious
*	34,531	39	New Lawn, Good, HSG A
	35,173		Weighted Average
	34,531		98.17% Pervious Area
	642		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	150	0.0150	0.17		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
2.7	155	0.0190	0.96		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.7	305	Total			

Summary for Subcatchment 2.5:

Runoff = 4.77 cfs @ 12.07 hrs, Volume= 16,089 cf, Depth= 2.66"
Routed to Pond F5 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	37,581	98	Ex. Impervious
*	25,361	98	New Impervious
*	8,064	39	Ex. Lawn, Good, HSG A
*	1,605	39	New Lawn, Good, HSG A
	72,611		Weighted Average
	9,669		13.32% Pervious Area
	62,942		86.68% Impervious Area

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

Summary for Subcatchment 2.6:

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 1,635 cf, Depth= 2.86"
Routed to Pond F6 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	6,396	98	New Impervious
*	452	39	New Lawn, Good, HSG A
	6,848		Weighted Average
	452		6.60% Pervious Area
	6,396		93.40% Impervious Area

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

Summary for Subcatchment 2.7:

Runoff = 1.05 cfs @ 12.34 hrs, Volume= 5,831 cf, Depth= 1.82"
Routed to Pond C8 : TWIN 30" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	18,654	98	New Impervious
*	11,112	39	New Lawn, Good, HSG A
*	8,614	80	New Lawn, Good, HSG D
	38,380		Weighted Average
	19,726		51.40% Pervious Area
	18,654		48.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	530	0.0025	0.35		**Shallow Concentrated Flow, AB** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 2.8:

Runoff = 2.13 cfs @ 12.07 hrs, Volume= 7,203 cf, Depth= 2.72"
Routed to Pond C2 : DMH-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	16,038	98	Ex. Impervious
*	12,141	98	New Impervious
*	3,572	39	Ex. Lawn, Good, HSG A
	31,751		Weighted Average
	3,572		11.25% Pervious Area
	28,179		88.75% Impervious Area

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

Summary for Subcatchment 2.9:

Runoff = 0.16 cfs @ 12.25 hrs, Volume= 687 cf, Depth= 0.64"
Routed to Pond P1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	7,351	39	New Lawn, Good, HSG A
*	5,563	80	New Lawn, Good, HSG D
	12,914		Weighted Average
	12,914		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	40	0.0190	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.30"
10.5	280	0.0040	0.44		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.4	320	Total			

Summary for Subcatchment 3.1:

Runoff = 1.09 cfs @ 15.09 hrs, Volume= 21,722 cf, Depth= 1.09"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

Area (sf)	CN	Description
13,277	80	>75% Grass cover, Good, HSG D
38,545	30	Woods, Good, HSG A
187,753	77	Woods, Good, HSG D
239,575		Weighted Average
239,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 7.17 cfs @ 12.17 hrs, Volume= 31,090 cf, Depth= 2.85"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.30"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 2.85" for 2-Yr Storm event
Inflow = 7.17 cfs @ 12.17 hrs, Volume= 31,090 cf
Outflow = 6.57 cfs @ 12.23 hrs, Volume= 31,090 cf, Atten= 8%, Lag= 3.5 min
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.70 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 21.4 min

Peak Storage= 2,156 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.65' , Surface Width= 6.94'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 50.15 cfs

5.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 1.5 '/' Top Width= 11.00'
Length= 560.0' Slope= 0.0050 '/'
Inlet Invert= 162.00', Outlet Invert= 159.22'

Summary for Pond C1: CULVERT

Inflow Area = 94,085 sf, 44.04% Impervious, Inflow Depth = 1.35" for 2-Yr Storm event
Inflow = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf
Outflow = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.32' @ 12.26 hrs
Flood Elev= 163.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	160.34'	**18.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 160.34' / 160.05' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=2.09 cfs @ 12.26 hrs HW=161.32' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.09 cfs @ 2.42 fps)

Summary for Pond C2: DMH-11

Inflow Area = 45,972 sf, 84.03% Impervious, Inflow Depth = 2.58" for 2-Yr Storm event
Inflow = 2.92 cfs @ 12.07 hrs, Volume= 9,875 cf
Outflow = 2.92 cfs @ 12.07 hrs, Volume= 9,875 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.92 cfs @ 12.07 hrs, Volume= 9,875 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.61' @ 12.09 hrs
Flood Elev= 162.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.23'	**24.0" Round Culvert** L= 246.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.23' / 158.61' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=2.73 cfs @ 12.07 hrs HW=160.59' TW=160.02' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.73 cfs @ 1.70 fps)

Summary for Pond C3: DMH-4

Inflow Area = 118,583 sf, 85.65% Impervious, Inflow Depth = 2.63" for 2-Yr Storm event
Inflow = 7.65 cfs @ 12.08 hrs, Volume= 25,964 cf
Outflow = 7.65 cfs @ 12.08 hrs, Volume= 25,964 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.52 cfs @ 12.08 hrs, Volume= 25,937 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.12 cfs @ 12.08 hrs, Volume= 27 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.03' @ 12.08 hrs
Flood Elev= 163.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.61'	**30.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.61' / 158.60' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	159.87'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.87' / 158.60' S= 0.0552 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.42 cfs @ 12.08 hrs HW=160.02' TW=158.77' (Dynamic Tailwater)
1=Culvert (Barrel Controls 7.42 cfs @ 3.75 fps)

Secondary OutFlow Max=0.11 cfs @ 12.08 hrs HW=160.02' TW=158.77' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.11 cfs @ 1.32 fps)

Summary for Pond C4: FI-3

Inflow Area = 54,777 sf, 51.44% Impervious, Inflow Depth = 1.64" for 2-Yr Storm event
Inflow = 1.23 cfs @ 12.19 hrs, Volume= 7,475 cf
Outflow = 1.23 cfs @ 12.19 hrs, Volume= 7,475 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.19 hrs, Volume= 7,475 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.94' @ 12.12 hrs
Flood Elev= 161.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.86'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.86' / 158.66' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=1.45 cfs @ 12.19 hrs HW=159.88' TW=159.72' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.45 cfs @ 1.31 fps)

Summary for Pond C5: DMH-7

Inflow Area = 148,343 sf, 55.52% Impervious, Inflow Depth = 1.73" for 2-Yr Storm event
Inflow = 4.95 cfs @ 12.09 hrs, Volume= 21,331 cf
Outflow = 4.95 cfs @ 12.09 hrs, Volume= 21,331 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.95 cfs @ 12.09 hrs, Volume= 21,331 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.88' @ 12.09 hrs
Flood Elev= 163.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**30.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.60' S= 0.0026 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	160.54'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.54' / 158.60' S= 0.0647 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.95 cfs @ 12.09 hrs HW=159.88' TW=158.79' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.95 cfs @ 3.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.66' TW=158.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond C6: DMH-9

Inflow Area = 33,986 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Yr Storm event
Inflow = 2.57 cfs @ 12.07 hrs, Volume= 8,687 cf
Outflow = 2.57 cfs @ 12.07 hrs, Volume= 8,687 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.57 cfs @ 12.07 hrs, Volume= 8,687 cf
Routed to Pond C7 : DMH-10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.14' @ 12.08 hrs
Flood Elev= 165.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	162.04'	**30.0" Round Culvert** L= 210.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 162.04' / 161.52' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=2.46 cfs @ 12.07 hrs HW=163.12' TW=162.52' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.46 cfs @ 1.77 fps)

Summary for Pond C7: DMH-10

Inflow Area = 69,159 sf, 50.07% Impervious, Inflow Depth = 1.54" for 2-Yr Storm event
Inflow = 2.60 cfs @ 12.07 hrs, Volume= 8,856 cf
Outflow = 2.60 cfs @ 12.07 hrs, Volume= 8,856 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 12.07 hrs, Volume= 8,856 cf
Routed to Pond F4 : Filterra

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.53' @ 12.07 hrs
Flood Elev= 165.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	161.52'	**30.0" Round Culvert** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 161.52' / 161.22' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=2.55 cfs @ 12.07 hrs HW=162.52' TW=161.96' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.55 cfs @ 2.07 fps)

Summary for Pond C8: TWIN 30" HDPE

Inflow Area = 169,408 sf, 82.81% Impervious, Inflow Depth = 2.64" for 2-Yr Storm event
Inflow = 7.92 cfs @ 12.24 hrs, Volume= 37,244 cf
Outflow = 7.92 cfs @ 12.24 hrs, Volume= 37,244 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.92 cfs @ 12.24 hrs, Volume= 37,244 cf
Routed to Pond P1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.25' @ 12.24 hrs
Flood Elev= 162.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.22'	**30.0" Round Culvert X 2.00** L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.22' / 159.05' S= 0.0024 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Secondary	160.60'	**5.0' long + 2.0 '/' SideZ x 150.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=7.90 cfs @ 12.24 hrs HW=160.25' TW=159.39' (Dynamic Tailwater)
1=Culvert (Barrel Controls 7.90 cfs @ 3.05 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=159.22' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond D1: R-TANKS

Inflow Area = 273,774 sf, 69.52% Impervious, Inflow Depth = 2.14" for 2-Yr Storm event
Inflow = 13.03 cfs @ 12.08 hrs, Volume= 48,929 cf
Outflow = 1.81 cfs @ 12.77 hrs, Volume= 46,379 cf, Atten= 86%, Lag= 41.2 min
Primary = 1.81 cfs @ 12.77 hrs, Volume= 46,379 cf
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.04' @ 12.77 hrs Surf.Area= 37,071 sf Storage= 25,554 cf
Flood Elev= 161.80' Surf.Area= 37,071 sf Storage= 87,245 cf

Plug-Flow detention time= 273.6 min calculated for 46,359 cf (95% of inflow)
Center-of-Mass det. time= 244.7 min (1,003.3 - 758.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.00'	4,627 cf	**51.24'W x 189.66'L x 3.17'H Field A** 30,765 cf Overall - 19,198 cf Embedded = 11,567 cf x 40.0% Voids
#2A	158.50'	18,238 cf	**Ferguson R-Tank HD 1.5** x 2880 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 2880 Chambers in 36 Rows
#3B	158.00'	2,795 cf	**48.62'W x 121.98'L x 3.17'H Field B** 18,773 cf Overall - 11,785 cf Embedded = 6,987 cf x 40.0% Voids
#4B	158.50'	11,196 cf	**Ferguson R-Tank HD 1.5** x 1768 Inside #3 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1768 Chambers in 34 Rows
#5C	158.00'	6,914 cf	**51.24'W x 288.53'L x 3.17'H Field C** 46,802 cf Overall - 29,517 cf Embedded = 17,285 cf x 40.0% Voids
#6C	158.50'	28,041 cf	**Ferguson R-Tank HD 1.5** x 4428 Inside #5 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 4428 Chambers in 36 Rows
#7D	158.00'	1,528 cf	**34.18'W x 89.14'L x 3.17'H Field D** 9,645 cf Overall - 5,826 cf Embedded = 3,819 cf x 40.0% Voids
#8D	158.50'	5,535 cf	**Ferguson R-Tank HD 1.5** x 874 Inside #7 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 874 Chambers in 23 Rows
#9E	158.00'	1,760 cf	**51.24'W x 70.03'L x 3.17'H Field E** 11,359 cf Overall - 6,959 cf Embedded = 4,400 cf x 40.0% Voids
#10E	158.50'	6,611 cf	**Ferguson R-Tank HD 1.5** x 1044 Inside #9 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1044 Chambers in 36 Rows
		87,245 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 158.09' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	158.15'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	159.32'	**5.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	160.95'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.81 cfs @ 12.77 hrs HW=159.04' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.81 cfs of 2.98 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.81 cfs @ 3.32 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D1: R-TANKS - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

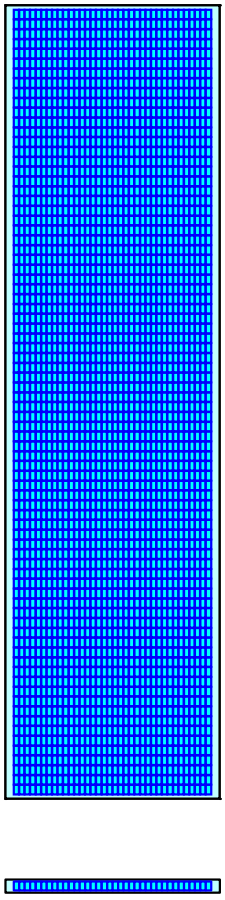
80 Chambers/Row x 2.35' Long = 187.66' Row Length +12.0" End Stone x 2 = 189.66' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

2,880 Chambers x 6.3 cf = 18,238.2 cf Chamber Storage
2,880 Chambers x 6.7 cf = 19,198.1 cf Displacement

30,764.6 cf Field - 19,198.1 cf Chambers = 11,566.5 cf Stone x 40.0% Voids = 4,626.6 cf Stone Storage

Chamber Storage + Stone Storage = 22,864.8 cf = 0.525 af
Overall Storage Efficiency = 74.3%
Overall System Size = 189.66' x 51.24' x 3.17'

2,880 Chambers
1,139.4 cy Field
428.4 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field B

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

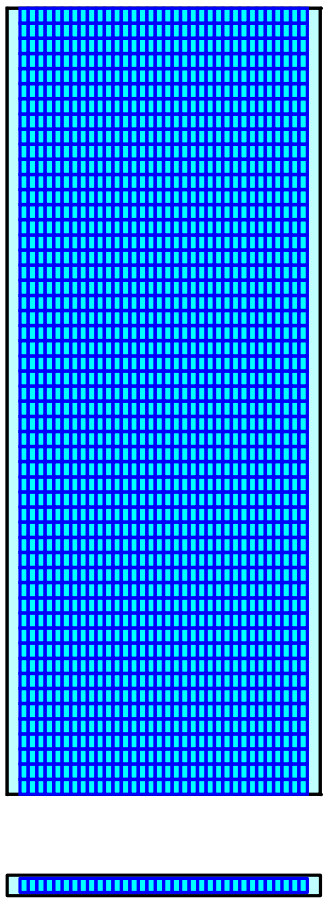
52 Chambers/Row x 2.35' Long = 121.98' Row Length
34 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 48.62' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,768 Chambers x 6.3 cf = 11,196.2 cf Chamber Storage
1,768 Chambers x 6.7 cf = 11,785.5 cf Displacement

18,772.7 cf Field - 11,785.5 cf Chambers = 6,987.2 cf Stone x 40.0% Voids = 2,794.9 cf Stone Storage

Chamber Storage + Stone Storage = 13,991.1 cf = 0.321 af
Overall Storage Efficiency = 74.5%
Overall System Size = 121.98' x 48.62' x 3.17'

1,768 Chambers
695.3 cy Field
258.8 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field C

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

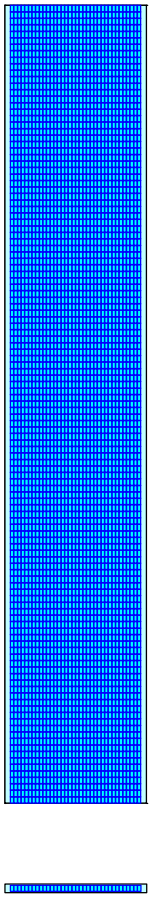
123 Chambers/Row x 2.35' Long = 288.53' Row Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

4,428 Chambers x 6.3 cf = 28,041.2 cf Chamber Storage
4,428 Chambers x 6.7 cf = 29,517.0 cf Displacement

46,801.8 cf Field - 29,517.0 cf Chambers = 17,284.7 cf Stone x 40.0% Voids = 6,913.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,955.1 cf = 0.802 af
Overall Storage Efficiency = 74.7%
Overall System Size = 288.53' x 51.24' x 3.17'

4,428 Chambers
1,733.4 cy Field
640.2 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field D

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

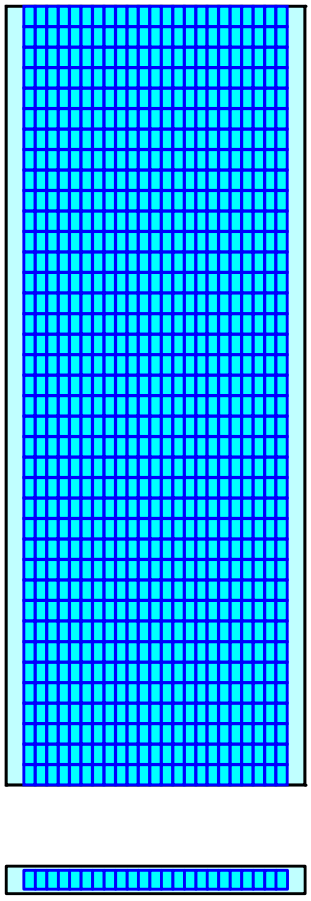
38 Chambers/Row x 2.35' Long = 89.14' Row Length
23 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 34.18' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

874 Chambers x 6.3 cf = 5,534.8 cf Chamber Storage
874 Chambers x 6.7 cf = 5,826.1 cf Displacement

9,645.3 cf Field - 5,826.1 cf Chambers = 3,819.2 cf Stone x 40.0% Voids = 1,527.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,062.5 cf = 0.162 af
Overall Storage Efficiency = 73.2%
Overall System Size = 89.14' x 34.18' x 3.17'

874 Chambers
357.2 cy Field
141.5 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field E

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

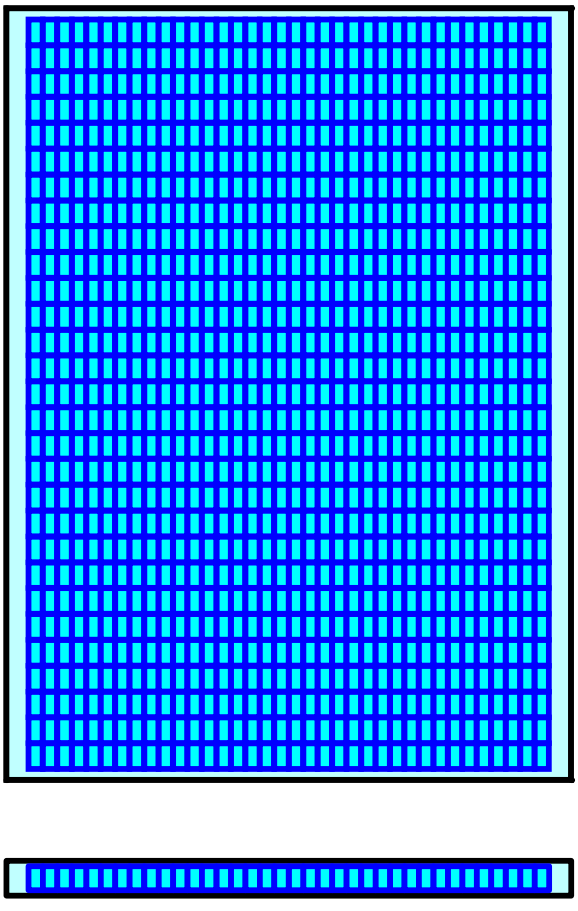
29 Chambers/Row x 2.35' Long = 68.03' Row Length +12.0" End Stone x 2 = 70.03' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,044 Chambers x 6.3 cf = 6,611.3 cf Chamber Storage
1,044 Chambers x 6.7 cf = 6,959.3 cf Displacement

11,359.0 cf Field - 6,959.3 cf Chambers = 4,399.7 cf Stone x 40.0% Voids = 1,759.9 cf Stone Storage

Chamber Storage + Stone Storage = 8,371.2 cf = 0.192 af
Overall Storage Efficiency = 73.7%
Overall System Size = 70.03' x 51.24' x 3.17'

1,044 Chambers
420.7 cy Field
163.0 cy Stone



Summary for Pond F1: Filterra

Inflow Area = 14,221 sf, 73.49% Impervious, Inflow Depth = 2.25" for 2-Yr Storm event
Inflow = 0.79 cfs @ 12.07 hrs, Volume= 2,672 cf
Outflow = 0.79 cfs @ 12.08 hrs, Volume= 2,672 cf, Atten= 1%, Lag= 0.4 min
Primary = 0.79 cfs @ 12.08 hrs, Volume= 2,672 cf
Routed to Pond C2 : DMH-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.55' @ 12.08 hrs Surf.Area= 48 sf Storage= 54 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 114 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (755.8 - 755.0)

Volume	Invert	Avail.Storage	Storage Description
#1	161.95'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.95'	102 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		174 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.95	0	29.0	0	0	0
162.90	323	198.0	102	102	3,055

Device	Routing	Invert	Outlet Devices
#1	Primary	159.70'	**12.0" Round Culvert** L= 69.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.70' / 159.23' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	161.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.45'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.78 cfs @ 12.08 hrs HW=162.55' TW=160.59' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.78 cfs of 4.60 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.16 cfs)
  └─**3=Orifice/Grate** (Weir Controls 0.62 cfs @ 1.02 fps)

Summary for Pond F2: Filterra

Inflow Area = 41,892 sf, 50.47% Impervious, Inflow Depth = 1.74" for 2-Yr Storm event
Inflow = 1.35 cfs @ 12.20 hrs, Volume= 6,089 cf
Outflow = 1.48 cfs @ 12.19 hrs, Volume= 6,089 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.19 hrs, Volume= 5,766 cf
Routed to Pond C4 : FI-3
Secondary = 0.49 cfs @ 12.19 hrs, Volume= 323 cf
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.30' @ 12.18 hrs Surf.Area= 182 sf Storage= 190 cf
Flood Elev= 162.40' Surf.Area= 182 sf Storage= 261 cf

Plug-Flow detention time= 1.0 min calculated for 6,086 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (775.0 - 774.0)

Volume	Invert	Avail.Storage	Storage Description
#1	161.75'	273 cf	**7.00'W x 13.00'L x 1.50'H Prismatoid** x 2
#2	161.75'	143 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		416 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.75	0	62.0	0	0	0
162.40	658	140.0	143	143	1,256

Device	Routing	Invert	Outlet Devices
#1	Primary	159.49'	**18.0" Round Culvert** L= 252.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.49' / 158.86' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	161.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.26'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	162.26'	**20.0' long + 2.0 '/' SideZ 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=0.96 cfs @ 12.19 hrs HW=162.30' TW=159.88' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.96 cfs of 8.00 cfs potential flow)
├**2=Exfiltration** (Exfiltration Controls 0.59 cfs)
└**3=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.68 fps)

Secondary OutFlow Max=0.45 cfs @ 12.19 hrs HW=162.30' TW=160.23' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.45 cfs @ 0.52 fps)

Summary for Pond F3: Filterra

Inflow Area = 12,885 sf, 54.58% Impervious, Inflow Depth = 1.67" for 2-Yr Storm event
Inflow = 0.53 cfs @ 12.07 hrs, Volume= 1,798 cf
Outflow = 0.53 cfs @ 12.08 hrs, Volume= 1,798 cf, Atten= 1%, Lag= 0.6 min
Primary = 0.16 cfs @ 11.82 hrs, Volume= 1,561 cf
Routed to Pond C4 : FI-3
Secondary = 0.23 cfs @ 12.08 hrs, Volume= 148 cf
Routed to Pond C4 : FI-3
Tertiary = 0.14 cfs @ 12.08 hrs, Volume= 89 cf
Routed to Pond P1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.55' @ 12.08 hrs Surf.Area= 48 sf Storage= 49 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 238 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (756.0 - 755.1)

Volume	Invert	Avail.Storage	Storage Description
#1	161.15'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.15'	166 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		238 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.15	0	29.0	0	0	0
161.50	173	55.0	20	20	174
162.00	430	107.0	146	166	846

Device	Routing	Invert	Outlet Devices
#1	Primary	158.98'	**6.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.98' / 158.97' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	161.15'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	161.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	161.50'	**5.0' 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=0.16 cfs @ 11.82 hrs HW=161.19' TW=159.49' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.16 cfs of 1.23 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.23 cfs @ 12.08 hrs HW=161.55' TW=159.85' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.23 cfs @ 0.73 fps)

Tertiary OutFlow Max=0.14 cfs @ 12.08 hrs HW=161.55' TW=159.08' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.14 cfs @ 0.56 fps)

Summary for Pond F4: Filterra

Inflow Area = 93,566 sf, 57.91% Impervious, Inflow Depth = 1.78" for 2-Yr Storm event
Inflow = 4.08 cfs @ 12.07 hrs, Volume= 13,856 cf
Outflow = 3.98 cfs @ 12.09 hrs, Volume= 13,856 cf, Atten= 2%, Lag= 1.2 min
Primary = 3.98 cfs @ 12.09 hrs, Volume= 13,856 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.97' @ 12.09 hrs Surf.Area= 342 sf Storage= 743 cf
Flood Elev= 165.00' Surf.Area= 342 sf Storage= 1,612 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.8 min (757.0 - 755.2)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	513 cf	**9.00'W x 38.00'L x 1.50'H Prismatoid**
#2	160.95'	1,099 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,612 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	89.0	0	0	0
162.00	1,230	140.0	431	431	937
162.50	1,447	149.0	669	1,099	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	158.72'	**24.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.72' / 158.66' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.80'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.96 cfs @ 12.09 hrs HW=161.97' TW=159.88' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.96 cfs of 21.58 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 1.11 cfs)
  └─**3=Orifice/Grate** (Weir Controls 2.86 cfs @ 1.34 fps)

Summary for Pond F5: Filterra

Inflow Area = 72,611 sf, 86.68% Impervious, Inflow Depth = 2.66" for 2-Yr Storm event
Inflow = 4.77 cfs @ 12.07 hrs, Volume= 16,089 cf
Outflow = 4.74 cfs @ 12.08 hrs, Volume= 16,089 cf, Atten= 1%, Lag= 0.4 min
Primary = 4.74 cfs @ 12.08 hrs, Volume= 16,089 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.86' @ 12.08 hrs Surf.Area= 261 sf Storage= 341 cf
Flood Elev= 163.00' Surf.Area= 261 sf Storage= 1,032 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (755.9 - 754.9)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	160.95'	576 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,032 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.95	261	0	0
162.70	261	457	457

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	67.0	0	0	0
162.00	460	82.0	161	161	194
162.70	735	101.0	415	576	478

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**24.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.61' S= 0.0028 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.65'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.67 cfs @ 12.08 hrs HW=161.86' TW=160.02' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.67 cfs of 20.49 cfs potential flow)
  └─**2=Exfiltration** (Exfiltration Controls 0.85 cfs)
  └─**3=Orifice/Grate** (Weir Controls 3.82 cfs @ 1.48 fps)

Summary for Pond F6: Filterra

Inflow Area = 6,848 sf, 93.40% Impervious, Inflow Depth = 2.86" for 2-Yr Storm event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 1,635 cf
Outflow = 0.49 cfs @ 12.07 hrs, Volume= 1,635 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.07 hrs, Volume= 1,635 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.34' @ 12.07 hrs Surf.Area= 32 sf Storage= 20 cf
Flood Elev= 164.17' Surf.Area= 32 sf Storage= 60 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (755.4 - 754.9)

Volume	Invert	Avail.Storage	Storage Description
#1	162.75'	48 cf	**4.00'W x 8.00'L x 1.50'H Prismatoid**
#2	162.75'	15 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		63 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.75	0	24.0	0	0	0
164.20	32	24.0	15	15	35

Device	Routing	Invert	Outlet Devices
#1	Primary	158.62'	**15.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.62' / 158.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	162.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	163.27'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 12.07 hrs HW=163.34' TW=158.76' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.48 cfs of 11.96 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.10 cfs)
  └─**3=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.86 fps)

Summary for Pond P1:

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 2.50" for 2-Yr Storm event
Inflow = 8.11 cfs @ 12.24 hrs, Volume= 38,020 cf
Outflow = 6.26 cfs @ 12.38 hrs, Volume= 38,020 cf, Atten= 23%, Lag= 8.8 min
Primary = 6.26 cfs @ 12.38 hrs, Volume= 38,020 cf
Routed to Link AP2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.53' @ 12.38 hrs Surf.Area= 5,707 sf Storage= 4,206 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 7.7 min calculated for 38,005 cf (100% of inflow)
Center-of-Mass det. time= 7.7 min (785.7 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=6.25 cfs @ 12.38 hrs HW=159.53' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 6.25 cfs @ 3.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP1:

Inflow Area = 112,713 sf, 36.76% Impervious, Inflow Depth = 1.13" for 2-Yr Storm event
Inflow = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf
Primary = 2.09 cfs @ 12.26 hrs, Volume= 10,597 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 464,174 sf, 71.23% Impervious, Inflow Depth > 2.18" for 2-Yr Storm event
Inflow = 7.95 cfs @ 12.39 hrs, Volume= 84,400 cf
Primary = 7.95 cfs @ 12.39 hrs, Volume= 84,400 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 239,575 sf, 0.00% Impervious, Inflow Depth = 1.09" for 2-Yr Storm event
Inflow = 1.09 cfs @ 15.09 hrs, Volume= 21,722 cf
Primary = 1.09 cfs @ 15.09 hrs, Volume= 21,722 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=94,085 sf 44.04% Impervious Runoff Depth=2.14"
Flow Length=575' Tc=19.6 min CN=WQ Runoff=3.13 cfs 16,784 cf

Subcatchment 2.1: Runoff Area=14,221 sf 73.49% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=WQ Runoff=1.18 cfs 4,118 cf

Subcatchment 2.10: Runoff Area=8,078 sf 0.00% Impervious Runoff Depth=0.18"
Tc=5.0 min CN=39 Runoff=0.01 cfs 121 cf

Subcatchment 2.2: Runoff Area=41,892 sf 50.47% Impervious Runoff Depth=2.79"
Flow Length=205' Slope=0.0130 '/' Tc=15.1 min CN=WQ Runoff=2.08 cfs 9,739 cf

Subcatchment 2.3: Runoff Area=12,885 sf 54.58% Impervious Runoff Depth=2.63"
Tc=5.0 min CN=WQ Runoff=0.80 cfs 2,821 cf

Subcatchment 2.4.1: Runoff Area=33,986 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=98 Runoff=3.85 cfs 13,207 cf

Subcatchment 2.4.2: Runoff Area=24,407 sf 80.14% Impervious Runoff Depth=3.77"
Tc=5.0 min CN=WQ Runoff=2.21 cfs 7,674 cf

Subcatchment 2.4.3: Runoff Area=35,173 sf 1.83% Impervious Runoff Depth=0.26"
Flow Length=305' Tc=17.7 min CN=WQ Runoff=0.05 cfs 768 cf

Subcatchment 2.5: Runoff Area=72,611 sf 86.68% Impervious Runoff Depth=4.07"
Tc=5.0 min CN=WQ Runoff=7.13 cfs 24,605 cf

Subcatchment 2.6: Runoff Area=6,848 sf 93.40% Impervious Runoff Depth=4.37"
Tc=5.0 min CN=WQ Runoff=0.72 cfs 2,492 cf

Subcatchment 2.7: Runoff Area=38,380 sf 48.60% Impervious Runoff Depth=2.95"
Flow Length=530' Slope=0.0025 '/' Tc=25.2 min CN=WQ Runoff=1.67 cfs 9,430 cf

Subcatchment 2.8: Runoff Area=31,751 sf 88.75% Impervious Runoff Depth=4.16"
Tc=5.0 min CN=WQ Runoff=3.19 cfs 11,004 cf

Subcatchment 2.9: Runoff Area=12,914 sf 0.00% Impervious Runoff Depth=1.31"
Flow Length=320' Tc=17.4 min CN=WQ Runoff=0.30 cfs 1,411 cf

Subcatchment 3.1: Runoff Area=239,575 sf 0.00% Impervious Runoff Depth=2.15"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=2.22 cfs 42,846 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.00 cfs 4 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=4.34"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=10.72 cfs 47,409 cf

Reach R2: Avg. Flow Depth=0.82' Max Vel=1.95 fps Inflow=10.72 cfs 47,409 cf
n=0.040 L=560.0' S=0.0050 '/' Capacity=50.15 cfs Outflow=9.97 cfs 47,409 cf

Pond C1: CULVERT Peak Elev=161.58' Inflow=3.13 cfs 16,784 cf
18.0" Round Culvert n=0.025 L=58.0' S=0.0050 '/' Outflow=3.13 cfs 16,784 cf

Pond C2: DMH-11 Peak Elev=160.96' Inflow=4.37 cfs 15,122 cf
24.0" Round Culvert n=0.025 L=246.0' S=0.0025 '/' Outflow=4.37 cfs 15,122 cf

Pond C3: DMH-4 Peak Elev=160.32' Inflow=11.45 cfs 39,728 cf
Primary=10.55 cfs 39,399 cf Secondary=0.91 cfs 328 cf Outflow=11.45 cfs 39,728 cf

Pond C4: FI-3 Peak Elev=160.25' Inflow=1.61 cfs 11,361 cf
24.0" Round Culvert n=0.025 L=79.0' S=0.0025 '/' Outflow=1.61 cfs 11,361 cf

Pond C5: DMH-7 Peak Elev=160.17' Inflow=7.49 cfs 33,011 cf
Primary=7.49 cfs 33,011 cf Secondary=0.00 cfs 0 cf Outflow=7.49 cfs 33,011 cf

Pond C6: DMH-9 Peak Elev=163.39' Inflow=3.85 cfs 13,207 cf
30.0" Round Culvert n=0.025 L=210.0' S=0.0025 '/' Outflow=3.85 cfs 13,207 cf

Pond C7: DMH-10 Peak Elev=162.75' Inflow=3.88 cfs 13,976 cf
30.0" Round Culvert n=0.025 L=119.0' S=0.0025 '/' Outflow=3.88 cfs 13,976 cf

Pond C8: TWIN 30" HDPE Peak Elev=160.53' Inflow=12.24 cfs 57,821 cf
Primary=12.24 cfs 57,821 cf Secondary=0.00 cfs 0 cf Outflow=12.24 cfs 57,821 cf

Pond D1: R-TANKS Peak Elev=159.40' Storage=37,494 cf Inflow=19.59 cfs 75,231 cf
Outflow=2.42 cfs 72,671 cf

Pond F1: Filterra Peak Elev=162.59' Storage=61 cf Inflow=1.18 cfs 4,118 cf
Outflow=1.18 cfs 4,118 cf

Pond F2: Filterra Peak Elev=162.32' Storage=203 cf Inflow=2.08 cfs 9,739 cf
Primary=1.26 cfs 8,757 cf Secondary=0.82 cfs 982 cf Outflow=2.08 cfs 9,739 cf

Pond F3: Filterra Peak Elev=161.57' Storage=54 cf Inflow=0.80 cfs 2,821 cf
Primary=0.16 cfs 2,248 cf Secondary=0.40 cfs 356 cf Tertiary=0.24 cfs 216 cf Outflow=0.79 cfs 2,821 cf

Pond F4: Filterra Peak Elev=162.04' Storage=855 cf Inflow=6.09 cfs 21,649 cf
Outflow=5.98 cfs 21,649 cf

Pond F5: Filterra Peak Elev=161.93' Storage=390 cf Inflow=7.13 cfs 24,605 cf
Outflow=7.09 cfs 24,605 cf

Pond F6: Filterra Peak Elev=163.37' Storage=21 cf Inflow=0.72 cfs 2,492 cf
Outflow=0.73 cfs 2,492 cf

Pond P1: Peak Elev=159.90' Storage=6,350 cf Inflow=12.61 cfs 59,448 cf
Primary=10.18 cfs 59,448 cf Secondary=0.00 cfs 0 cf Outflow=10.18 cfs 59,448 cf

Link AP1: Inflow=3.13 cfs 16,787 cf
Primary=3.13 cfs 16,787 cf

Link AP2: Inflow=12.43 cfs 132,241 cf
Primary=12.43 cfs 132,241 cf

Link AP3: Inflow=2.22 cfs 42,846 cf
Primary=2.22 cfs 42,846 cf

Total Runoff Area = 816,462 sf Runoff Volume = 194,433 cf Average Runoff Depth = 2.86"
54.43% Pervious = 444,412 sf 45.57% Impervious = 372,050 sf

Summary for Subcatchment 1.1:

Runoff = 3.13 cfs @ 12.26 hrs, Volume= 16,784 cf, Depth= 2.14"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	31,434	98	Ex. Impervious
*	10,000	98	New Impervious
*	42,694	39	Existing Lawn, Good, HSG A
*	2,604	39	New Lawn, Good, HSG A
	7,353	30	Woods, Good, HSG A
	94,085		Weighted Average
	52,651		55.96% Pervious Area
	41,434		44.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
2.2	290	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.6	575	Total			

Summary for Subcatchment 2.1:

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 4,118 cf, Depth= 3.47"
Routed to Pond F1 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	10,451	98	Impervious
	3,770	39	>75% Grass cover, Good, HSG A
	14,221		Weighted Average
	3,770		26.51% Pervious Area
	10,451		73.49% Impervious Area

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

Summary for Subcatchment 2.10:

Runoff = 0.01 cfs @ 12.48 hrs, Volume= 121 cf, Depth= 0.18"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	8,078	39	New Lawn, Good, HSG A
	8,078		100.00% Pervious Area

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

Summary for Subcatchment 2.2:

Runoff = 2.08 cfs @ 12.20 hrs, Volume= 9,739 cf, Depth= 2.79"
Routed to Pond F2 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	21,143	98	Impervious
*	15,215	39	New Lawn, Good, HSG A
*	5,534	80	New Lawn, Good, HSG D
	41,892		Weighted Average
	20,749		49.53% Pervious Area
	21,143		50.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	135	0.0130	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
0.5	70	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
15.1	205	Total			

Summary for Subcatchment 2.3:

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,821 cf, Depth= 2.63"
Routed to Pond F3 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	7,032	98	Impervious
	5,853	39	>75% Grass cover, Good, HSG A
	12,885		Weighted Average
	5,853		45.42% Pervious Area
	7,032		54.58% Impervious Area

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

Summary for Subcatchment 2.4.1:

Runoff = 3.85 cfs @ 12.07 hrs, Volume= 13,207 cf, Depth= 4.66"
Routed to Pond C6 : DMH-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	33,986	98	New Impervious
	33,986		100.00% Impervious Area

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

Summary for Subcatchment 2.4.2:

Runoff = 2.21 cfs @ 12.07 hrs, Volume= 7,674 cf, Depth= 3.77"
Routed to Pond F4 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	19,559	98	New Impervious
*	4,848	39	New Lawn, Good, HSG A
	24,407		Weighted Average
	4,848		19.86% Pervious Area
	19,559		80.14% Impervious Area

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

Summary for Subcatchment 2.4.3:

Runoff = 0.05 cfs @ 12.23 hrs, Volume= 768 cf, Depth= 0.26"
Routed to Pond C7 : DMH-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	642	98	New Impervious
*	34,531	39	New Lawn, Good, HSG A
	35,173		Weighted Average
	34,531		98.17% Pervious Area
	642		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	150	0.0150	0.17		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
2.7	155	0.0190	0.96		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.7	305	Total			

Summary for Subcatchment 2.5:

Runoff = 7.13 cfs @ 12.07 hrs, Volume= 24,605 cf, Depth= 4.07"
Routed to Pond F5 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	37,581	98	Ex. Impervious
*	25,361	98	New Impervious
*	8,064	39	Ex. Lawn, Good, HSG A
*	1,605	39	New Lawn, Good, HSG A
	72,611		Weighted Average
	9,669		13.32% Pervious Area
	62,942		86.68% Impervious Area

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

Summary for Subcatchment 2.6:

Runoff = 0.72 cfs @ 12.07 hrs, Volume= 2,492 cf, Depth= 4.37"
Routed to Pond F6 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	6,396	98	New Impervious
*	452	39	New Lawn, Good, HSG A
	6,848		Weighted Average
	452		6.60% Pervious Area
	6,396		93.40% Impervious Area

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

Summary for Subcatchment 2.7:

Runoff = 1.67 cfs @ 12.33 hrs, Volume= 9,430 cf, Depth= 2.95"
Routed to Pond C8 : TWIN 30" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	18,654	98	New Impervious
*	11,112	39	New Lawn, Good, HSG A
*	8,614	80	New Lawn, Good, HSG D
	38,380		Weighted Average
	19,726		51.40% Pervious Area
	18,654		48.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	530	0.0025	0.35		**Shallow Concentrated Flow, AB** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 2.8:

Runoff = 3.19 cfs @ 12.07 hrs, Volume= 11,004 cf, Depth= 4.16"
Routed to Pond C2 : DMH-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	16,038	98	Ex. Impervious
*	12,141	98	New Impervious
*	3,572	39	Ex. Lawn, Good, HSG A
	31,751		Weighted Average
	3,572		11.25% Pervious Area
	28,179		88.75% Impervious Area

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

Summary for Subcatchment 2.9:

Runoff = 0.30 cfs @ 12.24 hrs, Volume= 1,411 cf, Depth= 1.31"
Routed to Pond P1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	7,351	39	New Lawn, Good, HSG A
*	5,563	80	New Lawn, Good, HSG D
	12,914		Weighted Average
	12,914		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	40	0.0190	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.30"
10.5	280	0.0040	0.44		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.4	320	Total			

Summary for Subcatchment 3.1:

Runoff = 2.22 cfs @ 15.07 hrs, Volume= 42,846 cf, Depth= 2.15"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

Area (sf)	CN	Description
13,277	80	>75% Grass cover, Good, HSG D
38,545	30	Woods, Good, HSG A
187,753	77	Woods, Good, HSG D
239,575		Weighted Average
239,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.00 cfs @ 24.06 hrs, Volume= 4 cf, Depth= 0.00"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 10.72 cfs @ 12.17 hrs, Volume= 47,409 cf, Depth= 4.34"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.90"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 4.34" for 10-Yr Storm event
Inflow = 10.72 cfs @ 12.17 hrs, Volume= 47,409 cf
Outflow = 9.97 cfs @ 12.22 hrs, Volume= 47,409 cf, Atten= 7%, Lag= 3.1 min
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 1.95 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 18.5 min

Peak Storage= 2,864 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.82' , Surface Width= 7.46'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 50.15 cfs

5.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 1.5 '/' Top Width= 11.00'
Length= 560.0' Slope= 0.0050 '/'
Inlet Invert= 162.00', Outlet Invert= 159.22'

Summary for Pond C1: CULVERT

Inflow Area = 94,085 sf, 44.04% Impervious, Inflow Depth = 2.14" for 10-Yr Storm event
Inflow = 3.13 cfs @ 12.26 hrs, Volume= 16,784 cf
Outflow = 3.13 cfs @ 12.26 hrs, Volume= 16,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.13 cfs @ 12.26 hrs, Volume= 16,784 cf
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.58' @ 12.26 hrs
Flood Elev= 163.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	160.34'	**18.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 160.34' / 160.05' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=3.12 cfs @ 12.26 hrs HW=161.58' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.12 cfs @ 2.72 fps)

Summary for Pond C2: DMH-11

Inflow Area = 45,972 sf, 84.03% Impervious, Inflow Depth = 3.95" for 10-Yr Storm event
Inflow = 4.37 cfs @ 12.07 hrs, Volume= 15,122 cf
Outflow = 4.37 cfs @ 12.07 hrs, Volume= 15,122 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.37 cfs @ 12.07 hrs, Volume= 15,122 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.96' @ 12.08 hrs
Flood Elev= 162.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.23'	**24.0" Round Culvert** L= 246.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.23' / 158.61' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=4.08 cfs @ 12.07 hrs HW=160.94' TW=160.31' (Dynamic Tailwater)
1=Culvert (Outlet Controls 4.08 cfs @ 1.92 fps)

Summary for Pond C3: DMH-4

Inflow Area = 118,583 sf, 85.65% Impervious, Inflow Depth = 4.02" for 10-Yr Storm event
Inflow = 11.45 cfs @ 12.07 hrs, Volume= 39,728 cf
Outflow = 11.45 cfs @ 12.07 hrs, Volume= 39,728 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.55 cfs @ 12.07 hrs, Volume= 39,399 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.91 cfs @ 12.07 hrs, Volume= 328 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.32' @ 12.07 hrs
Flood Elev= 163.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.61'	**30.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.61' / 158.60' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	159.87'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.87' / 158.60' S= 0.0552 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.39 cfs @ 12.07 hrs HW=160.31' TW=159.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 10.39 cfs @ 4.14 fps)

Secondary OutFlow Max=0.86 cfs @ 12.07 hrs HW=160.31' TW=159.00' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.86 cfs @ 2.25 fps)

Summary for Pond C4: FI-3

Inflow Area = 54,777 sf, 51.44% Impervious, Inflow Depth = 2.49" for 10-Yr Storm event
Inflow = 1.61 cfs @ 12.13 hrs, Volume= 11,361 cf
Outflow = 1.61 cfs @ 12.13 hrs, Volume= 11,361 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.13 hrs, Volume= 11,361 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.25' @ 12.12 hrs
Flood Elev= 161.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.86'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.86' / 158.66' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=2.21 cfs @ 12.13 hrs HW=160.23' TW=160.08' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.21 cfs @ 1.36 fps)

Summary for Pond C5: DMH-7

Inflow Area = 148,343 sf, 55.52% Impervious, Inflow Depth = 2.67" for 10-Yr Storm event
Inflow = 7.49 cfs @ 12.09 hrs, Volume= 33,011 cf
Outflow = 7.49 cfs @ 12.09 hrs, Volume= 33,011 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.49 cfs @ 12.09 hrs, Volume= 33,011 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.17' @ 12.09 hrs
Flood Elev= 163.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**30.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.60' S= 0.0026 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	160.54'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.54' / 158.60' S= 0.0647 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.48 cfs @ 12.09 hrs HW=160.17' TW=159.03' (Dynamic Tailwater)
1=Culvert (Barrel Controls 7.48 cfs @ 3.46 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.66' TW=158.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond C6: DMH-9

Inflow Area = 33,986 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Yr Storm event
Inflow = 3.85 cfs @ 12.07 hrs, Volume= 13,207 cf
Outflow = 3.85 cfs @ 12.07 hrs, Volume= 13,207 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 12.07 hrs, Volume= 13,207 cf
Routed to Pond C7 : DMH-10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.39' @ 12.08 hrs
Flood Elev= 165.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	162.04'	**30.0" Round Culvert** L= 210.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 162.04' / 161.52' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=3.65 cfs @ 12.07 hrs HW=163.37' TW=162.74' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.65 cfs @ 1.99 fps)

Summary for Pond C7: DMH-10

Inflow Area = 69,159 sf, 50.07% Impervious, Inflow Depth = 2.42" for 10-Yr Storm event
Inflow = 3.88 cfs @ 12.07 hrs, Volume= 13,976 cf
Outflow = 3.88 cfs @ 12.07 hrs, Volume= 13,976 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.88 cfs @ 12.07 hrs, Volume= 13,976 cf
Routed to Pond F4 : Filterra

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.75' @ 12.07 hrs
Flood Elev= 165.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	161.52'	**30.0" Round Culvert** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 161.52' / 161.22' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=3.82 cfs @ 12.07 hrs HW=162.74' TW=162.03' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.82 cfs @ 2.36 fps)

Summary for Pond C8: TWIN 30" HDPE

Inflow Area = 169,408 sf, 82.81% Impervious, Inflow Depth = 4.10" for 10-Yr Storm event
Inflow = 12.24 cfs @ 12.23 hrs, Volume= 57,821 cf
Outflow = 12.24 cfs @ 12.23 hrs, Volume= 57,821 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.24 cfs @ 12.23 hrs, Volume= 57,821 cf
Routed to Pond P1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.53' @ 12.23 hrs
Flood Elev= 162.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.22'	**30.0" Round Culvert X 2.00** L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.22' / 159.05' S= 0.0024 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Secondary	160.60'	**5.0' long + 2.0 '/' SideZ x 150.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=12.19 cfs @ 12.23 hrs HW=160.53' TW=159.74' (Dynamic Tailwater)
1=Culvert (Barrel Controls 12.19 cfs @ 3.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=159.22' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond D1: R-TANKS

Inflow Area = 273,774 sf, 69.52% Impervious, Inflow Depth = 3.30" for 10-Yr Storm event
Inflow = 19.59 cfs @ 12.08 hrs, Volume= 75,231 cf
Outflow = 2.42 cfs @ 12.92 hrs, Volume= 72,671 cf, Atten= 88%, Lag= 50.5 min
Primary = 2.42 cfs @ 12.92 hrs, Volume= 72,671 cf
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.40' @ 12.92 hrs Surf.Area= 37,071 sf Storage= 37,494 cf
Flood Elev= 161.80' Surf.Area= 37,071 sf Storage= 87,245 cf

Plug-Flow detention time= 263.1 min calculated for 72,641 cf (97% of inflow)
Center-of-Mass det. time= 243.2 min (998.6 - 755.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.00'	4,627 cf	**51.24'W x 189.66'L x 3.17'H Field A** 30,765 cf Overall - 19,198 cf Embedded = 11,567 cf x 40.0% Voids
#2A	158.50'	18,238 cf	**Ferguson R-Tank HD 1.5** x 2880 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 2880 Chambers in 36 Rows
#3B	158.00'	2,795 cf	**48.62'W x 121.98'L x 3.17'H Field B** 18,773 cf Overall - 11,785 cf Embedded = 6,987 cf x 40.0% Voids
#4B	158.50'	11,196 cf	**Ferguson R-Tank HD 1.5** x 1768 Inside #3 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1768 Chambers in 34 Rows
#5C	158.00'	6,914 cf	**51.24'W x 288.53'L x 3.17'H Field C** 46,802 cf Overall - 29,517 cf Embedded = 17,285 cf x 40.0% Voids
#6C	158.50'	28,041 cf	**Ferguson R-Tank HD 1.5** x 4428 Inside #5 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 4428 Chambers in 36 Rows
#7D	158.00'	1,528 cf	**34.18'W x 89.14'L x 3.17'H Field D** 9,645 cf Overall - 5,826 cf Embedded = 3,819 cf x 40.0% Voids
#8D	158.50'	5,535 cf	**Ferguson R-Tank HD 1.5** x 874 Inside #7 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 874 Chambers in 23 Rows
#9E	158.00'	1,760 cf	**51.24'W x 70.03'L x 3.17'H Field E** 11,359 cf Overall - 6,959 cf Embedded = 4,400 cf x 40.0% Voids
#10E	158.50'	6,611 cf	**Ferguson R-Tank HD 1.5** x 1044 Inside #9 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1044 Chambers in 36 Rows
		87,245 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 158.09' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	158.15'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	159.32'	**5.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	160.95'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.42 cfs @ 12.92 hrs HW=159.40' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.42 cfs of 5.47 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.40 cfs @ 4.39 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.96 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D1: R-TANKS - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

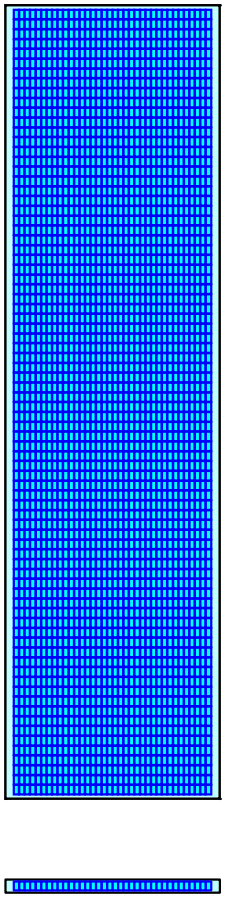
80 Chambers/Row x 2.35' Long = 187.66' Row Length +12.0" End Stone x 2 = 189.66' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

2,880 Chambers x 6.3 cf = 18,238.2 cf Chamber Storage
2,880 Chambers x 6.7 cf = 19,198.1 cf Displacement

30,764.6 cf Field - 19,198.1 cf Chambers = 11,566.5 cf Stone x 40.0% Voids = 4,626.6 cf Stone Storage

Chamber Storage + Stone Storage = 22,864.8 cf = 0.525 af
Overall Storage Efficiency = 74.3%
Overall System Size = 189.66' x 51.24' x 3.17'

2,880 Chambers
1,139.4 cy Field
428.4 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field B

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

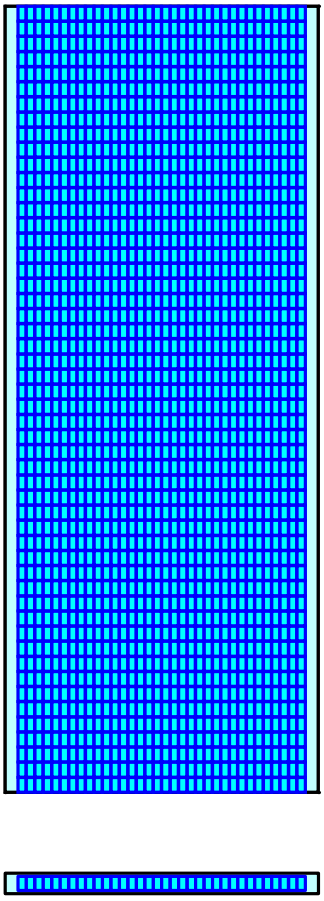
52 Chambers/Row x 2.35' Long = 121.98' Row Length
34 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 48.62' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,768 Chambers x 6.3 cf = 11,196.2 cf Chamber Storage
1,768 Chambers x 6.7 cf = 11,785.5 cf Displacement

18,772.7 cf Field - 11,785.5 cf Chambers = 6,987.2 cf Stone x 40.0% Voids = 2,794.9 cf Stone Storage

Chamber Storage + Stone Storage = 13,991.1 cf = 0.321 af
Overall Storage Efficiency = 74.5%
Overall System Size = 121.98' x 48.62' x 3.17'

1,768 Chambers
695.3 cy Field
258.8 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field C

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

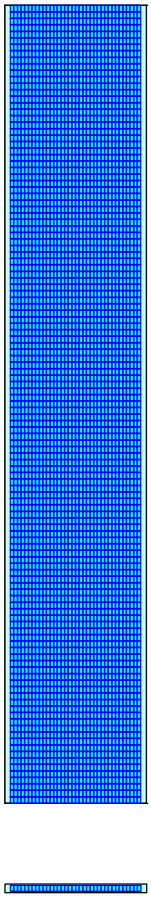
123 Chambers/Row x 2.35' Long = 288.53' Row Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

4,428 Chambers x 6.3 cf = 28,041.2 cf Chamber Storage
4,428 Chambers x 6.7 cf = 29,517.0 cf Displacement

46,801.8 cf Field - 29,517.0 cf Chambers = 17,284.7 cf Stone x 40.0% Voids = 6,913.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,955.1 cf = 0.802 af
Overall Storage Efficiency = 74.7%
Overall System Size = 288.53' x 51.24' x 3.17'

4,428 Chambers
1,733.4 cy Field
640.2 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field D

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

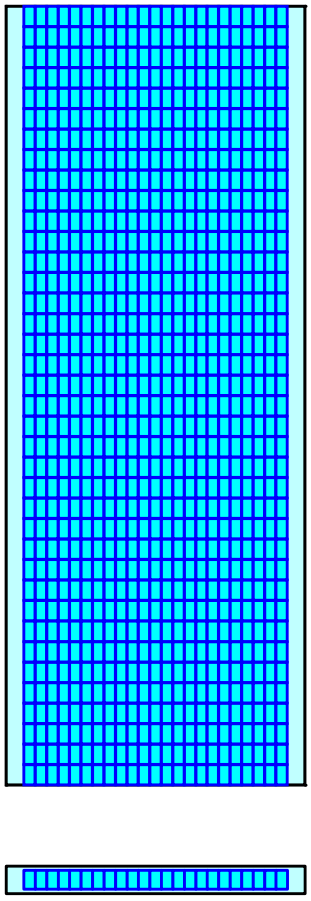
38 Chambers/Row x 2.35' Long = 89.14' Row Length
23 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 34.18' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

874 Chambers x 6.3 cf = 5,534.8 cf Chamber Storage
874 Chambers x 6.7 cf = 5,826.1 cf Displacement

9,645.3 cf Field - 5,826.1 cf Chambers = 3,819.2 cf Stone x 40.0% Voids = 1,527.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,062.5 cf = 0.162 af
Overall Storage Efficiency = 73.2%
Overall System Size = 89.14' x 34.18' x 3.17'

874 Chambers
357.2 cy Field
141.5 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field E

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

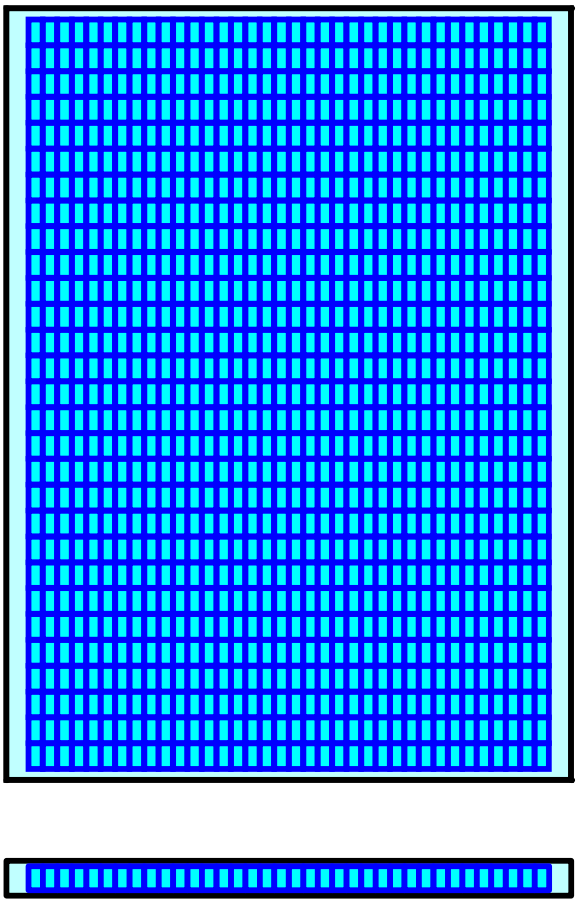
29 Chambers/Row x 2.35' Long = 68.03' Row Length +12.0" End Stone x 2 = 70.03' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,044 Chambers x 6.3 cf = 6,611.3 cf Chamber Storage
1,044 Chambers x 6.7 cf = 6,959.3 cf Displacement

11,359.0 cf Field - 6,959.3 cf Chambers = 4,399.7 cf Stone x 40.0% Voids = 1,759.9 cf Stone Storage

Chamber Storage + Stone Storage = 8,371.2 cf = 0.192 af
Overall Storage Efficiency = 73.7%
Overall System Size = 70.03' x 51.24' x 3.17'

1,044 Chambers
420.7 cy Field
163.0 cy Stone



Summary for Pond F1: Filterra

Inflow Area = 14,221 sf, 73.49% Impervious, Inflow Depth = 3.47" for 10-Yr Storm event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 4,118 cf
Outflow = 1.18 cfs @ 12.08 hrs, Volume= 4,118 cf, Atten= 1%, Lag= 0.3 min
Primary = 1.18 cfs @ 12.08 hrs, Volume= 4,118 cf
Routed to Pond C2 : DMH-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.59' @ 12.08 hrs Surf.Area= 48 sf Storage= 61 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 114 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (751.9 - 751.1)

Volume	Invert	Avail.Storage	Storage Description
#1	161.95'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.95'	102 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		174 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.95	0	29.0	0	0	0
162.90	323	198.0	102	102	3,055

Device	Routing	Invert	Outlet Devices
#1	Primary	159.70'	**12.0" Round Culvert** L= 69.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.70' / 159.23' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	161.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.45'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.16 cfs @ 12.08 hrs HW=162.58' TW=160.94' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.16 cfs of 4.22 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.16 cfs)
  └─**3=Orifice/Grate** (Weir Controls 1.00 cfs @ 1.20 fps)

Summary for Pond F2: Filterra

Inflow Area = 41,892 sf, 50.47% Impervious, Inflow Depth = 2.79" for 10-Yr Storm event
Inflow = 2.08 cfs @ 12.20 hrs, Volume= 9,739 cf
Outflow = 2.08 cfs @ 12.20 hrs, Volume= 9,739 cf, Atten= 0%, Lag= 0.3 min
Primary = 1.26 cfs @ 12.20 hrs, Volume= 8,757 cf
Routed to Pond C4 : FI-3
Secondary = 0.82 cfs @ 12.20 hrs, Volume= 982 cf
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.32' @ 12.20 hrs Surf.Area= 182 sf Storage= 203 cf
Flood Elev= 162.40' Surf.Area= 182 sf Storage= 261 cf

Plug-Flow detention time= 1.0 min calculated for 9,735 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (774.0 - 773.0)

Volume	Invert	Avail.Storage	Storage Description
#1	161.75'	273 cf	**7.00'W x 13.00'L x 1.50'H Prismatoid** x 2
#2	161.75'	143 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		416 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.75	0	62.0	0	0	0
162.40	658	140.0	143	143	1,256

Device	Routing	Invert	Outlet Devices
#1	Primary	159.49'	**18.0" Round Culvert** L= 252.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.49' / 158.86' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	161.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.26'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	162.26'	**20.0' long + 2.0 '/' SideZ 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=1.26 cfs @ 12.20 hrs HW=162.32' TW=160.06' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.26 cfs of 8.04 cfs potential flow)
├**2=Exfiltration** (Exfiltration Controls 0.59 cfs)
└**3=Orifice/Grate** (Weir Controls 0.67 cfs @ 0.83 fps)

Secondary OutFlow Max=0.82 cfs @ 12.20 hrs HW=162.32' TW=160.52' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.82 cfs @ 0.63 fps)

Summary for Pond F3: Filterra

Inflow Area = 12,885 sf, 54.58% Impervious, Inflow Depth = 2.63" for 10-Yr Storm event
Inflow = 0.80 cfs @ 12.07 hrs, Volume= 2,821 cf
Outflow = 0.79 cfs @ 12.08 hrs, Volume= 2,821 cf, Atten= 1%, Lag= 0.4 min
Primary = 0.16 cfs @ 11.70 hrs, Volume= 2,248 cf
Routed to Pond C4 : FI-3
Secondary = 0.40 cfs @ 12.08 hrs, Volume= 356 cf
Routed to Pond C4 : FI-3
Tertiary = 0.24 cfs @ 12.08 hrs, Volume= 216 cf
Routed to Pond P1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.57' @ 12.08 hrs Surf.Area= 48 sf Storage= 54 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 238 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (756.6 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	161.15'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.15'	166 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		238 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.15	0	29.0	0	0	0
161.50	173	55.0	20	20	174
162.00	430	107.0	146	166	846

Device	Routing	Invert	Outlet Devices
#1	Primary	158.98'	**6.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.98' / 158.97' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	161.15'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	161.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	161.50'	**5.0' 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=0.16 cfs @ 11.70 hrs HW=161.19' TW=159.49' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.16 cfs of 1.23 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.39 cfs @ 12.08 hrs HW=161.57' TW=160.15' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.39 cfs @ 0.87 fps)

Tertiary OutFlow Max=0.24 cfs @ 12.08 hrs HW=161.57' TW=159.30' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.24 cfs @ 0.66 fps)

Summary for Pond F4: Filterra

Inflow Area = 93,566 sf, 57.91% Impervious, Inflow Depth = 2.78" for 10-Yr Storm event
Inflow = 6.09 cfs @ 12.07 hrs, Volume= 21,649 cf
Outflow = 5.98 cfs @ 12.09 hrs, Volume= 21,649 cf, Atten= 2%, Lag= 1.0 min
Primary = 5.98 cfs @ 12.09 hrs, Volume= 21,649 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.04' @ 12.09 hrs Surf.Area= 342 sf Storage= 855 cf
Flood Elev= 165.00' Surf.Area= 342 sf Storage= 1,612 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.7 min (756.9 - 755.2)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	513 cf	**9.00'W x 38.00'L x 1.50'H Prismatoid**
#2	160.95'	1,099 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,612 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	89.0	0	0	0
162.00	1,230	140.0	431	431	937
162.50	1,447	149.0	669	1,099	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	158.72'	**24.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.72' / 158.66' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.80'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.94 cfs @ 12.09 hrs HW=162.04' TW=160.17' (Dynamic Tailwater)
└─**1=Culvert** (Passes 5.94 cfs of 20.69 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 1.11 cfs)
  └─**3=Orifice/Grate** (Weir Controls 4.84 cfs @ 1.60 fps)

Summary for Pond F5: Filterra

Inflow Area = 72,611 sf, 86.68% Impervious, Inflow Depth = 4.07" for 10-Yr Storm event
Inflow = 7.13 cfs @ 12.07 hrs, Volume= 24,605 cf
Outflow = 7.09 cfs @ 12.08 hrs, Volume= 24,605 cf, Atten= 1%, Lag= 0.4 min
Primary = 7.09 cfs @ 12.08 hrs, Volume= 24,605 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.93' @ 12.08 hrs Surf.Area= 261 sf Storage= 390 cf
Flood Elev= 163.00' Surf.Area= 261 sf Storage= 1,032 cf

Plug-Flow detention time= 0.9 min calculated for 24,595 cf (100% of inflow)
Center-of-Mass det. time= 0.9 min (749.9 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	160.95'	576 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,032 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.95	261	0	0
162.70	261	457	457

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	67.0	0	0	0
162.00	460	82.0	161	161	194
162.70	735	101.0	415	576	478

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**24.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.61' S= 0.0028 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.65'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.98 cfs @ 12.08 hrs HW=161.93' TW=160.31' (Dynamic Tailwater)
└─**1=Culvert** (Passes 6.98 cfs of 19.27 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.85 cfs)
  └─**3=Orifice/Grate** (Weir Controls 6.13 cfs @ 1.73 fps)

Summary for Pond F6: Filterra

Inflow Area = 6,848 sf, 93.40% Impervious, Inflow Depth = 4.37" for 10-Yr Storm event
Inflow = 0.72 cfs @ 12.07 hrs, Volume= 2,492 cf
Outflow = 0.73 cfs @ 12.07 hrs, Volume= 2,492 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.07 hrs, Volume= 2,492 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.37' @ 12.07 hrs Surf.Area= 32 sf Storage= 21 cf
Flood Elev= 164.17' Surf.Area= 32 sf Storage= 60 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (748.7 - 748.2)

Volume	Invert	Avail.Storage	Storage Description
#1	162.75'	48 cf	**4.00'W x 8.00'L x 1.50'H Prismatoid**
#2	162.75'	15 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		63 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.75	0	24.0	0	0	0
164.20	32	24.0	15	15	35

Device	Routing	Invert	Outlet Devices
#1	Primary	158.62'	**15.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.62' / 158.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	162.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	163.27'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.71 cfs @ 12.07 hrs HW=163.37' TW=158.99' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.71 cfs of 12.00 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.10 cfs)
  └─**3=Orifice/Grate** (Weir Controls 0.61 cfs @ 1.01 fps)

Summary for Pond P1:

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 3.91" for 10-Yr Storm event
Inflow = 12.61 cfs @ 12.23 hrs, Volume= 59,448 cf
Outflow = 10.18 cfs @ 12.36 hrs, Volume= 59,448 cf, Atten= 19%, Lag= 7.8 min
Primary = 10.18 cfs @ 12.36 hrs, Volume= 59,448 cf
Routed to Link AP2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.90' @ 12.36 hrs Surf.Area= 5,897 sf Storage= 6,350 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 8.1 min calculated for 59,423 cf (100% of inflow)
Center-of-Mass det. time= 8.1 min (779.2 - 771.1)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=10.18 cfs @ 12.36 hrs HW=159.90' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 10.18 cfs @ 3.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP1:

Inflow Area = 112,713 sf, 36.76% Impervious, Inflow Depth = 1.79" for 10-Yr Storm event
Inflow = 3.13 cfs @ 12.26 hrs, Volume= 16,787 cf
Primary = 3.13 cfs @ 12.26 hrs, Volume= 16,787 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 464,174 sf, 71.23% Impervious, Inflow Depth > 3.42" for 10-Yr Storm event
Inflow = 12.43 cfs @ 12.36 hrs, Volume= 132,241 cf
Primary = 12.43 cfs @ 12.36 hrs, Volume= 132,241 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 239,575 sf, 0.00% Impervious, Inflow Depth = 2.15" for 10-Yr Storm event
Inflow = 2.22 cfs @ 15.07 hrs, Volume= 42,846 cf
Primary = 2.22 cfs @ 15.07 hrs, Volume= 42,846 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=94,085 sf 44.04% Impervious Runoff Depth=2.88"
Flow Length=575' Tc=19.6 min CN=WQ Runoff=4.05 cfs 22,546 cf

Subcatchment 2.1: Runoff Area=14,221 sf 73.49% Impervious Runoff Depth=4.51"
Tc=5.0 min CN=WQ Runoff=1.50 cfs 5,351 cf

Subcatchment 2.10: Runoff Area=8,078 sf 0.00% Impervious Runoff Depth=0.50"
Tc=5.0 min CN=39 Runoff=0.04 cfs 339 cf

Subcatchment 2.2: Runoff Area=41,892 sf 50.47% Impervious Runoff Depth=3.72"
Flow Length=205' Slope=0.0130 '/' Tc=15.1 min CN=WQ Runoff=2.71 cfs 12,971 cf

Subcatchment 2.3: Runoff Area=12,885 sf 54.58% Impervious Runoff Depth=3.48"
Tc=5.0 min CN=WQ Runoff=1.02 cfs 3,739 cf

Subcatchment 2.4.1: Runoff Area=33,986 sf 100.00% Impervious Runoff Depth=5.96"
Tc=5.0 min CN=98 Runoff=4.88 cfs 16,884 cf

Subcatchment 2.4.2: Runoff Area=24,407 sf 80.14% Impervious Runoff Depth=4.88"
Tc=5.0 min CN=WQ Runoff=2.81 cfs 9,921 cf

Subcatchment 2.4.3: Runoff Area=35,173 sf 1.83% Impervious Runoff Depth=0.60"
Flow Length=305' Tc=17.7 min CN=WQ Runoff=0.19 cfs 1,770 cf

Subcatchment 2.5: Runoff Area=72,611 sf 86.68% Impervious Runoff Depth=5.23"
Tc=5.0 min CN=WQ Runoff=9.05 cfs 31,676 cf

Subcatchment 2.6: Runoff Area=6,848 sf 93.40% Impervious Runoff Depth=5.60"
Tc=5.0 min CN=WQ Runoff=0.92 cfs 3,197 cf

Subcatchment 2.7: Runoff Area=38,380 sf 48.60% Impervious Runoff Depth=3.93"
Flow Length=530' Slope=0.0025 '/' Tc=25.2 min CN=WQ Runoff=2.19 cfs 12,579 cf

Subcatchment 2.8: Runoff Area=31,751 sf 88.75% Impervious Runoff Depth=5.35"
Tc=5.0 min CN=WQ Runoff=4.05 cfs 14,150 cf

Subcatchment 2.9: Runoff Area=12,914 sf 0.00% Impervious Runoff Depth=1.99"
Flow Length=320' Tc=17.4 min CN=WQ Runoff=0.43 cfs 2,146 cf

Subcatchment 3.1: Runoff Area=239,575 sf 0.00% Impervious Runoff Depth=3.10"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=3.22 cfs 61,863 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.09"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.01 cfs 147 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=5.57"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=13.61 cfs 60,822 cf

Reach R2: Avg. Flow Depth=0.94' Max Vel=2.10 fps Inflow=13.61 cfs 60,822 cf
n=0.040 L=560.0' S=0.0050 '/' Capacity=50.15 cfs Outflow=12.75 cfs 60,822 cf

Pond C1: CULVERT Peak Elev=161.81' Inflow=4.05 cfs 22,546 cf
18.0" Round Culvert n=0.025 L=58.0' S=0.0050 '/' Outflow=4.05 cfs 22,546 cf

Pond C2: DMH-11 Peak Elev=161.24' Inflow=5.55 cfs 19,500 cf
24.0" Round Culvert n=0.025 L=246.0' S=0.0025 '/' Outflow=5.55 cfs 19,500 cf

Pond C3: DMH-4 Peak Elev=160.52' Inflow=14.52 cfs 51,176 cf
Primary=12.76 cfs 50,401 cf Secondary=1.75 cfs 775 cf Outflow=14.52 cfs 51,176 cf

Pond C4: FI-3 Peak Elev=160.45' Inflow=1.96 cfs 14,720 cf
24.0" Round Culvert n=0.025 L=79.0' S=0.0025 '/' Outflow=1.96 cfs 14,720 cf

Pond C5: DMH-7 Peak Elev=160.37' Inflow=9.48 cfs 43,296 cf
Primary=9.48 cfs 43,296 cf Secondary=0.00 cfs 0 cf Outflow=9.48 cfs 43,296 cf

Pond C6: DMH-9 Peak Elev=163.57' Inflow=4.88 cfs 16,884 cf
30.0" Round Culvert n=0.025 L=210.0' S=0.0025 '/' Outflow=4.88 cfs 16,884 cf

Pond C7: DMH-10 Peak Elev=162.90' Inflow=4.92 cfs 18,654 cf
30.0" Round Culvert n=0.025 L=119.0' S=0.0025 '/' Outflow=4.92 cfs 18,654 cf

Pond C8: TWIN 30" HDPE Peak Elev=160.70' Inflow=15.80 cfs 75,048 cf
Primary=15.34 cfs 74,866 cf Secondary=0.46 cfs 182 cf Outflow=15.80 cfs 75,048 cf

Pond D1: R-TANKS Peak Elev=159.68' Storage=47,042 cf Inflow=24.83 cfs 97,668 cf
Outflow=3.08 cfs 95,103 cf

Pond F1: Filterra Peak Elev=162.61' Storage=66 cf Inflow=1.50 cfs 5,351 cf
Outflow=1.50 cfs 5,351 cf

Pond F2: Filterra Peak Elev=162.34' Storage=215 cf Inflow=2.71 cfs 12,971 cf
Primary=1.54 cfs 11,323 cf Secondary=1.16 cfs 1,647 cf Outflow=2.71 cfs 12,971 cf

Pond F3: Filterra Peak Elev=161.59' Storage=58 cf Inflow=1.02 cfs 3,739 cf
Primary=0.16 cfs 2,833 cf Secondary=0.53 cfs 565 cf Tertiary=0.32 cfs 342 cf Outflow=1.01 cfs 3,739 cf

Pond F4: Filterra Peak Elev=162.09' Storage=937 cf Inflow=7.73 cfs 28,575 cf
Outflow=7.61 cfs 28,575 cf

Pond F5: Filterra Peak Elev=161.99' Storage=428 cf Inflow=9.05 cfs 31,676 cf
Outflow=9.00 cfs 31,676 cf

Pond F6: Filterra Peak Elev=163.39' Storage=22 cf Inflow=0.92 cfs 3,197 cf
Outflow=0.92 cfs 3,197 cf

Pond P1: Peak Elev=160.16' Storage=7,900 cf Inflow=15.90 cfs 77,354 cf
Primary=13.32 cfs 77,354 cf Secondary=0.00 cfs 0 cf Outflow=13.32 cfs 77,354 cf

Link AP1: Inflow=4.05 cfs 22,693 cf
Primary=4.05 cfs 22,693 cf

Link AP2: Inflow=16.16 cfs 172,796 cf
Primary=16.16 cfs 172,796 cf

Link AP3: Inflow=3.22 cfs 62,045 cf
Primary=3.22 cfs 62,045 cf

Total Runoff Area = 816,462 sf Runoff Volume = 260,099 cf Average Runoff Depth = 3.82"
54.43% Pervious = 444,412 sf 45.57% Impervious = 372,050 sf

Summary for Subcatchment 1.1:

Runoff = 4.05 cfs @ 12.26 hrs, Volume= 22,546 cf, Depth= 2.88"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	31,434	98	Ex. Impervious
*	10,000	98	New Impervious
*	42,694	39	Existing Lawn, Good, HSG A
*	2,604	39	New Lawn, Good, HSG A
	7,353	30	Woods, Good, HSG A
	94,085		Weighted Average
	52,651		55.96% Pervious Area
	41,434		44.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
2.2	290	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.6	575	Total			

Summary for Subcatchment 2.1:

Runoff = 1.50 cfs @ 12.07 hrs, Volume= 5,351 cf, Depth= 4.51"
Routed to Pond F1 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	10,451	98	Impervious
	3,770	39	>75% Grass cover, Good, HSG A
	14,221		Weighted Average
	3,770		26.51% Pervious Area
	10,451		73.49% Impervious Area

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

Summary for Subcatchment 2.10:

Runoff = 0.04 cfs @ 12.31 hrs, Volume= 339 cf, Depth= 0.50"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	8,078	39	New Lawn, Good, HSG A
	8,078		100.00% Pervious Area

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

Summary for Subcatchment 2.2:

Runoff = 2.71 cfs @ 12.20 hrs, Volume= 12,971 cf, Depth= 3.72"
Routed to Pond F2 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	21,143	98	Impervious
*	15,215	39	New Lawn, Good, HSG A
*	5,534	80	New Lawn, Good, HSG D
	41,892		Weighted Average
	20,749		49.53% Pervious Area
	21,143		50.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	135	0.0130	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
0.5	70	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
15.1	205	Total			

Summary for Subcatchment 2.3:

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 3,739 cf, Depth= 3.48"
Routed to Pond F3 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	7,032	98	Impervious
	5,853	39	>75% Grass cover, Good, HSG A
	12,885		Weighted Average
	5,853		45.42% Pervious Area
	7,032		54.58% Impervious Area

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

Summary for Subcatchment 2.4.1:

Runoff = 4.88 cfs @ 12.07 hrs, Volume= 16,884 cf, Depth= 5.96"
Routed to Pond C6 : DMH-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	33,986	98	New Impervious
	33,986		100.00% Impervious Area

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

Summary for Subcatchment 2.4.2:

Runoff = 2.81 cfs @ 12.07 hrs, Volume= 9,921 cf, Depth= 4.88"
Routed to Pond F4 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	19,559	98	New Impervious
*	4,848	39	New Lawn, Good, HSG A
	24,407		Weighted Average
	4,848		19.86% Pervious Area
	19,559		80.14% Impervious Area

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

Summary for Subcatchment 2.4.3:

Runoff = 0.19 cfs @ 12.46 hrs, Volume= 1,770 cf, Depth= 0.60"
Routed to Pond C7 : DMH-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	642	98	New Impervious
*	34,531	39	New Lawn, Good, HSG A
	35,173		Weighted Average
	34,531		98.17% Pervious Area
	642		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	150	0.0150	0.17		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
2.7	155	0.0190	0.96		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.7	305	Total			

Summary for Subcatchment 2.5:

Runoff = 9.05 cfs @ 12.07 hrs, Volume= 31,676 cf, Depth= 5.23"
Routed to Pond F5 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	37,581	98	Ex. Impervious
*	25,361	98	New Impervious
*	8,064	39	Ex. Lawn, Good, HSG A
*	1,605	39	New Lawn, Good, HSG A
	72,611		Weighted Average
	9,669		13.32% Pervious Area
	62,942		86.68% Impervious Area

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

Summary for Subcatchment 2.6:

Runoff = 0.92 cfs @ 12.07 hrs, Volume= 3,197 cf, Depth= 5.60"
Routed to Pond F6 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	6,396	98	New Impervious
*	452	39	New Lawn, Good, HSG A
	6,848		Weighted Average
	452		6.60% Pervious Area
	6,396		93.40% Impervious Area

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

Summary for Subcatchment 2.7:

Runoff = 2.19 cfs @ 12.34 hrs, Volume= 12,579 cf, Depth= 3.93"
Routed to Pond C8 : TWIN 30" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	18,654	98	New Impervious
*	11,112	39	New Lawn, Good, HSG A
*	8,614	80	New Lawn, Good, HSG D
	38,380		Weighted Average
	19,726		51.40% Pervious Area
	18,654		48.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	530	0.0025	0.35		**Shallow Concentrated Flow, AB** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 2.8:

Runoff = 4.05 cfs @ 12.07 hrs, Volume= 14,150 cf, Depth= 5.35"
Routed to Pond C2 : DMH-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	16,038	98	Ex. Impervious
*	12,141	98	New Impervious
*	3,572	39	Ex. Lawn, Good, HSG A
	31,751		Weighted Average
	3,572		11.25% Pervious Area
	28,179		88.75% Impervious Area

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

Summary for Subcatchment 2.9:

Runoff = 0.43 cfs @ 12.24 hrs, Volume= 2,146 cf, Depth= 1.99"
Routed to Pond P1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	7,351	39	New Lawn, Good, HSG A
*	5,563	80	New Lawn, Good, HSG D
	12,914		Weighted Average
	12,914		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	40	0.0190	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.30"
10.5	280	0.0040	0.44		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.4	320	Total			

Summary for Subcatchment 3.1:

Runoff = 3.22 cfs @ 15.06 hrs, Volume= 61,863 cf, Depth= 3.10"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

Area (sf)	CN	Description
13,277	80	>75% Grass cover, Good, HSG D
38,545	30	Woods, Good, HSG A
187,753	77	Woods, Good, HSG D
239,575		Weighted Average
239,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.01 cfs @ 15.66 hrs, Volume= 147 cf, Depth= 0.09"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 13.61 cfs @ 12.17 hrs, Volume= 60,822 cf, Depth= 5.57"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Yr Storm Rainfall=6.20"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 5.57" for 25-Yr Storm event
Inflow = 13.61 cfs @ 12.17 hrs, Volume= 60,822 cf
Outflow = 12.75 cfs @ 12.22 hrs, Volume= 60,822 cf, Atten= 6%, Lag= 2.9 min
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.10 fps, Min. Travel Time= 4.4 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 17.0 min

Peak Storage= 3,392 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.94' , Surface Width= 7.83'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 50.15 cfs

5.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 1.5 '/' Top Width= 11.00'
Length= 560.0' Slope= 0.0050 '/'
Inlet Invert= 162.00', Outlet Invert= 159.22'

Summary for Pond C1: CULVERT

Inflow Area = 94,085 sf, 44.04% Impervious, Inflow Depth = 2.88" for 25-Yr Storm event
Inflow = 4.05 cfs @ 12.26 hrs, Volume= 22,546 cf
Outflow = 4.05 cfs @ 12.26 hrs, Volume= 22,546 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.05 cfs @ 12.26 hrs, Volume= 22,546 cf
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.81' @ 12.26 hrs
Flood Elev= 163.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	160.34'	**18.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 160.34' / 160.05' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=4.04 cfs @ 12.26 hrs HW=161.80' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.04 cfs @ 2.91 fps)

Summary for Pond C2: DMH-11

Inflow Area = 45,972 sf, 84.03% Impervious, Inflow Depth = 5.09" for 25-Yr Storm event
Inflow = 5.55 cfs @ 12.07 hrs, Volume= 19,500 cf
Outflow = 5.55 cfs @ 12.07 hrs, Volume= 19,500 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.55 cfs @ 12.07 hrs, Volume= 19,500 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.24' @ 12.09 hrs
Flood Elev= 162.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.23'	**24.0" Round Culvert** L= 246.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.23' / 158.61' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=5.18 cfs @ 12.07 hrs HW=161.20' TW=160.50' (Dynamic Tailwater)
1=Culvert (Outlet Controls 5.18 cfs @ 2.08 fps)

Summary for Pond C3: DMH-4

Inflow Area = 118,583 sf, 85.65% Impervious, Inflow Depth = 5.18" for 25-Yr Storm event
Inflow = 14.52 cfs @ 12.08 hrs, Volume= 51,176 cf
Outflow = 14.52 cfs @ 12.08 hrs, Volume= 51,176 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.76 cfs @ 12.08 hrs, Volume= 50,401 cf
Routed to Pond D1 : R-TANKS
Secondary = 1.75 cfs @ 12.08 hrs, Volume= 775 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.52' @ 12.08 hrs
Flood Elev= 163.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.61'	**30.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.61' / 158.60' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	159.87'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.87' / 158.60' S= 0.0552 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=12.60 cfs @ 12.08 hrs HW=160.50' TW=159.19' (Dynamic Tailwater)
1=Culvert (Barrel Controls 12.60 cfs @ 4.38 fps)

Secondary OutFlow Max=1.69 cfs @ 12.08 hrs HW=160.50' TW=159.19' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.69 cfs @ 2.71 fps)

Summary for Pond C4: FI-3

Inflow Area = 54,777 sf, 51.44% Impervious, Inflow Depth = 3.22" for 25-Yr Storm event
Inflow = 1.96 cfs @ 12.16 hrs, Volume= 14,720 cf
Outflow = 1.96 cfs @ 12.16 hrs, Volume= 14,720 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.16 hrs, Volume= 14,720 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.45' @ 12.12 hrs
Flood Elev= 161.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.86'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.86' / 158.66' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=3.02 cfs @ 12.16 hrs HW=160.38' TW=160.18' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.02 cfs @ 1.63 fps)

Summary for Pond C5: DMH-7

Inflow Area = 148,343 sf, 55.52% Impervious, Inflow Depth = 3.50" for 25-Yr Storm event
Inflow = 9.48 cfs @ 12.09 hrs, Volume= 43,296 cf
Outflow = 9.48 cfs @ 12.09 hrs, Volume= 43,296 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.48 cfs @ 12.09 hrs, Volume= 43,296 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.37' @ 12.09 hrs
Flood Elev= 163.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**30.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.60' S= 0.0026 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	160.54'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.54' / 158.60' S= 0.0647 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.46 cfs @ 12.09 hrs HW=160.37' TW=159.22' (Dynamic Tailwater)
1=Culvert (Barrel Controls 9.46 cfs @ 3.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.66' TW=158.00' (Dynamic Tailwater)
2=Culvert (Controls 0.00 cfs)

Summary for Pond C6: DMH-9

Inflow Area = 33,986 sf,100.00% Impervious, Inflow Depth = 5.96" for 25-Yr Storm event
Inflow = 4.88 cfs @ 12.07 hrs, Volume= 16,884 cf
Outflow = 4.88 cfs @ 12.07 hrs, Volume= 16,884 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.88 cfs @ 12.07 hrs, Volume= 16,884 cf
Routed to Pond C7 : DMH-10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.57' @ 12.08 hrs
Flood Elev= 165.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	162.04'	**30.0" Round Culvert** L= 210.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 162.04' / 161.52' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=4.62 cfs @ 12.07 hrs HW=163.55' TW=162.89' (Dynamic Tailwater)
1=Culvert (Outlet Controls 4.62 cfs @ 2.14 fps)

Summary for Pond C7: DMH-10

Inflow Area = 69,159 sf, 50.07% Impervious, Inflow Depth = 3.24" for 25-Yr Storm event
Inflow = 4.92 cfs @ 12.07 hrs, Volume= 18,654 cf
Outflow = 4.92 cfs @ 12.07 hrs, Volume= 18,654 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.92 cfs @ 12.07 hrs, Volume= 18,654 cf
Routed to Pond F4 : Filterra

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.90' @ 12.07 hrs
Flood Elev= 165.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	161.52'	**30.0" Round Culvert** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 161.52' / 161.22' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=4.84 cfs @ 12.07 hrs HW=162.89' TW=162.08' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.84 cfs @ 2.55 fps)

Summary for Pond C8: TWIN 30" HDPE

Inflow Area = 169,408 sf, 82.81% Impervious, Inflow Depth = 5.32" for 25-Yr Storm event
Inflow = 15.80 cfs @ 12.23 hrs, Volume= 75,048 cf
Outflow = 15.80 cfs @ 12.23 hrs, Volume= 75,048 cf, Atten= 0%, Lag= 0.0 min
Primary = 15.34 cfs @ 12.23 hrs, Volume= 74,866 cf
Routed to Pond P1 :
Secondary = 0.46 cfs @ 12.23 hrs, Volume= 182 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.70' @ 12.23 hrs
Flood Elev= 162.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.22'	**30.0" Round Culvert X 2.00** L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.22' / 159.05' S= 0.0024 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Secondary	160.60'	**5.0' long + 2.0 '/' SideZ x 150.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.29 cfs @ 12.23 hrs HW=160.70' TW=159.99' (Dynamic Tailwater)
1=Culvert (Barrel Controls 15.29 cfs @ 3.63 fps)

Secondary OutFlow Max=0.44 cfs @ 12.23 hrs HW=160.70' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.44 cfs @ 0.84 fps)

Summary for Pond D1: R-TANKS

Inflow Area = 273,774 sf, 69.52% Impervious, Inflow Depth = 4.28" for 25-Yr Storm event
Inflow = 24.83 cfs @ 12.08 hrs, Volume= 97,668 cf
Outflow = 3.08 cfs @ 13.06 hrs, Volume= 95,103 cf, Atten= 88%, Lag= 59.1 min
Primary = 3.08 cfs @ 13.06 hrs, Volume= 95,103 cf
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.68' @ 13.06 hrs Surf.Area= 37,071 sf Storage= 47,042 cf
Flood Elev= 161.80' Surf.Area= 37,071 sf Storage= 87,245 cf

Plug-Flow detention time= 260.4 min calculated for 95,103 cf (97% of inflow)
Center-of-Mass det. time= 243.7 min (998.4 - 754.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.00'	4,627 cf	**51.24'W x 189.66'L x 3.17'H Field A** 30,765 cf Overall - 19,198 cf Embedded = 11,567 cf x 40.0% Voids
#2A	158.50'	18,238 cf	**Ferguson R-Tank HD 1.5** x 2880 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 2880 Chambers in 36 Rows
#3B	158.00'	2,795 cf	**48.62'W x 121.98'L x 3.17'H Field B** 18,773 cf Overall - 11,785 cf Embedded = 6,987 cf x 40.0% Voids
#4B	158.50'	11,196 cf	**Ferguson R-Tank HD 1.5** x 1768 Inside #3 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1768 Chambers in 34 Rows
#5C	158.00'	6,914 cf	**51.24'W x 288.53'L x 3.17'H Field C** 46,802 cf Overall - 29,517 cf Embedded = 17,285 cf x 40.0% Voids
#6C	158.50'	28,041 cf	**Ferguson R-Tank HD 1.5** x 4428 Inside #5 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 4428 Chambers in 36 Rows
#7D	158.00'	1,528 cf	**34.18'W x 89.14'L x 3.17'H Field D** 9,645 cf Overall - 5,826 cf Embedded = 3,819 cf x 40.0% Voids
#8D	158.50'	5,535 cf	**Ferguson R-Tank HD 1.5** x 874 Inside #7 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 874 Chambers in 23 Rows
#9E	158.00'	1,760 cf	**51.24'W x 70.03'L x 3.17'H Field E** 11,359 cf Overall - 6,959 cf Embedded = 4,400 cf x 40.0% Voids
#10E	158.50'	6,611 cf	**Ferguson R-Tank HD 1.5** x 1044 Inside #9 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1044 Chambers in 36 Rows
		87,245 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 158.09' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	158.15'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	159.32'	**5.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	160.95'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.08 cfs @ 13.06 hrs HW=159.68' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.08 cfs of 7.80 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.78 cfs @ 5.09 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.30 cfs @ 2.06 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D1: R-TANKS - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

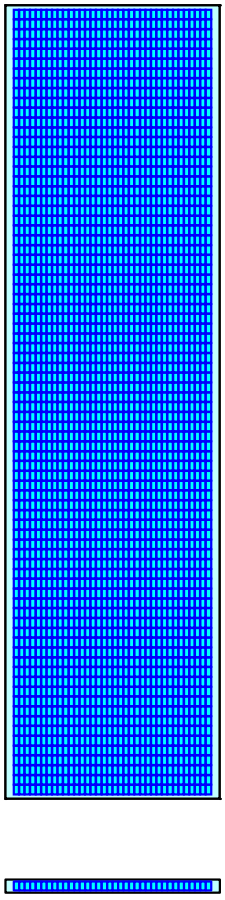
80 Chambers/Row x 2.35' Long = 187.66' Row Length +12.0" End Stone x 2 = 189.66' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

2,880 Chambers x 6.3 cf = 18,238.2 cf Chamber Storage
2,880 Chambers x 6.7 cf = 19,198.1 cf Displacement

30,764.6 cf Field - 19,198.1 cf Chambers = 11,566.5 cf Stone x 40.0% Voids = 4,626.6 cf Stone Storage

Chamber Storage + Stone Storage = 22,864.8 cf = 0.525 af
Overall Storage Efficiency = 74.3%
Overall System Size = 189.66' x 51.24' x 3.17'

2,880 Chambers
1,139.4 cy Field
428.4 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field B

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

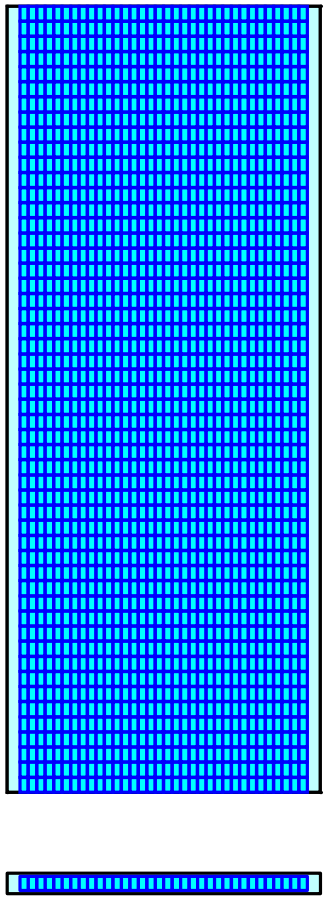
52 Chambers/Row x 2.35' Long = 121.98' Row Length
34 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 48.62' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,768 Chambers x 6.3 cf = 11,196.2 cf Chamber Storage
1,768 Chambers x 6.7 cf = 11,785.5 cf Displacement

18,772.7 cf Field - 11,785.5 cf Chambers = 6,987.2 cf Stone x 40.0% Voids = 2,794.9 cf Stone Storage

Chamber Storage + Stone Storage = 13,991.1 cf = 0.321 af
Overall Storage Efficiency = 74.5%
Overall System Size = 121.98' x 48.62' x 3.17'

1,768 Chambers
695.3 cy Field
258.8 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field C

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

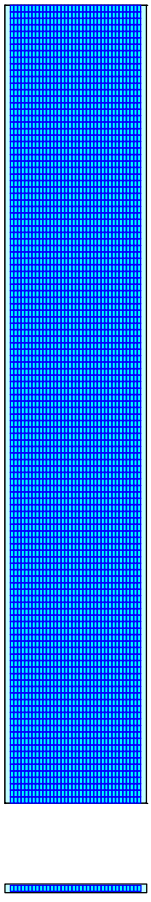
123 Chambers/Row x 2.35' Long = 288.53' Row Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

4,428 Chambers x 6.3 cf = 28,041.2 cf Chamber Storage
4,428 Chambers x 6.7 cf = 29,517.0 cf Displacement

46,801.8 cf Field - 29,517.0 cf Chambers = 17,284.7 cf Stone x 40.0% Voids = 6,913.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,955.1 cf = 0.802 af
Overall Storage Efficiency = 74.7%
Overall System Size = 288.53' x 51.24' x 3.17'

4,428 Chambers
1,733.4 cy Field
640.2 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field D

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

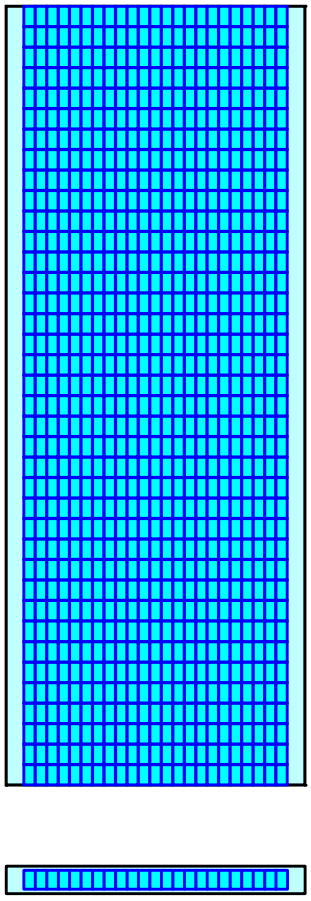
38 Chambers/Row x 2.35' Long = 89.14' Row Length
23 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 34.18' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

874 Chambers x 6.3 cf = 5,534.8 cf Chamber Storage
874 Chambers x 6.7 cf = 5,826.1 cf Displacement

9,645.3 cf Field - 5,826.1 cf Chambers = 3,819.2 cf Stone x 40.0% Voids = 1,527.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,062.5 cf = 0.162 af
Overall Storage Efficiency = 73.2%
Overall System Size = 89.14' x 34.18' x 3.17'

874 Chambers
357.2 cy Field
141.5 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field E

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

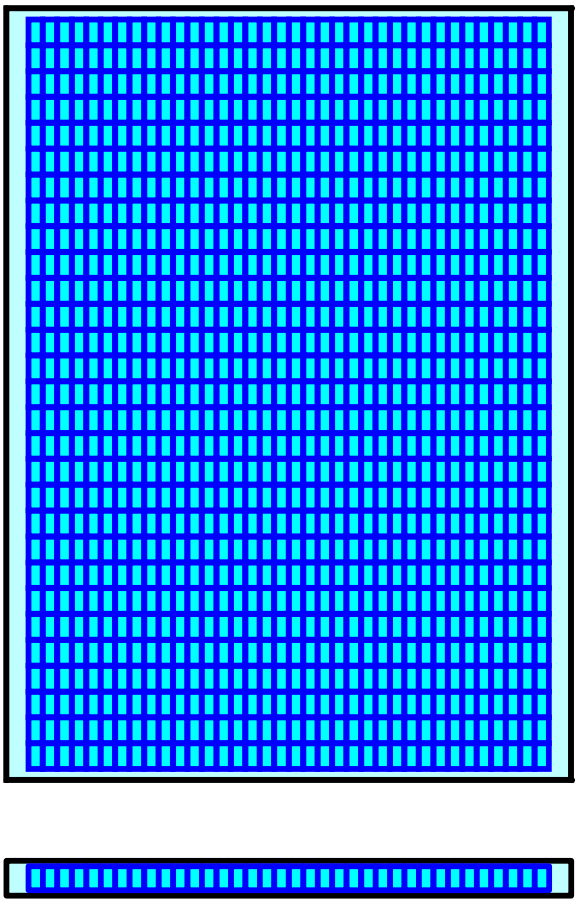
29 Chambers/Row x 2.35' Long = 68.03' Row Length +12.0" End Stone x 2 = 70.03' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,044 Chambers x 6.3 cf = 6,611.3 cf Chamber Storage
1,044 Chambers x 6.7 cf = 6,959.3 cf Displacement

11,359.0 cf Field - 6,959.3 cf Chambers = 4,399.7 cf Stone x 40.0% Voids = 1,759.9 cf Stone Storage

Chamber Storage + Stone Storage = 8,371.2 cf = 0.192 af
Overall Storage Efficiency = 73.7%
Overall System Size = 70.03' x 51.24' x 3.17'

1,044 Chambers
420.7 cy Field
163.0 cy Stone



Summary for Pond F1: Filterra

Inflow Area = 14,221 sf, 73.49% Impervious, Inflow Depth = 4.51" for 25-Yr Storm event
Inflow = 1.50 cfs @ 12.07 hrs, Volume= 5,351 cf
Outflow = 1.50 cfs @ 12.08 hrs, Volume= 5,351 cf, Atten= 0%, Lag= 0.3 min
Primary = 1.50 cfs @ 12.08 hrs, Volume= 5,351 cf
Routed to Pond C2 : DMH-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.61' @ 12.08 hrs Surf.Area= 48 sf Storage= 66 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 114 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (750.7 - 749.9)

Volume	Invert	Avail.Storage	Storage Description
#1	161.95'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.95'	102 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		174 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.95	0	29.0	0	0	0
162.90	323	198.0	102	102	3,055

Device	Routing	Invert	Outlet Devices
#1	Primary	159.70'	**12.0" Round Culvert** L= 69.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.70' / 159.23' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	161.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.45'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.47 cfs @ 12.08 hrs HW=162.61' TW=161.21' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.47 cfs of 3.90 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.16 cfs)
  └─**3=Orifice/Grate** (Weir Controls 1.32 cfs @ 1.31 fps)

Summary for Pond F2: Filterra

Inflow Area = 41,892 sf, 50.47% Impervious, Inflow Depth = 3.72" for 25-Yr Storm event
Inflow = 2.71 cfs @ 12.20 hrs, Volume= 12,971 cf
Outflow = 2.71 cfs @ 12.21 hrs, Volume= 12,971 cf, Atten= 0%, Lag= 0.3 min
Primary = 1.54 cfs @ 12.21 hrs, Volume= 11,323 cf
Routed to Pond C4 : FI-3
Secondary = 1.16 cfs @ 12.21 hrs, Volume= 1,647 cf
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.34' @ 12.21 hrs Surf.Area= 182 sf Storage= 215 cf
Flood Elev= 162.40' Surf.Area= 182 sf Storage= 261 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (773.9 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	161.75'	273 cf	**7.00'W x 13.00'L x 1.50'H Prismatoid** x 2
#2	161.75'	143 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		416 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.75	0	62.0	0	0	0
162.40	658	140.0	143	143	1,256

Device	Routing	Invert	Outlet Devices
#1	Primary	159.49'	**18.0" Round Culvert** L= 252.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.49' / 158.86' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	161.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.26'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	162.26'	**20.0' long + 2.0 '/' SideZ 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=1.54 cfs @ 12.21 hrs HW=162.34' TW=160.22' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.54 cfs of 8.08 cfs potential flow)
├**2=Exfiltration** (Exfiltration Controls 0.59 cfs)
└**3=Orifice/Grate** (Weir Controls 0.95 cfs @ 0.93 fps)

Secondary OutFlow Max=1.16 cfs @ 12.21 hrs HW=162.34' TW=160.70' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 1.16 cfs @ 0.71 fps)

Summary for Pond F3: Filterra

Inflow Area = 12,885 sf, 54.58% Impervious, Inflow Depth = 3.48" for 25-Yr Storm event
Inflow = 1.02 cfs @ 12.07 hrs, Volume= 3,739 cf
Outflow = 1.01 cfs @ 12.08 hrs, Volume= 3,739 cf, Atten= 0%, Lag= 0.4 min
Primary = 0.16 cfs @ 11.64 hrs, Volume= 2,833 cf
Routed to Pond C4 : FI-3
Secondary = 0.53 cfs @ 12.08 hrs, Volume= 565 cf
Routed to Pond C4 : FI-3
Tertiary = 0.32 cfs @ 12.08 hrs, Volume= 342 cf
Routed to Pond P1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.59' @ 12.08 hrs Surf.Area= 48 sf Storage= 58 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 238 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (758.2 - 757.4)

Volume	Invert	Avail.Storage	Storage Description
#1	161.15'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.15'	166 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		238 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.15	0	29.0	0	0	0
161.50	173	55.0	20	20	174
162.00	430	107.0	146	166	846

Device	Routing	Invert	Outlet Devices
#1	Primary	158.98'	**6.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.98' / 158.97' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	161.15'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	161.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	161.50'	**5.0' 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=0.16 cfs @ 11.64 hrs HW=161.18' TW=159.50' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.16 cfs of 1.23 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.52 cfs @ 12.08 hrs HW=161.59' TW=160.34' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.52 cfs @ 0.96 fps)

Tertiary OutFlow Max=0.32 cfs @ 12.08 hrs HW=161.59' TW=159.48' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 0.73 fps)

Summary for Pond F4: Filterra

Inflow Area = 93,566 sf, 57.91% Impervious, Inflow Depth = 3.66" for 25-Yr Storm event
Inflow = 7.73 cfs @ 12.07 hrs, Volume= 28,575 cf
Outflow = 7.61 cfs @ 12.09 hrs, Volume= 28,575 cf, Atten= 2%, Lag= 0.9 min
Primary = 7.61 cfs @ 12.09 hrs, Volume= 28,575 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.09' @ 12.09 hrs Surf.Area= 342 sf Storage= 937 cf
Flood Elev= 165.00' Surf.Area= 342 sf Storage= 1,612 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.7 min (758.2 - 756.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	513 cf	**9.00'W x 38.00'L x 1.50'H Prismatoid**
#2	160.95'	1,099 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,612 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	89.0	0	0	0
162.00	1,230	140.0	431	431	937
162.50	1,447	149.0	669	1,099	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	158.72'	**24.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.72' / 158.66' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.80'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.55 cfs @ 12.09 hrs HW=162.09' TW=160.37' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.55 cfs of 19.85 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 1.11 cfs)
  └─**3=Orifice/Grate** (Weir Controls 6.44 cfs @ 1.76 fps)

Summary for Pond F5: Filterra

Inflow Area = 72,611 sf, 86.68% Impervious, Inflow Depth = 5.23" for 25-Yr Storm event
Inflow = 9.05 cfs @ 12.07 hrs, Volume= 31,676 cf
Outflow = 9.00 cfs @ 12.08 hrs, Volume= 31,676 cf, Atten= 1%, Lag= 0.4 min
Primary = 9.00 cfs @ 12.08 hrs, Volume= 31,676 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.99' @ 12.08 hrs Surf.Area= 261 sf Storage= 428 cf
Flood Elev= 163.00' Surf.Area= 261 sf Storage= 1,032 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (747.3 - 746.4)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	160.95'	576 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,032 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.95	261	0	0
162.70	261	457	457

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	67.0	0	0	0
162.00	460	82.0	161	161	194
162.70	735	101.0	415	576	478

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**24.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.61' S= 0.0028 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.65'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.86 cfs @ 12.08 hrs HW=161.99' TW=160.50' (Dynamic Tailwater)
└─**1=Culvert** (Passes 8.86 cfs of 18.42 cfs potential flow)
  └─**2=Exfiltration** (Exfiltration Controls 0.85 cfs)
  └─**3=Orifice/Grate** (Weir Controls 8.01 cfs @ 1.90 fps)

Summary for Pond F6: Filterra

Inflow Area = 6,848 sf, 93.40% Impervious, Inflow Depth = 5.60" for 25-Yr Storm event
Inflow = 0.92 cfs @ 12.07 hrs, Volume= 3,197 cf
Outflow = 0.92 cfs @ 12.07 hrs, Volume= 3,197 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.92 cfs @ 12.07 hrs, Volume= 3,197 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.39' @ 12.07 hrs Surf.Area= 32 sf Storage= 22 cf
Flood Elev= 164.17' Surf.Area= 32 sf Storage= 60 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (745.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	162.75'	48 cf	**4.00'W x 8.00'L x 1.50'H Prismatoid**
#2	162.75'	15 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		63 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.75	0	24.0	0	0	0
164.20	32	24.0	15	15	35

Device	Routing	Invert	Outlet Devices
#1	Primary	158.62'	**15.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.62' / 158.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	162.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	163.27'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=163.39' TW=159.18' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.91 cfs of 12.02 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.10 cfs)
  └─**3=Orifice/Grate** (Weir Controls 0.80 cfs @ 1.11 fps)

Summary for Pond P1:

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 5.09" for 25-Yr Storm event
Inflow = 15.90 cfs @ 12.23 hrs, Volume= 77,354 cf
Outflow = 13.32 cfs @ 12.35 hrs, Volume= 77,354 cf, Atten= 16%, Lag= 7.5 min
Primary = 13.32 cfs @ 12.35 hrs, Volume= 77,354 cf
Routed to Link AP2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.16' @ 12.35 hrs Surf.Area= 6,032 sf Storage= 7,900 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 8.4 min calculated for 77,322 cf (100% of inflow)
Center-of-Mass det. time= 8.4 min (776.3 - 767.9)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=13.30 cfs @ 12.35 hrs HW=160.16' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 13.30 cfs @ 4.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP1:

Inflow Area = 112,713 sf, 36.76% Impervious, Inflow Depth = 2.42" for 25-Yr Storm event
Inflow = 4.05 cfs @ 12.26 hrs, Volume= 22,693 cf
Primary = 4.05 cfs @ 12.26 hrs, Volume= 22,693 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 464,174 sf, 71.23% Impervious, Inflow Depth > 4.47" for 25-Yr Storm event
Inflow = 16.16 cfs @ 12.36 hrs, Volume= 172,796 cf
Primary = 16.16 cfs @ 12.36 hrs, Volume= 172,796 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 239,575 sf, 0.00% Impervious, Inflow Depth = 3.11" for 25-Yr Storm event
Inflow = 3.22 cfs @ 15.06 hrs, Volume= 62,045 cf
Primary = 3.22 cfs @ 15.06 hrs, Volume= 62,045 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=94,085 sf 44.04% Impervious Runoff Depth=3.55"
Flow Length=575' Tc=19.6 min CN=WQ Runoff=5.00 cfs 27,859 cf

Subcatchment 2.1: Runoff Area=14,221 sf 73.49% Impervious Runoff Depth=5.42"
Tc=5.0 min CN=WQ Runoff=1.81 cfs 6,425 cf

Subcatchment 2.10: Runoff Area=8,078 sf 0.00% Impervious Runoff Depth=0.88"
Tc=5.0 min CN=39 Runoff=0.11 cfs 591 cf

Subcatchment 2.2: Runoff Area=41,892 sf 50.47% Impervious Runoff Depth=4.54"
Flow Length=205' Slope=0.0130 '/' Tc=15.1 min CN=WQ Runoff=3.31 cfs 15,847 cf

Subcatchment 2.3: Runoff Area=12,885 sf 54.58% Impervious Runoff Depth=4.25"
Tc=5.0 min CN=WQ Runoff=1.25 cfs 4,566 cf

Subcatchment 2.4.1: Runoff Area=33,986 sf 100.00% Impervious Runoff Depth=7.06"
Tc=5.0 min CN=98 Runoff=5.75 cfs 19,997 cf

Subcatchment 2.4.2: Runoff Area=24,407 sf 80.14% Impervious Runoff Depth=5.83"
Tc=5.0 min CN=WQ Runoff=3.36 cfs 11,863 cf

Subcatchment 2.4.3: Runoff Area=35,173 sf 1.83% Impervious Runoff Depth=0.99"
Flow Length=305' Tc=17.7 min CN=WQ Runoff=0.40 cfs 2,905 cf

Subcatchment 2.5: Runoff Area=72,611 sf 86.68% Impervious Runoff Depth=6.24"
Tc=5.0 min CN=WQ Runoff=10.75 cfs 37,742 cf

Subcatchment 2.6: Runoff Area=6,848 sf 93.40% Impervious Runoff Depth=6.65"
Tc=5.0 min CN=WQ Runoff=1.09 cfs 3,796 cf

Subcatchment 2.7: Runoff Area=38,380 sf 48.60% Impervious Runoff Depth=4.80"
Flow Length=530' Slope=0.0025 '/' Tc=25.2 min CN=WQ Runoff=2.67 cfs 15,358 cf

Subcatchment 2.8: Runoff Area=31,751 sf 88.75% Impervious Runoff Depth=6.37"
Tc=5.0 min CN=WQ Runoff=4.81 cfs 16,842 cf

Subcatchment 2.9: Runoff Area=12,914 sf 0.00% Impervious Runoff Depth=2.64"
Flow Length=320' Tc=17.4 min CN=WQ Runoff=0.58 cfs 2,843 cf

Subcatchment 3.1: Runoff Area=239,575 sf 0.00% Impervious Runoff Depth=3.95"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=4.09 cfs 78,900 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.27"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.02 cfs 415 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=6.62"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=16.09 cfs 72,255 cf

Reach R2: Avg. Flow Depth=1.04' Max Vel=2.22 fps Inflow=16.09 cfs 72,255 cf
n=0.040 L=560.0' S=0.0050 '/' Capacity=50.15 cfs Outflow=15.15 cfs 72,255 cf

Pond C1: CULVERT Peak Elev=162.08' Inflow=5.00 cfs 27,859 cf
18.0" Round Culvert n=0.025 L=58.0' S=0.0050 '/' Outflow=5.00 cfs 27,859 cf

Pond C2: DMH-11 Peak Elev=161.49' Inflow=6.60 cfs 23,267 cf
24.0" Round Culvert n=0.025 L=246.0' S=0.0025 '/' Outflow=6.60 cfs 23,267 cf

Pond C3: DMH-4 Peak Elev=160.68' Inflow=17.27 cfs 61,009 cf
Primary=14.69 cfs 59,632 cf Secondary=2.58 cfs 1,377 cf Outflow=17.27 cfs 61,009 cf

Pond C4: FI-3 Peak Elev=160.62' Inflow=2.31 cfs 17,648 cf
24.0" Round Culvert n=0.025 L=79.0' S=0.0025 '/' Outflow=2.31 cfs 17,648 cf

Pond C5: DMH-7 Peak Elev=160.54' Inflow=11.24 cfs 52,414 cf
Primary=11.24 cfs 52,414 cf Secondary=0.00 cfs 0 cf Outflow=11.24 cfs 52,414 cf

Pond C6: DMH-9 Peak Elev=163.71' Inflow=5.75 cfs 19,997 cf
30.0" Round Culvert n=0.025 L=210.0' S=0.0025 '/' Outflow=5.75 cfs 19,997 cf

Pond C7: DMH-10 Peak Elev=163.03' Inflow=5.82 cfs 22,902 cf
30.0" Round Culvert n=0.025 L=119.0' S=0.0025 '/' Outflow=5.82 cfs 22,902 cf

Pond C8: TWIN 30" HDPE Peak Elev=160.82' Inflow=18.93 cfs 89,912 cf
Primary=17.48 cfs 88,830 cf Secondary=1.45 cfs 1,082 cf Outflow=18.93 cfs 89,912 cf

Pond D1: R-TANKS Peak Elev=159.94' Storage=55,492 cf Inflow=29.50 cfs 117,220 cf
Outflow=3.60 cfs 114,649 cf

Pond F1: Filterra Peak Elev=162.64' Storage=71 cf Inflow=1.81 cfs 6,425 cf
Outflow=1.80 cfs 6,425 cf

Pond F2: Filterra Peak Elev=162.36' Storage=226 cf Inflow=3.31 cfs 15,847 cf
Primary=1.82 cfs 13,549 cf Secondary=1.50 cfs 2,298 cf Outflow=3.31 cfs 15,847 cf

Pond F3: Filterra Peak Elev=161.60' Storage=62 cf Inflow=1.25 cfs 4,566 cf
Primary=0.16 cfs 3,330 cf Secondary=0.68 cfs 770 cf Tertiary=0.41 cfs 466 cf Outflow=1.25 cfs 4,566 cf

Pond F4: Filterra Peak Elev=162.13' Storage=1,004 cf Inflow=9.18 cfs 34,766 cf
Outflow=9.05 cfs 34,766 cf

Pond F5: Filterra Peak Elev=162.04' Storage=461 cf Inflow=10.75 cfs 37,742 cf
Outflow=10.70 cfs 37,742 cf

Pond F6: Filterra Peak Elev=163.40' Storage=22 cf Inflow=1.09 cfs 3,796 cf
Outflow=1.09 cfs 3,796 cf

Pond P1: Peak Elev=160.33' Storage=8,923 cf Inflow=18.23 cfs 92,139 cf
Primary=15.49 cfs 92,139 cf Secondary=0.00 cfs 0 cf Outflow=15.49 cfs 92,139 cf

Link AP1: Inflow=5.00 cfs 28,273 cf
Primary=5.00 cfs 28,273 cf

Link AP2: Inflow=18.89 cfs 207,380 cf
Primary=18.89 cfs 207,380 cf

Link AP3: Inflow=4.09 cfs 79,982 cf
Primary=4.09 cfs 79,982 cf

Total Runoff Area = 816,462 sf Runoff Volume = 318,206 cf Average Runoff Depth = 4.68"
54.43% Pervious = 444,412 sf 45.57% Impervious = 372,050 sf

Summary for Subcatchment 1.1:

Runoff = 5.00 cfs @ 12.27 hrs, Volume= 27,859 cf, Depth= 3.55"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	31,434	98	Ex. Impervious
*	10,000	98	New Impervious
*	42,694	39	Existing Lawn, Good, HSG A
*	2,604	39	New Lawn, Good, HSG A
	7,353	30	Woods, Good, HSG A
	94,085		Weighted Average
	52,651		55.96% Pervious Area
	41,434		44.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
2.2	290	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.6	575	Total			

Summary for Subcatchment 2.1:

Runoff = 1.81 cfs @ 12.07 hrs, Volume= 6,425 cf, Depth= 5.42"
Routed to Pond F1 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	10,451	98	Impervious
	3,770	39	>75% Grass cover, Good, HSG A
	14,221		Weighted Average
	3,770		26.51% Pervious Area
	10,451		73.49% Impervious Area

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

Summary for Subcatchment 2.10:

Runoff = 0.11 cfs @ 12.12 hrs, Volume= 591 cf, Depth= 0.88"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	8,078	39	New Lawn, Good, HSG A
	8,078		100.00% Pervious Area

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

Summary for Subcatchment 2.2:

Runoff = 3.31 cfs @ 12.20 hrs, Volume= 15,847 cf, Depth= 4.54"
Routed to Pond F2 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	21,143	98	Impervious
*	15,215	39	New Lawn, Good, HSG A
*	5,534	80	New Lawn, Good, HSG D
	41,892		Weighted Average
	20,749		49.53% Pervious Area
	21,143		50.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	135	0.0130	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
0.5	70	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
15.1	205	Total			

Summary for Subcatchment 2.3:

Runoff = 1.25 cfs @ 12.07 hrs, Volume= 4,566 cf, Depth= 4.25"
Routed to Pond F3 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	7,032	98	Impervious
	5,853	39	>75% Grass cover, Good, HSG A
	12,885		Weighted Average
	5,853		45.42% Pervious Area
	7,032		54.58% Impervious Area

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

Summary for Subcatchment 2.4.1:

Runoff = 5.75 cfs @ 12.07 hrs, Volume= 19,997 cf, Depth= 7.06"
Routed to Pond C6 : DMH-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	33,986	98	New Impervious
	33,986		100.00% Impervious Area

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

Summary for Subcatchment 2.4.2:

Runoff = 3.36 cfs @ 12.07 hrs, Volume= 11,863 cf, Depth= 5.83"
Routed to Pond F4 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	19,559	98	New Impervious
*	4,848	39	New Lawn, Good, HSG A
	24,407		Weighted Average
	4,848		19.86% Pervious Area
	19,559		80.14% Impervious Area

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

Summary for Subcatchment 2.4.3:

Runoff = 0.40 cfs @ 12.36 hrs, Volume= 2,905 cf, Depth= 0.99"
Routed to Pond C7 : DMH-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	642	98	New Impervious
*	34,531	39	New Lawn, Good, HSG A
	35,173		Weighted Average
	34,531		98.17% Pervious Area
	642		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	150	0.0150	0.17		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
2.7	155	0.0190	0.96		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.7	305	Total			

Summary for Subcatchment 2.5:

Runoff = 10.75 cfs @ 12.07 hrs, Volume= 37,742 cf, Depth= 6.24"
Routed to Pond F5 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	37,581	98	Ex. Impervious
*	25,361	98	New Impervious
*	8,064	39	Ex. Lawn, Good, HSG A
*	1,605	39	New Lawn, Good, HSG A
	72,611		Weighted Average
	9,669		13.32% Pervious Area
	62,942		86.68% Impervious Area

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

Summary for Subcatchment 2.6:

Runoff = 1.09 cfs @ 12.07 hrs, Volume= 3,796 cf, Depth= 6.65"
Routed to Pond F6 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	6,396	98	New Impervious
*	452	39	New Lawn, Good, HSG A
	6,848		Weighted Average
	452		6.60% Pervious Area
	6,396		93.40% Impervious Area

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

Summary for Subcatchment 2.7:

Runoff = 2.67 cfs @ 12.34 hrs, Volume= 15,358 cf, Depth= 4.80"
Routed to Pond C8 : TWIN 30" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	18,654	98	New Impervious
*	11,112	39	New Lawn, Good, HSG A
*	8,614	80	New Lawn, Good, HSG D
	38,380		Weighted Average
	19,726		51.40% Pervious Area
	18,654		48.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	530	0.0025	0.35		**Shallow Concentrated Flow, AB** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 2.8:

