TOWN OF ELIOT, MAINE

PLANNING BOARD AGENDA

TYPE OF MEETING: IN PERSON WITH REMOTE OPTION **DATE: Tuesday, May 21, 2024**
PLACE: TOWN HALL/ZOOM **TIME: 6:00 PM**

PLEASE NOTE: IT IS THE POLICY OF THE PLANNING BOARD THAT THE APPLICANT OR AN AGENT OF THE APPLICANT MUST BE PRESENT IN ORDER FOR REVIEW OF THE APPLICATION TO TAKE PLACE.

1. **ROLL CALL**
   Quorum, Alternate Members, Conflicts of Interest
2. **PLEDGE OF ALLEGIANCE**
3. **MOMENT OF SILENCE**
4. **10-MINUTE PUBLIC INPUT SESSION**
5. **PUBLIC HEARING**
6. **NEW BUSINESS**
   a) 22 Quail Ln. (Map 23, Lot 5), PID# 023-005-000, PB24-08: Site Plan Amendment and Change of Use – Basketball Facility
7. **OLD BUSINESS**
   a) 708 River Rd. (Map 50, Lot 29), PID# 050-029-000, PB23-07: Final Plan Application – Residential Subdivision (4 lots)
   b) 76 Cedar Rd. (Map 71, Lot 25), PID# 071-025-000, PB23-16: Preliminary Plan Application – Residential Subdivision (5 lots)
8. **REVIEW AND APPROVE MINUTES**
   a) May 7, 2024 – if available
9. **NOTICES OF DECISION**
   a) 324 Goodwin Rd. – if available
10. **OTHER BUSINESS / CORRESPONDENCE**
11. **SET AGENDA AND DATE FOR NEXT MEETING**
    a) June 4, 2024
12. **ADJOURN**

NOTE: All Planning Board Agenda Materials are available on the Planning Board/Planning Department webpages for viewing.

To view a live remote meeting: (Instructions can also be found on the Planning Board webpage)

a) Go to www.eliotme.org
b) Click on "Meeting Videos" – Located in the second column, on the left-hand side of the screen.
c) Click on the meeting under "Live Events" – The broadcasting of the meeting will start at 6:00pm (Please note: streaming a remote meeting can be delayed up to a minute)

Instructions to join remote meeting:

To participate please call into meeting 5 minutes in advance of meeting start time. Please note that Zoom does state that for some carriers this can be a toll call. You can verify by contacting your carrier.

a) **Please call 1-646-558-8656**

1. **When prompted enter meeting number ID: 843 6587 7141**
2. **When prompted to enter Attendee ID**
3. **When prompted enter meeting password: 697878**

Members of the Public calling in, will be first automatically be placed in a virtual waiting room until admitted by one of the members of the Planning Board. Members of the public will be unmuted one at time to allow for input. Please remember to state your name and address for the record.

b) **Press *9 to raise your virtual hand to speak**

TOWN OF ELIOT MAINE
PLANNING OFFICE
1333 State Road
Eliot ME, 03903

To: Planning Board
From: Jeff Brubaker, AICP, Town Planner
Cc: Brent Schmitt, Applicant
Shelly Bishop, Code Enforcement Officer
Kim Tackett, Land Use Administrative Assistant
Date: May 15, 2024 (report date)
May 21, 2024 (meeting date)
Re: PB24-8: 22 Quail Ln. (Map 23, Lot 5), PID#023-005-000: Site Plan Amendment and Change of Use – Indoor basketball training and court rental facility

Basic information

1. The record owner of the property is: LHB Crane, LLC (mailing address: 98 Route 236; Kittery, ME 03801).
2. The applicant is: Brent Schmitt, Alleyhoops.net (mailing address: 300 Cass Street, Portsmouth, NH 03801).
3. The property is located at: 22 Quail Lane and is 3.3 acres.
4. The property can be identified as: Assessor's Map 23, Lot 5.

Zoning

5. The property is in the **Commercial/Industrial** zoning district.
6. The property does not have shoreland zoning on it.

Overview of proposed development

7. The applicant seeks approval for an indoor basketball training and court rental facility. The facility would occupy Unit 3 of the multi-unit commercial building approved in PB21-28.

Right, title, and interest

8. The applicant has provided a Letter of Intent to Lease between LHB Crane, LLC and Brent Schmitt or assigns, dated 4/18/24.

Uses and definitions

9. The proposed land use table category (Section 45-290) is: Indoor commercial, recreation, and amusement facility, an SPR use in the C/I zone and defined in Section 1-2 as "an indoor facility, with or without seating for spectators, and providing accommodations for a variety of individual, organized, or franchised sports. Such facility may also provide other regular organized or franchised events. Including but not limited to arcade, assembly hall, athletic and health clubs, bowling alley, community center, conference center, exhibit hall, gymnasium, or movie theater."
10. Planning Board review is needed for a Site Plan Amendment and Change of Use because the applicant in PB21-28 requested review only for warehouse and professional office uses. The

PB approved PB23-23 involving a Change of Use to add a manufacturing use (buckwheat flour milling operation) in another unit. This proposal adds a new use not previously approved.

Site and parking

11. No external site changes (except for signage) are proposed. However, the PB may wish to ask the applicant about parking.
12. In PB21-28, 20 spaces were required, but the approved site plan provides 24, four more than required. 3 parking spaces were calculated for each unit [45-495(11), 1 space per person employed on largest shift], plus an additional 5 spaces for 1,000 sf of office space.
13. The application **meets** Ch. 45, Article X – Off-street parking and loading. While this use may have more peak parking characteristics, e.g. rental for an event, the nature of the use is such that such parking demand is likely to occur at a different time (i.e. nights, weekends) than peak parking for the approved warehouse, professional office, and manufacturing uses. Therefore, while the use may sometimes require more than 3 parking spaces, it is seen as eligible to receive the parking flexibility provided by Section 45-492 – Joint use.

Dimensional standards

14. The application **meets** applicable dimensional standards. The building was previously approved in PB21-28, and no external building dimensional changes are proposed.

Signage

15. Applicant will need to meet signage requirements in Ch. 45, Article XI, including, but not limited to, Subsections 45-528(c) and (d) providing allowance for a sign plaque on the common freestanding sign and a wall-mounted identification sign on the exterior of the unit.

Recommendation

Approve with conditions as a minor site plan revision

Motion templates

Approval with conditions (recommended)

Motion to approve PB24-8 as a Minor Site Plan Amendment/Revision and Change of Use, as provided in Section 33-140(b), for an indoor commercial, recreation, and amusement facility that is an indoor basketball training and court rental facility in Unit 3 of the existing commercial building at 22 Quail Ln. (Map 23, Lot 5).

The Planning Board finds that the proposed revisions are minor and do not result in any substantial changes to the approved development or further impact abutters. The following are conditions of approval:

Standard conditions
[simply reference "the standard conditions" if this is not the first reading of the night]

1. The property may be developed and used only in accordance with the plans, documents, material submitted, and representations of the applicant made to the Planning Board. All elements and features of the use as presented to the Planning Board are conditions of

approval and no changes in any of those elements or features are permitted unless such changes are first submitted to and approved by the Eliot Planning Board.

2. The permit is approved on the basis of information provided by the applicant in the record regarding the ownership of the property and boundary location. The applicant has the burden of ensuring that they have the legal right to use the property and that they are measuring required setbacks from the legal boundary lines of the lot. The approval of this permit in no way relieves the applicant of this burden. Nor does this permit approval constitute a resolution in favor of the applicant of any issues regarding the property boundaries, ownership, or similar title issues. The permit holder would be well-advised to resolve any such title problems before expending money in reliance on this permit.
3. The applicant authorizes inspection of premises by the Code Enforcement Officer during the term of the permit for the purposes of permit compliance.

Disapproval

Motion to disapprove PB24-8 for the following reason(s) related to noncompliance with land use regulations:

1. _____
2. _____

Continuance

Motion to continue PB24-8 to the June 18, 2024, meeting.

Major amendment

Motion to deem PB24-8 a major amendment. The applicant must submit a site plan review application consistent with Ch. 33.

* * *

Respectfully submitted,

Jeff Brubaker, AICP
Town Planner

TOWN OF ELIOT

1333 STATE RD., ELIOT, ME 03903

REQUEST FOR PLANNING BOARD ACTION

(FOR MISCELLANEOUS USES OR CHANGES)

- Applicant Brent Schmitt, AlleyHoops.net
  Mailing Address 300 Cass Street City Portsmouth State NH Zip 03801
  Telephone # 603-498-5401 Email address brentjayschmitt@gmail.com (TO RECEIVE MEETING NOTICES)
- Property Owner LHB Crane LLC
  Mailing Address 98 Route 236 City Kittery State ME Zip 03904
- Property address 22 Quail Lane Tax Map # 23 Lot # 5
  Size (acres) 3.01 Zoning District C/I Shoreland Overlay District? No
- Conforming Lot? (YES)/NO Conforming Use? (YES)/NO Conforming Structure? (YES)/NO
- Legal interest in property identified by applicant by:
  - [ ] Owner (copy of deed &/or tax records)
  - [ ] Pending Owner (copy of purchase & sale agreement)
  - [x] Lease (copy of lease agreement with owners & applicants signature)
  - [ ] Corporate Officier (letter from corporation)
  - [ ] Other (identify: _____)
- Nature of action requested:
  (Example: *Request to amend a a previously approved site plan by adding a 10' x 20' addition*)
  Request land use for "Indoor, commercial, recreational, & amusement facilities" in the C/I Land Use. AlleyHoops.net is an indoor basketball training & court rental facility. AlleyHoops.net adheres to the 1-1-1 Model for Charity: Donate 1% of "Product", Give 1% of Profit, & Volunteer 1% of Time to local community basketball organizations. I have already had discussions with Heather Muzzerall Roy (Eliot Rec Director) about this.
- Attach ten (10) copies of sketch plan of property showing in approximate dimensions, all zoning districts, existing/proposed structures, parking areas, streets, entrances, existing and proposed setbacks, proposed lot divisions, proposed open space to be preserved, common areas, site & public improvements and facilities, any areas of excavation and grading, and any other criteria needed to evaluate request. Sketch plan is not required if so advised by the Planning Assistant.
- Applicants signature _____ Date 4/18/2024
- Property owners signature Louise H Bellanger Date 4/18/2024

TO BE COMPLETED BY PLANNING ASSISTANT

Date application received by PA _____ PA signature _____

Sketch plan required? YES NO

FEE AMOUNT $ _____ DATE PAID: _____ FORM OF PAYMENT: _____

REVISED 10/2016

LETTER OF INTENT

TO:	LHB Crane LLC
	98 Route 236
	Kittery, ME 03904
FROM:	Brent Schmitt or assigns
	300 Cass Street
	Portsmouth, NH 03801
RE:	22 Quail Lane
	Eliot, ME 03903
DATE:	April 18, 2024

The following is a proposal by the undersigned to lease the above-referenced property on the terms and conditions set forth in the Exhibit(s) attached hereto and made a part hereof. The said agreement, as executed by yourselves as LESSOR and undersigned by LESSEE, should be incorporated into said Lease.

If this proposal is acceptable to you, and if you are willing to obligate yourself to a lease of said property on the said terms and conditions, please sign in the appropriate space(s) provided below and return a signed copy to: Colliers International, 500 Market Street, Suite 9, Portsmouth, NH 03801.

This proposal is subject to the drawing of a formal lease agreement with the terms and conditions described in the attached Exhibit(s) being acceptable to both parties and their counsel.

To induce you, the LESSOR, to remove the above-referenced premises from the leasing market, and as evidence of my/our good faith, I/we will deposit in escrow the sum of $N/A with Colliers International upon acceptance of this Agreement. This deposit will be refunded to me/us by Colliers International in the event a lease incorporating the said terms and conditions is not fully executed by the undersigned LESSOR. This Letter of Intent to Lease must be accepted on or before April 25, 2024.

Brent Schmitt — *Lessee*

4/18/24 — *Dated*

LESSEE'S FEDERAL I.D. NO. OR SOCIAL SECURITY NO. 434-33-5362

I/We acknowledge receipt of a copy of the above letter, represent that I/we am/are the owner(s) of the above-referenced premises and agree to be obligated by the terms of said letter.

W.J. Belanger III

Digitally signed by William J. Belanger III
DN: cn=William J. Belanger III, c=US, o=Seacoast Crane & Building Co., Inc., email=wjb3@seacoastcranebuilding.com
Date: 2024.04.18 15:02:04 -04'00'

Lessor

04/18/2024 — *Dated*

G:CLIENTS/Seacoast Crane/22 Quail Ln/Intent to Lease for Brent Schmitt

EXHIBIT A

To be attached to and incorporated with

LETTER OF INTENT TO LEASE

TO:	LHB Crane LLC
	98 Route 236
	Kittery, ME 03904
FROM:	Brent Schmitt or assigns
	300 Cass Street
	Portsmouth, NH 03801
RE:	22 Quail Lane, Eliot, ME 03903

1.	PROPERTY LOCATION:	22 Quail Lane, Eliot, ME 03903
2.	UNIT NUMBER:	3
	TOTAL AREA:	1,500 s.f.
3.	DESIRED OCCUPANCY DATE:	Upon receipt of town approval
4.	LEASE TERM:	3 years
	RENT COMMENCEMENT DATE:	Upon receipt of town approval
5.	POSSESSION:	Upon receipt of town approval
6.	ANNUAL RENT:	$21,000.00/yr. ($1,750.00/mo.) ($14.00/sf)
7.	UTILITIES:	Paid by Lessee
8.	TAXES:	Paid by Lessor
9.	COMMON AREA MAINTENANCE:	Paid by Lessor
10.	RENT ADJUSTMENTS:	3% annual increases
11.	ADDITIONAL TERMS AND CONDITIONS:	a. Lessee shall be permitted building signage in accordance with the Town of Eliot sign regulations b. Subject to Lessee receiving approval of its intended use from the Town of Eliot Planning Board. c. Lease to start June 1st.
12.	USE OF PREMISES:	Indoor basketball training / court rental BMS
13.	OPTIONS:	Two three (3) year renewal options at 3% annual increases
14.	DUE UPON SIGNING OF LEASE:	$3,500.00 (first month's rent and security deposit)
15.	OTHER:	None.

Brent Schmitt

Lessee

W.J. Belanger III

Digitally signed by William J. Belanger III
DN: cn=William J. Belanger III, c=US, o=Seacoast Crane & Building Co., Inc., email=wjb3@seacoastcranebuilding.com
Date: 2024.04.16 15:02:30 -04'00'

Lessor

EXHIBIT B

LETTER OF INTENT TO LEASE

Lessor will complete the bathroom, install a utility sink, install two ceiling fans, and paint the walls.

Lessee's plans for a basketball court and hoop shall be at Lessee's expense and must review approval by the Lessor prior to the start of construction.

