



**City of Biddeford
Planning Board**

September 18, 2024 at 6:00 PM
City Hall Council Chambers & Zoom

[Join Zoom Meeting Online](#)

Or call in by phone: +1 312 626 6799
Meeting ID: 949 8353 1202
Passcode: 223739

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
3. Adjustment(s) to Agenda
4. Planner's Business
5. Consent Agenda
 - 5.a Review and approval of Meeting Minutes from 9-4-24
6. Open Public Hearing
 - 6.a 2024.47 The Planning Board will hear the continuation of the first reading for the Amendment to the Back Lot Ordinance (Tabled 9-4-24)
 - 6.a 2024.47 Back Lot Ordinance Amendment
 - 6.b 2024.38 Proposed Zoning Text Amendment – Marijuana Establishments City of Biddeford Code of Ordinances, Part III – Land Development Regulations, Article VI – Performance Standards, Section 77 Marijuana Establishments. (Tabled 8-21-24)
 - 6.c 2024.48 The Planning Board will hear the first reading of the Amendment to Part III, Land Development Regulations, Section 40, Inclusionary Zoning.
 - 6.c 2024.48 Section 40 - Inclusionary Zoning
 - 6.d 2024.49 The Planning Board will hear the First Reading of the proposed Amendment to Part III Land Development Regulations, Section 44, Net Density Calculations
 - 6.e 2024.50 The Planning Board will hear First Reading of the proposed Amendment to Table B Dimensional Requirements
 - 6.e Dimensional Requirements - Amendment to Table B - Density Bonus

7. Close Public Hearing

8. Unfinished Business

9. New Business

9.a 2024.31 The Planning Board will hear a final site plan for Mike Eon & Associates, LTD. The project proposes to construct a 4,800 square foot building proposed as a Dentist's Office at 25 Barra Road (Map 2, Lot 43-10) in the I-3 Zone. To support this development, the project also proposes to create 25 parking spaces, in conformance with City Code, utility connections utilizing existing municipal service stubs on the property, and develop stormwater management systems in conformance with City standards. This property was previously granted a Site Plan approval by the Planning Board for the development of a restaurant and office building in 2016. The previously approved project was larger in scope (5,850 sqft building and 50 parking spots.

9.b 2023.38 Minor Site Plan Amendment for Tom Watson & Co located at 10, 20 30 Upper Falls Way (Tax Map 40, Lots 55,55-3,56-1) in the MSRD-2 Zone.

10. Other Business

11. Adjourn

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



CITY OF BIDDEFORD

Planning and Development Department

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

Planning Board Meeting Meeting Minutes

DRAFT

Date: September 4, 2024
Time: 6:00 PM
Location: Council Chambers & Zoom

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members: Larry Patoine (Chair), Susan Deschambault, Roch Angers, & Alexa Plotkin
Staff Present: David Galbraith, Adi Iriqat & Nan Whitten
3. Adjustments to the Agenda-Galbraith requested to table 6a.
4. Planner's Business
5. Consent Agenda
Approval of Meeting Minutes from August 21, 2024
MOTIONS: 6:01
Motion- Plotkin -Motion to approve the Consent Agenda as presented
Second-Angers
Vote: Motion passed unanimously
Open Public Hearing 6:03 PM
6. a 2024.47 Amendment to Part III Land Development Regulations, Article II Definitions, the Back-Lot Ordinance.
MOTIONS: 6:05 PM
Motion- Plotkin Motion to table
Second-Angers
Vote: Motion Passed Unanimously
6. Close Public Hearing- 6:05 PM
7. Unfinished Business-None
8. New Business
9. a2024.41 The Planning Board will review a Conditional Use Permit request from Cecile Loranger to open a day care called Caterpillar Clubhouse for the children of teachers in the Biddeford School system. The applicant will be licensed by the State if Maine and plans to take up to 6 children between the ages of 6 weeks and 5 years old. The day care will be at the applicant's home located at 19 Waco Drive (Tax Map 88, Lot 24) in the R1-A zone.
 - Galbraith introduced the project
 - Cecile Loranger represented applicationPublic Comments:
 - Diane Beaupre corner of Birchwood & Waco Drive in favor
 - Anne Morrissey 21 Waco Drive in favor

- Angers-Are you considering a fence? Yes if needed
- Angers what's on the base of the playscape-pea gravel
- Galbraith the State may require fencing in the back
- Any staff? Just the applicant
- Deschambault ever had a day care-ran a pre-school 2 years ago
- Deschambault-for the children of teachers-likes the schedule it fits with her life at this time.
- Deschambault-when do you plan to open-when all permits are in line
- Angers-Maximum # of children? 4 or 6 if some are siblings

MOTIONS: 6:14 PM

Motion- Plotkin-Motion to approve Case # 2024.41 Conditional Use Permit for Cecile Loranger (dba Caterpillar Clubhouse) for a home daycare facility proposed at 19 Waco Drive (Tax Map 88, Lot 24) located within the City's R1-A Zoning District, with the Findings of Fact (FOF) and Conditions of Approval as written.

Second-Angers/Deschambault

Vote-Motion Passed Unanimously

9. b 2024.44 The Planning Board will review a Conditional Use Permit request for New Life Christian Fellowship to have a Community Center at 118 Alfred Street (Tax Map 38, Lot 303-1) in the MSRD-2 Zone. The purpose of the Community Center is to provide a hub of help and hope for the community

- Iriqat introduced the project
- Pastor Justin Sweeney represented the applicant
- No interior/exterior changes
- Waiver request submitted yesterday to fence in the dumpster
- No Public Comments
- Deschambault-Licensed therapists-No
- Deschambault-Have you consulted with the Police Dept. or Seeds of Hope? Are you offering something different?
- They are offering a hand up to get them to the next step, finding housing, AA meetings
- Would you consider collaborating with Seeds of Hope, you seem to be 1 on 1?
- Offices for small group meetings, hours 9-5, evening meetings, what do you envision for meetings?
- Do people just drop in or how do they get committed to come back? They will not have to come back. Programming during the day such as open play time, making relationships
- Plotkin-how will people use it, do I just come in hang out or do you have specific activities or will they be hanging out in the front grassy area?
- We envision people coming in for a regularly scheduled activity at night for an AA meeting or parenting class.
- Deschambault-you don't have any letters from the Police Department, would you reach out to the police so they know how it is set up. This is for safety of staff and other clients.
- Roz Anton from Real Estate Co. The letters included are not letters of recommendation but required by the applicant. We will reach out to the BPD.

- Angers-water issues, once the spout is disconnected where is the water going to go? Mandate from State of Maine to separate water, downspout has been disconnected and water is going into a different drain, this is a mandate we have been doing this through the downtown area. How much water is this going to be? Water coming off the roof, it can no longer go into the sewer system.
- Angers-will we see an influx of people who need aid coming into Biddeford or will this be geared toward the citizens of Biddeford? Community of Biddeford not for the church, this building is within walking distance to all the services. Any people here from our church would be volunteers.
- Angers will this be collaborating with other agencies? Yes-will this draw people to come in, would you encourage people from other areas to use the building? Is the use of the space going to be utilized by others? Provided it is in our mission but there may be not time, we would try to fill up time slots with preplanned activities.
- Patoine-elaborate on recreational opportunities-active play, play center for families. Great addition for the City of Biddeford
- Galbraith will work with Pastor Sweeney on the dumpster screening.
- Plotkin if it is not required by the ordinance, I am ok with it not being screened.
- Patoine, the one next door is not screened and it can be seen from the street
- Deschambault-how are you going to get this message to the public?
- Galbraith police officer works in the building and he will reach out to him to contact Pastor Sweeney. Pastor Sweeney knows the police officer and they have and will talk.
- Angers what are the propane tanks for-heat
- Patoine clarified the Conditions of Approval: E-911, separate the downspouts & check on the dumpster enclosure.
- Pastor Sweeney asked about the disconnection about the down spout? The property owners' tie into the new lines, the runoff can no longer go into the sewer but be directed into the catch basins. Galbraith will work with Pastor Sweeney.

MOTIONS: 6:46 PM

Motion- Plotkin-Motion to approve Case # 2024.44 Conditional Use Permit for a Community Center to be located at 118 Alfred Street (Tax Map 38, Lot 303-1), which is located in the MSRD-2 Zoning District with the above-listed Conditions of Approval.

Second-Angers

Vote-Motion passed unanimously

9. c 2024.45 The Planning Board will review a Shoreland Permit request determining Greatest Practical Extent from Saco Bay Builders who represent Richard Patenaude. The cottage (building #2 on the enclosed survey by Dow & Coulombe) sustained significant damage in the January storms and must be rebuilt in the same footprint. The location of the property is 119 Hills Beach Road (Tax Map 54, Lot 65) in the Coastal Residential/Resource Protection zones.

- Iriqat introduced the project
- Tony Covino represented the applicant

- Structure will be rebuilt in same footprint may be taller depending on DEP regulations. Building has been condemned from January storm.
- The building will be the same but it may be higher to make it more resilient to storms, this is determined by DEP
- No Public Comments
- Angers-building height, it can't be any higher correct?
- Covino-it is in the velocity zone so it has to go on higher piles but the house does not change. It will not break the height ordinance rules.
- Patoine & Plotkin clarified for Angers.
- Covino told them that DEP will determine the height of the structure. We are not changing the building.
- Angers explained that the bone of contention with people near the water that structures will get higher and block views. He believes there is an ordinance.
- There is a height ordinance but this house is not going near it.
- Angers were the neighbors notified? Yes they were sent to all abutters 250' away and documented in the file. He asks because he gets that question often if people didn't get a notice.
- Patoine-nothing to building number 3? It had a bit of damage but not like #2, it was on a different type of foundation.
- Deschambault-do you own buildings 1, 2 & 3? The buildings are owned by the same person, Richard Patenaude.
- Angers does not like the line of substantial start, what is "substantial" who determines this? Galbraith-we have to have a date for expiration sometimes things happen. Galbraith works with Fecteau to determine if the progress is sufficient
- Patoine-sometimes supplies don't come in in time, builders don't want to come back to the Board if they are 80% done. 12 months is no longer realistic due to supply chains.
- Angers-what is "substantial" where is the criteria? We have no idea what that means and as Board members we should know what we are saying. Galbraith we can work on changing wording going forward we can certainly amend that.
- Patoine possibly expire in a year providing they get their permit.
- Plotkin where is this language other than these documents-is someone keeping track of this process-Fecteau
- This change would be less subjective
- Fecteau checks on all permits he issues, he wants all projects started within 6 months of permitting.
- Plotkin pointed out a typo on report razed not raised

MOTIONS: 7:09 PM

Motion-Plotkin-Motion to approve Case # 2024.45 Shoreland Zoning / Greatest Practical Extent Determination for 119 Hills Beach Road, Bldg. #2 (Tax Map 54, Lot 65) in the CR Zoning District Determination, with the above-listed Conditions of Approval. Change #1 Razed not Raised & #4 changed to state that this approval expires 1 year from date below if substantial start is not made in construction meaning you have a building permit in place.

Second-Deschambault

Vote-Motion passed unanimously

10. Other Business

- October 2, Alexa is not available but others will be available for a quorum

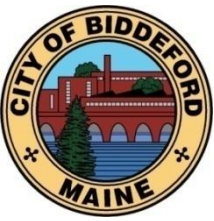
11. Adjourn 7:11 PM

Planning Board Chair/Vice Chair

Date

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

DRAFT



CITY OF BIDDEFORD

PLANNING DEPARTMENT

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Planning Board Memorandum

TO: Chair Patoine and Members of the Biddeford Planning Board

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

DATE: September 11, 2024

RE: **Case # 2023.24 Back Lot Ordinance Amendment / Back Lot Ordinance, Article VI - Performance Standards, Section 7A - Back Lots.**

MEETING DATE: September 18, 2024

I. INTRODUCTION:

As the Board may recall, on August 1, 2023 the City Council approved a new Back Lot Ordinance, which allowed property owners, to create a back lot, also called a "Flag Lot" due to the shape of said back lot (Flag = created lot and pole = access). The Planning Board recommended Ordinance to the City Council that included "Subsection 7" which stated:

"7. The back lot is at least as wide at the site of the proposed dwelling as the frontage measurement required in the district".

When the Ordinance was before the City Council for final approval, the Council voted to eliminate the above language and the Ordinance ultimately was adopted by the Council. The Council's rationale was when dealing with divisions of this nature, some lots may be irregular in shape and in



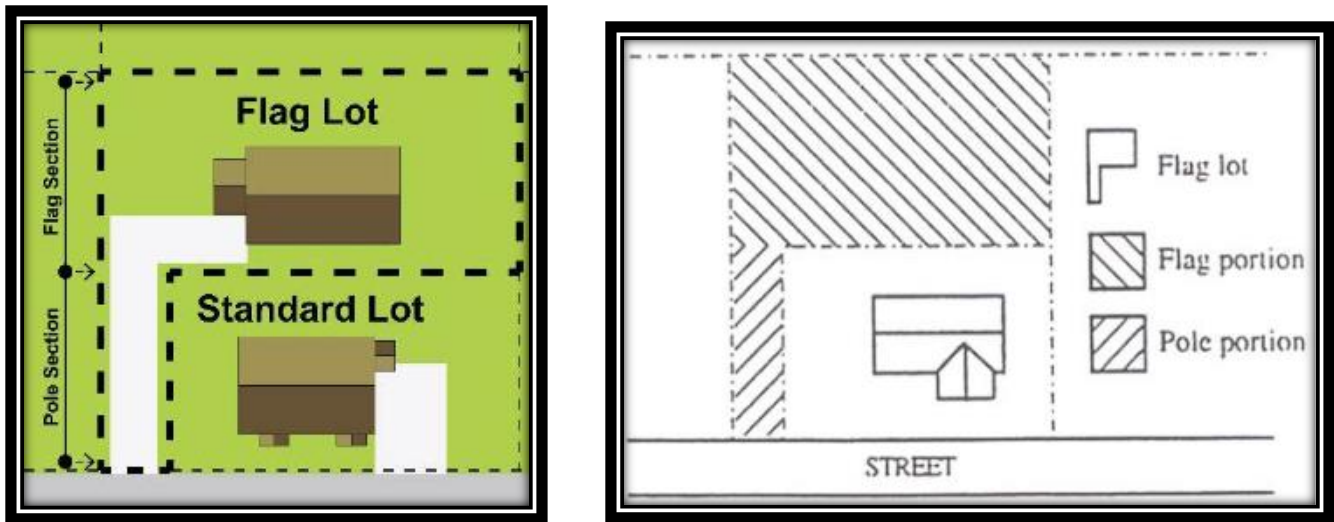
many cases the frontage is the widest part of the property and the remainder of the lot tapers in as you go deeper into the lot. However, due to the elimination of the above provision, a resident was able to meet the "back lot" regulations, and divide the lot so that the two lots were created side by side (similar to the above image), which was not the intent when the Back Lot Ordinance was created.

MEETING: Planning Board
Re: Ordinance Amendments to the City's Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots,
MEETING DATE: September 18, 2024

Due to this unintended “loop hole” Staff is seeking an amendment to the Ordinance which clearly states, and illustrates the Ordinance’s original intent. The proposed language is shown below with new / proposed text shown in blue underlined. The proposed amendments do NOT include any deleted text, usually indicated in ~~red strikethrough~~. The proposed changes are shown below:

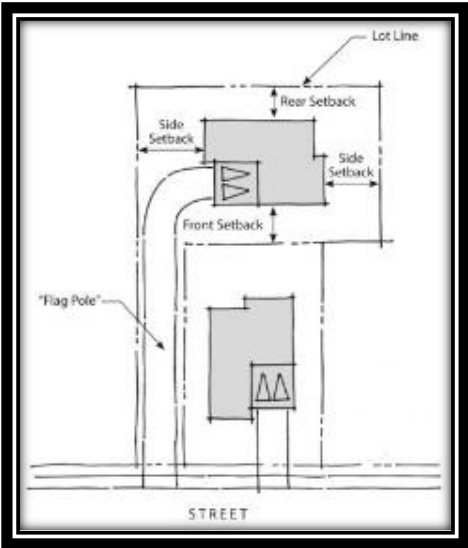
7. Back Lots / Flag lots shall comply with the following:

- A. The creation back lot is the division of the existing lot of record into two lots, where the front / standard lot is located in front of the created back/flag lot, as illustrated below.



- B. The back lot shall be located behind the front lot and shall gain vehicle access from the roadway via 25 foot wide right-of-way easement (pole portion), as illustrated above.
- C. The flag portion of the back lot shall be a minimum of 50% of the width, as measured at its front lot line, of the lots existing street frontage. As illustrated at right, the back/flag lot's front lot line is at least 50% of the existing street frontage. This is permitted when the lot is a slightly irregular shape and the existing street frontage is wider than that the rear of the lot.

MEETING: Planning Board
Re: Ordinance Amendments to the City’s Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots,
MEETING DATE: September 18, 2024



Attached is a copy of the entire Back Lot Ordinance, with proposed text additions shown in [blue underline](#).

II. SAMPLE MOTIONS:

A. *Motion to Approve the proposed Ordinance Amendments to the City’s Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots, as written.*

B. *Motion to Table the proposed Ordinance Amendments to the City’s Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots, for the following reasons:*

- 1. _____
- 2. _____
- 3. _____

C. *Motion to deny the proposed Ordinance Amendments to the City’s Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots, for the following reasons:*

- 1. _____
- 2. _____

MEETING: Planning Board
Re: Ordinance Amendments to the City's Code of Ordinance, Part III – Land Development Regulations, Article VI - Performance Standards, Section 7A - Back Lots,
MEETING DATE: September 18, 2024

3. _____

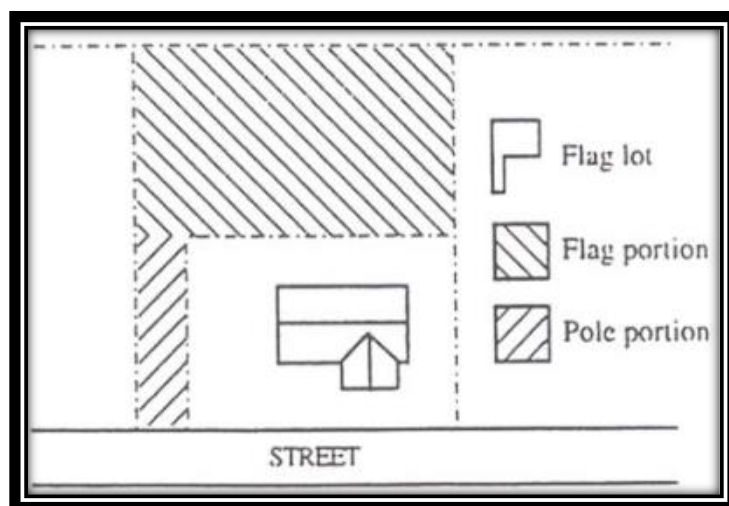
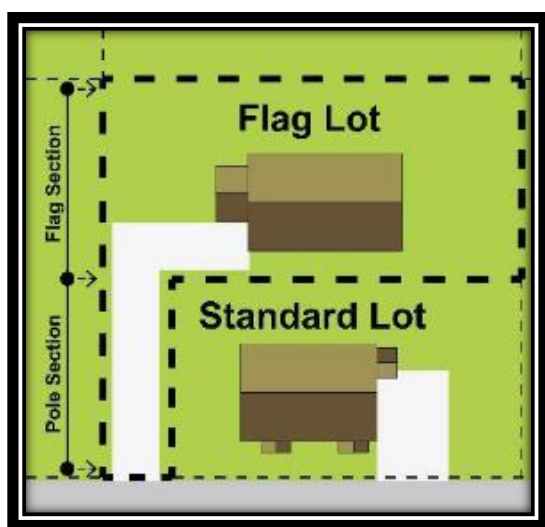
ATTACHMENTS

1. Attachment # 1: City of Biddeford – Back Lot Ordinance with “in line” Ordinance Amendments

City of Biddeford
Re: Back Lot Ordinance Amendment

Planning Board Meeting: September 18, 2024
Proposed Ordinance language shown in blue underline.

- A. Back lots. One new back lot may be created from any lot of record that existed on August 1, 2023 and conforms to the lot requirements of Table B Dimensional Requirements except for the lot frontage requirement, provided that:
1. A new back lot may only be created on residentially zoned properties identified as “growth areas” in the City’s Comprehensive Plan.
 2. Backlots are prohibited on residential lots in City’s Rural Farm (RF) and Coastal Residential (CR) Zoning Districts.
 3. Back lots are prohibited in previously approved subdivisions without subdivision amendment review and approval by the Planning Board. Projects / divisions of this nature need to adhere to all subdivision standards, dimensional regulations and stormwater management regulations.
 4. Lots utilizing the Back Lot Ordinance may not be further subdivided including the creation of additional “back lots”.
 5. Each will be limited to one single or one two-family dwelling.
 6. The back lot and front lot will conform to the minimum lot area and minimum lot area per dwelling unit required in the district.
 7. Back Lots / Flag lots shall comply with the following:
 - A. The creation back lot is the division of the existing lot of record into two lots, where the front / standard lot is located in front of the created back/flag lot, as illustrated below.

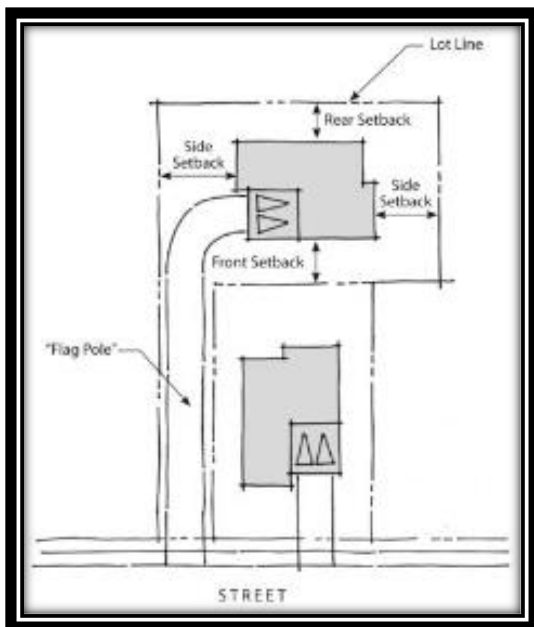


- B. The back lot shall be located behind the front lot and shall gain vehicle access from the roadway via 25 foot wide right-of-way easement (pole portion), as illustrated above.

City of Biddeford
Re: Back Lot Ordinance Amendment

Planning Board Meeting: September 18, 2024
Proposed Ordinance language shown in blue underline.

- C. The flag portion of the back lot shall be a minimum of 50% of the width, as measured at its front lot line, of the lots existing street frontage. As illustrated at right, the back/flag lot's front lot line is at least 50% of the existing street frontage. This is permitted when the lot is a slightly irregular shape and the existing street frontage is wider than that the rear of the lot.



8. The back lot has a deeded access to a publicly accepted street. This access may be obtained by:
- a) A right-of-way / easement that is a minimum of 25 feet wide across the front lot that is deeded to the owner of the back lot; or
 - b) Extension of the back lot to the public street so that the back lot has at least 25 feet of frontage on the street. The creation of the back lot shall not make the front lot more nonconforming in street frontage or make the front lot nonconforming with respect to street frontage if it is conforming.
 - c) The 25 foot right-of-way (ROW) / easement area shall be designed to meet the following:
 - 1) There shall be a five (5) foot wide minimum driveway setback from the existing master lot to the existing structure.
 - 2) There shall be a five (5) foot wide minimum, driveway setback the length of the proposed driveway, along the abutting property line. This area shall remain vegetated.
 - 3) The proposed driveway shall be a minimum of twelve feet (12) in width, must remain unobstructed.
 - 4) The driveway width may be required to exceed the twelve foot (12') width if necessary to accommodate passage of emergency vehicles. Driveway/s exceeding 150' in length may

City of Biddeford
Re: Back Lot Ordinance Amendment

Planning Board Meeting: September 18, 2024
Proposed Ordinance language shown in blue underline.

- be required to provide an emergency vehicle turn around. This determination and approval of access designs shall be made in writing by the Biddeford Fire Department.
- 5) For safety reasons, driveways may be required to meet “private road construction requirements”, Table 6-50, as determined by the City’s Code Enforcement Office, Planning Director and Fire Department.
- 6) The Code Enforcement Office may require additional information / studies to be provided by the Applicant prior to the issuance of a building permit.
9. The back lot and the front lot may share the same driveway and driveway roadway entrance providing the following conditions are met:
- a) Proof of a recorded non-exclusive access easement, a minimum of twenty-five (25) feet in width, which will run with the land in perpetuity; the interior lot of record may only utilized as a single-family or two-family **Use** and shall meet all dimensional requirements within the zoning district in which they are located).
 - b) The access easement shall include provisions for snow removal, access maintenance, driveway replacement / reconstruction and maintenance responsibilities of each party of the lot division.
 - c) If 3 or more units are created, Subdivision review by the Staff Review Committee (SRC) may be required.
10. The driveway shall be maintained in a passable condition, free of potholes, ruts, debris, snow, and shall not cause damage to municipal vehicles nor hinder emergency vehicle access.
11. A turnaround area may be required, by the Biddeford Fire Chief, or their assignee, for the safe maneuvering of public safety vehicles. Written approval from the Department shall be submitted to the Code Enforcement Office with building permit application.
12. Street numbering shall be approved by the City’s E-911 Addressing Officer prior to the issuance of any required permits are issued. A sign or mailbox clearly stating the assigned street number shall be posted at the street, prior to issuance of the required Building Permit.
13. If a public sewer line passes in the street in front of the lot from which the back lot will be created, the back lot shall be required to connect to the sewer, and be functional and operational, to the satisfaction of the City, prior to the issuance of a Certificate of Occupancy Permit being issued.
14. If a public water line passes in the street in front of the lot from which the back lot will be created, the back lot shall be required to connect to the public water, and be functional and operational, to the satisfaction of the City, prior to the issuance of a Certificate of Occupancy Permit being issued.

City of Biddeford
Re: Back Lot Ordinance Amendment

Planning Board Meeting: September 18, 2024
Proposed Ordinance language shown in blue underline.

B. Lot standards. The following apply to new lots created after August 1, 2023:

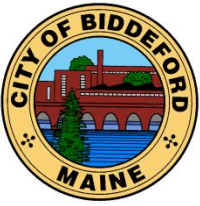
1. Narrow strips of land along a street with a depth of less than the minimum front yard requirement for the zoning district in which the lot is located shall not be counted in meeting the minimum street frontage requirement.
2. Prior to issuance of a building permit, the Code Enforcement Officer, Director of Engineering or City Planner may require that a wetlands delineation, prepared by a State of Maine Professional Licensed Engineer, be submitted to verify that the proposed building lot and proposed structures are adequate for building construction and the septic system installation consists of upland areas. If an area of wetlands equal to or greater than Maine Department of Environmental Protection Natural Resource Protection Act (NERPA) thresholds for development review is proposed for alteration, a copy of the NRPA permit shall be submitted prior to issuance of a building permit.

C. Existing interior lots of record without any road frontage as of August 1, 2023, shall be eligible for a building permit, notwithstanding the absence of street frontage, providing the lot has a dedicated right-of-way (ROW) / Easement, meeting the standards of this Ordinance, to a City accepted street.

D. All driveways serving the master lot and back lot shall be paved if the existing lot is already paved.

E. Multiple dwellings or uses on one lot.

1. Except as permitted under Subsection 2 below, no more than one single-family or two-family dwelling may be located on a lot, except in the case of multiunit residential projects that meet all other applicable sections of this chapter.
2. A second single-family dwelling, or two-family dwelling in the same ownership as the first, may be located on a lot only if the street frontage requirement is met, and the placement of the buildings would allow division of the lot in conformance with the minimum lot and setbacks specified in Table B - Dimensional Requirements. An accessory dwelling unit (ADU) permitted under Article VI – Performance Standards, Section 78 Accessory Dwelling Units shall not be considered a single-family residence for purposes of this section.



CITY OF BIDDEFORD

Planning and Development Department

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Planning Board – Staff Report

TO: Chair Patoine and Members of the Biddeford Planning Board

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

DATE: September 10, 2024

MEETING DATE: September 18, 2024

RE: Ordinance Amendment: Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations.

1. Overview:

The City's Inclusionary Ordinance was adopted by the City Council on December 19, 2023. At that time, the Ordinance was being proposed as a new Section (40) within the City's Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 (New) – Inclusionary Zoning (IZ). As the Board may recall, on August 20, 2024 the City Council, following Planning Board review and recommendation, approved an amendment to City's Code of Ordinances; Part III: Land Development Regulations; "Table A- Table of Land Uses" to allow multi-family residential developments within the I-3 Zoning District, with conditions. One of the Conditions adopted requires any multi-family development to adhere to the standards of the Inclusionary Zoning Standards (Section 40). This proposed amendment is being made to bring the most recently adopted standards, to allow multi-family dwellings within the I-3 zoning, so that both Ordinances are consistent with each other. Text additions are shown in blue underlined, and ~~red strikethrough~~ for text deletions.

The Ordinance also requires a Zoning Text Amendment to the Code of Ordinances, Part III: Land Use Development Regulations, Article II – Definitions to include a new definition for "Affordable Housing Development".

2. Staff Recommendation:

Staff requests that the Planning Board forward a positive recommendation for adoption of this amendment to the City Council to make both Ordinances consistent and to update the Inclusionary Ordinance to include multi-family dwellings within the I-3 zoning district.

NEW ORDINANCE: Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations, Article II – Definitions.

Planning Board Hearing Date: November 1, 2023

3. SAMPLE MOTIONS:

Amendments to Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 77 – Marijuana Establishments, to adopt odor complaint regulations into the City's Land Use Ordinance to standardize the rules and enforcement of odor complaints at marijuana related business operating within the City.

- A. Motion to Approve: I motion to APPROVE the proposed Amendments to the City's Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ), as written and proposed.
- B. Motion to Deny: I motion to DENY the proposed Amendments to the City's Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ), for the following reasons:
- 1) _____.
 - 2) _____.
 - 3) _____.
- C. Motion to Table: I motion to TABLE the proposed Amendments to the City's Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ), for the following reasons.
- 1) _____.
 - 2) _____.
 - 3) _____.

ATTACHMENTS

1. Attachment # 1: Section 40 – Inclusionary Zoning (IZ) with proposed text changes

Inclusionary Zoning Text Amendment

Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations

Planning Board Meeting: September 18, 2024

Section 40 Inclusionary zoning [1]

[Added 12-19-2023 by 2023.148]

A. Affordable housing development.

1. For rental housing, a development in which a household whose income does not exceed 80% of the median income for the area as defined by the United States Department of Housing and Urban Development under the United States Housing Act of 1937, Public Law 75-412, 50 Stat. 888, Section 8, as amended, can afford a majority (51% or more) of the units that the developer designates as affordable in the development without spending more than 30% of the household's monthly income on housing costs; and
2. For owned housing, a development in which a household whose income does not exceed 120% of the median income for the area as defined by the United States Department of Housing and Urban Development under the United States Housing Act of 1937, Public Law 75-412, 50 Stat. 888, Section 8, as amended, can afford a majority (51% or more) of the units that the developer designates as affordable in the development without spending more than 30% of the household's monthly income on housing costs.
3. Affordable housing. Housing for which the percentage of income a household is charged in rent and other housing expenses or must pay in monthly mortgage payments (including condominium/HOA fees, mortgage insurance, other insurance and real estate taxes), does not exceed 30% of a household income, or other amount established in City regulations that does not vary significantly from this amount.

B. Workforce housing unit for rent for which:

1. The rent is affordable to a household earning 80% or less than of AMI.
2. The unit is rented to a household earning 80% or less than of AMI.
3. The requirements of Subsection B1 and 2 above are limited by deed restriction or other legally binding agreement for the applicable length of time in this ordinance.

- C. Purpose. It is in the public interest to promote an adequate supply of housing that is affordable to a range of households at different income levels. The purpose of this section therefore is to offer

Inclusionary Zoning Text Amendment

Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations

Planning Board Meeting: September 18, 2024

incentives to developers to include units of affordable and workforce housing within development projects, thereby mitigating the impact of market rate housing construction, or the demonstrated increase in affordable housing needs resulting from the creation of new lower-income jobs, on the limited supply of available land for suitable housing, and helping to meet the housing needs of all economic groups within the City. The City believes that this section will assist in meeting the City's comprehensive goals for affordable housing in the prevention of overcrowding and deterioration of the limited supply of affordable housing, and by doing so promote the health, safety, and welfare of its citizens.

D. Ensuring workforce housing.

1. Purpose. Based on the City Council adoption of the 2023 City's Comprehensive Plan and the Mayor Affordable Housing Task Force Report dated December 2022, it is in the public interest to promote an adequate supply of housing that is affordable to a range of households at different income levels. The purpose of this section is to ensure that housing developments over a certain size provide a portion of workforce housing units and, by doing so, promote the health, safety, and welfare of City of Biddeford citizens. This ordinance shall regulate properties located within the City's MSR1, ~~and MSR3~~, and I-3 Zoning Districts.
2. Applicability. This section shall apply to development projects that create eight or more net new dwelling units for rent through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a nonresidential use to residential use, or any combination of these elements. This ordinance shall not apply to projects as follows:
 - a. Using public financing requiring affordability restrictions, as defined by tax increment financing, U.S. Department of Housing and Urban Development funds, such as HOME or CDBG, other federal, state, or local housing program, or the Low-Income Housing Tax Credit Program; or
 - b. Existing residential projects with Planning Board and/or City Council approvals.
 - c. Projects that qualify for a density bonus pursuant to table B, Dimensional Requirements.^[2]

[2]

Editor's Note: Table B is included as an attachment to Art. V, Establishment of Zones.

Inclusionary Zoning Text Amendment

Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations

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3. Standards. Development projects subject to this subsection shall be subject to the following requirements:
- a. Notwithstanding any language to the contrary in this Land Use Code, all developments of eight units or more are conditional uses subject to Planning Board review on the condition that they comply with the requirements of this section.
 - b. At least 10% of the units in the project shall meet the definition of workforce housing units for rent to an eligible household, as defined in Article I, In General. The project shall have the option of paying a partial fee-in-lieu as outlined in Subsection ~~D3F~~ (Note scriber's error) below. Where the required number of units results in a fraction of less than 0.5, the required number of on-site units is rounded down to the nearest whole number. Where the required number of units results in a fraction of 0.5 or more, the development project shall have the option of paying a partial fee-in-lieu for the fractional value or rounding the number of on-site units up to the nearest whole number.
 - c. Projects shall not be segmented or phased to avoid compliance with these provisions. In cases where projects are completed in phases, affordable units shall be provided in proportion to the development of market rate units unless otherwise permitted through regulations.
 - d. Workforce units must be integrated with the rest of the development, must use a common entrance, and must provide no indications from common areas that these units are workforce housing units. Exteriors of affordable units shall be consistent with and indistinguishable from the exteriors of other units in the project. Workforce units shall be comparable in materials, interior finishes, amenities, and parking to dwelling units in the neighborhood and in the development in which they are located.
 - e. Workforce units need not be the same size as other units in the development but the number of bedrooms in such units shall be no less than 10% of the total number of bedrooms in the development. For the purposes of calculating the number of bedrooms in a development, every 400 square feet in each market rate unit will count as a bedroom if the Planning Authority determines this method is appropriate in lieu of counting actual bedrooms.

Inclusionary Zoning Text Amendment

Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning (IZ) and a Zoning Text Amendment to Code of Ordinances, Part III: Land Use Development Regulations

Planning Board Meeting: September 18, 2024

- f. As an alternative to providing workforce housing units, the project may pay a fee in lieu of some or all of the units. In-lieu fees shall be paid into the Housing Trust Fund. The fee for affordable units not provided shall be \$100,000 per unit. The payment shall be required in conjunction with a request for a certificate of occupancy.
 - g. If at least 33% of the units in a development are workforce units, the development is eligible for subsidy through an affordable housing tax increment financing (TIF) district credit enhancement agreement, subject to City Council approval.
 - h. The term of affordability for the required percentage of workforce units provided shall be 30 years.
- 4. Implementing regulations. Regulations to further specify the details of this subsection shall be developed, including, but not limited to:
 - a. Specific methodology for income verification.
 - b. Situations where less than permanent affordability might be considered.

E. Reporting to City Council. In conjunction with the annual report on the Housing Trust Fund, the Planning Authority shall annually report on developments subject to this section, the number of units produced, the amount of fees-in-lieu collected, and the overall effectiveness of this section in achieving its stated purpose.

[1]

Editor's Note: Former Section 40, Hotels/motels and inns, was repealed 1-3-2017 by Ord. No. 2016.114.

Code of Ordinances, Part III: Land Development Regulations, Article V – Dimensional Requirements,
NOTES for Table B be amended as follows:

- B. In order to promote affordable forms of ownership and rental housing ~~condominium forms of housing and affordable housing~~ in close proximity to downtown and services, in the R-1-A, R-1-B, R-2, R-3, OR, and MSRD-2 Zoning Districts, an Affordable Housing Development Density Bonus ~~the density requirements~~ may be relaxed-granted as follows:
1. Redevelopment of **Existing Structures.**
 - a) The Planning Board, or other appropriate approval authority, shall consider granting an Affordable Housing Development Density Bonus of either 2.5 times the base density otherwise allowed in the zone or density bonus of one residential unit for every 500 square feet of gross building living space floor area, excluding unfinished basements, within an existing structure, whichever yields a greater number of affordable units, provided the applicant presents redevelopment/renovation plans to the Code Enforcement Officer for review and approval. demonstrating how the redevelopment project will result in the number of residential units with two or more bedrooms being at least, if not more than, the number of units with two or more bedrooms before the density bonus was granted.
 - b) If the project is provided an Affordable Housing Development Density Bonus density bonus, the Code Enforcement Officer shall document the allowable density and number of units, in writing, for the Code Enforcement Office files.
 - c) The proposed developer provides capacity to serve verification in writing from public water and city sewer utilities, if applicable.
 - d) The developer provides in writing certification of that at least 51% of the total units resulting from the project will have Long-Term Affordability as follows:
 1. Prior to granting a certificate of occupancy or other final approval of an the aAffordable hHousing dDevelopment, a municipality must require that the owner of the aAffordable hHousing dDevelopment shall (a) execute a restrictive covenant that is enforceable by a party acceptable to the municipality; and (b) record the restrictive covenant in the appropriate registry of deedsYork County Registry of Deeds to ensure that for at least thirty (30) years after completion of construction:
 - i. For Rental Housing, occupancy of all the units designated affordable in the development will remain limited to households at or below 80% of the local area median income at the time of initial occupancy and the amount of rent (including utilities) will not exceed 30% of the household's monthly income; and
 - ii. For eOwned hHousing, occupancy of all units designated affordable in the development will remain limited to households at or below 120% of the local area median income at the time of initial occupancy and the amount of housing costs (mortgage payments including condominium/HOA fees,

mortgage insurance, other insurance and real estate taxes) will not exceed 30% of the household's monthly income.

b) —

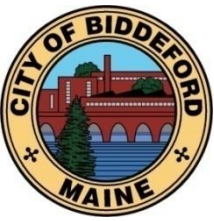
~~e)e)~~ An applicant provided a density bonus for rental housing shall enter into a thirty-year contractual agreement with the City of Biddeford requiring that at least 51% of units created shall be leased such that they do not exceed 70% of the fair market rent (FMR) per bedroom size, as established annually by the U.S. Department of Housing and Urban Development (HUD). The contractual agreement shall be recorded at the York County Registry of Deeds, a copy of which shall be provided to the Code Enforcement Office prior to the issuance of any building permits. ~~Rent Deed~~-restricted units will be annually monitored by the Planning and Development Department for contract affordability compliance.

~~d)f)~~ For projects proposing to demolish and rebuild an existing building, the existing approved density may be re-utilized within the redevelopment.

2. Affordable Housing Development Density Bonus Review Process. Expansions of low/moderate income (LMI) projects shall be reviewed as follows: Applications for an Affordable Housing Development Density Bonus will be reviewed as follows:
 - a) Where use of the Affordable Housing Development Density Bonus results in expansions of affordable housing units under this provision are being utilized, up to a maximum of eight or fewer units being created, the shall be reviewed and approved will be performed by the City's Staff Review Committee (SRC). Projects exceeding eight units shall be reviewed by the Planning Board for site plan and subdivision review.
 - b) Parking standards for affordable Affordable housing Housing Developments projects of this nature shall provide be a minimum of no more than one two parking spaces for every two three low-/moderate-income (LMI) housing units created. For units exceeding the low-/moderate-income (LMI) that are not deed restricted for long-term affordability threshold, parking shall be provided as required within the City's parking standards.
3. **Vacant Land Development.** For vacant lots located within the R-1-A, R-1-B, R-2, R-3, OR, and MSRD-2 Zoning Districts, utilizing the Affordable Housing Development density Density bonus-Bonus, the standards within Section B1 and B2 above for low-/moderate-income (LMI) housing developments may increase the base density by up to a multiple of 2.5 times of the particular zoning district where the lot is located apply.
4. The developer may elect to utilize either the 500 square feet of gross building living space floor area calculation outlined in subsection B.1.a, or increasing-increase the base density by up to a multiple of 2.5, as outlined in subsection B.3, providing it equates to more affordable housing being provided.
5. **Condominium Conversions/Development.**
 - a) A property may be proposed for redevelopment/renovation from apartments into condominiums utilitizing the Affordable Housing Development Density Bonus in accordance with B1 above.

- b) An applicant provided a n Affordable Housing Development -dDensity
bonus-Bonus for condominiums shall meet the standards set forth in
B(1)(d)(1)(ii) above. Applicant will also enter into a contractual
agreement with the City of Biddeford obligating them to complete the
project as condominiums to be offered for sale upon or before
completion of the project in return for receiving the density-Density
bonus-Bonus. The contractual agreement shall be recorded at the York
County Registry of Deeds, a copy of which shall be provided to the Code
Enforcement Office prior to the issuance of any building permits.
- c) The applicant agrees that if the project is converted to condominiums,
said units shall not be sold for a price that exceeds 125% of the York
County median home price affordable to median income households as
set annually by HUD for the City of Biddeford.

[WG1]



CITY OF BIDDEFORD

PLANNING DEPARTMENT

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

David.Galbraith@Biddefordmaine.org

Planning Board Memorandum

TO: Chair Patoine and Members of the Biddeford Planning Board

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

DATE: September 12, 2024

RE: **Amendments to Code of Ordinances, Part III: Land Development Regulations, Article V – Dimensional Requirements, NOTES for Table B**

MEETING DATE: September 18, 2024

1. INTRODUCTION:

In April 2024, the Biddeford City Council approved corrections to the Bonus Density language to align with the Council's intentions from November 2023 Council vote. During the preparation for the April City Council meeting, staff identified inconsistencies and unintended obstacles to the practical use of the Bonus Density options. As a result, the following changes are being presented to the Biddeford Planning Board for consideration to improve and align the Bonus Density options within the city's ordinances:

A. Summary of Changes to Table B Notes

The proposed amendments to the Notes for Table B in Biddeford's Land Development Regulations focus on refining and clarifying the Affordable Housing Development Density Bonus. Key changes include:

1. Expanding the focus from just "condominium forms of housing" to "affordable forms of ownership and rental housing" to broaden the scope of affordable housing options.
2. Introducing a choice between two density bonus calculations: 2.5 times the base density or one unit per 500 square feet of existing gross building living space, whichever yields more affordable units.
3. Establishing clearer long-term affordability requirements, including a 30-year restrictive covenant for both rental and owned housing units.
4. Adjusting income thresholds for affordable units: 80% of area median income for rentals and 120% for owned units.
5. Refining parking requirements to a maximum of two spaces for every three affordable housing units, reducing the minimum parking burden on affordable developments.

MEETING: Planning Board
TOPIC: Bonus Density Amendment: NOTES for Table B
MEETING DATE: September 18, 2024

6. Streamlining the review process, with projects of eight or fewer units reviewed by the Staff Review Committee and larger projects by the Planning Board.

7. Applying standards for both redevelopment of existing structures and development of vacant land.

8. Clarifying requirements for condominium conversions and developments under the density bonus program.

These changes aim to create a more flexible, comprehensive, and effective framework for incentivizing affordable housing development in Biddeford while ensuring long-term affordability and appropriate oversight while keeping in line with the requirements of Maine Statute.

B. Proposed amendments: (Attached)

C. SAMPLE MOTIONS:

- I. **Motion to approve** the proposed amendments to the Biddeford Code of Ordinances, Part III: Land Development Regulations, Article V – Dimensional Requirements, NOTES for Table B.
- II. **Motion to Table** the proposed amendments to the Biddeford Code of Ordinances, Part III: Land Development Regulations, Article V – Dimensional Requirements, NOTES for Table B

City of Biddeford

Final Site Plan Application

25 BARRA ROAD COMMERCIAL DEVELOPMENT

25 Barra Road, Biddeford, Maine

August 2024

Applicant

Mike Eon Associates LTD
260 Main Street
P.O. Box 444
Biddeford, ME 04005

Agent

BH2M
380B Main Street
Gorham, Maine 04038



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

August 14, 2024

Re: 25 Barra Road – Dentist Office
Final Site Plan Submission

Dear David;

BH2M has been retained by Mike Eon Associates LTD to provide Engineering, Surveying, and Permitting services for development of commercial project proposed at 25 Barra Road in Biddeford. The project proposes to construct a 4,800 square foot building proposed as a Dentist's Office. To support this development, the project also proposes to create 25 parking spaces, in conformance with City Code, utility connections utilizing existing municipal service stubs on the property, and develop stormwater management systems in conformance with City standards. This project is proposed as a reduced footprint from a previously approved commercial development, permitted in 2016, where that project's permits had lapsed.

We had previously provided a Preliminary Site plan application for this project on June 12, 2024, and had a Preliminary approval for this application at the July 17 Planning Board meeting. Planning Board members voiced their support for final approval at this meeting, but deferred until after 3rd party review comments were available. Following that meeting, we have received comments from a 3rd party technical review of the plans and submissions. Based on these, we are providing a revised plan set and additional information for the City's review. Most changes between Preliminary and Final have been detailed in nature, with the same basic configuration of the proposed building and site improvements.

While reviewing the final details of the project, we understand that requests for waivers and shoreland zone permitting will be necessary based on the proposed details of the project. The project formally requests waivers for the following:

- Article VI, Section 26. F, for slopes greater than 3:1 and grading within 10' of the property line. The project does propose 2:1 slopes along the rear of the property to prevent areas of impact near wetland areas and the 100' stream setback. Erosion control blanket or erosion control mix (ECM) are proposed to temporarily stabilize these slopes until appropriate vegetation can be established. The project also proposes grading within 10' of the property line, at a 3:1 slope, specifically for the area of the soil filter. The property is subject to a grading easement for the abutting property in this area, but in that deed for the abutting property included here as Attachment 3, the landowner of the subject lot has reserved rights to develop this area. The proposed grading will not have an impact on the abutting

property, no additional run off is directed offsite, and no existing drainage facilities will be impacted.

- Article VI, Section 49. A. 5., for landscaping requirements for off street parking. Per this section of the code, a 9' tall continuous landscaping screening is called for to screen parking areas from the view of the public. This also calls for off street parking to be excluded from the front building setback. The project does propose parking along the front of the lot, and this parking is proposed outside of the front setback in conformance with this section of the code. However, the landscaping plans do not call for a continuous landscaped screening and the project would request a waiver from this requirement. Given the nature of this project and the compatibility with the surrounding uses, other projects in this neighborhood already feature unscreened parking along the front of the lots, a complete screening of this area of parking may not be practical or desirable. The landscaping plans do call for red maples along the frontage of the project and will provide some seasonal screening in line with other projects along Barra Road.

The project formally requests permitting for Shoreland Zoning:

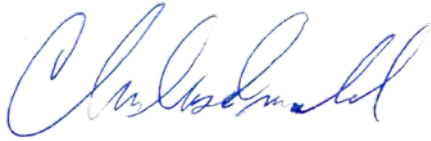
- The project proposes a level spreader inside of the Shoreland Zone Stream Protection Overlay area to the rear of the property. Following up on a 3rd party comment suggesting that an outlet control structure be proposed and for a level spreader to be utilized at the outlet of the outlet control structure. Given site constraints and best placement for the level spreader, the project is proposing that this be installed at the rear of the property outside of the wetlands but inside the Stream Protection Overlay Zone. Per Article XIV Section 13.E, the Stream Protection (SP) Overlay Zone is defined as 100' from the normal high-water line of a stream. Per Article XIV Attachment 1, Table 1, Land Uses in the Shoreland Zone, filling and earthmoving of 10 cubic yards and above is approvable by the Planning Board. For this level spreader, we would estimate that approximately 10 cubic yards of excavation would be required, and approximately 9 cubic yards of fill for stone for the level spreader would be required. Given that this is an erosion and sedimentation control device, this will provide an improved stormwater management solution over the previous design. Further, this is located in an area that is already being maintained as grass and being mowed, so will result in very little impact at this location. We ask that the Planning Board consider these impacts within the Shoreland Zone Stream Protection District overlay, and permit this soil filter to be installed at the proposed location.

In support of this project being reviewed for Final Approval, we are including the following attachments:

- Attachment 1 – Updated Planning Department Drawing Checklist
- Attachment 2 – Response to 3rd Party Preliminary Comments
- Attachment 3 – Property Deed for abutting parcel, Map 2 Lot 43-7, 29 Barra Road
- Attachment 4 – Lighting Specification Worksheets
- Attachment 5 – City Cost Estimate Worksheet
- Attachment 6 – Updated Stormwater Management Report

We trust that these additional details will provide you with the necessary information to bring the Site Plan application to the Planning Board for Final Approval. If you need any additional information, feel free to contact me directly.

Sincerely,



Christopher MacDonald, P.E.
Civil Engineer

Cc Mike Eon – Mike Eon Associates, LTD.

ATTACHMENT 1
CITY OF BIDDEFORD PLANNING DRAWING CHECKLIST

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 their absence.
3. City to review applicant's submittal and checklist responses. Projects missing submittal information with non-acceptable reasoning will be rejected.
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 INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	25 Barra Road Dentists Office
Planning Board # (if available):	2024.31
Applicant Name/Info:	Mike Eon Associates LTD
Submittal #/Type (Prelim/Final):	Final Site Plan
Submittal Date:	14-Aug-24

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE		CITY REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	GENERAL PLAN REQUIREMENTS				
A	Drawing specific legends (linetypes, hatches, etc.)	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			
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)	No	Project survey was performed in a local assumed site datum, See plans sheet 2		
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	Yes			
2	COVER SHEET				
A	Project Name & Property Address	Yes			
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	Yes			
C	Site Location Map	Yes	See Sheet 1		
D	Sheet Set List of Drawings	Yes			
E	Tax Map and Lot ID	Yes	See Sheet 1		
F	Zoning & Shoreland Zone Information	Yes	See Sheet 1		
G	Existing Use Description	Yes	Vacant Lot in existing conditions, mostly grassed		
H	Proposed Use Description	Yes	Commercial Development, proposed as dentist's office		
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	Yes	Waivers requested for sections VI-49.A.5, Landscaped Streening for Parking, Article VI-26.F for Steep Slopes and a Shoreland Zoning Permit for Fill within SP Zone		
J	Name of Drainage Watershed	Yes	Thatcher Brook		
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)	Yes			
M	Within the 100-year Flood Zone (Yes/No)	No			
N	Public Road Proposed (Yes/No)	No	Frontage along Existing Barra Road		
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)	Yes	Proposed to be serviced by existing gravity sewer from previously installed service stub, City engineering dept. has determined there is capacity		
Q	Public Storm Drain Connection (Yes/No)	No	No public storm drain connections proposed		
R	Limits of Disturbance in acres	Yes	Provided in Stormwater Report		
S	Pervious Land Cover square footage, existing and proposed	Yes	Provided in Stormwater Report		
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	Yes	Provided in Stormwater Report		
U	Building Roof square footage, existing and proposed	Yes	proposed 4,800 sqft as shown on plans		
V	Assigned Planning Board Number	Yes	2024.31		
W	Estimated cut/fill earthwork volumes; if disturbing within Flood Zone, separate set of earthwork volumes required (site vs. within flood zone)		See Sheet 1 The project estimates 7225 cy of Fill, and 375 cy of Cut, or a net 6850 cy of Fill. This also includes 10 cy of Cut and 9 cy of Fill in the Shoreland Zone, Stream Protection overlay		
3	EXISTING CONDITIONS PLAN				
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	No	Project survey was performed in a local assumed site datum, See plans sheet 2		
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.)	Yes			
I	100-year Flood Zone Limits & Elevation	Yes	Not within 100-yr flood zone		
J	USDA-NRCS Soil Boundaries and Labels	Yes	See Stormwater Plans		
K	Existing contours with adequate contour labelling; minimum 1' contour interval	Yes			
L	Existing building FFEs annotated	No	No existing buildings on proposed project area		
M	Spot elevations for existing building corners, door entrances, accessible parking/walkways, road centerlines, and bottom/top of curbs	No	No existing buildings on proposed project area		
N	Existing buildings & structures	No	No existing buildings on proposed project area		
O	Existing pavement areas & number of parking spaces	No	No existing buildings on proposed project area		
P	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	No	No existing buildings on proposed project area		
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	Yes			
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN				
	A Limits-of-disturbance outlined and acreage annotated	Yes			
	B Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	Yes			
	C 100-year Flood Zone Limits	No	Not within 100-yr flood zone		
	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)	Yes			
	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	Groundwater is not anticipated based on recent test pit		
	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	Not required for smaller site		
5	SITE PLAN/SUBDIVISION PLAN				
	A Partial Site Plans needed for any viewport scale greater than 1"=20'	No	1" = 30' scale plans appropriate for project detail		
	B Existing property and right-of-way lines	Yes			
	C Proposed subdivision lot lines and labels	Yes			
	D Required Zoning Setbacks shown with dimensions and annotation	Yes			
	E Bulk requirement summary table (zoning/parking calculations)	Yes			
	F Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	Yes			
	G 100-year Flood Zone Limits	No	Not within 100-yr flood zone		
	H Proposed building outlines, door entrances and loading docks	Yes	See Architectural Plans		
	I Proposed building labels	Yes			
	J Proposed road extents; provide clear annotation if roads will be public or private	Yes			
	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	Yes			
	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	Yes			
	S Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	Yes			
	T Radial dimensions for all curbs, landscaped islands, sidewalks	Yes			
	U Road centerline stationing shown, labelled every 0+50' with curve data	No	Not Applicable		
	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	Not Applicable		
	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	Not Applicable		
	X Planning Board signature block for final recording	Yes			
6	GRADING PLAN				
	A Partial Grading Plans needed for any viewport greater than 1"=20'	No	1" = 30' scale plans appropriate for project detail		
	B Limits-of-disturbance outlined and acreage annotated	Yes			
	C Proposed Building Labels with Individual Finished Floor Elevations (FFE)	Yes			
	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	Yes			
	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.)	Yes			
	J 100-year Flood Zone Limits	No	Not within 100-yr flood zone		
	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	No	Not Applicable		
	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	Yes			
	O Proposed retaining wall/loading dock elevations (bottom/top of wall)	No	Not Applicable		
	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)		See Sheet 1 The project estimates 7225 cy of Fill, and 375 cy of Cut, or a net 6850 cy of Fill. This also includes 10 cy of Cut and 9 cy of Fill in the Shoreland Zone, Stream Protection overlay		
7	ROAD PROFILES (if public/private road proposed)	No	Not Applicable, no roads proposed		
	A Existing surface; dashed and screened				
	B Proposed surface; continuous and bold				
	C Corresponding centerline stationing and curve data annotation				
	D Road cross-section including proposed surface cross slopes; include multiple sections for various road cross slope conditions proposed (crowned, superelevated)				
	E Horizontal and vertical scale bars				
	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			
	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	Yes			
	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	Yes			
	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)	Yes			
	K All storm drains must be sized to convey the 25-year storm	Yes			
	L Sewer force main sizes and invert elevations	Yes			
	M Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W)	No	Not Applicable		
	N Grease trap & oil-water separator locations, sizes, elevations	No	Not Applicable		
	O Water, gas, electric, and telecom sizes labelled	Yes			
9	UTILITY PROFILES	No	All Gravity Information shown on plans, only services proposed		
	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)				
	B Existing surface; dashed and screened				
	C Proposed surface; continuous and bold				
	D Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)				
	E Storm/sewer pipe labels must include: linear footage, pipe size, material, slope				
	F Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated				
	G Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated				
	H Known ledge or groundwater elevations				
	I For all storm drains, 25-year HGL must be shown on profiles with starting tailwater condition identified				
	J For storm outfalls, include riprap sizing and grading extents				
	K Horizontal and vertical scale bars				
10	DETAILS				
	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	Yes			
	E All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	Yes			
	F Signage, striping, and ADA details	Yes			
	G E&S notes and details; only show applicable/proposed measures	Yes			
	H Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	Yes			
	I Storm outfall & riprap details	Yes			
	J Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	Yes			
	K Pump station, grease trap, and oil-water separator details	No	Not Applicable		
	L Conduit section details	Yes			
	M Miscellaneous details (as needed)	Yes			
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS				

	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	No	An initial fee of 2,113.16 was paid for the project for Preliminary Applications. As we understand an additional fee of \$4500.00 is required for final submission for inspections and reviewing. This fee is paid along with the final submission documents.		
	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	Yes			
	C An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	Yes	See Application		
	D A Performance Guarantee Cost Estimate utilizing Planning's template	Yes	See Application		
	E 25-year hydraulic calculations for all storm conveyance piping (rational method), including starting tailwater conditions/documentation	Yes	See Stormwater Report		
	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	Yes	See Stormwater Report		
	G Sizing calculations for any SWM water quality BMP or detention facility	Yes	See Stormwater Report		
	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	Yes	See Stormwater Report		
	I Salt Management Plan	Yes			
	J Sewer pump station sizing calculations	No	Not applicable		
	K Sewer pump station maintenance plan	No	Not applicable		
	L Grease trap sizing calculations	No	Not Applicable		
	M Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	No	Not applicable		
	N Summary list & copy of any required DOT/DEP/USACE permits & approvals	No	Agency approvals are not required given the size of the project and no resource impacts		

ATTACHMENT 2
RESPONSE TO 3RD PARTY COMMENTS

August 14, 2024

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

Re: 25 Barra Road – Dentist Office
Site Plan Application Response to Comments

Dear David,

We have reviewed the comments of the Site Plan Review Application for 25 Barra Road, Dentist Office from Tom Saucier of Site Design Associates dated July 17, 2024. Below we are providing responses to each of those comments.

A. Drainage Plans and Calculations

1. The post-development modeling of the field inlets indicates that the pipe outlet from the catch basins will be the controlling factor, and there will be no development of headwater above the grates. If standard grates will be used, based on the flow rates shown in the model, it is clear that there will be ponding above the grates. The elevation of the ponding should be determined at each of the locations.

Response: The field inlet modelling has been updated to consider a 1.5 sf equivalent opening to reflect the available grate capacity.

2. The model indicates that the emergency spillway will be activated in the 10 year and 25 year storms, which seem to be occurring more frequently. We suggest a better alternative for reducing the potential for erosion in this impaired stream watershed would be to utilize the outlet control structure as the principal spillway.

Response: The spillway has been raised and an outlet control structure has been added to the design.

3. On the post development drainage plan the southwesterly boundary of SC-1C conflicts with the proposed contours.

Response: The subcatchment has been updated to reflect the proposed grading.

4. We suggest the model should include a reach from the soil filter outlet to the analysis point.

Response: A reach has been added from the spillway area and from the newly proposed level spreader.

5. We have a concern with the location of the outlet for the soil filter. Currently very little runoff reaches that location. The proposed plan routes all impervious areas to that area, and the runoff rate will be increased significantly at that point. We suggest that greater detention of stormwater be considered, and more erosion controls provided at the outlet, such as an apron and level spreader.

Response: A 20' level lip spreader is now proposed to adequately manage concentrated flows from the outlet control structure, even in larger storm events. This is proposed in a new location that is better aligned with the contours to provide more even distribution of run off. Given site constraints, this level spreader is within the City's Stream Protection Zone and a permit for filling and earth moving has been requested.

B. Drawings

1. Sheet 1 – Site Plan

- a. Signage should be shown for the accessible spaces.

Response: ADA signs have been added.

- b. Will drip edges below the areas where runoff leaves the roof be provided to minimize erosion?

Response: A drip edge has been shown, and a detail added to sheet 6.

- c. Is the stormwater facility permitted in the existing grading easement?

Response: Yes, per conditions in the deed for the previously granted easement to the abutter, the property owner reserves the right to fill, grade, re-grade and utilize such area for any and all purposes provided that such use shall not impair the drainage or improvements erected by the abutter. As this area was only utilized for grading the side slope behind the parking area, and the grading and stormwater work proposed will not impede on that use. This work meets the intentions of the easement language. A copy of the abutting deed showing this language can be found as Attachment 3 to the final application.

- d. The building footprint should be updated per the architectural drawings.

Response: The building footprint has been updated.

- e. More detail of the proposed crosswalk at Barra Road should be provided and tactile warnings shown at the proper location. We suggest that crosswalk approach signage also be shown in accordance with MUTCD standards.

Response: A crosswalk detail has been added to sheet 6, warning strip and signage locations at the crosswalk, along with signs 250' either side of the crosswalk in conformance with MUTCD are shown on sheet 1.

- f. Saw cuts and butt joints should be called out where the new drives meet Barra Road, as it appears both existing aprons will need to be reconstructed.

Response: **A saw cut and butt joint has been called out at both entrances.**

2. Sheet 3 – Grading Plan

- a. We recommend an apron and level spreader at the end of the pipe below the soil filter outlet.

Response: **A level spreader has been added to the outlet of the soil filter.**

- b. Slopes steeper than 3H:1V require additional erosion protection. This should be specified on the drawings and the extent shown. A waiver of Article VI, Section 26. F. is required for slopes steeper than 3:1, and for bottoms or tops of cut/fill slopes within 10 feet of the property line.

Response: **Slope stabilization has been called out for the 2:1 slopes, and a slope stabilization detail has been added to sheet 4 and sheet 6. A waiver for 2:1 slopes within 10' of the property is requested.**

- c. Spot grades should be provided at the entrances to ensure gutter flow along the road will be maintained.

Response: **Spot grades have been added.**

- d. Grade adjacent to sidewalks should include both the bottom and tops of the curb in order to clarify what the grades represent.

Response: **Spot grades have been added as suggested.**

- e. Erosion control blanket should be specified in the swales to FI#2.

Response: **A reinforced grass lined channel detail has been added on Sheet 6 and called for on Sheet 3.**

- f. It appears the rim elevation shown for FI#1 is in error.

Response: **The rim elevation has been updated.**

- g. The grading of the sidewalk from the site to Barra Road exceeds the allowable slope per ADA requirements. It appears it would be a relatively simple fix to bring the walk into conformance.