Runoff = 4.81 cfs @ 12.07 hrs, Volume= 16,842 cf, Depth= 6.37"
Routed to Pond C2 : DMH-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	16,038	98	Ex. Impervious
*	12,141	98	New Impervious
*	3,572	39	Ex. Lawn, Good, HSG A
	31,751		Weighted Average
	3,572		11.25% Pervious Area
	28,179		88.75% Impervious Area

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

Summary for Subcatchment 2.9:

Runoff = 0.58 cfs @ 12.25 hrs, Volume= 2,843 cf, Depth= 2.64"
Routed to Pond P1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	7,351	39	New Lawn, Good, HSG A
*	5,563	80	New Lawn, Good, HSG D
	12,914		Weighted Average
	12,914		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	40	0.0190	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.30"
10.5	280	0.0040	0.44		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.4	320	Total			

Summary for Subcatchment 3.1:

Runoff = 4.09 cfs @ 15.06 hrs, Volume= 78,900 cf, Depth= 3.95"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

Area (sf)	CN	Description
13,277	80	>75% Grass cover, Good, HSG D
38,545	30	Woods, Good, HSG A
187,753	77	Woods, Good, HSG D
239,575		Weighted Average
239,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.02 cfs @ 13.95 hrs, Volume= 415 cf, Depth= 0.27"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 16.09 cfs @ 12.17 hrs, Volume= 72,255 cf, Depth= 6.62"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-Yr Storm Rainfall=7.30"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 6.62" for 50-Yr Storm event
Inflow = 16.09 cfs @ 12.17 hrs, Volume= 72,255 cf
Outflow = 15.15 cfs @ 12.22 hrs, Volume= 72,255 cf, Atten= 6%, Lag= 2.8 min
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 16.0 min

Peak Storage= 3,824 cf @ 12.22 hrs
Average Depth at Peak Storage= 1.04' , Surface Width= 8.12'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 50.15 cfs

5.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 1.5 '/' Top Width= 11.00'
Length= 560.0' Slope= 0.0050 '/'
Inlet Invert= 162.00', Outlet Invert= 159.22'

Summary for Pond C1: CULVERT

Inflow Area = 94,085 sf, 44.04% Impervious, Inflow Depth = 3.55" for 50-Yr Storm event
Inflow = 5.00 cfs @ 12.27 hrs, Volume= 27,859 cf
Outflow = 5.00 cfs @ 12.27 hrs, Volume= 27,859 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.00 cfs @ 12.27 hrs, Volume= 27,859 cf
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.08' @ 12.27 hrs
Flood Elev= 163.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	160.34'	**18.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 160.34' / 160.05' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=5.00 cfs @ 12.27 hrs HW=162.07' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.00 cfs @ 3.07 fps)

Summary for Pond C2: DMH-11

Inflow Area = 45,972 sf, 84.03% Impervious, Inflow Depth = 6.07" for 50-Yr Storm event
Inflow = 6.60 cfs @ 12.07 hrs, Volume= 23,267 cf
Outflow = 6.60 cfs @ 12.07 hrs, Volume= 23,267 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.60 cfs @ 12.07 hrs, Volume= 23,267 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.49' @ 12.09 hrs
Flood Elev= 162.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.23'	**24.0" Round Culvert** L= 246.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.23' / 158.61' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=6.16 cfs @ 12.07 hrs HW=161.44' TW=160.66' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.16 cfs @ 2.21 fps)

Summary for Pond C3: DMH-4

Inflow Area = 118,583 sf, 85.65% Impervious, Inflow Depth = 6.17" for 50-Yr Storm event
Inflow = 17.27 cfs @ 12.08 hrs, Volume= 61,009 cf
Outflow = 17.27 cfs @ 12.08 hrs, Volume= 61,009 cf, Atten= 0%, Lag= 0.0 min
Primary = 14.69 cfs @ 12.08 hrs, Volume= 59,632 cf
Routed to Pond D1 : R-TANKS
Secondary = 2.58 cfs @ 12.08 hrs, Volume= 1,377 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.68' @ 12.08 hrs
Flood Elev= 163.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.61'	**30.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.61' / 158.60' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	159.87'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.87' / 158.60' S= 0.0552 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=14.50 cfs @ 12.08 hrs HW=160.66' TW=159.35' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 14.50 cfs @ 4.57 fps)

Secondary OutFlow Max=2.50 cfs @ 12.08 hrs HW=160.66' TW=159.35' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 2.50 cfs @ 3.04 fps)

Summary for Pond C4: FI-3

Inflow Area = 54,777 sf, 51.44% Impervious, Inflow Depth = 3.87" for 50-Yr Storm event
Inflow = 2.31 cfs @ 12.16 hrs, Volume= 17,648 cf
Outflow = 2.31 cfs @ 12.16 hrs, Volume= 17,648 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.16 hrs, Volume= 17,648 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.62' @ 12.12 hrs
Flood Elev= 161.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.86'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.86' / 158.66' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=3.60 cfs @ 12.16 hrs HW=160.53' TW=160.32' (Dynamic Tailwater)
1=Culvert (Outlet Controls 3.60 cfs @ 1.74 fps)

Summary for Pond C5: DMH-7

Inflow Area = 148,343 sf, 55.52% Impervious, Inflow Depth = 4.24" for 50-Yr Storm event
Inflow = 11.24 cfs @ 12.09 hrs, Volume= 52,414 cf
Outflow = 11.24 cfs @ 12.09 hrs, Volume= 52,414 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.24 cfs @ 12.09 hrs, Volume= 52,414 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.00 cfs @ 12.09 hrs, Volume= 0 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.54' @ 12.09 hrs
Flood Elev= 163.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**30.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.60' S= 0.0026 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	160.54'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.54' / 158.60' S= 0.0647 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.23 cfs @ 12.09 hrs HW=160.54' TW=159.39' (Dynamic Tailwater)
1=Culvert (Barrel Controls 11.23 cfs @ 3.93 fps)

Secondary OutFlow Max=0.00 cfs @ 12.09 hrs HW=160.54' TW=159.39' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.00 cfs @ 0.20 fps)

Summary for Pond C6: DMH-9

Inflow Area = 33,986 sf,100.00% Impervious, Inflow Depth = 7.06" for 50-Yr Storm event
Inflow = 5.75 cfs @ 12.07 hrs, Volume= 19,997 cf
Outflow = 5.75 cfs @ 12.07 hrs, Volume= 19,997 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.75 cfs @ 12.07 hrs, Volume= 19,997 cf
Routed to Pond C7 : DMH-10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.71' @ 12.08 hrs
Flood Elev= 165.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	162.04'	**30.0" Round Culvert** L= 210.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 162.04' / 161.52' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=5.42 cfs @ 12.07 hrs HW=163.69' TW=163.01' (Dynamic Tailwater)
1=Culvert (Outlet Controls 5.42 cfs @ 2.23 fps)

Summary for Pond C7: DMH-10

Inflow Area = 69,159 sf, 50.07% Impervious, Inflow Depth = 3.97" for 50-Yr Storm event
Inflow = 5.82 cfs @ 12.07 hrs, Volume= 22,902 cf
Outflow = 5.82 cfs @ 12.07 hrs, Volume= 22,902 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.82 cfs @ 12.07 hrs, Volume= 22,902 cf
Routed to Pond F4 : Filterra

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.03' @ 12.07 hrs
Flood Elev= 165.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	161.52'	**30.0" Round Culvert** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 161.52' / 161.22' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=5.72 cfs @ 12.07 hrs HW=163.01' TW=162.13' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.72 cfs @ 2.69 fps)

Summary for Pond C8: TWIN 30" HDPE

Inflow Area = 169,408 sf, 82.81% Impervious, Inflow Depth = 6.37" for 50-Yr Storm event
Inflow = 18.93 cfs @ 12.23 hrs, Volume= 89,912 cf
Outflow = 18.93 cfs @ 12.23 hrs, Volume= 89,912 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.48 cfs @ 12.23 hrs, Volume= 88,830 cf
Routed to Pond P1 :
Secondary = 1.45 cfs @ 12.23 hrs, Volume= 1,082 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.82' @ 12.23 hrs
Flood Elev= 162.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.22'	**30.0" Round Culvert X 2.00** L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.22' / 159.05' S= 0.0024 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Secondary	160.60'	**5.0' long + 2.0 '/' SideZ x 150.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=17.43 cfs @ 12.23 hrs HW=160.81' TW=160.16' (Dynamic Tailwater)
1=Culvert (Barrel Controls 17.43 cfs @ 3.76 fps)

Secondary OutFlow Max=1.42 cfs @ 12.23 hrs HW=160.81' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.42 cfs @ 1.22 fps)

Summary for Pond D1: R-TANKS

Inflow Area = 273,774 sf, 69.52% Impervious, Inflow Depth = 5.14" for 50-Yr Storm event
Inflow = 29.50 cfs @ 12.08 hrs, Volume= 117,220 cf
Outflow = 3.60 cfs @ 12.88 hrs, Volume= 114,649 cf, Atten= 88%, Lag= 47.9 min
Primary = 3.60 cfs @ 12.88 hrs, Volume= 114,649 cf
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 159.94' @ 12.88 hrs Surf.Area= 37,071 sf Storage= 55,492 cf
Flood Elev= 161.80' Surf.Area= 37,071 sf Storage= 87,245 cf

Plug-Flow detention time= 256.6 min calculated for 114,602 cf (98% of inflow)
Center-of-Mass det. time= 243.6 min (997.9 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.00'	4,627 cf	**51.24'W x 189.66'L x 3.17'H Field A** 30,765 cf Overall - 19,198 cf Embedded = 11,567 cf x 40.0% Voids
#2A	158.50'	18,238 cf	**Ferguson R-Tank HD 1.5** x 2880 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 2880 Chambers in 36 Rows
#3B	158.00'	2,795 cf	**48.62'W x 121.98'L x 3.17'H Field B** 18,773 cf Overall - 11,785 cf Embedded = 6,987 cf x 40.0% Voids
#4B	158.50'	11,196 cf	**Ferguson R-Tank HD 1.5** x 1768 Inside #3 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1768 Chambers in 34 Rows
#5C	158.00'	6,914 cf	**51.24'W x 288.53'L x 3.17'H Field C** 46,802 cf Overall - 29,517 cf Embedded = 17,285 cf x 40.0% Voids
#6C	158.50'	28,041 cf	**Ferguson R-Tank HD 1.5** x 4428 Inside #5 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 4428 Chambers in 36 Rows
#7D	158.00'	1,528 cf	**34.18'W x 89.14'L x 3.17'H Field D** 9,645 cf Overall - 5,826 cf Embedded = 3,819 cf x 40.0% Voids
#8D	158.50'	5,535 cf	**Ferguson R-Tank HD 1.5** x 874 Inside #7 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 874 Chambers in 23 Rows
#9E	158.00'	1,760 cf	**51.24'W x 70.03'L x 3.17'H Field E** 11,359 cf Overall - 6,959 cf Embedded = 4,400 cf x 40.0% Voids
#10E	158.50'	6,611 cf	**Ferguson R-Tank HD 1.5** x 1044 Inside #9 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1044 Chambers in 36 Rows
		87,245 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 158.09' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	158.15'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	159.32'	**5.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	160.95'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.60 cfs @ 12.88 hrs HW=159.94' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.60 cfs of 10.01 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.07 cfs @ 5.64 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.53 cfs @ 2.97 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D1: R-TANKS - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

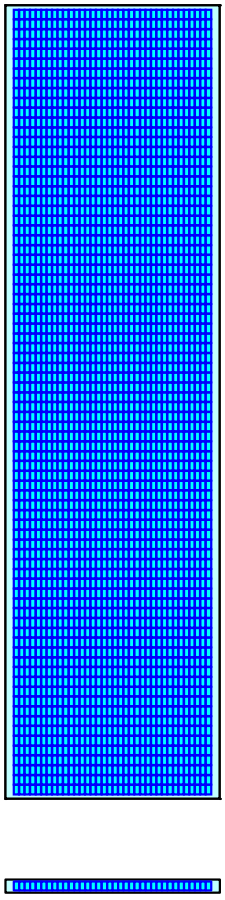
80 Chambers/Row x 2.35' Long = 187.66' Row Length +12.0" End Stone x 2 = 189.66' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

2,880 Chambers x 6.3 cf = 18,238.2 cf Chamber Storage
2,880 Chambers x 6.7 cf = 19,198.1 cf Displacement

30,764.6 cf Field - 19,198.1 cf Chambers = 11,566.5 cf Stone x 40.0% Voids = 4,626.6 cf Stone Storage

Chamber Storage + Stone Storage = 22,864.8 cf = 0.525 af
Overall Storage Efficiency = 74.3%
Overall System Size = 189.66' x 51.24' x 3.17'

2,880 Chambers
1,139.4 cy Field
428.4 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field B

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

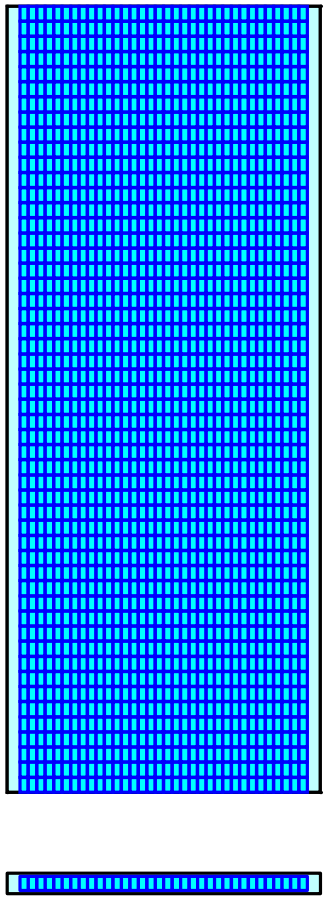
52 Chambers/Row x 2.35' Long = 121.98' Row Length
34 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 48.62' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,768 Chambers x 6.3 cf = 11,196.2 cf Chamber Storage
1,768 Chambers x 6.7 cf = 11,785.5 cf Displacement

18,772.7 cf Field - 11,785.5 cf Chambers = 6,987.2 cf Stone x 40.0% Voids = 2,794.9 cf Stone Storage

Chamber Storage + Stone Storage = 13,991.1 cf = 0.321 af
Overall Storage Efficiency = 74.5%
Overall System Size = 121.98' x 48.62' x 3.17'

1,768 Chambers
695.3 cy Field
258.8 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field C

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

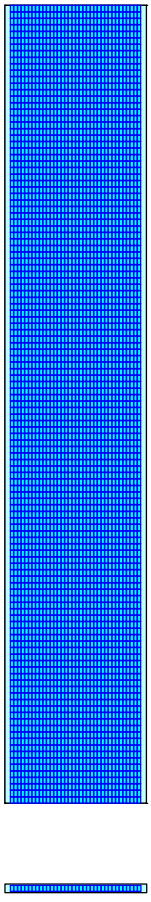
123 Chambers/Row x 2.35' Long = 288.53' Row Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

4,428 Chambers x 6.3 cf = 28,041.2 cf Chamber Storage
4,428 Chambers x 6.7 cf = 29,517.0 cf Displacement

46,801.8 cf Field - 29,517.0 cf Chambers = 17,284.7 cf Stone x 40.0% Voids = 6,913.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,955.1 cf = 0.802 af
Overall Storage Efficiency = 74.7%
Overall System Size = 288.53' x 51.24' x 3.17'

4,428 Chambers
1,733.4 cy Field
640.2 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field D

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

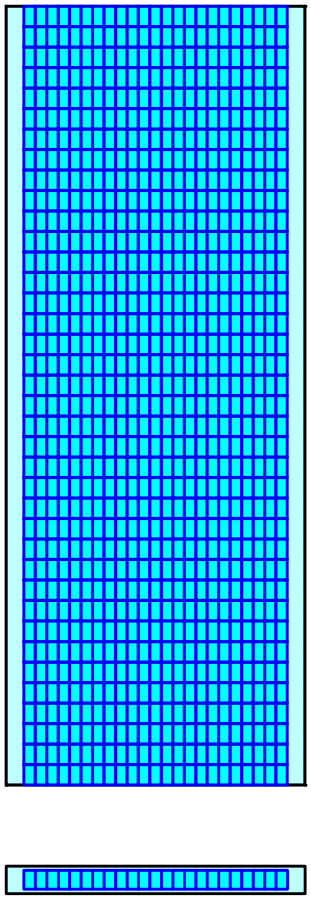
38 Chambers/Row x 2.35' Long = 89.14' Row Length
23 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 34.18' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

874 Chambers x 6.3 cf = 5,534.8 cf Chamber Storage
874 Chambers x 6.7 cf = 5,826.1 cf Displacement

9,645.3 cf Field - 5,826.1 cf Chambers = 3,819.2 cf Stone x 40.0% Voids = 1,527.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,062.5 cf = 0.162 af
Overall Storage Efficiency = 73.2%
Overall System Size = 89.14' x 34.18' x 3.17'

874 Chambers
357.2 cy Field
141.5 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field E

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

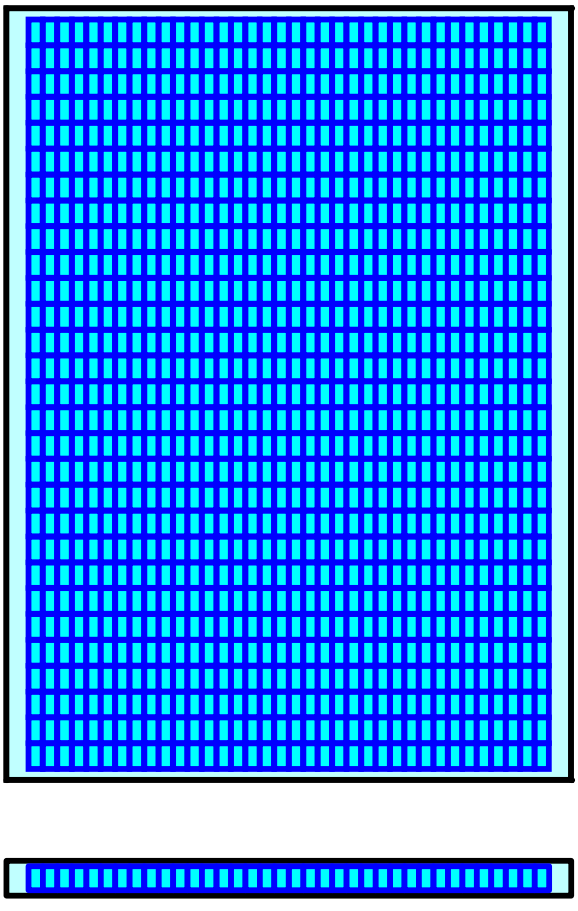
29 Chambers/Row x 2.35' Long = 68.03' Row Length +12.0" End Stone x 2 = 70.03' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,044 Chambers x 6.3 cf = 6,611.3 cf Chamber Storage
1,044 Chambers x 6.7 cf = 6,959.3 cf Displacement

11,359.0 cf Field - 6,959.3 cf Chambers = 4,399.7 cf Stone x 40.0% Voids = 1,759.9 cf Stone Storage

Chamber Storage + Stone Storage = 8,371.2 cf = 0.192 af
Overall Storage Efficiency = 73.7%
Overall System Size = 70.03' x 51.24' x 3.17'

1,044 Chambers
420.7 cy Field
163.0 cy Stone



Summary for Pond F1: Filterra

Inflow Area = 14,221 sf, 73.49% Impervious, Inflow Depth = 5.42" for 50-Yr Storm event
Inflow = 1.81 cfs @ 12.07 hrs, Volume= 6,425 cf
Outflow = 1.80 cfs @ 12.08 hrs, Volume= 6,425 cf, Atten= 0%, Lag= 0.3 min
Primary = 1.80 cfs @ 12.08 hrs, Volume= 6,425 cf
Routed to Pond C2 : DMH-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.64' @ 12.08 hrs Surf.Area= 48 sf Storage= 71 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 114 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (750.1 - 749.3)

Volume	Invert	Avail.Storage	Storage Description
#1	161.95'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.95'	102 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		174 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.95	0	29.0	0	0	0
162.90	323	198.0	102	102	3,055

Device	Routing	Invert	Outlet Devices
#1	Primary	159.70'	**12.0" Round Culvert** L= 69.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.70' / 159.23' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	161.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.45'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.77 cfs @ 12.08 hrs HW=162.63' TW=161.45' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.77 cfs of 3.57 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.16 cfs)
  └─**3=Orifice/Grate** (Weir Controls 1.62 cfs @ 1.40 fps)

Summary for Pond F2: Filterra

Inflow Area = 41,892 sf, 50.47% Impervious, Inflow Depth = 4.54" for 50-Yr Storm event
Inflow = 3.31 cfs @ 12.20 hrs, Volume= 15,847 cf
Outflow = 3.31 cfs @ 12.21 hrs, Volume= 15,847 cf, Atten= 0%, Lag= 0.3 min
Primary = 1.82 cfs @ 12.21 hrs, Volume= 13,549 cf
Routed to Pond C4 : FI-3
Secondary = 1.50 cfs @ 12.21 hrs, Volume= 2,298 cf
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.36' @ 12.21 hrs Surf.Area= 182 sf Storage= 226 cf
Flood Elev= 162.40' Surf.Area= 182 sf Storage= 261 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.9 min (773.8 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	161.75'	273 cf	**7.00'W x 13.00'L x 1.50'H Prismatoid** x 2
#2	161.75'	143 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		416 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.75	0	62.0	0	0	0
162.40	658	140.0	143	143	1,256

Device	Routing	Invert	Outlet Devices
#1	Primary	159.49'	**18.0" Round Culvert** L= 252.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.49' / 158.86' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	161.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.26'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	162.26'	**20.0' long + 2.0 '/' SideZ 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=1.81 cfs @ 12.21 hrs HW=162.36' TW=160.36' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.81 cfs of 8.11 cfs potential flow)
├**2=Exfiltration** (Exfiltration Controls 0.59 cfs)
└**3=Orifice/Grate** (Weir Controls 1.22 cfs @ 1.01 fps)

Secondary OutFlow Max=1.49 cfs @ 12.21 hrs HW=162.36' TW=160.81' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 1.49 cfs @ 0.77 fps)

Summary for Pond F3: Filterra

Inflow Area = 12,885 sf, 54.58% Impervious, Inflow Depth = 4.25" for 50-Yr Storm event
Inflow = 1.25 cfs @ 12.07 hrs, Volume= 4,566 cf
Outflow = 1.25 cfs @ 12.08 hrs, Volume= 4,566 cf, Atten= 0%, Lag= 0.4 min
Primary = 0.16 cfs @ 11.61 hrs, Volume= 3,330 cf
Routed to Pond C4 : FI-3
Secondary = 0.68 cfs @ 12.08 hrs, Volume= 770 cf
Routed to Pond C4 : FI-3
Tertiary = 0.41 cfs @ 12.08 hrs, Volume= 466 cf
Routed to Pond P1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.60' @ 12.08 hrs Surf.Area= 48 sf Storage= 62 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 238 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (759.3 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	161.15'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.15'	166 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		238 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.15	0	29.0	0	0	0
161.50	173	55.0	20	20	174
162.00	430	107.0	146	166	846

Device	Routing	Invert	Outlet Devices
#1	Primary	158.98'	**6.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.98' / 158.97' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	161.15'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	161.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	161.50'	**5.0' 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=0.16 cfs @ 11.61 hrs HW=161.19' TW=159.52' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.16 cfs of 1.22 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.67 cfs @ 12.08 hrs HW=161.60' TW=160.51' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.67 cfs @ 1.04 fps)

Tertiary OutFlow Max=0.40 cfs @ 12.08 hrs HW=161.60' TW=159.64' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 0.79 fps)

Summary for Pond F4: Filterra

Inflow Area = 93,566 sf, 57.91% Impervious, Inflow Depth = 4.46" for 50-Yr Storm event
Inflow = 9.18 cfs @ 12.07 hrs, Volume= 34,766 cf
Outflow = 9.05 cfs @ 12.09 hrs, Volume= 34,766 cf, Atten= 1%, Lag= 0.9 min
Primary = 9.05 cfs @ 12.09 hrs, Volume= 34,766 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.13' @ 12.09 hrs Surf.Area= 342 sf Storage= 1,004 cf
Flood Elev= 165.00' Surf.Area= 342 sf Storage= 1,612 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.7 min (759.2 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	513 cf	**9.00'W x 38.00'L x 1.50'H Prismatoid**
#2	160.95'	1,099 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,612 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	89.0	0	0	0
162.00	1,230	140.0	431	431	937
162.50	1,447	149.0	669	1,099	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	158.72'	**24.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.72' / 158.66' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.80'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.98 cfs @ 12.09 hrs HW=162.13' TW=160.54' (Dynamic Tailwater)
└**1=Culvert** (Passes 8.98 cfs of 19.11 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 1.11 cfs)
  └**3=Orifice/Grate** (Weir Controls 7.87 cfs @ 1.89 fps)

Summary for Pond F5: Filterra

Inflow Area = 72,611 sf, 86.68% Impervious, Inflow Depth = 6.24" for 50-Yr Storm event
Inflow = 10.75 cfs @ 12.07 hrs, Volume= 37,742 cf
Outflow = 10.70 cfs @ 12.08 hrs, Volume= 37,742 cf, Atten= 1%, Lag= 0.4 min
Primary = 10.70 cfs @ 12.08 hrs, Volume= 37,742 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.04' @ 12.08 hrs Surf.Area= 261 sf Storage= 461 cf
Flood Elev= 163.00' Surf.Area= 261 sf Storage= 1,032 cf

Plug-Flow detention time= 1.0 min calculated for 37,727 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (745.8 - 744.9)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	160.95'	576 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,032 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.95	261	0	0
162.70	261	457	457

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	67.0	0	0	0
162.00	460	82.0	161	161	194
162.70	735	101.0	415	576	478

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**24.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.61' S= 0.0028 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.65'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.53 cfs @ 12.08 hrs HW=162.03' TW=160.66' (Dynamic Tailwater)
1=Culvert (Passes 10.53 cfs of 17.68 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.85 cfs)
3=Orifice/Grate (Weir Controls 9.68 cfs @ 2.02 fps)

Summary for Pond F6: Filterra

Inflow Area = 6,848 sf, 93.40% Impervious, Inflow Depth = 6.65" for 50-Yr Storm event
Inflow = 1.09 cfs @ 12.07 hrs, Volume= 3,796 cf
Outflow = 1.09 cfs @ 12.07 hrs, Volume= 3,796 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.09 cfs @ 12.07 hrs, Volume= 3,796 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.40' @ 12.07 hrs Surf.Area= 32 sf Storage= 22 cf
Flood Elev= 164.17' Surf.Area= 32 sf Storage= 60 cf

Plug-Flow detention time= 0.5 min calculated for 3,795 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (743.6 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1	162.75'	48 cf	**4.00'W x 8.00'L x 1.50'H Prismatoid**
#2	162.75'	15 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		63 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.75	0	24.0	0	0	0
164.20	32	24.0	15	15	35

Device	Routing	Invert	Outlet Devices
#1	Primary	158.62'	**15.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.62' / 158.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	162.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	163.27'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.07 cfs @ 12.07 hrs HW=163.40' TW=159.34' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.07 cfs of 11.91 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.10 cfs)
  └─**3=Orifice/Grate** (Weir Controls 0.97 cfs @ 1.18 fps)

Summary for Pond P1:

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 6.06" for 50-Yr Storm event
Inflow = 18.23 cfs @ 12.23 hrs, Volume= 92,139 cf
Outflow = 15.49 cfs @ 12.34 hrs, Volume= 92,139 cf, Atten= 15%, Lag= 6.9 min
Primary = 15.49 cfs @ 12.34 hrs, Volume= 92,139 cf
Routed to Link AP2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.33' @ 12.34 hrs Surf.Area= 6,120 sf Storage= 8,923 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 8.5 min calculated for 92,101 cf (100% of inflow)
Center-of-Mass det. time= 8.5 min (774.7 - 766.2)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=15.46 cfs @ 12.34 hrs HW=160.33' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 15.46 cfs @ 4.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link AP1:

Inflow Area = 112,713 sf, 36.76% Impervious, Inflow Depth = 3.01" for 50-Yr Storm event
Inflow = 5.00 cfs @ 12.27 hrs, Volume= 28,273 cf
Primary = 5.00 cfs @ 12.27 hrs, Volume= 28,273 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 464,174 sf, 71.23% Impervious, Inflow Depth = 5.36" for 50-Yr Storm event
Inflow = 18.89 cfs @ 12.35 hrs, Volume= 207,380 cf
Primary = 18.89 cfs @ 12.35 hrs, Volume= 207,380 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 239,575 sf, 0.00% Impervious, Inflow Depth = 4.01" for 50-Yr Storm event
Inflow = 4.09 cfs @ 15.06 hrs, Volume= 79,982 cf
Primary = 4.09 cfs @ 15.06 hrs, Volume= 79,982 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Time span=0.00-72.00 hrs, dt=0.03 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.1: Runoff Area=94,085 sf 44.04% Impervious Runoff Depth=4.48"
Flow Length=575' Tc=19.6 min CN=WQ Runoff=6.40 cfs 35,099 cf

Subcatchment 2.1: Runoff Area=14,221 sf 73.49% Impervious Runoff Depth=6.61"
Tc=5.0 min CN=WQ Runoff=2.21 cfs 7,828 cf

Subcatchment 2.10: Runoff Area=8,078 sf 0.00% Impervious Runoff Depth=1.46"
Tc=5.0 min CN=39 Runoff=0.24 cfs 985 cf

Subcatchment 2.2: Runoff Area=41,892 sf 50.47% Impervious Runoff Depth=5.63"
Flow Length=205' Slope=0.0130 '/' Tc=15.1 min CN=WQ Runoff=4.15 cfs 19,659 cf

Subcatchment 2.3: Runoff Area=12,885 sf 54.58% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=WQ Runoff=1.58 cfs 5,671 cf

Subcatchment 2.4.1: Runoff Area=33,986 sf 100.00% Impervious Runoff Depth=8.46"
Tc=5.0 min CN=98 Runoff=6.86 cfs 23,960 cf

Subcatchment 2.4.2: Runoff Area=24,407 sf 80.14% Impervious Runoff Depth=7.07"
Tc=5.0 min CN=WQ Runoff=4.08 cfs 14,380 cf

Subcatchment 2.4.3: Runoff Area=35,173 sf 1.83% Impervious Runoff Depth=1.59"
Flow Length=305' Tc=17.7 min CN=WQ Runoff=0.79 cfs 4,664 cf

Subcatchment 2.5: Runoff Area=72,611 sf 86.68% Impervious Runoff Depth=7.53"
Tc=5.0 min CN=WQ Runoff=12.97 cfs 45,552 cf

Subcatchment 2.6: Runoff Area=6,848 sf 93.40% Impervious Runoff Depth=8.00"
Tc=5.0 min CN=WQ Runoff=1.30 cfs 4,564 cf

Subcatchment 2.7: Runoff Area=38,380 sf 48.60% Impervious Runoff Depth=5.95"
Flow Length=530' Slope=0.0025 '/' Tc=25.2 min CN=WQ Runoff=3.32 cfs 19,017 cf

Subcatchment 2.8: Runoff Area=31,751 sf 88.75% Impervious Runoff Depth=7.67"
Tc=5.0 min CN=WQ Runoff=5.79 cfs 20,301 cf

Subcatchment 2.9: Runoff Area=12,914 sf 0.00% Impervious Runoff Depth=3.54"
Flow Length=320' Tc=17.4 min CN=WQ Runoff=0.80 cfs 3,810 cf

Subcatchment 3.1: Runoff Area=239,575 sf 0.00% Impervious Runoff Depth=5.08"
Flow Length=505' Slope=0.0010 '/' Tc=222.4 min CN=WQ Runoff=5.25 cfs 101,489 cf

Subcatchment OS1: Runoff Area=18,628 sf 0.00% Impervious Runoff Depth=0.59"
Flow Length=215' Tc=31.8 min CN=30 Runoff=0.07 cfs 923 cf

Subcatchment OS2: Runoff Area=131,028 sf 92.83% Impervious Runoff Depth=7.96"
Flow Length=505' Tc=13.1 min CN=WQ Runoff=19.30 cfs 86,894 cf

Reach R2: Avg. Flow Depth=1.16' Max Vel=2.35 fps Inflow=19.30 cfs 86,894 cf
n=0.040 L=560.0' S=0.0050 '/' Capacity=50.15 cfs Outflow=18.25 cfs 86,894 cf

Pond C1: CULVERT Peak Elev=162.74' Inflow=6.40 cfs 35,099 cf
18.0" Round Culvert n=0.025 L=58.0' S=0.0050 '/' Outflow=6.40 cfs 35,099 cf

Pond C2: DMH-11 Peak Elev=162.10' Inflow=7.99 cfs 28,129 cf
24.0" Round Culvert n=0.025 L=246.0' S=0.0025 '/' Outflow=7.99 cfs 28,129 cf

Pond C3: DMH-4 Peak Elev=160.89' Inflow=20.86 cfs 73,681 cf
Primary=17.19 cfs 70,404 cf Secondary=3.67 cfs 3,277 cf Outflow=20.86 cfs 73,681 cf

Pond C4: FI-3 Peak Elev=160.83' Inflow=2.80 cfs 21,447 cf
24.0" Round Culvert n=0.025 L=79.0' S=0.0025 '/' Outflow=2.80 cfs 21,447 cf

Pond C5: DMH-7 Peak Elev=160.75' Inflow=13.66 cfs 64,450 cf
Primary=13.45 cfs 64,405 cf Secondary=0.21 cfs 45 cf Outflow=13.66 cfs 64,450 cf

Pond C6: DMH-9 Peak Elev=163.89' Inflow=6.86 cfs 23,960 cf
30.0" Round Culvert n=0.025 L=210.0' S=0.0025 '/' Outflow=6.86 cfs 23,960 cf

Pond C7: DMH-10 Peak Elev=163.19' Inflow=7.07 cfs 28,624 cf
30.0" Round Culvert n=0.025 L=119.0' S=0.0025 '/' Outflow=7.07 cfs 28,624 cf

Pond C8: TWIN 30" HDPE Peak Elev=160.95' Inflow=23.06 cfs 109,144 cf
Primary=20.01 cfs 105,978 cf Secondary=3.10 cfs 3,165 cf Outflow=23.06 cfs 109,144 cf

Pond D1: R-TANKS Peak Elev=160.29' Storage=67,298 cf Inflow=35.70 cfs 142,696 cf
Outflow=4.18 cfs 140,120 cf

Pond F1: Filterra Peak Elev=162.67' Storage=78 cf Inflow=2.21 cfs 7,828 cf
Outflow=2.20 cfs 7,828 cf

Pond F2: Filterra Peak Elev=162.37' Storage=240 cf Inflow=4.15 cfs 19,659 cf
Primary=2.19 cfs 16,427 cf Secondary=1.96 cfs 3,232 cf Outflow=4.15 cfs 19,659 cf

Pond F3: Filterra Peak Elev=161.62' Storage=67 cf Inflow=1.58 cfs 5,671 cf
Primary=0.16 cfs 3,945 cf Secondary=0.88 cfs 1,075 cf Tertiary=0.54 cfs 651 cf Outflow=1.58 cfs 5,671 cf

Pond F4: Filterra Peak Elev=162.19' Storage=1,091 cf Inflow=11.15 cfs 43,004 cf
Outflow=11.01 cfs 43,004 cf

Pond F5: Filterra Peak Elev=162.09' Storage=503 cf Inflow=12.97 cfs 45,552 cf
Outflow=12.91 cfs 45,552 cf

Pond F6: Filterra Peak Elev=163.42' Storage=23 cf Inflow=1.30 cfs 4,564 cf
Outflow=1.30 cfs 4,564 cf

Pond P1: Peak Elev=160.51' Storage=10,030 cf Inflow=21.04 cfs 110,439 cf
Primary=17.90 cfs 110,436 cf Secondary=0.03 cfs 3 cf Outflow=17.93 cfs 110,439 cf

Link AP1: Inflow=6.40 cfs 36,022 cf
Primary=6.40 cfs 36,022 cf

Link AP2: Inflow=21.90 cfs 251,541 cf
Primary=21.90 cfs 251,541 cf

Link AP3: Inflow=5.25 cfs 104,658 cf
Primary=5.25 cfs 104,658 cf

Total Runoff Area = 816,462 sf Runoff Volume = 394,797 cf Average Runoff Depth = 5.80"
54.43% Pervious = 444,412 sf 45.57% Impervious = 372,050 sf

Summary for Subcatchment 1.1:

Runoff = 6.40 cfs @ 12.27 hrs, Volume= 35,099 cf, Depth= 4.48"
Routed to Pond C1 : CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	31,434	98	Ex. Impervious
*	10,000	98	New Impervious
*	42,694	39	Existing Lawn, Good, HSG A
*	2,604	39	New Lawn, Good, HSG A
	7,353	30	Woods, Good, HSG A
	94,085		Weighted Average
	52,651		55.96% Pervious Area
	41,434		44.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	70	0.0210	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
1.4	145	0.0140	1.77		**Shallow Concentrated Flow, CD** Grassed Waterway Kv= 15.0 fps
2.2	290	0.0012	2.18	24.55	**Trap/Vee/Rect Channel Flow, DE** Bot.W=3.00' D=1.50' Z= 3.0 '/' Top.W=12.00' n= 0.022 Earth, clean & straight
19.6	575	Total			

Summary for Subcatchment 2.1:

Runoff = 2.21 cfs @ 12.07 hrs, Volume= 7,828 cf, Depth= 6.61"
Routed to Pond F1 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	10,451	98	Impervious
	3,770	39	>75% Grass cover, Good, HSG A
	14,221		Weighted Average
	3,770		26.51% Pervious Area
	10,451		73.49% Impervious Area

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

Summary for Subcatchment 2.10:

Runoff = 0.24 cfs @ 12.10 hrs, Volume= 985 cf, Depth= 1.46"
Routed to Link AP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	8,078	39	New Lawn, Good, HSG A
	8,078		100.00% Pervious Area

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

Summary for Subcatchment 2.2:

Runoff = 4.15 cfs @ 12.20 hrs, Volume= 19,659 cf, Depth= 5.63"
Routed to Pond F2 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	21,143	98	Impervious
*	15,215	39	New Lawn, Good, HSG A
*	5,534	80	New Lawn, Good, HSG D
	41,892		Weighted Average
	20,749		49.53% Pervious Area
	21,143		50.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	135	0.0130	0.15		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
0.5	70	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
15.1	205	Total			

Summary for Subcatchment 2.3:

Runoff = 1.58 cfs @ 12.07 hrs, Volume= 5,671 cf, Depth= 5.28"
Routed to Pond F3 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	7,032	98	Impervious
	5,853	39	>75% Grass cover, Good, HSG A
	12,885		Weighted Average
	5,853		45.42% Pervious Area
	7,032		54.58% Impervious Area

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

Summary for Subcatchment 2.4.1:

Runoff = 6.86 cfs @ 12.07 hrs, Volume= 23,960 cf, Depth= 8.46"
Routed to Pond C6 : DMH-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	33,986	98	New Impervious
	33,986		100.00% Impervious Area

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

Summary for Subcatchment 2.4.2:

Runoff = 4.08 cfs @ 12.07 hrs, Volume= 14,380 cf, Depth= 7.07"
Routed to Pond F4 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	19,559	98	New Impervious
*	4,848	39	New Lawn, Good, HSG A
	24,407		Weighted Average
	4,848		19.86% Pervious Area
	19,559		80.14% Impervious Area

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

Summary for Subcatchment 2.4.3:

Runoff = 0.79 cfs @ 12.31 hrs, Volume= 4,664 cf, Depth= 1.59"
Routed to Pond C7 : DMH-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	642	98	New Impervious
*	34,531	39	New Lawn, Good, HSG A
	35,173		Weighted Average
	34,531		98.17% Pervious Area
	642		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	150	0.0150	0.17		**Sheet Flow, AB** Grass: Short n= 0.150 P2= 3.30"
2.7	155	0.0190	0.96		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.7	305	Total			

Summary for Subcatchment 2.5:

Runoff = 12.97 cfs @ 12.07 hrs, Volume= 45,552 cf, Depth= 7.53"
Routed to Pond F5 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	37,581	98	Ex. Impervious
*	25,361	98	New Impervious
*	8,064	39	Ex. Lawn, Good, HSG A
*	1,605	39	New Lawn, Good, HSG A
	72,611		Weighted Average
	9,669		13.32% Pervious Area
	62,942		86.68% Impervious Area

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

Summary for Subcatchment 2.6:

Runoff = 1.30 cfs @ 12.07 hrs, Volume= 4,564 cf, Depth= 8.00"
Routed to Pond F6 : Filterra

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	6,396	98	New Impervious
*	452	39	New Lawn, Good, HSG A
	6,848		Weighted Average
	452		6.60% Pervious Area
	6,396		93.40% Impervious Area

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

Summary for Subcatchment 2.7:

Runoff = 3.32 cfs @ 12.34 hrs, Volume= 19,017 cf, Depth= 5.95"
Routed to Pond C8 : TWIN 30" HDPE

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	18,654	98	New Impervious
*	11,112	39	New Lawn, Good, HSG A
*	8,614	80	New Lawn, Good, HSG D
	38,380		Weighted Average
	19,726		51.40% Pervious Area
	18,654		48.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	530	0.0025	0.35		**Shallow Concentrated Flow, AB** Short Grass Pasture Kv= 7.0 fps

Summary for Subcatchment 2.8:

Runoff = 5.79 cfs @ 12.07 hrs, Volume= 20,301 cf, Depth= 7.67"
Routed to Pond C2 : DMH-11

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	16,038	98	Ex. Impervious
*	12,141	98	New Impervious
*	3,572	39	Ex. Lawn, Good, HSG A
	31,751		Weighted Average
	3,572		11.25% Pervious Area
	28,179		88.75% Impervious Area

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

Summary for Subcatchment 2.9:

Runoff = 0.80 cfs @ 12.25 hrs, Volume= 3,810 cf, Depth= 3.54"
Routed to Pond P1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	7,351	39	New Lawn, Good, HSG A
*	5,563	80	New Lawn, Good, HSG D
	12,914		Weighted Average
	12,914		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	40	0.0190	0.10		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.30"
10.5	280	0.0040	0.44		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
17.4	320	Total			

Summary for Subcatchment 3.1:

Runoff = 5.25 cfs @ 15.05 hrs, Volume= 101,489 cf, Depth= 5.08"
Routed to Link AP3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

Area (sf)	CN	Description
13,277	80	>75% Grass cover, Good, HSG D
38,545	30	Woods, Good, HSG A
187,753	77	Woods, Good, HSG D
239,575		Weighted Average
239,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
141.2	120	0.0010	0.01		**Sheet Flow, AB** Woods: Dense underbrush n= 0.800 P2= 3.30"
81.2	385	0.0010	0.08		**Shallow Concentrated Flow, BC** Forest w/Heavy Litter Kv= 2.5 fps
222.4	505	Total			

Summary for Subcatchment OS1:

Runoff = 0.07 cfs @ 12.75 hrs, Volume= 923 cf, Depth= 0.59"
Routed to Link AP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

Area (sf)	CN	Description
18,628	30	Woods, Good, HSG A
18,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.6	125	0.0160	0.08		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
4.2	90	0.0050	0.35		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.8	215	Total			

Summary for Subcatchment OS2:

Runoff = 19.30 cfs @ 12.17 hrs, Volume= 86,894 cf, Depth= 7.96"
Routed to Reach R2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Yr Storm Rainfall=8.70"

	Area (sf)	CN	Description
*	121,632	98	Existing Impervious
	9,396	39	>75% Grass cover, Good, HSG A
	131,028		Weighted Average
	9,396		7.17% Pervious Area
	121,632		92.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	75	0.0730	0.12		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.30"
3.1	430	0.0130	2.31		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
13.1	505	Total			

Summary for Reach R2:

Inflow Area = 131,028 sf, 92.83% Impervious, Inflow Depth = 7.96" for 100-Yr Storm event
Inflow = 19.30 cfs @ 12.17 hrs, Volume= 86,894 cf
Outflow = 18.25 cfs @ 12.22 hrs, Volume= 86,894 cf, Atten= 5%, Lag= 2.7 min
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.62 fps, Avg. Travel Time= 15.0 min

Peak Storage= 4,356 cf @ 12.22 hrs
Average Depth at Peak Storage= 1.16' , Surface Width= 8.47'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 50.15 cfs

5.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 1.5 '/' Top Width= 11.00'
Length= 560.0' Slope= 0.0050 '/'
Inlet Invert= 162.00', Outlet Invert= 159.22'

Summary for Pond C1: CULVERT

Inflow Area = 94,085 sf, 44.04% Impervious, Inflow Depth = 4.48" for 100-Yr Storm event
Inflow = 6.40 cfs @ 12.27 hrs, Volume= 35,099 cf
Outflow = 6.40 cfs @ 12.27 hrs, Volume= 35,099 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.40 cfs @ 12.27 hrs, Volume= 35,099 cf
Routed to Link AP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.74' @ 12.27 hrs
Flood Elev= 163.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	160.34'	**18.0" Round Culvert** L= 58.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 160.34' / 160.05' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=6.39 cfs @ 12.27 hrs HW=162.73' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 6.39 cfs @ 3.62 fps)

Summary for Pond C2: DMH-11

Inflow Area = 45,972 sf, 84.03% Impervious, Inflow Depth = 7.34" for 100-Yr Storm event
Inflow = 7.99 cfs @ 12.07 hrs, Volume= 28,129 cf
Outflow = 7.99 cfs @ 12.07 hrs, Volume= 28,129 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.99 cfs @ 12.07 hrs, Volume= 28,129 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.10' @ 12.09 hrs
Flood Elev= 162.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.23'	**24.0" Round Culvert** L= 246.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.23' / 158.61' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=7.30 cfs @ 12.07 hrs HW=161.94' TW=160.87' (Dynamic Tailwater)
1=Culvert (Outlet Controls 7.30 cfs @ 2.32 fps)

Summary for Pond C3: DMH-4

Inflow Area = 118,583 sf, 85.65% Impervious, Inflow Depth = 7.46" for 100-Yr Storm event
Inflow = 20.86 cfs @ 12.08 hrs, Volume= 73,681 cf
Outflow = 20.86 cfs @ 12.08 hrs, Volume= 73,681 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.19 cfs @ 12.08 hrs, Volume= 70,404 cf
Routed to Pond D1 : R-TANKS
Secondary = 3.67 cfs @ 12.08 hrs, Volume= 3,277 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.89' @ 12.08 hrs
Flood Elev= 163.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.61'	**30.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.61' / 158.60' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	159.87'	**15.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.87' / 158.60' S= 0.0552 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=16.96 cfs @ 12.08 hrs HW=160.87' TW=159.56' (Dynamic Tailwater)
1=Culvert (Barrel Controls 16.96 cfs @ 4.79 fps)

Secondary OutFlow Max=3.57 cfs @ 12.08 hrs HW=160.87' TW=159.56' (Dynamic Tailwater)
2=Culvert (Inlet Controls 3.57 cfs @ 3.40 fps)

Summary for Pond C4: FI-3

Inflow Area = 54,777 sf, 51.44% Impervious, Inflow Depth = 4.70" for 100-Yr Storm event
Inflow = 2.80 cfs @ 12.16 hrs, Volume= 21,447 cf
Outflow = 2.80 cfs @ 12.16 hrs, Volume= 21,447 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.16 hrs, Volume= 21,447 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.83' @ 12.12 hrs
Flood Elev= 161.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.86'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.86' / 158.66' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 3.14 sf

Primary OutFlow Max=4.34 cfs @ 12.16 hrs HW=160.74' TW=160.51' (Dynamic Tailwater)
1=Culvert (Outlet Controls 4.34 cfs @ 1.83 fps)

Summary for Pond C5: DMH-7

Inflow Area = 148,343 sf, 55.52% Impervious, Inflow Depth = 5.21" for 100-Yr Storm event
Inflow = 13.66 cfs @ 12.09 hrs, Volume= 64,450 cf
Outflow = 13.66 cfs @ 12.09 hrs, Volume= 64,450 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.45 cfs @ 12.09 hrs, Volume= 64,405 cf
Routed to Pond D1 : R-TANKS
Secondary = 0.21 cfs @ 12.09 hrs, Volume= 45 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.75' @ 12.09 hrs
Flood Elev= 163.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**30.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.60' S= 0.0026 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf
#2	Secondary	160.54'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 160.54' / 158.60' S= 0.0647 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=13.45 cfs @ 12.09 hrs HW=160.75' TW=159.61' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 13.45 cfs @ 4.16 fps)

Secondary OutFlow Max=0.21 cfs @ 12.09 hrs HW=160.75' TW=159.61' (Dynamic Tailwater)
└**2=Culvert** (Inlet Controls 0.21 cfs @ 1.55 fps)

Summary for Pond C6: DMH-9

Inflow Area = 33,986 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-Yr Storm event
Inflow = 6.86 cfs @ 12.07 hrs, Volume= 23,960 cf
Outflow = 6.86 cfs @ 12.07 hrs, Volume= 23,960 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.86 cfs @ 12.07 hrs, Volume= 23,960 cf
Routed to Pond C7 : DMH-10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.89' @ 12.08 hrs
Flood Elev= 165.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	162.04'	**30.0" Round Culvert** L= 210.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 162.04' / 161.52' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=6.42 cfs @ 12.07 hrs HW=163.86' TW=163.17' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.42 cfs @ 2.33 fps)

Summary for Pond C7: DMH-10

Inflow Area = 69,159 sf, 50.07% Impervious, Inflow Depth = 4.97" for 100-Yr Storm event
Inflow = 7.07 cfs @ 12.07 hrs, Volume= 28,624 cf
Outflow = 7.07 cfs @ 12.07 hrs, Volume= 28,624 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.07 cfs @ 12.07 hrs, Volume= 28,624 cf
Routed to Pond F4 : Filterra

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.19' @ 12.07 hrs
Flood Elev= 165.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	161.52'	**30.0" Round Culvert** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 161.52' / 161.22' S= 0.0025 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 4.91 sf

Primary OutFlow Max=6.95 cfs @ 12.07 hrs HW=163.17' TW=162.18' (Dynamic Tailwater)
1=Culvert (Barrel Controls 6.95 cfs @ 2.86 fps)

Summary for Pond C8: TWIN 30" HDPE

Inflow Area = 169,408 sf, 82.81% Impervious, Inflow Depth = 7.73" for 100-Yr Storm event
Inflow = 23.06 cfs @ 12.22 hrs, Volume= 109,144 cf
Outflow = 23.06 cfs @ 12.22 hrs, Volume= 109,144 cf, Atten= 0%, Lag= 0.0 min
Primary = 20.01 cfs @ 12.22 hrs, Volume= 105,978 cf
Routed to Pond P1 :
Secondary = 3.10 cfs @ 12.28 hrs, Volume= 3,165 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.95' @ 12.28 hrs
Flood Elev= 162.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	159.22'	**30.0" Round Culvert X 2.00** L= 72.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 159.22' / 159.05' S= 0.0024 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#2	Secondary	160.60'	**5.0' long + 2.0 '/' SideZ x 150.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=19.62 cfs @ 12.22 hrs HW=160.94' TW=160.36' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 19.62 cfs @ 3.83 fps)

Secondary OutFlow Max=3.09 cfs @ 12.28 hrs HW=160.95' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 3.09 cfs @ 1.55 fps)

Summary for Pond D1: R-TANKS

Inflow Area = 273,774 sf, 69.52% Impervious, Inflow Depth = 6.25" for 100-Yr Storm event
Inflow = 35.70 cfs @ 12.08 hrs, Volume= 142,696 cf
Outflow = 4.18 cfs @ 12.89 hrs, Volume= 140,120 cf, Atten= 88%, Lag= 48.8 min
Primary = 4.18 cfs @ 12.89 hrs, Volume= 140,120 cf
Routed to Link AP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.29' @ 12.89 hrs Surf.Area= 37,071 sf Storage= 67,298 cf
Flood Elev= 161.80' Surf.Area= 37,071 sf Storage= 87,245 cf

Plug-Flow detention time= 258.1 min calculated for 140,120 cf (98% of inflow)
Center-of-Mass det. time= 246.3 min (1,000.5 - 754.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.00'	4,627 cf	**51.24'W x 189.66'L x 3.17'H Field A** 30,765 cf Overall - 19,198 cf Embedded = 11,567 cf x 40.0% Voids
#2A	158.50'	18,238 cf	**Ferguson R-Tank HD 1.5** x 2880 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 2880 Chambers in 36 Rows
#3B	158.00'	2,795 cf	**48.62'W x 121.98'L x 3.17'H Field B** 18,773 cf Overall - 11,785 cf Embedded = 6,987 cf x 40.0% Voids
#4B	158.50'	11,196 cf	**Ferguson R-Tank HD 1.5** x 1768 Inside #3 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1768 Chambers in 34 Rows
#5C	158.00'	6,914 cf	**51.24'W x 288.53'L x 3.17'H Field C** 46,802 cf Overall - 29,517 cf Embedded = 17,285 cf x 40.0% Voids
#6C	158.50'	28,041 cf	**Ferguson R-Tank HD 1.5** x 4428 Inside #5 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 4428 Chambers in 36 Rows
#7D	158.00'	1,528 cf	**34.18'W x 89.14'L x 3.17'H Field D** 9,645 cf Overall - 5,826 cf Embedded = 3,819 cf x 40.0% Voids
#8D	158.50'	5,535 cf	**Ferguson R-Tank HD 1.5** x 874 Inside #7 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 874 Chambers in 23 Rows
#9E	158.00'	1,760 cf	**51.24'W x 70.03'L x 3.17'H Field E** 11,359 cf Overall - 6,959 cf Embedded = 4,400 cf x 40.0% Voids
#10E	158.50'	6,611 cf	**Ferguson R-Tank HD 1.5** x 1044 Inside #9 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 1044 Chambers in 36 Rows
		87,245 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	158.15'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.15' / 158.09' S= 0.0046 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	158.15'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	159.32'	**5.7" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	160.95'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.18 cfs @ 12.89 hrs HW=160.29' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.18 cfs of 13.13 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.45 cfs @ 6.32 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.73 cfs @ 4.12 fps)
  └─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond D1: R-TANKS - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

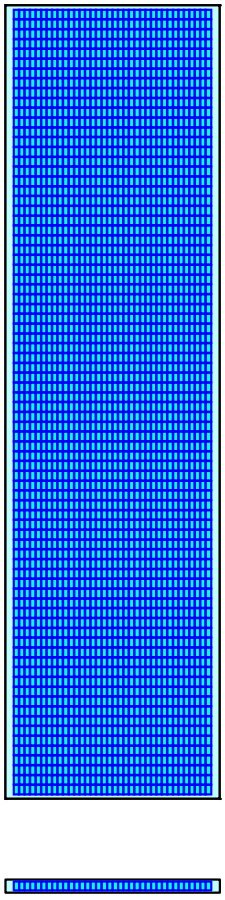
80 Chambers/Row x 2.35' Long = 187.66' Row Length +12.0" End Stone x 2 = 189.66' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

2,880 Chambers x 6.3 cf = 18,238.2 cf Chamber Storage
2,880 Chambers x 6.7 cf = 19,198.1 cf Displacement

30,764.6 cf Field - 19,198.1 cf Chambers = 11,566.5 cf Stone x 40.0% Voids = 4,626.6 cf Stone Storage

Chamber Storage + Stone Storage = 22,864.8 cf = 0.525 af
Overall Storage Efficiency = 74.3%
Overall System Size = 189.66' x 51.24' x 3.17'

2,880 Chambers
1,139.4 cy Field
428.4 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field B

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

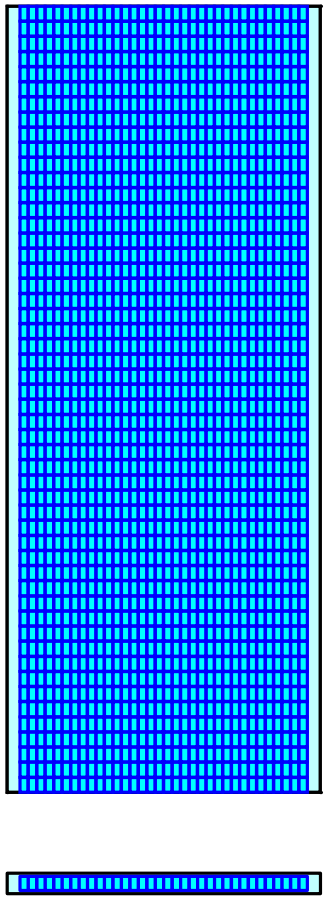
52 Chambers/Row x 2.35' Long = 121.98' Row Length
34 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 48.62' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,768 Chambers x 6.3 cf = 11,196.2 cf Chamber Storage
1,768 Chambers x 6.7 cf = 11,785.5 cf Displacement

18,772.7 cf Field - 11,785.5 cf Chambers = 6,987.2 cf Stone x 40.0% Voids = 2,794.9 cf Stone Storage

Chamber Storage + Stone Storage = 13,991.1 cf = 0.321 af
Overall Storage Efficiency = 74.5%
Overall System Size = 121.98' x 48.62' x 3.17'

1,768 Chambers
695.3 cy Field
258.8 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field C

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

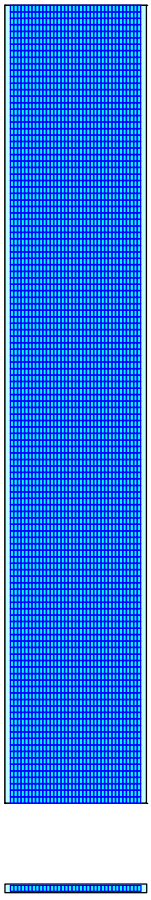
123 Chambers/Row x 2.35' Long = 288.53' Row Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

4,428 Chambers x 6.3 cf = 28,041.2 cf Chamber Storage
4,428 Chambers x 6.7 cf = 29,517.0 cf Displacement

46,801.8 cf Field - 29,517.0 cf Chambers = 17,284.7 cf Stone x 40.0% Voids = 6,913.9 cf Stone Storage

Chamber Storage + Stone Storage = 34,955.1 cf = 0.802 af
Overall Storage Efficiency = 74.7%
Overall System Size = 288.53' x 51.24' x 3.17'

4,428 Chambers
1,733.4 cy Field
640.2 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field D

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

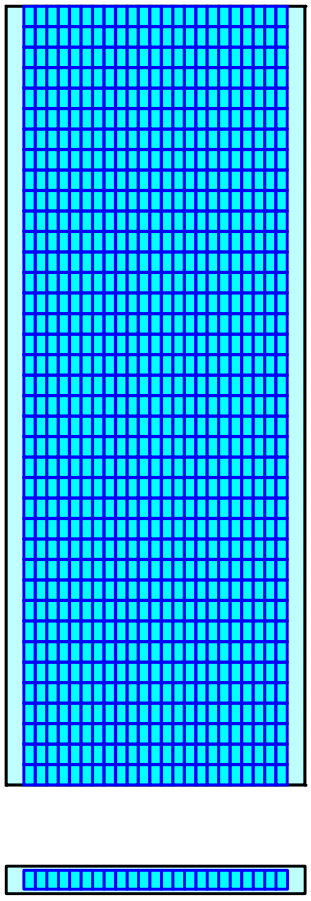
38 Chambers/Row x 2.35' Long = 89.14' Row Length
23 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 34.18' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

874 Chambers x 6.3 cf = 5,534.8 cf Chamber Storage
874 Chambers x 6.7 cf = 5,826.1 cf Displacement

9,645.3 cf Field - 5,826.1 cf Chambers = 3,819.2 cf Stone x 40.0% Voids = 1,527.7 cf Stone Storage

Chamber Storage + Stone Storage = 7,062.5 cf = 0.162 af
Overall Storage Efficiency = 73.2%
Overall System Size = 89.14' x 34.18' x 3.17'

874 Chambers
357.2 cy Field
141.5 cy Stone



Pond D1: R-TANKS - Chamber Wizard Field E

Chamber Model = Ferguson R-Tank HD 1.5 (Ferguson R-Tank HD)
Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf
Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf

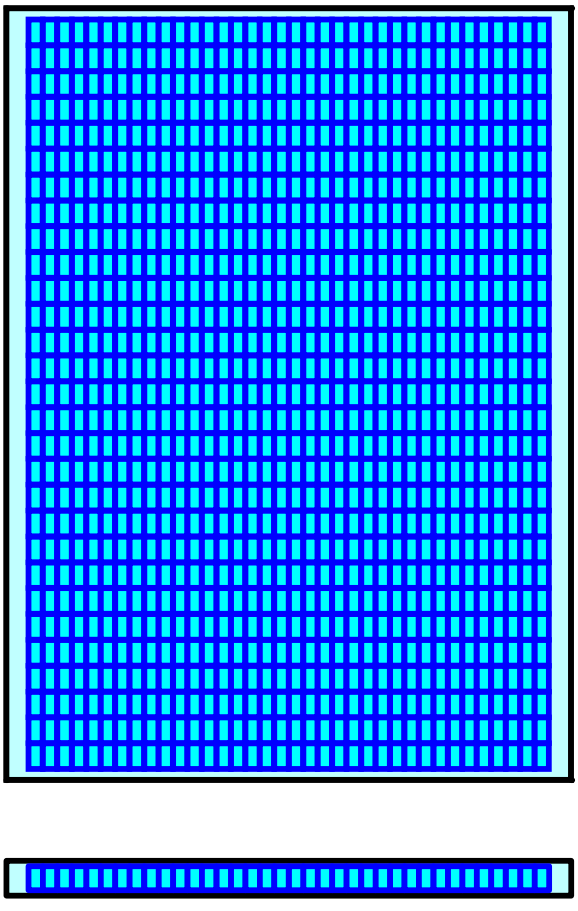
29 Chambers/Row x 2.35' Long = 68.03' Row Length +12.0" End Stone x 2 = 70.03' Base Length
36 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 51.24' Base Width
6.0" Stone Base + 26.0" Chamber Height + 6.0" Stone Cover = 3.17' Field Height

1,044 Chambers x 6.3 cf = 6,611.3 cf Chamber Storage
1,044 Chambers x 6.7 cf = 6,959.3 cf Displacement

11,359.0 cf Field - 6,959.3 cf Chambers = 4,399.7 cf Stone x 40.0% Voids = 1,759.9 cf Stone Storage

Chamber Storage + Stone Storage = 8,371.2 cf = 0.192 af
Overall Storage Efficiency = 73.7%
Overall System Size = 70.03' x 51.24' x 3.17'

1,044 Chambers
420.7 cy Field
163.0 cy Stone



Summary for Pond F1: Filterra

Inflow Area = 14,221 sf, 73.49% Impervious, Inflow Depth = 6.61" for 100-Yr Storm event
Inflow = 2.21 cfs @ 12.07 hrs, Volume= 7,828 cf
Outflow = 2.20 cfs @ 12.08 hrs, Volume= 7,828 cf, Atten= 0%, Lag= 0.3 min
Primary = 2.20 cfs @ 12.08 hrs, Volume= 7,828 cf
Routed to Pond C2 : DMH-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.67' @ 12.08 hrs Surf.Area= 48 sf Storage= 78 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 114 cf

Plug-Flow detention time= 0.9 min calculated for 7,828 cf (100% of inflow)
Center-of-Mass det. time= 0.9 min (749.7 - 748.8)

Volume	Invert	Avail.Storage	Storage Description
#1	161.95'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.95'	102 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		174 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.95	0	29.0	0	0	0
162.90	323	198.0	102	102	3,055

Device	Routing	Invert	Outlet Devices
#1	Primary	159.70'	**12.0" Round Culvert** L= 69.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.70' / 159.23' S= 0.0068 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	161.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.45'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.17 cfs @ 12.08 hrs HW=162.66' TW=161.99' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.17 cfs of 2.71 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.16 cfs)
  └─**3=Orifice/Grate** (Weir Controls 2.01 cfs @ 1.51 fps)

Summary for Pond F2: Filterra

Inflow Area = 41,892 sf, 50.47% Impervious, Inflow Depth = 5.63" for 100-Yr Storm event
Inflow = 4.15 cfs @ 12.20 hrs, Volume= 19,659 cf
Outflow = 4.15 cfs @ 12.21 hrs, Volume= 19,659 cf, Atten= 0%, Lag= 0.3 min
Primary = 2.19 cfs @ 12.21 hrs, Volume= 16,427 cf
Routed to Pond C4 : FI-3
Secondary = 1.96 cfs @ 12.21 hrs, Volume= 3,232 cf
Routed to Pond C8 : TWIN 30" HDPE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.37' @ 12.21 hrs Surf.Area= 182 sf Storage= 240 cf
Flood Elev= 162.40' Surf.Area= 182 sf Storage= 261 cf

Plug-Flow detention time= 0.9 min calculated for 19,651 cf (100% of inflow)
Center-of-Mass det. time= 0.9 min (773.6 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	161.75'	273 cf	**7.00'W x 13.00'L x 1.50'H Prismatoid** x 2
#2	161.75'	143 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		416 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.75	0	62.0	0	0	0
162.40	658	140.0	143	143	1,256

Device	Routing	Invert	Outlet Devices
#1	Primary	159.49'	**18.0" Round Culvert** L= 252.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 159.49' / 158.86' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	161.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	162.26'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	162.26'	**20.0' long + 2.0 '/' SideZ 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=2.19 cfs @ 12.21 hrs HW=162.37' TW=160.55' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.19 cfs of 7.76 cfs potential flow)
├**2=Exfiltration** (Exfiltration Controls 0.59 cfs)
└**3=Orifice/Grate** (Weir Controls 1.60 cfs @ 1.11 fps)

Secondary OutFlow Max=1.95 cfs @ 12.21 hrs HW=162.37' TW=160.94' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 1.95 cfs @ 0.84 fps)

Summary for Pond F3: Filterra

Inflow Area = 12,885 sf, 54.58% Impervious, Inflow Depth = 5.28" for 100-Yr Storm event
Inflow = 1.58 cfs @ 12.07 hrs, Volume= 5,671 cf
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 5,671 cf, Atten= 0%, Lag= 0.3 min
Primary = 0.16 cfs @ 11.52 hrs, Volume= 3,945 cf
Routed to Pond C4 : FI-3
Secondary = 0.88 cfs @ 12.08 hrs, Volume= 1,075 cf
Routed to Pond C4 : FI-3
Tertiary = 0.54 cfs @ 12.08 hrs, Volume= 651 cf
Routed to Pond P1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 161.62' @ 12.08 hrs Surf.Area= 48 sf Storage= 67 cf
Flood Elev= 162.80' Surf.Area= 48 sf Storage= 238 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (760.4 - 759.7)

Volume	Invert	Avail.Storage	Storage Description
#1	161.15'	72 cf	**4.00'W x 12.00'L x 1.50'H Prismatoid**
#2	161.15'	166 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		238 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
161.15	0	29.0	0	0	0
161.50	173	55.0	20	20	174
162.00	430	107.0	146	166	846

Device	Routing	Invert	Outlet Devices
#1	Primary	158.98'	**6.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.98' / 158.97' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	161.15'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	161.50'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	161.50'	**5.0' 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=0.16 cfs @ 11.52 hrs HW=161.17' TW=159.54' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.16 cfs of 1.21 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Secondary OutFlow Max=0.87 cfs @ 12.08 hrs HW=161.62' TW=160.71' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.87 cfs @ 1.14 fps)

Tertiary OutFlow Max=0.53 cfs @ 12.08 hrs HW=161.62' TW=159.81' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 0.87 fps)

Summary for Pond F4: Filterra

Inflow Area = 93,566 sf, 57.91% Impervious, Inflow Depth = 5.52" for 100-Yr Storm event
Inflow = 11.15 cfs @ 12.07 hrs, Volume= 43,004 cf
Outflow = 11.01 cfs @ 12.09 hrs, Volume= 43,004 cf, Atten= 1%, Lag= 0.9 min
Primary = 11.01 cfs @ 12.09 hrs, Volume= 43,004 cf
Routed to Pond C5 : DMH-7

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.19' @ 12.09 hrs Surf.Area= 342 sf Storage= 1,091 cf
Flood Elev= 165.00' Surf.Area= 342 sf Storage= 1,612 cf

Plug-Flow detention time= 1.7 min calculated for 42,986 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (760.4 - 758.6)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	513 cf	**9.00'W x 38.00'L x 1.50'H Prismatoid**
#2	160.95'	1,099 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,612 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	89.0	0	0	0
162.00	1,230	140.0	431	431	937
162.50	1,447	149.0	669	1,099	1,156

Device	Routing	Invert	Outlet Devices
#1	Primary	158.72'	**24.0" Round Culvert** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.72' / 158.66' S= 0.0026 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.80'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.93 cfs @ 12.09 hrs HW=162.19' TW=160.74' (Dynamic Tailwater)
└**1=Culvert** (Passes 10.93 cfs of 18.19 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 1.11 cfs)
  └**3=Orifice/Grate** (Weir Controls 9.82 cfs @ 2.03 fps)

Summary for Pond F5: Filterra

Inflow Area = 72,611 sf, 86.68% Impervious, Inflow Depth = 7.53" for 100-Yr Storm event
Inflow = 12.97 cfs @ 12.07 hrs, Volume= 45,552 cf
Outflow = 12.91 cfs @ 12.08 hrs, Volume= 45,552 cf, Atten= 1%, Lag= 0.4 min
Primary = 12.91 cfs @ 12.08 hrs, Volume= 45,552 cf
Routed to Pond C3 : DMH-4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 162.09' @ 12.08 hrs Surf.Area= 261 sf Storage= 503 cf
Flood Elev= 163.00' Surf.Area= 261 sf Storage= 1,032 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (744.5 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	160.95'	457 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2	160.95'	576 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		1,032 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.95	261	0	0
162.70	261	457	457

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
160.95	0	67.0	0	0	0
162.00	460	82.0	161	161	194
162.70	735	101.0	415	576	478

Device	Routing	Invert	Outlet Devices
#1	Primary	158.66'	**24.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.66' / 158.61' S= 0.0028 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	160.95'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	161.65'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.71 cfs @ 12.08 hrs HW=162.09' TW=160.87' (Dynamic Tailwater)
└**1=Culvert** (Passes 12.71 cfs of 16.70 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.85 cfs)
└**3=Orifice/Grate** (Weir Controls 11.86 cfs @ 2.16 fps)

Summary for Pond F6: Filterra

Inflow Area = 6,848 sf, 93.40% Impervious, Inflow Depth = 8.00" for 100-Yr Storm event
Inflow = 1.30 cfs @ 12.07 hrs, Volume= 4,564 cf
Outflow = 1.30 cfs @ 12.07 hrs, Volume= 4,564 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.30 cfs @ 12.07 hrs, Volume= 4,564 cf
Routed to Pond D1 : R-TANKS

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 163.42' @ 12.07 hrs Surf.Area= 32 sf Storage= 23 cf
Flood Elev= 164.17' Surf.Area= 32 sf Storage= 60 cf

Plug-Flow detention time= 0.5 min calculated for 4,564 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (741.8 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	162.75'	48 cf	**4.00'W x 8.00'L x 1.50'H Prismatoid**
#2	162.75'	15 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) -Impervious
		63 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
162.75	0	24.0	0	0	0
164.20	32	24.0	15	15	35

Device	Routing	Invert	Outlet Devices
#1	Primary	158.62'	**15.0" Round Culvert** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 158.62' / 158.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	162.75'	**140.000 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#3	Device 1	163.27'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.28 cfs @ 12.07 hrs HW=163.42' TW=159.55' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.28 cfs of 11.62 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.10 cfs)
  └─**3=Orifice/Grate** (Weir Controls 1.18 cfs @ 1.26 fps)

Summary for Pond P1:

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 7.27" for 100-Yr Storm event
Inflow = 21.04 cfs @ 12.22 hrs, Volume= 110,439 cf
Outflow = 17.93 cfs @ 12.33 hrs, Volume= 110,439 cf, Atten= 15%, Lag= 6.1 min
Primary = 17.90 cfs @ 12.33 hrs, Volume= 110,436 cf
Routed to Link AP2 :
Secondary = 0.03 cfs @ 12.33 hrs, Volume= 3 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.51' @ 12.33 hrs Surf.Area= 6,215 sf Storage= 10,030 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 8.7 min calculated for 110,393 cf (100% of inflow)
Center-of-Mass det. time= 8.7 min (773.4 - 764.7)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=17.88 cfs @ 12.33 hrs HW=160.51' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 17.88 cfs @ 4.50 fps)

Secondary OutFlow Max=0.03 cfs @ 12.33 hrs HW=160.51' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.21 fps)

Summary for Link AP1:

Inflow Area = 112,713 sf, 36.76% Impervious, Inflow Depth = 3.84" for 100-Yr Storm event
Inflow = 6.40 cfs @ 12.27 hrs, Volume= 36,022 cf
Primary = 6.40 cfs @ 12.27 hrs, Volume= 36,022 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP2:

Inflow Area = 464,174 sf, 71.23% Impervious, Inflow Depth = 6.50" for 100-Yr Storm event
Inflow = 21.90 cfs @ 12.33 hrs, Volume= 251,541 cf
Primary = 21.90 cfs @ 12.33 hrs, Volume= 251,541 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Summary for Link AP3:

Inflow Area = 239,575 sf, 0.00% Impervious, Inflow Depth = 5.24" for 100-Yr Storm event
Inflow = 5.25 cfs @ 15.05 hrs, Volume= 104,658 cf
Primary = 5.25 cfs @ 15.05 hrs, Volume= 104,658 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Appendix C:
Stormwater BMP Calculations

Table 1 Pre and Post Development Peak Runoff Rates (cfs)					
Storm Frequency	**2-Year**	**10-Year**	**25-Year**	**50-Year**	**100-Year**
AP1					
Pre-Development	2.2	3.2	4.1	5.1	6.6
Post-Development	2.1	3.1	4.1	5.0	6.4
AP2					
Pre-Development	8.6	13.2	16.9	20.2	24.4
Post-Development	8.0	12.4	16.2	18.9	21.9
AP3					
Pre-Development	1.1	2.3	3.4	4.3	5.5
Post-Development	1.1	2.2	3.2	4.1	5.3

Table 2
Water Quality Treatment Calculations

Subcatchment ID	Existing Impervious Area (SF)	New Impervious Area (SF)	Total Impervious Area (SF)	Existing Landscaped Area (SF)	New Landscaped Area (SF)	Total Landscaped Area (SF)	Existing Developed Area (SF)	New Developed Area (SF)	Total Developed Area (SF)	BMP
1.1	31,410	10,000	41,410	36,323	2,604	38,927	67,733	12,604	80,337	NONE
2.1	0	10,451	10,451	0	3,770	3,770	0	14,221	14,221	F1
2.2	0	21,143	21,143	0	20,749	20,749	0	41,892	41,892	F2
2.3	0	7,032	7,032	5,853	4,491	10,344	5,853	11,523	17,376	F3
2.4.1	0	33,986	33,986	0	0	0	0	33,986	33,986	F4
2.4.2	0	19,559	19,559	0	4,848	4,848	0	24,407	24,407	
2.4.3	0	642	642	0	34,531	34,531	0	35,173	35,173	
2.5	37,581	25,361	62,942	8,064	1,605	9,669	45,645	26,966	72,611	F5
2.6	0	6,396	6,396	0	452	452	0	6,848	6,848	F6
2.7	0	18,654	18,654	0	19,726	19,726	0	38,380	38,380	NONE
2.8	16,038	12,141	28,179	3,572	0	3,572	19,610	12,141	31,751	NONE
2.9	0	0	0	0	12,914	12,914	0	12,914	12,914	NONE
2.10	0	0	0	0	8,078	8,078	0	8,078	8,078	NONE
3.1	0	0	0	0	13,277	13,277	0	13,277	13,277	NONE
TOTAL NEW AREAS		**165,365**			**127,045**			**292,410**		
TOTAL TREATED AREA			**162,151**						**246,514**	
PERCENT IMPERVIOUS & DEVELOPED AREA TREATED		**98.1%**						**84.3%**		

Notes:

Treated Impervious Area

Treated Developed Area

Chapter 500 Requires treatment of 95% of impervious area and 80% of developed area.

Table 3
Channel Protection Volume Sizing Calculations

Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Filterra Bioscape ID	CPV Required[2] (CF)	Total CPV Required (CF)	CPV Provided (CF)	Detention Basin ID
2.1	10,451	3,770	F1	992	16,243	84,051	D1
2.2	21,143	20,749	F2	2,440			
2.3	7,032	10,344	F3	925			
2.4.1	33,986	0	F4	2,821			
2.4.2	19,559	4,848	F4	1,783			
2.4.3	642	34,531	F4	1,193			
2.5	62,942	9,669	F5	5,543			
2.6	6,396	452	F6	546			

Notes:

1. Filterra model size based on passing 0.95" storm through media without triggering overflow.

2. Channel Protection Volume (CPV) required is calculated as 1" over the contributing impervious area plus 0.4" over the contributing landscaped area

Stage-Area-Storage for Pond D1: R-TANKS (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
159.56	42,864	160.08	60,254	160.60	77,645
159.57	43,198	160.09	60,589	160.61	77,979
159.58	43,533	160.10	60,923	160.62	78,314
159.59	43,867	160.11	61,258	160.63	78,648
159.60	44,202	160.12	61,592	160.64	78,982
159.61	44,536	160.13	61,926	160.65	79,317
159.62	44,871	160.14	62,261	160.66	79,651
159.63	45,205	160.15	62,595	160.67	79,899
159.64	45,539	160.16	62,930	160.68	80,048
159.65	45,874	160.17	63,264	160.69	80,196
159.66	46,208	160.18	63,599	160.70	80,344
159.67	46,543	160.19	63,933	160.71	80,492
159.68	46,877	160.20	64,267	160.72	80,641
159.69	47,212	160.21	64,602	160.73	80,789
159.70	47,546	160.22	64,936	160.74	80,937
159.71	47,880	160.23	65,271	160.75	81,086
159.72	48,215	160.24	65,605	160.76	81,234
159.73	48,549	160.25	65,940	160.77	81,382
159.74	48,884	160.26	66,274	160.78	81,530
159.75	49,218	160.27	66,609	160.79	81,679
159.76	49,553	160.28	66,943	160.80	81,827
159.77	49,887	160.29	67,277	160.81	81,975
159.78	50,221	160.30	67,612	160.82	82,124
159.79	50,556	160.31	67,946	160.83	82,272
159.80	50,890	160.32	68,281	160.84	82,420
159.81	51,225	160.33	68,615	160.85	82,568
159.82	51,559	160.34	68,950	160.86	82,717
159.83	51,894	160.35	69,284	160.87	82,865
159.84	52,228	160.36	69,618	160.88	83,013
159.85	52,562	160.37	69,953	160.89	83,162
159.86	52,897	160.38	70,287	160.90	83,310
159.87	53,231	160.39	70,622	160.91	83,458
159.88	53,566	160.40	70,956	160.92	83,606
159.89	53,900	160.41	71,291	160.93	83,755
159.90	54,235	160.42	71,625	160.94	83,903
159.91	54,569	160.43	71,959	160.95	84,051
159.92	54,903	160.44	72,294	160.96	84,200
159.93	55,238	160.45	72,628	160.97	84,348
159.94	55,572	160.46	72,963	160.98	84,496
159.95	55,907	160.47	73,297	160.99	84,644
159.96	56,241	160.48	73,632	161.00	84,793
159.97	56,576	160.49	73,966	161.01	84,941
159.98	56,910	160.50	74,300	161.02	85,089
159.99	57,244	160.51	74,635	161.03	85,238
160.00	57,579	160.52	74,969	161.04	85,386
160.01	57,913	160.53	75,304	161.05	85,534
160.02	58,248	160.54	75,638	161.06	85,682
160.03	58,582	160.55	75,973	161.07	85,831
160.04	58,917	160.56	76,307	161.08	85,979
160.05	59,251	160.57	76,641	161.09	86,127
160.06	59,585	160.58	76,976	161.10	86,276
160.07	59,920	160.59	77,310	161.11	86,424

TOTAL CPV STORED IN R-TANK DETENTION SYSTEM

SUBSURFACE R-TANK DETENTION SYSTEM CALCULATIONS

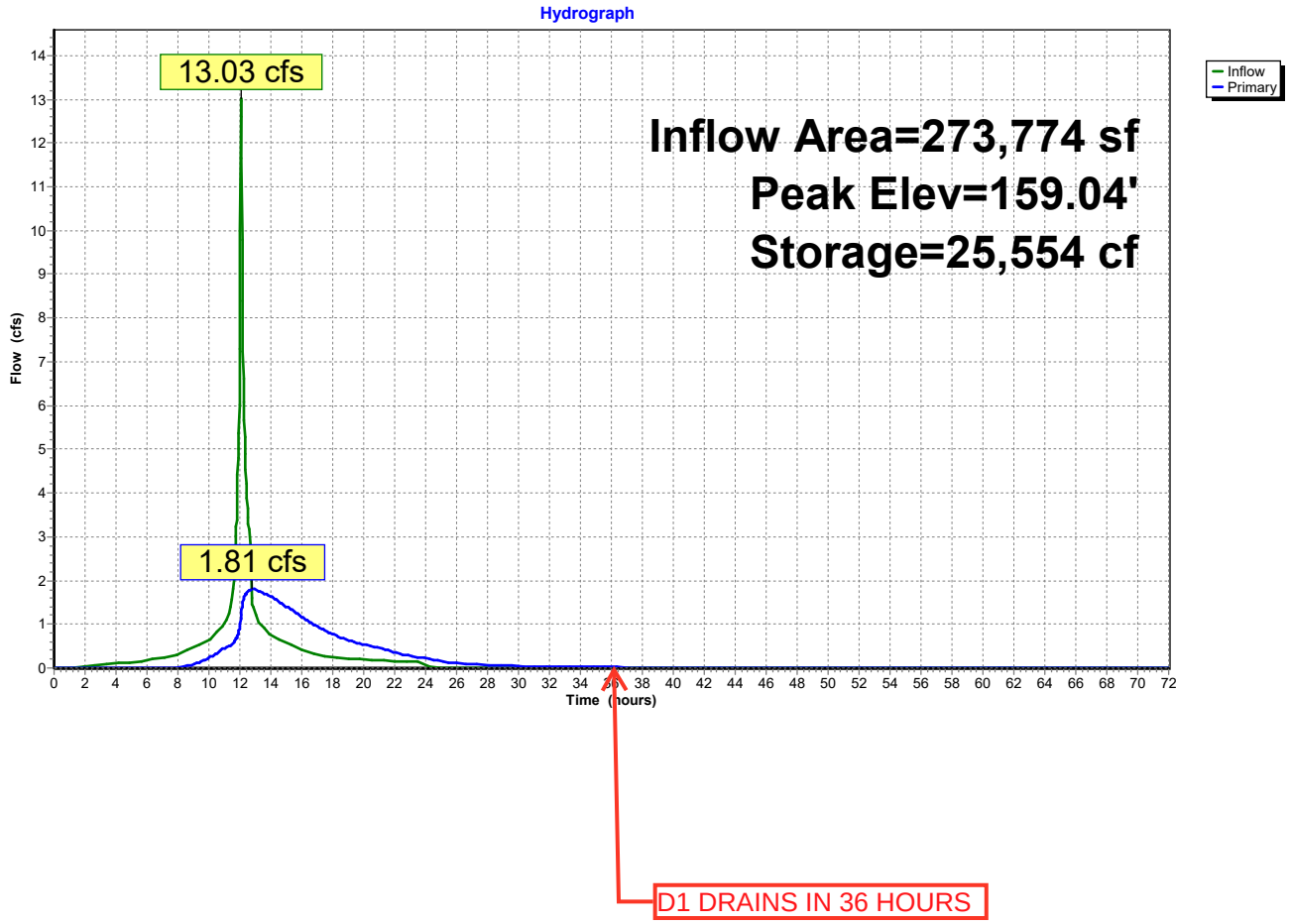
Intermat, Biddeford, ME
March 17, 2026

Maintenance Row T1 Sizing (R-Tank HD Modules)
1-year peak flow rate = 0.38 CFS
Flow Rate per Module = 0.02 CFS
Maintenance Row Modules Required = 0.38 CFS / 0.02 CFS/Module = 19 Modules
Maintenance Row Modules Provided = **36 Modules => OK**

Maintenance Row T2 Sizing (R-Tank HD Modules)
1-year peak flow rate = 5.98 CFS
Flow Rate per Module = 0.02 CFS
Maintenance Row Modules Required = 5.98 CFS / 0.02 CFS/Module = 299 Modules
Maintenance Row Modules Provided = **408 Modules => OK**

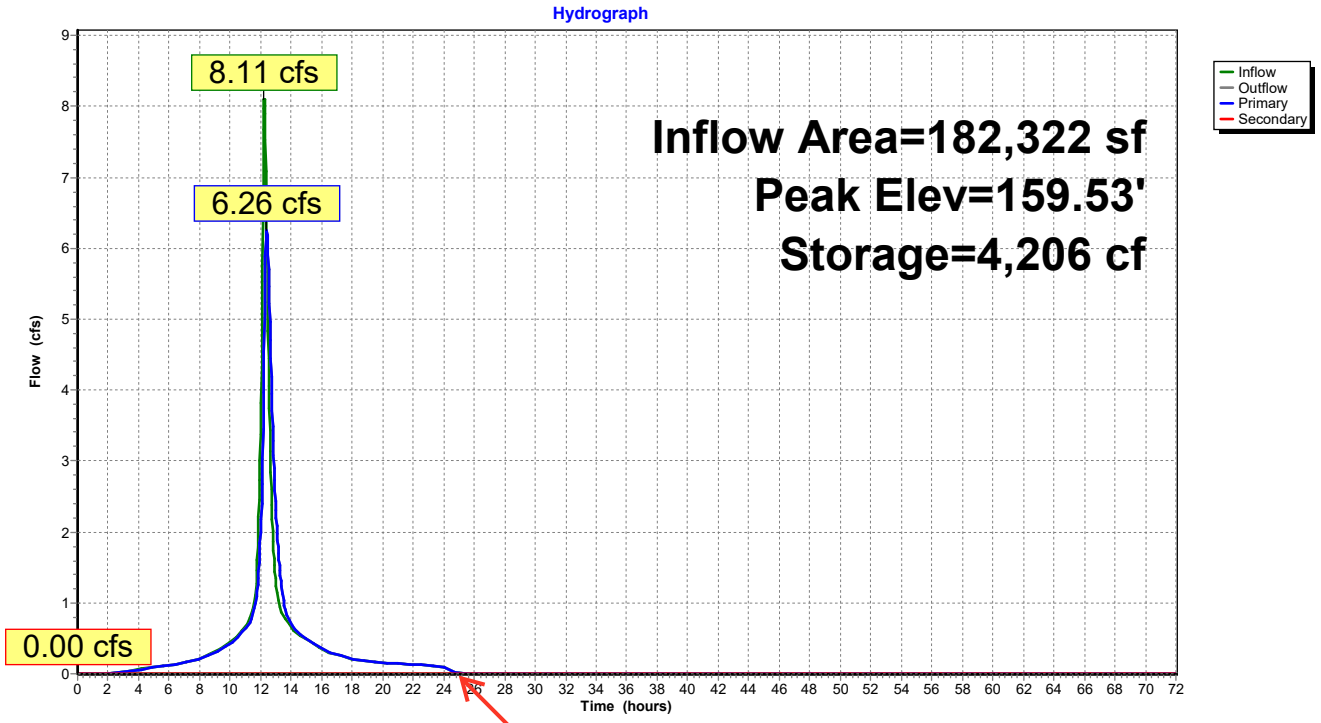
Maintenance Row T3 Sizing (R-Tank HD Modules)
1-year peak flow rate = 3.76 CFS
Flow Rate per Module = 0.02 CFS
Maintenance Row Modules Required = 3.76 CFS / 0.02 CFS/Module = 188 Modules
Maintenance Row Modules Provided = **319 Modules => OK**

Pond D1: R-TANKS



P1 DRAWDOWN CALCULATIONS

Pond P1:



P1 DRAINS IN 25 HOURS

BASIN P1 25-YEAR SPILLWAY CALCULATION

Summary for Pond P1:

>1' OF FREEBOARD WITH PRIMARY OUTLET CLOGGED

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 4.61" for 25-Yr Storm event
Inflow = 12.03 cfs @ 12.22 hrs, Volume= 69,999 cf
Outflow = 11.73 cfs @ 12.25 hrs, Volume= 60,016 cf, Atten= 2%, Lag= 2.3 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP2 :
Secondary = 11.73 cfs @ 12.25 hrs, Volume= 60,016 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.88' @ 12.25 hrs Surf.Area= 6,412 sf Storage= 12,352 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 128.8 min calculated for 59,991 cf (86% of inflow)
Center-of-Mass det. time= 61.7 min (832.6 - 770.9)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert X 0.00** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=11.68 cfs @ 12.25 hrs HW=160.87' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 11.68 cfs @ 1.56 fps)

BASIN P1 100-YEAR SPILLWAY CALCULATION

Summary for Pond P1:

BASIN DOES NOT OVERTOP WITH PRIMARY OUTLET CLOGGED

Inflow Area = 182,322 sf, 76.94% Impervious, Inflow Depth = 6.56" for 100-Yr Storm event
Inflow = 16.64 cfs @ 12.21 hrs, Volume= 99,609 cf
Outflow = 16.33 cfs @ 12.25 hrs, Volume= 89,625 cf, Atten= 2%, Lag= 2.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link AP2 :
Secondary = 16.33 cfs @ 12.25 hrs, Volume= 89,625 cf
Routed to Link AP3 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Peak Elev= 160.96' @ 12.25 hrs Surf.Area= 6,459 sf Storage= 12,908 cf
Flood Elev= 162.00' Surf.Area= 7,543 sf Storage= 20,161 cf

Plug-Flow detention time= 104.1 min calculated for 89,588 cf (90% of inflow)
Center-of-Mass det. time= 51.2 min (818.4 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	158.31'	20,161 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
158.31	0	0.0	0	0	0
159.00	5,440	639.0	1,251	1,251	32,494
161.00	6,480	651.0	11,905	13,156	34,278
162.00	7,543	663.0	7,005	20,161	35,694

Device	Routing	Invert	Outlet Devices
#1	Primary	158.31'	**36.0" Round Culvert X 0.00** L= 124.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 158.31' / 158.00' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Secondary	160.50'	**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=0.00 cfs @ 0.00 hrs HW=158.31' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=16.27 cfs @ 12.25 hrs HW=160.96' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 16.27 cfs @ 1.77 fps)

LEVEL SPREADER DESIGN CALCULATIONS

Intermat, Biddeford, ME
March 17, 2026

Level spreaders shall be sized with a length of 1-foot per 0.25 cfs during 10-year storm event.

Level Spreader L1
10-Year flow rate = 12.4 cfs
Length required = 12.4 cfs/0.25 cfs/ft = 49.6’
Length provided = **52’ => OK**

Appendix D:

USDA NRCS Soil Map and Stormwater BMP Test Pits

Map Scale: 1:6,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil 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 23, Aug 26, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	A	33.6	23.6%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	20.2	14.2%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	11.6	8.1%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	7.3	5.1%
Na	Naumburg sand	A/D	57.6	40.5%
RoC	Rock outcrop-Lyman complex, 3 to 15 percent slopes		2.1	1.4%
Ur	Urban land		10.1	7.1%
Totals for Area of Interest			**142.5**	**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

Coppi Environmental, LLC
Wetland & Soil Services, Consulting & Permitting
PO BOX 226 Hollis Center, ME 04042
207.756.3245 cjc1829@gmail.com

November 24, 2025

Mr. Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, ME 04086

RE*: Stormwater Test Pit Report;* 389 Hill Street, Biddeford, MAINE.

Dear Mr. Saucier:

I performed soil evaluations for stormwater management purposes at the above-mentioned property on November 13th, 2025. Fifteen (15) test pits (TP) were dug by backhoe to 4-5' at pre-determined locations prepared by Canavan Civil Consultants. Attached with this report are the soil profile descriptions for TP-1 – TP-15. Also attached is an updated plan with the GPS located test pits, via sub-meter Trimble GPS unit.

Soils at the site are loamy sand to coarse sand with a cobble and gravel modifier, typical in sandy or gravelly sandy, outwash parent material (Glaciofluvial). Where evidence of ground water was observed greater than 40", those soils were classified as *Adams* or *Colton* series. Shallower ground water observations at the site would be classified as Duane/Croghan if the ground water occurred between 16-40". Only one test pit (TP-5) was observed with potential ground water at around 11" from the soil surface. Obvious site disturbances were observed such as soil disturbance or filling and those soils are classified as Made Land due to the obliteration or mixing of natural soil horizons.

Evidence of a seasonal high ground water table is the depth where redoximorphic features are encountered in the soil solum. Redox features typically include iron concentrations (brown, YB, RB colors) formed from a fluctuating water table with alternating aerobic and anaerobic conditions in the soil pores. Depletions (grayish colors) are formed from iron reduction in the soil pore space caused by more stagnant water table. In sandy soils, often there are multiple colors in the soil matrix due to fluctuating water and slight compaction and creation of structure and not necessarily, concentrations or depletions as a result.

Adams and Colton soils exhibit a soil permeability rate of 6" inches/hour in the upper soil stratum while the deeper horizons exhibit a rate of 6-20" inches/hour. Both Adams and Colton soils exhibit a water table greater than 40" from the surface for most of the year (TP's 1-4, 11, 14 & 15).

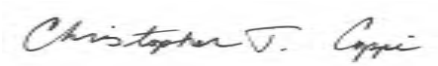
Duane and Croghan soils also exhibit a permeability rate of 6" in the upper part to 20" in the lower part. Duane and Croghan soils are moderately well drained, may have somewhat firm layers due to soil forming reasons. Groundwater can be expected to occur between 16-40" during the year (TP's 6, 7, 9 & 10). *It's important to note that water table observations, from the presence of redox features and not free water, ranged from 19-32" from the surface at this property).*

Made Land soils where there was mixing or an obliteration of the natural horizons, was observed at TP's 12 & 13, which is close proximity to the property line. It's difficult to conclude soil properties, such as a ground water table, due to the disturbance. However, groundwater may rise to moderately-well drained depths (16-40") based on observed features at these pits including dark soils and structure and matrix colors.

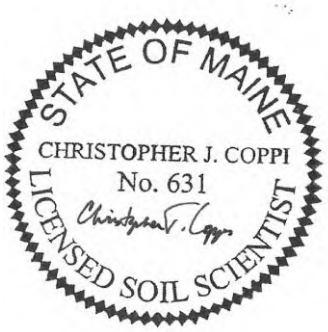
Naumburg soils were observed at TP-5 which is near mapped wetlands at the site. It's possible that ground water may be near the surface (11") at this observation during early spring and times of heavy precipitation. Naumburg soils exhibit a permeability rate of 2-6' in the upper part of the solum to 6-20" in the lower part.

Please contact me if you have any questions or matters for further discussion. I can be reached by phone at 756-3245 or by email at cjc1829@gmail.com.

Sincerely,



Christopher J. Coppi LSS, LSE, CWS
Maine Licensed Soil Scientist, (LSS #SS631)



GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

MAP COMPILED FROM:
- *TOWN OF BIDDEFORD TAX MAP
- *AERIAL PHOTOGRAPH FROM THE MAINE OFFICE OF GIS
- *2' TOPOGRAPHIC CONTOURS FROM THE MAINE OFFICE OF GIS
- *ON SITE LOCATIONS UTILIZING TRIMBLE TDC650 HANDHELD UNIT

DATE:	REVISIONS:

Coppi Environmental, LLC
Wetland & Soil Services, Consulting & Permitting
PO BOX 226 Hollis Center, ME 04042
207.756.3245 cjc1829@gmail.com

Drawn By: B.J.
Checked By: C.C.
Date: 11/19/2025
Scale: 1" = 60'

TEST PIT LOCATION PLAN

PREPARED FOR
INTERMAT
389 HILL STREET

BIDDEFORD, MAINE

Town, City, Plantation	Street, Road Subdivision	Owner's Name
BIDDEFORD	389 HILL STREET	INTERMAT

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 1 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Redox features
0–10	SANDY LOAM	FRIABLE	DARK BROWN	
10–20	LOAMY SAND		YELLOW BROWN	NONE EVIDENT
20–30	COBBLY LOAMY SAND/ SAND		LIGHT BROWN	
30–40				
40–50	LIMIT OF EXCAVATION AT 60"			

FOR WASTEWATER DISPOSAL

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	%	60 "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLTON	WELL DRAINED/ SOMEWHAT EXCESSIVELY DRAINED	A

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 2 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	BLACK	
10–20	COBBLY LOAMY SAND	LOOSE TO FRIABLE	YELLOW BROWN TO OLIVE BROWN	NONE EVIDENT
20–30				
30–40				
40–50	LIMIT OF EXCAVATION			

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	%	48 "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLTON	WELL DRAINED/ SOMEWHAT EXCESSIVELY DRAINED	A

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 3 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Redox features
0–10	SANDY LOAM	FRIABLE	DARK BROWN	
10–20	COBBLY LOAMY SAND TO SAND	LOOSE TO FRIABLE	BROWN	NONE EVIDENT
20–30			LIGHT GRAYISH BROWN TO OLIVE BROWN	
30–40				
40–50	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	%	48 "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLTON	WELL DRAINED/ EXCESSIVELY DRAINED	A

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 4 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Redox features
0–10	SANDY LOAM		DARK BROWN	
10–20	LOAMY COARSE SAND TO COARSE SAND	FRIABLE	YELLOW BROWN	NONE EVIDENT
20–30				
30–40	VERY GRAVELLY AND COBBLY SAND		NO COLOR	
40–50	LIMIT OF EXCAVATION AT 60"			

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	%	60 "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLTON	WELL DRAINED/ SOMEWHAT EXCESSIVELY DRAINED	A

Christopher V. Coppi
Site Evaluator /Soil Scientist Signature

403 / 631
SE/CSS #

11/13/2025
Date

Town, City, Plantation	Street, Road Subdivision	Owner's Name
BIDDEFORD	389 HILL STREET	INTERMAT

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 5 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	BLACK	
10–20			DARK YELLOW BROWN	
20–30	COARSE SAND WITH GRAVEL AND COBBLES		DARK REDDISH BROWN	MATRIX COLORS
30–40	SAND		YELLOW BROWN	
40–50			LIGHT GRAYISH BROWN	

LIMIT OF EXCAVATION AT 60"

FOR WASTEWATER DISPOSAL

Soil Classification (Profile / Condition)	Slope	Limiting Factor	Ground Water / Restrictive Layer / Bedrock / Pit Depth
	%	11 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
NAUMBURG (VARIANT)	SOMEWHAT POORLY DRAINED	A/D

Observation Hole TP 6 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	BROWN	
10–20	SANDY LOAM		DARK YELLOW BROWN	
20–30	GRAVELLY LOAMY SAND WITH COBBLES	LOOSE TO FRIABLE	DARK BROWN	FEW, FAINT IRON CONCENTRATIONS
40–50				

LIMIT OF EXCAVATION

Soil Classification (Profile / Condition)	Slope	Limiting Factor	Ground Water / Restrictive Layer / Bedrock / Pit Depth
	%	30 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
DUANE	MODERATELY WELL DRAINED	B

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 7 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Redox features
0–10	SANDY LOAM	FRIABLE	BLACK	
10–20	GRAVELLY COARSE SAND	LOOSE TO FRIABLE	YELLOW BROWN AND DARK YELLOW BROWN	FEW, FAINT
30–40	FINE AND MEDIUM SAND	LOOSE	LIGHT GRAY	

LIMIT OF EXCAVATION

FOR WASTEWATER DISPOSAL

Soil Classification (Profile / Condition)	Slope	Limiting Factor	Ground Water / Restrictive Layer / Bedrock / Pit Depth
	%	19 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
CROGHAN (VARIANT)	MODERATELY WELL DRAINED	B

Observation Hole TP 8 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	DARK BROWN	
10–20			YELLOW BROWN	
20–30	FINE AND MEDIUM SAND	FIRM		
30–40			YELLOW BROWN/ OLIVE BROWN	MATRIX COLOR AND STRUCTURE
40–50	COARSE SAND WITH GRAVEL		LIGHT OLIVE BROWN	

LIMIT OF EXCAVATION AT 60"

Soil Classification (Profile / Condition)	Slope	Limiting Factor	Ground Water / Restrictive Layer / Bedrock / Pit Depth
	%	32 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
CROGHAN	MODERATELY WELL DRAINED	B

Christopher V. Coppi

Site Evaluator /Soil Scientist Signature

403 / 631

SE/CSS #

11/13/2025

Date

Town, City, Plantation	Street, Road Subdivision	Owner's Name
BIDDEFORD	389 HILL STREET	INTERMAT

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 9 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	DARK BROWN	
10–20			YELLOW BROWN	
20–30	GRAVELLY SAND	LOOSE TO FRIABLE	BROWN\ LIGHT OLIVE BROWN	FEW, FAINT MATRIX COLORS
30–40	SAND		LIGHT OLIVE BROWN	
40–50	LIMIT OF EXCAVATION AT 60"			

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	26-40	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
DUANE/CROGHAN	MODERATELY WELL DRAINED	B

Observation Hole TP 10 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND		LIGHT BROWN	
10–20	FINE AND MEDIUM SANDS	FRIABLE TO LOOSE	LIGHT GRAY/ OLIVE BROWN	
20–30			GRAYISH BROWN/ LIGHT OLIVE BROWN	FEW, FAINT MATRIX COLORS
30–40	GRAVELLY COARSE SAND			
40–50	LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	26 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
CROGHAN (DUANE)	MODERATELY WELL DRAINED	B

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 11 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Redox features
0–10	LOAMY SAND	FRIABLE	DARK BROWN	
10–20	COBBLY SAND	LOOSE TO FRIABLE IN PLACE	YELLOW BROWN	NONE EVIDENT
20–30			LIGHT OLIVE BROWN	
30–40				
40–50	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	48 "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLTON	WELL DRAINED/ SOMEWHAT EXCESSIVELY DRAINED	A

Observation Hole TP 12 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Redox features
0–10	SANDY LOAM/ LOAMY SAND WITH CONCRETE (FILL)		DARK BROWN	
10–20			YELLOW BROWN	
20–30		FRIABLE	OLIVE GRAY TO BLACK	FEW, FAINT MATRIX COLORS
30–40				
40–50	LIMIT OF EXCAVATION AT 60"			

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	20-48"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
MADE LAND		

Christopher V. Coppi
Site Evaluator /Soil Scientist Signature

403 / 631
SE/CSS #

11/13/2025
Date

Town, City, Plantation	Street, Road Subdivision	Owner's Name
BIDDEFORD	389 HILL STREET	INTERMAT

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 13 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Redox features
LOAMY SAND (FILL)	FRIABLE	DARK BROWN	
SAND (FILL)		OLIVE BROWN	
SANDY LOAM		DARK BROWN	FEW, FAINT IRON CONCENTRATIONS
GRAVELLY AND COBBLY LOAMY SAND		LIGHT OLIVE BROWN	

LIMIT OF EXCAVATION AT 60"

FOR WASTEWATER DISPOSAL

Soil Classification: Profile ____ Condition ____ | Slope ____ % | Limiting Factor 22 " | ■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name: MADE LAND | Drainage Class: | Hydrologic Group:

Observation Hole TP 14 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Redox features
LOAMY SAND	FRIABLE	BROWN	
SANDY LOAM	LOOSE TO FRIABLE AND SOMEWHAT FIRM IN PLACE	YELLOW BROWN	NONE EVIDENT
GRAVELLY AND COBBLY COARSE SAND			

LIMIT OF EXCAVATION AT 60"

Soil Classification: Profile ____ Condition ____ | Slope ____ % | Limiting Factor 60 " | ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

Soil Series Name: COLTON | Drainage Class: WELL DRAINED / SOMEWHAT EXCESSIVELY DRAINED | Hydrologic Group: A

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 15 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Redox features
LOAMY SAND	FRIABLE	DARK BROWN	
COBBLY SAND	LOOSE TO FRIABLE	YELLOW BROWN	
	LOOSE	LIGHT BROWN AND LIGHT OLIVE BROWN	NONE EVIDENT
	SOMEWHAT FIRM		

LIMIT OF EXCAVATION

FOR WASTEWATER DISPOSAL

Soil Classification: Profile ____ Condition ____ | Slope ____ % | Limiting Factor 60 " | ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ■ Pit Depth

FOR SOILS MAPPING

Soil Series Name: COLTON | Drainage Class: WELL DRAINED/ EXCESSIVELY WELL DRAINED | Hydrologic Group: A

Observation Hole ____ ☐ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Redox features

Soil Classification: Profile ____ Condition ____ | Slope ____ % | Limiting Factor " | ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name: | Drainage Class: | Hydrologic Group:

Christopher J. Coppi
Site Evaluator /Soil Scientist Signature

403 / 631
SE/CSS #

11/13/2025
Date

Appendix E:
Inspection & Maintenance Plan

Inspection and Maintenance Plan
For Stormwater Management Facilities

Intermat

389 Hill Street, Biddeford, Maine
June 10, 2026

Stormwater management facilities include paved surfaces, catch basins and drainage manholes, culverts, storm drain pipe, ditches/swales, and Filterra Bioretention systems, and an subsurface R-Tank detention system. During construction activities and upon completion of construction, the operation and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of Fiber Materials Inc (FMI).

At a minimum, the following maintenance activities for each stormwater management system shall be performed on a prescribed schedule and following major storm events greater than 1-inch in a 24-hour period.

Maine DEP Recertification Requirement

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the Owner shall certify the following to the Maine Department of Environmental Protection (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 have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities.
c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department and the maintenance log is being maintained and kept on file with the Town Engineer's office.

A copy of the certification along with any required mitigation shall be provided to the City Engineer.

Post Construction Stormwater Management Plan

The Owner shall follow all standards listed in Part II, Chapter 34 Environment, Article IV Post Construction Stormwater Discharge of the City of Biddeford Code.

Annual certifications shall be provided to the City of Biddeford Engineering Department on or by March 1 of each year. A copy of the required annual certification form [Annual Stormwater Management Facilities Certification Form is included with this plan.

Paved Surfaces

Accumulations of winter sand along paved surfaces shall be cleared at least once a year, preferably in the spring, and periodically during the year on an as-needed basis, to minimize transportation of sediment during rainfall events. Accumulations on pavement may be removed by pavement sweeping or vacuuming. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

Ditches and Swales

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 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.

Riprap ditches and 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.

Catch Basins, Field Inlets, and Drainage Manholes

All catch basins, field inlets, and drainage manholes throughout the collection system shall be inspected twice per year (in spring and fall) to assure that the inlet entry and grates are clear of debris and will accept the intended flows. Any debris and sediments shall be cleared. Sediment should be removed from these structures when it accumulates within 12 inches of the lowest pipe invert. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required

Culverts and Storm Drainage Pipes

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet,

and within the conduit; and to repair any erosion damage at the 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 as this will reduce the ponds capacity and ability to infiltrate runoff, and will hasten the time when the pond must be cleaned or rehabilitated.

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.

Detention Bains

Mowing and removal of woody growth – The interior surface and slopes of the detention basins shall be mowed not more than two times times per growing season to control overgrowth, but keep the systems naturalized.

Outlet inspection and cleaning – The basin outlet shall be inspected at least twice per year. Outlet inspections shall include clearing debris from the ends and/or within the pipe and cleaning of the pipe, when necessary.

Trash, sediment and debris shall be removed from the vicinity of the outlet and disposed of at a licensed off-site facility. The basin shall be inspected bi-annually for evidence of excessive retention or rapid release of flow.

Subsurface Detention with R-Tank Storage

A legal agreement between the owner and an approved maintenance operator should identify the responsible inspector, all inspection and maintenance tasks, and all financial obligations. Cleaning of the pretreatment device should be performed as identified by the entity holding the maintenance contractual agreement. A routine but specific inspection schedule needs to be identified for every site based on site variables such as anticipated pollutant load, percent imperviousness, land use (i.e. road, industrial, commercial, residential), etc. The filter should be draining within 48 hours following a one-inch storm or greater. If the system drains too fast, an orifice may need to be added on the underdrain outlet or may need to be modified if already present. The pretreatment structure must be cleaned when necessary.

Filterra Bioscape Basins

The Filterra Bioscape basins shall be maintained in accordance with the enclosed Filterra Bioscape Owner's Manual. The basins shall not be used for snow storage.

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.

Recordkeeping

FMI will keep a written maintenance log that summarizes inspections, maintenance, and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediment or debris, the location where the sediment or debris was disposed after removal will be indicated. This log shall be made available to the Maine DEP and/or City of Biddeford upon request.

Intermat 389 Hill Street, Biddeford, Maine			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, PAVED SURFACES AND RIPRAP APRONS			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
3/28/22	GHI	I, C	EXAMPLE: removed sand along the edge of the road near lots 7 & 8. Heavy rain over the weekend.

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389 Hill Street, Biddeford, Maine

INSPECTION / MAINTENANCE LOG

OUTLET STRUCTURES, CATCH BASINS, AND DRAIN PIPES

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	JKL	I, C	EXAMPLE: Called ACME to clean the outlet structure in pond 1, cleaned debris from culvert inlet in pond 2.

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389 Hill Street, Biddeford, Maine

INSPECTION / MAINTENANCE LOG

DETENTION BASINS

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	JKL	I, C	EXAMPLE: Called ACME to clean the outlet structure in filter 1, fixed erosion on spillway.

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389 Hill Street, Biddeford, Maine

STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
Pavement	Review for damage and buildup of debris and sand.	**X**	**X Sweep**		
Swales, Ditches, and Riprap Aprons	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	**X Mow**		**X**	
Outlet Structures, Catch Basins, and Drain Pipes	Inspect for sediment buildup in pipe. Flush and remove as required.			**X**	
Filterra Bioscape Filters	See Owner's Manual				
R-Tank Detention System	Per Designated Contractor			**X**	
Detention Basins	Mow twice per year. Inspect for erosion. Verify proper draindown time.		**X Mow**		

Filterra Bioscape Owner's Manual

(No Precast Vault Provided)

filterra®

Bioscape®

CONTECH®
ENGINEERED SOLUTIONS

This Owner's Manual applies to Filterra Bioscape ONLY (Filterra installed directly into an excavated basin or other customer provided container, such as a large cast-in-place vault).

filterra® Bioscape®

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CONTECH® ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® Bioscape® System. Filterra® is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

Included with your purchase is a Supervised Activation service as well as a 1-year warranty from delivery of the system. In some cases, a Final Site Assessment (assessment of unit condition, mulch replacement, debris removal and pruning) may also be included for systems smaller than 1000 sf in size. Check your order documentation for further information.

Filterra® Bioscape® systems should not be activated until the site is stabilized to prevent construction related runoff from entering and contaminating the system. For Filterra® Bioscape® systems installed within an excavated basin, Contech provides an erosion control sock around the perimeter to provide an extra layer of protection. However, these protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra® Bioscape® system.

Design and Installation

Each project presents different scopes for the use of Filterra® Bioscape® systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra® Bioscape® sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra® Bioscape® systems as shown in approved plans. A comprehensive installation manual is available from Contech.

Activation Overview

Activation of the Filterra® Bioscape® system is a procedure completed by the contractor to place the system into working condition. This involves the following items:

- Installation of the Filterra® Bioscape® underdrain system
- Installation of the Filterra® media layer
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra® systems

Minimum Requirements

The minimum requirements for Filterra® Bioscape®Activation are as follows:

1. The purchaser must have sourced vegetation meeting the requirements outlined in the Filterra® Bioscape® Activation Package
2. A pre-construction meeting is required to discuss site requirements, logistics planning and activation FAQ and red flags.
3. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.
4. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra® system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra® system.
5. All immediate upstream and downstream structures should be placed with piping into the system already installed for connection during activation.

An Activation Checklist is included in the Filterra® Bioscape® Activation Package to ensure proper conditions are met for Activation. A charge of $1500.00 will be invoiced for each Supervised Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List is available on the Contech website highlighting recommended plants for Filterra® Bioscape® systems in your area. Keep in mind that plants are subject to availability due to seasonality. Plants installed in the Filterra® Bioscape® system shall be container-grown plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation. It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra® Bioscape® system. The "Filterra® Bioscape® Activation Package" document is included as an appendix and discusses proper selection of the plants within Filterra® Bioscape® systems.

Warranty Overview

Refer to the Contech® Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra® Bioscape® system's warranty and waive the manufacturer provided Final Site Assessment (if applicable):

- Unauthorized activation or performance of any of the items listed in the activation overview without Contech supervision or input
- Removal of any Filterra® system components
- Failure to prevent construction related runoff from entering the Filterra® system
- Failure to properly store and protect any Filterra® components (including media and underdrain stone) that are shipped separately to the site

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra® Bioscape® system should last as long as traditional bioretention media. Routine maintenance can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra® media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra® Bioscape® is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Maintenance visits are typically scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally recommended; In regions with less rainfall often only (1) one visit per annum is sufficient. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Manufacturer and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the maintenance provider of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.

Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not included as part of the Final Site Assessment (if applicable). Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra® (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra®. The Supplier should be informed immediately.

Maintainenance Visit Summary

Maintenance visits are typically scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

1. Inspection of Filterra® Bioscape® and surrounding area
2. Removal of erosion control stones
3. Removal of debris, trash and mulch
4. Removal and disposal of erosion control sock from system perimeter (should be completed at 6 month or 12 month maintenance depending upon site characteristics). A new erosion control sock is no longer needed after the first year.
5. Mulch replacement
6. Plant health evaluation and pruning or replacement as necessary
7. Clean area around Filterra®
8. Complete paperwork

Plant Care for Filterra® Systems

After Activation, the Contractor is responsible for proper care of the vegetation until the site is handed over to the Owner. After that, it is the Site Owner's responsibility to care for the vegetation. Contech recommends the following care for the plants:

1. To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
2. Plant staking may be required.
3. With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
4. Contech recommends irrigation of the Filterra® Vegetation. The following guidance will help to ensure the vegetation is properly irrigated.

Irrigation Recommendations:

- Each Filterra® system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra® plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required.

*** Five gallons per square yard approximates 1 inch of water. Therefore for a 6' x 6 foot Filterra® approximately 20-60 gallons of applied water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate. Then calculate the time needed to irrigate the Filterra®, For example is the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6'x6' filter.*

Plant Replacement:

In some cases, plants will require replacement. Please follow the procedures below to ensure a properly functioning Filterra® system.

1. Remove the existing plant, and leave as much of the Filterra® media in place as possible.
2. Select a replacement per the Filterra® Bioscape® Activation Package.
3. Prior to removing the plant from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
4. Cut away any roots which are growing out of the container drain holes.
5. Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively, the pot can be cut away to minimize root ball disturbance.
6. Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
7. Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
8. All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
9. Reinstall or add mulch to a depth of 3" per Contech's mulch specifications for Filterra® systems.

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.

1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).

2. Removal of erosion control stones

- Set aside erosion control stones for reuse after mulch has been replaced.
- Dig out silt (if any) and mulch and remove trash & foreign items.

Record on Maintenance Report the following:

Is scour present around the inlet areas? yes | no

If answering yes, consider adding additional erosion control stone.

3. Removal of debris, trash and mulch

- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Silt/Clay	yes | no
Bypass Clear	yes | no
Leaves	yes | no
# of Buckets Removed	_____

4. Removal and Disposal of Erosion Control Sock

- Remove and dispose of erosion control sock if site conditions allow (site should be fully stabilized). Erosion control sock is no longer needed after 1-year post activation.

5. Mulch Replacement

- Add mulch evenly across entire system to a depth of three inches.

6. Vegetation health evaluation and pruning

- Examine the vegetation health and replace if necessary. Prune vegetation to encourage growth in the correct directions. Since Filterra® Bioscape® systems can contain many plants, only notation of individual damaged or unhealthy plants is necessary.
  - » Record on Maintenance Report the following:
  - » Vegetation Health
  - » Vegetation Damage

Document damaged or unhealthy plants with photographs.

7. Clean side slopes and area around the Filterra Bioscape system

- Remove all trash and debris to be disposed of appropriately.

8. Complete paperwork

- Complete Maintenance Report. Some jurisdictions require submission of maintenance reports in accordance with approvals. It is the responsibility of the owner to comply with local regulations.

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing, barricades when working in close proximity to traffic and safety hats, glasses, and shoes.

Most visits require minor trash removal and a full replacement of mulch. Mulch should be a double shredded, hardwood variety.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____**Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3"*	*Lowe's Premium Brown Mulch*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Bioscape® Activation Package

FILTERRA® BIOSCAPE® ACTIVATION PACKAGE

(No Precast Vaults Provided)

CONTECH® ENGINEERED SOLUTIONS

It is the purchaser's responsibility to Activate the Filterra Bioscape System and provide adequate measures to prevent construction related runoff from entering the Filterra Bioscape system.

Included with your purchase is Supervised Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system. The purchaser must ensure that the site is acceptable for Filterra Bioscape Activation. A checklist (included as page 2 of this document must be completed and submitted to the Contech Activation Coordinator. The minimum requirements for Filterra Bioscape Activation are as follows:

1. The purchaser must have sourced vegetation meeting the requirements outlined in "Plant Selection for Filterra Systems" below.
2. A pre-construction meeting is required to discuss site requirements, logistics planning and activation FAQ and red flags.
3. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.
4. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.
5. All immediate upstream and downstream structures should be placed with piping into the system already installed for connection during activation.

Plant Selection for Filterra® Bioscape® Systems

All Filterra systems require vegetation for proper long-term performance. As indicated in the Filterra Bioscape Activation Package, the Contractor is responsible for sourcing the proper vegetation prior to Supervised Activation. Contech or a Contech representative will supervise installation the vegetation during the Activation process.

Contractors must ensure the vegetation meets the following 3 requirements:

1. Select plant(s) as specified in the engineering plans and specifications AND that are listed on Contech's Configuration Specific Plant Lists.
2. All plants MUST be container-grown in nursery containers no larger than 15 gallons. Crated and/or Ball/Burlap plants are NOT permitted.
3. Quantities should be selected based on plant palette options found starting on page 3 of this document.

If Contech or Contech's representative shows up for Supervised Activation and any of the 3 requirements above are not met, Activation cannot be performed and the Contractor will be billed a $1,500 Unprepared Site fee*.

* *UNPREPARED SITE FEE NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for Activation AND/OR acceptable plants are not provided by the contractor.*

Filterra® Contractor Activation Checklist

Requested Activation Date: _____ System Designation: _____

Project Name: _____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name: _____ Site Owner/End User Phone/Email: _____

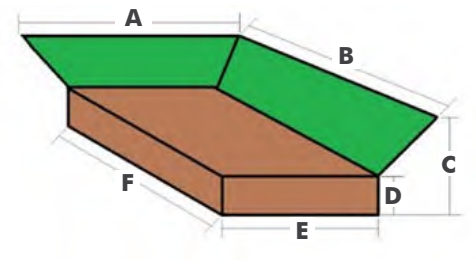
Please complete the following checklist, sign, date, and submit with your activation request to your Contech Project Consultant. Along with the checklist, fill out the as-built dimensions of the Filterra Bioscape system excavation(s), and attach photos of the Filterra Bioscape excavation(s). This information is essential to ensure the proper amount of material is provided.