Lessee

Digitally signed by William J. Belanger III
DN: cn=William J. Belanger III, c=US, o=Seacoast Crane & Building Co., Inc., email=wjb3@seacoastcranebuilding.com
Date: 2024.04.18 15:02:43 -04'00'

Lessor

TOWN OF ELIOT MAINE
PLANNING OFFICE
1333 State Road
Eliot ME, 03903

To: Planning Board
From: Jeff Brubaker, AICP, Town Planner
Cc: Kenneth A. Wood, PE, Attar Engineering, Applicant's Representative
Shelly Bishop, Code Enforcement Officer
Date: May 15, 2024 (report date)
May 21, 2024 (meeting date)
Re: PB23-7: 708 River Rd. (Map 50, Lot 29): Final Plan Application – Residential Subdivision (4 lots)

Application Details/Checklist Documentation	
Address	708 River Rd.
Map/Lot	50/29
PB Case#	23-07
Zoning District(s)	Suburban
Shoreland Zoning District(s)	None
Property Owner(s)	Alan and Frances Newson
Applicant Name(s)	Alan and Frances Newson; Agent: Attar Engineering, Inc.
Proposed Project	4-lot conventional residential subdivision
Sketch Plan	
✓ Application Received by Staff	March 16, 2023
Application Sent to Staff Reviewers	Not sent at sketch plan review
✓ Application Reviewed By PB	May 16 and September 5, 2023
Site Walk	None
Site Walk Publication	N/A
✓ Sketch Plan Approval	September 5, 2023
Preliminary Plan	
✓ Application Received by Staff	November 7, 2023; January 18, 2024 (with additional info requested by staff)
✓ Fee Paid and Date	$975 ($800 for lots; $175 for PH) January 18, 2024
✓ Application Sent to Staff Reviewers	Emailed to ECC on January 24, 2024; ECC review February 7
✓ Notice Mailed to Abutters	January 23, 2024 (on or about)
✓ Application Reviewed by PB	January 23 and February 20, 2024
✓ Application Found Complete by PB	February 20, 2024

✓ Public Hearing	March 12, 2024
✓ Public Hearing Publication	March 1, 2024 – abutter notice sent based on 500 ft. distance from updated lot lines
✓ Preliminary Plan Approval	March 19, 2024
Final Plan	
✓ Application Received by Staff	April 25, 2024
Fee Paid and Date	To be reported at PB meeting
Application Reviewed by PB	May 21, 2024 (scheduled)
Public Hearing (if any)	
Public Hearing Publication	

Overview

Applicants seek to subdivide the 17.1-acre parcel at the subject address into four (4) residential lots. As noted in the 3/14/23 cover letter, one lot will contain "the existing dwelling and barn, and the remaining three will have proposed single[-]family houses and accompanying driveways and features". The existing parcel is located on the inside of the curve of River Rd. as it turns eastward to State Rd.

The proposal is a land subdivision; the 1/18/24 cover letter notes: "There is no proposed development of the three proposed new lots at this time. All lots are to be sold as is and developed at a later date." Waivers and have been requested by the applicant and addressed in previous reviews.

Waivers previously addressed

- 41-256 – reservation of parks/rec land; instead requiring $1,500 payment-in-lieu per new lot (not applicable for existing house lot) to go to William Murray Rowe Park capital improvements
- Submission requirements (41-67); submission requirements of 41-150:
    - (11) – High intensity soils report
    - (21) – Estimated progress schedule
- 41-221(b)(4) – individual driveway access to street

Right, title, and interest

Previously provided

Dimensional requirements

Standard	Planner review
Min. lot size: 2 acres [41-255; 41-218(e); 45-405]	**Met.** Lot 1 is ~4.8 ac. and Lots 2-4 are ~4.1 ac.
Min. street frontage: 150 ft.	**Met.** Lot 1: 215 ft. Lots 2-4: 150 ft.
Min. street frontage waiver/modification	N/A

Setbacks: appropriate for location of subdivision and type of development/use contemplated [41-255]. 45-405 setbacks: 30' front/20' side/30' rear	**Met.** Setback lines and dimensions shown on sketch plan.

Ch. 41, Art. IV – General Requirements

Section	Standard/ summary	Planner review
41-212	Air quality	**Met or N/A.**
41-213	Water quality	**Appears to be substantially met** with provision of wetland protections, fixed driveway locations, and other topics addressed on 3/12/24 and previous reviews.
41-214	Soil quality and erosion-sedimentation control	**Appears to be met** with provision of ESC plan and soils information. Soil test pit results in 5/16/23 packet and on subdivision plan (see table), showing all exceed the minimum 9" depth to restrictive layer. An ESC plan is noted below as one option for protecting wetland areas for a "common plan of development or sale" (34-2) when individual houses are built. **ESC plan approved by PB on 3/19/24.**
41-215	Preservation of natural resources and scenic beauty	**Appears to be met** with provision of wetland protections and clearing limits. Tract is largely wooded with forested wetlands delineated on the plan, and part of a large, undisturbed habitat block as defined by Beginning with Habitat. The 3 new house lots appear to need some tree clearing for the new houses/driveways. However, the lots are larger than the min. lot size, and the house building envelopes, driveways, and septic fields are toward the front of the parcels, in between delineated wetlands.
41-216	Preservation of historical features and traditional land use pattern	**Appears to be met.**
41-217	Water supply	**Appears to be met.**
41-218	Sewage disposal	**Appears to be met.** New lots will need to be served by septic systems located in appropriate soils. Soils report in 5/16/23 packet shows Class C and D soils with groundwater depth between 10 and 24" for 13 test pits. Test pit locations are shown on the plan. 5/18/23 applicant letter summarizes the test pit results showing all depths to the restrictive layer exceed the State's Subsurface Wastewater Disposal Rules (10-144 CMR 241). Subdivision plan includes a test pit data table.

41-220	Relationship of subdivision to community services	There is no open space lot provided, unlike with earlier sketch plan iterations, but the lots are substantially larger than the minimum lot size and the suggested house locations are at the front of the parcels, with the rear of the parcels shown as undeveloped.
41-221	Traffic and streets	**Appears to be met.** Subdivision does not propose any new streets but rather 3 additional driveways onto River Rd. Waiver granted on 3/19/24 for 41-221(b)(4), which restricts or eliminates individual lot access onto collector or arterial roads.
41-222	Public health and safety	**Appears to be met.**
41-223	Local/state/federal land use policies	Applicant requests waiver of review by external entities (e.g. DEP, USACE, York Soil/Water "on the basis of no development being proposed by the subdivision plan" but this is not needed as it is the subdivider's sole responsibility to meet state and federal requirements.

Subdivision design standards

Section 41-255 – Lots

Addressed previously

Section 41-256 – Reservation of land

See previous memo and 2/20/24 waiver described above.

Wetlands and drainage

Addressed with addition of wetland protection notes on plans and ESC plan.

Vernal pools

Discussed previously, including vernal pool report by Michael Cuomo. No vernal pools are expected to be impacted by the development of the lots as shown on the subdivision plan.

Recommendation

Approval with conditions

Motion templates

To be provided at or before meeting.

***
Respectfully submitted,
Jeff Brubaker, AICP; Town Planner

ATTAR
ENGINEERING, INC
CIVIL · STRUCTURAL · MARINE

Mr. Jeffery Brubaker, AICP, Town Planner
Town of Eliot, Maine
1333 State Road
Eliot, Maine 03903

April 25th, 2024
Project No. C368-22

RE: Subdivision Plan Application for Site Plan Amendment
708 River Road Subdivision
708 River Road (Tax Map 50, Lot 29)

Dear Mr. Brubaker:

On behalf of the lot owner/applicants, Alan and Frances Newson, I have enclosed a Final Subdivision Plan Application, Final Subdivision Plan, and supporting documents for your review and consideration.

The 17.1-acre parcel is located on River Road and currently has a single-family dwelling and barn in the suburban district.

The plan proposes to subdivide the existing residential parcel into four smaller lots. One contains the existing dwelling and barn, and the remaining three will have proposed single-family houses and accompanying driveways and features. Before commencement of any future construction, MaineDEP is to be consulted and any applicable permits acquired. There is no proposed development of the three proposed new lots associated with this. All lots are to be sold as is and developed at a later date if at all.

We look forward to discussing this project with the Planning Board at their next available meeting. Please contact me for any additional information or clarifications required.

Sincerely;

Wyatt Page

Wyatt R. Page, E.I.
Project Engineer

1284 State Road, Eliot, ME 03903 · tel (207) 439-6023 · fax (207) 439-2128

CASE NO._____

TOWN OF ELIOT
PLANNING BOARD
SUBDIVISION APPLICATION

This application shall conform in all respects to the Land Subdivision Standards of Chapter 41 of the Planning Board of the Town of Eliot code of ordinances. Ten (10) copies of application and sketch plan shall be submitted.

Application for ( ) Sketch plan

( ) Preliminary plan for major subdivision

(✓) Final plan for minor subdivision

1. Proposed name of subdivision River Road Subdivision

2. Location of property 708 River Road

3. Tax Map 50 Lot # 29 Size (acres) 17.1

4. Zoning District (circle one) Commercial/Industrial Rural Suburban Village

5. Name of record owner Alan & Frances Newson
   Mailing address 705 River Road, Eliot ME 03903 Phone # 207-252-4050

6. Name of applicant Same as owner(above)
   Mailing address _____ Phone #_____
   If corporation, name of agent Wyatt Page, Attar Engineering, Inc. 207-439-6023

7. A complete statement of any easements relating to the property is attached hereto
   (if none, so state) None

8. Deed or deeds recorded at County Registry of Deeds
   Date 9/1/2022 Book # 19104 Page # 932
   Date_____ Book #_____ Page #_____
   Date_____ Book #_____ Page #_____

CASE NO._____

9. Do the owner and/or applicant have an interest in an abutting property as stated on the attached sheet? No

10. Name, address and license # of Engineer, Land Surveyor, Architect, or Planner
Kenneth A. Wood, Attar Engineering, Inc. 1284 State Road Eliot ME License #5992

11. Preliminary plan covers 4 Lot subdivision, no proposed development. Individual lots to be sold as is.

12. If applicable, has the owner and/or applicant been approved for a MaineDOT driveway permit for the installation, physical change or change of use a driveway located on a State highway? N/A

13. Does owner propose to submit Final Subdivision Plan to cover the entire Preliminary Plan, or to file same in sections? Final Subdivision Plan to cover
If so, how many?_____

14. Does the preliminary plan cover the entire contiguous holdings of the applicant?
Yes

15. Entrances onto existing or proposed collector streets do not exceed a frequency of one per 400' of street frontage? (Yes) No

16. Entrances onto existing or proposed arterial streets do not exceed a frequency of one per 1000' of street frontage? Yes No

17. A distance of at least 200' is maintained between centerlines of offset intersecting streets? (Yes) No

18. Does the applicant propose to dedicate to the public all streets, highways and parks shown on the plan? N/A

CASE NO._____

19. Give the number of acres which the applicant proposes to dedicate to public to use for park, playground and/or other purposes N/A

20. If any waivers of requirements are to be requested, list them on a separate sheet, referencing the Sections in Chapter 41 and give reasons why such requirements should be waived .

21. Is the property located in a flood zone? No

If yes, please complete the attached Flood Hazard Development Application and return it with your application.

Subdivider shall submit fees as specified in Sections 1-25 in the amount of $200/lot prior to the second meeting with the Planning Board. Fees are not refundable.

Applicant signature _____, Agent Date 4/25/24

Owner signature _____ Date _____

Planning Assistant _____ Date _____

FEES:

Major subdivision	$200 per lot
Minor subdivision	$200 per lot

CASE NO._____

Town of Eliot Planning Board
CHECKLIST FOR A SUBDIVISION APPLICATION
(All items will be reviewed unless otherwise noted or NA)

☑ The owner of the property is
Alan & Frances Newson

☑ The applicant is Alan & Frances Newson who has demonstrated a legal interest in the property by providing:
Warranty Deed

☑ Agents for the applicant are:
Wyatt Page & Kenneth Wood, Attar Engineering, Inc.

☑ The property is located at 708 River Road , in the Suburban zoning district, identified as Assessor's Map 50 , Lot 29 , and containing 17.1 acres

☑ Application is for establishment of (new) (modification to existing) Major/Minor Subdivision. New Minor Subdivision

☐ Existing Subdivision was approved by the Planning Board on _____.

☑ The name of the proposed subdivision is River Road Subdivision and it will contain 4 lots which range in size from 4.07 acres to 4.78 acres and are shown on Plan No. 1, dated 4/25/24

N/A ☐ Easements and/or Rights of Way affected by or within the proposed subdivision are as follows:

a. _____.
b. _____.
c. _____.

N/A ☐ Entrances onto existing or proposed collector streets do not exceed a frequency of one per 400' of street frontage? Entrances onto existing or proposed arterial streets do not exceed a frequency of one per 1000' of street frontage?

N/A ☐ Owner/applicant has been approved for a driveway permit from MaineDOT for the installation, change or change of use on any State highway, if applicable?

☑ Lots within the proposed Subdivision will have (private) (public) water supply and (private) (public) (private central) sewage disposal systems.

☑ Sketch Plan was accepted by the Planning Board on 9/5/2023

☑ Preliminary Plan approved by Planning Board on 3/19/2024

N/A ☐ A Site visit was conducted on _____

☑ A public hearing was held on 3/12/2024

☐_____ abutters spoke or submitted written correspondence at the Public Hearing or submitted written correspondence by mail.

☐_____ members of the public spoke or submitted written correspondence at the Public Hearing or submitted written correspondence by mail.

☑ The application was discussed by the Planning Board on 5/16/2023, 9/5/2023, 2/20/2024, 3/12/2024, 3/19/2024

☑ Plan for minimizing surface water drainage (Section 41-213) submitted: (Yes) (No).

☑ Soil Erosion and Sediment Control Plan (Section 41-214) submitted (Yes) (No) (

N/A ☐ *(Optional for Minor Subdivision)* Statement or plan showing effect upon air quality (Section 41-212) submitted: (Yes) (No)

☑ *(Optional for Minor Subdivision)* Soils Report and High Intensity Soils Survey [Section 41-150(11)] submitted: (Yes) (No) (Waiver requested)

☑ *(Optional for Minor Subdivision)* Location of all natural features or site elements to be preserved (Section 41-215) identified (Yes) (No)

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☑ *(Optional for Minor Subdivision)* Traffic congestion and safety plan (Section 41-221) submitted: (Yes) (No) (Waiver requested)

☑ *(Optional for Minor Subdivision)* Public health and safety statement (Section 41-222) submitted: (Yes) (No) (Waiver requested).

☑Compliance with Federal, State, and Local land use laws (Section 41-223) demonstrated: (Yes) (No).

☑ *(Optional for Minor Subdivision)* Estimated Progress schedule [Section 41-150(21)] submitted: (Yes) (No) (Waiver requested)

☑ Adequate financing (Section 41-224) demonstrated: (Yes) (No) (Waiver requested).