Response: **The sidewalk and driveway grading has been updated to be 5%.**

- h. There appear to be conflicts between the proposed grade and location of the rear and side exits between the plan and architectural drawings.

Response: **The site grading and entrances have been updated.**

3. Sheet 4 – Erosion Control Details

- a. We were unable to find the documentation requirements noted in Chapter 500, Appendix B.1. for reports during construction.

Response: See notes 1 and 10 in the erosion and sediment control plan.

4. Sheet 5 – Grassed Underdrained Soil Filter Details

- b. Provide embankment sections showing materials, compaction requirements, and relevant dimensions. Minimum embankment width should be 6 ft.

Response: A detail has been added, embankment width proposed as 8.5' wide.

- c. The inspection requirements for the soil filter construction should include inspections when the filter is excavated to subgrade, after it is reshaped if used as a sediment basin, and when the liner is in place prior to backfill.

Response: Note 5 under construction oversight has been updated.

- d. The elevations for the various storms should be shown in the typical sections, along with the water quality volume.

Response: Storm elevations have been shown.

- e. A detail of the forebay with dimensions should be provided.

Response: A detail has been added and elevations have been shown for each forebay with length and width dimensions now noted.

- f. An emergence spillway section should be provided.

Response: A detail has been added.

- g. A sump should be provided in the outlet control structure.

Response: A 2' sump has been added to be consistent with other structures.

- h. Add less than 2% clay to table 7-4.

Response: The detail has been updated.

- i. There are conflicts regarding the embankment elevation and the OCS elevation between the various details.

Response: The details have been updated to be consistent.

- j. Has a test pit been excavated in the soil filter footprint?

Response: A test pit has been conducted and this information is now included in Appendix E of the updated stormwater report.

5. Sheets 6 and 7 – Details

- a. Minimum 2 ft deep sumps should be provided in the Type F basins. Two courses of brick or equivalent grade rings should also be noted.

Response: The detail has been updated.

- b. The pavement joint detail should clarify where the saw cut will be. The detail conflicts somewhat with the note.

Response: **The cut location is now shown on Sheet 1.**

- c. We recommend hoods such as snouts or equivalent on catch basin outlet pipes.

Response: **A casco trap detail has been added to sheet 7.**

- d. The dumpster enclosure detail shows a 12 ft x 12 ft pad. The site plans show an area of approximately 8 ft x 8 ft.

Response: **The detail has been added to show an 9'x9' pad.**

6. Sheet L1– Landscape Plan

- a. Article VI. Section 49.A.5. of the code requires off-street parking to be effectively screened from view by a continuous landscaped area not less than nine feet in height along exterior lot lines adjacent all public roads. It appears the plan does not meet this requirement and a waiver would be required.

Response: **This site plan is a reduced footprint compared to a previously approved project. For that previously approved project, landscaping shielding the road from the parking places was not proposed, and if included here, could be a detriment to the commercial nature of the Dental practice. We feel a waiver would be appropriate for this project, and have requested that this be reviewed for final approval.**

We trust that these additional details will provide you with the necessary information to bring the Site Plan application to the Planning Board for Final Approval. If you need any additional information, feel free to contact me directly.

Sincerely,



Christopher MacDonald, P.E.
Civil Engineer

Cc Mike Eon – Mike Eon Associates, LTD

ATTACHMENT 3
PROPERTY DEED FOR ABUTTING PARCEL
MAP 2 LOT 43-7, 29 BARRA ROAD

WARRANTY DEED
Maine Statutory Short Form

KNOW ALL MEN BY THESE PRESENTS, That **MIKE EON ASSOCIATES, LTD.**, a Maine corporation, having a mailing address of P.O. Box 444, Biddeford, Maine 04005, for consideration paid, grant to Moses ME Ltd., a Maine corporation with a mailing address of 5 Todd Drive, Beaufort, SC, 29902, with **WARRANTY COVENANTS**, the land and interest in land situated in Biddeford in the County of York and State of Maine, described as follows:

A certain lot or parcel of land located on the westerly sideline of Barra Road, so-called, in the City of Biddeford, County of York and State of Maine and shown and depicted as "Lot 2, 107,256 S.F." on plan entitled "Subdivision Plan, 3 Lot Subdivision, Barra Road, Biddeford, Maine, for Mike Eon Associates, LTD., 260 Main Street, Biddeford, Maine" dated June, 2013, as revised through July 15, 2013, by Berry Huff McDonald Milligan, Inc. recorded in the York County Registry of Deeds in Plan Book 362, page 30. (the "Plan") to which plan and the record thereof, reference is made for a more particular description of the within conveyed premises.

Also granting herewith a perpetual right of way and easement for the purposes of filling, grading and contouring Grantee's land and adjacent land of Grantor for the purpose of creating a parking area or other leveling of the above described premises, together with a right of entry by persons with such machinery and equipment as may be reasonably required for the purposes of this grant. The area encumbered by this easement is that area labeled "20' Grading & Drainage Easement to Benefit Lot 2" on the above referenced plan.

Also granting herewith the perpetual right to use in common with Mike Eon Associates, Ltd, the owner or owners of the land burdened by the hereinafter referenced easement and all others who may have or may hereinafter granted rights in the same for purposes of the construction and maintenance of drainage ways to provide subsurface and surface water drainage on and along those portions of Lot 1 as shown on said plan which share a common boundary with the within conveyed premises, all has having been previously reserved to Mike Eon Associates, Ltd. in a certain deed to Robert J. Bolduc, Jr. and Nancy J. Bolduc dated February 24, 2012, and recorded in York Registry of Deeds in Book 16270, page 516, the width of said easement being twenty (20) feet. It is specifically provided, however, that in the exercise of the easement rights granted herein that Grantee shall not be allowed to disturb any existing improvements which are in the nature of paving, structures or existing utility services without the specific consent of the owner or owners of the property burdened by this easement. The condition and contour of any areas disturbed in the exercise of the rights herein granted shall be restored to the condition which existed prior to such work or as nearly so as are consistent with the rights herein granted.

ALSO reserving from the above described parcel a certain 20 foot wide sign maintenance easement to benefit the remaining land of Mike Eon Associates LTD. and shown on the aforesaid plan to which reference is made for a more particular description. Said sign maintenance easement shall

be for the benefit of remaining land of Mike Eon Associates, Ltd. as described in deed of Germaine A. Cote to Mike Eon Associates, Ltd. dated August 15, 1996 and recorded in the York County Registry of Deeds in Book 7955, Page 278, and is to be used for purposes of ingress and egress on foot or in vehicles together with such machinery and equipment as may be reasonably necessary to install underground conduits and power and control cables necessary to run an illuminated sign and to maintain landscaping, landscaping improvements and signage which may now exist or may hereinafter be created on such remaining land.

The above described premises are also conveyed subject to and together with the benefit of the following to the extent they affect the same:

- A. Easement Deed from Adrien O. Roberge and Lillian R. Roberge to Central Maine Power Company and New England Telephone and Telegraph being dated September 4, 1958 and recorded in the York County Registry of Deeds in Book 1377, Page 555.
- B. Agreement of Easement and Indenture between Leo Paul Cote and Germaine Cote and Biddeford and Saco Water Company dated September 26, 1978 and recorded in the York County Registry of Deeds in Book 2423, Page 287, as affected by the instrument set forth in D.
- C. Easement granted to Maine Turnpike Authority recorded in the York County Registry of Deeds in Book 1094, Page 09.
- D. Easement Agreement between Mike Eon Associates, Ltd. and Biddeford and Saco Water Company dated November 14, 2001 and recorded in the York County Registry of Deeds in Book 11448, Page 38.
- E. Easement granted by Mike Eon Associates, Ltd. to the City of Biddeford dated February 24, 2012, and recorded in York Registry of Deeds in Book 16270, page 516.
- F. Easement granted by Mike Eon Associates, Ltd. to Robert J. Bolduc, Jr. and Nancy J. Bolduc dated _____, 2013, and recorded in York Registry of Deeds in Book _____, page _____.
- G. Easements shown and depicted on the above referenced plan and also plan recorded in York Registry of Deeds in Plan Book 354, page 25.

For so long as Mike Eon Associates, Ltd. shall own any real estate adjacent to the above described premises conveyed in fee, no building or improvements shall be placed thereon unless the style, exterior design, placement, color and materials shall have been approved in writing by Mike Eon Associates, Ltd., which written approval may not be unreasonably withheld, conditioned or denied.

The above described premises are conveyed subject to the reservation by Mike Eon Associates, Ltd. for itself, its successors and assigns of perpetual easements for all purposes relating to the installation and maintenance of all utility services and for the construction and maintenance of drainage ways to provide surface and sub-surface water drainage of the within conveyed premises and other lots on the aforesaid Plan. The areas encumbered by these easements are parallel, and interior to and adjacent to all lot boundaries of the above described lot, shall be twenty (20) feet in width adjacent to all front, rear and side lot lines and this reservation shall include the right-of-entry by men and machines. It shall be a condition of the grant that the person exercising its rights to construct and or maintain such utility services and such drainage ways shall suitably re-grade and

re-seed any areas disturbed by such construction or maintenance.

The within Grantor shall have the right to use all easement areas for all purposes not inconsistent with the reservations and easements mentioned herein, including the right to construct and maintain those improvements within such areas all as shown on the Plan. With respect to that area shown as "20' Grading & Drainage Easement" on the above described plan, the within Grantor specifically reserves the right to fill, grade, re-grade and utilize such area for any and all purposes provided that such use shall not impair the drainage or improvements erected by Grantee on its adjacent land.

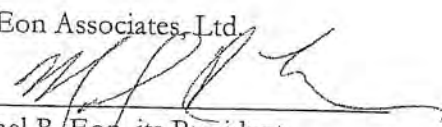
IN WITNESS WHEREOF, Mike Eon Associates, Ltd. has caused this instrument to be signed in its name and behalf by Michael R. Eon, its President, as a sealed instrument thereunto duly authorized this 11th day of OCTOBER, 2013.

WITNESS:



STATE OF MAINE
York, ss

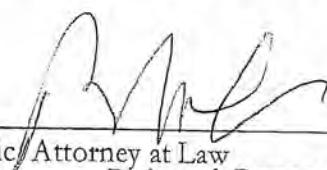
Mike Eon Associates, Ltd.

by: 
Michael R. Eon, its President

OCTOBER 11, 2013

Personally appeared the above named Michael R. Eon, President of Mike Eon Associates, Ltd. and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,


Notary Public/Attorney at Law

Print name: **Barbara J. Dresser**
Attorney At Law

After recording return to:
Moses ME Ltd.
5 Todd Drive
Beaufort, SC

I/mosesdeed/0270-0343/revised7/8/2013/revised7/15/2013/revised8/15/2013/revised9/25/2013/revised9/26/2013/resived 10/09/2013/revised 10/10/2013

ATTACHMENT 4
LIGHTING SPECIFICATION WORKSHEETS

VIPER Area/Site

VIPER LUMINAIRE

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



CONTROL TECHNOLOGY



SERVICE PROGRAMS



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
- Both 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
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater than 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

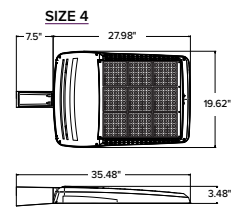
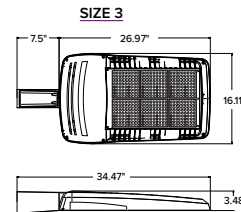
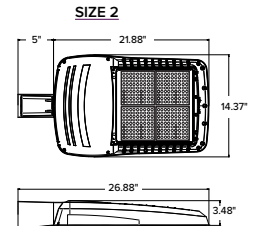
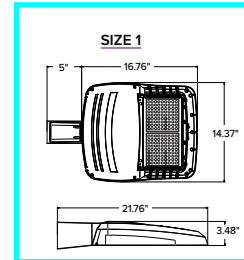
CONTROLS

- 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)

CONTROLS (CONTINUED)

- 0-10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- 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

MICROSTRIKE | STRIKE OPTICS



	EPA				Config
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	
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	

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
- 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>).

WARRANTY

- 5 year warranty

VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

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 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	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	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	BLANK No Rotation L Optic rotation left R Optic rotation right	UNV 120-277V 120 120V 208 208V 240 240V 277 277V 347 347V 480 480V
		2 Size 2	72L-115 15000 lumens 72L-145 18000 lumens 72L-180 21000 lumens 72L-210 24000 lumens 72L-240 27000 lumens				
		3 Size 3	108L-215 ⁸ 27000 lumens 108L-250 30000 lumens 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	Network Control Options
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	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	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	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 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 ⁴ ADT AutoDim Time of Day Dimming ⁴ Photocontrols PC Button Photocontrol ^{4,7}

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 3.5”-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.



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

CATALOG #

Accessory Type		Size	Option
SHD	Shield	1 Size 1	HSS-90-B House Side Shield 90° Back
		2 Size 2	HSS-90-F House Side Shield 90° Front
		3 Size 3	HSS-90-S House Side Shield 90° Side
		4 Size 4	HSS-270-BSS House Side Shield 270° Back/Side/Side
			HSS-270-FSS House Side Shield 270° Front/Side/Side
			HSS-270-FSB House Side Shield 270° Front/Side/Back
			HSS-360 House Side Shield 360°
MTG	Mounting	BC	Back Light Control
		A	Arm Mount for square pole/flat surface
		ASQU	Universal Arm Mount for square pole
		AAU	Adjustable Arm for pole mounting
		ADU	Decorative upswept Arm
		RPA	Round Pole Adapter
		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

Color	
BLS	Black Gloss Smooth
BLT	Black Matte Textured
DBS	Dark Bronze Gloss Smooth
DBT	Dark Bronze Matte Textured
GTT	Graphite Matte Textured
LGS	Light Gray Gloss Smooth
PSS	Platinum Silver Smooth
WHS	White Gloss Smooth
WHT	White Matte Textured
VGT	Green Landscape Decorative
LEG	Legacy Colors
Color Option	
CC	Custom Color

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

☐ **NXOFM-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.

VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

OUTDOOR LIGHTING CONTROLS OPTIONS

CONTROLS FUNCTIONALITY



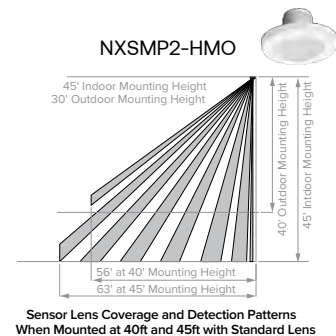
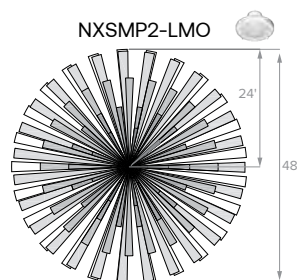
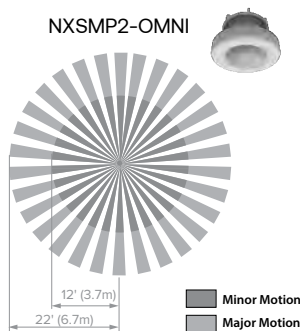
Control Option Ordering Logic & Description		Control Option Functionality									Control Option Components		
		Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height			
NX Wireless	NXOFMIR1D-UNV	NX 7-Pin Twist-Lock® 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



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

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 luminaires 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&q=US



Apple App



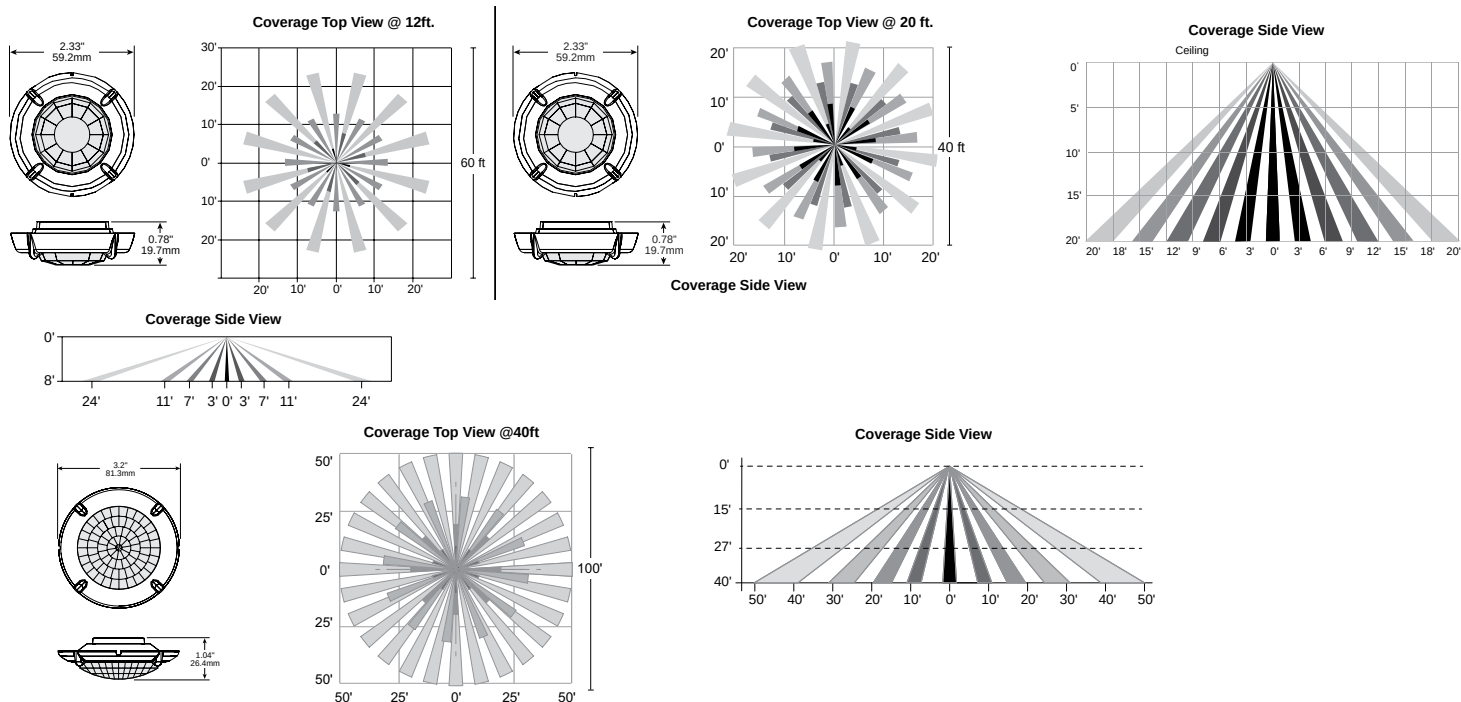
Google Play

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



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

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	Micro Strike Lumen Multiplier				Strike Lumen Multiplier			
			CCT	70 CRI	80 CRI	90 CRI	CCT	70 CRI	80 CRI	90 CRI
0°C	32°F	1.03	2700K	—	0.841	—	2700K	0.9	0.81	0.62
10°C	50°F	1.01	3000K	0.977	0.861	0.647	3000K	0.933	0.853	0.659
20°C	68°F	1.00	3500K	—	0.900	—	3500K	0.959	0.894	0.711
25°C	77°F	1.00	4000K	1	0.926	0.699	4000K	1	0.9	0.732
30°C	86°F	0.99	5000K	1	0.937	0.791	5000K	1	0.9	0.732
40°C	104°F	0.98	AP-Amber Phosphor Converted Multiplier				Monochromatic Amber Multiplier			
			Amber	0.710			Amber	See Amber Spec Sheet		

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

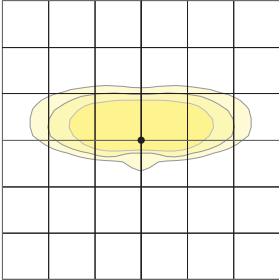
VIPER Area/Site

VIPER LUMINAIRE

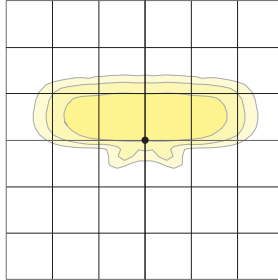
OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

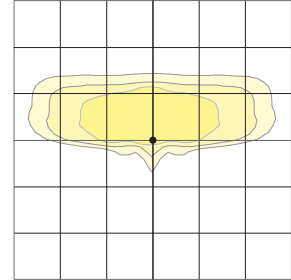
Type FR – Front Row/Auto Optic



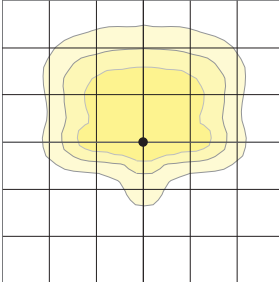
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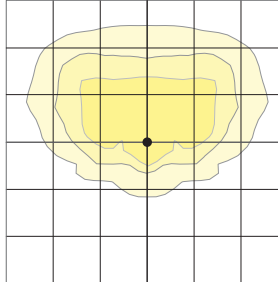
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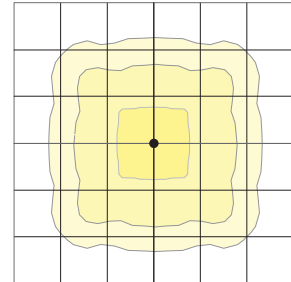
Type 4 Forward



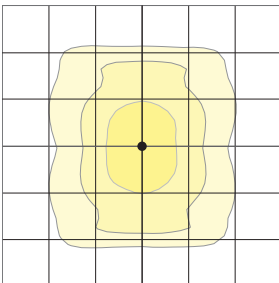
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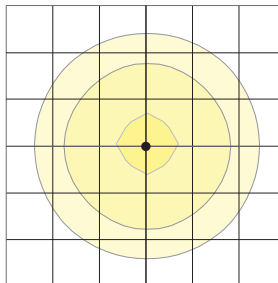
Type 5QM



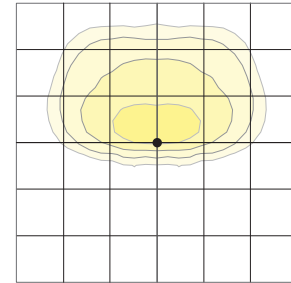
Type 5RW (rectangular)



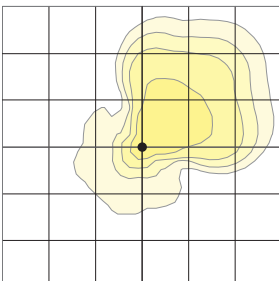
Type 5W (round wide)



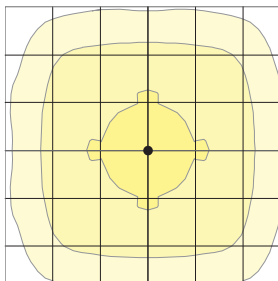
Type TC



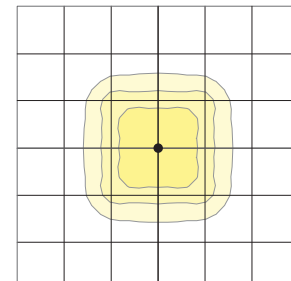
Type Corner



Type 5QW



Type 5QN



VIPER Area/Site

VIPER LUMINAIRE

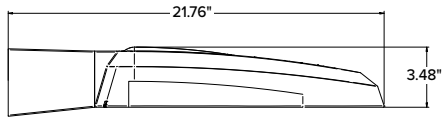
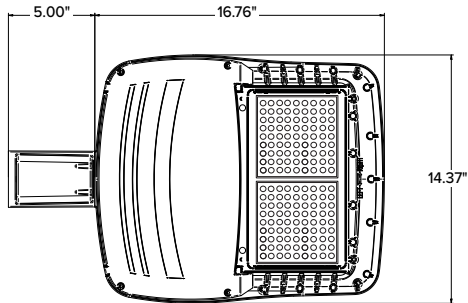
DATE: LOCATION:

TYPE: PROJECT:

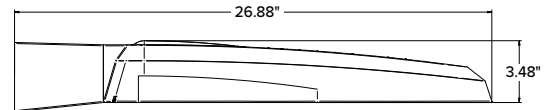
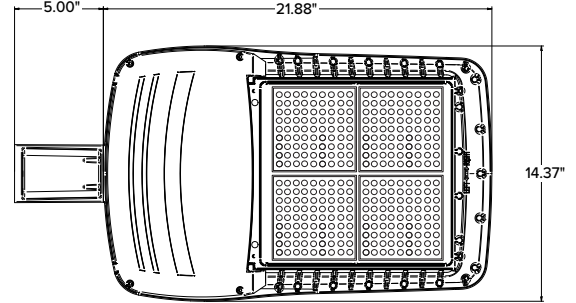
CATALOG #:

DIMENSIONS

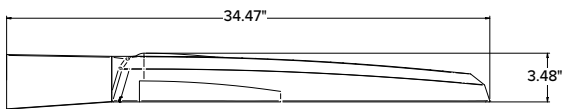
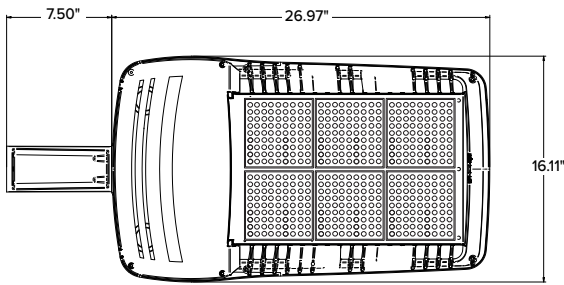
SIZE 1



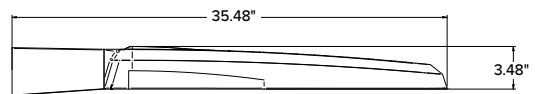
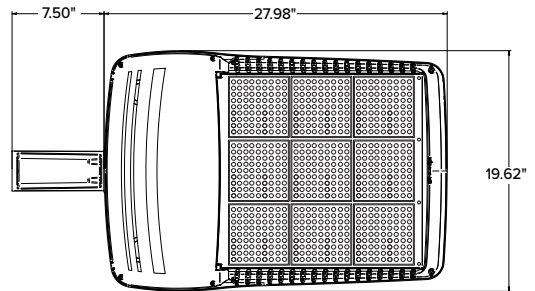
SIZE 2



SIZE 3



SIZE 4



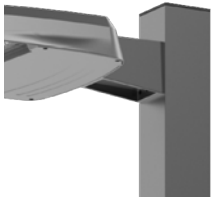
	EPA				Config.
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	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

VIPER Area/Site

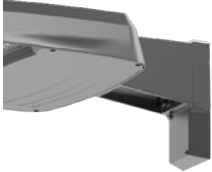
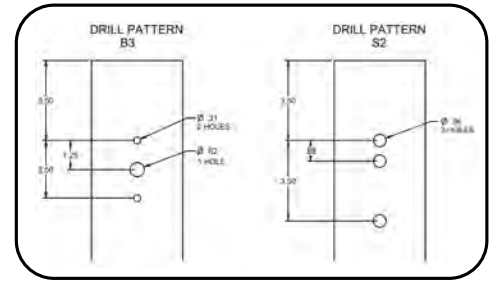
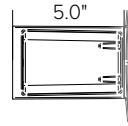
VIPER LUMINAIRE

MOUNTING



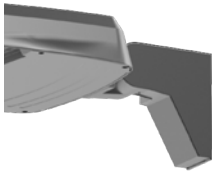
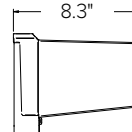
A-STRAIGHT ARM MOUNT

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)



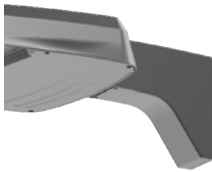
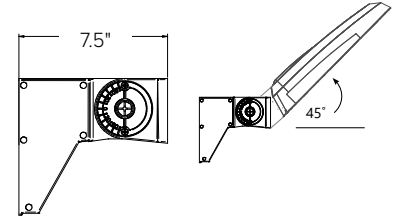
ASQU-UNIVERSAL ARM MOUNT

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)



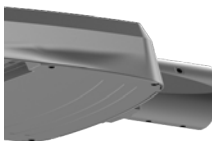
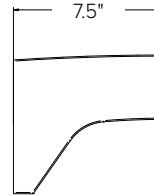
AAU-ADJUSTABLE ARM FOR POLE MOUNTING

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.



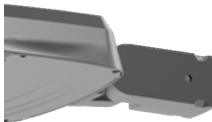
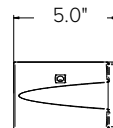
ADU-DECORATIVE UPSWEPT ARM

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).



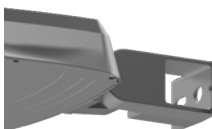
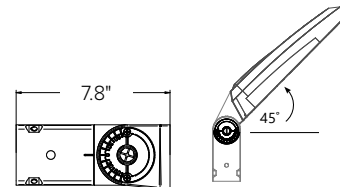
MAF-MAST ARM FITTER

Fits 2-3/8" OD horizontal tenons.



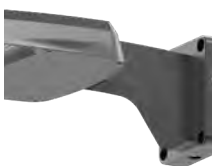
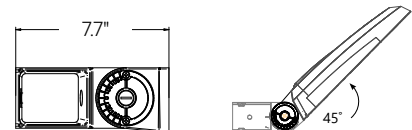
K-KNUCKLE

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.



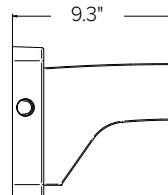
T-TRUNNION

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.



VIPER Area/Site

VIPER LUMINAIRE

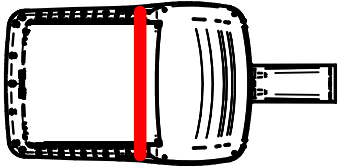
ADDITIONAL INFORMATION (CONTINUED)

HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

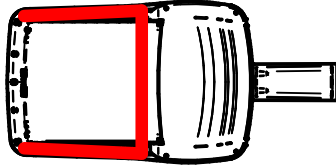
HSS has a depth of 5" for all Viper sizes

Not to be used with Occupancy Sensors as the shield may block the light to the sensor.

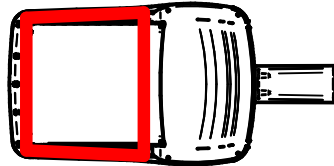
VPR2x HSS-90-B-xx



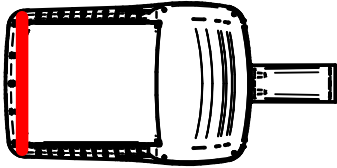
VPR2x HSS-270-BSS-xx



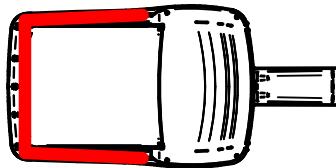
VPR2x HSS-360-xx



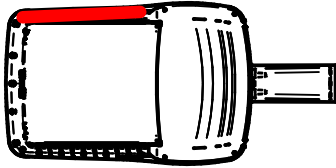
VPR2x HSS-90-F-xx



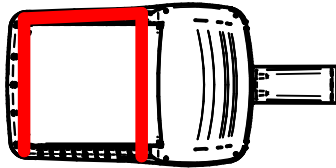
VPR2x HSS-270-FSS-xx



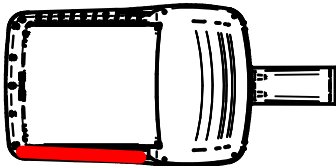
VPR2x HSS-90-S-xx



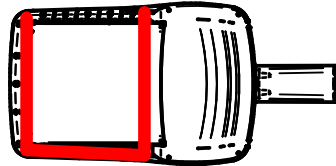
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

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



CONTROL TECHNOLOGY



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.

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.

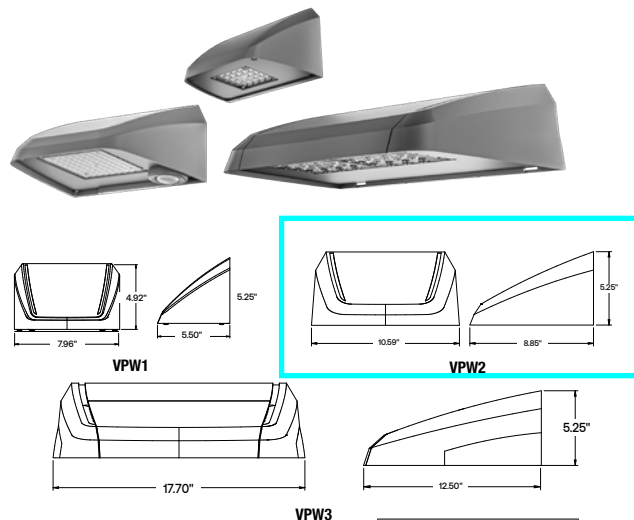
CERTIFICATIONS

- 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>).

WARRANTY

- 5 year limited warranty

MICRO STRIKE | OPTICS STRIKE



	Weight
VPW1	4.1 lbs / 1.86 kg
VPW2	7.15 lbs / 3.24 kg
VPW3	17.1 lbs / 7.80 kg



VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

ORDERING GUIDE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

Example: VPW1-24L-10-3K7-2-UNV-BLS

CATALOG #

Series	# LEDs - Wattage	CCT/CRI	Distribution	Voltage	Color
VPW1 Viper Wall 1	24L-10	1,000 Lumens	FR Auto Front Row ⁷ 2 IES TYPE 2 3 IES TYPE 3 4F IES TYPE 4 Forward 4W IES TYPE 4W	UNV 120-277V	BLT Black Matte Textured
	24L-15	2,000 Lumens		120 120V	BLS Black Gloss Smooth
	24L-25	3,000 Lumens		208 208V	DBT Dark Bronze Matte Textured
	48L-15	2,000 Lumens		240 240V	DBS Dark Bronze Gloss Smooth
	48L-20	3,000 Lumens		277 277V	GTT Graphite Matte Textured
	48L-30	4,000 Lumens		347 347V	LGS Light Grey Gloss Smooth
	48L-35	5,000 Lumens		480 480V	LGT Light Grey Matte Textured
	48L-45	6,000 Lumens			PSS Platinum Silver Smooth
	80L-20	3,000 Lumens			WHT White Matte Textured
	80L-25	4,000 Lumens			WHS White Gloss Smooth
VPW2 Viper Wall 2	80L-35	5,000 Lumens			VGT Verde Green Textured
	80L-45	6,000 Lumens			Color Option
	80L-55	7,000 Lumens			CC Custom Color
	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			
VPW3 Viper Wall 3	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			
		27K8 2700K, 80 CRI			
		3K7 3000K, 70 CRI			
		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			

Control Options Network ^{3,7,11,13}	Options	Notes:
NXWS12F NX Networked Wireless Enabled Integral NXSMP2-OMNI PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming ¹⁴	F Fusing ^{6,7}	1 Available with Micro Strike Optics only
NXWS16F NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming ⁹	E Battery ^{6,7,8}	2 Not available with 480V in Size 1 and Size 2
NXWS24F NX Networked Wireless Enabled Integral NXSMP2-OMNI-HM PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming ⁹	EH Battery with Heater ^{6,7,8}	3 Networked controls cannot be combined with other control options
NXWS40F NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming ⁹	CS Comfort Shield ^{7,10}	4 Not available with VPW1 or with 2PF or 2DR options
NXW NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	SP 10kA Surge Protector	5 Must specify voltage (VPW1 & VPW2: 120V, 277V or 347V; VPW3: 120V, 208V, 240V, 277V, 347V or 480V)
WIR LightGRID+ In-Fixture Module ⁹	2PF Dual Power Feed ^{2,7,8}	6 See page 10 for detail Battery configurations
WIRSC LightGRID+ In-Fixture Module with BTS occupancy ⁹	2DR Dual Driver ^{2,7,8}	7 Not available in VPW1
	CD Customer Dimming ¹²	8 2PF can't be combined with E or EH; 2DR can't be combined with E or EH in VPW2
	DTS Dimming Transfer Switch ⁷	9 Not available 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
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		

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

Catalog Number	Description
☐ WP-BB-XXX	Accessory for conduit entry ¹
☐ CS	Comfort Shield ²

- Notes:
- replace "xxx" with color option
 - Not available with Micro Strike 24L and 48L or Strike 18L and 36L

CONTROLS FUNCTIONALITY

OUTDOOR LIGHTING CONTROLS OPTIONS



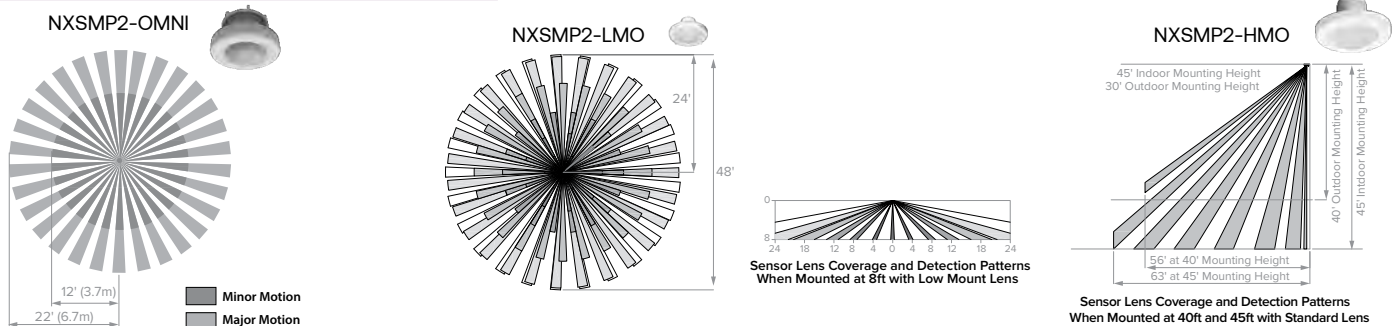
Control Option Ordering Logic & Description			Control Option Functionality									Control Option Components	
			Networkable	Grouping	Scheduling	Occupancy/ Motion	Daylight Harvesting	0-10V Dimming	On/Off Control	Bluetooth App Programming	Sensor Height		
NX Wireless	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	✓	✓	✓	—	—	✓	✓	✓	—		NXRM2-H
	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
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	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



VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

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 luminaires 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

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

Ambient Temp.	OPERATING HOURS		
	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	888	134	0	0	0	883	134	0	0	0	850	129	0	0	0
				3	829	126	0	0	0	825	125	0	0	0	794	120	0	0	0
				4W	867	131	0	0	1	863	131	0	0	1	830	126	0	0	1
		15	14	2	1883	134	1	0	1	1873	134	1	0	1	1802	129	1	0	1
				3	1759	126	1	0	1	1750	125	1	0	1	1683	120	0	0	1
				4W	1839	131	0	0	1	1830	131	0	0	1	1761	126	0	0	1
		25	23.0	2	3116	135	1	0	1	3100	135	1	0	1	2982	130	1	0	1
				3	2910	127	1	0	1	2896	126	1	0	1	2785	121	1	0	1
				4W	3044	132	1	0	1	3029	132	1	0	1	2914	127	1	0	1

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	1866	142	1	0	1	1857	142	1	0	1	1786	136	1	0	1
				3	1743	133	1	0	1	1734	132	1	0	1	1668	127	0	0	1
				4F	1832	140	0	0	1	1823	139	0	0	1	1754	134	0	0	1
				4W	1823	139	0	0	1	1814	138	0	0	1	1745	133	0	0	1
		20	20.5	2	2791	136	1	0	1	2777	135	1	0	1	2671	130	1	0	1
				3	2606	127	1	0	1	2593	127	1	0	1	2495	122	1	0	1
				4F	2740	134	1	0	1	2726	133	1	0	1	2622	128	1	0	1
				4W	2726	133	1	0	1	2713	132	1	0	1	2610	127	1	0	1
		30	28.8	2	3766	131	1	0	1	3747	130	1	0	1	3605	125	1	0	1
				3	3517	122	1	0	1	3500	122	1	0	1	3367	117	1	0	1
				4F	3697	128	1	0	1	3678	128	1	0	1	3539	123	1	0	1
				4W	3679	128	1	0	1	3661	127	1	0	1	3522	122	1	0	1
		35	37.3	2	4707	126	1	0	1	4684	126	1	0	1	4506	121	1	0	1
				3	4396	118	1	0	1	4375	117	1	0	1	4208	113	1	0	1
				4F	4621	124	1	0	1	4598	123	1	0	1	4423	119	1	0	1
				4W	4599	123	1	0	2	4576	123	1	0	2	4402	118	1	0	2
		45	45.9	2	5604	121	1	0	1	5576	121	1	0	1	5364	116	1	0	1
				3	5234	114	1	0	2	5208	113	1	0	2	5010	109	1	0	2
				4F	5501	119	1	0	2	5474	118	1	0	2	5266	114	1	0	2
				4W	5475	116	1	0	2	5447	115	1	0	2	5240	111	1	0	2
	80L	20	19.4	2	2978	154	1	0	1	2963	153	1	0	1	2851	147	1	0	1
				3	3028	156	1	0	1	3013	155	1	0	1	2898	149	1	0	1
				4F	3039	157	1	0	1	3024	156	1	0	1	2909	150	1	0	1
				4W	2968	153	1	0	1	2953	152	1	0	1	2841	146	1	0	1
		25	26.7	2	3723	139	1	0	1	3704	139	1	0	1	3563	133	1	0	1
				3	3785	142	1	0	1	3766	141	1	0	1	3623	136	1	0	1
				4F	3799	142	1	0	1	3780	142	1	0	1	3636	136	1	0	1
				4W	3710	139	1	0	1	3692	138	1	0	1	3551	133	1	0	1
		35	34.2	2	4775	140	1	0	1	4751	139	1	0	1	4571	134	1	0	1
				3	4855	142	1	0	1	4831	141	1	0	1	4647	136	1	0	1
				4F	4872	142	1	0	1	4848	142	1	0	1	4664	136	1	0	1
				4W	4759	139	1	0	1	4735	138	1	0	1	4555	133	1	0	1
		45	41.7	2	6032	145	1	0	2	6002	144	1	0	2	5774	138	1	0	1
				3	6133	147	1	0	2	6102	146	1	0	2	5870	141	1	0	2
				4F	6155	148	1	0	2	6124	147	1	0	2	5891	141	1	0	2
				4W	6012	144	1	0	2	5982	143	1	0	2	5754	138	1	0	2
		55	50.6	2	6999	138	1	0	2	6964	138	1	0	2	6700	132	1	0	2
				3	7116	141	1	0	2	7081	140	1	0	2	6812	135	1	0	2
				4F	7142	141	1	0	2	7106	140	1	0	2	6836	135	1	0	2
				4W	6976	138	1	0	2	6941	137	1	0	2	6677	132	1	0	2
		65	58.3	2	7910	136	2	0	2	7871	135	2	0	2	7572	130	1	0	2
				3	8042	138	1	0	2	8002	137	1	0	2	7698	132	1	0	2
				4F	8071	138	2	0	2	8031	138	2	0	2	7726	133	1	0	2
				4W	7884	135	1	0	2	7844	135	1	0	2	7546	129	1	0	2
		70	63.5	2	8506	134	2	0	2	8463	133	2	0	2	8142	128	2	0	2
				3	8648	136	1	0	2	8605	136	1	0	2	8278	130	1	0	2
				4F	8679	137	2	0	2	8636	136	2	0	2	8308	131	2	0	2
				4W	8477	133	1	0	2	8435	133	1	0	2	8114	128	1	0	2

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	6702	145	1	0	2	6668	144	1	0	2	6415	139	1	0	2
				3	6814	147	1	0	2	6780	147	1	0	2	6522	141	1	0	2
				4F	6838	148	1	0	2	6804	147	1	0	2	6546	142	1	0	2
				4W	6679	145	1	0	2	6646	144	1	0	2	6393	138	1	0	2
		70	68.3	2	9550	140	2	0	2	9502	139	2	0	2	9141	134	2	0	2
				3	9710	142	2	0	2	9661	141	2	0	2	9294	136	2	0	2
				4F	9744	143	2	0	2	9696	142	2	0	2	9327	137	2	0	2
				4W	9518	139	2	0	2	9470	139	2	0	2	9111	133	2	0	2
		95	91	2	13202	145	2	0	2	13136	144	2	0	2	12637	139	2	0	2
				3	13423	148	2	0	2	13356	147	2	0	2	12849	141	2	0	2
				4F	13471	148	2	0	2	13404	147	2	0	2	12895	142	2	0	2
				4W	13158	145	2	0	2	13092	144	2	0	2	12595	138	2	0	2
		105	106.3	2	14073	132	2	0	2	14003	132	2	0	2	13471	127	2	0	2
				3	14309	135	2	0	2	14238	134	2	0	2	13697	129	2	0	2
				4F	14360	135	2	0	2	14289	134	2	0	2	13746	129	2	0	2
				4W	14026	132	2	0	3	13956	131	2	0	3	13426	126	2	0	2
		135	134.8	2	17223	128	3	0	3	17137	127	3	0	3	16486	122	3	0	3
				3	17511	130	2	0	3	17424	129	2	0	3	16762	124	2	0	3
				4F	17574	130	3	0	3	17487	130	3	0	3	16822	125	3	0	3
				4W	17165	127	2	0	3	17080	127	2	0	3	16431	122	2	0	3
		155	158.3	2	19716	125	3	0	3	19618	124	3	0	3	18872	119	3	0	3
				3	20046	127	3	0	3	19946	126	3	0	3	19188	121	3	0	3
				4F	20118	127	3	0	3	20018	126	3	0	3	19257	122	3	0	3
				4W	19650	124	3	0	3	19552	124	3	0	3	18809	119	3	0	3

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

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

VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

ELECTRICAL DATA: MICROSTRIKE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

# 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

VIPER Wall

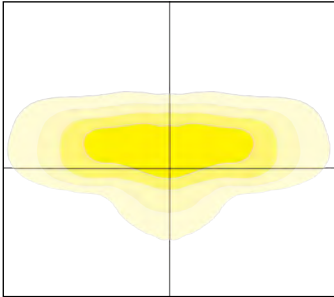
VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

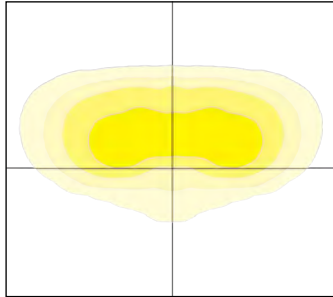
PHOTOMETRY

Mounting Height: 10ft

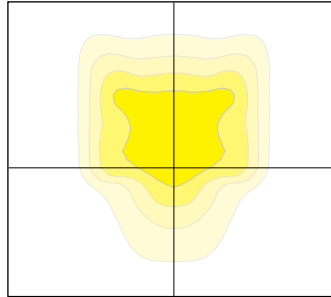
Type 2



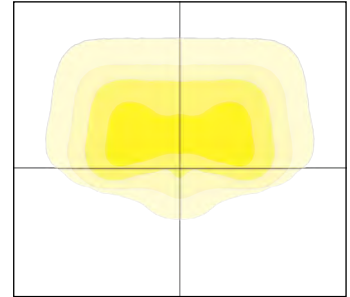
Type 3



Type 4F

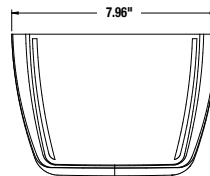
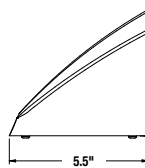
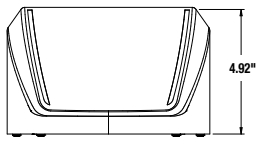


Type 4W

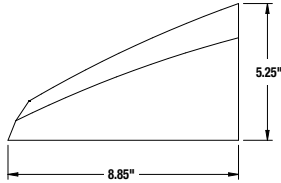
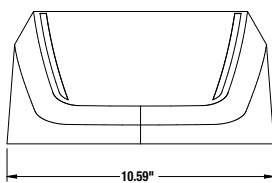


DIMENSIONS

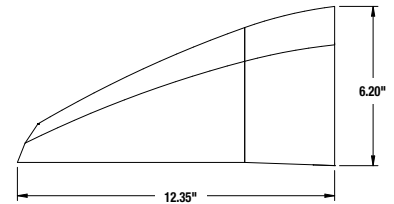
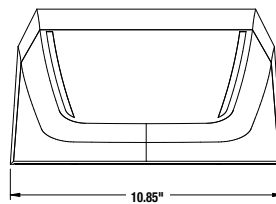
VPW1



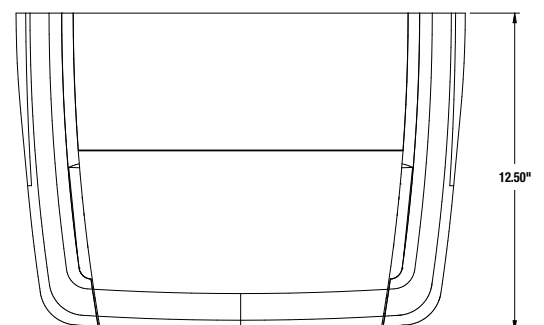
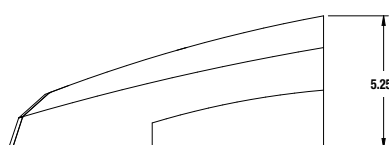
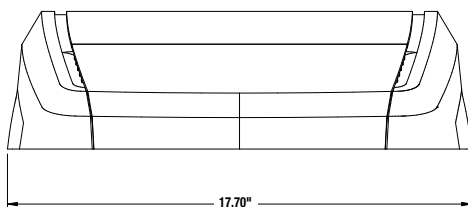
VPW2



VPW2 with Back Box



VPW3



VIPER Wall

VPW1/VPW2/VPW3 LED WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

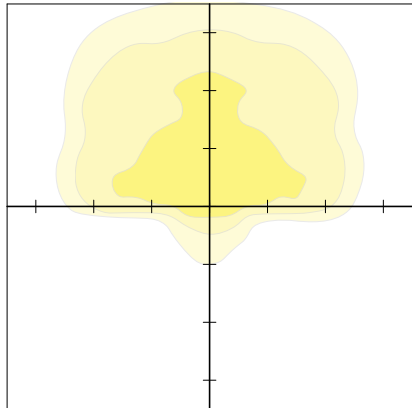
BATTERY OPTIONS & HOUSING SIZES

SIZE	OPTICS	OPTION	BATTERY WATTAGE	FIXTURE WATTAGES	HOUSING
VPW1	NO BATTERY OFFERED				
VPW2	Micro Strike	E	10W	20W, 25W, 35W	Standard
	Micro Strike	E	10W	45W, 55W, 65W, 70W	Not offered
	Micro Strike	EH	13W	20W, 25W, 35W, 45W, 55W, 65W, 70W	Housing with Backbox
	Strike	E	10W	15W, 20W, 25W, 35W, 39W	Standard
	Strike	E	10W	50W, 60W	Not offered
	Strike	EH	13W	15W, 20W, 25W, 30W, 39W, 50W, 60W	Housing with Backbox
VPW3	Micro Strike	E	10W	Not offered	
	Micro Strike	EH	13W	45W, 70W, 95W, 105W	Standard
	Micro Strike	EH	13W	135W, 155W	Not offered
	Strike	E	10W	Not offered	
	Strike	EH	13W	55W, 80W, 100W	Standard
	Strike	EH	13W	120W	Not offered

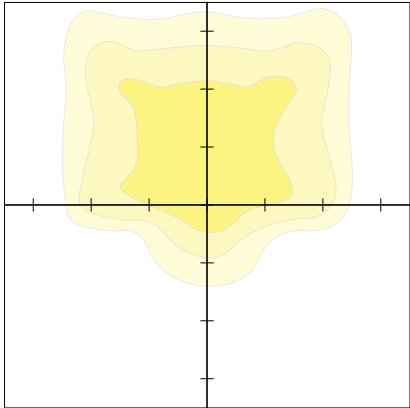
PHOTOMETRY - BATTERY

Mounting Height: 12ft
 Scale: 10ft

18L BATTERY PHOTOMETRY



80L BATTERY PHOTOMETRY



FEATURES

- 4" LED downlight delivering 1000–6000 lumens
- Direct Install from below ceiling for New Construction or Remodel applications
- Optional housing accessories available
- Five beam distributions
- 2700K–5000K, 80+ and 90+ CRI (2 SDCM)
- Dimming protocols include 0–10V, Phase (Forward/Reverse), DALI, DMX, and Lutron EcoSystem
- NX Lighting Controls wired and wireless controls capability available



CONTROLS TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- Standard Fixture Module designed for Non-IC, Direct Install construction
- Optional Non-IC frame or IC housing available with pre-installed bar hangers
- Die cast aluminum fixture module support ring with spring steel clips for secure mounting to ceiling
- Driver J-Box can be installed and accessed from below the ceiling as direct install or easily snap on to optional housing frame/enclosure
- Light Engine connections use plenum rated (CMP) cable

OPTICS

- High purity spun aluminum reflector, self-flanged
- 57° visual cutoff to source image and 31° cutoff to source
- Specular or Semi-Specular anodized or White painted cone reflector finish/colors
- Painted flange options in White or Black
- Optional clear lens trim for wet location applications
- Wide Angle and Soft Focus lens filter/clip accessories available

ELECTRICAL

- Chip-on-board LED with 2 SDCM
- Multiple CCTs, 80+ or 90+ CRI
- Long LED life: L90 at >50,000 hours (TM-21)

ELECTRICAL (CONTINUED)

- Universal voltage 120–277V driver, 347V optional
- UL Class 2, inherent short circuit and overload protection
- Flicker-free dimming options in a wide range of protocols from 1% to <0.1% performance
- 0–10V, Phase (Forward/Reverse), DALI, DMX, and Lutron EcoSystem options
- NX Lighting Controls provides options for standalone and networked functionality with wired or wireless connectivity for NX system deployments
- Integral and remote emergency battery options available

INSTALLATION

- Accommodates ceiling thickness from 0.50" to 2.50"
- Fixture Module including driver fully accessible from above or below the ceiling
- 10L Fixture Modules are inherently protected IC without the use of IC housing enclosure. (IC housing is still recommended when using loose-fill or spray foam insulation types.)

CERTIFICATIONS

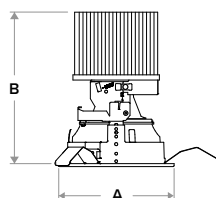
- cCSAus certified to UL 1598
- For ≥50L: Marked spacing required 36" fixture center to center; 18" fixture center to building member; 0.5" above fixture

LITEFRAME[®]
2.0



SERVICE PROGRAMS

STOCK QS10



Typical Dimensions and Weights			
Lumen Package	"A" Diameter Inches (mm)	"B" Height Inches (mm)	Weight lbs (kg)
10L - 30L	5.37 (136)	5.45 (138)	4 (1.8)
35L - 60L	5.37 (136)	7.03 (179)	4.3 (1.9)

See DIMENSIONS section for complete details

CERTIFICATIONS (CONTINUED)

- Suitable for wet locations, covered ceiling when used with CL lens trim; all other configurations, suitable for damp locations
- CL Lens option: IP65 rated (room side) when properly installed per installation instructions
- EM/EMR: Certified under UL 924 standard for emergency lighting and power equipment
- EM/EMR: Emergency battery packs are California Energy Commission (CEC) Title 20 Compliant
- Approved for 8 (4 in/4 out) No. 12AWG conductors rated for 90°C through wiring
- ENERGY STAR® certified models available (For list and additional information, visit www.energystar.gov)

WARRANTY

- 5 year warranty

KEY DATA	
Lumen Range	1000–6000
Wattage Range	8–54
Efficacy Range (LPW)	105–135
Reported Life (Hours)	L90 / >50,000
Input Current (mA)	66–450 (120V)

*Based on Specular, 35K, 80 CRI

ORDERING GUIDE

Example: LFR-4RD-M-10L35K8-WD-DM1 / LFR-4RD-T-S / LFR-4RD-H

CATALOG #

FIXTURE MODULE

LFR-4RD-M	Ap/Shp/Funct	Lumen Output	CCT	CRI	Distribution	Driver Options	Control Options	Voltage	Module Options
LFR-4RD-M	4" Round	10L 1000	27K 2700K	8 80+	VNR Very Narrow (17°/0.3 SC)	DM1 0-10V Dimming to 1%	NX Lighting Controls	Standard 120-277V	CP Chicago Plenum ^{5,6}
	Downlight	15L 1500	30K 3000K	9 90+	NR Narrow (26°/0.4 SC)	DM01 0-10V Dimming to < 1% ²	Networked Wireless	34 347V ⁴	EM 6W Emergency Battery Pack (CEC Title 20 Compliant) with integral test switch and indicator light ⁶
	Fixture Module for Direct Install	20L 2000	35K 3500K		MD Medium (34°/0.6 SC)	PDM Phase (Forward/Reverse) Dimming to 1% ²	NXW NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor ³		EMR 6W Emergency Battery Pack (CEC Title 20 Compliant) with remote test switch and indicator light ⁶
	(Non-IC frame or IC housing available under Housing Options below)	25L 2500	40K 4000K		WD Wide (49°/0.7 SC)	DMX DMX with RDM dimming to < 0.1% ²	Networked Wired		DTS Device Transfer Switch with Dimming Bypass ^{6,7}
		30L 3000	50K 5000K		XW Extra Wide (65°/1.0 SC) ¹²	DALI DALI Dimming to 1% ²	NXE NX Wired Dual RJ45 SmartPORTS, without Sensor ³		
		35L 3500				EDM Lutron Hi-Lume EcoSystem Dimming to 1% ²			
		40L 4000							
		50L 5000 ¹							
		60L 6000 ¹							

TRIM (Ships separately)

LFR-4RD-T	Aperture/Shape/Function	Distribution	Reflector Finish/Color	Flange Color Options	Lens Options	Lower Trim Options
LFR-4RD-T	4" Round Downlight Trim Assembly	Standard NR, MD, WD, XW	S Specular ¹²	Standard matches reflector color	Standard no lens	EM Pre-punched reflector for EM integral test switch and indicator ⁹
		VNR Very Narrow	SS Semi-Specular	WT White Flange ⁸	CL Clear Lens (Wet listed) ⁹	FM Flush Mount Mud-In Ring ¹³
			WC Painted White Cone and Flange	BT Black Flange		

HOUSING OPTIONS (Ships separately)

Aperture/Shape/Function
☐ LFR-4RD-H 4" Housing Frame, New Construction, Non-IC
☐ LFR-4RD-H-IC 4" Housing Enclosure, New Construction, IC Rated ^{10,11}

Notes:

- 50L and 60L require marked spacing. See line art for more details.
- DM01, PDM, DMX, DALI available up to 50L. EDM available 15L-40L.
- NX requires DM1 driver option.
- 347V requires DM1 driver option; available 10L-40L; not available with Controls, DTS, EM, EMR.
- CP not available with PDM, DMX, or Controls.
- Module options not available in combination.
- DTS available with DM1, DM01, or DALI.
- WT not needed for WC.
- CL lens and EM trim options not available in combination.
- IC available up to 35L; 10L Fixture Modules are inherently protected IC without the use of IC housing enclosure. (IC housing is still recommended when using loose-fill or spray foam insulation types.)
- IC Housing not for use in combination with Controls or with Module Options CP, EM, EMR, DTS.
- XW distribution is not available for Specular (S) reflector finish.
- Flush Mount Flange (FM) requires FMR accessory (sold separately).
- Specify slope angle 5°-35° in 5° increments. Not available with EM or FM options.

Accessories
☐ SFL4 Soft Focus Lens and Clip, 4" Round
☐ WAL4 Wide Angle 80° Lens and Clip, 4" Round
☐ LiteGear LiteGear® Inverter, 125VA-250VA
☐ LPS Series LightPower Micro-Inverter, 20VA-55VA
☐ LF-FMR4-R Flush Mount Mud-in Ring, 4" ¹³
☐ LF-MOR4-R-WH Metal Oversized Ring, 4" Round, White (8.3" outside diameter)
☐ LFR-SCA4-___ Sloped Ceiling Adapter, 4" White ¹⁴

DATE:LOCATION:

TYPE:PROJECT:

CATALOG #:

NX LIGHTING CONTROLS

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		
NX Wireless	NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor	✓	✓	✓	-	-	✓	✓	✓		NXRM2-H
NX Wired	NXE	NX Wired Dual RJ45 SmartPORTS, without Sensor	✓	✓	✓	-	-	✓	✓	✓ ¹		NXDSP

1 Requires NXBTC, order separately.

NX LIGHTING CONTROLS APP



The NX Lighting Controls App is a free to use mobile application for programming both an NX Lighting Controls System or Standalone Bluetooth Sensors. The mobile app allows you to configure devices, discover and setup wireless enabled luminaires and program your NX system settings.



Android



Apple iOS

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

PERFORMANCE DATA TABLE

Performance data shown is 3500K 80+CRI with Specular reflector except Extra Wide distribution which is Semi-Specular.

Lumen Package	Nominal Lumens	Distribution	Delivered Lumens	Watts	LPW
10L	1000	Very Narrow	979	7.6	129
		Narrow	1023	7.6	135
		Medium	997	7.6	131
		Wide	995	7.6	131
		Extra Wide	947	7.6	125
15L	1500	Very Narrow	1471	11.8	125
		Narrow	1536	11.8	130
		Medium	1498	11.8	127
		Wide	1494	11.8	127
		Extra Wide	1422	11.8	121
20L	2000	Very Narrow	1937	15.2	127
		Narrow	1982	15.3	130
		Medium	1933	15.3	127
		Wide	1928	15.3	126
		Extra Wide	1835	15.2	121
25L	2500	Very Narrow	2465	20.9	118
		Narrow	2574	20.9	123
		Medium	2510	20.9	120
		Wide	2504	20.9	120
		Extra Wide	2384	20.9	114
30L	3000	Very Narrow	2938	26.0	113
		Narrow	3068	26.0	118
		Medium	2992	26.0	115
		Wide	2985	26.0	115
		Extra Wide	2842	26.0	109
35L	3500	Very Narrow	3571	29.4	121
		Narrow	3729	29.4	127
		Medium	3637	29.4	124
		Wide	3628	29.4	123
		Extra Wide	3454	29.4	117
40L	4000	Very Narrow	3982	32.9	121
		Narrow	4157	32.9	126
		Medium	4055	32.9	123
		Wide	4045	32.9	123
		Extra Wide	3851	32.9	117
50L	5000	Very Narrow	4844	42.0	115
		Narrow	5058	42.0	120
		Medium	4933	42.0	117
		Wide	4921	42.0	117
		Extra Wide	4684	42.0	112
60L	6000	Very Narrow	5778	53.4	108
		Narrow	6033	53.4	113
		Medium	5884	53.4	110
		Wide	5870	53.4	110
		Extra Wide	5588	53.4	105

LFR-4RD

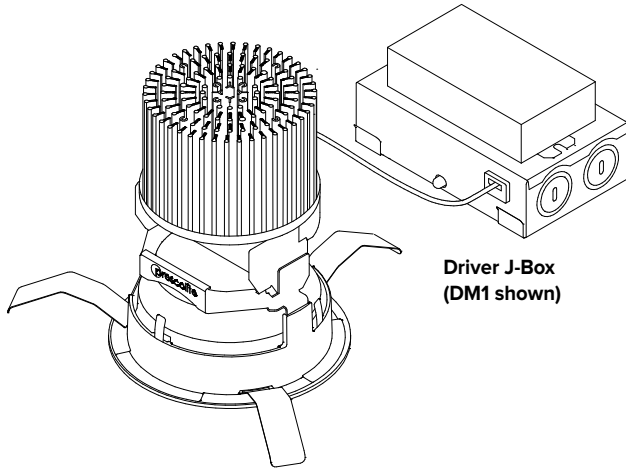
LITEFRAME 4" ROUND DOWNLIGHT

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

DIMENSIONS

LFR-4RD-M

Fixture Module consists of Light Engine and Driver J-Box assemblies.
Overall dimensions for each are dependent upon configuration selected.
See the following pages for details.