Checklist:

- ☐ Upstream drainage area to Filterra Bioscape system is stabilized.
- ☐ Filterra Bioscape excavated per plan dimensions to bottom of Filterra underdrain stone depth. Surface area of media area must match order quantities.
- ☐ If additional depth of drain rock is required per site plans, additional drain rock is installed to the Filterra Bioscape underdrain pipe elevation.
- ☐ Excavation sides vertical from bottom of excavation to top of mulch (Approximately 34" when 6" underdrain is utilized).
- ☐ Excavation sides maximum slope 3:1 from top of mulch to finished grade.
- ☐ Side slopes above top of mulch elevation stabilized with sod or other slope stabilization.
- ☐ Bioscape Inlet (BSI) structure or other inlet/bypass structure installed and properly backfilled with maximum 3:1 slopes to top of mulch elevation.
- ☐ Inflow pipe(s) connected from BSI or other inlet structure to edge of Filterra Bioscape system excavation.
- ☐ Outflow pipe(s) connected from edge of Filterra Bioscape system excavation to downstream structure.
- ☐ Outflow pipe(s) are SDR35, properly sized per site plan underdrain pipe size(s).
- ☐ Excavation is dry and free from construction related sediment and debris.
- ☐ Bottom of excavation is properly scarified.
- ☐ Excavation is accessible by standard construction equipment.
- ☐ Plants have been purchased in accordance with the guidance in "Plant Selection for Filterra Bioscape Systems"
- ☐ Photos attached.

NOTE: Please ensure that all of the above conditions have been met prior to activation request. A mobilization fee (minimum $1000.00) applies for each activation visit requested by Customer where Contech determines that the site does not meet the above conditions suitable for activation.

As-Built Dimensions



A.	OVERALL EXCAVATION WIDTH:	_____FT
B.	OVERALL EXCAVATION LENGTH:	_____FT
C.	OVERALL EXCAVATION HEIGHT:	_____FT
D.	FILTERRA BED HEIGHT:	_____FT
E.	FILTERRA MEDIA BED WIDTH:	_____FT
F.	FILTERRA MEDIA BED LENGTH:	_____FT

Signature _____ Date _____

* *UNPREPARED SITE FEE NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for Activation AND/OR acceptable plants are not provided by the contractor.*

Filterra® Bioscape Plant Palettes

KEY: (refer to plant lists for species sizing)

A. EXTRA SMALL GRASS
- Up to 2′ mature spread
- 1-2 gallon typical (1 gal. minimum)

B. SMALL GRASS/SHRUB
- 2′-4′ mature spread
- 1-7 gallon typical

C. MEDIUM SHRUB
- 4′-6′ mature spread
- 1-7 gallon typical

D. LARGE SHRUB OR EXTRA LARGE SHRUB OR TREE
- 6′ mature spread and greater, 30′ max. mature height
- Up to 15 gallon maximum

NOTE: *For larger vaults and in-ground Filterra Bioscape systems, palettes can be scaled (i.e. Qty 6 of the 175 SF Palette can be used for a 1056 SF Filterra Bioscape).*

MIX & MATCH SUBSTITUTION OPTIONS:

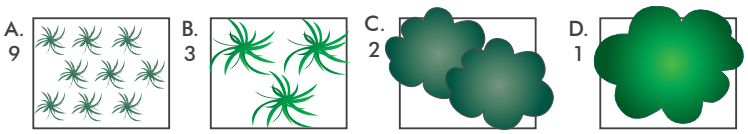
1 Large Shrub or Extra Large Shrub or Tree
- 2 Medium Shrubs
- 4 Small Grass/SHrubs
- 12 Extra Small Grasses

1 Medium Shrub
- 2 Small Grass/Shrubs
- 6 Extra Small Grasses

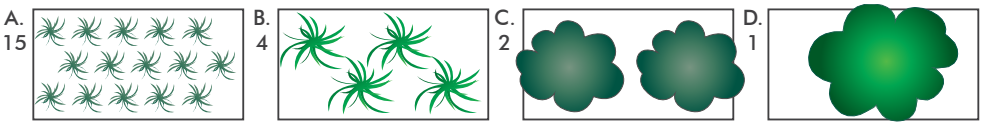
1 Small Grass/Shrub
- 3 Extra Small Grasses

25 SF example

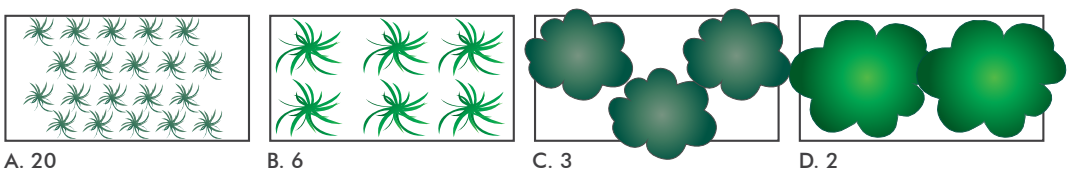
50 SF example



75 SF example



100 SF example



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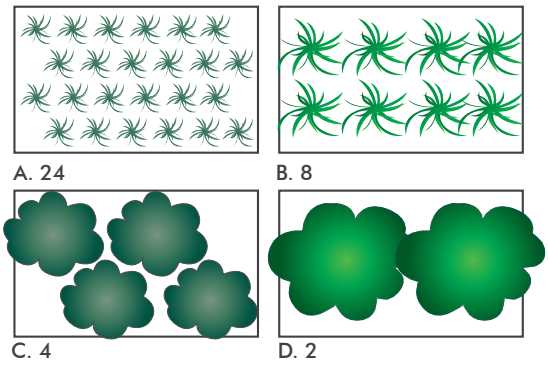
125 SF example



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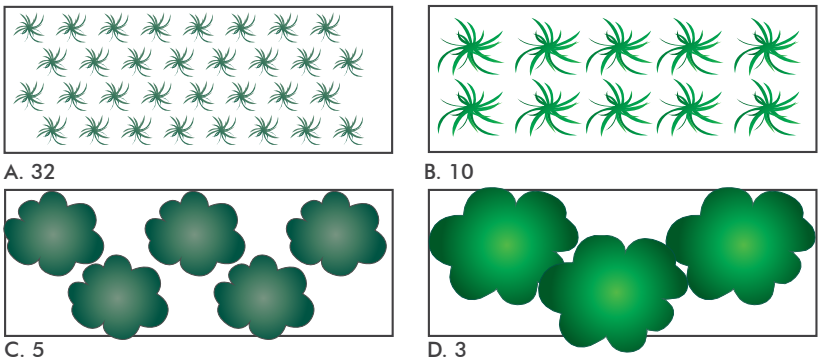
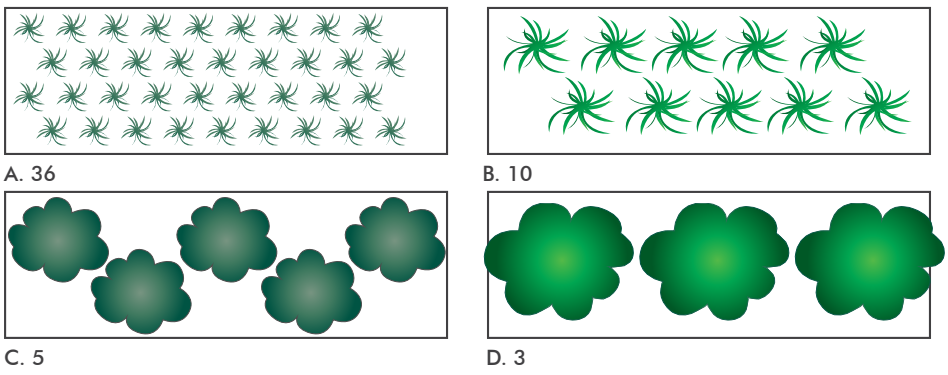


175 SF example



In some cases, Contech may consider alternate plant species as approved by the Product Manager. Please list the plant name in the space below and submit this sheet to your Contech Activation Coordinator. If the plant species is approved, either the Product Manager or the Activation Coordinator will sign the form and return to you for inclusion with your Activation Checklist.

Requested Plant Species: _____ Approved: _____

Date: _____

* *UNPREPARED SITE FEE NOTE: A charge of $1500.00 will be invoiced for each activation visit requested by customer where Contech determines that the site does not meet the conditions required for Activation AND/OR acceptable plants are not provided by the contractor.*

PDF 1/23

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NOTES

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www.ContechES.com

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34 Attachment 2

City of Biddeford

Appendix 1

Annual Stormwater Management Facilities Certification (to be sent to City's Enforcement Authority)
[Amended 6-20-2023 by Ord. No. 2023.61[1]]

I, _____ (print or type name), certify the following:

1. I am making this Annual Stormwater Management Facilities Certification for the following property: _____ (print or type name of subdivision, condominium or other development) located at _____ (print or type address), (the "Property");
2. The owner, operator, tenant, lessee or homeowners' association of the Property is: _____ (name(s) of owner, operator, tenant, lessee, homeowners' association or other party having control over the Property);
3. I am (check one)
   a. _____ the owner, operator, tenant, lessee or president of the homeowners' association and have hired a Qualified Post Construction Stormwater Inspector; or
   b. _____ am a Qualified Post-Construction Stormwater Inspector hired by the person identified in item two of this form;
4. I have knowledge of erosion and stormwater control and have reviewed the approved Post-Construction Stormwater Management Plan for the Property;
5. On _____, 20 _____, I inspected or had inspected by a Qualified Post-Construction Stormwater Inspector, the Stormwater Management Facilities, including but not limited to parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures required by the approved Post-Construction Stormwater Management Plan for the Property;
6. I have attached a copy of the Annual Inspection Report. At the time of the inspection (check one and complete any required information):
   a. The Stormwater Management Facilities were adequately maintained and functioning as intended; or
   b. The Stormwater Management Facilities required maintenance, which was completed within the required sixty-day time period, and were functioning as intended after maintenance was completed; or
   c. The Stormwater Management Facilities required maintenance which was not completed within the required sixty-day time period. (Attach additional sheets as necessary to describe the maintenance required, proposed schedule for completion, and an appropriate contact person. The City will contact them to confirm or adjust the schedule to complete the maintenance and any needed further course of action. You will be required to show proof of final maintenance.)

[1] Editor's Note: This ordinance also repealed former Appendix 1, Maintenance Agreement for Stormwater Management Facilities, and redesignated former Appendix 2 as Appendix 1.

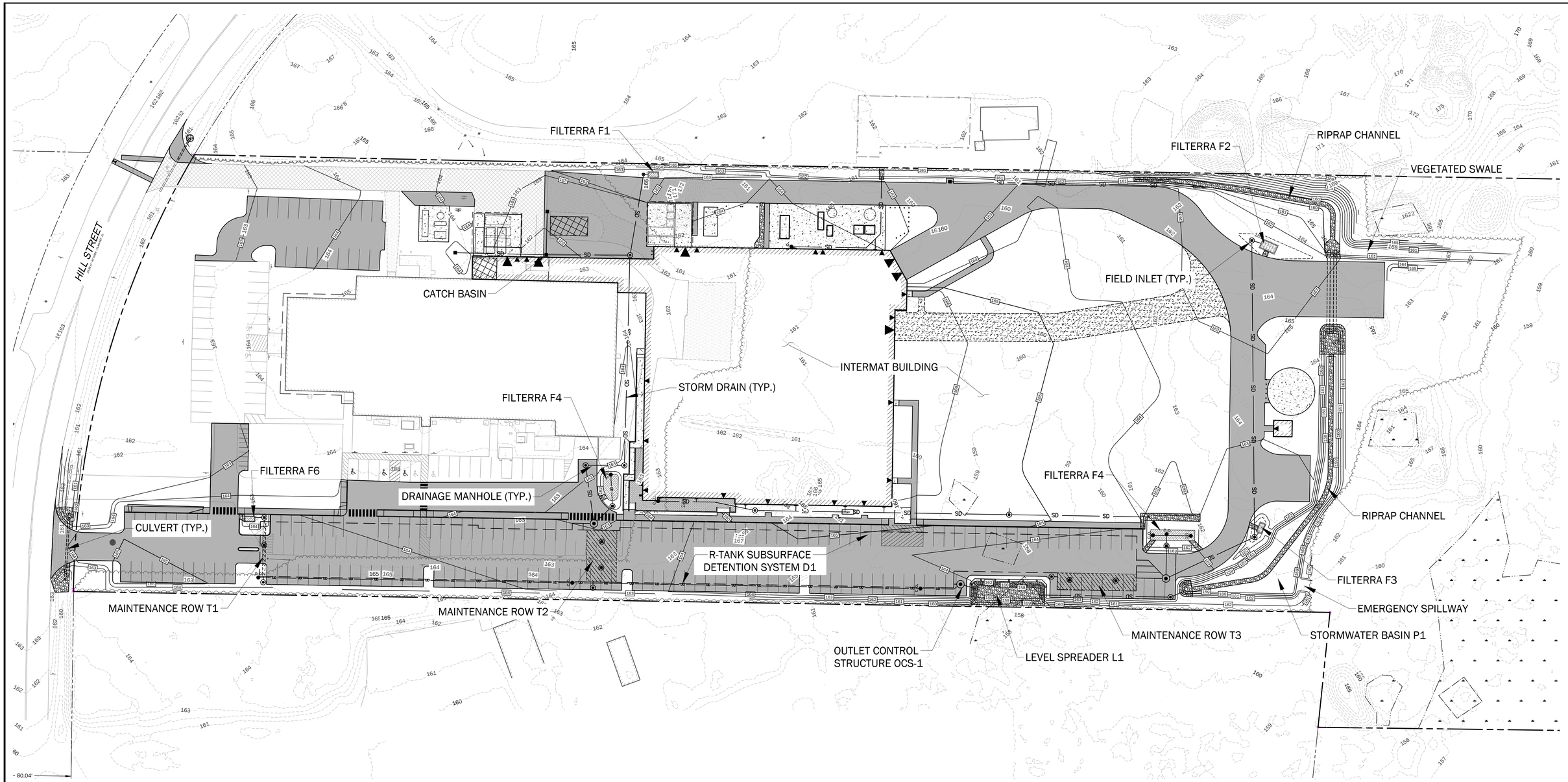
Date: _____, 20. By: _____

Signature

_____

Print Name

Mail this certification to the City's Enforcement Authority at the following address [to be completed by the municipality]: _____
_____
_____
_____



NORTH

SCALE

0 20 40 80

SCALE in FEET
1"=40'

TAX MAP I.D.
74 – 7

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
C	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 40'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE

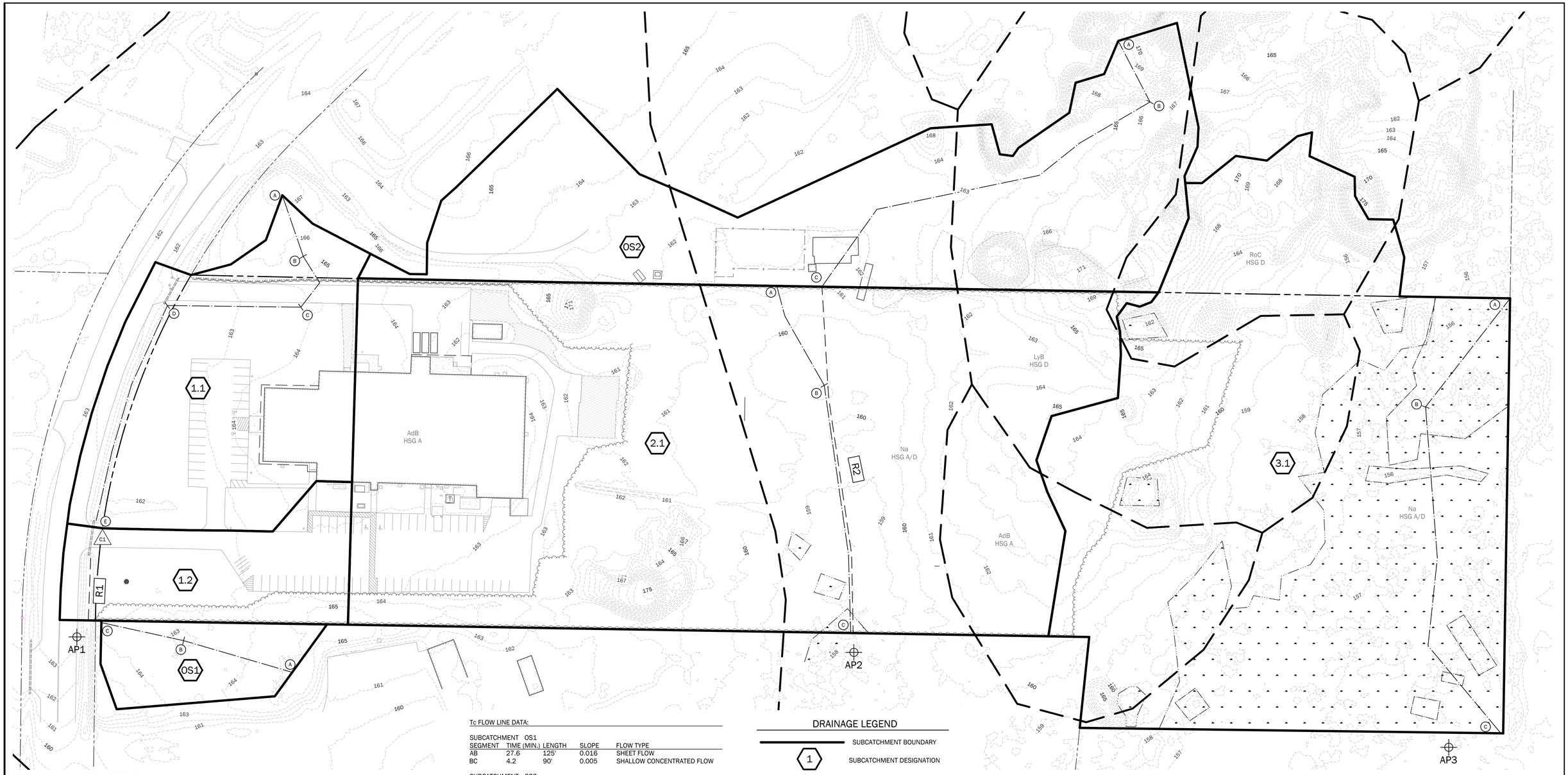
STORMWATER BMP PLAN

PROJ. NO. 20–211–00
DWG. NO. D–400
REV. C

Drawing Name: C:\CDC Projects\20204 – Intermat – Biddeford\3. CAD\32024 – Drainage | Plot Date / Time: Jan. 10, 26 / 12:08 PM

Appendix F
Drainage Plans

D1.0 – Pre Development Drainage Plan
D2.0 – Post Development Drainage Plan
D3.0 – Stormwater Treatment Plan



SOIL LEGEND

SOIL BOUNDARY

AdB (HSG A) — SOIL TYPE SYMBOL (HYDROLOGIC SOIL GROUP)

SOIL NOTES

SOIL TYPES AND BOUNDARIES OBTAINED FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT THE FOLLOWING LINK: HTTP://WEBSOILSURVEY.SC.EGOV.USDA.GOV/. ACCESSED 12/3/2024.

SOIL LIST

Map unit symbol	Map unit name	Rating
AdB	Adams loamy sand, 0 to 8 percent slopes	A
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D
Na	Naumburg sand	A/D
RoC	Rock outcrop-Lyman complex, 3 to 15 percent slopes	
Ur	Urban land	

Tc FLOW LINE DATA:

SUBCATCHMENT OS1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	27.6	125'	0.016	SHEET FLOW
BC	4.2	90'	0.005	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT OS2

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	10.0	75'	0.073	SHEET FLOW
BC	3.1	430'	0.013	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	15.6	70'	0.021	SHEET FLOW
BC	0.4	70'	0.013	SHALLOW CONCENTRATED FLOW
CD	1.4	145'	0.014	SHALLOW CONCENTRATED FLOW
DE	1.9	250'	0.0012	TRAP FLOW

SUBCATCHMENT 2.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	54.4	120'	0.0125	SHEET FLOW
BC	21.5	270'	0.0070	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 3.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	141.2	120'	0.001	SHEET FLOW
BC	81.2	385'	0.001	SHALLOW CONCENTRATED FLOW

Tc = 5 MIN. FOR ALL REMAINING SUBCATCHMENTS.

DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- 1 — SUBCATCHMENT DESIGNATION
- A — TIME OF CONCENTRATION FLOW
- REACH
- R1 — REACH DESIGNATION
- AP#1 — ANALYSIS POINT
- 1 — POND TEXT

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

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74 – 7

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STATE OF MAINE — THOMAS W. GAUCIER — No. 5091 — LICENSED PROFESSIONAL ENGINEER — 6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME

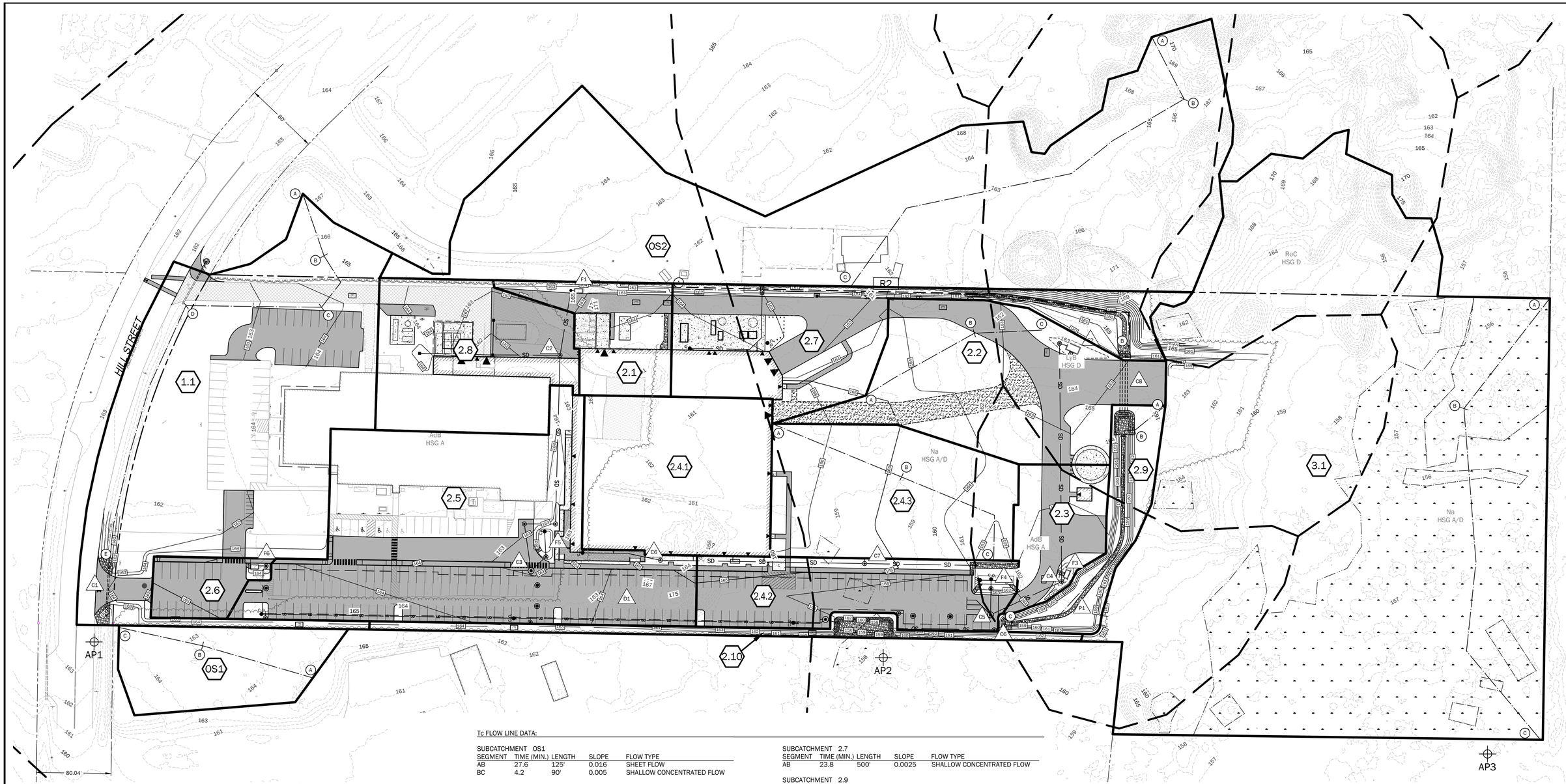
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE

PRE DEVELOPMENT
DRAINAGE PLAN

PROJ. NO. 20–211–00
DWG. NO. D–100
REV. C

Drawing Name: G:\SDC Projects\20204 – Intermat – Biddeford\3_CAD\20204 – Drainage | Plot Date / Time: Jan. 10, 26 / 12:08 PM



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SUBCATCHMENT OS1

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BC	4.2	90'	0.005	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT OS2

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	10.0	75'	0.073	SHEET FLOW
BC	3.1	430'	0.013	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	15.6	70'	0.021	SHEET FLOW
BC	0.4	70'	0.013	SHALLOW CONCENTRATED FLOW
CD	1.4	145'	0.014	SHALLOW CONCENTRATED FLOW
DE	2.2	290'	0.0012	TRAP FLOW

SUBCATCHMENT 2.2

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	14.6	135'	0.013	SHEET FLOW
BC	0.5	70'	0.013	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.4.3

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	15.0	150'	0.015	SHEET FLOW
BC	2.7	155'	0.019	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.7

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	23.8	500'	0.0025	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.9

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	6.9	40'	0.019	SHEET FLOW
BC	10.5	180'	0.004	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 3.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	141.2	120'	0.001	SHEET FLOW
BC	81.2	385'	0.001	SHALLOW CONCENTRATED FLOW

Tc = 5 MIN. FOR ALL REMAINING SUBCATCHMENTS.

DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- 1 — SUBCATCHMENT DESIGNATION
- A — TIME OF CONCENTRATION FLOW
- REACH
- R1 — REACH DESIGNATION
- AP#1 — ANALYSIS POINT
- 1 — POND TEXT

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
C	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. STUCIEN No. 8095 — LICENSED PROFESSIONAL ENGINEER — 6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME

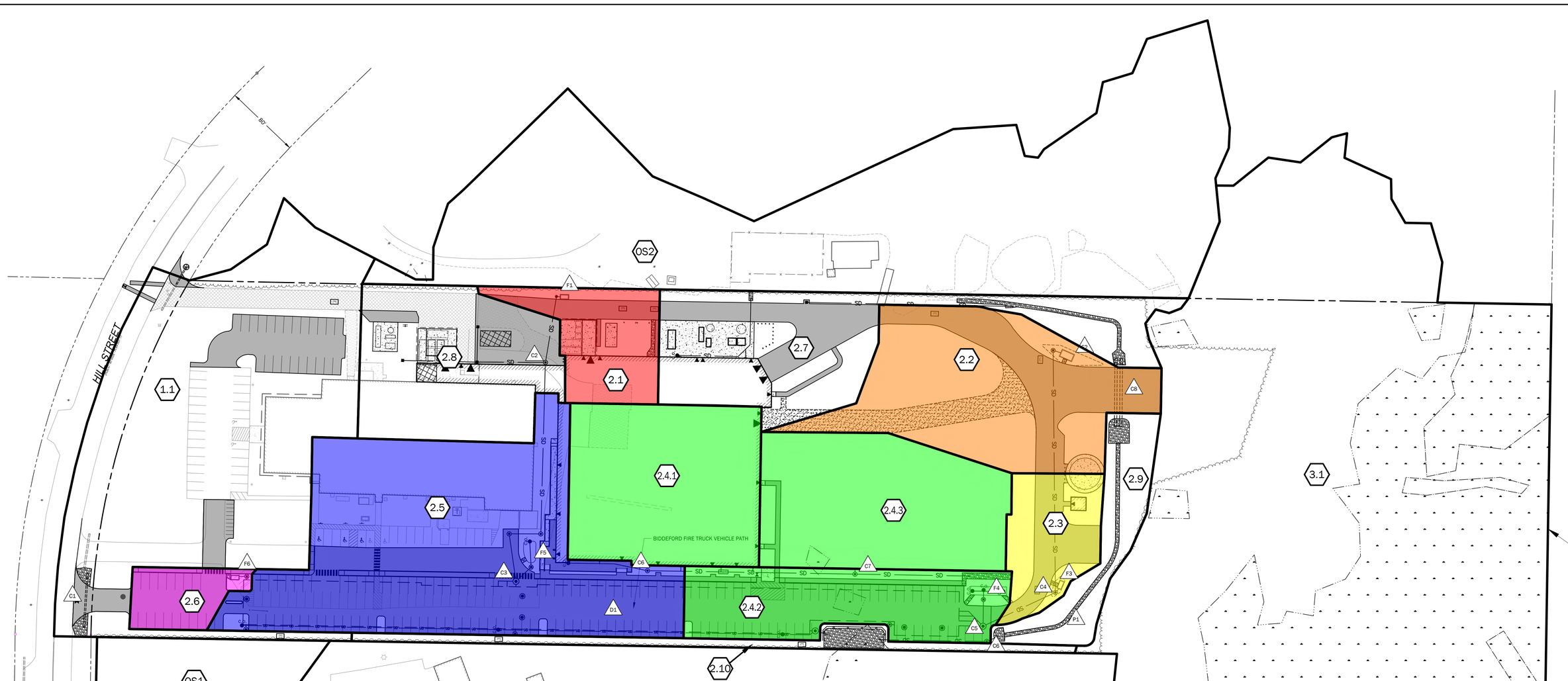
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE

POST DEVELOPMENT
DRAINAGE PLAN

PROJ. NO. 20–211–00
DWG. NO. D–200
REV. C

Drawing Name: C:\SDC Projects\25204 - Intermat - Biddeford\3. CAD\25204 - Drainage | Plot Date / Time: Jun. 10, 26 / 12:26 PM



AREA TREATED IN FILTERRA F1

AREA TREATED IN FILTERRA F2

AREA TREATED IN FILTERRA F3

AREA TREATED IN FILTERRA F4

AREA TREATED IN FILTERRA F5

AREA TREATED IN FILTERRA F6

DRAINAGE LEGEND

SUBCATCHMENT BOUNDARY

1 — SUBCATCHMENT DESIGNATION

A — TIME OF CONCENTRATION FLOW

REACH

R1 — REACH DESIGNATION

AP#1 — ANALYSIS POINT

1 — POND TEXT

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

Table 2
Water Quality Treatment Calculations

Subcatchment ID	Existing Impervious Area (SF)	New Impervious Area (SF)	Total Impervious Area (SF)	Existing Landscaped Area (SF)	New Landscaped Area (SF)	Total Landscaped Area (SF)	Existing Developed Area (SF)	New Developed Area (SF)	Total Developed Area (SF)	BMP
1.1	31,410	10,000	41,410	36,323	2,604	38,927	67,733	12,604	80,337	NONE
2.1	0	10,451	10,451	0	3,770	3,770	0	14,221	14,221	F1
2.2	0	21,143	21,143	0	20,749	20,749	0	41,892	41,892	F2
2.3	0	7,032	7,032	5,853	4,491	10,344	5,853	11,523	17,376	F3
2.4.1	0	33,986	33,986	0	0	0	0	33,986	33,986	
2.4.2	0	19,559	19,559	0	4,848	4,848	0	24,407	24,407	F4
2.4.3	0	642	642	0	34,531	34,531	0	35,173	35,173	
2.5	37,581	25,361	62,942	8,064	1,605	9,669	45,645	26,966	72,611	F5
2.6	0	6,396	6,396	0	452	452	0	6,848	6,848	F6
2.7	0	18,654	18,654	0	19,726	19,726	0	38,380	38,380	NONE
2.8	16,038	12,141	28,179	3,572	0	3,572	19,610	12,141	31,751	NONE
2.9	0	0	0	0	12,914	12,914	0	12,914	12,914	NONE
2.10	0	0	0	0	8,078	8,078	0	8,078	8,078	NONE
3.1	0	0	0	0	13,277	13,277	0	13,277	13,277	NONE
TOTAL NEW AREAS		**165,365**			**127,045**			**292,410**		
TOTAL TREATED AREA			**162,151**						**246,514**	
PERCENT IMPERVIOUS & DEVELOPED AREA TREATED		**98.1%**						**84.3%**		

Notes:
Treated Impervious Area
Treated Developed Area
Chapter 500 Requires treatment of 95% of impervious area and 80% of developed area.

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
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STATE OF MAINE
THOMAS W. SAUCIER
No. 8092
REGISTERED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE

STORMWATER TREATMENT PLAN

PROJ. NO. 20–211–00
DWG. NO. D–300
REV. C

Drawing Name: C:\SDE Projects\20204 – Intermat – Biddeford\3_CAD\20204 – Drainage | Plot Date / Time: Jun 10, 26 / 12:08 PM

Attachment 7
Utility Ability to Serve Letters

Unitil
ME GAS OPERATIONS

February 16, 2026

Silas Canavan, Pe, CFM
Canavan Civil Consultants
514 Summit Street, Portland, Maine 04103

Re: Ability to Serve 389 Hill Street, Biddeford, Maine

Dear Silas,

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

This is to confirm 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 email at morrisons@unitil.com.

Sincerely,

Sara Morrison

Sara Morrison
Sr. Business Development Representative
(T) 207-541-2536 (F) 207-541-2536

ME GAS OPERATIONS
376 Riverside Industrial Parkway
Portland, ME 04103-3586
www.unitil.com

4/14/2026

Brian Gardner
Electrical Design Engineer
Phone 207-253-9999
Brian.Gardner@salasobrien.com

Sent via email
RE: Ability to Serve Letter for Proposed FMI Expansion
389 Hill Street, Biddeford, Maine

SAP Notification: TBD

Dear Ethan: Brian.Gardner@salasobrien.com

CMP has the ability to serve your proposed project located at 389 Hill Street, Biddeford. We can provide you with the desired pole mounted/ pad-mount transformer(s) per your request and city approval, in accordance with our CMP Standards Handbook or with a CMP Primary Meter Pole & CMP Air Brake pole. If you have any questions on the process, or need help in completing the documents, please contact CMP at 800-565-3181. A CMP Notification/job # will need to be created to move this project forward.

New Service Milestones

- Preliminary meeting with CMP Field Planner to determine details of job
- Job scheduled for completion after the electrical inspection has been received.

For your convenience, here is a link to the CMP Website which contains our Handbook with details on most service requirements:

CMP Handbook of Standard Requirements
(http://www.cmpco.com/MediaLibrary/3/6/Content%20Management/YourAccount/PDFs%20and%20Docs/handbook.pdf)

Regards,

Jay Agreste
Energy Services Advisor
Central Maine Power Company

Tom Saucier

From: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>
Sent: Wednesday, December 17, 2025 11:19 AM
To: Galbraith, David; Iriqat, Adi; Tom Saucier
Cc: Chekan, Craig; Demers, Jeff
Subject: FW: Ability to serve memo 389 Hill St., Intermat project

David, Adi

Engineering has determined that the proposed wastewater flow from the expansion of the Intermat project can be accommodated by this City's sewage collection system.
We will be preparing a formal ability to serve letter in the near future which will outline any specific actions needed to be implemented, but let this letter serve as the waste water ability to serve component for their application process.
Respectfully,

Tom

Get Outlook for iOS

March 21, 2025

Tom Saucier, PE
Site Design Associates
23 Whitney Way
Topsham, ME 04086

Re: Ability to Serve Determination – 389 Hill Street, Biddeford

Greetings,

The Maine Water Company (MWC) has received your Ability to Serve Determination request on the behalf of your client, Fiber Materials, Inc., for a proposed commercial development to be located at 389 Hill Street, Biddeford, Maine. The request specifies a plan to construct utility infrastructure improvements to serve a new manufacturing facility, offices, and support areas behind the existing IMAT facility. The expected peak domestic service demand is 150 gallons per minute. The expected fire service demand for the project is 1,200 gallons per minute.

Based on the criteria provided by the developer's agent, the expected increase in water usage is within the water system's available capacity. The static pressure in the area is approximately **40 psi**. The Biddeford Saco Division of MWC does have sufficient capacity from the existing 12-inch ductile iron water main in the Hill Street Right-of-Way to serve this project. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- A hydrant flow test at the nearest available hydrant will need to be conducted and analyzed by the sprinkler designer to ensure that adequate flows can be met during a peak fire demand event.
- The developer is required to pay for the cost of any modification, renewal of impacted service lines, and retirement of unused or discontinued services to MWC standards of best practice.
- Additional plan approval, paperwork, and fees associated with this project will require proper coordination with MWC. MWC requires upfront payment for inspection and paperwork to be fully completed before any construction on waterworks materials.
- Service lines must comply with MWC Cross Connection Control Program.
- Allow up to 30 days for the MWC utility review process once final plans are ready to be completed before any construction on waterworks materials will be approved.

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

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

Sincerely,
The Maine Water Company

Patrick Gere, PE
Project Engineer

The Maine Water Company
93 Industrial Park Road
Saco, ME 04072

T: 1.800.287.1643
www.mainewater.com

Attachment 8
Lighting Specifications

KIM LIGHTING®

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

PA7R IMPACT RATED

BOLLARD

TYPE XB2

Pavilion impact™

PA7R-XX-NU2-12L-020-3K7-44IRB-XX-XX-UNV

FEATURES

- ASTM F3016 S20 Impact Rated
- Elegant form factor blended with Performance Optics
- 44" OAH S20 Impact Rated Illuminated and Non-Illuminated Bollards
- IDA Dark Sky Compliant, No Up-light configuration
- Bluetooth enabled RGBW accent

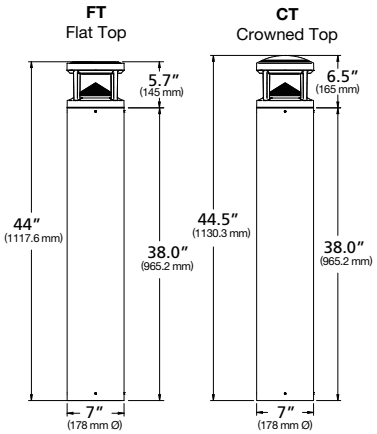
c UL us LISTED | ida DARK SKY APPROVED 2016 | IK10 | S20 | BAA | TAA

NU configurations in 3000K and warmer CCTs only

CONTROL TECHNOLOGY

Bluetooth® DMX

pharos



	Weight
PA7R	34 lbs / 15.4 kg

SPECIFICATIONS

CONSTRUCTION

HOUSING:

- Castings are low copper aluminum alloy die-cast
- Gaskets are molded silicone to prevent harmful ingress to the lamp and driver compartments
- Aluminum shaft to slide over 60” steel post that provides strength to resist impact. Steel post is centered utilizing a stress bracket, that allows for even distribution of concrete around the post, and further reinforced by a rebar cage
- Steel Post is a schedule 40 galvanized steel pipe with 6.625" OD
- IP65 rated

SHAFT:

- Aluminum shaft(s) is .125” thick extruded aluminum 6061 alloy
- American Society of Testing and Materials (ASTM) F3016 "Standard Test Method for Surrogate Testing of Vehicle Impact Protective Devices at Low Speeds" S20 Rated, which safely stops a 5,000-lb vehicle impacting the system at up to 20 mph

OPTICS

- LEDs mount to a metal printed circuit board assembly (MCPCB)
- Optical lenses are clear injection molded PMMA acrylic

OPTICS (CONTINUED)

- U0 configurations have an optically clear flat tempered glass lens, all other configurations have either an optically clear or high transmission diffused acrylic lens

INSTALLATION

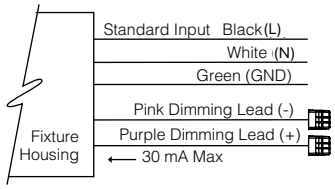
- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury

ELECTRICAL

- Universal voltage, 120 through 277V with a ±10% tolerance. Driver is Underwriters Laboratories listed
- High voltage configurations, 347/480. Driver is Underwriters Laboratories listed
- "Thermal Shield”, secondary side, thermistor provides protection for the sustainable life of LED module and electronic components
- Drivers are greater than a 0.9 power factor, less than 20% harmonic distortion, and be suitable for operation in -40°C to 40°C ambient environments
- Luminaire is capable of operating at 100% brightness in a 40°C environment. Both driver and optical array have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C

CONTROLS

- Standard fixtures dimming range is from 10% to 100% and be compatible with 0-10V, user-defined, control devices



(Specifications continued on page 3)

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All values are design or typical values when measured under laboratory conditions.

KIM LIGHTING®

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

PA7R IMPACT RATED

BOLLARD

ORDERING GUIDE

Example: PA7R-FT-NU-1-12L-010-5K7-44IRB-S20-BLS-UNV-EM

CATALOG #

HOUSING

PA7R

Model		Top		Optics		Distribution		Light Engine [5]	
PA7R	Pavilion 7" Ø Round	**FT**	Flat Top	**NU**	No Up-light	**1**	Type I	**12L-010-AMB**	14W, Monochromatic Amber
		CT	**Crowned Top** [1]	**CH**	Clear Horizontal Lens	**2**	Type II	**12L-010-3K7**	14W (1000 nominal lm), 3000K, 70 CRI
				CL [2]	Clear Vertical Lens	**3**	Type III	**12L-010-4K7**	14W (1000 nominal lm), 4000K, 70 CRI
				DL [2, 3]	Diffuse Vertical Lens	**3HS**	Type III + House side shield	**12L-010-5K7**	14W (1000 nominal lm), 5000K, 70 CRI
				LV	Louvers	**4**	Type IV	**12L-010-AMB** [6]	22W, Monochromatic Amber
				GC	Grille with clear vertical lens	**5**	Type V	**12L-020-3K7**	22W (2000 nominal lm), 3000K, 70 CRI
				GD [3]	Grille with diffuse vertical lens			**12L-020-4K7**	22W (2000 nominal lm), 4000K, 70 CRI
				ULB [4]	Non-Illuminated Bollard (No distribution, no light engine)			**12L-020-5K7**	22W (2000 nominal lm), 5000K, 70 CRI
								Consult factory for other CCTs (2700K - 6500K) and CRIs (80, 90 CRI)	

Body		Fixture Finish		Voltage		Options	
44IRB-S20	44" OAH Impact Resistant Base, ASTM F3016 S20 Rated, Aluminum	**BLS**	Black Gloss Smooth	**UNV**	120-277V	**EM** [9]	Battery Backup
44IRB-B	44" OAH Impact Resistant Blind Bollard (Non-Illuminated), Aluminum	**BLT**	Black Matte Textured	**120** [8]	120V	**LR** [10,11]	Luminous Accent
For Non-Impact Rated 44" OAH Round Pavilion		**DBS**	Dark Bronze Gloss Smooth	**277** [8]	208-277V	**SF** [12]	Single Fuse
		DBT	Dark Bronze Matte Textured	**347** [8]	347V	**DF** [12]	Double Fuse
		GTT	Graphite Matte Textured	**480** [8]	480V		
		LGS	Light Grey Gloss Smooth				
		LGT	Light Grey Matte Textured				
		PSS	Platinum Silver Gloss Smooth				
		VGT	Verde Green Matte Textured				
		WHS	White Gloss Smooth				
		WHT	White Matte Textured				
		Color Option					
		CC [7]	Custom Color				

1 Adds .6 / 15mm to OAH (over all height)
2 CL and DL configurations shall be IK04
3 Only Available with 1 Type I or 5 Type V distributions only
4 If selecting ULB, must select 44IRB-B and vice versa
5 5-step MacAdam Ellipse Binning standard. Consult factory for 3-step MacAdam Ellipse Binning
6 Wild life friendly
7 Consult factory for custom color, marine and corrosive finish options
8 Dedicated input voltage, required for MW Motions sensing
9 0°C min starting temperature, 90+ minute run time, output equivalent to 12L-010-#K7
10 Adds +5 watts and 1" / 254mm to overall height
11 Not available in Blind Bollard (Non-Illuminated)
12 SF for 120, 277 and 347 input voltage, DF for 208, 240 and 480 input voltage

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PA7R IMPACT RATED

BOLLARD

SPECIFICATIONS CONT'D

WIRELESS CONTROLS

BLUETOOTH:

- The Integral module will enable the adjustment of the Luminous Accent to dim or change color to the desired setting when paired with Current Lighting RGBW Remote App via celluar/tablet device
- The integral module is compatible with Bluetood Low Energy (BLE) or Bluetooth Smart mobile devices operating on iOS8 or Android Gingerbread operating systems or newer
- Mobile App. dimming range from 0% to 100% through the use of RGBW app (available on IOS and Android)
- Color selection and adjustment
- Camera function for color matching
- Intensity slider for dimming/ramping up
- Save and rename up to 10 presets
- Group and rename fixtures
- Fixture is password protected, refer to instructions to set unique password

DMX:

- 6 wires: Red (DMX+), Brown (DMX-), Yellow (DMX Ground), Black (Line Voltage), White (common), and Green (Ground)
- Single DMX universe with six slots/addresses of virtual control which are pre-programmed at the factory:
- DMX slot/address 1 = red
- DMX slot/address 2 = green
- DMX slot/address 3 = blue
- DMX slot/address 4 = white
- Fully DMX RDM compatible
- Mobile App specification in additional information section

OPTIONAL BACKUP BATTERY

- Integral battery backup provides emergency path of egress lighting for the required 90 minutes for 0°C ambient environments

CAUTION:

- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury

CERTIFICATIONS AND LISTINGS

- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- ASTM Standard F3016/F3016M for Surrogate Testing of Protective Device at Low Speed - S20 Crash Rated
- IP65 Rated
- IEC 66262 Mechanical Impact Code IK10
- IDA approved, 3000K and warmer CCTs only
- RoHS compliant
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions)

WARRANTY

- 5 year warranty

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DATE: LOCATION:

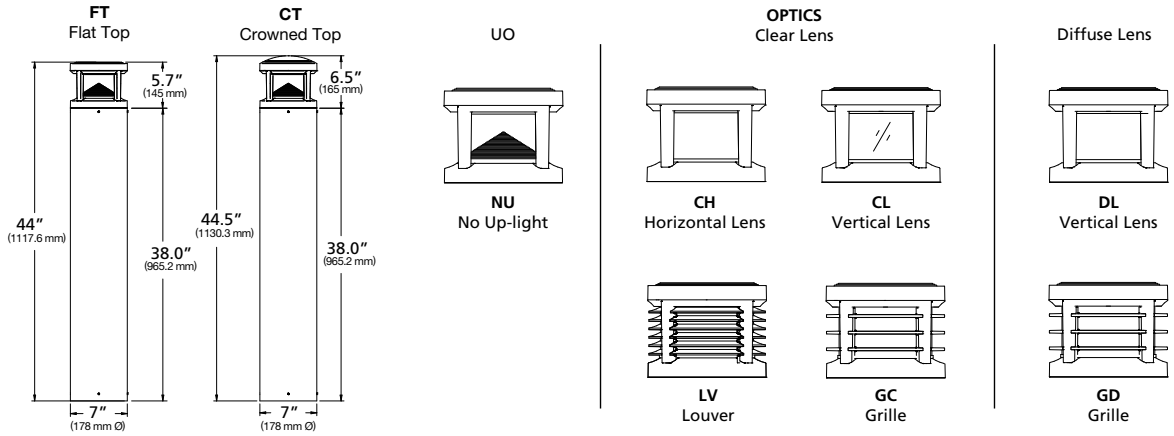
TYPE: PROJECT:

CATALOG #:

PA7R IMPACT RATED

BOLLARD

DIMENSIONS



DELIVERED LUMENS

Drive Current	LEDs #	Nominal Watts	Nominal Lumens	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
							B	U	G			B	U	G			B	U	G	
550mA	12L	22	2,000	NU U0 Optics	1	1044	0	0	0	48	1136	0	0	0	52	1164	0	0	0	54
					2	1199	0	0	0	55	1305	0	0	0	60	1336	0	0	0	62
					3	1128	0	0	1	52	1228	0	0	1	57	1257	0	0	1	58
					3HS	953	0	0	0	44	1037	0	0	0	48	1062	0	0	1	49
					4	1362	0	0	0	63	1482	0	0	1	68	1518	0	0	1	70
					5	1265	1	0	0	58	1377	1	0	0	63	1410	1	0	0	65
				CH Clear Horizontal Lens	1	1778	0	3	1	82	1935	0	3	1	89	1981	0	3	1	91
					2	1711	1	3	1	79	1862	1	3	1	86	1906	1	3	1	88
					3	1643	1	3	1	76	1788	1	3	1	82	1831	1	3	1	84
					3HS	1443	0	3	1	66	1570	0	3	1	72	1608	0	3	1	74
					4	1731	0	3	1	80	1884	0	3	1	87	1929	0	3	1	89
					5	1841	1	3	1	85	2003	1	3	1	92	2051	1	3	1	95
				CL Clear Vertical Lens	1	1852	0	4	1	85	2016	1	4	1	93	2064	1	4	1	95
					2	1984	1	3	1	91	2159	1	3	1	99	2211	1	3	1	102
					3	2062	1	3	1	95	2244	1	3	1	103	2298	1	3	1	106
					3HS	1665	0	3	1	77	1811	0	3	1	83	1855	0	3	1	85
					4	2055	0	3	1	95	2236	1	3	1	103	2290	1	3	1	106
					5	2109	1	3	1	97	2295	1	3	1	106	2350	1	3	1	108

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PA7R IMPACT RATED

BOLLARD

DELIVERED LUMENS (CONTINUED)

Drive Current	LEDs #	Nominal Watts	Nominal Lumens	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
							B	U	G			B	U	G			B	U	G	
550mA	12L	22	2,000	DL Diffused Vertical Lens	1	1639	1	3	2	76	1783	1	3	2	82	1826	1	3	2	84
					5	1721	1	3	2	79	1873	1	3	2	86	1918	1	3	2	88
				LV External Louvers	1	746	0	3	1	34	811	1	3	1	37	831	1	3	1	38
					2	814	1	3	1	37	885	1	3	1	41	907	1	3	1	42
					3	838	1	3	1	39	912	1	3	1	42	934	1	3	1	43
					3HS	605	0	3	1	28	658	0	3	1	30	674	0	3	1	31
					4	879	0	3	1	41	956	1	3	1	44	979	1	3	1	45
					5	888	1	3	1	41	966	1	3	1	45	989	1	3	1	46
				GC Grill with Clear Lens	1	1038	0	3	1	48	1130	0	3	1	52	1157	0	3	1	53
					2	1021	0	3	1	47	1111	1	3	1	51	1138	1	3	1	52
					3	1024	0	3	1	47	1114	1	3	1	51	1141	1	3	1	53
					3HS	854	0	3	1	39	930	0	3	1	43	952	0	3	1	44
					4	1109	0	3	1	51	1207	0	3	1	56	1236	0	3	1	57
					5	1037	1	3	1	48	1128	1	3	1	52	1155	1	3	1	53
				GD Grill with Diffused Lens	1	1036	0	3	1	48	1127	1	3	2	52	1154	1	3	2	53
					5	953	1	3	1	44	1037	1	3	1	48	1062	1	3	1	49

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DATE: LOCATION:

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PA7R IMPACT RATED

BOLLARD

DELIVERED LUMENS (CONTINUED)

Drive Current	LEDs #	Nominal Watts	Nominal Lumens	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
							B	U	G			B	U	G			B	U	G	
350mA	12L	14	1,000	NU U0 Optics	1	749	0	0	0	54	815	0	0	0	59	835	0	0	0	60
					2	860	0	0	0	62	936	0	0	0	67	958	0	0	0	69
					3	809	0	0	0	58	881	0	0	0	63	902	0	0	0	65
					3HS	684	0	0	0	49	744	0	0	0	53	762	0	0	0	55
					4	977	0	0	0	70	1063	0	0	0	76	1089	0	0	0	78
					5	908	1	0	0	65	988	1	0	0	71	1011	1	0	0	73
				CH Clear Horizontal Lens	1	1184	0	3	1	85	1288	0	3	1	92	1319	0	3	1	95
					2	1139	0	3	1	82	1239	0	3	1	89	1269	0	3	1	91
					3	1094	0	3	1	79	1190	0	3	1	85	1219	0	3	1	87
					3HS	960	0	3	1	69	1045	0	3	1	75	1070	0	3	1	77
					4	1152	0	3	1	83	1254	0	3	1	90	1284	0	3	1	92
					5	1225	1	3	1	88	1333	1	3	1	96	1365	1	3	1	98
				CL Clear Vertical Lens	1	1146	0	3	1	82	1247	0	3	1	90	1277	0	3	1	92
					2	1228	0	3	1	88	1336	1	3	1	96	1368	1	3	1	98
					3	1276	0	3	1	92	1389	1	3	1	100	1422	1	3	1	102
					3HS	1030	0	3	1	74	1121	0	3	1	80	1148	0	3	1	82
					4	1272	0	3	1	91	1384	0	3	1	99	1417	0	3	1	102
					5	1305	1	3	1	94	1420	1	3	1	102	1454	1	3	1	104
				DL Diffused Vertical Lens	1	1086	0	3	1	78	1182	0	3	1	85	1210	0	3	1	87
					5	1141	1	3	1	82	1241	1	3	1	89	1271	1	3	1	91

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PA7R IMPACT RATED

BOLLARD

DELIVERED LUMENS (CONTINUED)

Drive Current	LEDs #	Nominal Watts	Nominal Lumens	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
						Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
							B	U	G			B	U	G			B	U	G	
350mA	12L	14	1,000	LV External Louvers	1	489	0	3	1	35	533	0	3	1	38	545	0	3	1	39
					2	534	0	3	1	38	581	0	3	1	42	595	0	3	1	43
					3	550	0	3	1	40	599	0	3	1	43	613	0	3	1	44
					3HS	397	0	3	1	29	432	0	3	1	31	442	0	3	1	32
					4	577	0	3	1	41	628	0	3	1	45	643	0	3	1	46
					5	583	1	3	1	42	634	1	3	1	46	649	1	3	1	47
				GC Grill with Clear Lens	1	843	0	3	1	61	917	0	3	1	66	939	0	3	1	67
					2	829	0	3	1	60	903	0	3	1	65	924	0	3	1	66
					3	831	0	3	1	60	905	0	3	1	65	926	0	3	1	67
					3HS	694	0	3	1	50	755	0	3	1	54	773	0	3	1	56
					4	901	0	3	1	65	980	0	3	1	70	1004	0	3	1	72
					5	842	1	3	1	60	916	1	3	1	66	938	1	3	1	67
				GD Grill with Diffused Lens	1	728	0	3	1	52	792	0	3	1	57	811	0	3	1	58
					5	782	1	3	1	56	851	1	3	1	61	872	1	3	1	63

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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-CH1-12L-020-4K7

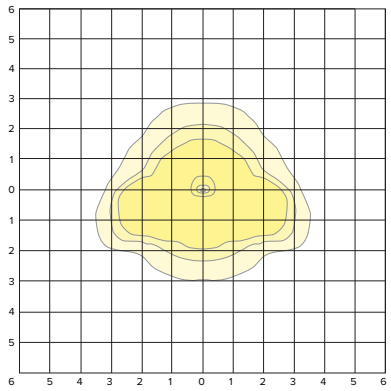
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1935**
Watts	**22**
Efficacy	**88.0**
IES Type	**II**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1132	81.8%
Downward House Side	251	18.1%
Downward Total	1384	71%
Upward Street Side	348	63%
Upward House Side	205	37%
Upward Total	553	29%
Total Flux	1937	100%

ISOFOOT CANDLE PLOT



PA7R-CH2-12L-020-4K7

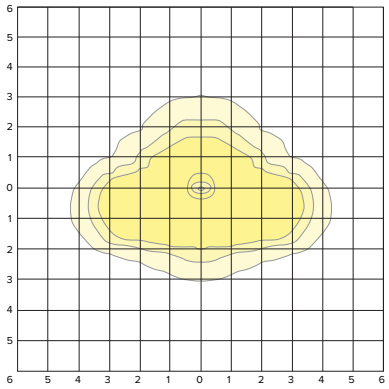
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1862**
Watts	**22**
Efficacy	**85.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1176	78.7%
Downward House Side	319	21.3%
Downward Total	1494	80%
Upward Street Side	220	60%
Upward House Side	149	40%
Upward Total	369	20%
Total Flux	1863	100%

ISOFOOT CANDLE PLOT



PA7R-CH3-12L-020-4K7

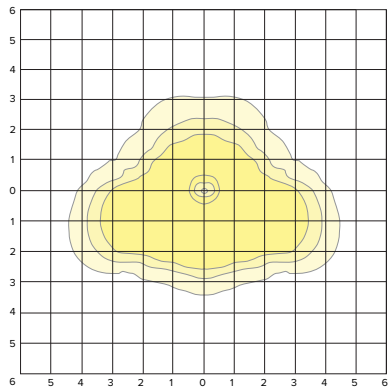
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1788**
Watts	**21.76**
Efficacy	**82.0**
IES Type	**III**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1184	80.3%
Downward House Side	290	19.7%
Downward Total	1474	82%
Upward Street Side	185	59%
Upward House Side	130	41%
Upward Total	315	18%
Total Flux	1789	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-CH3HS-12L-020-4K7

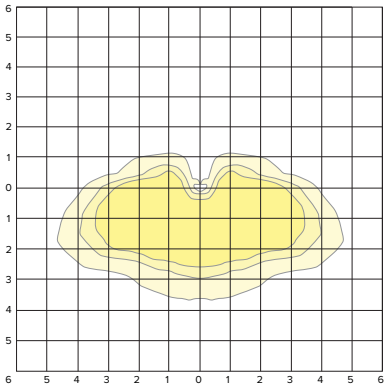
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1570**
Watts	**21.64**
Efficacy	**73.0**
IES Type	**III**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1187	92.0%
Downward House Side	103	8.0%
Downward Total	1290	82%
Upward Street Side	230	82%
Upward House Side	51	18%
Upward Total	282	18%
Total Flux	1571	100%

ISOFOOT CANDLE PLOT



PA7R-CH4-12L-020-4K7

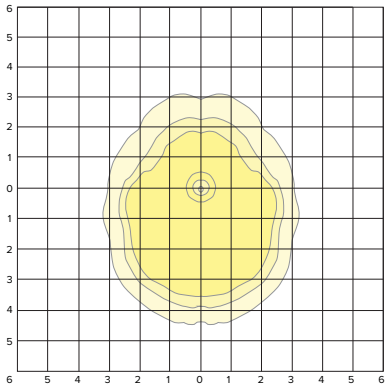
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1884**
Watts	**21.73**
Efficacy	**87.0**
IES Type	**IV**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1316	84.0%
Downward House Side	250	16.0%
Downward Total	1566	83%
Upward Street Side	184	58%
Upward House Side	136	42%
Upward Total	319	17%
Total Flux	1885	100%

ISOFOOT CANDLE PLOT



PA7R-CH5-12L-020-4K7

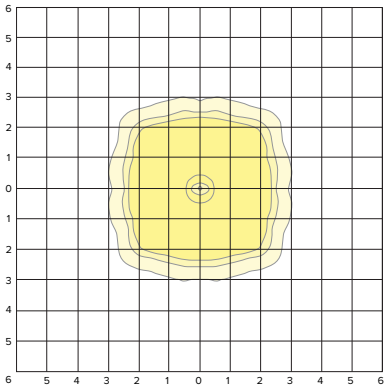
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2003**
Watts	**21.73**
Efficacy	**92.0**
IES Type	**VS**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	825	50.0%
Downward House Side	825	50.0%
Downward Total	1650	82%
Upward Street Side	177	50%
Upward House Side	177	50%
Upward Total	354	18%
Total Flux	2004	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-CL1-12L-020-4K7

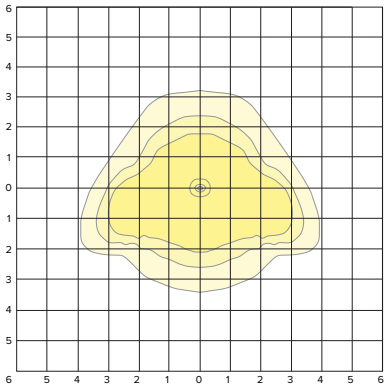
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2016**
Watts	**21.7**
Efficacy	**93.0**
IES Type	**II**
BUG Rating	**B1-U4-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1078	77.5%
Downward House Side	312	22.5%
Downward Total	1390	69%
Upward Street Side	373	59%
Upward House Side	254	41%
Upward Total	627	31%
Total Flux	2017	100%

ISOFOOT CANDLE PLOT



PA7R-CL2-12L-020-4K7

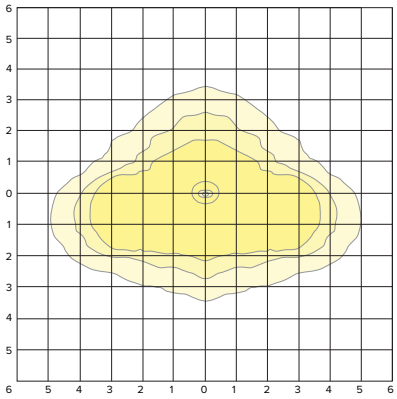
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2159**
Watts	**21.69**
Efficacy	**100.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1325	77.5%
Downward House Side	384	22.5%
Downward Total	1709	79%
Upward Street Side	258	57%
Upward House Side	193	43%
Upward Total	451	21%
Total Flux	2160	100%

ISOFOOT CANDLE PLOT



PA7R-CL3-12L-020-4K7

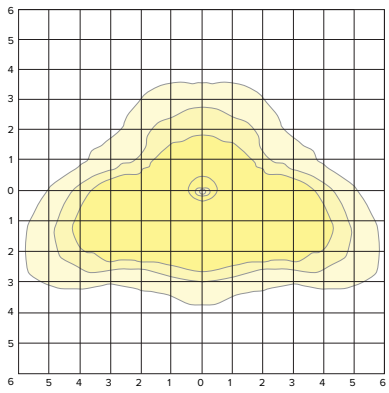
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2244**
Watts	**21.72**
Efficacy	**103.0**
IES Type	**III**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1472	80.0%
Downward House Side	367	20.0%
Downward Total	1839	82%
Upward Street Side	231	57%
Upward House Side	175	43%
Upward Total	406	18%
Total Flux	2245	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-CL3HS-12L-020-4K7

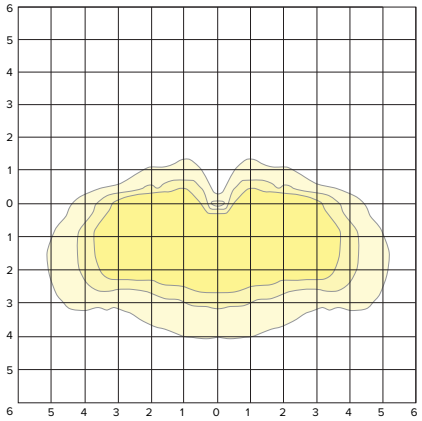
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1811**
Watts	**21.7**
Efficacy	**83.0**
IES Type	**III**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1361	92.0%
Downward House Side	118	8.0%
Downward Total	1479	82%
Upward Street Side	277	83%
Upward House Side	56	17%
Upward Total	334	18%
Total Flux	1812	100%

ISOFOOT CANDLE PLOT



PA7R-CL4-12L-020-4K7

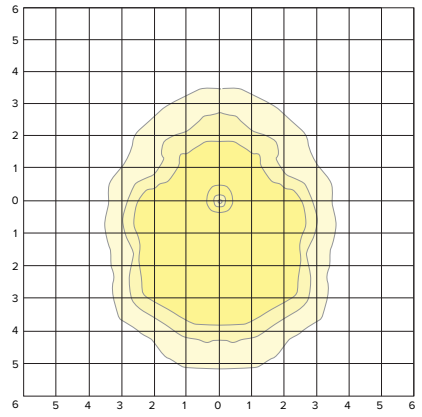
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2236**
Watts	**21.71**
Efficacy	**103.0**
IES Type	**IV**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1552	84.9%
Downward House Side	275	15.0%
Downward Total	1827	82%
Upward Street Side	230	56%
Upward House Side	180	44%
Upward Total	410	18%
Total Flux	2237	100%

ISOFOOT CANDLE PLOT



PA7R-CL5-12L-020-4K7

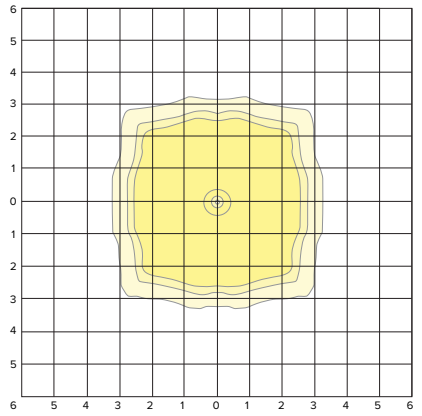
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**2296**
Watts	**21.75**
Efficacy	**106.0**
IES Type	**VS**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	937	50.0%
Downward House Side	937	50.0%
Downward Total	1874	82%
Upward Street Side	211	50%
Upward House Side	211	50%
Upward Total	422	18%
Total Flux	2296	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-DL1-12L-020-4K7

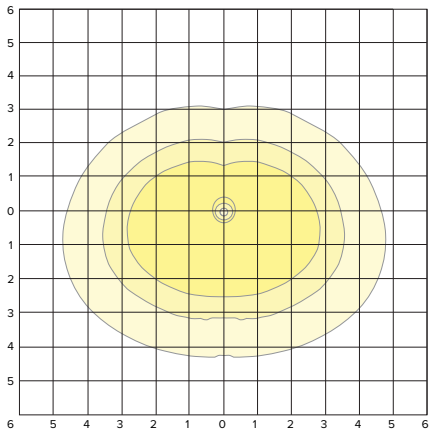
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1783**
Watts	**21.74**
Efficacy	**82.0**
IES Type	**IV**
BUG Rating	**B1-U3-G2**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	746	66.2%
Downward House Side	381	33.8%
Downward Total	1127	63%
Upward Street Side	408	62%
Upward House Side	248	38%
Upward Total	657	37%
Total Flux	1784	100%

ISOFOOT CANDLE PLOT



PA7R-DL5-12L-020-4K7

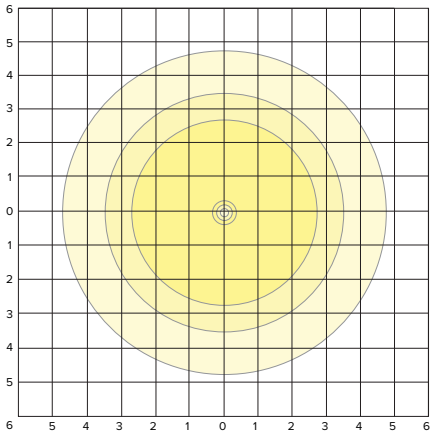
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1873**
Watts	**21.75**
Efficacy	**86.0**
IES Type	**VS**
BUG Rating	**B1-U3-G2**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	656	50.0%
Downward House Side	656	50.0%
Downward Total	1313	70%
Upward Street Side	281	50%
Upward House Side	281	50%
Upward Total	561	30%
Total Flux	1874	100%

ISOFOOT CANDLE PLOT



PA7R-GC1-12L-020-4K7

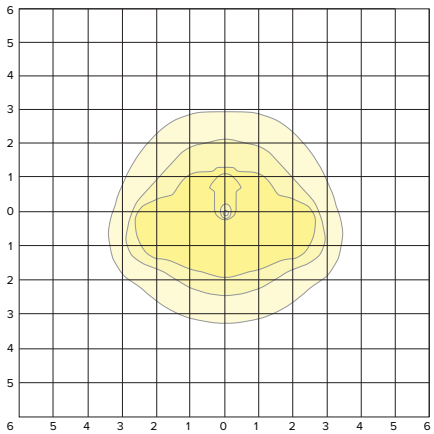
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1130**
Watts	**21.73**
Efficacy	**52.0**
IES Type	**II**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	434	67.6%
Downward House Side	208	32.4%
Downward Total	642	57%
Upward Street Side	298	61%
Upward House Side	191	39%
Upward Total	489	43%
Total Flux	1131	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-GC2-12L-020-4K7

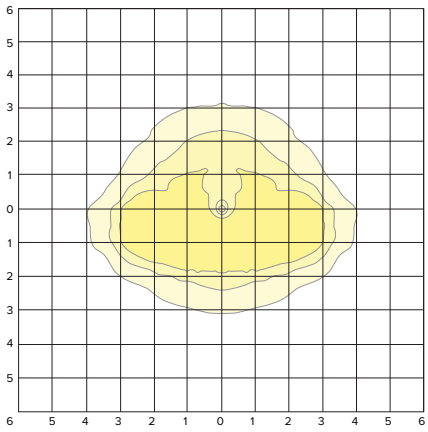
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1111**
Watts	**21.59**
Efficacy	**51.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	488	68.3%
Downward House Side	227	31.7%
Downward Total	715	64%
Upward Street Side	238	60%
Upward House Side	159	40%
Upward Total	397	36%
Total Flux	1112	100%

ISOFOOT CANDLE PLOT



PA7R-GC3-12L-020-4K7

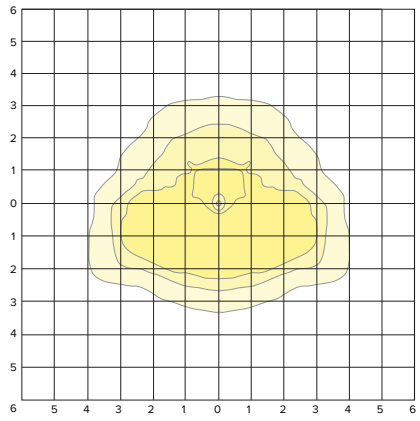
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1114**
Watts	**21.7**
Efficacy	**51.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	513	69.8%
Downward House Side	221	30.1%
Downward Total	735	66%
Upward Street Side	234	62%
Upward House Side	146	38%
Upward Total	380	34%
Total Flux	1114	100%

ISOFOOT CANDLE PLOT



PA7R-GC3HS-12L-020-4K7

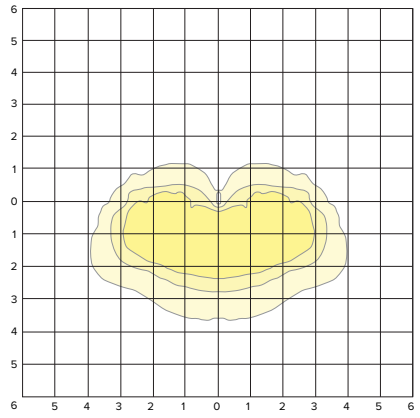
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**930**
Watts	**21.59**
Efficacy	**43.0**
IES Type	**III**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	533	87.1%
Downward House Side	79	12.8%
Downward Total	612	66%
Upward Street Side	265	83%
Upward House Side	54	17%
Upward Total	319	34%
Total Flux	931	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-GC4-12L-020-4K7

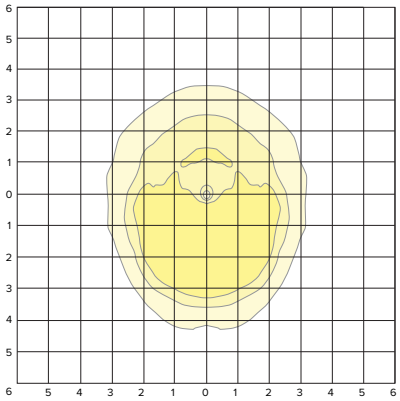
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1207**
Watts	**21.59**
Efficacy	**56.0**
IES Type	**IV**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	591	74.2%
Downward House Side	205	25.8%
Downward Total	796	66%
Upward Street Side	267	65%
Upward House Side	146	35%
Upward Total	412	34%
Total Flux	1208	100%

ISOFOOT CANDLE PLOT



PA7R-GC5-12L-020-4K7

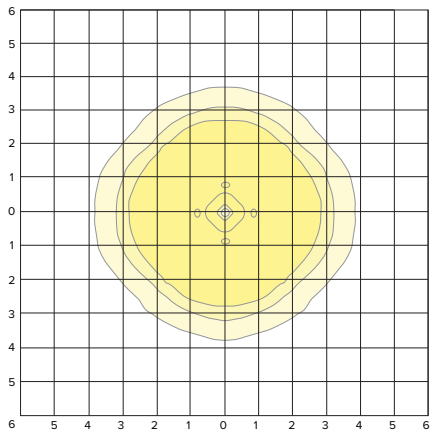
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1128**
Watts	**21.59**
Efficacy	**52.0**
IES Type	**VS**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	382	50.0%
Downward House Side	382	50.0%
Downward Total	764	68%
Upward Street Side	183	50%
Upward House Side	183	50%
Upward Total	365	32%
Total Flux	1129	100%

ISOFOOT CANDLE PLOT



PA7R-GD1-12L-020-4K7

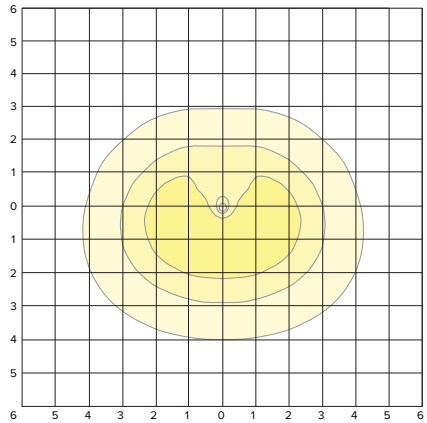
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1127**
Watts	**21.71**
Efficacy	**51.9**
IES Type	**IV**
BUG Rating	**B1-U3-G2**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	407	62.8%
Downward House Side	241	37.2%
Downward Total	648	57%
Upward Street Side	287	60%
Upward House Side	193	40%
Upward Total	479	43%
Total Flux	1127	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-GD5-12L-020-4K7

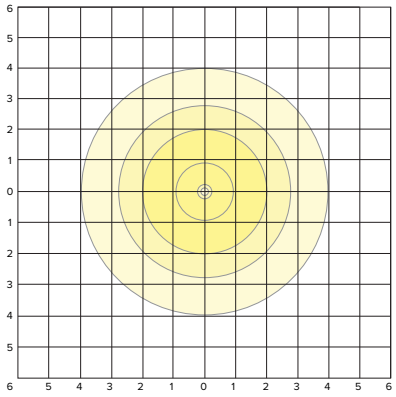
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1037**
Watts	**21.6**
Efficacy	**48.0**
IES Type	**VS**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	309	50.0%
Downward House Side	309	50.0%
Downward Total	618	60%
Upward Street Side	210	50%
Upward House Side	210	50%
Upward Total	420	40%
Total Flux	1038	100%

ISOFOOT CANDLE PLOT



PA7R-LV1-12L-020-4K7

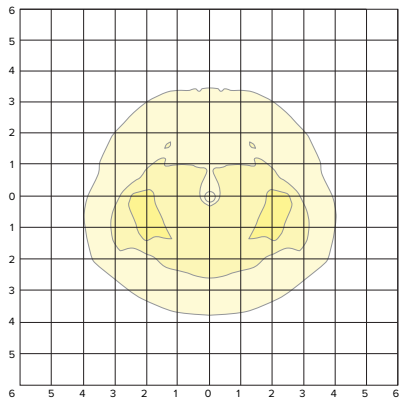
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**811**
Watts	**21.73**
Efficacy	**37.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	303	57.7%
Downward House Side	222	42.2%
Downward Total	526	65%
Upward Street Side	160	56%
Upward House Side	126	44%
Upward Total	286	35%
Total Flux	812	100%

ISOFOOT CANDLE PLOT



PA7R-LV2-12L-020-4K7

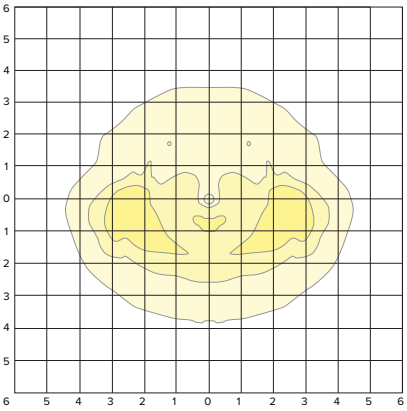
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**885**
Watts	**21.68**
Efficacy	**41.0**
IES Type	**II**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	378	61.9%
Downward House Side	233	38.1%
Downward Total	611	69%
Upward Street Side	158	58%
Upward House Side	116	42%
Upward Total	274	31%
Total Flux	885	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-LV3-12L-020-4K7

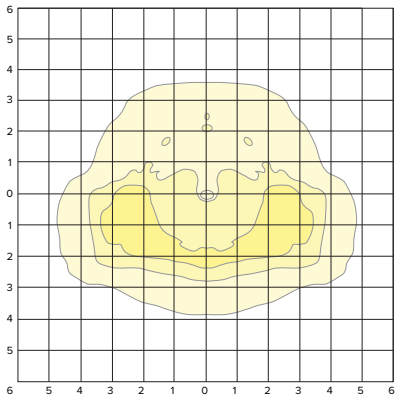
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**912**
Watts	**21.69**
Efficacy	**42.0**
IES Type	**III**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	414	63.7%
Downward House Side	233	35.8%
Downward Total	650	71%
Upward Street Side	154	59%
Upward House Side	109	41%
Upward Total	263	29%
Total Flux	913	100%

ISOFOOT CANDLE PLOT



PA7R-LV3HS-12L-020-4K7

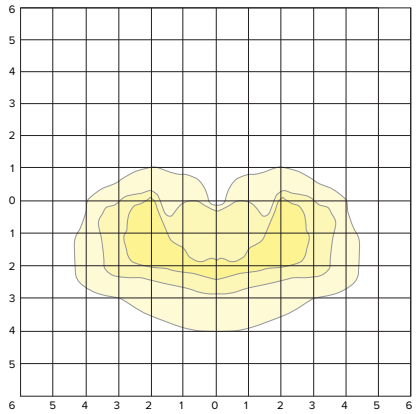
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**658**
Watts	**21.69**
Efficacy	**30.0**
IES Type	**III**
BUG Rating	**B0-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	383	82.5%
Downward House Side	81	17.5%
Downward Total	464	71%
Upward Street Side	155	80%
Upward House Side	39	20%
Upward Total	194	29%
Total Flux	658	100%

ISOFOOT CANDLE PLOT



PA7R-LV4-12L-020-4K7

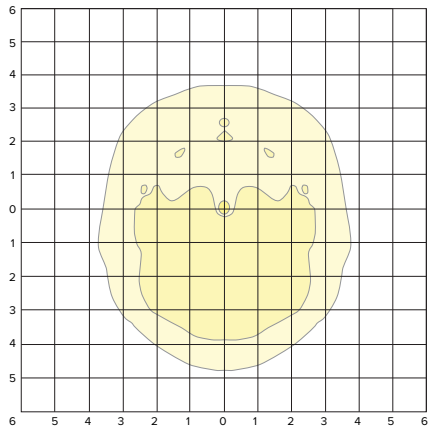
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**956**
Watts	**21.69**
Efficacy	**44.0**
IES Type	**IV**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	454	67.5%
Downward House Side	219	32.5%
Downward Total	673	70%
Upward Street Side	176	62%
Upward House Side	107	38%
Upward Total	283	30%
Total Flux	956	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-LV5-12L-020-4K7

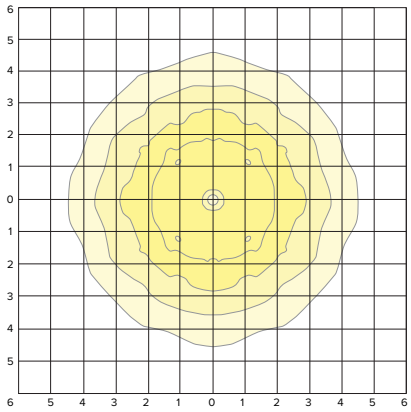
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**966**
Watts	**21.7**
Efficacy	**45.0**
IES Type	**VS**
BUG Rating	**B1-U3-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	354	50.0%
Downward House Side	354	50.0%
Downward Total	708	73%
Upward Street Side	129	50%
Upward House Side	129	50%
Upward Total	259	27%
Total Flux	967	100%

ISOFOOT CANDLE PLOT



PA7R-NU1-12L-020-4K7

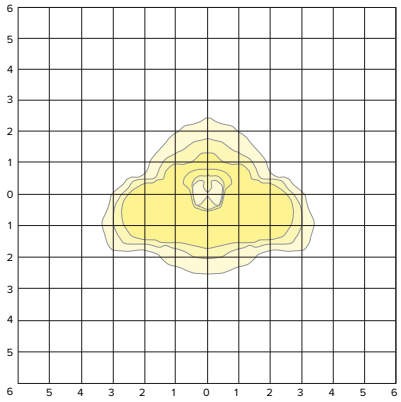
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1136**
Watts	**21.75**
Efficacy	**52.0**
IES Type	**I**
BUG Rating	**B0-U0-G0**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	986	86.7%
Downward House Side	151	13.3%
Downward Total	1137	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1137	100%

ISOFOOT CANDLE PLOT



PA7R-NU2-12L-020-4K7

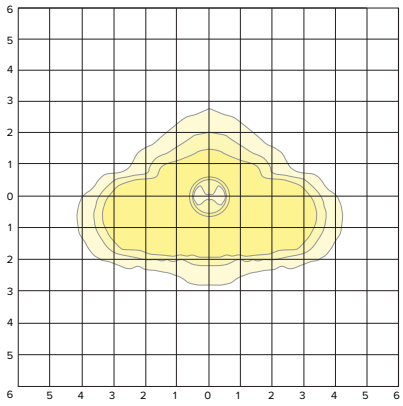
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1305**
Watts	**21.74**
Efficacy	**60.0**
IES Type	**II**
BUG Rating	**B0-U0-G0**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1073	82.2%
Downward House Side	233	17.8%
Downward Total	1306	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1306	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY

PA7R-NU3-12L-020-4K7

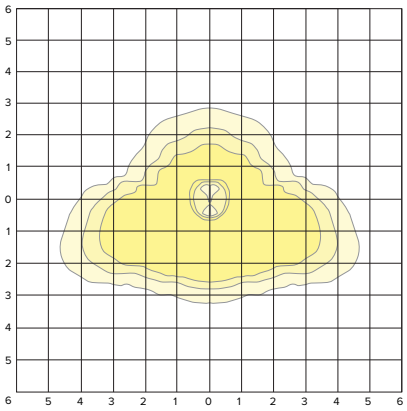
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1228**
Watts	**21.76**
Efficacy	**56.0**
IES Type	**III**
BUG Rating	**B0-U0-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1035	84.3%
Downward House Side	194	15.8%
Downward Total	1228	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1228	100%

ISOFOOT CANDLE PLOT



PA7R-NU3HS-12L-020-4K7

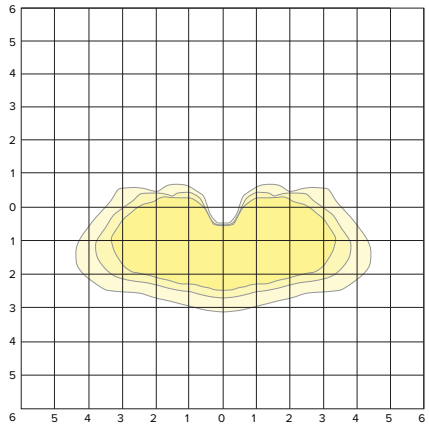
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1037**
Watts	**21.74**
Efficacy	**48.0**
IES Type	**III**
BUG Rating	**B0-U0-G0**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	987	95.1%
Downward House Side	51	4.9%
Downward Total	1038	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1038	100%

ISOFOOT CANDLE PLOT



PA7R-NU4-12L-020-4K7

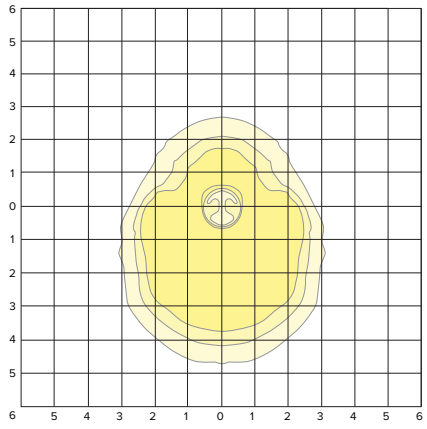
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1482**
Watts	**21.67**
Efficacy	**68.0**
IES Type	**IV**
BUG Rating	**B0-U0-G1**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1318	88.9%
Downward House Side	164	11.1%
Downward Total	1483	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1483	100%

ISOFOOT CANDLE PLOT



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PA7R IMPACT RATED

BOLLARD

PHOTOMETRY(CONTINUED)

PA7R-NU5-12L-020-4K7

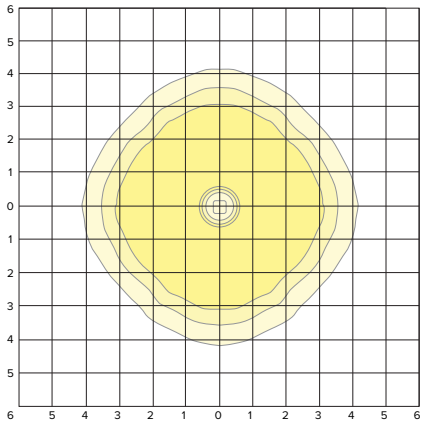
LUMINAIRE DATA

Description	**4000K, 70CRI**
Delivered Lumens	**1377**
Watts	**21.68**
Efficacy	**63.0**
IES Type	**VS**
BUG Rating	**B1-U0-G0**
Mounting Height	**3.5 ft**
Grid Scale	**6 ft**

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	689	50.0%
Downward House Side	689	50.0%
Downward Total	1377	100%
Upward Street Side	0	0%
Upward House Side	0	0%
Upward Total	0	0%
Total Flux	1377	100%

ISOFOOT CANDLE PLOT



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KIM LIGHTING®

DATE: LOCATION:

TYPE: PROJECT:

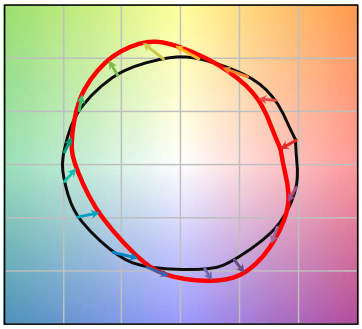
CATALOG #:

PA7R IMPACT RATED

BOLLARD

TM-30 DATA

COLOR VECTOR GRAPHIC

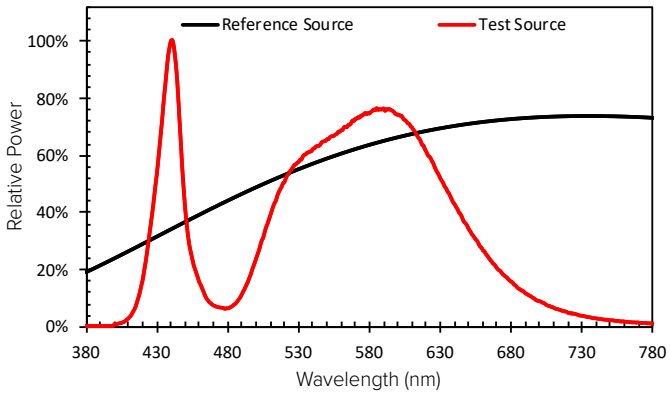


Reference Illuminant — Test Source

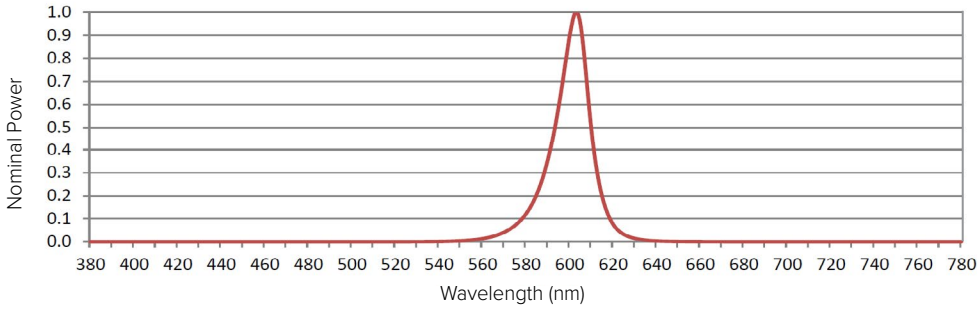
TEST SOURCE

R_f	68
R_g	99
CCT(K)	3947
D_{UV}	0.0004
x	0.3831
y	0.3793
CIE R_a	72

SPECTRAL POWER DISTRIBUTION COMPARISON



AMBER SPECTRAL POWER DISTRIBUTION



ELECTRICAL DATA

Electrical													Dimming				
# LED	System Watts	Drive Current	Line Voltage		Amps AC						Min. Power Factor	Max THD (%)	Dimming Range	Source current out of 0-10V		Absolute voltage range on 0-10V (+)	
			VAC	Hz	120	208	240	277	347	480				Min	Max	Min	Max
12	22	550mA	120-480	50/60	0.18	0.11	0.09	0.08	0.06	0.05	>0.9	20	10% to 100%	0mA	1mA	0V	10V
	14	350mA			0.12	0.07	0.06	0.05	0.04	0.03							

TM-21 Lifetime Calculation - Projected Lumen Maintenance (25°C / 77°C) & (40°C / 104°C)						
Hours	0	25,000	36,000	50,000	100,000	Reported L70
Projected Lumen Maintenance	100%	98%	97%	95%	90%	60khrs

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	0.255		

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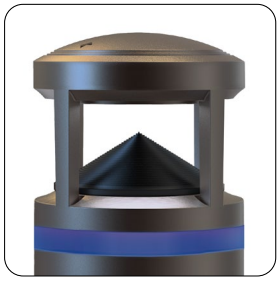
PA7R IMPACT RATED

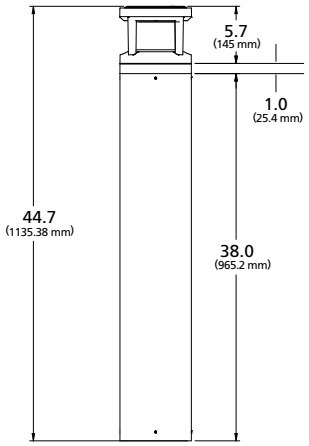
BOLLARD

ADDITIONAL INFORMATION

LUMINOUS ACCENT:

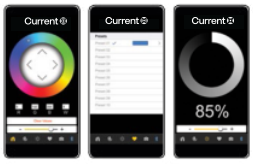
- The Luminous Accent option adds an additional 1" / 25.4mm to the overall fixture height and may be controlled via wired DMX RDM or Bluetooth wireless. The Luminous Accent shall be IK08.





HUBBELL LIGHTING RGBW REMOTE APP

- The Hubbell Lighting RGBW Remote application may be downloaded free of charge from the Apple App Store or Google Play.
- Color selection and adjustment.
- Camera function for color matching.
- Intensity slider for dimming/ramping up.
- Save and rename up to 10 presets.
- Group and rename fixtures.
- Fixture is password protected, refer to instructions to set unique password.



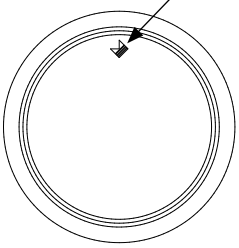
MOUNTING

ALUMINUM BODY

- Once attached to base mounting plate, fixture may be rotated 20° in either direction and secured with set screws at base of the bollard body. KIM Lighting logo indicates 'street side' output. Once installed on the impact post, fixture may be rotated 360 degrees and secured with set screw

Street Side

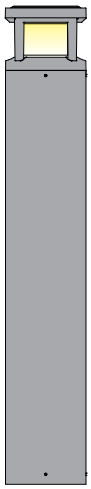
Kim Lighting Logo



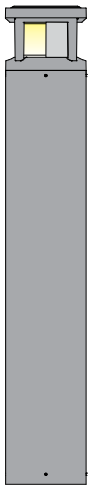
Top View

SHIELDING

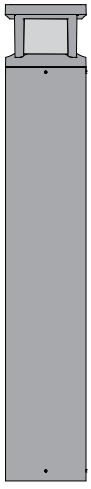
- HS configurations feature factory installed 180° shield(s) that may also be installed in the field for any Optic configuration.



HS Front View



HS Side View



HS Back View

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All values are design or typical values when measured under laboratory conditions.

WILA PUCK XT
Recessed LED Handrail Luminaire

TYPE
XLR1

PUCKXT-RD-30K-ASB

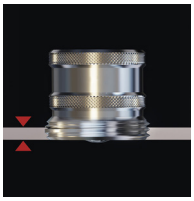
.hess

DESCRIPTION

Wila Puck XT is a self-contained recessed luminaire for installation into round or square metal handrail profiles or similar metallic structures. The lighting module is available in warm or neutral color temperatures, along with an array of solid colors, and a choice of light distributions to satisfy a variety of installation conditions.

FEATURES

- Self-contained stainless steel IP-66 rated LED module
- Remote driver allows up to 15 PUCK XT modules per circuit
- Shunt bypass allows remaining modules to operate in case of single failure
- Three light distributions to meet varying applications
- Available in 2700K, 3000K, 4000K, True Amber, Red, Green, or Blue



EXPress SHIPPING PROGRAM

ORDERING INFORMATION

LUMINAIRE

MODEL	APPLICATION	CCT	OPTIC
PUCK-XT LED Handrail Module	**RD** Round Handrail	**27K** 2700K	**ASB** Asymmetric Beam
	SQ Square Handrail	**30K** 3000K	**DSB** Double-Sided Beam
		40K 4000K	**OSB*** One-Sided Beam (*for round handrail applications only)
		R Red	
		G Green	
		B Blue	
		A True Amber (590 to 595nm)	

TRADE AGREEMENT ACT COMPLIANCE EXPERIENCE BRANDS

PUCK XT-GEL FILLED-TERMINAL
(2) Gel Connectros per Puck
RMTPS-UNV-25-500-DIMDriver -
Qt. 4-15 Pucks per (1) Driver

REMOTE POWER SUPPLY WITH ENCLOSURE

RMTPS-UNV-20-500-DIM
Remote Power Supply With Enclosure, Universal 120/277v Input, 20 Watts, 500mA Drive Current, 0-10v Dimming
Maximum Number of Pucks: 12 (Static White), 22 (Red or Amber), 16 (Green), or 18 (Blue)

RMTPS-UNV-25-500-DIM
Remote Power Supply With Enclosure, Universal 120/277v Input, 25 Watts, 500mA Drive Current, 0-10v Dimming
Maximum Number of Pucks: 15 (Static White), 29 (Red or Amber), 21 (Green), or 23 (Blue)

ACCESSORIES

MP003
Gel-Filled Connector

MP011
PUCK XT Installation Tool

MP016
PUCK XT Drill Guide Jig

MP098
17mm Drill Bit

MP099
M18 x 1" Tap

In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials. Technical specification sheets that appear online are the most recent ones available. *Consult the factory to verify current status of BAA/TAA/BABAA compliance.

		PUCK XT
PHYSICAL	HOUSING	316 Stainless Steel
	LENS	Polycarbonate
	DRIVER LOCATION	Remote (Ordered Seperately)
	DRIVER MOUNTING DISTANCE	Maximum Distance from Driver to Furthest Luminaire is 150 Feet
	DIMENSIONS	ø0.7" x 0.6" Depth
	INSTALLATION DEPTH	0.7"
	WEIGHT	18 Ounces
	OPERATING TEMPERATURE	-4°F to 140°F (-20°C to 60°C)
	THREAD SIZE	M18 x 1 Note: For round railing, Puck XT is compatible with diameters from 1.5" to 3.9" (38mm to 100mm) with minimum wall thickness of 1/16" (1.5mm). ADA-compliant railing diameters are 1¼" to 2" OD.

ELECTRICAL	DRIVE CURRENT	500mA* *Note: For installation into non-metallic materials, consult factory.			
	MAXIMUM NUMBER OF PUCKS PER DRIVER	PUCK MODEL	POWER CONSUMPTION	20 WATT DRIVER	25 WATT DRIVER
		Static White	1.5 Watts per Puck	12 Pucks	15 Pucks
		Red or Amber	0.8 Watts per Puck	22 Pucks	29 Pucks
		Green	1.1 Watts per Puck	16 Pucks	21 Pucks
		Blue	1 Watt per Puck	18 Pucks	23 Pucks

PHOTOMETRIC	CCT	Static White 2700K, 3000K, or 4000K, True Amber (590-595nm), Red, Green, or Blue			
	CRI	> 80 (Static White Models)			
	LUMEN OUTPUT	From 45 to 185 Lumens			
	EFFICACY	Up to 123 Lumens per Watt			
	LUMEN MAINTENANCE	L90/B10 ≥ 50,000 Hours at 77°F*			
	BUG RATING		ROUND		SQUARE
			3000K	4000K	3000K	4000K
		ASYMMETRIC	B0-U1-G0	B0-U1-G0	B0-U1-G0	B0-U1-G0
		DOUBLE-SIDED	B0-U1-G0	B0-U1-G0	B0-U0-G0	B0-U1-G0
		ONE-SIDE NADIR	B0-U1-G0	B0-U1-G0	*One-sided beam is only available on round handrail applications.*	
		ONE-SIDE 30°	B0-U2-G1	B0-U2-G1		

LIGHT DISTRIBUTIONS	ROUND HANDRAIL									SQUARE HANDRAIL					
CCT	ONE-SIDED BEAM			DOUBLE-SIDED BEAM			ASYMMETRIC BEAM			DOUBLE-SIDED BEAM			ASYMMETRIC BEAM		
	LUMENS	WATTS	LM/W	LUMENS	WATTS	LM/W	LUMENS	WATTS	LM/W	LUMENS	WATTS	LM/W	LUMENS	WATTS	LM/W
2700K	165	1.5	110	166	1.5	110	156	1.5	104	165	1.5	110	152	1.5	101
3000K	169	1.5	113	170	1.5	113	159	1.5	106	170	1.5	113	156	1.5	104
4000K	177	1.5	118	185	1.5	123	169	1.5	113	185	1.5	123	169	1.5	113
RED	61.8	0.8	74.5	61.8	0.8	74.5	55	0.8	66.3	61.8	0.8	74.5	55	0.8	66.3
GREEN	95.5	1.1	86	95.5	1.1	86	90.8	1.1	81.8	95.5	1.1	86	90.8	1.1	81.8
BLUE	46.3	1	45.4	46.3	1	45.4	45.9	1	45	46.3	1	45.4	45.9	1	45
AMBER	47.9	0.8	61.5	47.9	0.8	61.5	44.9	0.8	57.5	47.9	0.8	61.5	44.9	0.8	57.5

* LED life may vary under actual field conditions due to external factors. Lifetime estimates are generated from actual testing in a controlled environment. Values are conservatively derived from those numbers.

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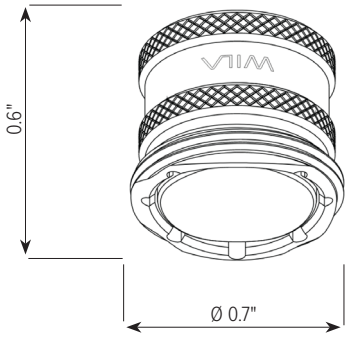
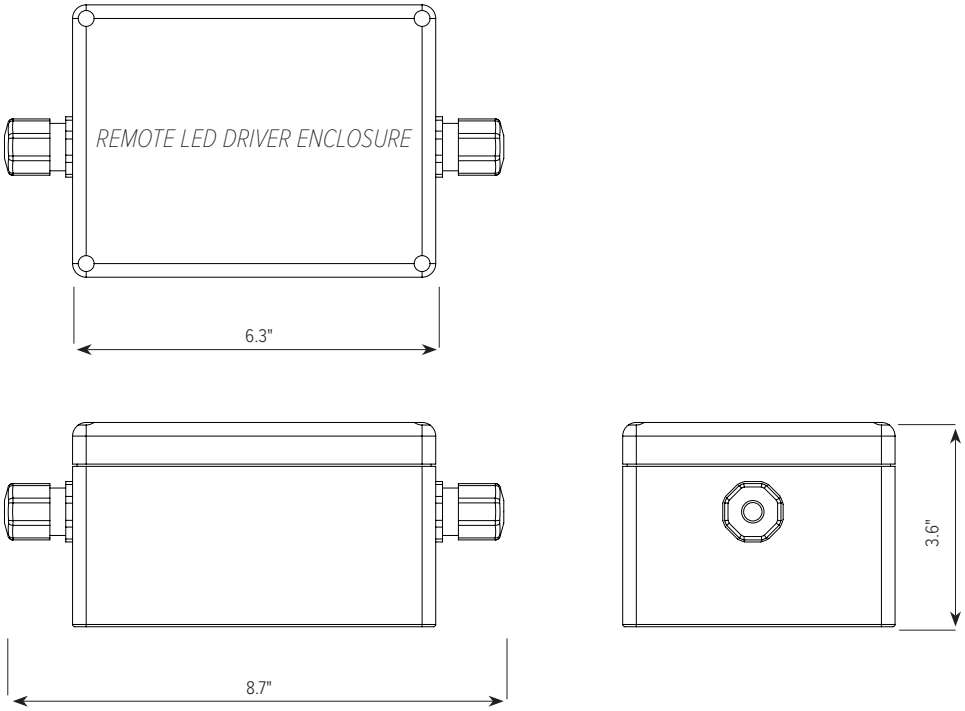
CERTIFICATIONS	SAFETY	CSA Certified for Wet Locations
	INGRESS PROTECTION	IP66 / NEMA 4X
	IMPACT RATING	IK10
	WARRANTY	Five Year Limited Warranty

DIMENSIONS





LIGHT DISTRIBUTIONS

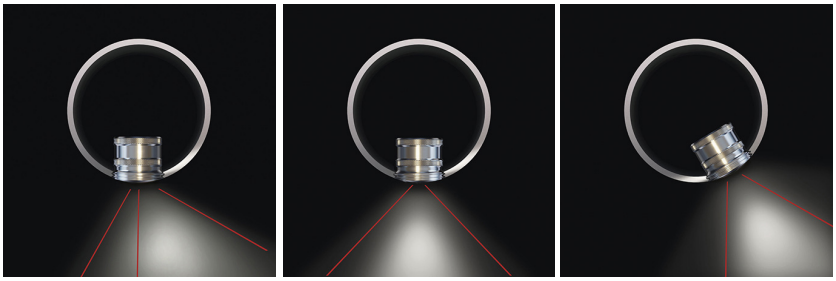
For Round Handrails:

- Asymmetric
- Double-Sided Beam
- One-Sided Beam

For Square Handrails:

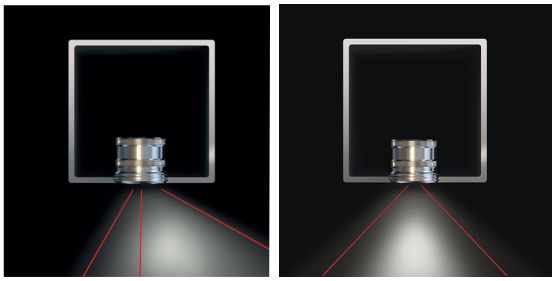
- Asymmetric
- Double-Sided Beam

ROUND HANDRAIL

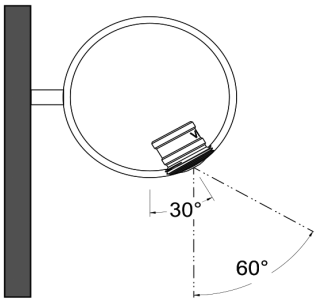


Asymmetric Beam | Double-Sided Beam | One-Sided Beam

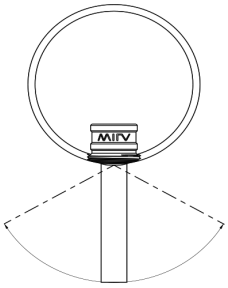
SQUARE HANDRAIL



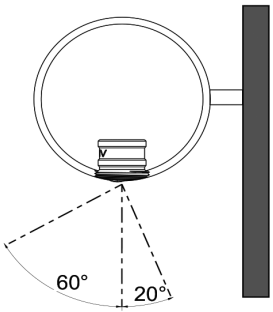
Asymmetric Beam | Double-Sided Beam



One-Sided Beam
Perimeter or Wall Mounted Railing



Double-Sided Beam
Interior Pathway Railing



Asymmetric Beam
Perimeter or Wall Mounted Railing

CUSTOMIZE YOUR EXPERIENCE.

At Experience Brands, we believe every space deserves unique lighting elements. We proudly specialize in crafting solutions that reflect your personal vision. Our expert team is here to collaborate with you to design and implement customized features that elevate your environment.

Ready to Get Started? Email us at: DesignServices@exp-brands.com

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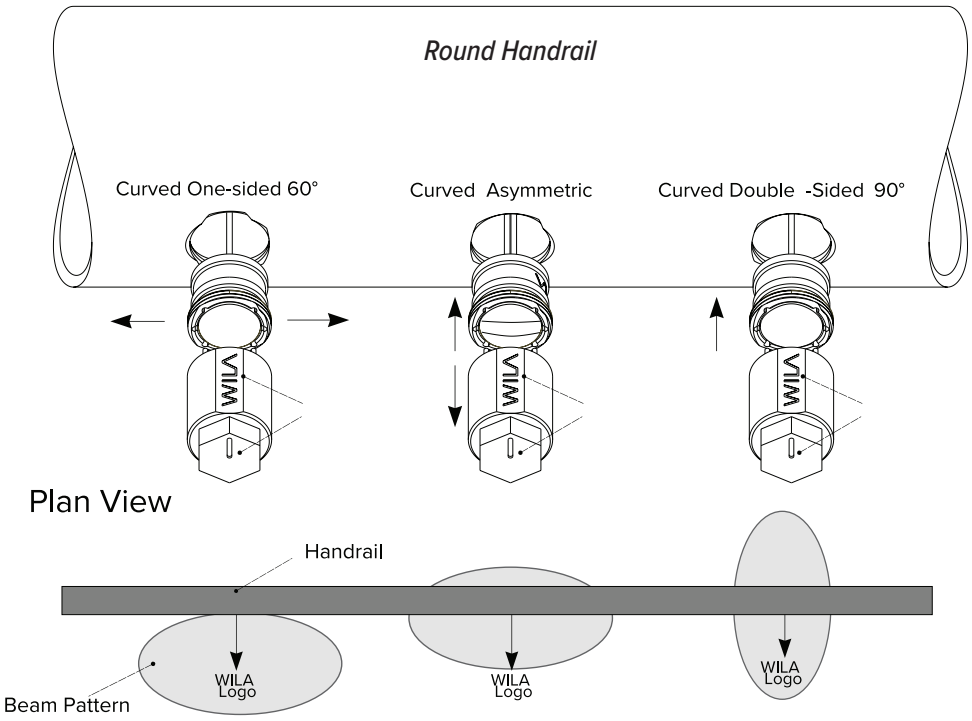
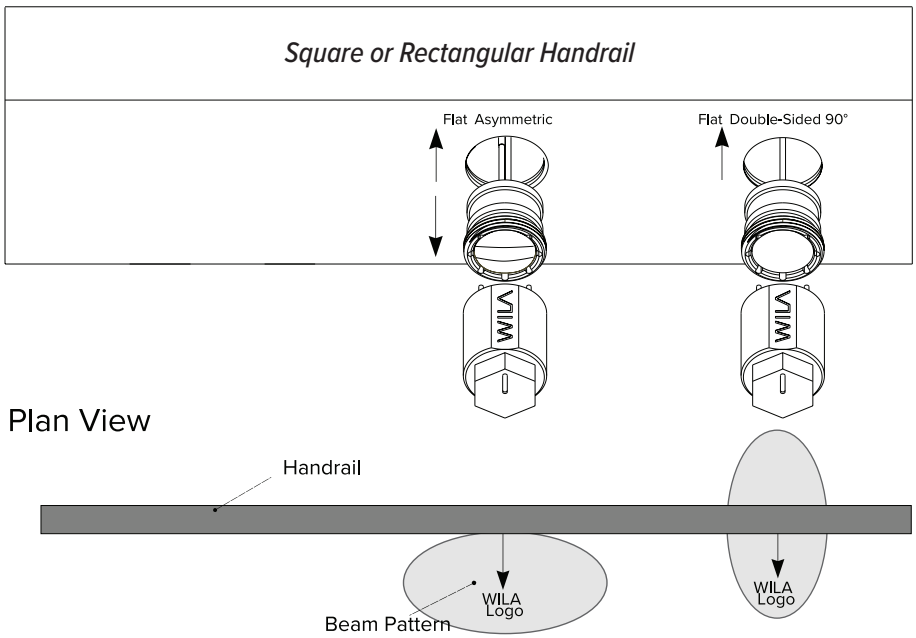
ALIGNMENT ORIENTATION

Align WILA logo / indicator at right angles to handrail in the desired location of illumination. Modules have curved faces for round handrails and flat faces for square or rectangular handrails.





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BEACON
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VIPER Area/Site

VIPER LUMINAIRE

TYPE
XP2/3/4

DATE: | LOCATION:

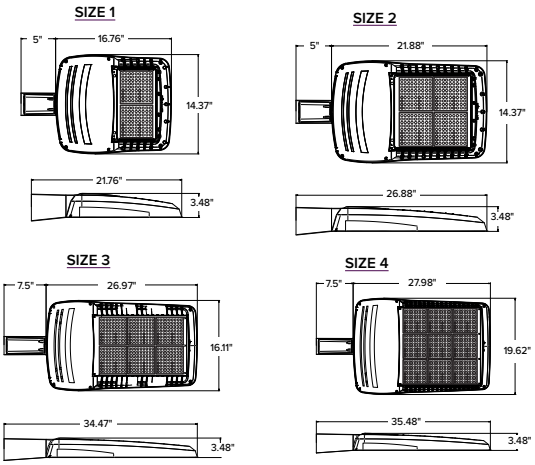
TYPE: | PROJECT:

CATALOG #:

MICRO STRIKE | SILICONE STRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, LightGRID+ and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped



c UL us IP65 IP66 IK10 | DLC LISTED | DLC LISTED PREMIUM | ida DARK SKY APPROVED 2016 | BAA | TAA

CONTROL TECHNOLOGY

NX CONNECT | NX WIRED | NX WIRELESS | LIGHTGRID+

SERVICE PROGRAMS

STOCK | QS10

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 4
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 5
- Silicone Strike Optics (40, 80, 120, or 180 LED counts) maximize uniformity in applications and provides the highest LPW. These include an integral gasket allowing for IP66 rating. Catalog logic found on page 2
- All optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V Dimming Drivers are standard. Select CD option to have dimming leads extended outside the luminaire. Must specify if wiring leads are to be greater than the 6" standard.

	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

CONTROLS (CONTINUED)

- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- LightGRID+ available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations listed in this document are DLC® qualified. Refer to http://www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated with Strike and Microstrike optics. Fixture is IP66 rated with Silicone Strike optics.
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions).
- FCC CFR Title 47 Part 15, Class A
- IK10 (Silicone Strike Optics Only)

WARRANTY

- 5 year warranty

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BEACON
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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

SILICONE STRIKE OPTIC – ORDERING GUIDE

Example: VP-SS-1-40L-75-4K7-4W-UNV-ASQU-BLT

CATALOG #

VP – _____ – _____ – _____ – _____ – _____ – _____ – _____ – _____

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP Viper	**SS** Strike Silicone	**1** Size 1	**40L-35** 35W, 5,500 Lumens	**22K7** 2200K, 70 CRI	**2** Type 2	**BLANK** No Rotation	**UNV** 120-277V
			40L-50 50W, 7,500 Lumens	**27K7** 2700K, 70 CRI	**3** Type 3	**L** Optic rotation left	**120** 120V
			40L-65 65W, 10,000 Lumens	**27K8** 2700K, 80 CRI	**4W** Type 4 Wide	**R** Optic rotation right	**208** 208V
			40L-80 80W, 12,500 Lumens	**3K7** 3000K, 70 CRI	**4F** Type 4 Forward		**240** 240V
			40L-100 100W, 15,000 Lumens	**3K8** 3000K, 80 CRI	**5QM** Type 5 Square Medium		**277** 277V
			40L-120 120W, 17,500 Lumens	**35K8** 3500K, 80 CRI	**5QW** Type 5 Square Wide		**347** 347V
			40L-140 140W, 20,000 Lumens	**4K7** 4000K, 70 CRI			**480** 480V
			40L-170 170W, 22,500 Lumens	**4K8** 4000K, 80 CRI			
			40L-195 195W, 25,000 Lumens	**5K7** 5000K, 70 CRI			
		2 Size 2	**80L-75** 75W, 12,500 Lumens	**5K8** 5000K, 80 CRI			
			80L-90 90W, 15,000 Lumens				
			80L-105 105W, 17,500 Lumens				
			80L-130 130W, 21,000 Lumens				
			80L-155 155W, 24,000 Lumens				
			80L-175 175W, 27,000 Lumens				
			80L-205 205W, 30,000 Lumens				
			80L-225 225W, 33,000 Lumens				
			80L-250 250W, 36,000 Lumens				
			80L-280 280W, 40,000 Lumens				
		3 Size 3	**120L-190** 190W, 30,000 Lumens				
			120L-205 205W, 33,000 Lumens				
			120L-230 230W, 36,000 Lumens				
			120L-265 265W, 40,000 Lumens				
			120L-295 295W, 44,000 Lumens				
			120L-320 320W, 48,000 Lumens				
			120L-355 355W, 52,000 Lumens				
			120L-380 380W, 55,000 Lumens				
			120L-420 420W, 60,000 Lumens				
		4 Size 4	**180L-275** 275W, 44,000 Lumens				
			180L-295 295W, 48,000 Lumens				
			180L-335 335W, 52,000 Lumens				
			180L-360 360W, 55,000 Lumens				
			180L-395 395W, 60,000 Lumens				
			180L-435 435W, 65,000 Lumens				
			180L-470 470W, 70,000 Lumens				
			180L-510 510W, 75,000 Lumens				
			180L-550 550W, 80,000 Lumens				

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VIPER Area/Site

VIPER LUMINAIRE

SILICONE STRIKE OPTIC – ORDERING GUIDE (CONTINUED)

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Options	
BC	Backlight Control (3%)
MBC	Max Backlight Control (1.5%)
LCC	Left Corner Control
RCC	Right Corner Control
F	Fusing
E	Battery Backup [1,2,7,8,9]
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
TB	Terminal Block
CD	Customer Dimming
LS	Lumen Switch

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [4,5]
WIR	LightGRID+ In-Fixture Module [4,5]
WIRSC	LightGRID+ Module and Occupancy Sensor [4,5]
Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [13]
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens [13]
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [13]
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
7PR-TL	7-Pin PCR with photocontrol
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]
Programmed Controls	
SCP-_F	Sensor Control Programmable, 8F or 40F [11]
ADD	AutoDim Timer Based Dimming [12]
ADT	AutoDim Time of Day Dimming [12]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 2.75"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
12 - Please refer to page 8 for AutoDim ordering guide
13 - BTSO and BTS are only compatible at 50W or greater.