N/A ☐ *(Optional for Minor Subdivision)* Water Department approval provided for public water service [Section 41-174 (1)]

N/A ☐ *(Optional for Minor Subdivision)* State of Maine, Department of Human Services approval for central water supply system provided [Section 41-174 (2)]

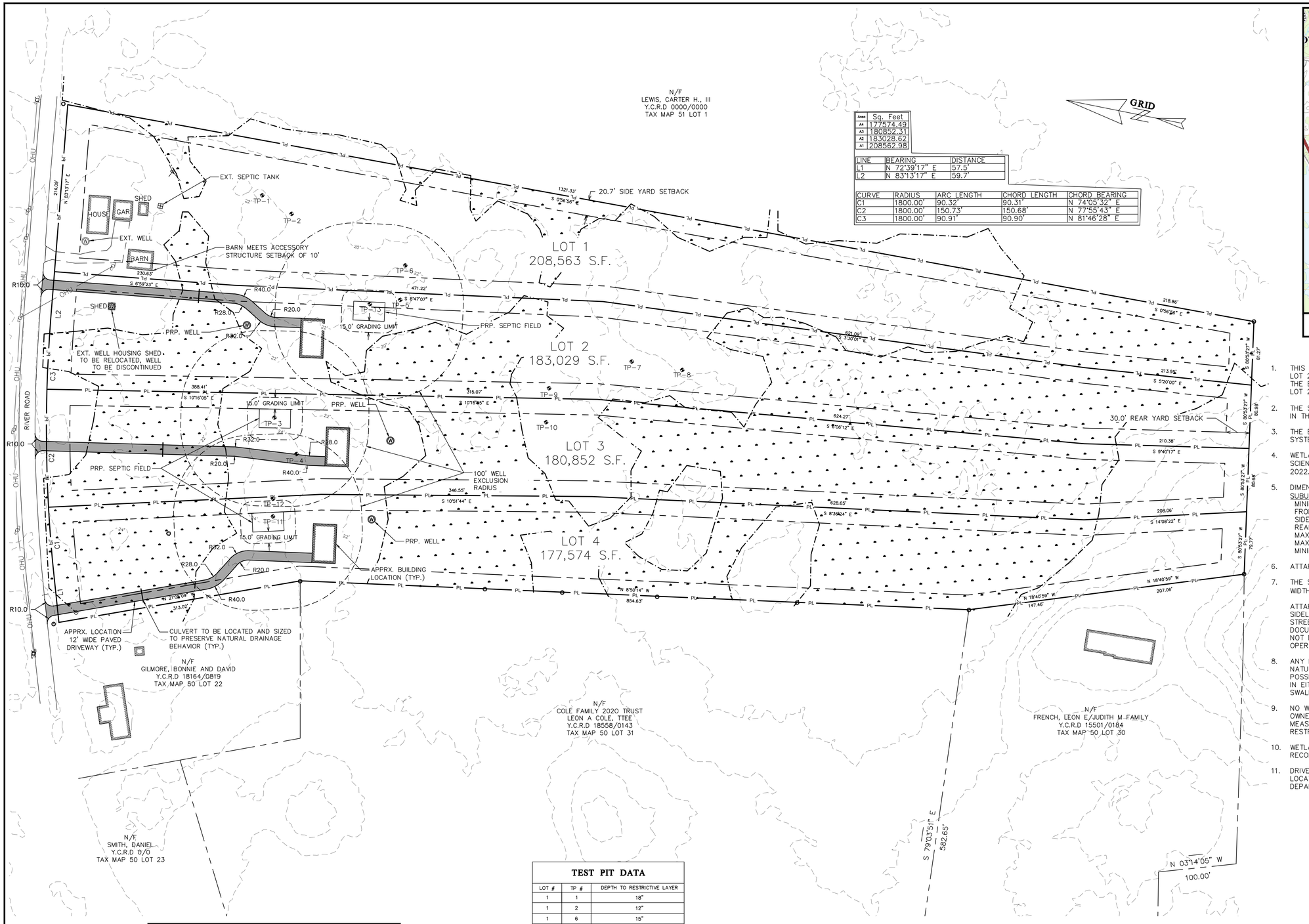
☑ Soil Scientist approval for individual wells provided [Section 41-174 (3)]: (Yes) (No)

N/A ☐ Proposed subdivision Plan reviewed by the Department of Environmental Protection: (Yes) (No) .

N/A ☐ Proposed subdivision Plan reviewed by the Department of the Army, Corps of Engineers: (Yes) (No)

N/A ☐ Proposed subdivision Plan reviewed by the York County Soil and Water Conservation District: (Yes) (No)

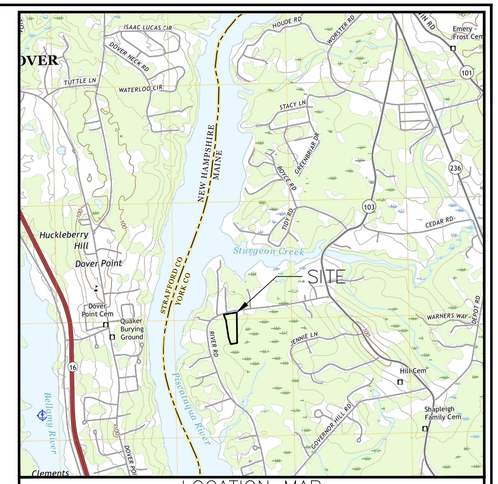
☐ Other_____



Area	Sq. Feet
A4	177574.49
A3	180852.31
A2	183028.62
A1	208562.98

LINE	BEARING	DISTANCE
L1	N 72°39'17" E	57.5'
L2	N 83°13'17" E	59.7'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	1800.00'	90.32'	90.31'	N 74°05'32" E
C2	1800.00'	150.73'	150.68'	N 77°55'43" E
C3	1800.00'	90.91'	90.90'	N 81°46'28" E



LOCATION MAP
APPROX. SCALE: 1" = 2,000'

GENERAL NOTES

1. THIS PLAN PROVIDES SKETCH PLAN DETAILS FOR THE SUBDIVISION OF TAX MAP 50 LOT 29 INTO 4 RESIDENTIAL LOTS. THE PORTION IDENTIFIED AS LOT 1 WOULD HOUSE THE EXISTING HOME AND ASSOCIATED BUILDINGS ASIDE FROM THE SHED LOCATED IN LOT 2. LOTS 2–4 ARE TO BE DEVELOPED INTO NEW RESIDENTIAL LOTS.
2. THE SITE IS IDENTIFIED ON THE TOWN OF ELIOT TAX ASSESSOR'S MAP 50 AS LOT 29 IN THE SUBURBAN DISTRICT AND MEASURES APPROXIMATELY 17.1 ACRES.
3. THE BEARINGS HEREON, ARE BASED ON GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83 AS DERIVED FROM GPS OBSERVATIONS.
4. WETLAND DELINEATION AND TEST PITS BY MICHAEL CUOMO, MAINE CERTIFIED SOIL SCIENTIST #211, DATED 11/07/2022 AND LOCATED BY ATTAR ENGINEERING, AUGUST, 2022.
5. DIMENSIONAL REQUIREMENTS

SUBURBAN DISTRICT AS PER §45–405	
MINIMUM LOT SIZE	2 ACRES
FRONT YARD SETBACK	30 FEET
SIDE YARD SETBACK	20 FEET
REAR YARD SETBACK	30 FEET
MAXIMUM BUILDING HEIGHT	35 FEET
MAXIMUM LOT COVERAGE	15%
MINIMUM STREET FRONTAGE	150 FEET

6. ATTAR ENGINEERING HAS NOT IDENTIFIED UTILITIES AS PART OF THIS SURVEY.
7. THE SIDELINES OF RIVER ROAD, AS DEPICTED HEREON, ARE BASED ON A STATUTORY WIDTH OF 3 RODS (49.5') AND FOUND MONUMENTATION.

   ATTAR ENGINEERING HAS NOT PERFORMED A RECORD RETRACEMENT SURVEY OF THE SIDELINES OF RIVER ROAD. THE OWNERS OF LAND ADJACENT TO SAID ROAD OR STREET MAY HAVE OWNERSHIP RIGHTS EXTENDING INTO THE ROADS OR STREET. THIS DOCUMENT DOES NOT INTEND TO LIMIT, DENY, OR LOCATE THESE RIGHTS AND DOES NOT NECESSARILY REFLECT THE EXTENT OF TITLE THAT PASSES BY IMPLICATION OR OPERATION OF LAW.
8. ANY PROPOSED DEVELOPMENTS TO THE SUBDIVIDED LOTS SHALL MAINTAIN THE NATURAL STATE OF WATERCOURSES, SWALES, AND FLOODWAYS AS NEARLY AS POSSIBLE AND SHALL NOT CREATE UNDUE EROSION, DRAINAGE, OR RUNOFF PROBLEMS IN EITHER THE SUBDIVISION OR IN ADJACENT PROPERTIES. ANY NECESSARY CULVERTS, SWALES, AND DRAINAGE CONTROL MEASURES SHALL BE DESIGNED ACCORDINGLY.
9. NO WETLANDS AS SHOWN ON THIS PLAN MAY BE FILLED OR DRAINED BY FUTURE OWNERS EXCEPT AS REQUIRED TO CONSTRUCT DRIVEWAYS AND ASSOCIATED DRAINAGE MEASURES NEEDED TO SERVICE THE SUBDIVIDED LOTS PROPOSED BY THIS PLAN. THIS RESTRICTION SHALL BE NOTED IN THE DEEDS FOR INDIVIDUAL LOTS.
10. WETLAND BOUNDARIES ARE TO BE PERMANENTLY MARKED WITHIN 30 DAYS OF THE RECORDING OF THIS SUBDIVISION PLAN WITH YORK COUNTY REGISTRY OF DEEDS.
11. DRIVEWAYS CONSTRUCTED TO SERVICE THE LOTS PROPOSED IN THIS PLAN SHALL BE LOCATED AS SHOWN ON THIS PLAN EXCEPT IF OTHERWISE REQUIRED BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION OR OTHER GOVERNING BODY.

TEST PIT DATA

LOT #	TP #	DEPTH TO RESTRICTIVE LAYER
1	1	18"
1	2	12"
1	6	15"
2	5	24"
2	7	22"
2	8	11"
2	9	10"
2	13	20"
3	3	14"
3	4	10"
3	10	12"
4	11	12"
4	12	18"

MINIMUM REQUIRED DEPTH TO RESTRICTIVE LAYER IS 9". ALL TEST PITS HAVE SUFFICIENT CLEARANCE ACCORDING TO THE STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES (10–144 CMR 241).

GRAPHIC SCALE
0 60 120 180 240 (FEET)

TOWN OF ELIOT
PLANNING BOARD DATE

STATE OF MAINE – YORK COUNTY
ss. REGISTRY OF DEEDS
RECEIVED_____, 20___
AT__h.___m., M. AND RECORDED IN PLAN BOOK_____, PAGE_____
ATTEST_____REGISTER

TAX MAP 50, LOT 29

NO.	DESCRIPTION	DATE
	REVISIONS	

STATE OF MAINE
CHRISTEN B. WILBER
No 2351
PROFESSIONAL LAND SURVEYOR

SUBDIVISION PLAN
708 RIVER ROAD
ELIOT, ME 03903

FOR:
ALAN NEWSON
705 RIVER ROAD
ELIOT, ME 03903

ATTAR ENGINEERING, INC.
CIVIL ◆ STRUCTURAL ◆ MARINE ◆ SURVEYING
1284 STATE ROAD – ELIOT, MAINE 03903
PHONE: (207)439–6023 FAX: (207)439–2128

SCALE:	APPROVED BY:	DRAWN BY:
1" = 60'		WRP
DATE:		REVISION DATE:
04/25/2024		– : –
JOB NO: C368–22	FILE: River Road 708 SDV	SHEET: 1

TOWN OF ELIOT MAINE

PLANNING OFFICE
1333 State Road
Eliot ME, 03903

To: Planning Board
From: Jeff Brubaker, AICP, Town Planner
Cc: Walter E. Pelkey, BH2M, Applicant's Representative
Shelly Bishop, Code Enforcement Officer
Date: May 15, 2024 (report date)
May 21, 2024 (meeting date)
Re: PB23-16: 76 Cedar Rd. (Map 71, Lot 25): Preliminary Plan Application – Residential Subdivision (5 lots)

Application Details/Checklist Documentation	
Address	76 Cedar Rd.
Map/Lot	71/25
PB Case#	23-16
Zoning District(s)	Rural (not in Critical Rural Overlay)
Shoreland Zoning District(s)	Limited Residential
Property Owner(s)	David Springer
Applicant Name(s)	David Springer
Proposed Project	5-lot conventional residential subdivision
Sketch Plan	
✓ Application Received by Staff	May 4, 2023
✓ Application Sent to Staff Reviewers	August 22, 2023
✓ Application Reviewed By PB	September 19, October 3, and November 14, 2023
✓ Site Walk	October 17, 2023
✓ Site Walk Publication	October 8, 2023 (Portsmouth Herald/Seacoast Online)
✓ Sketch Plan Approval	December 5, 2023
Preliminary Plan	
✓ Application Received by Staff	April 1, 2024 (initial) May 9, 2024 (revised per staff comments)
Fee Paid and Date	To update at meeting
✓ Application Sent to Staff Reviewers	April 25, 2024 – also sent to Great Works Regional Land Trust Anticipated review with ECC in June
✓ Notice Mailed to Abutters	On or about April 8, 2024
Application Reviewed by PB	May 21, 2024 (scheduled)
Application Found Complete by PB	
Public Hearing	
Public Hearing Publication	

Preliminary Plan Approval	
Final Plan	
Application Received by Staff	
Fee Paid and Date	
Application Reviewed by PB	
Public Hearing (if any)	
Public Hearing Publication	

Overview

Applicant seeks preliminary plan review for a 5-lot conventional residential subdivision of the subject ~21.5-acre parcel, which is undeveloped. The plan also includes an open space lot (3 acres) along the Cedar Rd. frontage encompassing the LR shoreland zoning and most of the floodplain.

Right, title, and interest

Previously provided – see sketch plan review

Dimensional requirements

Standard	Planner review
Min. lot size: 3 acres [41-255; 41-218(e); 45-405]	**Met**, unless larger lots needed for subsurface wastewater systems based on soil characteristics
Min. street frontage: 200 ft. for Lots 1-3 100 ft. (per approved reduction) for Lots 4-5	**Appears to be met**
Min. street frontage waiver/modification	Approved by PB for cul-de-sac Lots 4-5
Setbacks: appropriate for location of subdivision and type of development/use contemplated [41-255]. 45-405 setbacks: 30' front/20' side/30' rear	Standard setbacks shown on sketch plan

House lot layouts

Shown on plans

Contour interval

1 ft., as specified by PB

Ch. 41, Art. IV – General Requirements

Section	Standard/ summary	Planner review
41-212	Air quality	**Appears to be met.** See 4/1/24 cover letter.
41-213	Water quality	(a)-(c): Stormwater runoff, drainage easement, soil statement – see below. (d) Storage of materials, is **presumptively N/A**.