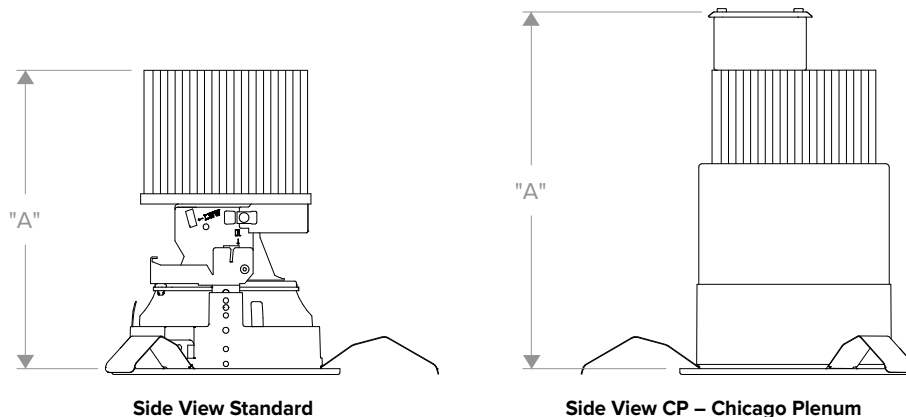


DIMENSIONAL DATA		
APERTURE		Ø4.00" (101.6mm)
OVERALL		Ø5.37" (136.5mm)
FLANGE WIDTH	Standard	0.69" (17.5mm)
	Flush Mount	0.19" (4.8mm)
FLANGE TO FLANGE	Standard	Ø5.37" (136.6mm)
	Flush Mount	Ø4.38" (111.2mm)
CEILING CUTOUT	Standard	Ø4.75" (120.7mm)
	Flush Mount	Ø4.88" (123.9mm)
CEILING THICKNESS		0.50" – 2.50" (12.7 – 63.5mm)

LFR-4RD LIGHT ENGINE

OVERALL LIGHT ENGINE HEIGHT "A" *				
LUMEN PACKAGE	FIXTURE MODULE	BEAM DISTRIBUTION		
		VNR	NR / MD / WD	XW
10L-30L	STANDARD	6.24" (158.5mm)	5.45" (138.5mm)	5.1" (129.5mm)
	CP	9.22" (324.1mm)	8.43" (214.0mm)	8.08" (205.1mm)
35L-60L	STANDARD	7.82" (198.6mm)	7.03" (178.6mm)	6.68" (169.7mm)
	CP	9.22" (234.1mm)	8.43" (214.0mm)	8.08" (205.1mm)

* Note: Add ½" minimum plenum clearance above overall Light Engine Height.
** For ≥50L: Marked spacing required 36" fixture center to center;
18" fixture center to building member; 0.5" above fixture.
*** Non-IC rating requires 3" from insulation and combustible materials.



DIMENSIONS CONTINUED

DRIVER J-BOX

DM1 / DM01 / PDM / DALI

DMX

NX CONTROLS OPTION

CP

EM/EMR OPTION

EM/EMR Driver J-Box Conduit (provided) connects to Driver J-Box (see Driver J-Box for additional details)

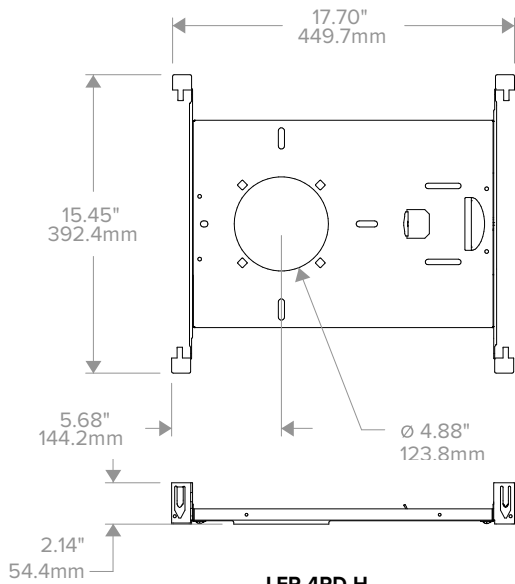
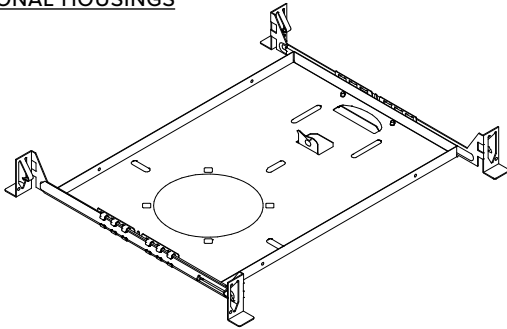
OVERALL DRIVER J-BOX DIMENSIONS (ALL LUMEN OUTPUTS)				
DRIVER/ CONTROLS OPTIONS	"B" (HEIGHT)	"C" (LENGTH)	"D" (WIDTH)	MINIMUM J-BOX PLENUM CLEARANCE
DM1 / DM01 / PDM / DALI	2.67" (67.8mm)	5.34" (135.6mm)	3.23" (82.0mm)	3.50" (88.9mm)
DMX	3.07" (78.0mm)	8.68" (220.5mm)	3.23" (82.0mm)	5.00" (127.0mm)
NX	3.02" (76.7mm)	8.68" (220.5mm)	3.23" (82.0mm)	6.00" (152.4mm)
EM/EMR	2.73" (69.3mm)	5.34" (135.6mm)	3.23" (82.0mm)	4.00" (101.6mm)
CP	1.89" (73.4mm)	6.50" (165.1mm)	2.72" (69.1mm)	5.00" (127mm)

LFR-4RD

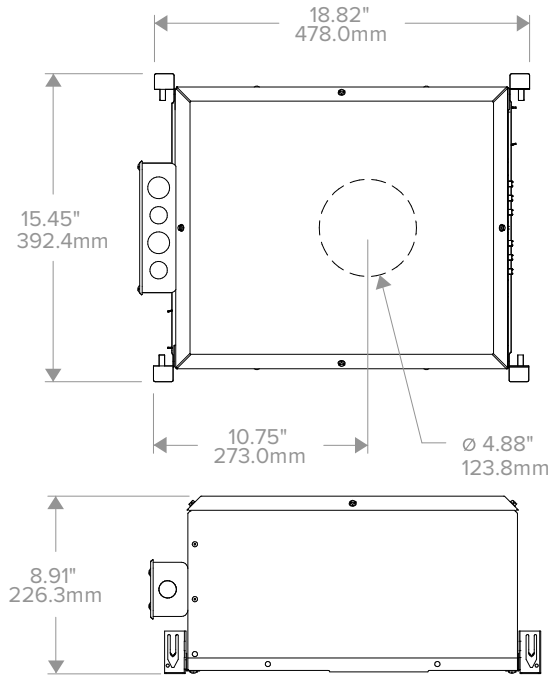
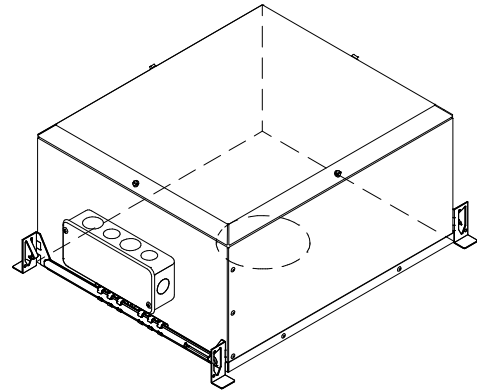
LITEFRAME 4" ROUND DOWNLIGHT

DIMENSIONS CONTINUED

OPTIONAL HOUSINGS

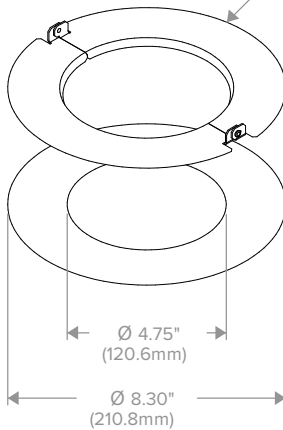


**LFR-4RD-H
NON-IC HOUSING FRAME**

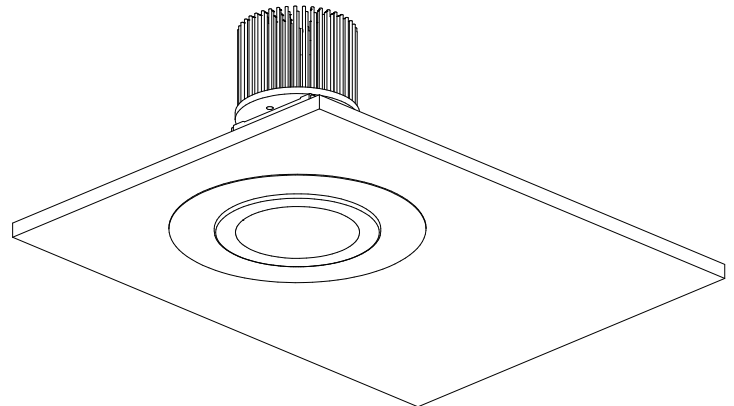


**LFR-4RD-H-IC
IC HOUSING**
Not for use with CP Shroud

Metal 2-piece adapter (included)
to be installed above ceiling



**ROUND LF-MOR4-R
METAL OVERSIZED RING**
(See LF-MOR Installation Instruction for more details)



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

LFR-4RD

LITEFRAME 4" ROUND DOWNLIGHT

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

PHOTOMETRY

LFR-4RD-M-20L35K8VNR-DM1 / LFR-4RD-T-VNR-S

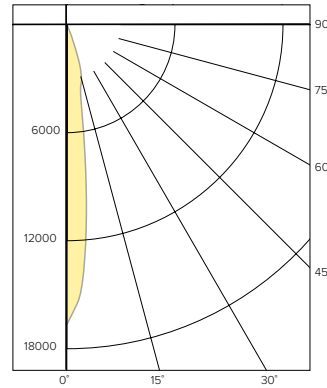
LUMINAIRE DATA

Test No.	21.001652
Description	2000 lm, Very Narrow, 3500K, 80 CRI
Delivered Lumens	1937
Watts	15.2W
Efficacy	127
Mounting	Recessed
Spacing Criterion	0.3
Beam Angle (FWHM)	15

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1932	99.8
0-60	1936	99.9
0-90	1937	100.0
0-180	1937	100.0

POLAR GRAPH



CANDELA DISTRIBUTION

Degree	Candela
0	16778
5	12300
15	3246
25	139
35	7
45	3
55	1
65	1
75	0
85	0
90	0

LUMINANCE DATA*

Vertical Angle	Average
45°	523
55°	215
65°	292
75°	0
85°	0

*Candela/Square Meter

LFR-4RD-M-20L35K8NR-DM1 / LFR-4RD-T-S

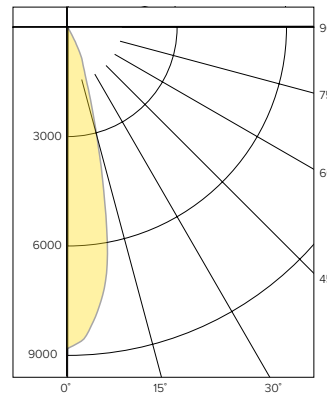
LUMINAIRE DATA

Test No.	21.00574
Description	2000 lm, Narrow, 3500K, 80 CRI
Delivered Lumens	1982
Watts	15.3W
Efficacy	130
Mounting	Recessed
Spacing Criterion	0.4
Beam Angle (FWHM)	26

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1978	99.3
0-60	1981	100.0
0-90	1982	100.0
0-180	1982	100.0

POLAR GRAPH



CANDELA DISTRIBUTION

Degree	Candela
0	8819
5	8106
15	3103
25	858
35	7
45	2
55	1
65	1
75	0
85	0
90	0

LUMINANCE DATA*

Vertical Angle	Average
45°	349
55°	215
65°	292
75°	0
85°	0

*Candela/Square Meter

LFR-4RD-M-20L35K8MD-DM1 / LFR-4RD-T-S

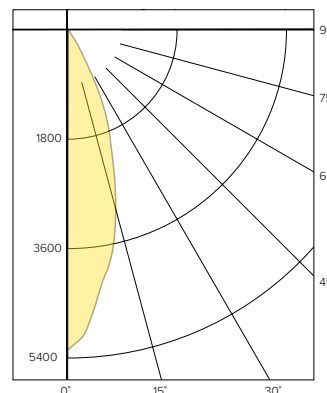
LUMINAIRE DATA

Test No.	21.00585
Description	2000 lm, Medium, 3500K, 80 CRI
Delivered Lumens	1933
Watts	15.3W
Efficacy	127
Mounting	Recessed
Spacing Criterion	0.6
Beam Angle (FWHM)	34

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1928	99.8
0-60	1931	99.9
0-90	1933	100.0
0-180	1933	100.0

POLAR GRAPH



CANDELA DISTRIBUTION

Degree	Candela
0	5267
5	4677
15	3033
25	1352
35	55
45	3
55	1
65	1
75	0
85	0
90	0

LUMINANCE DATA*

Vertical Angle	Average
45°	523
55°	215
65°	292
75°	0
85°	0

*Candela/Square Meter

LFR-4RD

LITEFRAME 4" ROUND DOWNLIGHT

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

PHOTOMETRY CONTINUED

LFR-4RD-M-20L35K8WD-DM1 / LFR-4RD-T-S

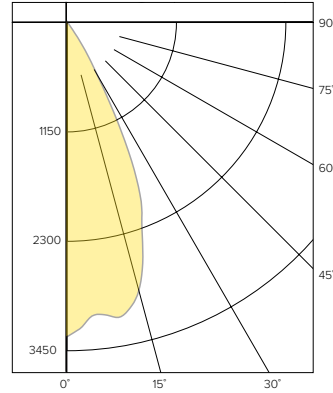
LUMINAIRE DATA

Test No.	21.00577
Description	2000 lm, Wide, 3500K, 80 CRI
Delivered Lumens	1928
Watts	15.3W
Efficacy	126
Mounting	Recessed
Spacing Criterion	0.7
Beam Angle (FWHM)	49

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1922	99.7
0-60	1927	99.9
0-90	1928	100.0
0-180	1928	100.0

POLAR GRAPH



CANDELA DISTRIBUTION

Degree	Candela
0	3329
5	3118
15	2946
25	1625
35	117
45	4
55	1
65	1
75	0
85	0
90	0

LUMINANCE DATA*

Vertical Angle	Average
45°	698
55°	215
65°	292
75°	0
85°	0

*Candela/Square Meter

LFR-4RD-M-20L35K8XW-DM1 / LFR-4RD-T-SS

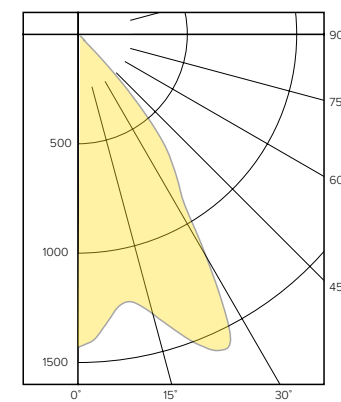
LUMINAIRE DATA

Test No.	21.01456
Description	2000 lm, Extra Wide, 3500K, 80 CRI
Delivered Lumens	1835
Watts	15.2W
Efficacy	121
Mounting	Recessed
Spacing Criterion	1.0
Beam Angle (FWHM)	65

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
0-40	1686	91.9
0-60	1826	99.5
0-90	1835	100.00
0-180	1835	100.0

POLAR GRAPH



CANDELA DISTRIBUTION

Degree	Candela
0	1431
5	1345
15	1323
25	1589
35	781
45	80
55	16
65	6
75	2
85	0
90	0

LUMINANCE DATA*

Vertical Angle	Average
45°	13955
55°	3441
65°	1751
75°	953
85°	0

*Candela/Square Meter

LUMEN MULTIPLIER

Option	27K8	30K8	35K8	40K8	50K8	27K9	30K9	35K9	40K9	50K9
Multiplier	0.93	0.96	1.00	1.01	1.03	0.78	0.82	0.85	0.87	0.89

Photometrics are published below at a nominal 3500 Kelvin, 80+ CRI. This table may be used to approximate the lumen values at different Kelvin temperatures. Power consumption would stay the same.

LENS OPTION / LENS FILTER ACCESSORY MULTIPLIER (Based on Clear Specular)

Option	CL (Clear Lens)	SFL4 (Soft Focus Accessory)	WAL4 (Wide Angle Accessory)
Multiplier	0.95	0.96	0.83

Multiply lumen/lens multipliers to calculate applicable combinations. Example: 30K8 with Clear Lens option (CL) = 0.96 x 0.95 = **0.91**

LFR-4RD

LITEFRAME 4" ROUND DOWNLIGHT

DATE:

LOCATION:

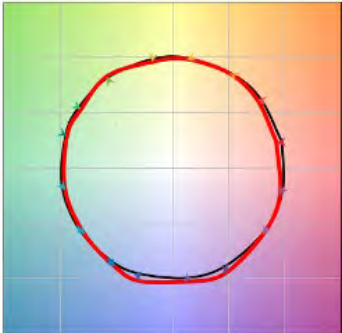
TYPE:

PROJECT:

CATALOG #:

TM-30 DATA

COLOR VECTOR GRAPHIC
3500K, 90 CRI



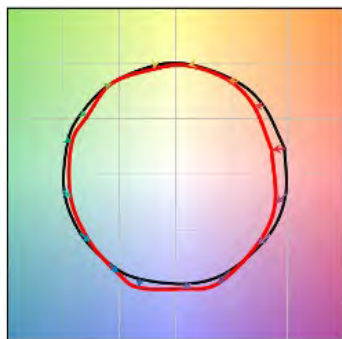
— Reference Illuminant — Test Source

COLOR DISTORTION GRAPHIC
3500K, 90 CRI



TEST RESULTS - 3500K		
Value	80+ CRI	90+ CRI
R _i	85	90
R _g	95	99
CCT (K)	3422	3416
D _{uv}	-0.0008	-0.0019
x	0.4089	0.408
y	0.3906	0.3877
CIE R _a	85	93
CIE R _g	16	66

COLOR VECTOR GRAPHIC
3500K, 80 CRI



— Reference Illuminant — Test Source

COLOR DISTORTION GRAPHIC
3500K, 80 CRI



ELECTRICAL DATA

DRIVER DATA		
Input Voltage	120-277 V	347 V
Input Frequency	50/60 Hz	50/60 Hz
Power Factor	≥0.90	≥0.90
THD	<20%	<20%
EMI Filtering (FCC 47 CFR Part 15)	Class A	Class A

* Values for DM1 option shown, values for other dimming options may vary.

ADDITIONAL INFORMATION

Dimming Compatibility

For more details and recommended dimmer list, see Dimming Compatibility Information on currentlighting.com/prescolite.

DMX

See instruction sheet on currentlighting.com/prescolite for connection & installation information.

Central Inverters

For full fixture output in back-up mode, we recommend you visit currentlighting.com/dual-lite.com for your Central Lighting Inverter options. Please contact your local Current representative for any assistance with proper sizing and loading of your inverter selection. Central lighting inverters must be ordered separately.

Lumen Output in Emergency Mode

To determine the lumen output in emergency mode, multiply the battery pack wattage by the fixture lumens per watt (LPW). For example, 6W x 120 LPW = 720 lumens in emergency mode.

ATTACHMENT 5
CITY COST ESTIMATE WORKSHEET

City of Biddeford, Maine

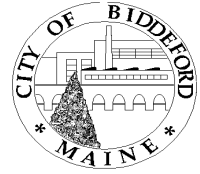
COST ESTIMATE WORKSHEET

OWNER/APPLICANT: Mike Eon Associates, LTD

PB #: 2024.31

PROJECT NAME: 25 Barra Road Dental Office

DATE: 14-Aug-24



	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
1	Clearing and Grubbing	Acre	1.22	\$6,000.00	\$7,320.00
2	Erosion/Sediment Control	Lump Sum	1	\$10,000.00	\$10,000.00
3	Site Stabilization	Lump Sum	1	\$5,000.00	\$5,000.00
4	Ledge Removal	Cubic Yard			\$0.00
5	Sanitary Sewer				
	Manholes	Each			\$0.00
	Main	Linear Foot			\$0.00
	House Services	Linear Foot	90	\$30.00	\$2,700.00
6	Water Main				
	Main	Linear Foot			\$0.00
	House Services	Linear Foot	250	\$37.00	\$9,250.00
	Hydrants	Each			\$0.00
7	Electric				
	Underground Utility Trench	Linear Foot	150	\$30.00	\$4,500.00
	Conduit/Wiring	Linear Foot	150	\$30.00	\$4,500.00
	Transformer Bases	Each			\$0.00
8	Storm Drainage				
	Pipe/Culvert	Linear Foot	322	\$60.00	\$19,320.00
	Catch Basin	Each	4	\$7,500.00	\$30,000.00
	Other Treatment Devices	Each	1	\$20,000.00	\$20,000.00
9	Stormwater Management				
	Outlet Control Structure	Each			\$0.00
	Stromwater Management Facilities	Each			\$0.00
10	Excavate and Grade Subgrade	Cubic Yard	4250	\$20.00	\$85,000.00
11	Roadways				
	Subbase Gravel	Cubic Yard			\$0.00
	Base/Finish Gravel	Cubic Yard			\$0.00
	Base Paving	Ton			\$0.00
	Finish Paving	Ton			\$0.00
	Geotextile Fabric	Ton			\$0.00
12	Sidewalks				
	Subbase Gravel	Cubic Yard			\$0.00
	Base/Finish Gravel	Cubic Yard			\$0.00
	Base Paving	Ton			\$0.00
	Finish Paving	Ton			\$0.00
13	Parking Lots/Other Areas				
	Subbase Gravel	Cubic Yard	817	\$30.00	\$24,520.00
	Base/Finish Gravel	Cubic Yard	181	\$38.00	\$6,895.02
	Base Paving	Ton	177	\$120.00	\$21,247.07
	Finish Paving	Ton	111	\$120.00	\$13,311.42

City of Biddeford, Maine

COST ESTIMATE WORKSHEET

14	Curbing – Bituminous	Linear Foot			\$0.00
15	Curbing - Concrete	Linear Foot	400	\$20.00	\$8,000.00
15	Curbing – Granite	Linear Foot			\$0.00
16	Pavement Striping	Linear Foot	500	\$5.00	\$2,500.00
17	Guardrail	Linear Foot			\$0.00
18	Fencing	Linear Foot			\$0.00
19	Loam and Seed	1,000 Square Feet	34	\$400.00	\$13,597.20
20	Riprap	Cubic Yard	15	\$30.00	\$450.00
21	Landscaping	Lump Sum	1	\$20,000.00	\$20,000.00
22	Street Lights	Each			\$0.00
23	Site Lighting	Each	3	\$1,500.00	\$4,500.00
24	Monuments/Iron Pipes	Lump Sum			\$0.00
25	Clean Up	Lump Sum	1	\$5,000.00	\$5,000.00
26	As Builts	Lump Sum	1	\$10,000.00	\$10,000.00
27	Other				\$0.00
28	Other				\$0.00
29	Other				\$0.00
30	Other				\$0.00
31	Other				\$0.00

COST ESTIMATE TOTAL:

\$327,610.71

150% of TOTAL:

\$491,416.07

FOR OFFICE USE ONLY

EROSION CONTROL/SITE STABILIZATION BOND (IF APPLICABLE):

PERFORMANCE GUARANTEE REQUIRED:

Name:

Signature:

Date:

ATTACHMENT 6
UPDATED STORMWATER REPORT

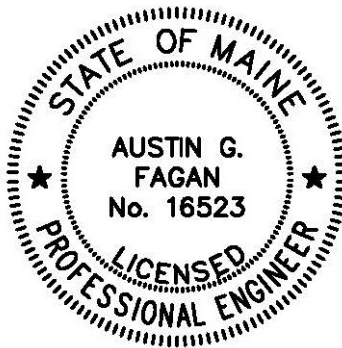
STORMWATER MANAGEMENT REPORT
25 BARRA ROAD COMMERCIAL SITE PLAN

25 Barra Road
Biddeford, Maine

Submitted by:

Mike Eon Associates, Ltd.

Prepared by:



Date:
August 2024

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1.0	INTRODUCTION	1
1.1	OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION...	1
1.2	DESCRIPTION OF POINTS OF ANALYSIS.....	2
1.3	PRE DEVELOPMENT CONDITIONS	2
1.4	POST DEVELOPMENT CONDITIONS.....	3
1.5	BASIC STANDARDS.....	3
1.6	GENERAL STANDARDS	4
1.7	PHOSPHORUS STANDARD.....	4
1.8	URBAN IMPAIRED STREAM STANDARD	4
1.9	TOWN OF BIDDEFORD PERFORMANCE STANDARDS	5
1.10	CLOSURE	5

LIST OF APPENDICES

APPENDIX A	FIGURES
APPENDIX B	SOILS REPORT
APPENDIX C	PRE-DEVELOPMENT CALCULATIONS
APPENDIX D	POST DEVELOPMENT CALCULATIONS
APPENDIX E	BMP SIZING INFORMATION
APPENDIX F	INSPECTION AND MAINTENANCE MANUAL

1.0 **INTRODUCTION**

Mike Eon Associates, Ltd. is proposing to develop a commercial building, proposed as a Dental Practice, with associated parking, grading, utilities, and stormwater management systems (the project) located at 25 Barra Road. The parcel is known as Tax Map 2, Block 43, Lot 10 and is approximately 3.66 acres.

The scope of work includes but is not limited to:

- Clearing and grubbing
- Construction of commercial building
- Construction of a paved parking area
- Construction of 5' paved sidewalk
- Installation of underground electric and communications
- Installation of water and sewer services
- Installation of stormdrain system

The proposed infrastructure improvements will create approximately 19,424 sf (0.45 acres) of new onsite impervious area.

The Stormwater Management Plan has been prepared to satisfy the requirements of the Maine Department of Environmental Protections “Stormwater Management Rules” Chapters 500, 501 and 502 as well as the most recent version of the “Maine Stormwater Best Management Practices Manual”.

The Stormwater Management BMP’s have also been designed in conformance with the City of Biddeford Land Use Ordinance and Subdivision Regulations.

1.1 **OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION**

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

Return Period	24-Hour Rainfall Depth
2-Year Storm	3.30 inches
10-Year Storm	4.90 inches
25-Year Storm	6.20 inches

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

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

The soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
BuC	Buxton silt loam, 3-8% slopes	C
LyC	Lyman-Rock outcrop complex, 8-15% slopes	D
Sc	Scantic silt loam, 0-3% slopes	D

*Assumed D

Topography: On ground survey by BH2M

Natural Resources: Wetland delineations and BMP test pit performed by Mark Hampton Associates

1.2 **DESCRIPTION OF POINTS OF ANALYSIS**

The watershed model analyzes the discharge of runoff at one Analysis Point as described below:

Analysis Point #1

Description: Flow to unnamed tributary of Thatcher Brook near the southwest corner of the parcel.

Pre-Development Tributary Drainage Areas: 122,723 sf

Post Development Tributary Drainage Areas: 122,723 sf

1.3 **PRE DEVELOPMENT CONDITIONS**

The Existing Conditions are shown on Sheet 2 and Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 3.66 acres and is located at 25 Barra Road in Biddeford. The parcel is mostly open field and lies within the Thatcher Brook Watershed.

The watershed that was analyzed for this project is approximately 2.8 acres. The analysis point is described in Section 1.2 of this report. The watershed generally flows from north to southwest across the site.

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

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

Pre-Development Peak Flows (cu. ft./sec)			
Analysis Point	2-Year	10-Year	25-Year
AP-1	2.61	5.30	7.65

1.4 **POST DEVELOPMENT CONDITIONS**

The proposed project will include construction of a proposed paved road intended to support development of a commercial property. Below is a summary of the proposed developed area associated with construction of the infrastructure.

Proposed Impervious Area	=	19,424 sf
Proposed Landscaped Area	=	33,993 sf
Proposed Developed Area	=	53,417 sf

The proposed project will include a soil filter and a level spreader to control the flows created by the proposed drainage system before it enters the existing stream onsite.

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

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

Post Development Peak Flows (cu. ft./sec)			
Analysis Point	2-Year	10-Year	25-Year
AP-1	1.67	3.35	7.33

1.5 **BASIC STANDARDS**

The proposed project is required to meet the Basic Standards. To meet the Basic Standards the project design must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C of 06-096 Chapter 500 are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

The proposed project will provide temporary (during construction) BMP's and post-construction BMP's. Refer to Sheet 4 of the Project Plans for erosion and

sedimentation control narratives and details. The project requirements for inspection and maintenance during construction and post-construction are described in the Erosion and Sedimentation Control - Inspection and Maintenance Plan found in Appendix F of this Report. The housekeeping standards can also be found in the Inspection and Maintenance Plan.

1.6 **GENERAL STANDARDS**

The proposed project is required to meet the General Standards. To meet the general standards, the project design must demonstrate that the stormwater management system includes treatment measures that will provide pollutant removal or treatment and mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms and potential temperature impacts. This must be achieved by providing treatment of no less than 95% of the impervious area and no less than 80% of the developed area.

The stormwater management system includes a grassed underdrained soil filter. The proposed BMP has been designed in accordance with the design requirements outlined in the Maine Stormwater Best Management Practices Manual, Volume III. Below is a summary of the treatment areas associated with the proposed infrastructure. Refer to Appendix E for detailed calculations and test pit information.

Stormwater Treatment Summary	
Total Proposed/Allocated Impervious Area	19,424 sf
Total Proposed Developed Area	53,417 sf
Total Treated Impervious Area	19,424 sf
Total Treated Developed Area	43,533 sf
Impervious Area Treatment %	100.00% (95% required)
Developed Area Treatment %	81.50% (80% required)

1.7 **PHOSPHORUS STANDARD**

The proposed project is located in the Thatcher Brook Watershed. The proposed project is not located within the direct watershed of a lake or lake most-at-risk listed in 06-096 Chapter 502. The Phosphorus Standard does not apply to this project.

1.8 **URBAN IMPAIRED STREAM STANDARD**

The proposed project is located in the Thatcher Brook Watershed. Thatcher Brook is listed in 06-096 Chapter 502 as an Urban Impaired Stream. However, because the project will not create over 3 acres of impervious area or 20 acres of disturbed area, the project is not required by DEP to meet the Urban Impaired Stream Standard, as it does not meet the requirements of Site Location of Development, and is less than 20,000 sf of impervious area, and does not meet the requirements of Stormwater Law.

However, as the project is being proposed in the City of Biddeford, the City does require that the projects within an Urban Impaired Stream Watershed pay into the Compensation Fee Utilization Plan (CFUP) managed by the City, at Maine DEP's prescribed rates, based on Table 1 found in 06-096 CMR 501 3.A.(1).

CFUP Fee Schedule – 25 Barra Road Commercial Development Project			
Type of Surface	Compensation Fee (per acre)	Proposed Area (acres)	Compensation Fee
Non-roof Impervious Area	\$12,500	0.34	\$4,250
Roof	\$5,000	0.11	\$550
Landscape Area	\$2,500	0.78	\$1,950
Total			\$6,750

1.9 TOWN OF BIDDEFORD PERFORMANCE STANDARDS

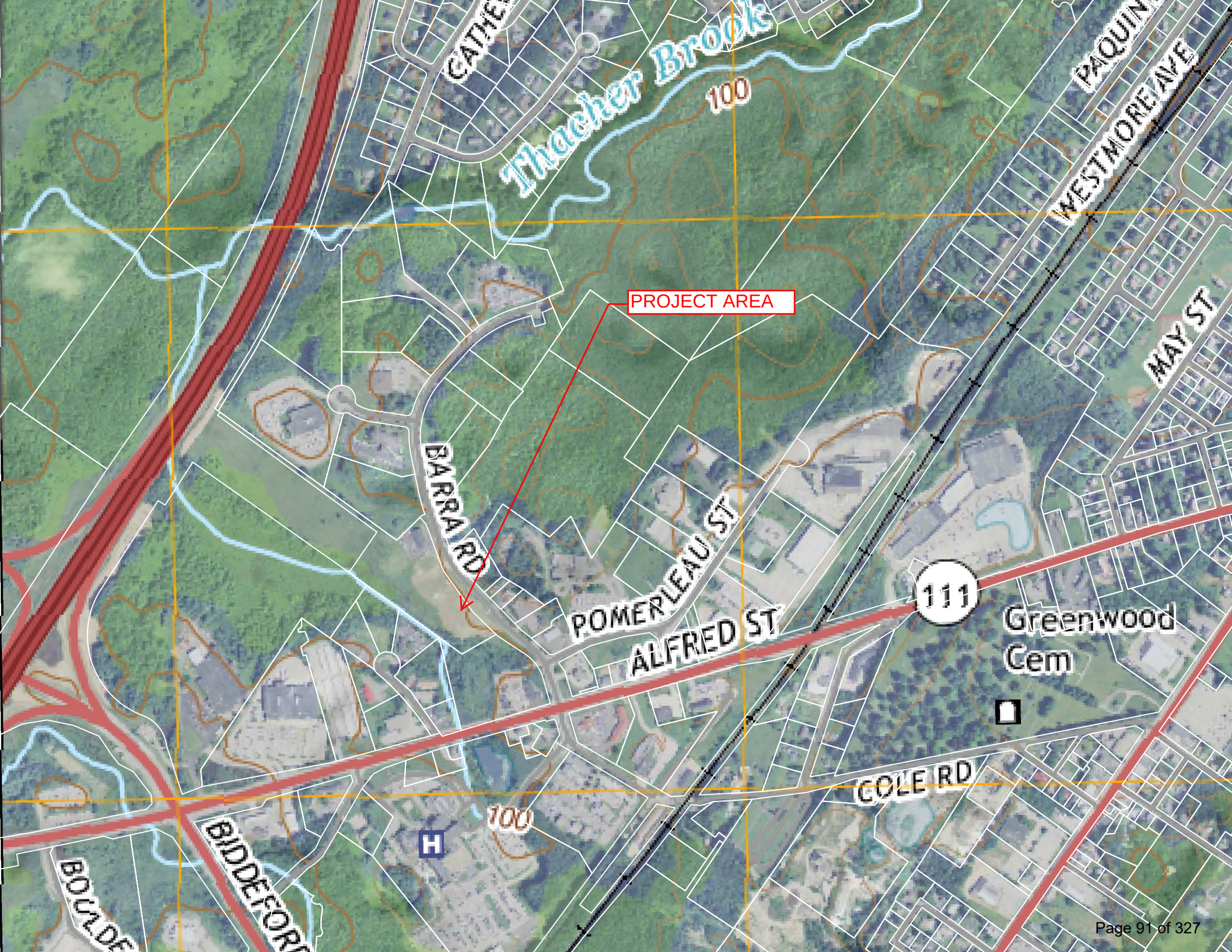
The proposed project is not required to meet the Flooding Standards. However, the City of Biddeford requires that pre- and post-development runoff modelling be evaluated. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	2.61	1.67	5.30	3.35	7.65	7.33

1.10 CLOSURE

The proposed stormwater management facilities have been designed to mitigate stormwater impacts associated with development of the proposed project. The proposed stormwater management facilities have been designed to meet the Town of Biddeford Site and Performance Standards.

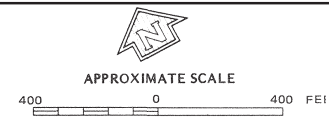
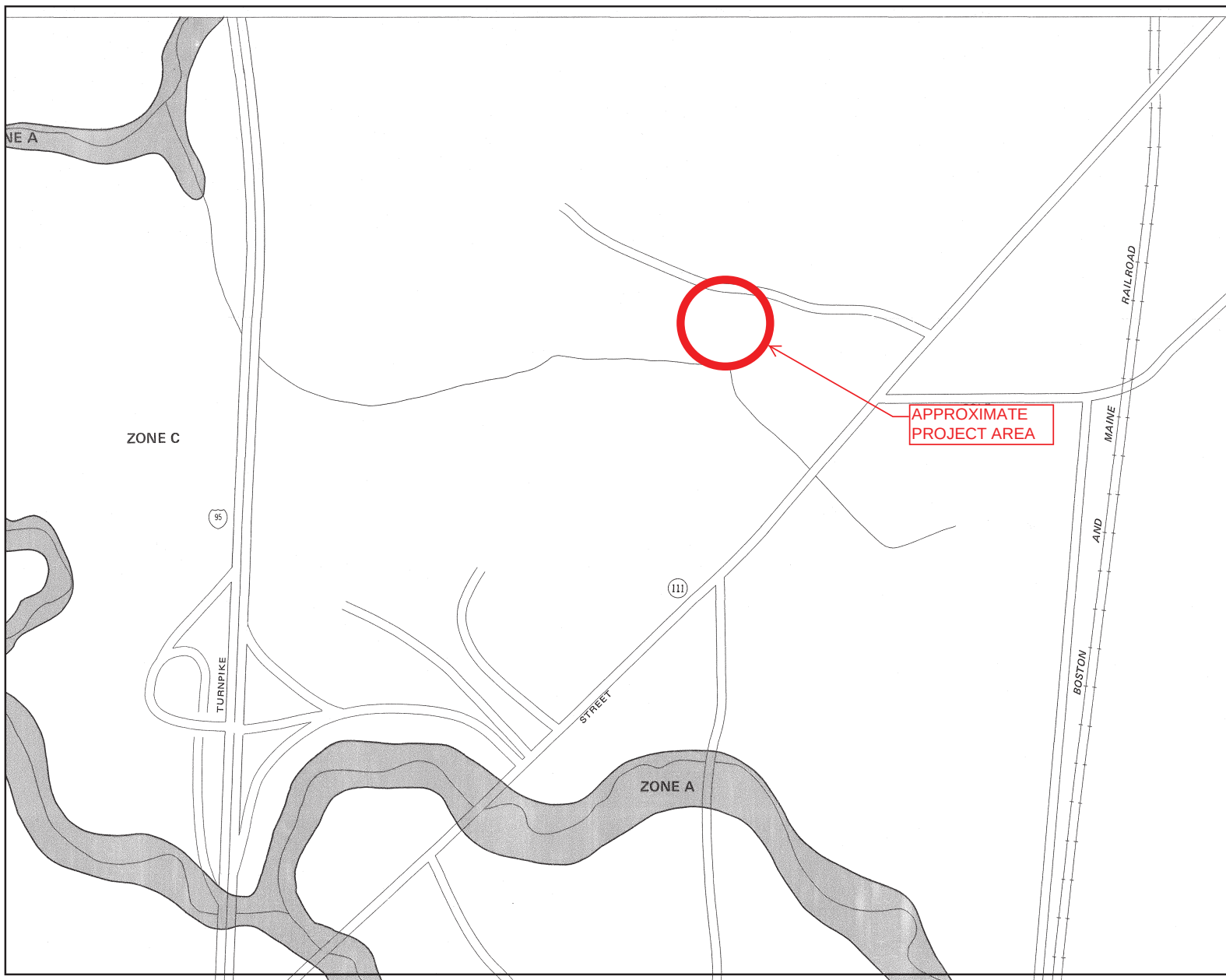
Appendix A
Figures



PROJECT AREA

111

Greenwood
Cem



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP**

**CITY OF
BIDDEFORD,
MAINE
YORK COUNTY**

PANEL 8 OF 11
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230145 0008 B

EFFECTIVE DATE:
MAY 15, 1984



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

PROJECT AREA

Legend

Parcels_Biddeford

 Municipal_Separate_Stormwater_Sewer_Systems_Regulated_Area

Google Hybrid

Appendix B
Soils Report

Hydrologic Soil Group—York County, Maine (25 Barra Road)



Map Scale: 1:1,480 if printed on A landscape (11" x 8.5") sheet.

0 20 40 80 120 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

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 22, Sep 5, 2023

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
BuB	Buxton silt loam, 3 to 8 percent slopes	D	0.3	3.0%
BuC	Buxton silt loam, 8 to 15 percent slopes	C	2.1	25.1%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	1.5	17.7%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	4.6	54.2%
Totals for Area of Interest			8.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

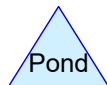
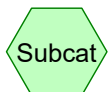
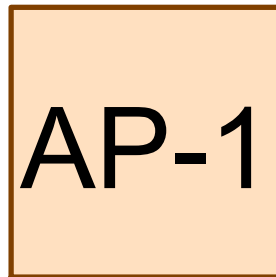
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C
Pre-Development Calculations



Pre Development

Prepared by HP Inc.

HydroCAD® 10.00-22 s/n 02712 © 2018 HydroCAD Software Solutions LLC

Printed 6/3/2024

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.964	74	>75% Grass cover, Good, HSG C (SA-1)
0.939	80	>75% Grass cover, Good, HSG D (SA-1)
0.044	98	Ex. Curb Cuts (SA-1)
0.871	77	Woods, Good, HSG D (SA-1)
2.817	77	TOTAL AREA

Pre Development

Prepared by HP Inc.

HydroCAD® 10.00-22 s/n 02712 © 2018 HydroCAD Software Solutions LLC

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

Printed 6/3/2024

Page 3

Summary for Reach AP-1:

Inflow Area = 2.817 ac, 1.57% Impervious, Inflow Depth > 1.17" for 2-Year Storm Event event
Inflow = 2.61 cfs @ 12.34 hrs, Volume= 0.275 af
Outflow = 2.60 cfs @ 12.36 hrs, Volume= 0.274 af, Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.93 fps, Min. Travel Time= 1.8 min

Avg. Velocity = 0.37 fps, Avg. Travel Time= 4.5 min

Peak Storage= 279 cf @ 12.36 hrs

Average Depth at Peak Storage= 0.14'

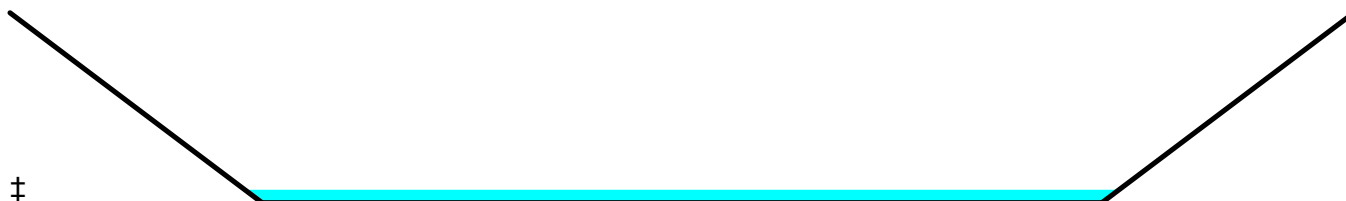
Bank-Full Depth= 2.00' Flow Area= 52.0 sf, Capacity= 251.92 cfs

20.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 3.0 '/' Top Width= 32.00'

Length= 100.0' Slope= 0.0070 '/'

Inlet Invert= 87.00', Outlet Invert= 86.30'



Summary for Subcatchment SA-1:

Runoff = 2.61 cfs @ 12.34 hrs, Volume= 0.275 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Storm Event Rainfall=3.30"

	Area (sf)	CN	Description
*	1,923	98	Ex. Curb Cuts
	41,974	74	>75% Grass cover, Good, HSG C
	40,898	80	>75% Grass cover, Good, HSG D
	37,928	77	Woods, Good, HSG D
	122,723	77	Weighted Average
	120,800		98.43% Pervious Area
	1,923		1.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	150	0.1000	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
12.4	455	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.1	605	Total			

Pre Development

Prepared by HP Inc.

HydroCAD® 10.00-22 s/n 02712 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-Year Storm Event Rainfall=4.90"

Printed 6/3/2024

Page 4

Summary for Reach AP-1:

Inflow Area = 2.817 ac, 1.57% Impervious, Inflow Depth > 2.35" for 10-Year Storm Event event
Inflow = 5.30 cfs @ 12.32 hrs, Volume= 0.551 af
Outflow = 5.29 cfs @ 12.34 hrs, Volume= 0.550 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.23 fps, Min. Travel Time= 1.4 min

Avg. Velocity = 0.45 fps, Avg. Travel Time= 3.7 min

Peak Storage= 431 cf @ 12.34 hrs

Average Depth at Peak Storage= 0.21'

Bank-Full Depth= 2.00' Flow Area= 52.0 sf, Capacity= 251.92 cfs

20.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 3.0 '/' Top Width= 32.00'

Length= 100.0' Slope= 0.0070 '/'

Inlet Invert= 87.00', Outlet Invert= 86.30'



Summary for Subcatchment SA-1:

Runoff = 5.30 cfs @ 12.32 hrs, Volume= 0.551 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 10-Year Storm Event Rainfall=4.90"

	Area (sf)	CN	Description
*	1,923	98	Ex. Curb Cuts
	41,974	74	>75% Grass cover, Good, HSG C
	40,898	80	>75% Grass cover, Good, HSG D
	37,928	77	Woods, Good, HSG D
	122,723	77	Weighted Average
	120,800		98.43% Pervious Area
	1,923		1.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	150	0.1000	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
12.4	455	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.1	605	Total			

Pre Development

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Summary for Reach AP-1:

Inflow Area = 2.817 ac, 1.57% Impervious, Inflow Depth > 3.40" for 25-Year Storm Event event
Inflow = 7.65 cfs @ 12.32 hrs, Volume= 0.798 af
Outflow = 7.62 cfs @ 12.33 hrs, Volume= 0.796 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.41 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 0.49 fps, Avg. Travel Time= 3.4 min

Peak Storage= 541 cf @ 12.33 hrs

Average Depth at Peak Storage= 0.26'

Bank-Full Depth= 2.00' Flow Area= 52.0 sf, Capacity= 251.92 cfs

20.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 3.0 '/' Top Width= 32.00'

Length= 100.0' Slope= 0.0070 '/'

Inlet Invert= 87.00', Outlet Invert= 86.30'



Summary for Subcatchment SA-1:

Runoff = 7.65 cfs @ 12.32 hrs, Volume= 0.798 af, Depth> 3.40"

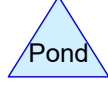
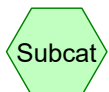
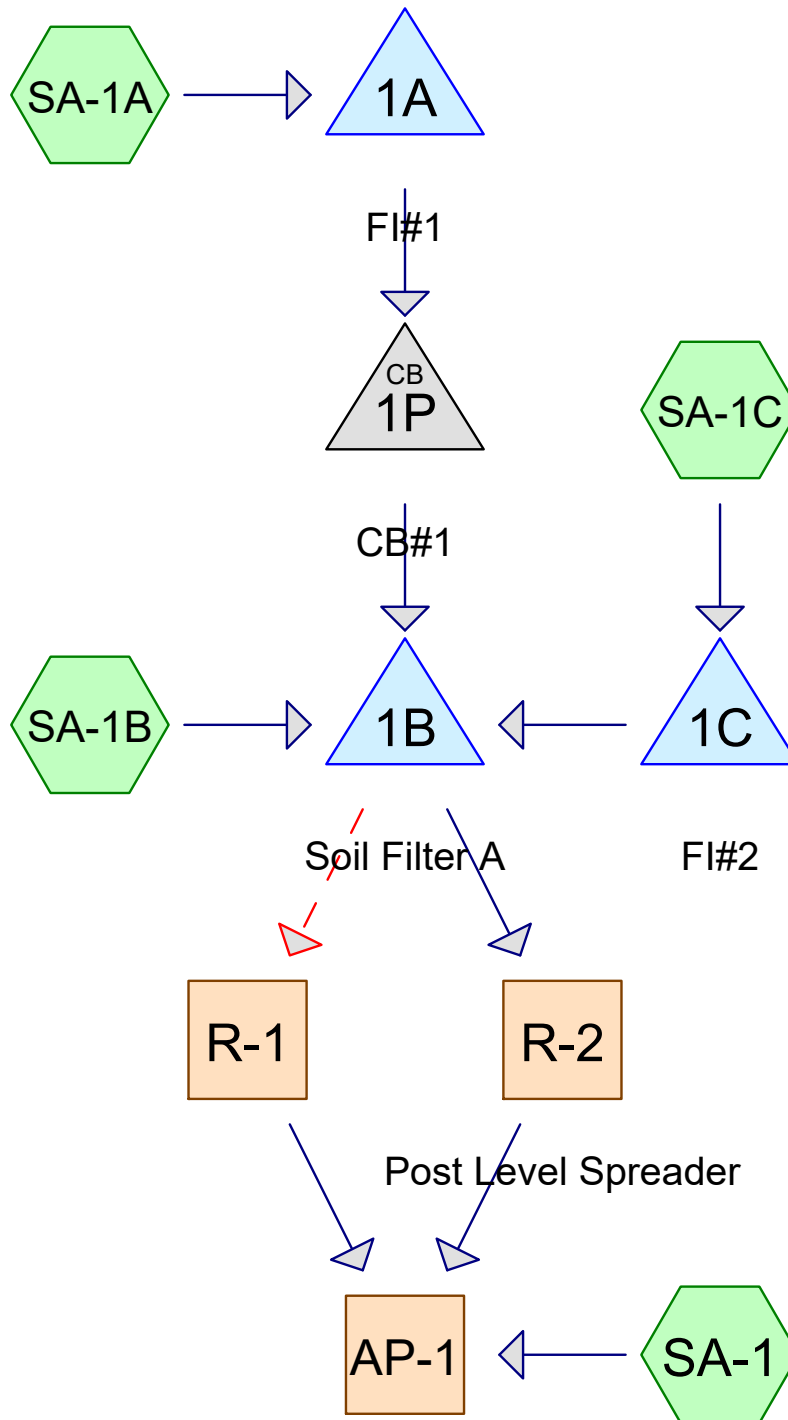
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	1,923	98	Ex. Curb Cuts
	41,974	74	>75% Grass cover, Good, HSG C
	40,898	80	>75% Grass cover, Good, HSG D
	37,928	77	Woods, Good, HSG D
	122,723	77	Weighted Average
	120,800		98.43% Pervious Area
	1,923		1.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	150	0.1000	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
12.4	455	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.1	605	Total			

Appendix D
Post Development Calculations



Routing Diagram for Post Development
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.340	74	>75% Grass cover, Good, HSG C (SA-1, SA-1B)
0.380	80	>75% Grass cover, Good, HSG D (SA-1, SA-1B)
0.326	74	Proposed Grass (C) (SA-1, SA-1A, SA-1B, SA-1C)
0.455	80	Proposed Grass (D) (SA-1, SA-1A, SA-1B, SA-1C)
0.446	98	Proposed Impervious (SA-1A, SA-1B, SA-1C)
0.871	77	Woods, Good, HSG D (SA-1)
2.817	81	TOTAL AREA

Post Development*Type III 24-hr 2-Year Storm Event Rainfall=3.30"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1A: FI#1 Peak Elev=103.21' Storage=339 cf Inflow=1.53 cfs 0.107 af
Outflow=1.38 cfs 0.106 af

Pond 1B: Soil Filter A Peak Elev=95.71' Storage=5,047 cf Inflow=2.15 cfs 0.162 af
Primary=0.06 cfs 0.048 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.048 af

Pond 1C: FI#2 Peak Elev=99.58' Storage=15 cf Inflow=0.32 cfs 0.022 af
Outflow=0.32 cfs 0.022 af

Pond 1P: CB#1 Peak Elev=100.15' Inflow=1.38 cfs 0.106 af
15.0" Round Culvert n=0.012 L=120.0' S=0.0180 ' Outflow=1.38 cfs 0.106 af

Reach AP-1: Avg. Flow Depth=0.10' Max Vel=0.78 fps Inflow=1.67 cfs 0.218 af
n=0.035 L=100.0' S=0.0070 ' Capacity=251.92 cfs Outflow=1.67 cfs 0.217 af

Reach R-1: Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=232.0' S=0.0086 ' Capacity=60.03 cfs Outflow=0.00 cfs 0.000 af

Reach R-2: Post Level Spreader Avg. Flow Depth=0.02' Max Vel=0.27 fps Inflow=0.06 cfs 0.048 af
n=0.035 L=215.0' S=0.0070 ' Capacity=54.01 cfs Outflow=0.06 cfs 0.047 af

Subcatchment SA-1: Runoff Area=76,346 sf 0.00% Impervious Runoff Depth>1.17"
Flow Length=605' Tc=23.1 min CN=77 Runoff=1.62 cfs 0.171 af

Subcatchment SA-1A: Runoff Area=26,364 sf 64.26% Impervious Runoff Depth>2.13"
Flow Length=97' Slope=0.0570 ' Tc=6.5 min CN=90 Runoff=1.53 cfs 0.107 af

Subcatchment SA-1B: Runoff Area=13,647 sf 0.40% Impervious Runoff Depth>1.30"
Tc=6.0 min CN=79 Runoff=0.50 cfs 0.034 af

Subcatchment SA-1C: Runoff Area=6,366 sf 38.16% Impervious Runoff Depth>1.80"
Tc=6.0 min CN=86 Runoff=0.32 cfs 0.022 af

Total Runoff Area = 2.817 ac Runoff Volume = 0.334 af Average Runoff Depth = 1.42"
84.17% Pervious = 2.371 ac 15.83% Impervious = 0.446 ac

Post Development*Type III 24-hr 10-Year Storm Event Rainfall=4.90"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1A: FI#1 Peak Elev=103.30' Storage=476 cf Inflow=2.50 cfs 0.180 af
Outflow=2.29 cfs 0.179 af

Pond 1B: Soil Filter A Peak Elev=96.17' Storage=6,449 cf Inflow=3.76 cfs 0.283 af
Primary=0.92 cfs 0.147 af Secondary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.147 af

Pond 1C: FI#2 Peak Elev=99.62' Storage=18 cf Inflow=0.56 cfs 0.039 af
Outflow=0.56 cfs 0.038 af

Pond 1P: CB#1 Peak Elev=100.34' Inflow=2.29 cfs 0.179 af
15.0" Round Culvert n=0.012 L=120.0' S=0.0180 '/' Outflow=2.29 cfs 0.179 af

Reach AP-1: Avg. Flow Depth=0.16' Max Vel=1.03 fps Inflow=3.35 cfs 0.489 af
n=0.035 L=100.0' S=0.0070 '/' Capacity=251.92 cfs Outflow=3.35 cfs 0.488 af

Reach R-1: Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=232.0' S=0.0086 '/' Capacity=60.03 cfs Outflow=0.00 cfs 0.000 af

Reach R-2: Post Level Spreader Avg. Flow Depth=0.11' Max Vel=0.74 fps Inflow=0.92 cfs 0.147 af
n=0.035 L=215.0' S=0.0070 '/' Capacity=54.01 cfs Outflow=0.87 cfs 0.146 af

Subcatchment SA-1: Runoff Area=76,346 sf 0.00% Impervious Runoff Depth>2.35"
Flow Length=605' Tc=23.1 min CN=77 Runoff=3.30 cfs 0.343 af

Subcatchment SA-1A: Runoff Area=26,364 sf 64.26% Impervious Runoff Depth>3.57"
Flow Length=97' Slope=0.0570 '/' Tc=6.5 min CN=90 Runoff=2.50 cfs 0.180 af

Subcatchment SA-1B: Runoff Area=13,647 sf 0.40% Impervious Runoff Depth>2.53"
Tc=6.0 min CN=79 Runoff=0.98 cfs 0.066 af

Subcatchment SA-1C: Runoff Area=6,366 sf 38.16% Impervious Runoff Depth>3.17"
Tc=6.0 min CN=86 Runoff=0.56 cfs 0.039 af

Total Runoff Area = 2.817 ac Runoff Volume = 0.628 af Average Runoff Depth = 2.67"
84.17% Pervious = 2.371 ac 15.83% Impervious = 0.446 ac

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond 1A: FI#1 Peak Elev=103.36' Storage=578 cf Inflow=3.29 cfs 0.240 af
Outflow=3.02 cfs 0.239 af

Pond 1B: Soil Filter A Peak Elev=96.35' Storage=7,069 cf Inflow=5.08 cfs 0.386 af
Primary=2.71 cfs 0.249 af Secondary=0.00 cfs 0.000 af Outflow=2.71 cfs 0.249 af

Pond 1C: FI#2 Peak Elev=99.64' Storage=20 cf Inflow=0.75 cfs 0.053 af
Outflow=0.75 cfs 0.053 af

Pond 1P: CB#1 Peak Elev=100.48' Inflow=3.02 cfs 0.239 af
15.0" Round Culvert n=0.012 L=120.0' S=0.0180 ' Outflow=3.02 cfs 0.239 af

Reach AP-1: Avg. Flow Depth=0.25' Max Vel=1.39 fps Inflow=7.33 cfs 0.744 af
n=0.035 L=100.0' S=0.0070 ' Capacity=251.92 cfs Outflow=7.34 cfs 0.742 af

Reach R-1: Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=232.0' S=0.0086 ' Capacity=60.03 cfs Outflow=0.00 cfs 0.000 af

Reach R-2: Post Level Spreader Avg. Flow Depth=0.20' Max Vel=1.09 fps Inflow=2.71 cfs 0.249 af
n=0.035 L=215.0' S=0.0070 ' Capacity=54.01 cfs Outflow=2.61 cfs 0.248 af

Subcatchment SA-1: Runoff Area=76,346 sf 0.00% Impervious Runoff Depth>3.40"
Flow Length=605' Tc=23.1 min CN=77 Runoff=4.76 cfs 0.496 af

Subcatchment SA-1A: Runoff Area=26,364 sf 64.26% Impervious Runoff Depth>4.76"
Flow Length=97' Slope=0.0570 ' Tc=6.5 min CN=90 Runoff=3.29 cfs 0.240 af

Subcatchment SA-1B: Runoff Area=13,647 sf 0.40% Impervious Runoff Depth>3.62"
Tc=6.0 min CN=79 Runoff=1.38 cfs 0.094 af

Subcatchment SA-1C: Runoff Area=6,366 sf 38.16% Impervious Runoff Depth>4.34"
Tc=6.0 min CN=86 Runoff=0.75 cfs 0.053 af

Total Runoff Area = 2.817 ac Runoff Volume = 0.884 af Average Runoff Depth = 3.76"
84.17% Pervious = 2.371 ac 15.83% Impervious = 0.446 ac

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Summary for Pond 1A: FI#1

Inflow Area = 0.605 ac, 64.26% Impervious, Inflow Depth > 4.76" for 25-Year Storm Event event
 Inflow = 3.29 cfs @ 12.09 hrs, Volume= 0.240 af
 Outflow = 3.02 cfs @ 12.13 hrs, Volume= 0.239 af, Atten= 8%, Lag= 2.2 min
 Primary = 3.02 cfs @ 12.13 hrs, Volume= 0.239 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 103.36' @ 12.13 hrs Surf.Area= 1,700 sf Storage= 578 cf
 Flood Elev= 104.50' Surf.Area= 2,592 sf Storage= 3,025 cf

Plug-Flow detention time= 7.7 min calculated for 0.238 af (99% of inflow)
 Center-of-Mass det. time= 5.4 min (761.1 - 755.7)

Volume	Invert	Avail.Storage	Storage Description
#1	99.75'	3,025 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.75	4	0	0
102.99	4	13	13
103.00	1,428	7	20
104.00	2,190	1,809	1,829
104.50	2,592	1,196	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	99.75'	15.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.75' / 99.69' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	103.00'	16.6" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.96 cfs @ 12.13 hrs HW=103.35' TW=100.47' (Dynamic Tailwater)

1=Culvert (Passes 2.96 cfs of 10.03 cfs potential flow)

2=Orifice/Grate (Weir Controls 2.96 cfs @ 1.94 fps)

Summary for Pond 1B: Soil Filter A

Inflow Area = 1.065 ac, 41.88% Impervious, Inflow Depth > 4.35" for 25-Year Storm Event event
 Inflow = 5.08 cfs @ 12.11 hrs, Volume= 0.386 af
 Outflow = 2.71 cfs @ 12.29 hrs, Volume= 0.249 af, Atten= 47%, Lag= 10.9 min
 Primary = 2.71 cfs @ 12.29 hrs, Volume= 0.249 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.35' @ 12.29 hrs Surf.Area= 3,417 sf Storage= 7,069 cf
 Flood Elev= 97.50' Surf.Area= 3,951 sf Storage= 9,456 cf

Plug-Flow detention time= 121.2 min calculated for 0.248 af (64% of inflow)
 Center-of-Mass det. time= 50.6 min (817.7 - 767.1)

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	9,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
93.50	1,583	0	0
94.00	1,938	880	880
95.00	2,504	2,221	3,101
96.00	3,127	2,816	5,917
97.00	3,951	3,539	9,456

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	15.0" Round Culvert L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 90.50' / 90.03' S= 0.0049 ' S= 0.0049 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	91.00'	1.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	96.00'	14.8" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	96.75'	10.0' long x 12.5' 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) 2.58 2.63 2.70 2.67 2.66 2.67 2.66 2.63

Primary OutFlow Max=2.69 cfs @ 12.29 hrs HW=96.35' TW=88.69' (Dynamic Tailwater)

1=Culvert (Passes 2.69 cfs of 12.05 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.06 cfs @ 11.09 fps)
 3=Orifice/Grate (Weir Controls 2.63 cfs @ 1.94 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=93.50' TW=89.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 1C: FI#2

Inflow Area = 0.146 ac, 38.16% Impervious, Inflow Depth > 4.34" for 25-Year Storm Event event
 Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af
 Outflow = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.3 min
 Primary = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 99.64' @ 12.09 hrs Surf.Area= 111 sf Storage= 20 cf

Flood Elev= 100.00' Surf.Area= 382 sf Storage= 109 cf

Plug-Flow detention time= 4.4 min calculated for 0.052 af (99% of inflow)

Center-of-Mass det. time= 2.2 min (767.8 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	96.50'	109 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.50	4	0	0
99.50	4	12	12
100.00	382	97	109

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 95.54' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	99.50'	16.6" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=99.64' TW=95.83' (Dynamic Tailwater)↑ **1=Culvert** (Passes 0.74 cfs of 9.01 cfs potential flow)↑ **2=Orifice/Grate** (Weir Controls 0.74 cfs @ 1.22 fps)**Summary for Pond 1P: CB#1**