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XP-2	CURRENT	VP-1-160L-100-3K7-2-UNV
XP-3	CURRENT	VP-1-160L-100-3K7-3-UNV
XP-4Fa	CURRENT	VP-1-160L-100-3K7-4F-UNV
XP-4Fb	CURRENT	VP-1-160L-35-3K7-4F-UNV
XP-4W	CURRENT	VP-1-160L-100-3K7-4W-UNV

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VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Gray Shading = Service Program Limit of 15 luminaires

QS10

Example: VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

varies by type see above

varies by type see above

VP							
Series	**Optic Platform**	**Size**	**Light Engine**	**CCT/CRI**	**Distribution**	**Optic Rotation**	**Voltage**
VP Viper	Micro Strike	1 Size 1	160L-35 [6] 5500 lumens	AP AP-Amber Phosphor Converted	2 Type 2	BLANK No Rotation	UNV 120-277V
			160L-50 [6] 7500 lumens	27K8 2700K, 80 CRI	3 Type 3	L Optic rotation left	120 120V
			160L-75 10000 lumens	3K7 3000K, 70 CRI	4F Type 4 Forward	R Optic rotation right	208 208V
			160L-100 12500 lumens	3K8 3000K, 80 CRI	4W Type 4 Wide		240 240V
			160L-115 15000 lumens	35K8 3500K, 80 CRI	5QW Type 5 Square Wide		277 277V
			160L-135 18000 lumens	3K9 3000K, 90 CRI			347 347V
			160L-160 21000 lumens	4K7 4000K, 70 CRI			480 480V
		2 Size 2	320L-145 21000 lumens	4K8 4000K, 80 CRI			
			320L-170 24000 lumens	4K9 4000K, 90 CRI			
			320L-185 27000 lumens	5K7 5000K, 70 CRI			
			320L-210 30000 lumens	5K8 5000K, 80 CRI			
			320L-235 33000 lumens				
			320L-255 36000 lumens				
			320L-315 [6] 40000 lumens				
		3 Size 3	480L-285 40000 lumens				
			480L-320 44000 lumens				
			480L-340 48000 lumens				
			480L-390 52000 lumens				
			480L-425 55000 lumens				
			480L-470 60000 lumens				
		4 Size 4	720L-435 60000 lumens				
			720L-475 65000 lumens				
			720L-515 70000 lumens				
			720L-565 [6] 75000 lumens				
			720L-600 [6] 80000 lumens				
			CLO Custom Lumen Output [1]				

Mounting		Color		Options		Network Control Options	
A	Arm mount for square pole/flat surface (B3 Drill Pattern) (Does not include round pole adapter)	BLT	Black Matte Textured	F	Fusing	NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
A_	Arm mount for round pole [2]	BLS	Black Gloss Smooth	2PF	Dual Power Feed	NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
ASQU	Universal arm mount for square pole. Can be used with B3 or S2 Drill Pattern	DBT	Dark Bronze Matte Textured	2DR	Dual Driver	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
A_U	Universal arm mount for round pole [2]	DBS	Dark Bronze Gloss Smooth	TE	Tooless Entry	WIR	LightGRID+ In-Fixture Module [3,4]
AAU	Adjustable arm for pole mounting (universal drill pattern)	GTT	Graphite Matte Textured	BC	Backlight Control [8]	WIRSC	LightGRID+ Module and Occupancy Sensor [3,4]
AA_U	Adjustable arm mount for round pole [2]	LGS	Light Grey Gloss Smooth	TB	Terminal Block	**Stand Alone Sensors**	
ADU	Decorative upswept Arm (universal drill pattern)	LGT	Light Grey Gloss Textured	CD	Customer Dimming	BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
AD_U	Decorative upswept arm mount for round pole [2]	PSS	Platinum Silver Smooth			BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
MAF	Mast arm fitter for 2-3/8" OD horizontal arm	WHT	White Matte Textured			BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
K	Knuckle	WHS	White Gloss Smooth			7PR	7-Pin Receptacle [4]
T	Trunnion	VGT	Verde Green Textured			7PR-SC	7-Pin Receptacle with shorting cap [4]
WB	Wall Bracket, horizontal tenon with MAF	**Color Option**				7PR-TL	7-Pin PCR with photocontrol
WM	Wall mount bracket with decorative upswept arm	CC	Custom Color			3PR	3-Pin twist lock [4]
WA	Wall mount bracket with adjustable arm					3PR-SC	3-Pin receptacle with shorting cap [4]
						3PR-TL	3-Pin PCR with photocontrol [4]
						Programmed Controls	
						SCP-_F	Sensor Control Programmable, 8F or 40F [9]
						ADD	AutoDim Timer Based Dimming [10]
						ADT	AutoDim Time of Day Dimming [10]

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2 – Replace "_" with "3" for 2.75"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V
8 – BC not available on 4F and type 5 distributions
9 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
10 - Please refer to page 8 for AutoDim ordering guide

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

VP –

Series	
VP	Viper

– | Optic Platform | |
|---|---|
| ST | Strike |

– | Size | |
|---|---|
| 1 | Size 1 |
| 2 | Size 2 |
| 3 | Size 3 |
| 4 | Size 4 |

– | Light Engine | |
|---|---|
| 36L-39 [8] | 5500 lumens |
| 36L-55 [8] | 7500 lumens |
| 36L-85 | 10000 lumens |
| 36L-105 | 12500 lumens |
| 36L-120 | 14000 lumens |
| 72L-115 | 15000 lumens |
| 72L-145 | 18000 lumens |
| 72L-180 | 21000 lumens |
| 72L-210 | 24000 lumens |
| 72L-240 | 27000 lumens |
| 108L-215 [8] | 27000 lumens |
| 108L-250 | 30000 lumens |
| 108L-280 | 33000 lumens |
| 108L-325 | 36000 lumens |
| 108L-365 | 40000 lumens |
| 162L-320 | 40000 lumens |
| 162L-365 [10] | 44000 lumens |
| 162L-405 | 48000 lumens |
| 162L-445 | 52000 lumens |
| 162L-485 | 55000 lumens |
| 162L-545 [8] | 60000 lumens |
| CLO | Custom Lumen Output [1] |

– | CCT/CRI | |
|---|---|
| AM | monochromatic amber, 595nm |
| 27K8 | 2700K, 80 CRI |
| 3K7 | 3000K, 70 CRI |
| 3K8 | 3000K, 80 CRI |
| 3K9 | 3000K, 90 CRI |
| 35K8 | 3500K, 80 CRI |
| 4K7 | 4000K, 70 CRI |
| 4K8 | 4000K, 80 CRI |
| 4K9 | 4000K, 90 CRI |
| 5K7 | 5000K, 70 CRI |
| 5K8 | 5000K, 80 CRI |

– | Distribution | |
|---|---|
| FR | Auto Front Row |
| 2 | Type 2 |
| 3 | Type 3 |
| 4F | Type 4 Forward |
| 4W | Type 4 Wide |
| 5QN | Type 5 Square Narrow |
| 5QW | Type 5 Square Wide |
| 5QM | Type 5 Square Medium |
| 5W | Type 5 Wide (Round) |
| 5RW | Type 5 Rectangular |
| C | Corner Optic |
| TC | Tennis Court Optic |

– | Optic Rotation | |
|---|---|
| BLANK | No Rotation |
| L | Optic rotation left |
| R | Optic rotation right |

– | Voltage | |
|---|---|
| UNV | 120-277V |
| 120 | 120V |
| 208 | 208V |
| 240 | 240V |
| 277 | 277V |
| 347 | 347V |
| 480 | 480V |

–

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

– | Color | |
|---|---|
| BLT | Black Matte Textured |
| BLS | Black Gloss Smooth |
| DBT | Dark Bronze Matte Textured |
| DBS | Dark Bronze Gloss Smooth |
| GTT | Graphite Matte Textured |
| LGS | Light Grey Gloss Smooth |
| LGT | Light Grey Gloss Textured |
| PSS | Platinum Silver Smooth |
| WHT | White Matte Textured |
| WHS | White Gloss Smooth |
| VGT | Verde Green Textured |

Color Option	
CC	Custom Color

– | Options | |
|---|---|
| F | Fusing |
| E | Battery Backup [1,2,7,8,9] |
| 2PF | Dual Power Feed |
| 2DR | Dual Driver |
| TE | Tooless Entry |
| BC | Backlight Control |
| TB | Terminal Block |
| CD | Customer Dimming |

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [4,5]
WIR	LightGRID+ In-Fixture Module [4,5]
WIRSC	LightGRID+ Module and Occupancy Sensor [4,5]

Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
7PR-TL	7-Pin PCR with photocontrol
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls	
SCP-_F	Sensor Control Programmable, 8F or 40F [11]
ADD	AutoDim Timer Based Dimming [12]
ADT	AutoDim Time of Day Dimming [12]

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4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
12 - Please refer to page 8 for AutoDim ordering guide

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ORDERING GUIDE (CONT'D)

CATALOG #

Accessory Type		Size		Option		Color	
SHD	House Side Shield	**1**	Size 1	**HSS-90-B**	House Side Shield 90° Back	**BLS**	Black Gloss Smooth
		2	Size 2	**HSS-90-F**	House Side Shield 90° Front	**BLT**	Black Matte Textured
		3	Size 3	**HSS-90-S**	House Side Shield 90° Side	**DBS**	Dark Bronze Gloss Smooth
		4	Size 4	**HSS-270-BSS**	House Side Shield 270° Back/Side/Side	**DBT**	Dark Bronze Matte Textured
				HSS-270-FSS	House Side Shield 270° Front/Side/Side	**GTT**	Graphite Matte Textured
				HSS-270-FSB	House Side Shield 270° Front/Side/Back	**LGS**	Light Gray Gloss Smooth
				HSS-360	House Side Shield 360°	**PSS**	Platinum Silver Smooth
				BC	Back Light Control	**WHS**	White Gloss Smooth
MTG	Mounting			**A**	Arm Mount for square pole/flat surface	**WHT**	White Matte Textured
				ASQU	Universal Arm Mount for square pole	**VGT**	Green Landscape Decorative
				AAU	Adjustable Arm for pole mounting	**LEG**	Legacy Colors
				ADU	Decorative upswept Arm	**Color Option**	
				RPA	Round Pole Adapter	**CC**	Custom Color
				MAF	Mast Arm Fitter for 2-3/8" OD horizontal arm		
				K	Knuckle		
				T	Trunnion		
				WB	Wall Bracket (compatible with universal arm mounts)		

Accessory Type		Option	
MSC	Miscellaneous	**BIRD SPK**	Bird Spike

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

☐ **NXOFM2-1R1D-UNV** On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with NX Radio and Bluetooth® Radio, 120–480VAC

LightGRID+ Lighting Control

☐ **WIR-RME-L** On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with LightGRID+ Radio, 110–480VAC

☐ **SCP-REMOTE** Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor

For additional information related to these accessories please visit currentlighting.com/beacon. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

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DATE: LOCATION:

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CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

OUTDOOR LIGHTING CONTROLS OPTIONS

CONTROLS FUNCTIONALITY

LIGHTGRID+ NX LIGHTING CONTROLS MOBILE APP

	Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components	
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height		
NX Wireless	NXOFM2-1R1D-UNV	NX 7-Pin Twist-Lock® with NX Networked Wireless Radio, Integral Automatic Dimming Photocell, Integral Single Pole Relay with Dimming, and Bluetooth Programming	✓	✓	✓	Paired with external control	✓	✓	✓	✓	–		NXOFM-1R1D-UV
NX Wireless	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	✓	✓	✓	–	–	✓	✓	✓	–		NXRM2-H
NX Wireless	NXWS12F	NX Networked Wireless Enabled Integral NXSMP2-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	12ft		NXSMP2-OMNI-O
NX Wireless	NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	16ft		NXSMP2-LMO
NX Wireless	NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	40ft		NXSMP2-HMO
LightGRID+	WIR	LightGRID+ In-Fixture Module	✓	–	✓	–	–	✓	✓	Gateway	–		WIR
LightGRID+	WIR-RME-L	LightGRID+ On Fixture Module	✓	–	✓	–	–	✓	✓	Gateway	–		WIR-RME-L
LightGRID+	WIRSC	LightGRID+ Module and Occupancy Sensor	✓	✓	✓	✓	✓	✓	✓	Gateway	14ft - 40ft		BTMSP
Independent	BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	12ft		BTSMP-OMNI-O
Independent	BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	14ft		BTSMP-LMO
Independent	BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	40ft		BTSMP-HMO

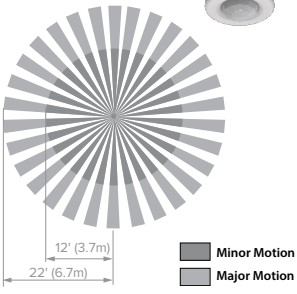
DEFAULT SETTINGS

NX Wireless	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	15 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	0%
Daylight Sensor	Disabled
Bluetooth	Enabled
2.4GHz Wireless Mesh	On
"Passcode Factory Passcode: HubbN3T!"	Enabled

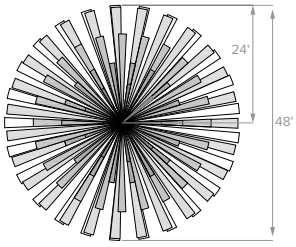
Stand Alone	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	8 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	50%
Daylight Sensor	Disabled

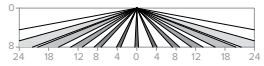
NX WIRELESS COVERAGE PATTERNS

NXSMP2-OMNI



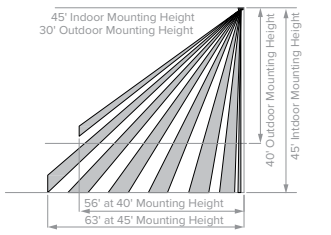
NXSMP2-LMO





Sensor Lens Coverage and Detection Patterns When Mounted at 8ft with Low Mount Lens

NXSMP2-HMO



Sensor Lens Coverage and Detection Patterns When Mounted at 40ft and 45ft with Standard Lens

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VIPER LUMINAIRE

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

NX LIGHTING CONTROLS FREE APP

The NX Lighting Controls App is free to use mobile application for programming both NX Lighting Controls System or Standalone Bluetooth Sensors. The mobile app allows you to configure devices, discover and setup wireless enable luminiares and program NX system settings.

Apple App: https://apps.apple.com/us/app/nx-lighting-controls/id962112904

Google Play: https://play.google.com/store/apps/details?id=io.cordova.NXBTR&hl=en_US&gl=US

Apple App

Google Play

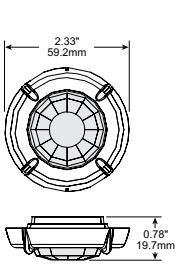
CONTROLS TECH SUPPORT 800-888-8006 (7:00 AM - 7:00 PM)

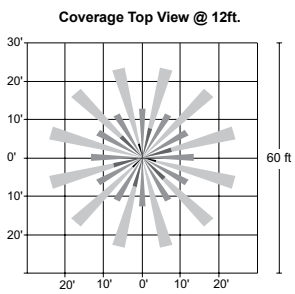
OUTDOOR LIGHTING CONTROLS OPTIONS

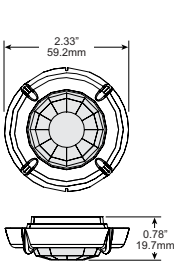
CONTROLS FUNCTIONALITY

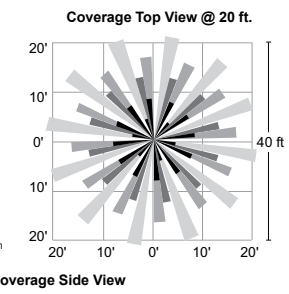
	Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components	
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height		
Independent	SCP_F	Sensor Control Programmable, 8F or 40F	–	–	–	✓	✓	✓	✓	–	8ft or 40ft		SCP_F
	ADD	AutoDIM Timer Based Dimming	–	–	✓	–	–	–	✓	–	–		ADD
	ADT	AutoDIM Time of Day Dimming	–	–	✓	–	–	–	✓	–	–		ADT
	7PR	7-Pin Receptacle	–	–	Paired with external control	–	Paired with external control	–	Paired with external control	–	–		7PR
	7PR-SC	7-Pin Receptacle with shorting cap	–	–	–	–	–	–	–	–	–		7PR-SC
	3PR	3-Pin twist lock	–	–	–	–	–	–	Paired with external control	–	–		3PR
	3PR-SC	3-Pin Receptacle with shorting cap	–	–	–	–	–	–	–	–	–		3PR-SC
	3PR-TL	3-Pin with photocontrol	–	–	–	–	✓	–	✓	–	–		3PR-TL

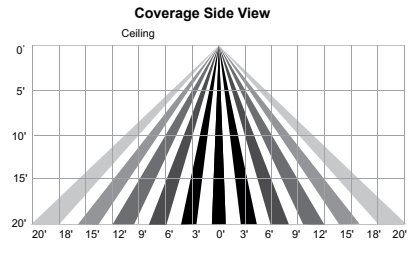
COVERAGE PATTERNS FOR SCP_F



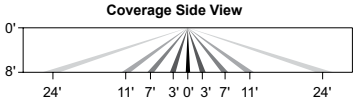


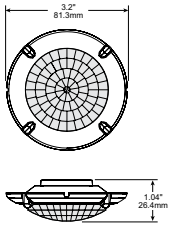


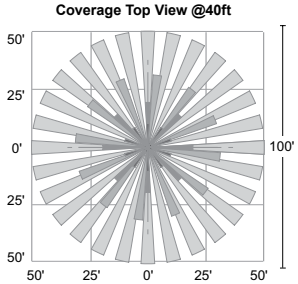


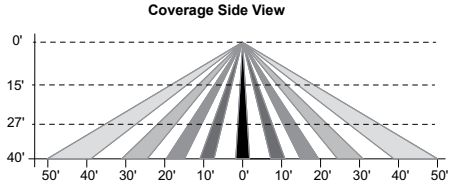


Coverage Side View









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BEACON
design . performance . technology

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

ORDERING GUIDE

Auto Dim Code	Timer Base (ADD) Auto-Dim Options		Auto Dim Cod	Time of Day (ADT) Auto-Dim Options
D1	Delay 1 hour		T0	Delay Midnight
D2	Delay 2 hours		T1	Delay 1 AM
D3	Delay 3 hours		T2	Delay 2 AM
D4	Delay 4 hours		T3	Delay 3 AM
D5	Delay 5 hours	OR	T4	Delay 10 PM
D6	Delay 6 hours		T5	Delay 11 PM
D7	Delay 7 hours		T6	Delay 6 PM
D8	Delay 8 hours		T7	Delay 7 PM
D9	Delay 9 hours		T8	Delay 8 PM
D0	Delay 0 hours		T9	Delay 9 PM

Code	Auto-Dim Brightness
0	100% Brightness
1	10% Brightness
2	20% Brightness
3	30% Brightness
4	40% Brightness
5	50% Brightness
6	60% Brightness
7	70% Brightness
8	80% Brightness
9	90% Brightness

Code	Auto-Dim Return Options
R1	Delay 1 hour or 1 AM
R2	Delay 2 hours or 2 AM
R3	Delay 3 hours or 3 AM
R4	Delay 4 hours or 4 AM
R5	Delay 5 hours or 5 AM
R6	Delay 6 hours or 6 AM
R7	Delay 7 hours or 7 AM
R8	Delay 8 hours or 8 AM
R9	Delay 9 hours or 9 AM
R0	Delay 0 hours or 12 AM

Code	Auto-Dim Brightness
0	100% Brightness
1	10% Brightness
2	20% Brightness
3	30% Brightness
4	40% Brightness
5	50% Brightness
6	60% Brightness
7	70% Brightness
8	80% Brightness
9	90% Brightness

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L_{70} (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	–	0.841	–
3000K	0.977	0.861	0.647
3500K	–	0.900	–
4000K	1	0.926	0.699
5000K	1	0.937	0.791
AP-Amber Phosphor Converted Multiplier			
Amber	0.710		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	See Amber Spec Sheet		

Silicone Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2200K	0.811	–	–
2700K	0.906	0.774	–
3000K	0.943	0.868	–
3500K	–	0.868	–
4000K	1	0.906	–
5000K	1	0.906	–

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DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

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DATE: LOCATION:

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CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	120
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	120.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	0.96
208	0.19	0.26	0.41	0.50	0.55
240	0.16	0.23	0.35	0.44	0.48
277	0.14	0.20	0.31	0.38	0.42
347	0.11	0.16	0.24	0.30	0.33
480	0.08	0.11	0.18	0.22	0.24

# OF LEDS	72				
NOMINAL WATTAGE	115	145	180	210	240
SYSTEM POWER (W)	113.7	143.2	179.4	210.2	241.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.00	1.21	1.50	1.75	1.79
208	0.58	0.70	0.87	1.01	1.03
240	0.50	0.60	0.75	0.88	0.90
277	0.43	0.52	0.65	0.76	0.78
347	0.35	0.42	0.52	0.61	0.62
480	0.25	0.30	0.38	0.44	0.45

# OF LEDS	108				
NOMINAL WATTAGE	215	250	280	325	365
SYSTEM POWER (W)	214.8	250.8	278.3	324.7	362.6
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.00	2.08	2.33	3.04	2.67
208	1.15	1.20	1.35	1.75	1.54
240	1.00	1.04	1.17	1.52	1.33
277	0.87	0.90	1.01	1.32	1.16
347	0.69	0.72	0.81	1.05	0.92
480	0.50	0.52	0.58	0.76	0.67

# OF LEDS		162				
NOMINAL WATTAGE	320	365	405	445	485	545
SYSTEM POWER (W)	322.1	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)		CURRENT (Amps)				
120	2.71	2.67	3.38	3.71	4.04	4.54
208	1.56	1.54	1.95	2.14	2.33	2.62
240	1.35	1.33	1.69	1.85	2.02	2.27
277	1.17	1.16	1.46	1.61	1.75	1.97
347	0.94	0.92	1.17	1.28	1.40	1.57
480	0.68	0.67	0.84	0.93	1.01	1.14

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: SILICONE STRIKE

# OF LEDS	40								
NOMINAL WATTAGE (W)	35	55	65	80	100	120	140	170	195
SYSTEM POWER (W)	34.4	47.4	63.3	82.2	101.7	121.6	141.4	168.8	193.0
INPUT VOLTAGE (V)	CURRENT (A)								
120	0.29	0.40	0.53	0.69	0.85	1.01	1.18	1.41	1.61
208	0.17	0.23	0.30	0.40	0.49	0.58	0.68	0.81	0.93
240	0.14	0.20	0.26	0.34	0.42	0.51	0.59	0.70	0.80
277	0.12	0.17	0.23	0.30	0.37	0.44	0.51	0.61	0.70
347	0.10	0.14	0.18	0.24	0.29	0.35	0.41	0.49	0.56
480	0.07	0.10	0.13	0.17	0.21	0.25	0.29	0.35	0.40

# OF LEDS	80									
NOMINAL WATTAGE (W)	75	90	105	130	155	175	205	225	250	280
SYSTEM POWER (W)	74.0	87.0	105.3	131.9	153.5	175.4	203.4	226.1	249.0	281.0
INPUT VOLTAGE (V)	CURRENT (A)									
120	0.62	0.73	0.88	1.10	1.28	1.46	1.70	1.88	2.08	2.34
208	0.36	0.42	0.51	0.63	0.74	0.84	0.98	1.09	1.20	1.35
240	0.31	0.36	0.44	0.55	0.64	0.73	0.85	0.94	1.04	1.17
277	0.27	0.31	0.38	0.48	0.55	0.63	0.73	0.82	0.90	1.01
347	0.36	0.42	0.51	0.63	0.74	0.84	0.98	1.09	1.20	1.35
480	0.15	0.18	0.22	0.27	0.32	0.37	0.42	0.47	0.52	0.59

# OF LEDS	120								
NOMINAL WATTAGE (W)	190	205	230	265	295	320	355	380	420
SYSTEM POWER (W)	189.8	206.0	230.3	263.2	296.5	322.0	356.3	382.3	421.6
INPUT VOLTAGE (V)	CURRENT (A)								
120	1.58	1.72	1.92	2.19	2.47	2.68	2.97	3.19	3.51
208	0.91	0.99	1.11	1.27	1.43	1.55	1.71	1.84	2.03
240	0.79	0.86	0.96	1.10	1.24	1.34	1.48	1.59	1.76
277	0.69	0.74	0.83	0.95	1.07	1.16	1.29	1.38	1.52
347	0.55	0.59	0.66	0.76	0.85	0.93	1.03	1.10	1.21
480	0.40	0.43	0.48	0.55	0.62	0.67	0.74	0.80	0.88

# OF LEDS	180								
NOMINAL WATTAGE (W)	275	295	335	360	395	435	470	510	550
SYSTEM POWER (W)	272.7	296.8	333.2	357.8	394.7	432.4	470.2	508.7	547.4
INPUT VOLTAGE (V)	CURRENT (A)								
120	2.27	2.47	2.78	2.98	3.29	3.60	3.92	4.24	4.56
208	1.31	1.43	1.60	1.72	1.90	2.08	2.26	2.45	2.63
240	1.14	1.24	1.39	1.49	1.64	1.80	1.96	2.12	2.28
277	0.98	1.07	1.20	1.29	1.42	1.56	1.70	1.84	1.98
347	0.79	0.86	0.96	1.03	1.14	1.25	1.36	1.47	1.58
480	0.57	0.62	0.69	0.75	0.82	0.90	0.98	1.06	1.14

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

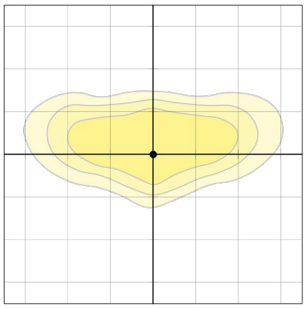
TYPE: PROJECT:

CATALOG #:

SILICONE OPTIC STRIKE PHOTOMETRY

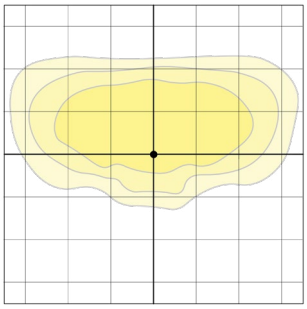
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type 2



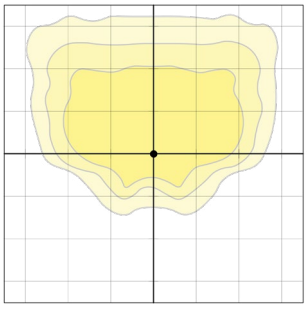
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 3



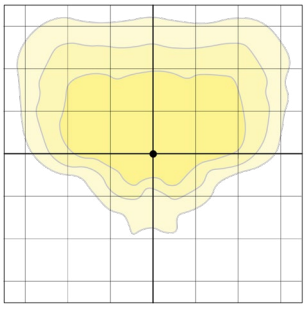
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4 Forward



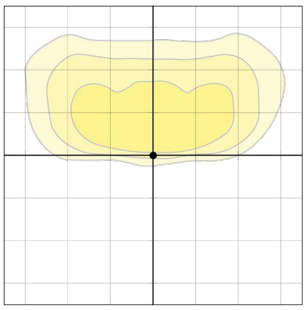
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4 Wide



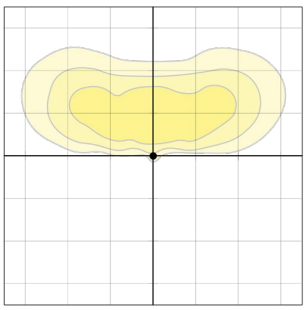
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4WBC



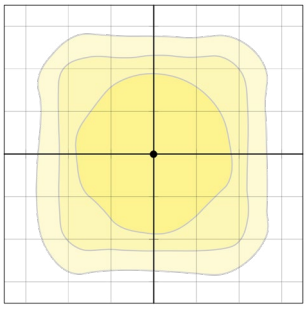
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4WMBC



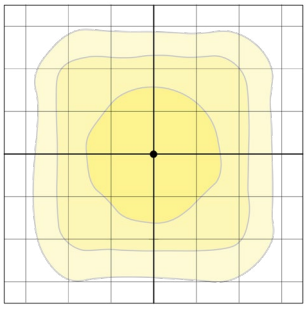
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 5QM



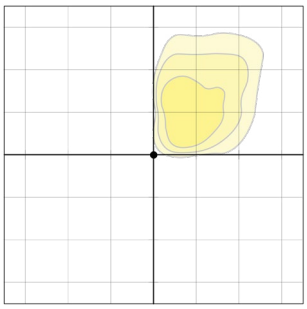
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 5QW



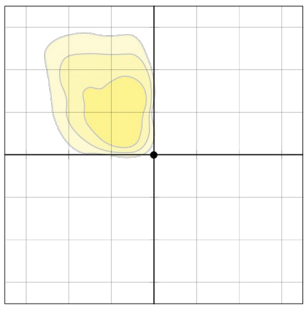
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type LCC



Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type RCC



Mounting Height: 20 ft
Scale: 1 inch = 25 ft

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

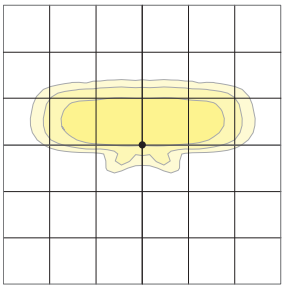
TYPE: PROJECT:

CATALOG #:

MICRO STRIKE PHOTOMETRY

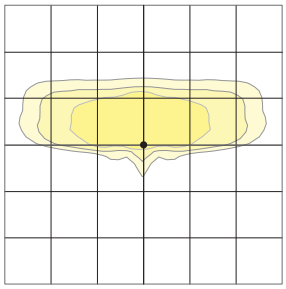
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type 2



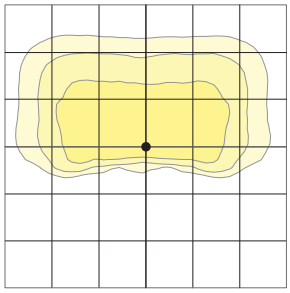
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 3



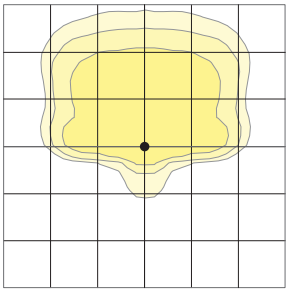
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Wide



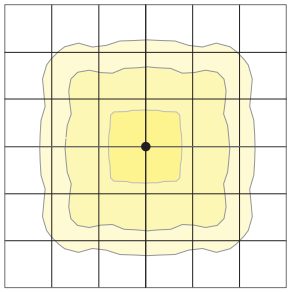
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4F



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QW



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

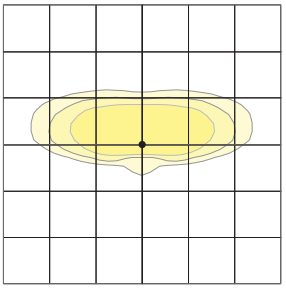
TYPE: PROJECT:

CATALOG #:

OPTIC STRIKE PHOTOMETRY

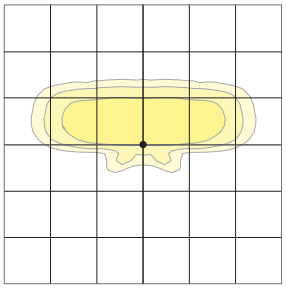
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type FR – Front Row/Auto Optic



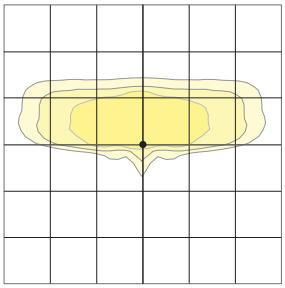
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 2



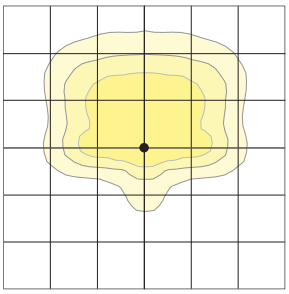
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 3



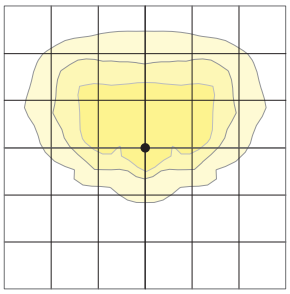
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Forward



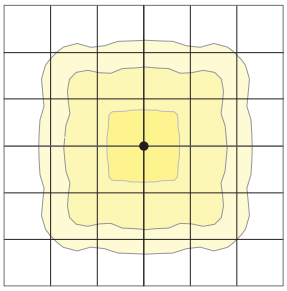
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Wide



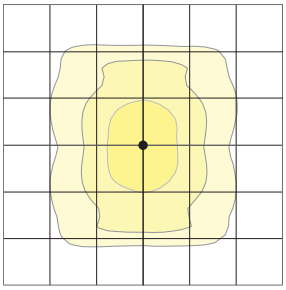
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QM



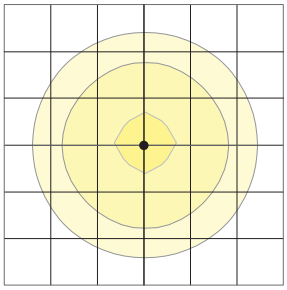
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5RW (rectangular)



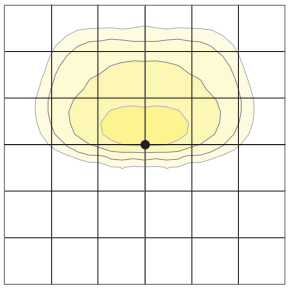
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5W (round wide)



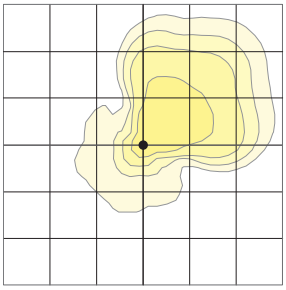
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type TC



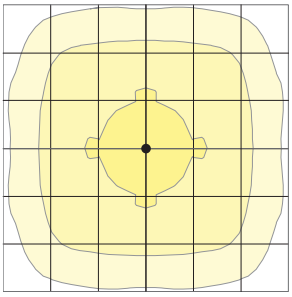
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type Corner



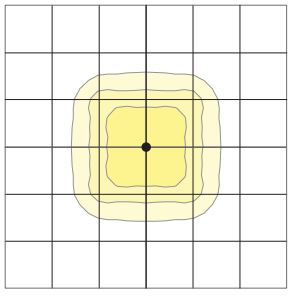
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QW



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QN



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

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BEACON
design . performance . technology

VIPER Area/Site

VIPER LUMINAIRE

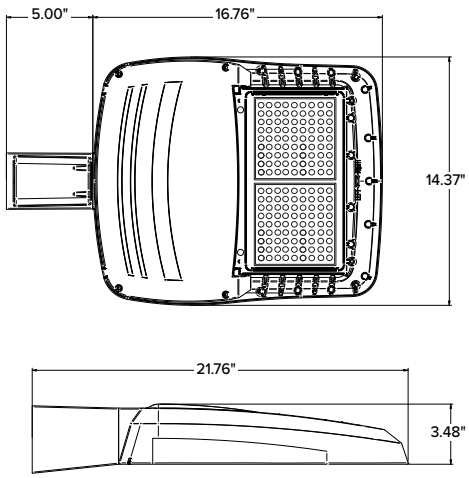
DATE: LOCATION:

TYPE: PROJECT:

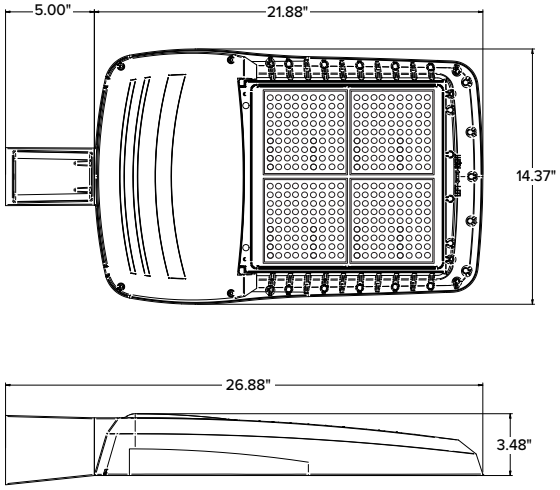
CATALOG #:

DIMENSIONS

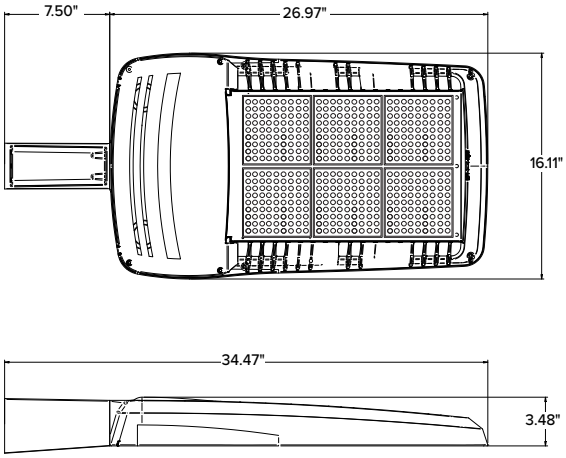
SIZE 1



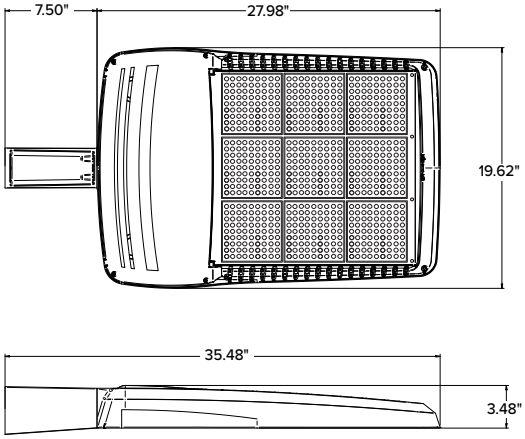
SIZE 2



SIZE 3



SIZE 4



	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

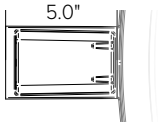
VIPER Area/Site

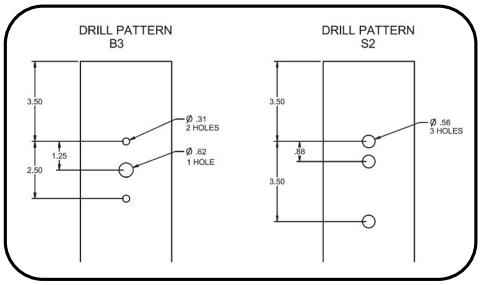
VIPER LUMINAIRE

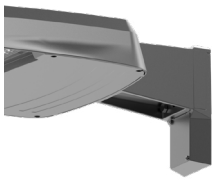
MOUNTING

A–STRAIGHT ARM MOUNT

Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern for ease of installation on square poles. For round poles add applicable suffix (2/3/4/5)

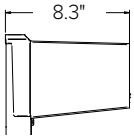


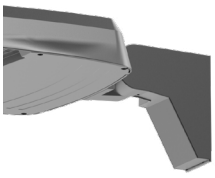




ASQU–UNIVERSAL ARM MOUNT

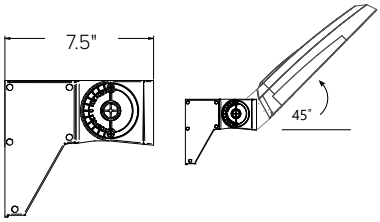
Universal mounting block for ease of installation. Compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

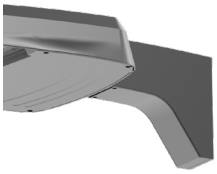




AAU–ADJUSTABLE ARM FOR POLE MOUNTING

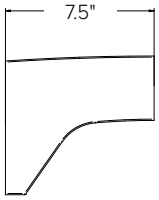
Rotatable arm mounts directly to pole. Compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2 and B3. For round poles add applicable suffix (2/3/4/5). Rotatable in 5˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.

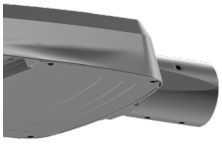




ADU–DECORATIVE UPSWEPT ARM

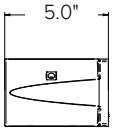
Upswept Arm compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5).

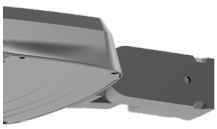




MAF–MAST ARM FITTER

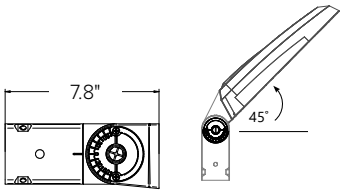
Fits 2-3/8" OD horizontal tenons.

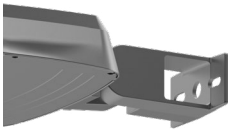




K–KNUCKLE

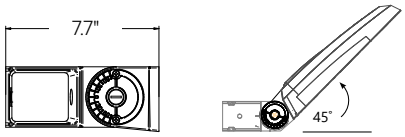
Rotatable in 5-degree aiming angle increments, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.





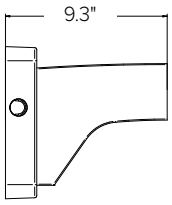
T–TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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VIPER Area/Site

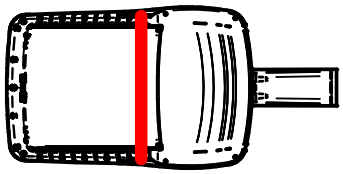
VIPER LUMINAIRE

ADDITIONAL INFORMATION (CONTINUED)

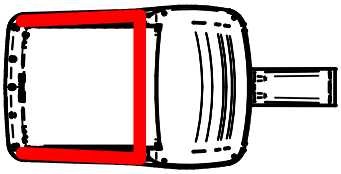
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

HSS has a depth of 5" for all Viper sizes
Not to be used with Occupancy Sensors as the shield may block the light to the sensor.

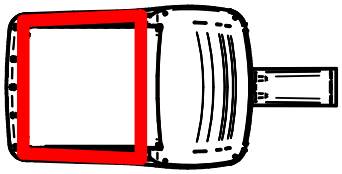
VPR2x HSS-90-B-xx



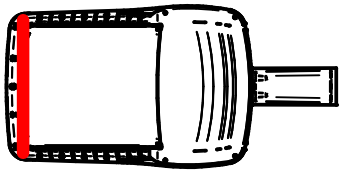
VPR2x HSS-270-BSS-xx



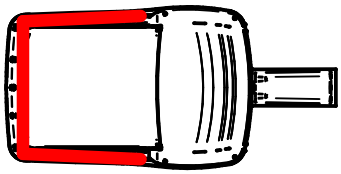
VPR2x HSS-360-xx



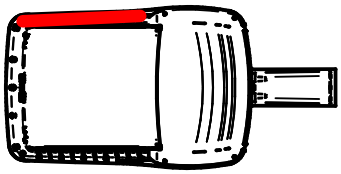
VPR2x HSS-90-F-xx



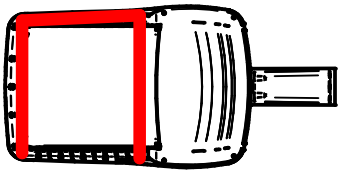
VPR2x HSS-270-FSS-xx



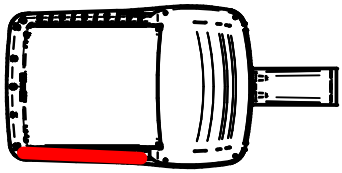
VPR2x HSS-90-S-xx



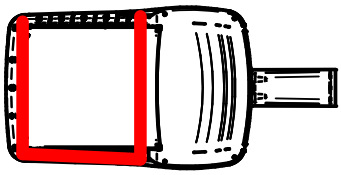
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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SSSB Series Poles

SQUARE STRAIGHT STEEL

TYPE XP2/3/4 POLES

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

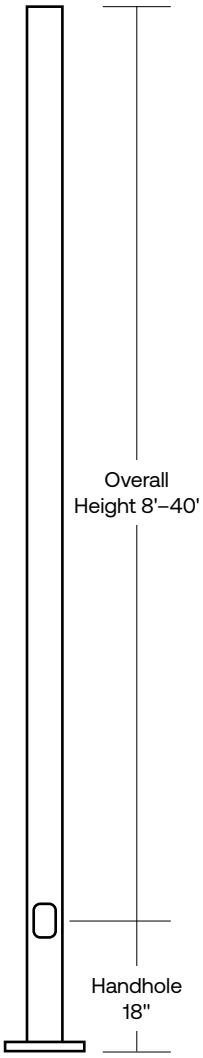
SPECIFICATIONS

CONSTRUCTION

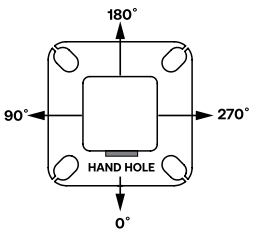
- Shaft: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- Base cover: Two-piece square aluminum base cover included standard
- Pole cap: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- Hand hole: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- Anchor bolts: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
  - Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38
    1 x 36 x 4 — TAB-36-M38
- Super Durable polyester-TGIC powder coat finish with nominal 3.0 mil thickness. Meets or exceeds AAMA 2604 standards.

INSTALLATION

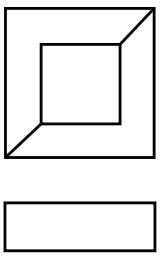
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location



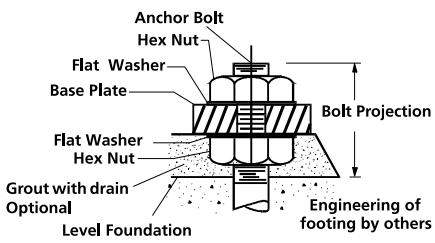
BASE



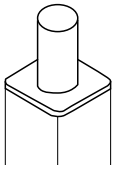
BASE COVER



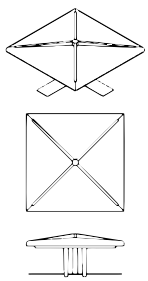
BASE DETAIL



TENON



POLE CAP



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SSSB Series Poles

SQUARE STRAIGHT STEEL

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

ORDERING INFORMATION

Example: SSSB25-40A-2L-S2-DBT-UL

SSSB – 16' – 40A – [Thickness] – [Mounting] – [Drill Pattern] – [Finish] – [Options]

Series

SSSB	Square Straight Steel Pole Beacon

Height

Reference page 3 Ordering matrix

Shaft

Reference page 3 Ordering matrix

Thickness

Reference page 3 Ordering matrix

A - .125" Wall
B - .188" Wall
C - .250" Wall

Mounting

1	Single arm mount
2	Two fixtures at 180°
2L	Two fixtures at 90°
3T	Three fixtures at 90°
4	Four fixtures at 90°
TA	Tenon (2.38" OD x 4" Tall)
TB	Tenon (2.88" OD x 4" Tall)
TC	Tenon (3.5" OD x 6" Tall)
TR[1]	Removable Tenon (2.375" x 4.25")
OT	Open Top (includes pole cap)

Drill Pattern

B1	Cruzer, "AM" arm
B3	2 bolt (2-1/2" spacing), Viper "A" arm
S2	2 bolt (3-1/2" spacing), Viper "AD" arm
UDP	Universal Drill Pattern

Finish

BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGT	Light Grey Matte Textured
LGS	Light Grey Gloss Smooth
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured

Color Option

CC	Custom Color[2]

Options

GFI[3]	20 Amp GFCI Receptacle and Cover
EHH[3]	Extra Handhole
C05[3]	.5" Coupling
C07[3]	.75" Coupling
C20[3]	2" Coupling
MPB[3]	Mid-pole Luminaire Bracket
VM1[4]	Mode vibration dampener
VM2[5]	2nd mode vibration dampener
LAB	Less Anchor Bolts
UL[6]	UL Certified

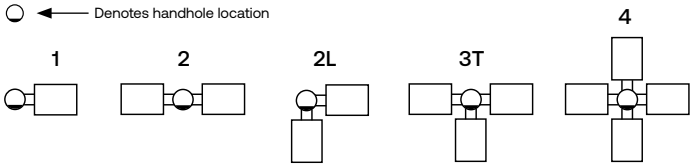
Accessories (Order Separately)

Part Number	Description
A81999-0001	Field-installed 2nd mode vibration dampener - VM2S08
A81999-0005	Field-installed 2nd mode vibration dampener - VM2S10
A81999-0004	Field-installed 2nd mode vibration dampener - VM2S12
A81999-0003	Field-installed 2nd mode vibration dampener - VM2S14
A81999-0007	Field-installed 2nd mode vibration dampener - VM2S16
A81999-0006	Field-installed 2nd mode vibration dampener - VM2S18
A81999-0002	Field-installed 2nd mode vibration dampener - VM2S20
A81999-0009	Field-installed 2nd mode vibration dampener - VM2S24
A81999-0008	Field-installed 2nd mode vibration dampener - VM2S25

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSS-B-25-40-A-1-B1-TR-BBTT.
2 Custom colors available; RAL number preferable
3 Specify option location using logic found on page 3 (Option Orientation).
4 VM1 recommended on poles 20' and taller with EPA of less than 1.
5 There will be a weld witness mark on the side of the pole with the Factory installed VM2
6 UL not available with tenon on pole

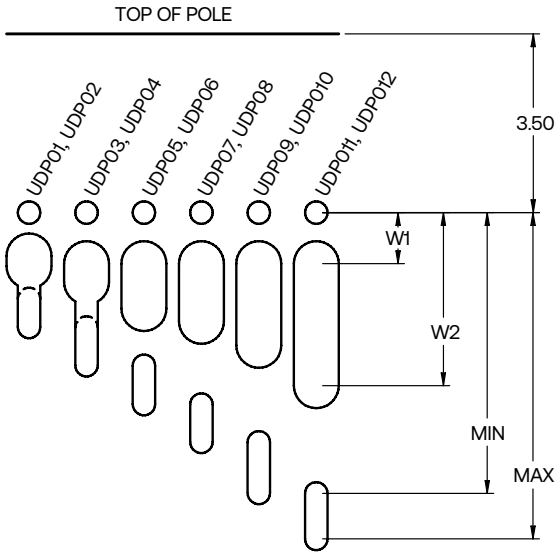
MOUNTING ORIENTATION

Denotes handhole location



DRILL PATTERNS

UNIVERSAL DRILL PATTERN (UDP)



Two Bolt Mounting with Center Wireway						
Mounting Hardware	Universal Mounting Patterns					
⅜" or less	UDP01	UDP03	UDP05	UDP07	UDP09	UDP011
7/16" to ½"	UDP02	UDP04	UDP06	UDP08	UDP010	UDP012
"Min" Attachment Dimension	1.69	2.25	3.00	3.76	4.50	5.50
"Max" Attachment Dimension	2.24	2.99	3.75	4.49	5.49	6.00
W1 (Wireway min)	0.85	1.00	1.00	1.00	1.00	1.00
W2 (Wireway max)	1.05	1.36	1.88	2.13	2.60	3.00

UDP to accommodate 3rd Party Luminaires. Current Brands only utilize exact drill patterns as published.

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SSSB Series Poles

SQUARE STRAIGHT STEEL

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

ORDERING INFORMATION (CONTINUED)

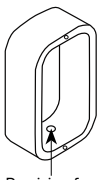
CATALOG NUMBER	HEIGHT		NOMINAL SHAFT DIMENSIONS	WALL THICKNESS	BOLT CIRCLE (SUGGESTED)	BOLT CIRCLE (RANGE)	BASE PLATE SQUARE	ANCHOR BOLT SIZE	BOLT PROJECTION	POLE WEIGHT (LBS)
	FEET	METERS								
SSSB10-40A	10	3.0	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	77
SSSB12-40A	12	3.7	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	90
SSSB14-40A	14	4.3	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	103
SSSB16-40A	16	4.9	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	116
SSSB18-40A	18	5.5	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	129
SSSB20-40A	20	6.1	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	142
SSSB25-40A	25	7.6	4" square	0.125"	9"	8" - 10"	9"	3/4" x 30" x 3"	3.5	175
SSSB14-40B	14	4.3	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	152
SSSB16-40B	16	4.9	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	171
SSSB18-40B	18	5.5	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	190
SSSB20-40B	20	6.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	209
SSSB25-40B	25	7.6	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	257
SSSB30-40B	30	9.1	4" square	.188"	11"	10" - 12"	10.50"	3/4" x 30" x 3"	3.5	304
SSSB16-50B	16	4.9	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	219
SSSB18-50B	18	5.5	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	243
SSSB20-50B	20	6.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	267
SSSB25-50B	25	7.6	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	327
SSSB30-50B	30	9.1	5" square	.188"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	387
SSSB25-50C	25	7.6	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	427
SSSB30-50C	30	9.1	5" square	.25"	11"	10.25" - 13.25"	11.50"	1" x 36" x 4"	4.5	507
SSSB20-60B	20	6.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	4.5	329
SSSB25-60B	25	7.6	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	4.5	404
SSSB30-60B	30	9.1	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	4.5	479
SSSB35-60B	35	10.7	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	4.5	554
SSSB40-60B	40	12.2	6" square	.188"	12"	11.00" - 13.25"	12.25"	1" x 36" x 4"	4.5	629

Notes:

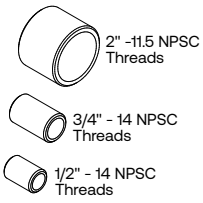
- Factory supplied template must be used when setting anchor bolts. Current will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.
- For more information about pole vibration and vibration dampeners, please consult factory.
- Unwrap poles immediately upon receipt to avoid condensation build up and possible corrosion.

[1] There will be a weld witness mark on the side of the pole with the Factory installed VM2.

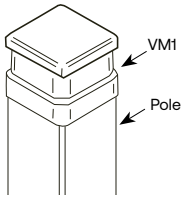
EHH
Extra handhole



C05 / C07 / C20
Coupling



VM1
1st mode vibration dampener



Field Installed Pole Top dampener designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2[1]
2nd mode vibration dampener

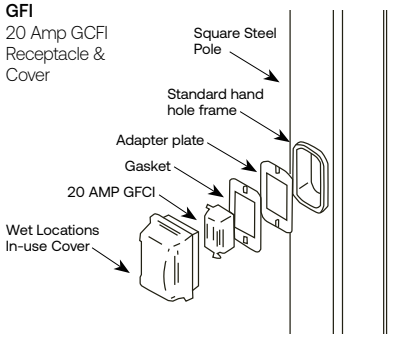
Factory installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX
Field-installed 2nd mode vibration dampener

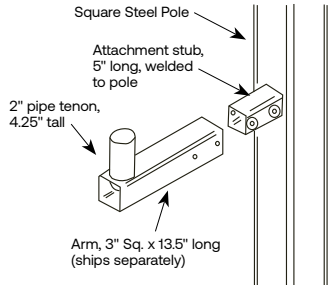
VM2S08 – 8'
VM2S12 – 12'
VM2S16 – 16'
VM2S20 – 20'
VM2S24 – 24'

Field installed, internal dampener designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI
20 Amp GCFI Receptacle & Cover



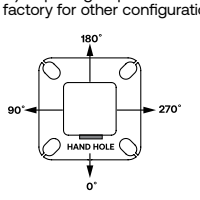
MPB
Mid Pole Bracket

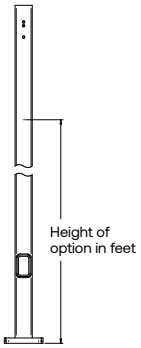


Option Orientation

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet).

Example: Option C05 should be ordered as: SSSB20-40A-TA-DBT-C05-0-15 (.5" coupling on the handhole side of pole, 15' up from the pole base) 1' spacing required between option. Consult factory for other configurations.





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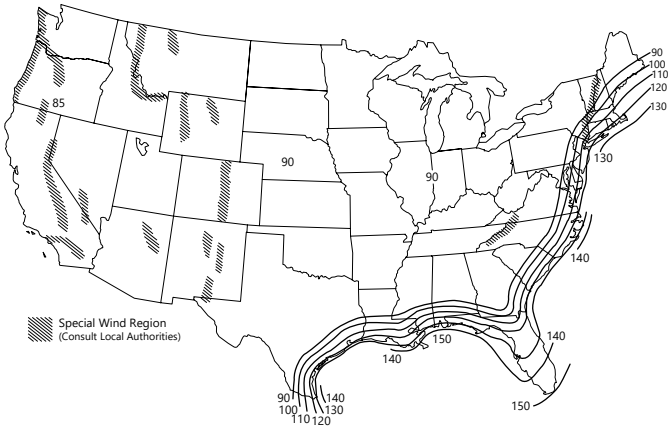
SSSB Series Poles

SQUARE STRAIGHT STEEL

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

WIND MAPS

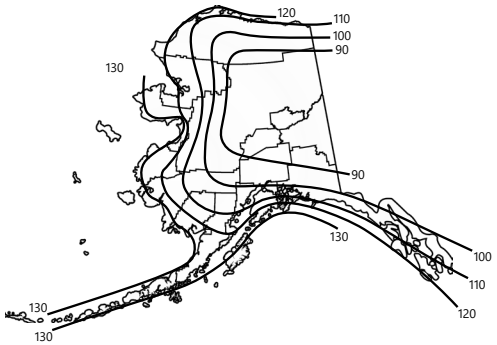
ASCE7-05 WIND MAP



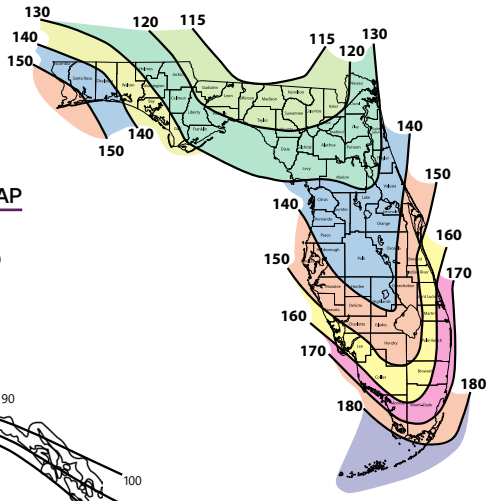
HAWAII – 105 mph
PUERTO RICO – 145 mph

*Printed with permission from ASCE

ALASKA REGION WIND MAP



FLORIDA REGION WIND MAP



Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code.

ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida)										
Catalog Number	85	90	100	105	110	120	130	140	145	150
SSSB10-40A	25.0	25.0	25.0	22.8	20.6	17.0	14.2	11.9	11.0	10.1
SSSB12-40A	25.0	25.0	20.0	18.0	16.1	13.2	10.8	8.9	8.1	7.4
SSSB14-40A	23.1	20.4	16.1	14.3	12.8	10.2	8.2	6.6	5.9	5.3
SSSB16-40A	19.0	16.7	13.0	11.5	10.1	7.9	6.2	4.7	4.1	3.6
SSSB18-40A	15.6	13.6	10.0	9.0	7.8	5.9	4.4	3.1	2.6	2.1
SSSB20-40A	12.7	10.9	7.9	6.9	5.9	4.2	2.8	1.7	1.3	0.9
SSSB25-40A	7.3	5.9	3.8	2.9	2.1	0.8	NR	NR	NR	NR
SSSB14-40B	25.0	25.0	23.3	20.8	18.6	15.1	12.3	10.2	9.2	8.4
SSSB16-40B	25.0	24.9	19.4	17.3	15.4	12.3	9.9	8.0	7.2	6.4
SSSB18-40B	24.0	20.8	16.1	14.2	12.5	9.8	7.7	6.1	5.3	4.7
SSSB20-40B	20.2	17.5	13.2	11.6	10.1	7.7	5.9	4.4	3.8	3.2
SSSB25-40B	12.8	11.0	7.9	6.7	5.5	3.7	2.3	1.2	0.7	NR
SSSB30-40B	8.0	6.6	4.1	3.1	2.2	0.8	NR	NR	NR	NR
SSSB16-50B	25.0	25.0	25.0	25.0	24.8	20.1	16.5	13.6	12.3	11.2
SSSB18-50B	25.0	25.0	25.0	22.9	20.4	16.4	13.2	10.7	9.6	8.6
SSSB20-50B	25.0	25.0	21.3	18.9	16.7	13.2	10.4	8.1	7.2	6.3
SSSB25-50B	20.7	17.8	13.3	11.5	9.8	7.2	5.0	3.3	2.6	1.9
SSSB30-50B	13.5	11.3	7.7	6.2	4.9	2.8	1.1	NR	NR	NR
SSSB25-50C	25.0	25.0	19.4	17.1	15.1	11.7	9.0	6.9	6.0	5.1
SSSB30-50C	20.1	17.3	12.7	10.9	9.3	6.6	4.5	2.8	2.1	1.4
SSSB20-60B	25.0	25.0	25.0	25.0	25.0	20.2	16.1	12.9	11.5	10.3
SSSB25-60B	25.0	25.0	20.6	18.0	15.6	11.8	8.7	6.2	5.2	4.2
SSSB30-60B	21.4	18.1	12.9	10.7	8.8	5.7	3.3	1.3	NR	NR
SSSB35-60B	14.0	11.3	6.9	5.2	3.6	1.0	NR	NR	NR	NR
SSSB40-60B	8.1	5.8	2.2	nr	NR	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only)								
Catalog Number	115	120	130	140	150	160	170	180
SSSB10-40A	25.0	25.0	25.0	25.0	21.4	18.4	15.9	13.9
SSSB12-40A	25.0	25.0	23.6	19.8	16.7	14.2	12.1	10.4
SSSB14-40A	25.0	23.1	19.0	15.7	13.1	10.9	9.1	7.6
SSSB16-40A	20.8	18.7	15.2	12.3	10.1	8.2	6.7	5.4
SSSB18-40A	16.8	15.0	11.9	9.4	7.5	5.9	4.5	3.4
SSSB20-40A	13.6	11.9	9.2	7.1	5.3	3.9	2.7	1.7
SSSB25-40A	7.4	6.2	4.1	2.5	1.1	NR	NR	NR
SSSB14-40B	25.0	23.6	19.4	16.1	13.4	11.2	9.4	7.8
SSSB16-40B	21.4	19.2	15.6	12.7	10.4	8.5	6.9	5.6
SSSB18-40B	17.2	15.4	12.2	9.7	7.7	6.1	4.7	3.6
SSSB20-40B	13.9	12.3	9.5	7.3	5.5	4.1	2.9	1.9
SSSB25-40B	7.7	6.4	4.3	2.6	1.3	NR	NR	NR
SSSB30-40B	3.2	2.1	NR	NR	NR	NR	NR	NR
SSSB16-50B	25.0	25.0	25.0	25.0	25.0	21.4	18.2	15.5
SSSB18-50B	25.0	25.0	25.0	24.4	20.4	17.0	14.2	11.9
SSSB20-50B	25.0	25.0	24.4	19.9	1 6.3	13.4	11.0	8.9
SSSB25-50B	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSSB30-50B	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSSB25-50C	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSSB30-50C	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSSB20-60B	25.0	25.0	25.0	21.9	17.8	14.5	11.7	9.4
SSSB25-60B	23.8	20.9	16.1	12.3	9.2	6.6	4.5	2.8
SSSB30-60B	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSSB35-60B	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSSB40-60B	1.8	NR	NR	NR	NR	NR	NR	NR

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SSSB Series Poles

SQUARE STRAIGHT STEEL

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

NOTES

Wind-speed Website disclaimer:
Current has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third party website provides a useful starting point for analyzing wind conditions, Current has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Current does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. http://windspeed.atcouncil.org

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Current Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations.
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

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TYPE XS1

24728-K3

Type:
BEGA Product:
Project:
Modified:

Application
Designed for accent lighting of columns, walls, and façades. The symmetric very wide beam distributions are ideal for general illumination of pathways and corridors while highlighting architectural features and producing patterns of light on the installation surface. Able to be installed with light output upward or downward.

Materials
Clear safety glass with matte finish
Marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy
Silicone applied robotically to casting, plasma treated for increased adhesion
Galvanized steel mounting strap
Pure anodized aluminum reflector surface

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 4.85 lbs.

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	8.4 W
System wattage	10.0 W
Controllability	0-10V, TRIAC, and ELV dimmable
Color rendering index	Ra > 90
Luminaire lumens	1099 lm
LED service life (L70)	60000 hrs

LED color temperature
☐ 4000K (K4)
○ 3500K (K35)
○ 3000K (K3)
○ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL, custom, and premium colors provided in polyester powder and/or liquid paint.

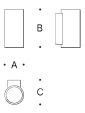
Available colors
☐ Black (BLK)
○ White (WHT)
○ Silver (SLV)
○ CUS:
○ Bronze (BRZ)
○ Natural Bronze (NTB)
○ RAL:

Available options

☐ CUS	Custom finish
☐ DALI-2	Enabled for DALI control system
☐ FSC	Fusing
☐ MGU	Marine grade undercoat
☐ NTB	Natural bronze (premium finish)
☐ RAL	RAL Classic, matte finish

Included (available for pre-shipment)

☐ B19542	Narrow opening wiring box



Wall luminaire · Very wide beam upward or downward

	LED	β	A	B	C
B24728	8.4 W	72°	4 1/2	7 5/8	6 1/8

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 04/27/26

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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

TYPE
XW1/2

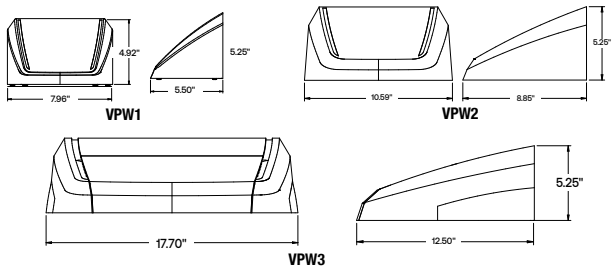
DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

MICRO STRIKE | SILICONE STRIKE | OPTICS STRIKE

FEATURES

- Low profile LED wall luminaire with a variety of IES distributions for lighting applications such as retail, commercial and industrial building mount
- Featuring Strike and Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual Comfort - Option for Size 2 and Size 3
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, and LightGRID+.
- Battery Backup options available for emergency code compliance
- Quick-mount adapter allows easy installation/maintenance
- 347V and 480V versions for industrial applications and Canada

C US | BAA | TAA | DARK SKY APPROVED



	Weight
VPW1	4.1 lbs / 1.86 kg
VPW2	7.15 lbs / 3.24 kg
VPW3	17.1 lbs / 7.80 kg

CONTROL TECHNOLOGY

NX CONNECT | NX WIRED | NX WIRELESS | LIGHTGRID+

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish
- Powder paint finish provides durability in outdoor environments. Tested to meet 1000 hour salt spray rating

OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 2700K, 3000K, 3500K, 4000K and 5000K CCTs
- Zero uplight distributions
- LED optics provide IES type II, III and IV distributions.
- Silicone Strike Optics (20, 40 LED counts) maximize uniformity in applications and provides the highest LPW. These include an integral gasket allowing for IP66 rating. Catalog logic found on page 3.

INSTALLATION

- Quick-mount adapter provides easy installation to wall or to recessed junction boxes (4" square junction box)
- Designed for direct j-box mount.

ELECTRICAL

- 120V-277V universal voltage 50/60Hz 0-10V dimming drivers
- 347V input is available in most wattage, 480V is available for 55W and above.
- Ambient operating temperature -40˚C to 40˚C
- Driver RoHS and IP66
- 10kV Surge Protector optional
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options can not be included in one same fixture.
- Dimming drivers are standard. Select CD (Customer Dimming) for the dimming wires to be extended outside the fixture.

CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- Button photocontrol is suitable for 120-277V operation
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor

CONTROLS CONTINUED

- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Battery Backup suitable for operating temperatures -20˚C to 40˚C.
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application.
- LightGRID+ available with in fixture wireless control module, features dimming and occupancy sensor.

CERTIFICATIONS

- Certified to UL 1598 and CSA 22.2#250.0-24
- IP65 rated housing
- Emergency battery backup options are California Energy Commission (CEC) Title 20 Compliant
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225- 11). See Buy America(n) Solutions (link to https://http://www.currentlighting.com/resources/americasolutions).
- DarkSky approved with 3000K CCT or warmer

WARRANTY

- 5 year limited warranty

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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

XW1-4F	CURRENT	VPW2-48L-15-3K7-4F-UNV-2DR
XW2-2	CURRENT	VPW2-48L-35-3K7-2-UNV-2DR
XW2-4F	CURRENT	VPW2-48L-35-3K7-4F-UNV-2DR
XW2-4W	CURRENT	VPW2-48L-35-3K7-4W-UNV-2DR

ORDERING GUIDE

Example: VPW1–24L-10–3K7–2–UNV–BLS

CATALOG #

varies by type see above

varies by type see above

Series		Optic Platform		Size
VPW	Viper Wall	**(blank)**	Microstrike	1
		ST	Strike	2
				3

# LEDs - Wattage	
24L-10	1,000 Lumens
24L-15	2,000 Lumens
24L-25	3,000 Lumens
48L-15	2,000 Lumens
48L-20	3,000 Lumens
48L-30	4,000 Lumens
48L-35	5,000 Lumens
48L-45	6,000 Lumens
80L-20	3,000 Lumens
80L-25	4,000 Lumens
80L-35	5,000 Lumens
80L-45	6,000 Lumens
80L-55	7,000 Lumens
80L-65	8,000 Lumens
80L-70	8,500 Lumens
18L-25	3,000 Lumens, Strike Optics
18L-30	4,000 Lumens, Strike Optics
18L-39	4,750 Lumens, Strike Optics
18L-50	6,000 Lumens, Strike Optics
18L-60	6,500 Lumens, Strike Optics
160L-45	7,000 Lumens
160L-70	10,000 Lumens
160L-95	12,500 Lumens
160L-105	15,000 Lumens
160L-135	17,500 Lumens
160L-155	20,000 Lumens
36L-55	7,000 Lumens, Strike Optics
36L-80	9,500 Lumens, Strike Optics
36L-100	11,500 Lumens, Strike Optics
36L-120	13,000 Lumens, Strike Optics

CCT/CRI	
27K8	2700K, 80 CRI[16]
3K7	3000K, 70 CRI[16]
4K7	4000K, 70 CRI
5K7	5000K, 70 CRI
3K8	3000K, 80 CRI
35K8	3500K, 80 CRI
4K8	4000K, 80 CRI
5K8	5000K, 80 CRI
AP	Phosphor Converted Amber[1]

Distribution	
2	IES TYPE 2
3	IES TYPE 3
4F	IES TYPE 4 Forward
4W	IES TYPE 4W

Voltage	
UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Matte Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Control Options Network[3,7,11,13]	
NXWS12F	NX Networked Wireless Enabled Integral NXSMP2-OMNI PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[14]
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor
WIR	LightGRID+ In-Fixture Module[9]
WIRSC	LightGRID+ In-Fixture Moduel with BTS occupancy[9]
Stand Alone Sensors[7,11,13]	
BTS-14F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTS-40F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTSO-12F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height[14]
Photocontrol[13]	
PC	Button Photocontrol 120-277V

Options	
F	Fusing[5,7]
E	Battery[6,7,8]
EH	Battery with Heater[6,7,8]
CS	Comfort Shield[7,10]
SP	10kA Surge Protector
2PF	Dual Power Feed[2,7,8,17]
2DR	Dual Driver[2,7,8,17]
CD	Customer Dimming[12]
DTS	Dimming Transfer Switch[7]

Notes:

1 Available with Micro Strike Optics only
2 Not available with 480V in Size 1 and Size 2
3 Networked controls cannot be combined with other control options
4 Not available with VPW1 or with 2PF or 2DR options
5 Must specify voltage (VPW1 & VPW2: 120V, 277V or 347V; VPW3: 120V, 208V, 240V, 277V, 347V or 480V)
6 See page 10 for detail Battery configurations
7 Not available in VPW1
8 2PF can't be combined with E or EH; 2DR can't be combined with E or EH in VPW2
9 Not avialable in VPW1 and VPW2
10 Not available with Micro Strike 24L and 48L. Not available with Strike 18L and 36L
11 Not available with 2PF
12 Not available with Network Control options or Stand Alone Sensors. Can be ordered with PC
13 Not available in 480V in VPW2; Only available in 480V in VPW3 in 80W, 100W, 120W, 135W and 155W
14 NXWS12F and BTSO-12F are the only sensors available in VPW2
16 DarkSky approved with 3000K CCT or warmer
17 Not available in Size 2 80L

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Wall

VPW2/VPW3 LED WALLPACK

ORDERING GUIDE

Example: VPWSS–20L–20–3K7–2–UNV–BLS

CATALOG #

Series		Optic Platform		Size	# LEDs - Wattage		CCT/CRI		Distribution		Voltage		Color	
VPW	Viper Wall	**SS**	Silicone Strike	**2**	**20L-20**	3,000 Lumens	**27K8**	2700K, 80 CRI[16]	**2**	IES TYPE 2	**UNV**	120-277V	**BLT**	Black Matte Textured
					20L-25	4,000 Lumens	**3K7**	3000K, 70 CRI[16]	**3**	IES TYPE 3	**120**	120V	**BLS**	Black Gloss Smooth
					20L-30	5,000 Lumens	**4K7**	4000K, 70 CRI	**4F**	IES TYPE 4 Forward	**208**	208V	**DBT**	Dark Bronze Matte Textured
					20L-39	6,000 Lumens	**5K7**	5000K, 70 CRI	**4W**	IES TYPE 4W	**240**	240V	**DBS**	Dark Bronze Gloss Smooth
					20L-45	7,000 Lumens	**3K8**	3000K, 80 CRI			**277**	277V	**GTT**	Graphite Matte Textured
					20L-55	8,000 Lumens	**35K8**	3500K, 80 CRI			**347**	347V	**LGS**	Light Grey Gloss Smooth
					20L-60	9,000 Lumens	**4K8**	4000K, 80 CRI			**480**	480V	**LGT**	Light Grey Matte Textured
					20L-70	10,000 Lumens	**5K8**	5000K, 80 CRI					**PSS**	Platinum Silver Smooth
				3	**40L-35**	5,500 Lumens	**AP**	Phosphor Converted Amber[1]					**WHT**	White Matte Textured
					40L-50	7,500 Lumens							**WHS**	White Gloss Smooth
					40L-65	10,000 Lumens							**VGT**	Verde Green Textured
					40L-80	12,500 Lumens							**Color Option**	
					40L-100	15,000 Lumens							**CC**	Custom Color
					40L-120	17,500 Lumens								
					40L-140	20,000 Lumens								
					40L-170	22,500 Lumens								
					40L-195	25,000 Lumens								

Control Options Network[3,7,11,13]	
NXWS12F	NX Networked Wireless Enabled Integral NXSMP2-OMNI PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[14]
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming[9]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor
WIR	LightGRID+ In-Fixture Module[9]
WIRSC	LightGRID+ In-Fixture Moduel with BTS occupancy[9]
Stand Alone Sensors[7,11,13]	
BTS-14F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTS-40F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor[4,9]
BTSO-12F	Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height[14]
Photocontrol[13]	
PC	Button Photocontrol 120-277V

Options	
F	Fusing[5,7]
E	Battery[6,7,8]
EH	Battery with Heater[6,7,8]
CS	Comfort Shield[7,10]
SP	10kA Surge Protector
2PF	Dual Power Feed[2,7,8,17]
2DR	Dual Driver[2,7,8,17]
CD	Customer Dimming[12]
DTS	Dimming Transfer Switch[7]

Notes:

1 Available with Micro Strike Optics only
2 Not available with 480V in Size 1 and Size 2
3 Networked controls cannot be combined with other control options
4 Not available with VPW1 or with 2PF or 2DR options
5 Must specify voltage (VPW1 & VPW2: 120V, 277V or 347V; VPW3: 120V, 208V, 240V, 277V, 347V or 480V)
6 See page 10 for detail Battery configurations
7 Not available in VPW1
8 2PF can't be combined with E or EH; 2DR can't be combined with E or EH in VPW2
9 Not avialable in VPW1 and VPW2
10 Not available with Micro Strike 24L and 48L. Not available with Strike 18L and 36L
11 Not available with 2PF
12 Not available with Network Control options or Stand Alone Sensors. Can be ordered with PC
13 Not available in 480V in VPW2; Only available in 480V in VPW3 in 80W, 100W, 120W, 135W and 155W
14 NXWS12F and BTSO-12F are the only sensors available in VPW2
16 DarkSky approved with 3000K CCT or warmer
17 Not available in Size 2 80L

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DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

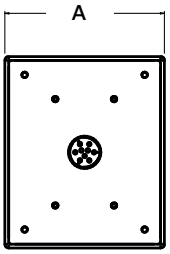
	Catalog Number	Description
☐	**WP-BB-XXX**	Back Box Accessory for conduit entry[1]
☐	**CS**	Comfort Shield[2]

Notes:

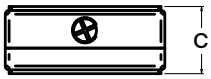
1 replace "xxx" with color option

2 Not available with Micro Strike 24L and 48L or Strike 18L and 36L

DIMENSIONS



Back Box Accessory



A	B	C
4.9" 124mm	5.9" 150mm	2.1" 53mm

CONTROLS FUNCTIONALITY

OUTDOOR LIGHTING CONTROLS OPTIONS

LIGHTGRID+

	Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components	
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height		
NX Wireless	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	✓	✓	✓	–	–	✓	✓	✓	–		NXRM2-H
NX Wireless	NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	16ft		NXSMP2-LMO
NX Wireless	NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	40ft		NXSMP2-HMO
LightGRID+	WIR	LightGRID+ In-Fixture Module	✓	–	✓	–	–	✓	✓	Gateway	–		WIR
Independent	BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	12ft		BTSMP-OMNI-O
Independent	BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	14ft		BTSMP-LMO
Independent	BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	40ft		BTSMP-HMO

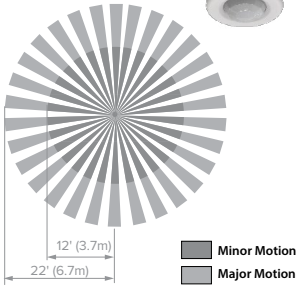
DEFAULT SETTINGS

NX Wireless	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	15 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	0%
Daylight Sensor	Disabled
Bluetooth	Enabled
2.4GHz Wireless Mesh	Off
"Passcode Factory Passcode: HubbN3T!"	Enabled

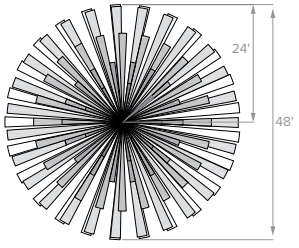
Stand Alone	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	8 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	0% (Off)
Daylight Sensor	Disabled

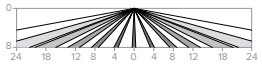
NX WIRELESS COVERAGE PATTERNS

NXSMP2-OMNI



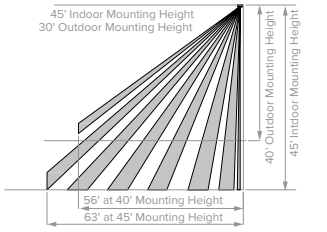
NXSMP2-LMO





Sensor Lens Coverage and Detection Patterns When Mounted at 8ft with Low Mount Lens

NXSMP2-HMO



Sensor Lens Coverage and Detection Patterns When Mounted at 40ft and 45ft with Standard Lens

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DATE: | LOCATION:

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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

NX LIGHTING CONTROLS FREE APP

CONTROLS TECH SUPPORT 800-888-8006 (7:00 AM - 7:00 PM)

The NX Lighting Controls App is free to use mobile application for programming both NX Lighting Controls System or Standalone Bluetooth Sensors. The mobile app allows you to configure devices, discover and setup wireless enable luminiares and program NX system settings.

Apple App: https://apps.apple.com/us/app/nx-lighting-controls/id962112904

Google Play: https://play.google.com/store/apps/details?id=io.cordova.NXBTR&hl=en_US&gl=US

NX LIGHTING CONTROLS

Apple App

Google Play

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98
50°C	122°F	0.97

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

PROJECTED LUMEN MAINTENANCE

	OPERATING HOURS		
Ambient Temp.	0	25,000	TM-21-22 60,000
25°C / 77°F	1.00	0.91	0.83
40°C / 104°F	0.99	0.90	0.82

Lumen maintenance values calculated per TM-21 using six times the LM-80 test time for the LED and in-situ thermal testing of the luminaire.

MULTIPLIER

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	–	0.841	–
3000K	0.977	0.861	0.647
3500K	–	0.900	–
4000K	1	0.926	0.699
5000K	1	0.937	0.791
Monochromatic Amber Multiplier			
Amber	0.710		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	See Amber Spec Sheet		

PERFORMANCE DATA: MICROSTRIKE

Description	# of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
					Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
VPW1	24L	10	6.6	2	1068	141	0	0	0	1068	141	0	0	0	989	131	0	0	0
				3	1076	142	0	0	1	1076	142	0	0	1	997	131	0	0	1
				4F	1052	139	0	0	1	1052	139	0	0	1	974	129	0	0	1
				4W	1041	137	0	0	1	1041	137	0	0	1	964	127	0	0	1
		15	14	2	1993	129	1	0	0	1993	129	1	0	0	1845	119	1	0	0
				3	2008	130	1	0	1	2008	130	1	0	1	1859	120	0	0	1
				4F	1964	127	0	0	1	1964	127	0	0	1	1818	117	0	0	1
				4W	1943	125	1	0	1	1943	125	1	0	1	1799	116	0	0	1
		25	23.0	2	3055	125	1	0	1	3055	125	1	0	1	2828	116	1	0	1
				3	3078	126	1	0	1	3078	126	1	0	1	2850	117	1	0	1
				4F	3010	123	1	0	1	3010	123	1	0	1	2787	114	1	0	1
				4W	2978	122	1	0	1	2978	122	1	0	1	2757	113	1	0	1

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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

PERFORMANCE DATA: MICROSTRIKE CONT'D

Description	# of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
					Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
VPW2	48L	15	13.1	2	2139	145	1	0	1	2139	145	1	0	1	1981	134	1	0	1
				3	2163	146	1	0	1	2163	146	1	0	1	2003	135	1	0	1
				4F	2097	143	0	0	1	2097	143	0	0	1	1942	132	0	0	1
				4W	2101	143	1	0	1	2101	143	1	0	1	1946	132	0	0	1
		20	20.5	2	2973	141	1	0	1	2973	141	1	0	1	2753	130	1	0	1
				3	3007	142	1	0	1	3007	142	1	0	1	2784	132	1	0	1
				4F	2915	138	1	0	1	2915	138	1	0	1	2699	128	1	0	1
				4W	2921	138	1	0	1	2921	138	1	0	1	2705	128	1	0	1
		30	28.8	2	4000	137	1	0	1	4000	137	1	0	1	3704	126	1	0	1
				3	4045	138	1	0	1	4045	138	1	0	1	3745	128	1	0	1
				4F	3922	134	1	0	1	3922	134	1	0	1	3631	124	1	0	1
				4W	3930	134	1	0	2	3930	134	1	0	2	3638	124	1	0	1
		35	37.3	2	4997	134	1	0	1	4997	134	1	0	1	4627	124	1	0	1
				3	5053	135	1	0	2	5053	135	1	0	2	4679	125	1	0	1
				4F	4899	131	1	0	1	4899	131	1	0	1	4536	122	1	0	1
				4W	4909	132	1	0	2	4909	132	1	0	2	4545	122	1	0	2
		45	45.9	2	5990	127	1	0	1	5990	127	1	0	1	5546	118	1	0	1
				3	6057	128	1	0	2	6057	128	1	0	2	5608	119	1	0	2
				4F	5872	124	1	0	2	5872	124	1	0	2	5437	115	1	0	1
				4W	5884	125	1	0	2	5884	125	1	0	2	5448	115	1	0	2
	80L	20	19.4	2	3485	161	1	0	1	3485	161	1	0	1	3200	147	1	0	1
				3	3516	162	1	0	1	3516	162	1	0	1	3229	149	1	0	1
				4F	3485	161	1	0	1	3485	161	1	0	1	3200	147	1	0	1
				4W	3535	163	1	0	1	3535	163	1	0	1	3246	150	1	0	1
		25	26.7	2	4443	154	1	0	1	4443	154	1	0	1	4080	141	1	0	1
				3	4483	155	1	0	1	4483	155	1	0	1	4117	142	1	0	1
				4F	4443	154	1	0	1	4443	154	1	0	1	4080	141	1	0	1
				4W	4507	156	1	0	1	4507	156	1	0	1	4139	143	1	0	1
		35	34.2	2	5438	147	1	0	1	5438	147	1	0	1	4994	135	1	0	1
				3	5488	148	1	0	1	5488	148	1	0	1	5039	136	1	0	1
				4F	5438	147	1	0	1	5438	147	1	0	1	4994	135	1	0	1
				4W	5516	149	1	0	2	5516	149	1	0	2	5066	137	1	0	1
		45	41.7	2	6369	145	1	0	1	6369	145	1	0	1	5848	133	1	0	1
				3	6427	146	2	0	2	6427	146	2	0	2	5901	134	1	0	1
				4F	6369	145	1	0	1	6369	145	1	0	1	5848	133	1	0	1
				4W	6460	147	1	0	2	6460	147	1	0	2	5933	135	1	0	2
		55	50.6	2	7209	137	2	0	2	7209	137	2	0	2	6620	126	1	0	1
				3	7275	139	2	0	2	7275	139	2	0	2	6680	127	2	0	2
				4F	7209	137	1	0	1	7209	137	1	0	1	6620	126	1	0	1
				4W	7313	139	1	0	2	7313	139	1	0	2	6715	128	1	0	2
		65	58.3	2	7781	130	2	0	2	7781	130	2	0	2	7145	119	2	0	2
				3	7852	131	2	0	2	7852	131	2	0	2	7210	120	2	0	2
				4F	7781	130	2	0	1	7781	130	2	0	1	7145	119	1	0	1
				4W	7893	132	1	0	2	7893	132	1	0	2	7248	121	1	0	2
		70	63.5	2	8367	128	2	0	2	8367	128	2	0	2	7683	117	2	0	2
				3	8443	129	2	0	2	8443	129	2	0	2	7753	119	2	0	2
				4F	8367	128	2	0	1	8367	128	2	0	1	7683	117	2	0	1
				4W	8487	130	1	0	2	8487	130	1	0	2	7794	119	1	0	2

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

PERFORMANCE DATA: MICROSTRIKE CONT'D

Description	# of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
					Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
VPW3	160L	45	46.2	2	7623	148	1	0	2	7623	148	1	0	2	7000	136	1	0	1
				3	7626	148	2	0	2	7626	148	2	0	2	7003	136	2	0	2
				4F	7590	147	2	0	1	7590	147	2	0	1	6970	135	1	0	1
				4W	7715	150	1	0	2	7715	150	1	0	2	7084	138	1	0	2
		70	68.3	2	10322	139	2	0	2	10322	139	2	0	2	9478	128	2	0	2
				3	10326	140	2	0	2	10326	140	2	0	2	9482	128	2	0	2
				4F	10277	139	2	0	2	10277	139	2	0	2	9437	128	2	0	2
				4W	10446	141	2	0	2	10446	141	2	0	2	9592	130	1	0	2
		95	91	2	12929	132	2	0	2	12929	132	2	0	2	11872	121	2	0	2
				3	12934	132	3	0	3	12934	132	3	0	3	11877	121	3	0	3
				4F	12873	131	2	0	2	12873	131	2	0	2	11821	120	2	0	2
				4W	13084	133	2	0	3	13084	133	2	0	3	12015	122	2	0	3
		105	106.3	2	15055	138	2	0	2	15055	138	2	0	2	13825	127	2	0	2
				3	15062	138	3	0	3	15062	138	3	0	3	13831	127	3	0	3
				4F	14991	138	2	0	2	14991	138	2	0	2	13766	127	2	0	2
				4W	15236	140	2	0	3	15236	140	2	0	3	13991	129	2	0	3
		135	134.8	2	17533	127	3	0	3	17533	127	3	0	3	16100	116	3	0	3
				3	17541	127	3	0	3	17541	127	3	0	3	16107	116	3	0	3
				4F	17457	126	2	0	2	17457	126	2	0	2	16031	116	2	0	2
				4W	17744	128	2	0	4	17744	128	2	0	4	16294	118	2	0	3
		155	158.3	2	20066	123	3	0	3	20066	123	3	0	3	18426	113	3	0	3
				3	20075	123	3	0	3	20075	123	3	0	3	18434	113	3	0	3
				4F	19980	123	3	0	3	19980	123	3	0	3	18347	113	2	0	2
				4W	20307	125	2	0	4	20307	125	2	0	4	18648	115	2	0	4

PERFORMANCE DATA: STRIKE

Description	# of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
					Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
VPW2	18L	25	22.6	2	3314	147	1	0	1	3298	146	1	0	G1	3171	140	1	0	1
				3	3356	148	1	0	1	3340	148	1	0	G1	3212	142	1	0	1
				4F	3367	149	0	0	1	3351	148	0	0	G1	3222	143	0	0	1
				4W	3361	149	1	0	2	3345	148	1	0	G2	3216	142	1	0	2
		30	31.3	2	4124	132	1	0	1	4104	131	1	0	G1	3946	126	1	0	1
				3	4176	133	1	0	2	4156	133	1	0	G2	3996	128	1	0	1
				4F	4189	134	1	0	1	4169	133	1	0	G1	4009	128	1	0	1
				4W	4182	134	1	0	2	4162	133	1	0	G2	4002	128	1	0	2
		39	38.8	2	4894	126	1	0	1	4870	126	1	0	G1	4683	121	1	0	1
				3	4956	128	1	0	2	4932	127	1	0	G2	4742	122	1	0	2
				4F	4972	128	1	0	2	4948	128	1	0	G2	4758	123	1	0	2
				4W	4963	128	1	0	2	4939	127	1	0	G2	4749	122	1	0	2
		50	52.6	2	6325	120	1	0	1	6295	120	1	0	G1	6052	115	1	0	1
				3	6405	122	1	0	2	6374	121	1	0	G2	6129	117	1	0	2
				4F	6426	122	1	0	2	6395	122	1	0	G2	6149	117	1	0	2
				4W	6414	122	1	0	3	6384	121	1	0	G3	6138	117	1	0	3
		60	60.4	2	6865	114	1	0	2	6832	113	1	0	G2	6569	109	1	0	2
				3	6952	115	1	0	2	6919	115	1	0	G2	6652	110	1	0	2
				4F	6974	115	1	0	2	6941	115	1	0	G2	6674	110	1	0	2
				4W	6962	115	1	0	3	6929	115	1	0	G3	6662	110	1	0	3

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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

PERFORMANCE DATA: STRIKE CONT'D

Description	# of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
					Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
VPW3	36L	55	63.1	2	7284	135	1	0	2	7249	134	1	0	G2	6970	129	1	0	2
				3	7376	137	1	0	2	7341	136	1	0	G2	7058	131	1	0	2
				4F	7400	137	1	0	2	7364	137	1	0	G2	7081	131	1	0	2
				4W	7387	137	1	0	3	7351	136	1	0	G3	7069	131	1	0	3
		80	77.6	2	9788	126	2	0	2	9741	126	2	0	G2	9366	121	2	0	2
				3	9912	128	1	0	3	9864	127	1	0	G3	9485	122	1	0	3
				4F	9944	128	1	0	2	9896	128	1	0	G2	9516	123	1	0	2
				4W	9926	128	1	0	3	9879	127	1	0	G3	9499	122	1	0	3
		105	108.2	2	12650	128	2	0	2	12589	127	2	0	G2	12105	122	2	0	2
				3	12810	130	2	0	3	12748	129	2	0	G3	12258	124	2	0	3
				4F	12851	130	1	0	3	12790	129	1	0	G3	12298	124	1	0	3
				4W	12829	130	2	0	3	12767	129	2	0	G3	12276	124	2	0	3
		120	120.9	2	13730	114	2	0	2	13664	113	2	0	G2	13138	109	2	0	2
				3	13904	115	2	0	3	13837	114	2	0	G3	13305	110	2	0	3
				4F	13949	115	1	0	3	13882	115	1	0	G3	13348	110	1	0	3
				4W	13924	115	2	0	4	13857	115	2	0	G4	13324	110	2	0	3

ELECTRICAL DATA: STRIKE

# OF LEDS	18L				
NOMINAL WATTAGE	25	30	39	50	60
SYSTEM POWER (W)	22.6	31.3	38.8	52.6	60.4
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.21	0.26	0.32	0.44	0.50
208	0.12	0.15	0.19	0.25	0.29
240	0.10	0.13	0.16	0.22	0.25
277	0.09	0.11	0.14	0.19	0.22
347	0.07	0.09	0.11	0.15	0.17
480	0.05	0.07	0.08	0.11	0.13

# OF LEDS	36L			
NOMINAL WATTAGE	55	80	100	120
SYSTEM POWER (W)	53.9	77.6	98.9	120.9
INPUT VOLTAGE (V)	CURRENT (Amps)			
120	0.45	0.65	0.82	1.01
208	0.26	0.37	0.48	0.58
240	0.22	0.32	0.41	0.50
277	0.19	0.28	0.36	0.44
347	0.16	0.22	0.29	0.35
480	0.11	0.16	0.21	0.25

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CATALOG #:

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

ELECTRICAL DATA: MICROSTRIKE

# OF LEDS	24L		
NOMINAL WATTAGE	10	15	25
SYSTEM POWER (W)	6.6	14.0	23.0
INPUT VOLTAGE (V)	CURRENT (Amps)		
120	0.06	0.12	0.19
208	0.03	0.07	0.11
240	0.03	0.06	0.10
277	0.02	0.05	0.08
347	0.02	0.04	0.07
480	0.01	0.03	0.05

# OF LEDS	48L				
NOMINAL WATTAGE	15	20	30	35	45
SYSTEM POWER (W)	13.1	20.5	28.8	37.3	45.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.11	0.17	0.24	0.31	0.38
208	0.06	0.10	0.14	0.18	0.22
240	0.05	0.09	0.12	0.16	0.19
277	0.05	0.07	0.10	0.13	0.17
347	0.04	0.06	0.08	0.11	0.13
480	0.03	0.04	0.06	0.08	0.10

# OF LEDS	80L						
NOMINAL WATTAGE	20	25	35	45	55	65	70
SYSTEM POWER (W)	19.4	26.7	34.2	41.7	50.6	58.3	63.5
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.16	0.22	0.29	0.35	0.42	0.49	0.53
208	0.10	0.13	0.18	0.22	0.27	0.28	0.31
240	0.08	0.12	0.15	0.19	0.24	0.24	0.26
277	0.07	0.10	0.13	0.17	0.21	0.21	0.23
347	0.06	0.08	0.11	0.13	0.16	0.17	0.18
480	0.04	0.06	0.08	0.10	0.12	0.12	0.13

# OF LEDS	160L					
NOMINAL WATTAGE	45	70	95	105	135	155
SYSTEM POWER (W)	46.2	68.3	91	106.3	134.8	158.3
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	0.39	0.57	0.76	0.89	1.12	1.32
208	0.22	0.33	0.44	0.51	0.65	0.76
240	0.19	0.28	0.38	0.44	0.56	0.66
277	0.17	0.25	0.33	0.38	0.49	0.57
347	0.13	0.20	0.26	0.31	0.39	0.46
480	0.10	0.14	0.19	0.22	0.28	0.33

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BEACON
design . performance . technology

VIPER Wall

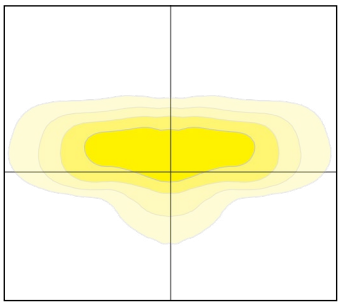
VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

PHOTOMETRY

Mounting Height: 10ft

Type 2



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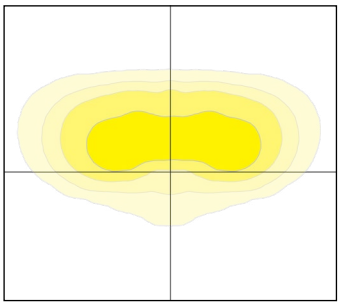

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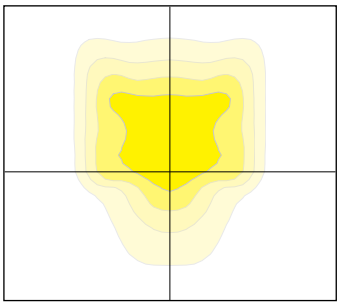
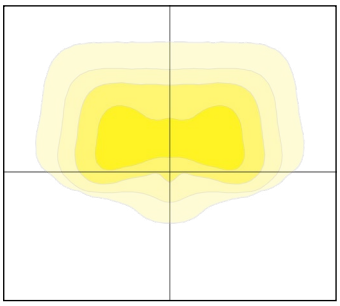
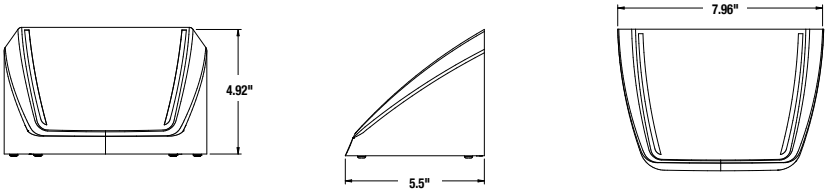


Type 4W

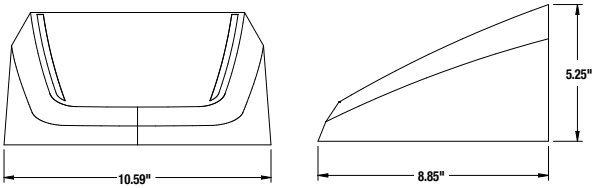


DIMENSIONS

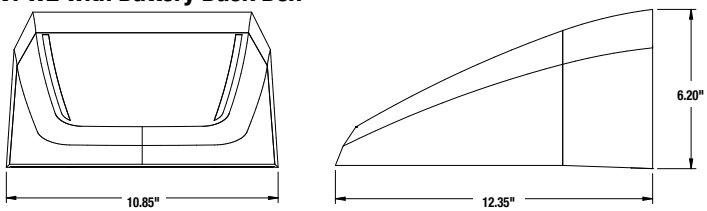
VPW1



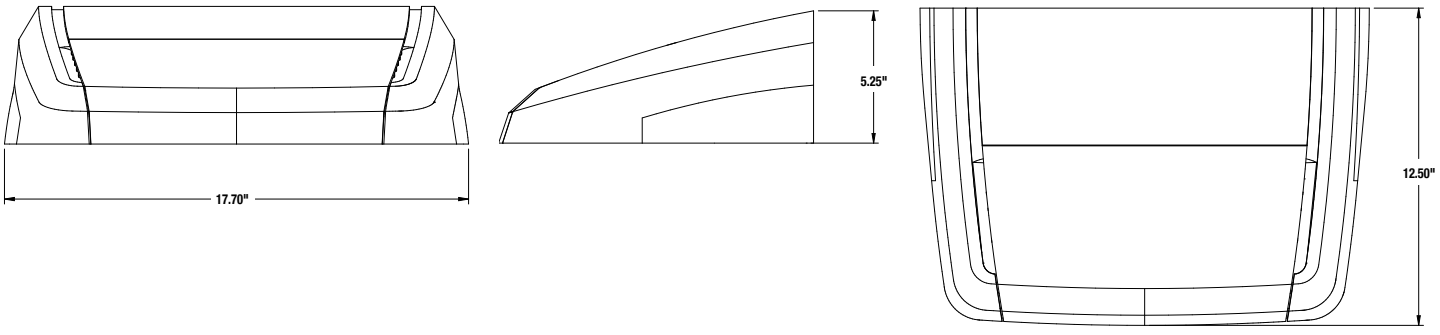
VPW2



VPW2 with Battery Back Box



VPW3



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BEACON
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VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE: LOCATION:

TYPE: PROJECT:

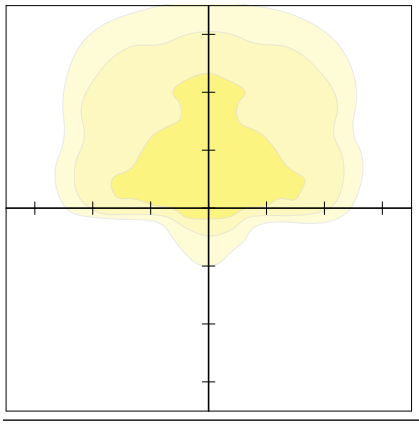
CATALOG #:

BATTERY OPTIONS & HOUSING SIZES

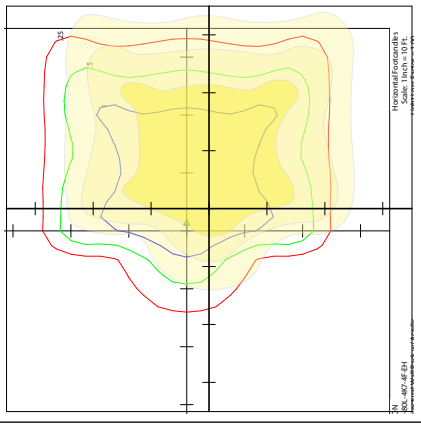
				Battery (E)		Battery with Heater (EH)	
Size	**Optics**	**# LEDs**	**Fixture Wattage**	**E (10W)**	**Housing**	**EH (13W)**	**Housing**
VPW1	Micro Strike	24L	10W	N/A	Not Available	N/A	Not Available
			15W				
			25W				
VPW2	Micro Strike	48L	15W	Y	Standard Housing	Y	Includes Integrated Back Box
			20W	Y	Standard Housing	Y	Includes Integrated Back Box
			30W	N/A	Not Available	Y	Includes Integrated Back Box
			35W	N/A	Not Available	Y	Includes Integrated Back Box
			45W	N/A	Not Available	Y	Includes Integrated Back Box
		80L	20W	N/A	Not Available	Y	Includes Integrated Back Box
			25W			Y	Includes Integrated Back Box
			35W			Y	Includes Integrated Back Box
			45W			Y	Includes Integrated Back Box
			55W			Y	Includes Integrated Back Box
			65W			Y	Includes Integrated Back Box
			70W			Y	Includes Integrated Back Box
	Strike	18L	25W	N/A	Not Available	Y	Includes Integrated Back Box
			30W			Y	Includes Integrated Back Box
			39W			Y	Includes Integrated Back Box
			50W			Y	Includes Integrated Back Box
			60W			Y	Includes Integrated Back Box
VPW3	Micro Strike	160L	45W	N/A	Not Available	Yes	Standard Housing
			70W			Yes	Standard Housing
			95W			Yes	Standard Housing
			105W			N/A	Not Available
			135W			N/A	Not Available
			155W			N/A	Not Available
	Strike	36L	55W	N/A	Not Available	Yes	Standard Housing
			80W			Yes	Standard Housing
			100W			Yes	Standard Housing
			120W			N/A	Not Available

PHOTOMETRY - BATTERY

18L BATTERY PHOTOMETRY



80L BATTERY PHOTOMETRY



Mounting Height: 12ft
Scale: 10ft

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EVENLITE
LIVES DEPEND ON US

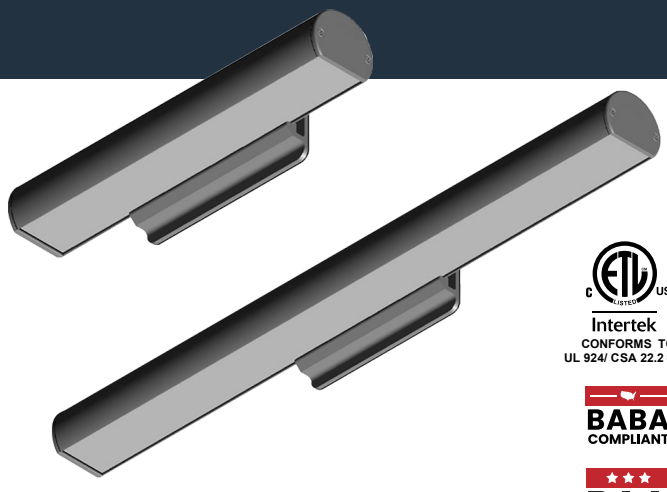
TYPE
XWMM1

Project Name:	Approved By:
Catalog No:	Type No:
MMEM10XXXX	

DÉCOR DESIGNER MM

Mullion Mount Outdoor LED Emergency Egress Lights

The Décor Designer MM Linear LED combines emergency and night lighting in a sleek, designer fixture. The MM series is designed to mount directly on mullion frames used in typical glass panel entrance structures, with vertical mounting surface as small as 2". Its high-efficiency LEDs and full 90° cut-off provide uniform emergency and night lighting on the extended egress pathway. All models are outdoor rated, UL wet location, ADA compliant, and exceed requirements of UL Standard 924 and NFPA 101. Designed and manufactured in the USA, complies with Buy American requirements.



Intertek
CONFORMS TO
UL 924/ CSA 22.2 #141

BABA
COMPLIANT

BAA
COMPLIANT

IP66
RATED

CONSTRUCTION

- Extruded aluminum lamp housing 2" diameter, with gasketed mount bracket only 2 ½" height that includes a waterproof compression seal for universal wall or top mount
- Available models include:

  EM and AC: Single fixtures powered from a Remote Power Supply
  AC: 120 / 277 VAC input, with or without battery

- Wet location listed, UL924 and certified IP66
- Gasketed, molded end caps and Sealed acrylic lens
- Stainless steel hardware

ELECTRICAL

- Self-test / self-diagnostic operation is available for EM models powered by a Remote Power Supply; the unit itself includes no internal battery
- Line latch circuit prevents unwanted emergency activation at installation
- 10W Lithium Ion battery standard
- 20W Lithium Ion battery standard, optional NiCad battery available
- Dual function available fo emergency or normally-on operation
- EM Models provided with AC indicator and push to test switch
- Standard Operating Temperature

  EM: 0°C to 50°C (0°F to 122°F)
  AC: -40°C to 50°C (-40°F to 122° F)

ILLUMINATION

- Refractive light guide engineered to optimize LED utilization and illumination uniformity
- Maintenance free LED Light source with 25+ years life expectancy

CERTIFICATION

- Manufactured and tested to UL Standard 924, NFPA Life Safety Code 101, and certified to IP66
- BABA and BAA compliant

SPECIFICATIONS

- **Fixtures:** Supply and install the Décor LED Series Mullion Mount or Series MM Wall Mount emergency lighting fixture. The fixture shall be listed for installation in wet locations in compliance with UL 924 and IP66 standards and shall be capable of operating either from Utility power at 120 / 277VAC, remote power supply Series RPS. Upon loss of AC building power, emergency models shall operate for a minimum of 90 minutes in compliance with UL Standard 924 and NFPA LSC 101.
- **RPS**: Supply and install the remote power supply Series RPS. The RPS will be capable of operating the Décor LED® emergency fixture, and shall be available with either a SLA or NiCad battery with charger having universal 120 / 277 VAC input, to supply emergency lighting power for a minimum of 90 minutes in compliance with UL Standard 924 and NFPA LSC 101, or as a power supply without battery. The RPS shall also be capable of operating LED fixtures on or continuous mode, from 120 / 277VAC power input.

WARRANTY

- 10 year limited warranty- view complete warranty terms online at www.evenlite.com/terms-warranty.

DÉCOR DESIGNER MM

Mullion Mount Outdoor LED Emergency Egress Lights

ORDERING GUIDE

MM-EM-10-WH-T-SD

MODEL	OPERATION	POWER	HOUSING COLOR	MOUNTING	OPTIONS
MM	**EM** Battery backup[1]	**10** 10 Watts[2]	**WH** White	**T** Top	**SD** Self-Test Diagnostics[3]
	AC AC Supply 120 / 277V	**20** 20 Watts[2]	**SL** Silver	**W** Wall	**CW1** 3800K Color Temp
			BZ Bronze		**CW2** 3200K Color Temp
			BK Black		**CW3** 2900K Color Temp
					2HT 2" Mount Bracket Height
					5HT 5" Mount Bracket Height
					REC-RPS Recessed Mount[4]
					DAC120 Dual AC Input - 120V
					DAC277 Dual AC Input - 277V
MM					

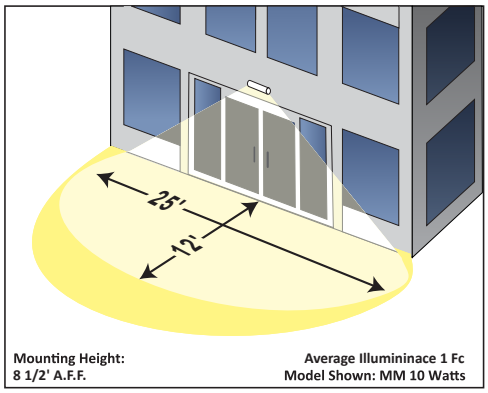
ORDERING NOTES

1. Includes RP
2. Emergency and normal on power.
3. Self-Diagnostics is standard on 10W units and now includes the Night Lighting Control Switch - Must include EM. Available option for 20W units.
4. Only available for the 20W Model.

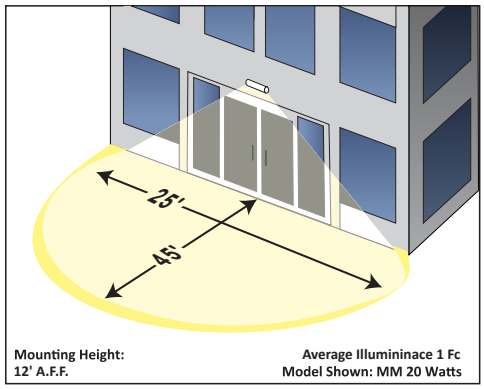
Fill in fields from categories above and complete type and part number.

Type No:	Full Part No:

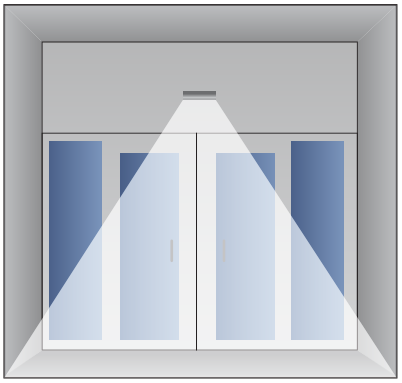
SPACING GUIDE



Note: For reference only. Standard reflectance 80 / 50 / 20. Evenlite is not responsible for specific conditions that may alter the results.



Note: For reference only. Standard reflectance 80 / 50 / 20. Evenlite is not responsible for specific conditions that may alter the results.

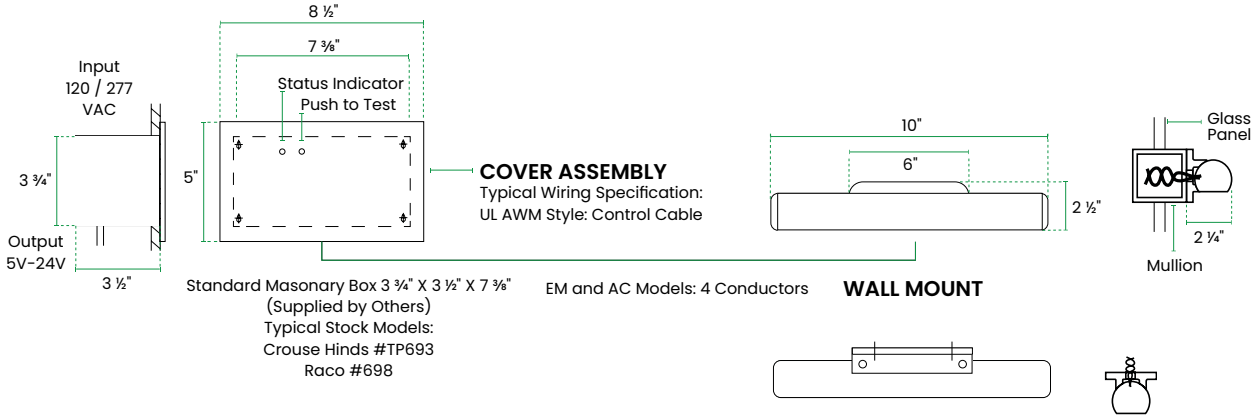


SELF-TEST DIAGNOSTIC FUNCTIONS

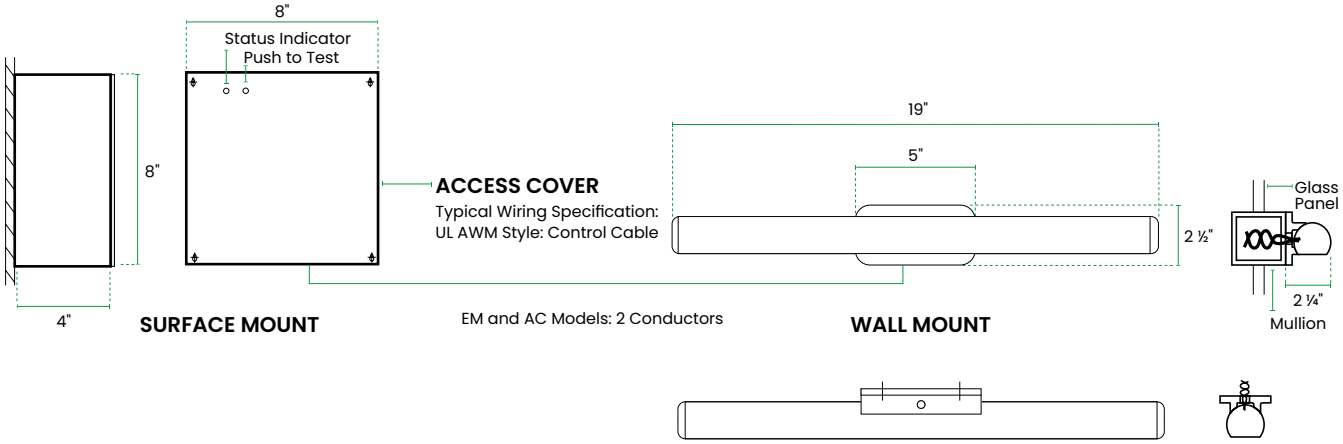
EM MODELS	
STATUS	**LED DISPLAY**
GREEN ON	Normal Full Charge
ORANGE ON	Normal Fast Charge
RED FLASH FAST [X2]	Failed Battery
GREEN FLASH [X3]	Failed Lamp
ORANGE FLASH [X2]	Failed Transfer
RED FLASH SLOW [X2]	Failed Charger

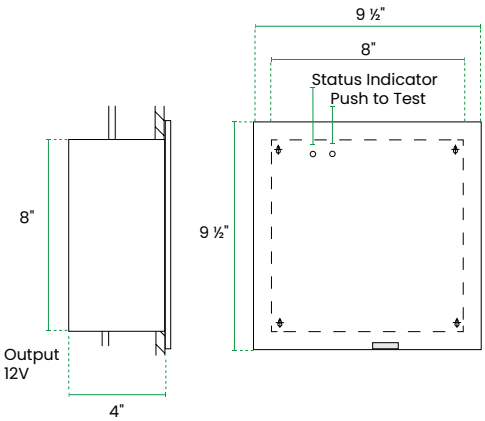
DIMENSIONS & MOUNTING DATA

REMOTE POWER SUPPLY (RPS)
10 WATT AC & EM MODELS



REMOTE POWER SUPPLY (RPS)
20 WATT AC & EM MODELS





RECESSED MOUNT (OPTION REC)

MAXIMUM WIRING LENGTH FROM RPS TO FIXTURE

WIRING SIZE AWG	LENGTH	LENGTH (FT)
	MM10	MM20
#22	NA	20
#20	12	40
#18	25	60
#16	50	100
#14	75	160
#12	125	250

Attachment 9
MHPC Clearance Letter

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

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 30, 2025

Tom Saucier
Site Design Associates
23 Whitney Way
Topsham, ME 04086

Project: MHPC# 2099-25 Fiber Materials, Inc; 389 Hill Street
Building Addition; New parking area
Town: Biddeford, ME

Dear Mr. Saucier:

In response to your recent request, I have reviewed the information received December 16, 2025 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Based on the information submitted, I have concluded that there will be **no historic properties (archaeological or architectural) affected** by the proposed undertaking, as defined by Section 106.

Please contact Kirk Mohney at (207) 287-3811 or Kirk.Mohney@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

Attachment 10
SLODA Sections

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE **FORM A PAGE 1**
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☐ **20 acre development** ☐ **Planning Permit** ☐ **Metallic Mining**	☐ **Marine Oil Terminal** ■ **Structure** ☐ **Subdivision**	☐ **Major Amendment** ☐ **Minor Amendment**

1. Name of Applicant:	Fiber Materials Inc	**6. Name of Agent (if applicable):**	Tom Saucier, PE Site Design Associates
2. Applicant's Mailing Address:	5 Morin Street Biddeford, Me 04005	**7. Agent's Mailing Address:**	23 Whitney Way Topsham, ME 04086
3. Applicant's Daytime Phone #:	207-282-5911	**8. Agent's Daytime Phone # :**	207-449-4275
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	darnst@fibermaterialsinc.com	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	tsaucier@sitedesignassociates.biz

PROJECT INFORMATION

11. Name of Development:	Intermat Proposed Expansion						
12. Map and Lot #'s:	**Map #:** 74	**Lot #:** 1	**13. Deed Reference #'s:**	**Book #:** 16236	**Page #:** 151		
14. Location of Project City/Town:	Biddeford	**15. County:**	York	**16. UTM Northing**		**17. UTM Easting**	
18. Brief Description of Project including total parcel size:	see cover letter and site plan application						

19. Type of Direct Watershed: (Check all that apply)

☐ Lake not most at risk ☐ River, stream or brook ☐ Coastal wetland
☐ Lake most at risk ■ Urban impaired stream ☐ Wellhead or public water
☐ Lake most at risk, severely blooming ☐ Freshwater wetland

20. Name of Waterbody Project Site drains to:	Thatcher Brook		
21. Amount of Developed Area:	Total acres:_____	Existing Developed area:_____acres	New Developed area: 6.9 acres
22. Amount of Impervious Area:	Total acres:_____	Existing Impervious areas_____acres	New Impervious area: 3.1 acres

23. Development started prior to obtaining a license?:	☐ **Yes** ☒ **No**		
24. .Development or any portion of the site subject to enforcement action?	☐ **Yes** ☐ **No**	**If yes**, name of enforcement staff involved?	
25. Common scheme of development?:	☐ **Yes** ☒ **No**	**26. Title, Right or Interest:**	☒ **own** ☐ **lease** ☐ **purchase option** ☐ **written agreement**
27. Natural Resources Protection Act permit required?:	☐ **Yes** ☒ **No**	**If yes:** ☐ **PBR** ☐ **Tier 1** ☐ **Full Permit** ☐ **Tier 2**	
28. Existing DEP Permit number (if applicable):			
29. Names of DEP staff person(s) present at the pre-application meeting:			
30. Does agent have an interest in project? If yes, what is the interest?	☐ **Yes** ☒ **No**		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

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

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

CERTIFICATIONS / SIGNATURES

"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 am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. 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.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)"..

Signed: _____ **Title** Agent **Date:** 4/15/26

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed** _____ **Date:** 4/15/26

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: _____

Name (print): Thomas Saucier

Date: 04/15/26

Re/Cert/Lic No.: _____

Engineer 6095

Geologist _____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

Other _____

08/07/2025

Agent Authorization Letter

Principal
Fiber Materials, Inc.
5 Morin Street, Biddeford, ME 04005
Designated Principal POC: David Arnst
Email: DArnst@fibermaterialsinc.com
Phone: 207-294-7293

Agent
Site Design Associates
23 Whitney Way, Topsham, ME 04086
Designated Agent POC: Tom Saucier
Email: tsaucier@sitedesignassociates.biz
Phone: 207-756-0068

This Letter of Authority ("Agreement") is made between Fiber Materials, Inc. ("Principal"), located at 5 Morin Street, Biddeford, ME 04005, and Site Design Associates ("Agent"), located at 23 Whitney Way, Topsham, ME 04086.

Fiber Materials, Inc. hereby authorizes Site Design Associates to perform all site design and permitting activities related to proposed construction projects at Intermat, located at 389 Hill Street, Biddeford, ME 04005. This includes but is not limited to the scope specified in Section A below.

Section 1: Scope of Authority:

1.A Development and submission of all required documents, forms, and permit applications;

1.B Communication and coordination with federal, state, and local government and regulatory authorities;

1.C Detailed site design and civil engineering documentation;

1.D Representation in interactions with local and state officials regarding

permitting and compliance;
1.E Participation in site planning reviews, meetings, and presentations as required by permitting agencies.

The “Agent” is authorized to represent the “Principal” solely in relation to the scope described above and may act within that scope to fulfill the requirements of related government contract projects. Any action taken beyond the defined scope requires prior written approval from the “Principal”.

Section 2: Agent Authorization Validity
This authority shall commence on June 26, 2025, and remain in effect through December 30, 2027, unless earlier revoked in writing by the “Principal”.

This letter is a copy intended for City of Biddeford recordkeeping

Angela Commeau
Angela Commeau
Fiber Materials, Inc.
Subcontract Administrator

TABLE OF CONTENTS

SECTION	TITLE
1.	Development Description
2.	Title, Right or Interest
3.	Financial Capacity
4.	Technical Ability
5.	Noise
6.	Visual Quality and Scenic Character
7.	Wildlife and Fisheries
8.	Historic Sites
9.	Unusual Natural Areas
10.	Buffers
11.	Soils
12.	Stormwater Management
13.	Urban Impaired Stream Submissions
14.	Basic Standards Submissions
15.	Groundwater
16.	Water Supply
17.	Wastewater Disposal
18.	Solid Waste
19.	Flooding
20.	Blasting
21.	Air Emissions, Odors, Water Vapor, Sunlight
22.	Odors
23.	Water Vapor
24.	Sunlight

SECTION 1
DEVELOPMENT DESCRIPTION

A. Narrative

The project involves the construction of the 50,619 s.f. addition and the creation of 1.94 acres of new paving and parking. The site and the perimeter access roads are laid out to allow an addition to the building at some point in the indeterminate future. The net increase in impervious area will be 3.10 acres, which exceeds the Site location of Development Act (SLODA) threshold of 3 acres of new structure area. The city has municipal capacity to review the relevant information.

New domestic water and fire, sewer, natural gas, and electrical services will be installed to support the addition. Attachment 3 includes ability to serve letters from the utilities. The proposed utilities are shown on the project drawings, including sizes and materials.

B. Topographic Map

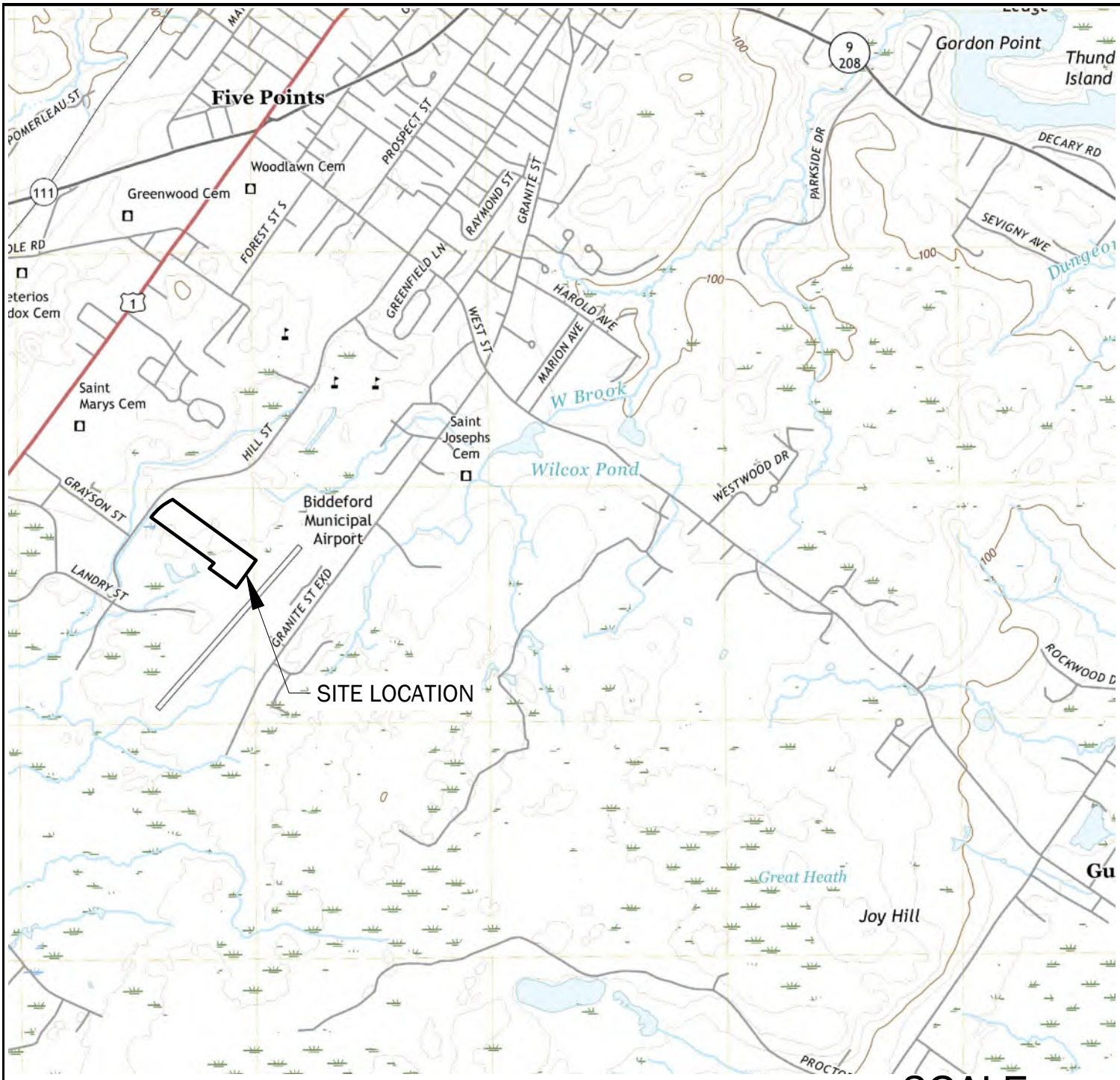
Please see the Site Location Map included in this section.