41-214	Soil quality and erosion-sedimentation control	Materials provided with prelim plan or previously with sketch plan submittals: • Soil map and classifications • Soils report [41-150(11)] • Erosion & sedimentation control (Sheet 6) • March 20, 2024, letter signed/sealed by Mark J. Hampton, certified Maine soil scientist, regarding sufficient room for homes, water supply, and septic systems with appropriate separation. Soils in April 6, 2023, Soil Narrative Report (Hampton): • Buxton – Group C – moderately well drained, test pits SS-4, SS-5, and SS-9 • Lamoine – Group D – somewhat poorly drained, test pits SS-2 and SS-7 • Scantic – Group D – poorly drained, test pits SS-1, SS-3, SS-6, and SS-8 (corrected limiting factor of 6" – 10/18/23 submittal) located in wetland areas
41-215	Preservation of natural resources and scenic beauty	Lot is undeveloped with agricultural fields, woodlands, and wetlands. Per applicant, lot was taken out of the Maine Current Use Tax Program (Farmland). Per ECC+PB review comments, April 7, 2023, letter from Mark J. Hampton, C.S.S., L.S.E. (Certified Soil Scientist #216, Licensed Site Evaluator #263) outlines his delineation, the flagging of wetlands and the transmittal of wetland flag locations to the applicant's engineer for mapping. Hampton states that the wetlands "do not meet the definition of wetlands of special significance as defined by [DEP]". Prelim plan continues to show avoidance of wetland impacts except for Lot 2 driveway (3,900 sf). An updated wetland letter previously reviewed states that the "wetlands found onsite are not coastal wetlands as defined by [DEP]". An April 8, 2023, previously reviewed letter from Mr. Hampton describing his vernal pool assessment, states in part: "all the wetlands evaluated on the parcel do not have the parameters to support a vernal pool, there were no areas of ponded water of sufficient depth to support amphibian breeding environment." An updated vernal pool letter (previously reviewed), dated April 8, 2022/October 12, 2023, states: "I found no evidence of any indicator species for vernal pools on the property."
41-216	Preservation of historical features and traditional land use pattern	The 2009 Comprehensive Plan lists the landscape as part of a scenic view. Per sketch plan comment, applicant has submitted renderings of subdivision homes from the scenic vantage point of Route 236 (in packet).

41-217	Water supply	The general location of individual wells shall be indicated on the subdivision plan by a Maine-licensed site evaluator [41-217(d)]. **Not yet met** – locations not apparent on plan sheets.
41-218	Sewage disposal	Prelim plan shows septic locations, and the submittal includes soil test pit results [41-218(d)].
41-220	Relationship of subdivision to community services	Open Space Lot provided (previously House Lot 1) and proposed to be offered to Town. GWRLT courtesy review sought as this lot abuts their conservation easement.
41-221	Traffic and streets	The applicant proposes a minor cul-de-sac street built to Town standards and proposed to be dedicated to the Town, serving all five lots from Cedar Rd. See further review below.
41-222	Public health and safety	No comments currently
41-223	Local/state/federal land use policies	4/1/24 cover letter indicates applicant is seeking the following state/federal permits: • Stormwater Permit-by-Rule • NRPA Tier 1 Wetland Alteration Permit • USACE Self-Verification

Subdivision design standards

Section 41-255 – Lots

See previous packets. No new review comments.

Section 41-256 – Reservation of land

Applicant is proposing an 8-ft-wide shared-use sidepath on the east side of the new subdivision road from Cedar Rd. for about its first 700 ft. This can serve as the recreational amenity discussed during sketch plan review in relation to 41-256.

Stormwater and erosion-sedimentation control plan

Stormwater/drainage plan and report [41-150(9) and 41-213]

- Each lot has an impervious surface calculation – see Sheet B
- The main stormwater BMP is a grassed underdrain soil filter with sediment forebay, 20' spillway, and outlet protection to be located on Lot 1 within a 100' stormwater easement, adjacent to the Open Space lot.
- The middle of the cul-de-sac will also manage stormwater, and drainage easement is included to the cul-de-sac.
- Drainage will flow from the rest of the site along roadside ditches with check dams to the BMPs.
- For a zoomed-in plan for the BMP and detailed drawings, see Sheets 4-5.
- The Stormwater Report shows very similar pre- and post-construction runoff flows at the three analysis points (1 by Cedar Rd. and 2 at rear corners of the subdivision), and shows equal or lesser post-construction flow, except at AP-2 in the 2 year storm which is showing a 3.8% increase.
- The Report notes: "The development of this project will not create any adverse impacts to the

downstream conditions…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 Basic, General and Flooding Standards required by Chapter 500."

- Town staff comment was that the Town's standard is the 50-year storm. 50-year storm modeling was added to Sheet B, and shows post-construction reductions (or staying the same) at the 3 analysis points.
- **Third-party stormwater review recommended**

Street standards

After preliminary review, the basic minor street standards (Ch. 37) appear to be met, at least with regard to travelway width, shoulders, vertical grade, and horizontal curves. Review comments from Public Works and myself pertained to snow storage locations and cul-de-sac dimensions.

Buffer and Lot 1 driveway

Per PB comment on November 14, the applicant was to incorporate a property buffer per 41-215, including, but not limited to, a vegetative or other appropriate buffer on the west side of the proposed road between the road and adjacent property at Map 71, Lot 30. The applicant agreed to address this via plantings. PB comments suggested mature plants as opposed to seedlings. **It is not clear from Sheet 3 (Landscaping) that this has been addressed with respect to the neighboring property.**

Chair Bennett also suggested changing the orientation of the Lot 1 driveway so that exiting vehicle headlights do not point at the adjacent property's house.

Site walk/inspection

A site walk was held on October 17, 2023, including several PB members, the applicant's representative, and members of the public. The site walk notes were summarized by Ms. O'Connor at the 11/14/23 meeting.

Recommendation

Offer initial review comments, request additional information as needed, and seek third-party review of the stormwater/drainage plan and erosion/sedimentation control plan. Review could continue after plans have been revised accordingly. The subsequent review would be an opportunity to consider application completeness and setting a public hearing.

TOWN OF ELIOT MAINE
PLANNING OFFICE
1333 State Road
Eliot ME, 03903

To: Walter E. Pelkey, BH2M, Applicant's Representative
From: Jeff Brubaker, AICP, Town Planner
Cc: Planning Board (for future meeting packet)
Kim Tackett, Land Use Administrative Assistant
Shelly Bishop, Code Enforcement Officer
Interdepartmental reviewers
Date: April 8, 2024
Re: PB23-16: 76 Cedar Rd. (Map 71, Lot 25) – Residential Subdivision (5 lots): Town Planner Review Letter 2 – **Preliminary Plan**

This letter provides initial review comments on the preliminary subdivision plan submittal received April 2, 2024. Unless otherwise noted, numerical citations are to the Town Code. I may have additional comments going forward, as I have not yet had the time to fully review the materials.

1. Plan must show suggested locations of buildings [41-150(6)] unless waived under 41-67.
2. Stormwater report should add the analysis for the 50-year storm (Town design standard in 45-411).
3. I believe third-party review of stormwater plan/info will be warranted. However, you may wish to see what the Planning Board requests at their review meeting.
4. Plan should reflect individual lot wetland protection measures discussed during sketch plan review.
5. Path should be 10 ft. wide two-way multi-use path for walking and bicycling as a recreational amenity [41-256, sketch plan review discussion].
6. I believe a landscape plan will be warranted [41-215] at least to show graded contours based on suggested house locations, preservation of wetlands, and vegetative buffer [41-215(b)] for neighboring properties. However, you may wish to see what the Planning Board requests at their review meeting.
7. Thank you for providing the rendering of what the subdivision may look like from the Route 236 vantage point. However, in the rendering, it looks like the Lot 1 house is misplaced – on the west side of the proposed street.
8. Please provide your performance guarantee statement [41-176; 33-132].

BH2M

Civil Engineering | Surveying

April 1, 2024

Jeff Brubaker
Town Planner
1333 State Road
Eliot, ME 03903

Re: Preliminary Plan Submission
Goodwin Subdivision
76 Cedar Road

Dear Jeff;

On behalf of the applicant, David Springer, we are submitting 10 copies of a Preliminary Submission Packet for a proposed 5-lot subdivision located at 76 Cedar Road. Enclosed are preliminary plans and supporting documents as listed below:

- Subdivision Application & Checklist
- Agent Authorization
- Project Location Map
- High Intensity Soil Survey
- Financial Capacity
- Water Supply Letter
- Project Photos
- Stormwater Report Narrative (1 full report with submission)
- Project Plans

Additional information as outlined in the Checklist for a Subdivision Application is as follows:

Air Quality
No lot shall produce harmful emissions beyond individual lot lines. All such activities will comply with federal and local regulations.

Historic Sites
The Maine Historic Preservation Commission has been contacted.

Community Services and Impact
Schools – Average kids per household 1.94 (2023 Maine US Census Bureau data)
Road Maintenance – Road shall be maintained by developer until time of Town acceptance, or a road maintenance agreement has been established.
Police and Fire – Service by town staff, road to be maintained for public safety vehicles.
Recreation Facilities – Open space provided and to be dedicated to the Town.

Solid Waste Disposal – Private contractor or individual use of public transfer station.
Stormwater – See plans and stormwater report.

Traffic
Average trips per day generated by proposed subdivision – 50 (10 per day/per household)

Public Health and Safety
5 residential homes will not produce glare or noise beyond that as is outlined per sec. 41-222 of the Town's ordinance.

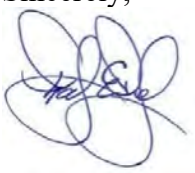
Estimated Progress Schedule
Begin site work within 3 weeks of final approval.
Complete roadway with 45 days of start of construction.

Maine DEP
Stormwater Permit by Rule
NRPA Teir 1 Wetland Alteration Permit

Army Corp of Engineers
Maine General permit Self Verification Notification Form

If you require any additional information, please feel free to contact me at (207)839-2771, ext. 201 or by email at wpelkey@bh2m.com.

Sincerely,



Walter Pelkey
Project Manager

Attachment 1
Subdivision Application & checklist

CASE NO._____

TOWN OF ELIOT
PLANNING BOARD
SUBDIVISION APPLICATION

This application shall conform in all respects to the Land Subdivision Standards of Chapter 41 of the Planning Board of the Town of Eliot code of ordinances. Ten (10) copies of application and sketch plan shall be submitted.

Application for ( ) Sketch plan

(X) Preliminary plan for major subdivision

( ) Final plan for minor subdivision

1. Proposed name of subdivision Goodwin Subdivision

2. Location of property 76 Cedar Road, Eliot, Maine

3. Tax Map 71 Lot # 25 Size (acres) 21.546

4. Zoning District (circle one) Commercial/Industrial (Rural) Suburban Village

5. Name of record owner David Springer
   Mailing address 12 White Pine Way Phone #207-252-5560

6. Name of applicant David Springer
   Mailing address See Above Phone #_____
   If corporation, name of agent _____

7. A complete statement of any easements relating to the property is attached hereto
   (if none, so state) None

8. Deed or deeds recorded at County Registry of Deeds
   Date January 27, 2023 Book # 19189 Page #627
   Date_____ Book #_____ Page #_____
   Date_____ Book #_____ Page #_____

CASE NO._____

9. Do the owner and/or applicant have an interest in an abutting property as stated on the attached sheet? No

10. Name, address and license # of Engineer, Land Surveyor, Architect, or Planner: Austin Fagan, PE#16523, BH2M, 380B Main St., Gorham, ME 04038

11. Preliminary plan covers - 5 Lot Subdivision and Right Of Way

12. If applicable, has the owner and/or applicant been approved for a MaineDOT driveway permit for the installation, physical change or change of use a driveway located on a State highway? N/A

13. Does owner propose to submit Final Subdivision Plan to cover the entire Preliminary Plan, or to file same in sections? Yes
    If so, how many?_____

14. Does the preliminary plan cover the entire contiguous holdings of the applicant? Yes

15. Entrances onto existing or proposed collector streets do not exceed a frequency of one per 400' of street frontage? Yes Does not exceed

16. Entrances onto existing or proposed arterial streets do not exceed a frequency of one per 1000' of street frontage? Yes Does not exceed

17. A distance of at least 200' is maintained between centerlines of offset intersecting streets? Yes No

18. Does the applicant propose to dedicate to the public all streets, highways and parks shown on the plan?Yes

CASE NO._____

19. Give the number of acres which the applicant proposes to dedicate to public to use for park, playground and/or other purposes 3.0 Acres_____

20. If any waivers of requirements are to be requested, list them on a separate sheet, referencing the Sections in Chapter 41 and give reasons why such requirements should be waived . Chapter 41, Subdivisions, Sec. 41-255(a), lot frontage along cul-de-sac.

21. Is the property located in a flood zone?Yes, Open Space Only_____

If yes, please complete the attached Flood Hazard Development Application and return it with your application.

Subdivider shall submit fees as specified in Sections 1-25 in the amount of $200/lot prior to the second meeting with the Planning Board. Fees are not refundable.

Applicant signature Austin G. Fagan - Agent Date 3/28/2024

Owner signature_____Date_____

Planning Assistant_____Date_____

Major subdivision	$200 per lot FEES:
Minor subdivision	$200 per lot

CASE NO._____

Town of Eliot Planning Board
CHECKLIST FOR A SUBDIVISION APPLICATION
(All items will be reviewed unless otherwise noted or NA)

☐ The owner of the property is - David Springer
_____

☐ The applicant is David Springer who has demonstrated a legal interest in the property by providing: Deed, Book 19189, Page 627
_____

☐ Agents for the applicant are: Austin Fagan/Walter Pelkey, BH2M
_____

☐ The property is located at 76 Cedar Rd , in the R zoning district, identified as Assessor's Map 71 , Lot 25 , and containing 21.5 acres

☐ Application is for establishment of (new) (modification to existing) Major/Minor Subdivision.

☐ Existing Subdivision was approved by the Planning Board on - N/A.

☐ The name of the proposed subdivision is Goodwin Subdivision and it will contain 5 lots which range in size from 3.0 acres to 4.2 acres and are shown on Plan No. 23008, dated April 2023

☐ Easements and/or Rights of Way affected by or within the proposed subdivision are as follows:

a. Hillside Drive Right of Way.
b. 15' and 30' Grading and Utility Easements.
c. 65' Stormwater Easement.

☐ Entrances onto existing or proposed collector streets do not exceed a frequency of one per 400' of street frontage? Entrances onto existing or proposed arterial streets do not exceed a frequency of one per 1000' of street frontage?

☐ Owner/applicant has been approved for a driveway permit from MaineDOT for the installation, change or change of use on any State highway, if applicable?

☐ Lots within the proposed Subdivision will have (private) (public) water supply and (private) (public) (private central) sewage disposal systems.

☐ Sketch Plan was accepted by the Planning Board on 10/3/23

☐Preliminary Plan approved by Planning Board on_____

☐A Site visit was conducted on 10/24/23

☐ A public hearing was held on _____

☐_____ abutters spoke or submitted written correspondence at the Public Hearing or submitted written correspondence by mail.

☐_____ members of the public spoke or submitted written correspondence at the Public Hearing or submitted written correspondence by mail.

☐ The application was discussed by the Planning Board on Oct. 3, 2023 _____, _____,_____,

☐ Plan for minimizing surface water drainage (Section 41-213) submitted: (Yes) (No) (Waiver requested).

☐ Soil Erosion and Sediment Control Plan (Section 41-214) submitted: (Yes) (No) (Waiver requested).

☐ *(Optional for Minor Subdivision)* Statement or plan showing effect upon air quality (Section 41-212) submitted: (Yes) (No) (Waiver requested).

☐ *(Optional for Minor Subdivision)* Soils Report and High Intensity Soils Survey [Section 41-150(11)] submitted: (Yes) (No) (Waiver requested)

☐ *(Optional for Minor Subdivision)* Location of all natural features or site elements to be preserved (Section 41-215) identified: (Yes) (No) (Waiver requested).

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☐ *(Optional for Minor Subdivision)* Traffic congestion and safety plan (Section 41-221) submitted: (Yes) (No) (Waiver requested).