Inflow Area = 0.605 ac, 64.26% Impervious, Inflow Depth > 4.74" for 25-Year Storm Event event
 Inflow = 3.02 cfs @ 12.13 hrs, Volume= 0.239 af
 Outflow = 3.02 cfs @ 12.13 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.02 cfs @ 12.13 hrs, Volume= 0.239 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 100.48' @ 12.13 hrs

Flood Elev= 104.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	99.59'	15.0" Round Culvert L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.59' / 97.43' S= 0.0180 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.96 cfs @ 12.13 hrs HW=100.47' TW=96.02' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 2.96 cfs @ 3.20 fps)**Summary for Reach AP-1:**

Inflow Area = 2.817 ac, 15.83% Impervious, Inflow Depth > 3.17" for 25-Year Storm Event event
 Inflow = 7.33 cfs @ 12.33 hrs, Volume= 0.744 af
 Outflow = 7.34 cfs @ 12.35 hrs, Volume= 0.742 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.39 fps, Min. Travel Time= 1.2 min

Avg. Velocity= 0.45 fps, Avg. Travel Time= 3.7 min

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Peak Storage= 528 cf @ 12.35 hrs

Average Depth at Peak Storage= 0.25'

Bank-Full Depth= 2.00' Flow Area= 52.0 sf, Capacity= 251.92 cfs

20.00' x 2.00' deep channel, n= 0.035

Side Slope Z-value= 3.0 '/' Top Width= 32.00'

Length= 100.0' Slope= 0.0070 '/'

Inlet Invert= 87.00', Outlet Invert= 86.30'



Summary for Reach R-1:

Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 60.03 cfs

10.00' x 1.00' deep channel, n= 0.035

Side Slope Z-value= 10.0 '/' Top Width= 30.00'

Length= 232.0' Slope= 0.0086 '/'

Inlet Invert= 89.00', Outlet Invert= 87.00'



Summary for Reach R-2: Post Level Spreader

Inflow Area = 1.065 ac, 41.88% Impervious, Inflow Depth > 2.81" for 25-Year Storm Event event
Inflow = 2.71 cfs @ 12.29 hrs, Volume= 0.249 af
Outflow = 2.61 cfs @ 12.35 hrs, Volume= 0.248 af, Atten= 4%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.09 fps, Min. Travel Time= 3.3 min

Avg. Velocity= 0.36 fps, Avg. Travel Time= 9.9 min

Post Development

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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Peak Storage= 514 cf @ 12.35 hrs

Average Depth at Peak Storage= 0.20'

Bank-Full Depth= 1.00' Flow Area= 20.0 sf, Capacity= 54.01 cfs

10.00' x 1.00' deep channel, n= 0.035

Side Slope Z-value= 10.0 '/' Top Width= 30.00'

Length= 215.0' Slope= 0.0070 '/'

Inlet Invert= 88.50', Outlet Invert= 87.00'



Summary for Subcatchment SA-1:

Runoff = 4.76 cfs @ 12.32 hrs, Volume= 0.496 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	2,790	74	Proposed Grass (C)
*	7,094	80	Proposed Grass (D)
	13,493	74	>75% Grass cover, Good, HSG C
	15,041	80	>75% Grass cover, Good, HSG D
	37,928	77	Woods, Good, HSG D
	76,346	77	Weighted Average
	76,346		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	150	0.1000	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.00"
12.4	455	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
23.1	605	Total			

Summary for Subcatchment SA-1A:

Runoff = 3.29 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

Post Development

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Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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	Area (sf)	CN	Description
*	16,941	98	Proposed Impervious
*	8,601	74	Proposed Grass (C)
*	822	80	Proposed Grass (D)
	26,364	90	Weighted Average
	9,423		35.74% Pervious Area
	16,941		64.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	97	0.0570	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.00"

Summary for Subcatchment SA-1B:

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	54	98	Proposed Impervious
*	2,209	74	Proposed Grass (C)
*	8,540	80	Proposed Grass (D)
	1,328	74	>75% Grass cover, Good, HSG C
	1,516	80	>75% Grass cover, Good, HSG D
	13,647	79	Weighted Average
	13,593		99.60% Pervious Area
	54		0.40% Impervious Area

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

Summary for Subcatchment SA-1C:

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.053 af, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Storm Event Rainfall=6.20"

	Area (sf)	CN	Description
*	2,429	98	Proposed Impervious
*	586	74	Proposed Grass (C)
*	3,351	80	Proposed Grass (D)
	6,366	86	Weighted Average
	3,937		61.84% Pervious Area
	2,429		38.16% Impervious Area

Post Development

Type III 24-hr 25-Year Storm Event Rainfall=6.20"

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

Appendix E
BMP Sizing Information

WATER QUALITY CALCULATIONS

Barra Road

Subcatchment ID	Proposed Impervious Area (sq. ft.)	Proposed Lawn Area (sq. ft.)	Proposed Developed Area (sq. ft.)	Existing Impervious Area (sq. ft.)	Existing Lawn Area (sq. ft.)	Treated Impervious Area (sq. ft.)	Treated Developed Area (sq. ft.)	BMP ID
1	0	9,884	9,884	0	66,462	0	0	None
1A	16,941	9,423	26,364	0	0	16,941	26,364	Soil Filter A
1B	54	10,749	10,803	0	2,844	54	10,803	Soil Filter A
1C	2,429	3,937	6,366	0	0	2,429	6,366	Soil Filter A
Total	19,424	33,993	53,417	0	69,306	19,424	43,533	

Treatment Summary	
Total Proposed Impervious Area (sq. ft.)=	19,424
Total Proposed Developed Area (sq. ft.)=	53,417
Total Treated Impervious Area (sq. ft.)=	19,424
Total Treated Developed Area (sq. ft.)=	43,533
Impervious Area Treatment %* =	100.00%
Developed Area Treatment % =	81.50%

Grassed Underdrain Soil Filter A Calculations

Subcatchment ID	Proposed Impervious Area (ft ²)	WQ Impervious Area Runoff Depth (inches)	WQ Impervious Volume Required (ft ³)	Proposed Landscaped Area (ft ²)	WQ Landscape Area Runoff Depth (inches)	WQ Landscape Volume Required (ft ³)	Total WQ Volume Required (ft ³)
1A	16,941	1.00	1,412	9,884	0.40	329	1,741
1B	54	1.00	5	10,749	0.40	358	363
1C	2,429	2.00	405	3,937	1.40	459	864
Total	19,424		1,821	24,570		1,147	2,968

Summary of Underdrain Filter Sizing	
Total WQ Volume Required (ft ³)	2,968
WQ Volume Provided (ft ³)	3,101
Filter Surface Elevation	93.50
WQ Surface Elevation	95.00
Invert of Underdrain	91.17
5% of Tributary Impervious Area (ft ²)	971
2% of Tributary Landscaped (ft ²)	491
Filter Surface Area Required (ft ²)	1,463
Filter Surface Area Provided (ft ²)	1,583

OK

OK

Underdrain Filter Volume				
Elevation	Surface Area (ft ²)	Average Stage Area (ft ²)	Stage Volume (ft ³)	Cumulative Volume (ft ³)
93.5	1,583	0	0	0
94	1,938	1,761	880	880
95	2,504	2,221	2,221	3,101
95.5	2,816	2,660	1,330	4,431
96	3,127	2,971	1,486	5,917
96.5	3,539	3,333	1,667	7,583
97	3,951	3,745	1,873	9,456
Water Quality Volume Provided (at Elevation 95.00) =				3,101

Orifice Sizing	
Discharge Coefficient	0.62
Orifice Size (inches)	1
Orifice Size (feet)	0.08
Orifice Area (ft ²)	0.005
Orifice Centerline Elevation	91.21

Orifice Eqn:

$$C \cdot A \cdot (2gH)^{1/2}$$

Q (cfs)	Stage Elevation	Total Drawdown at Stage	Pond Area	Drawdown Time (hrs)
0.0410	93.5	0.00	1,583	0.00
0.0453	94	0.50	1,938	5.94
0.0528	95	1.00	2,504	13.18
0.0593	96	1.00	3,127	14.64
Total Drawdown Time =				33.76

Required Sediment Storage		Provided Storage Volume	
Area to be Sanded	0.4 acres	Total # of CB's	2
Sand Used per Storm	500 lbs/acre-storm	Sump Depth	2 ft
Weight of Sand	90 lbs/cf	CB Diameter	4 ft
# of Storms per Year	10 storms/year	CB Sediment Storage Volume	50.24 cf
Sediment Storage Required	24.77 cf/year	Forebay Volume	55 cf
		Total Volume	105.24 cf

Post Development

Type III 24-hr 100 YEAR STORM Rainfall=8.70"

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Summary for Pond 1A: FI#1

Inflow Area = 0.605 ac, 64.26% Impervious, Inflow Depth > 7.07" for 100 YEAR STORM event
 Inflow = 4.78 cfs @ 12.09 hrs, Volume= 0.357 af
 Outflow = 4.43 cfs @ 12.13 hrs, Volume= 0.355 af, Atten= 7%, Lag= 2.0 min
 Primary = 4.43 cfs @ 12.13 hrs, Volume= 0.355 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 103.46' @ 12.13 hrs Surf.Area= 1,779 sf Storage= 758 cf
 Flood Elev= 104.50' Surf.Area= 2,592 sf Storage= 3,025 cf

Plug-Flow detention time= 6.6 min calculated for 0.354 af (99% of inflow)
 Center-of-Mass det. time= 4.7 min (753.3 - 748.6)

Volume	Invert	Avail.Storage	Storage Description
#1	99.75'	3,025 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.75	4	0	0
102.99	4	13	13
103.00	1,428	7	20
104.00	2,190	1,809	1,829
104.50	2,592	1,196	3,025

Device	Routing	Invert	Outlet Devices
#1	Primary	99.75'	15.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.75' / 99.69' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	103.00'	16.6" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.33 cfs @ 12.13 hrs HW=103.45' TW=100.74' (Dynamic Tailwater)

1=Culvert (Passes 4.33 cfs of 9.72 cfs potential flow)

2=Orifice/Grate (Weir Controls 4.33 cfs @ 2.20 fps)

Summary for Pond 1B: Soil Filter A

Inflow Area = 1.065 ac, 41.88% Impervious, Inflow Depth > 6.62" for 100 YEAR STORM event
 Inflow = 7.63 cfs @ 12.11 hrs, Volume= 0.587 af
 Outflow = 5.17 cfs @ 12.22 hrs, Volume= 0.449 af, Atten= 32%, Lag= 6.5 min
 Primary = 5.12 cfs @ 12.22 hrs, Volume= 0.449 af
 Secondary = 0.06 cfs @ 12.21 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 96.77' @ 12.22 hrs Surf.Area= 3,763 sf Storage= 8,574 cf
 Flood Elev= 97.50' Surf.Area= 3,951 sf Storage= 9,456 cf

Plug-Flow detention time= 99.3 min calculated for 0.448 af (76% of inflow)
 Center-of-Mass det. time= 41.6 min (800.0 - 758.4)

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Volume	Invert	Avail.Storage	Storage Description
#1	93.50'	9,456 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
93.50	1,583	0	0
94.00	1,938	880	880
95.00	2,504	2,221	3,101
96.00	3,127	2,816	5,917
97.00	3,951	3,539	9,456

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	15.0" Round Culvert L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 90.50' / 90.03' S= 0.0049 ' / Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	91.00'	1.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	96.00'	14.8" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	96.75'	10.0' long x 12.5' 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) 2.58 2.63 2.70 2.67 2.66 2.67 2.66 2.63

Primary OutFlow Max=5.09 cfs @ 12.22 hrs HW=96.76' TW=88.79' (Dynamic Tailwater)

1=Culvert (Passes 5.09 cfs of 12.53 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.06 cfs @ 11.52 fps)
 3=Orifice/Grate (Orifice Controls 5.03 cfs @ 4.21 fps)

Secondary OutFlow Max=0.05 cfs @ 12.21 hrs HW=96.77' TW=89.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Weir Controls 0.05 cfs @ 0.32 fps)

Summary for Pond 1C: FI#2

Inflow Area = 0.146 ac, 38.16% Impervious, Inflow Depth > 6.63" for 100 YEAR STORM event
 Inflow = 1.12 cfs @ 12.09 hrs, Volume= 0.081 af
 Outflow = 1.12 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.3 min
 Primary = 1.12 cfs @ 12.09 hrs, Volume= 0.080 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 99.68' @ 12.09 hrs Surf.Area= 143 sf Storage= 26 cf

Flood Elev= 100.00' Surf.Area= 382 sf Storage= 109 cf

Plug-Flow detention time= 3.2 min calculated for 0.080 af (99% of inflow)

Center-of-Mass det. time= 1.6 min (758.0 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1	96.50'	109 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.50	4	0	0
99.50	4	12	12
100.00	382	97	109

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 95.54' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	99.50'	16.6" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.10 cfs @ 12.09 hrs HW=99.68' TW=96.56' (Dynamic Tailwater)↑ **1=Culvert** (Passes 1.10 cfs of 9.07 cfs potential flow)↑ **2=Orifice/Grate** (Weir Controls 1.10 cfs @ 1.39 fps)**Summary for Pond 1P: CB#1**

Inflow Area = 0.605 ac, 64.26% Impervious, Inflow Depth > 7.04" for 100 YEAR STORM event
 Inflow = 4.43 cfs @ 12.13 hrs, Volume= 0.355 af
 Outflow = 4.43 cfs @ 12.13 hrs, Volume= 0.355 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.43 cfs @ 12.13 hrs, Volume= 0.355 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 100.76' @ 12.13 hrs

Flood Elev= 104.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	99.59'	15.0" Round Culvert L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.59' / 97.43' S= 0.0180 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.33 cfs @ 12.13 hrs HW=100.74' TW=96.65' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 4.33 cfs @ 3.66 fps)



MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6950

August 5, 2024

Mr. Chris MacDonald
BH2M
380 B Main Street
Gorham, ME 04038

Re: Soil Test Pit Evaluation, Stormwater Management, 25 Barra Road, Biddeford, ME

Dear Chris,

I have completed the evaluation of 1 backhoe dug test pit for the proposed stormwater treatment program for the parcel at 25 Barra Road Biddeford, ME for Mike Eon Associates LTD. The soil evaluation was conducted in accordance with Section 7.D.4 of the Stormwater Management Rules. The test pits were dug in the proposed stormwater buffer areas.

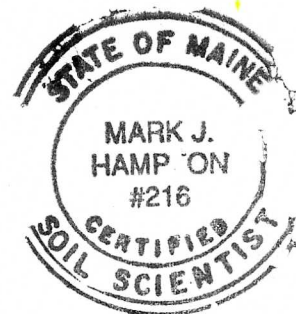
The soils evaluated are moderately well drained marine lacustrine soils. There was a limiting factor at 15 inches. The soil test pit log description is attached. The hydrological soil group for all the test pit is noted in the log description. No groundwater was observed in the test pit.

If you have any questions or require additional information, please contact me.

Sincerely,



Mark J. Hampton L.S.E., C.S.S.
Licensed Site Evaluator #263
Certified Soil Scientist #216



Enc.

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION
OF SOIL CONDITIONS AT PROJECT SITES

Project Name: 25 Barra Road

Applicant Name: Mike Eon Associates, LTD

Project Location (municipality): Biddeford

Exploration Symbol # STW-1 ☒ Test Pit ☐ Boring ☐ Probe
 " Organic horizon thickness Ground surface elev. _____
 72 " Depth: ☒ of exploration, or ☐ to refusal

Exploration Symbol # _____ ☐ Test Pit ☐ Boring ☐ Probe
 " Organic horizon thickness Ground surface elev. _____
 " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
0	Ap	Dark Brown	F. Sandy Loam	Fine Grand	Friable
10	Bhs	Brown	Fine Sandy Loam	Fine Grand	Friable
20	Bs	Olive Brown	Silty Clay Loam	Fine Grand	Firm
30	BC	Olive	Silty Clay Loam	Medium Grand	Firm
40	C	Olive	Silty Clay Loam	Prismatic	Massive
50					
60					
70					
80					
90					
100					
110					
120					
130					
140					
150					

Horizon	Color	Texture	Structure	Consistence	Redox
0					
10					
20					
30					
40					
50					
60					
70					
80					
90					
100					
110					
120					
130					
140					
150					

Soil Series/Phase Name: _____ Limiting Factor ☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class ☐ ED ☐ SED ☐ WD ☒ MWD ☐ SPD ☐ PD ☐ VPD

Slope 6 Percent ☒ No ☐ Yes ☐ Yes ☐ No

Hydric Soil ☒ No ☐ Yes ☐ No ☐ Yes

Hydrologic Soil Group C

Soil Series/Phase Name: _____ Limiting Factor ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Drainage Class ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD

Slope _____ Percent ☐ No ☐ Yes ☐ No ☐ Yes

Hydric Soil ☐ No ☐ Yes ☐ No ☐ Yes

Hydrologic Soil Group _____

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature
 Mark J. Hampton
 Name Printed

08/05/2024

Date

216

SS License No.



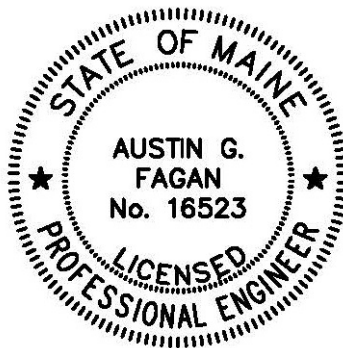
**EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN**

**25 Barra Road
Biddeford, Maine**

Submitted by:

Mike Eon Associates, LTD.

Prepared by:



Date:
June 2024

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	PROJECT DESCRIPTION.....	1
1.2	REQUIRED PERMITS	2
1.3	REFERENCES	2
1.4	RESPONSIBLE PARTIES.....	3
1.5	INSPECTION AND MAINTENANCE – DURING CONSTRUCTION.....	4
1.6	INSPECTION AND MAINTENANCE – POST-CONSTRUCTION	6
1.7	HOUSEKEEPING	8

LIST OF APPENDICES

APPENDIX A	Plans
APPENDIX B	Construction Inspection Forms
APPENDIX C	Post-Construction Inspection Forms
APPENDIX D	Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the Commercial Site Plan for Mike Eon Associates, LTD. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management, and the City of Biddeford Post-Construction Stormwater Management requirements.

1.1 PROJECT DESCRIPTION

Mike Eon Associates, LTD. is proposing to develop a commercial building with associated parking located at Tax Map 2, Block 43, Lot 10 (the project). The Project is proposed to occupy approximately 3.66 acres on a parcel located at 25 Barra Road.

The scope of work includes but is not limited to:

- Clearing and grubbing
- Construction of commercial building
- Construction of a paved parking area
- Construction of 5' paved sidewalk
- Installation of underground electric and communications
- Installation of water and sewer services
- Installation of stormdrain system

1.2 **REQUIRED PERMITS**

The following is a list of Municipal, State, and Federal permits that are required for the Project:

Municipal

Biddeford Site Plan Permit

State of Maine

None

Federal

None

1.3 **REFERENCES**

This plan has been developed in accordance with the following:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
<http://legislature.maine.gov/statutes/38/title38sec420-C.html>
<http://legislature.maine.gov/statutes/38/title38sec420-D.html>
- 06-096 Chapter 500 – Stormwater Management
<http://www.maine.gov/sos/cec/rules/06/096/096c500.docx>
- General Permit – Construction Activity
Maine Pollutant Discharge Elimination System (MPDES)
<https://www.maine.gov/dep/land/stormwater/construction.html>
- Maine Erosion and Sediment Control Best Management Practices (BMPs)
Manual for Designers and Engineers
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf
- Maine Erosion and Sediment Control Practices Field Guide for Contractors
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf
- MaineDOT Best Management Practices for Erosion and Sedimentation Control
<https://www.maine.gov/mdot/env/documents/bmp/BMP2008full.pdf>

1.4 **RESPONSIBLE PARTIES**

Preparer/Design Engineer:	Austin G. Fagan PE BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Developer/Applicant:	Mike Eon Associates, LTD. 260 Main Street Biddeford, ME
Site Contractor:	_____ _____ _____ _____
Owner:	Mike Eon Associates, LTD. 260 Main Street Biddeford, ME
Post Construction Stormwater Inspector:	Christopher MacDonald, PE BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Stormwater Maintenance:	
During Construction:	Mike Eon Associates, LTD. 260 Main Street Biddeford, ME
Post Construction:	_____ _____ _____

During construction, the Developer/Applicant or their representatives will be responsible for implementing the erosion and sediment control BMP's as well routine inspections and maintenance of the BMP's.

Post-construction stormwater BMP inspection, maintenance, reporting, and required recertifications will be the responsibility of the property owner.

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has the knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix D shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.
3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form.

Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action was taken and when it was taken. The owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that will require routine inspection and maintenance:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Construction Limit Barrier Fence
- Stone Check Dam
- Temporary Sediment Trap
- Temporary Grass/Stone Lined Swale
- Roadways
- Snow Storage Areas
- Sediment Forebays
- Pipe Outlets
- Grassed Underdrained Soil Filter

Winter Construction

Winter construction is any construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

1. Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.

3. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.
4. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 **INSPECTION AND MAINTENANCE – POST-CONSTRUCTION**

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (1 inch in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - b) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (1 inch in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris,

to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

- c) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.
- d) Inspect at least once per year, each underdrained soil filter, including the filter embankments, vegetation, underdrain piping, and overflow spillway. Remove and dispose of accumulated sediments in the filter. If needed, rehabilitate any clogged surface linings, and flush underdrain piping.

2. Regular maintenance

- 1. Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded

material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.

- 3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris,

indicate where the sediment and debris was disposed of after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

4. The site-specific post-construction BMP's for the project include the following:

- Vegetated swales
- Roadways and shoulders
- Storm Drain System
- Snow storage areas
- Rip rap inlet and outlet aprons
- Sediment forebay
- Pipe outlets
- Grassed Underdrained Soil Filter

1.7 **HOUSEKEEPING**

The following performance standards shall apply:

1. Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop and implement as necessary appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at :

<http://www.maine.gov/dep/spills/emergspillresp/>

2. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area or provide for treatment within the infiltration area in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately, no less than once a week, and prior to significant storm events. Operations during dry months that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Take care in sourcing water. Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials: Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.
-

NOTE: To prevent these materials from becoming a source of pollutants, construction and post- construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste

management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering: Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam

sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

6. Authorized non-stormwater discharges: Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
 - a) Discharges from firefighting activity;
 - b) Fire hydrant flushings;
 - c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - d) Dust control runoff in accordance with permit conditions;
 - e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - g) Uncontaminated air conditioning or compressor condensate;
 - h) Uncontaminated groundwater or spring water;
 - i) Foundation or footer drain-water where flows are not contaminated;
 - j) Uncontaminated excavation dewatering;
 - k) Potable water sources including waterline flushings; and
 - l) Landscape irrigation.
7. Unauthorized non-stormwater discharges: The Department’s approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department’s approval does not authorize discharges of the following:
 - a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - d) Toxic or hazardous substances from a spill or other release.
8. Additional requirements: Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL						
General Information:						
Site Name:		Date:		Inspected by:		
Owner:						
Retained 3PI:		Last Rain Date:		Amount:		
Reason for Inspection:		Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:						
Photos:						
	YES/NO/NA	COMMENTS				
1. Is an Erosion and Sediment Control Plan available?						
ESC plan on-site and followed						
Other:						
2. Are all erosion control practices installed properly, maintained and functioning?						
Disturbed areas stable						
Concentrated flow inlet/outlet protection						
All areas at final grade						
Disturbed dormant areas stabilized						
Access roads and parking						
Hillsides and stockpiles						
Other:						
3. Are all sedimentation control practices installed properly, maintained and functioning?						
Construction entrance						
Sedimentation basins/traps/diversions						
Perimeter controls						
Check dams						
Other:						
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?						
Sedimentation/erosion in ditches						
Tracked Sediment or dust at exits						
Hazardous material storage and spill control practices						
Waste management (concrete, hazardous material, etc.)						
Other:						
5. Violation, Corrective Actions, Recommendations						
Sediment discharged from site?						
Corrective action required?						
Site compliant with all permits?						
Notice of violation or stop work order issued?						
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)						

Appendix C
Post-Construction Inspection Forms

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Ditches, Swales and Open Stormwater Channels)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Obstructions, sediment or debris noticeable in ditch line?					
Mowing required?					
Woody vegetation apparent in ditches?					
Side slopes stable? Signs of slumping?					
Rip rap stable? Underlying filter fabric visible?					
Additional Comments:					

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Roadway and Parking Areas)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Winter sand accumulation apparent?					
Pavement Sweeping required?					
Gravel shoulders graded appropriately?					
Gravel road grading required?					
Low spots causing puddling?					
Additional Comments:					

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Storm Drain System including catch basins and culverts)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?						
Flow obstructions present?						
Erosion apparent at culvert inlet/outlet?						
Accumulated debris around catch basin grate?						
Accumulated debris in catch basin sump?						
Floating debris or oils found in catch basins?						
Additional Comments:						

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Underdrain Filter)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Debris apparent in basin bottom?					
Vegetation established in basin bottom?					
Basin draining within 72 hours?					
Inlet forebay rip rap stable and free of debris?					
Embankment and side slopes stable? Sloughs or unvegetated areas apparent?					
Outlet free of debris? Rip rap stable?					
Valve in operating condition?					
Outlet control structure operational free of debris?					
Orifice free of debris and operational?					
Additional Comments:					

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Vegetated Area)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
All slopes and embankments well vegetated? Signs of sparse growth?						
Rill erosion apparent in vegetated areas?						
Downs slope of level spreaders/ditch turnouts stable?						
Mowing of vegetated areas appropriate?						
Additional Comments:						

Appendix D
Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized—channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April 15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
CULVERTS	Spring and late fall and after heavy rains	Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
		Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
CATCH BASINS	Annually in the spring	Repair any erosion damage at the culvert's inlet and outlet
		Remove sediments and debris from the bottom of the basin and inlet grates
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Remove floating debris and oils (using oil absorptive pads) from any trap
		Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
		Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
		Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
		Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
PROPRIETARY DEVICES	As specified by manufacturer	Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
OTHER PRACTICES	As specified for devices	Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
		Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
		Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Appendix E
Post Construction – Maintenance of Stormwater Management Systems

ENVIRONMENT

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. 2023.61¹]**

- 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.

BIDDEFORD CODE

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]: _____

MEMORANDUM
TRAFFIC EVALUATION
DENTIST OFFICE
BARRA ROAD - BIDDEFORD, ME
June 24, 2024

INTRODUCTION

Per the request of Mike Eon Associates LTD, Gorrill Palmer (GP) has calculated and evaluated specific traffic information regarding a potential 4,800 SF dentist office. The current site is undeveloped and located north of Dunkin Donuts, east of Canuvo Recreational Cannabis, and south of York County Dialysis. The purpose of this memorandum is to provide the applicant with a traffic evaluation that can be submitted to the City of Biddeford. The City of Biddeford Ordinance provides the following guidance regarding traffic: Article VI. Performance Standards, Section 62. Studies and impact / development fees, C.

“... the Board may require additional studies and reports when there is reason to believe that a given project may have unreasonable or adverse impact on a given neighborhood or the community as a whole.”

If a traffic study is required under C.1.a, -

“Traffic study: To be completed by a traffic engineer; this study shall report the possible impact that a given project may have on the City's roadways. Besides meeting the standards established for professionally completed reports, this study shall include local traffic accident information for the last five years prior to development.”

As part of this traffic evaluation, we have reviewed/evaluated the following;

- Trip Generation
- Safety Review: 3-year & 5-year
- Sight Distance Review

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

TRIP GENERATION

Trip generation for the Dentist Office has been calculated using the Institute of Transportation Engineers' (ITE) publication, *Trip Generation*, 11th Edition, the most recent edition accepted by MaineDOT. After careful review of the Land Use Codes (LUCs) provided in the 11th Edition of *Trip Generation*, the following land use codes were used to calculate the trip generation for the proposed development:



Proposed Trip Generation

- LUC 720 – Medical-Dental Office Building – Stand-Alone

In calculating trip generation, MaineDOT methodology requires review of both the average rate and the fitted curve equation. If $r^2 \geq 0.80$ then the fitted curve equation is typically used, and if $r^2 < 0.80$ then the average rate is typically used. Trip generation calculations are provided in Attachment I.

The following Table I summarizes the trip generation for a medical-dental office building.

Table I – Trip Generation (LUC 720 – 4,800 SF)

Time Period	Trip Generation (Trip Ends)	
	Trip Gen Rates	Trip Generation
Weekday*	20.42	98
AM Peak Hour of Adjacent Street*	3.33	16
PM Peak Hour of Adjacent Street	3.93	19
AM Peak Hour Generator	3.74	18
PM Peak Hour Generator*	3.13	15
Saturday Peak Hour Generator	3.02	14

*Rates based on using fitted curve equation.

As can be seen in Table I, the medical-dental office building is forecast to generate 16 and 19 trips during the AM and PM peak hours of adjacent street respectively.

The trip generation threshold for requiring a MaineDOT Traffic Movement Permit is 100 or more trip ends during any peak hour of any day. After reviewing the trip generation in Table I, none of the peak hours exceed 100+ trip ends. Therefore, this development does not require a MaineDOT Traffic Movement Permit and will be solely reviewed by the City.

The following Table 2 summarizes the trip distribution for a medical-dental office building based on the ITE Trip Generation Manual, 11th Edition.

Table 2 – Trip Distribution (LUC 720)

Time Period	Trip Ends		
	Enter	Exit	Total
Weekday	49	49	98
AM Peak Hour of Adjacent Street	13	3	16
PM Peak Hour of Adjacent Street	6	13	19
AM Peak Hour Generator	11	7	18



PM Peak Hour Generator	6	9	15
Saturday Peak Hour	8	6	14

SAFETY REVIEW

For the safety review, GP reviewed both a three-year crash history (2021-2023) and a five-year crash history (2019-2023) (Supporting information provided in Attachment B). The following identifies each evaluation in more detail:

Three-year crash history:

The three-year crash history was reviewed because this is the criteria used by MaineDOT to identify a location as a high crash location. HCL criteria is discussed in more detail as follows:

To evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met to be classified as an HCL.

1. A critical rate factor (CRF) of 1.00 or more for a three-year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average **and**:
2. A minimum of eight crashes over the same three-year period.

A safety review was completed for Barra Road and the immediate area around the Barra Road / Alfred Street / West Cole Road intersection. The following Table 3 summarizes those locations that met at least one of the above MaineDOT criteria.

Table 3 – Potential HCL Locations (3-year history)

Node	Location	Number of Crashes	Critical Rate Factor	HCL?
59168	Barra Road	1	1.76	No
59159	Alfred Street @ Barra Road / W Cole Road	34	1.25	Yes

As shown in Table 3, there is one location that meets the definition of a HCL (Node 59159). To identify potential mitigation, the collision diagram (Attachment B) was reviewed for potential crash patterns, which is typically considered three or more similar crashes. Based on a review of the collision diagram, there appear to be four crash patterns as follows:



- Alfred Street northbound rear-end (3 crashes)
- Alfred Street northbound angle crashes with southbound left turning traffic (3 crashes)
- Alfred Street southbound rear-end (11 crashes)
- Alfred Street southbound angle crashes with northbound left turning traffic (7 crashes)

Left turn angle crashes: Alfred Street left turning vehicles appear to have both a permissive & protected phase. This means that at some point in the signal cycle, the left turns can make a permissive left turn opposing two through lanes. This type of movement is discouraged by the MaineDOT because it has been shown to create these types of crash patterns, and only protected left turns are allowed when opposing two through lanes. It is our understanding that this intersection is part of a larger coordinated signal system along Alfred Street, and as such, any changes to timing and/or phasing will require evaluation of the entire system. In our opinion, this signal evaluation would be beyond the responsibility of this project given the minimal trip generation and impact this project will have on the intersection.

Rear-end crashes: The rear-end crashes could be a result of inadequate timing of the yellow and/or all red times for the through traffic. As identified in the previous “Left turn angle crashes” section, the timing and/or phasing of this intersection should not be changed unless the entire Alfred Street coordinated signal system is reviewed. It is our understanding that this intersection is part of a larger coordinated signal system along Alfred Street, and as such, any changes to timing and/or phasing will require evaluation of the entire system. In our opinion, this signal evaluation would be beyond the responsibility of this project given the minimal trip generation and impact this project will have on the intersection.

Five-year crash history:

Per Biddeford City Ordinance, the five-year crash history was also reviewed. The following Table 4 summarizes the crash history for the same location identified as a HCL in the previous section for three-year review.

Table 4 – Five-Year Crash History of Signalized Intersection

Node	Location	Number of Crashes	Critical Rate Factor
59159	Alfred Street @ Barra Road / W Cole Road	54	1.29

Based on the information in Table 4, the five-year crash history confirms the signalized intersection has historically had challenges when it comes to safety.



Pedestrian & Bicycle Crashes:

In addition to a review of the three & five-year crash histories, GP reviewed the latest three-year history to identify if there were reportable pedestrian or bicycle crashes. Based on information provided on the Maine Public Crash Query Tool, there were no reported bicycle crashes within the anticipated study area for the 2021-2023 time period. There was one reported pedestrian crash at the intersection of Alfred Street / Barra Road / W Cole Road. This crash occurred on 5/23/22 at 4:00 PM and was a non-fatal crash.

SIGHT DISTANCE REVIEW

The existing site currently has two curb cuts onto Barra Road that will be utilized for the proposed project. Gorriall Palmer completed a site visit on 6/20/2024 to evaluate sight distances for the proposed driveways. The City of Biddeford and MaineDOT have different standards for sight distance. Table 5 below presents the standard distances for the City of Biddeford and MaineDOT.

Table 5 – Standards for Sight Distance

Speed Limit (mph)	MaineDOT Required (ft)	City of Biddeford (ft)
25	200	250
30	250	300
35	305	350
40	360	400
45	425	450

Since the City of Biddeford requirements for sight distance are greater than MaineDOT, the City of Biddeford criteria was used for this evaluation. The City of Biddeford and MaineDOT use the same evaluation methodology to measure sight distance. The City of Biddeford and MaineDOT method are as follows:

The City of Biddeford and MaineDOT uses the following evaluation methodology to measure sight distance:

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

Based on the MaineDOT Map Viewer, Barra Road does not have a legal speed limit. For the purposes of this evaluation, a 25-mph speed limit was assumed, which requires a sight distance of 250 feet. The following Table 6 summarizes the required and measured sight distances at the existing curb cuts.



Table 6 – Sight Distance Summary

Approach	Sight Distance (ft)		
	Required for passenger vehicle (ft)	Available (ft)	
		Looking Left	Looking Right
Exiting Northerly Barra Road Driveway (25 mph)	250	375+	375+
Exiting Southerly Barra Road Driveway (25 mph)	250	375+	375+

As shown in Table 6, the available sight distance exceeds required, even for a speed limit of 35-mph.

SUMMARY & CONCLUSIONS

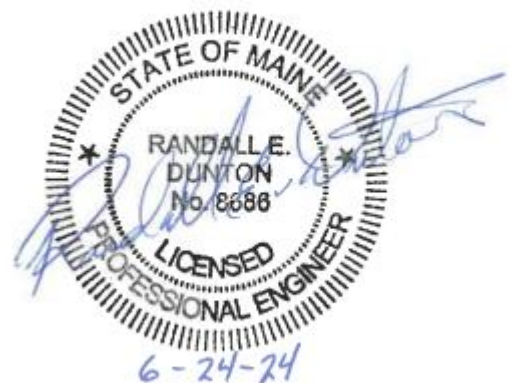
Based on this evaluation we offer the following:

1. Trip Generation: The AM & PM peak hours of adjacent street are forecast to be 16 & 19 trip ends respectively.
2. Traffic Impacts: Given the relatively low trip generation, it is our opinion that the proposed development will not have an unreasonable or adverse impact on the neighborhood or community as a whole.
3. Safety Review: Based on a review of the three & five-year crash history, the signalized intersection of Barra Road / Alfred Street / West Cole Road is classified as a high crash location, with four distinct crash patterns.
4. Sight Distance Review: Sight distance exceeds requirements.

Attachments:

Attachment A – Trip Generation
Attachment B – Safety Review

u:\4326_25 barra road_biddeford\in traffic\summary memo 6-24-24.doc





Attachment A

Trip Generation

Land Use: 720

Medical-Dental Office Building

Description

A medical-dental office building is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility. General office building (Land Use 710) and clinic (Land Use 630) are related uses.

Land Use Subcategory

Analysis of medical-dental office building data found that trip generation rates are measurably different for sites located within or adjacent to a hospital campus and sites that are stand-alone. Data plots are presented for these two land use subcategories.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Virginia, Washington, and Wisconsin.

Source Numbers

104, 109, 120, 157, 184, 209, 211, 253, 287, 294, 295, 304, 357, 384, 404, 407, 423, 444, 509, 601, 715, 867, 879, 901, 902, 908, 959, 972

Medical-Dental Office Building - Stand-Alone (720)

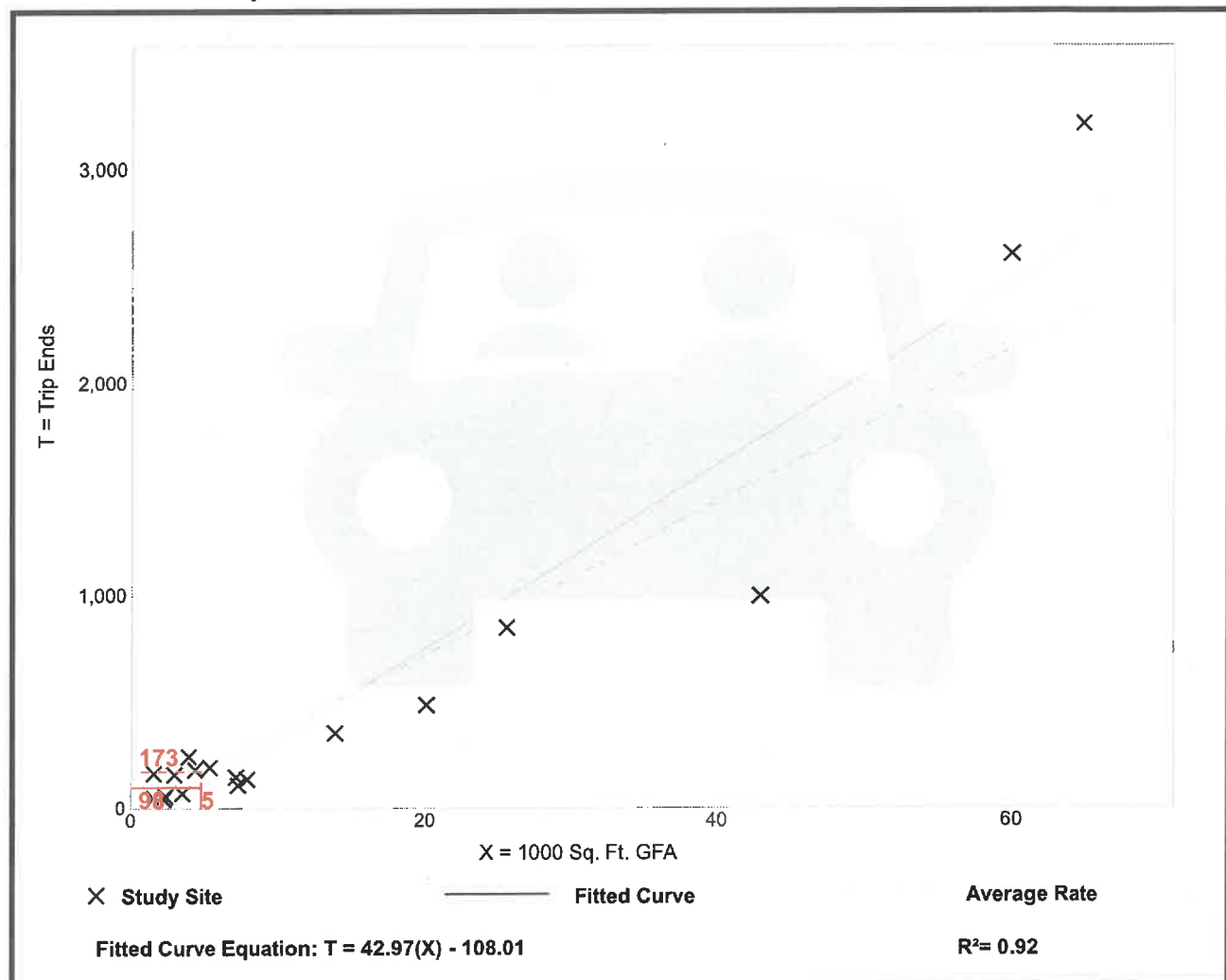
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 18
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
36.00	14.52 - 100.75	13.38

Data Plot and Equation



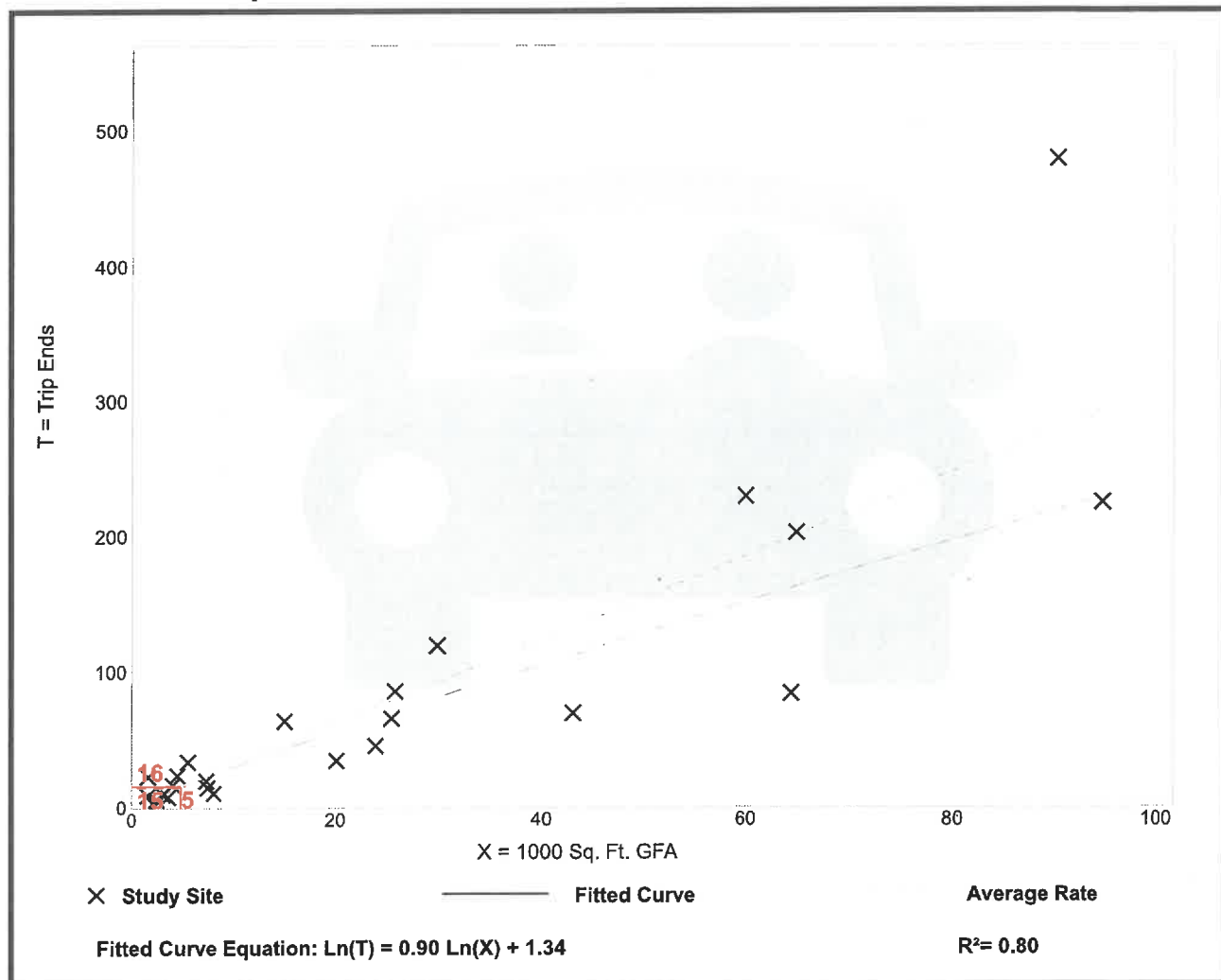
Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 24
 Avg. 1000 Sq. Ft. GFA: 25
 Directional Distribution: 79% entering, 21% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.10	0.87 - 14.30	1.49

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 30

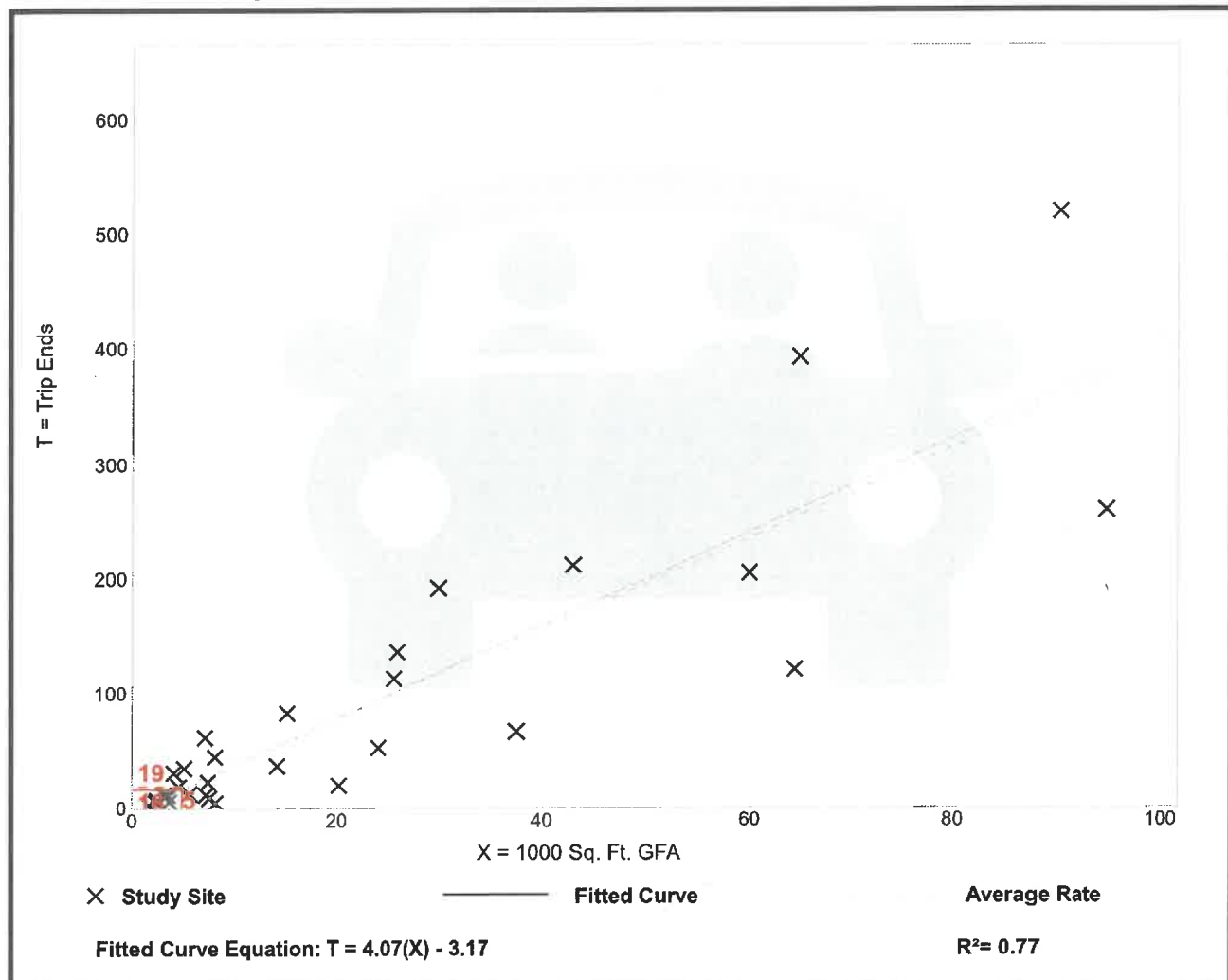
Avg. 1000 Sq. Ft. GFA: 23

Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.62 - 8.86	1.86

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

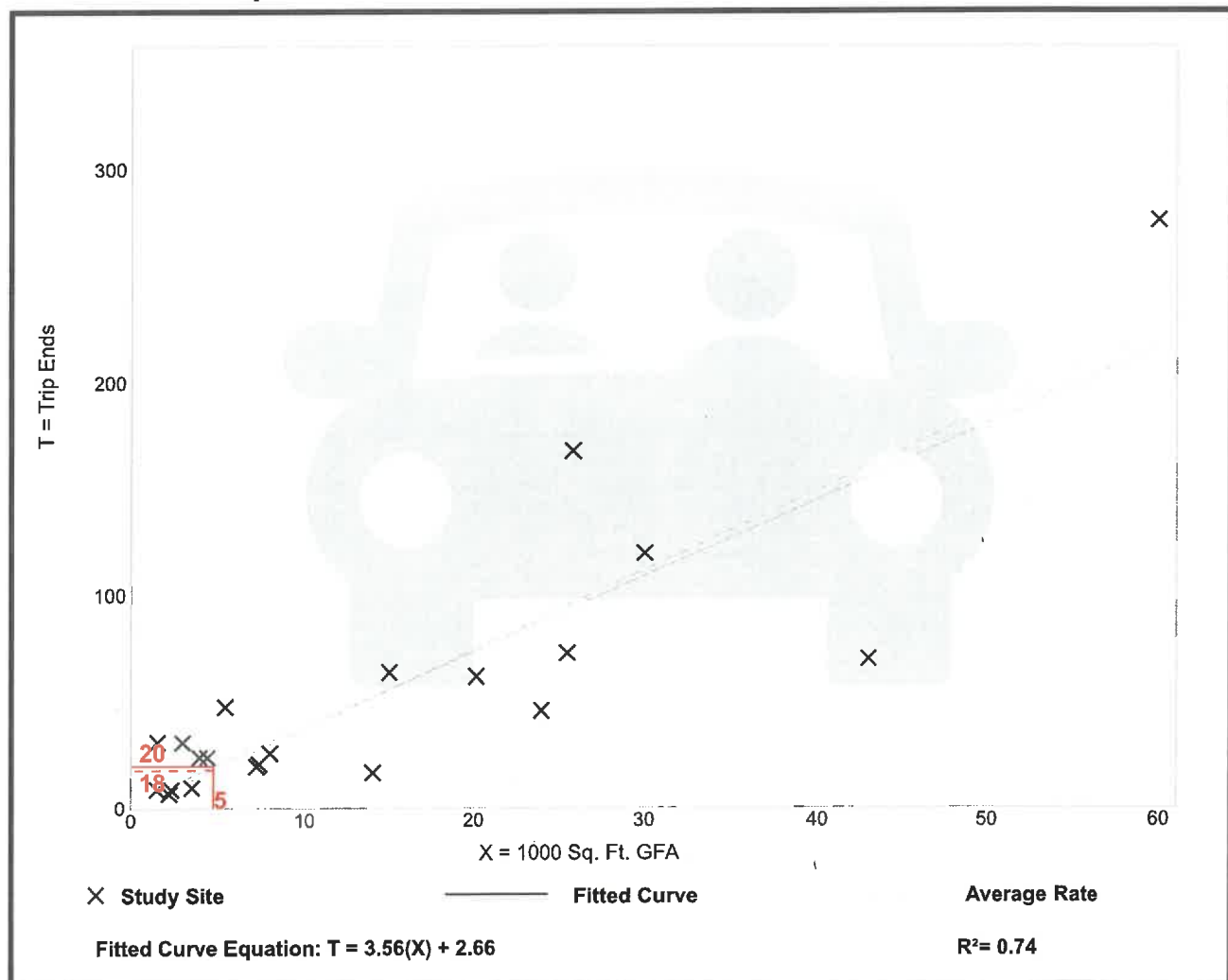
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 21
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.74	1.21 - 19.28	2.14

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

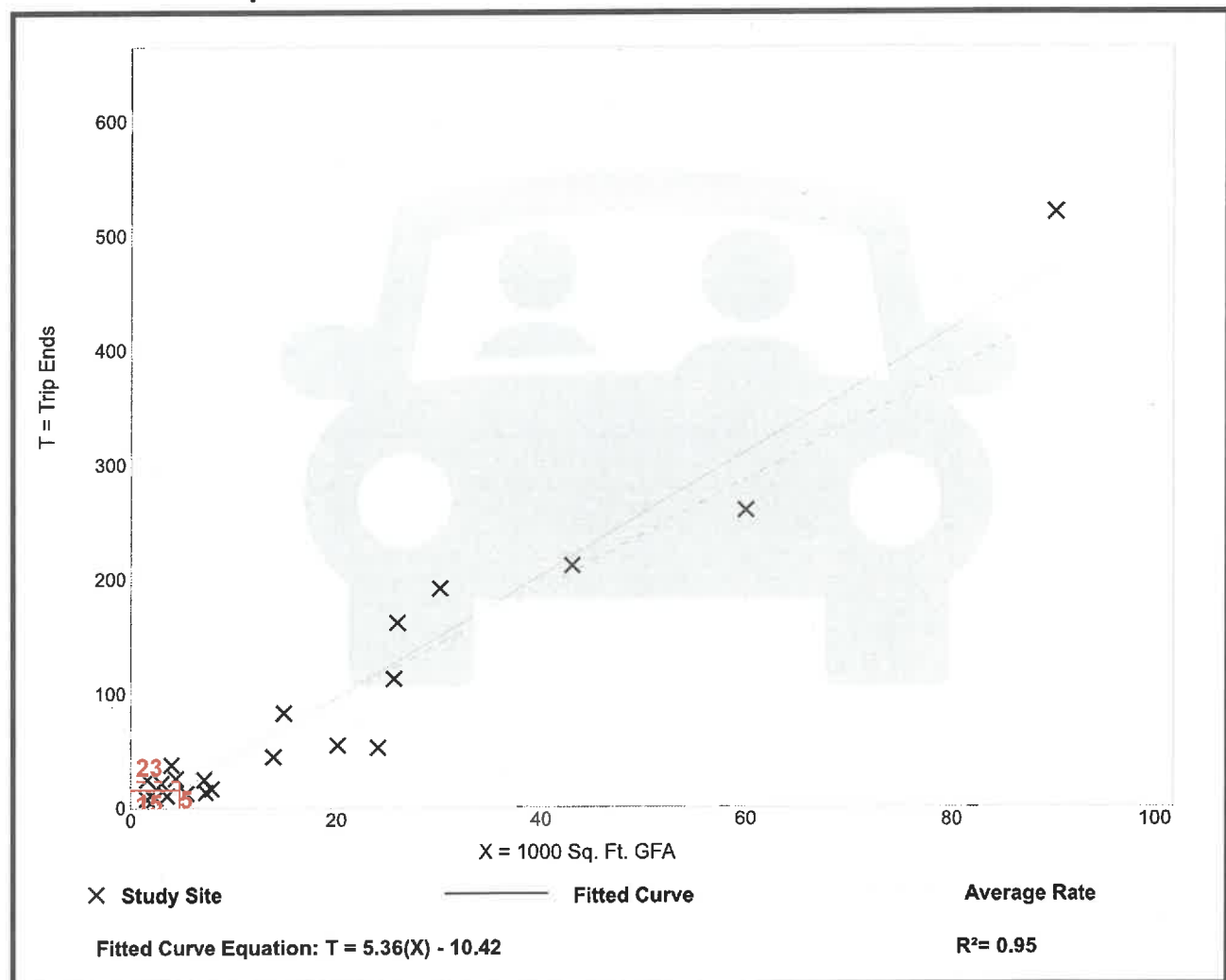
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 18
Directional Distribution: 40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.79	1.88 - 15.55	1.62

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

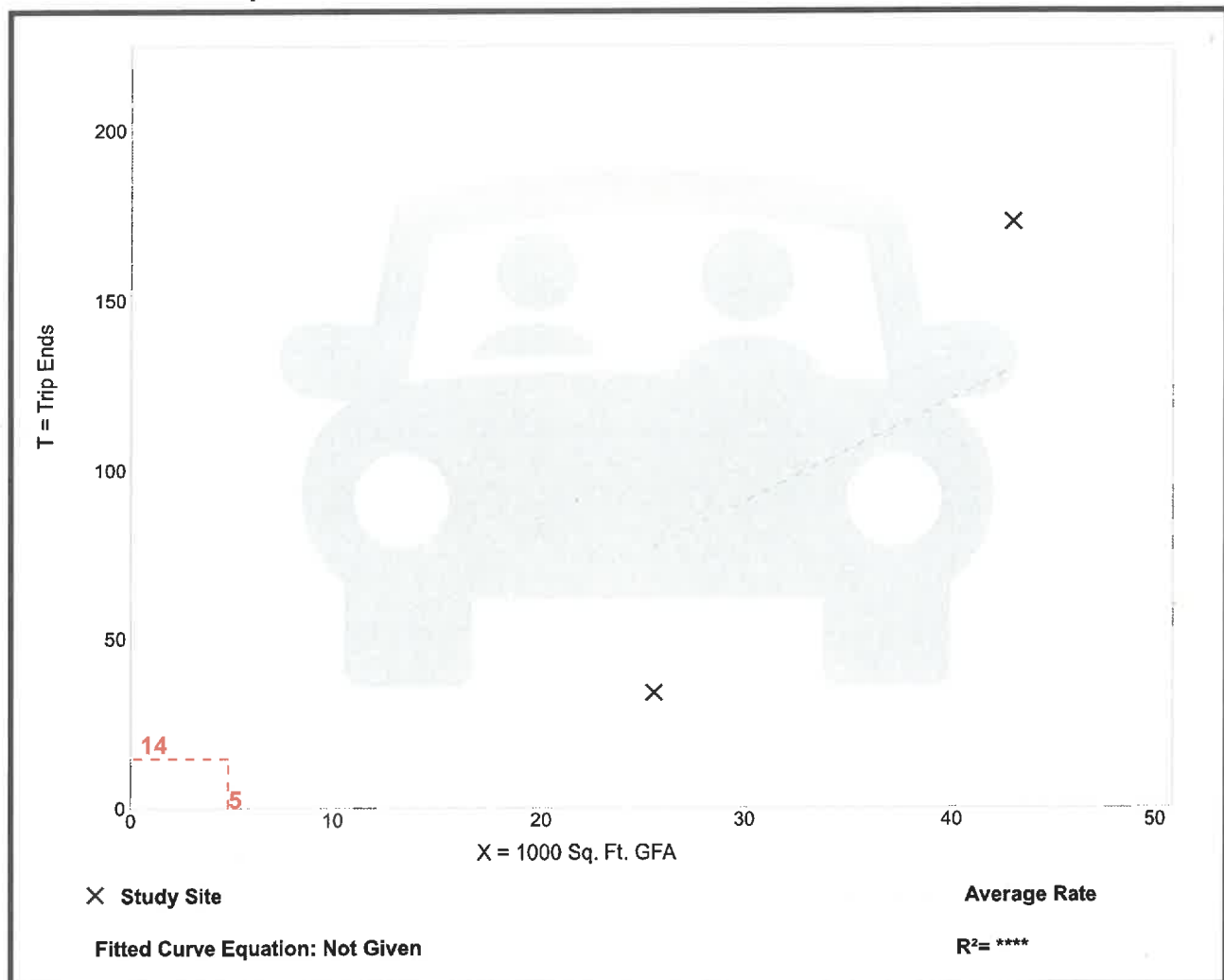
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 34
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.02	1.33 - 4.02	*

Data Plot and Equation

Caution – Small Sample Size





Attachment B

Safety Review

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 59159 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Int Alfred Rd & Barra Rd/West Cole Rd

RTE # / RD #: 0111X

DATE DRAWN: 5/10/2024 DRAWN BY: Tim

STUDY FROM: 1/1/2021

STUDY TO: 12/31/2023

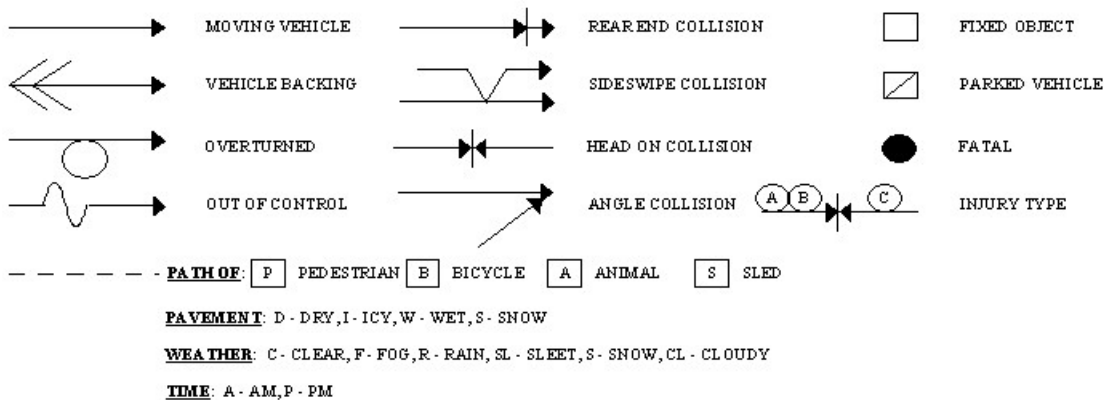
CRASH RATE: 1.41

CRF: 1.25

% INJURY: 35.3

TOTAL CRASHES: 34

LEGEND





Barra Rd

Biddeford

Node: 59159

Study Period: 2021-2023

of Crashes: 34 / CRF: 1.25

Prepared by Office of Safety & Mobility

(TM 5-10-24)