C. Construction Plan

Erosion control will be installed prior to soil disturbances at the site. Grubbing will then take place, followed by rough grading, utility and stormwater system installation, placement of gravels, building construction, loam, seed and mulch, paving and final stabilization.

D. Drawings

See attached drawings



USGS BIDDEFORD, MAINE 24K TOPOGRAPHIC MAP, 2021

NORTH

SCALE

0 1000 2000 4000

SCALE in FEET
1"=2000'

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

DESIGN DEPT.	INTERMAT PROPOSED EXPANSION
DRAWN DEPT.	389 HILL STREET, BIDDEFORD, ME 04005
CHKD TWS	LOCATION PLAN
DATE DEC. 2025	PROJ. NO. 24-211-01
SCALE 1"=2,000'	DWG. NO. --
	REV. A

FIBER MATERIALS INC.
5 MORIN ST, BIDDEFORD, ME 04005

Drawing Name: C:\CCC Projects\25204 - Intermat - Biddeford\3. CAD\25204 - Base_Phase 2 | Plot Date / Time: Dec. 16, 25 / 12:52 PM

SECTION 2
TITLE, RIGHT OR INTEREST

See attached deed.

confidential
Robert Griton
Oct 31, 2016 21:24

Doc# 2011046154
Bk 16194 Pg 239 - 241
Received York SS
11/01/2011 1:40PM
Debra L. Anderson
Register of Deeds

QUITCLAIM DEED WITH COVENANT

FIBER MATERIALS, INC., a corporation duly incorporated under the laws of the Commonwealth of Massachusetts with its principal office located in the City of Biddeford, County of York, and State of Maine

in consideration of the sum of $1.00 and other valuable consideration

paid by **GRAFTECH DELAWARE IV INC.**, a corporation duly incorporated under the laws of the State of Delaware with its principal office located in the City of Parma, County of Cuyahoga, and State of Ohio, whose mailing address is 12900 Snow Road, Parma, OH 44130

the receipt whereof it does acknowledge, grants to **GRAFTECH DELAWARE IV INC.**, it successors and assigns forever, with quitclaim covenants, a certain lot or parcel of land with the buildings and improvements thereon situated on the southeast side of Marcel Avenue in Biddeford, Maine more particularly bounded and described as follows:

Maine R.E. Transfer Tax Paid

Beginning at a No. 6 steel rod driven in the ground on the southeast sideline of Marcel Avenue as shown on a plan recorded in the York County Registry of Deeds entitled "Airport Industrial Park II" by John D. Roberts, R.L.S., recorded in said registry in Plan Book 125, Page 048, said steel rod also marking the most northerly corner of lot no. 3 as shown on said plan and the most westerly corner of the lot herein described;

confidential
Robert Griton
Oct 31, 2016 21:24

Thence, North 35°-40'-28 East along said sideline a distance of one and seventy-six hundredth (1.76) feet to a magnetized drill hole in a granite monument set at the point of curvature in said sideline;

Thence, northeasterly along the arc of a regular curve to the right having a radius of seven hundred sixty and no hundredths (760.00) feet, a distance along the arc of three hundred ninety-three and thirty-three hundredths (393.33) feet to a No. 6 steel rod set at land formerly of Olive Foss, now of owners unknown;

Thence, south 53°-47'-07" East along said land of owners unknown a distance of two hundred forty-eight and eighteen hundredths (248.18) feet to a magnetized drill hole in a granite monument and land formerly of F. B. Staples, presently of owners unknown;

Thence, south 54°-02'-33 East along said other land of owners unknown a distance of one thousand, one hundred eighty-nine and sixty-four hundredths (1189.64) feet to an old stone monument and other land of the within grantors, known as the Biddeford Airport;

Thence, South 35°-50'-53" West along said Airport land a distance of four hundred seventy-five and forty-three hundredths (475.43) feet to an old stone monument and land of the Biddeford Airport;

Thence, North 54°-04'-32" West along said Airport land a distance of four hundred sixty-one and ninety-two hundredths (461.92) feet to an iron pipe and lot no. 3 as shown on said plan;

Biddeford Tax Map 74, Lot 7
389 Hill

4815-0867-1501.2

confidential
Robert Griton
Oct 31, 2016 21:24

confidential
Robert Griton
Oct 31, 2016 21:24

Thence, North 40°-57'40 East along said lot no. 3 a distance of ninety-nine and fifty-seven hundredths (99.57) feet to an iron pipe and the most easterly corner of lot no. 3 as shown on said plan;

Thence North 54°-04'-32" West along said lot no. 3 a distance of one thousand eighty-three and fifteen (1083.15) feet to Marcel Avenue and the point of beginning.

Bearings refer to grid north, Maine Co-ordinance system, West Zone.

Said parcel contains fourteen and five hundredths (14.05) acres, more or less.

This property is SUBJECT TO the Biddeford Airport Industrial Park II Protective Covenants recorded in York County Registry of Deeds in Book 3295, Page 112.

This deed conveys the property described as Lot 4-A in a Plan recorded in the York Country Registry of Deeds, Plan Book 130, Page 34, and being the 14.05 acre portion of lot No. 4 described in an action by the Biddeford Planning Board dated July 25, 1984 recorded in the York County Registry of Deeds in Book 3383, Page 242.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging to the said Fiber Materials, Inc., its successors and assigns forever.

Subject to all applicable laws and codes and all easements, agreements, restrictions, and other matters of record, if any, insofar as in force and applicable, together with the lien for real estate taxes not yet due or payable, including but not limited to items set forth in the First American Title Insurance Company Title Commitment File #42708-389 Hill.

confidential
Robert Griton
Oct 31, 2016 21:24

And it does hereby covenant with said GrafTech Delaware IV Inc., its successors and assigns that it shall and will, subject to the foregoing, warrant and defend the record title to the premises to said GrafTech Delaware IV Inc., its successors and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

[Next Page is Signature Page]

confidential
Robert Griton
Oct 31, 2016 21:24

confidential
Robert Griton
Oct 31, 2016 21:24

IN WITNESS WHEREOF, the said Fiber Materials, Inc. has caused this instrument to be signed in its corporate name by Gain S. Francis, its Director, duly authorized this 31st day of the month of October, 2011.

WITNESS: FIBER MATERIALS, INC.

Name: Warren Cheney By:
Name: Gain S. Francis
Title: Director

STATE OF MAINE)
) ss.
COUNTY OF ~~YORK~~ Cumberland)

On October 31, 2011 before me, Ben Lombard, a Notary Public, personally appeared Gain S. Francis, Director of Fiber Materials, Inc., who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Maine that the foregoing paragraph is true and correct.

WITNESS my hand and official seal. Seal

(SEAL)

BEN LOMBARD
Notary Public, Maine
My Commission Expires January 10, 2014

confidential
Robert Griton
Oct 31, 2016 21:24

END OF DOCUMENT

Biddeford Tax Map 74, Lot 7
389 Hill

4815-0867-1501.2

confidential
Robert Griton
Oct 31, 2016 21:24

(2) 95346 PTLD MCE 03112- PO BOX 95346 FLAHERTY PO BOX 95346 PTLD ME 04112-

Doc# 2012006630
Bk 16263 Pg 515 - 516
Received York SS
02/16/2012 10:50AM
Debra L. Anderson
Register of Deeds

AFFIDAVIT OF NAME CHANGE AND DELIVERY

I, Erin E. Marks, a resident of Cleveland, Cuyahoga County, Ohio being duly sworn, depose and say:

1. I am the duly elected and authorized Secretary of **GRAFTECH DELAWARE IV INC.** now known as **FIBER MATERIALS INC.**, a corporation organized under the laws of the State of Delaware with a mailing address of 12900 Snow Road, Parma, OH 44130.

2. The Certificate of Incorporation for **GRAFTECH DELAWARE IV INC.** was filed with the State of Delaware, Secretary of State, Division of Corporations on October 18, 2011 and is recorded in the York County Registry of Deeds in Book 16261, Page 992.

3. By two deeds dated and delivered on October 31, 2011, **GRAFTECH DELAWARE IV INC.** acquired two parcels of land in Biddeford, Maine located at 5 Morin Street and 389 Hill (the "Property") from **FIBER MATERIALS, INC.**, a Massachusetts corporation with its principal office in Biddeford, York County, Maine.

4. Subsequent to delivery of the deeds, **GRAFTECH DELAWARE IV INC.** changed its name to **FIBER MATERIALS INC.** by Certificate of Amendment to Certificate of Incorporation filed with the State of Delaware, Secretary of State, Division of Corporations on October 31, 2011 and recorded in the York County Registry of Deeds in Book 16261, Page 996.

5. On November 1, 2011 the deeds from **FIBER MATERIALS, INC.** (the Massachusetts corporation) to **GRAFTECH DELAWARE IV INC.** were recorded in Book 16194, Page 232 and Book 16194, Page 239.

6. This affidavit is given to confirm of record that delivery of the deeds for the Property occurred prior to the grantee's name change and that the owner of record of the Property is **FIBER MATERIALS INC.**

IN WITNESS WHEREOF, the undersigned Erin E. Marks, being first duly sworn according to law, stated and affirmed that the foregoing matters are true and correct to the best of her knowledge, information and belief.

Witness

Erin E. Marks
Secretary, Fiber Materials, Inc.

STATE OF OHIO
COUNTY OF CUYAHOGA, ss

On February 14, 2012, personally appeared the above-named Erin E. Marks, Secretary, Fiber Materials Inc., and made oath that the facts are true and correct upon her personal knowledge and belief.

BEFORE ME,

Notary

SEAL

CYNTHIA A. BINNS, Attorney
Notary Public, State of Ohio
My commission has no expiration date.
Section 147.03 O.R.C.

E Ags → Preti Flaherty
P.O. Box 9546
Ptld, Me 04112-9546

End of Document

2788504.2

SECTION 3
FINANCIAL CAPACITY

See attached letter from FMI.

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 Nov 24 2025 20:08:17. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
FIBER MATERIALS INC.	20120445 F	BUSINESS CORPORATION DOING BUSINESS IN MAINE	GOOD STANDING

Qualification Date	Expiration Date	Jurisdiction
12/09/2011	N/A	DELAWARE

Other Names **(A=Assumed ; F=Former)**

NONE

Principal Home Office Address

Physical	Mailing
5 MORIN STREET BIDDEFORD, ME 04005	5 MORIN STREET BIDDEFORD, ME 04005

Clerk/Registered Agent

Physical	Mailing
CORPORATION SERVICE COMPANY 45 MEMORIAL CIRCLE AUGUSTA, ME 04330	CORPORATION SERVICE COMPANY 45 MEMORIAL CIRCLE AUGUSTA, ME 04330

New Search

Click on a link to obtain additional information.

List of Filings View list of filings

Obtain additional information:

4/15/2026

To Whom It May Concern:

FMI Industries plan to expand its existing facility located at 389 Hill St, Biddeford, ME through construction of of an additional approximately 60,000 square feet building. This construction project is estimated to cost $26,500,000 and expected to commence this summer and be completed during early 2029.

FMI Industries will use available cash and existing credit facilities to finance this and other projects planned in the Biddeford, ME area and will provide the required capital to finance the completion of this project.

Sincerely,

James Lattin
Director of Finance
Fiber Materials Inc.

Fiber Materials Inc. | 5 Morin Street | Biddeford, ME 04005
Tel: 207.282.5911 · Fax: 207.282.7529

SECTION 4
TECHNICAL ABILITY

Fiber Materials Inc. will be responsible for operating and maintaining the project subsequent to construction. The following team is responsible for design and construction of the project:

Civil Engineer:
Site Design Associates
23 Whitney Way
Topsham, Maine 04086

Randall Paulson Architects
Rob Capps (Senior Project Manager)
Phone: 770-650-7558
Email: rcapps@randallpaulson.com

Salas Obrien
Scott Rheault (Mechanical & Plumbing)
Phone: 207-899-6708
Email: scott.rheault@salasobrien.com

Brian Gardner (Electrical)
Phone: 207-253-9999
Email: brian.gardner@salasobrien.com

Josh Broyer (Structural)
Phone: 207-319-3821
Email: joshua.broyer@salasobrien.com

Jewett Construction
25 Spaulding Road
Freemont New Hampshire 03044

SECTION 5
NOISE

A source of noise at the site will be the standby generator, with regular maintenance starts for short intervals. Sound attenuation will be provided to limit the noise at the property line to less than the city mandated level of 70 dB. HVAC units are located on the roof, and are partially screened by a mansard. The proposed project will be in full compliance with the city of Biddeford and the MDEP regulations.

SECTION 6
VISUAL QUALITY AND SCENIC CHARACTER

There will be no visual impact due to the project, which is located in an industrial park. Abutters include industrial and commercial uses, and the city public works facility.

Lighting will be LED cutoff fixtures. Lighting fixture information is included in the city application, and a photometric plan is included in the drawing set.

SECTION 7
WILDLIFE AND FISHERIES

Wetland on the site were delineated in 2020, and the delineation was updated in 2025. No significant vernal pools were noted during either investigation. Three small wetland areas will be impacted as shown on drawing C-300. The wetland area impacted will be 1,697 sf.

.

During initial wetland and wildlife investigations, the large wetland on the eastern side of the parcel was shown as potential spotted turtle habitat. Based on that finding and the recommendation of IFW, a turtle trapping survey was undertaken, with no turtles taken. The result was reported to IFW. Their response provided two options for protecting this area. As noted on the drawings, the plans have been developed in accordance with their option 1, which is to provide a permanent 100 ft buffer for the wetland to the east, which is shown on drawing C-100. A copy of the letter from IFW is attached.

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

August 24, 2021

Kevin Ryan
97A Exchange Street
Suite 305
Portland, ME 04101

RE: 389 Hill Street, Biddeford – Spotted Turtle Surveys

Dear Kevin:

Thank you for your efforts to determine the presence or absence of rare turtles and snakes, mainly State Threatened spotted turtles and State Species of Special Concern eastern ribbon snakes, at 389 Hill Street in Biddeford. The surveys were conducted in June 2021, following our Department's survey methodology and with the assistance of MDIFW's turtle and snake specialist Derek Yorks. Under provisions of the Maine State Endangered Species Act, spotted turtles are protected from activities that lead to Take (killing) or Harassment (injury or disruption of natural behavior). Based on the results of the survey, no spotted turtles or ribbon snakes were documented; however, we do not believe these negative trapping results should be interpreted to mean that spotted turtles and ribbon snakes are not using the wetland complex on site, based on the following reasons:

Ongoing drought conditions throughout Maine resulted in abnormally low hydrologic conditions during the early June trapping period. As a result, many of the wetland areas at the site were nearly dry which limited survey efforts to placing relatively few traps in the few remaining areas that had enough water. The wetland complex at the southeast end of the site bordering the Biddeford airport was mostly dry and could not be adequately sampled for turtles in June 2021, which would typically be the ideal time for sampling. Moreover, spotted turtles are highly adapted to shallow and often ephemeral wetlands and will aestivate when conditions are dry. Usually this is during the mid and late summer at sites which are prone to drying. Based on my experience, it is very plausible that the drought conditions seen in southern and coastal Maine during June of 2021 may have triggered aestivation to commence in the search area much sooner than is typical, thereby decreasing our confidence in any trapping results.

<u>Findings</u>

Pools A and B are small, former quarry pits that function as vernal pools and are likely of a semi-permanent hydrology. I believe that the negative trapping results are meaningful for these two quarry pools and we have no concerns for them going forward.

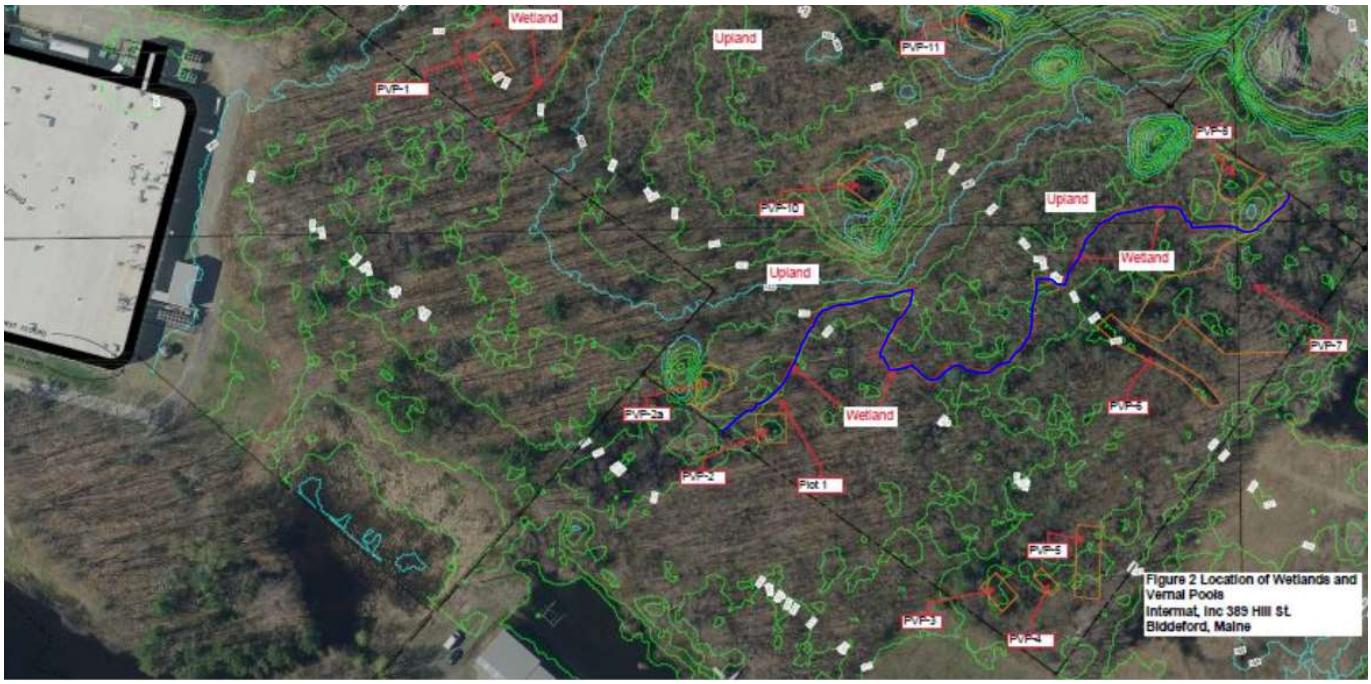
Pool C is also an excavated area, which had enough water to trap during the survey period; therefore, I believe the trapping results for this pool are also valid.

Pool D was the last bit of standing water that falls within an extensive natural wetland system that should provide excellent habitat for spotted turtles and ribbon snakes during non-drought conditions. This wetland is also in closer proximity than Pools A-C to known occurrences of spotted turtle and ribbon

snake on the abutting Biddeford airport property. Given these considerations, I believe it is likely that Pool D and the surrounding wetlands are occupied by spotted turtles and ribbon snakes during average June conditions. To minimize impacts to both species, MDIFW recommends one of the following:

Option 1:

- Place a permanent 100-ft. no-cut, no-disturb buffer on the entire delineated wetland within which Pool D is situated. See the marked-up map pasted below for an approximate demarcation of that wetland edge (in dark blue) based on the wetland delineation map you provided. For Pools A-C, we have no further concerns and would consider them unoccupied by spotted turtles or ribbon snakes.



Option 2:

- Re-trap all of the previously identified potential spotted turtle and ribbon snake habitat in the Spring of 2022, assuming closer to average precipitation conditions, to reevaluate these wetlands for occupancy during non-drought conditions. If no spotted turtles or ribbon snakes are detected during this second trapping event, MDIFW would have no further concerns for these species and development could proceed with no special provisions at the site related to these species. If either of these species are documented, we would likely recommend a permanent 250-ft. no-cut, no-disturb buffer on any occupied wetland habitat.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of further assistance.

Best regards,

Derek Yorks
Wildlife Research and Assessment Section

Becca Settele, MDIFW Environmental Review
Phillip deMaynadier, MDIFW Wildlife Research and Assessment Section

SECTION 8
HISTORIC SITES

The Maine Historic Preservation Commission has concluded that no historic properties will be affected by the proposed development. A copy of the letter from the MHPC is included in this section.

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

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 30, 2025

Tom Saucier
Site Design Associates
23 Whitney Way
Topsham, ME 04086

Project: MHPC# 2099-25 Fiber Materials, Inc; 389 Hill Street
Building Addition; New parking area
Town: Biddeford, ME

Dear Mr. Saucier:

In response to your recent request, I have reviewed the information received December 16, 2025 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Based on the information submitted, I have concluded that there will be **no historic properties (archaeological or architectural) affected** by the proposed undertaking, as defined by Section 106.

Please contact Kirk Mohney at (207) 287-3811 or Kirk.Mohney@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

SECTION 9
UNUSUAL NATURAL AREAS

The Maine Natural Areas Program was contacted regarding the project to determine if any unusual natural areas exist on the project site. According to the information currently in the MNAP Biological and Conservation Data System files, there are no rare or botanical features documented specifically within the project area. A copy of the letter from NAP is included in this section.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 28, 2020

Ian Broadwater
Broadwater Environmental
18 Grand St
South Portland, ME 04106

Via email: ian@broadwaterenvironmenteal.com

Re: Rare and exemplary botanical features in proximity to: #389 Hill Street, Biddeford, Maine

Dear Mr. Broadwater:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received May 21, 2020 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

In particular, MNAP recommends that you survey the project area for Smooth Winterberry Holly (*Ilex laevigata*). There is an occurrence nearby, across the road at Richardson Brook, and it appears that appropriate habitat for this species may be present at 389 Hill Street. MNAP is available to conduct this survey. If you are interested, please contact Kristen Puryear, 287-8043, to arrange for such a survey.

Feature	State Status	State Rank	Global Rank	Notes
Smooth Winterberry Holly *Ilex laevigata*	SC	S3	G5	Richardson Brook

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

SECTION 10
BUFFERS

No stormwater treatment buffers are proposed.

As noted previously, a natural 100 ft vegetated buffer will be maintained between the site and the large wetland to the east, as shown on drawing C-100.

SECTION 11
SOILS

The USDA on-line Web Soil Survey identifies the major soils present in the vicinity of the proposed project. A copy is included in this section.

Map Scale: 1:6,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil 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 23, Aug 26, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	A	33.6	23.6%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	20.2	14.2%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	11.6	8.1%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	7.3	5.1%
Na	Naumburg sand	A/D	57.6	40.5%
RoC	Rock outcrop-Lyman complex, 3 to 15 percent slopes		2.1	1.4%
Ur	Urban land		10.1	7.1%
Totals for Area of Interest			**142.5**	**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

SECTION 12
STORMWATER MANAGEMENT

See attached stormwater management report in the city application section.

SECTION 13
URBAN IMPAIRED STREAM SUBMISSIONS

The project is located within the Thatcher Brook Urban Impaired Stream (UIS) watershed, as identified by the Maine DEP. The project is subject the City of Biddeford Urban Impaired Stream impact fee standards. The necessary fee will be paid by the Applicant to the City of Biddeford, as calculated below based on the city of Biddeford fee schedule.

Number of new roofs = 1 x $5,000/roof = **$5,000**
New non-roof impervious area = 1.95 acres x $12,500/acre = **$24,375**
New landscaped area = 2.92 acres x $2,500/acre = **7,300**

SECTION 14
BASIC STANDARDS SUBMISSION

A. Narrative

BMPs such as a stabilized construction entrance, silt fence and/or filter berms of erosion control mix, riprap pipe inlet and outlet protection, turf reinforcement matting, mulch, and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures and erosion and sedimentation control notes and details are shown on the design drawing set.

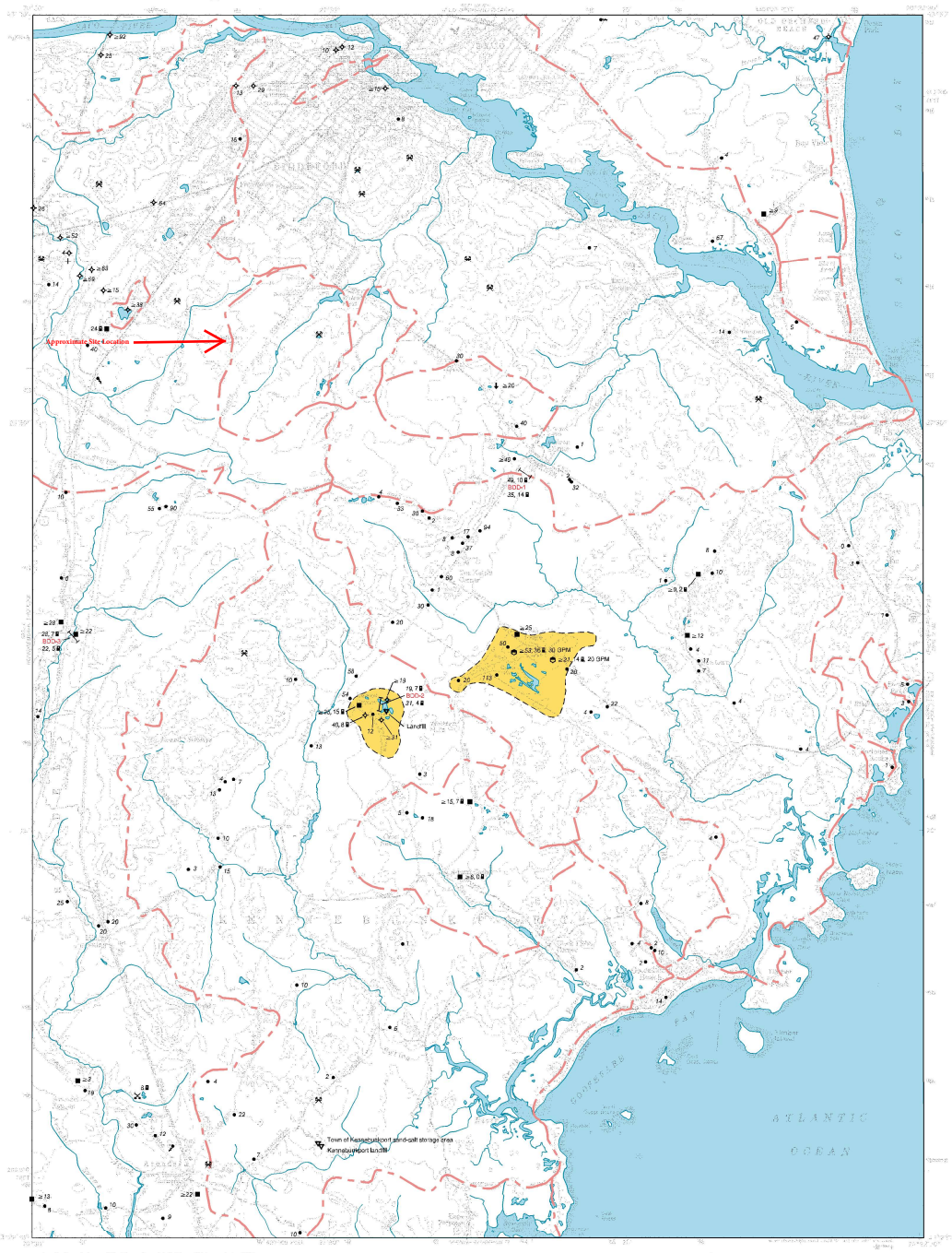
The inspection and maintenance plan for stormwater (included in Section 12 and on the drawings) addresses erosion control at the site.

SECTION 15
GROUNDWATER

The project is not located on a mapped sand and gravel aquifer. A copy of the significant Sand and Gravel Aquifer Map is included in this section.

We do not anticipate blasting on the site. The project will be served by public water and sewer.

Significant Sand and Gravel Aquifers



Aquifer boundaries modified from: Lanctot, E. M., and Tolman, A. L., 1985, Hydrogeologic data for significant sand and gravel aquifers in parts of York and Cumberland Counties, Maine: Map 4: Maine Geological Survey, Open-File Map 85-93, scale 1:50,000.

Well inventory data from U.S. Geological Survey Basic-Data Reports and additional data collected by Maine Geological Survey field assistants during the 1978-1984, and 1995 field seasons.

Drainage basin boundaries compiled by U.S. Geological Survey, Water Resources Division, Augusta, Maine, with funding from the Maine Low-Level Radioactive Waste Authority.

Quadrangle Location

SCALE 1 : 24,000

0 1000 2000 3000 4000 5000 6000 7000 FEET

0 1 MILE

0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

TRUE NORTH

Topographic base from U.S. Geological Survey Biddeford quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

SIGNIFICANT SAND AND GRAVEL AQUIFERS (yields greater than 10 gallons per minute)

Approximate boundary of surficial deposits with significant saturated thickness where potential ground-water yield is moderate to excellent.

Surficial deposits with good to excellent potential ground-water yield; yields generally greater than 50 gallons per minute to a properly constructed well. Deposits consist primarily of glacial sand and gravel, but can include areas of sandy till and alluvium; yield zones are based on subsurface data where available, and may vary from mapped extent in areas where data are unavailable.

Surficial deposits with moderate to good potential ground-water yield; yields generally greater than 10 gallons per minute to a properly constructed well. Deposits consist primarily of glacial sand and gravel, but can include areas of sandy till and alluvium; yields may exceed 50 gallons per minute in deposits hydraulically connected with surface-water bodies, or in extensive deposits where subsurface data are available.

SURFICIAL DEPOSITS WITH LESS FAVORABLE AQUIFER CHARACTERISTICS (yields less than 10 gallons per minute)

Areas with moderate to low or no potential ground-water yield (includes areas underlain by till, marine deposits, colian deposits, alluvium, swamps, thin glacial sand and gravel deposits, or bedrock); yields in surficial deposits generally less than 10 gallons per minute to a properly constructed well.

SEISMIC-LINE INFORMATION

Profiles for selected 12-channel seismic lines are shown on Plate 2 of Open-File Report 87-1 (Tolman and others, 1985). Length of 12-channel and single-channel seismic lines as shown on the map is to scale.

53 — Depth to bedrock, in feet below land surface.

≥53 — Depth to bedrock exceeds depth shown (based on calculations).

12 — Depth to water level, in feet below land surface.

MAP-7 131, 23 — Twelve-channel seismic line, with depth to bedrock and depth to water shown at the midpoint of the line, in feet below land surface.

69, 12 MAP-E 72, 12 — Single-channel seismic line, with depth to bedrock and depth to water shown at each end of the line, in feet below land surface. Unless otherwise indicated, data shown above the line-identifier box refers to the northern end of the seismic line.

The 3-letter identifier for a line is an abbreviation for the topographic quadrangle. If the 3-letter identifier for the line is followed by a number (ex: MAP - 7, MAP - 4), the line is a 12-channel line. If the identifier is followed by a letter (ex: MAP - E, MAP- P), the line is a single-channel line. Seismic interpretations by C. D. Neil and D. H. Tepper.

GEOLOGIC AND WELL INFORMATION

50 — Depth to bedrock, in feet below land surface

≥13 — Penetration depth of boring; ≥ symbol refers to minimum depth to bedrock based on boring depth or refusal

6 — Depth to water level in feet below land surface (observed in well, spring, test boring, pit, or seismic line)

Gravel pit (overburden thickness noted in feet, e.g. 5-12')

Quarry

4 GPM — Yield (flow) of well or spring in gallons per minute (GPM)

Spring, with general direction of flow

Drilled overburden well

Dug well

Observation well (project well if labeled; nonproject well if unlabeled)

Test boring (project boring if labeled; nonproject boring if unlabeled)

Driven point

Test pit

Drilled bedrock well

Potential point source of ground-water contamination

Bedrock outcrop

Surface-water drainage-basin boundary; surface-water divides generally correspond to ground-water divides. Horizontal direction of ground-water flow generally is away from divides and toward surface-water bodies.

OTHER SOURCES OF INFORMATION

1. Tolman, A. L., Tepper, D. H., Prescott, G. C., and Gammon, S. O., 1998, Hydrogeology of significant sand and gravel aquifers, northern York and southern Cumberland Counties, Maine: Maine Geological Survey, Open-File Report 83-1, 4 plates.
2. Hildreth, C. T., 1998, Surficial materials of the Biddeford quadrangle, Maine: Maine Geological Survey, Open-File Map 98-183.
3. Hildreth, C. T., 1990, Surficial geology of the Biddeford 7.5' quadrangle, York County, Maine: Maine Geological Survey, Open-File Report 90-36, 6 p.
4. Caswell, W. B., 1987, Ground water handbook for the state of Maine, Second Edition: Maine Geological Survey, Bulletin 39, 135 p.
5. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
6. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.

Biddeford Quadrangle, Maine

Compiled by
Craig D. Neil

Preliminary aquifer boundaries mapped by:
Carol T. Hildreth

Digital cartography by:
Robert A. Johnston

Robert G. Marvinney
State Geologist

Cartographic design and editing by:
Robert D. Tucker
Bennett J. Wilson, Jr.

Funding for the preparation of this map was provided in part by the Maine Department of Environmental Protection.

Maine Geological Survey

Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 **E-mail:** mgs@maine.gov
Home page: http://www.maine.gov/doc/nrimc/mgs/mgs.htm

Open-File No. 98-149
1998

WHAT IS AN AQUIFER?

Ground water, as the name implies, is water found below the land surface in the pore spaces between sand grains and in fractures in the bedrock (see diagrams below). An *aquifer* is a water-bearing geologic formation capable of yielding a usable amount of ground water to a well. In Maine there are two types of aquifers: loose soil materials (such as sand, gravel, and other sediments) and fractured bedrock. A sand and gravel deposit is considered a *significant aquifer* when a well in that deposit is capable of being continuously pumped at a rate of 10 gallons per minute (gpm) or more. To sustain a yield of 10 gpm or more, a deposit must be permeable enough for water to flow readily into the well as it is pumped (see section on *porosity* and *permeability* below), and there must be a sufficient depth of water in the well so that it will not be pumped dry.

The diagram below shows a schematic cross section of a sand and gravel aquifer in Maine. The symbols above the diagram correspond to the well symbols shown on the map at left. Information typically shown for these wells includes type of well, depth to bedrock, depth to water, and well yield. The blue line in the diagram is the *water table*. The area below the water table is called the *saturated zone*, where all pore spaces between the sediment particles are filled with water. In order to yield water, a well must extend below the water table into the saturated zone. Notice that the water table corresponds to the water level in most wells and in the stream.

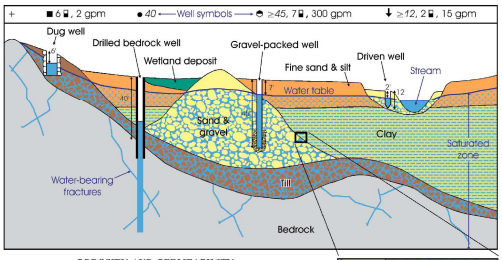
Several types of wells, common in Maine, are shown in the diagram. A *dug well* is a large diameter hole excavated by hand or backhoe. The hole is kept from caving in by installing a lining that may be stone, tile, or cement blocks. The hole must be deep enough to extend below the water table. The shallow dug well in the diagram has a yield of 2 gpm. Although the yield is often low, dug wells generally supply enough ground water for a household because of the large amount of water stored in the well.

A *gravel-packed* well is usually installed into coarse-grained sediment and is drilled with a much larger diameter than the final casing and screen diameter. To increase the yield and pumping efficiency of the well, the space around the well screen is filled with selected gravel that increases the permeability in the immediate vicinity of the well. The gravel-packed well in the diagram has a high yield of 300 gpm. Such high-yielding gravel-packed wells are commonly drilled for municipal or industrial water systems.

A *driven well* or *well point* can be installed into sand and gravel where the water table is within about 20 feet of the ground surface. A 2 to 3 inch diameter pipe, equipped with a well screen at its lower end, is driven into the deposit until the screen is below the water table. This pipe acts as a casing, and water is pumped directly from the aquifer. The driven well in the diagram has a significant yield of 15 gpm. Although the yield is relatively high, driven wells generally only supply a single household because very little water is stored in the well casing.

Wells of any type constructed in the other sediments shown in the diagram (clay or fine sand and silt) would yield some water, but yields would be low or than for wells in coarse-grained sand and gravel deposits.

Another type of well common in Maine is the *drilled bedrock well*. This well is drilled into the underlying rock with steel casing to isolate the well from potential surface-water contamination. In this type of well, water is found when the well hole intersects water-bearing fractures in the bedrock. Notice how the water level in this well is not the same level as the water table. The well casing isolates the bedrock well from the overlying sediments. The water level is controlled by water pressure in the fractures in the bedrock and is not related to the water table in the overlying materials.

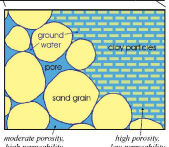


POROSITY AND PERMEABILITY

The diagram at right is an enlarged view of a section of the diagram above. Note that the section shown is below the water table and that ground water completely fills the pore spaces between the sediment grains. In an aquifer, the more pore space there is, the more water the aquifer can hold. This is called the *porosity* of a deposit. *Permeability* refers to the ability of a surficial deposit to transmit water. Permeability depends on the size of the spaces between the sediment grains.

Permeability is related to porosity, but is not the same. Porosity determines the capacity of the material to hold water. Permeability determines its ability to yield water. For example, clay is made of tiny particles with a large amount of pore space between them. However, the pore spaces are so small that they create a resistance to flow which reduces ground-water permeability. Sand and gravel may not be as porous as clay, but the pore spaces are larger and better connected and the materials are much more permeable.

Permeability is an important characteristic since it determines whether ground water can actually be drawn into a pumping well.



moderate porosity, high permeability — *high porosity, low permeability*

HOW ARE AQUIFERS MAPPED?

Operating a twelve-channel seismograph, Piscataquis County, Maine.

When mapping sand and gravel aquifers, geologists visit gravel pits, stream banks, road cuts, and other surface exposures to describe materials and identify deposits. This surficial geology mapping is supplemented with seismic-refraction studies and the installation of observation wells and test borings. In addition, much information about an aquifer may already be available from water-company exploration, large construction projects, town well inventories, and other sources. This information, along with aerial photographs and previously published maps, allows the geologist to define the boundaries of favorable surficial deposits and estimate how well the deposits will yield water to a well.

The boundaries of favorable surficial deposits do not necessarily coincide with the aquifer boundaries. In some areas, a thin cover of favorable coarse-grained material may overlie fine-grained sediments, till, or bedrock. A well in that material would not be able to sustain a yield of 10 gpm, so the area would not be mapped as an aquifer. In other areas, fine-grained sediments or till may overlie favorable coarse-grained sediments and the subsurface deposit may not be recognized as an aquifer.

Single- and 12-channel seismic-refraction studies are conducted to determine the saturated thickness of a deposit by establishing the depth to water table and bedrock surface. The 12-channel seismic survey has the additional advantage of providing the topography of the buried bedrock surface at a site.

Installing monitoring wells and drilling test borings provide direct information about the aquifer characteristics of a deposit. This work provides information on the depth to water table and bedrock surface, water quality, and how easily the sediment transmits water.

GROUND-WATER FLOW AND CONTAMINATION

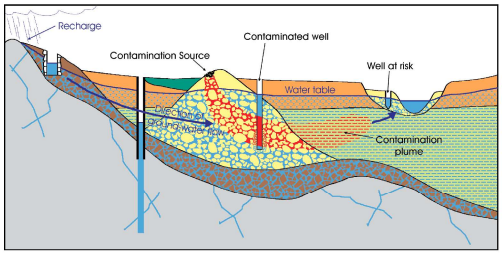
Ground water is replenished or *recharged* by rainwater and melting snow that soak into the soil. This water percolates downward and eventually reaches the water table. When recharge is high during spring snowmelt and fall rains, the amount of ground water increases and the water table rises. When recharge is low during the late summer or when the ground is frozen during the winter, the water table becomes lower.

Notice in the diagram below that ground water is not static; it flows. This concept is very important, especially when ground water becomes contaminated. Once in the ground-water system, contaminants usually travel along the paths followed by ground water and are sometimes able to migrate considerable distances over time.

In the diagram below, a plume of contamination originates at the source in the sand and gravel deposit. This source could be a landfill, a leaking fuel storage tank, or an accidental spill. As the contaminant seeps into the subsurface system and enters the aquifer, it flows with the ground water. In the diagram, the plume contaminated the gravel-packed well as it passed by. The driven well near the stream is not contaminated, but is at risk since the plume is flowing in that direction. The dug well on the hillside, however, is not affected because it is upgradient of the source, hence the contaminated ground water flows away from this well.

Once ground water is contaminated, it is very difficult and expensive to correct. To design a clean-up plan, monitoring wells are installed under the direction of a hydrogeologist or other specialist. These wells define the three-dimensional extent of the affected area. Sometimes it is possible to pump contaminants to the surface using remediation wells within the plume. Often the only solution for a homeowner is to install filtering devices or to abandon the well and find an alternative water supply.

Installing a monitoring well, Washington County, Maine.



HOW TO USE THIS MAP

Types of Information Shown on this Map: The yellow and red colored areas on the map indicate significant aquifers, zones where ground-water yield is estimated to be 10 gpm or greater. The boundaries of the aquifers are drawn by a geologist based, in part, on the well data shown on the map. Areas not mapped as aquifer may be thin or unsaturated sand and gravel deposits, surficial deposits other than sand and gravel, or bedrock.

The well data on the map provide information about the type of well, depth to water table, depth to bedrock, and yield of the wells in the area. This information is useful when making decisions about water supply, a drainage plan, or the need for blasting.

Information from seismic refraction studies also is shown on the map. Seismic studies give detailed information about depth to water table and depth to and shape of the bedrock surface. Geologic cross sections generated from seismic information are shown in associated reports listed in the references below the map at left.

Surface-water drainage-basin boundaries are also shown on the map. Horizontal direction of ground-water flow generally is away from drainage divides and toward surface-water bodies.

Uses of this Map: Sand and gravel aquifer maps are useful in two major categories of decision-making: ground-water supply and ground-water protection. For ground-water supply, these maps are useful in locating areas favorable for developing water supplies for municipal, industrial, or residential use. Information on the map, such as depth to bedrock and well yield, indicate the potential for ground-water production.

Ground-water protection is another important function of these maps. Knowledge of the location and extent of sand and gravel aquifers is critical when siting potential contamination sites such as landfills and salt storage facilities. When used in conjunction with other geologic information, this map can help planners and municipal officials make much more informed decisions to guide industrial growth or residential development.

If ground-water contamination occurs, the general trend of the plume migration can be deduced from these maps by analyzing the drainage basin boundaries and the local surface water bodies.

For further assistance in interpreting this map, contact a geologist at the Maine Geological Survey.

SECTION 16
WATER SUPPLY

Water will be supplied by the Maine Water. See ability to serve letter in this section. When the ability to serve letter was provided it was based on 150 gpm. This has since been reduced to 100 gpm.

March 21, 2025

Tom Saucier, PE
Site Design Associates
23 Whitney Way
Topsham, ME 04086

Re: Ability to Serve Determination – 389 Hill Street, Biddeford

Greetings,

The Maine Water Company (MWC) has received your Ability to Serve Determination request on the behalf of your client, Fiber Materials, Inc., for a proposed commercial development to be located at 389 Hill Street, Biddeford, Maine. The request specifies a plan to construct utility infrastructure improvements to serve a new manufacturing facility, offices, and support areas behind the existing IMAT facility. The expected peak domestic service demand is 150 gallons per minute. The expected fire service demand for the project is 1,200 gallons per minute.

Based on the criteria provided by the developer's agent, the expected increase in water usage is within the water system's available capacity. The static pressure in the area is approximately **40 psi**. The Biddeford Saco Division of MWC does have sufficient capacity from the existing 12-inch ductile iron water main in the Hill Street Right-of-Way to serve this project. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- A hydrant flow test at the nearest available hydrant will need to be conducted and analyzed by the sprinkler designer to ensure that adequate flows can be met during a peak fire demand event.
- The developer is required to pay for the cost of any modification, renewal of impacted service lines, and retirement of unused or discontinued services to MWC standards of best practice.
- Additional plan approval, paperwork, and fees associated with this project will require proper coordination with MWC. MWC requires upfront payment for inspection and paperwork to be fully completed before any construction on waterworks materials.
- Service lines must comply with MWC Cross Connection Control Program.
- Allow up to 30 days for the MWC utility review process once final plans are ready to be completed before any construction on waterworks materials will be approved.

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

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

Sincerely,
The Maine Water Company

Patrick Gere, PE
Project Engineer

The Maine Water Company
93 Industrial Park Road
Saco, ME 04072

T: 1.800.287.1643
www.mainewater.com

SECTION 17
WASTEWATER DISPOSAL

Based on the main subsurface wastewater disposal rules approximately 2500 gpd of wastewater is anticipated. A conditional ability to serve email is attached.

Tom Saucier

From: Milligan, Tom <Tom.Milligan@Biddefordmaine.org>
Sent: Wednesday, December 17, 2025 11:19 AM
To: Galbraith, David; Iriqat, Adi; Tom Saucier
Cc: Chekan, Craig; Demers, Jeff
Subject: FW: Ability to serve memo 389 Hill St., Intermat project

David, Adi

Engineering has determined that the proposed wastewater flow from the expansion of the Intermat project can be accommodated by this City's sewage collection system.
We will be preparing a formal ability to serve letter in the near future which will outline any specific actions needed to be implemented, but let this letter serve as the waste water ability to serve component for their application process.
Respectfully,

Tom

Get Outlook for iOS

SECTION 18
SOLID WASTE

It is anticipated that 5,000 to 8,000 cubic yards of stumps and grubbings will be generated. A site contractor has not been chosen and no detailed quantities have yet been estimated. It is anticipated that the material will be hauled off site and processed into erosion control berm material.

FMI contracts Veolia Technical Solutions to handle disposal of Hazardous, non-hazardous industrial, universal, and regulated medical waste. Additional non-regulated liquids from our parts washers are handled by Safety Kleen, who maintain the washers themselves. The facilities anticipated waste generation is 50% more than quantities generated in 2025, totaling approximately 67500 lbs. 2025 totals are rounded up to simplify data displayed, see below.

Anticipated Waste Generation Calculated from 2025 Baseline

Waste Type	*2025 Approximations (lbs.)*	*Anticipated Waste (lbs.)*
Hazardous	25000	37500
Non-Hazardous	19000	28500
Universal	900	1350
RMW	100	150
Total	45000	67500

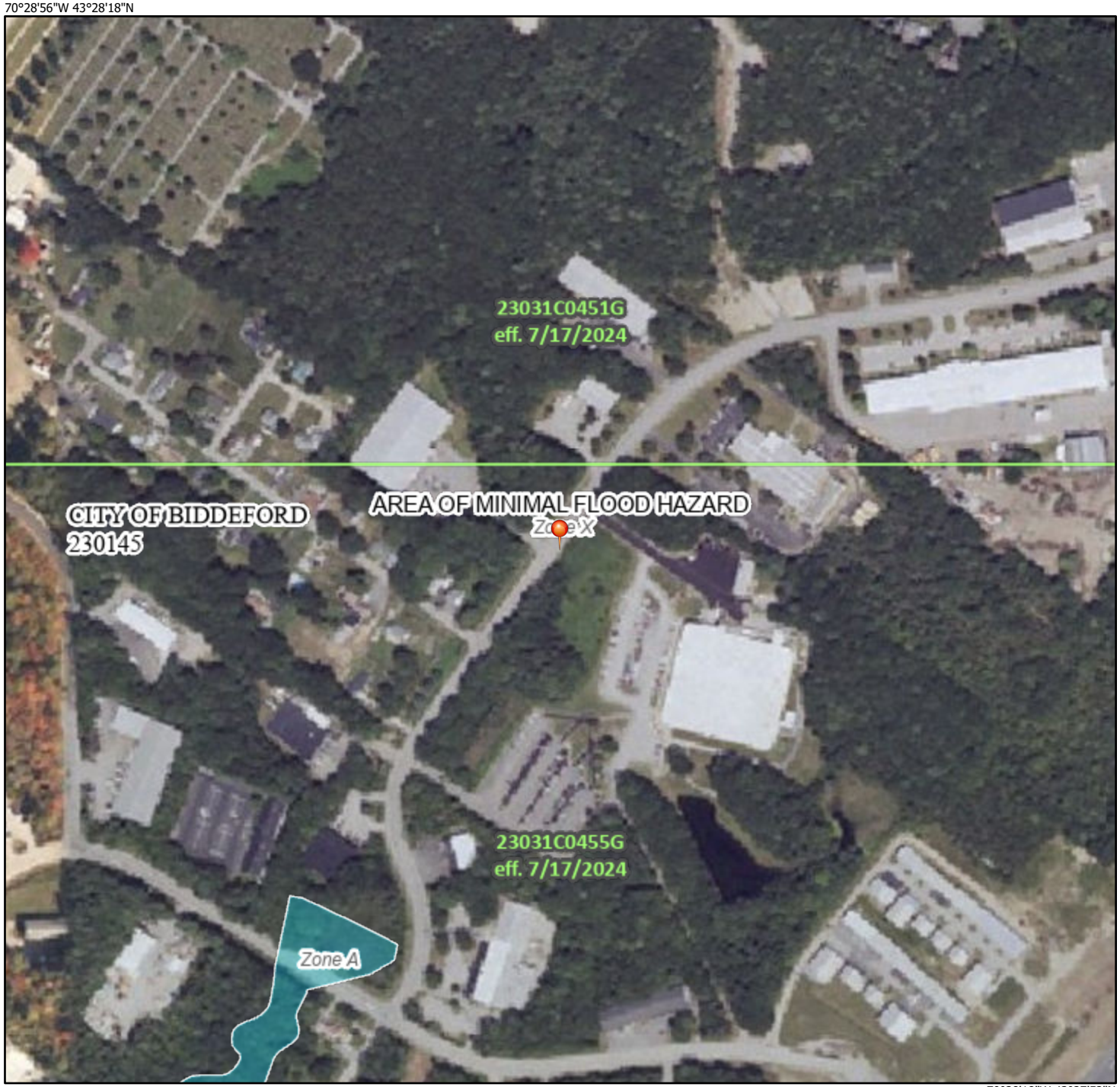
SECTION 19
FLOODING

The project is located in Zone C, areas of minimal flooding. See the flood map included in this section. There will be no impact on the 100-year flood elevation due to this development.

National Flood Hazard Layer FIRMette

FEMA

70°28'56"W 43°28'18"N



70°28'18"W 43°27'52"N

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

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/15/2026 at 2:07 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

SECTION 20
BLASTING

Based on the soil mapping it is anticipated that blasting will not be required.

SECTION 21
AIR EMISSIONS

This facility will replicate the processes currently employed at the existing Intermat location at 389 Hill St. This facility will produce carbon and graphite materials used primarily for defense and aerospace applications through a multi-stage production process. During the impregnation stage, coal tar pitch volatiles—which contain both Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAP)—as well as trace amounts of CO are emitted. Emission-producing equipment, including a pitch impregnator and Hot Isostatic Press (HIP) vessels, will have their emissions managed through the use of coalescent filters and spray condensers.

Additional equipment with emissions potential includes atmospheric carbonizers, graphitizers, and a JPW oven. Emissions from these units will be controlled by an incinerator. Furthermore, the on-site machine shop will utilize a cartridge-style dust collector. The overall level of emissions control will be consistent with the standards established at the existing Intermat facility and will be formally documented within an air emissions license.

SECTION 22
ODOR

No significant odors are anticipated.

SECTION 23
WATER VAPOR

The proposed facility will not be a source of large-scale vapor emissions which may cause change in local climate.

SECTION 24
SUNLIGHT

The proposed facility will not block access to sunlight for structures utilizing solar energy.

INTERMAT PROPOSED EXPANSION

389 HILL STREET
BIDDEFORD, ME 04005

PREPARED FOR:
FIBER MATERIALS, INC.
5 MORIN STREET
BIDDEFORD, ME 04005

JUNE 10, 2026
ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW
PLANNING BOARD CASE #2025.10

DESIGN CONSULTANTS

CIVIL ENGINEER
SITE DESIGN ASSOCIATES, INC.
23 WHITNEY WAY
TOPSHAM, ME 04086
207-449-4275

LAND SURVEYOR
COLLIERS ENGINEERING & DESIGN
41 CHURCH ROAD
BRUNSWICK, ME 04011
207-440-3487

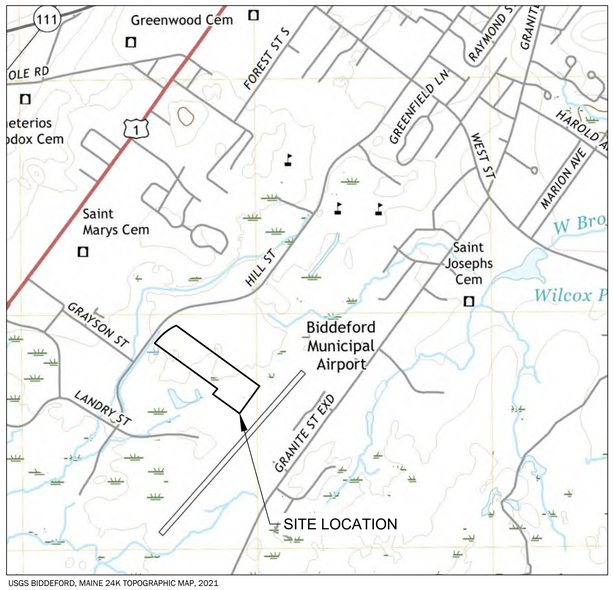
WETLAND PROFESSIONAL
BROADWATER ENVIRONMENTAL
18 GRAND STREET
PORTLAND, MAINE 04106
207-653-8737

SITE CONTRACTOR
TO BE DETERMINED

LIST OF DRAWINGS:

SHEET NO.	SHEET TITLE
	COVER SHEET
	BOUNDARY AND TOPOGRAPHIC SURVEY (2 SHEETS)
C-100	OVERALL EXISTING CONDITIONS PLAN
C-101	SITE REMOVALS PLAN
C-200	SITE PLAN
C-201	SITE LAYOUT AND UTILITY PLAN
C-300	OVERALL GRADING PLAN
C-301	GRADING AND DRAINAGE PLAN
C-302	STORMWATER BMP LAYOUT PLAN
C-303	EROSION & SEDIMENTATION CONTROL PLAN
C-400	EROSION & SEDIMENTATION CONTROL NOTES AND DETAILS
C-401	CIVIL DETAILS
C-402	CIVIL DETAILS
C-403	CIVIL DETAILS
C-404	CIVIL DETAILS
L-1	LANDSCAPE PLAN
L-2	LANDSCAPE PLAN
L-3	PHOTOMETRIC PLAN
A1.1	FLOOR PLAN
A2.1	ELEVATIONS
A2.2	ELEVATIONS

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275



USGS BIDDEFORD, MAINE 24K TOPOGRAPHIC MAP, 2021

N

GRAPHIC SCALE
1000 0 500 1000
1 inch = 1000ft.

GENERAL PROJECT NOTES:

1. THE PROJECT SITE CONTAINS APPROXIMATELY 14.04± ACRES.
2. THE PROJECT SITE IS LOCATED IN THE AIRPORT INDUSTRIAL ZONE (I2) ZONE.
3. THE SITE CURRENTLY CONTAINS THE EXISTING INTERMAT MANUFACTURING FACILITY. THE REMAINDER OF THE PARCEL IS PRIMARILY UNDEVELOPED AND FORESTED.
4. THE PROPOSED PROJECT CONSISTS OF CONSTRUCTION A 50,395± SQUARE FOOT BUILDING ADDITION AND ASSOCIATED ACCESS DRIVES, PARKING, UTILITIES, AND SITE AMENITIES.
5. THE PROJECT IS LOCATED IN THE THATCHER BROOK WATERSHED.
6. THE PROJECT SITE IS NOT LOCATED WITHIN THE BIDDEFORD MS4 URBANIZED AREA.
7. THE FOLLOWING NATURAL RESOURCES ARE LOCATED ONSITE:
   7.1. MULTIPLE FRESHWATER WETLANDS (SEE SHEET C-100).
8. THE PROJECT IS NOT LOCATED WITHIN THE FEMA 100-YEAR FLOODPLAIN.
9. NO PUBLIC OR PRIVATE ROADS ARE PROPOSED FOR THIS PROJECT.
10. THE PROJECT PROPOSES A NEW CONNECTION TO THE PUBLIC SEWER SYSTEM FOR WASTEWATER FROM THE BUILDING ADDITION.
11. NO PUBLIC STORM DRAIN CONNECTIONS ARE PROPOSED FOR THIS PROJECT.
12. THE PROJECT LIMIT OF DISTURBANCE IS APPROXIMATELY 300,600± SQUARE FEET (6.9± ACRES).
13. PERVIOUS LAND COVER ONSITE:
    EXISTING: 11.57 ACRES
    PROPOSED: 8.47 ACRES
14. IMPERVIOUS LAND COVER ONSITE:
    EXISTING: 2.47 ACRES
    PROPOSED: 5.57 ACRES
15. BUILDING ROOF AREA
    EXISTING: 33,420 SF (0.77 ACRES)
    PROPOSED: 83,514 SF (1.92 ACRES)
16. THE FOLLOWING WAIVERS WERE APPROVED FOR THE PROJECT:

    ARTICLE VI.26.F. THE TOP OF A CUT OR THE BOTTOM OF A FILL SECTION SHALL NOT BE CLOSER THAN 10 FEET TO AN ADJOINING PROPERTY, NOR SHALL SAID CUT OR FILL EXCEED THE THREE-TO-ONE SLOPE UNLESS THE PLANNING BOARD WAIVES EITHER OR BOTH REQUIREMENTS UPON THE APPLICANT'S DEMONSTRATION, CERTIFIED BY A MAINE LICENSED PROFESSIONAL ENGINEER (P.E.), THAT A STEEPER SLOPE, WHETHER OR NOT CLOSER THAN 10 FEET TO THE ADJOINING PROPERTY, IS STABLE, WILL NOT RESULT IN EXCESSIVE DOWNSTREAM EROSION OR SEDIMENTATION, NOR CAUSE ANY ADDITIONAL ADVERSE IMPACT ON THE ADJOINING PROPERTY. GRANTED BY THE PLANNING BOARD ON 05/20/2026.

    ARTICLE XI.II.5.B.1.e.3. NO SLOPE SHALL BE CREATED WHICH RESULTS IN A SLOPE OF MORE THAN TWO FEET HORIZONTAL TO ONE FOOT VERTICAL UNLESS PROPER RETAINING WALLS ARE PROPOSED. GRANTED BY THE PLANNING BOARD ON 05/20/2026.

    ARTICLE XI, II. SECTION 5.B.4.f.1 NO PAVING, PARKING, OR STORAGE SHALL BE PERMITTED WITHIN THE REQUIRED SETBACK OF ANY SIDE OR REAR PROPERTY LINE; GRANTED BY THE PLANNING BOARD ON 09/17/25.

RECORD OWNER:

FIBER MATERIALS, INC.
5 MORIN STREET
BIDDEFORD, ME 04005

PARCEL ID:

TAX MAP 74
LOT 7

LEGEND

- SANITARY MANHOLE
- DRAIN PIPE
- MAJOR CONTOUR
- MINOR CONTOUR
- CHAINLINK FENCE
- PROPERTY LINE
- ABUTTER LINE
- U/G ELECTRIC LINE
- OVERHEAD WIRE
- WATER MAIN
- U/G CABLE TV LINE
- GAS MAIN
- BUILDING OVERHANG
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- FOUND IRON PIPE
- FOUND MONUMENT
- TREE
- UTILITY POLE
- LIGHT POLE
- WATER SERVICE BOX
- WATER VALVE
- HYDRANT
- SIGN
- BOLLARD (POST)

N / E / S / W / NORTH

HILL STREET
(PUBLIC - 80' WIDE - PLAN REF. D)

SMH PT#12018
RIM=162.22'
SHELF=158.1'
INV. A: 6" PVC= 157.8'
INV. B: 6" PVC= 157.7'

N/F
CITY OF BIDDEFORD
MAP 3, LOT 66
371 HILL STREET
BOOK 3502, PAGE 10

FOUND 5/8" REBAR
6" ABOVE GRADE,
LOCATED AT BASE
(HELD)

HELD INTERIOR ANGLE
PER PLAN REF. A

S 53°46'30" E
248.14'

INV.=12" CMP
ELEV.=160.16'

12" CMP

INV.=12" CMP
ELEV.=159.60'

INV.=12" CMP
ELEV.=159.31'

INV.=12" CMP
ELEV.=159.12'

CMP J86

CMP J87

CMP 87.1

SMH PT#12093
RIM=164.02'
SHELF=156.4'
INV. A: 6" PVC=155.8'
INV. B: 6" PVC=155.9'
INV. C: 6" PVC=156.8'

SMH PT #9033
STRUCTURE ELEV.=163.12'
SHELF=157.6'
INV. A: 6" PVC=157.6'
INV. B: 6" PVC=157.5'

PAVED DRIVE

"10 MPH"

"SHIPPING & RECIEVING"

"35 MPH"

"35 MPH"

"MUSTER POINT"

"INTERMAT"

"STOP"

"STOP"

"VISITORS"

"EMPLOYEE ENTRANCE"

"10 MPH"

UNKNOWN WATER VAULT

POSSIBLE EASEMENT DESCRIBED IN
DEED REF. B. POLE NUMBERS DIFFER
FROM THOSE DESCRIBED IN EASEMENT

GRASS

PAVED

GRAVEL PATH

24" MAPLE

36" MAPLE

10" BIRCH

10" BIRCH

12" BIRCH

24" MAPLE

24" MAPLE

24" MAPLE

24" MAPLE

18" MAPLE

15" MAPLE

"NO TRESPASSING"

"DO NOT ENTER"

"VISITOR"

"HANDICAPPED"

"HANDICAPPED"

"HANDICAPPED"

HVAC EQUIPMENT

FFE=165.40'

FFE=165.32'

FFE=165.30'

FFE=165.36'

FFE=165.37'

FFE=165.34'

FFE=165.40'

FFE=165.37'

FFE=165.24'

SHED

SMOKING CANOPY

CONC. (TYP.)

CONC. (TYP.)

TRANSFORMER

MISC. EQUIPMENT

CHAIN LINK FENCE

"CONTRACTOR"

"MUSTER POINT"

15 SPACES

13 SPACES

19 SPACES

30 SPACES

32,894 SQFT

525 SQFT

32.28'

16.37'

32.15'

16.26'

99.48'

58.74'

20.09'

20.73'

18.62'

18.58'

104.63'

58.93'

80.16'

19.79'

59.22'

8.15'

8.05'

7.60'

107.59'

12.87'

50.18'

133.00'

50.0'

15.0'

25.0'

R=760.00'
L=393.10'
Δ=29° 38' 07"
CHB=N 50° 32' 40" E
CHD=388.73'

FOUND 4"X4" GRANITE MONUMENT 8" ABOVE GRADE
WITH DRILL HOLE

FOUND 4X4 GRANITE MONUMENT
4" ABOVE GRADE,
WITH DRILL HOLE, LOCATED AT BASE
(HELD)

FOUND CAPPED 5/8" REBAR
4" ABOVE GRADE
(HELD)

N 35°43'37" E
1.81'

N/F
AVX TANTALUM CORP.
MAP 74, LOT 8
401 HILL STREET
BOOK 4024, PAGE 108

N 54°02'59" W
1,082.85'

20 0 20 40
SCALE : 1" = 20'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

VICINITY MAP

BIDDEFORD, ME
SCALE: 1"=1,000'

RTE 1
SITE
HILL ST

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

REV	DATE	DRAWN BY	DESCRIPTION

STATE OF MAINE
JOSHUA R. EON
2558
PROFESSIONAL LAND SURVEYOR

BOUNDARY & TOPOGRAPHIC SURVEY

FOR

SITE DESIGN ASSOCIATES

RECORD OWNER:
FIBER MATERIALS INC.
BOOK 16236, PAGE 151
389 HILL STREET
BIDDEFORD
CUMBERLAND COUNTY
MAINE

Colliers Engineering & Design
BIDDEFORD
234 Main Street,
1st and 2nd Floor
Biddeford, ME 04005
Phone: 207 910 6010
COLLIERS ENGINEERING & DESIGN, INC.

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS NOTED	12/3/2024	EWP	JRE

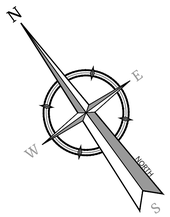
PROJECT NUMBER:	DRAWING NAME:
24000157A	V-SURV

SHEET TITLE:
BOUNDARY AND TOPOGRAPHIC SURVEY

SHEET NUMBER:
1 of 2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

M:\Publish_24\SURV\V-SURV.dwg\V-XX SURVEY 2D By:JOSHUA.EON



LEGEND

- SANITARY MANHOLE
- DRAIN PIPE
- 75 MAJOR CONTOUR
- 74 MINOR CONTOUR
- X X CHAINLINK FENCE
- PROPERTY LINE
- ABUTTER LINE
- E U/G ELECTRIC LINE
- OHW OVERHEAD WIRE
- W WATER MAIN
- CATV U/G CABLE TV LINE
- G GAS MAIN
- BUILDING OVERHANG
- WETLAND LINE
- EDGE OF GRAVEL
- FOUND IRON PIPE
- FOUND MONUMENT
- TREE
- UTILITY POLE
- LIGHT POLE
- WATER SERVICE BOX
- WATER VALVE
- HYDRANT
- SIGN
- UPLANDS
- WETLANDS

GENERAL NOTES:

1. THE RECORD OWNERS OF THE LOCUS PARCEL IS AS FOLLOW:
   FIBER MATERIALS INC. BY DEED DATED FEBRUARY 14, 2012 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS (YCRD) IN BOOK 16236, PAGE 151.
2. THE PROPERTY IS SHOWN AS LOT 8 ON THE CITY OF BIDDEFORD TAX MAP 74, AND IS LOCATED IN THE I2 INDUSTRIAL DISTRICT.
3. SPACE AND BULK CRITERIA FOR THE I2 INDUSTRIAL DISTRICT IS AS FOLLOWS:

MINIMUM LOT SIZE:	NONE LISTED
MINIMUM STREET FRONTAGE:	50 FEET*
MINIMUM FRONT YARD:	50 FEET*
MINIMUM SIDE YARD:	25 FEET*
MINIMUM REAR YARD:	25 FEET
MAXIMUM BUILDING HEIGHT:	60 FEET

   * SEE ORDINANCE & DEED REFERENCE A FOR MORE PARTICULAR INFORMATION.

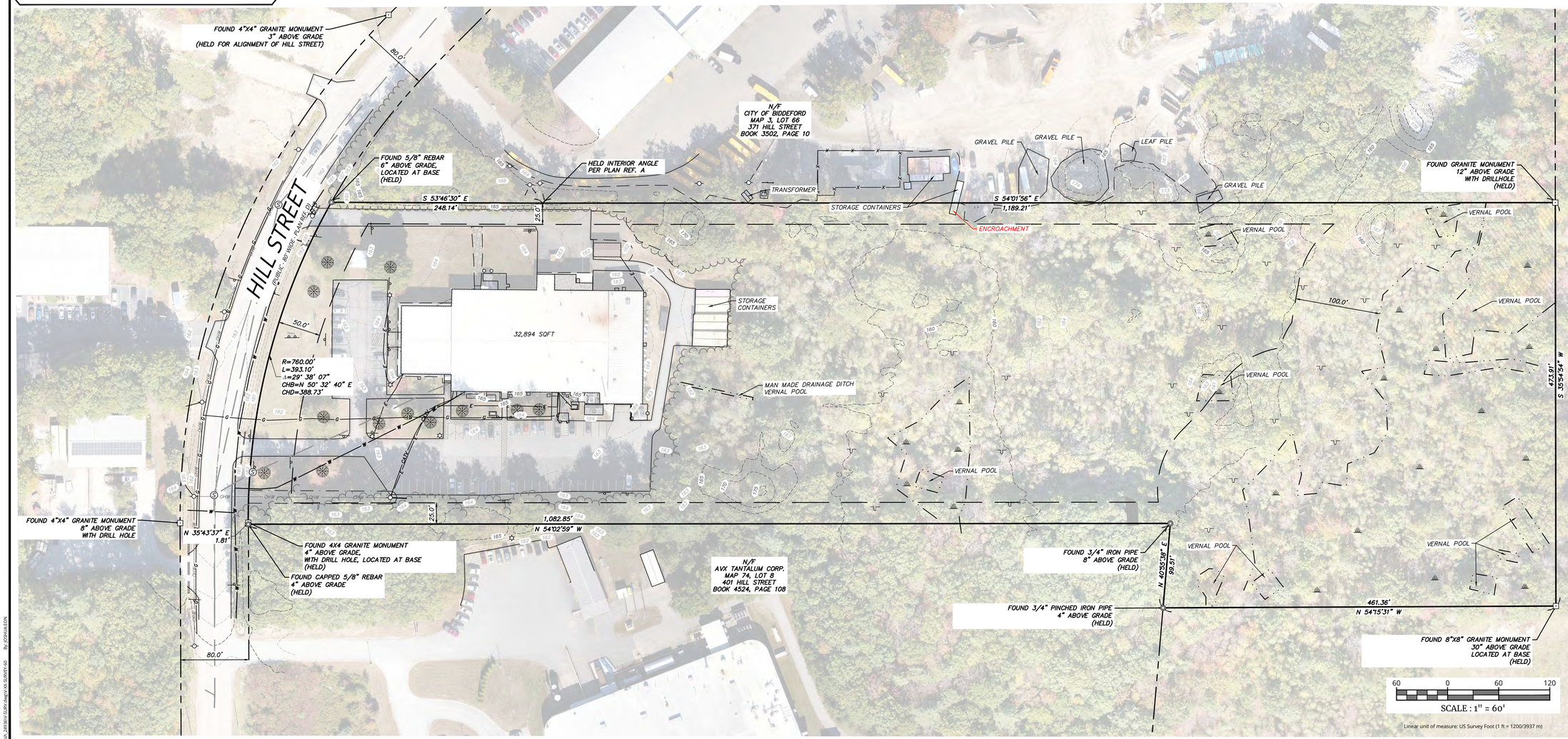
   **NO ZONING REPORT/LETTER HAS BEEN PROVIDED TO THIS SURVEYOR. LAND USE REGULATIONS LISTED ABOVE ARE BASED SOLELY UPON A PRELIMINARY REVIEW OF DIMENSIONAL REQUIREMENTS FOR THE CITY OF BIDDEFORD AND MAY NOT NECESSARILY REPRESENT ALL LAND USE REGULATIONS APPLICABLE TO THE PROPERTY. ALL LAND USE REGULATIONS MUST BE CONFIRMED WITH THE APPROPRIATE FEDERAL, STATE AND/OR LOCAL REGULATORY ENTITY TO DETERMINE THE EFFECT THESE MAY HAVE ON THE PERMITTED USE OF THE PROPERTY.

4. TOTAL AREA OF PARCEL IS APPROXIMATELY 14.04 ACRES.
5. BOOK AND PAGE REFERENCES SHOWN HEREON ARE IN REFERENCE TO THE YORK COUNTY REGISTRY OF DEEDS (Y.C.R.D.).
6. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON FIELD WORK PERFORMED BY COLLIERS ENGINEERING & DESIGN INC. IN OCTOBER OF 2024.
7. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON FIELD WORK PERFORMED BY COLLIERS ENGINEERING & DESIGN INC. IN OCTOBER, 2024. TRADITIONAL SURVEY MEANS AND METHODS SUPPLEMENTED WITH UAS BASED LIDAR WERE EMPLOYED IN THE COLLECTION OF THIS TOPOGRAPHIC INFORMATION. ALL DATA REMOTELY COLLECTED HAS BEEN TESTED TO MEET AND/OR EXCEED THE NATIONAL MAPPING STANDARDS FOR 1 FT CONTOUR INTERVALS SET FORTH BY THE AMERICAN SOCIETY FOR PHOTOGRAMMETRY & REMOTE SENSING (ASPRS).
8. PLAN REFERENCES:
   A. "RE-SUBDIVISION PLAN OF LAND IN BIDDEFORD, MAINE" PREPARED BY THE CITY OF BIDDEFORD, MAINE ENGINEERING DEPT., RECORDED JULY 25, 1984 IN BOOK 130, PAGE 34.
   B. "SUBDIVISION PLAN OF LAND IN BIDDEFORD, MAINE" PREPARED BY THE CITY OF BIDDEFORD, DATED MAY 5, 1983 AND RECORDED IN BOOK 125, PAGE 48.
   C. "PLAN OF LAND OF THE CITY OF BIDDEFORD MUNICIPAL AIRPORT" PREPARED BY COULOMBE INC., SURVEYORS, DATED NOVEMBER 12, 1985 RECORDED AS PLAN D-0714.
   D. "RIGHT OF WAY MAP OF HILL STREET IN BIDDEFORD, MAINE" PREPARED BY THE CITY OF BIDDEFORD ENGINEERING DEPARTMENT, DATED MARCH 2, 1993 RECORDED AS PLAN D-1000.
   E. "PLAN OF LAND OF THE BIDDEFORD MUNICIPAL AIRPORT" PREPARED BY THE CITY OF BIDDEFORD DATED JUNE 5, 1982 RECORDED UNDER FILE NO. TR-8811-586.
   F. "PLAN OF SUBDIVISION OF LAND IN BIDDEFORD, MAINE" PREPARED BY THE CITY OF BIDDEFORD RECORDED IN BOOK 151, PAGE 36.
   G. G. "ALTA/ASCM PLAN OF LAND IN BIDDEFORD, MAINE" PREPARED BY DOW & COULOMBE INC., DATED MARCH 16, 2011 RECORDED IN BOOK 184, PAGE 4522.
9. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83, ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL FREQUENCY GPS OBSERVATIONS.
10. ALL BUILDINGS FOUND ON THE SURVEYED PROPERTY ARE SHOWN HEREON.
11. THE SURVEYED PROPERTY HAS DIRECT ACCESS TO HILL STREET, A PUBLIC WAY, AS SHOWN HEREON.
12. EVIDENCE OF ENCROACHMENTS WERE OBSERVED DURING THE COURSE OF THE SURVEY ALONG THE NORTHERLY BOUNDARY LINE.
13. UTILITY INFORMATION DEPICTED HEREON, UNLESS OTHERWISE NOTED, IS OF QUALITY LEVEL B PER AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD CI/ASCE 38-02. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND/OR EXCAVATION.
14. LOCUS PROPERTY AS DEPICTED HEREON DOES NOT FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR BIDDEFORD, MAINE, YORK COUNTY, COMMUNITY-PANEL NUMBER 23031C0451G, HAVING AN EFFECTIVE DATE OF 7/17/2024. A PORTION OF THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE X, AREAS OF MINIMAL FLOOD HAZARD.
15. A WETLAND DELINEATION WAS PERFORMED ON THIS PROJECT SITE IN APRIL & MAY OF 2020 BY IAN BROADWATER OF BROADWATER ENVIRONMENTAL LLC. WETLAND INFORMATION WAS PROVIDED TO THIS SURVEYOR IN CAD FORMAT. REFERENCE IS MADE TO A REPORT TITLED "REPORT FOR WETLAND DELINEATION & VERNAL POOL SURVEY; 389 HILL STREET, BIDDEFORD, MAINE", DATED JULY 21, 2020 BY BROADWATER ENVIRONMENTAL LLC. FOR ADDITIONAL INFORMATION REGARDING WETLAND CLASSIFICATIONS AND BUFFERS
16. DEED REFERENCES:
   A. PROTECTIVE COVENANTS - BIDDEFORD AIRPORT INDUSTRIAL PARK - PHASE 2, BIDDEFORD, MAINE, DEED BOOK 3295, PAGE 112.
   B. EASEMENT DEED TO CENTRAL MAINE POWER, DATED FEBRUARY 11, 2019, DEED BOOK 17987, PAGE 507.
17. TOTAL NUMBER OF PARKING SPACES (INCLUDING HANDICAP SPACES): 74
    TOTAL NUMBER OF HANDICAP SPACES: 4
18. REFERENCE IS MADE TO A LETTER TITLED "389 HILL STREET, BIDDEFORD, MAINE - SPOTTED TURTLES SURVEY", DATED AUGUST 24, 2021 FROM KEVIN RYAN OF THE STATE OF MAINE DEPARTMENT OF INLAND FISHERIES & WILDLIFE WHICH OUTLINES ALL WETLAND SETBACKS.

SURVEYORS CERTIFICATION:

THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT WAS DONE IN ACCORDANCE WITH CHAPTER 90, PART 1 (PROFESSIONAL STANDARDS OF PRACTICE) AND PART 2 (TECHNICAL STANDARDS OF PRACTICE) OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS.

JOSHUA EON, MAINE PLS 2558 DATE: 12/3/24



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REV	DATE	DRAWN BY	DESCRIPTION
A	12/3/24	JRE	ISSUED TO CLIENT

STATE OF MAINE JOSHUA R. EON 2558 PROFESSIONAL LAND SURVEYOR

BOUNDARY & TOPOGRAPHIC SURVEY
FOR
SITE DESIGN ASSOCIATES

RECORD OWNER:
FIBER MATERIALS INC.
BOOK 16236, PAGE 151
389 HILL STREET
BIDDEFORD
CUMBERLAND COUNTY
MAINE

Colliers Engineering & Design
BIDDEFORD
234 Main Street,
1st and 2nd Floor
Biddeford, ME 04005
Phone: 207 910 6010
COLLIERS ENGINEERING & DESIGN, INC.

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS NOTED	12/3/2024	EWP	JRE

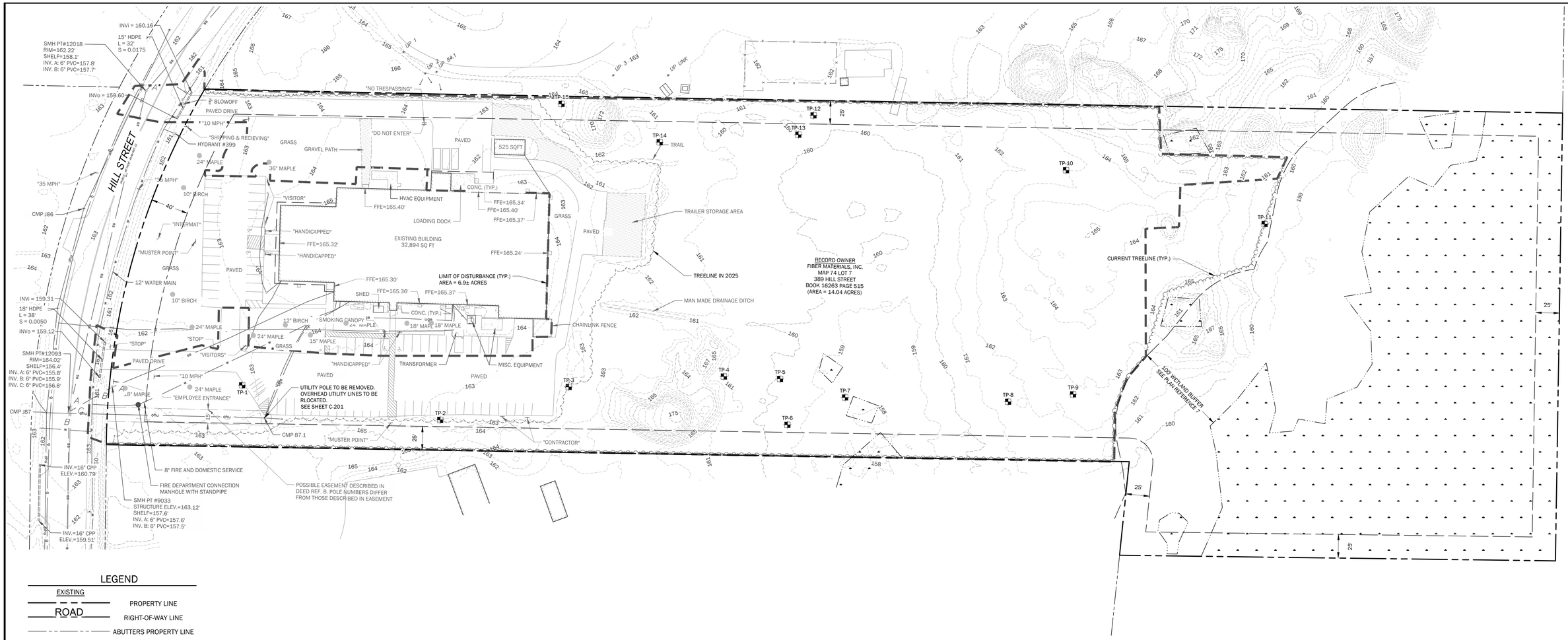
PROJECT NUMBER: 24000157A
DRAWING NAME: V-SURV

SHEET TITLE:
BOUNDARY AND TOPOGRAPHIC SURVEY

SHEET NUMBER:
2 of 2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

V:\Active_24157\V-SURV\dwg\V-SURV.DWG By: JOSHUA.EON



LEGEND

EXISTING

- PROPERTY LINE
- ROAD — RIGHT-OF-WAY LINE
- ABUTTERS PROPERTY LINE
- PROPERTY SETBACK
- IRON ROD OR PIN FOUND
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN
- STORM DRAIN TYPE F BASIN
- SANITARY SEWER MANHOLE
- ss — SANITARY SEWER LINE
- w — WATERLINE
- sd — STORM DRAIN LINE
- FOUNDATION DRAIN LINE
- ROOF DRAIN LINE
- CULVERT
- ohu — OVERHEAD UTILITIES
- ugu — UNDERGROUND UTILITIES
- UTILITY POLE
- LIGHT POLE
- LIGHT FIXTURE
- GUARD RAIL
- x — x — METAL FENCE
- BUILDING
- RETAINING WALL
- EDGE OF PAVEMENT
- SLIPFORM CURB
- EDGE OF GRAVEL
- EDGE OF CONCRETE
- TREELINE
- TREES & SHRUBS
- TP-1 — STORMWATER BMP TEST PIT

UTILITY NOTES

1. ALL UNDERGROUND UTILITIES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND RECORD PLANS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UTILITIES ARE IN THE EXACT LOCATIONS SHOWN, ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE AVAILABLE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND TAKE SUCH MEASURES CONSIDERED PRUDENT TO PROTECT SUCH UTILITIES DURING AND AFTER CONSTRUCTION OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, OR RESTORING AND EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. CALL 1-888-DIGSAFE.
2. THE CONTRACTOR IS INFORMED THAT EXISTING UTILITY LINES, INCLUDING WATER MAINS, SEWERS AND STORM DRAINS MAY BE CONSTRUCTED OF ASBESTOS CONTAINING MATERIALS. TEST PITS SHALL BE EXCAVATED BY THE CONTRACTOR TO IDENTIFY, AND CONFIRM THE LOCATIONS AND DEPTHS OF EXISTING UTILITY LINES. ASBESTOS PIPE MATERIALS DESIGNATED FOR REMOVAL SHALL BE EXCAVATED AND REMOVED IN WHOLE, UNBROKEN PIECES AND HAULED OFF-SITE FOR DISPOSAL BY A LICENSED HAULER, IN ACCORDANCE WITH STATE REGULATIONS. PIPE CUTTING, IF NECESSARY SHALL BE UNDERTAKEN USING SNAP CUTTERS, OR OTHER APPROVED EQUIPMENT THAT DOES NOT PRODUCE DUST, OR SHAVINGS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DISPOSAL COSTS OF ASBESTOS CONTAINING PIPES DAMAGED BY CONSTRUCTION ACTIVITY.
3. ALL SANITARY SEWER SYSTEM INSTALLATION SHALL INSTALLED TO CITY OF BIDDEFORD STANDARDS.
4. ALL WATER DISTRIBUTION INSTALLATION SHALL BE INSTALLED PER MAINE WATER STANDARDS.
5. ALL DRAINAGE PIPE (SIZE VARIES) SHALL BE ADS N12 SMOOTH BORE DUAL WALL HDPE (OR APPROVED EQUIVALENT).
6. ALL WATER SERVICE PIPE SHALL BE 8" DUCTILE IRON PIPE.
7. ALL UTILITY INFRASTRUCTURE SHALL BE LAID OUT BY SURVEY IN THE FIELD. THE DRAWINGS SHALL NOT BE SCALED.
8. ANY NECESSARY DEVIATIONS FROM DESIGN LOCATIONS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. THE MODIFIED UTILITY LOCATIONS SHALL BE APPROVED BY THE ENGINEER AND APPLICABLE UTILITY COMPANY PRIOR TO INSTALLATION.
9. THE CONTRACTOR SHALL ACCURATELY RECORD AS-BUILT INFORMATION FOR ALL UTILITY STRUCTURES, PIPES, AND SERVICES INCLUDING LOCATIONS AND INVERT ELEVATIONS. THE AS-BUILT INFORMATION SHALL BE PROVIDED TO THE OWNERS REPRESENTATIVE FOR THE PREPARATION OF AS-BUILT DRAWINGS.

GRADING AND DRAINAGE NOTES:

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES AND PLANTING BEDS.
4. CONTRACTOR TO ADJUST EXISTING AND PROPOSED UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN-OUTS, UTILITY MANHOLES, CATCH BASINS, INLETS, ETC) THAT ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT.
5. WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
6. CONTRACTOR SHALL PROVIDE A FINISHED PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS.
7. ALL WALKS SHALL HAVE A MAX. 2% CROSS SLOPE.
8. IN SWALES THE CONTRACTOR SHALL INSTALL SC150 DOUBLE NET STRAW BLANKET EROSION CONTROL BLANKET FROM NORTH AMERICAN GREEN, OR APPROVED EQUIVALENT.
9. CONTRACTOR SHALL INSTALL SC150 DOUBLE NET STRAW BLANKET EROSION CONTROL BLANKET FROM NORTH AMERICAN GREEN, OR APPROVED EQUIVALENT, ON ALL SLOPES STEEPER THAN 3:1 BUT LESS FLATTER THAN 2:1.
10. CONTRACTOR SHALL INSTALL ENKAMAT 7020 TURF REINFORCEMENT MATTING, OR APPROVED EQUIVALENT, ON ALL SLOPES STEEPER THAN 2:1 .
11. OWNER'S REPRESENTATIVE SHALL APPROVE LAYOUT OF ALL DRAINAGE STRUCTURES PRIOR TO INSTALLATION.
12. ALL DRAINAGE PIPE NOT CALLED OUT ON THE DRAWINGS SHALL BE SMOOTH INTERIOR ADS N-12 OR EQUIVALENT.
13. THE CONTRACTOR SHALL INSTALL CATCH BASIN INLET PROTECTION AT ALL CATCH BASIN INLETS WITHIN THE DISTURBED AREA AND BE RESPONSIBLE FOR TAKING ALL NECESSARY EROSION CONTROL MEASURES. SEE SHEET C-400.
14. ALL UNSUITABLE AND UNUSED MATERIALS WHICH CAN NOT BE DISPOSED OF ON SITE SHALL BE REMOVED AND DISPOSED OF OFF SITE BY THE CONTRACTOR IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS.
15. SEE SHEET C-400 FOR EROSION CONTROL NOTES, SEQUENCE AND DETAILS.
16. REFER TO DRAWINGS C-100 THRU C-404 AND THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
17. ALL METHODS AND MATERIALS SHALL MEET CURRENT MDOT SPECIFICATIONS, CURRENT REVISION, AS APPLICABLE.
18. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL MEANS, METHODS AND TECHNIQUES EMPLOYED TO PERFORM WORK SHOWN ON THESE PLANS.

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "DIG SAFE" AND LOCAL UTILITY COMPANIES AT LEAST THREE (3) BUSINESS DAYS, BUT NOT MORE THAN 30 CALENDAR DAYS, PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION, IN ACCORDANCE WITH MAINE STATE LAW. "DIG SAFE" TELEPHONE NUMBER IS 1-888-344-7233.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL AND ANY MEANS, METHODS, AND TECHNIQUES EMPLOYED TO PERFORM THE WORK SHOWN ON THE PLANS.
3. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS INCLUDING ALL SAFETY REGULATIONS (OSHA).
4. ALL WORK SHALL BE IN CONFORMANCE ALL UTILITY COMPANIES STANDARDS.
5. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THE WORK SHOWN ON THESE PLANS PRIOR TO CONSTRUCTION.
6. ALL PAVEMENT/CONCRETE CUTS SHALL BE SAW CUT TO RESULT IN CLEAN EDGES. PAVEMENT SHIPLAP JOINTS SHALL BE INSTALLED PER DETAIL 4 ON SHEET C-401.
7. ALL WORK SHALL COMPLY WITH THE CITY OF BIDDEFORD STREET OPENING PERMIT REQUIREMENTS.
8. CONTRACTOR SHALL PAVE UTILITY TRENCHES WITHIN THE ROW WITHIN THREE DAYS OF EXCAVATION OR PRIOR TO ANY RAIN EVENT.
9. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. REFER TO THE EROSION CONTROL PLAN NOTES AND DRAWINGS FOR FURTHER EROSION CONTROL GUIDELINES.
10. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS. IF ANY DISCREPANCIES ARE FOUND, THE OWNER OR OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IMMEDIATELY.
11. CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST EDITION.

PLAN REFERENCES

1. BOUNDARY AND TOPOGRAPHIC INFORMATION BASED ON PLAN ENTITLED "BOUNDARY AND TOPOGRAPHIC SURVEY FOR SITE DESIGN ASSOCIATES, RECORD OWNER, FIBER MATERIALS, INC., BOOK 16263, PAGE 515, 389 HILL STREET, BIDDEFORD, CUMBERLAND COUNTY, MAINE", DATED DECEMBER 3, 2025, BY COLLIERS ENGINEERING & DESIGN OF BRUNSWICK, MAINE.
2. WETLANDS MAPPED BY BROADWATER ENVIRONMENTAL IN 2020, AND VERIFIED IN 2024.
3. ELEVATIONS SHOWN ON THIS PLAN ARE BASED ON NAVD88.
4. HORIZONTAL DATUM IS BASED ON NAD83 STATE PLANE GRID WEST ZONE IN FEET.
5. UNDERGROUND UTILITIES LOCATIONS ARE APPROXIMATE AND WERE OBTAINED FROM SURFACE OBSERVATIONS AND TAKEN FROM PLANS OF SEVERAL SOURCES. SEE SURVEY PLAN REFERENCES.
6. THE 100-FOOT WETLAND BUFFER WAS REQUESTED BY MAINE DEPARTMENT OF INLAND FISH AND WILDLIFE AROUND POTENTIAL TURTLE HABITAT.

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
F	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
E	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
D	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
C	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
B	10/22/2025	ISSUED FOR SCHEMATIC DESIGN SUBMISSION	DEPT.	TWS	TWS
A	8/7/2025	ISSUED FOR SKETCH PLAN REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SLUCIEN
No. 8098
LICENSED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

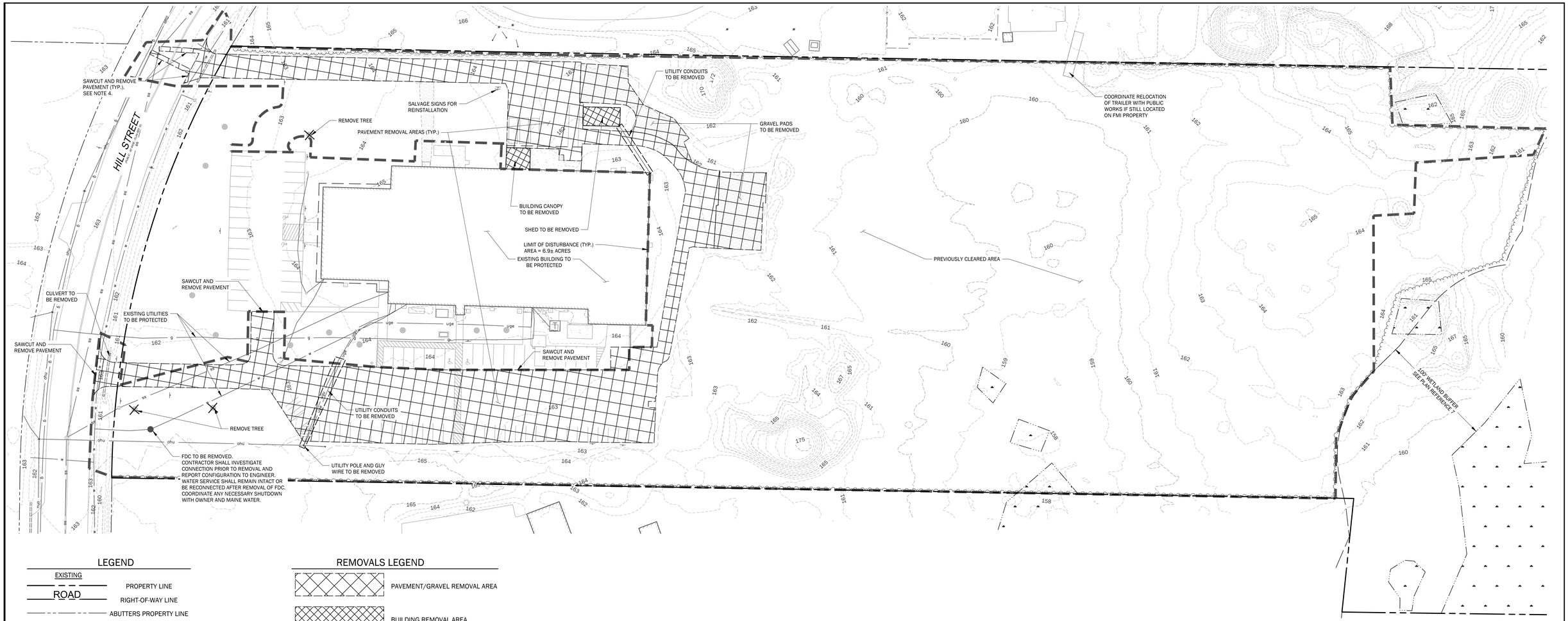
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

OVERALL EXISTING CONDITIONS PLAN

PROJ. NO. 24–211–01
DWG. NO. C–100
REV. F

Drawing Name: C:\CDC Projects\25204 – Intermat – Biddeford\3. CAD\25204 – Base_Phase 1 | Plot Date / Time: Jan. 15, 26 / 12:18 PM



LEGEND

EXISTING

- PROPERTY LINE
- ROAD — RIGHT-OF-WAY LINE
- ABUTTERS PROPERTY LINE
- PROPERTY SETBACK
- IRON ROD OR PIN FOUND
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN
- STORM DRAIN TYPE F BASIN
- SANITARY SEWER MANHOLE
- ss — SANITARY SEWER LINE
- w — WATERLINE
- sd — STORM DRAIN LINE
- FOUNDATION DRAIN LINE
- ROOF DRAIN LINE
- CULVERT
- ohu — OVERHEAD UTILITIES
- ugu — UNDERGROUND UTILITIES
- UTILITY POLE
- LIGHT POLE
- LIGHT FIXTURE
- GUARD RAIL
- x — x — METAL FENCE
- BUILDING
- RETAINING WALL
- EDGE OF PAVEMENT
- SLIPFORM CURB
- EDGE OF GRAVEL
- EDGE OF CONCRETE
- TREELINE
- TREES & SHRUBS
- TP-1 — STORMWATER BMP TEST PIT

REMOVALS LEGEND

- PAVEMENT/GRAVEL REMOVAL AREA
- BUILDING REMOVAL AREA
- UTILITY REMOVAL AREA
- TREE REMOVAL

GENERAL NOTES

1. SEE GENERAL NOTES ON COVER SHEET.
2. SEE PLAN REFERENCES ON SHEET C-100.
3. SEE SHEET C-303 FOR EROSION & SEDIMENTATION CONTROLS.
4. CONTRACTOR SHALL PAVE UTILITY TRENCHES WITHIN THE ROW WITHIN THREE DAYS OF EXCAVATION OR PRIOR TO ANY RAIN EVENT.

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
B	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
A	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8091
LICENSED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

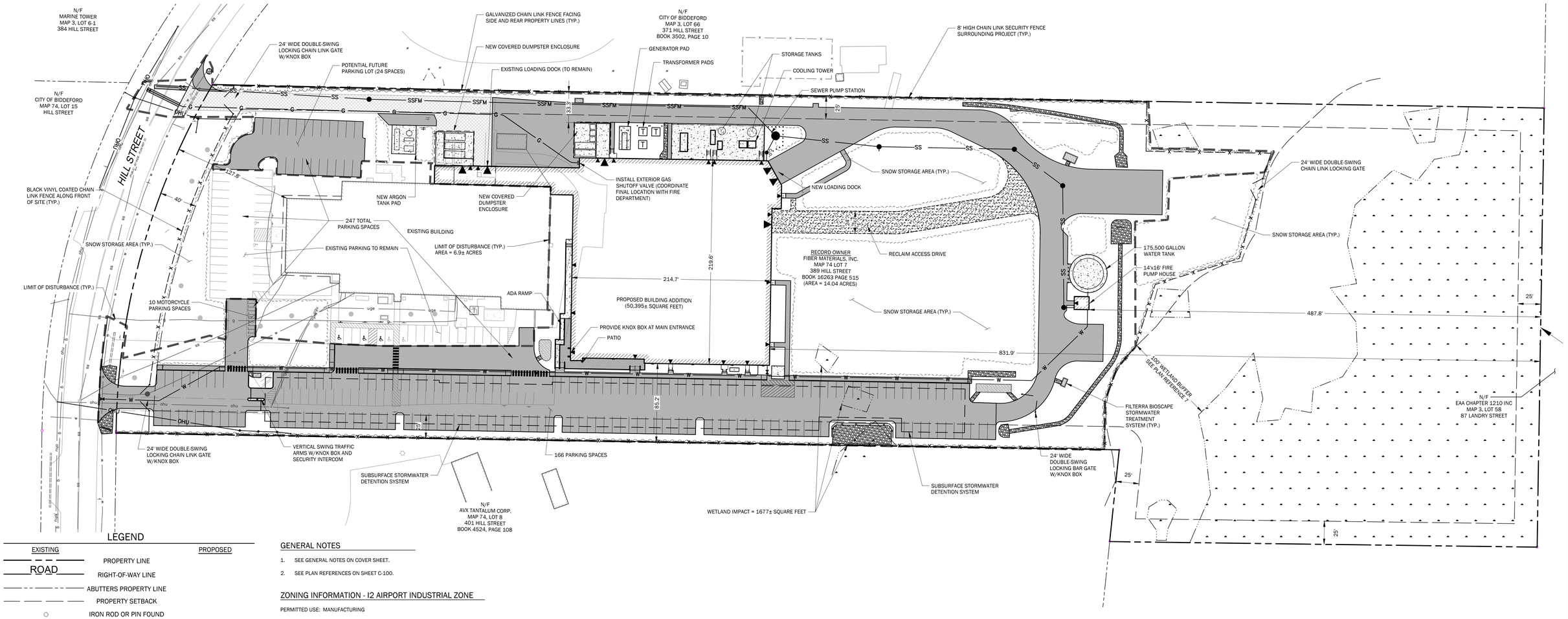
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

SITE REMOVALS PLAN

PROJ. NO. 24–211–01
REV. B
DWG. NO. C–101

Drawing Name: C:\SDE Projects\25204 – Intermat – Biddeford\3. CAD\25204 – Base_Phase 1 | Plot Date / Time: Jun. 15, 26 / 12:18 PM



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
○	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	◉
	STORM DRAIN FIELD INLET	◉
	STORM DRAIN TYPE F BASIN	■
Ⓢ	SANITARY SEWER MANHOLE	●
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	
	UNDERDRAIN LINE	UD
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	
	LIGHT POLE	
	LIGHT FIXTURE	
	GUARD RAIL	
x x	METAL FENCE	x x
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	RESURFACING PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	BOLLARD	
	MAN DOOR / BAY DOOR	

GENERAL NOTES

1. SEE GENERAL NOTES ON COVER SHEET.
2. SEE PLAN REFERENCES ON SHEET C-100.

ZONING INFORMATION - I2 AIRPORT INDUSTRIAL ZONE

PERMITTED USE: MANUFACTURING

I-2 ZONE STANDARDS

1. MIN. LOT SIZE: N/A
2. MIN. STREET FRONTAGE: 50 FEET
   EXISTING = 394 FEET
   PROPOSED = NO CHANGE
3. MIN. FRONT SETBACK: 40 FEET
   EXISTING = 127.8 FEET
   PROPOSED = NO CHANGE
4. MIN. SIDE SETBACK: 25 FEET
   PROPOSED: = 33.3 FEET
5. MIN. REAR SETBACK: 25 FEET
   PROPOSED = 487.7 FEET
6. MAX. BUILDING HEIGHT: 6 STORIES, 60 FEET
   PROPOSED = 2 STORIES, 45'±
6. MAX. IMPERVIOUS AREA: 75%
   PROPOSED = 39.7%

PARKING CALCULATION

REQUIREMENT: 1 SPACE PER EMPLOYEE AT MAXIMUM SHIFT

EMPLOYEES AT MAXIMUM SHIFT = 102 EMPLOYEES

PARKING SPACES REQUIRED = 1 X 102 = 102 SPACES

PARKING SPACES PROVIDED = 247 (INCLUDES ADDITIONAL SPACES FOR SHIFT CHANGE, CONTRACTORS, VISITORS, AND POTENTIAL FUTURE EXPANSION)

APPROVED BY THE CITY OF BIDDEFORD PLANNING BOARD

APPROVED BY: DATE:

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
E	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
D	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
C	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
B	10/22/2025	ISSUED FOR SCHEMATIC DESIGN SUBMISSION	DEPT.	TWS	TWS
A	8/7/2025	ISSUED FOR SKETCH PLAN REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8091
LICENSED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

SITE PLAN

PROJ. NO. 24–211–01
DWG. NO. C–200
REV. E

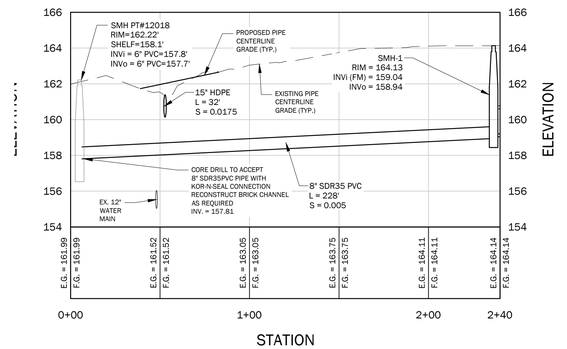
Drawing Name: C:\CDC Projects\24204 - Intermat – Biddeford\3. CAD\24204 – Base_Phase 1 | Plot Date / Time: Jan. 13, 26 / 12:18 PM

LEGEND

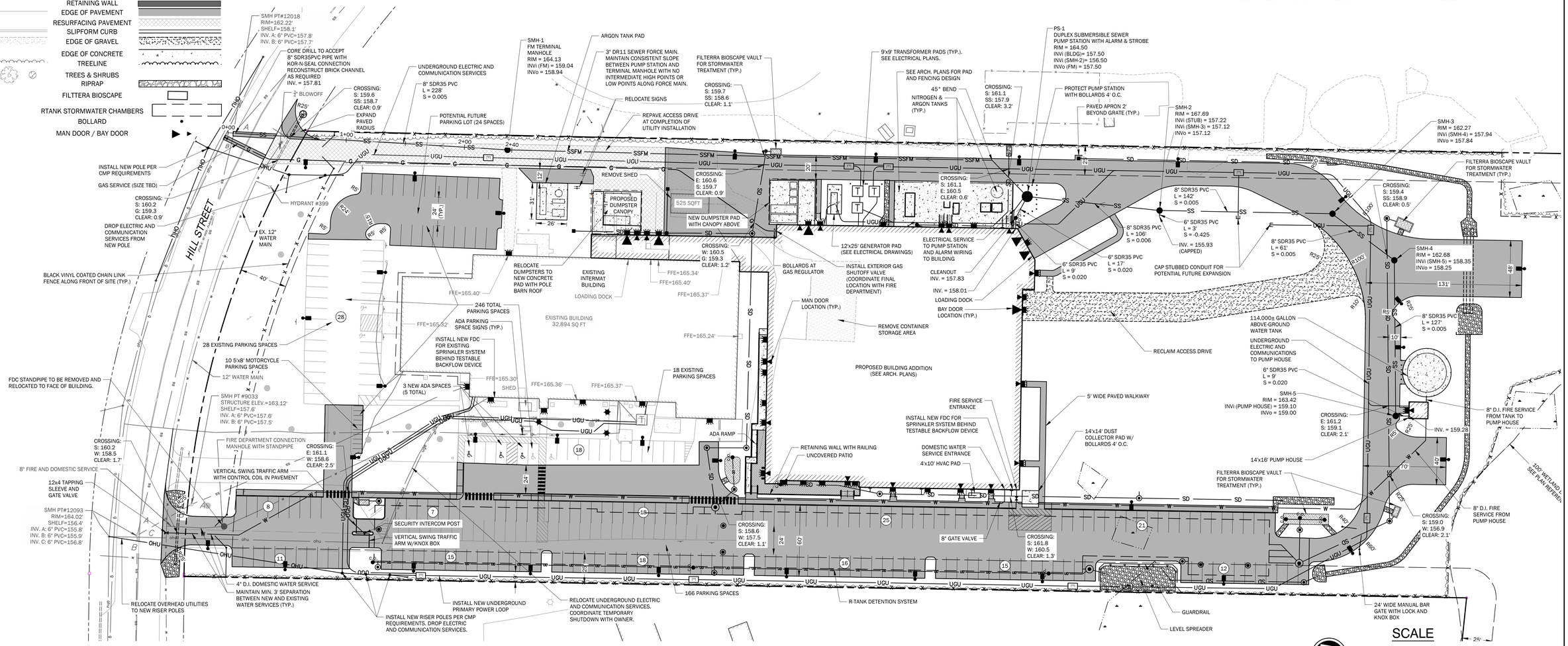
EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
○	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	◉
	STORM DRAIN FIELD INLET	◉
	STORM DRAIN TYPE F BASIN	■
Ⓢ	SANITARY SEWER MANHOLE	●
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	
	UNDERDRAIN LINE	UD
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	
	LIGHT POLE	
	LIGHT FIXTURE	
	BOLLARD LIGHT	
	GUARD RAIL	
x x	METAL FENCE	x x
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	RESURFACING PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	RTANK STORMWATER CHAMBERS	
	BOLLARD	
	MAN DOOR / BAY DOOR	

GENERAL NOTES

1. SEE GENERAL NOTES ON COVER SHEET.
2. SEE PLAN REFERENCES ON SHEET C-100.
3. SEE SHEET C-201 FOR ADDITIONAL NOTES AND DIMENSIONAL INFORMATION.



SEWER CONNECTION PROFILE



SCALE

0 20 40 80

SCALE in FEET
1"=40'

NORTH

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
G	5/19/2026	SEWER PIPE MATERIAL CORRECTIONS.	DEPT.	TWS	TWS
F	5/12/2026	ADDED FIRE PUMP HOUSE SEWER AND REVISED SEWER PUMP STATION DESIGN	DEPT.	TWS	TWS
E	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
D	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
C	12/2/2025	ISSUED FOR MAINE WATER REVIEW	DEPT.	TWS	TWS
B	10/22/2025	ISSUED FOR SCHEMATIC DESIGN SUBMISSION	DEPT.	TWS	TWS
A	8/7/2025	ISSUED FOR SKETCH PLAN REVIEW	DEPT.	TWS	TWS
H	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8051
LICENSED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

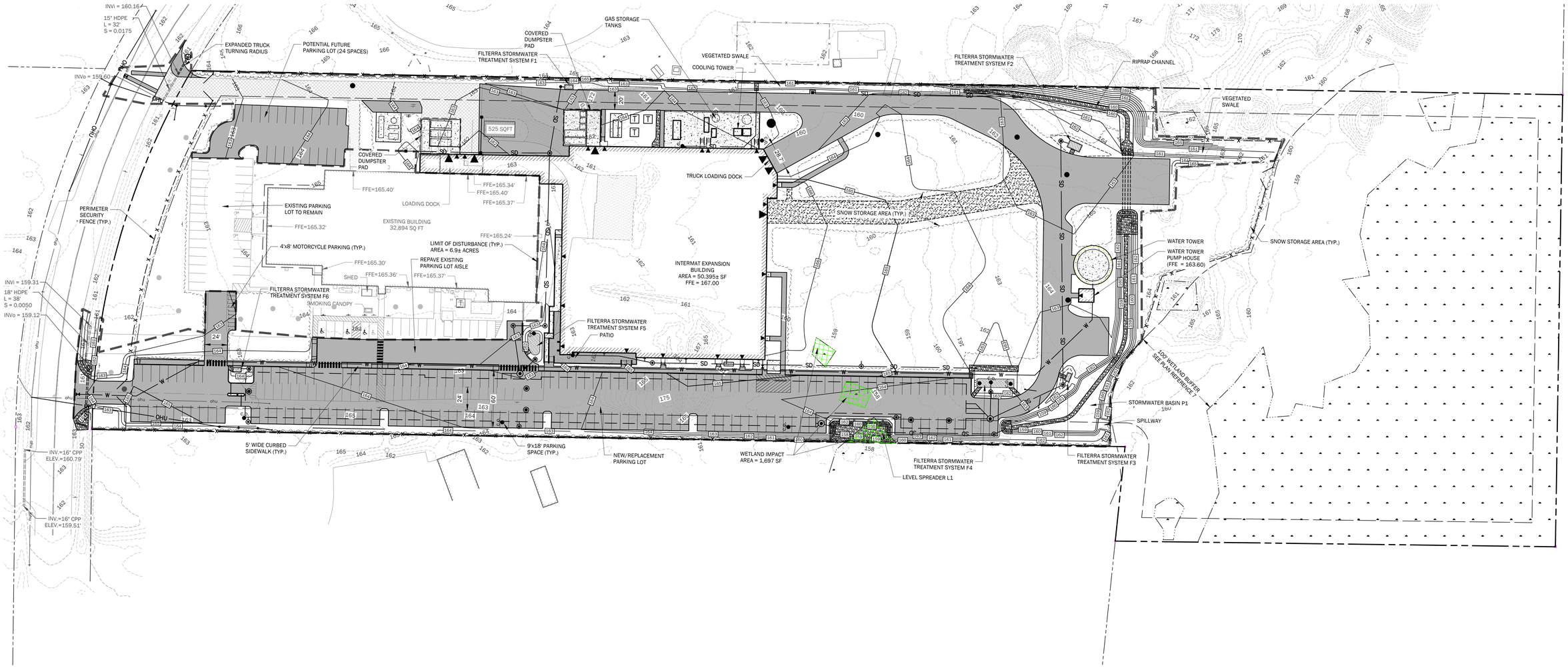
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: AUGUST 7, 2025
SCALE: 1" = 40'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

SITE LAYOUT AND UTILITY PLAN

PROJ. NO. 24–211–01
DWG. NO. C–201
REV. H

Drawing Name: C:\SDC Projects\24204 - Intermat – Biddeford\3. CAD\24204 – Base_Phase 1 | Plot Date / Time: Jun. 10, 26 / 12:18 PM



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
○	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	◉
	STORM DRAIN FIELD INLET	◉
	STORM DRAIN TYPE F BASIN	■
Ⓢ	SANITARY SEWER MANHOLE	●
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	
	UNDERDRAIN LINE	UD
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	
	LIGHT POLE	●→
	LIGHT FIXTURE	✸

EXISTING		PROPOSED
x x	GUARD RAIL	O O
x x	METAL FENCE	x x
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	RESURFACING PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	BOLLARD	●
	MAN DOOR / BAY DOOR	▶ ▶
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	SNOW STORAGE AREA	

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REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 10081
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6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

OVERALL GRADING PLAN

PROJ. NO. 24-211-01
DWG. NO. C-300
REV. D

GENERAL NOTES

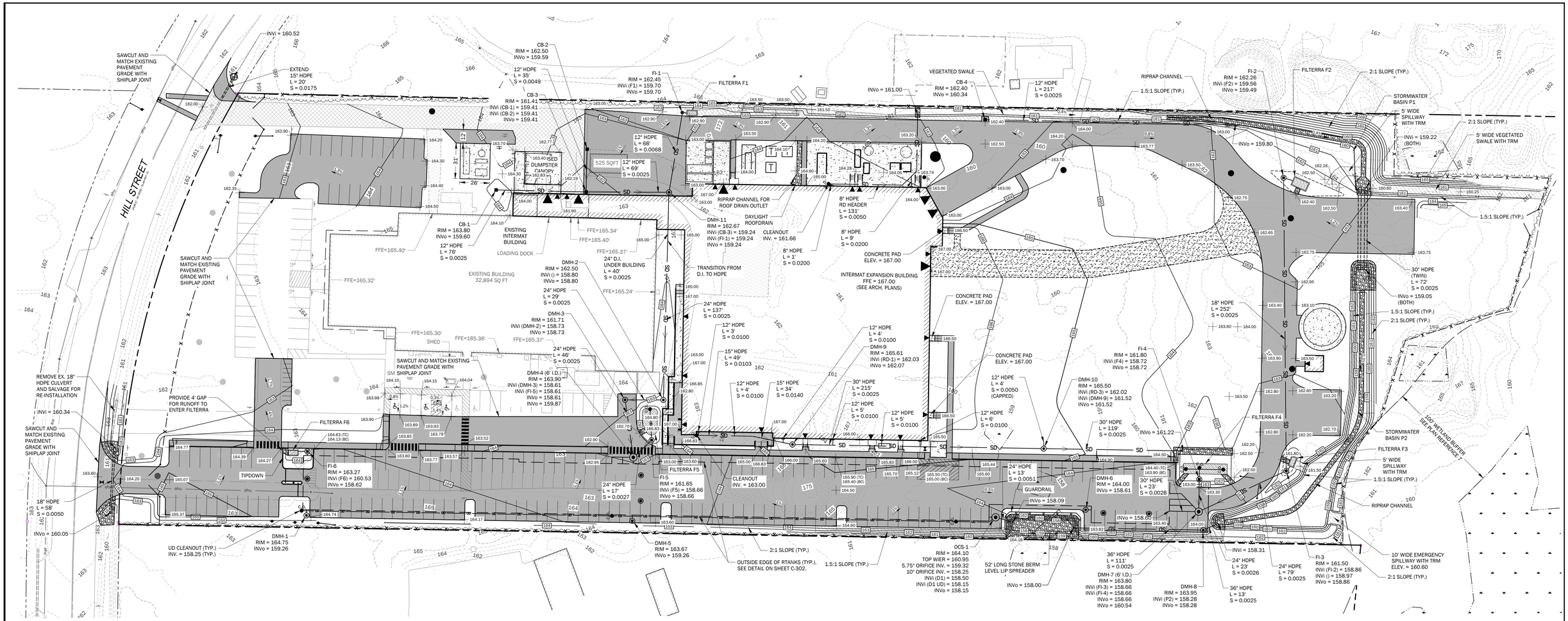
1. SEE GENERAL NOTES AND PLAN REFERENCES ON SHEET C-100.