☐ *(Optional for Minor Subdivision)* Public health and safety statement (Section 41-222) submitted: (Yes) (No) (Waiver requested).

☐Compliance with Federal, State, and Local land use laws (Section 41-223) demonstrated: (Yes) (No).

☐ *(Optional for Minor Subdivision)* Estimated Progress schedule [Section 41-150(21)] submitted: (Yes) (No) (Waiver requested).

☐ Adequate financing (Section 41-224) demonstrated: (Yes) (No) (Waiver requested).

☐ *(Optional for Minor Subdivision)* Water Department approval provided for public water service [Section 41-174 (1)]

☐ *(Optional for Minor Subdivision)* State of Maine, Department of Human Services approval for central water supply system provided [Section 41-174 (2)]

CASE NO._____

☐ Soil Scientist approval for individual wells provided [Section 41-174 (3)]: (Yes) (No)

☐ Proposed subdivision Plan reviewed by the Department of Environmental Protection: (Yes) (No) (Waiver requested).

☐ Proposed subdivision Plan reviewed by the Department of the Army, Corps of Engineers: (Yes) (No) (Waiver requested).

☐ Proposed subdivision Plan reviewed by the York County Soil and Water Conservation District: (Yes) (No) (Waiver requested)

☐ Other_____

Attachment 2
Agent Authorization

BH2M

Civil Engineering | Surveying

AGENT AUTHORIZATION

PROPERTY LEGAL DESCRIPTION:

TAX MAP 71, LOT 25
STREET ADDRESS: 76 Cedar Road, Eliot, Maine

Property Owner: David Springer
Project Applicant: David Springer

The undersigned, registered property owners of the above noted property, do hereby authorize Walter Pelkey and/or Austin Fagan (agent), of BH2M (Berry, Huff, McDonald, Milligan, Inc.) to act on my behalf and take all actions necessary for the processing and submissions of this project for approval or certification and all standard or special conditions attached.

Property Owner's Address (if different than property above):
12 White Pine Way
North Berwick, Maine

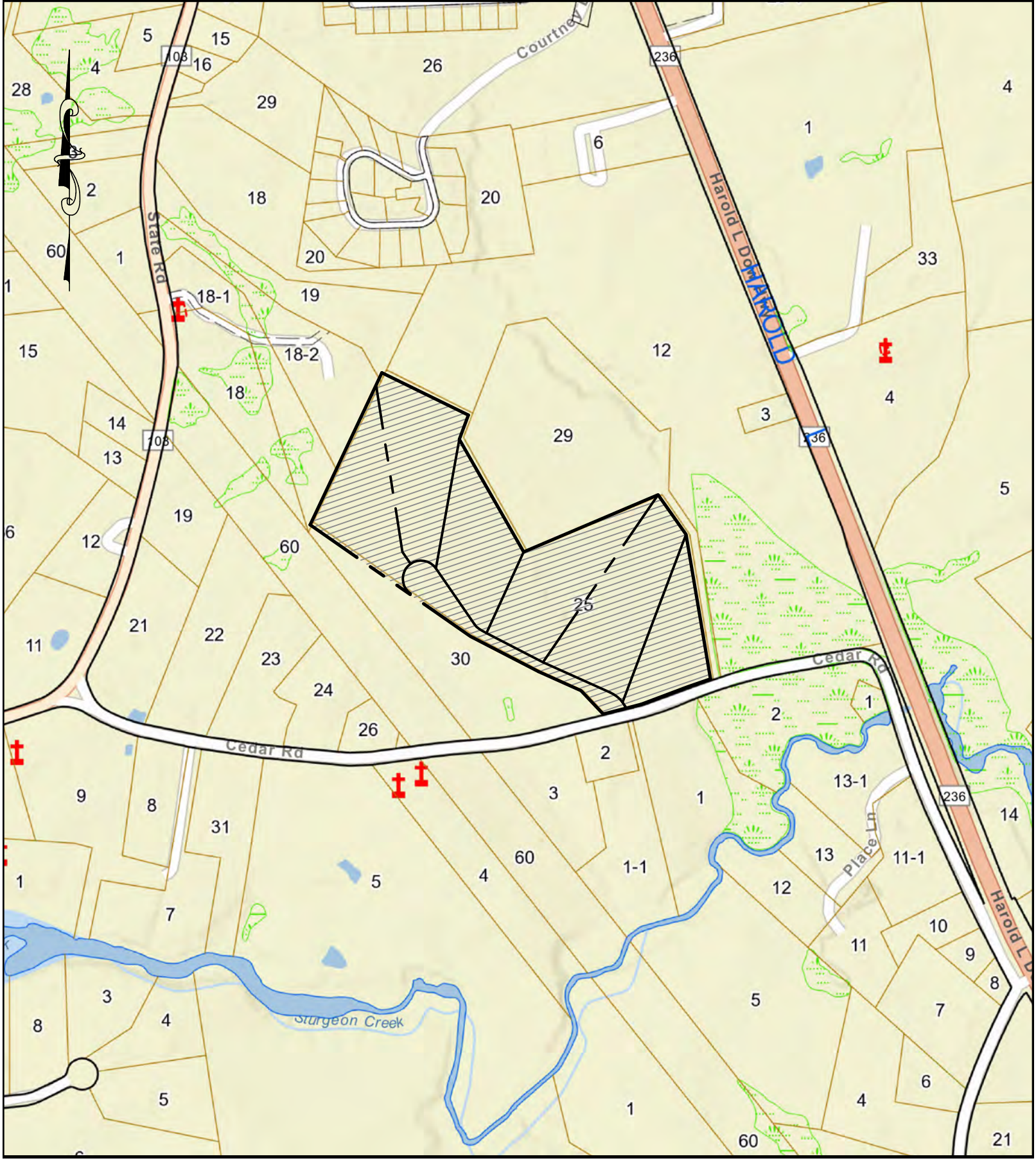
Telephone: (207) 252-5560

We hereby certify the above information submitted in this application is true and accurate to the best of our knowledge.

Authorized Signature: _____

Authorized Signature Date: 3/20/24

Attachment 3
Project Location Map



REFERENCES:
TOWN OF ELIOT GIS MAPS

Scale: 1" = 500'

500' 0 500' 1000'

BH2M

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

380B Main Street
Gorham, Maine 04038

Tel. (207) 839-2771
Fax (207) 839-8250

Attachment 4
High Intensity Soil Survey

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Soil Narrative Report

DATE:	Soil Profiles observed on April 6, 2023
BASE MAP:	Base plan provided by BH2M Scale 1 inch equals 100 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or less.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing, or taping from known survey control points
Base Map –5 foot contour intervals

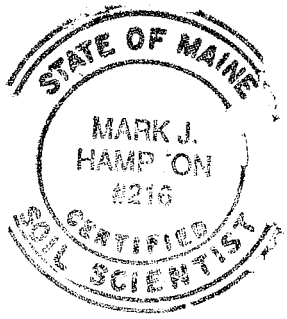
Provided:

Mapping units of 1 acre or less
Base map scale of 1"= 60 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by pacing and taping from know survey control points.
Ground topographic survey with one foot contours and ground control provided.

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

C.S.S. #216, L.S.E. #263 4/6/23

Mark J. Hampton Date



Legend for Soil Maps

1. Drainage Class

Excessively Well Drained	EWD
Well Drained	WD
Moderately Well Drained	MWD
Somewhat Poorly Drained	SPD
Poorly Drained	PD
Very Poorly Drained	VPD

2. Slope Designation

0-3%	A
3-8%	B
8-15%	C
15-25%	D
>25%	E

3. Note: High Intensity Soil Survey has been prepared by Mark Hampton Associates, Inc. in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Buxton
(Aquic Dystric Eutrochrepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.5 to 3.0 feet below the surface at some time from November to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Olive brown, silt loam, 8-15"
Subsoil Layer:	Olive gray silty clay loam, 15-32"
Substratum:	Gray silty clay loam +32"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 60 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Scantic, Lamoine

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Lamoine
(Aeric Haplaquepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3 %,(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 0.5 to 2.0 feet below the surface at some time from November to June or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Lt. Olive brown silt loam, 7-14"
Subsoil Layer:	Olive silty clay loam, 14-21"
Substratum:	Olive, silty clay loam, 21-65"

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Buxton, Scantic

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%, (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark grayish brown, silt loam 0-9"
Subsurface Layer:	Olive gray silt loam, 9-16"
Substratum:	Gray silty clay loam, 16"+

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Lamoine, Buxton

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

7414

PAGE ____ OF ____ FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Subdivision	David Springer	Eliot

Exploration Symbol # SS-9 ☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☒ of exploration, or ☐ to refusal

Depth (inches)	Horizon	Color	Texture	Structure	Consistence	Redox
0–6	Ap	Black	F. Sandy Loam	Grand	Very Friable	
6–16	Bg	Brown	F. Sandy Loam	Weak Sub Ang Blocky	Friable	
16–40	Bg	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	Common and Distinct
40–60	Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Buxton

Limiting Factor: 16 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 6 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group: ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details — Soil Series/Phase Name: ______ Limiting Factor: ______ " Depth ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock; Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope: ______ Percent; Hydric Soil: ☐ No ☐ Yes; Hydrologic Soil Group: ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details — Soil Series/Phase Name: ______ Limiting Factor: ______ " Depth ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock; Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope: ______ Percent; Hydric Soil: ☐ No ☐ Yes; Hydrologic Soil Group: ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details — Soil Series/Phase Name: ______ Limiting Factor: ______ " Depth ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock; Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope: ______ Percent; Hydric Soil: ☐ No ☐ Yes; Hydrologic Soil Group: ______

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature: [signature]

Date: 4/6/2023

Name Printed: Mark J. Hampton

SS License No.: 216

STATE OF MAINE MARK HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

7414

PAGE ____ OF ____ FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Subdivision	David Springer	Eliot

Exploration Symbol # SS-1

☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Very Friable	
Bg1	Gray	F. Sandy Loam	Weak Sub Ang Blocky	Firm	Common and Distinct
Bg2	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	
Cg	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-2

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Dark Brown	F. Sandy Loam	Weak Angular	Very Friable	
Bg	Brown	F. Sandy Loam	Sub Ang Blocky	Friable	
Bg	Olive Gray	Silty Clay Loam	Thin Platy	Firm	Common and Distinct
Cd	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Lamoine

Limiting Factor: 13 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-3

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	Silt Loam	Fine Grandul	Friable	
Bg1	Gray	Silt Loam	Weak Sub Ang Blocky	Firm	Common and Distinct
Bg2	Gray Brown	Silty Clay Loam	Thin Platy	Firm	
Cg	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-4

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☐ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Dark Brown	F. Sandy Loam	Grand	Friable	
Bhs	Brown	F. Sandy Loam	Fine Grandul	Friable	
Bs	Olive Brown	Silty Clay Loam	Fine Grandul	Firm	Common and Distinct
Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Buxton

Limiting Factor: 15 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 6 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Mark J. Hampton

Name Printed

4/6/2023

Date

216

SS License No.

MARK J. HAMPTON 216 SOIL SCIENTIST

this professional seal

7414

PAGE ____ OF ____

FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Subdivision	David Springer	Eliot

Exploration Symbol # SS-5

☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Very Friable	
Bg	Brown	F. Sandy Loam	Weak Sub Ang Blocky	Friable	
Bg	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	Common and Distinct
Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Buxton

Limiting Factor: 16 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 6 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-6

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Weak Angular	Very Friable	
Bg1	Gray	F. Sandy Loam	Sub Ang Blocky	Firm	Common and Distinct
Bg2	Olive Gray	Silty Clay Loam	Thin Platy	Firm	
Cg	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 3 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-7

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	Silt Loam	Fine Grandul	Friable	
Bg	Brown	Silt Loam	Weak Sub Ang Blocky	Friable	Common and Distinct
Bg	Gray Brown	Silty Clay Loam	Thin Platy	Firm	
Cd	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Lamoine

Limiting Factor: 13 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 4 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-8

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Friable	
Bg1	Gray	F. Sandy Loam	Fine Grandul	Firm	Common and Distinct
Bg2	Olive Brown	Silty Clay Loam	Fine Grandul	Firm	
Cg	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 15 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 6 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Mark J. Hampton

Name Printed

4/6/2023

Date

216

SS License No.

affix professional seal

Attachment 5
Financial Capacity

Kennebunk Savings
PURPOSE DRIVEN.

03/19/2024

DAVID SPRINGER

SPRINGER LLC

12 WHITE PINE WAY

NORTH BERWICK, ME 03906

ACCOUNT VERIFICATION LETTER

To whom it may concern,

This letter if to verify that David Springer/Springer LLC, of North Berwick Maine, has $150,000.00 for completion of a road.

Please note, the information above is accurate of the date of this letter. If you need additional information regarding this account, please feel free to contact me.

Sincerely,

Natalie Galvin

Customer Service Assistant Lead

(207) 646-9946 ext. 3200

Attachment 6
Water Supply Letter

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

March 20, 2024

Mr. David Springer
12 White Pine Way
North Berwick, ME 03906

Re: Water Supply Well for Proposed 5 Lot Subdivision, Cedar Road Eliot, ME

Dear David,

I have reviewed the final subdivision plan for the proposed 5 lot subdivision on Cedar Road Eliot, ME. In my professional opinion there is sufficient room on all the lots for the construction of single family homes with a water supply well and septic system, which will maintain the minimum 100 feet separation distance between any wastewater disposal bed and water supply well as required by the Maine Subsurface Wastewater Disposal Rules dated August 2023.

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

Sincerely,

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

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

Attachment 7
Project Photos


Property lines are approximate and for illustration purposes only
LOT 3
132,326 S.F.
(117,338 S.F. UPLAND)
LOT 2
166,528 S.F.
(82,358 S.F. UPLAND)
LOT 1
184,681 S.F.
(102,098 S.F. UPLAND)
30' GRADING AND UTILITY EASE.
Wetlands
WETLAND IMPACT
20.00'
15' GRADING AND UTILITY EASE.
65' STORMWATER EASEMENT
260.00'
69.78'
Rural Limited Residential
OPEN SPACE
130,923 S.F.
10' UTILITY EASEMENT
Approx. FEMA Flood Line
Ex. Concrete
1" IPF W/CAP FLUSH
IPF W/CAP
99.14'
124.54'
189.02'
94.59'
N82°06'18"W
N80°46'15"W
S17°40'30"W
N39°03'43"W 179.68'
S39°03'43"E 284.86'
N39°03'43"W 295.10'
264.92'
224.92'
C2
C3
C4
C5
L1
L2
L3
L4


View from Route 236 with A.I. generated homes and R.O.W.