Alfred St
Rt III

8383 3-16-23 12:55P D/C Follow Too Close

21986 8-18-21 1:00P D/C Follow Too Close

20829 7-13-22 4:25P D/C Follow too Close

26165 9-28-21 2:10P D/CL Reckless

22676 8-26-21 2:10P D/C Fail to Yield

7691 3-26-21 1:45P W/CL Fail to Yield

978 1-12-21 10:10A D/C CellPhone



= Traffic Signal

West Cole Rd



2915 1-27-22 9:35A D/C Ran red light

2088 7-18-22 10:00A D/CL
Follow Too Close

18753 6-21-23 1:00P D/C
Improper Turn

9024 4-9-21 8:15P D/C Fail to Yield

18231 7-9-21 1:10P W/R Fail to Yield

20835 7-19-22 7:20A D/C Fail to Yield

18395 7-1-22 2:50P D/C Fail to Yield

35700 11-27-23 10:35A D/C Fail to Yield

23330 8-17-22 11:05A W/R Fail to Yield

32332 10-30-23 1:05P W/R Ran Red Light

13234 5-4-23 12:40P D/CL Follow Too Close

4220 2-10-21 3:50P D/C Sun Glare

1573 1-17-23 2:50P D/C Looked Away

5621 2-16-22 7:35A D/C Internal Distraction

4825 2-19-21 4:40P S/S Speed

6234 3-6-21 7:55P D/C Follow Too Close

15096 6-16-21 9:40A D/C Follow Too Close

27771 9-30-22 9:10A D/C Brakes Failed

8424 3-11-22 7:50A D/C Follow Too Close

32157 11-4-22 10:55A D/C Follow Too Close

2249 1-23-23 3:15P S/S Speed

Alfred St
Rt III



Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I - Single Node

☐ Section Detail

☒ Crash Summary II

☐ 1320 Public

☐ 1320 Private

☐ 1320 Summary

REPORT DESCRIPTION

Biddeford
Int Alfred Rd & Barra Rd/West Cole Rd

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 0111X

Start Node: 59159

Start Offset: 0

☐ Exclude First Node

End Node: 59159

End Offset: 0

☐ Exclude Last Node

Crash Summary I

Nodes																	
Node	Route - MP		Node Description		U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF	
59159	0111X - 2.06	Int of ALFRED ST	BARRA RD	W COLE RD	9	34	0	0	0	12	22	35.3	8.017	1.41	1.13	1.25	
														Statewide Crash Rate:		0.71	
Study Years:	3.00	NODE TOTALS:				34	0	0	0	12	22	35.3	8.017	1.41	1.13	1.25	

Crash Summary II - Characteristics

Crashes by Day and Hour

Day Of Week	AM												PM												Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	2	1	0	0	0	0	0	0	0	0	6
TUESDAY	0	0	0	0	0	0	0	1	0	0	1	0	1	0	2	1	0	0	1	0	0	0	0	0	0	7
WEDNESDAY	0	0	0	0	0	0	0	1	0	1	0	1	0	2	0	1	1	0	0	0	0	0	0	0	0	7
THURSDAY	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	1	0	1	1	0	0	2	1	0	2	0	0	0	1	0	0	0	0	9
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Totals	0	0	0	0	0	0	0	3	0	3	4	1	3	5	4	4	4	0	1	1	1	0	0	0	0	34

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	33	23-Bicyclist	0
2-(Sport) Utility Vehicle	24	24-Witness	6
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	12	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	79
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)	2		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	32	5	0	0	0	38
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	9	1	0	0	0	0	10
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	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	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	10	0	0	0	0	0	10
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	3	0	0	0	0	0	3
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	3	0	0	0	0	0	3
Unknown	0	0	0	0	0	0	0
Total	34	33	5	0	0	0	72

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	33	33	5	0	0	0	71
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	34	34	5	0	0	0	73

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	11	0	0	0	0	11
20-24	8	0	0	0	0	8
25-29	2	0	0	0	0	2
30-39	10	0	0	0	0	10
40-49	4	0	0	0	0	4
50-59	12	0	0	0	0	12
60-69	12	0	0	0	0	12
70-79	7	0	0	0	0	7
80-Over	6	0	0	0	0	6
Unknown	0	0	0	1	0	1
Total	72	0	0	1	0	73

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	72
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	68		
14-Parked Motor Vehicle	3		
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	0		
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	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices		
Traffic Control Device	Total	
1-Traffic Signals (Stop & Go)	34	
2-Traffic Signals (Flashing)	0	
3-Advisory/Warning Sign	0	
4-Stop Signs - All Approaches	0	
5-Stop Signs - Other	0	
6-Yield Sign	0	
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	0	
14-Other	0	
Total	34	

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	12	16
PD	22	0
Total	34	16

Road Character	
Road Grade	Total
1-Level	33
2-On Grade	1
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	34

Light	
Light Condition	Total
1-Daylight	30
2-Dawn	0
3-Dusk	1
4-Dark - Lighted	3
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	34

Crash Summary II - Characteristics**Crashes by Year and Month**

Month	2021	2022	2023	Total
JANUARY	1	3	3	7
FEBRUARY	2	1	0	3
MARCH	2	1	1	4
APRIL	1	0	0	1
MAY	0	1	1	2
JUNE	1	0	2	3
JULY	1	4	0	5
AUGUST	2	1	0	3
SEPTEMBER	1	1	0	2
OCTOBER	0	0	1	1
NOVEMBER	1	1	1	3
DECEMBER	0	0	0	0
Total	12	13	9	34

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	0	16	0	0	0	0	0	0	0	0	0	0	16
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	17	0	0	0	0	0	0	0	0	0	0	17
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	34	0	0	0	0	0	0	0	0	0	0	34

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	3	0	0	0	0	0	0	0	0	0	0	3
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	20	0	0	0	0	0	0	0	0	0	1	21
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	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	3	0	0	0	0	0	0	0	0	0	1	4
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics**Crashes by Weather, Light Condition and Road Surface**

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	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	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	2	0	0	0	2
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	26	0	0	0	0	0	0	3	0	0	5	34

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
Alfred St-Barra Rd area

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 3200025	Start Node: 59159 End Node: 59168	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☐ Exclude Last Node
Route: 0111X	Start Node: 57142 End Node: 59234	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
59168	3200025 - 0.32	Non Int BARRA RD	2	1	0	0	0	0	1	0.0	0.338	0.99	0.56	1.76
												Statewide Crash Rate:	0.13	
59159	0111X - 2.06	Int of ALFRED ST BARRA RD W COLE RD	9	34	0	0	0	12	22	35.3	8.017	1.41	1.13	1.25
												Statewide Crash Rate:	0.71	
Study Years:	3.00		NODE TOTALS:	35	0	0	0	12	23	34.3	8.355	1.40	1.09	1.28

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
59159	59168	5099102	0 - 0.32	3200025 - 0	0.32	2	3	0	0	0	0	3	0.0	0.00216	462.54	909.47	0.00
Int of ALFRED ST BARRA RD W COLE RD				RD INV 3200025	Statewide Crash Rate: 370.71												
59159	57142	3114974	0 - 0.13	0111X - 1.93	0.13	2	6	0	0	0	1	5	16.7	0.00953	209.84	412.20	0.00
Int of ALFRED ST BARRA RD W COLE RD				ST RTE 111	Statewide Crash Rate: 209.30												
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	0.03	2	2	0	0	0	0	2	0.0	0.00237	281.28	580.94	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111	Statewide Crash Rate: 209.30												
59234	59159	3118497	0 - 0.11	0111X - 2.06	0.11	2	4	0	0	0	1	3	25.0	0.00869	153.42	420.93	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111	Statewide Crash Rate: 209.30												
Study Years:		3.00		Section Totals:		0.59	15	0	0	0	2	13	13.3	0.02275	219.74	365.09	0.60
				Grand Totals:		0.59	50	0	0	0	14	36	28.0	0.02275	732.48	504.06	1.45

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes				Crash Report	Crash Date	Crash Mile Point	Injury Degree
							A	B	C	PD				
59159	59168	5099102	0 - 0.32	3200025 - 0	3	0	0	0	0	3	2022-14993	05/27/2022	0.05	PD
											2021-9515	04/16/2021	0.06	PD
											2023-3322	01/31/2023	0.23	PD
59159	57142	3114974	0 - 0.13	0111X - 1.93	6	0	0	0	1	5	2021-15006	06/10/2021	1.94	PD
											2022-19047	07/05/2022	1.97	PD
											2022-39406	12/14/2022	1.98	C
											2022-9295	03/18/2022	1.99	PD
											2021-16822	07/02/2021	1.99	PD
											2022-17495	06/20/2022	2.01	PD
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	2	0	0	0	0	2	2022-11788	04/27/2022	2.07	PD
											2022-26689	09/09/2022	2.07	PD
59234	59159	3118497	0 - 0.11	0111X - 2.06	4	0	0	0	1	3	2022-13541	05/10/2022	2.09	PD
											2021-22102	08/19/2021	2.10	C
											2023-24155	08/08/2023	2.10	PD
											2022-23332	08/15/2022	2.11	PD
Totals:					15	0	0	0	2	13				

Crash Summary II - Characteristics

Crashes by Day and Hour

Day Of Week	AM											Hour of Day											PM											Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11											
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
MONDAY	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	3	1	0	0	0	0	0	0	0	0	0	8								
TUESDAY	0	0	0	0	0	0	0	1	1	0	2	0	1	0	2	1	1	0	1	0	1	0	0	0	0	0	11								
WEDNESDAY	0	0	0	0	0	0	0	1	0	1	0	1	1	3	0	1	1	0	0	0	0	0	0	0	0	0	9								
THURSDAY	0	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	0	0	1	0	0	0	7								
FRIDAY	0	0	0	0	0	0	0	2	1	1	2	0	1	2	1	1	2	0	0	0	1	0	0	0	0	0	14								
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1								
Totals	0	0	0	0	0	0	0	4	4	3	6	1	5	6	4	6	5	1	1	1	2	0	1	0	0	0	50								

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	46	23-Bicyclist	0
2-(Sport) Utility Vehicle	34	24-Witness	8
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	20	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	112
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)	2		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	46	5	0	0	0	52
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	17	1	0	0	0	0	18
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	3	0	0	0	0	0	3
Improper Turn	3	0	0	0	0	0	3
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	13	0	0	0	0	0	13
Failed to Keep in Proper Lane	2	1	0	0	0	0	3
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	3	0	0	0	0	0	3
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	3	0	0	0	0	0	3
Unknown	0	0	0	0	0	0	0
Total	50	48	5	0	0	0	103

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	47	48	5	0	0	0	100
Physically Impaired	1	0	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	1	0	0	0	0	0	1
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	50	49	5	0	0	0	104

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	13	0	0	0	0	13
20-24	10	0	0	0	0	10
25-29	3	0	0	0	0	3
30-39	19	0	0	0	0	19
40-49	10	0	0	0	0	10
50-59	16	0	0	0	0	16
60-69	16	0	0	0	0	16
70-79	8	0	0	0	0	8
80-Over	8	0	0	0	0	8
Unknown	0	0	0	1	0	1
Total	103	0	0	1	0	104

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	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	98		
14-Parked Motor Vehicle	3		
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	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	1		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices		
Traffic Control Device	Total	
1-Traffic Signals (Stop & Go)	38	
2-Traffic Signals (Flashing)	0	
3-Advisory/Warning Sign	0	
4-Stop Signs - All Approaches	0	
5-Stop Signs - Other	5	
6-Yield Sign	0	
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	7	
14-Other	0	
Total	50	

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	14	18
PD	36	0
Total	50	18

Road Character	
Road Grade	Total
1-Level	44
2-On Grade	6
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	50

Light	
Light Condition	Total
1-Daylight	44
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	4
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	50

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	1	3	4	8
FEBRUARY	2	1	0	3
MARCH	2	2	1	5
APRIL	2	1	0	3
MAY	0	3	1	4
JUNE	2	1	2	5
JULY	2	5	0	7
AUGUST	3	3	1	7
SEPTEMBER	1	2	0	3
OCTOBER	0	0	1	1
NOVEMBER	1	1	1	3
DECEMBER	0	1	0	1
Total	16	23	11	50

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	0	16	0	2	0	0	0	0	0	0	0	0	23
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	17	0	8	0	0	0	0	0	0	0	0	25
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	1	0	34	0	10	0	0	0	0	0	0	0	0	50

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	4	0	0	0	0	0	0	0	0	0	0	4
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	26	0	0	0	0	0	0	0	0	0	1	27
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	3	8
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

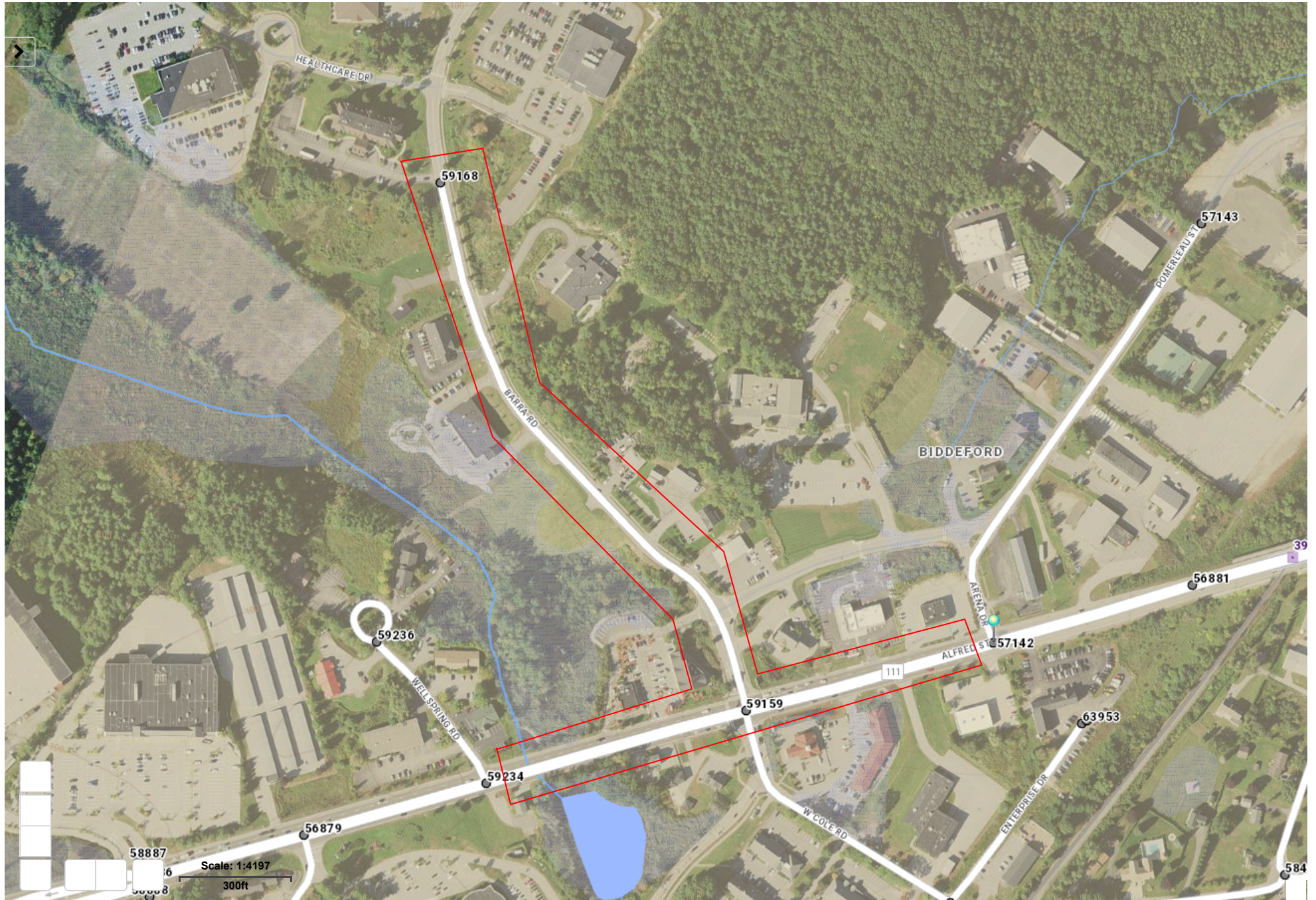
Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	7	7
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	2	0	0	0	2
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	36	0	0	0	0	0	0	3	0	0	11	50



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
Alfred St-Barra Rd area - 5 Year

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2023 End Month: 12

Route: 3200025	Start Node: 59159 End Node: 59168	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☐ Exclude Last Node
Route: 0111X	Start Node: 57142 End Node: 59234	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Crash Summary I

Nodes																
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	Percent Annual M Injury Ent-Veh	Crash Rate	Critical Rate	CRF				
59168	3200025 - 0.32	Non Int BARRA RD	2	1	0	0	0	0	1	0.0	0.338	0.59	0.55	1.08		
59159	0111X - 2.06	Int of ALFRED ST BARRA RD W COLE RD	9	54	0	0	2	16	36	33.3	8.017	1.35	1.04	1.29		
Study Years: 5.00				NODE TOTALS:		55	0	0	2	16	37	32.7	8.355	1.32	1.00	1.31

Statewide Crash Rate: 0.13

Statewide Crash Rate: 0.71

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
59159	59168	5099102	0 - 0.32	3200025 - 0	0.32	2	4	0	0	0	0	4	0.0	0.00216	370.03	801.49	0.00
Int of ALFRED ST BARRA RD W COLE RD				RD INV 3200025											Statewide Crash Rate: 370.71		
59159	57142	3114974	0 - 0.13	0111X - 1.93	0.13	2	9	0	0	0	1	8	11.1	0.00953	188.85	369.52	0.00
Int of ALFRED ST BARRA RD W COLE RD				ST RTE 111											Statewide Crash Rate: 209.30		
59234	59159	3118497	0 - 0.11	0111X - 2.06	0.11	2	6	0	0	0	1	5	16.7	0.00869	138.08	376.58	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111											Statewide Crash Rate: 209.30		
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	0.03	2	4	0	0	0	1	3	25.0	0.00237	337.53	509.45	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111											Statewide Crash Rate: 209.30		
Study Years:		5.00		Section Totals:		0.59	23	0	0	0	3	20	13.0	0.02275	202.16	334.71	0.60
				Grand Totals:		0.59	78	0	0	2	19	57	26.9	0.02275	685.60	466.51	1.47

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes				Crash Report	Crash Date	Crash Mile Point	Injury Degree
							A	B	C	PD				
59159	59168	5099102	0 - 0.32	3200025 - 0	4	0	0	0	0	4	2022-14993	05/27/2022	0.05	PD
											2019-75621	10/28/2019	0.05	PD
											2021-9515	04/16/2021	0.06	PD
											2023-3322	01/31/2023	0.23	PD
59159	57142	3114974	0 - 0.13	0111X - 1.93	9	0	0	0	1	8	2021-15006	06/10/2021	1.94	PD
											2019-64180	09/06/2019	1.96	PD
											2022-19047	07/05/2022	1.97	PD
											2022-39406	12/14/2022	1.98	C
											2019-49604	04/19/2019	1.99	PD
											2021-16822	07/02/2021	1.99	PD
											2022-9295	03/18/2022	1.99	PD
											2020-3278	01/27/2020	1.99	PD
											2022-17495	06/20/2022	2.01	PD
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	4	0	0	0	1	3	2019-43557	02/23/2019	2.07	C
											2020-22019	09/15/2020	2.07	PD
											2022-26689	09/09/2022	2.07	PD
											2022-11788	04/27/2022	2.07	PD
59234	59159	3118497	0 - 0.11	0111X - 2.06	6	0	0	0	1	5	2022-13541	05/10/2022	2.09	PD
											2019-52338	05/22/2019	2.09	PD
											2021-22102	08/19/2021	2.10	C
											2023-24155	08/08/2023	2.10	PD
											2022-23332	08/15/2022	2.11	PD
											2019-54678	06/12/2019	2.13	PD
Totals:					23	0	0	0	3	20				

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
MONDAY	0	0	0	0	0	0	0	0	1	0	2	1	1	1	0	4	1	1	0	0	0	0	0	0	0	12									
TUESDAY	0	0	0	0	0	0	0	1	2	0	3	0	3	0	2	2	1	0	2	0	1	0	0	0	0	17									
WEDNESDAY	0	0	0	0	0	0	0	1	1	2	0	2	1	4	0	1	1	0	0	0	0	0	0	0	0	13									
THURSDAY	0	0	0	0	0	0	0	1	1	1	0	1	2	0	3	1	0	2	0	0	0	0	1	0	0	13									
FRIDAY	0	0	0	0	0	1	0	3	1	1	3	0	1	3	1	2	2	2	0	0	1	0	0	0	0	21									
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2									
Totals	0	0	0	0	0	1	0	6	6	4	8	4	8	8	6	11	5	5	2	1	2	0	1	0	0	78									

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	74	23-Bicyclist	0
2-(Sport) Utility Vehicle	53	24-Witness	18
3-Passenger Van	3	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	28	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	180
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)	3		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	72	7	0	0	0	80
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	33	1	0	0	0	0	34
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	1	0	0	0	0	0	1
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	4	0	0	0	0	0	4
Improper Turn	5	0	0	0	0	0	5
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	15	0	0	0	0	0	15
Failed to Keep in Proper Lane	4	1	0	0	0	0	5
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	5	0	0	0	0	0	5
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	4	1	0	0	0	0	5
Unknown	1	1	0	0	0	0	2
Total	78	76	7	0	0	0	161

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	75	76	7	0	0	0	158
Physically Impaired	1	0	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	1	0	0	0	0	0	1
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	78	77	7	0	0	0	162

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	16	0	0	0	0	16
20-24	17	0	0	0	0	17
25-29	10	0	0	0	0	10
30-39	25	0	0	0	0	25
40-49	15	0	0	0	0	15
50-59	28	0	0	0	0	28
60-69	24	0	0	0	0	24
70-79	14	0	0	0	0	14
80-Over	12	0	0	0	0	12
Unknown	0	0	0	1	0	1
Total	161	0	0	1	0	162

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	161
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	155		
14-Parked Motor Vehicle	3		
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	1		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	1		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices		
Traffic Control Device	Total	
1-Traffic Signals (Stop & Go)	60	
2-Traffic Signals (Flashing)	0	
3-Advisory/Warning Sign	0	
4-Stop Signs - All Approaches	0	
5-Stop Signs - Other	7	
6-Yield Sign	0	
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	10	
14-Other	1	
Total	78	

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	2	2
C	19	25
PD	57	0
Total	78	27

Road Character	
Road Grade	Total
1-Level	70
2-On Grade	8
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	78

Light	
Light Condition	Total
1-Daylight	68
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	8
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	78

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	2022	2023	Total
JANUARY	1	2	1	3	4	11
FEBRUARY	2	3	2	1	0	8
MARCH	1	0	2	2	1	6
APRIL	1	0	2	1	0	4
MAY	1	0	0	3	1	5
JUNE	1	0	2	1	2	6
JULY	1	1	2	5	0	9
AUGUST	0	1	3	3	1	8
SEPTEMBER	2	1	1	2	0	6
OCTOBER	5	1	0	0	1	7
NOVEMBER	1	1	1	1	1	5
DECEMBER	2	0	0	1	0	3
Total	18	10	16	23	11	78

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	9	0	0	22	0	2	0	0	0	0	0	0	0	0	33
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	31	0	12	0	0	0	0	0	0	0	0	43
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	1	0	54	0	14	0	0	0	0	0	0	0	0	78

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	5	0	0	0	0	0	0	0	0	0	0	5
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	37	0	0	0	0	0	0	0	0	0	3	40
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	12	0	0	0	0	0	0	0	0	0	4	16
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	2	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	0	0	0	8	8
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	4	0	0	0	4
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	55	0	0	0	0	0	0	6	0	0	17	78

MEMORANDUM
TRAFFIC EVALUATION
DENTIST OFFICE
BARRA ROAD - BIDDEFORD, ME
June 24, 2024

INTRODUCTION

Per the request of Mike Eon Associates LTD, Gorrill Palmer (GP) has calculated and evaluated specific traffic information regarding a potential 4,800 SF dentist office. The current site is undeveloped and located north of Dunkin Donuts, east of Canuvo Recreational Cannabis, and south of York County Dialysis. The purpose of this memorandum is to provide the applicant with a traffic evaluation that can be submitted to the City of Biddeford. The City of Biddeford Ordinance provides the following guidance regarding traffic: Article VI. Performance Standards, Section 62. Studies and impact / development fees, C.

“..., the Board may require additional studies and reports when there is reason to believe that a given project may have unreasonable or adverse impact on a given neighborhood or the community as a whole.”

If a traffic study is required under C.1.a, -

“Traffic study: To be completed by a traffic engineer; this study shall report the possible impact that a given project may have on the City's roadways. Besides meeting the standards established for professionally completed reports, this study shall include local traffic accident information for the last five years prior to development.”

As part of this traffic evaluation, we have reviewed/evaluated the following;

- Trip Generation
- Safety Review: 3-year & 5-year
- Sight Distance Review

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

TRIP GENERATION

Trip generation for the Dentist Office has been calculated using the Institute of Transportation Engineers' (ITE) publication, *Trip Generation*, 11th Edition, the most recent edition accepted by MaineDOT. After careful review of the Land Use Codes (LUCs) provided in the 11th Edition of *Trip Generation*, the following land use codes were used to calculate the trip generation for the proposed development:



Proposed Trip Generation

- LUC 720 – Medical-Dental Office Building – Stand-Alone

In calculating trip generation, MaineDOT methodology requires review of both the average rate and the fitted curve equation. If $r^2 \geq 0.80$ then the fitted curve equation is typically used, and if $r^2 < 0.80$ then the average rate is typically used. Trip generation calculations are provided in Attachment I.

The following Table I summarizes the trip generation for a medical-dental office building.

Table I – Trip Generation (LUC 720 – 4,800 SF)

Time Period	Trip Generation (Trip Ends)	
	Trip Gen Rates	Trip Generation
Weekday*	20.42	98
AM Peak Hour of Adjacent Street*	3.33	16
PM Peak Hour of Adjacent Street	3.93	19
AM Peak Hour Generator	3.74	18
PM Peak Hour Generator*	3.13	15
Saturday Peak Hour Generator	3.02	14

*Rates based on using fitted curve equation.

As can be seen in Table I, the medical-dental office building is forecast to generate 16 and 19 trips during the AM and PM peak hours of adjacent street respectively.

The trip generation threshold for requiring a MaineDOT Traffic Movement Permit is 100 or more trip ends during any peak hour of any day. After reviewing the trip generation in Table I, none of the peak hours exceed 100+ trip ends. Therefore, this development does not require a MaineDOT Traffic Movement Permit and will be solely reviewed by the City.

The following Table 2 summarizes the trip distribution for a medical-dental office building based on the ITE Trip Generation Manual, 11th Edition.

Table 2 – Trip Distribution (LUC 720)

Time Period	Trip Ends		
	Enter	Exit	Total
Weekday	49	49	98
AM Peak Hour of Adjacent Street	13	3	16
PM Peak Hour of Adjacent Street	6	13	19
AM Peak Hour Generator	11	7	18



PM Peak Hour Generator	6	9	15
Saturday Peak Hour	8	6	14

SAFETY REVIEW

For the safety review, GP reviewed both a three-year crash history (2021-2023) and a five-year crash history (2019-2023) (Supporting information provided in Attachment B). The following identifies each evaluation in more detail:

Three-year crash history:

The three-year crash history was reviewed because this is the criteria used by MaineDOT to identify a location as a high crash location. HCL criteria is discussed in more detail as follows:

To evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met to be classified as an HCL.

1. A critical rate factor (CRF) of 1.00 or more for a three-year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average **and**:
2. A minimum of eight crashes over the same three-year period.

A safety review was completed for Barra Road and the immediate area around the Barra Road / Alfred Street / West Cole Road intersection. The following Table 3 summarizes those locations that met at least one of the above MaineDOT criteria.

Table 3 – Potential HCL Locations (3-year history)

Node	Location	Number of Crashes	Critical Rate Factor	HCL?
59168	Barra Road	1	1.76	No
59159	Alfred Street @ Barra Road / W Cole Road	34	1.25	Yes

As shown in Table 3, there is one location that meets the definition of a HCL (Node 59159). To identify potential mitigation, the collision diagram (Attachment B) was reviewed for potential crash patterns, which is typically considered three or more similar crashes. Based on a review of the collision diagram, there appear to be four crash patterns as follows:



- Alfred Street northbound rear-end (3 crashes)
- Alfred Street northbound angle crashes with southbound left turning traffic (3 crashes)
- Alfred Street southbound rear-end (11 crashes)
- Alfred Street southbound angle crashes with northbound left turning traffic (7 crashes)

Left turn angle crashes: Alfred Street left turning vehicles appear to have both a permissive & protected phase. This means that at some point in the signal cycle, the left turns can make a permissive left turn opposing two through lanes. This type of movement is discouraged by the MaineDOT because it has been shown to create these types of crash patterns, and only protected left turns are allowed when opposing two through lanes. It is our understanding that this intersection is part of a larger coordinated signal system along Alfred Street, and as such, any changes to timing and/or phasing will require evaluation of the entire system. In our opinion, this signal evaluation would be beyond the responsibility of this project given the minimal trip generation and impact this project will have on the intersection.

Rear-end crashes: The rear-end crashes could be a result of inadequate timing of the yellow and/or all red times for the through traffic. As identified in the previous “Left turn angle crashes” section, the timing and/or phasing of this intersection should not be changed unless the entire Alfred Street coordinated signal system is reviewed. It is our understanding that this intersection is part of a larger coordinated signal system along Alfred Street, and as such, any changes to timing and/or phasing will require evaluation of the entire system. In our opinion, this signal evaluation would be beyond the responsibility of this project given the minimal trip generation and impact this project will have on the intersection.

Five-year crash history:

Per Biddeford City Ordinance, the five-year crash history was also reviewed. The following Table 4 summarizes the crash history for the same location identified as a HCL in the previous section for three-year review.

Table 4 – Five-Year Crash History of Signalized Intersection

Node	Location	Number of Crashes	Critical Rate Factor
59159	Alfred Street @ Barra Road / W Cole Road	54	1.29

Based on the information in Table 4, the five-year crash history confirms the signalized intersection has historically had challenges when it comes to safety.



Pedestrian & Bicycle Crashes:

In addition to a review of the three & five-year crash histories, GP reviewed the latest three-year history to identify if there were reportable pedestrian or bicycle crashes. Based on information provided on the Maine Public Crash Query Tool, there were no reported bicycle crashes within the anticipated study area for the 2021-2023 time period. There was one reported pedestrian crash at the intersection of Alfred Street / Barra Road / W Cole Road. This crash occurred on 5/23/22 at 4:00 PM and was a non-fatal crash.

SIGHT DISTANCE REVIEW

The existing site currently has two curb cuts onto Barra Road that will be utilized for the proposed project. Gorriall Palmer completed a site visit on 6/20/2024 to evaluate sight distances for the proposed driveways. The City of Biddeford and MaineDOT have different standards for sight distance. Table 5 below presents the standard distances for the City of Biddeford and MaineDOT.

Table 5 – Standards for Sight Distance

Speed Limit (mph)	MaineDOT Required (ft)	City of Biddeford (ft)
25	200	250
30	250	300
35	305	350
40	360	400
45	425	450

Since the City of Biddeford requirements for sight distance are greater than MaineDOT, the City of Biddeford criteria was used for this evaluation. The City of Biddeford and MaineDOT use the same evaluation methodology to measure sight distance. The City of Biddeford and MaineDOT method are as follows:

The City of Biddeford and MaineDOT uses the following evaluation methodology to measure sight distance:

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

Based on the MaineDOT Map Viewer, Barra Road does not have a legal speed limit. For the purposes of this evaluation, a 25-mph speed limit was assumed, which requires a sight distance of 250 feet. The following Table 6 summarizes the required and measured sight distances at the existing curb cuts.



Table 6 – Sight Distance Summary

Approach	Sight Distance (ft)		
	Required for passenger vehicle (ft)	Available (ft)	
		Looking Left	Looking Right
Exiting Northerly Barra Road Driveway (25 mph)	250	375+	375+
Exiting Southerly Barra Road Driveway (25 mph)	250	375+	375+

As shown in Table 6, the available sight distance exceeds required, even for a speed limit of 35-mph.

SUMMARY & CONCLUSIONS

Based on this evaluation we offer the following:

1. Trip Generation: The AM & PM peak hours of adjacent street are forecast to be 16 & 19 trip ends respectively.
2. Traffic Impacts: Given the relatively low trip generation, it is our opinion that the proposed development will not have an unreasonable or adverse impact on the neighborhood or community as a whole.
3. Safety Review: Based on a review of the three & five-year crash history, the signalized intersection of Barra Road / Alfred Street / West Cole Road is classified as a high crash location, with four distinct crash patterns.
4. Sight Distance Review: Sight distance exceeds requirements.

Attachments:

Attachment A – Trip Generation
Attachment B – Safety Review

u:\4326_25 barra road_biddeford\traffic\summary memo 6-24-24.doc





Attachment A

Trip Generation

Land Use: 720

Medical-Dental Office Building

Description

A medical-dental office building is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility. General office building (Land Use 710) and clinic (Land Use 630) are related uses.

Land Use Subcategory

Analysis of medical-dental office building data found that trip generation rates are measurably different for sites located within or adjacent to a hospital campus and sites that are stand-alone. Data plots are presented for these two land use subcategories.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Virginia, Washington, and Wisconsin.

Source Numbers

104, 109, 120, 157, 184, 209, 211, 253, 287, 294, 295, 304, 357, 384, 404, 407, 423, 444, 509, 601, 715, 867, 879, 901, 902, 908, 959, 972

Medical-Dental Office Building - Stand-Alone (720)

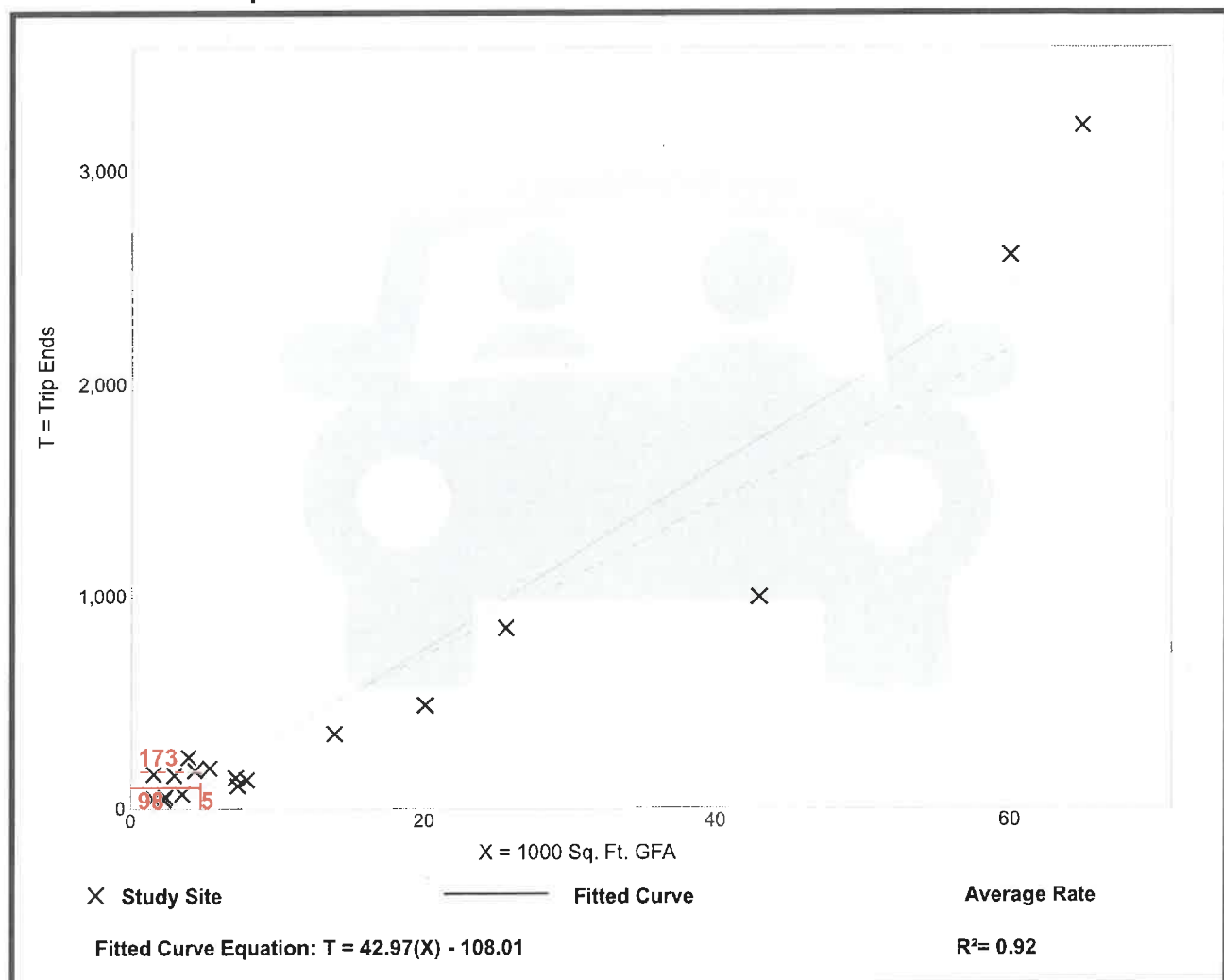
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 18
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
36.00	14.52 - 100.75	13.38

Data Plot and Equation



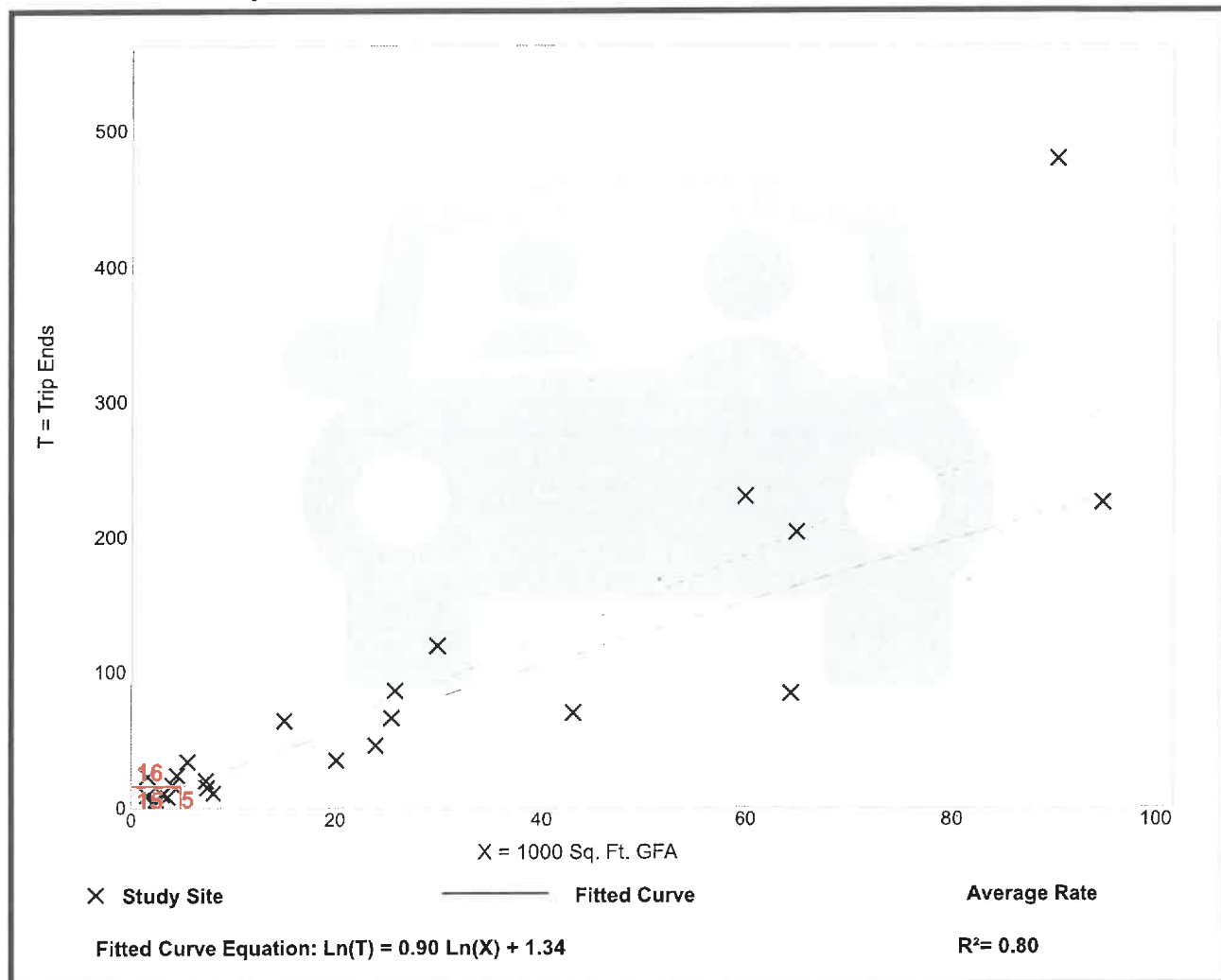
Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 24
 Avg. 1000 Sq. Ft. GFA: 25
 Directional Distribution: 79% entering, 21% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.10	0.87 - 14.30	1.49

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 30

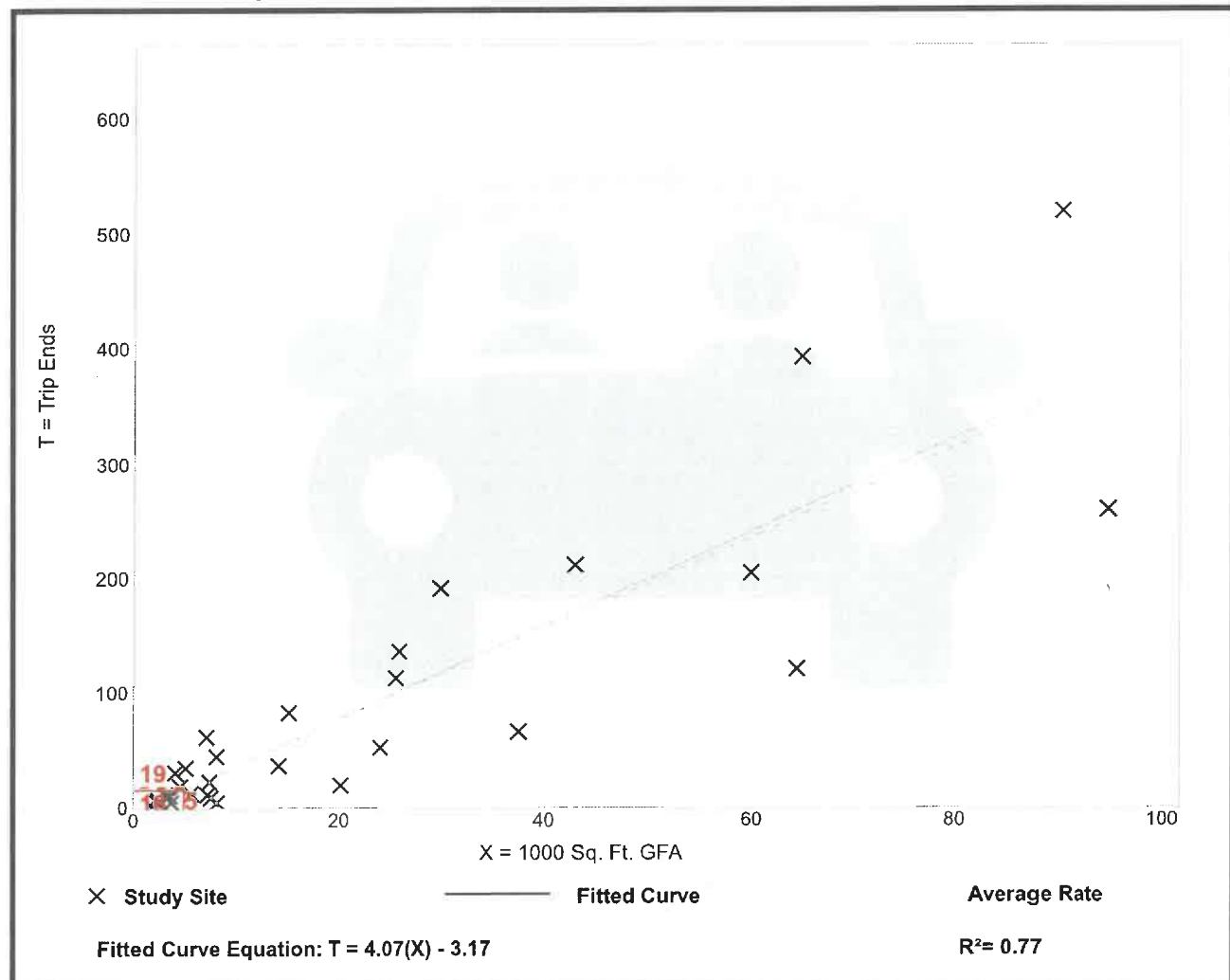
Avg. 1000 Sq. Ft. GFA: 23

Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.62 - 8.86	1.86

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

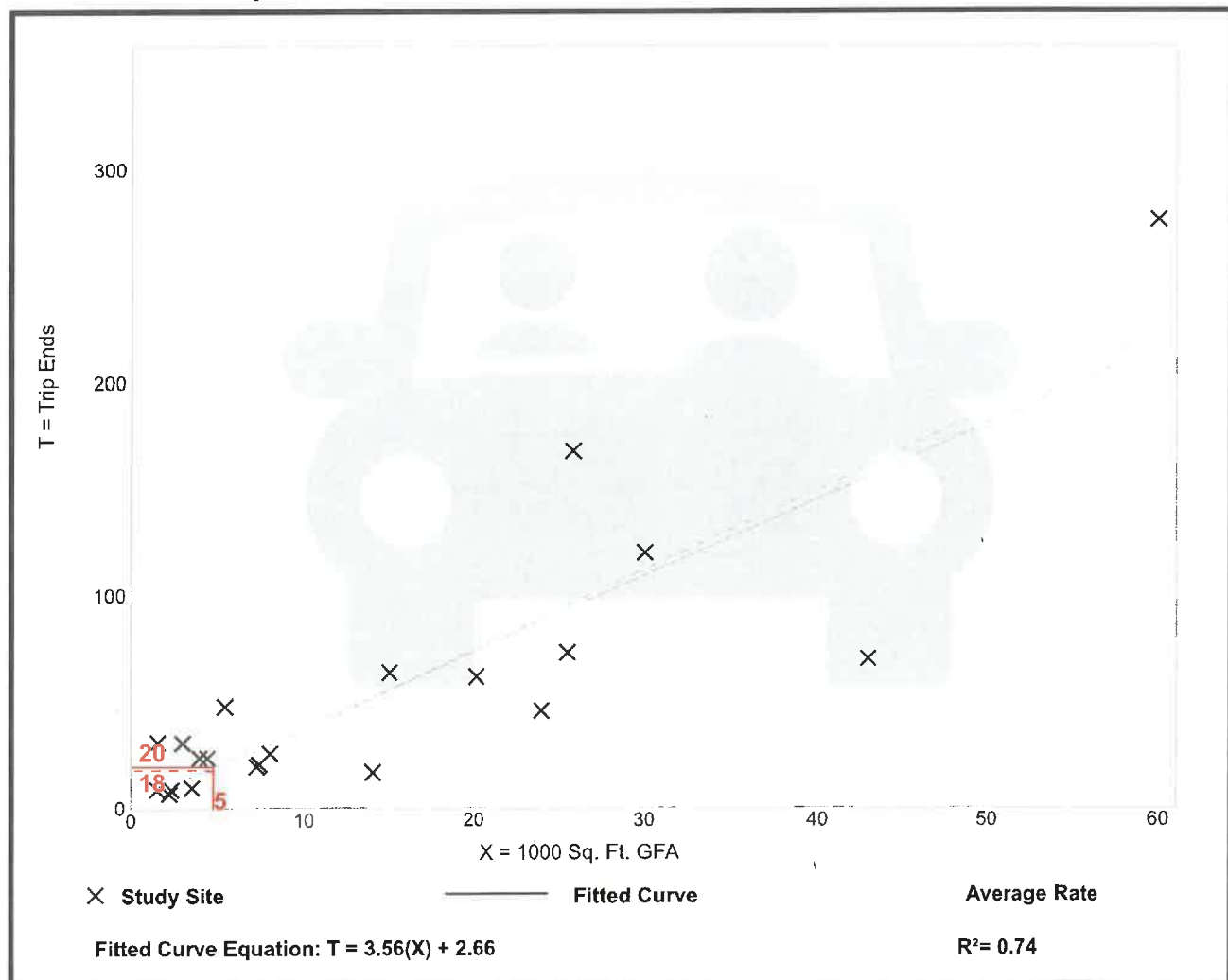
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 21
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.74	1.21 - 19.28	2.14

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

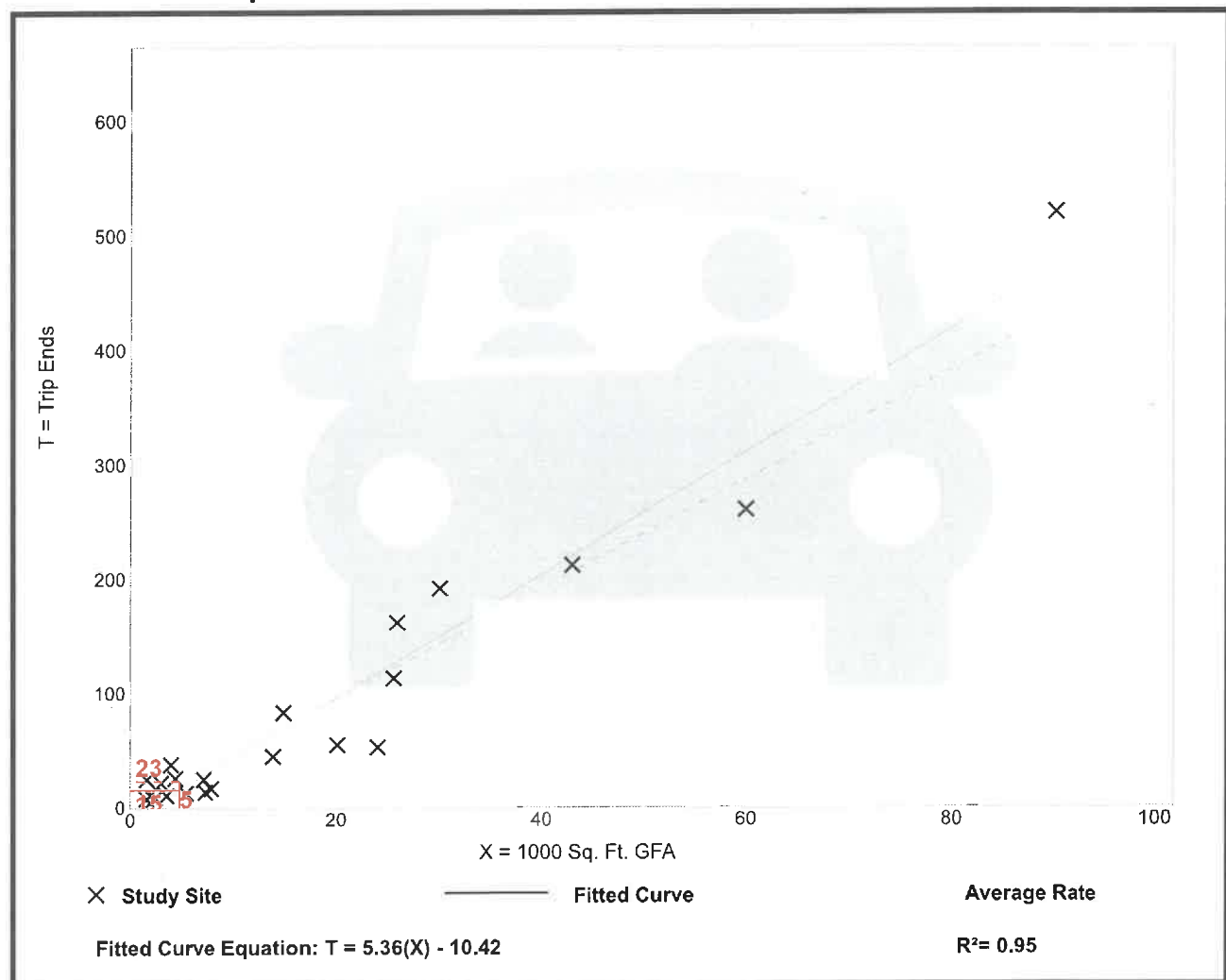
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 18
Directional Distribution: 40% entering, 60% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.79	1.88 - 15.55	1.62

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

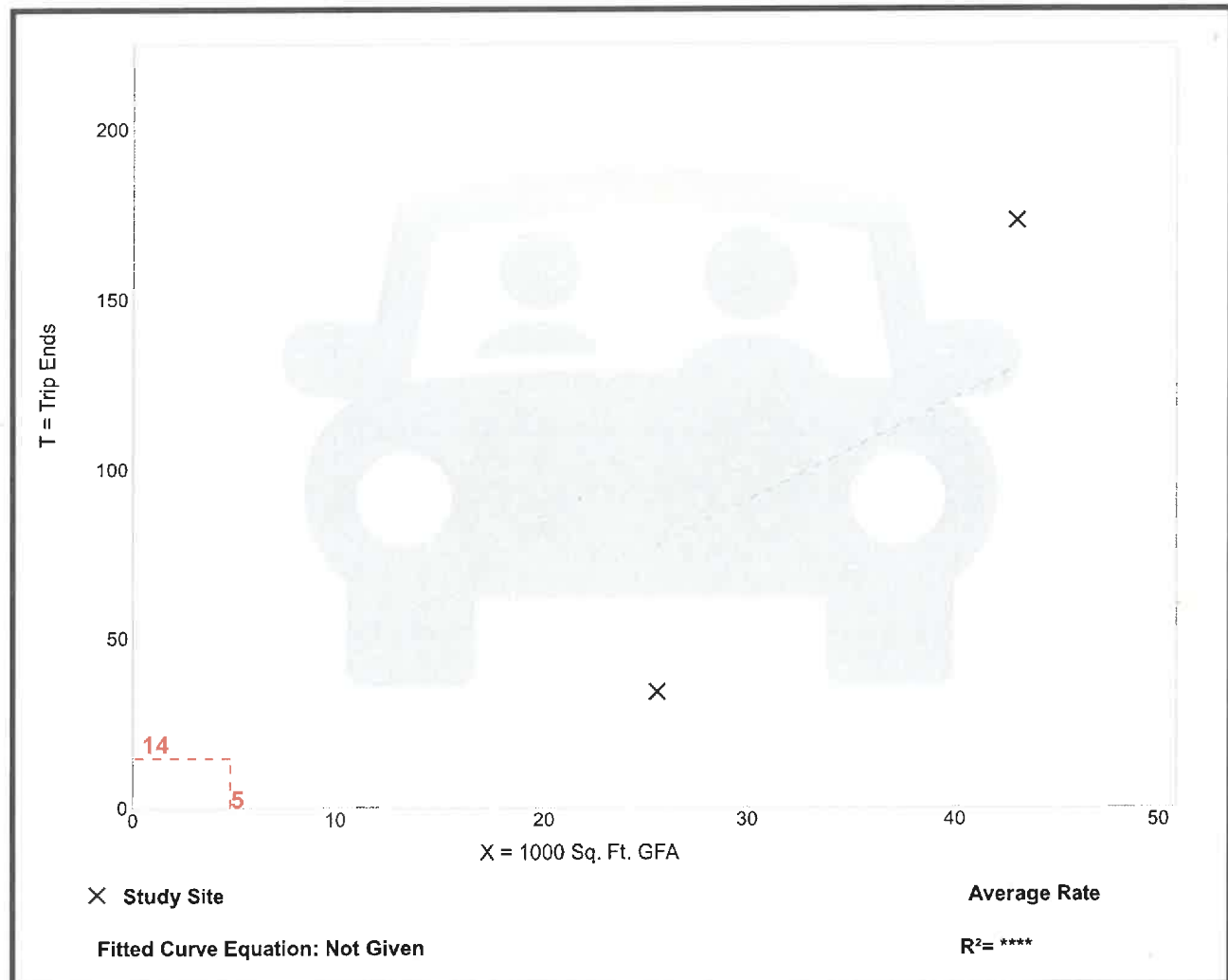
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 34
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.02	1.33 - 4.02	*

Data Plot and Equation

Caution – Small Sample Size





Attachment B

Safety Review

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 59159 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Int Alfred Rd & Barra Rd/West Cole Rd

RTE # / RD #: 0111X

DATE DRAWN: 5/10/2024 DRAWN BY: Tim

STUDY FROM: 1/1/2021

STUDY TO: 12/31/2023

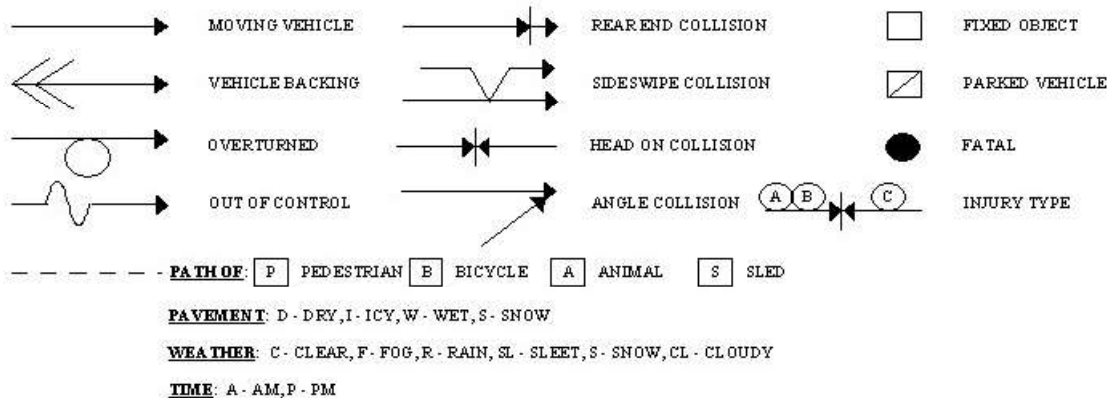
CRASH RATE: 1.41

CRF: 1.25

% INJURY: 35.3

TOTAL CRASHES: 34

LEGEND





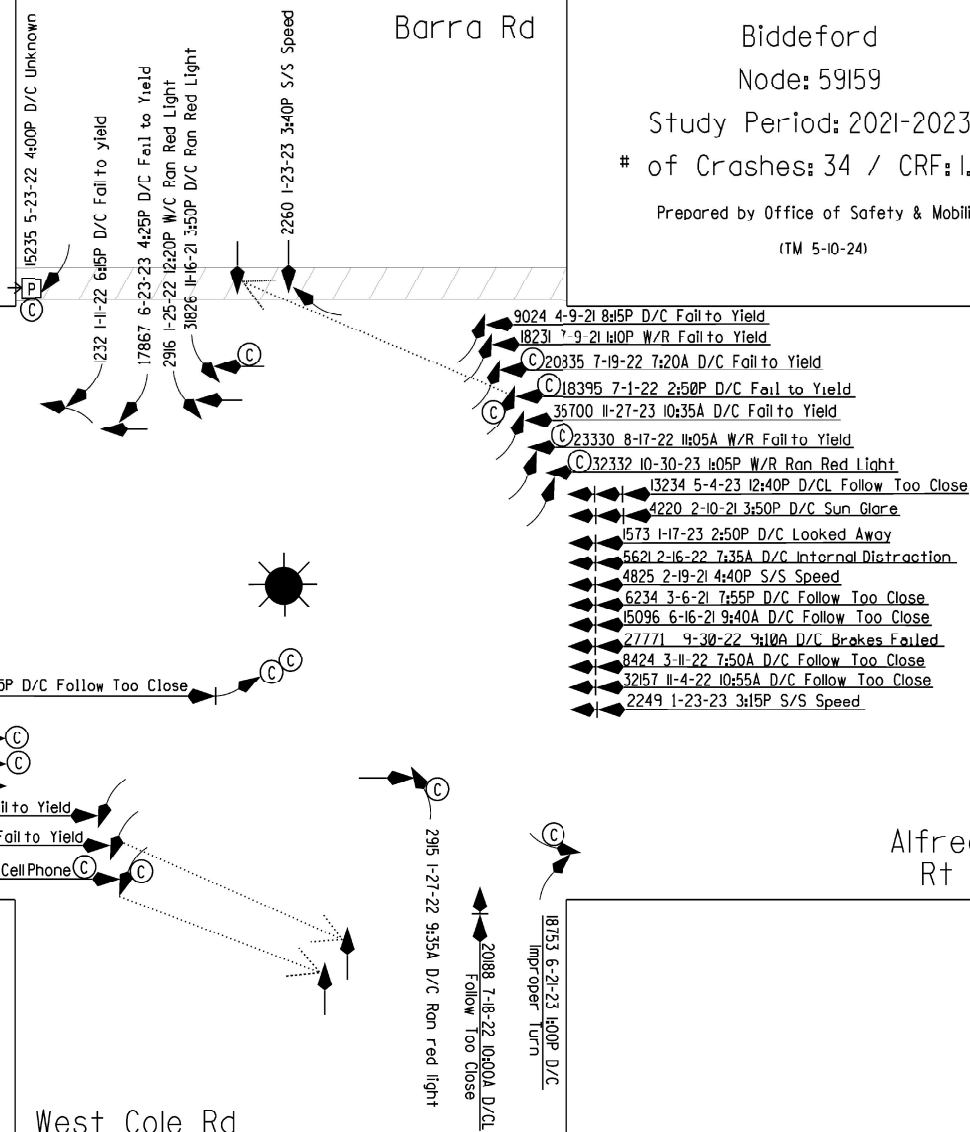
Biddeford
Node: 59159

Study Period: 2021-2023

of Crashes: 34 / CRF: 1.25

Prepared by Office of Safety & Mobility

(TM 5-10-24)



Alfred St
Rt III



= Traffic Signal

West Cole Rd



Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I - Single Node ☐ Section Detail ☒ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Biddeford
Int Alfred Rd & Barra Rd/West Cole Rd

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 0111X Start Node: 59159 Start Offset: 0 ☐ Exclude First Node
End Node: 59159 End Offset: 0 ☐ Exclude Last Node

Crash Summary I

Nodes													
Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes	Percent Annual M				Crash Rate	Critical Rate	CRF	
					K	A	B	C	PD	Injury	Ent-Veh		
59159	0111X - 2.06	Int of ALFRED ST BARRA RD W COLE RD	9	34	0	0	0	12	22	35.3	8.017	1.41	1.13
				Statewide Crash Rate: 0.71									
Study Years: 3.00				NODE TOTALS:	34	0	0	0	12	22	35.3	8.017	1.41
												1.13	1.25

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Day and Hour																											
Day Of Week	AM							Hour of Day						PM											Un	Tot	
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11			
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MONDAY	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	6
TUESDAY	0	0	0	0	0	0	0	1	0	0	1	0	1	0	2	1	0	0	1	0	0	0	0	0	0	0	7
WEDNESDAY	0	0	0	0	0	0	0	1	0	1	0	1	0	2	0	1	1	0	0	0	0	0	0	0	0	0	7
THURSDAY	0	0	0	0	0	0	0	0	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	1	0	1	1	0	0	2	1	0	2	0	0	0	1	0	0	0	0	0	9
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Totals	0	0	0	0	0	0	0	3	0	3	4	1	3	5	4	4	4	0	1	1	1	0	0	0	0	0	34

Vehicle Counts by Type			
Unit Type		Total	
1-Passenger Car	33	23-Bicyclist	0
2-(Sport) Utility Vehicle	24	24-Witness	6
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	12	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	79
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)	2		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash							
Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	32	5	0	0	0	38
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	9	1	0	0	0	0	10
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	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	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	10	0	0	0	0	0	10
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	3	0	0	0	0	0	3
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	3	0	0	0	0	0	3
Unknown	0	0	0	0	0	0	0
Total	34	33	5	0	0	0	72

Crashes by Apparent Physical Condition And Driver							
Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	33	33	5	0	0	0	71
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	34	34	5	0	0	0	73

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	11	0	0	0	0	11
20-24	8	0	0	0	0	8
25-29	2	0	0	0	0	2
30-39	10	0	0	0	0	10
40-49	4	0	0	0	0	4
50-59	12	0	0	0	0	12
60-69	12	0	0	0	0	12
70-79	7	0	0	0	0	7
80-Over	6	0	0	0	0	6
Unknown	0	0	0	1	0	1
Total	72	0	0	1	0	73

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	72
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	68		
14-Parked Motor Vehicle	3		
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	0		
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	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices	
Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	34
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
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	0
14-Other	0
Total	34

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	12	16
PD	22	0
Total	34	16

Road Character	
Road Grade	Total
1-Level	33
2-On Grade	1
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	34

Light	
Light Condition	Total
1-Daylight	30
2-Dawn	0
3-Dusk	1
4-Dark - Lighted	3
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	34

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	1	3	3	7
FEBRUARY	2	1	0	3
MARCH	2	1	1	4
APRIL	1	0	0	1
MAY	0	1	1	2
JUNE	1	0	2	3
JULY	1	4	0	5
AUGUST	2	1	0	3
SEPTEMBER	1	1	0	2
OCTOBER	0	0	1	1
NOVEMBER	1	1	1	3
DECEMBER	0	0	0	0
Total	12	13	9	34

Report is limited to the last 10 years of data.