NORTH

SCALE
0 25 50 100
SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

Drawing Name: C:\SDC Projects\24204 - Intermat - Biddeford\3. CAD\24204 - Base_Phase 1 | Plot Date / Time: Jan. 12, 26 / 12:18 PM



LEGEND

EXISTING		PROPOSED	EXISTING		PROPOSED
	PROPERTY LINE			GUARD RAIL	
	RIGHT-OF-WAY LINE			METAL FENCE	
	ABUTTERS PROPERTY LINE			BUILDING	
	PROPERTY SETBACK			RETAINING WALL	
	IRON ROD OR PIN FOUND			EDGE OF PAVEMENT	
	STORM DRAIN MANHOLE			RESURFACING PAVEMENT	
	STORM DRAIN FIELD INLET			SLIPFORM CURB	
	STORM DRAIN TYPE F BASIN			EDGE OF GRAVEL	
	SANITARY SEWER MANHOLE			EDGE OF CONCRETE	
ss	SANITARY SEWER LINE	SS		TREELINE	
w	WATERLINE	W		TREES & SHRUBS	
sd	STORM DRAIN LINE	SD		RIPRAP	
	FOUNDATION DRAIN LINE	FD		FILTTERA BIOSCAPE	
	ROOF DRAIN LINE				
	UNDERDRAIN LINE	UD		BOLLARD	
	CULVERT			MAN DOOR / BAY DOOR	
ohu	OVERHEAD UTILITIES		100	INDEX CONTOUR	100
ugu	UNDERGROUND UTILITIES	UGU	101	INTERMEDIATE CONTOUR	101
	UTILITY POLE				

GENERAL NOTES

1. SEE GENERAL NOTES AND PLAN REFERENCES ON SHEET C-100.

SCALE

0 20 40 80

SCALE in FEET
1"=40'

NORTH

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8089
LICENSED PROFESSIONAL ENGINEER
6/10/2026

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23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

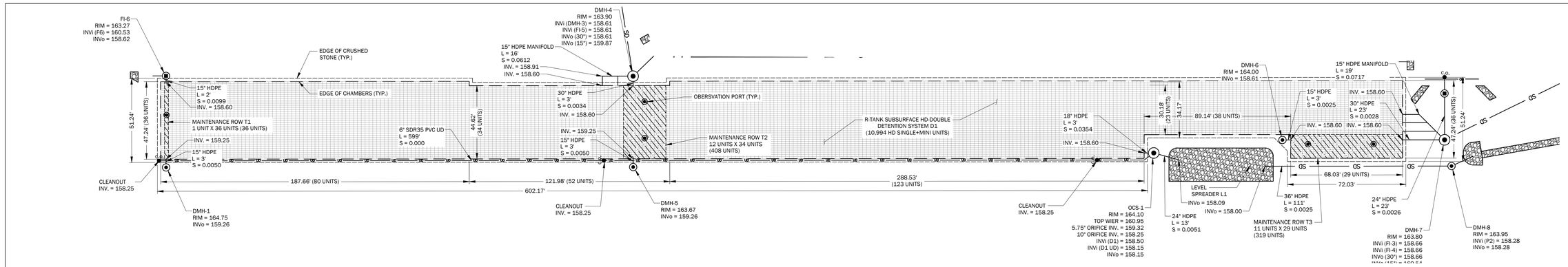
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 40'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

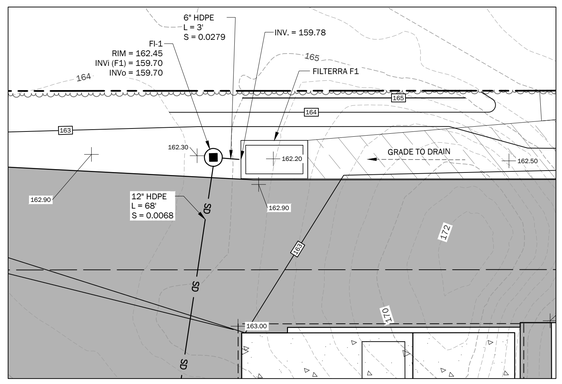
GRADING AND DRAINAGE PLAN

PROJ. NO. 24–211–01 REV. D
DWG. NO. C–301

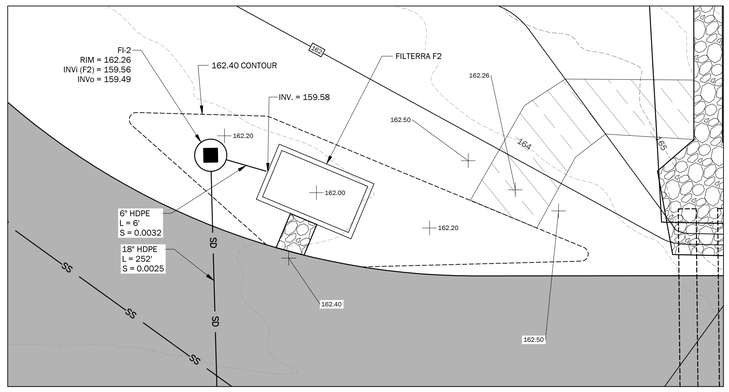
Drawing Name: Q:\CIC Projects\25204 - Intermat – Biddeford\13_CAD\25204 - Base_Phase 1 | Plot Date / Time: Jun. 01, 26 / 12:18 PM



R-TANK SUBSURFACE STORMATER DETENTION SYSTEM LAYOUT



FILTERRA F1 DETAIL PLAN
SCALE: 1" = 10'



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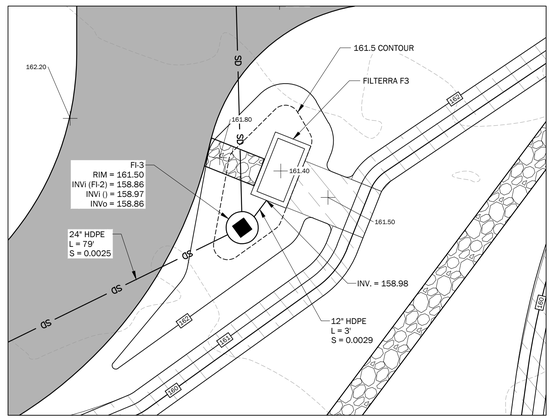

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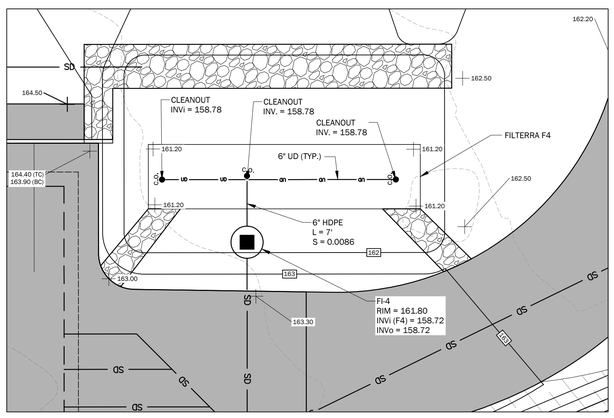

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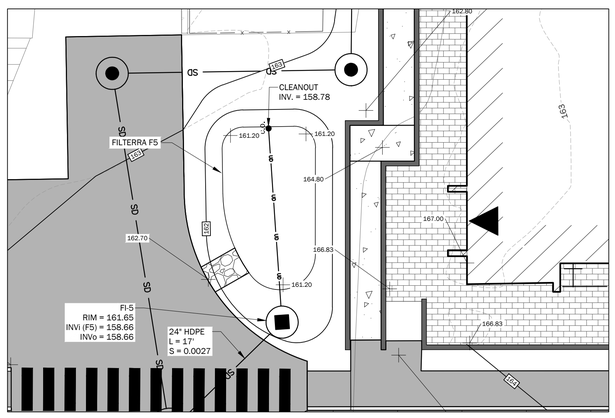

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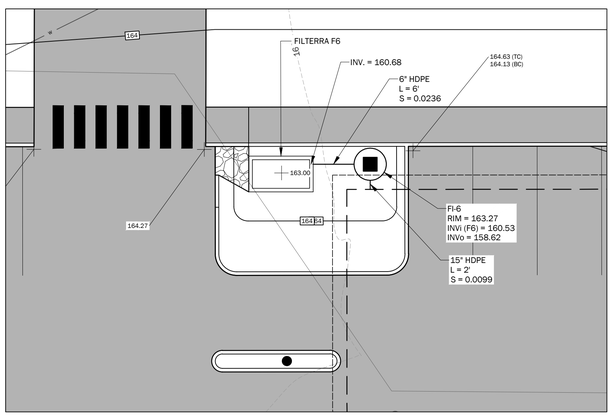


FILTERRA F6 DETAIL PLAN
SCALE: 1" = 10'

GENERAL NOTES

1. SEE GENERAL NOTES AND PLAN REFERENCES ON SHEET C-100.

TAX MAP I.D.
74 – 7

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
D	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8093
REGISTERED PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

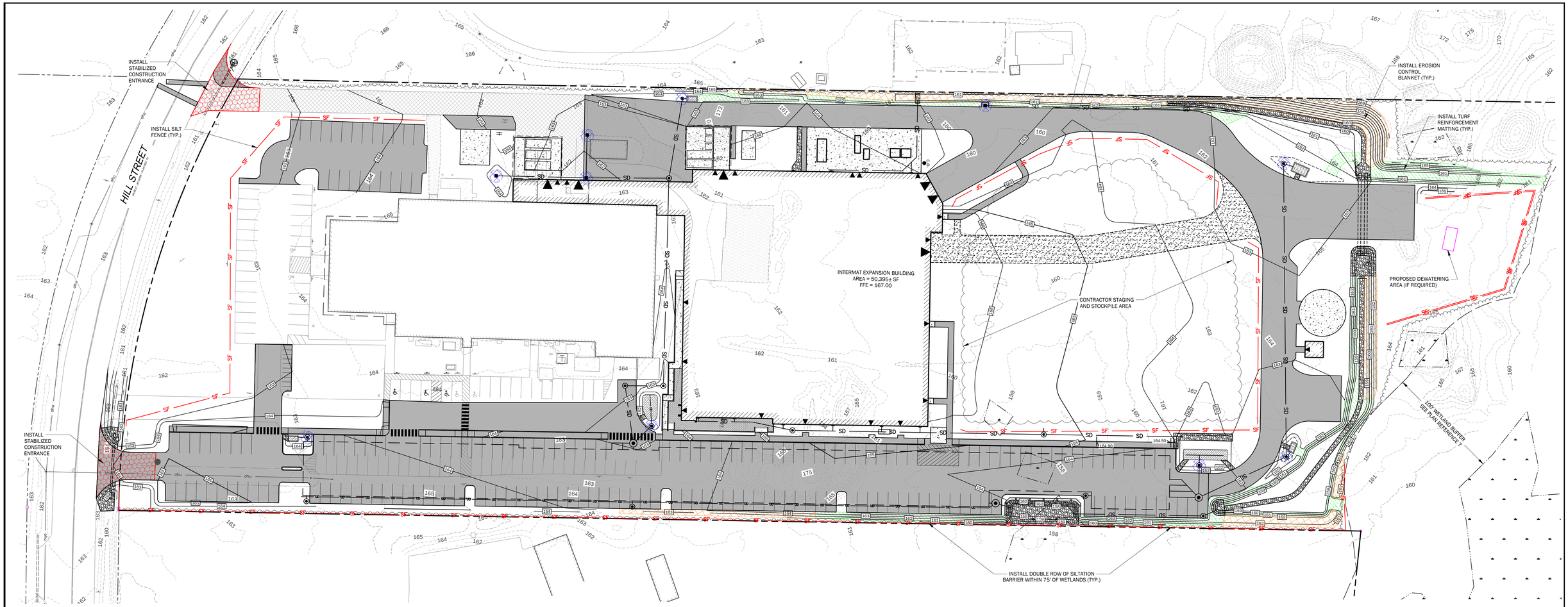
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: AS NOTED

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

STORMWATER BMP
LAYOUT PLAN

PROJ. NO. 24–211–01
DWG. NO. C–302
REV. D

Drawing Name: G:\SDC Projects\24-211 - Intermat - Biddeford\3_CAD\24-211 - Base_Phase 1 | Plot Date / Time: Jun 10, 26 / 12:18 PM



LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	
	STORM DRAIN CATCH BASIN	
	STORM DRAIN TYPE F BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	

EXISTING		PROPOSED
x x	GUARD RAIL	
	METAL FENCE	
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	BOLLARD	
	MAN DOOR / BAY DOOR	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101

EROSION CONTROL LEGEND

SILT FENCE	SF
CONSTRUCTION ENTRANCE	
TURF REINFORCEMENT MATTING	
EROSION CONTROL BLANKET	
DEWATERING AREA	
TEMP. CATCH BASIN PROTECTION	

EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROL BMPS PRIOR TO EXCAVATION AND/OR STOCKPILING ACTIVITIES ONSITE.
2. CONTRACTOR SHALL IMPLEMENT AND MAINTAIN DUST CONTROL MEASURES THROUGHOUT CONSTRUCTION.

GENERAL NOTES

1. SEE GENERAL NOTES AND PLAN REFERENCES ON SHEET C-100.

NORTH

SCALE

0 20 40 80

SCALE in FEET
1"=40'

TAX MAP I.D.
74 – 7

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STATE OF MAINE
THOMAS W. SAUCIER
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CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: 1" = 40'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

ERODION & SEDIMENTATION CONTROL PLAN

PROJ. NO. 24–211–01
DWG. NO. C–303
REV. D

Drawing Name: C:\CC Projects\24204 - Intermat - Biddeford\3. CAD\24204 - Base_Phase 1 | Plot Date / Time: Jan. 12, 26 / 12:18 PM

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 (OR CURRENT REVISION), AND MAINE EROSION AND SEDIMENT CONTROL PRACTICE FIELD GUIDE FOR CONTRACTORS, REVISED 2014 (OR CURRENT REVISION), MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE CONTRACTOR WHO IMPLEMENTS THIS PLAN SHALL BE FAMILIAR WITH THESE PUBLICATIONS AND ADHERE TO THEM AND THE PRACTICES PRESENTED HEREIN

REFERENCE IS MADE TO THE EROSION CONTROL PLAN (303) WITHIN THE PLAN SET, SHOWING THE LOCATIONS AND TYPES OF PROPOSED MEASURES TO BE IMPLEMENTED.

MAINE CONSTRUCTION GENERAL PERMIT REQUIRED
THE PROJECT WILL RESULT IN A TOTAL DISTURBED AREA (TDA) OF APPROXIMATELY 6.9± ACRES. THE SITE CONTRACTOR IS REQUIRED TO SUBMIT A MAINE CONSTRUCTION GENERAL PERMIT (MCGP) NOTICE OF INTENT (NOI) AT LEAST TWO WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE PROJECT IS CONSIDERED A "LARGE CONSTRUCTION PROJECT" AS DEFINED BY THE MCGP; THEREFORE THE STANDARDS OF THE MCGP APPENDIX D ARE APPLICABLE TO THIS PROJECT.

EROSION AND SEDIMENTATION CONTROL (MCGP APPENDIX A)

THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT UNREASONABLE EROSION OF SOIL OR SEDIMENT BEYOND THE PROJECT SITE OR INTO A PROTECTED NATURAL RESOURCE AS DEFINED IN 38 M.R.S. § 480-B. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE THE ACTIVITY BEGINS. MEASURES MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL THE SITE IS PERMANENTLY STABILIZED. ADEQUATE AND TIMELY TEMPORARY AND PERMANENT STABILIZATION MEASURES MUST BE TAKEN.

- THE SITE MUST BE MAINTAINED TO PREVENT UNREASONABLE EROSION AND SEDIMENTATION. SEE 38 M.R.S.§ 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).
- THE DEPARTMENT HAS PREPARED PROTOCOLS FOR THE CONTROL OF EROSION AND SEDIMENTATION. SEE "MAINE EROSION AND SEDIMENT CONTROL BMPS MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

1. POLLUTION PREVENTION. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION. MINIMIZE THE DISTURBANCE OF STEEP SLOPES. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND VOLUME, TO MINIMIZE EROSION AT OUTLETS. THE DISCHARGE MAY NOT RESULT IN EROSION OF ANY OPEN DRAINAGE CHANNELS, SWALES, STREAM CHANNELS OR STREAM BANKS, UPLAND, OR COASTAL OR FRESHWATER WETLANDS OFF THE PROJECT SITE.
   a. BUFFERS, WHENEVER PRACTICABLE. NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER SEDIMENT CONTROLS MUST BE DOUBLED.
   - 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 MULCHING AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE PERMANENTLY STABILIZED. LESS EXPOSED SOIL RESULTS IN FEWER EROSION CONTROLS TO INSTALL AND MAINTAIN. IF WORK WITHIN AN AREA IS NOT EXPECTED TO BEGIN WITHIN TWO WEEKS' TIME, CONSIDER LEAVING THE AREA IN ITS NATURALLY EXISTING COVER.
   - MANY CONSTRUCTION ACTIVITIES WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE REQUIRE A PERMIT UNDER THE *NATURAL RESOURCES PROTECTION ACT* PRIOR TO INITIATION. FOR MORE INFORMATION REGARDING THE APPLICABILITY OF THE NRPA TO YOUR PROJECT, YOU CAN VISIT THE DEPARTMENT'S WEBSITE AT HTTP://WWW.MAINE.GOV/DEP/LAND/NRPA/INDEX.HTML OR CONTACT STAFF OF THE DIVISION OF LAND RESOURCE REGULATION AT THE NEAREST REGIONAL OFFICE.
2. PRESERVE NATIVE TOPSOIL. UNLESS INFEASIBLE, TOPSOIL WHICH IS STRIPPED OR REMOVED MUST BE STOCKPILED FOR USE IN RECLAIMING DISTURBED LAND AREAS. SOIL STOCKPILES SHALL BE SEEDED, MULCHED, OR OTHERWISE STABILIZED. PRESERVING NATIVE TOPSOIL IS NOT REQUIRED WHERE THE INTENDED FUNCTION OF A SPECIFIC AREA OF THE SITE DICTATES THAT THE TOPSOIL IS DISTURBED OR REMOVED.
3. MINIMIZE SOIL COMPACTION. IN AREAS OF YOUR SITE WHERE FINAL VEGETATIVE STABILIZATION WILL OCCUR OR WHERE INFILTRATION PRACTICES WILL BE INSTALLED, RESTRICT VEHICLE AND EQUIPMENT USE. IN THESE LOCATIONS, AVOID SOIL COMPACTION AND USE TECHNIQUES THAT REHABILITATE AND CONDITION THE SOILS AS NECESSARY TO SUPPORT VEGETATIVE GROWTH.
4. HIGH INFILTRATION CAPACITY SOILS. TO THE EXTENT PRACTICABLE:
   a. HYDROLOGIC SOIL GROUP (HSG) A AND B SOILS MUST NOT BE DISTURBED,
   b. STORMWATER MUST BE DIRECTED TO LOW-LYING AREAS AND DEPRESSIONS WITH HSG A AND B SOILS,
   c. TEMPORARY SEDIMENT TRAPS AND BASINS MUST BE INSTALLED OVER HSG A AND B SOILS
5. SEDIMENT BARRIERS. PRIOR TO SOIL DISTURBANCE, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO THE STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.
6. STABILIZED CONSTRUCTION ENTRANCE. PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE UNDERLAIN BY A GEOTEXTILE FILTER FABRIC OR AN EQUIVALENT MEASURE USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC RIGHT-OF-WAY. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
7. TEMPORARY SEDIMENT BASINS. TEMPORARY SEDIMENT BASINS MUST BE DESIGNED TO PROVIDE STORAGE FOR EITHER THE CALCULATED RUNOFF FROM A 2-YEAR, 24-HOUR STORM OR PROVIDE FOR 3,600 CUBIC FEET OF CAPACITY PER ACRE DRAINING TO THE BASIN. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED IF THE DISCHARGING WATERS ARE LIKELY TO CREATE EROSION. ACCUMULATED SEDIMENT MUST BE REMOVED AS NEEDED FROM THE BASIN TO MAINTAIN AT LEAST ½ OF THE DESIGN CAPACITY OF THE BASIN.
   a. UTILIZE SURFACE OUTLETS. TO THE MAXIMUM EXTENT PRACTICABLE, OUTLET STRUCTURES MUST BE UTILIZED TO WITHDRAW WATER FROM THE SURFACE OF TEMPORARY SEDIMENTATION BASINS, IN ORDER TO MINIMIZE THE DISCHARGE OF POLLUTANTS. EXCEPTIONS MAY INCLUDE PERIODS OF EXTENDED COLD WEATHER, WHERE ALTERNATE OUTLETS ARE REQUIRED DURING FROZEN PERIODS. IF SUCH A DEVICE IS INFEASIBLE FOR PORTIONS OF OR THE ENTIRE CONSTRUCTION PERIOD, JUSTIFICATION MUST BE MADE.
8. CATIONIC TREATMENT CHEMICALS. IF THE CONTRACTOR PLANS TO USE CATIONIC TREATMENT CHEMICALS, SUCH AS POLYMERS, FLOCCULANTS, OR OTHER CHEMICALS THAT CONTAIN AN OVERALL POSITIVE CHARGE DESIGNED TO REDUCE TURBIDITY IN STORMWATER, THE CONTRACTOR IS INELIGIBLE FOR COVERAGE UNDER THIS GENERAL PERMIT UNLESS THE CONTRACTOR NOTIFIES THE DEPARTMENT IN ADVANCE AND THE DEPARTMENT AUTHORIZES THE USE. WHEN REQUESTING APPROVAL TO USE CATIONIC TREATMENT CHEMICALS, THE CONTRACTOR MUST DESCRIBE APPROPRIATE CONTROLS AND IMPLEMENTATION PROCEDURES TO ENSURE THE USE WILL NOT LEAD TO A VIOLATION OF WATER QUALITY STANDARDS. IN ADDITION, THE CONTRACTOR MUST SPECIFY THE TYPE(S) OF SOIL LIKELY TO BE TREATED ON THE SITE, CHEMICALS TO BE USED AND HOW THEY ARE TO BE APPLIED AND IN WHAT QUANTITY, ANY MANUFACTURER'S RECOMMENDATIONS, AND ANY TRAINING HAD BY PERSONNEL WHO WILL HANDLE AND APPLY THE CHEMICALS.
9. TEMPORARY STABILIZATION. STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER WITHIN 7 DAYS OF THE TEMPORARY CESSATION OF CONSTRUCTION ACTIVITIES. STABILIZE AREAS WITHIN 75 FEET OF A DOWNGRADIENT PROTECTED NATURAL RESOURCE WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
10. REMOVAL OF TEMPORARY MEASURES. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE AND/OR EROSION CONTROL MIX BERM, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.
    - IT IS RECOMMENDED THAT SILT FENCES BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL TO AVOID ADDITIONAL SOIL DISTURBANCE.
11. 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 RILING 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 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 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 DOWNCUTTING OF THE CHANNEL.
12. WINTER CONSTRUCTION. "WINTER CONSTRUCTION" IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1 THROUGH APRIL 15, OR OUTSIDE OF THE SAID PERIOD IF THE GROUND IS FROZEN OR SNOW COVERED. IF AREAS WITHIN THE CONSTRUCTION ACTIVITY ARE NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES OUTLINED ABOVE BY NOVEMBER 15, THEN THE SITE MUST BE STABILIZED WITH ADDITIONAL STABILIZATION MEASURES THAT ARE SPECIFIC TO WINTER CONDITIONS.
    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.
    - THE DEPARTMENT HAS PREPARED PROTOCOLS FOR THE CONTROL OF EROSION AND SEDIMENTATION DURING THE WINTER MONTHS. SEE "MAINE EROSION AND SEDIMENT CONTROL BMPS MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."
13. LAYDOWN & STAGING AREAS. THIS SECTION APPLIES TO THE PROJECTS WHICH WILL USE AREAS WITHIN A PROJECT'S LIMIT OF DISTURBANCE FOR MATERIAL LAYDOWN AND STAGING.
    a. UPLAND AREAS MUST BE SELECTED FOR LAYDOWN AND STAGING TO THE EXTENT PRACTICABLE.
    b. USE OF NOT AREAS (E.G., MINOR DEPRESSIONS ALONG DRAINAGEWAYS) HYDRAULICALLY CONNECTED TO DOWNGRADIENT PROTECTED NATURAL RESOURCES AND/OR PARCEL MUST BE JUSTIFIED USING SPECIFIC SITE OR OPERATIONAL LIMITATIONS. TEMPORARY STRUCTURES (E.G., SWALES, DIKES) MUST BE PROVIDED TO INTERCEPT UPGRADIENT STORMWATER AND DIVERT IT AWAY FROM THESE LAYDOWN AND STAGING AREAS,
    c. PROVIDE STORMWATER QUALITY TREATMENT IN COMPLIANCE WITH THE APPLICABLE CHAPTER 500 STANDARD FOR THE AREAS WHICH WILL BE USED FOR MORE THAN 12 MONTHS.
14. 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.
15. 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.
    - GRAVEL AND PAVED ROADS SHOULD BE MAINTAINED SO THAT THEY CONTINUE TO CONFORM TO THIS STANDARD TO PREVENT EROSION PROBLEMS.
    - 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.
16. 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 SCOURING OF THE STREAM CHANNEL. CULVERT INLET AND OUTLET PROTECTION MEASURES MUST BE INSTALLED WITHIN 48 HOURS OF CULVERT INSTALLATION, OR PRIOR TO A STORM EVENT, WHICHEVER IS SOONER. OUTLET PROTECTION MEASURES MUST BE DESIGNED TO STAY WITHIN THE CHANNEL LIMITS. THE DESIGN MUST TAKE ACCOUNT OF TAILWATER DEPTH.
17. STORMWATER CHANNELS. ALL DISTURBED DITCHES, SWALES, AND OTHER OPEN STORMWATER CHANNELS MUST BE STABILIZED BY THE END OF EACH WORKDAY. STABILIZATION SHALL BE MAINTAINED ON A DAILY BASIS.

    NEW 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 PERMANENT 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(11)(G) ABOVE.
    a. THE CHANNEL SHOULD RECEIVE ADEQUATE ROUTINE MAINTENANCE TO MAINTAIN CAPACITY AND PREVENT OR CORRECT ANY EROSION OF THE CHANNEL'S BOTTOM OR SIDE SLOPES.
    b. WHEN THE SUBCATCHMENT 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.
18. UTILITY TRENCH. TRENCHES SHALL BE BACKFILLED AND TEMPORARILY STABILIZED (INCLUDING SPOIL AND/OR BACKFILL PILES) AT THE END OF EACH WORKING DAY.
19. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

INSPECTION AND MAINTENANCE (MCGP APPENDIX B)

THE FOLLOWING STANDARDS MUST BE MET DURING A CONSTRUCTION ACTIVITY. THE OPERATOR MUST KNOW THAT ADDITIONAL INSPECTION AND MAINTENANCE STANDARDS MAY APPLY FOR THE PERMANENT, POST-CONSTRUCTION STORMWATER BEST MANAGEMENT PRACTICES (BMPS) TO BE INSTALLED DURING THE ACTIVITY.

1. INSPECTION. INSPECT DISTURBED AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS.
2. MAINTENANCE AND CORRECTIVE ACTION. IF BEST MANAGEMENT PRACTICES (BMPS) NEED ROUTINE MAINTENANCE (I.E., MINOR REPAIRS OR OTHER UPKEEP PERFORMED TO ENSURE THE BMP REMAINS IN EFFECTIVE OPERATING CONDITION), THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF THE SAME ROUTINE MAINTENANCE REQUIREMENTS ARE REQUIRED REPEATEDLY, THE CONTRACTOR MUST EITHER: COMPLETE WORK TO FIX ANY SUBSEQUENT REPEAT OCCURRENCES OF THIS SAME PROBLEM, OR DOCUMENT IN THE CONTRACTOR'S INSPECTION REPORT WHY THE SPECIFIC REOCCURRENCE OF THIS SAME PROBLEM SHOULD STILL BE ADDRESSED AS A ROUTINE MAINTENANCE ITEM.

   IF BMPS NEED SIGNIFICANT REPAIR OR IF ADDITIONAL BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). IF IT IS INFEASIBLE TO COMPLETE THE REPAIR OR INSTALLATION WITHIN 7 CALENDAR DAYS, THE CONTRACTOR MUST DOCUMENT IN THE CONTRACTOR'S INSPECTION REPORT WHY IT IS INFEASIBLE TO COMPLETE THE REPAIR OR INSTALLATION AND DOCUMENT YOUR SCHEDULE FOR INSTALLING THE STORMWATER BMP(S) AND MAKING IT OPERATIONAL.

   ALL TEMPORARY MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
3. DOCUMENTATION. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLES ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.

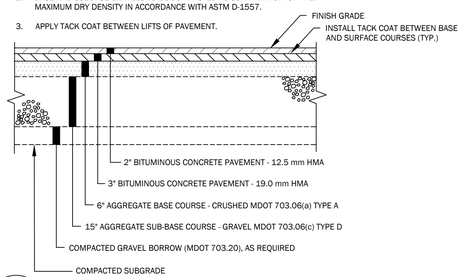
   THE LOG MUST BE MADE ACCESSIBLE TO DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.
4. PERIMETER FENCE. IF PERIMETER FENCE IS INSTALLED BEFORE THE PROJECT'S PERMANENT STABILIZATION, THE PERIMETER FENCE SHALL NOT RESTRICT INSPECTION AND MAINTENANCE OF TEMPORARY BMPS. AT A MINIMUM, ACCESS POINTS SHALL BE PROVIDED ALONG THE FENCE LINE FOR THE VEHICLES AND EQUIPMENT TO MAINTAIN THE BMPS.
5. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

HOUSEKEEPING (MCGP 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 OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.
   - ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT; HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/
2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR BECAUSE 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, TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.
   - LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S. §465-C(1).
3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOIL OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL. BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK 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.
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.
   - TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, ACTIVITIES MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.
5. EXCAVATION DE-WATERING. EXCAVAT

NOTES:

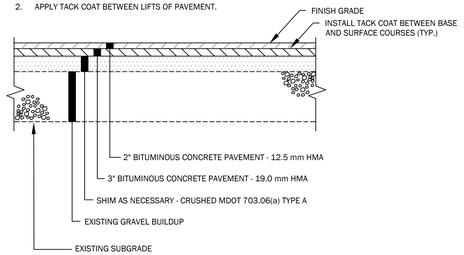
1. ADDITIONAL SUBBASE GRAVEL AND/OR GEOTEXTILES MAY BE REQUIRED DURING CONSTRUCTION IF SOIL CONDITIONS WARRANT.
2. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. APPLY TACK COAT BETWEEN LIFTS OF PAVEMENT.



1 C-401 **DRIVEWAY AND PARKING PAVEMENT SECTION**
NOT TO SCALE

NOTES:

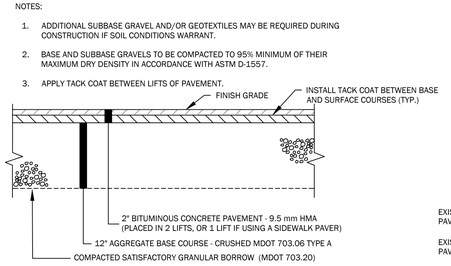
1. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
2. APPLY TACK COAT BETWEEN LIFTS OF PAVEMENT.



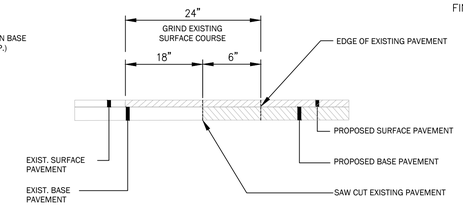
2 C-401 **DRIVEWAY AND PARKING REPAVING SECTION**
NOT TO SCALE

NOTES:

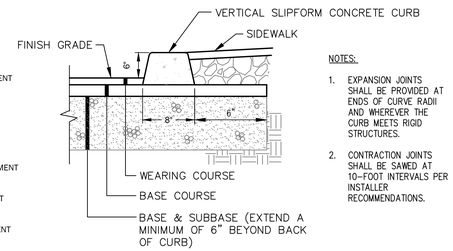
1. ADDITIONAL SUBBASE GRAVEL AND/OR GEOTEXTILES MAY BE REQUIRED DURING CONSTRUCTION IF SOIL CONDITIONS WARRANT.
2. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. APPLY TACK COAT BETWEEN LIFTS OF PAVEMENT.



3 C-401 **PAVED WALKWAY DETAIL**
NOT TO SCALE



4 C-401 **HMA PAVEMENT SHIPLAP JOINT DETAIL**
NOT TO SCALE



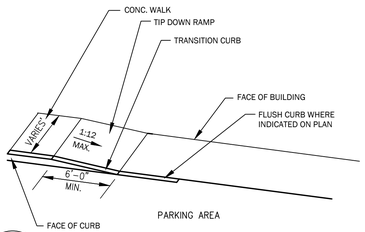
NOTES:

1. EXPANSION JOINTS SHALL BE PROVIDED AT ENDS OF CURVE RADII AND WHEREVER THE CURB MEETS RIGID STRUCTURES.
2. CONTRACTION JOINTS SHALL BE SAWED AT 10-FOOT INTERVALS PER INSTALLER RECOMMENDATIONS.

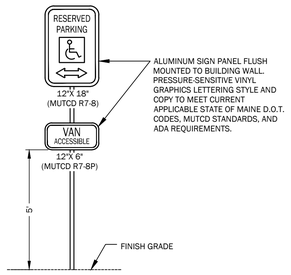
5 C-401 **VERTICAL SLIPFORM CONCRETE CURB DETAIL**
NOT TO SCALE

NOTES:

1. DIMENSIONS SHOWN AT EDGE OF ROAD ARE FIXED.
2. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
3. DIMENSIONS ARE SUBJECT TO CHANGE IN FIELD. ALL SLOPES AND DIMENSIONS TO COMPLY WITH A.D.A. REQUIREMENTS.



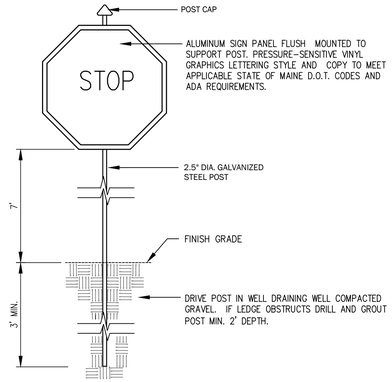
6 C-401 **PEDESTRIAN CURB RAMP**
NOT TO SCALE



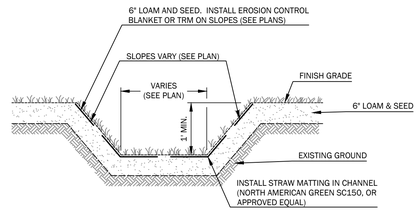
NOTES:

1. PROVIDE SHOP DRAWINGS OF ALL SIGNS TO THE OWNER PRIOR TO PURCHASING.
2. OWNER TO APPROVE ALL SIGN LOCATIONS IN THE FIELD PRIOR TO INSTALLATION.

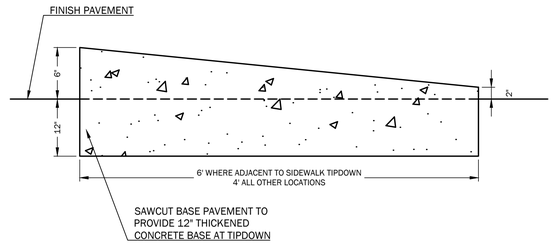
7 C-401 **ADA PARKING SIGNAGE DETAIL**
NOT TO SCALE



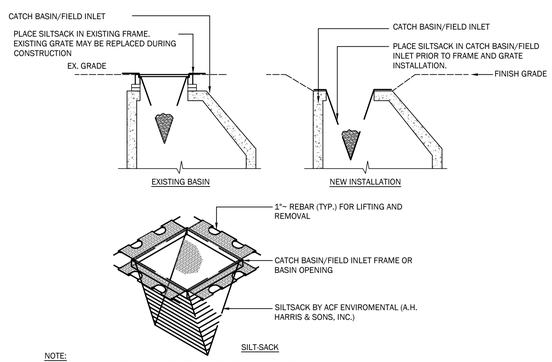
8 C-401 **STOP SIGN DETAIL**
NOT TO SCALE



9 C-401 **VEGETATED SWALE DETAIL DETAIL**
NOT TO SCALE



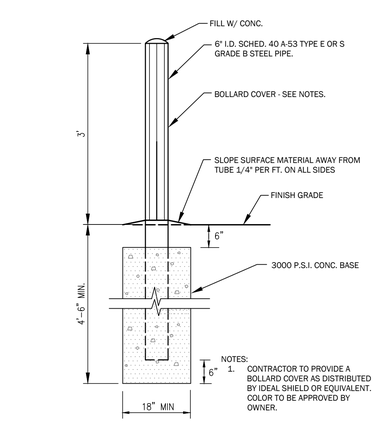
10 C-401 **SLIPFORM CURB TIPDOWN**
NOT TO SCALE



NOTE:

1. INSTALLATION PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
2. EMPTY AND REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE AND REPLACE AS NEEDED.
3. CONTRACTOR SHALL INSPECT CATCH BASIN PROTECTION AFTER EACH MAJOR STORM EVENT AND CLEAN SILT AS NEEDED.
4. SILT SACKS TO BE INSTALLED IN ALL CATCH BASINS DURING CONSTRUCTION WHILE GROUND IS NOT PERMANENTLY STABILIZED.

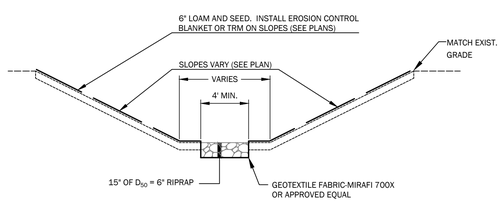
11 C-401 **SILT SACK AT DRAINAGE STRUCTURE INLET**
NOT TO SCALE



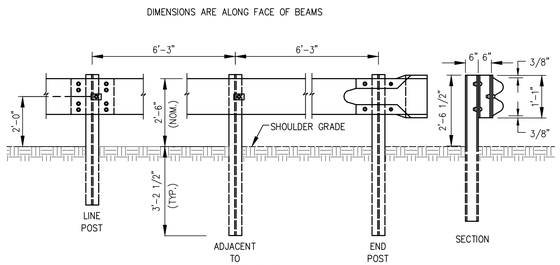
NOTES:

1. CONTRACTOR TO PROVIDE A BOLLARD COVER AS DISTRIBUTED BY IDEAL SHIELD OR EQUIVALENT. COLOR TO BE APPROVED BY OWNER.

12 C-401 **PROTECTIVE BOLLARD DETAIL**
NOT TO SCALE



13 C-401 **RIPRAP DRAINAGE CHANNEL DETAIL**
NOT TO SCALE



NOTES:

1. INTERMEDIATE POST SPACING SHALL BE 6'-3" ULESS OTHERWISE SHOWN.
2. POST AND OFFSET BRACKETS SHALL BE 4"x 6" I-BEAM 8.5 OR 9.0 LBS./FT. LENGTH OF 5'-9" ATTACHED WITH 5/8" DIA. BOLTS WITH HEX NUTS.
3. ALL HOLES IN BEAM TO BE SHOP-PUNCHED PRIOR TO GALVANIZING.
4. RAIL PANELS AND END SECTIONS TO BE 12 GAUGE STEEL.
5. BACK-UP PLATE TO BE PLACED BEHIND RAIL ELEMENTS AT INTERMEDIATE STEEL POSTS (NON-SPLICE POSTS).
6. ALL PARTS SHALL CONFORM TO CURRENT MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
7. WHEN GUARDRAIL IS CONSTRUCTED AT UP TO FOUR FEET FROM THE EDGE OF PAVEMENT, THE GUARDRAIL WILL BE SET FROM THE GRADE AT THE FACE OF RAIL.
8. END SECTIONS TO BE IN ACCORDANCE WITH MAINE DEPARTMENT OF TRANSPORTATION STANDARDS.
9. GUARDRAIL SET ON A RADIUS OF 150 FEET OR LESS TO BE CIRCULAR.
10. GUARDRAIL MATERIAL FINISH SHALL BE DETERMINED BY OWNER (ASSUME COR-TEN STEEL FOR INITIAL PRICING). FINAL MATERIAL DECISION TO BE PROVIDED BY OWNER.

14 C-401 **METAL GUARD RAIL DETAIL**
NOT TO SCALE

TAX MAP I.D.
74 - 7

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. CAUCIELLO No. 8093 — REGISTERED PROFESSIONAL ENGINEER — 5/12/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

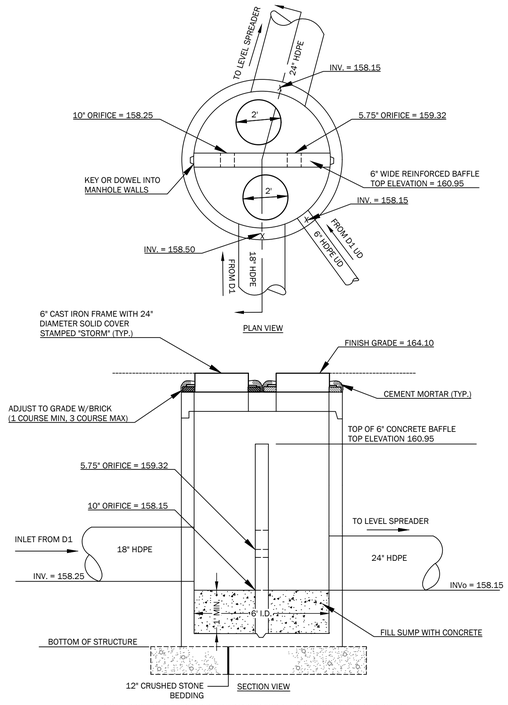
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: AS NOTED

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

CIVIL DETAILS

PROJ. NO. 24-211-01
DWG. NO. C-401
REV. C

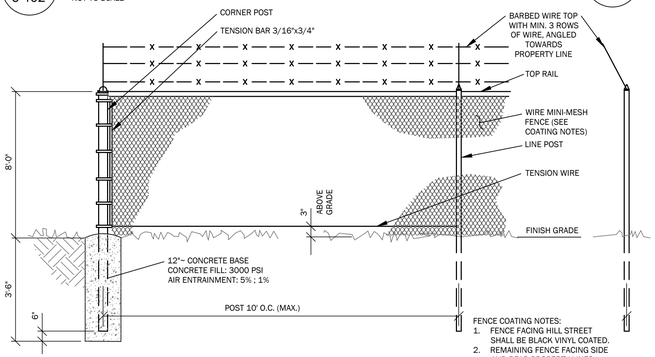
Drawing Name: C:\SDA Projects\25\04 - Intermat - Biddeford\3. CAD\25004 - Details (Plot Date / Time: Jan. 15, 26 / 11:35 AM



NOTE: PROVIDE FLEXIBLE PIPE ENTRANCES FOR ALL OPENINGS IN THE STRUCTURE.

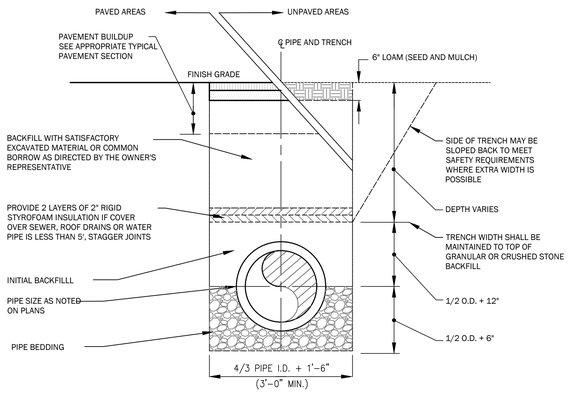
1 C-402 NOT TO SCALE

OUTLET CONTROL STRUCTURE OCS-1



5 C-402 *NOT TO SCALE*

CHAINLINK FENCE CORNER & STRAIGHT SECTIONS



TRENCH BACKFILL SCHEDULE

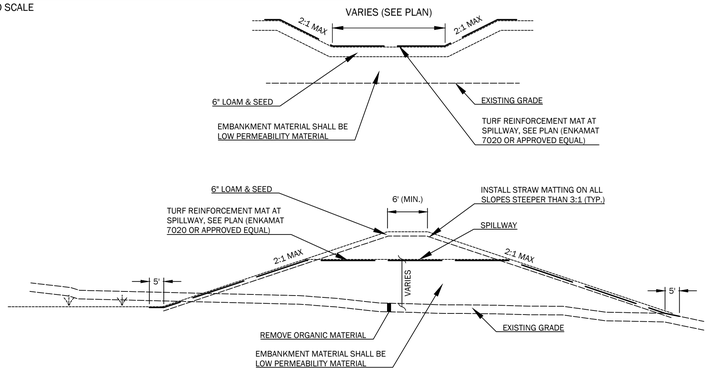
PIPE MATERIAL	PIPE BEDDING	INITIAL BACKFILL	BACKFILL
HDPE	3/4" CRUSHED STONE	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
PVC	3/4" CRUSHED STONE	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
DUCTILE IRON	GRANULAR MATERIAL	GRANULAR MATERIAL	***EXCAVATED MATERIAL OR GRANULAR BORROW
COPPER	SAND	SAND	***EXCAVATED MATERIAL OR GRANULAR BORROW

***EXCAVATED MATERIAL MUST BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

GRANULAR MATERIAL TO BE SAND OR GRAVEL.

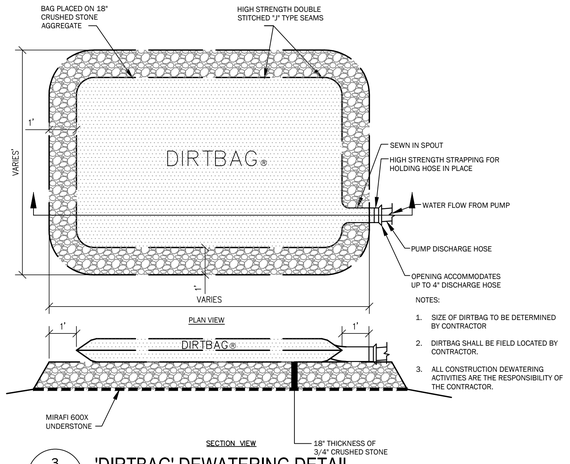
2 C-402 NOT TO SCALE

TYPICAL PIPE TRENCH SECTION



6 C-402 *NOT TO SCALE*

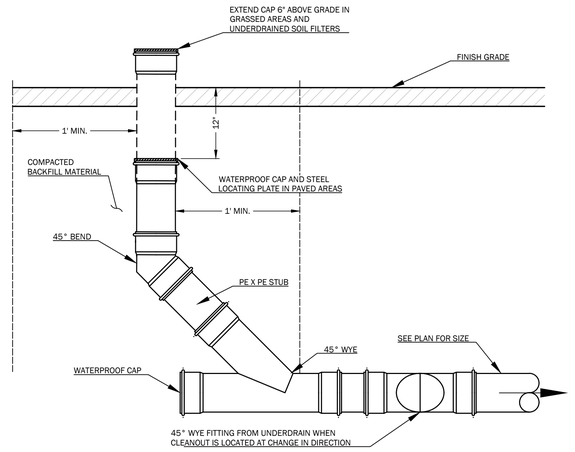
TYPICAL EMBANKMENT SPILLWAY DETAIL



NOTES:
1. SIZE OF DIRTBAG TO BE DETERMINED BY CONTRACTOR
2. DIRTBAG SHALL BE FIELD LOCATED BY CONTRACTOR.
3. ALL CONSTRUCTION DEWATERING ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

3 C-402 NOT TO SCALE

'DIRTBAG' DEWATERING DETAIL



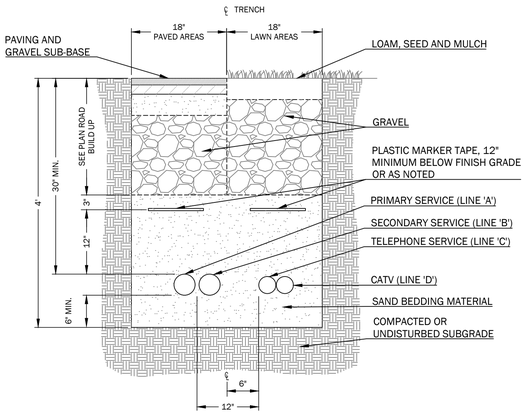
4 C-402 *NOT TO SCALE*

UNDERDRAIN CLEANOUT

NOTES
1. USE BEEHIVE GRATES FOR FIELD INLETS.
2. USE SOLID H20 RATED COVER STAMPED "STORM" FOR DRAINAGE MANHOLES.

7 C-402 *NOT TO SCALE*

DRAINAGE MANHOLE (DMH) & FIELD INLET (FI) DETAIL



SERVICE	CONDUIT SIZE*	CONDUIT TYPE	UTILITY
'A'	4"	SCHEDULE 40 P.V.C. ELECTRICAL GRADE	PRIMARY POWER
'B'	4"	SCHEDULE 40 P.V.C. ELECTRICAL GRADE	SECONDARY POWER
'C'	3"	SCHEDULE 40 P.V.C. ELECTRICAL GRADE	COMMUNICATIONS

NOTES:
1. ALL WORK SHALL COMPLY WITH THE RESPECTIVE UTILITY COMPANY STANDARDS.
2. SEE UTILITIES PLANS FOR CONDUIT LOCATIONS.
3. CONTRACTOR TO PROVIDE 1/4" POLYPROPYLENE PULL ROPES IN ALL CONDUITS.
4. CONTRACTOR SHALL VERIFY SIZE, QUANTITY, AND MATERIAL OF ALL CONDUIT WITH APPLICABLE UTILITY COMPANIES PRIOR TO CONSTRUCTION.

8 C-402 NOT TO SCALE

UNDERGROUND UTILITY TRENCH (MULTIPLE)

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SITE DESIGN ASSOCIATES, ANY ALTERATIONS, OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SITE DESIGN ASSOCIATES.

REV.	DATE	STATUS	BY	CHKD.	APPD.
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS
A	11/25/2025	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS

STATE OF MAINE — THOMAS W. SLUCIER — No. 8093 — LICENSED PROFESSIONAL ENGINEER — 5/12/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: AS NOTED

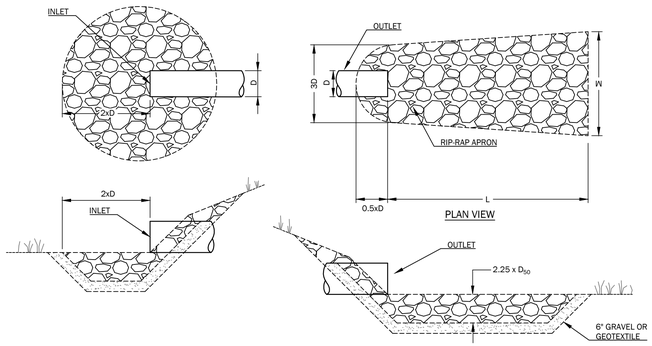
TAX MAP I.D. 74 – 7

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

CIVIL DETAILS

PROJ. NO. 24–211–01 REV. C
DWG. NO. C–402

Drawing Name: C:\CDC Projects\2024 – Intermat – Biddeford\3_CAD\2024 – Details | Plot Date / Time: Jan. 13, 26 / 11:35 AM



D	L	W	D_{50}
6"	2.25'	2'	4"
12"	6'	4'	5"
15"	7'	5'	6"
18"	12'	8'	8"
30"	18'	10'	10"
36"	18'	12'	12"

NOTES:

1. USE D_{50} NOTED ON TABLE UNLESS OTHERWISE SPECIFIED ON PLANS.
2. UNDERLAY RIP-RAP WITH 6" OF GRAVEL OR GEOTEXTILE
3. USE WIDTHS NOTED ABOVE OR CONFORM TO NATURAL CHANNEL OR TOPOGRAPHY.

1 C-403 RIP-RAP INLET/OUTLET APRON

NOT TO SCALE

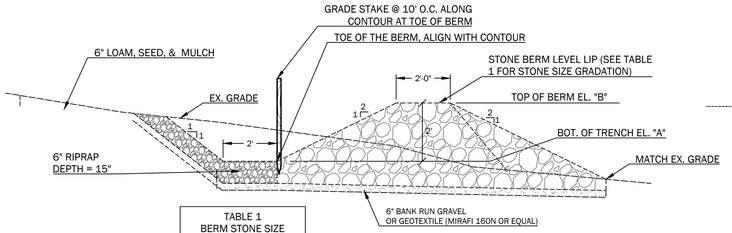


TABLE 1 BERM STONE SIZE	
SIEVE	% BY WEIGHT PASSING SIEVE
12 in	100
6 in	84-100
3 in	68-83
1 in	42-55
No. 4	8-12

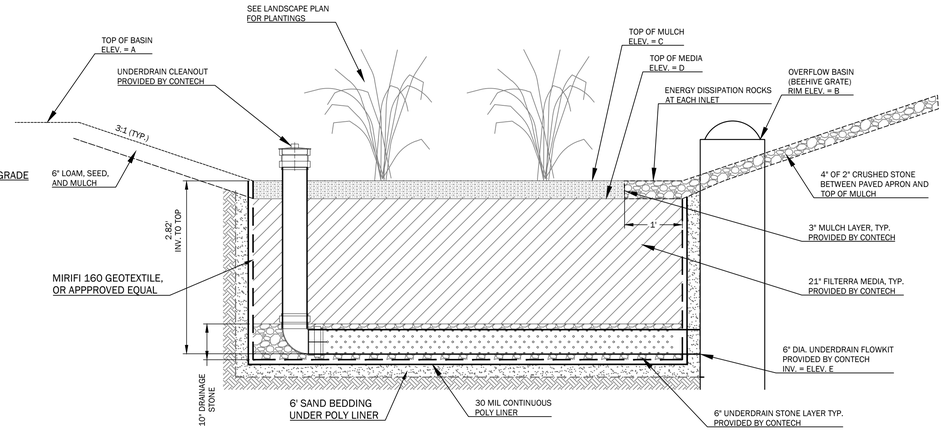
LEVEL SPREADER SCHEDULE			
LEVEL SPREADER	ELEV. A	ELEV. B	BERM LENGTH
L1	158.00	159.00	52'

NOTES

1. CONSTRUCT LEVEL LIP AND SPREADER ON ZERO PERCENT GRADE.
2. DO NOT CONSTRUCT LEVEL SPREADER ON FILL.
3. STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREA. WATER SHALL NOT BE CHANNELIZED IMMEDIATELY BELOW POINT OF DISCHARGE.
4. THE LAYOUT AND CONSTRUCTION OF THE LEVEL SPREADER IS CRITICAL TO IT'S SUCCESS. CLEAR THE AREA AND STAKE OUT LEVEL LIP ELEVATION WITH STAKES EVERY 10'. WORK THE STONE BELOW THE STAKES AND THEN EXCAVATE AND GRADE THE UPHILL SECTION. REMOVE THE STAKES AFTER THE STONE IS INSTALLED.

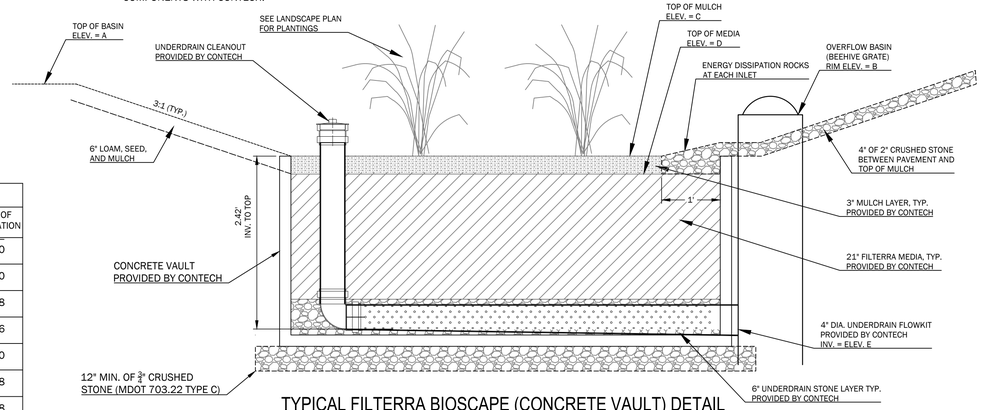
2 C-403 LEVEL SPREADER

NOT TO SCALE



NOTE:
CONTRACTOR SHALL COORDINATE MANUFACTURING OF SYSTEM COMPONENTS WITH CONTECH.

TYPICAL FILTERRA BIOSCAPE (SOFT SHELL) DETAIL



TYPICAL FILTERRA BIOSCAPE (CONCRETE VAULT) DETAIL

NOTE:
CONTRACTOR SHALL COORDINATE MANUFACTURING OF SYSTEM COMPONENTS WITH CONTECH.

FILTERRA BIOSCAPE SCHEDULE							
FILTERRA ID	TOP OF BASIN (A)	OVERFLOW ELEV. (B)	TOP OF MULCH ELEV. (C)	TOP OF MEDIA ELEV. (D)	UNDERDRAIN INVERT (E)	FILTER STYLE	FILTER VAULT SIZE (L' x W')
F1	162.90	162.45	162.20	161.95	159.78	VAULT	4x12
F2	162.40	162.26	162.00	161.75	159.58	VAULT	7x13
F3	162.00	161.50	161.40	161.15	158.98	VAULT	4x8
F4	162.50	161.80	161.20	160.95	158.78	SOFT SHELL	9x38
F5	162.70	161.65	161.20	160.95	158.78	SOFT SHELL	IRREGULAR (261 SF)
F6	164.27	163.27	163.00	162.75	160.58	VAULT	4x8

5 C-403 TYPICAL FILTERRA BIOSCAPE DETAILS

NOT TO SCALE

CONSTRUCTION OVERSIGHT

THE APPLICANT WILL RETAIN THE SERVICES OF THE DESIGN ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES TO BE BUILT AS PART OF THE PROJECT. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLANS FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE CITY IN WRITING WITHIN 30 DAYS TO STATE THAT THE STRUCTURES HAVE BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL, AGGREGATE, OR MULCH MATERIALS USED IN THE CONSTRUCTION OF THE STORMWATER MANAGEMENT STRUCTURES AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

CONSTRUCTION INSPECTIONS: AT A MINIMUM, THE PROFESSIONAL ENGINEER'S INSPECTION WILL OCCUR:

- AFTER FOUNDATION SOIL PREPARATION BUT PRIOR TO PLACEMENT OF THE EMBANKMENT FILL
- AFTER INSTALLATION OF THE POLY LINER, BUT BEFORE PLACEMENT OF UNDERDRAIN BEDDING
- AFTER THE UNDERDRAIN PIPES ARE INSTALLED BUT *NOT* BACKFILLED
- AFTER THE RTANKS HAVE BEEN INSTALLED, BUT NOT BACKFILLED WITH CRUSHED STONE.
- AFTER THE RTANKS HAVE BEEN BACKFILLED WITH CRUSHED STONE.

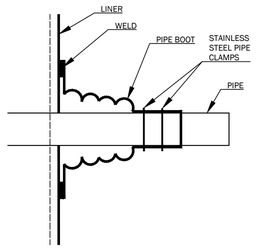
TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:

- SUBMIT SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
- PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL.

3 C-403 R-TANK SUBSURFACE STORMWTER DETENTION SYSTEM DETAIL

NOT TO SCALE

BMP TEST PIT SCHEDULE						
BMP ID	TEST PIT ID	EXISTING GRADE	GROUNDWATER ELEVATION	REFUSAL ELEVATION	BOTTOM OF TEST PIT ELEVATION	BOTTOM OF BMP ELEVATION
D1	TP2	163.1	N/A	N/A	159.1	158.0
	TP6	159.3	156.8	N/A	155.3	158.0
F1	TP15	163.1	N/A	N/A	158.1	159.8
F2	TP10	162.8	160.6	N/A	158.8	159.6
F3	TP9	162.8	160.6	N/A	157.8	159.0
F4	TP8	161.6	159.1	N/A	156.6	158.8
F5	TP3	162.4	N/A	N/A	158.4	158.8
F6	TP1	162.5	N/A	N/A	157.5	160.6



4 C-403 LINER PIPE BOOT DETAIL

NOT TO SCALE

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STATE OF MAINE — THOMAS W. SLUCIER — No. 8093 — LICENSED PROFESSIONAL ENGINEER — 5/12/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: NOV. 25, 2025
SCALE: AS NOTED

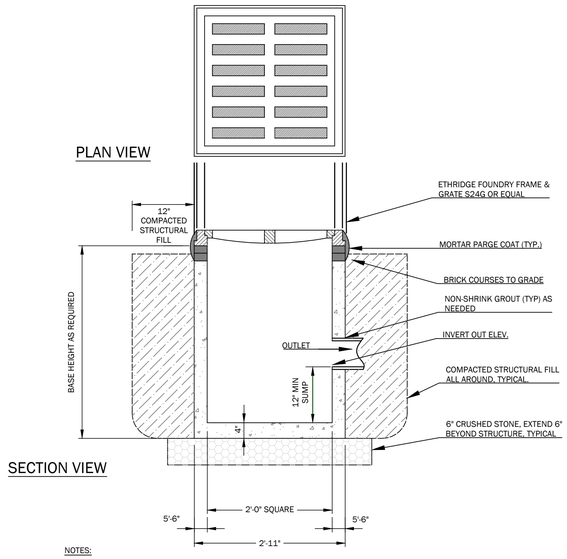
TAX MAP I.D. 74 – 7

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

CIVIL DETAILS

PROJ. NO. 24–211–01 REV. C
DWG. NO. C–403

Drawing Name: C:\CSD Projects\2024 – Intermat – Biddeford\3. CAD\2024 – Details | Plot Date / Time: Jan. 13, 26 / 11:35 AM



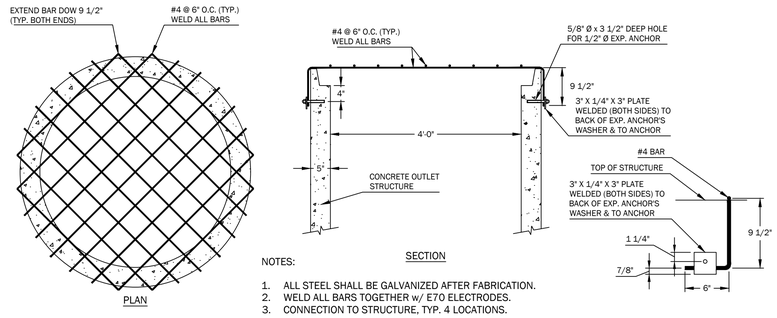
NOTES:

1. CONCRETE 5000 PSI AFTER 28 DAYS.
2. REINFORCING: 1 LAYER 4x4 / 4x4 WWM.
3. FIELD INLET IS USED FOR SHALLOW, OFF-DRIVE, DEAD END DRAINAGE AREAS.

1 C-404

CATCH BASIN (TYPE F)

NOT TO SCALE



NOTES:

1. ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION.
2. WELD ALL BARS TOGETHER w/ E70 ELECTRODES.
3. CONNECTION TO STRUCTURE, TYP. 4 LOCATIONS.

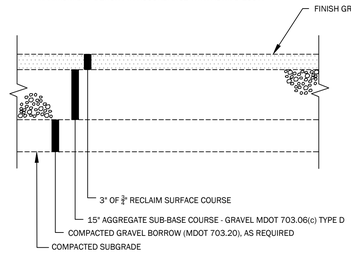
2 C-404

48" FIELD INLET DRAINAGE BASIN (FI-2, FI-4 & FI-5)

NOT TO SCALE

NOTES:

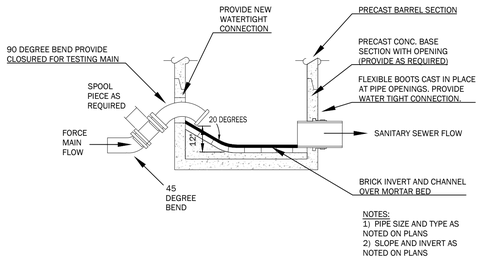
1. BASE AND SUBBASE GRAVELS TO BE COMPACTED TO 95% MINIMUM OF THEIR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.



3 C-404

RECLAIM DRIVE DETAIL

NOT TO SCALE

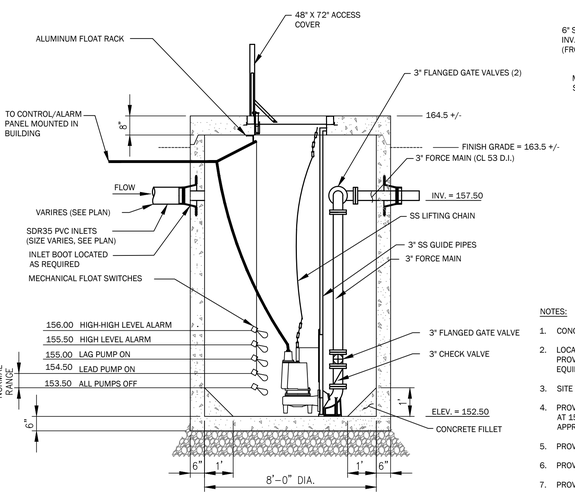


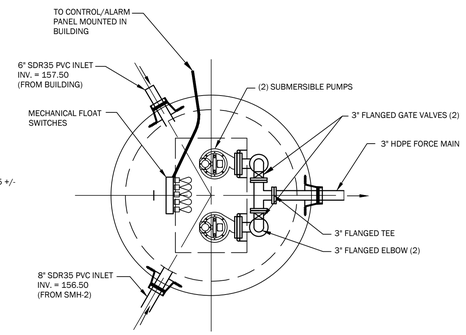
NOTES:
1) PIPE SIZE AND TYPE AS NOTED ON PLANS
2) SLOPE AND INVERT AS NOTED ON PLANS

4 C-404

SANITARY SEWER FORCE MAIN TERMINAL MANHOLE DETAIL

NOT TO SCALE





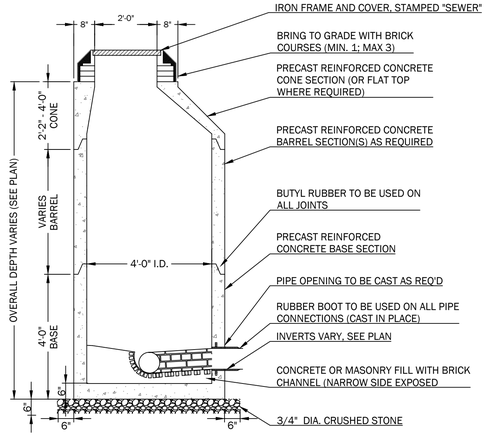
NOTES:

1. CONCRETE: 5,000 P.S.I AFTER 28 DAYS.
2. LOCATE CONTROL PANEL AND ALARM INSIDE BUILDING. PUMP STATION VENDOR SHALL PROVIDE PANEL, WIRING, CONTROLS, STROBE, AND MOUNTING AND MOUNTING EQUIPMENT, AND WIRING FOR ALARM BACK TO BUILDING.
3. SITE CONTRACTOR SHALL PROVIDE POWER TO THE PUMP STATION.
4. PROVIDE THREE SUBMERSIBLE EXPLOSION PROOF GRINDER PUMPS RATED FOR 65 GPM AT 15 FT TDH (1 SPARE). PUMPS SHALL BE HAYWARD GORDON CHOPPER, OR APPROVED EQUAL.
5. PROVIDE MANUFACTURER'S PUMP CURVES WITH SUBMITTALS.
6. PROVIDE STROBE AT PUMP STATION.
7. PROVIDE ANTI-FLOTATION CALCULATIONS WITH SUBMITTALS.
8. PROVIDE 4" GALVANIZED MUSHROOM VENT, 3'-0" TALL.

5 C-404

DUPLEX SUBMERSIBLE PUMP STATION DETAIL

NOT TO SCALE



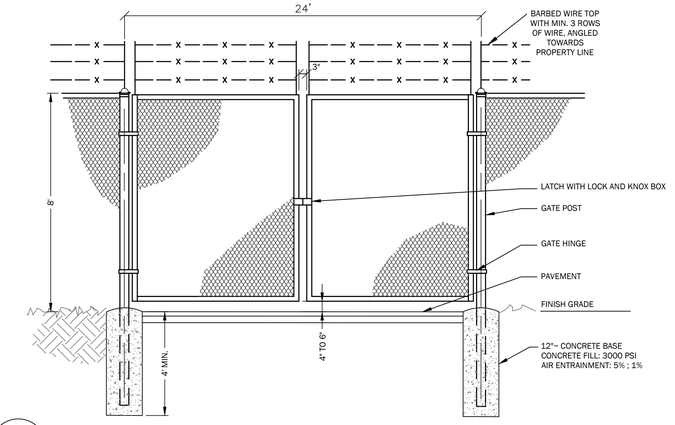
NOTES:

1. CONCRETE 4000 PSI AFTER 28 DAYS.
2. REINFORCING H-20 LOADING 4x4 / 4x4 WWM.
3. EACH CASTING TO HAVE LIFTING HOLES TO BE FILLED WITH NON-SHRINK MORTAR.
4. MANHOLE STEPS TO BE HIGH IMPACT PLASTIC.
5. APPLY TWO COATS OF BITUMASTIC PAINT ON ALL EXTERIOR SECTIONS.
6. MANHOLE CHANNELS REQUIRING CHANGE OF ALIGNMENT, TO BE BUILT ON SMOOTH RADIUS. CHANNEL TO BE SHAPED TO ACCEPT ADDITIONAL INLET PIPES.
7. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER.

6 C-404

SANITARY SEWER MANHOLE

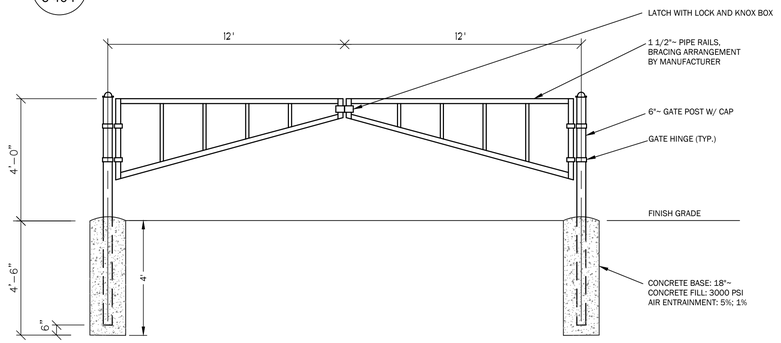
NOT TO SCALE



7 C-404

CHAINLINK FENCE DOUBLE LEAF GATE

NOT TO SCALE



8 C-404

BAR GATE DETAIL

NOT TO SCALE

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REV.	DATE	STATUS	BY	CHKD.	APPD.	REV.	DATE	STATUS	BY	CHKD.	APPD.
D	5/12/2026	REVISED SEWER PUMP STATION DESIGN	DEPT.	TWS	TWS						
C	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	TWS	TWS						
B	3/17/2026	ISSUED FOR MAINE DEP PERMITTING	DEPT.	TWS	TWS						
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STATE OF MAINE — THOMAS W. SAUCIER No. 8091 — LICENSED PROFESSIONAL ENGINEER — 5/12/2026

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5 MORIN STREET, BIDDEFORD, ME 04005

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DATE: NOV. 25, 2025
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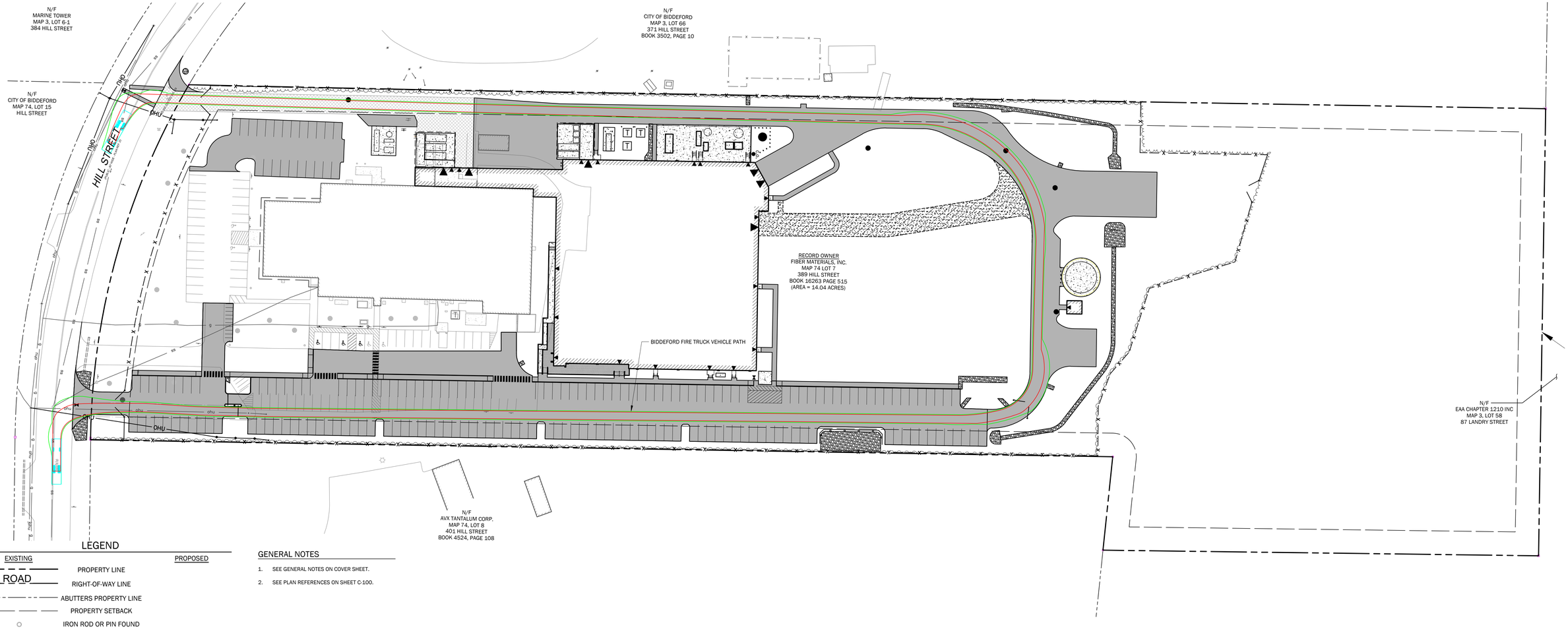
PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

CIVIL DETAILS

PROJ. NO. 24–211–01
DWG. NO. C–404
REV. D

TAX MAP I.D.
74 – 7

Drawing Name: C:\CC Projects\24204 - Intermat - Biddeford\3. CAD\24204 - Details | Plot Date / Time: Jan. 10, 26 / 11:35 AM

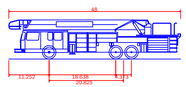


LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
ROAD	RIGHT-OF-WAY LINE	
	ABUTTERS PROPERTY LINE	
	PROPERTY SETBACK	
	IRON ROD OR PIN FOUND	
	STORM DRAIN MANHOLE	
	STORM DRAIN FIELD INLET	
	STORM DRAIN TYPE F BASIN	
	SANITARY SEWER MANHOLE	
ss	SANITARY SEWER LINE	SS
w	WATERLINE	W
sd	STORM DRAIN LINE	SD
	FOUNDATION DRAIN LINE	FD
	ROOF DRAIN LINE	
	UNDERDRAIN LINE	UD
	CULVERT	
ohu	OVERHEAD UTILITIES	
ugu	UNDERGROUND UTILITIES	UGU
	UTILITY POLE	
	LIGHT POLE	
	LIGHT FIXTURE	
	GUARD RAIL	
x x	METAL FENCE	x x
	BUILDING	
	RETAINING WALL	
	EDGE OF PAVEMENT	
	RESURFACING PAVEMENT	
	SLIPFORM CURB	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	TREELINE	
	TREES & SHRUBS	
	RIPRAP	
	FILTTERA BIOSCAPE	
	BOLLARD	
	MAN DOOR / BAY DOOR	

GENERAL NOTES

1. SEE GENERAL NOTES ON COVER SHEET.
2. SEE PLAN REFERENCES ON SHEET C-100.



Biddeford Fire Truck

Overall Length	48.000ft
Overall Width	10.000ft
Overall Body Height	10.907ft
Min Body Ground Clearance	1.337ft
Track Width	6.330ft
Lock-to-lock time	3.0s
Curb to Curb Turning Radius	35.100ft

NORTH

SCALE

0 25 50 100

SCALE in FEET
1"=50'

TAX MAP I.D.
74 – 7

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REV.	DATE	STATUS	BY	CHKD.	APPD.
A	6/10/2026	ISSUED FOR CITY OF BIDDEFORD FINAL SITE PLAN REVIEW	DEPT.	TWS	TWS

STATE OF MAINE
THOMAS W. SAUCIER
No. 8091
LICENSED
PROFESSIONAL ENGINEER
6/10/2026

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

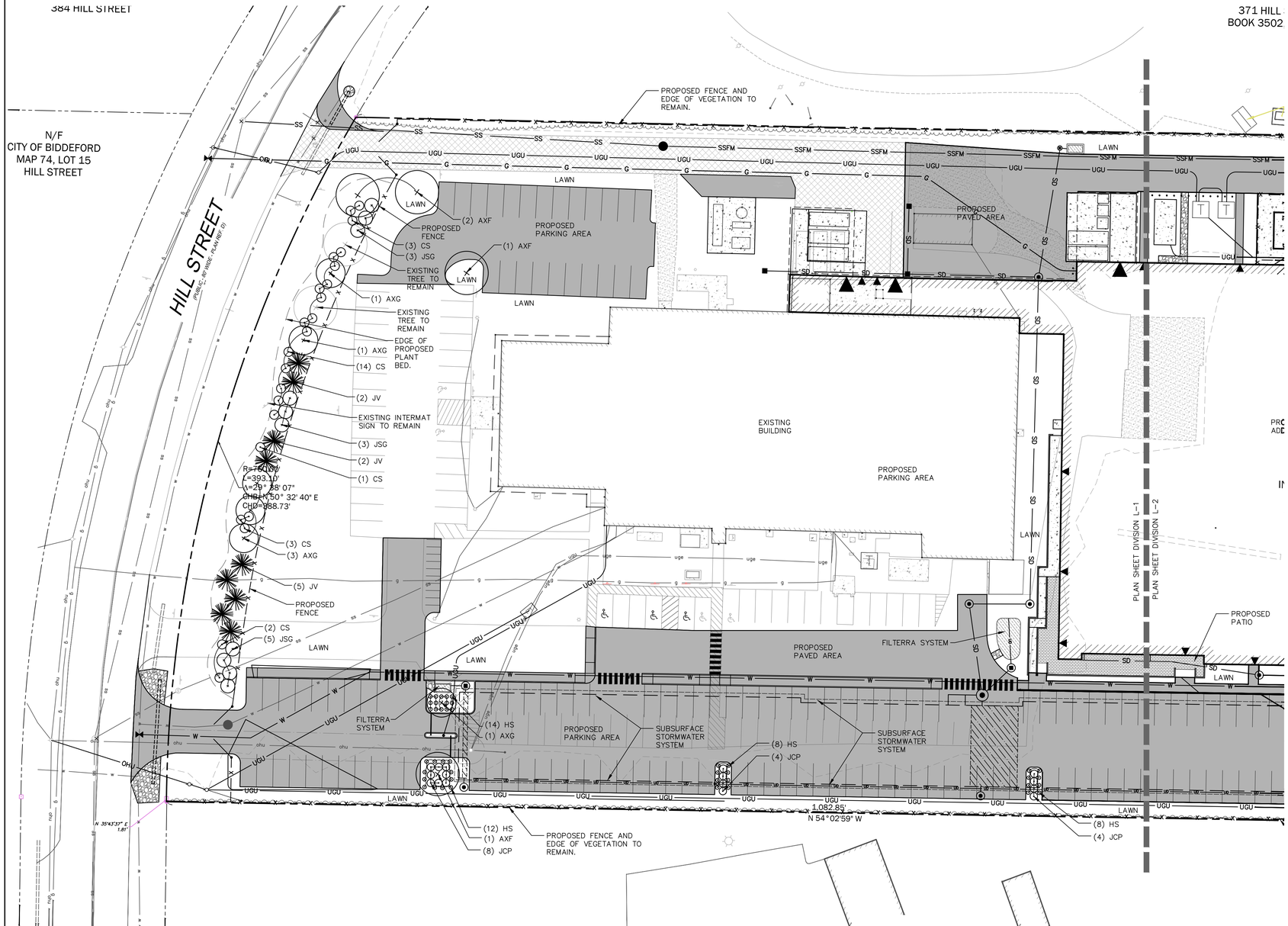
DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 50'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

FIRE TRUCK MANEUVERING PLAN

PROJ. NO. 24–211–01
DWG. NO. FD–100
REV. A

Drawing Name: C:\CDC Projects\25204 - Intermat – Biddeford\3. CAD\25204 – Base_Phase 1 | Plot Date / Time: Jan. 13, 26 / 12:18 PM



LANDSCAPE NOTES:

1. PRIOR TO THE START OF ANY EXCAVATION FOR THE PROJECT BOTH ON AND OFF THE SITE, THE CONTRACTOR SHALL NOTIFY DIGSAFE AND BE PROVIDED WITH A DIGSAFE NUMBER INDICATING THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED.
2. LANDSCAPE CONTRACTOR IS ENCOURAGED TO PROVIDE THE LANDSCAPE ARCHITECT WITH CONCERNS AND/OR SUGGESTIONS WITH REGARDS TO PROPOSED PLANT MATERIAL SELECTION PRIOR TO PLACING A PURCHASE ORDER.
3. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTINGS SHOWN GRAPHICALLY ON THIS DRAWING. CLARIFY ANY DISCREPANCIES WITH THE LANDSCAPE ARCHITECT PRIOR TO PRICING ANY PLANT MATERIAL.
4. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE LATEST EDITION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S "AMERICAN STANDARD OF NURSERY STOCK".
5. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE AT THE SITE. PLANTS WHICH ARE REJECTED SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. MULCH FOR PLANT BED TO BE 3" MIN. DEPTH OF 1" TO 2" DIA. WASHED RIVER JACK STONE IN A GRAYISH COLOR. CONTRACTOR TO PROVIDE OWNER'S REPRESENTATIVE WITH A SAMPLE TO REVIEW AND APPROVE PRIOR TO PURCHASE AND INSTALLATION.
7. NO PLANTS SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING AND BEFORE CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
8. ALL TREES SHALL BEGIN BRANCHING AT 6' HT. MIN.
9. ALL PLANT MATERIAL OR REPRESENTATIVE SAMPLES SHALL BE LEGIBLY TAGGED WITH PROPER COMMON AND BOTANICAL NAMES. TAGS SHALL REMAIN ON THE PLANTS UNTIL FINAL ACCEPTANCE.
10. CONTRACTOR SHALL LOAM DISTURBED AREAS AS FOLLOWS:
    - LAWN AREAS PROVIDE 6" DEPTH OF TOPSOIL (LOAM)
    - SHRUB BEDS PROVIDE 18" DEPTH OF TOPSOIL (LOAM).
    - TREES PLANTINGS PROVIDE A 10'X10' AREA AROUND EACH TREE WITH A 24" DEPTH OF TOPSOIL (LOAM).
11. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND WILL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
12. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF FINAL ACCEPTANCE.
13. SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND OR CAPPED OR DEMOLISHED AS REQUIRED.
14. SEE DRAWINGS CIVIL PLANS FOR ADDITIONAL INFORMATION.
15. THE CONTRACTOR SHALL INSTALL WATERING BAGS SUCH AS THE TREEGATOR ON ALL TREES AT THE TIME OF INSTALLATION. WATERING BAGS TO BE LEFT ON UNTIL FREEZING TEMPERATURES.
16. SEE PLAN SHEET L-2 FOR PLANTING DETAILS.

PLANT LIST:

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS
PLANT MATERIALS					
AXF	ACER X FREEMANI 'AUTUMN BLAZE'	AUTUMN BLAZE MAPLE	4	2" CAL.	SINGLE LEADER, B&B
AXG	AMELANCHIER X. G. 'ROBIN HILL'	ROBIN HILL SERVICEBERRY	4	2" CAL.	SINGLE LEADER, B&B
CS	CORNUS SERICEA "ARCTIC FIRE'	ARCTIC FIRE RED TWIG DOGWOOD	23	5 GAL.	FULL & BUSHY
HS	HEMEROCALLIS STELLA D'ORO	STELLA D'ORO DAYLILY	42	1 GAL.	-
JCP	JUNIPERUS CHINENSIS 'COMPACT PFITZER'	COMPACT PFITZER CHINESE JUNIPER	16	5 GAL.	FULL & BUSHY
JSG	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN CHINESE JUNIPER	11	5 GAL.	FULL & BUSHY
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	9	6'-7' HT.	FULL & BUSHY

NORTH

SCALE

0 15 30 60

SCALE in FEET
1"=30'

TAX MAP I.D.
74 – 7

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A	4/15/2026	ISSUED FOR CITY OF BIDDEFORD REVIEW	DEPT.	PBB	PBB

LICENSED LANDSCAPE ARCHITECT
PETER B. BIEGEL
No. 2624
STATE OF MAINE
6/10/26

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

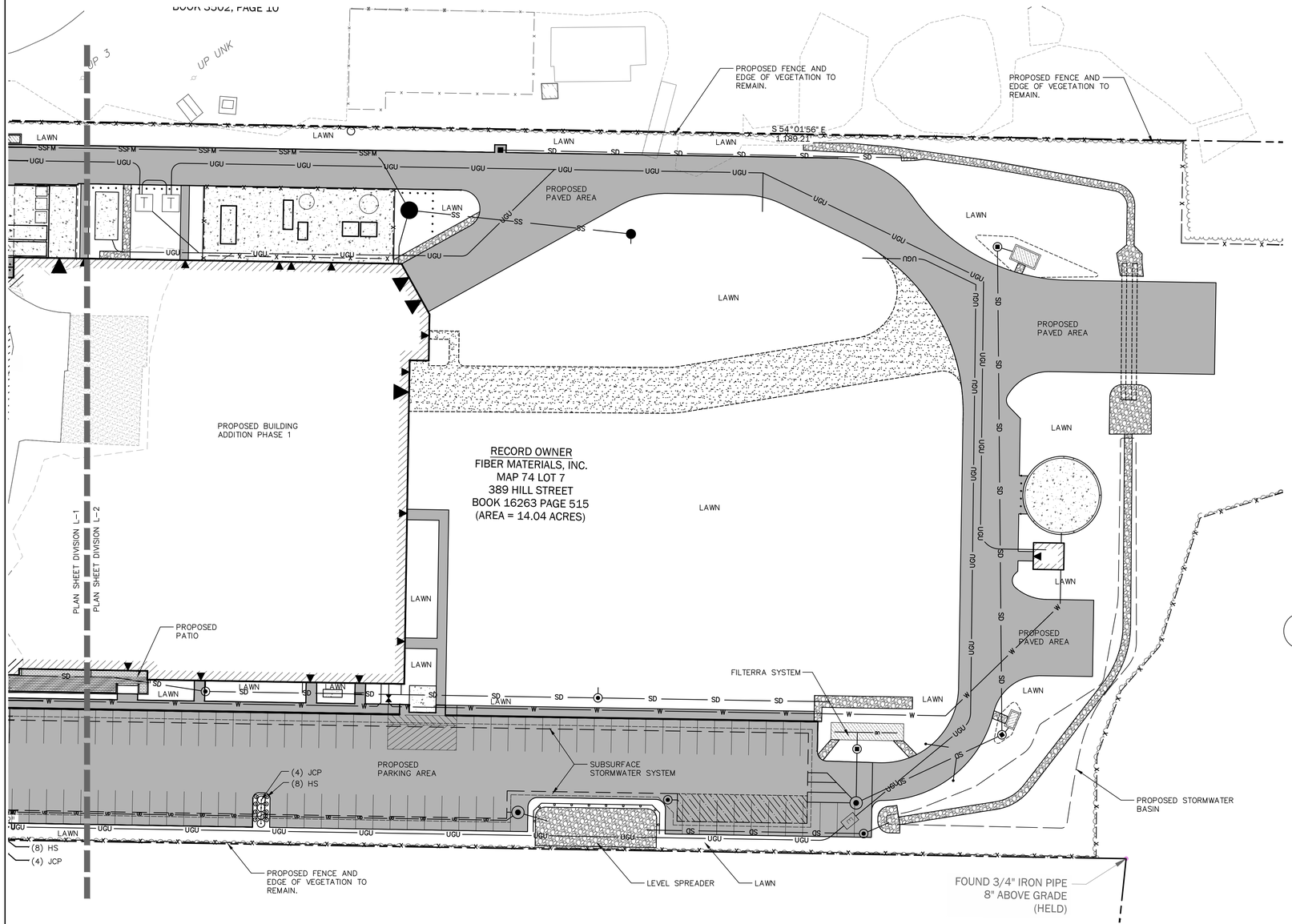
CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 30'

PROJECT:
INTERMAT
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

LANDSCAPE PLAN
SHEET 1 OF 2

PROJ. NO. 24-211-01 / LDS 25-152
DWG. NO. L-1
REV. B

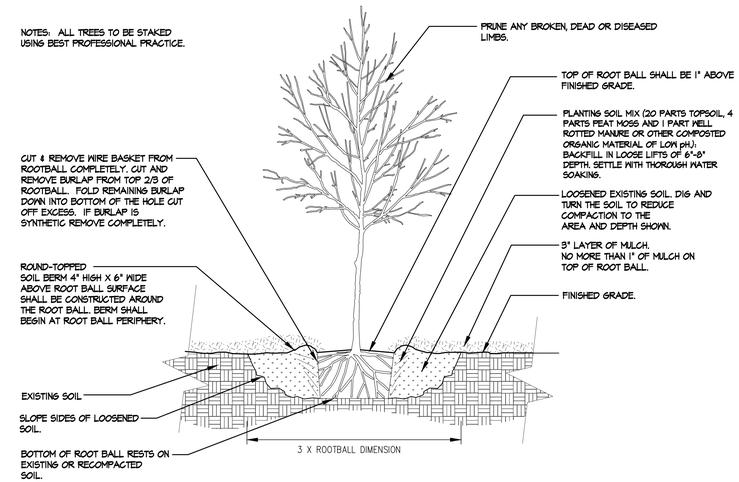


LANDSCAPE NOTES:

1. REFER TO LANDSCAPE NOTES ON PLAN SHEET L-1.

PLANT LIST:

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE	COMMENTS
PLANT MATERIALS					
JCP	JUNIPERUS CHINENSIS 'COMPACT PFITZER'	COMPACT PFITZER CHINESE JUNIPER	4	5 GAL.	FULL & BUSHY
HS	HEMEROCALLIS STELLA D'ORO	STELLA D'ORO DAYLILY	8	1 GAL.	-



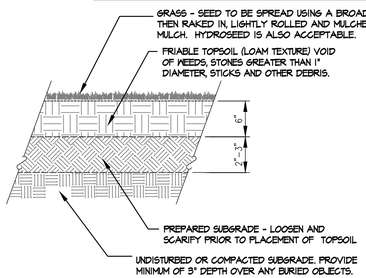
1 TREE PLANTING

SCALE: N.T.S.

NOTES:

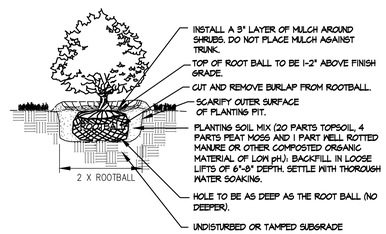
1. THE CONTRACTOR SHALL PROVIDE TOPSOIL (LOAM) MEETING THE FOLLOWING SPECIFICATIONS.
   - NATURAL, FERTILE LOAM TYPICAL OF CULTIVATED TOPSOIL OF THE LOCALITY, CONTAINING NOT LESS THAN 3.5 PERCENT OR MORE THAN 8 PERCENT BY WEIGHT, OF DECAYED ORGANIC MATTER (HUMUS) AS DETERMINED BY ASTM F1647.
   - OBTAIN FROM A WELL DRAINED ARABLE SITE, FREE OF SUBSOIL, EARTH CLODS, LARGE STONES, STICKS, STUMPS, CLAY LUMPS, ROOTS, OR OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS. SCREEN TOPSOIL TO A MAXIMUM STONE SIZE OF ONE INCH.
   - TOPSOIL SHALL BE FREE OF QUACK-GRASS RHIZONES, AGROPYRON REPENS, AND THE NUT-LIKE TUBERS OF NUTGRASS, CYPERUS ESCULENTUS, AND ALL OTHER PRIMARY NOXIOUS WEEDS.
   - TOPSOIL SHALL HAVE A PH OF NOT LESS THAN 6.0 OR GREATER THAN 6.8. AMEND WITH LIME AS REQUIRED.
   - TOPSOIL SHALL HAVE A LOAM TEXTURE CLASSIFICATION. TOPSOIL (LOAM) SHALL CONFORM TO THE FOLLOWING PARTICLE SIZE DISTRIBUTION, AS DETERMINED BY PIPETTE METHOD IN COMPLIANCE WITH ASTM F1632.
     a. SAND: 40-60 PERCENT.
     b. SILT: 30-40 PERCENT.
     c. CLAY: 5-20 PERCENT.
   - DO NOT DELIVER OR USE TOPSOIL WHILE IN A FROZEN OR MUDDY CONDITION.

IN LIEU OF PROVIDING AND FOLLOWING THE SOIL ANALYSIS REQUIRED IN NOTE 1 ABOVE THE CONTRACTOR CAN INSTEAD ELECT TO INCORPORATE THE FOLLOWING INTO THE TOP 6 INCHES OF TOPSOIL: 20 LBS. OF 10-20-10 FERTILIZER PER 1,000 S.F., 70 LBS. OF MAGNESIUM LIME PER 1,000 S.F., AND 3 CUBIC YARDS OF COMPOST PER 1,000 S.F.



3 LAWN INSTALLATION

SCALE: NTS



NOTES:

1. CONSTRUCT TEMPORARY PLANT SAUCER FROM MULCH TO ASSIST WITH WATER RETENTION. SAUCER NOT REQUIRED WHEN SHRUB OCCURS IN A PLANT BED.
2. WHEN PLANTING CONTAINER GROWN PLANTS-REMOVE THE BALL FROM THE CONTAINER AND LOOSEN THE OUTSIDE LAYER OF THE ROOT SYSTEM BY SCORING WITH A CLEAN KNIFE. DIVIDE ALL CIRCLING ROOTS.
3. SHRUBS TO BE WATERED IMMEDIATELY AFTER PLANTING.

2 SHRUB PLANTING DETAIL

SCALE: N.T.S.

NORTH

SCALE

0 15 30 60

SCALE IN FEET
1"=30'

TAX MAP I.D.
74 – 7

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LICENSED LANDSCAPE ARCHITECT
PETER B. BIEGEL
No. 2024
STATE OF MAINE
6/10/26

Site Design Associates
Consulting Engineering & Land Planning
23 Whitney Way Topsham, Maine 04086 Tel: (207) 449-4275

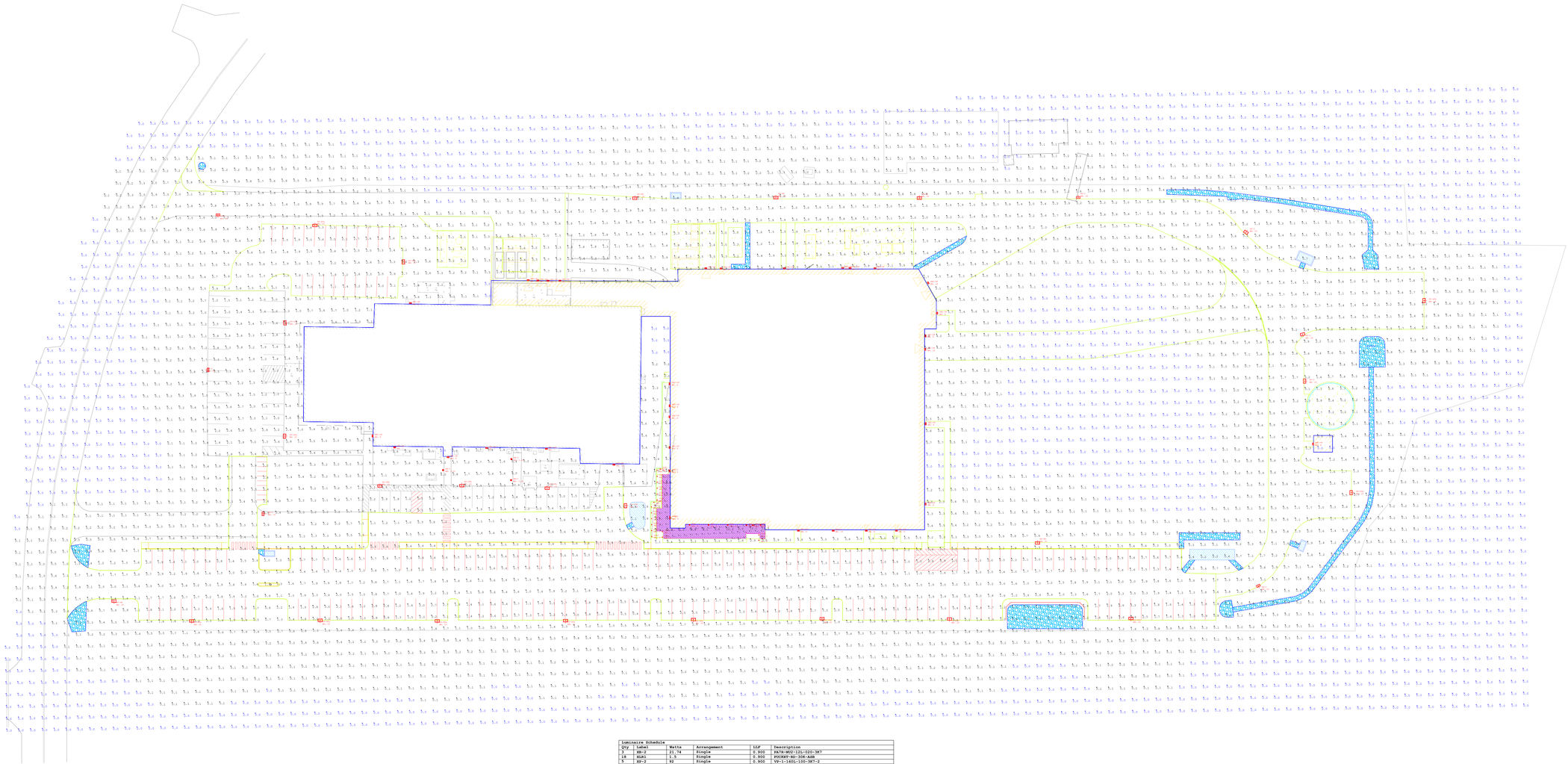
CLIENT:
FIBER MATERIALS INC.
5 MORIN STREET, BIDDEFORD, ME 04005

DESIGN: DEPT.
DRAWN: DEPT.
CHKD: TWS
DATE: JULY 31, 2025
SCALE: 1" = 30'

PROJECT:
B
PROPOSED EXPANSION
389 HILL STREET, BIDDEFORD, MAINE 04005

LANDSCAPE PLAN
SHEET 2 OF 2

PROJ. NO. 24-211-01C/ LDS 25-152
REV. A
DWG. NO. L-2



Luminaire Schedule					
Qty	Label	Watts	Arrangement	LLF	Description
3	XB-2	21.74	Single	0.900	FA7W-WGI-12L-020-3RT
18	XLB1	1.5	Single	0.900	FOCXRT-RD-3OK-ASB
5	XP-2	92	Single	0.900	VP-1-140L-100-3RT-2
3	XP-3	92	Single	0.900	VP-1-140L-100-3RT-3
14	XP-4Fs	92	Single	0.900	VP-1-140L-100-3RT-4F
1	XP-5Fb	92.9	Single	0.900	VP-1-140L-35-3RT-4F
5	XP-6W	92	Single	0.900	VP-1-140L-100-3RT-4W
5	XS1	15	Single	0.900	2ATSR03_RRGA_26S
27	XW1-4F	13.1	Single	0.900	VPW2-48L-15-3RT-4F
2	XW2-2	37.3	Single	0.900	VPW2-48L-35-3RT-2
5	XW2-4F	37.3	Single	0.900	VPW2-48L-35-3RT-4F
1	XWWMC	13.0238	Single	0.900	15W Decor Designer MM

Please Note: Do not use this schedule for quoting or wattage calculating, contact Illuminate for a complete fixture schedule

Calculation Summary							
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Patio	Fc	4.43	16.6	0.1	44.30	166.00
Site	Fc	0.64	20.9	0.0	N.A.	N.A.

Project:
389 Hill St - Site

Contact:
Kelley Wilkinson
Specification Sales
(978) 460-0963
kwilkinson@illuminatenne.com

Generated For:
CANAVAN CIVIL CONSULTANTS

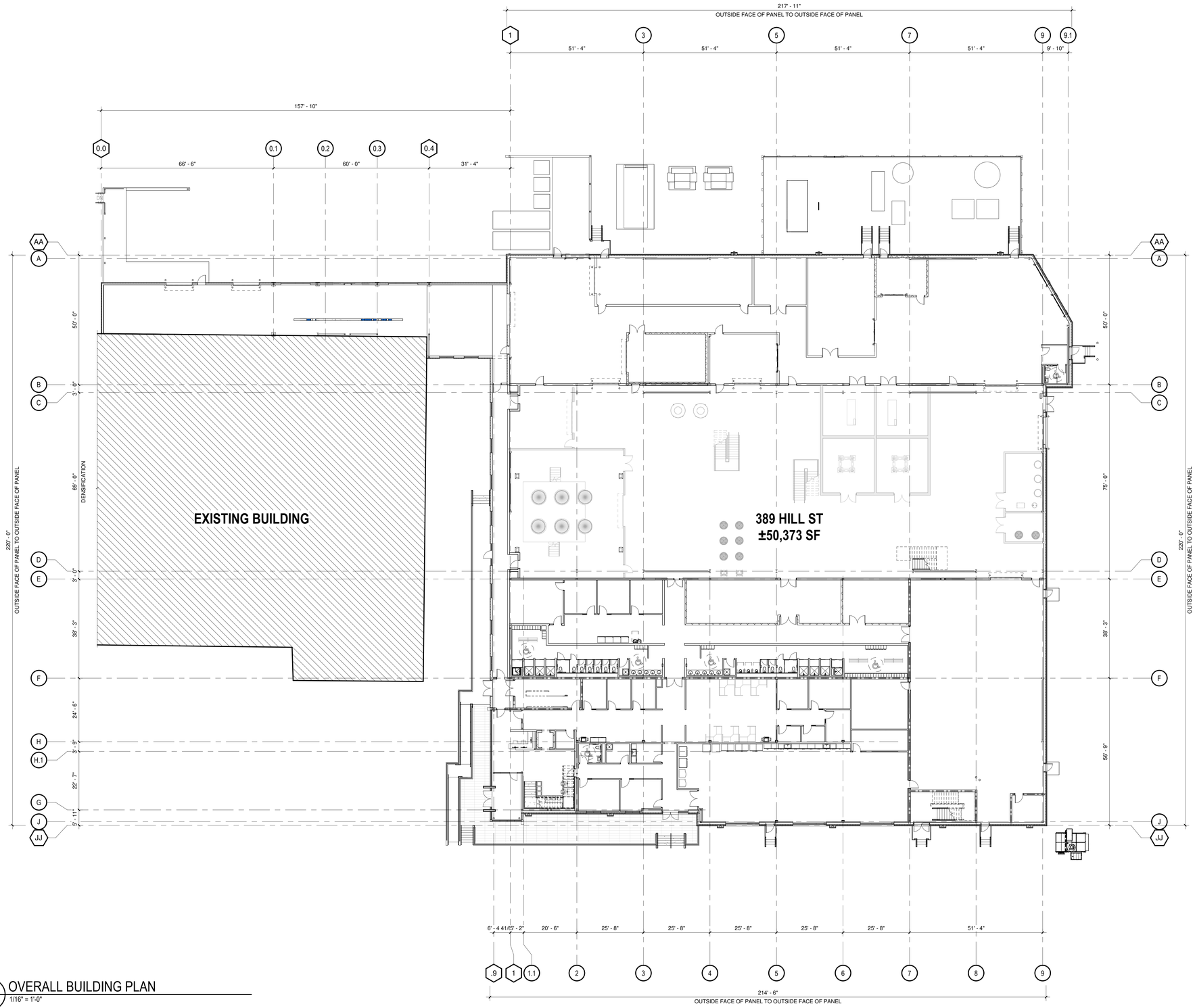
Detail: Photometric Calculation
Date: 06/09/2026
Revision: 5
Scale: 1" = 30'-0"
Drawn By: SHJ

Drawing Number:

L-3

Sheet 1 of 1

illuminate
263 Winn Street
Burlington, MA 01803
(781) 272-2300



1 SK-100 OVERALL BUILDING PLAN
1/16" = 1'-0"

OVERALL FLOOR PLAN

Development By FIBER MATERIALS INC.

389 HILL STREET

389 HILL STREET
BIDDEFORD, ME 04005

10 APRIL 2026

2025252.00

RANDALL PAULSON architects

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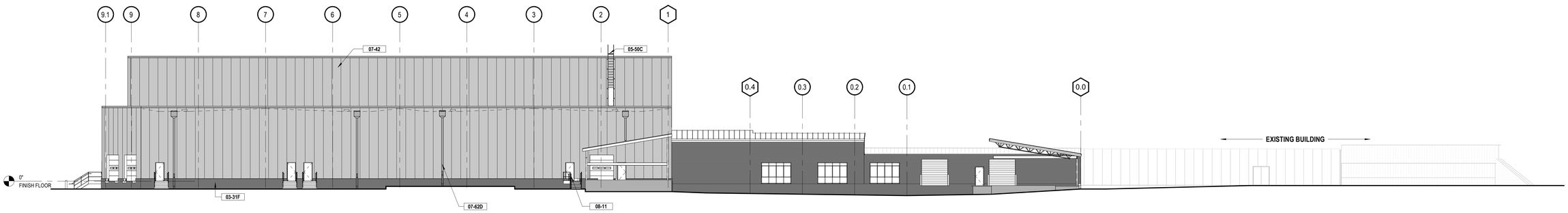
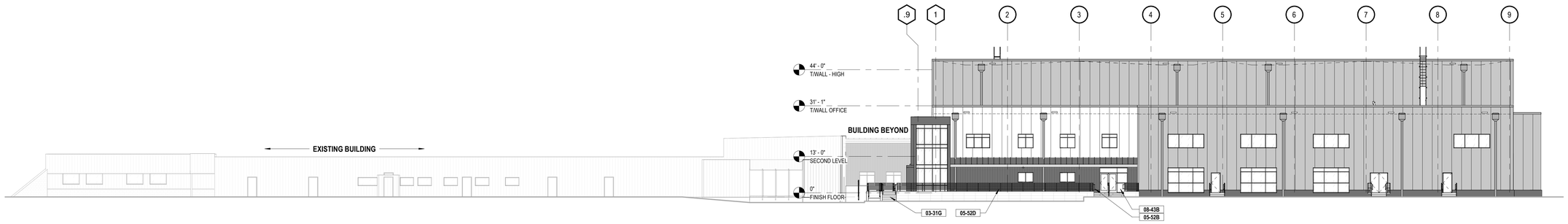
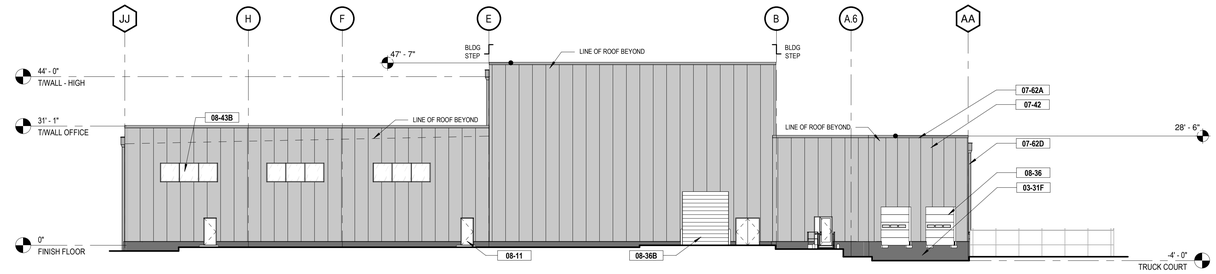


1 SK-101 **OVERALL NORTH ELEVATION**
1/16" = 1'-0"



2 SK-101 **OVERALL SOUTH ELEVATION**
1/16" = 1'-0"



3 SK-101 **OVERALL EAST ELEVATION**
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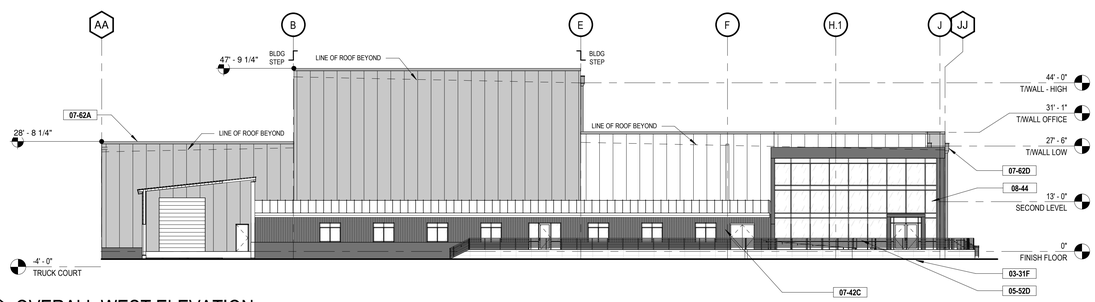

4 SK-101 **OVERALL WEST ELEVATION**
1/16" = 1'-0"

KEYNOTE LEGEND

KEY	TEXT
03-31F	CONCRETE STEM WALL
03-31G	CONCRETE RAMP-ON-GRADE, ADA COMPLIANT, SEE CIVIL & STRUCTURAL DRAWINGS
05-50C	SHOP MANUFACTURED STEEL ROOF ACCESS LADDER, PAINTED [COLOR]
05-52B	1 1/4" STEEL PIPE HANDRAIL, GALVANIZED
05-52D	9-LINE STEEL GUARDRAIL, GALVANIZED
07-42	
07-42C	4" THICK PREFINISHED INSULATED METAL PANEL (R-32 MIN.) VERTICAL ORIENTATION, KINGSPAN-ZINC GRAY, OVER STRUCTURAL STEEL FRAMING
07-62A	PREFINISHED METAL COPING, PAC CLAD - [COLOR tbd]
07-62D	PREFINISHED METAL SCUPPER AND LEADER BOX, AND PREFINISHED METAL DOWNSPOUT PAC CLAD - [COLOR tbd]
08-11	INSULATED HOLLOW METAL DOOR & FRAME, SEE DOOR SCHEDULE
08-36	INSULATED OVERHEAD SECTIONAL DOOR (R-7 MIN.) WITH 3" HEAVY DUTY TRACK AND STANDARD DOCK BUMPERS, SEE DOOR SCHEDULE
08-36B	[INSULATED] DRIVE-IN OVERHEAD SECTIONAL DOOR WITH 3" HEAVY DUTY TRACK, SEE DOOR SCHEDULE [MOTORIZED, MANUAL]
08-43B	CLEAR ANODIZED ALUMINUM STOREFRONT SYSTEM WITH 1" INSULATED GLAZING, SEE SCHEDULE
08-44	CLEAR ANODIZED ALUMINUM CURTAIN WALL SYSTEM WITH 1" INSULATED GLAZING, SEE SCHEDULE

EXTERIOR MATERIAL LEGEND

SYMBOL	KEY	DESCRIPTION	CONTACT
	IMP-1	IMP MANUFACTURER: KINGSPAN (OR EQUAL) NAME: FINISH: REGAL WHITE	
	IMP-2	IMP MANUFACTURER: KINGSPAN (OR EQUAL) NAME: FINISH: DOVE GRAY	
	IMP-3	IMP MANUFACTURER: KINGSPAN (OR EQUAL) NAME: FINISH: ZINC GRAY	
	ACM-1	ACM MANUFACTURER: REYNOBOND NAME: FINISH: PEWTER	
	M-1	METAL MANUFACTURER: PAC-CLAD NAME: FINISH: DOVE GRAY	
	P-1	PAINT MANUFACTURER: SHERWIN-WILLIAMS NAME: FINISH: SW7075 - WEB GRAY	

OVERALL ELEVATIONS

Development By FIBER MATERIALS INC.

389 HILL STREET

389 HILL STREET
BIDDEFORD, ME 04005

10 APRIL 2026

2025252.00

RANDALL PAULSON architects

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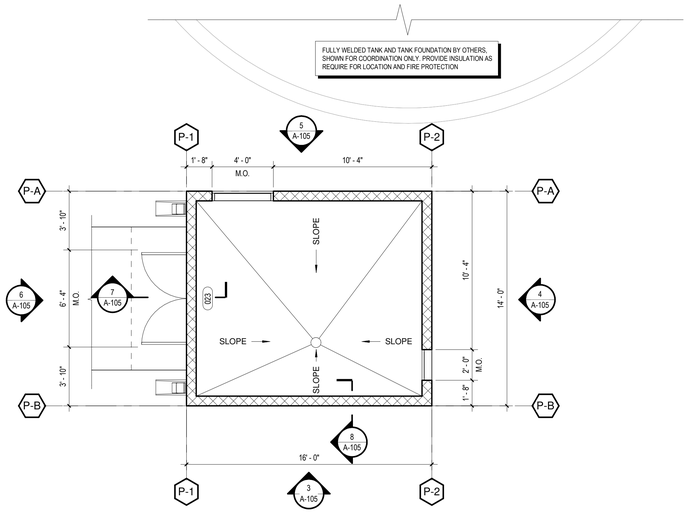
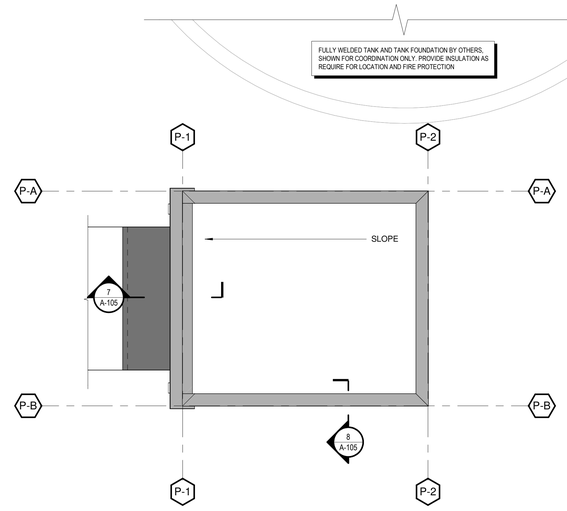
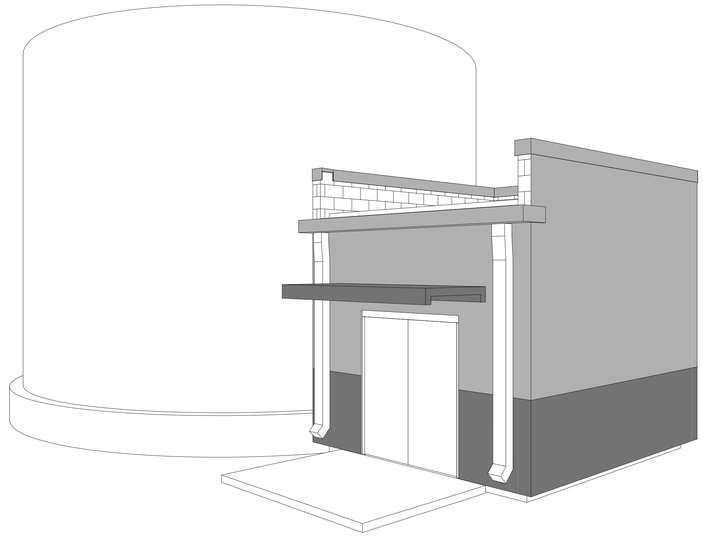


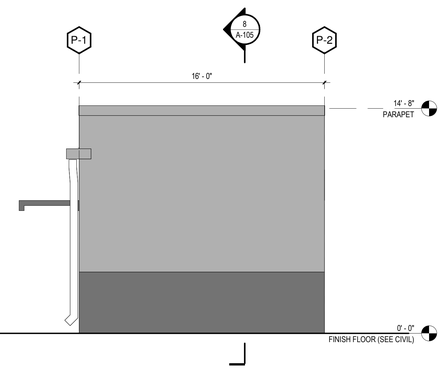
1 A-105 OVERALL FLOOR PLAN - PUMP HOUSE
1/4" = 1'-0"



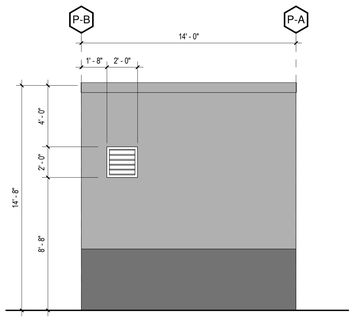
2 A-105 OVERALL ROOF PLAN - PUMP HOUSE
1/4" = 1'-0"



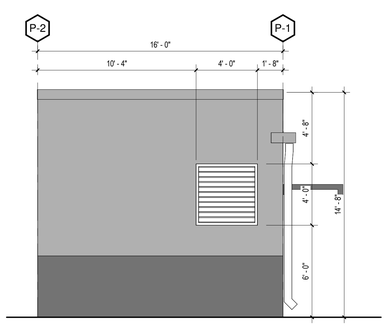
9 A-105 PUMP HOUSE PERSPECTIVE



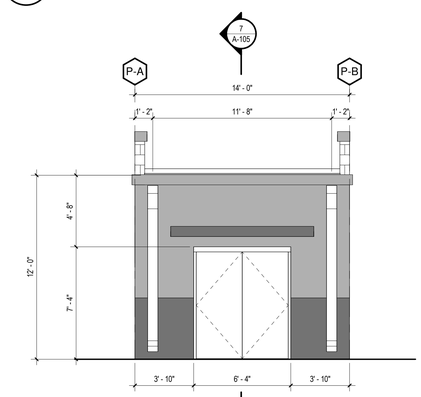
3 A-105 WEST ELEVATION - PUMP HOUSE
1/4" = 1'-0"



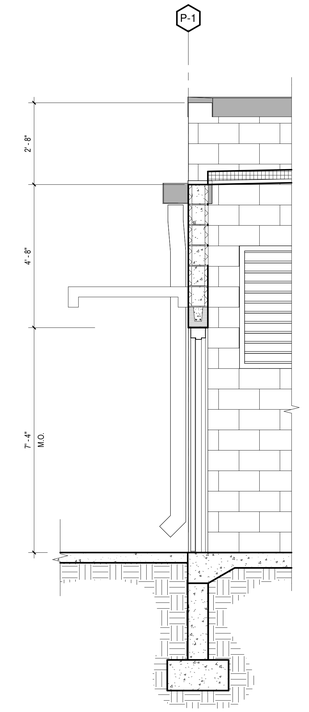
4 A-105 SOUTH ELEVATION - PUMP HOUSE
1/4" = 1'-0"



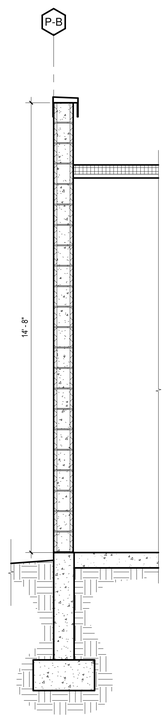
5 A-105 EAST ELEVATION - PUMP HOUSE
1/4" = 1'-0"



6 A-105 NORTH ELEVATION - PUMP HOUSE
1/4" = 1'-0"



7 A-105 GUTTER SECTION @ PUMP HOUSE
1/2" = 1'-0"



8 A-105 PARAPET SECTION @ PUMP HOUSE
1/2" = 1'-0"

PUMP HOUSE PLAN

Development By FIBER MATERIALS INC.

389 HILL STREET

389 HILL STREET
BIDDEFORD, ME 04005

10 APRIL 2026

2025252.00

RANDALL PAULSON architects

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WRIGHT-PIERCE
Engineering a Better Environment

Memorandum

Date: **6/24/2026**

Project No.: **22061N**

To: **David Galbraith, City Planner**
Nan Whitten, Office Manager

From: **Christine Rinehart, PE**
Nate Edwards, PE

Subject: **2025.10 FMI Intermat Proposed Expansion, 389 Hill Street, Final Site Plan Review**

As requested by the City of Biddeford, Wright-Pierce has reviewed the Final Site Plan Review application for the proposed 50,395 SF addition to Fiber Materials Inc.'s existing manufacturing facility. In addition to the building, the existing parking lot is proposed to be redeveloped and expanded. The project is located at 389 Hill Street in Biddeford, Maine (Map 74, Lot 7) and is located in the Airport Industrial Zone (I2).

Documents Reviewed by Wright-Pierce

- Site Plan Review Application Packet, prepared by Site Design Associates, dated June 10, 2026
- Intermat Proposed Expansion Site Plans, prepared by Site Design Associates, dated June 10, 2026 (Issued for City of Biddeford Final Site Plan Review)

Review Comments

Wright-Pierce's original comments are in standard text, followed by the applicant's response in italics, and our follow-up response in bold.

City Coordination Items

1. Coordination items for the City are indicated within the Review Comments in red font.

Checklist

See comments on attached Site Plan & Subdivision Application Drawing Checklist. Comments in the checklist have not been included in the Article VI and XI sections below.

General

1. Wetlands are proposed to be filled. Have these been permitted by the Maine DEP and US Army Corps of Engineers? Submit permit approvals to the Town when available.
   Applicant Response: A total of 1,677 sf of wetlands will be impacted by the proposal, which is below the thresholds for DEP permitting. Per the new ACOE General Permit, an ACOE pre-construction notification is not required for this project resulting in less than 4,356 square feet of wetland fill.
   WP Follow Up Comment: No further comment.
2. The boundary survey shows a "manmade drainage ditch vernal pool", which is just noted as a "manmade drainage ditch" on other sheets. This is proposed to be filled for the building addition but not noted as a wetland impact on the overall grading plan. Clarify what this is and if this fill needs to be permitted.
   Applicant Response: Since the date of the survey, further investigations were undertaken, and it has been determined that the feature is not a vernal pool.

WP Follow Up Comment: We recommend the survey be revised to reflect this to avoid confusion.