Attachment 8
Stormwater Report Narrative

STORMWATER MANAGEMENT REPORT

Goodwin Subdivision

76 Cedar Road
Eliot, Maine

Submitted by:

David Springer
12 White Pine Way
North Berwick, Maine 03906

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024

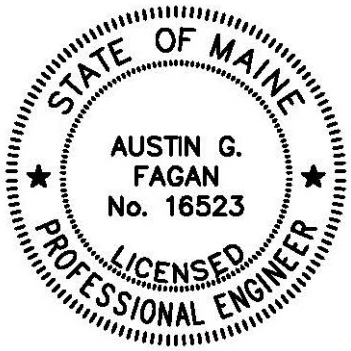


TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

The applicant, David Springer, is proposing a 5-lot residential subdivision known as Goodwin Subdivision (the project). The parcel (Tax Map 71, Lot 25) is approximately 21.5 acres and is located at 76 Cedar Road in Eliot, Maine. The project lies within the Towns designated MS4 area, and does not require an individual stormwater permit from the Maine DEP.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a paved roadway and 5' paved walking path
- Installation of underground electric and communications conduit and transformer pads
- Installation of storm drain system including stormdrain culverts
- Construction of a Grassed Underdrained Soil Filter
- Final site stabilization

The proposed infrastructure improvements will create approximately 35,926 sf (0.82 acres) of new impervious area and 55,005 sf (1.26 acres) of newly vegetated area totaling 90,931 sf (2.08 acres) of newly developed area. To accurately size the proposed stormwater infrastructure and to assure that post development stormwater conditions will not impact the downstream properties, we have allocated 5,000 sf of impervious area to lots 1 & 3, and 12,000 sf if impervious area to lots 2, 4, & 5. We have also allocated up to 20,000 sf of newly vegetated area for lots with wooded portions. These allocations are not required to be counted towards the thresholds for Site Law permitting (3 acre of impervious and 20 acres of developed) because the applicant intends to sell the lots.

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, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the Town of Eliot's Stormwater Ordinance.

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 onsite soils used for the stormwater analysis were digitized from a high intensity soil survey that was completed by Mark Hampton Associates. The offsite 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 onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Fine sandy loam, 3-8% slopes	C
Lamoine	Fine sandy loam, 0-8% slopes	D
Scantic	Silt loam, 0-8% slopes	D

The offsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Silt loam, 3-8% slopes	C
Croghan	Loamy fine sand, 0-8% slopes	A
Scantic	Silt loam, 0-3% slopes	D

Topography: NOAA Lidar Topography

Natural Resources: Mark Hampton, Mark Hampton Associates

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at three Analysis Points as described below:

Analysis Point #1
Description: Flow to a wetland and culvert on southeastern property corner
Pre Development Tributary Drainage Areas: SA-1
Post Development Tributary Drainage Areas: SA-1, 1A-1F

Analysis Point #2
Description: Flow to the wetland along the northwestern property line
Pre Development Tributary Drainage Areas: SA-2
Post Development Tributary Drainage Areas: SA-2

Analysis Point #3
Description: Flow along the northeastern property line
Pre Development Tributary Drainage Areas: SA-3
Post Development Tributary Drainage Areas: SA-3

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 21.5 acres and is located on Cedar Road in Eliot. The parcel currently consists of undeveloped fields and woodland and lies within the Sturgeon Creek watershed.

The watershed that was analyzed for this project is approximately 26.9 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows from west to east and is bounded by Cedar Road to the south, and a mix of farmland and residential properties to the north, east, and west.

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	10.37	22.44	33.19
AP-2	5.19	10.76	15.64
AP-3	1.61	3.34	4.85

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include construction of a 1,242 linear foot paved roadway, a paved walking path, and associated stormwater infrastructure. Below is a summary of the proposed developed areas associated with construction of the public infrastructure.

Proposed Impervious Area	=	35,926 sf
Proposed Landscaped Area	=	55,005 sf
Proposed Developed Area	=	90,931 sf

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	9.58	21.91	32.16
AP-2	5.39	10.53	15.64
AP-3	1.61	3.34	4.85

1.5 BASIC STANDARDS

The proposed project is required to meet the Basic Standards for the Maine DEP. 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 (Maine DEP) 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 5 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 not required to meet the General Standards for the Maine DEP.

1.7 PHOSPHORUS STANDARD

The proposed project is in the watershed of Sturgeon Creek. 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 in the watershed of Sturgeon Creek. Sturgeon Creek is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is not required to meet the Flooding Standards of the Maine DEP, however, pre and post development runoff modelling be evaluated to mitigate post construction stormwater flows. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.

b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.

c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.

d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year storm events. Refer to Appendix C for the Pre-Development model and Appendix D for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	10.37	9.58	22.44	21.91	33.19	32.16
AP-2	5.19	5.39	10.76	10.53	15.64	15.64
AP-3	1.61	1.61	3.34	3.34	4.85	4.85

As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site exceed the peak flows of stormwater prior to undertaking the project at Analysis Point 2 for the 2-year storm event. This predicted 3.8% increase in flow rate is minor and will not create adverse impacts to the downstream wetland.

The development of this project will not create any adverse impacts to the downstream conditions. Please see the post development stormwater model for additional information.

1.7 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 Basic, General and Flooding Standards required by Chapter 500.

Attachment 9
Project Plans

BH2M

Civil Engineering | Surveying

May 9,2024

Jeff Brubaker
Town Planner
1333 State Road
Eliot, ME 03903

Re: Goodwin Subdivision

Dear Jeff;

On behalf of the applicant, David Springer, we are submitting plan revisions for Goodwin Subdivision located at 76 Cedar Road. Enclosed are revised project drawings and supporting documents based on Staff Review Memo dated April 8, 2024.

Review Comments:

1. Plan must show suggested locations of buildings [41-150(6)] unless waived under 41-67.
Typical house and driveway locations are shown on project sheets 1 and 3.
2. Stormwater report should add the analysis for the 50-year storm (Town design standard in 45-411).
Stormwater report has been revised to consider 50-year storm.
3. I believe third-party review of stormwater plan/info will be warranted. However, you may wish to see what the Planning Board requests at their review meeting.
To be determined
4. Plan should reflect individual lot wetland protection measures discussed during sketch plan review.
Typical erosion control measures for residential lots detail has been added to sheet 6.
5. Path should be 10 ft. wide two-way multi-use path for walking and bicycling as a recreational amenity [41-256, sketch plan review discussion].
Sidewalk (path) has been revised and detail added to sheets 4 and 5.
6. I believe a landscape plan will be warranted [41-215] at least to show graded contours based on suggested house locations, preservation of wetlands, and vegetative buffer [41-215(b)] for neighboring properties. However, you may wish to see what the Planning Board requests at their review meeting.
Site Landscaping (sheet 3) has been added to the plan set to reflect typical home and driveway locations, lot grading, landscaping, and wetland protection measures.
7. Thank you for providing the rendering of what the subdivision may look like from the Route 236 vantage point. However, in the rendering, it looks like the Lot 1 house is misplaced – on the west side of the proposed street.
Submitted rendering will be revised prior to Planning Board meeting.

8. Please provide your performance guarantee statement [41-176; 33-132].

Applicant would prefer Option 2 for the performance guarantee as outlined in section 33-132 of the Eliot Municipal Code of Ordinances.

Public Works Review:

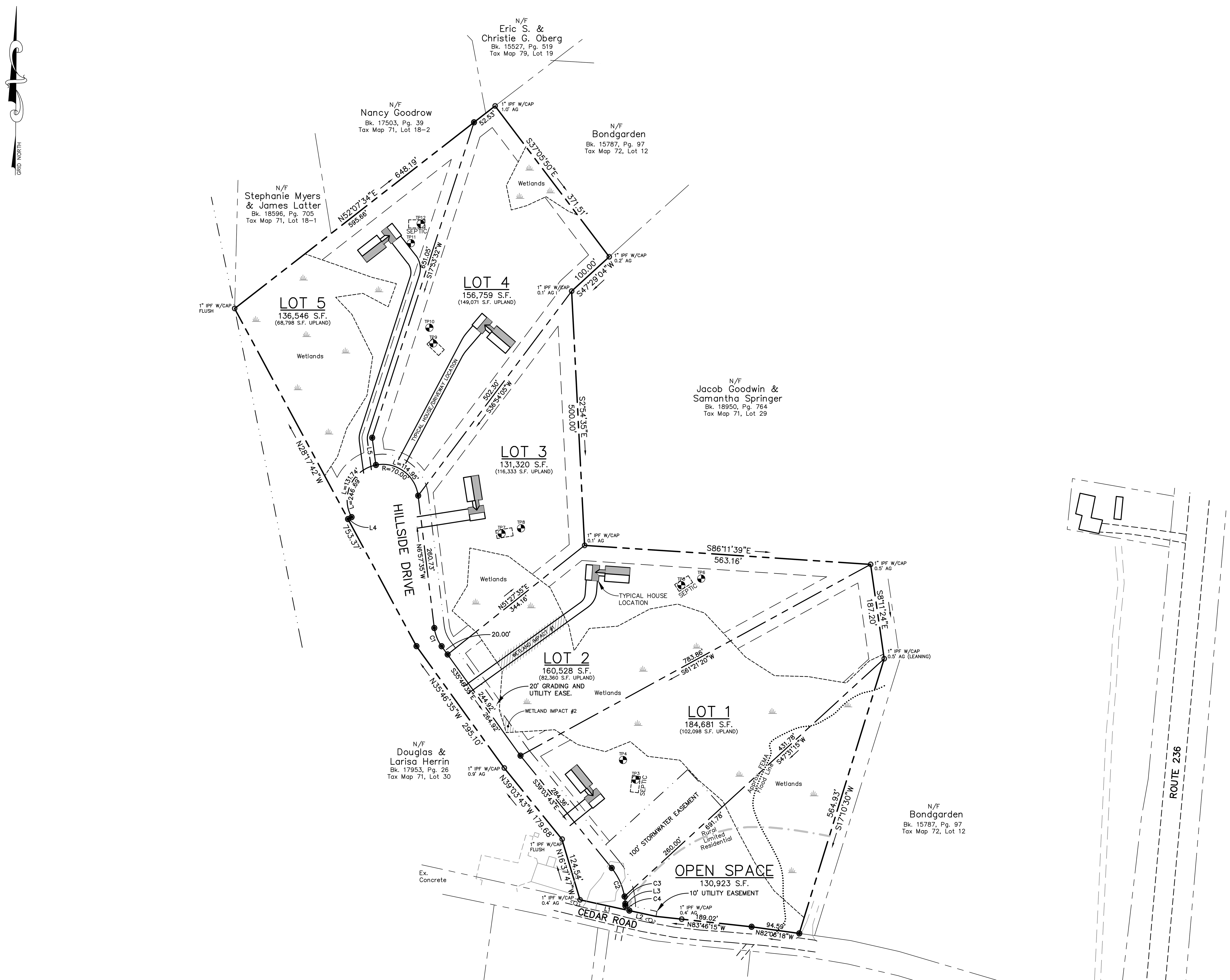
Cul-de-sac has been revised to meet the town's requirements.
Snow storage areas are provided along either side of street, esplanade and along the 5' and 10' shoulders of the cul-de-sac.

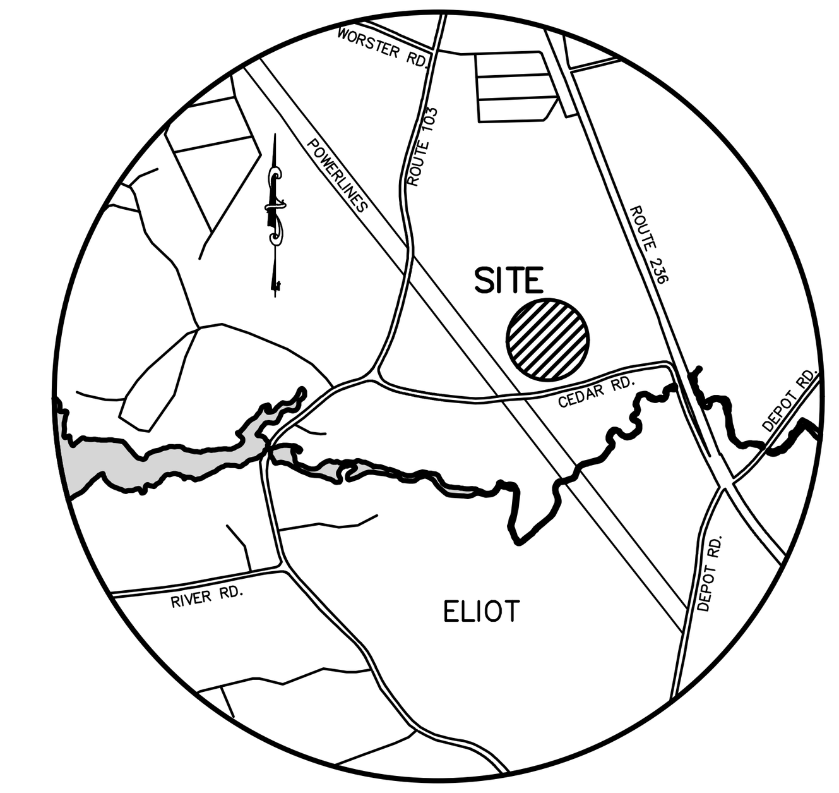
We look forward to discussing this project at the May 21, 2024 Planning Board meeting.

If you require any additional information, please feel free to contact me at (207)839-2771, ext. 201 or by email at wpelkey@bh2m.com.

Sincerely,

Walter Pelkey
Project Manager





LOCATION MAP

SCALE: 1" = 2000'

NOTES:

1. OWNER/APPLICANT: DAVID SPRINGER, 12 WHITE PINE WAY, NORTH BERWICK, MAINE
2. ENGINEER: AUSTIN FAGAN, PE#16523, BH2M, 380B MAIN STREET, GORHAM, MAINE
3. SURVEYOR: ROBERT C. LIBBY, PLS#2190, BH2M
4. HIGH INTENSITY SOILS: WETLAND DELINEATION — MARK HAMPTON ASSOCIATES, INC., P.O. BOX 1931, PORTLAND, ME
5. DEED REFERENCE: BOOK 19189, PAGE 627
6. TAX MAP REFERENCE: MAP 71, LOT 25
7. ZONING: RURAL, LIMITED RESIDENTIAL
8. PROJECT AREA: 21.546 ACRES (OPEN SPACE 3.005 ACRES)
9. PROPOSED USE: SINGLE FAMILY SUBDIVISION
10. MINIMUM STANDARDS: LOT SIZE - 3 ACRES; FRONTAGE - 200'; SETBACKS - 30' FRONT & REAR, 20' SIDE
11. SEWER SERVICE: INDIVIDUAL ON SITE SEPTIC SYSTEMS
12. WATER SERVICE: INDIVIDUAL DRILLED WELLS
13. ELECTRIC/TELEPHONE: UNDERGROUND FROM CEDAR ROAD
14. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE EROSION PREVENTION PROVISIONS OUTLINED IN THE MAINE EROSION CONTROL AND SEDIMENTATION HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, LATEST EDITION.
15. FAILURE TO COMMENCE SUBSTANTIAL CONSTRUCTION OF THE SUBDIVISION WITHIN TWO YEARS OF THE DATE OF APPROVAL AND SIGNING OF PLAN SHALL RENDER THE PLAN NULL AND VOID. "SUBSTANTIAL CONSTRUCTION" FOR THE APPROVED PLAN AS SHOWN SHALL MEAN THE COMPLETION OF THE ROADWAY BASE, PER ART. II, SEC. 41-36.
16. PLAN REFERENCE: DIVISION OF LAND, CEDAR ROAD, ELIOT, MAINE, FOR CHERYL L. GOODWIN, DATED AUGUST 22, 2005 BY ANDERSON LIVINGSTON ENGINEERS, INC..
17. WETLAND IMPACTS: W.I. #1 - 4,107 S.F.; W.I. #2 - 463 S.F.; TOTAL - 4,570 S.F.
18. NEW HOMES SHALL INSTALL INDIVIDUAL FIRE SPRINKLER SYSTEMS THAT MEET ALL LOCAL AND STATE REQUIREMENTS.