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	0	16	0	0	0	0	0	0	0	0	0	0	16
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	17	0	0	0	0	0	0	0	0	0	0	17
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	34	0	0	0	0	0	0	0	0	0	0	34

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	3	0	0	0	0	0	0	0	0	0	0	3
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	20	0	0	0	0	0	0	0	0	0	1	21
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	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	3	0	0	0	0	0	0	0	0	0	1	4
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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	2	0	0	0	2
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	26	0	0	0	0	0	0	3	0	0	5	34

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
Alfred St-Barra Rd area

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 3200025	Start Node: 59159 End Node: 59168	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☐ Exclude Last Node
Route: 0111X	Start Node: 57142 End Node: 59234	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary I

Nodes															
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Percent Annual M C	Crash Rate PD	Critical Rate Ent-Veh	CRF				
59168	3200025 - 0.32	Non Int BARRA RD	2	1	0	0	0	0	1	0.0	0.338	0.99	0.56	1.76	
59159	0111X - 2.06	Int of ALFRED ST BARRA RD W COLE RD	9	34	0	0	0	12	22	35.3	8.017	1.41	1.13	1.25	
Study Years: 3.00			NODE TOTALS:		35	0	0	0	12	23	34.3	8.355	1.40	1.09	1.28

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
59159	59168	5099102	0 - 0.32	3200025 - 0	0.32	2	3	0	0	0	0	3	0.0	0.00216	462.54	909.47	0.00
Int of ALFRED ST BARRA RD W COLE RD				RD INV 3200025	Statewide Crash Rate: 370.71												
59159	57142	3114974	0 - 0.13	0111X - 1.93	0.13	2	6	0	0	0	1	5	16.7	0.00953	209.84	412.20	0.00
Int of ALFRED ST BARRA RD W COLE RD				ST RTE 111	Statewide Crash Rate: 209.30												
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	0.03	2	2	0	0	0	0	2	0.0	0.00237	281.28	580.94	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111	Statewide Crash Rate: 209.30												
59234	59159	3118497	0 - 0.11	0111X - 2.06	0.11	2	4	0	0	0	1	3	25.0	0.00869	153.42	420.93	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111	Statewide Crash Rate: 209.30												
Study Years:		3.00		Section Totals:		0.59	15	0	0	0	2	13	13.3	0.02275	219.74	365.09	0.60
				Grand Totals:		0.59	50	0	0	0	14	36	28.0	0.02275	732.48	504.06	1.45

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary

Section Details														
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
59159	59168	5099102	0 - 0.32	3200025 - 0	3	0	0	0	0	3	2022-14993	05/27/2022	0.05	PD
											2021-9515	04/16/2021	0.06	PD
											2023-3322	01/31/2023	0.23	PD
59159	57142	3114974	0 - 0.13	0111X - 1.93	6	0	0	0	1	5	2021-15006	06/10/2021	1.94	PD
											2022-19047	07/05/2022	1.97	PD
											2022-39406	12/14/2022	1.98	C
											2022-9295	03/18/2022	1.99	PD
											2021-16822	07/02/2021	1.99	PD
											2022-17495	06/20/2022	2.01	PD
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	2	0	0	0	0	2	2022-11788	04/27/2022	2.07	PD
											2022-26689	09/09/2022	2.07	PD
59234	59159	3118497	0 - 0.11	0111X - 2.06	4	0	0	0	1	3	2022-13541	05/10/2022	2.09	PD
											2021-22102	08/19/2021	2.10	C
											2023-24155	08/08/2023	2.10	PD
											2022-23332	08/15/2022	2.11	PD
Totals:					15	0	0	0	2	13				

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
MONDAY	0	0	0	0	0	0	0	0	1	0	2	0	0	1	0	3	1	0	0	0	0	0	0	0	0	8									
TUESDAY	0	0	0	0	0	0	0	1	1	0	2	0	1	0	2	1	1	0	1	0	1	0	0	0	0	11									
WEDNESDAY	0	0	0	0	0	0	0	1	0	1	0	1	1	3	0	1	1	0	0	0	0	0	0	0	0	9									
THURSDAY	0	0	0	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	0	0	1	0	0	7									
FRIDAY	0	0	0	0	0	0	0	2	1	1	2	0	1	2	1	1	2	0	0	0	1	0	0	0	0	14									
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1									
Totals	0	0	0	0	0	0	0	4	4	3	6	1	5	6	4	6	5	1	1	1	2	0	1	0	0	50									

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	46	23-Bicyclist	0
2-(Sport) Utility Vehicle	34	24-Witness	8
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	20	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	112
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)	2		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash							
Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	46	5	0	0	0	52
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	17	1	0	0	0	0	18
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	3	0	0	0	0	0	3
Improper Turn	3	0	0	0	0	0	3
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	13	0	0	0	0	0	13
Failed to Keep in Proper Lane	2	1	0	0	0	0	3
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	3	0	0	0	0	0	3
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	3	0	0	0	0	0	3
Unknown	0	0	0	0	0	0	0
Total	50	48	5	0	0	0	103

Crashes by Apparent Physical Condition And Driver							
Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	47	48	5	0	0	0	100
Physically Impaired	1	0	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	1	0	0	0	0	0	1
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	50	49	5	0	0	0	104

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	13	0	0	0	0	13
20-24	10	0	0	0	0	10
25-29	3	0	0	0	0	3
30-39	19	0	0	0	0	19
40-49	10	0	0	0	0	10
50-59	16	0	0	0	0	16
60-69	16	0	0	0	0	16
70-79	8	0	0	0	0	8
80-Over	8	0	0	0	0	8
Unknown	0	0	0	1	0	1
Total	103	0	0	1	0	104

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	98		
14-Parked Motor Vehicle	3		
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	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	1		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices	
Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	38
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	5
6-Yield Sign	0
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	7
14-Other	0
Total	50

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	14	18
PD	36	0
Total	50	18

Road Character	
Road Grade	Total
1-Level	44
2-On Grade	6
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	50

Light	
Light Condition	Total
1-Daylight	44
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	4
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	50

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	1	3	4	8
FEBRUARY	2	1	0	3
MARCH	2	2	1	5
APRIL	2	1	0	3
MAY	0	3	1	4
JUNE	2	1	2	5
JULY	2	5	0	7
AUGUST	3	3	1	7
SEPTEMBER	1	2	0	3
OCTOBER	0	0	1	1
NOVEMBER	1	1	1	3
DECEMBER	0	1	0	1
Total	16	23	11	50

Report is limited to the last 10 years of data.

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	0	16	0	2	0	0	0	0	0	0	0	0	23
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	17	0	8	0	0	0	0	0	0	0	0	25
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	1	0	34	0	10	0	0	0	0	0	0	0	0	50

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	4	0	0	0	0	0	0	0	0	0	0	4
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	26	0	0	0	0	0	0	0	0	0	1	27
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	3	8
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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	7	7
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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	2	0	0	0	2
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	36	0	0	0	0	0	0	3	0	0	11	50



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
Alfred St-Barra Rd area - 5 Year

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2023 End Month: 12

Route: 3200025	Start Node: 59159 End Node: 59168	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☐ Exclude Last Node
Route: 0111X	Start Node: 57142 End Node: 59234	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
59168	3200025 - 0.32	Non Int BARRA RD	2	1	0	0	0	0	1	0.0	0.338	0.59	0.55	1.08
												Statewide Crash Rate:	0.13	
59159	0111X - 2.06	Int of ALFRED ST BARRA RD W COLE RD	9	54	0	0	2	16	36	33.3	8.017	1.35	1.04	1.29
												Statewide Crash Rate:	0.71	
Study Years: 5.00		NODE TOTALS:		55	0	0	2	16	37	32.7	8.355	1.32	1.00	1.31

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section U/R Length	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF	
59159	59168	5099102	0 - 0.32	3200025 - 0	0.32	2	4	0	0	0	0	4	0.0	0.00216	370.03	801.49	0.00
Int of ALFRED ST BARRA RD W COLE RD				RD INV 3200025										Statewide Crash Rate: 370.71			
59159	57142	3114974	0 - 0.13	0111X - 1.93	0.13	2	9	0	0	0	1	8	11.1	0.00953	188.85	369.52	0.00
Int of ALFRED ST BARRA RD W COLE RD				ST RTE 111										Statewide Crash Rate: 209.30			
59234	59159	3118497	0 - 0.11	0111X - 2.06	0.11	2	6	0	0	0	1	5	16.7	0.00869	138.08	376.58	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111										Statewide Crash Rate: 209.30			
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	0.03	2	4	0	0	0	1	3	25.0	0.00237	337.53	509.45	0.00
Int of ALFRED ST WELLSRING RD				ST RTE 111										Statewide Crash Rate: 209.30			
Study Years:		5.00		Section Totals:		0.59	23	0	0	0	3	20	13.0	0.02275	202.16	334.71	0.60
				Grand Totals:		0.59	78	0	0	2	19	57	26.9	0.02275	685.60	466.51	1.47

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary

Section Details														
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
59159	59168	5099102	0 - 0.32	3200025 - 0	4	0	0	0	0	4	2022-14993	05/27/2022	0.05	PD
											2019-75621	10/28/2019	0.05	PD
											2021-9515	04/16/2021	0.06	PD
											2023-3322	01/31/2023	0.23	PD
59159	57142	3114974	0 - 0.13	0111X - 1.93	9	0	0	0	1	8	2021-15006	06/10/2021	1.94	PD
											2019-64180	09/06/2019	1.96	PD
											2022-19047	07/05/2022	1.97	PD
											2022-39406	12/14/2022	1.98	C
											2019-49604	04/19/2019	1.99	PD
											2021-16822	07/02/2021	1.99	PD
											2022-9295	03/18/2022	1.99	PD
											2020-3278	01/27/2020	1.99	PD
											2022-17495	06/20/2022	2.01	PD
59234	59159	3118497	0.11 - 0.14	0111X - 2.06	4	0	0	0	1	3	2019-43557	02/23/2019	2.07	C
											2020-22019	09/15/2020	2.07	PD
											2022-26689	09/09/2022	2.07	PD
											2022-11788	04/27/2022	2.07	PD
59234	59159	3118497	0 - 0.11	0111X - 2.06	6	0	0	0	1	5	2022-13541	05/10/2022	2.09	PD
											2019-52338	05/22/2019	2.09	PD
											2021-22102	08/19/2021	2.10	C
											2023-24155	08/08/2023	2.10	PD
											2022-23332	08/15/2022	2.11	PD
											2019-54678	06/12/2019	2.13	PD
Totals:					23	0	0	0	3	20				

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
MONDAY	0	0	0	0	0	0	0	0	1	0	2	1	1	1	0	4	1	1	0	0	0	0	0	0	0	12									
TUESDAY	0	0	0	0	0	0	0	1	2	0	3	0	3	0	2	2	1	0	2	0	1	0	0	0	0	17									
WEDNESDAY	0	0	0	0	0	0	0	1	1	2	0	2	1	4	0	1	1	0	0	0	0	0	0	0	0	13									
THURSDAY	0	0	0	0	0	0	0	1	1	1	0	1	2	0	3	1	0	2	0	0	0	0	1	0	0	13									
FRIDAY	0	0	0	0	0	1	0	3	1	1	3	0	1	3	1	2	2	2	0	0	1	0	0	0	0	21									
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2									
Totals	0	0	0	0	0	1	0	6	6	4	8	4	8	8	6	11	5	5	2	1	2	0	1	0	0	78									

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	74	23-Bicyclist	0
2-(Sport) Utility Vehicle	53	24-Witness	18
3-Passenger Van	3	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	28	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	180
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)	3		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	1		

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash							
Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	72	7	0	0	0	80
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	33	1	0	0	0	0	34
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	1	0	0	0	0	0	1
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	4	0	0	0	0	0	4
Improper Turn	5	0	0	0	0	0	5
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	15	0	0	0	0	0	15
Failed to Keep in Proper Lane	4	1	0	0	0	0	5
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	5	0	0	0	0	0	5
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	4	1	0	0	0	0	5
Unknown	1	1	0	0	0	0	2
Total	78	76	7	0	0	0	161

Crashes by Apparent Physical Condition And Driver							
Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	75	76	7	0	0	0	158
Physically Impaired	1	0	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	0	1	0	0	0	0	1
Ill (Sick)	1	0	0	0	0	0	1
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	1	0	0	0	0	0	1
Total	78	77	7	0	0	0	162

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	16	0	0	0	0	16
20-24	17	0	0	0	0	17
25-29	10	0	0	0	0	10
30-39	25	0	0	0	0	25
40-49	15	0	0	0	0	15
50-59	28	0	0	0	0	28
60-69	24	0	0	0	0	24
70-79	14	0	0	0	0	14
80-Over	12	0	0	0	0	12
Unknown	0	0	0	1	0	1
Total	161	0	0	1	0	162

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	161
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	1		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	155		
14-Parked Motor Vehicle	3		
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	1		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	1		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Traffic Control Devices	
Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	60
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	7
6-Yield Sign	0
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	10
14-Other	1
Total	78

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	2	2
C	19	25
PD	57	0
Total	78	27

Road Character	
Road Grade	Total
1-Level	70
2-On Grade	8
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	78

Light	
Light Condition	Total
1-Daylight	68
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	8
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	78

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	2022	2023	Total
JANUARY	1	2	1	3	4	11
FEBRUARY	2	3	2	1	0	8
MARCH	1	0	2	2	1	6
APRIL	1	0	2	1	0	4
MAY	1	0	0	3	1	5
JUNE	1	0	2	1	2	6
JULY	1	1	2	5	0	9
AUGUST	0	1	3	3	1	8
SEPTEMBER	2	1	1	2	0	6
OCTOBER	5	1	0	0	1	7
NOVEMBER	1	1	1	1	1	5
DECEMBER	2	0	0	1	0	3
Total	18	10	16	23	11	78

Report is limited to the last 10 years of data.

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	9	0	0	22	0	2	0	0	0	0	0	0	0	0	33
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	31	0	12	0	0	0	0	0	0	0	0	43
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	1	0	54	0	14	0	0	0	0	0	0	0	0	78

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	5	0	0	0	0	0	0	0	0	0	0	5
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	37	0	0	0	0	0	0	0	0	0	3	40
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	12	0	0	0	0	0	0	0	0	0	4	16
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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

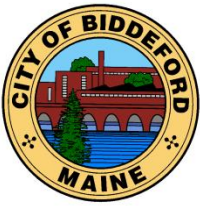
Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	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	2	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	0	0	0	8	8
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

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	4	0	0	0	4
Dusk	0	0	0	0	0	0	0	1	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	55	0	0	0	0	0	0	6	0	0	17	78



CITY OF BIDDEFORD

Planning and Development Department

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adi.iriqat@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Patoine and Members of the Biddeford Planning Board

FROM: Adi Iriqat, Assistant City Planner

DATE: September 11, 2024

RE: **2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.**

MEETING DATE: September 18, 2024, at 6:00 PM

1. INTRODUCTION

This is the second time this application has been reviewed by the Planning Board. The project (old case # 2015.42) was originally permitted by the Biddeford City Planning Board on January 6, 2016. In November 2017, a 1-year extension was granted to January 6, 2019, and an additional 1-year extension was granted in December 2018 to January 6, 2020. Following the effects of COVID-19 on construction timeframes, market conditions, and availability of City staff, the second extension had lapsed before construction could begin. Mr. Eon is interested in continuing this approval and would like to request reinstatement and an additional 1-year extension to January 6, 2025. Given the statutory limitations, the City Staff does not have the authority to retroactively extend his approval especially since the request was made after the project has expired.

Initially, the applicant proposed the construction of a 5,850 sq. ft. multi-tenant commercial building (restaurant and offices) on Barra Road (Tax Map 2, Lot 43-10) in I-3 Zone. The building would be a single-story building with a daylight basement, possibly for storage for the owner. The applicant proposed improvements including storm water Management Facilities and 45 Parking Spaces (2 of which are handicapped parking) plus a provision for 4 additional parking spaces.

Lighting plans have been submitted as part of the final plan submission as noted in the preliminary plan submission. The traffic report is also available as part of the final submission.

2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.

Planning Board Meeting Date: September 18, 2024 at 6:00 PM

2. PROJECT DATA/INFORMATION

1.	Applicant:	Mike Eon Associates LTD 260 Main Street Biddeford, ME 04005
2.	Owner of Property:	Same as applicant
3.	Agent:	Christopher McDonald BH2M Engineers 380b Maine Street Gorham, ME 04038
4.	Engineer:	Same as Agent
5.	Project Location:	25 Barra Road
6.	Project Tax Map #/Lot #:	Tax Map 2, Lot 43-10
7.	Lot Size:	3.66 Acres
8.	Base Zoning:	I-3
9.	Overlay Zoning:	Stream Protection (to the rear of the property) – No development is proposed in the SP Zone.
10.	Existing Use:	Vacant land
11.	Proposed Use:	Commercial building (dentist's office)
12.	Approvals Required:	Final Plan Review
13.	Uses in the Vicinity:	Commercial
14.	Waivers Needed:	N/A
18.	Waivers Granted:	N/A
22.	Other Non-City Permits Required:	
23.	Fees Paid:	Yes
25.	Planning Board Review History: July 17, 2024-Preliminary Plan; September 18-Final Plan	

3. Existing Conditions

The Lot is part of a 3-Lot Subdivision previously approved by the Planning Board. The two other lots have already been built on (Bolduc Eye Care and a York County Dialysis Center). The Lot already has 2 curb cuts on Barra Road which provide access to it. The lot gently slopes away from Barra Road towards the wetlands and a stream within the Thatcher Brook Watershed. The project is located on Map 2 Lot 43-10. The site is bounded by commercial development and Barra Road, and a wetland to the southwest or rear of the property. The wetland was delineated by Mark Hampton Associates. These are not wetlands of special significance, and no direct impacts are proposed. The project is also not part of a mapped flood zone.

Utilities are already stubbed into the lot. The lot is serviced by natural gas, City Sewer, and Public Water.

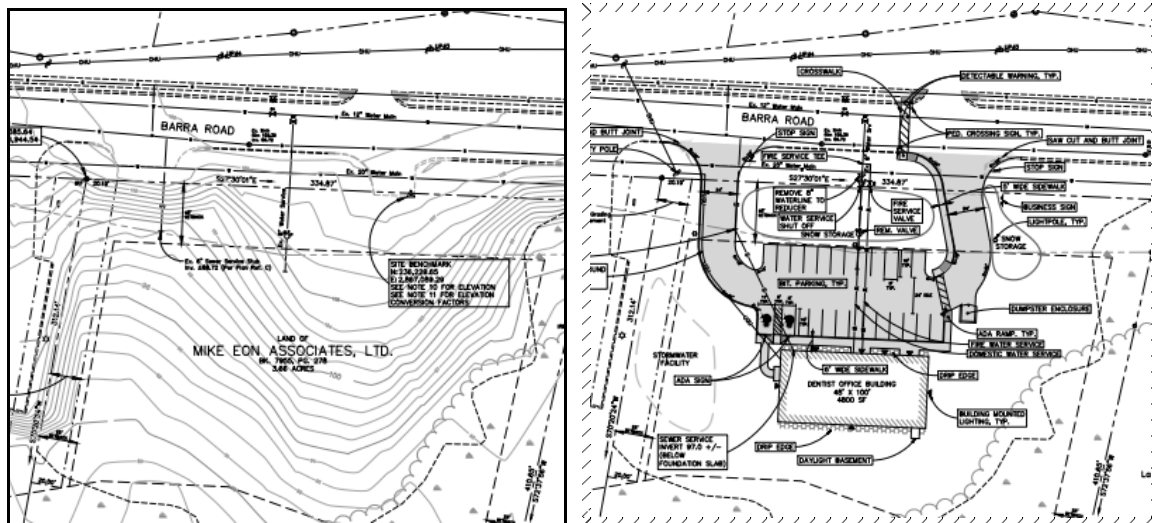
4. Project Proposal

The applicant now proposes to construct a 4,800 sq. ft. building proposed as a dentist's office. To support this development, the project also proposes to create 25 parking spaces, in conformance

2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.

Planning Board Meeting Date: September 18, 2024 at 6:00 PM

with the City Code, utility connections utilizing existing municipal service stubs on the property, and develop stormwater management systems in conformance with City standards.



Existing Conditions vs. Proposed Site Plan. The images do not reflect the full extent of the site and have been cropped out due to editorial preferences.

The proposed project is located in the Thatcher Brook Watershed. Thatcher Brook is listed in 06-096 Chapter 502 as an Urban Impaired Stream. However, because the project will not create over 3 acres of impervious area or 20 acres of disturbed area, the project is not required by DEP to meet the Urban Impaired Stream Standard, as it does not meet the requirements of Site Location of Development, and is less than 20,000 sq. ft. of impervious area, and does not meet the requirements of Stormwater Law. However, as the project is being proposed in the City of Biddeford, the City does require that the projects within an Urban Impaired Stream Watershed pay into the Compensation Fee Utilization Plan (CFUP) managed by the City, at Maine DEP's prescribed rates, based on Table 1 found in 06-096 CMR 501 3.A.(1).

CFUP Fee Schedule – 25 Barra Road Commercial Development Project			
Type of Surface	Compensation Fee (per acre)	Proposed Area (acres)	Compensation Fee
Non-roof Impervious Area	\$12,500	0.33	\$4,125
Roof	\$5,000	0.11	\$550
Landscape Area	\$2,500	0.59	\$1,475
Total			\$6,150

Table 1 CFUP based on Development Type

2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.

Planning Board Meeting Date: September 18, 2024 at 6:00 PM

There have been changes in the building elevation except for the east side elevation. The changes revolve around window and door placement numbers.

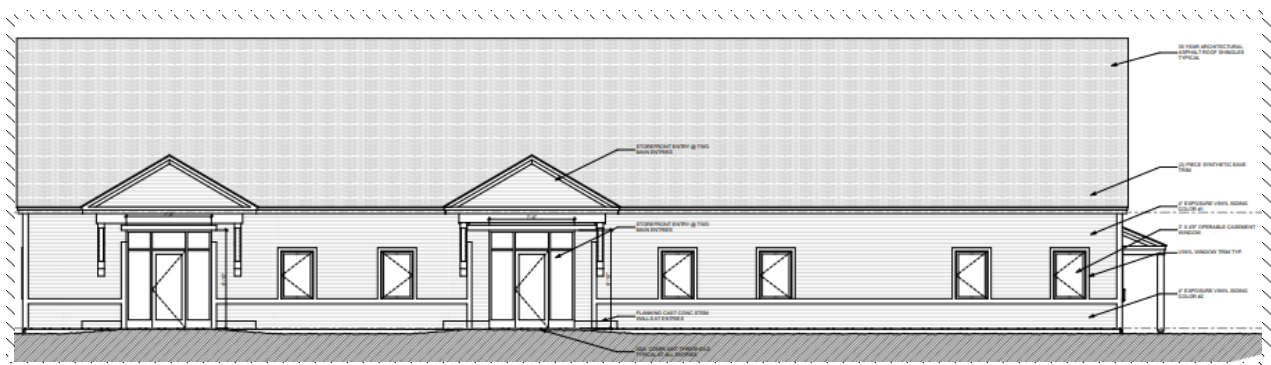
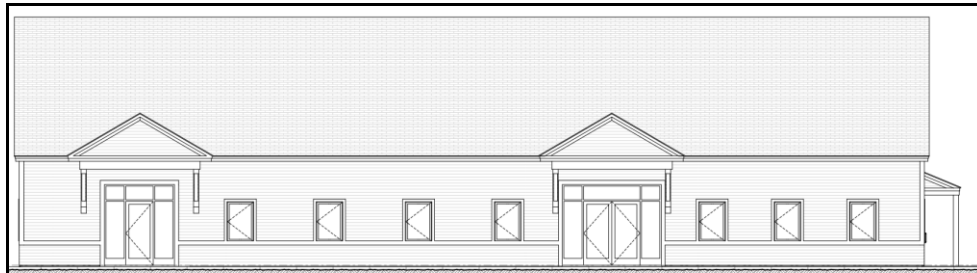


Figure 1 Front Elevation- North

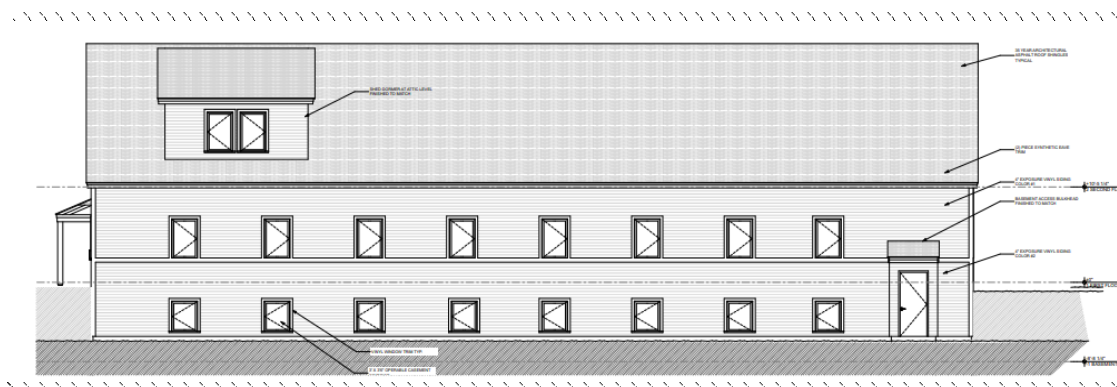
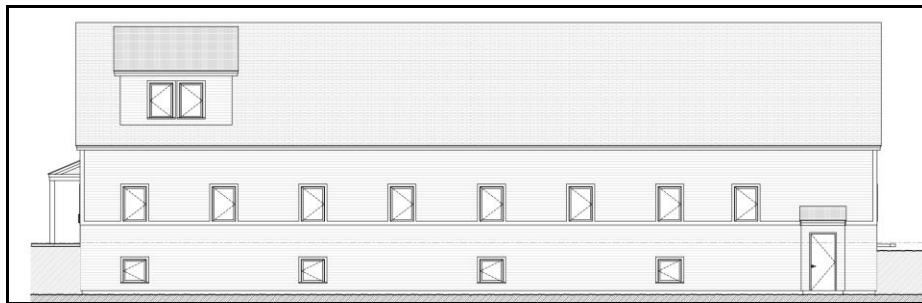


Figure 2 Back Elevation-South

2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.

Planning Board Meeting Date: September 18, 2024 at 6:00 PM

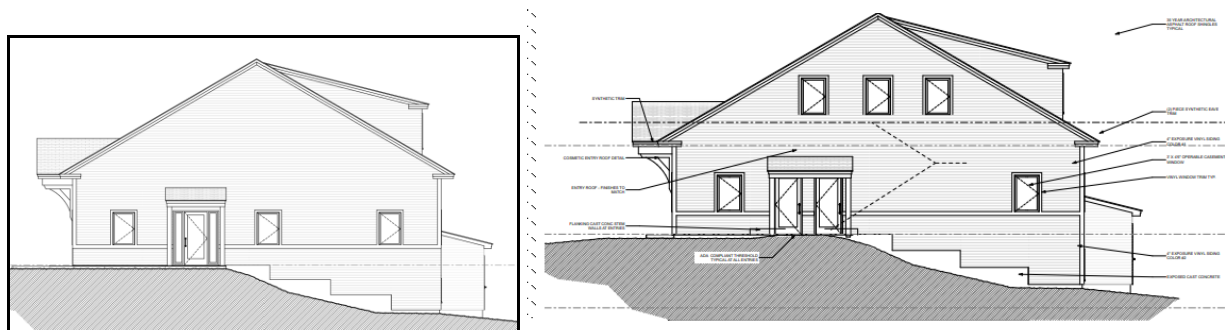


Figure 3 Side Elevation-West

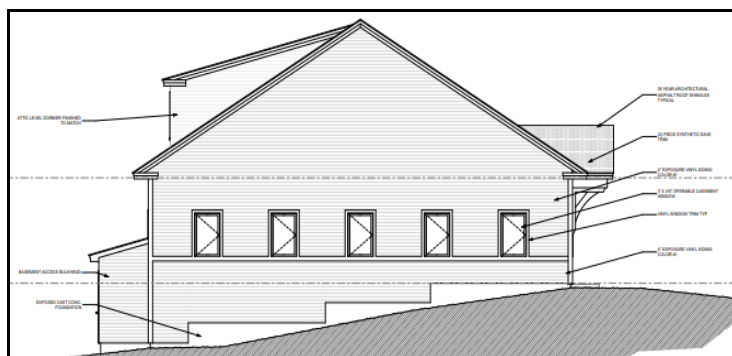


Figure 4 Side Elevation-East

5. REVIEW PROCESS

Per the City Ordinance, this application is subject to Site Plan (Land Development Regulations, Article XI) review and approval by the Planning Board.

6. DEPARTMENTAL REVIEW COMMENTS:

A. Planning:

The staff has reviewed the submitted plans and is supportive of the dentist's office. The project is currently being assessed by our Engineering Peer Reviewer. Comments shall be addressed prior to the final plan review.

7. STAFF RECOMMENDATION

The staff is supportive of the project and does not anticipate any insurmountable issues with the peer review of the stormwater application/analysis. Therefore, is requesting that the Planning Board approve the preliminary site plan review, with the following Conditions of Approval:

1. Standard Conditions of Approval.
2. The CFUP fee of \$6,150.00 shall be paid at the issuance of the building permit.

2024.31 Final Plan Review for Mike Eon for a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.

Planning Board Meeting Date: September 18, 2024 at 6:00 PM

3. The traffic impact fee of \$1,056.00 shall be paid at the issuance of the building permit.
4. All conditions previously approved for Mike Eon Associates LTD, by the Planning Board, are hereby reaffirmed.

8. SAMPLE MOTIONS:

A. Motion to approve Case # 2024.31 Final Plan Review for Mike Eon Associates LTD to construct a dentist office located at 25 Barra Road (Tax Map 2, Lot 43-10), with the recommended Conditions of Approval.

B. Motion to Table Case # 2024.31 Final Plan Review for Mike Eon Associates LTD to construct a dentist office located at 25 Barra Road (Tax Map 2, Lot 43-10), based upon the following reasons:

A) _____

b) _____

c) _____

C. Motion to Deny Case # 2024.31 Final Plan Review for Mike Eon Associates LTD to construct a dentist office located at 25 Barra Road (Tax Map 2, Lot 43-10), based upon the following reasons:

A) _____

b) _____

c) _____

September 6, 2024

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

Re: 25 Barra Road – Dentist Office
Site Plan Application Response to Comments

Dear David,

We have reviewed the comments of the Site Plan Review Application for 25 Barra Road, Dentist Office from Tom Saucier of Site Design Associates dated August 27, 2024. Below we are providing responses to each of those comments.

A. Site Plan Application Drawing Checklist.

1. Item 1A. Legends for existing and proposed conditions should be provided.

Response: Legends on all sheets have been modified to better reflect the linework shown on the plans.

2. Item 2. The cover sheet should be updated with the items required in the checklist.

Response: The cover sheet has been updated to include additional information, however, some detailed information, such as zoning, waiver and permitting requests, use descriptions, watershed information, natural resources, and utility connections are better addressed in other sheets of the plan set. The majority of the requested information can be found on Sheet 1.

3. The horizontal and vertical datums are assumed and are not referenced to NAD 83 and NAVD 88.

Response: See note 11 on Sheet 2.

4. Drawing scales are greater than 1" = 20 ft. Applicant indicates they believe that the 1" = 30 ft. is appropriate.

Response: This understanding statement is correct. The project provides appropriate level of detail for the 30 scale drawings as is provided.

5. Item 3B. No coordinates for benchmark. (minor)

Response: Coordinates have been provided for the benchmark along with the closest property boundaries for use in orienting this plan to Maine State Coordinate plane.

6. Item 4F. Is there any existing pavement that will be removed?

Response: There will be a small amount of pavement to be removed along the existing curb cut aprons and to reshape the curb lines along these existing entrances and to facilitate proposed grading. The pavement will be replaced in approximately the same locations under proposed conditions, with a small reduction.

7. Item 5L. Stop signs at exits?

Response: Stop signs are now shown at each entrance.

8. Item 5S. Sidewalk widths?

Response: Sidewalk widths are now shown on Sheet 1 and the curb detail has been updated to show additional sidewalk detail shown on Sheet 6.

9. Item 6P. Additional spot grades needed at accessible parking spaces.

Response: Additional spot grades are now shown framing out the 4 corners of the proposed accessible parking areas, showing that these are proposed at 1% and are in conformance with ADA requirements of less than 2%.

10. Items 6Q-S. Checklist indicates the slope arrows are shown, but that is not the case. Additional spot grades would negate the need for the slope arrows.

Response: Additional spot grades and additional slope arrows have been added to the plans.

11. Item 12H.i.-ii. The post construction stormwater I and M manual should be updated to include the city requirements.

Response: An updated I and M manual has been included as Attachment 1.

12. Item 12.I. We were unable to find a Salt Management Plan in the submission.

Response: A salt management plan was included in the preliminary submission documents as Attachment 9.

B. Responses to July 17, 2024 Review Comments (numbered per original letter)

- B.1.b. No drip edge is shown.

Response: Linework for the areas of the drip edges are now shown on the plans, previously provided in a thin line type that is now bolder. A detail for the drip edges was previously provided on Sheet 6.

Additional comment - Invert of the sanitary sewer at the building should be shown.

Response: Sewer service is now shown on Sheet 1, assumed to outlet at basement slab elevation.

Additional comment – The dumpster enclosure should be called out.

Response: The dumpster enclosure is now shown on the plans.

Additional comment – It is not clear whether the property irons are to be set or exist.

Response: Notes and symbols on Sheet 2 have been updated to show “IRF” or “IRS” for corners that have not been set. The corner that has not been set is located near a wet area of the stream and is currently inaccessible.

- B.2.a. We recommend riprap in the trough of the level spreader, and that the plan and detail be updated accordingly.

Response: The plan and details have been updated to include this suggestion.

- B.2.b. We do not believe the erosion control mix will provide suitable stabilization for the 2:1 slopes. We believe a temporary or permanent product suitable for the application should be specified.

Response: The note referring to ECM has been removed, and are suggesting that erosion control blanket be used to provide temporary stabilization of the steep slopes to the rear of the project.

- B.2.c. Note 1 on Sheet 4 should be revised to require inspection after a storm of 0.5 inches or greater in 24 hours.

Response: This note has been revised as suggested.

- B.2.d. An additional step in the soil filter inspection requirements should be after the liner has been placed and prior to backfill.

Response: This note was included previously, but has been updated to remove the “and pipes” to specifically review the liner prior to any material or product placements.

- B.2.e. A typical section through the forebay should be provided.

Response: The profile view of the grassed underdrain soil filter has been updated to better illustrate proposed conditions.

- B.2.f. The soil filter emergency spillway elevation in plan view conflicts with the typical spillway section. We believe the proper spillway elevation should be 96.75. if so we suggest the embankment be raised to elevation 98.0.

Response: The correct elevation of the spillway is 96.75. The embankment has been revised to provide 1’ between the spillway and the crest of the berm, with the crest of the berm now set at 97.75 to maximize crest width.

- B.2.g. Additional comment – We suggest that the underdrain layout in the soil filter be rearranged to provide 2 or 3 longitudinal runs with cleanouts rather than the short spurs shown to improve constructability and possibly reduce cost. If the

layout remains as shown we would recommend cleanouts on the ends of the laterals.

Response: Underdrains have been reconfigured to meet this suggestion.

B.2.h. A note should be added to the catch basin details calling for the casco traps or snouts.

Response: A note has been added to the catch basin details on Sheet 7.

We trust that these additional details will provide you with the necessary information to bring the Site Plan application to the Planning Board for Final Approval. If you need any additional information, feel free to contact me directly.

Sincerely,



Christopher MacDonald, P.E.
Civil Engineer

Cc Mike Eon – Mike Eon Associates, LTD

ATTACHMENT 1
UPDATED EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN

**EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN**

**25 Barra Road
Biddeford, Maine**

Submitted by:

**Mike Eon Associates, LTD.
260 Main Street
P.O. Box 444
Biddeford, ME**

Prepared by:



Date:
September 2024

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LIST OF APPENDICES

APPENDIX A	Plans
APPENDIX B	Construction Inspection Forms
APPENDIX C	Post-Construction Inspection Forms
APPENDIX D	Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan
APPENDIX E	Post Construction – City of Biddeford Annual Stormwater Management Facilities Certification Forms

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for the Commercial Site Plan for Mike Eon Associates, LTD. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management, and the City of Biddeford Post-Construction Stormwater Management requirements.

1.1 PROJECT DESCRIPTION

Mike Eon Associates, LTD. is proposing to develop a commercial building with associated parking located at Tax Map 2, Block 43, Lot 10 (the project). The Project is proposed to occupy approximately 3.66 acres on a parcel located at 25 Barra Road.

The scope of work includes but is not limited to:

- Clearing and grubbing
- Construction of commercial building
- Construction of a paved parking area
- Construction of 5' paved sidewalk
- Installation of underground electric and communications
- Installation of water and sewer services
- Installation of stormdrain system

1.2 REQUIRED PERMITS

The following is a list of Municipal, State, and Federal permits that are required for the Project:

Municipal

City of Biddeford Site Plan Permit

1.3 **REFERENCES**

This plan has been developed in accordance with the following:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
<http://legislature.maine.gov/statutes/38/title38sec420-C.html>
<http://legislature.maine.gov/statutes/38/title38sec420-D.html>
- 06-096 Chapter 500 – Stormwater Management
<http://www.maine.gov/sos/cec/rules/06/096/096c500.docx>
- General Permit – Construction Activity
Maine Pollutant Discharge Elimination System (MPDES)
<https://www.maine.gov/dep/land/stormwater/construction.html>
- Maine Erosion and Sediment Control Best Management Practices (BMPs)
Manual for Designers and Engineers
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf
- Maine Erosion and Sediment Control Practices Field Guide for Contractors
https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf
- MaineDOT Best Management Practices for Erosion and Sedimentation Control
<https://www.maine.gov/mdot/env/documents/bmp/BMP2008full.pdf>
- City of Biddeford Maine Ordinances
<https://ecode360.com/BI3074>

1.4 RESPONSIBLE PARTIES

Preparer/Design Engineer:	Austin G. Fagan PE BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Developer/Applicant:	Mike Eon Associates, LTD 260 Main Street P.O. Box 444 Biddeford, Maine
Site Contractor:	<u>TBD</u> _____ _____
Owner:	Mike Eon Associates, LTD.
Post Construction Stormwater Inspector:	Christopher MacDonald, PE BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Stormwater Maintenance	Mike Eon Associates, LTD.
During Construction:	Mike Eon Associates, LTD.
Post Construction:	Mike Eon Associates, LTD. or assigns
During construction, the Developer/Applicant or their representatives will be responsible for implementing the erosion and sediment control BMP's as well routine inspections and maintenance of the BMP's.	
Post-construction stormwater BMP inspection, maintenance, reporting, and required recertifications will be the responsibility of the property owner.	

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has the knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix D shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
2. Maintenance: If BMP's need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event. All measures must be maintained in effective operating condition until areas are permanently stabilized.
3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to

operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action taken and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that will require routine inspection and maintenance:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Stabilized Construction Entrance
- Construction Limit Barrier Fence
- Stone Check Dam
- Temporary Sediment Trap
- Temporary Grass/Stone Lined Swale
- Roadways
- Snow Storage Areas
- Sediment Forebays
- Pipe Outlets
- Grassed Underdrained Soil Filter

Winter Construction

Winter construction is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

1. Site Stabilization: For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
3. Ditches: All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by Maine DEP.

-
4. Slopes: Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's and Appendix F for Annual Stormwater Management Facilities Certification form for the City of Biddeford. See section 5. below for addition information on City requirements.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and maintenance: All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (1 inch in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - b) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (1 inch in 24-hour period) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If

the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

- c) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.
- d) Inspect at least once per year, each underdrained soil filter, including the filter embankments, vegetation, underdrain piping, and overflow spillway. Remove and dispose of accumulated sediments in the filter. If needed, rehabilitate any clogged surface linings, and flush underdrain piping.

2. Regular maintenance

- 1. Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.
- 3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.
- 4. The site-specific post-construction BMP's for the project include the following:
 - Vegetated swales
 - Roadways and shoulders

-
- Storm Drain System
 - Snow storage areas
 - Rip rap inlet and outlet aprons
 - Sediment forebay
 - Pipe outlets
 - Grassed Underdrained Soil Filter
5. The City of Biddeford requires that annual inspections of the stormwater facilities be made on a yearly basis by a Qualified Post-Construction Stormwater Inspector, with annual inspections being reported to the City Engineer by March 1st of each year, per Chapter 34 Article VI “Post-Construction Stormwater Discharge” of the City’s code of Ordinances. See Attachment F for the current copy the Annual Stormwater Management Facilities Certification form for use in reporting these inspections to the City.

1.7 **HOUSEKEEPING**

The following performance standards shall apply:

1. Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop and implement as necessary appropriate spill prevention, containment, and response planning measures.

NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For

spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department’s website at :

<http://www.maine.gov/dep/spills/emergspillresp/>

2. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

See 06-096 Chapter 500 - Appendix D for license by rule standards for infiltration of stormwater.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately, no less than once a week, and prior to significant storm events. Operations during dry months that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

NOTE: Take care in sourcing water. Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. Debris and other materials: Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering: Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.

NOTE: Dewatering controls are discussed in the “Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.”

-
6. Authorized Non-stormwater discharges: Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non- stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
- a) Discharges from firefighting activity;
 - b) Fire hydrant flushings;
 - c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - d) Dust control runoff in accordance with permit conditions;
 - e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - g) Uncontaminated air conditioning or compressor condensate;
 - h) Uncontaminated groundwater or spring water;
 - i) Foundation or footer drain-water where flows are not contaminated;
 - j) Uncontaminated excavation dewatering;
 - k) Potable water sources including waterline flushings; and
 - l) Landscape irrigation.
7. Unauthorized non-stormwater discharges: The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with 06-096 Chapter 500 - Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:
- a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
 - b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
 - c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
 - d) Toxic or hazardous substances from a spill or other release.
8. Additional requirements: Additional requirements may be applied on a site-specific basis.

Appendix A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL						
General Information:						
Site Name:		Date:		Inspected by:		
Owner:						
Retained 3PI:		Last Rain Date:		Amount:		
Reason for Inspection:		Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:						
Photos:						
	YES/NO/NA	COMMENTS				
1. Is an Erosion and Sediment Control Plan available?						
ESC plan on-site and followed						
Other:						
2. Are all erosion control practices installed properly, maintained and functioning?						
Disturbed areas stable						
Concentrated flow inlet/outlet protection						
All areas at final grade						
Disturbed dormant areas stabilized						
Access roads and parking						
Hillsides and stockpiles						
Other:						
3. Are all sedimentation control practices installed properly, maintained and functioning?						
Construction entrance						
Sedimentation basins/traps/diversions						
Perimeter controls						
Check dams						
Other:						
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?						
Sedimentation/erosion in ditches						
Tracked Sediment or dust at exits						
Hazardous material storage and spill control practices						
Waste management (concrete, hazardous material, etc.)						
Other:						
5. Violation, Corrective Actions, Recommendations						
Sediment discharged from site?						
Corrective action required?						
Site compliant with all permits?						
Notice of violation or stop work order issued?						
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)						

Appendix C
Post-Construction Inspection Forms

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Ditches, Swales and Open Stormwater Channels)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Obstructions, sediment or debris noticeable in ditch line?					
Mowing required?					
Woody vegetation apparent in ditches?					
Side slopes stable? Signs of slumping?					
Rip rap stable? Underlying filter fabric visible?					
Additional Comments:					

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Roadway and Parking Areas)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
Winter sand accumulation apparent?						
Pavement Sweeping required?						
Gravel shoulders graded appropriately?						
Gravel road grading required?						
Low spots causing puddling?						
Additional Comments:						

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Storm Drain System including catch basins and culverts)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?					
Flow obstructions present?					
Erosion apparent at culvert inlet/outlet?					
Accumulated debris around catch basin grate?					
Accumulated debris in catch basin sump?					
Floating debris or oils found in catch basins?					
Additional Comments:					

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Underdrain Filter)						
Project name:		Date:		Inspected by:		
Owner name:						
Last rain date:		Amount:				
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:						
Photos: (Attach)						
Inspection Details		Comments		Maintenance Required		
Debris apparent in basin bottom?						
Vegetation established in basin bottom?						
Basin draining within 72 hours?						
Inlet forebay rip rap stable and free of debris?						
Embankment and side slopes stable? Sloughs or unvegetated areas apparent?						
Outlet free of debris? Rip rap stable?						
Valve in operating condition?						
Outlet control structure operational free of debris?						
Orifice free of debris and operational?						
Additional Comments:						

Barra Road Commercial Site Plan Project Post-Construction Inspection Form (Vegetated Area)					
Project name:		Date:		Inspected by:	
Owner name:					
Last rain date:		Amount:			
Reason for inspection:		Rain Event	Monthly	Annually	Maint. Performed
					Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					
Inspection Details		Comments		Maintenance Required	
All slopes and embankments well vegetated? Signs of sparse growth?					
Rill erosion apparent in vegetated areas?					
Downs slope of level spreaders/ditch turnouts stable?					
Mowing of vegetated areas appropriate?					
Additional Comments:					

Appendix D
Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized—channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April 15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
CULVERTS	Spring and late fall and after heavy rains	Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
		Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
CATCH BASINS	Annually in the spring	Repair any erosion damage at the culvert's inlet and outlet
		Remove sediments and debris from the bottom of the basin and inlet grates
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Remove floating debris and oils (using oil absorptive pads) from any trap
		Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
		Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
		Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
		Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
PROPRIETARY DEVICES	As specified by manufacturer	Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
OTHER PRACTICES	As specified for devices	Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
		Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
		Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

ENVIRONMENT

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. 2023.61¹]**

- 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.

BIDDEFORD CODE

Date: _____, 20.

By: _____

Signature

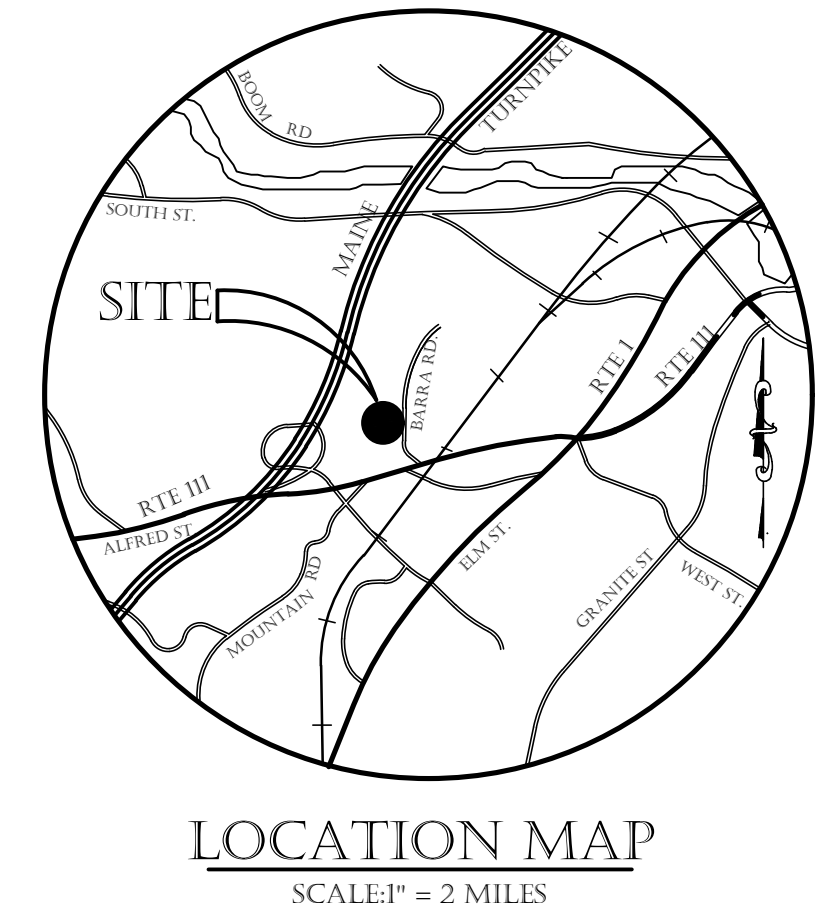
Print Name

Mail this certification to the City's Enforcement Authority at the following address [to be completed by the municipality]: _____

25 BARRA ROAD

A
DENTAL OFFICE COMMERCIAL SITE PLAN DEVELOPMENT
25 BARRA ROAD
BIDDEFORD, MAINE
TAX MAP 2 LOT 43-10

FOR
MIKE EON ASSOCIATES LTD
260 MAIN STREET
BIDDEFORD, MAINE



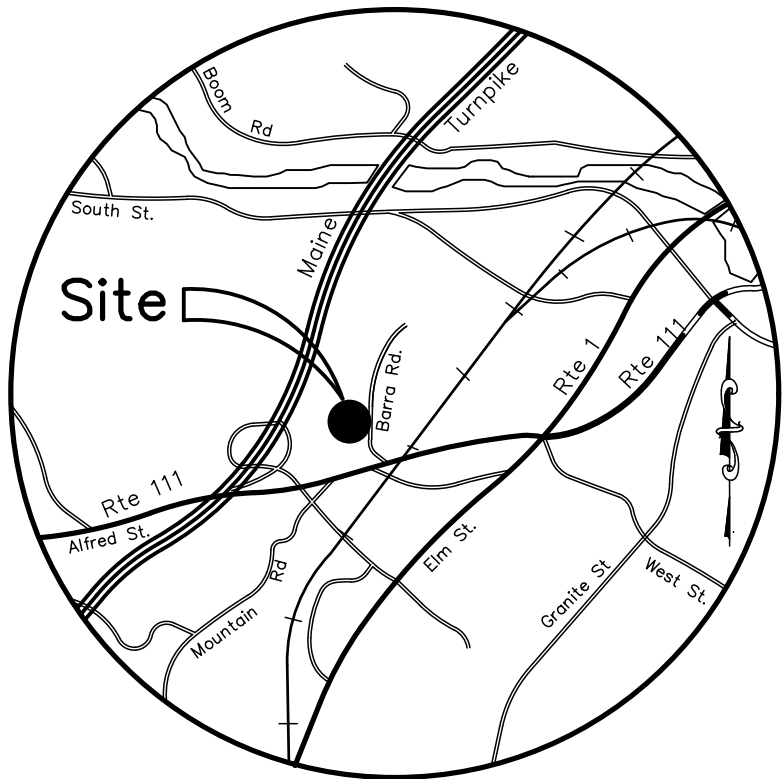
PLAN INDEX

- 1 SITE PLAN
- 2 EXISTING CONDITIONS
- 3 GRADING PLAN
- 4 EROSION CONTROL DETAILS
- 5 GRASSED UNDERDRAIN SOIL FILTER DETAILS
- 6 DETAILS A
- 7 DETAILS B
- A PRE-DEVELOPMENT PLAN
- B POST DEVELOPMENT PLAN
- L1 LANDSCAPING PLAN
- 1 OF 1 SITE LIGHTING PLAN
- A1.1 BASEMENT PLAN
- A1.2 FIRST FLOOR PLAN
- A1.3 ATTIC FLOOR PLAN
- A2.1 ELEVATIONS - FRONT & SIDE ELEVATIONS
- A2.2 ELEVATIONS - BACK AND SIDE



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

380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com



W11-2 PEDESTRIAN CROSS
OVER W16-9P "AHEAD" SIGNS
MOUNTED 250' FROM
PROPOSED CROSSWALK

APPLICANT: MIKE EON ASSOCIATES, LTD.
260 MAIN STREET
BIDDEFORD, MAINE

2. OWNER: MIKE EON ASSOCIATES, LTD.

3. ENGINEER: CHRISTOPHER MacDonald, PE #11985
BH2M
380B MAINE STREET
GORHAM, MAINE

4. SURVEYOR: ROBERT C. LIBBY JR., PLS #2190
BH2M

5. WETLANDS: MARK HAMPTON
MARK HAMPTON ASSOCIATES
PORTLAND, MAINE

6. DEED REFERENCE: BK. 7955, PG. 278

7. TAX MAP REFERENCE: MAP 2, LOT 43-10

8. ZONING: I-3

9. PROJECT AREA: 3.66 ACRES

10. PROPOSED USE: DENTAL PROFESSIONALS (MEDICAL OFFICES)

11. MINIMUM STANDARDS: LOT SIZE - NONE
FRONTAGE - 50'
SETBACKS - 40' FRONT, 25' SIDE/REAR

12. SEWER SERVICE: PUBLIC

13. WATER SERVICE: PUBLIC

14. ELECTRIC/TELEPHONE: UNDERGROUND

15. PARKING: 5 SPACES PER EACH DOCTOR / DENTIST
ASSUME 5 DENTISTS - 25 SPACES REQ'D
SPACES PROVIDED - 25 (INCL. 2 ACCESSIBLE)

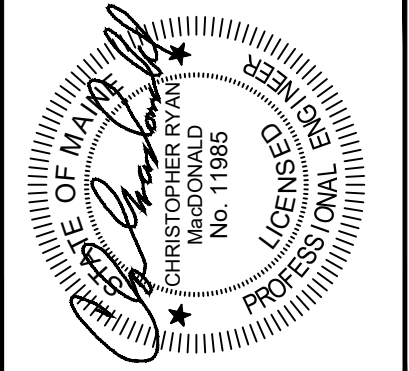
16. IMPERVIOUS AREA: APPROX. 19,262 SF NEW PROPOSED
APPROX. 53,825 SF PROPOSED DEVELOPED

16. EARTHWORK VOLUME: APPROX. 7225 CY CUT, 375 CY FILL, NET 6850 CY
SHORELAND ZONE: 10 CY CUT, 9 CY FILL

17. WAIVERS AND PERMITS: THE PROJECT REQUESTS THE FOLLOWING PERMITS
AND WAIVERS BE CONSIDERED:
A. SITE PLAN PERMIT
B. SHORELAND ZONE PERMIT FOR FILL WITHIN SP ZONE
C. ARTICLE VI-49.A.5, LANDSCAPED SCREENING FOR PARKING
D. ARTICLE VI-26.F FOR STEEP SLOPES

18. EXISTING PUBLIC AND PRIVATE UTILITY AND UNDERGROUND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND ALL UTILITIES AND PIPES ARE NOT NECESSARILY SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING IN FIELD THE LOCATIONS OF UTILITIES SHOWN, AND FOR INVESTIGATING AND IDENTIFYING THE EXISTENCE AND LOCATIONS OF ANY ADDITIONAL PUBLIC AND PRIVATE UTILITIES NOT SHOWN ON THE PLANS, BEFORE COMMENCING ANY EXCAVATIONS, AND SHALL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES AND PIPES, BOTH PUBLIC AND PRIVATE, WHETHER SHOWN ON PLANS OR NOT, THAT ARE DISTURBED DURING CONSTRUCTION. ALL COSTS INCURRED IN INVESTIGATING AND REPAIRING SAID UTILITIES SHALL BE BORNE BY THE CONTRACTOR, AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK PAID FOR UNDER THE APPLICABLE LUMP SUM AND UNIT PRICES IN THE CONTRACT. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRIC, TELEPHONE, NATURAL GAS, WATER, SEWER AND STORM DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE.

REVISION		
NO.	DATE	DESCRIPTION
1	6/12/24	Submitted for Preliminary Site Plan Review
2	8/14/24	Submitted for Final Site Plan Review
3	9/6/24	Revised to Address Final 3rd Party Comments



 **BH2M**

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

380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

SITE PLAN

25 BARRA ROAD

25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED C. MacDonald	DATE June 2024
DRAWN Staff	SCALE 1" = 30'
CHECKED C. MacDonald	JOB. NO. 23214

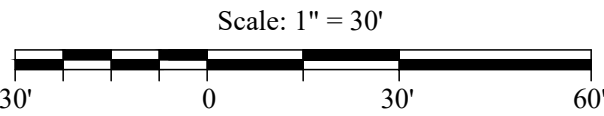
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<u>SYMBOL</u>	<u>DESCRIPTION</u>
	EXISTING UTILITY POLE
	PROPOSED UTILITY POLE
	EXISTING HYDRANT
	EXISTING SEWER MANHOLE
	PROPERTY LINE
	BUILDING SETBACK
	ABUTTER PROPERTY LINE
	EASEMENT LINE
	WETLANDS
	EDGE OF EXISTING PAVEMENT
	EXISTING SEWER MAIN / SERVICES
	PROPOSED SEWER SERVICES
	EXISTING WATER MAIN / SERVICES
	PROPOSED WATER SERVICES
	EXISTING OVERHEAD UTILITIES (ELECTRIC & DATA)
	PROPOSED UNDERGROUND UTILITIES (ELECTRIC & DATA)
	EXISTING GAS MAIN

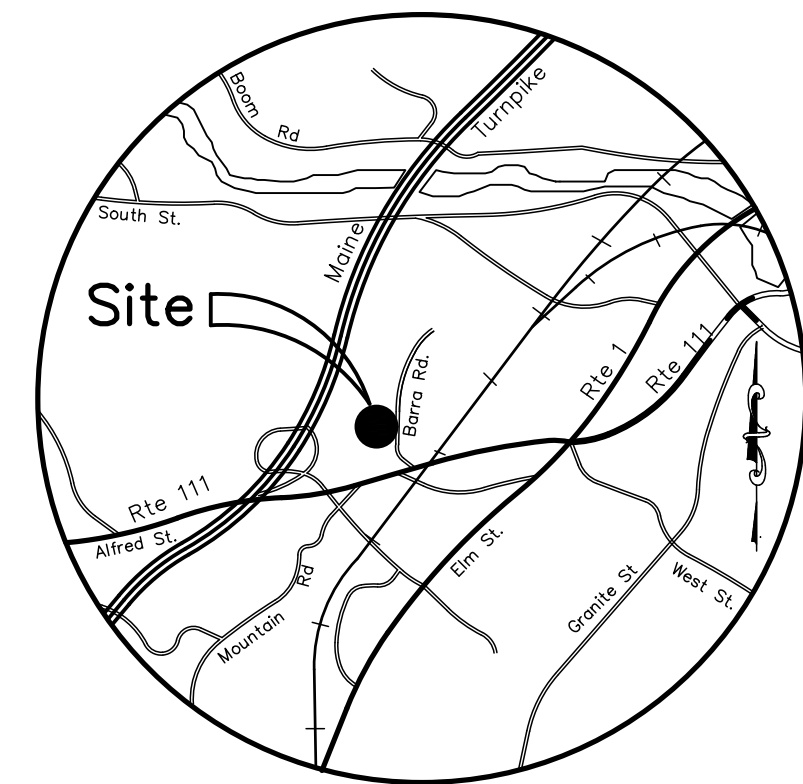
YORK, ss _____ REGISTRY OF DEEDS
Received _____
at _____ h _____ m _____ M., and
Filed In Plan Book _____ Page _____
ATTEST: _____

Register



PLAN REVIEWED AND APPROVED BY THE
CITY OF BIDDEFORD PLANNING BOARD.

[illegible]



NOTES:

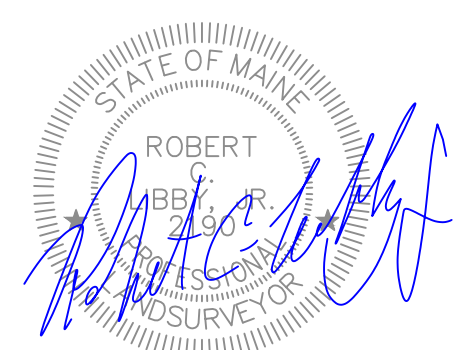
- | | |
|-----------------------|---|
| 1. OWNER: | MIKE EON ASSOCIATES, LTD.
260 MAIN STREET
BIDDEFORD, MAINE |
| 2. SURVEYOR: | ROBERT C. LIBBY JR., PLS #2190
BH2M
380B MAIN STREET
GORHAM, MAINE |
| 3. WETLANDS: | MARK HAMPTON
MARK HAMPTON ASSOCIATES
PORTLAND, MAINE |
| 4. DEED REFERENCE: | BK. 7955, PG. 278 |
| 5. TAX MAP REFERENCE: | MAP 2, LOT 43-10 |
| 6. ZONING: | I-3 |
| 7. MINIMUM STANDARDS: | LOT SIZE - NONE
FRONTAGE - 50'
SETBACKS - 40' FRONT, 25' SIDE/REAR |
| 8. PROJECT AREA: | 3.66 ACRES |
| 9. PLAN REFERENCE: | A. "BARRA ROAD EXISTING CONDITIONS",
BY BH2M, JOB #08029 DATED SEPT.
2008.