3. A vernal pool is also noted on the boundary survey to the east of the "manmade drainage ditch vernal pool", which is just noted as wetland on other sheets. Are vernal pools proposed to be filled?
   Applicant Response: As noted, the feature is a manmade drainage ditch, and impacts to it do not require a permit from the regulators.
   WP Follow Up Comment: We recommend "vernal pool" be removed from the label in the survey to reflect this to avoid confusion.
4. On previous submissions, vernal pools were called out and indicated as, "Vernal Pool (non-significant)". On the survey plans they are called out as "Vernal Pools" and on the current site plan they are not called out, and they are identified as wetlands. If the vernal pools have been determined to be "non-significant", it is recommended they be called out as "Vernal Pool (non-significant)" to limit confusion.
   Applicant Response: As indicated above, further investigations were undertaken, and it has been determined that these features are not vernal pools.
   WP Follow Up Comment: We recommend the survey be revised to reflect this to avoid confusion.

Article VI Performance Standards

Section 29 Erosion Control

1. Fill is proposed right up to the southerly property line and cut is proposed right up to the northerly property line. This does not comply with Section 29.F, which states the following: "The top of a cut or the bottom of a fill section shall not be closer than 10 feet to an adjoining property, nor shall said cut or fill exceed the three-to-one slope unless the Planning Board waives either or both requirements upon the applicant's demonstration, certified by a Maine licensed professional engineer (P.E.), that a steeper slope, whether or not closer than 10 feet to the adjoining property, is stable, will not result in excessive downstream erosion or sedimentation, nor cause any additional adverse impact on the adjoining property." The applicant is requesting a waiver of this requirement, which appears reasonable.
   Applicant Response: A waiver was granted by the planning board on May 20, 2026.
   WP Follow Up Comment: Addressed.

Section 41 Industrial Facilities and Related Uses

1. Prior to any final approval by the Biddeford Planning Board all state and federal permits must be received and reviewed by the City; modification to plans required by the additional permits must be indicated on the final plans. Submit permit approvals when available.
   Applicant Response: The only outstanding permit related to the site plan is a stormwater permit from DEP. We do not expect any significant revisions to the plan as a result of the DEP review. We suggest that if the planning board is so inclined, this could be a condition of approval.
   WP Follow Up Comment: We recommend this be a condition of approval.

Section 49 Off-Street Parking and Loading

1. Provide parking calculations on the plan showing how many parking spaces are required and proposed.
   Applicant Response: A parking calculation has been included on the site plan. The code requires 1 space per employee on the maximum working shift, which would be 102 spaces, but this does not include spaces for contractors, visitors, and motorcycles, which are incorporate into the site plan. It also does not consider the requirements for a shift change when second shift employees arrive while the first shift is still on site. Additionally, the parking includes additional spaces for a phase 2 project in the future, along with the associated stormwater infrastructure.

WP Follow Up Comment: Addressed.

2. Provide comment on how the parking lot meets the requirements of § VI-49A.10. Large parking lots covering more than 1/4 acre shall be provided with deciduous shade trees designed to reduce solar heating in the summer and provide for windbreaks. All parking or outdoor storage areas shall be separated from a public road by a landscaped buffer strip at least 15 feet wide, planted with shade trees a minimum two inches diameter at breast height and dense medium height shrubs to screen parked vehicles.
   Applicant Response: Given the layout of the parking adjacent to the building, there is no concern relative to the lack of windbreaks. The stormwater runoff will be cooled significantly in the chamber system located below grade. Given the layout of the below grade chamber system there is little opportunity to provide shade trees. Shade trees are provided outside the footprint of the chamber system at the west end of the lot. Plantings are now shown between the existing and proposed parking and the public way.
   WP Follow Up Comment: We agree that shade trees have been incorporated to the extent possible, given the constraints of the stormwater system and proximity to the property line. No further comment.

Section 61 Stormwater Management

1. Provide Town with the Maine DEP stormwater permit approval when available.
   Applicant Response: Acknowledged. We request that this be a condition of approval if the planning board is so inclined.
   WP Follow Up Comment: We recommend this be a condition of approval.
2. Provide comment on how the stormwater design meets the requirements of § VI-61A.1. It appears that peak runoff rates are mitigated but there is an increase in volume at AP2.
   Applicant Response: As we believe the peer review engineer is aware, whenever vegetated areas are converted to impervious surface, there is an increase in the peak rate and volume of stormwater runoff. This section of the city code is poorly written, and the vast majority of large and small development projects in the city that involve the conversion of vegetated areas to impervious areas involve an increase in the volume of runoff from the development sites. DEP chapter 500 regulations require stormwater detention for larger projects; i.e. reducing the post-development rate of runoff from development sites, but not volume. The project is designed in accordance with those regulations. This section of the code states that stormwater systems shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff. Our design meets this standard. If staff believes a waiver of this standard is required, please consider this a request for the waiver. However, this would mean that most site plan review and subdivision projects in the city would require the waiver as well. The planning staff and board have not typically required that such a request be made for projects under review.
   WP Follow Up Comment: We understand that increased impervious area will increase the runoff volume due to less infiltration, unless a stormwater system specifically designed to infiltrate the treated runoff is proposed. A system can be designed to provide detention to mitigate the peak rate, while still providing some infiltration if not lined. The proposed system is lined, which would not allow for infiltration. Please clarify whether infiltration was evaluated for this project and explain why it was determined to be infeasible. Is the system lined to prevent groundwater intrusion into the R-tanks? If infiltration is not feasible or is proposed to the greatest extent possible, we believe that would meet the intent of the rule. See related response to the following comment.
3. Provide comment on how the stormwater design meets the requirements of § VI-61C. Stormwater runoff systems should be designed to facilitate aquifer recharge when it is advantageous to compensate for groundwater withdrawals or reductions in infiltration. Conversely, designs should avoid recharge where

groundwater effects might be harmful. Was infiltration considered? Is the liner proposed to mitigate groundwater inflow to the system?
Applicant Response: Infiltration was not considered because DEP chapter 500 rules prohibit infiltration of stormwater from large impervious areas and from vegetated and roof areas where manufacturing occurs, there is no aquifer under the site that would benefit from recharge, and there will be no withdrawal of groundwater.
WP Follow Up Comment: Chapter 500 does not broadly prohibit infiltration of stormwater from large impervious areas; rather, it establishes criteria in Appendix D under which infiltration is permitted. While Chapter 500 places restrictions on infiltration of roof runoff from buildings where manufacturing or processing occurs, the response does not explain why those restrictions apply to the proposed design, particularly since the roof runoff is proposed to receive stormwater treatment prior to discharge. Please provide additional explanation as to why groundwater recharge would not be advantageous at this location. Part of the reason for providing a system with infiltration is to help make up for the reduced infiltration caused by increased impervious area. See related comment response above.

4. We recommend reviewing the plans and model to confirm they match. We found a few inconsistencies that should be revised:
    a. The outlet of FI-3 for Filterra F3 was modeled as a 6" storm drain but the plans call for a 24" outlet.
    Applicant Response: It is our opinion that this node is modeled correctly. The 6" outlet is for the outlet from the filtered runoff through the treatment media. The 24" outlet is the overflow outlet.
    WP Follow Up Comment: After further review, we agree. Addressed.
    b. The outlet of FI-3 for Filterra F5 was modeled as an 18" storm drain but the plans call for a 24" outlet.
    Applicant Response: The HydroCAD model has been corrected to include the 24" outlet.
    WP Follow Up Comment: Addressed.
    c. Filterra F6 ponding storage was modeled as a 4'x'8 area but the plans note it as 4'x6'.
    Applicant Response: The detail has been corrected to indicate a 4'x8' Filterra vault in this location.
    WP Follow Up Comment: Addressed.
    d. The Post Development Drainage Plan shows subcatchment 2.7 draining to pond C4. Based on the routing diagram in HydroCAD, it appears this should be C8.
    Applicant Response: The C4 label on the north side of the drainage plan was a drafting error and has been removed. Catch basin CB-4 is a secondary drainage inlet in the case that snow plowing along the access drives blocks runoff from entering the adjacent vegetated swale.
    WP Follow Up Comment: Addressed.
5. The table of contents under Supporting Data and Calculations of the Stormwater Management Report does not match what is appended. For example, the table of contents says Appendix D is the Inspection & Maintenance Plan, but this is actually Appendix E. Appendix D is the USDA Soil Map.
Applicant Response: The table of contents has been revised.
WP Follow Up Comment: Addressed.
6. We offer the following comments on the Inspection and Maintenance Plan:
    a. The Filterra bioretention systems should be described within the body of the Plan. They are only referenced in the initial introduction and on the checklist.
    Applicant Response: A paragraph has been added referencing the manufacturer's Operation and Maintenance manual, which has been included in the revised I&M plan for the project.
    WP Follow Up Comment: Addressed.

b. The Plan should reference Part II, Chapter 34 Environment, Article VI Post-Construction Stormwater Discharge of City Code.
Applicant Response: The reference has been added to the document.
WP Follow Up Comment: Addressed.

c. The 5-year recertification process with Maine DEP should be referenced within the Plan.
Applicant Response: This was included in the "Recertification Requirement" section of the I&M plan.
WP Follow Up Comment: Addressed.

d. It should be made clearer who is being referred to as the "Department" throughout the Plan. It should be clearly defined what the requirements are for documentation submitted to the City Engineering Department versus the Maine Department of Environmental Protection.
Applicant Response: This has been clarified in the document.
WP Follow Up Comment: Addressed.

e. The Plan should note that annual certifications be provided to the Engineering Department on or by March 1 of each year. It is recommended that the required annual certification form [Annual Stormwater Management Facilities Certification Form (Appendix 1 of the Post-Construction Stormwater Management Ordinance), Attachment 2 of Chapter 34] be included in the Plan.
Applicant Response: The information has been added to the I&M plan for the project.
WP Follow Up Comment: Addressed.

Article XI Site Plan Review, Site Plan Design Criteria

Drainage

1. Drainage comments are included in Section 61 Stormwater Management comments above.
Applicant Response: No response.
WP Follow Up Comment: See comments above.
2. The applicant is requesting a waiver for § XI-II.-5B.1.e.3 for the creation of slopes of more than 2:1 without retaining walls, which appears reasonable.
Applicant Response: The planning board granted the waiver on May 20, 2026.
WP Follow Up Comment: Addressed.

Utilities

1. A private pump station is proposed. Based on a cursory review, we offer the following comments:
    a. Provide design and peak flows. Confirm whether flow from the potential future expansion has been considered in the sizing of the pump station.
    b. Provide recommended model of pumps.
    c. Confirm pump capacity operating requirements including pumping rate and head. Provide pump curve.
    d. Confirm pump control elevations are set appropriately to not short cycle the pumps.
    e. It is recommended to locate the valves outside of the operating range of the pump station for ease of maintenance
    f. Where will the pump power and signal cables be terminated? Will this be routed underground?
    Applicant Response: The peak design peak flow as noted on the updated drawings is 65 gpm at 15 ft TDH. This was based on the first shift at 102 employees. We typically provide the design flow and static head on the drawings, along with relevant elevations, and let the general contractor and vendor provide submittals for review. The submittals will include pump curves, brand, model, control specifications, etc. We expect that if the phase 2 expansion moves forward an analysis of

the pumps provided will be undertaken, and adjustments to the floats/sensors made if necessary. The pump control elevations are set to provide five minutes of run time approximately four cycles per hour at peak flow.
We are comfortable with the layout of the pumps as shown on the drawings. This is an industrial setting and we do not expect the need for frequent maintenance such as that associated with a municipal pump station. The power and cables will likely be located underground. The control panel will be located at the pump station along with a strobe and alarm, and an alarm will be located inside the building. The electrical design is ongoing, and as is the case with the projects of this magnitude, the development of those plans lags behind the site drawings.
WP Follow Up Comment: Gravity sewer was extended from SMH-2 to the pump house. What sewer flow is contributing from the pump house?
WP Follow Up Comment: Coordinate with City Engineering Department regarding the pump station, including the following City comments:

- The City would like to review the selected pumps to be installed, the layout of the station, and any valving proposed.
- The City requests a valve be inserted exterior of the pump station that could be used to throttle down or shut off the flow if any unforeseen conditions should arise.
- The wetwell should be adequately sized to hold the proposed flow in case of both a need to throttle the station back or any power outages; however, it is assumed standby power will be provided to the pump station.
- The City would like to review the pump submissions to be provided prior to installation of the pumps and station, additional data may need to be provided.

2. We recommend a minimum slope on all storm drain of 0.5% or greater. There are several storm drains with slopes less than this. Is it feasible to increase the slope?
   Applicant Response: We are comfortable with the slopes for the storm drains shown on the drawings. Given the need to move stormwater across the site, steeper slopes are not viable.
   WP Follow Up Comment: No further comment.
3. The following items must be specified in application narrative and on the plan, per § XI-II.-5B.2.e:
   a. Rated normal capacity and gallons per minute at prime use time.
   b. Rated maximum capacity and gallons per minute at prime use time.
   c. Residual pressure of proposed tap line.
   Applicant Response: The cover letter reflects the domestic peak flow based on the fixture counts of 100 gpm. A hydrant flow test was conducted in January of 2025. The designers are working closely with Maine Water in the development of plans for the domestic water supply. Boosters will be provided. Maine Water has verified their ability to serve the project. Our designers are unsure of what prime use time is, nor do we understand the relevance of this requirement. The system is being designed by professional engineers in conjunction with Maine Water. Based on our experience in the city of Biddeford, we have not seen this information in planning board applications. If a waiver of this is required, please consider this a request for the waiver.
   WP Follow Up Comment: Questions regarding relevance of City Code should be directed to the Code Enforcement Officer.

Structural Layout and Design

1. Fire protection
    a. Coordinate with the Fire Department and submit coordination showing they approve of the proposed design.
    b. Submit vehicle turning diagrams showing emergency vehicle circulation throughout the parking lot and around the building for the City of Biddeford's largest truck.
    c. Whenever gas, either natural or propane or other type, is proposed to be used on-site, a separate external shutoff valve shall be provided for each building on the site. The valve location shall be indicated on the plat and approved in writing by the fire chief/fire marshal.
    Applicant Response: Coordination with the fire department is ongoing. They were given several opportunities to review the plan previously and no comments were received. We will provide the most recent documents to them. A plan with the BFD aerial apparatus is included with this response, and demonstrates the access is appropriately designed. The fire department will be consulted regarding the valve location and it will be shown on the final plan submission to the appropriate authorities, including the SFMO and city fire and codes departments. If not resolved by the planning board meeting, we request the planning board consider this as a condition of approval.
    WP Follow Up Comment: Fire Department to confirm they do not have concerns.
2. External lighting
    a. Indicate the actual model and options intended to be used on the light fixture specification sheets. We are particularly interested in the BUG rating of each fixture for evaluation of uplighting and glare.
    b. The northwesterly entrance is not illuminated. Per § XI-II.-5B.4.k.2 entrances from roadways should be illuminated.
    Applicant Response: This information is provided in Attachment 8.
    WP Follow Up Comment: Addressed.

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST *LAST REVISED: 11/26/2024*

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	INTERMAT PROPOSED EXPANSION
Planning Board # (if available):	2025.1
Applicant Name/Info:	FIBER MATERIALS, INC.
Submittal #/Type (Prelim/Final):	FINAL
Submittal Date:	10-Jun-26

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE			WP REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	6/24/2026 COMMENT
1	**GENERAL PLAN REQUIREMENTS**					
A	Drawing specific legends (linetypes, hatches, etc.)	YES	ALL SHEETS		Yes	
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	YES	ALL SHEETS		Yes	
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks	YES	ALL SHEETS		Yes	
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	YES	ALL SHEETS		Yes	
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES	ALL SHEETS		Yes	
2	**COVER SHEET**					
A	Project Name & Property Address	YES	COVER		Yes	
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES	COVER		Yes	
C	Site Location Map	YES	COVER		Yes	
D	Sheet Set List of Drawings	YES	COVER		Yes	
E	Tax Map and Lot ID	YES	COVER		Yes	
F	Zoning & Shoreland Zone Information	YES	COVER		Yes	
G	Existing Use Description	YES	COVER		Yes	
H	Proposed Use Description	YES	COVER		Yes	
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES	COVER		Yes	
J	Name of Drainage Watershed	YES	COVER		Yes	
K	Within the MS4 Urbanized Area (Yes/No)	YES	COVER		Yes	
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES	COVER		No	See memo for comments regarding clarification of wetlands/vernal pools
M	Within the 100-year Flood Zone (Yes/No)	YES	COVER		Yes	
N	Public Road Proposed (Yes/No)	YES	COVER		Yes	
O	Private Road Proposed (Yes/No)	YES	COVER		Yes	
P	Public Sewer Connection (Yes/No)	YES	COVER		Yes	
Q	Public Storm Drain Connection (Yes/No)	YES	COVER		Yes	
R	Limits of Disturbance in square feet and acres	YES	COVER		Yes	
S	Pervious Land Cover square footage, existing and proposed	YES	COVER		Yes	
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES	COVER		Yes	
U	Building Roof square footage, existing and proposed	YES	COVER		Yes	
V	Assigned Planning Board Number	YES	COVER		Yes	
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	NARRATIVE	NOT IN FLOOD ZONE	No	This is for all projects. Cut/fill is not noted on the plan. If in floodzone, which we understand this project is not, it should be broken out into flood zone vs the whole site
3	**EXISTING CONDITIONS PLAN**					
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES	C-100		Yes	
B	Property & Right-of-Way Lines	YES	C-100		Yes	
C	Boundary line information (bearings, distances, etc.)	YES	BOUNDARY SURVEY		Yes	
D	Property pin and monumentation locations	YES	BOUNDARY SURVEY		Yes	
E	Existing easements with proper ownership identified	YES	C-100		Yes	
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES	C-100		Yes	
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-100		No	See memo for comments regarding clarification of wetlands/vernal pools
H	100-year Flood Zone Limits & Elevation	YES	C-100		Yes	
I	Existing contours with adequate contour labelling; minimum 1' contour interval	YES	C-100		Yes	
J	Existing building FFEs annotated	YES	C-100		Yes	
K	Spot elevations for all tie-in locations (curb cuts, property line)	YES	C-100		Yes	
L	Existing buildings & structures	YES	C-100		Yes	
M	Existing pavement areas & number of parking spaces	YES	C-100		No	Number of existing parking spaces not noted on the plan
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES	C-100		Yes	
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES	C-100		Yes	
P	Existing signage and striping	YES	C-100		Yes	
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES	C-100		Yes	
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-100		Yes	
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-100		No	Note the cardinal directions of pipes
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	YES	C-100		Yes	
U	Location of any borings, drinking wells, and monitoring wells	YES	C-100		Yes	
4	**SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN**					
A	Limits-of-disturbance outlined and acreage annotated	YES	C-101		Yes	
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-101		Yes	

C	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.	Yes	
D	Callout existing site features to be demolished/removed/replaced	YES	C-101		Yes	
E	Callout existing utilities to be demolished/removed/abandoned-in-place	YES	C-101		Yes	
F	Hatch existing buildings and pavement to be removed	YES	C-101		Yes	
G	Construction Entrance location(s)	YES	C-303		Yes	
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES	C-303		Yes	
I	Stockpile and staging area(s) identified (with proper perimeter control)	YES	C-303		Yes	
J	Inlet protection location(s)	YES	C-303		Yes	
K	Note requiring contractor to implement dust control measures throughout construction	YES	C-303		Yes	
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	YES	C-101		Yes	
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	YES	C-303		Yes	
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed	YES	C-303		N/A	
5	**SITE PLAN/SUBDIVISION PLAN**					
A	Partial Site Plans needed for any viewport scale greater than 1"=20'	N/A			Yes	While there are plans with scales larger than this with no partial plans, we think they are legible and acceptable
B	Existing property and right-of-way lines	YES	C-200/C-201		Yes	
C	Proposed subdivision lot lines and labels	N/A		NOT A SUBDIVISION PROJECT	N/A	
D	Required Zoning Setbacks shown with dimensions and annotation	YES	C-200/C-201		Yes	
E	Bulk requirement summary table (zoning/parking calculations)	YES	C-200/C-201		Yes	
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-200/C-201		Yes	
G	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.	N/A	
H	Proposed building outlines, door entrances and loading docks	YES	C-200/C-201		Yes	
I	Proposed building labels	YES	C-200/C-201		Yes	
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	N/A			N/A	
K	Proposed parking and accessible parking locations; annotate parking space counts	YES	C-200/C-201		Yes	
L	Proposed signage, parking striping, and traffic striping	YES	C-200/C-201		Yes	
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	YES	C-200/C-201		Yes	
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES	C-200/C-201		Yes	
O	Proposed landscaping; detailed landscaping design should be shown on separate plans	YES	C-200/C-201		Yes	
P	Designated snow storage areas	YES	C-200/C-201		Yes	
Q	Proposed dumpster locations and trash removal access	YES	C-200/C-201		Yes	
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	YES	C-200/C-201		Yes	
S	Radial dimensions for all curbs, landscaped islands, sidewalks	YES	C-200/C-201		No	Curb within the parking areas are not labeled
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	N/A	C-200/C-201		N/A	
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	N/A		NO ROADS PROPOSED	N/A	
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	N/A		NO ROADS PROPOSED	N/A	
W	Planning Board signature block for final recording	YES	C-200		Yes	
6	**GRADING PLAN**				Yes	
A	Partial Grading Plans needed for any viewport greater than 1"=20'	YES	C-302		Yes	While there are plans with scales larger than this with no partial plans, we think they are legible and acceptable
B	Limits-of-disturbance outlined and acreage annotated	YES	C-300/C-301		Yes	
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	YES	C-300/C-301		Yes	
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	YES	C-300/C-301		Yes	
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	YES	C-300/C-301		Yes	
F	Detailed grading for all ditches, swales, outfalls, and riprap	YES	C-300/C-301		Yes	
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	YES	C-300/C-301		Yes	
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations	YES	C-300/C-301		No	Show spot elevation at tie in points with existing pavement
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-300/C-301		Yes	
J	100-year Flood Zone Limits	N/A		PROPERTY NOT IN FLOOD ZONE.	N/A	
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)	YES	C-300/C-301		Yes	
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	YES	C-300/C-301		Yes	
M	Proposed % slope arrows for all ADA parking spaces and sidewalks	YES	C-301		No	Not on the plan
N	Proposed longitudinal % slope arrows for drainage ditch centerlines	YES	C-301		No	Not on the plan
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	YES	C-301		No	Not on the plan
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	NARRATIVE	NOT IN FLOOD ZONE	No	This is for all projects. Cut/fill is not noted on the plan. If in floodzone, which we understand this project is not, it should be broken out into flood zone vs the whole site
7	**ROAD PROFILES (if public/private road proposed)**	N/A		NO ROADS PROPOSED		
A	Existing surface; dashed and screened				N/A	
B	Proposed surface; continuous and bold				N/A	
C	Road design speed must be clearly identified				N/A	
D	Corresponding centerline stationing and curve data annotation				N/A	
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37				N/A	
F	Clear annotation if proposed road will be public or private				N/A	
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance				N/A	
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads				N/A	

8	**UTILITY PLAN**					
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES	C-201		Yes	
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES	C-201		Yes	
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-201		No	Add cardinal directions
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES	C-201		Yes	
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-201		Yes	
F	Proposed storm culverts, outfalls, and riprap locations and sizes	YES	C-201		Yes	
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-201		No	Add cardinal directions
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-201		Yes	
I	Flow directional arrows for storm & sewer pipes	YES	C-201		Yes	
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES	C-201		Yes	
K	All storm drains must be sized to convey the 25-year storm	YES	C-201		Yes	
L	Sewer force main sizes and invert elevations	YES	C-201		Yes	
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.	YES	C-201		No	See comments in review memo. Note cardinal directions
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells	N/A		THESE ITEMS NO PROPOSED	N/A	
O	Proposed water sizes labelled	YES	C-201		Yes	
9	**UTILITY PROFILES**					
A	Utility profiles required for **all** gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins	YES	C-201		N/A	
B	Existing surface; dashed and screened	YES	C-201		N/A	
C	Proposed surface; continuous and bold	YES	C-201		N/A	
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-201		N/A	
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-201		N/A	
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	YES	C-201		N/A	
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	YES	C-201		N/A	
10	**DETAILS**					
A	Road section detail, including pavement/gravel depths & cross slopes	N/A		NO ROADS PROPOSED	N/A	
B	Sidewalk, paver, crosswalk, and any other pavement section details	YES	C-400 THRU C-404		Yes	
C	Pavement sawcut & shiplap details	YES	C-400 THRU C-404		Yes	
D	Utility trench/backfill detail	YES	C-400 THRU C-404		Yes	
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES	C-400 THRU C-404		Yes	
F	Signage, striping, and ADA details	YES	C-400 THRU C-404		Yes	
G	E&S notes and details	YES	C-400 THRU C-404		Yes	
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES	C-400 THRU C-404		Yes	
I	Storm outfall & riprap details	YES	C-400 THRU C-404		Yes	
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	YES	C-400 THRU C-404		Yes	
K	Pump station, grease trap, oil-water separator, septic, drinking well details	YES	C-400 THRU C-404		Yes	
L	Conduit section details	YES	C-402		Yes	
11	**LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS**					
A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	YES	C-201/PHOTOMETERIC PLAN		Yes	
B	Landscaping & lighting details	YES	L-1/L-2		No	Include detail for lightpole bases
12	**DOCUMENTS/REPORTS/CALCULATIONS**					
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	Submitted			For Town to Review	

B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	YES	STORMWATER REPORT		No	See memo comments regarding stormwater
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)					
D	A Performance Guarantee Cost Estimate utilizing Planning's template				Coordinate with Town	
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	Yes			Yes	
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	YES			Yes	
K	Public sewer pump station sizing calculations and maintenance plan	YES			N/A	
M	Grease trap sizing calculations	N/A		NO GREASE TRAPS PROPOSED	N/A	
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A		NO HOA PROPOSED	N/A	
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals			NONE REQUIRED	Yes	

CITY OF BIDDEFORD

Planning and Development Department

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

PLANNING BOARD STAFF REPORT

TO: Chair McCurry and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, City Planner / Director of Planning & Development

DATE: June 23, 2026

RE: Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54 parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District.

MEETING DATE: July 1, 2026, 6:00 PM

1. INTRODUCTION

This "Preliminary Plan" application is being presented by Abby Henderson of Archetype Architects and Steve Bushey, PE and Project Manager for Gorrill Palmer Engineers, and Agents for 41 Main, LLC. (Bateman Partners, LLC.), collectively referred to as "Applicant or Applicants". This is the first time this application is being reviewed by the Planning Board. The proposal is seeking approval of a 54 parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District. Parking lots of this nature are listed as "permitted uses" within the district. It should be noted that Applicant narratives are shown in italics.

As outlined in the development application "*The proposed Phase 1 scope of work at 41 Main Street in Biddeford includes the demolition of the existing structure, including all exterior walls, roofing, and associated building systems. The existing concrete foundation will remain in place. In accordance with the attached plans, the site will be reconfigured to accommodate 54 parking spaces".* Prior to Planning Board review, City Staff reviewed a number of different site plans which have now been modified to the plans being presented at this time. Prior plans included three (3) proposed curb-cuts, including one on Main Street and two (2) on Emery Street. Staff were not supportive of the original submitted plans as we believed they posed safety issues, particularly on Main Street, or he 2 proposed on Emery Street were excessive to the site's needs. The plans have been modified to reduce the proposed curb0-cuts to a single curb-cut on Emery Street. The landscape plans have also been greatly improved since the original submittals.

Since the original Planning Board application submitted on May 13, 2026, the below modifications were "*made in response to comments and recommendations provided by City staff during their review of the application materials and are intended to improve site functionality, traffic circulation, accessibility, and overall site design*".

1. Additional landscaped areas have been incorporated throughout the site to enhance the visual character of the development and provide increased buffering along site boundaries.

2. *The previously proposed vehicular access point from Main Street has been eliminated in response to concerns regarding potential traffic congestion and vehicle queueing. As a result, the proposed curb cut along Main Street has also been removed.*
3. *The site's circulation pattern has been revised to direct all vehicular traffic through Emery Street, establishing a single point for entry/exit and allowing all circulation movements to occur internally on the site. a. To accommodate the grade changes associated with the revised circulation pattern, a modular block retaining wall is proposed along the Main Street frontage. The wall will incorporate landscaping and a safety railing, enhancing both site aesthetics and pedestrian safety.*

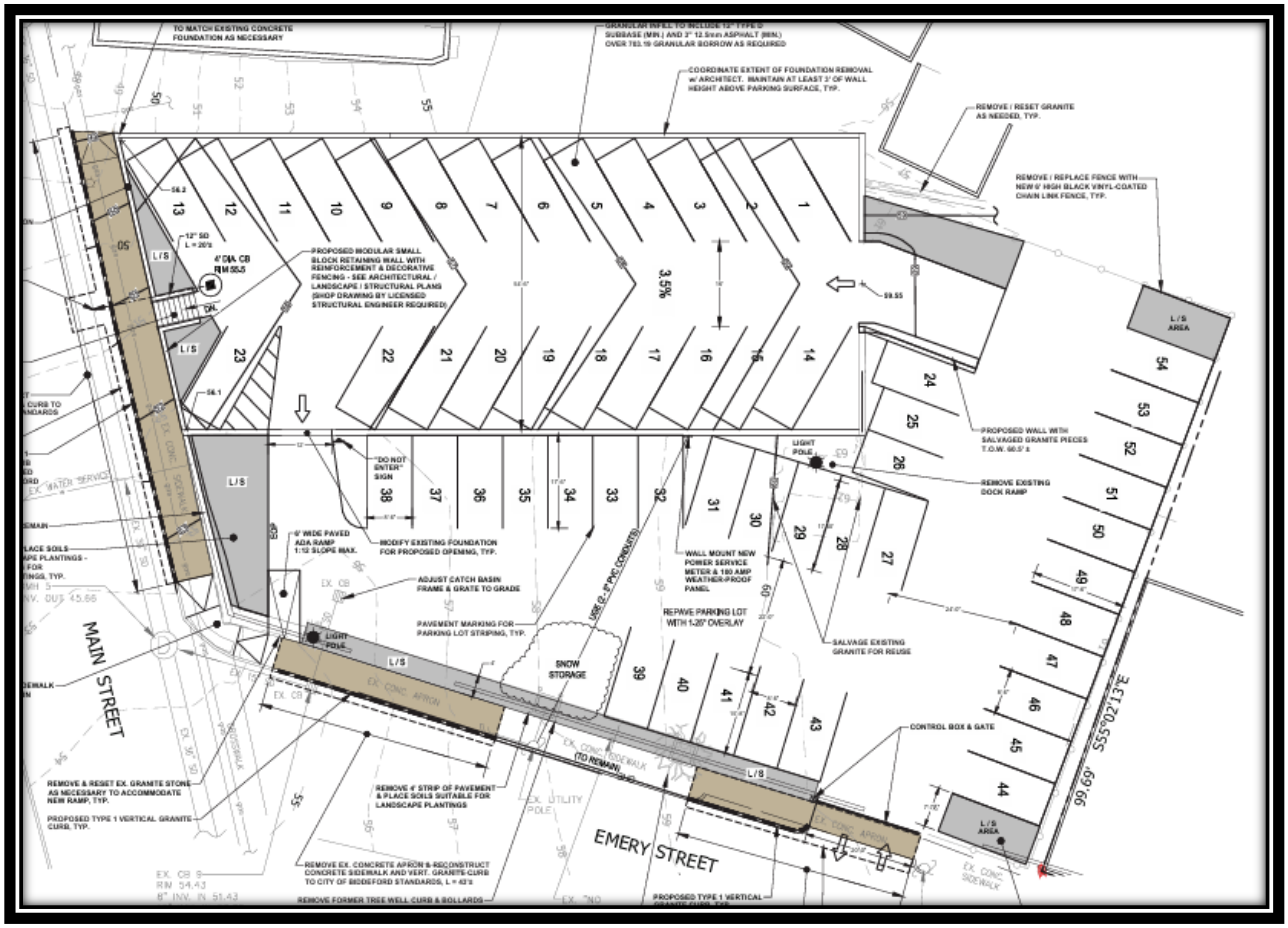
4. *A paved ADA-accessible pedestrian connection has been added between the parking area and the existing sidewalk along Emery Street. This improvement provides a more direct and accessible route for pedestrians, eliminating the need to travel to the far end of the site to access the public sidewalks. As a result of the revisions described above, the proposed parking count has been reduced from 57 spaces to 54 spaces.*

41 Main Street – Existing Conditions

RE: Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54-parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District.

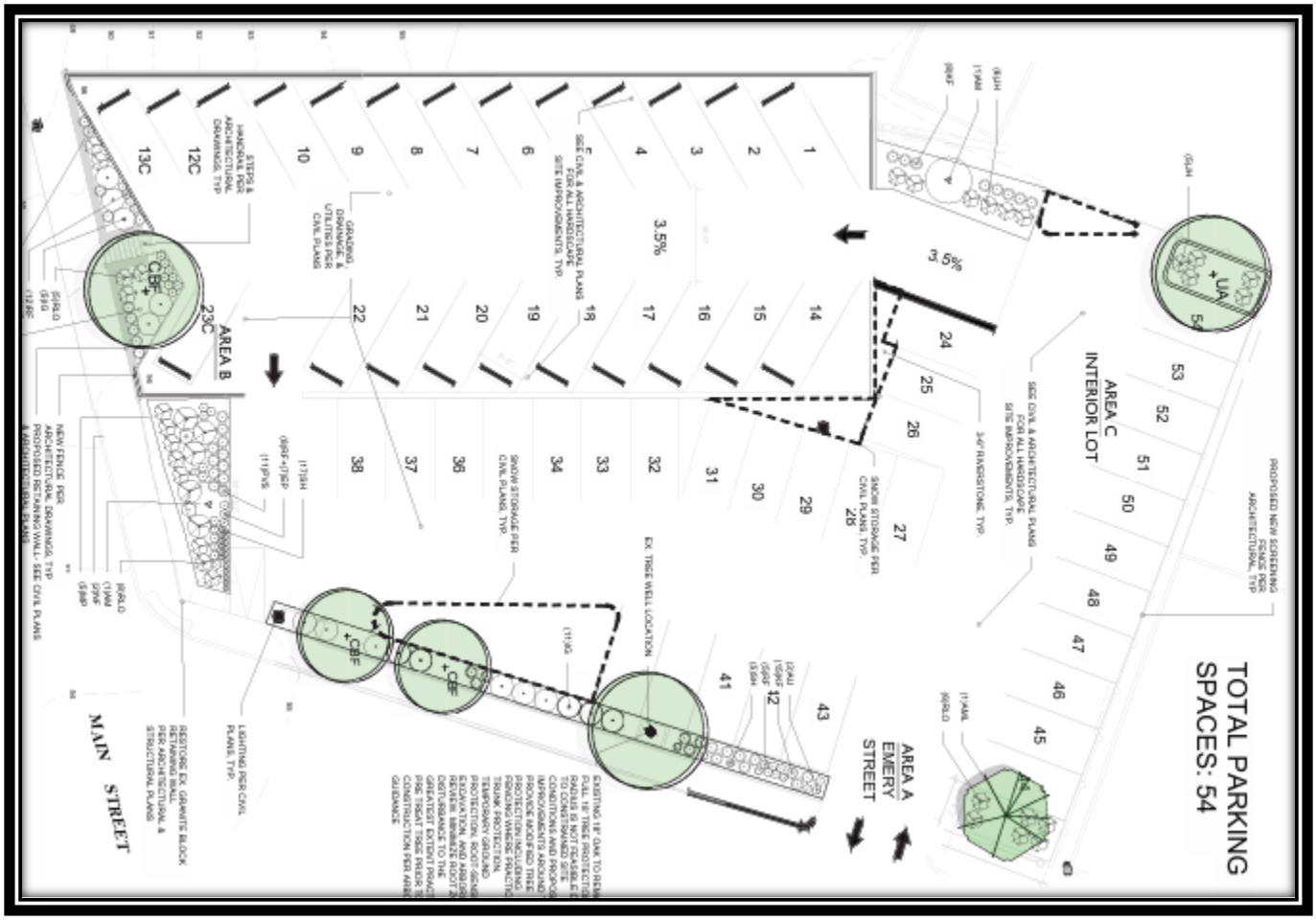
MEETING DATE: July 1, 2026, at 6:00 PM

41 Main Street – Existing Conditions



RE: Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54-parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District.

MEETING DATE: July 1, 2026, at 6:00 PM



41 Main Street – Private Parking Lot – Landscape Plan

RE: Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54-parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District.

MEETING DATE: July 1, 2026, at 6:00 PM

41 Main Street – Proposed Main Street Frontage Conceptual Image

41 Main Street – Proposed Main Street Conceptual Image Looking Down Towards Site (on right)

41 Main Street – Proposed Main Street Conceptual Image Looking Up Towards Site (on left)

RE: Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54-parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District.

MEETING DATE: July 1, 2026, at 6:00 PM

Future Phase II – 2nd Conceptual Image Including Future Building Looking Down Towards Site

Future Phase II – 1st Conceptual Image Including Future Building as Viewed from Main Street

As presented in the development application, above and within the Planning Board application are *"conceptual drawings illustrating potential Phase 2 improvements at 41 Main Street. These concepts will be further refined and submitted under a separate future planning application. The drawings are included at this time to provide the Planning Board with contextual information regarding the anticipated*

long-term redevelopment vision for the property.". It should be noted that the Applicants are not seeking approval of the future mixed use building (parking and residentail units) at this time. It should further be noted that the future conceptual project may never come to fruition. At this time the Applicants are seeking approval of a 54 parking stall surface parking lot.

2. PROJECT DATA/INFORMATION

1.		Applicant:	Abby Henderson Archetype Architects 48 Union Wharf, Portland ME 04101
2.		Owner of Property:	41 Main LLC (Bateman Partners, LLC) 72 Commercial Street, Suite #2 Portland, Maine 04101
3.		Agent:	Abby Henderson Archetype Architects 48 Union Wharf, Portland ME 04101 Steve Bushey, P.E. Gorrill Palmer Consulting Engineers 300 Southborough Drive, Suite 200 South Portland, Maine 04106
4.		Surveyor:	Art Colvin Trillium Engineering 251 US Route 1, Suite O-2 Falmouth ME 04105
5.		Project Location:	41 Main Street, Biddeford, ME
6.		Project Tax Map #/Lot #:	Tax Map 41, Lot 138
7.		Lot Size:	0.52-acres
8.		Base Zoning:	Main Street Revitalization District – 1 (MSRD-1) Zoning District
9.		Overlay Zoning:	N/A
10.		Existing Use:	Commercial Building and private parking lot
11.		Proposed Use:	54 parking stall private parking lot
12.		Approvals Required:	Site Plan
13.		Uses in the Vicinity:	Mixed Use / Commercial / Residential
14.		Waivers Needed:	a. None
15.		Waivers Granted:	a. None
16.		Other Non-City Permits Required:	N/A
17.		A:Fees Paid:	Preliminary Plan Fees Paid

18.		Planning Board Review History: Preliminary Plan Review: 06-01-2026	

3. REVIEW PROCESS

Per City Ordinance, this application is subject to Site Plan Review (City of Biddeford, Code of Ordinances, Part III - Land Development Regulations, Article XI – Site Plan Review). The review process for this project involves, at minimum, Preliminary Plan Review, and ultimately Final Plan review / approval.

4. GENERAL REVIEW COMMENTS:

- **APPLICATION COMPLETENESS:** This application is for site plan preliminary plan review, so the primary purpose of this memorandum is to introduce the project to the Board, with the desire to identify items the Board believes are important and necessary for the continued review of this plan / project and ultimately Final Site Plan Approval.

- **ZONING:** The subject property is zoned Main Street Revitalization District – 1 (MSRD-1) Zoning District and "off-street parking lots and commercial parking garages" are listed as a permitted use within the district. The MSRD-1 zoning district has zero (0) front, side and rear setback standards so the application conforms to these standards.

- **REVIEW STANDARDS:**

  Staff found the Preliminary Plan Application to satisfy City site plan requirements.

- **WAIVERS:** No waiver requests are currently being sought.

5. STAFF REVIEW COMMENTS:

1) The project narrative indicates a guardrail is being proposed on the site, but it is not identified on site or landscape plans. Revised plans shall show the location of all proposed guardrails and details of such. Staff recommend any proposed guardrails be decorative and functional.

2) Staff recommend the proposed illustrative plans include renderings of the site with proposed landscaping at shown at the sizes proposed to be installed so the Board may get an accurate visual of the site upon the completion of construction.

3) The project is proposing to demolish an existing building within the Main Street corridor. Staff recommend that some form of public art, with collaboration with the Biddeford Art Commission, be incorporated/installed within the proposed site frontage to add visual interest to the property.

4) Revised plans shall include details, including dimensions and materials, of the stairs and retaining wall being proposed along Main Street.

5) Plans shall also include details, including materials and design, of the proposed fencing along Main Street.

6) Revised plans/submittals shall include dimensions of the proposed parking stalls and confirm that they meet City parking standards.

6. STAFF RECOMMENDATION

Staff are supportive of the proposed project and recommend the Planning Board granting the Preliminary Site Plan Approval.

Planning Board Sample Motions:

A. Motion to Approve: I motion to APPROVE Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54 parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District..

B. Motion to Deny I motion to DENY Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54 parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District, for the following reasons:

1) _____.
2) _____.
3) _____.

C. Motion to Table: I motion to TABLE Case # 2026.25 Preliminary Site Plan Review for 41 Main, LLC for a 54 parking stall parking lot located at 41 Main Street (Map 41 Lot 138) within the Main Street Revitalization District – 1 (MSRD-1) Zoning District, for the following reasons:

1) _____.
2) _____.
3) _____.

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

Type of Application:

__ Shoreland Zoning Permit ✓ Site Plan Review __ Extraction
__ Conditional Use Permit __ Subdivision __ Private Way
__ Other: _____

Applicant Information:

Name: Abby Henderson, Archetype Architects
Mailing Address: 48 Union Wharf, Portland, ME 04101
Telephone: [redacted]

What is your legal interest in the property? Applicant on Behalf of Owner
__ Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:

Name: 41 Main LLC
Mailing Address: 72 Commercial Street, Suite 2, Portland ME 04101
Telephone: [redacted]

Agent's Information:

Name: Abby Henderson, Archetype Architects
Mailing Address: 48 Union Wharf, Portland, ME 04101
Telephone: [redacted]

Engineer/Surveyor's Information:

Name: Civil Engineer: Steve Bushey Gorrill Palmer Surveyor: Art Colvin Trillium Engineering
Mailing Address: 300 Southborough Dr #200 South Portland ME 04106 251 US-1 Suite O-2 Falmouth ME 04105
Telephone: [redacted]

Project Location and Lot Information:

Street Address: 41 MAIN STREET, BIDDEFORD, ME 04005 Drainage Watershed: MS4 AREA
Tax Map: 41 Lot: 138
Current Zoning: MSRD1 Shoreland Zoning: _____
Size of Lot: 0.52 (✓)acres ( )s.f. Lot Frontage: 0
Existing Use of Property: SELF STORAGE FACILITY WITH EXISTING SURFACE PARKING

Property currently serviced by:

✓ City Road ✓ Public Sewer ✓ Public Water __ Public Trash
__ Private Road __ Septic System __ Private Well __ Private Hauler

Slope Conditions in Area of Construction (if applicable):

__Flat (0-3% slope) ✓Rolling (3-8% slope) __Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? __ (Yes) ✓(No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes) ✓(No) if yes attach information
Do you plan to bring fill onto the lot? ✓(Yes) __(No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

PARKING TO SUPPORT MULTI-FAMILY RESIDENTIAL PROJECT AT BUILDINGS 19&20 OF PEPPERELL MILL

Property to be Serviced by:

✓ City Road ✓ Public Sewer ✓ Public Water __ Public Trash

__ Private Road __ Septic System __ Private Well __ Private Hauler

Limits of Disturbance: 0.52 (✓)acres ( )s.f.

Net change in impervious cover: 0 ( )acres ( )s.f.

Is this project part of a larger project? __(Yes) ✓(No)

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

Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) ✓(Yes) __(No)

Is the project proposing any Stormwater facilities/BMPs? __(Yes) ✓(No)

Will a Traffic Movement Permit (TMP) be required?: __(Yes) ✓(No)

__ **If in a Shoreland Zone:**

Percent of residential lot coverage (Max 20%): N/A

Percent of structure expansion (Max 30%): N/A

__ **If Subdivision Review, number of lots proposed:** N/A

__ **If a Private Way is proposed, number of lots served:** N/A

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

Total new square feet footprint of structure: 0

Total new square feet paving/parking: +/- 7,668 SF

Waiver Requests (attach details):

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

Required Submittal Attachments:

A. Letters of Approval

Contacted 5/13 Fire Department – Contact Chief or Deputy Chief – 282-9986

N/A Ability to Serve for Water Service – Maine Water – 282-1543

N/A Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118

Contacted 5/13,Not Req'd 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. Engineering Plans, as required.

F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

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

Required Signatures:

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

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

Will the proposed project cause 1 acre or more of site disturbance?: __(Yes) ✓(No)

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

Signature of Applicant: Abby Henderson **Date** 5/13/2026

Signature of Property Owner: **Date**

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

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

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

ARCHETYPE ARCHITECTS

48 Union Wharf, Portland Maine 04101 | 207.772.6022

June 18th, 2026

Biddeford Planning & Development
205 Main Street
Biddeford, ME 04005

Subject: Revisions to May 13, 2026 Planning Submission

The following revisions have been made to the original Planning Board application submitted on May 13, 2026. These modifications were developed in response to comments and recommendations provided by City staff during their review of the application materials and are intended to improve site functionality, traffic circulation, accessibility, and overall site design.

1. Additional landscaped areas have been incorporated throughout the site to enhance the visual character of the development and provide increased buffering along site boundaries.
2. The previously proposed vehicular access point from Main Street has been eliminated in response to concerns regarding potential traffic congestion and vehicle queueing. As a result, the proposed curb cut along Main Street has also been removed.
3. The site's circulation pattern has been revised to direct all vehicular traffic through Emery Street, establishing a single point for entry/exit and allowing all circulation movements to occur internally on the site.
    a. To accommodate the grade changes associated with the revised circulation pattern, a modular block retaining wall is proposed along the Main Street frontage. The wall will incorporate landscaping and a safety railing, enhancing both site aesthetics and pedestrian safety.
4. A paved ADA-accessible pedestrian connection has been added between the parking area and the existing sidewalk along Emery Street. This improvement provides a more direct and accessible route for pedestrians, eliminating the need to travel to the far end of the site to access the public sidewalks.

As a result of the revisions described above, the proposed parking count has been reduced from 57 spaces to 54 spaces.

Sincerely,
Abby Henderson
Archetype Architects

LJB Engineering
Building Partnerships

300 Southborough Drive, Suite 200, South Portland, ME 04106
(207) 772-2515 | LJBinc.com

~~May 5, 2026~~ Rev June 16, 2026

Ms. Abby Henderson
Archetype PA
Union Wharf
Portland, Maine 04101

RE: site work scope
41 Main Street
Biddeford, Maine

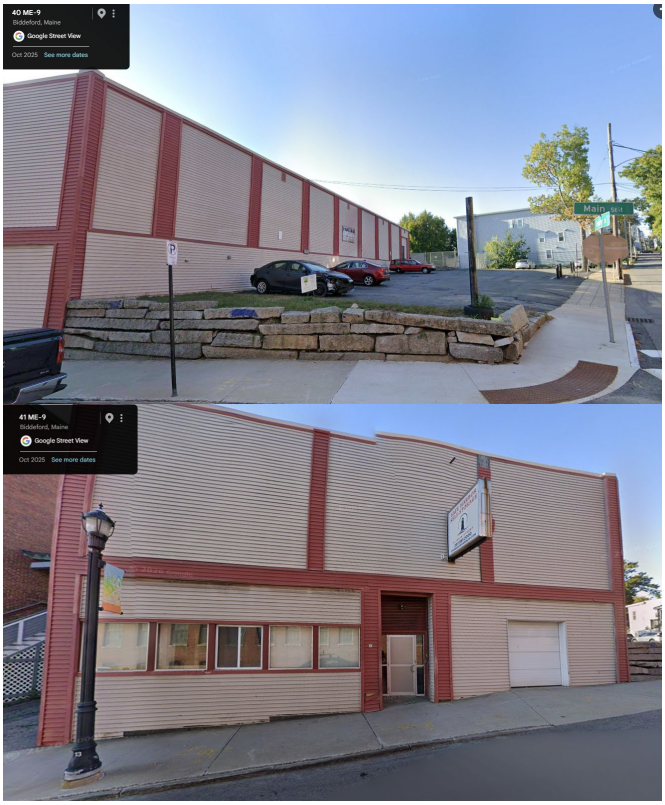
Dear Abby,

The civil site scope for the improvements at 41 Main Street in Biddeford include the following activities:

1. Building demolition of the existing structure to remove all building framing, roof, HVAC and electrical systems and miscellaneous building materials except for the concrete foundation which will remain in place or otherwise be replaced to support the interior parking layout.
2. Modifications to the concrete foundation to create vehicular openings at the south side off Emery Street and the east end entry from the parking lot. The foundation will also be modified on the west side adjacent the side walk to act as a retaining wall.
3. Remove existing exterior loading dock ramp and salvage granite pieces as available for reuse.
4. Sidewalk reconstruction to City of Biddeford Standards along nearly the full length of the Main Street frontage. This includes removal and full depth curb and sidewalk replacement on Main Street.
5. Partial removal and replacement of the concrete sidewalk and curbing on Emery Street to the limits depicted on the updated parking lot improvements plan.
6. Aggregate MDOT Type D soils placement within the building footprint and 3" of HMA pavement for the parking area within the building area, following demolition.
7. Install drainage catch basin drain at bottom of parking area inside the building footprint and tie a 12" storm drain into the existing 36" City drain in Main Street.
8. Install Guardrail to the extent identified on the plan.
9. Aggregate fill and salvaged/or new, granite wall construction on the exit end (east) of the building following demolition to achieve a transitioning grade from the interior of the building into the parking lot.
10. Place a 1.25" pavement overlay of the existing parking lot surface.
11. Install electrical service and 100-amp power feed to new panel, overhead light

poles including light pole bases, light poles and fixtures, conduit and secondary wiring.

12. Remove and replace fencing with 6’ high black vinyl coated chain link fencing to the limits identified on the plan.
13. Provide and install new electric entry/exit control gate systems at the Emery Street driveway opening.
14. Complete painted pavement markings in accordance with the Site plan including crosswalk striping on Main Street.
15. All work to be completed in accordance with the Maine Department of Transportation Standard Specifications or City of Biddeford requirements, whichever is more stringent.
16. Complete landscape improvements as prepared by Dry Landscape Architecture LLC.



ARCHETYPE ARCHITECTS

48 Union Wharf, Portland Maine 04101 | 207.772.6022

May 13, 2026

Biddeford Planning & Development
205 Main Street
Biddeford, ME 04005

Subject: 41 Main Street, Biddeford, ME

The proposed Phase 1 scope of work at 41 Main Street in Biddeford includes the demolition of the existing structure, including all exterior walls, roofing, and associated building systems. The existing concrete foundation will remain in place. In accordance with the attached plans, the site will be reconfigured to accommodate 54 parking spaces.

Also attached are conceptual drawings illustrating potential Phase 2 improvements at 41 Main Street. These concepts will be further refined and submitted under a separate future planning application. The drawings are included at this time to provide the Planning Board with contextual information regarding the anticipated long-term redevelopment vision for the property.

Sincerely,
Abby Henderson
Archetype Architects

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19855 PG 515**
Instr # 2026007288
03/05/2026 08:06:35 AM
Pages 4 YORK CO

Maine R.E. Transfer Tax Paid

DLN: 3689112

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS: That **41 Main St Biddeford, LLC**, a Maine limited liability company, with a mailing address of 41 Main Street, Biddeford, Maine 04005, for consideration paid, grants to **41 Main LLC**, a Maine limited liability company, with a mailing address of 72 Commercial Street, Suite 2, Portland, Maine 04101, with Warranty Covenants, the following described premises situate in Biddeford, York County, Maine:

PARCEL 1

A certain lot or parcel of land, with the buildings thereon, situated on the southerly side of Main Street in Biddeford, County of York and State of Maine, and bounded and described as follows:

BEGINNING on said Main Street at an iron rod driven in the ground fifty-seven (57) feet and nine (9) inches westerly from the land now or formerly of Mary Bacon; thence southwesterly one hundred forty-five (145) feet to an iron rod driven into the ground and to land of said Bacon; northwesterly by land of persons unknown eighteen (18) feet and nine (9) inches; thence southwesterly by land of persons unknown sixteen and three tenths (16.3) feet; thence northwesterly by land of persons unknown and by land formerly of Charles W. Ross fifty and fifteen hundredths (50.15) feet to land of Elizabeth H. Day; thence by said Day's land northeasterly one hundred thirty-two (132) feet to Main Street; thence easterly by said Main Street seventy-three and eighteen hundredths (73.18) feet to point of beginning.

SUBJECT to a right of way from said Main Street to the land of now or formerly of Louis Anton on the easterly side of said lot.

EXCEPTING from said above described premises all the land conveyed by Anton Adams by Quitclaim deed to Cyrille Pombriant dated July 23, 1923 recorded in the York County Registry of Deeds, Book 724, Page 43, and included in the above premises is all that land acquired by the

said Anton Adams by Quitclaim deed of Cyrille Pombriant dated July 23, 1923 and recorded in said Registry of Deeds in Book 724, Page 44.

ALSO a certain lot or parcel of land, with the buildings thereon, situated in said Biddeford, on the southeasterly side of Emery Street and bounded northwesterly by said street sixty (60) feet, more or less; Southwesterly by land formerly of Horace Bacon, one hundred twenty (120) feet more or less, now or formerly in part owned by Marc Simard on a line established by exchange of deed by one Anton, formerly owner of the within granted premises and Edna Boissonneault et al, formerly owners in part of said Bacon property, one dated August 23, 1949 and recorded in the York County Registry of Deeds in Book 1141, Page 305 and the other dated August 23, 1949 and recorded in said Registry in Book 1142, Page 77; Southeasterly by land formerly of Horace Bacon, later of J. Delphis Hunt sixty (60) feet more or less; Northeasterly by land formerly of Bryant and Luques, later of Sofokli A. Anton, on a line established by exchange of deeds between Cyrille Pombriant and Anton Adams, one dated July 23, 1923 and recorded in said Registry in Book 724, Page 44 and other dated July 23, 1923 and recorded in said Registry in Book 724, Page 43; also by land formerly of one Niel, later of the Greek Orthodox Church Society, the two northeastern boundaries, totaling one hundred twenty (120) feet, more or less.

Subject to an easement to Central Maine Power Company dated May 6, 1963 and recorded in the York County Registry of Deeds in Book 1553, Page 106.

Subject to an easement granted to Northern Utilities, Inc. d/b/a Unitil by One Stop Mini Moving & Storage, LLC dated November 1, 2012 and recorded in the York County Registry of Deeds at Book 16787, Page 266.

Meaning and intending to convey the same premises conveyed to the grantor herein by deed of One Stop Mini Moving & Storage, LLC, dated December 3, 2020, and recorded in the York County Registry of Deeds on December 3, 2020, at Book 18475, Page 4.

PARCEL 2

A certain lot or parcel of land with the buildings thereon, situated in said Biddeford and bounded and described as follows:

BEGINNING at the drill hole in the sidewalk on the southerly side of Main Street at the southeasterly side of Emery Street; thence southwesterly by said Emery Street 75.35 feet to an iron spike driven into the ground; thence southeasterly by a line parallel with and four (4) feet from the northeasterly side of the church buildings formerly of Greek Orthodox Community, said line making an included angle of 91° 39' with the last described line 54.92 feet to land of one Anton and an iron spike in the ground; thence northeasterly by said land of Anton and making an included angle of 70° 57' ninety-seven and 35/100 (97.35) feet to Main Street and a drill hole in the foundation stone of northeasterly corner of Neal's store, so-called; thence

westerly by Main Street and making an included angle of 75° 53' thirty and 35/100 (30.35) feet to the point of beginning, and being conveyed subject to a right of way in a strip of land ten (10) feet wide lying northeasterly of and adjacent to the southwesterly side line of said lot, said strip of land extending from said Emery Street to said land of Anton.

Also another certain lot or parcel of land, together with the buildings thereon, situated on Emery Street, in the City of Biddeford, County of York and State of Maine, bounded and described as follows:

BEGINNING on the Southeasterly side of Emery Street at an iron spike driven in the ground, said spike being seventy-five and thirty-five hundredths (75.35) feet Southwesterly on Emery Street from a drill hole in the sidewalk on the Southerly side of Main Street; thence Southeasterly by a line parallel with and four (4) feet from the Northeasterly side of the Church situated on the parcel herein described fifty-four and ninety-two hundredths (54.92) feet to land now or formerly of one Anton and an iron spike driven in the ground; thence Southwesterly by said land of Anton and an included angle of 109° 03' twenty-nine and seventy-three hundredths (29.73) feet to land formerly of the heirs of Benjamin Ross and an iron spike driven in the ground; thence Northwesterly by said Ross land twenty and seven hundredths (20.07) feet to a drill hole in a stone; thence continuing by the same line forty-three and sixty-eight hundredths (43.68) feet to Emery Street; thence Northeasterly by said Emery Street and an included angle of 91° 04' twenty-eight and eighty-three hundredths (28.83) feet to the point of beginning; meaning and intending hereby to convey that portion of the land conveyed to the Greek Orthodox Community of Biddeford and Saco by Mary F. Neal by deed dated May 28, 1918 and recorded in the York County Registry of Deeds in Book 658, Page 428, which lies Southwesterly of a line four (4) feet from and parallel to the Northeasterly side of the Church on the land herein described.

To which deed and the deeds therein mentioned and the records thereof reference is to be had, together with a right for passage by persons on foot and by vehicle in a strip of land ten (10) feet wide lying Northeasterly of and adjacent to the Northeasterly sideline of the above described parcel, said strip of land extending from Emery Street to aforesaid land now or formerly of Anton.

Meaning and intending to convey the same premises conveyed to the grantor herein by Confirmatory Warranty Deed of Henry R. Pelletier dated February 17, 2026, and recorded in the York County Registry of Deeds on February 18, 2026, in Book 19845, Page 505.

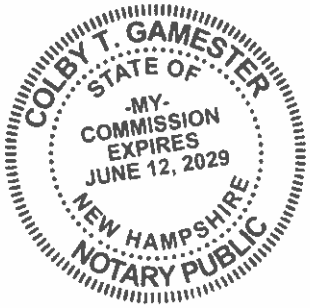
Executed this 4 day of March 2026.

41 MAIN ST BIDDEFORD, LLC

Robert James, Manager

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

Personally appeared before me, this 4 day of March 2026, Robert James, in his aforementioned capacity as Manager of 41 Main St Biddeford, LLC, known to me or satisfactorily proven to be the same individual who executed the foregoing instrument and acknowledged that he executed the same for the purposes therein contained as his free act and deed.



Notary Public/Justice of the Peace
Affix seal, if any

BEST PRACTICES FOR SNOW AND ICE REMOVAL

Winter Maintenance Agreement

41 Main Street

Biddeford Maine

Prepared for
Archetype PA

Prepared by
LJB Inc

June 2026

INTRODUCTION

Chlorides are frequently used in road and pavement deicing during winter months. When used in a high enough concentration, chlorides can alter plant communities resulting in changes in habitat, create favorable conditions for invasive species, and result in the fatality of aquatic organisms in freshwater ecosystems.

MATERIAL STORAGE AND HOUSEKEEPING

Each year, the applicant will purchase a pallet of 50-lb salt bags and store them offsite in a designated maintenance building. Onsite, multiple sealed 15-lb buckets of deicing salt or equivalent product will be kept for use as needed on paved areas under the supervision of the facilities management. No salt stockpiles will be kept on site, and a note specifying can be added to the site plan.

STANDARD PRACTICES

Road salt (including sodium chloride, calcium chloride, magnesium chloride, and potassium chloride) will be used at the 41 Main Street development as a freeze-point depressant. These materials, ranging from standard table salt to more specialized formulations, are effective because they lower the freezing temperature of water.

Maine typically experiences 15 to 20 days each year with at least one inch of snowfall[1]. Landowners typically use a maximum of 300 pounds of salt per year for similarly sized sites. Based on this, no more than 25 pounds of salt (one half of a 50-pound bag) will be applied per storm across the site per storm. This corresponds to an application rate of approximately 1 pound of salt per 1,200 square feet of impervious surface. This is a reduced rate compared to what a typical highway application would receive for salt treatment, which varies from 43 to 167 lbs. for a site of this size.

Parking Areas and Access Drives: Parking and access drive areas represent approximately 22,000 square feet of impervious surface on the site. Plowing will serve as the primary method for managing snow and ice in these areas. Sanding will be used as a secondary measure to improve traction, recognizing that while sand does not melt ice, it enhances safety for both vehicles and pedestrians. Salt–sand mixtures may be applied when icy conditions persist. If plowing and sanding do not adequately address site conditions, a minimal amount of salt will be applied as referenced above. The site driveway is expected to receive full sun exposure, which should help limit ice formation. Based on the applicant's experience with other sites, a severe winter event (typically occurring about once per year) may require a third-party contractor to perform salt application. Prior to any application, the contractor's automatic spreader rates will be verified to prevent oversalting, ensuring cost-effectiveness and minimizing environmental impact.

Walking Paths and Hardscape Areas: Walking paths and hardscape areas account for approximately 2,000 SF of the site's impervious area. Similar application rates will be provided as the parking area mentioned above. As storms intensify and additional

[1] Maine's Climate - Visit Maine).

material is required, sand shall be preferred over salt use on all walking areas. Salt may be used as necessary to reduce ice accumulation on walking paths.

Image 1: Typical hand spreader used for site drives and walkways.

Equipment

To minimize the use of salt, snow will be removed by plowing as much as possible. Salt and sand will typically be applied to drives and walkways using a small hand spreader (as shown in Image 1). If a third-party is hired to address the site's snow and ice, any hydraulic run spreaders should be accurately calibrated to discharge the correct amount of material given the condition of the storm.

The following considerations shall be taken into account with respect to equipment:

- The Owner or their assigned contractor shall ensure that sufficient equipment and staff are available to properly plow snow then apply material at the correct rate.
- Ensure that plowing equipment can reach all areas required and that the blade is appropriate and in good shape to remove the maximum amount of snow and ice.
- Spreaders shall allow the operator to target material application so that materials are confined to the treatment area and not lost to adjacent areas.
- Operators will be able to control the spreader so that the amount of material being applied can be increased, decreased, or stopped when appropriate.
- Combination plows and spreaders are efficient for removing snow and spreading materials at the same time.
- Hand spreaders rather than motor spreaders shall be used on sidewalks to increase the amount of material retained on the sidewalks. This will also help to limit salt damage to vegetated areas adjacent to sidewalks.
- Each spreader unit shall be thoroughly inspected and the mechanical spreader checked to ensure that spreading rate is correct.

Snow Storage

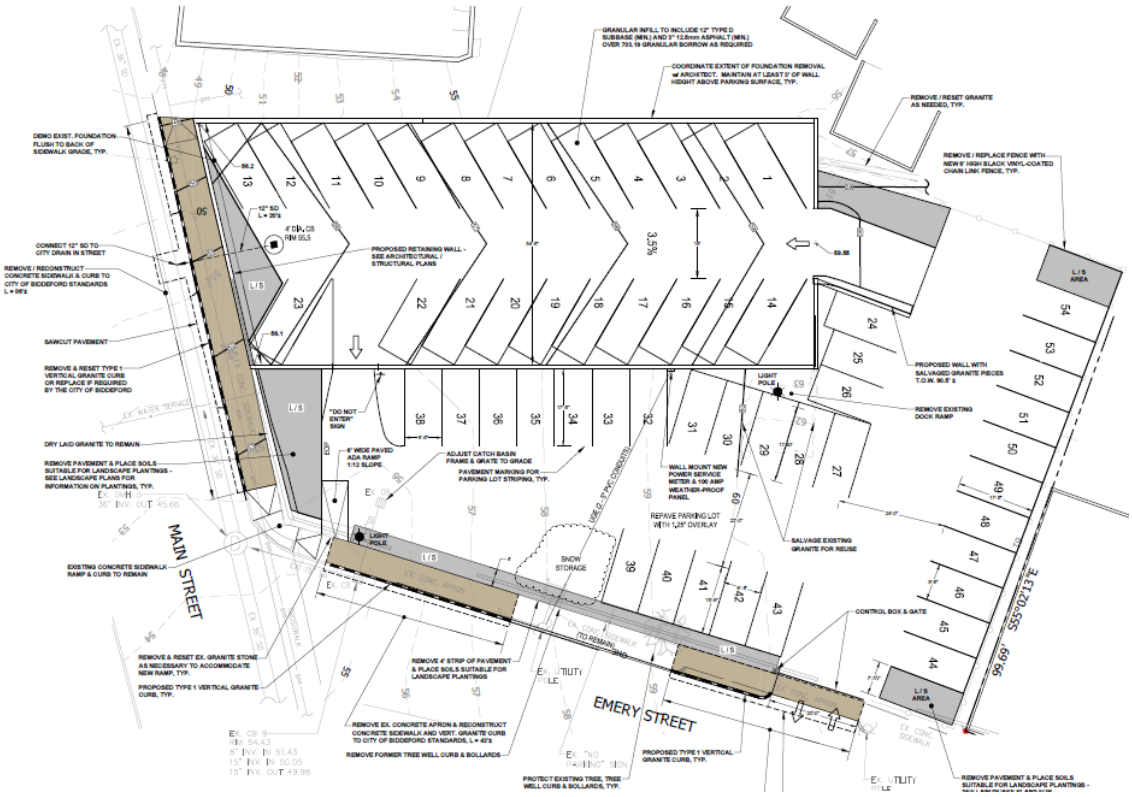
Snow is to be stored onsite in designated areas identified on the site plan. If adequate snow storage is not available onsite in the designated areas the owner shall be responsible for removing snow from the property and dispose of at a location otherwise approved by the authority having jurisdiction. Snow storage in the onsite Stormwater best management practice (BMP) systems and adjacent wetlands or areas outside of the approved snow storage zones is prohibited.

Annual Maintenance – Pavement Sweeping

Pavement sweeping and sediment removal from the site shall be performed annually no later than May 15 each calendar year. Collected sediment to be removed and disposed of at a site approved by the authority having jurisdiction.

PROGRAM ADMINISTRATION

The applicant intends to include these best management standards in all contracts for snow removal on the premises.



PRELIMINARY

City of Biddeford, Maine

COST ESTIMATE WORKSHEET

OWNER: 41 MAIN ST LLC
OWNER/APPLICANT: APPLICANT/AGENT: ABBY HENDERSON, ARCHETYPE ARCHITECTS

PROJECT NAME: 41 MAIN ST, BIDDEFORD, MAINE

	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
1	Clearing and Grubbing	Acre			
2	Erosion/Sediment Control	Lump Sum			$7,500
3	Site Stabilization	Lump Sum			$5,000
4	Ledge Removal	Cubic Yard			
5	Sanitary Sewer				
	Manholes	Each			
	Main	Linear Foot			
	House Services	Linear Foot			
6	Water Main				
	Main	Linear Foot			
	House Services	Linear Foot			
	Hydrants	Each			
7	Electric				
	Underground Utility Trench	Linear Foot		$51.50/FT	
	Conduit/Wiring	Linear Foot		$10.50/FT	
	Transformer Bases	Each			
8	Storm Drainage				
	Pipe/Culvert	Linear Foot		$1,200/FT	
	Catch Basin	Each			
	Other Treatment Devices	Each		$650/FT	
9	Stormwater Management				
	Outlet Control Structure	Each			
	Stromwater Management Facilities	Each			
10	Excavate and Grade Subgrade	Cubic Yard			
11	Roadways				
	Subbase Gravel	Cubic Yard			
	Base/Finish Gravel	Cubic Yard			
	Base Paving	Ton			
	Finish Paving	Ton			
	Geotextile Fabric	Ton			
12	Sidewalks				
	Subbase Gravel	Cubic Yard		$45/YARD	
	Base/Finish Gravel	Cubic Yard		$55/YARD	
	Base Paving	Ton			
	Finish Paving	Ton			
13	Parking Lots/Other Areas				
	Subbase Gravel	Cubic Yard		$95/YARD	
	Base/Finish Gravel	Cubic Yard		$105/YARD	
	Base Paving	Ton		$240/TON	
	Finish Paving	Ton		$240/TON	

City of Biddeford, Maine

COST ESTIMATE WORKSHEET

14	Curbing – Bituminous	Linear Foot			
15	Curbing - Concrete				
15	Curbing – Granite	Linear Foot		$75/FT	
16	Pavement Striping	Linear Foot		$4/FT	
17	Guardrail	Linear Foot			
18	Fencing	Linear Foot		$255/FT	
19	Loam and Seed	1,000 Square Feet			
20	Riprap	Cubic Yard			
21	Landscaping	Lump Sum			$12,000
22	Street Lights	Each			
23	Site Lighting	Each		$4,000	
24	Monuments/Iron Pipes	Lump Sum			
25	Clean Up	Lump Sum			$15,000
26	As Builts	Lump Sum			
27	Other ON-SITE RETAINING WALLS				$10,000
28	Other AUTOMATIC ENTRY GATES				$48,000
29	Other CONCRETE SIDEWALK	CUBIC YARD		$190/YARD	
30	Other				
31	Other				

COST ESTIMATE TOTAL:
150% of TOTAL:

FOR OFFICE USE ONLY

EROSION CONTROL/SITE STABILIZATION BOND (IF APPLICABLE): _____

PERFORMANCE GUARANTEE REQUIRED: _____

Name: _____

Signature: _____

Date:

BEACON
design . performance . technology

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

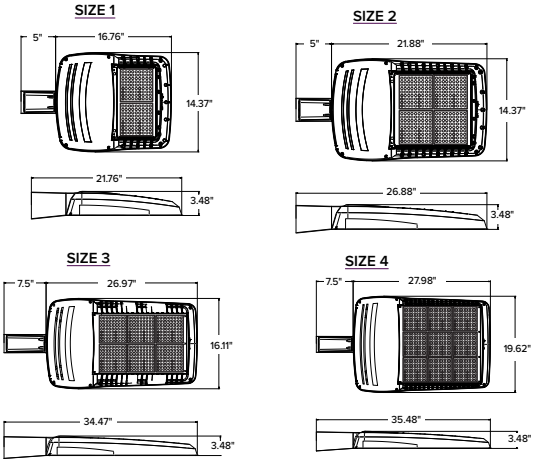
VIPER Area/Site

VIPER LUMINAIRE

MICRO STRIKE | SILICONE STRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, LightGRID+ and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped



c UL us IP65 IP66 IK10 | DLC LISTED | DLC LISTED PREMIUM | ida DARK SKY APPROVED 2016 | BAA | TAA

CONTROL TECHNOLOGY

NX CONNECT | NX WIRED | NX WIRELESS | LIGHTGRID+

SERVICE PROGRAMS

STOCK | QS10

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Silicone Strike Optics (40, 80, 120, or 180 LED counts) maximize uniformity in applications and provides the highest LPW. These include an integral gasket allowing for IP66 rating. Catalog logic found on page 4.
- All optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V Dimming Drivers are standard. Select CD option to have dimming leads extended outside the luminaire. Must specify if wiring leads are to be greater than the 6" standard.

	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

CONTROLS (CONTINUED)

- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- LightGRID+ available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Not all product variations listed in this document are DLC® qualified. Refer to http://www.designlights.org for the most up-to-date list.
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated with Strike and Microstrike optics. Fixture is IP66 rated with Silicone Strike optics.
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product meets federal procurement law requirements under the Buy American Act (FAR 52.225-9) and Trade Agreements Act (FAR 52.225-11). See Buy America(n) Solutions (link to https://www.currentlighting.com/resources/america-solutions).
- FCC CFR Title 47 Part 15, Class A
- IK10 (Silicone Strike Optics Only)

WARRANTY

- 5 year warranty

© 2025 Current Lighting Solutions, LLC. All rights reserved. Information and specifications subject to change without notice. All values are design or typical values when measured under laboratory conditions.

BEACON
design . performance . technology

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

SILICONE STRIKE OPTIC – ORDERING GUIDE

Example: VP-SS-1-40L-75-4K7-4W-UNV-ASQU-BLT

CATALOG #

VP – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP Viper	**SS** Strike Silicone	**1** Size 1	**40L-35** 35W, 5,500 Lumens	**22K7** 2200K, 70 CRI	**2** Type 2	**BLANK** No Rotation	**UNV** 120-277V
			40L-50 50W, 7,500 Lumens	**27K7** 2700K, 70 CRI	**3** Type 3	**L** Optic rotation left	**120** 120V
			40L-65 65W, 10,000 Lumens	**27K8** 2700K, 80 CRI	**4W** Type 4 Wide	**R** Optic rotation right	**208** 208V
			40L-80 80W, 12,500 Lumens	**3K7** 3000K, 70 CRI	**4F** Type 4 Forward		**240** 240V
			40L-100 100W, 15,000 Lumens	**3K8** 3000K, 80 CRI	**5QM** Type 5 Square Medium		**277** 277V
			40L-120 120W, 17,500 Lumens	**35K8** 3500K, 80 CRI	**5QW** Type 5 Square Wide		**347** 347V
			40L-140 140W, 20,000 Lumens	**4K7** 4000K, 70 CRI			**480** 480V
			40L-170 170W, 22,500 Lumens	**4K8** 4000K, 80 CRI			
			40L-195 195W, 25,000 Lumens	**5K7** 5000K, 70 CRI			
		2 Size 2	**80L-75** 75W, 12,500 Lumens	**5K8** 5000K, 80 CRI			
			80L-90 90W, 15,000 Lumens				
			80L-105 105W, 17,500 Lumens				
			80L-130 130W, 21,000 Lumens				
			80L-155 155W, 24,000 Lumens				
			80L-175 175W, 27,000 Lumens				
			80L-205 205W, 30,000 Lumens				
			80L-225 225W, 33,000 Lumens				
			80L-250 250W, 36,000 Lumens				
			80L-280 280W, 40,000 Lumens				
		3 Size 3	**120L-190** 190W, 30,000 Lumens				
			120L-205 205W, 33,000 Lumens				
			120L-230 230W, 36,000 Lumens				
			120L-265 265W, 40,000 Lumens				
			120L-295 295W, 44,000 Lumens				
			120L-320 320W, 48,000 Lumens				
			120L-355 355W, 52,000 Lumens				
			120L-380 380W, 55,000 Lumens				
			120L-420 420W, 60,000 Lumens				
		4 Size 4	**180L-275** 275W, 44,000 Lumens				
			180L-295 295W, 48,000 Lumens				
			180L-335 335W, 52,000 Lumens				
			180L-360 360W, 55,000 Lumens				
			180L-395 395W, 60,000 Lumens				
			180L-435 435W, 65,000 Lumens				
			180L-470 470W, 70,000 Lumens				
			180L-510 510W, 75,000 Lumens				
			180L-550 550W, 80,000 Lumens				

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VIPER Area/Site

VIPER LUMINAIRE

SILICONE STRIKE OPTIC – ORDERING GUIDE (CONTINUED)

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Options	
BC	Backlight Control (3%)
MBC	Max Backlight Control (1.5%)
LCC	Left Corner Control
RCC	Right Corner Control
F	Fusing
E	Battery Backup [1,2,7,8,9]
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
TB	Terminal Block
CD	Customer Dimming
LS	Lumen Switch

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,4,5]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [4,5]
WIR	LightGRID+ In-Fixture Module [4,5]
WIRSC	LightGRID+ Module and Occupancy Sensor [4,5]
Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [13]
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens [13]
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens [13]
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
7PR-TL	7-Pin PCR with photocontrol
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]
Programmed Controls	
SCP-_F	Sensor Control Programmable, 8F or 40F [11]
ADD	AutoDim Timer Based Dimming [12]
ADT	AutoDim Time of Day Dimming [12]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 2.75"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
12 - Please refer to page 8 for AutoDim ordering guide
13 - BTSO and BTS are only compatible at 50W or greater.

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VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Gray Shading = Service Program Limit of 15 luminaires

QS10

Example: VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

VP –

Series	
VP	Viper

Optic Platform	
Micro Strike	

Size	
1	Size 1
2	Size 2
3	Size 3
4	Size 4

Light Engine	
160L-35 [6]	5500 lumens
160L-50 [6]	7500 lumens
160L-75	10000 lumens
160L-100	12500 lumens
160L-115	15000 lumens
160L-135	18000 lumens
160L-160	21000 lumens
320L-145	21000 lumens
320L-170	24000 lumens
320L-185	27000 lumens
320L-210	30000 lumens
320L-235	33000 lumens
320L-255	36000 lumens
320L-315 [6]	40000 lumens
480L-285	40000 lumens
480L-320	44000 lumens
480L-340	48000 lumens
480L-390	52000 lumens
480L-425	55000 lumens
480L-470	60000 lumens
720L-435	60000 lumens
720L-475	65000 lumens
720L-515	70000 lumens
720L-565 [6]	75000 lumens
720L-600 [6]	80000 lumens
CLO	Custom Lumen Output [1]

CCT/CRI	
AP	AP-Amber Phosphor Converted
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
35K8	3500K, 80 CRI
3K9	3000K, 90 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution	
2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QW	Type 5 Square Wide

Optic Rotation	
BLANK	**No Rotation**
L	Optic rotation left
R	Optic rotation right

Voltage	
UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

Mounting	
A	Arm mount for square pole/flat surface (B3 Drill Pattern) (Does not include round pole adapter)
A_	Arm mount for round pole [2]
ASQU	Universal arm mount for square pole. Can be used with B3 or S2 Drill Pattern
A_U	Universal arm mount for round pole [2]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [2]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [2]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured

Color Option	
CC	Custom Color

Options	
F	Fusing
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control [8]
TB	Terminal Block
CD	Customer Dimming

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	LightGRID+ In-Fixture Module [3,4]
WIRSC	LightGRID+ Module and Occupancy Sensor [3,4]

Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
7PR-TL	7-Pin PCR with photocontrol
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls	
SCP-_F	Sensor Control Programmable, 8F or 40F [9]
ADD	AutoDim Timer Based Dimming [10]
ADT	AutoDim Time of Day Dimming [10]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
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3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V
8 – BC not available on 4F and type 5 distributions
9 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
10 - Please refer to page 8 for AutoDim ordering guide

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VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

VP –

Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP Viper	**ST** Strike	**1** Size 1	**36L-39** [8] 5500 lumens	**AM** monochromatic amber, 595nm	**FR** Auto Front Row	**BLANK** No Rotation	**UNV** 120-277V
			36L-55 [8] 7500 lumens	**27K8** 2700K, 80 CRI	**2** Type 2	**L** Optic rotation left	**120** 120V
			36L-85 10000 lumens	**3K7** 3000K, 70 CRI	**3** Type 3	**R** Optic rotation right	**208** 208V
			36L-105 12500 lumens	**3K8** 3000K, 80 CRI	**4F** Type 4 Forward		**240** 240V
			36L-120 14000 lumens	**3K9** 3000K, 90 CRI	**4W** Type 4 Wide		**277** 277V
		2 Size 2	**72L-115** 15000 lumens	**35K8** 3500K, 80 CRI	**5QN** Type 5 Square Narrow		**347** 347V
			72L-145 18000 lumens	**4K7** 4000K, 70 CRI	**5QW** Type 5 Square Wide		**480** 480V
			72L-180 21000 lumens	**4K8** 4000K, 80 CRI	**5QM** Type 5 Square Medium		
			72L-210 24000 lumens	**4K9** 4000K, 90 CRI	**5W** Type 5 Wide (Round)		
			72L-240 27000 lumens	**5K7** 5000K, 70 CRI	**5RW** Type 5 Rectangular		
		3 Size 3	**108L-215** [8] 27000 lumens	**5K8** 5000K, 80 CRI	**C** Corner Optic		
			108L-250 30000 lumens		**TC** Tennis Court Optic		
			108L-280 33000 lumens				
			108L-325 36000 lumens				
			108L-365 40000 lumens				
		4 Size 4	**162L-320** 40000 lumens				
			162L-365 [10] 44000 lumens				
			162L-405 48000 lumens				
			162L-445 52000 lumens				
			162L-485 55000 lumens				
			162L-545 [8] 60000 lumens				
			CLO Custom Lumen Output [1]				

–

Mounting	Color	Options
A Arm mount for square pole/flat surface	**BLT** Black Matte Textured	**F** Fusing
A_ Arm mount for round pole [3]	**BLS** Black Gloss Smooth	**E** Battery Backup [1,2,7,8,9]
ASQU Universal arm mount for square pole	**DBT** Dark Bronze Matte Textured	**2PF** Dual Power Feed
A_U Universal arm mount for round pole [3]	**DBS** Dark Bronze Gloss Smooth	**2DR** Dual Driver
AAU Adjustable arm for pole mounting (universal drill pattern)	**GTT** Graphite Matte Textured	**TE** Tooless Entry
AA_U Adjustable arm mount for round pole [3]	**LGS** Light Grey Gloss Smooth	**BC** Backlight Control
ADU Decorative upswept Arm (universal drill pattern)	**LGT** Light Grey Gloss Textured	**TB** Terminal Block
AD_U Decorative upswept arm mount for round pole [3]	**PSS** Platinum Silver Smooth	**CD** Customer Dimming
MAF Mast arm fitter for 2-3/8" OD horizontal arm	**WHT** White Matte Textured	
K Knuckle	**WHS** White Gloss Smooth	
T Trunnion	**VGT** Verde Green Textured	
WB Wall Bracket, horizontal tenon with MAF	**Color Option**	
WM Wall mount bracket with decorative upswept arm	**CC** Custom Color	
WA Wall mount bracket with adjustable arm		

Network Control Options	
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7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls
11 – At least one SCPREMOTE required to program SCP motion sensor. Must select 8ft or 40ft.
12 - Please refer to page 8 for AutoDim ordering guide

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VIPER Area/Site

VIPER LUMINAIRE

ORDERING GUIDE (CONT'D)

CATALOG #

Accessory Type		Size		Option		Color	
SHD	House Side Shield	**1**	Size 1	**HSS-90-B**	House Side Shield 90° Back	**BLS**	Black Gloss Smooth
		2	Size 2	**HSS-90-F**	House Side Shield 90° Front	**BLT**	Black Matte Textured
		3	Size 3	**HSS-90-S**	House Side Shield 90° Side	**DBS**	Dark Bronze Gloss Smooth
		4	Size 4	**HSS-270-BSS**	House Side Shield 270° Back/Side/Side	**DBT**	Dark Bronze Matte Textured
				HSS-270-FSS	House Side Shield 270° Front/Side/Side	**GTT**	Graphite Matte Textured
				HSS-270-FSB	House Side Shield 270° Front/Side/Back	**LGS**	Light Gray Gloss Smooth
				HSS-360	House Side Shield 360°	**PSS**	Platinum Silver Smooth
				BC	Back Light Control	**WHS**	White Gloss Smooth
MTG	Mounting			**A**	Arm Mount for square pole/flat surface	**WHT**	White Matte Textured
				ASQU	Universal Arm Mount for square pole	**VGT**	Green Landscape Decorative
				AAU	Adjustable Arm for pole mounting	**LEG**	Legacy Colors
				ADU	Decorative upswept Arm	**Color Option**	
				RPA	Round Pole Adapter	**CC**	Custom Color
				MAF	Mast Arm Fitter for 2-3/8" OD horizontal arm		
				K	Knuckle		
				T	Trunnion		
				WB	Wall Bracket (compatible with universal arm mounts)		

Accessory Type		Option	
MSC	Miscellaneous	**BIRD SPK**	Bird Spike

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

☐ **NXOFM2-1R1D-UNV** On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with NX Radio and Bluetooth® Radio, 120–480VAC

LightGRID+ Lighting Control

☐ **WIR-RME-L** On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with LightGRID+ Radio, 110–480VAC

☐ **SCP-REMOTE** Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor

For additional information related to these accessories please visit currentlighting.com/beacon. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

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DATE: LOCATION:

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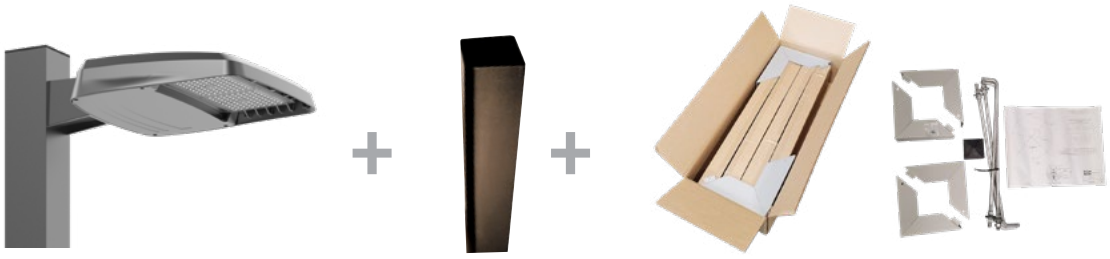
CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

VIPER POLE EXPRESS COMBO – ORDERING GUIDE



Catalog Number	Pole	Single or Double Head	Fixture	Lumens*	Wattage	Distribution	CCT/CRI	Mounting	Finish
VP-1-160-4K-3-LS-S20	**20' Square Straight Steel**	Single	**VP-1-160-4K-3-LS**	19584	158W	Type 3	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-3-LS-S20-2X	**20' Square Straight Steel**	Double	**VP-1-160-4K-3-LS**	19584	158W	Type 3	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-4F-LS-S20	**20' Square Straight Steel**	Single	**VP-1-160-4K-4F-LS**	19426	158W	Type 4F	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-4F-LS-S20-2X	**20' Square Straight Steel**	Double	**VP-1-160-4K-4F-LS**	19426	158W	Type 4F	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-3-LS-S25	**25' Square Straight Steel**	Single	**VP-1-160-4K-3-LS**	19584	158W	Type 3	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-3-LS-S25-2X	**25' Square Straight Steel**	Double	**VP-1-160-4K-3-LS**	19584	158W	Type 3	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-4F-LS-S25	**25' Square Straight Steel**	Single	**VP-1-160-4K-4F-LS**	19426	158W	Type 4F	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-4K-4F-LS-S25-2X	**25' Square Straight Steel**	Double	**VP-1-160-4K-4F-LS**	19426	158W	Type 4F	4000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-3-LS-S20	**20' Square Straight Steel**	Single	**VP-1-160-5K-3-LS**	19499	158W	Type 3	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-3-LS-S20-2X	**20' Square Straight Steel**	Double	**VP-1-160-5K-3-LS**	19499	158W	Type 3	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-4F-LS-S20	**20' Square Straight Steel**	Single	**VP-1-160-5K-4F-LS**	19186	158W	Type 4F	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-4F-LS-S20-2X	**20' Square Straight Steel**	Double	**VP-1-160-5K-4F-LS**	19186	158W	Type 4F	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-3-LS-S25	**25' Square Straight Steel**	Single	**VP-1-160-5K-3-LS**	19499	158W	Type 3	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-3-LS-S25-2X	**25' Square Straight Steel**	Double	**VP-1-160-5K-3-LS**	19499	158W	Type 3	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-4F-LS-S25	**25' Square Straight Steel**	Single	**VP-1-160-5K-4F-LS**	19186	158W	Type 4F	5000K/70CRI	Universal Arm	Dark Bronze Textured
VP-1-160-5K-4F-LS-S25-2X	**25' Square Straight Steel**	Double	**VP-1-160-5K-4F-LS**	19186	158W	Type 4F	5000K/70CRI	Universal Arm	Dark Bronze Textured

VIPER POLE EXPRESS COMBO – STOCK LUMINAIRE SKUS

Catalog Number	Lumens	LPW	Distribution	Wattage	CCT/CRI	Voltage	Mounting	Finish
VP-1-160-4K-3-LS	19584	123.9	3	158W	4000K/70CRI	120-277V	Universal Arm with RPA (A3U)	Dark Bronze Textured
VP-1-160-4K-4F-LS	19426	122.9	4F	158W	4000K/70CRI	120-277V	Universal Arm with RPA (A3U)	Dark Bronze Textured
VP-1-160-5K-3-LS	19499	123.4	3	158W	5000K/70CRI	120-277V	Universal Arm with RPA (A3U)	Dark Bronze Textured
VP-1-160-5K-4F-LS	19186	121.4	4F	158W	5000K/70CRI	120-277V	Universal Arm with RPA (A3U)	Dark Bronze Textured

VIPER POLE EXPRESS COMBO – ACCESSORIES

Catalog Number	Description
VM14DB	Vibration Dampener, mounts to top of pole for reduced vibration

VM14DB

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DATE: LOCATION:

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CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

OUTDOOR LIGHTING CONTROLS OPTIONS

CONTROLS FUNCTIONALITY

LIGHTGRID+ NX LIGHTING CONTROLS MOBILE APP

	Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components	
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height		
NX Wireless	NXOFM2-1R1D-UNV	NX 7-Pin Twist-Lock® with NX Networked Wireless Radio, Integral Automatic Dimming Photocell, Integral Single Pole Relay with Dimming, and Bluetooth Programming	✓	✓	✓	Paired with external control	✓	✓	✓	✓	–		NXOFM-1R1D-UV
	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	✓	✓	✓	–	–	✓	✓	✓	–		NXRM2-H
	NXWS12F	NX Networked Wireless Enabled Integral NXSMP2-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	12ft		NXSMP2-OMNI-O
	NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	16ft		NXSMP2-LMO
	NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming	✓	✓	✓	✓	✓	✓	✓	✓	40ft		NXSMP2-HMO
LightGRID+	WIR	LightGRID+ In-Fixture Module	✓	–	✓	–	–	✓	✓	Gateway	–		WIR
	WIR-RME-L	LightGRID+ On Fixture Module	✓	–	✓	–	–	✓	✓	Gateway	–		WIR-RME-L
	WIRSC	LightGRID+ Module and Occupancy Sensor	✓	✓	✓	✓	✓	✓	✓	Gateway	14ft - 40ft		BTMSP
Independent	BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	12ft		BTSMP-OMNI-O
	BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	14ft		BTSMP-LMO
	BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens	–	–	–	✓	✓	✓	✓	✓	40ft		BTSMP-HMO

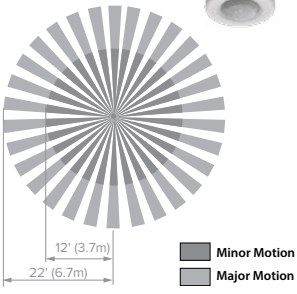
DEFAULT SETTINGS

NX Wireless	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	15 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	0%
Daylight Sensor	Disabled
Bluetooth	Enabled
2.4GHz Wireless Mesh	On
"Passcode Factory Passcode: HubbN3T!"	Enabled

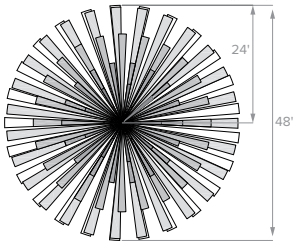
Stand Alone	
Occupancy Sensor	Enabled
Occupancy Sensor Sensitivity	7
Occupancy Sensor Timeout	8 Minutes
Occupied Dim Level	100%
Unoccupied Dim Level	50%
Daylight Sensor	Disabled

NX WIRELESS COVERAGE PATTERNS

NXSMP2-OMNI

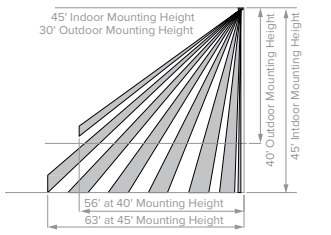


NXSMP2-LMO



Sensor Lens Coverage and Detection Patterns When Mounted at 8ft with Low Mount Lens

NXSMP2-HMO



Sensor Lens Coverage and Detection Patterns When Mounted at 40ft and 45ft with Standard Lens

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VIPER Area/Site

VIPER LUMINAIRE

DATE: | LOCATION:

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CATALOG #:

NX LIGHTING CONTROLS FREE APP

The NX Lighting Controls App is free to use mobile application for programming both NX Lighting Controls System or Standalone Bluetooth Sensors. The mobile app allows you to configure devices, discover and setup wireless enable luminiares and program NX system settings.

Apple App: https://apps.apple.com/us/app/nx-lighting-controls/id962112904

Google Play: https://play.google.com/store/apps/details?id=io.cordova.NXBTR&hl=en_US&gl=US

Apple App

Google Play

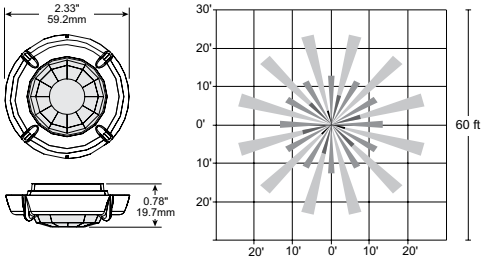
CONTROLS TECH SUPPORT 800-888-8006 (7:00 AM - 7:00 PM)

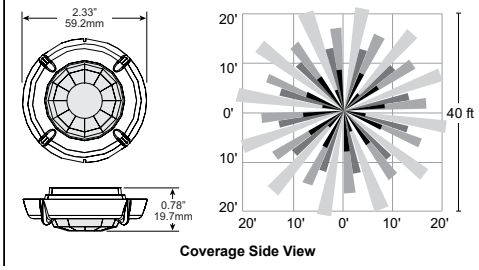
OUTDOOR LIGHTING CONTROLS OPTIONS

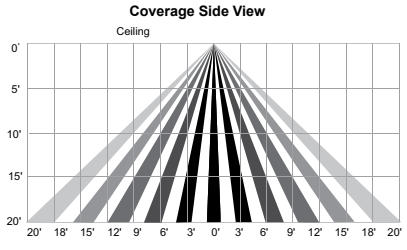
CONTROLS FUNCTIONALITY

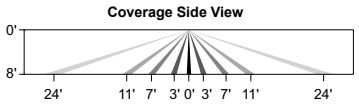
	Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height	
Independent	SCP_F	Sensor Control Programmable, 8F or 40F	–	–	–	✓	✓	✓	✓	–	8ft or 40ft	SCP_F
	ADD	AutoDIM Timer Based Dimming	–	–	✓	–	–	–	✓	–	–	ADD
	ADT	AutoDIM Time of Day Dimming	–	–	✓	–	–	–	✓	–	–	ADT
	7PR	7-Pin Receptacle	–	–	Paired with external control	–	Paired with external control	–	Paired with external control	–	–	7PR
	7PR-SC	7-Pin Receptacle with shorting cap	–	–	–	–	–	–	–	–	–	7PR-SC
	3PR	3-Pin twist lock	–	–	–	–	–	–	Paired with external control	–	–	3PR
	3PR-SC	3-Pin Receptacle with shorting cap	–	–	–	–	–	–	–	–	–	3PR-SC
	3PR-TL	3-Pin with photocontrol	–	–	–	–	✓	–	✓	–	–	3PR-TL

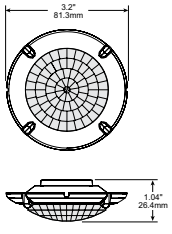
COVERAGE PATTERNS FOR SCP_F

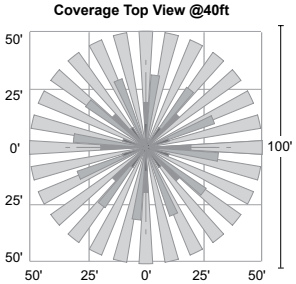


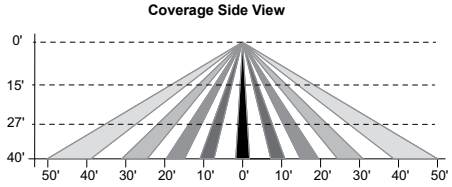












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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

ORDERING GUIDE

Auto Dim Code	Timer Base (ADD) Auto-Dim Options		Auto Dim Cod	Time of Day (ADT) Auto-Dim Options
D1	Delay 1 hour		T0	Delay Midnight
D2	Delay 2 hours		T1	Delay 1 AM
D3	Delay 3 hours		T2	Delay 2 AM
D4	Delay 4 hours		T3	Delay 3 AM
D5	Delay 5 hours	OR	T4	Delay 10 PM
D6	Delay 6 hours		T5	Delay 11 PM
D7	Delay 7 hours		T6	Delay 6 PM
D8	Delay 8 hours		T7	Delay 7 PM
D9	Delay 9 hours		T8	Delay 8 PM
D0	Delay 0 hours		T9	Delay 9 PM

Code	Auto-Dim Brightness
0	100% Brightness
1	10% Brightness
2	20% Brightness
3	30% Brightness
4	40% Brightness
5	50% Brightness
6	60% Brightness
7	70% Brightness
8	80% Brightness
9	90% Brightness

Code	Auto-Dim Return Options
R1	Delay 1 hour or 1 AM
R2	Delay 2 hours or 2 AM
R3	Delay 3 hours or 3 AM
R4	Delay 4 hours or 4 AM
R5	Delay 5 hours or 5 AM
R6	Delay 6 hours or 6 AM
R7	Delay 7 hours or 7 AM
R8	Delay 8 hours or 8 AM
R9	Delay 9 hours or 9 AM
R0	Delay 0 hours or 12 AM

Code	Auto-Dim Brightness
0	100% Brightness
1	10% Brightness
2	20% Brightness
3	30% Brightness
4	40% Brightness
5	50% Brightness
6	60% Brightness
7	70% Brightness
8	80% Brightness
9	90% Brightness

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L_{70} (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	–	0.841	–
3000K	0.977	0.861	0.647
3500K	–	0.900	–
4000K	1	0.926	0.699
5000K	1	0.937	0.791
AP-Amber Phosphor Converted Multiplier			
Amber	0.710		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	See Amber Spec Sheet		

Silicone Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2200K	0.811	–	–
2700K	0.906	0.774	–
3000K	0.943	0.868	–
3500K	–	0.868	–
4000K	1	0.906	–
5000K	1	0.906	–

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DATE: | LOCATION:

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CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

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VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	120
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	120.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	0.96
208	0.19	0.26	0.41	0.50	0.55
240	0.16	0.23	0.35	0.44	0.48
277	0.14	0.20	0.31	0.38	0.42
347	0.11	0.16	0.24	0.30	0.33
480	0.08	0.11	0.18	0.22	0.24

# OF LEDS	72				
NOMINAL WATTAGE	115	145	180	210	240
SYSTEM POWER (W)	113.7	143.2	179.4	210.2	241.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.00	1.21	1.50	1.75	1.79
208	0.58	0.70	0.87	1.01	1.03
240	0.50	0.60	0.75	0.88	0.90
277	0.43	0.52	0.65	0.76	0.78
347	0.35	0.42	0.52	0.61	0.62
480	0.25	0.30	0.38	0.44	0.45

# OF LEDS	108				
NOMINAL WATTAGE	215	250	280	325	365
SYSTEM POWER (W)	214.8	250.8	278.3	324.7	362.6
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.00	2.08	2.33	3.04	2.67
208	1.15	1.20	1.35	1.75	1.54
240	1.00	1.04	1.17	1.52	1.33
277	0.87	0.90	1.01	1.32	1.16
347	0.69	0.72	0.81	1.05	0.92
480	0.50	0.52	0.58	0.76	0.67

# OF LEDS		162				
NOMINAL WATTAGE	320	365	405	445	485	545
SYSTEM POWER (W)	322.1	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)		CURRENT (Amps)				
120	2.71	2.67	3.38	3.71	4.04	4.54
208	1.56	1.54	1.95	2.14	2.33	2.62
240	1.35	1.33	1.69	1.85	2.02	2.27
277	1.17	1.16	1.46	1.61	1.75	1.97
347	0.94	0.92	1.17	1.28	1.40	1.57
480	0.68	0.67	0.84	0.93	1.01	1.14

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VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: SILICONE STRIKE

# OF LEDS	40								
NOMINAL WATTAGE (W)	35	55	65	80	100	120	140	170	195
SYSTEM POWER (W)	34.4	47.4	63.3	82.2	101.7	121.6	141.4	168.8	193.0
INPUT VOLTAGE (V)	CURRENT (A)								
120	0.29	0.40	0.53	0.69	0.85	1.01	1.18	1.41	1.61
208	0.17	0.23	0.30	0.40	0.49	0.58	0.68	0.81	0.93
240	0.14	0.20	0.26	0.34	0.42	0.51	0.59	0.70	0.80
277	0.12	0.17	0.23	0.30	0.37	0.44	0.51	0.61	0.70
347	0.10	0.14	0.18	0.24	0.29	0.35	0.41	0.49	0.56
480	0.07	0.10	0.13	0.17	0.21	0.25	0.29	0.35	0.40

# OF LEDS	80									
NOMINAL WATTAGE (W)	75	90	105	130	155	175	205	225	250	280
SYSTEM POWER (W)	74.0	87.0	105.3	131.9	153.5	175.4	203.4	226.1	249.0	281.0
INPUT VOLTAGE (V)	CURRENT (A)									
120	0.62	0.73	0.88	1.10	1.28	1.46	1.70	1.88	2.08	2.34
208	0.36	0.42	0.51	0.63	0.74	0.84	0.98	1.09	1.20	1.35
240	0.31	0.36	0.44	0.55	0.64	0.73	0.85	0.94	1.04	1.17
277	0.27	0.31	0.38	0.48	0.55	0.63	0.73	0.82	0.90	1.01
347	0.36	0.42	0.51	0.63	0.74	0.84	0.98	1.09	1.20	1.35
480	0.15	0.18	0.22	0.27	0.32	0.37	0.42	0.47	0.52	0.59

# OF LEDS	120								
NOMINAL WATTAGE (W)	190	205	230	265	295	320	355	380	420
SYSTEM POWER (W)	189.8	206.0	230.3	263.2	296.5	322.0	356.3	382.3	421.6
INPUT VOLTAGE (V)	CURRENT (A)								
120	1.58	1.72	1.92	2.19	2.47	2.68	2.97	3.19	3.51
208	0.91	0.99	1.11	1.27	1.43	1.55	1.71	1.84	2.03
240	0.79	0.86	0.96	1.10	1.24	1.34	1.48	1.59	1.76
277	0.69	0.74	0.83	0.95	1.07	1.16	1.29	1.38	1.52
347	0.55	0.59	0.66	0.76	0.85	0.93	1.03	1.10	1.21
480	0.40	0.43	0.48	0.55	0.62	0.67	0.74	0.80	0.88

# OF LEDS	180								
NOMINAL WATTAGE (W)	275	295	335	360	395	435	470	510	550
SYSTEM POWER (W)	272.7	296.8	333.2	357.8	394.7	432.4	470.2	508.7	547.4
INPUT VOLTAGE (V)	CURRENT (A)								
120	2.27	2.47	2.78	2.98	3.29	3.60	3.92	4.24	4.56
208	1.31	1.43	1.60	1.72	1.90	2.08	2.26	2.45	2.63
240	1.14	1.24	1.39	1.49	1.64	1.80	1.96	2.12	2.28
277	0.98	1.07	1.20	1.29	1.42	1.56	1.70	1.84	1.98
347	0.79	0.86	0.96	1.03	1.14	1.25	1.36	1.47	1.58
480	0.57	0.62	0.69	0.75	0.82	0.90	0.98	1.06	1.14

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

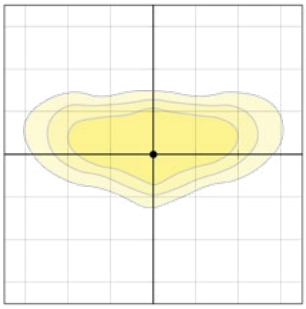
TYPE: PROJECT:

CATALOG #:

SILICONE OPTIC STRIKE PHOTOMETRY

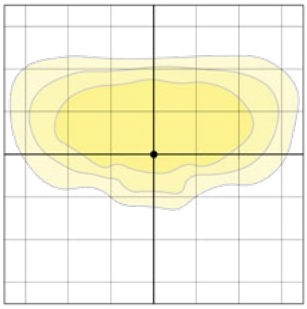
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type 2



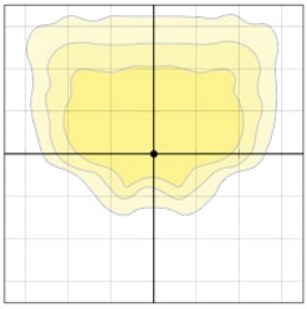
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 3



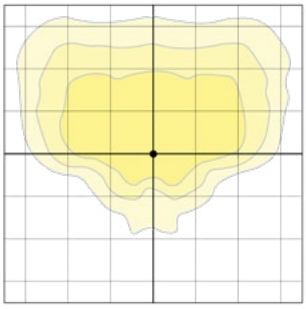
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4 Forward



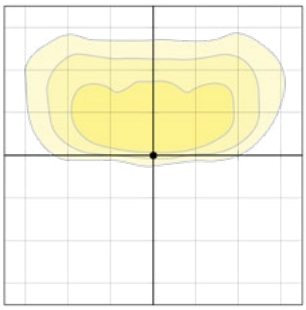
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4 Wide



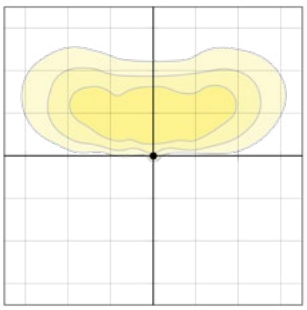
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4WBC



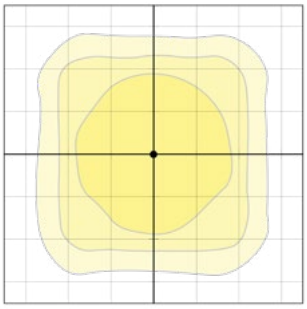
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 4WMBC



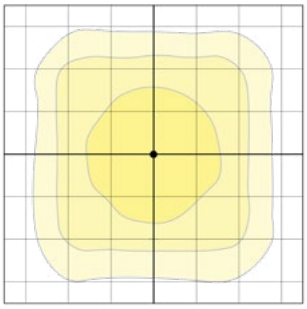
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 5QM



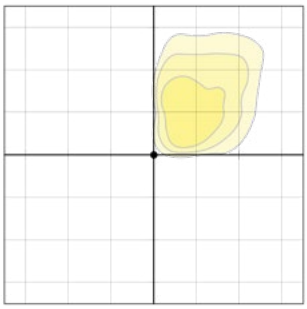
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type 5QW



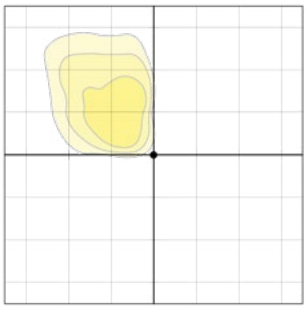
Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type LCC



Mounting Height: 20 ft
Scale: 1 inch = 25 ft

Type RCC



Mounting Height: 20 ft
Scale: 1 inch = 25 ft

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

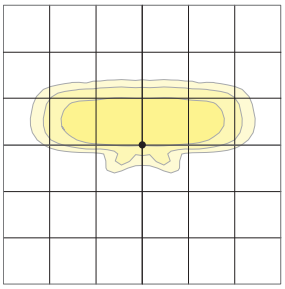
TYPE: PROJECT:

CATALOG #:

MICRO STRIKE PHOTOMETRY

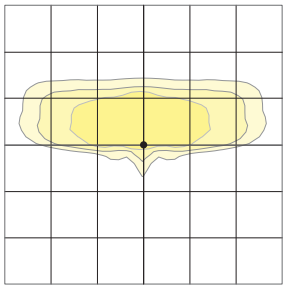
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type 2



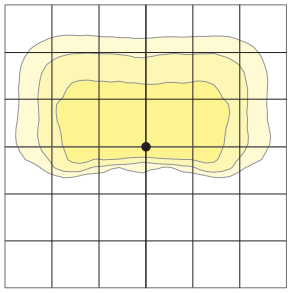
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 3



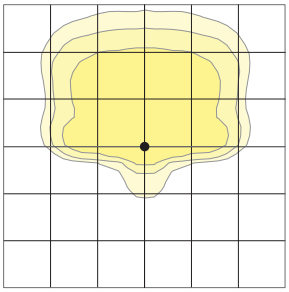
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Wide



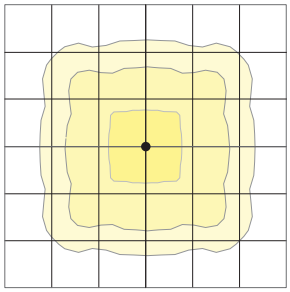
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4F



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QW



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

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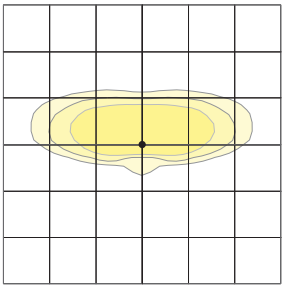
CATALOG #:

OPTIC STRIKE PHOTOMETRY

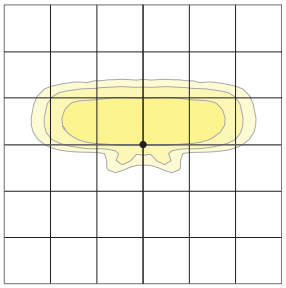
The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type FR – Front Row/Auto Optic



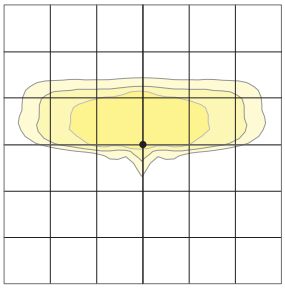
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 2



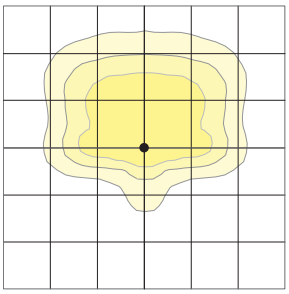
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 3



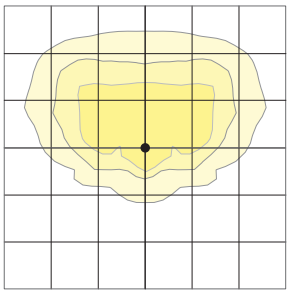
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Forward



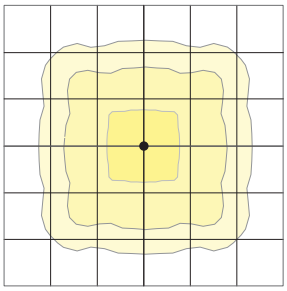
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 4 Wide



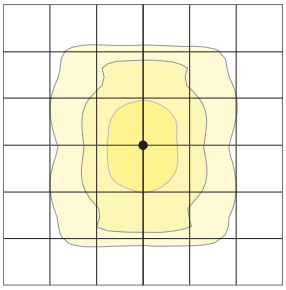
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QM



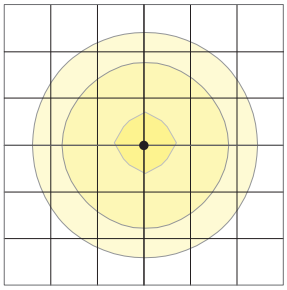
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5RW (rectangular)



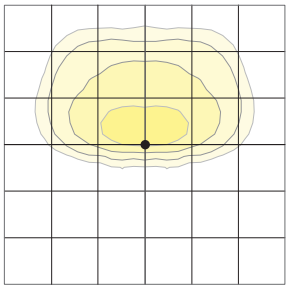
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5W (round wide)



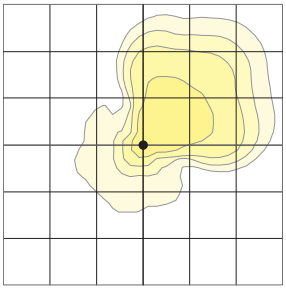
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type TC



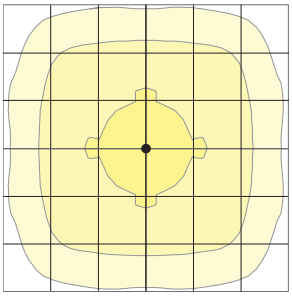
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type Corner



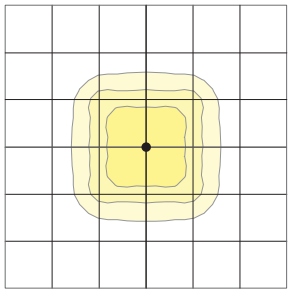
Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QW



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

Type 5QN



Mounting Height: 20 ft
Scale: 1 inch = 20 ft

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DATE: LOCATION:

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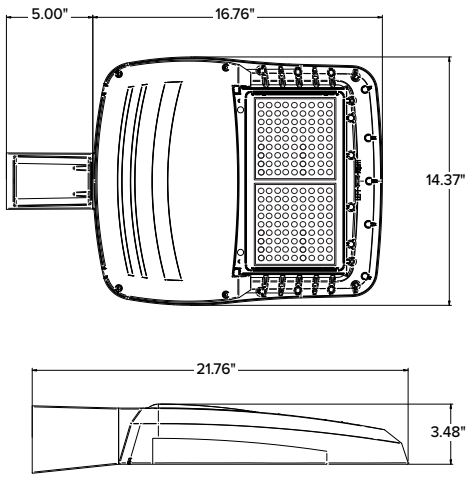
VIPER Area/Site

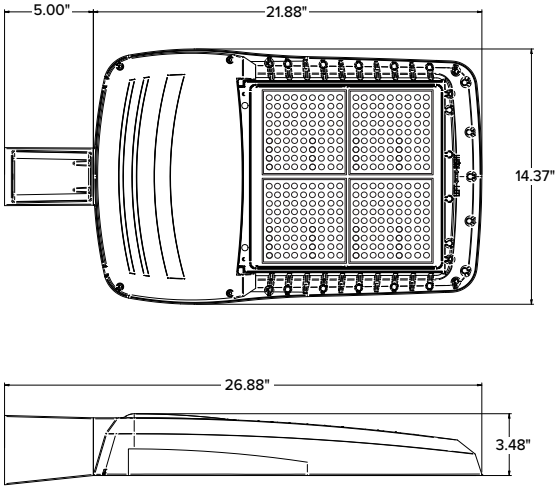
VIPER LUMINAIRE

DIMENSIONS

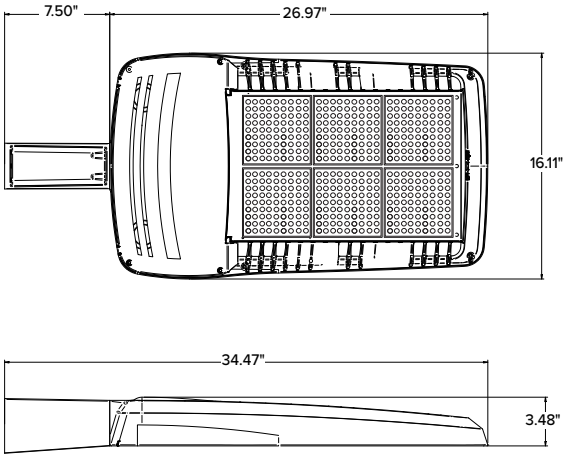
SIZE 1



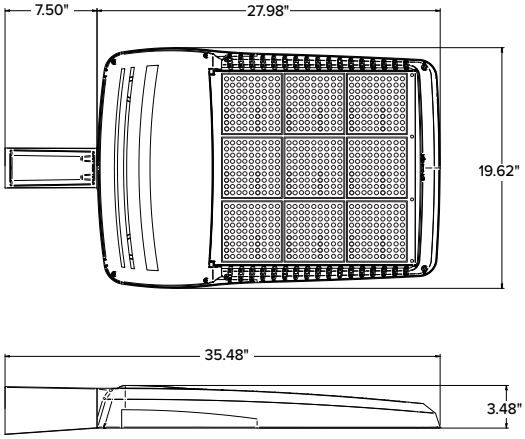
SIZE 2



SIZE 3



SIZE 4



	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9

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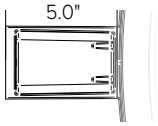
VIPER Area/Site

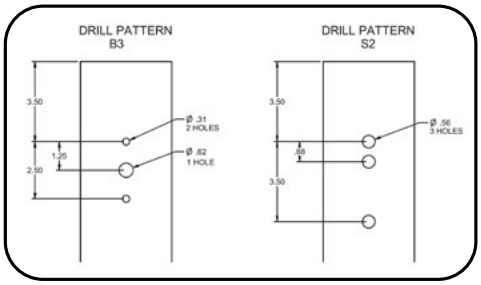
VIPER LUMINAIRE

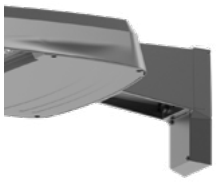
MOUNTING

A–STRAIGHT ARM MOUNT

Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern for ease of installation on square poles. For round poles add applicable suffix (2/3/4/5)

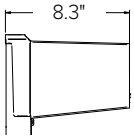


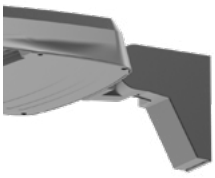




ASQU–UNIVERSAL ARM MOUNT

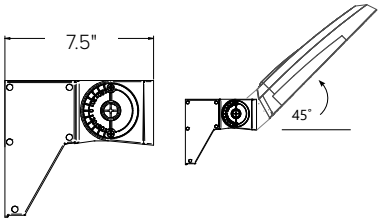
Universal mounting block for ease of installation. Compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

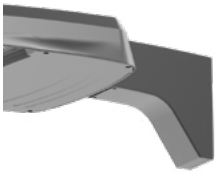




AAU–ADJUSTABLE ARM FOR POLE MOUNTING

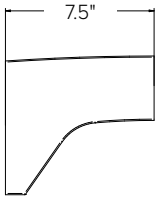
Rotatable arm mounts directly to pole. Compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2 and B3. For round poles add applicable suffix (2/3/4/5). Rotatable in 5˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.

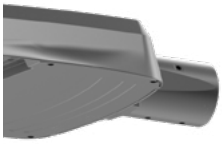




ADU–DECORATIVE UPSWEPT ARM

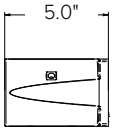
Upswept Arm compatible with drill patterns from 1.5" to 5.25" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5).

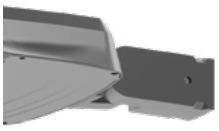




MAF–MAST ARM FITTER

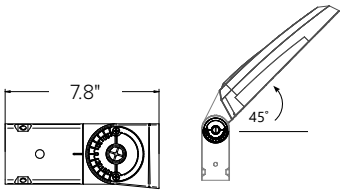
Fits 2-3/8" OD horizontal tenons.

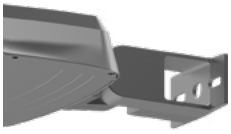




K–KNUCKLE

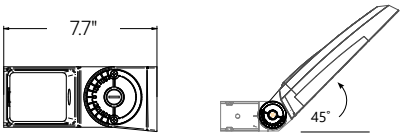
Rotatable in 5-degree aiming angle increments, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.





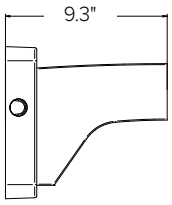
T–TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

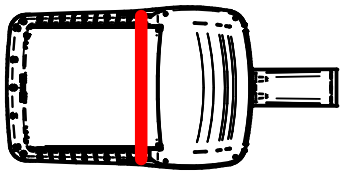
VIPER LUMINAIRE

ADDITIONAL INFORMATION (CONTINUED)

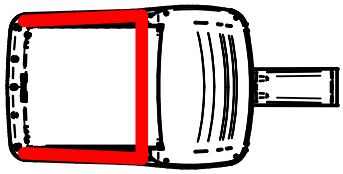
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

HSS has a depth of 5" for all Viper sizes
Not to be used with Occupancy Sensors as the shield may block the light to the sensor.