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
2. INTERIOR LOTS ONLY

ROBERT C. LIBBY JR. PLS #2190

PLAN REVIEWED AND APPROVED BY THE TOWN OF ELIOT PLANNING BOARD.

DATE

CHAIR

LEGEND

SYMBOL	DESCRIPTION
○	3/4" IRON PIPE SET PER PLAN REF.
●	5/8" IRON ROD W/ CAP TO BE SET
	PROPERTY LINE
	ZONE LINE
	EASEMENT LINE
	FLOOD ZONE
	EDGE OF PAVEMENT
	ABUTTER PROPERTY LINE
N/F	NOW OR FORMERLY
	GRAVEL
	UTILITY POLE

CURVE DATA

C1 - R=80.00', L=40.24'
C2 - R=120.00', L=62.01'
C3 - R=120.00', L=14.23'
C4 - R=75.00', L=13.09'

LINE DATA

L1 - N77°39'43"W, 99.14'
L2 - N77°39'43"W, 53.46'
L3 - S02°39'43"E, 4.20'
L4 - N61°42'18"E, 7.90'
L5 - N07°49'20"W, 54.05'

Scale: 1" = 100'

100' 0 100' 200'

REVISION

NO.	DATE	DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim Subdivision Plans to Town
5	5/8/24	Rev'd. Per Staff Review

BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
David Springer
12 White Pine Way
North Berwick, ME

PRELIMINARY PLAN

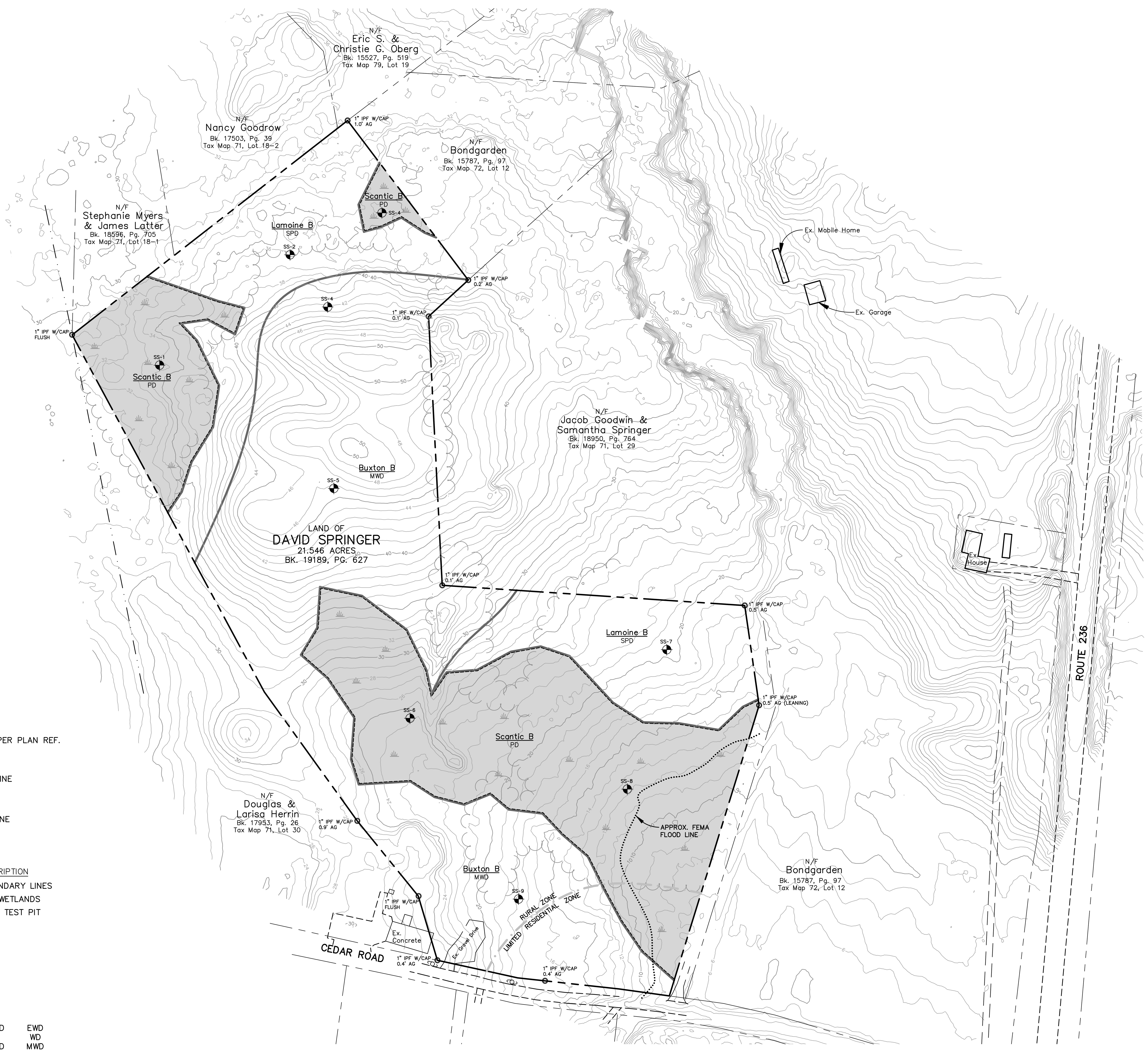
GOODWIN SUBDIVISION

76 CEDAR ROAD
ELIOT, MAINE

DESIGNED	DATE
W. Pelkey	April 2023
DRAWN	SCALE
Dept.	1" = 100'
CHECKED	JOB. NO.
R. Libby	23008

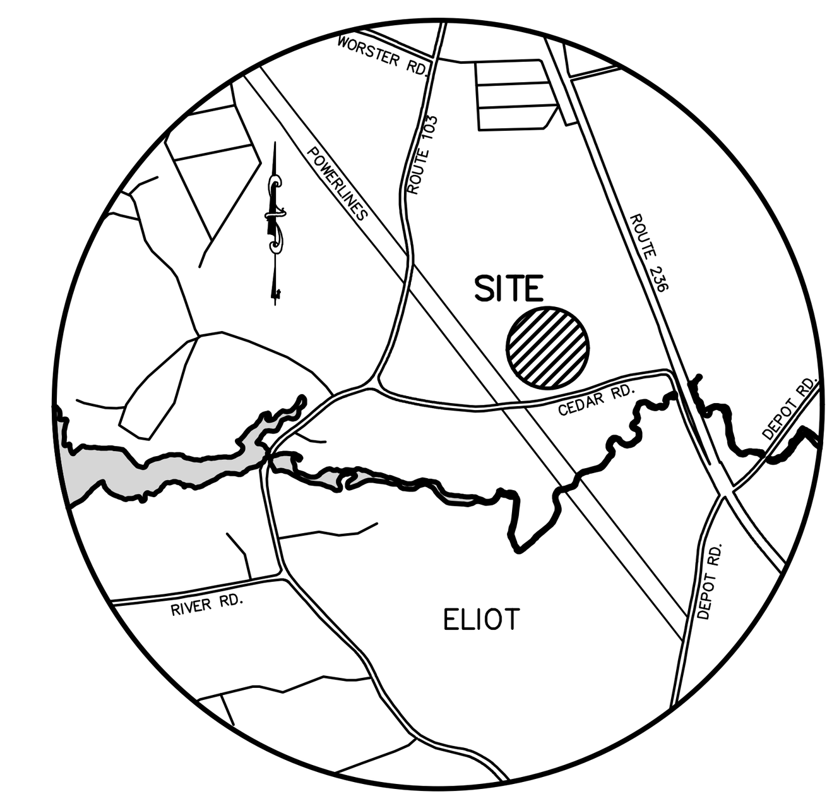
SHEET

1



GRID NORTH

Scale: 1" = 100'
100' 0 100' 200'



LOCATION MAP
SCALE: 1" = 2000'

LEGEND

SYMBOL	DESCRIPTION
o	3/4" IRON PIPE SET PER PLAN REF.
	PROPERTY LINE
	EDGE OF PAVEMENT
40	EXISTING CONTOUR
	ABUTTER PROPERTY LINE
N/F	NOW OR FORMERLY
	GRAVEL
	UTILITY POLE
	APPROXIMATE TREE LINE

SOILS LEGEND

SYMBOL	DESCRIPTION
	SOIL BOUNDARY LINES
	LIMIT OF WETLANDS
	H.I. SOILS TEST PIT

SLOPE DESIGNATION

A = 0 – 3%
B = 3 – 8%
C = 8 – 15%
D = 15 – 25%
E = > 25%

DRAINAGE CLASS

EXCESSIVELY WELL DRAINED	EWD
WELL DRAINED	WD
MODERATELY WELL DRAINED	MWD
SOMEWHAT POORLY DRAINED	SPD
POORLY DRAINED	PD
VERY POORLY DRAINED	VPD

HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.

NOTES:

1. OWNER/APPLICANT: DAVID SPRINGER, 12 WHITE PINE WAY, NORTH BERWICK, MAINE
2. SURVEYOR: ROBERT C. LIBBY, PLS#2190, BH2M, 380B MAIN STREET, GORHAM, MAINE
3. HIGH INTENSITY SOILS: WETLAND DELINEATION: MARK HAMPTON ASSOCIATES, INC., P.O. BOX 1931, PORTLAND, MAINE
4. DEED REFERENCE: BOOK 19189, PAGE 627
5. TAX MAP REFERENCE: MAP 71, LOT 25
6. ZONING: RURAL, LIMITED RESIDENTIAL
7. PARCEL AREA: 21.546 ACRES
8. PLAN REFERENCE: DIVISION OF LAND, CEDAR ROAD, ELIOT, MAINE, FOR CHERYL L. GOODWIN, DATED AUGUST 22, 2005 BY ANDERSON LIVINGSTON ENGINEERS, INC..

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
2. INTERIOR LOTS ONLY

ROBERT C. LIBBY JR. PLS #2190

NO.	DATE	REVISION DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim Subdivision Plans to Town
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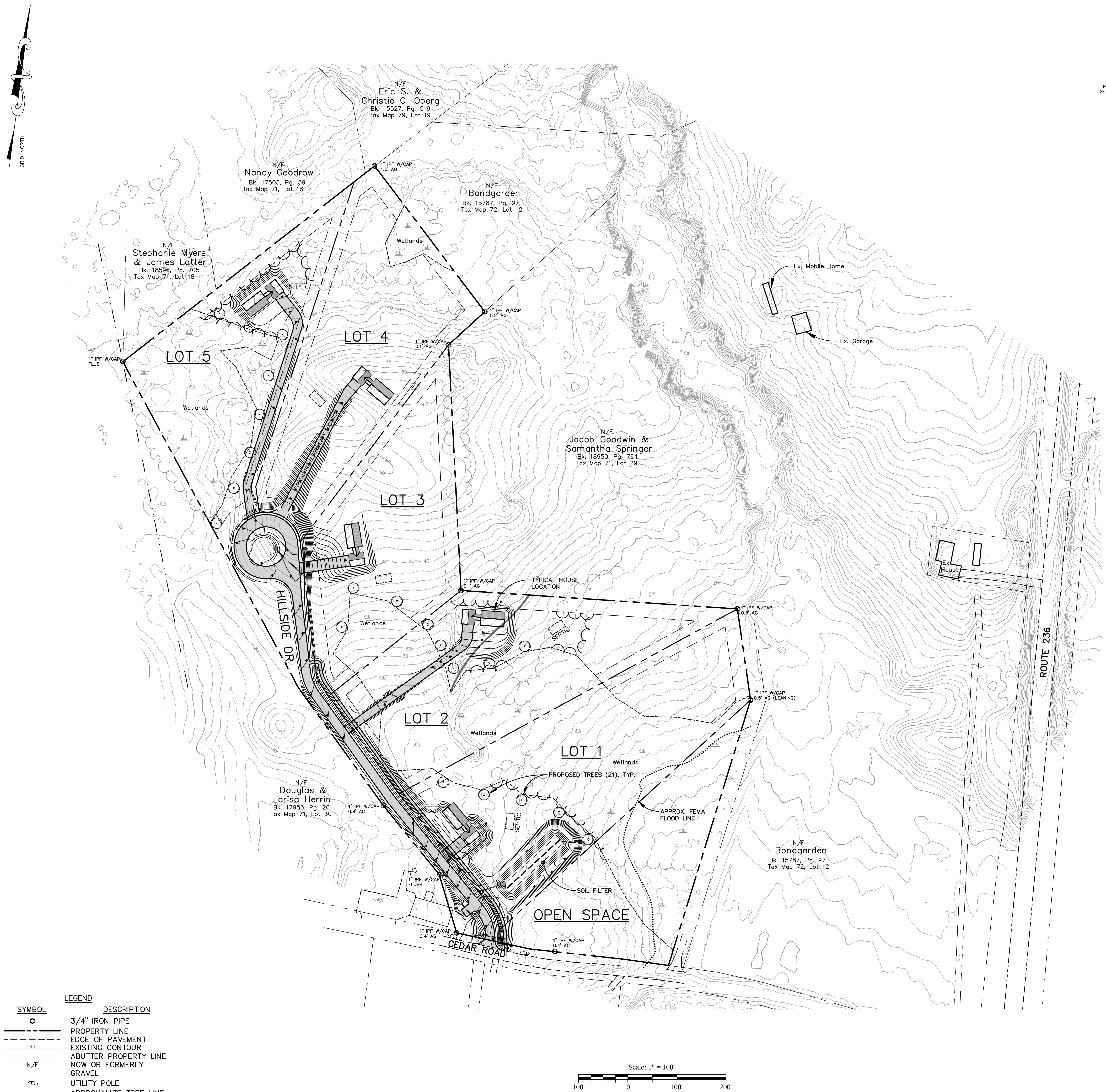
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
David Springer
12 White Pine Way
North Berwick, ME