B. "SUBDIVISION PLAN 3 LOT SUBDIVISION
BARRA ROAD FOR MIKE EON ASSOCIATES
LTD. BY BH2M JOB #13062, DATED
JUNE 2013.

C. "BARRA ROAD RECONSTRUCTION AS BUILT
PLANS", EXIT FOUR BUSINESS PARK, FOR
CITY OF BIDDEFORD, DATED JAN. 2001. |
| 10. BENCHMARK: | MAG NAIL SET IN PAVEMENT
ELEV. 108.72 (SITE DATUM) |
| 11. VERTICAL DATUM: | PROJECT SURVEY CONDUCTED ON AN
ASSUMED MAGNETIC NORTH ORIENTATED
HORIZONTAL DATUM. VERTICAL DATUM
ON AN ASSUMED LOCAL DATUM THAT IS
AN APPROXIMATE DATUM SHIFT OF 0.86'
ABOVE NAVD 88. |
| 12. HORIZONTAL DATUM: | COORDINATES SHOWN IN NAD 83 MAINE
STATE PLANE WEST SURVEY FEET |

I CERTIFY THAT THIS SURVEY CONFORMS
TO THE MAINE BOARD OF LICENSURE
FOR PROFESSIONAL LAND SURVEYORS
TECHNICAL STANDARDS OF PRACTICE FOR
A STANDARD BOUNDARY SURVEY WITH
THE FOLLOWING EXCEPTIONS:

1. NO SURVEYORS REPORT



ROBERT C. LIBBY JR. PLS #2190

[illegible]

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

EXISTING CONDITIONS

25 BARRA ROAD

25 BARRA ROAD
BIDDEFORD, MAINE

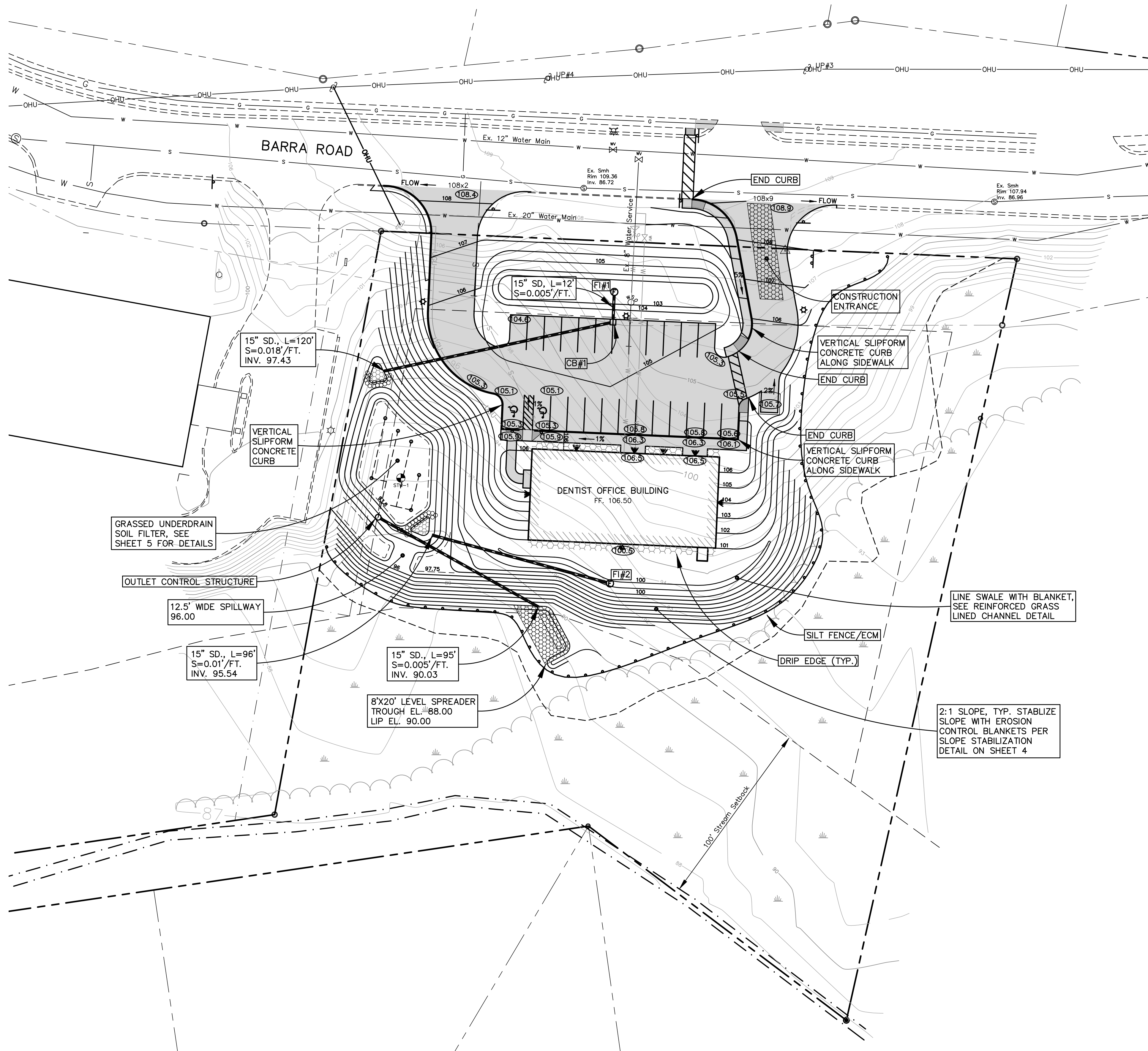
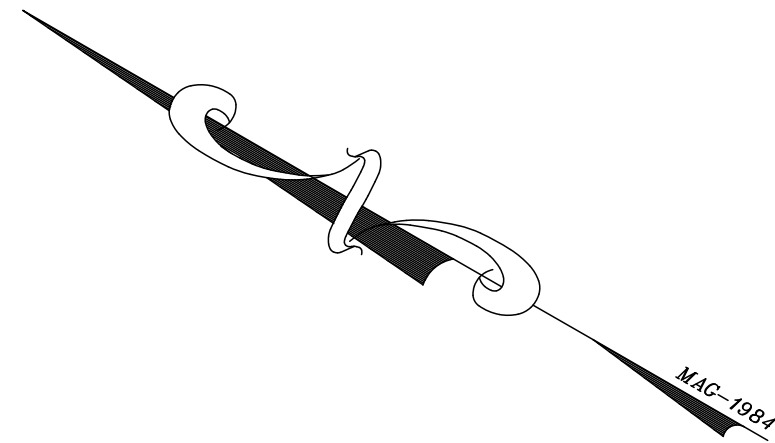
DESIGNED C. MacDonald	DATE June 2024
DRAWN Dept.	SCALE 1" = 30'
CHECKED R. Libby	JOB. NO. 23214

SHEET

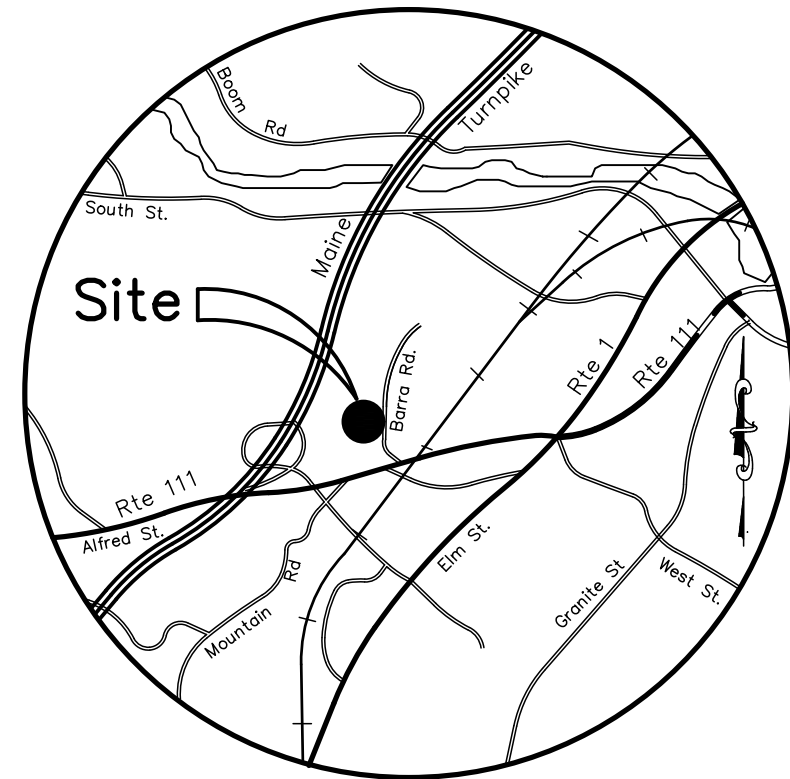
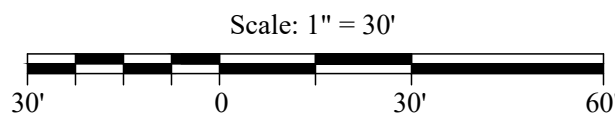
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SYMBOL	DESCRIPTION
	EXISTING UTILITY POLE
	PROPOSED UTILITY POLE
	EXISTING HYDRANT
	EXISTING SEWER MANHOLE
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	BUILDING SETBACK
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	PROPOSED SEWER SERVICES
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	PROPOSED WATER SERVICES
	EXISTING OVERHEAD UTILITIES (ELECTRIC & DATA)
	PROPOSED UNDERGROUND UTILITIES (ELECTRIC & DATA)
	EXISTING GAS MAIN
	STORM DRAIN



LOCATION MAP
SCALE: 1" = 2 MILES

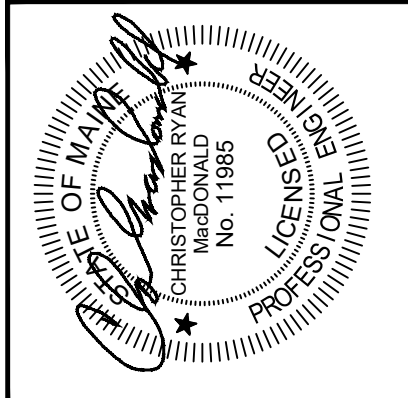
STORMDRAIN/SEWER STRUCTURES

CB#1	RIM	104.3
	15" INV. IN	99.69
	15" INV. OUT	99.59
FI#1 (TYPE F)	RIM	103.0
	15" INV. OUT	99.75
FI#2 (TYPE F)	RIM	99.5
	15" INV. OUT	96.5

NOTES:

- STOCKPILE AREAS TO BE IDENTIFIED PRIOR BY CONTRACTOR PRIOR TO CONSTRUCTION ALONG WITH EROSION AND SEDIMENTATION CONTROLS.
- CONTRACTOR TO IMPLEMENT DUST CONTROL MEASUREMENTS THROUGHOUT CONSTRUCTION.
- PAVE UTILITY TRENCHES WITHIN THE CITY R.O.W. WITHIN 3 DAYS OF EXCAVATION OR PRIOR TO THE NEXT RAIN EVENT.
- EXISTING PUBLIC AND PRIVATE UTILITY AND UNDERGROUND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE, AND ALL UTILITIES AND PIPES ARE NOT NECESSARILY SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING IN FIELD THE LOCATIONS OF UTILITIES SHOWN, AND FOR INVESTIGATING AND IDENTIFYING THE EXISTENCE AND LOCATIONS OF ANY ADDITIONAL PUBLIC AND PRIVATE UTILITIES NOT SHOWN ON THE PLANS, BEFORE COMMENCING ANY EXCAVATIONS, AND SHALL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES AND PIPES, BOTH PUBLIC AND PRIVATE, WHETHER SHOWN ON PLANS OR NOT, THAT ARE DISTURBED DURING CONSTRUCTION. ALL COSTS INCURRED IN INVESTIGATING AND REPAIRING SAID UTILITIES SHALL BE BORNE BY THE CONTRACTOR, AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK PAID FOR UNDER THE APPLICABLE LUMP SUM AND UNIT PRICES IN THE CONTRACT. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRIC, TELEPHONE, NATURAL GAS, WATER, SEWER AND STORM DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE.

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www.bh2m.com

FOR

Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

GRADING PLAN

25 BARRA ROAD
BIDDEFORD, MAINE

25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED C. MacDonald	DATE June 2024
DRAWN Staff	SCALE 1" = 30'
CHECKED C. MacDonald	JOB. NO. 23214

SHEET
3

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THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN THE LATEST REVISION OF THE 2016 MAINE EROSION AND SEDIMENT CONTROL BMP'S MANUAL FOR DESIGNERS AND ENGINEERS, AND THE LATEST REVISION TO THE 2014 MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS. SEE MANUALS FOR ADDITIONAL INFORMATION AND DETAILS.

1. ALL CONSTRUCTION INSPECTIONS SHALL BE CONDUCTED BY SOMEONE WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING STANDARDS AND PERMIT CONDITIONS. CONSTRUCTION INSPECTIONS SHALL BE PERFORMED AT LEAST ONCE A WEEK, AND PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT (0.5 INCHES OR MORE IN A 24 HOUR PERIOD). CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 5 YEARS.

- ADDITIONAL TEMPORARY SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS):

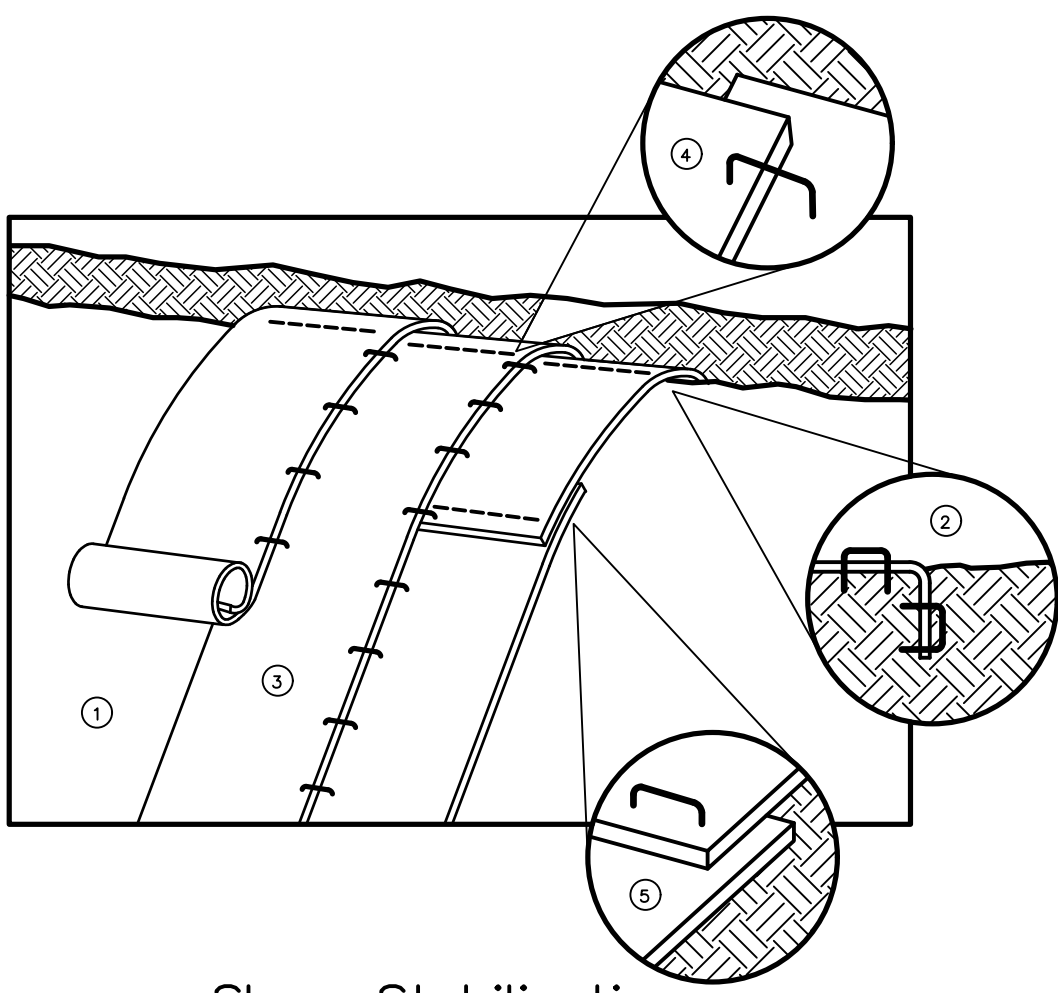
<u>SEED</u>	<u>RATE</u>
ERNST WINTER RYEGRASS	112 LBS/ACRE
<u>EROSION CONTROL MIX</u>	

EROSION CONTROL MIX (ECM) SHALL MEET THE REQUIREMENTS PROVIDED IN THE LATEST VERSION OF MAINE DEP'S EROSION AND SEDIMENTATION CONTROL BMP MANUAL. ECM IS ACCEPTABLE FOR USE ON SLOPES OF GREATER THAN 3:1 BUT LESS THAN 1:1. ECM SHALL CONSIST OF WELL-GRADED ORGANIC COMPONENT 50 - 100% OF DRY WEIGHT, AND COMPRISED OF FIBROUS AND ELONGATED PARTICLES, EITHER FREE FROM REFUSE, OR TONG TO PLANT GROWTH OR CONSTRUCTION DEBRIS. ECM SHALL BE EVENLY DISTRIBUTED AND APPLIED AT A THICKNESS OF 2" ON 3:1 SLOPES, WITH AN ADDITIONAL 1/2" PER 20' OF SLOPE FOR A MAXIMUM OF 100' IN LENGTH. SLOPES GREATER THAN 3:1, ECM SHALL BE APPLIED AT THICKNESS OF 4" OR 5" FOR SLOPES GREATER THAN 60' IN LENGTH.

SLOPES GREATER THAN 3:1 MAY ALSO REQUIRE ADDITIONAL SLOPE STABILIZATION DEPENDING ON UPGRADIENT RUNOFF AND OTHER SITE SPECIFIC CONDITIONS. SEE SLOPE STABILIZATION DETAIL FOR ADDITIONAL INFORMATION.

1. Prepare soil before installing blankets, including lime, fertilizer & seed.
2. Begin at top of slope by anchoring blanket in 6" x 6" trench. Backfill & compact trench after stapling.
3. Roll blankets down or horizontally across slope.
4. The edges of parallel blankets must be stapled with approx. 2" overlap.
5. When blankets must be spliced down the slope place blankets end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Slope Stabilization:
Erosion Control Blanket shall be in accordance with M.D.O.T. standard specifications, Section 6.13, Temporary Erosion Control Blankets and Extended Use Erosion Control Blankets.



N.T.S

WINTER CONSTRUCTION

- WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15
2. OVERWINTER STABILIZATION OF DITCHES AND CHANNELS
- ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. THE GRASS LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A DITCH OR CHANNEL IS NOT GRASS-LINED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE DITCH FOR LATE WINTER AND WINTER PROTECTION:
- A. INSTALL A SOD LINING IN THE DITCH:
A DITCH MUST BE LINED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOD TO THE SLOPE WITH WIRE PINS; STABILIZING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL; AND COVERING THE UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING SOD AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD FROM SLIDING DOWN SLOPE. SEE THE PERMANENT VEGETATION MANUAL FOR ADDITIONAL CRITERIA.
- B. INSTALL A STONE LINING IN THE DITCH:
A DITCH MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST DESIGN THE DITCH TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH CROSS-SECTION BY PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.
3. OVERWINTER STABILIZATION OF DISTURBED SLOPES:
- ALL DISTURBED SLOPES MUST BE STABILIZED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 10% TO BE A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER. STABILIZE THE SLOPE WITH TEMPORARY VEGETATION AND EROSION CONTROL MIX. BY OCTOBER 1 THE DISTURBED SLOPE MUST BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET. IF THE RYE FAILS TO GERMINATE OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SEEDING AREA FOR WINTER PROTECTION AS DESCRIBED BELOW.
- CONTROL MIX OR WITH STONE RIPRAP AS DESCRIBED IN THE FOLLOWING STANDARDS.
- A. STABILIZE THE SLOPE WITH SOD:
THE DISTURBED SLOPE MUST BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND THE UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3.3% (3:1v) OR HAVING GRADEWORK SEEPS ON THE SLOPE FACE.
- B. STABILIZE THE SLOPE WITH EROSION CONTROL MIX:
THE DISTURBED SLOPE MUST BE STABILIZED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GREATER THAN 50% (2:1v) OR HAVING GRADEWORK SEEPS ON THE SLOPE FACE. SEE THE EROSION CONTROL NOTES FOR ADDITIONAL CRITERIA.
- C. STABILIZE THE SLOPE WITH STONE RIPRAP:
PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPMENTS OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DESIGN THE RIPRAP AND DETERMINE THE SLOPE SIZE REQUIRED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.
4. OVERWINTER STABILIZATION OF DISTURBED SLOPS:
- BY SEPTEMBER 15, ALL DISTURBED SLOPS ON AREAS HAVING A GRADE GREATER THAN 15% MUST BE SEEDED AND MULCHED. IF THE DISTURBED SLOPE IS NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOP FOR LATE FALL AND WINTER.
- A. STABILIZE THE SLOP WITH TEMPORARY VEGETATION:
SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDS WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH JUTE OR PLASTIC MESH. IF THE RYE FAILS TO GERMINATE AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 90% OF THE DISTURBED SLOP BEFORE NOVEMBER 1, THEN THE MULCH AREA FOR WINTER PROTECTION AS DESCRIBED BELOW.
- B. STABILIZE THE SLOP WITH SOD:
THE DISTURBED SLOP MUST BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOD TO THE SLOPE WITH WIRE PINS; STABILIZING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL; AND COVERING THE UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- C. STABILIZE THE SLOP WITH MULCH:
BY NOVEMBER 15, MULCH THE DISTURBED SLOP BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT THE HAY OR STRAW IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE SEEDING AREA. SEE THE PERMANENT VEGETATION MANUAL FOR ADDITIONAL CRITERIA.
5. MAINTENANCE:
IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED AS SOON AS POSSIBLE AND COMPLETED BY THE NEXT SEASON. THE FOLLOWING NEXT SEASON: MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. ONCE A CONSTRUCTION SEASON HAS ENDED, THE CONTRACTOR SHALL CONDUCT AN ANNUAL INSPECTION. THE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL MAINTAIN THE SLOPES GREATER THAN 3%.
- STABILIZATION SCHEDULE BEFORE WINTER:
- SEPTEMBER 15
ALL DISTURBED SLOPES MUST BE SEEDED AND MULCHED.
ALL DISTURBED SLOPES MUST BE STABILIZED BY SEEDING AND SOD LAYING.
ALL GRASS LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR AN EROSION CONTROL BLANKET.
- OCTOBER
IF THE SLOPES ARE STABILIZED WITH AN EROSION CONTROL BLANKET AND SEEDS.
ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEED AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND MULCHED.
- NOVEMBER 15
ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES MUST BE SEEDED AND MULCHED.

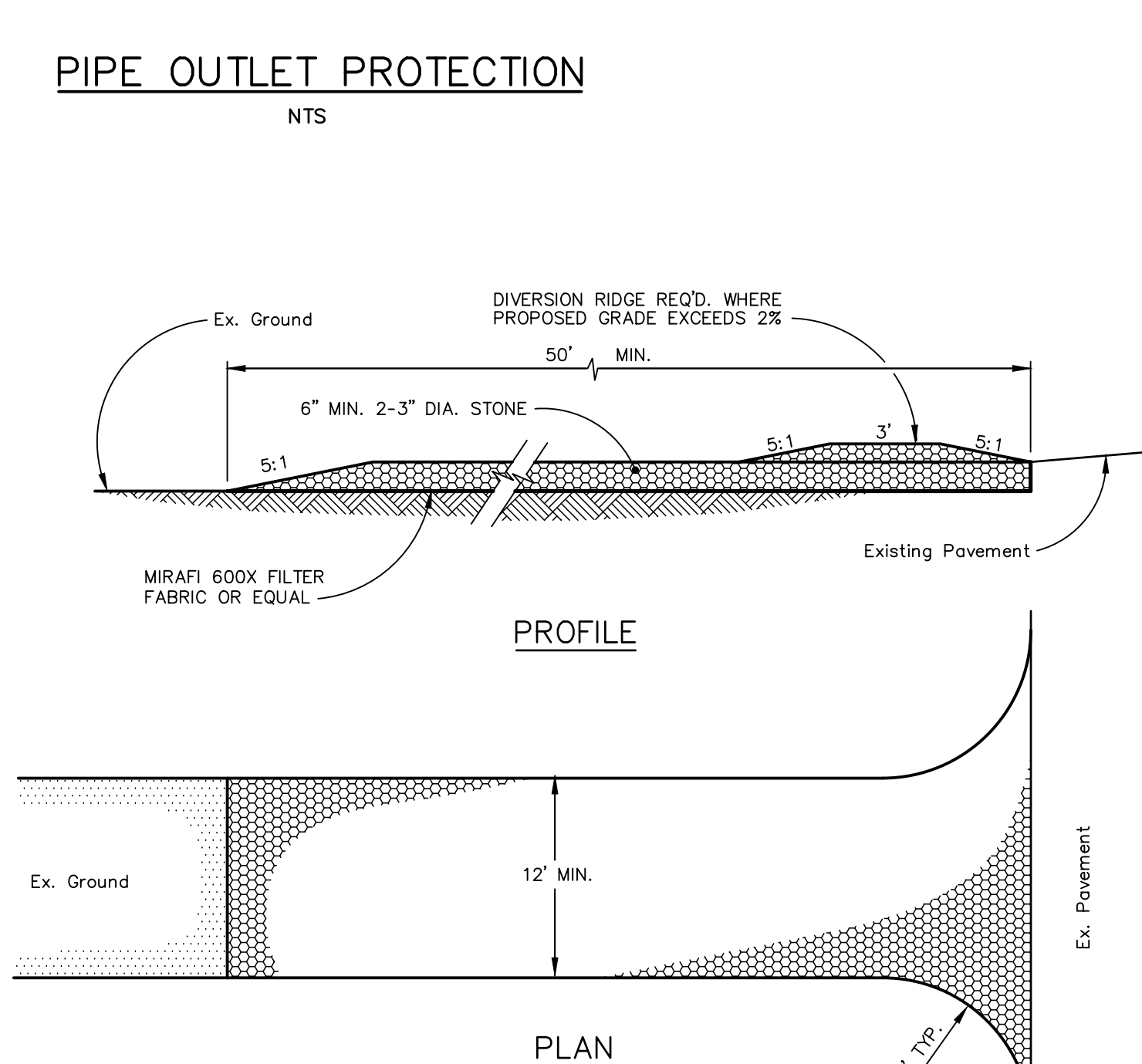
6. DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

6. **DURING WINTER CONSTRUCTION PERIOD** ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO SEEDING.
7. **AREAS WITHIN 75 FEET OF STREAMS, WETLANDS, AND OTHER PROTECTED NATURAL RESOURCES** THAT ARE NOT STABILIZED WITH VEGETATION BY DEC. 1 SHALL BE MULCHED AND ANCHORED WITH NETTING. IF WORK CONTINUES THIS AREA DURING THE WINTER, A DOUBLE LINE OF SEDIMENT BARRIERS MUST BE USED.

HOUSEKEEPING

1. **SPILL PREVENTION:** CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS STORAGE AREAS INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
2. **GROUNDWATER PROTECTION:** DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS

NTS



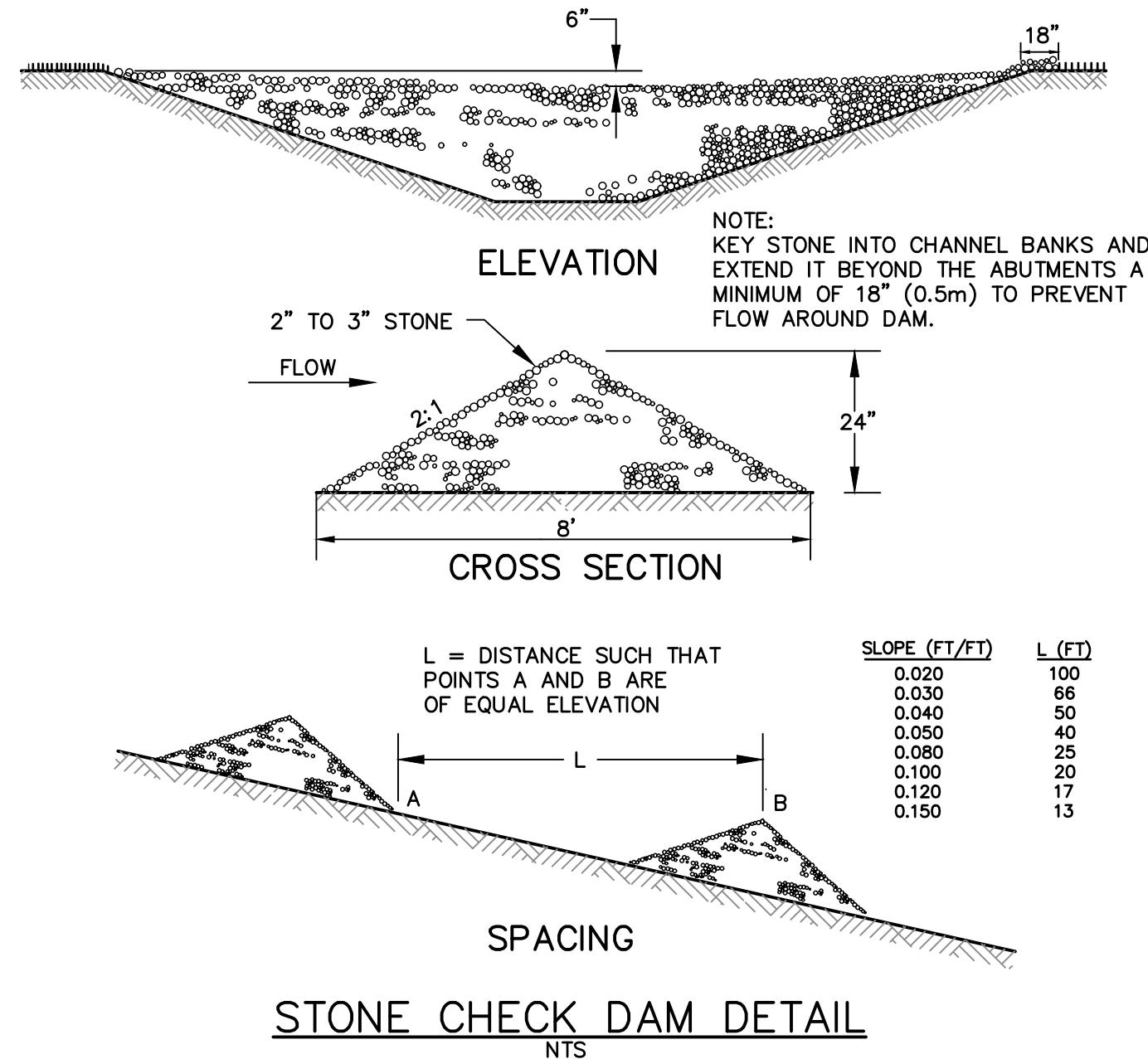
NOTES-

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY.

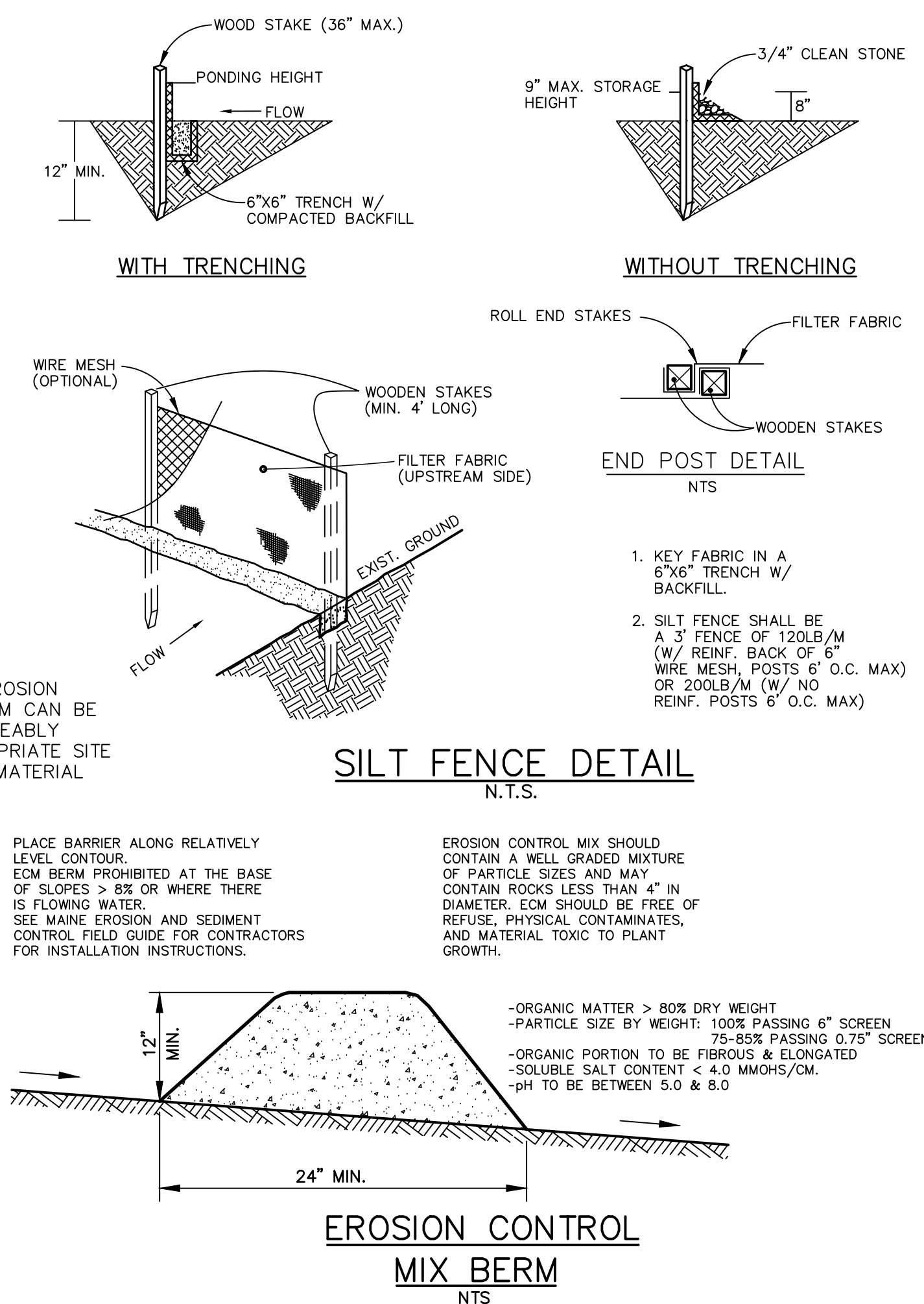
WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

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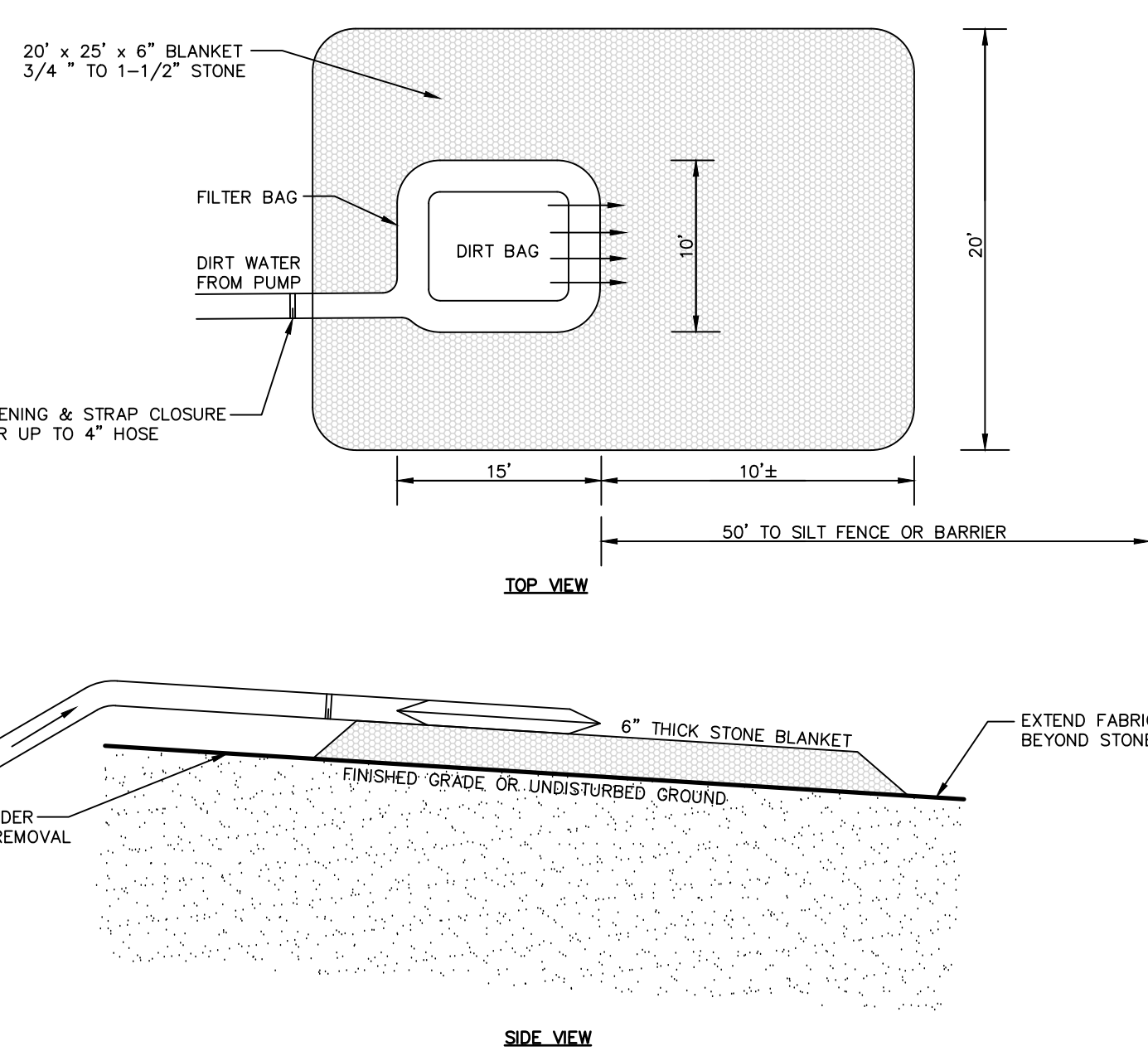


NOTE:

SILT FENCE OR EROSION CONTROL MIX BERM CAN BE USED INTERCHANGEABLY BASED ON APPROPRIATE SITE CONDITIONS AND MATERIAL AVAILABILITY.



BERM



NOTES:

1. DIRT BAG MATERIAL BASED ON PARTICLE SIZE IN DIRT WATER, I.E. FOR COARSE PARTICLES A WOVEN MATERIAL; FOR SILTS/CLAYS A NON-WOVEN MATERIAL.
2. DO NOT OVER PRESSURIZE DIRT BAG OR USE BEYOND CAPACITY.
3. LOCATE DISCHARGE SITE ON FLAT UPLAND AREAS AS FAR AWAY AS POSSIBLE FROM STREAMS, WETLANDS, OTHER RESOURCES AND POINTS OF CONCENTRATED FLOW.
4. DOWN GRADIENT RECEIVING AREA MUST BE WELL VEGETATED OR OTHERWISE STABLE FROM EROSION, E.G. FOREST FLOOR OR COARSE GRAVEL/STONE.
5. DISCHARGE NOT PERMITTED WITHIN 25' OF A STREAM OR WETLAND. CONSULT DEP IF STRUCTURE MUST BE WITHIN 75' OF STREAM OR WATER BODY. SECONDARY CONTAINMENT MAY BE REQUIRED.
6. THE LOCATION OF THE DIRT BAG SHALL BE SELECTED SO THAT IT CAN BE EASILY REMOVED FROM THE STRUCTURE.

NTS

REVISION		DESCRIPTION
NO.	DATE	
1	6/12/24	Submitted for Preliminary Permit Application
2	8/14/24	Submitted for Final Site Plan Review
3	9/6/24	Revised to Address Final 3rd Party Comments


BH2M
Berry, Huff, McDonald, Milligan Inc.

f. (207) 839-2771
www.bfi2m.com

FOR
Mike Eon Associates LTD
260 Main Street
Bridleford, Maine

EROSION CONTROL DETAILS

25 BARRA ROAD

225 BARRA ROAD
DDEDFORD, MAINE

DESIGNED C. MacDonald	DATE June 2024
DRAWN Dept.	SCALE As Noted
CHECKED C. MacDonald	JOB. NO. 23214

SHEET

4

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GRASSED UNDERDRAIN SOIL FILTER NOTES

REFERENCES

1. MAINE STORMWATER BEST MANAGEMENT PRACTICES (BMP), VOLUME III BMP TECHNICAL DESIGN MANUAL, CHAPTER 7 FILTRATION BMP'S (LATEST REVISION).

CONSTRUCTION METHODS

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MATERIALS, INSTALLATION, MEANS, METHODS, AND SCHEDULING.
2. ALL WORK SHALL BE IN CONFORMANCE WITH THE PROJECT PLANS AND BMP'S REFERENCED ABOVE.
3. THE SOIL FILTER MEDIA AND VEGETATION SHALL NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURES, SOIL VEGETATION COVER OR PERMANENT STABILIZATION.

DEWATERING PLAN

1. DURING CONSTRUCTION OF THE SITE AND VEGETATED SOIL FILTER, THE CONTRACTOR SHALL BE PREPARED TO IMPLEMENT A DEWATERING PLAN IN ANTICIPATION OF HEAVY RAIN EVENTS.
2. THE AREA OF THE BASIN MAY BE EXCAVATED IN PREPARATION OF THE INSTALLATION OF THE UNDERDRAIN AND MAY BE USED FOR A SEDIMENT TRAP FOR THE SITE DURING CONSTRUCTION. AFTER EXCAVATION OF THE BASIN, THE OUTLET STRUCTURE AND PIPING SYSTEM SHALL BE INSTALLED AT THE APPROPRIATE ELEVATION AND PROTECTED WITH A SEDIMENT BARRIER. THE BASIN IS TO BE USED AS A SEDIMENT TRAP, THE SIDES OF THE EMBANKMENTS MUST BE MULCHED AND MAINTAINED TO PREVENT EROSION.

SOIL MEDIA

1. THE SOIL MEDIA SHALL CONSIST OF SILTY SANDY SOIL OR SOIL MIXTURE COMBINED WITH 20% TO 25% BY VOLUME (NO LESS THAN 10% BY DRY WEIGHT) OF MODERATELY SHREDDED BARK OR WOOD FIBER MULCH.
2. THE SOIL FILTER MEDIA SAND SHALL MEET THE GRADATION IN TABLE 7-2 (MDOOT 703.01) WITH ADDITIONAL FINES ADDED IF NECESSARY.
3. THE RESULTING SOIL FILTER MEDIA SHALL HAVE 8% TO 12% BY WEIGHT PASSING THE #200 SIEVE AND SHALL HAVE A CLAY CONTENT OF LESS THAN 2%.
4. THE COARSE GRAVEL MATERIAL SHALL MEET THE GRADATION OF TABLE 7.1 (MDOOT 703.22 UNDERDRAIN, TYPE B).
5. THE FILTER MEDIA SHALL BE LIGHTLY COMPACTED BY SATURATING THE MEDIA IN 6" TO 9" LIFTS AND SHALL HAVE A PERMEABILITY OF 2.4 IN/HR TO 4 IN/HR.
6. THE CLAY CONTENT SHALL BE < 2%.

CONSTRUCTION

1. SOIL FILTER MEDIA, COARSE GRAVEL, AND UNDERDRAIN BEDDING MATERIAL SHALL BE COMPACTED TO BETWEEN 90% AND 95% STANDARD PROCTOR.
2. PERFORATED UNDERDRAIN PIPE SHALL BE 4" AND 6" SCHEDULE 40 OR SDR 35 PVC PIPE. SPACED 8 FEET AND 4 FEET ON CENTER AS SHOWN ON PLANS.
3. TRIBUTARY AREAS SHALL BE STABILIZED PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA MIXTURE AND UNDERDRAIN. STABILIZED IS DEFINED AS PAVED IF IN A PARKING AREA OR ROADWAY AND 90% GRASS CATCH IF IN A VEGETATED AREA.
4. OUTFLOW OF THE VEGETATED SOIL FILTER SHALL BE CONTROLLED BY A 2" PLASTIC TYPE 34-6 BALL VALVE WITH TYPE 615 BALL VALVE HANDLE EXTENSION (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT). A THREE-PIECE VALVE BOX (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT) SHALL BE INSTALLED OVER THE VALVE.
5. ALL EQUIPMENT USED WITHIN THE LIMITS OF THE VEGETATED SOIL FILTER SHALL BE LOW GROUND PRESSURE VEHICLES (LESS THAN 2.0 PSI) WHEN FULLY LOADED.
6. IF VEGETATION IS NOT ESTABLISHED WITHIN THE FIRST YEAR, THE CONTRACTOR SHALL INSTALL A 2-3 INCH LAYER OF LOAM (WITH LESS THAN 2% CLAY AS TESTED VIA HYDROMETER TEST) ON THE SURFACE OF THE GRASS FILTER AND RE-SEED/MULCH.
7. THE SURFACE OF THE VEGETATED SOIL FILTER SHALL BE PLANTED WITH A GRASS SPECIES THAT IS TOLERANT OF FREQUENT INUNDATION AND WELL-DRAINED SOILS. UPON SEEDING, THE SURFACES SHALL BE MULCHED WITH HAY OR AN EROSION CONTROL BLANKET BUT SHALL NOT BE FERTILIZED. AN APPROPRIATE SEED MIXTURE SHOULD CONTAIN THE FOLLOWING OR BE AN EQUIVALENT CONSERVATION TYPE MIX:

CREeping RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
BIRDFOOT TREFOIL	8 LBS/ACRE
TOTAL	48 LBS/ACRE

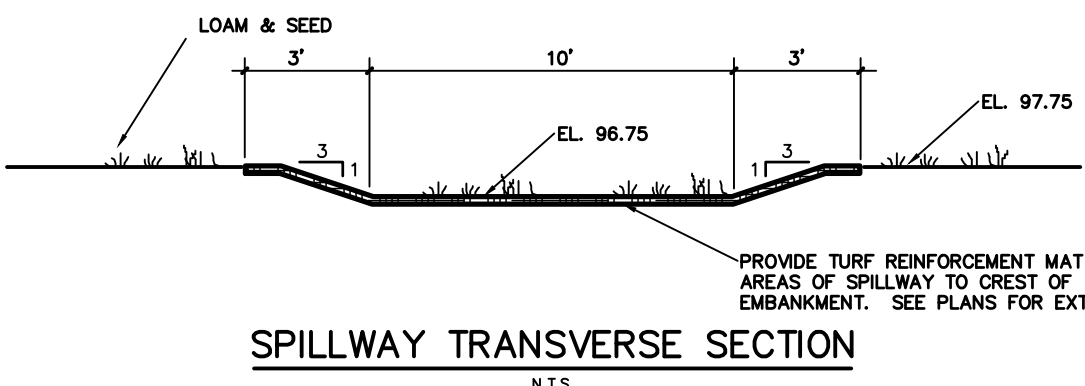
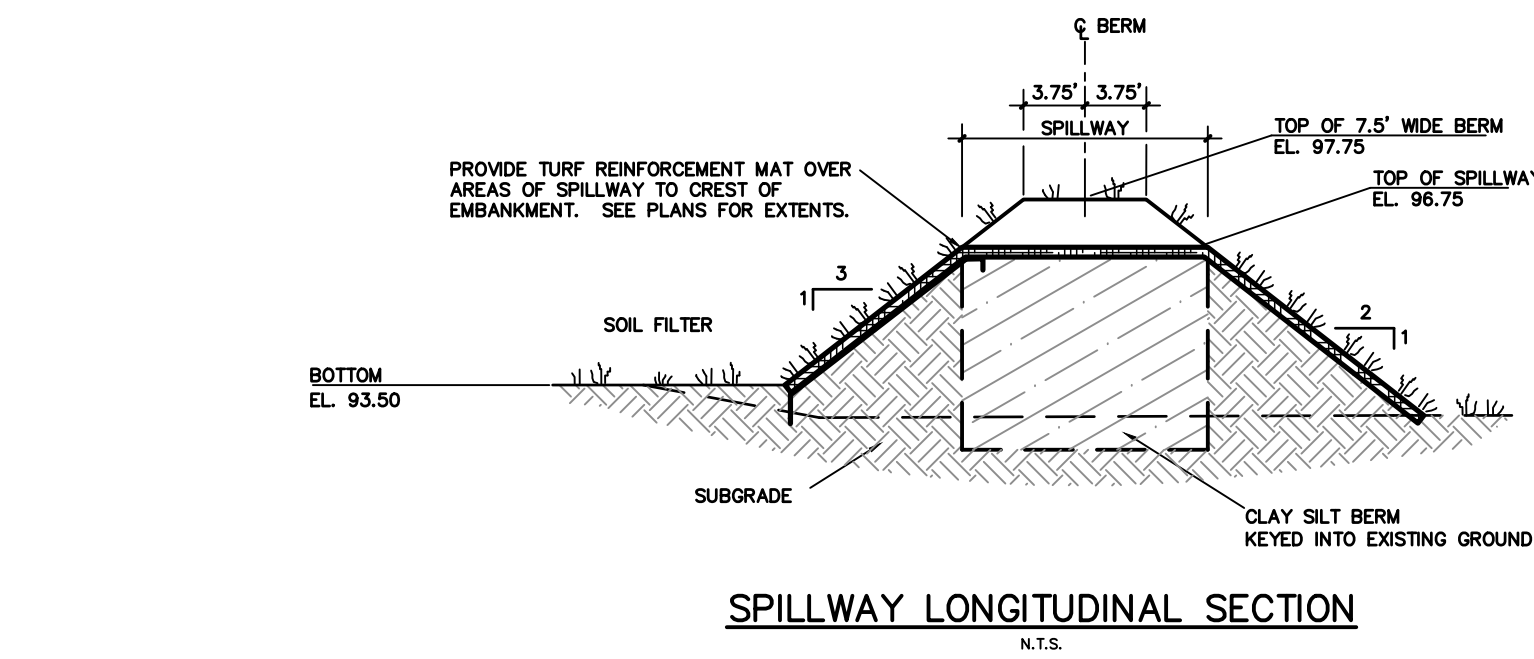
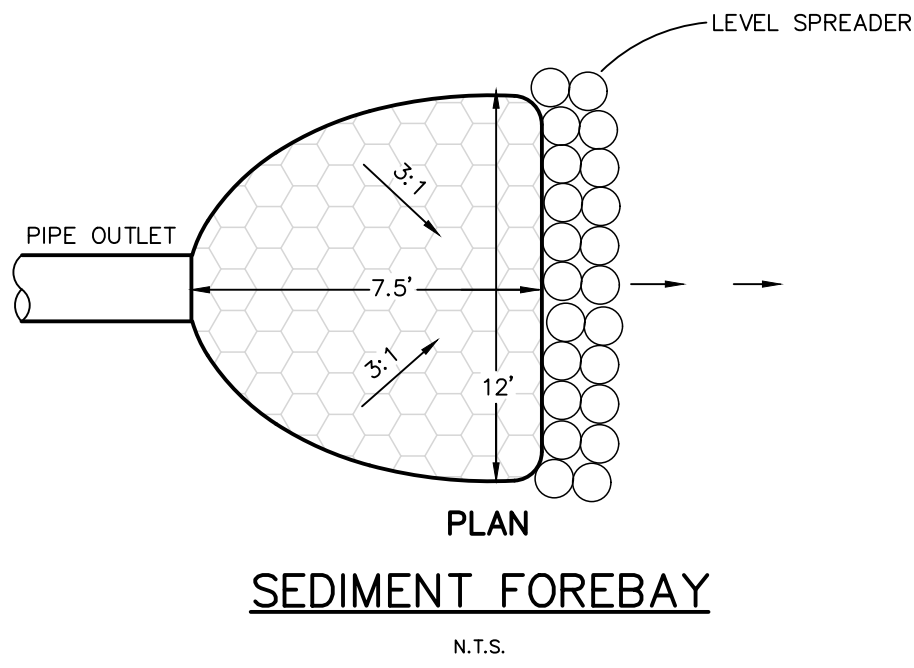
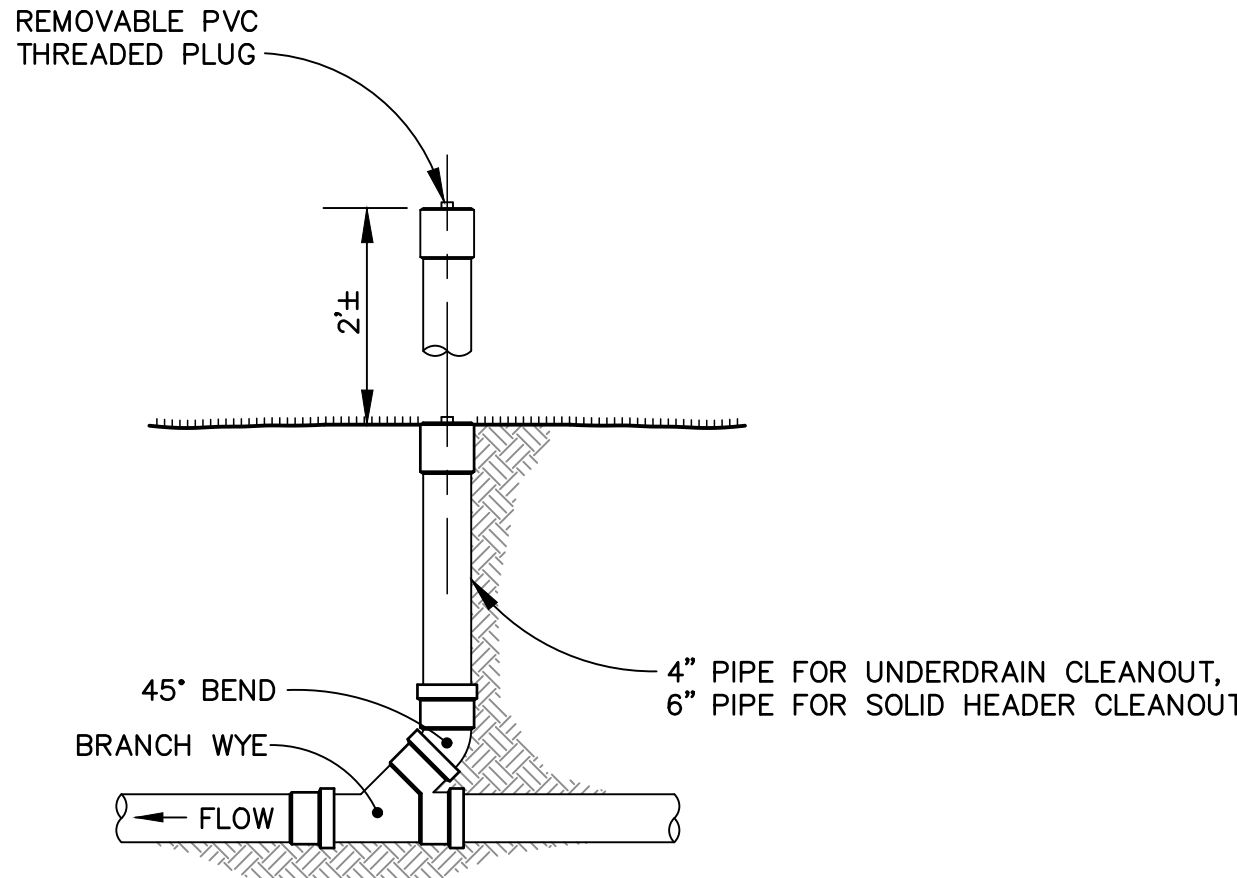
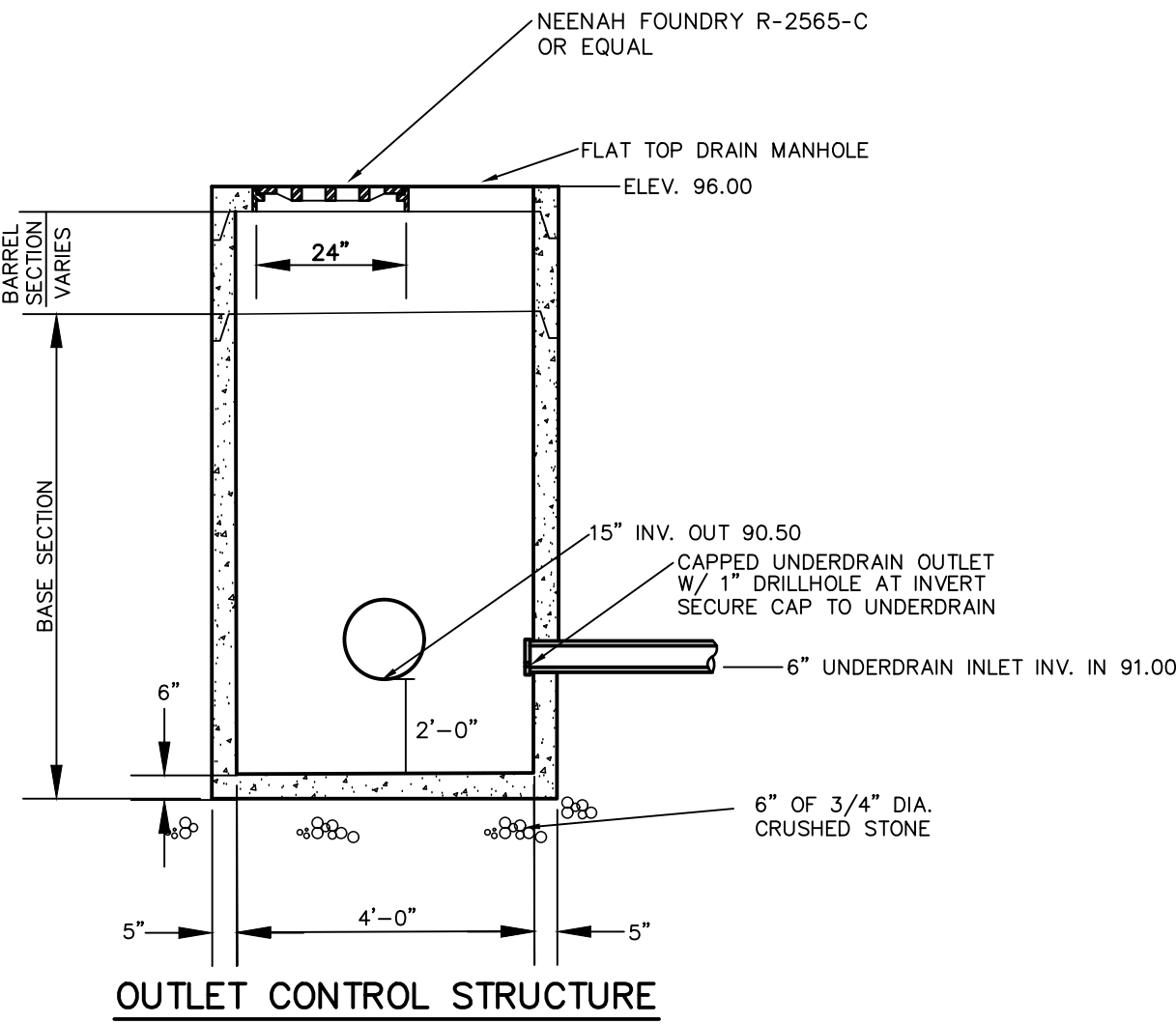
TESTING AND SUBMITTALS

1. THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL TESTING RESULTS SHALL BE SUBMITTED TO THE PROJECT ENGINEER.
2. SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRASS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE WILL BE DETERMINED BY TESTING LABORATORY.
3. THE CONTRACTOR SHALL PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHODS FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES, 1996A) ON EACH TYPE OF SAMPLE MATERIAL INCLUDING A HYDROMETER TEST FOR CLAY CONTENT.
4. THE CONTRACTOR SHALL PERFORM A PERMEABILITY TEST ON THE SOIL MEDIA MIXTURE CONFORMING TO ASTM D2434.
5. THE CONTRACTOR SHALL PERFORM ONE COMPACTION DENSITY TEST ON THE IN-PLACE SOIL FILTER MEDIA FOR EVERY 1,500 S.F. OF BED OR FRACTION THEREOF. THE TEST SHALL CONFORM TO ASTM 2922.
6. UPON COMPLETION OF THE VEGETATED SOIL FILTER MEDIA AND THE ESTABLISHMENT OF 90% CATCH OF GRASS OVER THE FILTER MEDIA, THE CONTRACTOR SHALL FLOOD THE VEGETATED BASIN TO THE SPILLWAY WITH CLEAR WATER AND ADJUST THE OUTFLOW TO OBTAIN A 24-HOUR TO 32-HOUR RELEASE TIME.

CONSTRUCTION OVERSIGHT

1. THE CONTRACTOR SHALL MEET THE "CONSTRUCTION OVERSIGHT" SECTION OF CHAPTER 7, FILTRATION BMP'S (REVISED MAY 2016) OF THE STORMWATER MANAGEMENT FOR MAINE, VOLUME II, BMP'S TECHNICAL DESIGN MANUAL.
2. THE DESIGN ENGINEER SHALL BE CONDUCTING PERIODIC SITE OVERSIGHT OF THE CONSTRUCTION AS DESCRIBED BELOW AND IN COMPLIANCE WITH THE PERMITS.
3. THE ENGINEER SHALL REVIEW AND APPROVE ALL CONTRACTOR SUBMITTALS.
4. THE CONTRACTOR SHALL GIVE THE ENGINEER A PROPOSED CONSTRUCTION SCHEDULE AND A 48-HOUR NOTICE FOR ALL SITE VISITS.
5. INSPECTIONS SHALL INCLUDE:
 - PRE-CONSTRUCTION MEETING WITH CONTRACTOR
 - INSPECTION OF EXCAVATION IF USED FOR SEDIMENT TRAP
 - INSPECTION WHEN EXCAVATED TO SUBGRADE
 - ONCE THE LINER HAS BEEN INSTALLED PRIOR TO BACKFILL
 - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO INSTALLATION OF THE FILTER MEDIA
 - AFTER FILTER MEDIA HAS BEEN INSTALLED AND SEEDED
 - AFTER ONE YEAR TO INSPECT VEGETATION UPTAKE AND OBSERVE
 - FLOODING TEST

LEVEL SPREADER STONE SIZE		
SIEVE DESIGNATION	SIEVE DISIGNATION	% BY WEIGHT PASSING
METRIC	US CUSTOMARY	SQUARE MESH SIEVES
300 MM	12"	100
150 MM	6"	84-100
75 MM	3"	68-83
25.4 MM	1"	42-55
4.75 MM	NO. 4	5-12



EMBANKMENT AND SPILLWAY DETAIL

DETENTION POND EMBANKMENT NOTES:

THE FOUNDATION AREA SHALL BE CLEARED OF TREES, LOGS, ROOTS BRUSH, BOULDERS, SOIL, RUBBISH & TOPSOIL. THE ENGINEER SHALL OBSERVE & APPROVE THE EMBANKMENT SUBGRADE PRIOR TO PLACING ANY FILL TO DETERMINE SUITABILITY & POSSIBLE NEED FOR A CUTOFF TRENCH. FILL MATERIAL FOR THE EMBANKMENT SHALL CONSIST OF SILT AND/OR CLAY MATERIAL APPROVED BY THE ENGINEER. THE CONTRACTOR SHOULD NOTE THAT ACCEPTABLE MATERIAL MAY NOT BE FOUND ON-SITE. ALL FILL MATERIAL SHALL BE FREE OF SOIL, ROOTS, FROZEN SOIL, STONES GREATER THAN 6" IN DIA. & OTHER OBJECTIONABLE MATERIAL. ALL SNOW, ICE, OR FROZEN FILL SHALL BE REMOVED PRIOR TO ADDING ADDITIONAL FILL. FILLING SHALL COMMENCE IN THE LOWEST POINT OF THE CUTOFF TRENCH AND/OR DAM & CONTINUE IN HORIZONTAL LIFTS NO GREATER THAN 12" 92% MODIFIED PROCTOR DENSITIES SHALL BE OBTAINED IN EACH LIFT PRIOR TO ADDITIONAL LIFTS. THE DISTRIBUTION & GRADATION OF THE FILL SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF SUBSTANTIALLY DIFFERENT MATERIALS ARE PLACED IN THE LAYERS IN THE EMBANKMENT. FILL WITHIN 5' OF THE DISCHARGE PIPE & STRUCTURE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.