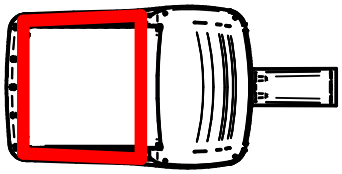
VPR2x HSS-90-B-xx



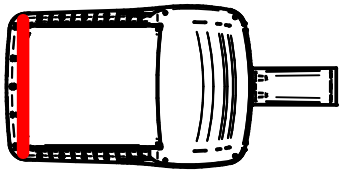
VPR2x HSS-270-BSS-xx



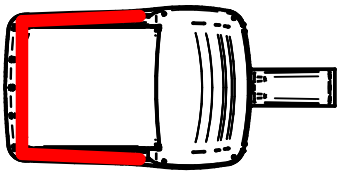
VPR2x HSS-360-xx



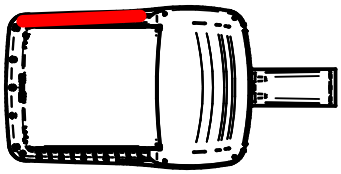
VPR2x HSS-90-F-xx



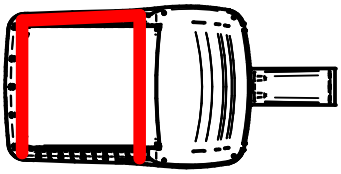
VPR2x HSS-270-FSS-xx



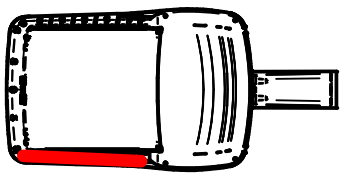
VPR2x HSS-90-S-xx



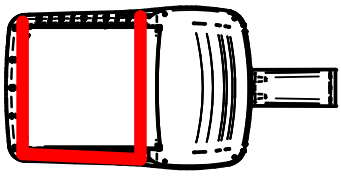
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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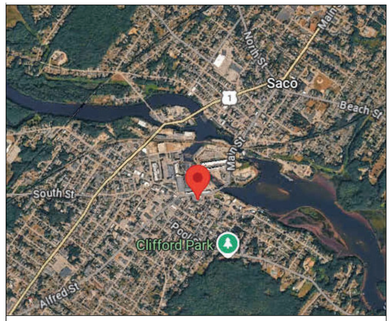
41 MAIN STREET - PHASE 1

BIDDEFORD, ME 04005

ARCHETYPE
ARCHITECTS



LOCATION MAP NOT TO SCALE

SIZE OF LOT: 0.52 ACRES
TAX MAP: 41
LOT ID: 138
CURRENT ZONING: MSRD1

EXISTING USE: SELF STORAGE FACILITY AND PARKING
PROPOSED USE: PARKING

DRAWING LIST

C-3.0	PROPOSED SITE PLAN
C-3.1	SITE DETAILS
C-3.2	SITE DETAILS
L1	PLANTING PLAN
LD-1	LANDSCAPE DETAILS
A-1	PLAN DIAGRAMS PHASE 1
S-1	BOUNDARY SURVEY
L-1	PHOTOMETRICS CLACULATION

Client:
41 Main LLC
72 Commercial Street
Suite 2
Portland, ME 04101

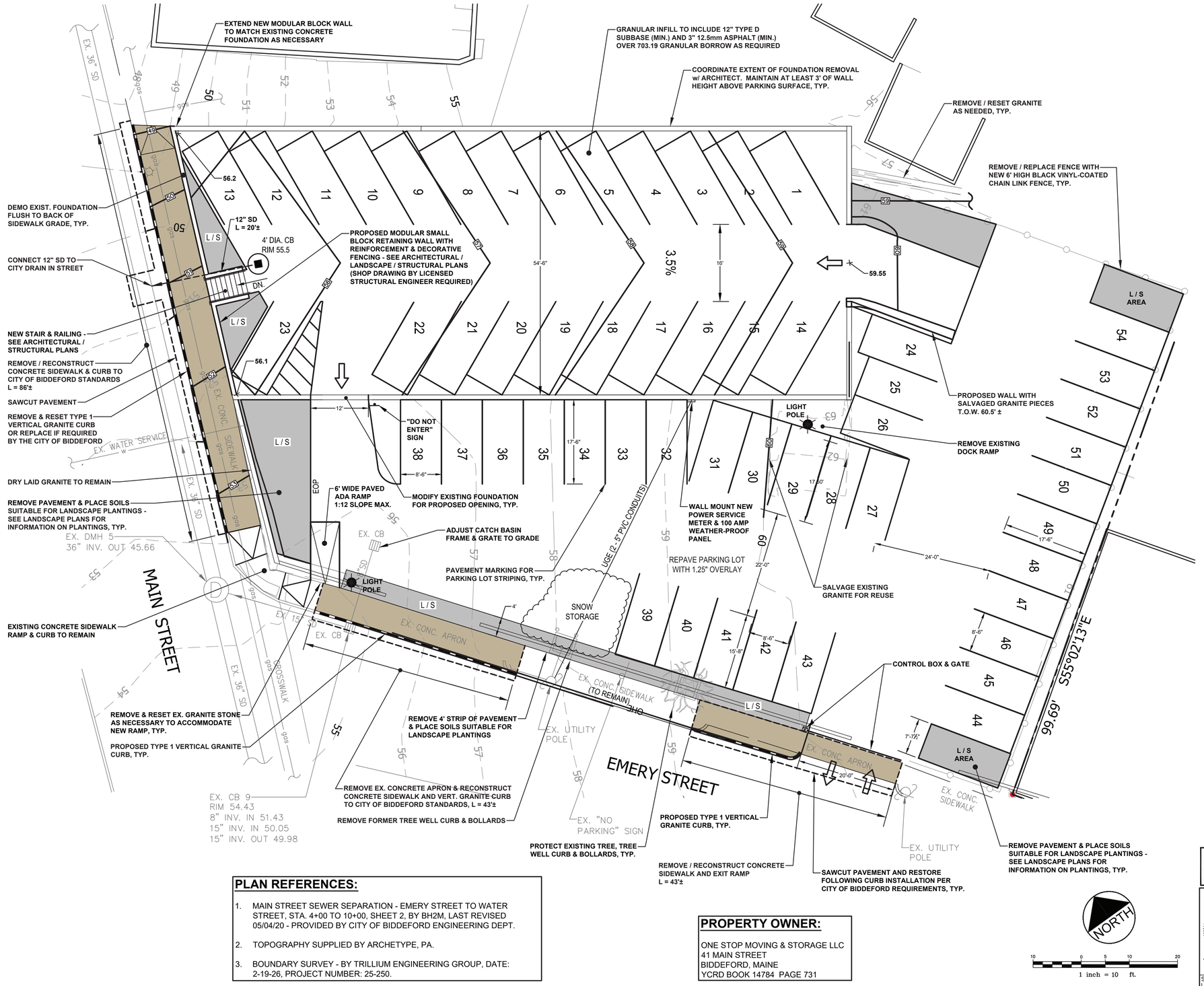
Architect:
Archetype Architects
48 Union Wharf
Portland, ME
04101
207.772.6022

Civil Engineer:
Gorrill Palmer
300 Southborough Dr #200
South Portland, ME
04106
207.772.2515

Landscape Architect:
Dry Landscape Architecture, LLC
31 Miller Ave
Biddeford, ME 04005
603.496.8020

Surveyor:
Trillium Engineering Group
251 US-1 Suite O-2
Falmouth, ME
04105
207.307.0872

Contractor:
JM Excavating Inc.
83 Long Hill Rd
Gray, ME
04039
207.316.4148



PLAN REFERENCES:

1. MAIN STREET SEWER SEPARATION - EMERY STREET TO WATER STREET, STA. 4+00 TO 10+00, SHEET 2, BY BH2M, LAST REVISED 05/04/20 - PROVIDED BY CITY OF BIDDEFORD ENGINEERING DEPT.
2. TOPOGRAPHY SUPPLIED BY ARCHETYPE, PA.
3. BOUNDARY SURVEY - BY TRILLIUM ENGINEERING GROUP, DATE: 2-19-26, PROJECT NUMBER: 25-250.

PROPERTY OWNER:

ONE STOP MOVING & STORAGE LLC
41 MAIN STREET
BIDDEFORD, MAINE
YCRD BOOK 14784 PAGE 731

NORTH

1 inch = 10 ft.

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

STATE OF MAINE — STEPHEN R. BUSHEY — 06.16.26 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	2026.06.16	REVISED FOR RESUBMISSION
2	2026.06.10	REVISED PARKING LAYOUT
1	2026.05.13	RELEASED FOR PRICING

Design: SRB	Draft: CDD	Date: JAN 2026
Checked: SRB	Scale: AS NOTED	Job No.: –
File Name: 41 MAIN–PBASE–REVISED.dwg		

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

Drawing Name:	PROPOSED SITE PLAN
Project:	PROPOSED PARKING LOT IMPROVEMENTS 41 MAIN STREET, BIDDEFORD, MAINE
Client:	Archetype, PA 48 UNION WHARF, PORTLAND, MAINE 04101

Drawing No.
C-3.0

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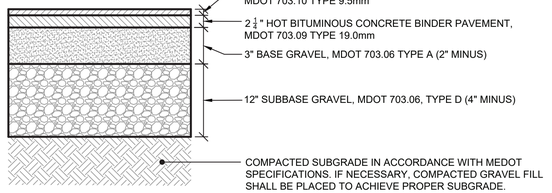
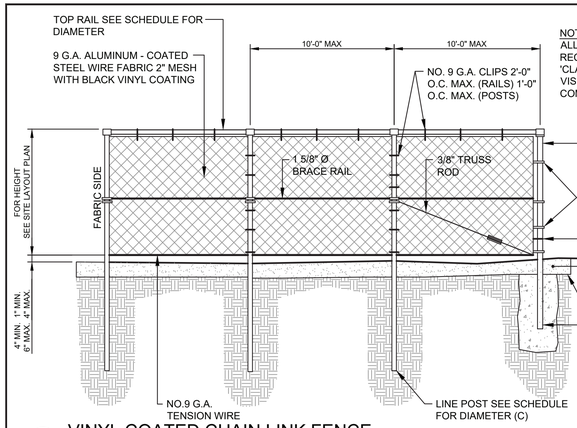


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS AND EXECUTION SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH MEDOT STANDARD SPECIFICATIONS.

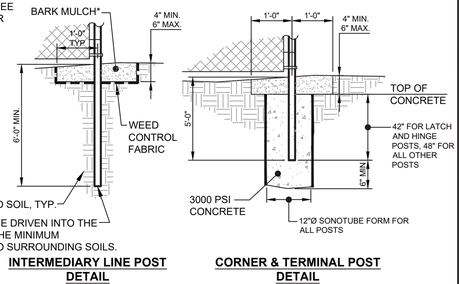
(A) ACCESS DRIVES / PARKING AREAS BITUMINOUS CONCRETE PAVEMENT SECTION

N.T.S.



NOTE:
ALL FABRIC, POSTS AND HARDWARE SHALL RECEIVE THERMALLY FUSED (ASTM F-668 'CLASS 2B') BLACK VINYL COATING WITH NO VISIBLE NON-COATED MATERIALS UPON COMPLETION OF THE FENCE.

CHAIN LINK FENCE INSTALLATION SCHEDULE			
FENCE HEIGHT (A)	TOP RAIL PIPE DIA. (B)	LINE POST PIPE DIA. (C)	CORNER, TERMINAL & GATE POST PIPE DIA. (D)
4'	1.66"	1.90"	2.375"
6'	1.66"	1.90"	2.375"
8'	1.66"	2.375"	2.875"
10'	1.66"	2.875"	2.875"

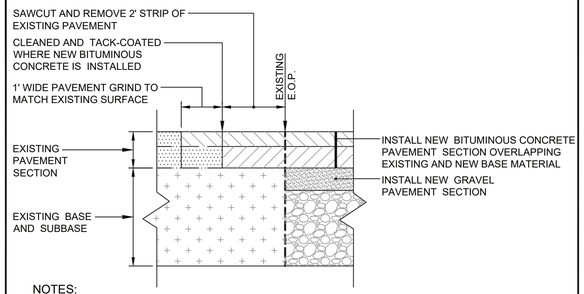


INTERMEDIARY LINE POST DETAIL **CORNER & TERMINAL POST DETAIL**

*USE BARK MULCH NEAR PARKING LOT AND LOAM & SEED IN OTHER AREAS

(D) VINYL COATED CHAIN LINK FENCE

N.T.S.



NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.

(B) TYPICAL PAVEMENT SECTION NEW PAVEMENT ADJACENT TO EXISTING PAVEMENT

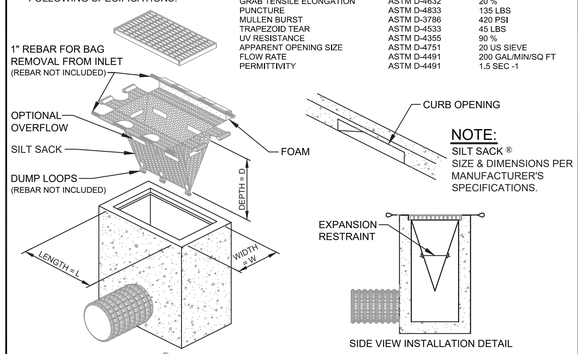
N.T.S.

NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)

(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

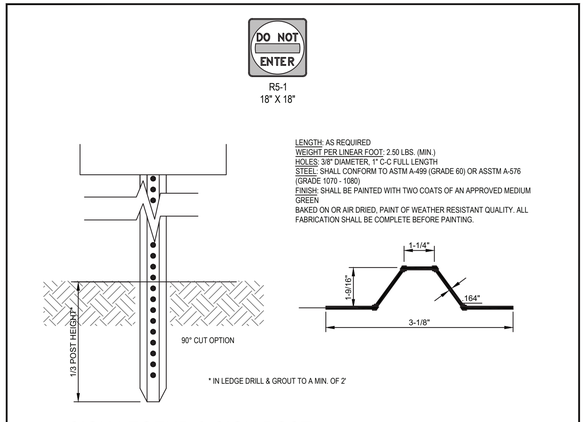
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



NOTE:
SILT SACK ® SIZE & DIMENSIONS PER MANUFACTURER'S SPECIFICATIONS.

(E) SILT SACK® DETAIL & SPECIFICATIONS

N.T.S.



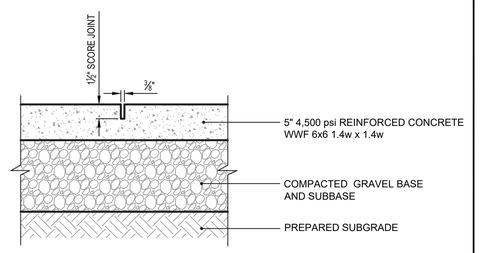
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS. (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN
BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

(G) SIGN LEGEND & SIGN POST

N.T.S.

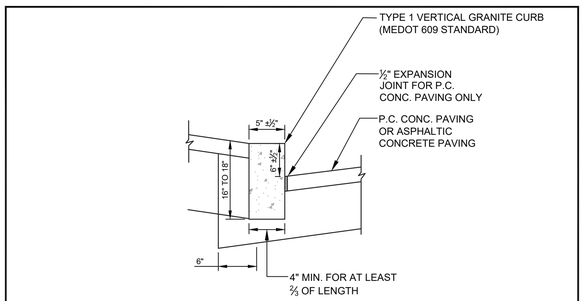
A 1" TOOLED EDGE SHALL BE PROVIDED AT ALL JOINTS AND SIDEWALK EDGES

TOOLED EDGE - FINE TO MEDIUM BROOM FINISH



(K) SIDEWALK CONSTRUCTION JOINT

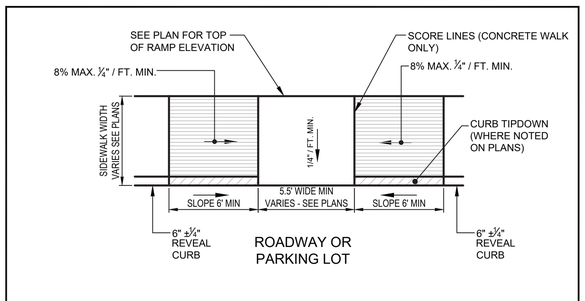
N.T.S.



NOTES:
1. VERTICAL GRANITE CURB TO MEET MEDOT STANDARD SPECIFICATIONS
2. JOINTS SHALL BE MORTARED
3. JOINT SEPARATION SHALL BE ¼" AND ⅝"
4. MAX. LENGTH OF STRAIGHT CURB STONES = 8'; MIN. LENGTH = 4'
5. CIRCULAR CURB REQUIRED FOR RADIUS LESS THAN 50'

(C) VERTICAL GRANITE CURB DETAIL

N.T.S.



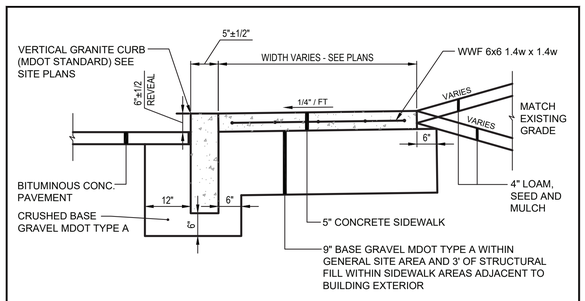
NOTES:
1. RAMP SHALL BE CONSTRUCTED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA).

2. SCORE LINES ARE NOT APPLICABLE TO BITUMINOUS CONCRETE SIDEWALKS.

3. SEE PLANS FOR LOCATION(S) AND TYPES OF CURB.

(F) BARRIER FREE RAMP DETAIL

N.T.S.

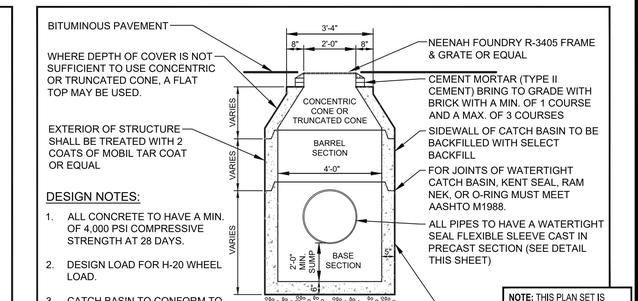


NOTES:
1. INSTALL EXPANSION JOINTS AT 80' TO 120' SPACING (IF APPLICABLE).

2. INSTALL CONSTRUCTION JOINTS AT 12' SPACING.

(H) CONCRETE SIDEWALK WITH VERTICAL GRANITE CURB

N.T.S.



DESIGN NOTES:

1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF..

NOTE:
ALL CATCH BASIN OUTLET PIPES TO BE EQUIPPED WITH SNOUT OIL-WATER SEPARATOR

(L) 4'-0" PRECAST CATCH BASIN DETAIL

N.T.S.

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

STATE OF MAINE STEPHEN R. BUSHEY 06.16.26 LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision

Rev.	Date	Revision
3	2026.06.16	REVISED FOR RESUBMISSION
2	2026.06.10	REVISED PARKING LAYOUT
1	2026.05.13	RELEASED FOR PRICING

Design: SRB	Draft: CDD	Date: JAN 2026
Checked: SRB	Scale: AS NOTED	Job No.: –
File Name: 41 MAIN–PBASE–REVISED.dwg		

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

Drawing Name: SITE DETAILS

Project: PROPOSED PARKING LOT IMPROVEMENTS
41 MAIN STREET, BIDDEFORD, MAINE

Client: Archetype, PA
48 UNION WHARF, PORTLAND, MAINE 04101

Drawing No. C-3.1

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14.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PRIMARY EMPHASIS OF THE EROSION/SEDIMENTATION CONTROL PLAN, WHICH WILL BE IMPLEMENTED FOR THIS PROJECT, IS AS FOLLOWS:

- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.
- RAPID REVEGETATION OF DENUDED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID RILL AND GULLY EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (SEDIMENTATION BASINS, HAY BALES/STONE CHECK DAMS/SILT FENCE, ETC.)

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE LATEST EDITION OF THE MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS.

A. DEWATERING

WATER FROM CONSTRUCTION TRENCH DEWATERING SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 50 FEET OF A PROTECTED NATURAL RESOURCE.

B. INSPECTION AND CONSTRUCTION MONITORING

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. BEFORE AND WITHIN 24 HOURS AFTER EACH WET WEATHER EVENT THAT PRODUCES MORE THAN 0.5 INCH OF RAINFALL IN A CONSECUTIVE 24-HOUR PERIOD, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE QUALIFIED CONTRACTOR KNOWLEDGEABLE OF DEP STANDARDS SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. ADDITIONALLY, INSPECTIONS SHALL BE PERFORMED AT LEAST ONCE A WEEK. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

THE FOLLOWING STANDARDS MUST BE MET DURING CONSTRUCTION.

1. INSPECTION AND CORRECTIVE ACTION. AN ENGINEER OR SOMEONE WITH KNOWLEDGE OF EROSION AND STORMWATER STANDARDS AS DESCRIBED IN THE CONDITIONS OF THE PERMIT SHALL INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES (INCLUDING CATCH BASIN INLET PROTECTION MEASURES, SEDIMENT FILTER MEASURES, AND STABILIZATION OF SLOPES), MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT (WET WEATHER EVENT THAT PRODUCES MORE THAN 0.5 INCH IN A CONSECUTIVE 24-HOUR PERIOD), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. UPON FINAL SUBDIVISION PLANS, THE INSPECTION LOG WILL BE UPDATED TO REFLECT ALL STRUCTURES.

2. MAINTENANCE. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE ASSOCIATED WITH THESE INSPECTIONS. IF ADDITIONAL BMPS OR SIGNIFICANT REPAIR OF BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (WET WEATHER EVENT THAT PRODUCES MORE THAN 0.5 INCH IN A CONSECUTIVE 24-HOUR PERIOD). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.

3. DOCUMENTATION. KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN. THE LOG MUST BE MADE ACCESSIBLE TO DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.

C. TEMPORARY EROSION CONTROL MEASURES

EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. LIMIT THE EXPOSED AREA TO ONE ACRE AT A TIME OR NO LARGER AREA THAT CAN BE MULCHED IN ONE DAY.

TYPICAL SLOPE RESTORATION:

- EROSION CONTROL BLANKETS REQUIRED BETWEEN 2:1 AND 3:1 SLOPES
- SLOPES STEEPER THAN 8% REQUIRE EROSION CONTROL MULCH
- SLOPES STEEPER THAN 2:1 SHALL NOT USE SOLELY VEGETATED STABILIZATION METHODS
- 1.5:1 SLOPES ARE PROHIBITED.

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION:

1. A CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE APPROVED ACCESS DRIVE ON ACADEMY STREET AND MAIN STREET.

2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF- BORNE SEDIMENTS UNTIL GRASS AREAS ARE REVEGETATED. THE SILT FENCE AND/OR WOOD WASTE COMPOST BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THIS PACKAGE AND INSPECTED AT LEAST ONCE A WEEK AND BEFORE AND IMMEDIATELY AFTER A STORM EVENT OF 0.5 INCHES OR GREATER, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM. WOOD WASTE COMPOST BERMS ARE NOT TO BE USED ADJACENT TO WETLAND AREAS THAT ARE NOT TO BE DISTURBED, BUT IT CAN BE PLACED INSIDE THE SILT FENCE AS A SECONDARY ROW.

3. STRAW OR HAY MULCH INCLUDING HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND OCTOBER 15TH ON SLOPES OF LESS THAN 15 PERCENT SHALL BE ANCHORED BY APPLYING WATER; MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15 PERCENT SHALL BE COVERED BY A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FABRIC NETTING AND STAPLES SHALL BE USED ON DISTURBED AREAS WITHIN 50' OF LAKES, STREAMS, AND WETLANDS REGARDLESS OF THE UPSTREAM SLOPE. MULCH PLACED BETWEEN OCTOBER 15TH AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT SHALL BE COVERED WITH A FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SLOPES STEEPER THAN 3:1 AND EQUAL TO OR FLATTER THAN 2:1, WHICH ARE TO BE REVEGETATED, SHALL RECEIVE CURLEX BLANKETS BY AMERICAN EXCELSIOR OR EQUAL. SLOPES STEEPER THAN 2:1 SHALL RECEIVE RIPRAP AS NOTED ON THE PLANS. THE MULCH APPLICATION RATE FOR BOTH TEMPORARY AND PERMANENT SEEDING IS 75 LBS PER 1000 SF AS IDENTIFIED IN ATTACHMENT A OF THIS SECTION. MULCH SHALL NOT BE PLACED OVER SNOW.

4. TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION WILL BE PROTECTED AS FOLLOWS:

   a) TEMPORARY STOCKPILES SHALL NOT BE LOCATED WITHIN 50 FEET OF ANY WETLANDS WHICH WILL NOT BE DISTURBED AND SHALL BE LOCATED AWAY FROM DRAINAGE SWALES.

   b) STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH, SUCH AS HAY, STRAW, OR EROSION CONTROL MIX.

   c) STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER AT THE TIME OF FORMATION. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF STOCKPILES. ADDITIONALLY, STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO STOCKPILES.

6. ALL DENUDED AREAS THAT ARE WITHIN 50 FEET OF AN UNDISTURBED WETLAND, WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN A BUILDING PAD, PARKING AREA, OR ACCESS DRIVE SUBBASE AREA, SHALL RECEIVE MULCH OR EROSION CONTROL MESH FABRIC WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL. ALL AREAS WITHIN 75 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. IN OTHER AREAS, THE TIME PERIOD MAY BE EXTENDED TO 7 DAYS.

7. ACADEMY AND MAIN STREETS (UNDISTURBED PORTIONS ENTERING THE PROJECT SITE) SHALL BE SWEPT TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

8. DURING GRUBBING OPERATIONS STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS AND AS DIRECTED ON THE EROSION CONTROL PLANS.

9. SILT FENCING WITH A MAXIMUM STAKE SPACING OF 6 FEET SHALL BE USED, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT OF MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES, IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE SHALL BE ANCHORED.

10. WOOD WASTE COMPOST/BARK BERMS MAY BE USED IN LIEU OF SILTATION FENCING IN AREAS NOT ADJACENT TO WETLANDS, BUT CAN BE USED INSIDE OF SILT FENCE AS A SECONDARY ROW. BERMS SHALL BE REMOVED AND SPREAD IN A LAYER NOT TO EXCEED 3" THICK ONCE UPSTREAM AREAS ARE COMPLETED AND A 90% CATCH OF VEGETATION IS ATTAINED.

11. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS – SECTION 637 – DUST CONTROL.

12. LOAM AND SEED IS INTENDED TO SERVE AS THE PRIMARY PERMANENT REVEGETATIVE MEASURE FOR ALL DENUDED AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP. APPLICATION RATES ARE PROVIDED IN ATTACHMENT A OF THIS SECTION. SEEDING SHALL NOT OCCUR OVER SNOW.

13. ALL CATCH BASINS SHALL BE PROTECTED DURING CONSTRUCTION WITH A CATCH BASIN INLET FILTER AND, IN CASES OF HEAVY FLOWS, A STONE SEDIMENT BARRIER AS SHOWN ON SHEET C406.

D. PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, GRAVEL SUBBASE, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED, AND SEEDED. FABRIC NETTING, ANCHORED WITH STAPLES, SHALL BE PLACED OVER THE MULCH IN AREAS AS NOTED IN TEMPORARY EROSION CONTROL MEASURES PARAGRAPH 4 OF THIS REPORT. ALL AREAS WITHIN 50 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48-HOUR WINDOW. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

2. ALL STORM DRAIN PIPE OUTLETS SHALL HAVE RIPRAP APRONS AT THEIR OUTLET TO PROTECT THE OUTLET AND RECEIVING CHANNEL FROM SCOUR AND DETERIORATION. INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE APRONS SHALL BE INSTALLED AND STABILIZED TO THE EXTENT PRACTICABLE PRIOR TO DIRECTING RUNOFF TO THE TRIBUTARY PIPE OR CULVERT.

3. CATCH BASINS SHALL BE PROVIDED WITH SEDIMENT SUMPS AND INLET HOODS (THE SNOUT) FOR ALL OUTLET PIPES THAT ARE 18" IN DIAMETER OR LESS.

14.1 IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO ENSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE, THIS SHALL BE ACCOMPLISHED BY LIMITING THE DISTURBED AREA. AREA SHALL BE LIMITED TO NO MORE THAN THE CONTRACTOR CAN MULCH IN ONE DAY.

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AT THE APPROVED LOCATIONS.
2. INSTALL PERIMETER SILT FENCE AND/OR WOOD WASTE BERMS.
3. INSTALL SEDIMENT BASINS, DIVERSION DIKES, OR CHECK DAMS (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL BMP'S)
4. CLEAR AND GRUB SITE. INSTALL STONE CHECK DAMS AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS.
5. COMMENCE INSTALLATION OF DRAINAGE APPURTENANCES.
6. COMMENCE EARTHWORK FOR STORMWATER FACILITIES.
7. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.
8. COMMENCE INSTALLATION OF RETAINING WALLS (IF NECESSARY).
9. COMMENCE INSTALLATION OF WATER AND SEWER LINES.
10. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
11. COMPLETE INSTALLATION OF UNDERGROUND UTILITIES TO WITHIN 5' OF FUTURE BUILDINGS.
12. INSTALL LIGHT POLE FOUNDATIONS AND LIGHT POLES.
13. COMPLETE REMAINING EARTHWORK OPERATIONS.
14. COMPLETE INSTALLATION OF DRAINAGE APPURTENANCES.
15. INSTALL SUB-BASE AND BASE GRAVEL WITHIN PARKING AREAS, WALKWAYS, AND ALL DRIVEWAYS.
16. INSTALL CURBING IN PARKING AREAS AS NEEDED.
17. INSTALL BASE COURSE PAVING FOR DRIVES AND PARKING AREA AS WELL AS CONCRETE SURFACES.
18. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
19. INSTALL SURFACE COURSE PAVING FOR DRIVES AND PARKING AREAS. STRIPE PER PLAN.
20. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
21. TOUCH UP LOAM AND SEED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE FOLLOWING CRITERIA:

1. THE ABOVE CONSTRUCTION SEQUENCE SHOULD GENERALLY BE COMPLETED IN THE SPECIFIED ORDER; HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE DENUDED.

2. THE WORK SHALL BE CONDUCTED IN SECTIONS WHICH SHALL:

   (a) LIMIT THE AMOUNT OF EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PROCEEDING 30 DAYS.

   (b) REVEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT; OR TEMPORARILY STABILIZED WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL FOR AREAS WITHIN 50 FEET OF AN UNDISTURBED WETLAND AND 7 DAYS FOR ALL OTHER AREAS. AREAS WITHIN 50 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW.

   (c) INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEM AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE. THE DITCHES SHALL BE IMMEDIATELY LINED OR REVEGETATED AS SOON AS THEIR INSTALLATION IS COMPLETE.

14.2 EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION CONTROL INFORMATION IS INCLUDED IN THE PLAN SET.

14.3 DETAILS AND SPECIFICATIONS

THE EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

14.4 WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. LIMIT THE EXPOSED AREA TO ONE ACRE OR AN AREA THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN PARKING AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

FOR WORK, WHICH IS CONDUCTED BETWEEN OCTOBER 15TH AND APRIL 15TH OF ANY CALENDAR YEAR, ALL DENUDED AREAS, SHALL BE COVERED WITH HAY MULCH OR EROSION CONTROL MIX, APPLIED AT TWICE THE NORMAL APPLICATION RATE AND ANCHORED WITH A FABRIC NETTING. THE TIME PERIOD FOR APPLYING MULCH SHALL BE LIMITED TO 2 DAYS FOR ALL AREAS.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKPILING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 50 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCE PROTECTION

ANY AREAS WITHIN 75 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 90% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIER (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 75 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOOD WASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

AN AREA SHALL BE CONSIDERED DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAT 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS/1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 90% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

7. WINTER CONSTRUCTION INSPECTION

AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE QUALIFIED CONTRACTOR KNOWLEDGEABLE OF DEP STANDARDS SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO ENSURE THEIR CONTINUOUS FUNCTION. INSPECTIONS SHALL BE PERFORMED A MINIMUM OF ONCE PER WEEK AND SHALL BE CONDUCTED IN ACCORDANCE WITH THE EROSION CONTROL MEASURES AND SITE STABILIZATION WITHIN THE EROSION CONTROL REPORT.

14.5 STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS – THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 15. THE APPLICANT SHALL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 1. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 1, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

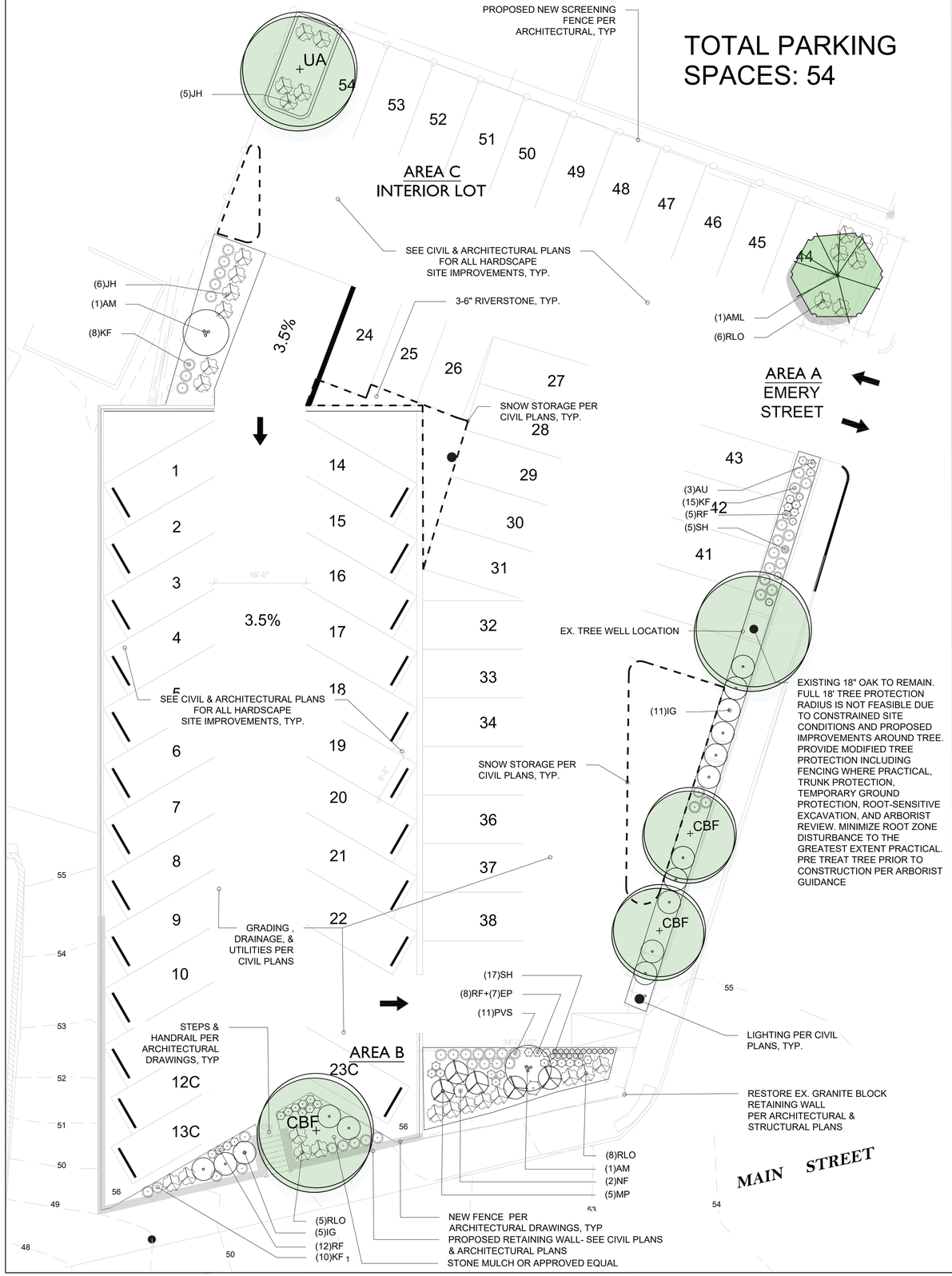
INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT SHALL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.

INSTALL A STONE LINING IN THE DITCH --THE APPLICANT SHALL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 15. THE CONTRACTOR SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR SHALL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR SHALL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 1. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 1, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY SEPTEMBER 1 THE CONTRACTOR SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM III OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM IV OF THIS STANDARD.

STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY SEPTEMBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO P



PLANT SCHEDULE

SYM	BOTANICAL NAME	COMMON NAME	TYPE	SIZE / SPEC	QTY	SPACING	REMARKS	AREA
AREA A —EMERY STREET								
CBF	*Carpinus betulus 'Frans Fontaine'*	European Hornbeam	Columnar deciduous street tree	2.5" Cal. B&B	**2**	18'-20' O.C.	Columnar; salt/urban tolerant; under/adj. overhead lines	A
AML	*Amelanchier laevis*	Allegheny Serviceberry	Native multi-stem small tree	10' Ht. B&B	**1**	mlt.	Four-season native anchor; white spring bloom; interior lot	A
AU	*Arctostaphylos uva-ursi*	Bearberry	Native groundcover shrub	4" Pot	**3**	18" O.C.	Coastal-adapted; evergreen; red berries; salt-spray tolerant	A
SH	*Sporobolus heterolepis*	Prairie Dropseed	Native ornamental grass	1 Gal.	**5**	18" O.C.	Fine texture; fragrant bloom; repeating bay modules	A
RF	*Rudbeckia fulgida 'Goldsturm'*	Black-Eyed Susan	Native perennial	1 Gal.	**5**	18" O.C.	Native; long summer bloom; fill between grasses and shrubs	A
KF	*Calamagrostis x acutiflora 'Karl Foerster'*	Feather Reed Grass	Ornamental grass	1 Gal.	**15**	24" O.C.	Upright; 3-season interest; transition accent between shrubs	A
IG	*Ilex glabra 'Shamrock'*	Inkberry Holly	Broadleaf evergreen shrub	3 Gal.	**11**	36" O.C.	Dense evergreen; curb returns and mid-bay anchors; year-round screen	A
RLO	*Rhus aromatica 'Gro-Low'*	Gro-Low Fragrant Sumac	Native groundcover shrub	3 Gal.	**6**	48" O.C.	Salt/drought tolerant; brilliant fall color; spreading mass	A
				AREA A SUBTOTAL	**48**			
AREA B —MAIN STREET								
CBF	*Carpinus betulus 'Frans Fontaine'*	European Hornbeam	Columnar deciduous street tree	2.5" Cal. B&B	**1**	18'-20' O.C.	Columnar; salt/urban tolerant; under/adj. overhead lines	b
AM	*Amelanchier canadensis*	Shadbush Serviceberry	Native multi-stem shrub	5' B&B	**1**	AS SHOWN	Disease-resistant; ; anchor shrub	B
MP	*Morella pensylvanica*	Northern Bayberry	Native broadleaf shrub	3 Gal.	**5**	48" O.C.	Salt/wind tolerant; semi-evergreen; aromatic; mid-layer mass	B
IG	*Ilex glabra 'Shamrock'*	Inkberry Holly	Broadleaf evergreen shrub	3 Gal.	**5**	36" O.C.	Dense evergreen; east-end foundation screening	B
KF	*Calamagrostis x acutiflora 'Karl Foerster'*	Feather Reed Grass	Ornamental grass	1 Gal.	**10**	24" O.C.	Upright; 3-season interest; transition accent between shrubs	B
PVS	*Panicum virgatum 'Shenandoah'*	Red Switch Grass	Ornamental grass	1 Gal.	**11**	24" O.C.	Red fall color; east taper zone terminus	B
SH	*Sporobolus heterolepis*	Prairie Dropseed	Native ornamental grass	1 Gal.	**17**	18" O.C.	Fine texture; foreground band across full bed length	B
RF	*Rudbeckia fulgida 'Goldsturm'*	Black-Eyed Susan	Native perennial	1 Gal.	**20**	18" O.C.	Native; bold summer color visible from sidewalk	B
EP	*Echinacea purpurea*	Purple Coneflower	Native perennial	1 Gal.	**12**	18" O.C.	Native; pollinator; purple bloom mid-summer through fall	B
NF	*Nepeta x faassenii 'Walker's Low'*	Catmint 'Walker's Low'	Perennial groundcover	1 Gal.	**2**	18" O.C.	Blue-violet bloom; drought/salt tolerant; softens edge	B
RLO	*Rhus aromatica 'Gro-Low'*	Gro-Low Fragrant Sumac	Native groundcover shrub	3 Gal.	**8**	48" O.C.	Salt/drought tolerant; brilliant fall color; spreading mass	B
				AREA B SUBTOTAL	**92**			
AREA C — INTERIOR LOT · Parking Field Interior Islands and Perimeter								
UA	*Ulmus americana 'Valley Forge'*	Valley Forge American Elm	Deciduous shade tree	2.5" Cal. B&B	**1**	Sgl.	Disease-resistant; high canopy; anchor tree for foundation zone	C
AM	*Amelanchier canadensis*	Shadbush Serviceberry	Native multi-stem shrub	5' B&B	**1**	AS SHOWN	Disease-resistant; ; anchor shrub	C
KF	*Calamagrostis x acutiflora 'Karl Foerster'*	Feather Reed Grass	Ornamental grass	1 Gal.	**8**	24" O.C.	Upright; 3-season interest; transition accent between shrubs	C
JH	*Juniperus horizontalis 'Prince of Wales'*	Prince of Wales Juniper	Evergreen groundcover shrub	2 Gal.	**11**	48" O.C.	Low-grow; salt/drought tolerant; ideal for parking lot edge	C
				AREA C SUBTOTAL	**21**			
				TOTAL PLANT MATERIAL — ALL AREAS	**161**			

PLANTING NOTES

1. LANDSCAPE ARCHITECT TO APPROVE PLANT MATERIAL PRIOR TO DELIVERY TO SITE.
2. PLANT MATERIAL PROVIDED BY THE CONTRACTOR IS TO CONFORM TO THE HIGHEST STANDARD AS ADOPTED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. (ANSI). PLANT MATERIAL IS TO BE HEALTHY SPECIMENS, FREE FROM DISEASE OR DAMAGE.
3. THE CONTRACTOR IS TO FURNISH PLANTS, SEED, AND SOD SHOWN ON THE DRAWINGS. PLANTS ARE TO CONFORM WITH THE BOTANICAL IDENTIFICATIONS. PLANTS ARE TO BE SOURCED FROM A NURSERY WITHIN THE SAME CLIMATIC ZONE AS THE SITE LOCATION. NO SUBSTITUTIONS OF PLANT SPECIES ARE PERMITTED WITHOUT PRIOR APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE & THE LANDSCAPE ARCHITECT.
4. SUBSTITUTIONS OF PLANT SPECIES SHALL BE A PLANT OF EQUIVALENT OVERALL FORM, HEIGHT AND BRANCHING HABIT, FLOWER, LEAF, FRUIT, COLOR, TIME OF BLOOM & CLIMATIC LOCATION AS APPROVED BY LANDSCAPE ARCHITECT.
5. LOCATE AND VERIFY EXISTING & PROPOSED UTILITY LINE LOCATIONS PRIOR TO STAKING AND REPORT CONFLICTS TO LANDSCAPE ARCHITECT.
6. PLANTING DEMOLITION DEBRIS, GARBAGE, LUMPS OF CONCRETE, STEEL AND OTHER MATERIALS DELETERIOUS TO PLANT'S HEALTH AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE REMOVED FROM PLANTING AREAS.
7. THE CONTRACTOR IS TO VERIFY SITE LAYOUT & GRADES & INFORM THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR CHANGES IN LAYOUT AND/OR GRADING PRIOR TO CONSTRUCTION. NO PLANTING IS TO BE INSTALLED BEFORE ACCEPTANCE OF ROUGH GRADING.
8. ALL PROPOSED TREE LOCATIONS SHALL BE STAKED OR LAID OUT IN THEIR APPROXIMATE LOCATION BY THE CONTRACTOR. THE CONTRACTOR SHALL ADJUST THE LOCATIONS AS REQUESTED BY THE LANDSCAPE ARCHITECT TO ACCOUNT FOR SUBSURFACE UTILITIES AND OTHER FIELD CONDITIONS FINAL LOCATIONS OF PLANTS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
9. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH FINISHED GRADE. IMMEDIATELY REPLANT PLANTS THAT SETTLE OUT OF PLUMB OR BELOW FINISHED GRADE. PLANT AND STAKES ARE TO BE SET PLUMB UNLESS OTHERWISE NOTED. PLANT UNDER FULL TIME SUPERVISION OF CERTIFIED ARBORIST, NURSERYMAN, OR LICENSED LANDSCAPE ARCHITECT. PROVIDE WRITTEN VERIFICATION OF CERTIFICATION AND/OR LICENSE FOR LANDSCAPE ARCHITECT'S APPROVAL.
10. WATER PLANTS THOROUGHLY AFTER INSTALLATION, A MINIMUM OF TWICE WITHIN THE FIRST 24 HOURS.
11. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN PLANT MATERIALS INCLUDING SOD/SEED AREAS IN A HEALTHY STATE DURING CONSTRUCTION AND DURING REQUIRED WARRANTY PERIODS. ANY DAMAGE TO PLANT MATERIAL DUE TO NEGLECT BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
12. REPAIR DAMAGE DUE TO LANDSCAPE INSTALLATION OPERATIONS INSIDE AND OUTSIDE OF LIMIT OF WORK.
13. SOAK ALL PERENNIALS FOR 24 HOURS PRIOR TO INSTALLATION.
14. A LIST OF PLANTS INCLUDING BOTANICAL NAMES, SIZES, AND SPACING ARE SHOWN ON THE DRAWINGS. QUANTITIES ARE PROVIDED FOR CONTRACTOR'S CONVENIENCE AND ARE TO BE VERIFIED. IN THE EVENT THAT QUANTITIES OR OMISSIONS OCCUR THE PLAN DRAWINGS ARE TO BE FOLLOWED.
15. IRRIGATION: A TEMPORARY UNDERGROUND DRIP AND SPRINKLER IRRIGATION SYSTEM IS TO BE PROVIDED FOR ALL PLANT MATERIAL AND SOD OR SEEDED AREAS.
16. DISTURBED SITE AREAS ARE TO BE DRESSED WITH 6" MIN. OF AMENDED TOPSOIL FOR LAWNS AND 12" MIN. FOR PLANT BEDS. TOPSOIL FOR SEEDED AND/OR SEEDED AREAS IS TO BE TWO PARTS SHARP SAND, ONE PART LOAM AND ONE PART ORGANIC COMPOST.
17. PLANT BEDS ARE TO BE MULCHED TO A DEPTH OF 2" MIN. WITH NATURAL BARK MULCH WITH BARK SIZES NO LARGER THAN 3". PERENNIAL PLANT BEDS ARE TO BE MULCHED WITH BARK SIZES NO MORE THAN 1". TREES IN LAWN AREAS ARE TO HAVE MULCH RINGS OF 5' DIA.
18. TREES ADJACENT TO PEDESTRIAN ROUTES AND WITHIN PARKING ISLANDS ARE TO BE LIMBED TO 6' ABOVE GRADE.

TREE PRESERVATION NOTES:

EXISTING 18" OAK TO REMAIN IN CONSTRAINED WORK AREA

EXISTING 18" OAK TREE SHALL BE PRESERVED AND PROTECTED THROUGHOUT ALL PHASES OF CONSTRUCTION.

DUE TO THE CONSTRAINED URBAN SITE CONDITIONS AND THE NATURE OF THE PROPOSED IMPROVEMENTS AROUND THE TREE, A FULL 18' RADIUS TREE PROTECTION ZONE IS NOT FEASIBLE. TREE PROTECTION SHALL THEREFORE BE PROVIDED THROUGH A COMBINATION OF LIMITED FENCING, TRUNK PROTECTION, ROOT-SENSITIVE CONSTRUCTION METHODS, SOIL PROTECTION, AND ARBORIST REVIEW.

CONTRACTOR SHALL REVIEW THE PROPOSED LIMITS OF WORK AROUND THE EXISTING OAK WITH THE LANDSCAPE ARCHITECT AND/OR PROJECT ARBORIST PRIOR TO CONSTRUCTION.

TREE PROTECTION FENCING SHALL BE INSTALLED WHERE PRACTICAL TO PROTECT THE LARGEST FEASIBLE PORTION OF THE ROOT ZONE. FENCING SHALL BE FIELD-ADJUSTED TO ACCOMMODATE REQUIRED ACCESS, GRADING, PAVING, UTILITIES, AND OTHER APPROVED WORK.

WHERE TREE PROTECTION FENCING CANNOT BE INSTALLED DUE TO WORK LIMITS, CONTRACTOR SHALL INSTALL TEMPORARY TRUNK PROTECTION CONSISTING OF WOOD PLANKING, STRAPPING, OR APPROVED EQUIVALENT PROTECTION AROUND THE TREE TRUNK. PROTECTION SHALL NOT BE NAILED, SCREWED, OR FASTENED DIRECTLY INTO THE TREE.

ROOT ZONE DISTURBANCE SHALL BE MINIMIZED TO THE GREATEST EXTENT PRACTICAL. WORK WITHIN THE CRITICAL ROOT AREA SHALL BE PERFORMED USING ROOT-SENSITIVE METHODS INCLUDING HAND EXCAVATION, AIR SPADE EXCAVATION, LIMITED-DEPTH GRADING, OR OTHER METHODS APPROVED BY THE LANDSCAPE ARCHITECT OR PROJECT ARBORIST.

NO ROOTS 2 INCHES IN DIAMETER OR LARGER SHALL BE CUT WITHOUT REVIEW AND APPROVAL BY THE PROJECT ARBORIST.

ANY APPROVED ROOT CUTTING SHALL BE PERFORMED CLEANLY WITH SHARP TOOLS. ROOTS SHALL NOT BE TORN, RIPPED, OR BROKEN BY EQUIPMENT. EXPOSED ROOTS SHALL BE PROTECTED FROM DRYING AND SHALL BE BACKFILLED OR COVERED WITH MOIST BURLAP, MULCH, OR APPROVED SOIL MATERIAL AS SOON AS PRACTICABLE.

WHERE EXCAVATION IS REQUIRED WITHIN THE ROOT ZONE, CONTRACTOR SHALL LIMIT OPEN TRENCH DURATION AND SHALL BACKFILL ROOT AREAS AS SOON AS PRACTICAL. CONTRACTOR SHALL NOT STOCKPILE SOIL, STONE, PAVERS, CONCRETE, EQUIPMENT, OR CONSTRUCTION MATERIALS AGAINST THE TREE TRUNK OR WITHIN UNPROTECTED ROOT ZONE AREAS.

EQUIPMENT ACCESS WITHIN THE ROOT ZONE SHALL BE LIMITED TO THE MINIMUM AREA NECESSARY TO COMPLETE THE WORK. WHERE ACCESS IS REQUIRED, CONTRACTOR SHALL PROVIDE TEMPORARY GROUND PROTECTION SUCH AS TIMBER MATS, COMPOSITE MATS, PLYWOOD OVER MULCH, OR APPROVED EQUIVALENT.
NO CONCRETE WASHOUT, PAINT WASHOUT, FUELING, CHEMICAL STORAGE, EQUIPMENT CLEANING, OR DEBRIS STORAGE SHALL OCCUR WITHIN OR DRAIN TOWARD THE TREE ROOT ZONE.

CONTRACTOR SHALL PROTECT THE TREE TRUNK, ROOT FLARE, LIMBS, AND CANOPY FROM DAMAGE BY EQUIPMENT, MATERIALS, AND CONSTRUCTION ACTIVITY. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM THE TREE ROOT CROWN. DO NOT PLACE FILL, SEDIMENT, MULCH, OR PAVEMENT MATERIAL AGAINST THE TREE TRUNK OR ROOT FLARE.

FINAL GRADES AROUND THE TREE SHALL BE SET TO PROTECT THE EXISTING ROOT FLARE AND SHALL NOT BURY THE BASE OF THE TREE.

ANY DAMAGE TO THE TREE, INCLUDING BARK DAMAGE, BROKEN LIMBS, ROOT DAMAGE, SOIL COMPACTION, OR UNAUTHORIZED DISTURBANCE, SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT.

PRUNING, IF REQUIRED FOR CLEARANCE OR TREE HEALTH, SHALL BE PERFORMED BY A QUALIFIED ARBORIST. CONTRACTOR SHALL NOT PRUNE BRANCHES OR ROOTS WITHOUT APPROVAL.

REGULATORY STANDARD

LDR ART. VI, SEC. 12 -- *BUFFERS: NONRESIDENTIAL PARKING ABUTTING RESIDENTIAL USE REQUIRES CONTINUOUS SCREENING.*CONTINUOUS PLANTING BUFFER PROVIDED ALONG FULL EMERY ST. EDGE (AREA A, ~130 LF), AT MAIN ST. BUILDING FOUNDATION (AREA B, ~290 SF), AND WITHIN THE INTERIOR PARKING FIELD (AREA C). MIX OF EVERGREEN AND DECIDUOUS SPECIES -- INCLUDING CARPINUS BETULUS 'FRANS FONTAINE', ILEX GLABRA 'SHAMROCK', MORELLA PENSYLVANICA, AND JUNIPERUS HORIZONTALIS 'PRINCE OF WALES' -- PROVIDES YEAR-ROUND VISUAL SCREENING ABOVE THE BUMPER PLANE AT ALL THREE ZONES.**CONFORMS**

LDR ART. VI, SEC. 12 -- *GREEN PERIMETER STRIP: 20' MIN. WHERE PARKING ABUTS RESIDENTIAL; UNPAVED, PLANTED.*BUFFER PLANTING ZONES ESTABLISHED ALONG ALL PARKING PERIMETER EDGES VISIBLE FROM PUBLIC ROW AND ADJACENT PROPERTIES. AREAS A, B, AND C ARE MAINTAINED FREE OF PAVING CONSISTENT WITH THE INTENT OF THE GREEN PERIMETER STANDARD. NO NEW IMPERVIOUS SURFACE INTRODUCED WITHIN SETBACK PLANTING ZONES. **CONFORMS**

LDR ART. VI, SEC. 12 -- *SCREENING HEIGHT: DENSE PLANTING 2-3' AT INSTALL; 5' YEAR-ROUND SCREEN AT MATURITY.*ILEX GLABRA 'SHAMROCK' (3 GAL.), MORELLA PENSYLVANICA (3 GAL.), RHUS AROMATICA 'GRO-LOW' (3 GAL.), AND CARPINUS BETULUS 'FRANS FONTAINE' (2.5" CAL.) INSTALLED AT SPECIFIED SIZES WILL ACHIEVE 5'+ SCREENING HEIGHT WITHIN 3-5 YEARS. EVERGREEN SPECIES (ILEX, JUNIPERUS, ARCTOSTAPHYLOS) PROVIDE YEAR-ROUND COVERAGE. AMELANCHIER LAEVIS (10' HT. B&B) AND ULMUS AMERICANA 'VALLEY FORGE' (2.5" CAL.) PROVIDE IMMEDIATE UPPER CANOPY.**CONFORMS***LDR ART. XI -- FRONT SETBACK: NO PAVING WITHIN 25' OF FRONT PROPERTY LINE; SETBACK TO BE LANDSCAPED.*PLANTING STRIPS IN AREAS A (EMERY ST.) AND B (MAIN ST.) OCCUPY THE SETBACK ZONES ADJACENT TO PUBLIC ROW. NO NEW PAVING PROPOSED WITHIN 25' OF FRONT PROPERTY LINES AT EITHER FRONTAGE. AREAS PLANTED PER PLAN.**CONFORMS**

CH. 62, SEC. 62-136 -- *STREET TREES / UTILITY LINES: TREES SHALL NOT BE PLANTED UNDER OVERHEAD WIRES.*CARPINUS BETULUS 'FRANS FONTAINE' (CBF) SELECTED SPECIFICALLY FOR TIGHT COLUMNAR HABIT (10-12' MATURE WIDTH) AND SUB-30' MATURE HEIGHT, APPROPRIATE FOR PLACEMENT ADJACENT TO OVERHEAD DISTRIBUTION LINES ALONG EMERY ST. TREE LOCATIONS COORDINATED WITH UTILITY POLE LOCATIONS PER PLAN. NO SPECIES WITH POTENTIAL CONFLICT WITH OVERHEAD INFRASTRUCTURE IS PROPOSED.**CONFORMS**

*EXISTING 18" OAK -- TREE PROTECTION: PROTECTED TREE TO REMAIN; TREE PROTECTION ZONE (TPZ) REQUIRED.*EXISTING 18" DBH OAK DESIGNATED AS PROTECTED TREE. TPZ RADIUS OF 27'-0" (1.5 FT/IN DBH PER ISA SENSITIVE SPECIES STANDARD) ESTABLISHED AND SHOWN ON PLAN. TREE PROTECTION FENCING, MODIFIED CONSTRUCTION SEQUENCING, ROOT-SENSITIVE EXCAVATION METHODS, AND ARBORIST REVIEW REQUIRED. SEE TREE PRESERVATION NOTES THIS SHEET.**SEE NOTES**

PLANT LEGEND

SHEET LD1

- EX. TREE
- CANOPY/COLUMNAR TREE
- UNDERSTORY TREE
- SHRUBS/SAPLINGS
- PERENNIALS

SITE SOIL NOTES

1. CONTRACTOR SHALL COORDINATE WITH OWNER'S REPRESENTATIVE FOR LOCATION OF STOCKPILE AREAS FOR STRIPPED TOPSOIL AND PLANTING SOIL PRODUCTS. CONTRACTOR SHALL ENSURE AREA IS PROTECTED AND CONTAMINATION OR DISTURBANCE OF STORED PRODUCTS IS NOT ALLOWED.
2. CONTRACTOR SHALL ENSURE SUBGRADE IS SCARIFIED PRIOR TO INSTALLING PLANTING SOIL AND BLEND WITH INITIAL LIFT OR PLACEMENT OF PROPOSED PLANTING SOIL.
3. COORDINATE PLACEMENT OF PLANTING SOIL WITH OTHER WORK, ESPECIALLY UTILITIES. PLACEMENT SHOULD OCCUR AFTER INSTALLATION OF ALL HARDSCAPE IMPROVEMENTS, IRRIGATION SYSTEM, UTILITIES, ETC. AND BEFORE INSTALLATION OF PLANTS.

GENERAL NOTE:

PLANTING PLAN IS INTENDED TO SHOW LANDSCAPE PLANTING, TREE PRESERVATION, AND RELATED LANDSCAPE TREATMENTS ONLY. REFER TO CIVIL DRAWINGS FOR EXISTING CONDITIONS, UNDERGROUND UTILITIES, GRADING, DRAINAGE, HARDSCAPE, PAVEMENT, CURBING, WALLS, DIMENSIONS, AND OTHER SITE IMPROVEMENTS. CONTRACTOR SHALL COORDINATE PLANTING WORK WITH CIVIL DRAWINGS AND FIELD-VERIFY ALL UTILITIES PRIOR TO EXCAVATION. NOTIFY LANDSCAPE ARCHITECT AND CIVIL ENGINEER OF CONFLICTS PRIOR TO PROCEEDING.

Prepared for:
41 Main LLC, address is 72 Commercial Street, Suite 2, Portland, ME 04101

Prepared By:

dry landscape architecture, l.l.c
31 miller ave.
Biddeford, ME 04005

Date:
MAY 13, 2026

Issued For:
DESIGN REVIEW

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Title: PLANTING PLAN

41 MAIN STREET PARKING LOT

MAIN STREET, BIDDEFORD, ME 04005

Revisions:

REV. 1 STAFF COMMENTS - 06.09.26

REV. 2 PLANNING BOARD REVIEW 06.22.26

REGISTERED LANDSCAPE ARCHITECT
BRADEN DRYPOLCHER
No.RLA 5043
05/11/26
STATE OF MAINE

North:

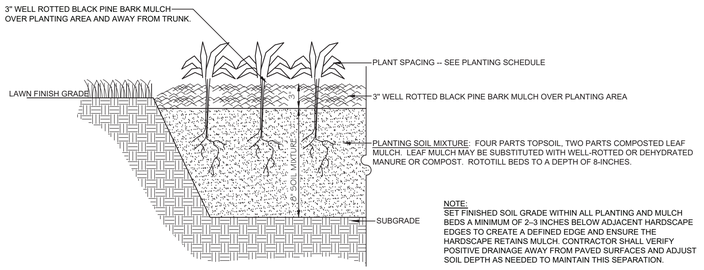
Sheet No.: L1

Scale: 1" = 20'-0"

0 10 20 40

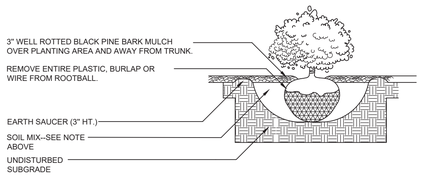
NOTE: This drawing is DESIGN DEVELOPMENT ONLY. It is NOT intended for use as a construction document.

C:\Users\brypo\OneDrive\DRY LA\Projects\41 Main Street Garage\CAD\L-Base 41 Main Street Garage PB SUB 1.dwg brypo 6/17/2026



01 PLANTING BED AND MULCH DETAIL

SCALE: N.T.S.



PLANT INSTALLATION NOTES:
DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH TOP AT GROUND LEVEL OR SLIGHTLY HIGHER. CORRECT HOLE DEPTH AS NEEDED.

FOR DECIDUOUS AND NEEDLED EVERGREEN TREES AND SHRUBS: 1 FULL WHEELBARROW EXISTING SOIL, 3 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL.

FOR BROADLEAVED EVERGREENS AND RELATED ERICACAE PLANTS: 1 FULL WHEELBARROW EXISTING SOIL, 3-4 SHOVELS COMPOST, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL OF LOW pH

CONTAINER GROWN STOCK:
REMOVE CONTAINER PROTECTING ROOT BALL. GENTLY COMB OUT ROOTS, PRUNE DAMAGED ROOTS.

BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

02 SHRUB INSTALLATION

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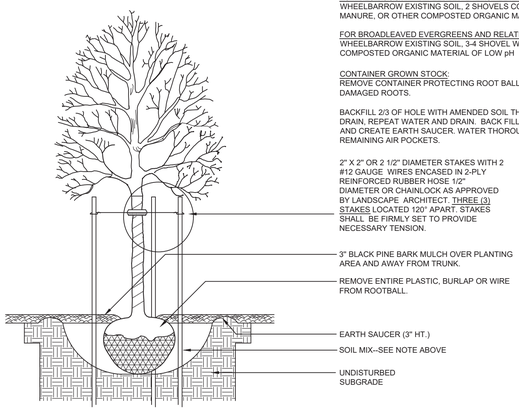


PLANT INSTALLATION NOTES:
DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH TOP AT GROUND LEVEL OR SLIGHTLY HIGHER. CORRECT HOLE DEPTH AS NEEDED.

FOR DECIDUOUS AND NEEDLED EVERGREEN TREES AND SHRUBS: 1 FULL WHEELBARROW EXISTING SOIL, 2 SHOVELS COMPOST, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL.

FOR BROADLEAVED EVERGREENS AND RELATED ERICACAE PLANTS: 1 FULL WHEELBARROW EXISTING SOIL, 3-4 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL OF LOW pH

CONTAINER GROWN STOCK:
REMOVE CONTAINER PROTECTING ROOT BALL. GENTLY COMB OUT ROOTS, PRUNE DAMAGED ROOTS.

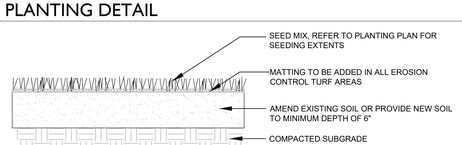
BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

03 DECIDUOUS TREE DETAIL

SCALE: N.T.S.

04 SLOPE PLANTING DETAIL

SCALE: N.T.S.



05 SEED DETAIL

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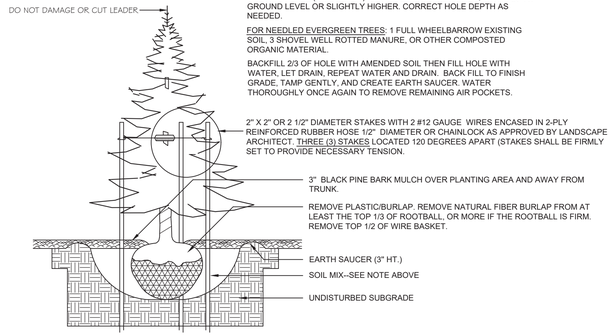

PLANT INSTALLATION NOTES:
DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH TOP AT GROUND LEVEL OR SLIGHTLY HIGHER. CORRECT HOLE DEPTH AS NEEDED.

FOR NEEDLED EVERGREEN TREES: 1 FULL WHEELBARROW EXISTING SOIL, 3 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL.

BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

06 CONIFEROUS TREE DETAIL

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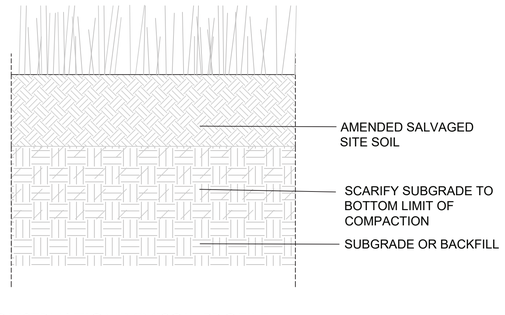
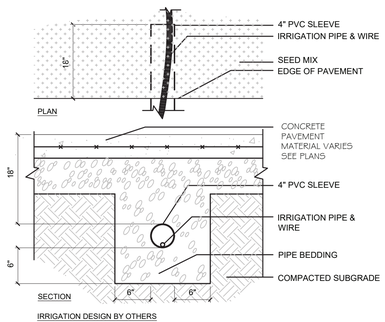


07 CONSERVATION MIX SOIL PROFILE

SCALE: N.T.S.



08 IRRIGATION SLEEVE

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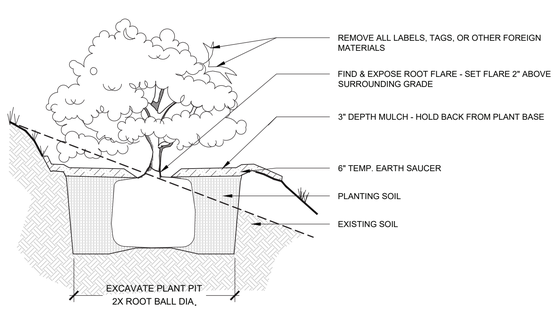
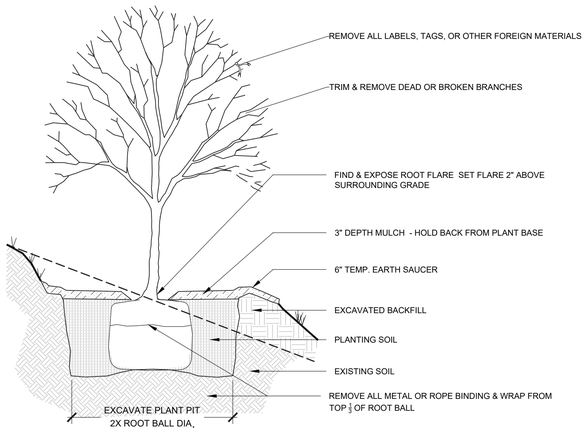


09 SHRUB PLANTING ON SLOPE

SCALE: N.T.S.



10 TREE PLANTING ON SLOPE

SCALE: N.T.S.

NOTE: This drawing is DESIGN DEVELOPMENT ONLY. It is NOT intended for use as a construction document.

Prepared for:
41 Main LLC, address is 72 Commercial Street, Suite 2, Portland, ME 04101

Prepared By:
dry landscape architecture, l.l.c
31 miller ave.
Biddeford, ME 04005

Date:
MAY 13, 2026

Issued For:
DESIGN REVIEW

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Title: LANDSCAPE DETAILS

41 MAIN STREET PARKING LOT

MAIN STREET, BIDDEFORD, ME 04005

Revisions:

REV. 1 STAFF COMMENTS - 06.09.26

REV. 2 PLANNING BOARD REVIEW 06.22.26

REGISTERED LANDSCAPE ARCHITECT
BRADEN DRYPOLCHER
No.RLA 5043
05/11/26
STATE OF MAINE

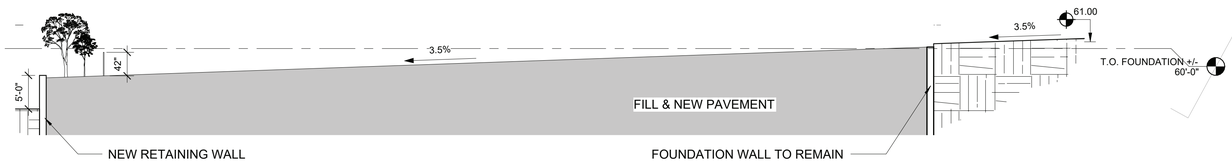
North:

Sheet No.:
LD1

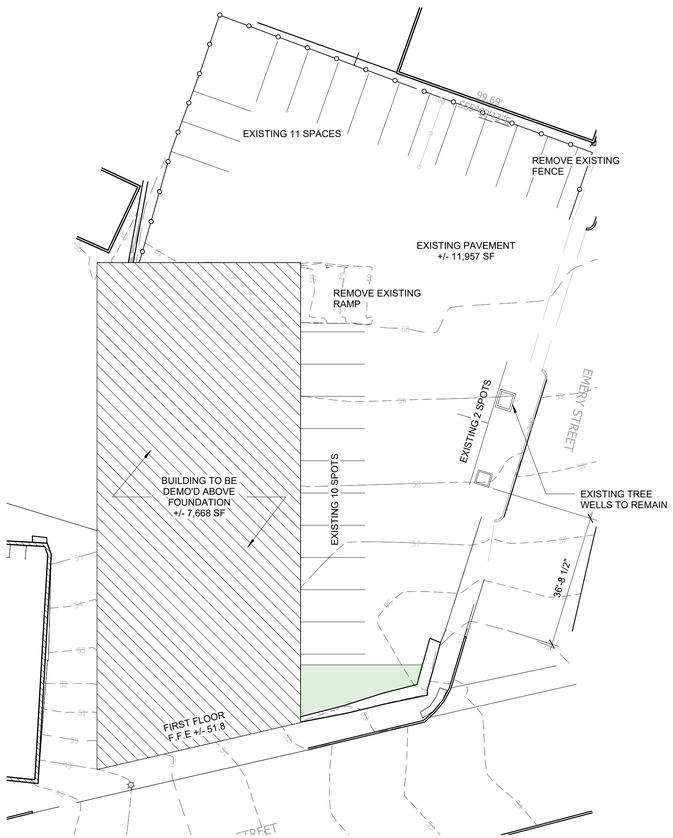
Scale:
AS NOTED

C:\Users\bobby\OneDrive\DRY_LA\Projects\41 Main Street Garage\CAD\L-Base 41 Main Street Garage FR SUB 1.dwg bobyp 6/17/2026

3 EXISTING SECTION
3/32" = 1'-0"



2 NORTH-SOUTH SECTION
3/32" = 1'-0"



4 EXISTING & DEMO
1" = 20'-0"

5 NEW FLOOR PLAN
3/32" = 1'-0"

Prepared For:
41 MAIN LLC
72 Commercial Street, Suite 2
Portland, ME 04101

Consultant:

Architect:
ARCHETYPE ARCHITECTS
48 Union Wharf Portland, Maine 04101
207.772.6022 archetype@archetypepa.com

Project:
41 MAIN STREET
PARKING LOT
BIDDEFORD, ME

Revisions:

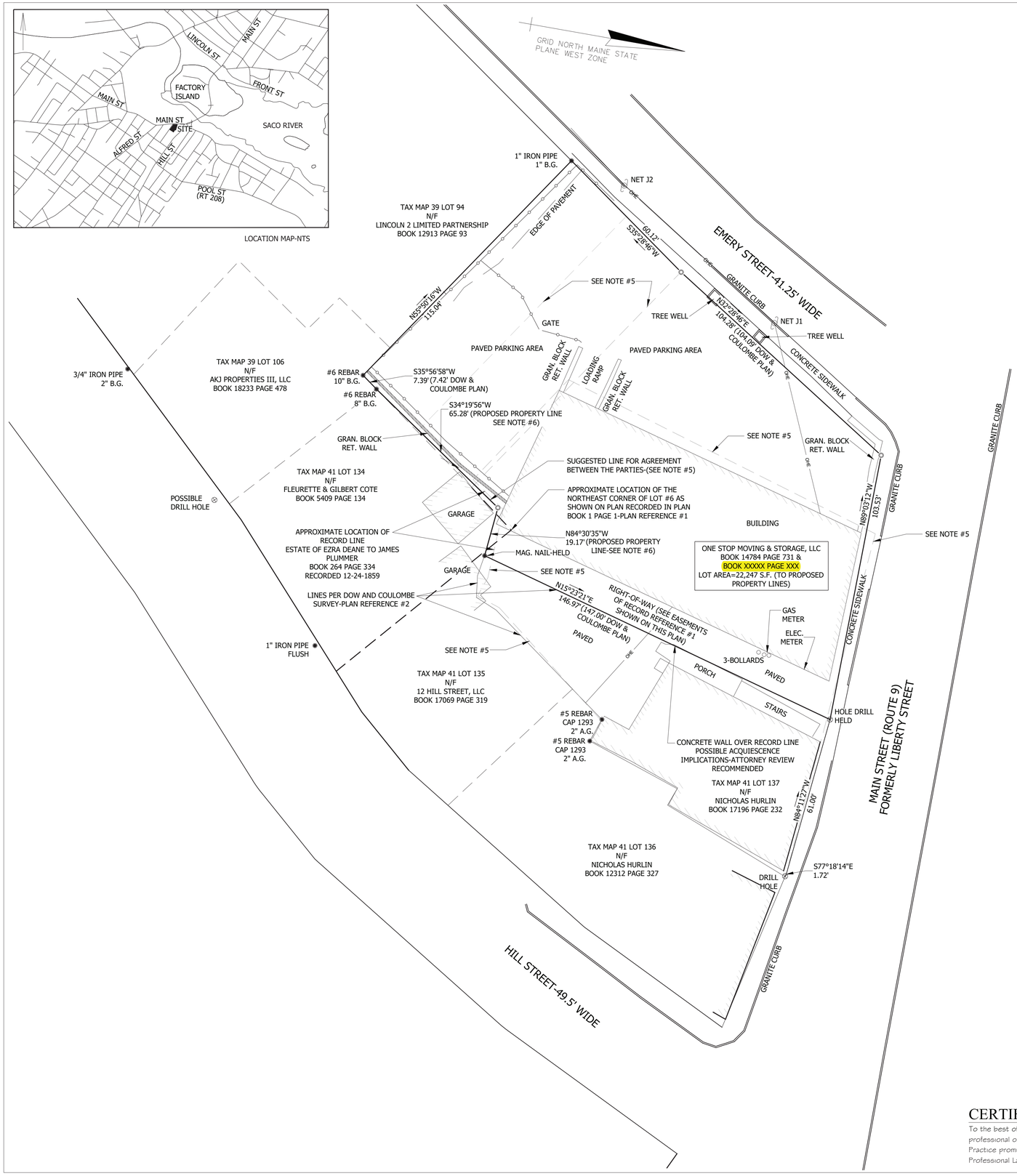
Scale: As indicated

Date: 06-09-2026

PLAN DIAGRAMS - PHASE 1

A-1

LOCATION MAP-NTS



LEGEND

- IRON PIPE/ROD/REBAR FOUND
- DRILL HOLE FOUND
- #5 REBAR CAP 2036/MAG. NAIL/DRILL HOLE TO BE SET
- UTILITY POLE
- OHE — OVERHEAD UTILITY LINE

NOTES:

1. BEARINGS ARE RELATIVE TO GRID NORTH, MAINE WEST ZONE.
2. SURVEY WAS PERFORMED IN THE WINTER WITH SNOW COVER CONDITIONS. VARIATIONS BETWEEN WHAT IS PLOTTED ON THIS PLAN AND REAL-WORLD CONDITIONS ARE TO BE EXPECTED. BOUNDARY MONUMENTATION WAS LOCATED ACCURATELY AND PRECISELY HOWEVER .
3. PROPERTY SHOWS ON CITY OF BIDDEFORD TAX MAP #41, AS LOT # 138.
4. A SURVEYOR'S REPORT HAS BEEN WRITTEN AND IS AN INTEGRAL PART OF THIS SURVEY.
5. THE LIGHT DASHED LINES ON THIS PLAN ARE BEING SHOWN FOR REFERENCE PURPOSES ONLY AND REFLECT THE OPERATIVE CONVEYANCES FROM THE EZRA DEANE ESTATE. THE COMBINATION OF THESE PARCELS, OR PORTIONS THEREOF, MAKE UP THE CURRENT-DAY ONE STOP MOVING & STORAGE, LLC PARCEL. THESE LINES HAVE CONFLICTS BETWEEN THE WRITTEN DEED DESCRIPTIONS IN VARIOUS RECORDED DOCUMENTS AND LINEWORK SHOWN ON A PLAN TITLED PLAN OF LANDS IN BIDDEFORD OF EDMUND AND MARY COFFIN AND HORACE BACON (PLAN REFERENCE #1) AND PLAN TITLED PLAN OF LAND BELONGING TO ESTATE OF EZRA DEAN (PLAN REFERENCE #8).
6. AS MENTIONED IN NOTE #5, ABOVE, RECORD LINES WERE NOT ABLE TO BE ESTABLISHED ON THE GROUND. AS SUCH, THIS PLAN SHOWS LINES LABELED "PROPOSED PROPERTY LINE". THESE LINES ARE IN THE GENERAL VICINITY OF THE RECORD LINES AND IF AGREED UPON, WOULD ELIMINATE THE STRUCTURES IN THE AREA FROM BEING OVER THE RECORD LINES.

EASEMENTS OF RECORD:

1. "SUBJECT TO RIGHT OF WAY FROM SAID MAIN STREET TO LAND OF LOUIS ANTON", BOOK 14784-PAGE731, RIGHT OF PASSAGE, BOOK 6316-PAGE 60, BOOK 469-PAGE 69.
2. CMP EASEMENT, BOOK 1553-PAGE 306.

PLAN REFERENCES:

1. PLAN OF LANDS IN BIDDEFORD OF EDMUND AND MARY COFFIN AND HORACE BACON, DATED FEBRUARY 14, 1848, PREPARED BY TRISTRAM JORDAN JR., RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 1, PAGE 1.
2. PLAN SHOWING A BOUNDARY SURVEY MADE FOR JOSEPH HAMILTON, DATED APRIL 27, 2015, PREPARED BY DOW AND COULOMBE, INC.
3. PLAN SHOWING A SURVEY OF STREET LINES, PIERSON LANE NEIGHBORHOOD, IMPROVEMENT PROJECT, DATED APRIL 27, 2015, PREPARED BY DOW AND COULOMBE, INC.
4. AS-BUILT SURVEY FOR DICTAR ASSOCIATES, DATED JANUARY 5, 1984, PREPARED BY LAND USE CONSULTANTS.
5. SKETCH OF LAND SURVEYED FOR JEANNE MORISSETTE, DATED MAY 4, 1983, PREPARED BY DOW AND COULOMBE, INC.
6. STATE OF MAINE DEPARTMENT OF TRANSPORTATION, STP-1857(400), BIDDEFORD STATE ROUTE 9, GENERAL PLANS 1 AND 2 OF 2, DATED 12-21, PREPARED BY VHB.
7. PLAN OF LAND IN BIDDEFORD, YORK COUNTY, ME., CONFIRMING THE HOMESTEAD PLACE OF SAMUEL EMERY, DATED OCTOBER 4, 1851, PREPARED BY SAMUEL W. LUQUES, RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 1, PAGE 38.
8. PLAN OF LAND BELONGING TO ESTATE OF EZRA DEAN DATED NOVEMBER 7, 1859, PREPARED BY S.W. LUQUES. (COPIED NOVEMBER 3, 1900 BY R.W. LIBBY)

CERTIFICATION:

To the best of my knowledge, information, and belief, and in my professional opinion, this survey conforms to the Standards of Practice promulgated by the Maine Board of Licensure for Professional Land Surveyors.

GRAPHIC SCALE

20 0 20 40

1 inch = 20 ft.

TRILLIUM ENGINEERING GROUP
251 U.S. ROUTE 1-SUITE 02
FALMOUTH, ME 04105

PROPERTY OWNER:

ONE STOP MOVING & STORAGE, LLC

PROPERTY ADDRESS:

41 MAIN STREET
BIDDEFORD, ME
YORK COUNTY

DRAFT

ONE STOP MOVING & STORAGE, LLC
41 MAIN STREET BIDDEFORD, ME YORK COUNTY
BOUNDARY SURVEY

No.	DESCRIPTION	DR. BY:	CKD. BY:	DATE

ISSUED/REVISED

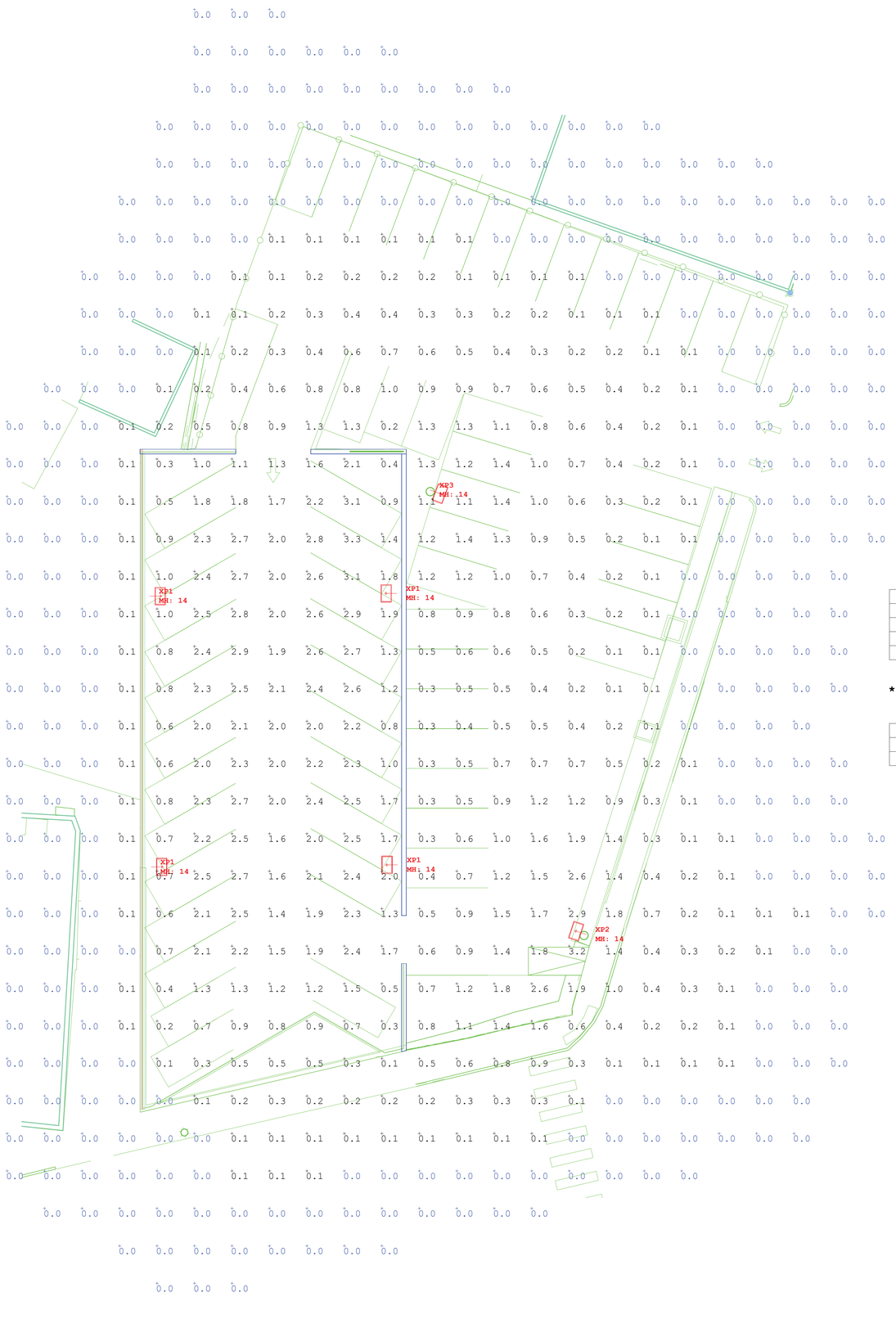
SHEET TITLE:

BOUNDARY SURVEY

DESIGNED:	N/A
DRAWN:	AJC
DATE:	2-19-26
PROJECT NUMBER:	25-250

S-1

C:\Civil3D\25-250 Pepperell Parking Garage\03 - Revit\25-250 41Main St Boundary Survey.dwg, 2/20/2026 6:13:25 AM, DWG To PDF.pc3



Luminaire Schedule					
Qty	Label	Watts	Arrangement	LLF	Description
4	XP1	34.4	Single	0.900	VP-SS-1-40L-35-3K7-3-BC
1	XP2	34.4	Single	0.900	VP-SS-1-40L-35-3K7-4W
1	XP3	34.4	Single	0.900	VP-SS-1-40L-35-3K7-5QW

Please Note: Do not use this schedule for quoting or wattage calculating, contact Illuminate for a complete fixture schedule

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site	Fc	0.48	3.3	0.0	N.A.	N.A.

Project:
41 Main Street - Site

Contact:
Sean Goulding
Specification Sales
(781) 272-2300 X211
sgoulding@omnilite.com

Detail: Photometric Calculation
Date: 06/17/2026
Revision: 1
Scale: 1" = 10'-0"
Drawn By: SHJ

Generated For:
ARCHETYPE ARCHITECTS

illuminate
263 Winn Street
Burlington, MA 01803
(781) 272-2300

Drawing Number:

L-1

Sheet 1 of 1

CubeSmart
self storage
PHO LY
VIETNAMESE RESTAURANT
207-911-8050
DINE IN & TAKE OUT
49 MAIN STREET
VIETNAMESE
FOOD
OPEN

EXISTING

CubeSmart
self storage
PHO LY
VIETNAMESE RESTAURANT
207-911-9050
DINE IN & TAKE OUT
49 MAIN STREET
VIETNAMESE
FOOD
OPEN

PHASE 1

PHO LY
VIETNAMESE RESTAURANT
207-571-9050
DINE IN & TAKE OUT
49 MAIN STREET
VIETNAMESE FOOD
OPEN

PHASE 2

JCT
111
P
EXISTING

JCT
111
P
PHASE 1

PHASE 2

CITY OF BIDDEFORD - SITE PLAN APPLICATION DRAWING CHECKLIST *LAST REVISED: 04/18/23*

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant for any Site Plan submittal to the Planning Department.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify t
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non-acceptable reasoning will be
4. Items in **BLACK** are required for 'Preliminary Site Plan' approval & 'Final Site Plan' approval.
5. Items in **BLUE** are only required for 'Final Site Plan' approval.

SUBMITTAL REQUIREMENT		
ITEM NUMBER	**DESCRIPTION**	**INFORMATION PROVIDED (YES/NO)**
1	**GENERAL PLAN REQUIREMENTS**	Yes
A	Drawing specific legends (linetypes, hatches, etc.)	No
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	Yes
C	North arrows, standard engineering scale viewports, dated revision blocks	Yes
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	Yes
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	Yes
2	**COVER SHEET**	Yes
A	Project Name & Property Address	Yes
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	Yes
C	Site Location Map	Yes
D	Sheet Set List of Drawings	Yes
E	Tax Map and Lot ID	Yes
F	Zoning & Shoreland Zone Information	Yes
G	Existing Use Description	Yes
H	Proposed Use Description	Yes
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	No
J	Name of Drainage Watershed	Yes
K	Within the MS4 Urbanized Area (Yes/No)	Yes
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	No
M	Within the 100-year Flood Zone (Yes/No)	No
N	Public Road Proposed (Yes/No)	No

O	Private Road Proposed (Yes/No)	No
P	Public Sewer Connection (Yes/No); if yes, need to include a proposed sewer flow calculation per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	No
Q	Public Storm Drain Connection (Yes/No)	Yes
R	Limits of Disturbance in acres	Yes
S	Pervious Land Cover square footage, existing and proposed	No
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	No
U	Building Roof square footage, existing and proposed	Yes
V	Assigned Planning Board Number	No
W	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	Yes
3	**EXISTING CONDITIONS PLAN**	Yes
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	Yes
B	Survey Benchmark Locations (with XYZ Coordinates annotated)	Yes
C	Property & Right-of-Way Lines	Yes
D	Boundary line information (bearings, distances, etc.)	Yes
E	Property pin and monumentation locations	Yes
F	Existing easements with proper ownership identified	Yes
G	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	Yes
H	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	No
I	100-year Flood Zone Limits & Elevation	No
J	USDA-NRCS Soil Boundaries and Labels	No
K	Existing contours with adequate contour labelling; minimum 1' contour interval	Yes
L	Existing building FFEs annotated	Yes
M	Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs	Yes
N	Existing buildings & structures	Yes
O	Existing pavement areas & number of parking spaces	Yes
P	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	No
Q	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	Yes
R	Existing signage and striping	Yes
S	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	Yes
T	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	Yes
U	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	Yes
V	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	Yes

W	Location of any borings, drinking wells, and monitoring wells	No
4	**SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN**	Yes
A	Limits-of-disturbance outlined and acreage annotated	Yes
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	No
C	100-year Flood Zone Limits	No
D	Callout existing site features to be demolished/removed/replaced	Yes
E	Callout existing utilities to be demolished/removed/abandoned-in-place	Yes
F	Hatch existing buildings and pavement to be removed	Yes
G	Construction Entrance location(s)	Yes
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	Yes
I	Stockpile and staging area(s) identified (with proper perimeter control)	No
J	Inlet protection location(s)	Yes
K	Note requiring contractor to implement dust control measures throughout construction	Yes
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	Yes
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	No
N	If large development is proposed with an extensive underground stormwater conveyance network, show sediment trap/basin location(s) needed for constructability/phasing; provide sizing calculations	No
5	**SITE PLAN/SUBDIVISION PLAN**	Yes
A	Partial Site Plans needed for any viewport scale greater than 1”=20’	No
B	Existing property and right-of-way lines	Yes
C	Proposed subdivision lot lines and labels	No
D	Required Zoning Setbacks shown with dimensions and annotation	No
E	Bulk requirement summary table (zoning/parking calculations)	No
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	No
G	100-year Flood Zone Limits	No
H	Proposed building outlines, door entrances and loading docks	No
I	Proposed building labels	No
J	Proposed road extents; provide clear annotation if roads will be public or private	No
K	Proposed parking and accessible parking locations; annotate parking space counts	Yes
L	Proposed signage, parking striping, and traffic striping	Yes
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	No
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	Yes
O	Separate hatching for buildings, sidewalks, pavement, landscaping	Yes
P	Proposed landscaping; detailed landscaping design should be on separate plans	Yes
Q	Designated snow storage areas	Yes

R	Proposed dumpster locations and trash removal access	No
S	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	Yes
T	Radial dimensions for all curbs, landscaped islands, sidewalks	No
U	Road centerline stationing shown, labelled every 0+50' with curve data	No
V	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	No
W	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	No
X	Planning Board signature block for final recording	No
6	**GRADING PLAN**	Yes
A	Partial Grading Plans needed for any viewport greater than 1"=20'	No
B	Limits-of-disturbance outlined and acreage annotated	No
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	No
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	Yes
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	Yes
F	Detailed grading for all ditches, swales, outfalls, and riprap	No
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	Yes
H	Existing spot elevations for all asphalt and curb tie-in locations	Yes
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	No
J	100-year Flood Zone Limits	No
K	Proposed spot elevations for all important roadway geometric points and/or on a 50' maximum interval: low/high points, PC/PT, road centerline, edge-of-asphalt	Yes
L	Proposed spot elevations for all curblines (bottom/top-of-curb) and sidewalks	Yes
M	Proposed spot elevations for all parking and drive aisle geometry points	Yes
N	Proposed spot elevations for all building corners and door-entry locations	No
O	Proposed retaining wall/loading dock elevations (bottom/top of wall)	No
P	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	Yes
Q	Proposed % slope arrows for all ADA parking spaces and sidewalks	Yes
R	Proposed longitudinal % slope arrows for drainage ditch centerlines	Yes
S	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	Yes
T	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)	No
7	**ROAD PROFILES (if public/private road proposed)**	No
A	Existing surface; dashed and screened	No
B	Proposed surface; continuous and bold	No
C	Corresponding centerline stationing and curve data annotation	No
D	Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)	No
E	Horizontal and vertical scale bars	No

F	Clear annotation if proposed road will be public or private	No
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	No
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	No
8	**UTILITY PLAN**	Yes
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	Yes
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	Yes
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	Yes
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	Yes
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	Yes
F	Proposed storm culverts, outfalls, and riprap locations and sizes	No
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	Yes
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	No
I	Flow directional arrows for storm & sewer pipes	No
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	No
K	All storm drains must be sized to convey the 25-year storm	No
L	Sewer force main sizes and invert elevations	No
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)	No
N	Grease trap & oil-water separator locations, sizes, elevations	No
O	Water, gas, electric, and telecom sizes labelled	No
9	**UTILITY PROFILES**	No
A	Utility profiles for **all** gravity storm drains and sewer pipes, including all laterals, catch basins, culverts, and outfalls; profiles preferred to be aligned on the pipe centerline (not superimposed on the road centerline)	No
B	Existing surface; dashed and screened	No
C	Proposed surface; continuous and bold	No
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	No
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	No
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	No

G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	No
H	Known ledge or groundwater elevations	No
I	For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified	No
J	For storm outfalls, include riprap sizing and grading extents	No
K	Horizontal and vertical scale bars	No
10	**DETAILS**	Yes
A	Road section detail, including pavement & gravel depths	Yes
B	Sidewalk, paver, crosswalk, and any other pavement section details	Yes
C	Pavement sawcut detail	Yes
D	Utility trench/backfill detail	No
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	Yes
F	Signage, striping, and ADA details	No
G	E&S notes and details; only show applicable/proposed measures	Yes
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	No
I	Storm outfall & riprap details	No
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	No
K	Pump station, grease trap, and oil-water separator details	No
L	Conduit section details	No
M	Miscellaneous details (as needed)	No
11	**LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS**	Yes
A	As required by ordinance; at a minimum: locations, counts, and species/models must be identified	Yes
B	Landscaping & lighting details	Yes
12	**DOCUMENTS/REPORTS/CALCULATIONS**	
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	Yes

B	Predevelopment & Post-development Drainage Area Maps, including: i. Subdrainage areas delineated and labeled ii. Points of Interest/Analysis shown and labeled iii. Hatching for different land cover areas (impervious, pervious, gravel) iv. Time of concentration (Tc) paths & durations v. Four City-standardized stormwater summary tables	No
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	No
D	A Performance Guarantee Cost Estimate utilizing Planning's template	Yes
E	25-year hydraulic calculations for all storm conveyance piping (rational method), including starting tailwater conditions/documentation	No
F	If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies	No
G	Sizing calculations for any SWM water quality BMP or detention facility	No
H	A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: i. Annual maintenance requirements ii. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed iii. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	No
I	Salt Management Plan	Yes
J	Sewer pump station sizing calculations	No
K	Sewer pump station maintenance plan	No
L	Grease trap sizing calculations	No
M	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	No
N	Summary list & copy of any required DOT/DEP/USACE permits & approvals	No

:heir absence.
e rejected.

Project Name:
Planning Board # (if available):
Applicant Name/Info:
Submittal #/Type (Prelim/Final):
Submittal Date:

APPLICANT RESPONSE	
REASON NOT PROVIDED/COMMENT	**ACCEPTABLE (YES/NO-REVISE & RESUBMIT)**
Not Applicable	
Not Applicable	
Not Applicable	
Not Applicable	
Not Applicable	

Not Applicable	
Not Applicable	
No Change	
No Change	
+/- 7,668 SF	
Not Applicable	
Less than 1,000 CY based on 1' over lot area on average	
Provided on Architectural Sheet	
Not Applicable	
Not Applicable	
Not Applicable	
Not Applicable	

Not Applicable	
22,247 SF per survey	
Not Applicable	
Not Applicable	
See Civil Plan	
See Civil Plan	
See Civil Plan	
Not Applicable	
See Civil Plan	
See Civil Plan	
See Civil Plan	
Not Applicable	
Not Applicable	
Not Applicable	
Not Applicable	
Not Applicable	
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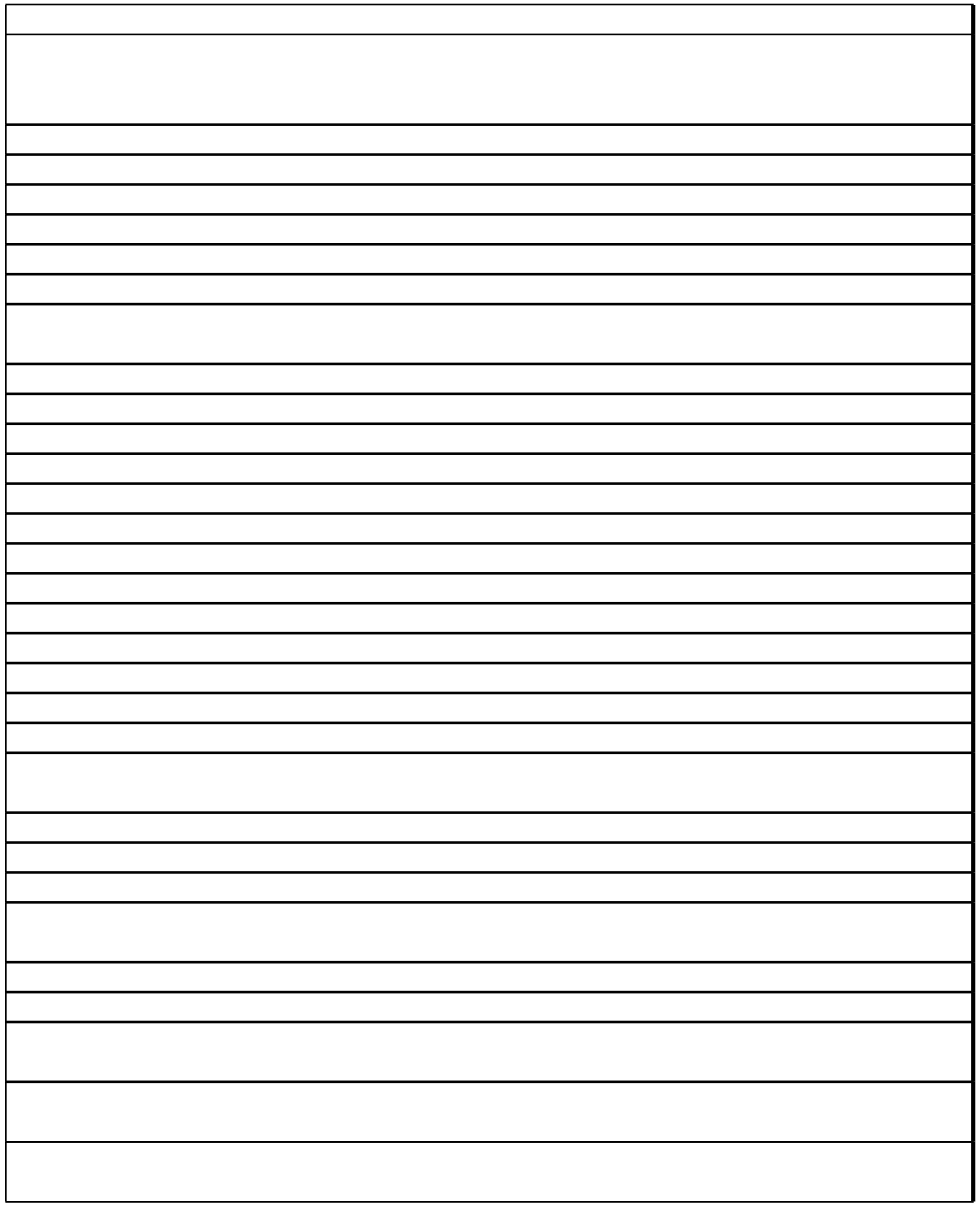
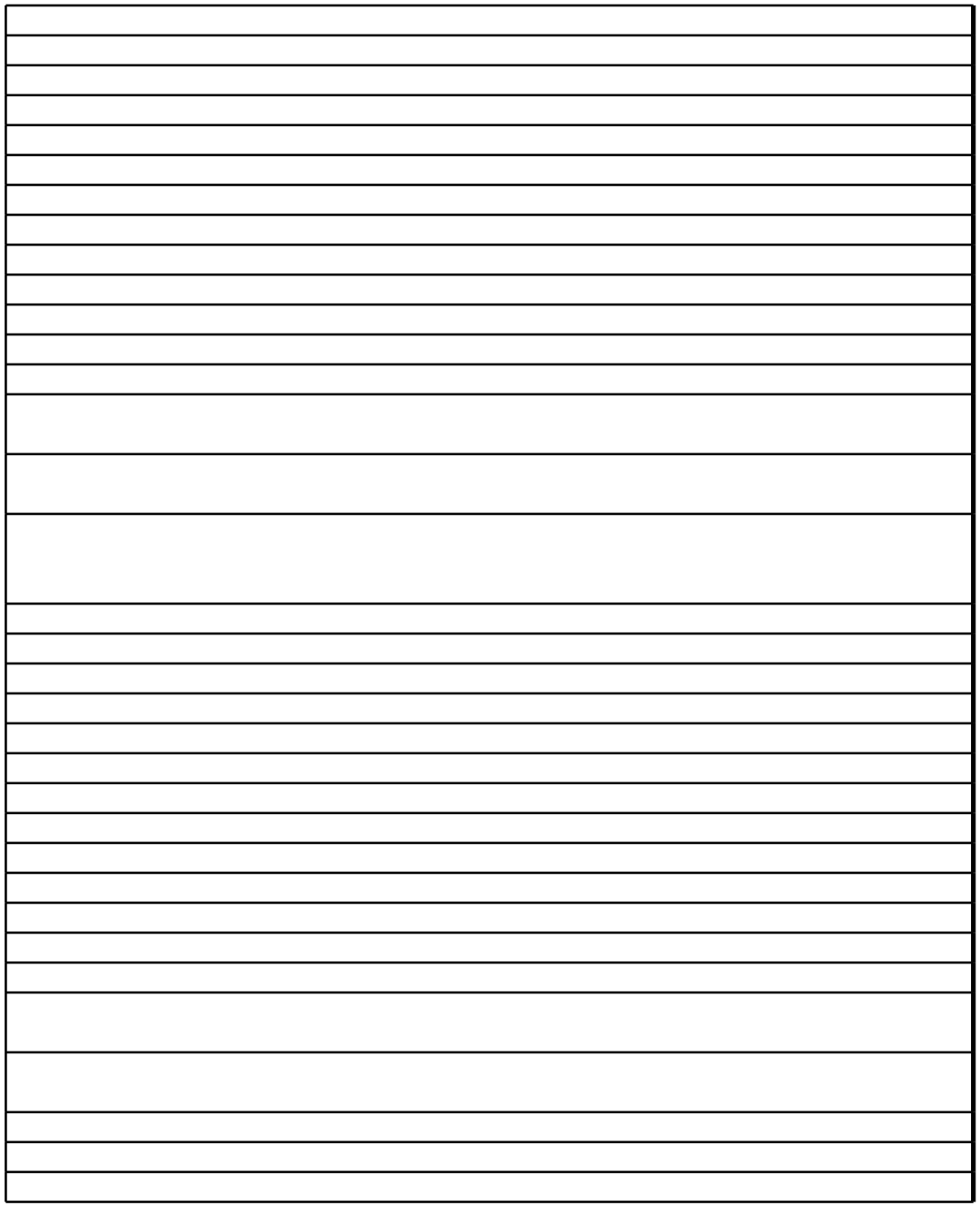
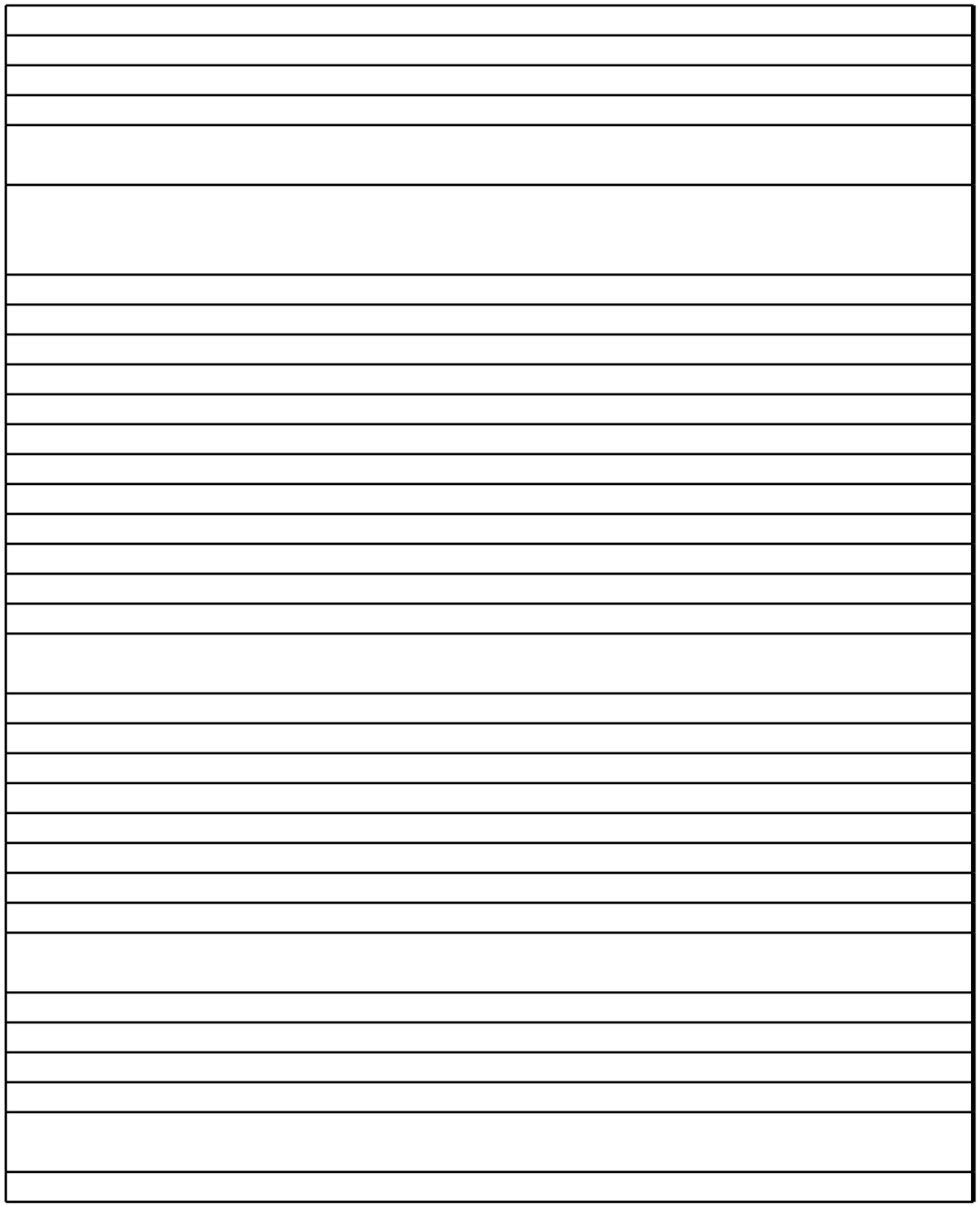
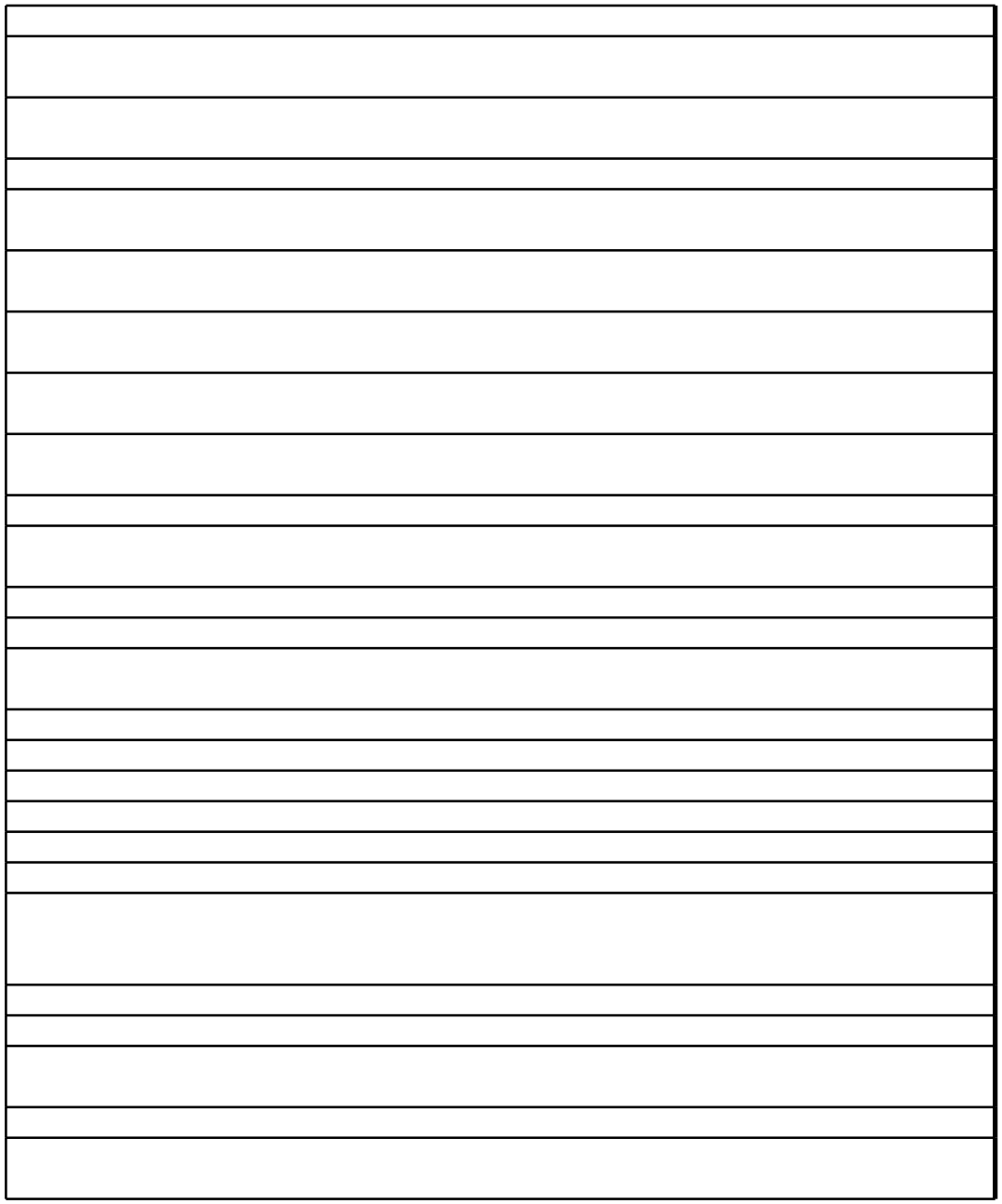
SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT
41 Main Street, Biddeford, ME
N/A
41 Main LLC (Owner), Abby Henderson Archetype Architects (Agent)
Preliminary Submission
5/13/2026

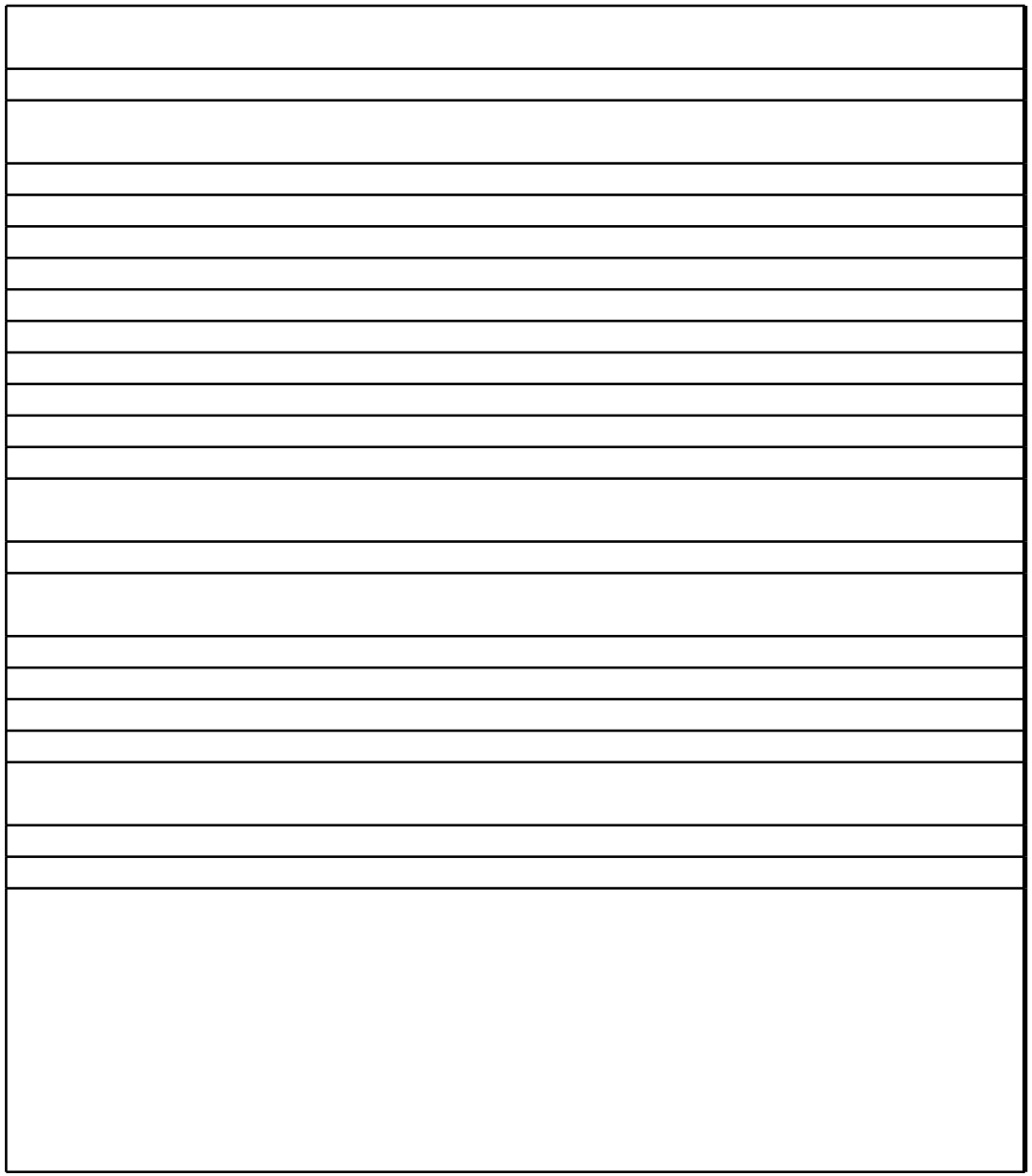
CITY REVIEW RESPONSE
COMMENT

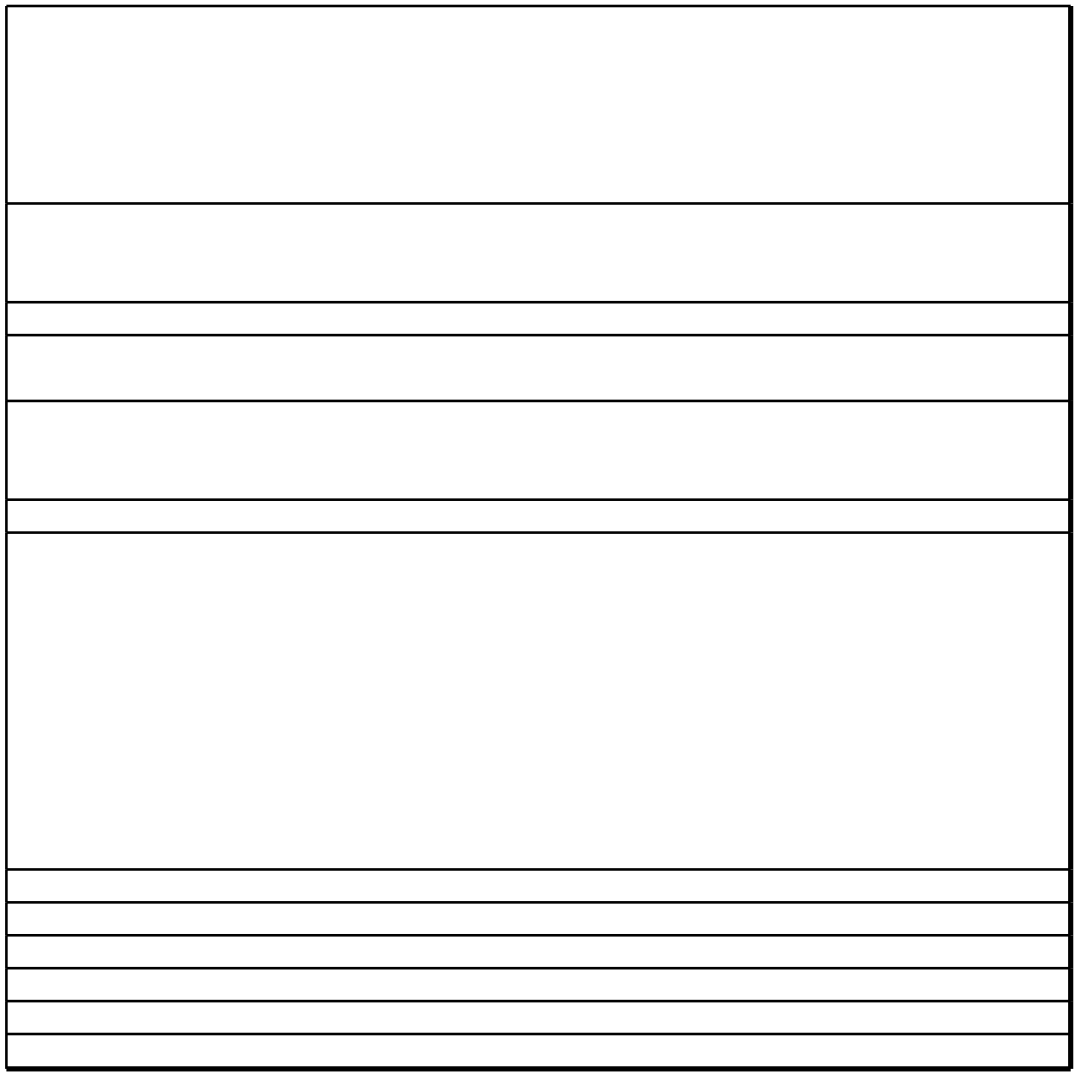












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