TABLE 7-1
UNDERDRAIN SPECS.
MDOOT #703.22

SIEVE SIZE	% BY WEIGHT
1" UNDERDRAIN TYPE B	
1"	90-100
1/2"	75-100
#6	50-100
#20	15-80
#50	0-15
#200	0-5
1" UNDERDRAIN TYPE C	
1"	100
3/4"	90-100
3/8"	0-75
#4	0-25
#10	0-5

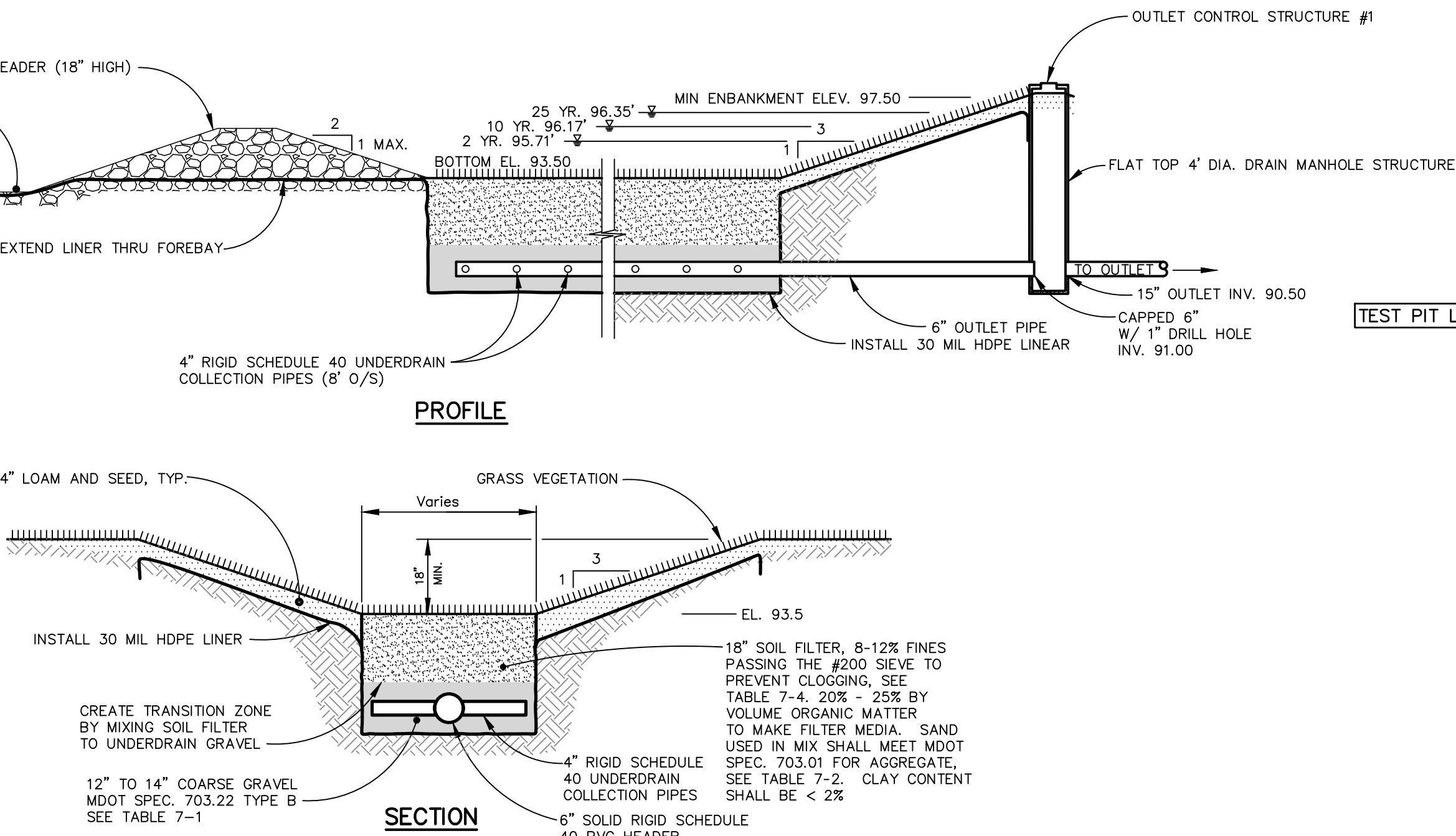
TABLE 7-2
AGGREGATE SPECS.
MDOOT #703.01

SIEVE SIZE	% BY WEIGHT
3/8"	100
#4	95-100
#10	80-100
#16	50-85
#30	25-60
#60	10-30
#100	2-10
#200	<2.0

TABLE 7-4
COARSE LOAMY SAND SIEVE
ANALYSIS SPECIFICATION

SIEVE #	% PASSING BY WEIGHT
#10	85-100
#20	70-100
#40	15-40
#200*	8-15

*CLAY CONTENT MUST BE LESS THAN 2%

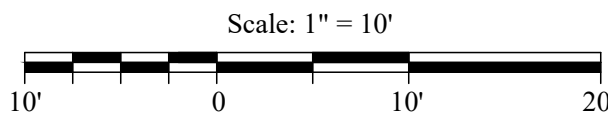


GRASSED UNDERDRAIN
SOIL FILTER

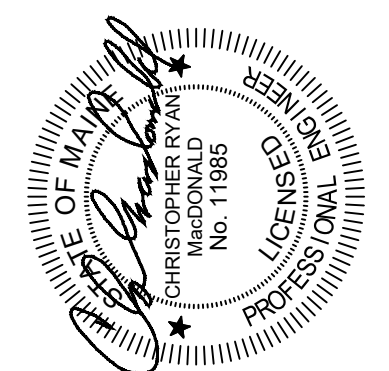
N.T.S.



GRASSED UNDERDRAINED SOIL FILTER PLAN



REVISION		DESCRIPTION
NO.	DATE	
1	6/12/24	Submitted for Preliminary Permit Application
2	8/14/24	Submitted for Final Plan Review
3	9/6/24	Revised to Address Final 3rd Party Comments



BH2M

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

3801 Main Street
Gorham, Maine 04088

Tel: (207) 839-2771
www.bh2m.com

FOR

Mike Eon Associates LTD
260 Main Street
Bridford, Maine

GRASSED UNDERDRAIN
SOIL FILTER DETAILS

25 BARRA ROAD
BRIDFORD, MAINE

DESIGNED C. MacDonald	DATE June 2024
DRAWN Staff	SCALE As Noted
CHECKED C. MacDonald	JOB. NO. 23214

SHEET

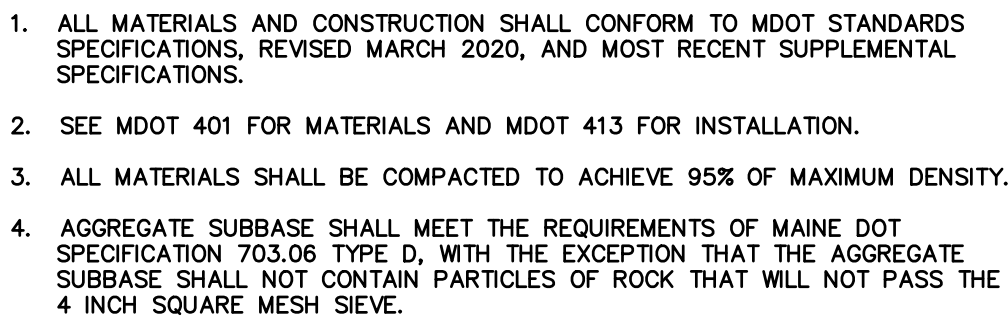
5

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1. 1 LB. FIBER MESH SHALL BE ADDED TO EVERY CUBIC YARD OF CONCRETE. THE CONCRETE WILL CONTAIN THE MAXIMUM AMOUNT OF WATER TO BE OF A CONSISTENCY THAT THE CONCRETE WILL MAINTAIN THE SHAPE OF THE CURB SECTION WITHOUT SUPPORT. THIS MIX ALSO MEETS THE READY MIX REQUIREMENTS OF ASTM C94 AND WILL MEET OR EXCEED 4,000 PSI IN 28 DAYS.
2. THE PAVEMENT SHALL BE THOROUGHLY CLEANED TO REMOVE DUST, DIRT AND OIL BEFORE APPROVED ADHESIVE IS APPLIED PER MANUFACTURERS SPECIFICATIONS.
3. THE FIBER REINFORCED MIX SHALL BE FED INTO THE VIBRATING HOPPER WHERE IT IS COMPACTED INTO THE DESIRED MOLD PROFILE.
4. FRESHLY EXTRUDED CURB SHALL BE LIGHTLY TOUCHED UP WITH A STEEL HAND TROWEL. CONTROL JOINTS SHALL BE TOOLED AS SOON AS POSSIBLE AT 9' INTERVALS. ADDITIONAL CONTROL JOINTS ADDED ON RADIUS AS NECESSARY.
5. THE FINISHED CURB WILL BE COATED WITH AN APPROVED CURING COMPOUND.
6. FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS AND TEMPERATURE RESTRICTIONS.
7. USE VERTICAL CURB FOR ALL AREAS ADJACENT TO SIDEWALK. USE SLOPED CURB IN ALL OTHER AREAS.

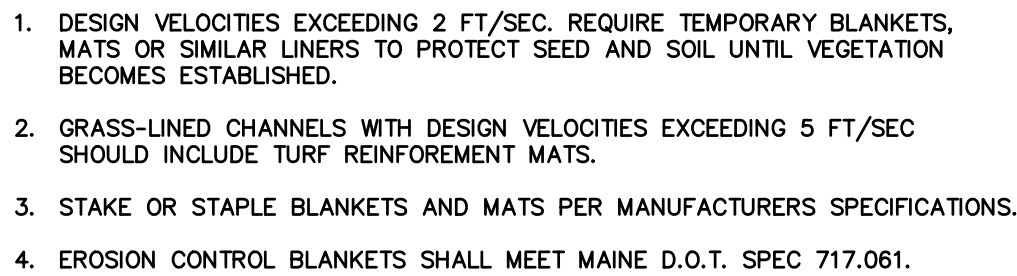
NTS



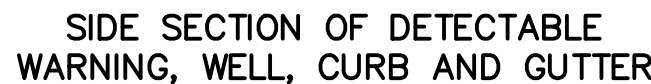
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N.T.S.



NTS



WIDTH OF RAMP



NTS

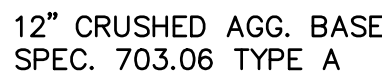
SECTION

1. SPREADERS SHALL BE INSTALLED WITH A LEVEL INSTRUMENT. CONTRACT LEVEL UP TO .02% GRADE TO ENSURE UNIFORM FLOWLINE SPREADS. SPREADS SHALL BE CONSTRUCTED ON UNDISTURBED SOIL, NOT FILL.
2. SELECT GEOTECHNICAL BASES BASED ON UNDISTURBED SOILS (SANDS, SILTS, CLAYS, ETC.).
3. PLACE UNIFORM GRADE STONE (SEE TABLE 5-3).
4. INLET SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE THE SPREADER.
5. STEPS RUN-OFF CONVEYED TO THE FLOW AREA OUTSIDE APPROX. HALF FLOW OUTSIDE STABILIZED AREAS.
6. AREAS RUNOFF SHALL NOT BE RECONSTRUCTED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
6. PERIODIC INSPECTION AND REPAIRS MAINTENANCE SHALL BE PROVIDED.
7. CONSTRUCTION OF LEVEL UP SPREADER SHALL BE FROM UPHILL SIDE ONLY. LEVEL UP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADES AND UNDISTURBED BY EARTHWORK OR EQUIPMENT EXCEPT AS NOTED ON PLAN.
8. CONTRACT SPREADER WITH UP AT EXISTING ELEVATION AS SPECIFIED.
9. DOWN GRADANT AND REPAIRS AREAS MUST BE NATURALLY WELL VEGETATED.
10. DISCHARGE NOT PERMITTED WITHIN 25' OF A STREAM OR WATERWAY, CONSULT DEP IF STRUCTURE MUST BE WITHIN 25' OF STREAM OR WATER BODY.

NTS



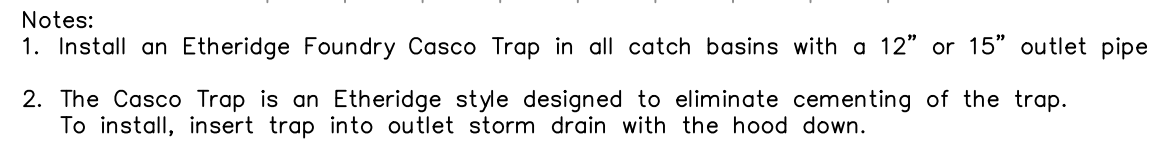
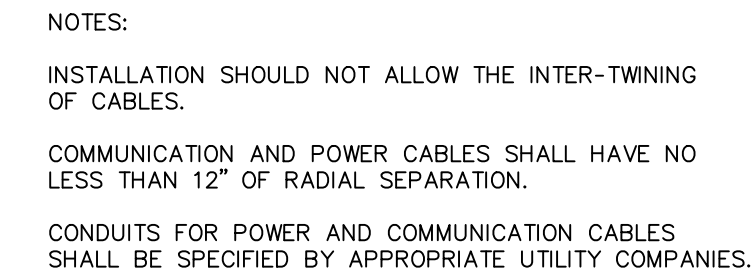
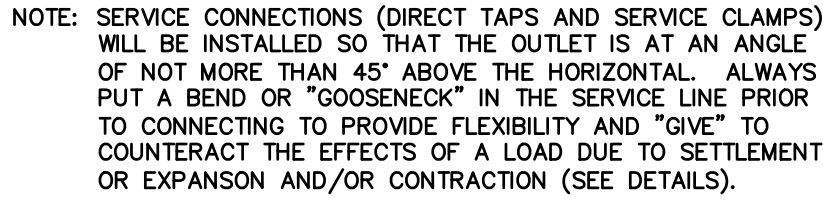
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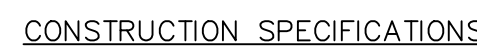
CONCRETE	- 8" THICK 4,000 PSI @ 28 DAYS, 3/4" MAX. AGGREGATE, 3-5% AIR ENTRAINMENT, 4" MAX. SLUMP
REINFORCEMENT FINISH	- #4 BARS AT 12" O.C. EACH WAY, TOP AND BOTTOM - SCREED AND BULL FLOAT, BROOM FINISH PERPENDICULAR TO TRAVEL DIRECTION
JOINTS SEALING	- SAWCUT TO 1/3 DEPTH AT 5'-6" O.C. - APPLY POLY SULFIDE LIQUID SEALANT, GRAY PER MANUFACTURER'S SPECS.

NTS

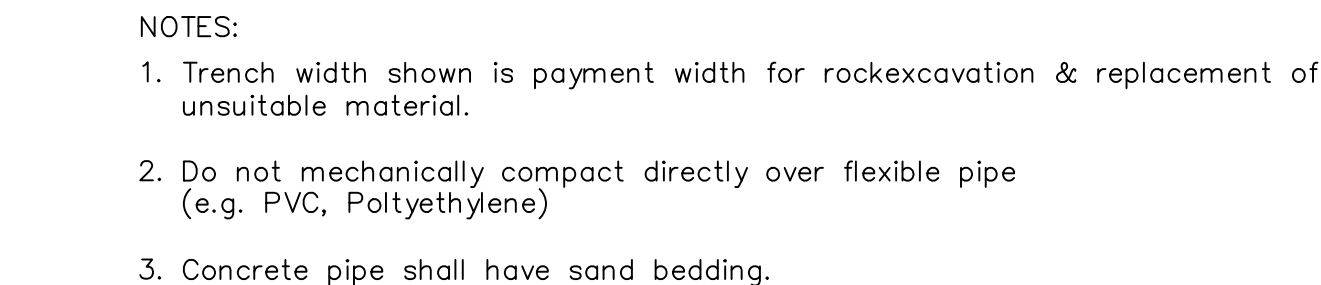
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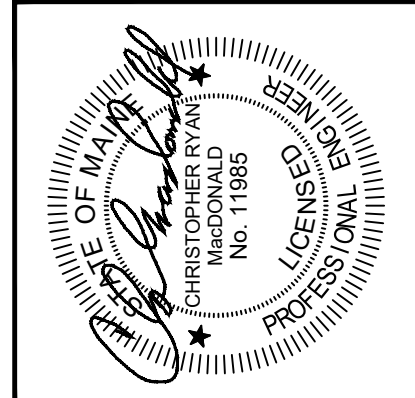
CASCO TRAP DETAIL
N.T.S.



1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE IF DAMAGED (E.G., REPEATEDLY PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.



REVISION	
NO.	DATE DESCRIPTION
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FOR
Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

DETAILS B

25 BARRA ROAD

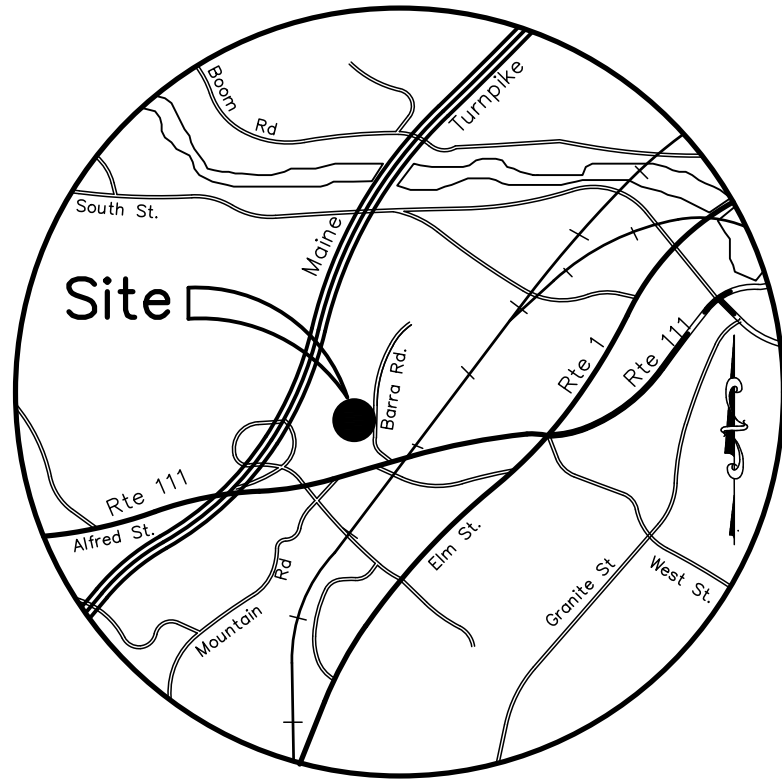
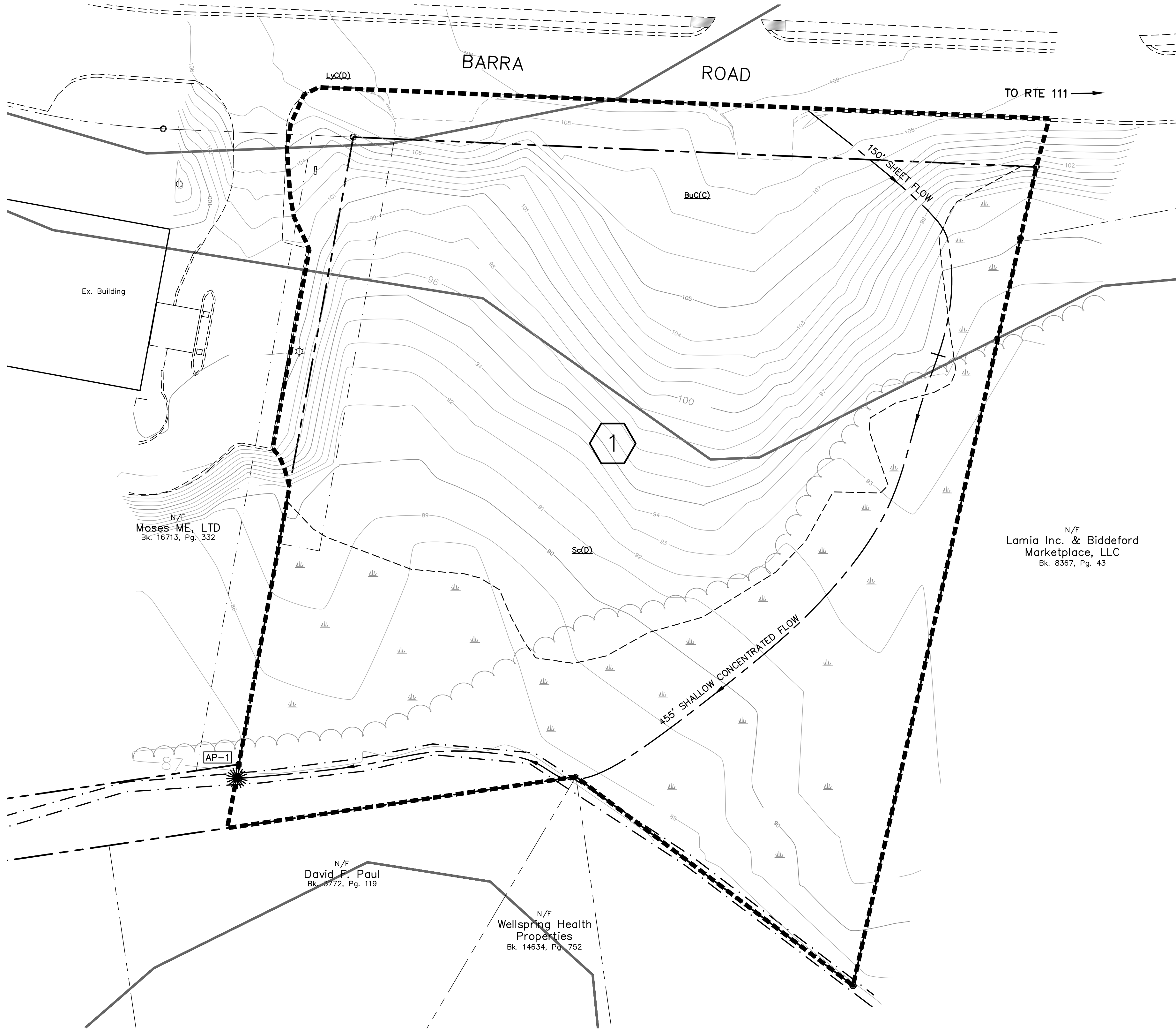
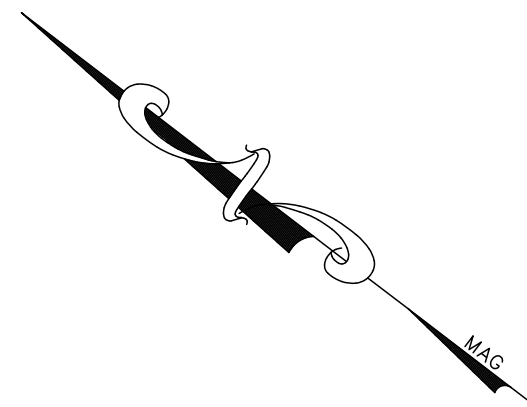
25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED C. MacDonald	DATE June 2024
DRAWN Dept.	SCALE As Noted
CHECKED C. MacDonald	JOB. NO. 23214

SHEET
7

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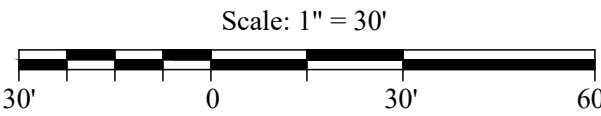
LOCATION MAP
SCALE: 1" = 2 MILES

NOTES:

1. BOUNDARY: BH2M
ROBERT C. LIBBY JR. PLS#2190
380B MAIN STREET
GORHAM, MAINE
2. SOILS MAPPING: YORK COUNTY MEDIUM INTENSITY
SOILS MAPS
3. WETLANDS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE
4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.
5. TOPOGRAPHY: GROUND SURVEY BY BH2M

PREDEVELOPMENT FLOWS			
ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1	2.61 CFS	5.30 CFS	7.65 CFS

OFFSITE SOIL LEGEND	
SYMBOL	DESCRIPTION
	SOIL BOUNDARY LINES
	LIMIT OF WETLANDS
SLOPE DESIGNATION	
A = 0 - 3%	
B = 3 - 8%	
C = 8 - 20%	
D = 20%+	
HYDROLOGIC SOIL GROUP	
SOIL	GROUP
BUXTON (BuC)	C
LYMAN-ROCK (LyC)	D
SCANTIC (Sc)	D
SOIL DESIGNATION	
AdB(A)	
HYDROLOGIC SOIL GROUP	
HYDROLOGIC SOIL	



SYMBOL	LEGEND	DESCRIPTION
	POND	
	DRAINAGE SUB AREA	
	REACH	
	DRAINAGE AREA BOUNDARY	
	TIME OF CONCENTRATION ROUTE	
	LIMIT OF WETLANDS	
	EXISTING CONTOUR	
	PROPOSED CONTOUR	

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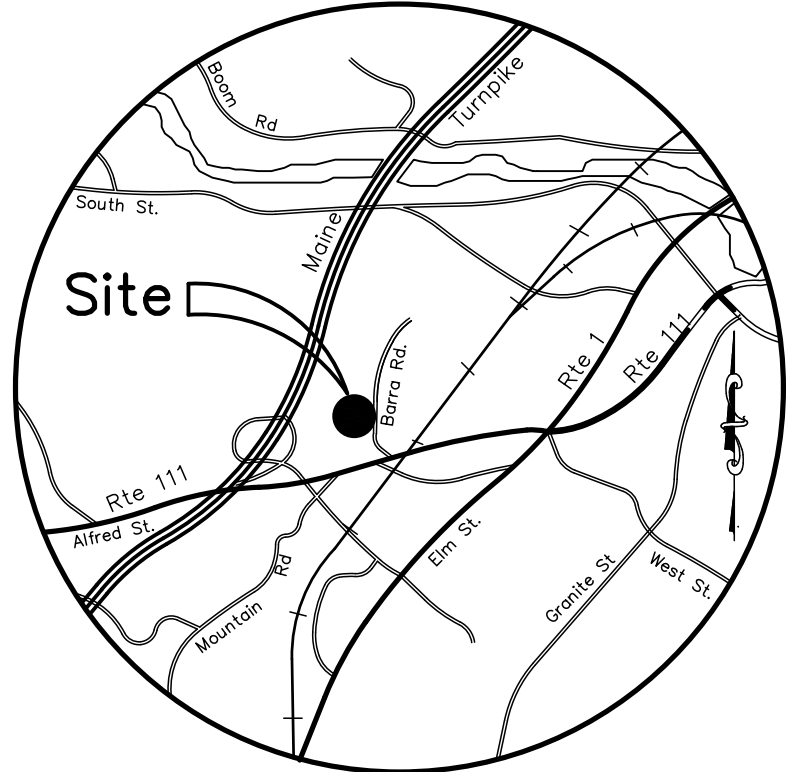
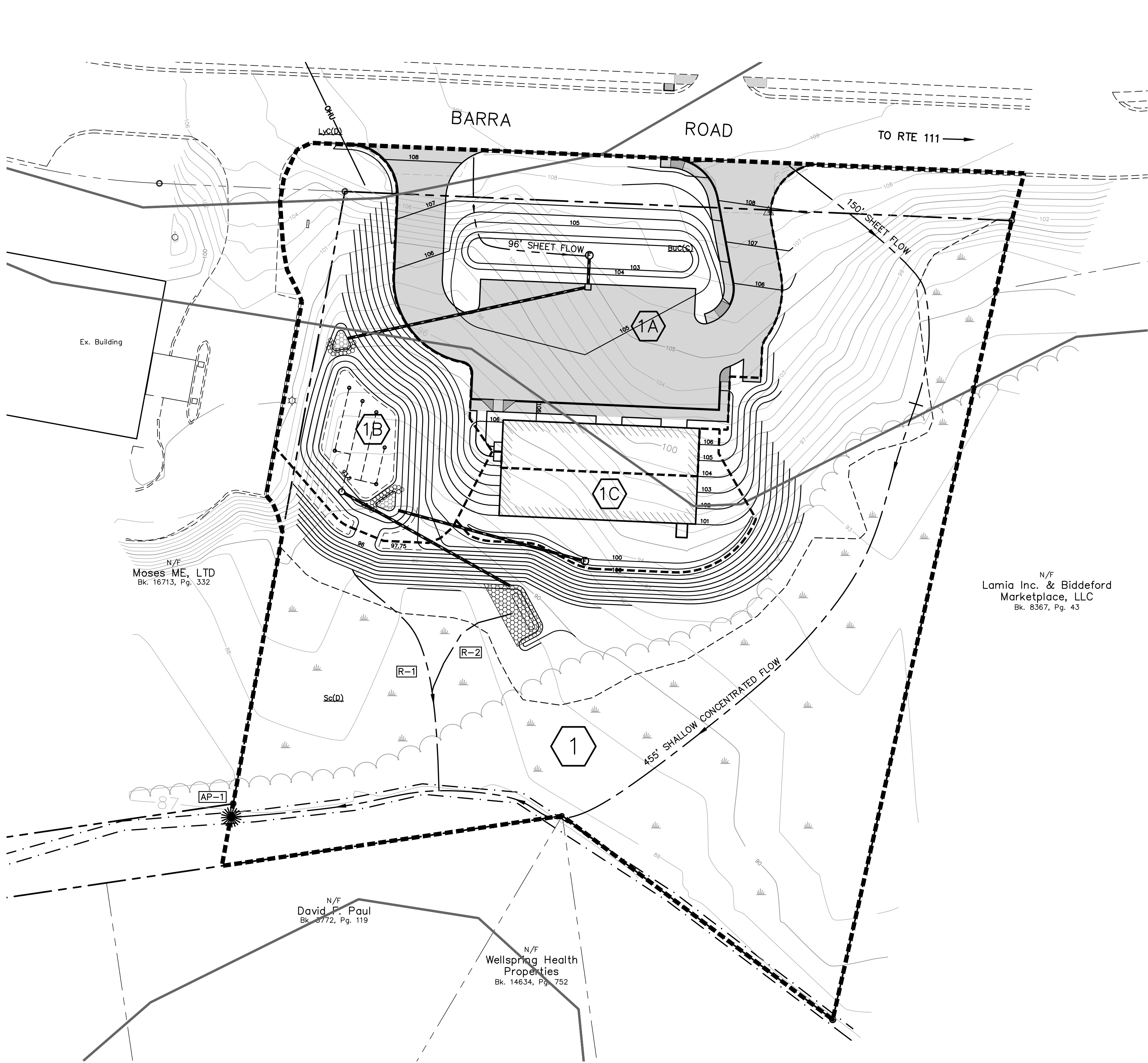
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel: (207) 839-2771
www.bh2m.com

FOR
Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

PRE-DEVELOPMENT PLAN
25 BARRA ROAD
25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED A. Fagan	DATE June 2024
DRAWN Dept.	SCALE 1" = 30'
CHECKED C. MacDonald	JOB. NO. 23214

SHEET
A
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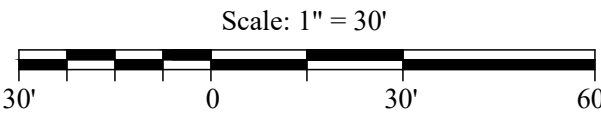
LOCATION MAP
SCALE: 1" = 2 MILES

NOTES:

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ROBERT C. LIBBY JR. PLS#2190
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GORHAM, MAINE
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3. WETLANDS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE
4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.
5. TOPOGRAPHY: GROUND SURVEY BY BH2M

ANALYSIS POINT	POST DEVELOPMENT FLOWS		
	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1	1.67 (2.61) CFS	3.35 (5.30) CFS	7.33 (7.65) CFS

OFFSITE SOIL LEGEND	
SYMBOL	DESCRIPTION
	SOIL BOUNDARY LINES
	LIMIT OF WETLANDS
SLOPE DESIGNATION	
A = 0 - 3%	
B = 3 - 8%	
C = 8 - 20%	
D = 20%+	
HYDROLOGIC SOIL GROUP	
SOIL	GROUP
BUXTON (BuC)	C
LYMAN-ROCK (LyC)	D
SCANTIC (Sc)	D
SOIL DESIGNATION	
AdB(A)	
HYDROLOGIC SOIL	



SYMBOL	LEGEND	DESCRIPTION
	POND	
	DRAINAGE SUB AREA	
	REACH	
	DRAINAGE AREA BOUNDARY	
	TIME OF CONCENTRATION ROUTE	
	LIMIT OF WETLANDS	
	EXISTING CONTOUR	
	PROPOSED CONTOUR	

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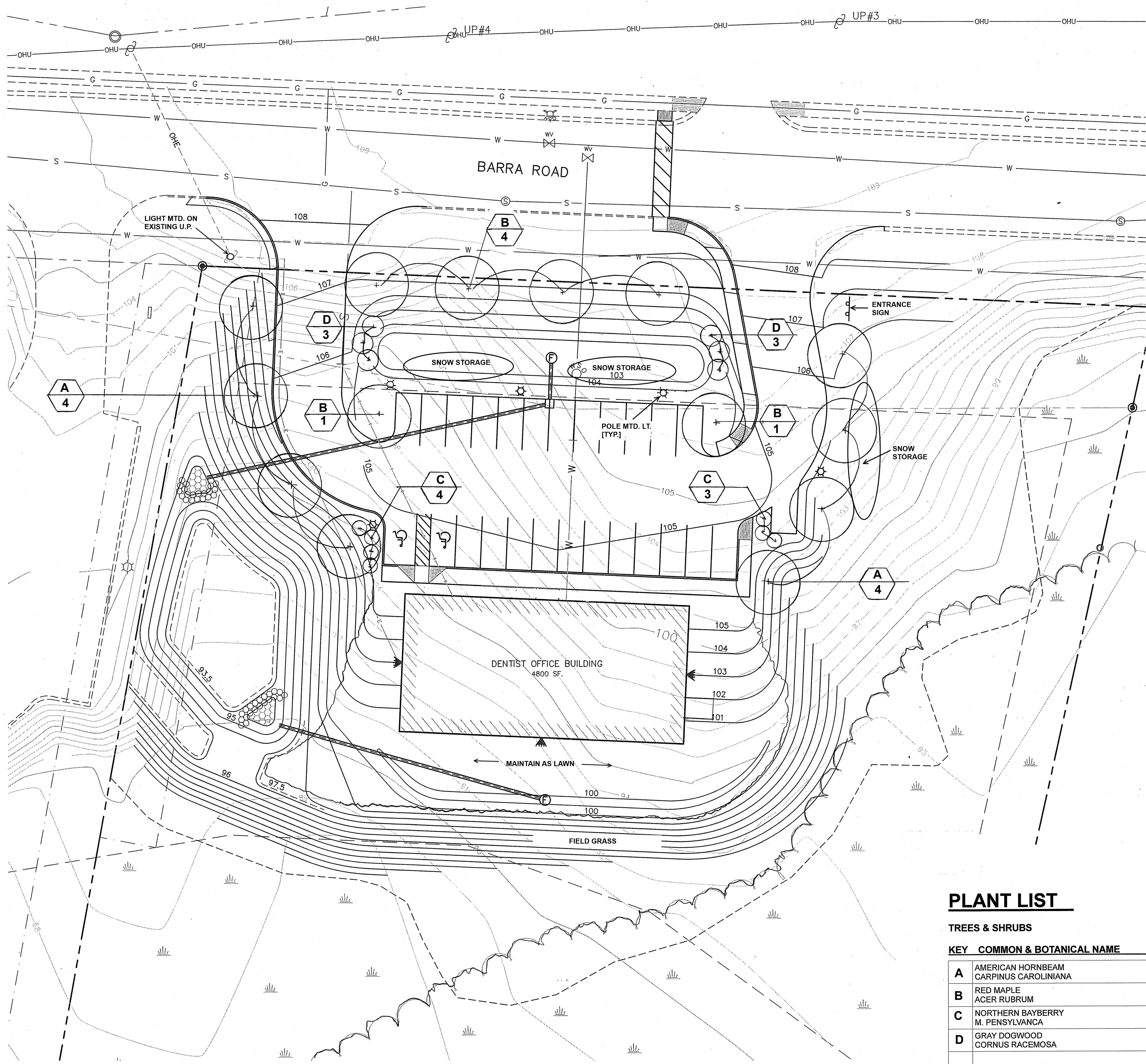
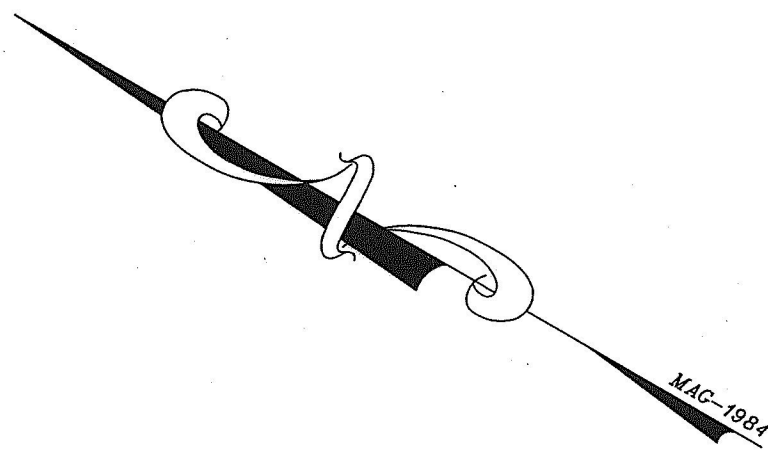
BH2M
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Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel: (207) 839-2771
www.bh2m.com

FOR
Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

POST DEVELOPMENT
25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED A. Fagan	DATE June 2024
DRAWN Dept.	SCALE 1" = 30'
CHECKED C. MacDonald	JOB. NO. 23214

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SYMBOL	DESCRIPTION
	IRON PIPE/IRON ROD FOUND
	CAPPED IRON ROD FOUND
	5/8" IRON ROD W/ CAP TO BE SET
	UTILITY POLE
	HYDRANT
	PROPERTY LINE
	BUILDING SETBACK
	ABUTTER PROPERTY LINE
	WETLANDS
	WATER MAIN
	UNDERGROUND ELECTRIC
	GAS MAIN
	OVERHEAD UTILITIES
	STORM DRAIN

PLANT LIST

TREES & SHRUBS

KEY	COMMON & BOTANICAL NAME	SIZE	ROOT	QTY	NOTES
A	AMERICAN HORNBEAM CARPINUS CAROLINIANA	2 1/2" Cal.	B&B		Trim for 8' clear under branches
B	RED MAPLE ACER RUBRUM	2 1/2" Cal.	B&B		Trim for 8' clear under branches
C	NORTHERN BAYBERRY M. PENSYLVANICA	3'-4' HT.	CONT		
D	GRAY DOGWOOD CORNUS RACEMOSA	3'-4' HT.	CONT		

BY: ANTHONY MUENCH LANDSCAPE ARCHITECT
94 COMMERCIAL STREET
PORTLAND, MAINE

NO.	DATE	REVISION	DESCRIPTION

BH2M
Berry, Huff, McDonald, Milligan, Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR

Mike Eon Associates LTD
260 Main Street
Biddeford, Maine

LANDSCAPING PLAN

25 BARRA ROAD
BIDDEFORD, MAINE

DESIGNED	DATE
DRAWN	SCALE
CHECKED	JOB. NO.
	23214

SHEET

L1

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Calculation Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
SITE	0.30	25.8	0.0	N.A.	N.A.
PARKING AREA	1.43	2.5	0.5	2.86	5.00

Luminaire Schedule (note fixture catalogue numbers are not complete)						
Type	Qty	Lum. Lumens	LLF	Lum. Watts	Description	Mounting Height
SA	2	5944	0.900	56.8	VP-ST-1-36L-55-3K7-4W	18
SB	1	8085	1.000	83.6	VP-1-36L-85-3K7-4W	18
W1	5	3216	0.900	22.6	VPW2-18L-25-3K7-4W	10, 12
W2	2	1812	0.860	15.208	LFR-4RD-M-20L30K8WD-DM1_ LFR-4RD-T-CL-S	10



SWANEY LIGHTING ASSOCIATES, INC.

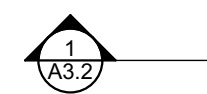
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25 BARRA ROAD, BIDDEFORD, MAINE



DATE:	7/23/24
CHECKED BY:	JAD
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JOB:	#PIn
SHEET TITLE:	

A1.1



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



CONTINUOUS SILL SEAL

CONTIN SEALANT TYP.

CONTIN. VAPOR BARRIER
TRANSITION FROM SUB SLAB
TO EXTERIOR WALL TYP.

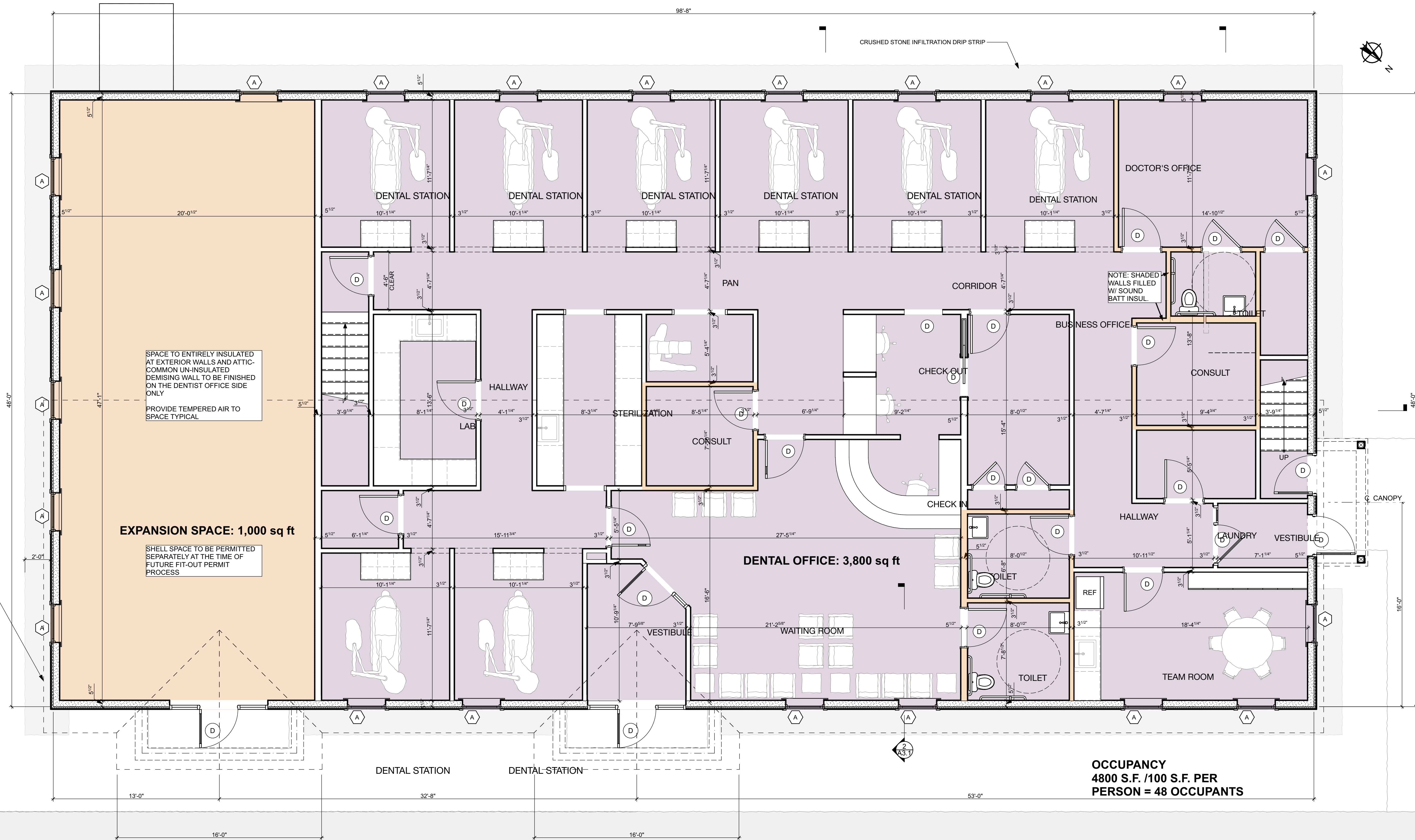
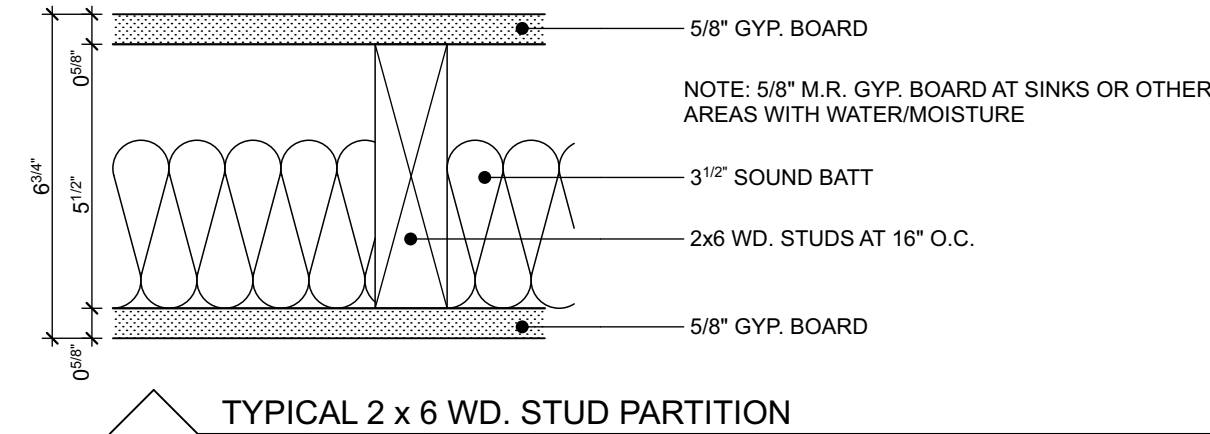
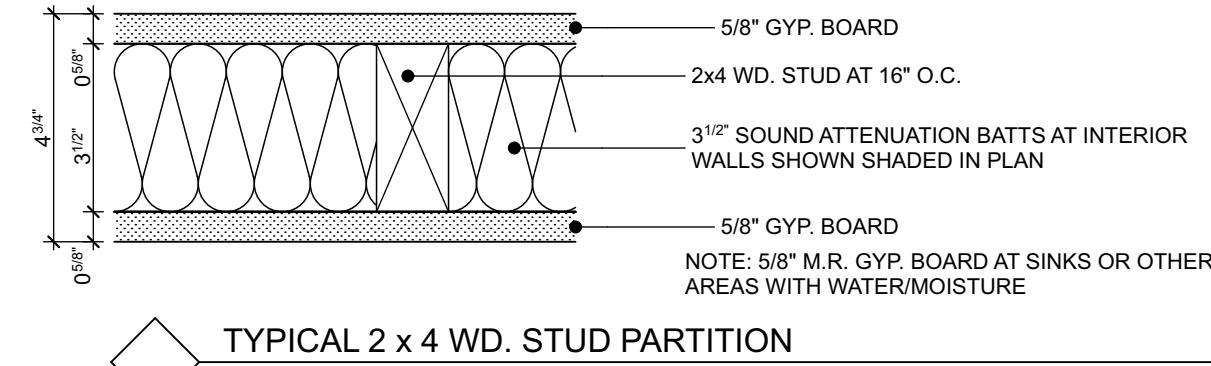
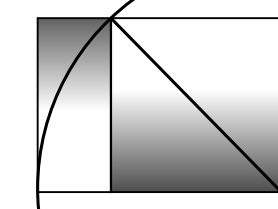
ISOLATION STRIP

CAST CONC. SLAB

2" RIGID INSULATION

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

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FIRST FLOOR PLAN

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

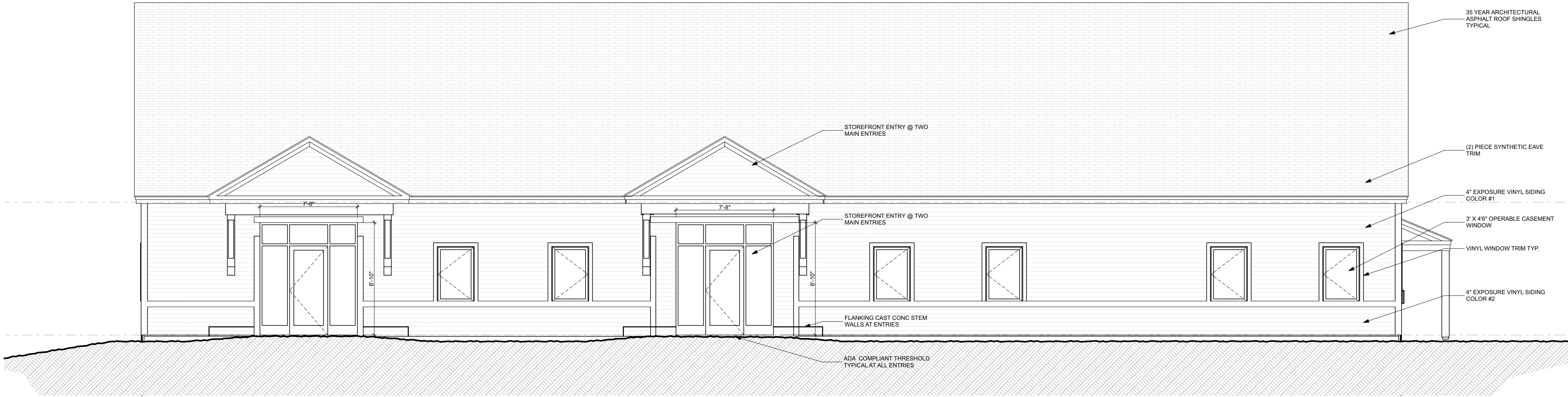
25 BARRA ROAD, BIDDEFORD, MAINE



DATE:	7/23/24
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SHEET TITLE:	

A1.3

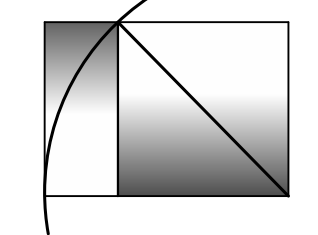
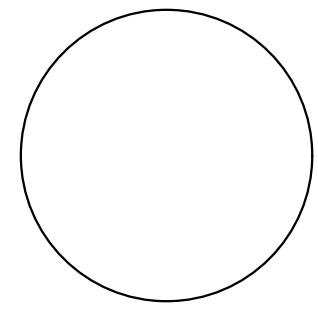




1
A2.1
FRONT ELEVATION - NORTH
SCALE: 1/4" = 1'-0"

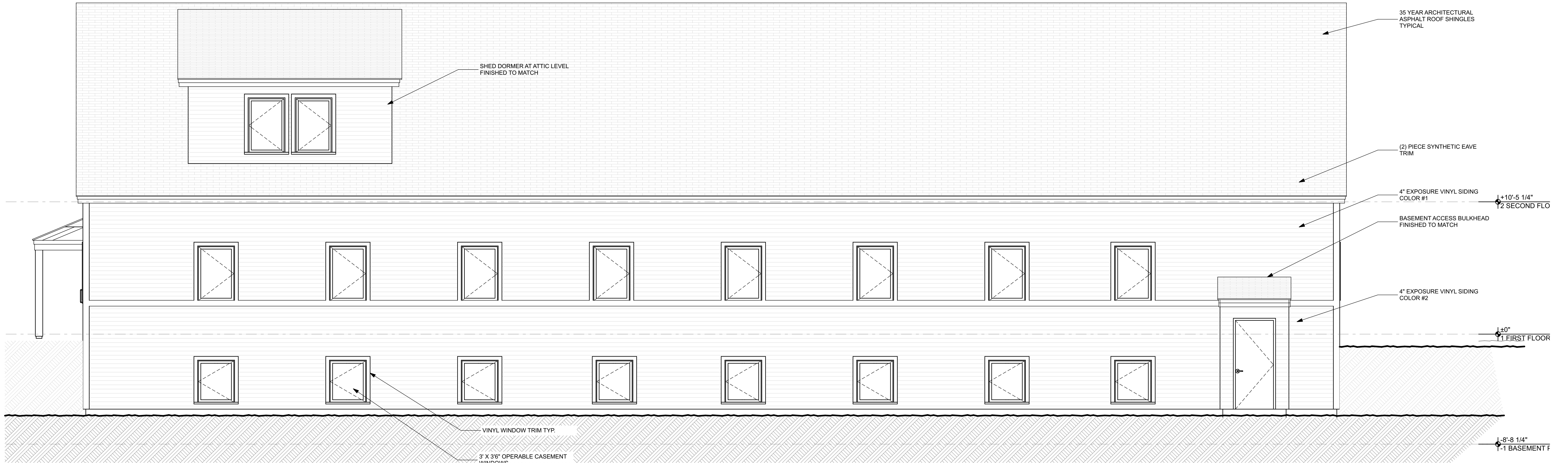


2
A2.1
SIDE ELEVATION - EAST
SCALE: 1/4" = 1'-0"



DESCRIPTION	DATE	MARK

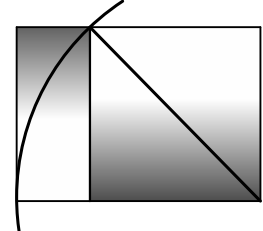
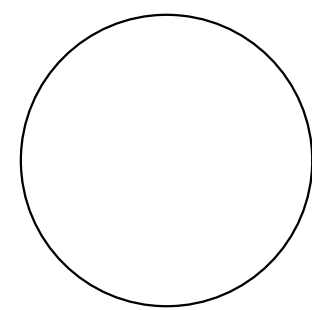
DATE:	7/23/24
CHECKED BY:	JAD
DRAWN BY:	CLBC
JOB:	#Pin
SHEET TITLE:	



3
A2.2
BACK ELEVATION - SOUTH
SCALE: 1/4" = 1'-0"



4
A2.2
SIDE ELEVATION - WEST
SCALE: 1/4" = 1'-0"



DESCRIPTION	DATE	MARK

DATE:	7/23/24
CHECKED BY:	JAD
DRAWN BY:	CLBC
JOB:	#Pin
SHEET TITLE:	

25 BARRA ROAD, BIDDEFORD, MAINE

[illegible]

SECTION

A3.1



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



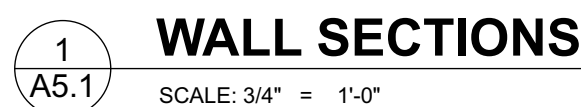
SCALE: 1 1/2"= 1'-0"

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DRAWN BY:	CLBC
JOB:	#Pin
SHEET TITLE:	

A5.1



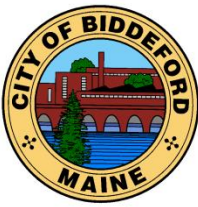
25 BARRA ROAD, BIDDEFORD, MAINE



DATE:	7/23/24
CHECKED BY:	JAD
DRAWN BY:	CLBC
JOB:	#Pln
SHEET TITLE:	

A5.3





CITY OF BIDDEFORD

Planning and Development Department

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

FINDINGS OF FACT AND CONCLUSIONS OF LAW

2024.31 Mike Eon Associates, LTD

**Final Plan Review for a Commercial Dentist's Office Building
at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.
September 18, 2024**

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

1. PROJECT DATA/INFORMATION

1.	Applicant:	Mike Eon Associates LTD 260 Main Street Biddeford, ME 04005
2.	Owner of Property:	Same as applicant
3.	Agent:	Christopher McDonald BH2M Engineers 380b Maine Street Gorham, ME 04038
4.	Engineer:	Same as Agent
5.	Project Location:	25 Barra Road
6.	Project Tax Map #/Lot #:	Tax Map 2, Lot 43-10
7.	Lot Size:	3.66 Acres
8.	Base Zoning:	I-3
9.	Overlay Zoning:	Stream Protection (to the rear of the property) – No development is proposed in the SP Zone.
10.	Existing Use:	Vacant land
11.	Proposed Use:	Commercial building (dentist's office)
12.	Approvals Required:	Final Plan Review
13.	Uses in the Vicinity:	Commercial
14.	Waivers Needed:	N/A
18.	Waivers Granted:	N/A
22.	Other Non-City Permits Required:	
23.	Fees Paid:	Yes
25.	Planning Board Review History:	July 17, 2024-Preliminary Plan; September 18- Final Plan

CONCLUSIONS OF LAW:

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Mike Eon Associates, LTD

2024.31 Final Plan Review for a Commercial Dentist's Office Building

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

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

APPROVAL GRANTED:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report and pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has approved the application # 2024.31 for Final Site Plan Review; for Mike Eon Associates, LTD for the proposed construction of a Commercial Dentist's Office Building at 25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone. Recommendation to City Council with the recommended Findings of Fact (FOF) with the following Conditions of Approval (COA):

1. The material provided for the proposed project has been reviewed only for general conformance to the City technical requirements. The applicant(s) and/or their technical consultant shall be responsible for the actual design details and completeness of their work. It is incumbent upon the applicant(s) to ensure that the project is in conformance and complies with all City Codes, ordinances and regulations as well as with all state regulations, including, but not limited to, space and bulk standards, performance standards, use standards and other zoning type requirements.
2. All work shall be in conformance with the approved plans and submission documents. No deviations from the approved plans are permitted without prior approval from the

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Planning Board for major changes, and from the City Planner and City Engineer for minor changes. The City Planner shall make the determination of major or minor.

3. A Letter of Credit or other surety acceptable to the City of Biddeford shall be submitted prior to the issuance of permits or site work being initiated. The financial guarantee shall be established for 150% of the cost of the following improvements:
 - a. Landscaping
 - b. Paving
 - c. Work within ROW (existing or proposed)
 - d. Stormwater Drainage
 - e. Loam & seed
 - f. Sediment & erosion control
 - g. As-Built Plans
 - h. Property Monuments
4. Prior to any ground disturbance, the applicant shall establish a construction inspection account equal to: \$2,500.00.
5. Prior to any ground disturbance, a pre-construction meeting with the owner/applicant, contractor, and City is required. Contact the Engineering Department to schedule this meeting.
6. Contact the Department of Public Works for driveway location permits, curb cut permits and/or street opening permits prior to the start of construction.
7. An as-built plan must be provided to the City of Biddeford Engineering Office at the end of the project electronically, which can be read by the City of Biddeford's Geographic Information System software. Note: Any modifications to the Planning Board approved development plans shall be reviewed and approved by the City Planner prior to being made, including any "field changes".
8. The applicant shall incorporate appropriate erosion control measures into this project to reduce erosion affects from the work. All disturbed areas must be re-vegetated and/or otherwise stabilized at the appropriate stage of the work per Maine DEP standards in the Best Management Practice (BMP) manual.
9. That the Article VI Performance Standards requirements regarding Dust, Fumes, Vapors & Gases (sect 25), Explosive Materials (sect 28), Glare (sect 37), Noise (sect 48) be followed.
10. The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc. prior to commencing business.

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11. At the completion of the project the owner/applicant shall request a final inspection. This request shall be directed to the Planning Office. Performance guarantees and remaining escrow accounts shall not be released until the Planning Office certifies that the project has been completed and is in compliance with the approval and all applicable City Ordinances.
12. The applicant shall submit approved plans for signature of the City's Planning Board, which shall be recorded in the York County Registry of Deeds. An electronic copy of the recorded plan shall be sent to the Planning Office.
13. This project is contemplated to be constructed in two (2) phases, which may be constructed on separate timelines.
14. Prior to the Issuance of a Building Permit the Applicant shall pay a one-time fee of \$6,150 for the Thatcher Brook Impact Fee, as outlined below:

CFUP Fee Schedule – 25 Barra Road Commercial Development Project			
Type of Surface	Compensation Fee (per acre)	Proposed Area (acres)	Compensation Fee
Non-roof Impervious Area	\$12,500	0.33	\$4,125
Roof	\$5,000	0.11	\$550
Landscape Area	\$2,500	0.59	\$1,475
Total			\$6,150

Table 1 CFUP based on Development Type

15. Curb-Opening Permit Fee: Prior to the issuance of a Building Permit the Applicant shall pay the associated driveway / curb-opening fee.
16. Sewer Connection Fee: Prior to the issuance of a Building Permit the Applicant shall pay the sewer connection fee of \$XX,000.
17. Prior to the scheduling of the required pre-construction meeting the Applicant shall confirm with the Public Works Director that the stormwater pond is sized and will be constructed appropriately.
18. The Applicant shall work with the Director of Public works to modify the left-turn signal phasing from "Protected/Permitted" to "Protected Only", to reduce the left-turn angle crashes at the Route 111/Barra Road intersection since it is a high crash location (HCL). A one-time Traffic Impact fee totaling \$1,056.00 shall be paid prior to building permit issuance.
19. This approval is valid through September 18, 2027. Building permits shall be issued and construction begun within this stipulated time period or the approval becomes invalid.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Mike Eon Associates, LTD

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25 Barra Road (Tax Map 2, Lot 43-10) in the I-3 Zone.
September 18, 2024**

Larry Patoine Planning Board Chair

Date