EXISTING CONDITIONS
GOODWIN SUBDIVISION
76 CEDAR ROAD
ELIOT, MAINE

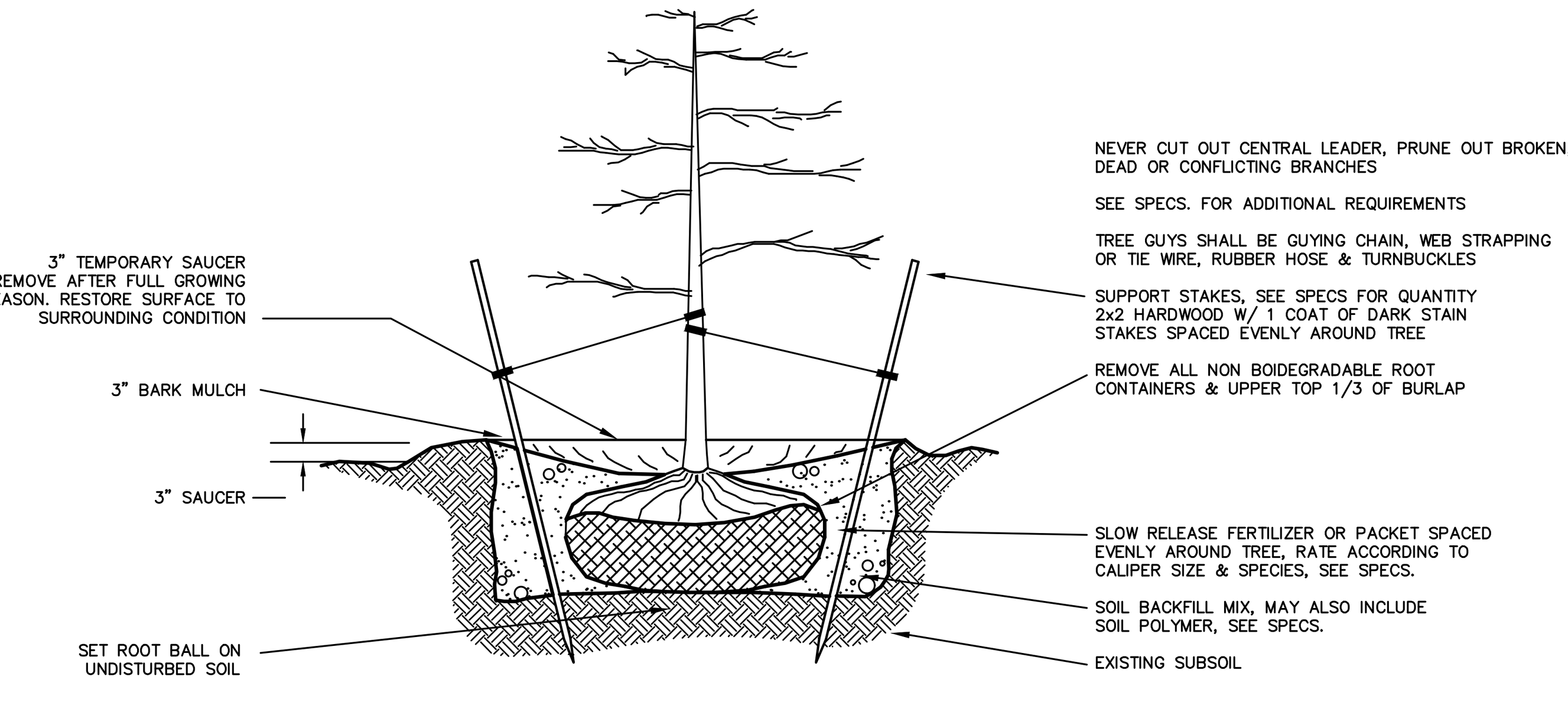
DESIGNED	DATE
W. Pelkey	February 2023
DRAWN	SCALE
B. Monsen	1" = 100'
CHECKED	JOB. NO.
R. Libby	23008

SHEET
2



LEGEND

SYMBOL	DESCRIPTION
o	3/4" IRON PIPE
	PROPERTY LINE
	EDGE OF PAVEMENT
40	EXISTING CONTOUR
	ABUTTER PROPERTY LINE
N/F	NOW OR FORMERLY
	GRAVEL
	UTILITY POLE
	APPROXIMATE TREE LINE



TREE PLANTING & STAKING DETAIL

N.T.S.

PLAN NOTES:

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED CAREFULLY AS SHOWN ON THE PLANS FOR FIELD REVIEW BY THE ENGINEER OR TOWN..
2. PROPOSED TREES SHALL BE PLANTED AT 80' ON CENTER AND SURVEY LOCATED TO ASSURE PROTECTION OF WETLANDS.
3. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. INSTALL 3" OF BARK MULCH AT ALL PLANTING LOCATIONS.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY (21) FOR PROPOSED TREES SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DESCREPANCIES.
7. PROPOSED TREE OPTIONS SHALL BE THOSE SHOWN IN LEGEND, SUBSTITUTIONS SHALL BE APPROVED BY THE TOWN.
8. ALL PROPOSED TREES INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE MAINE NURSERY AND LANDSCAPE ASSOCIATION.
9. ALL PROPOSED TREES SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. EXISTING TREES LOCATED IN THE BUILDING SETBACK AREAS SHALL, TO BE BEST EXTENT POSSIBLE, BE PRESERVED IN THEIR NATURAL STATE TO PROVIDE SCREENING FROM ABUTTING PROPERTIES. DEAD, DISEASED OR THOSE THAT COULD POSE A THREAT TO PROPOSED BUILDINGS MAY BE REMOVED.
11. HOUSE LOCATIONS, DRIVEWAYS AND ASSOCIATED GRADING ARE FOR PLANNING PURPOSES ONLY. NO FURTHER WETLAND IMPACTS, BEYOND THOSE SHOWN AS PART OF THIS PROJECT APPROVAL ARE PERMITTED.

PLANTING SCHEDULE

SYMBOL		COMMON NAME	SIZE
(X)	ACER RUBRUM (2" CAL.)	RED MAPLE	2" MIN. CALIPER
(X)	QUERCUS RUBRA (2" CAL)	NORTHERN RED OAK	2" MIN. CALIPER

REVISION

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FOR
David Springer
12 White Pine Way
North Berwick, ME

SITE LANDSCAPING

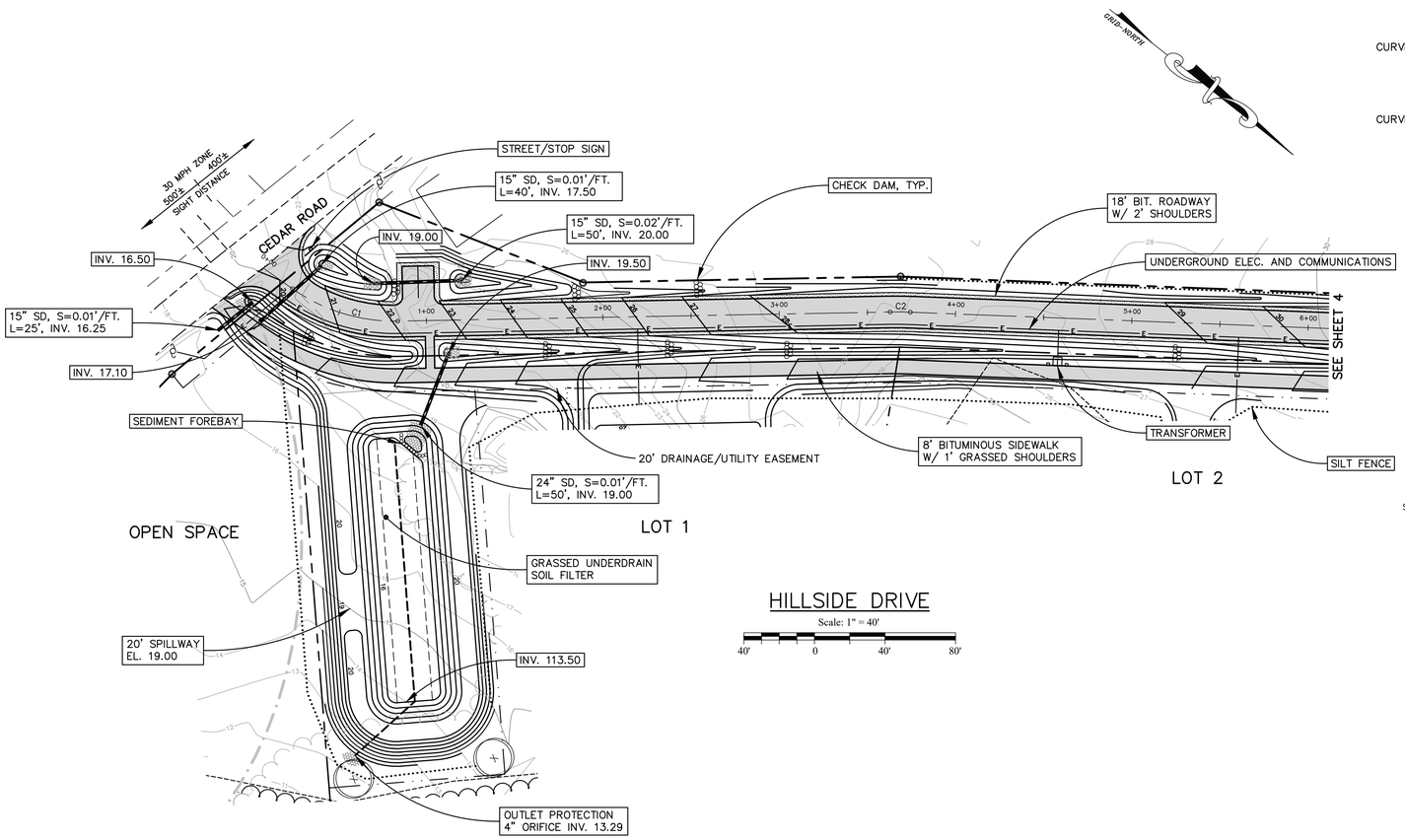
GOODWIN SUBDIVISION

76 CEDAR ROAD
ELIOT, MAINE

DESIGNED	DATE
W. Pelkey	February 2023
DRAWN	SCALE
B. Monsen	1" = 100'
CHECKED	JOB. NO.
R. Libby	23008

SHEET

3



HILLSIDE DRIVE

Scale: 1" = 40'

40' 0 40' 80'

℄ CURVE DATA

CURVE #1
R=100.00'
L=63.53'
T=32.88'
PC=0+20.13
PT=0+83.66

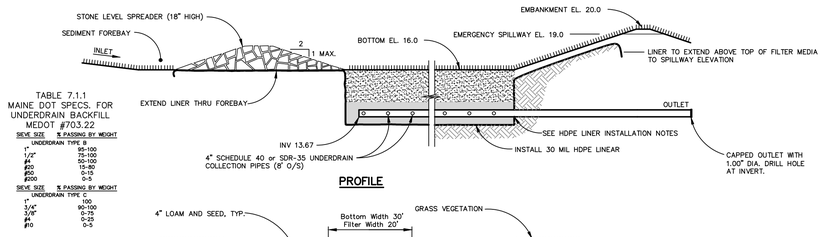
CURVE #2
R=200.00'
L=11.47'
T=5.74'
PC=3+62.86
PT=3+74.33

LEGEND

SYMBOL	DESCRIPTION
o	IRON ROD/PIPE FOUND
℄	UTILITY POLE
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	SILT FENCE/EROSION CONTROL BERM
	EXISTING EDGE OF PAVEMENT
	WETLANDS
	RIGHT OF WAY

NOTES:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE PRIOR TO CONSTRUCTION, SEE DETAIL.
2. INSTALL SILT FENCE PRIOR TO CONSTRUCTION.



PROFILE

TABLE 7.1.1
MAINE DOT SPECS. FOR UNDERDRAIN BACKFILL
MEDOT #703.22

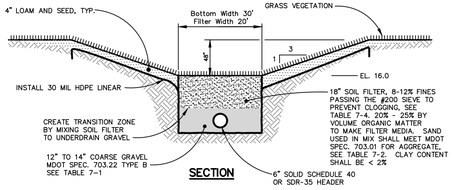
SIEVE SIZE	% PASSING BY WEIGHT
UNDERDRAIN TYPE B	
1"	95-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5
SIEVE SIZE	% PASSING BY WEIGHT
UNDERDRAIN TYPE C	
3"	100
1/4"	90-100
1/8"	0-25
#4	0-3
#10	

TABLE 7.1.2
SANDY LOAM TO FINE SANDY LOAM SPECIFICATION

SIEVE #	% PASSING BY WEIGHT
4	75-95
10	60-90
40	35-85
200	20-70
200 (CLAY SIZE)	< 2.0

TABLE 7.1.3
LOAMY COARSE SAND SPECIFICATION

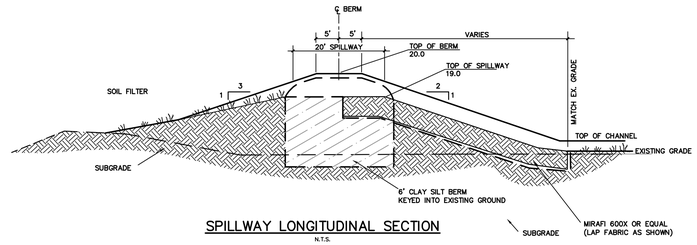
SIEVE #	% PASSING BY WEIGHT
10	85-100
20	70-100
40	15-40
200	8-15
200	< 2.0



SECTION

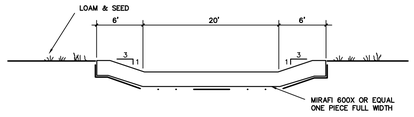
GRASSED UNDERDRAIN SOIL FILTER

NTS



SPILLWAY LONGITUDINAL SECTION

N.T.S.



SPILLWAY TRANSVERSE SECTION

N.T.S.

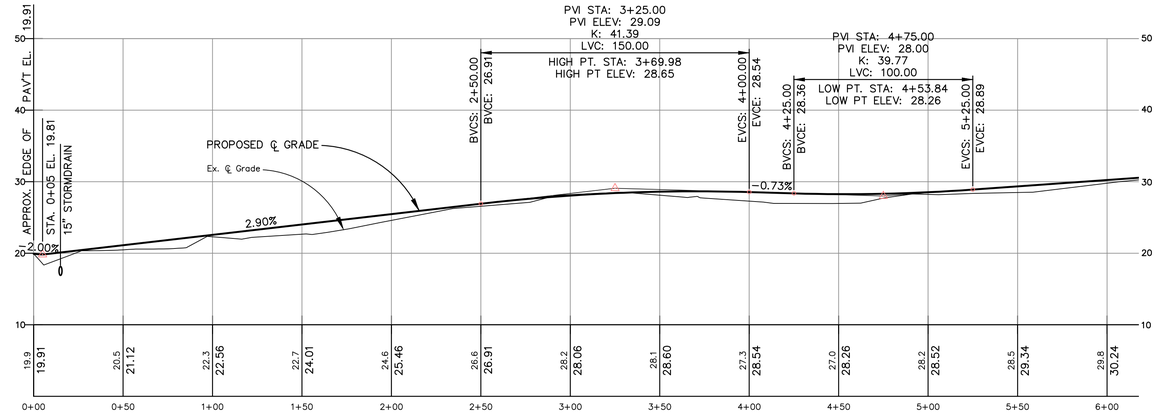
DETENTION / RETENTION POND EMBANKMENT NOTES:

THE FOUNDATION AREA SHALL BE CLEARED OF TREES, LOGS, ROOTS BRUSH, BOULDERS, SOD, 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 SOD, 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.

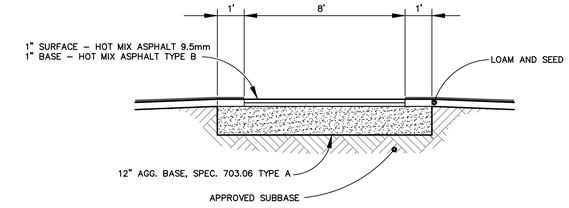
RIPRAP SPILLWAY DETAIL

NTS



PROFILE

SCALE
VERTICAL: 1" = 10'
HORIZONTAL: 1" = 40'



TYPICAL SIDEWALK SECTION

NTS

NO.	DATE	REVISION DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim. Subdivision Plans to Town
5	5/8/24	Rev'd. Per Staff Review

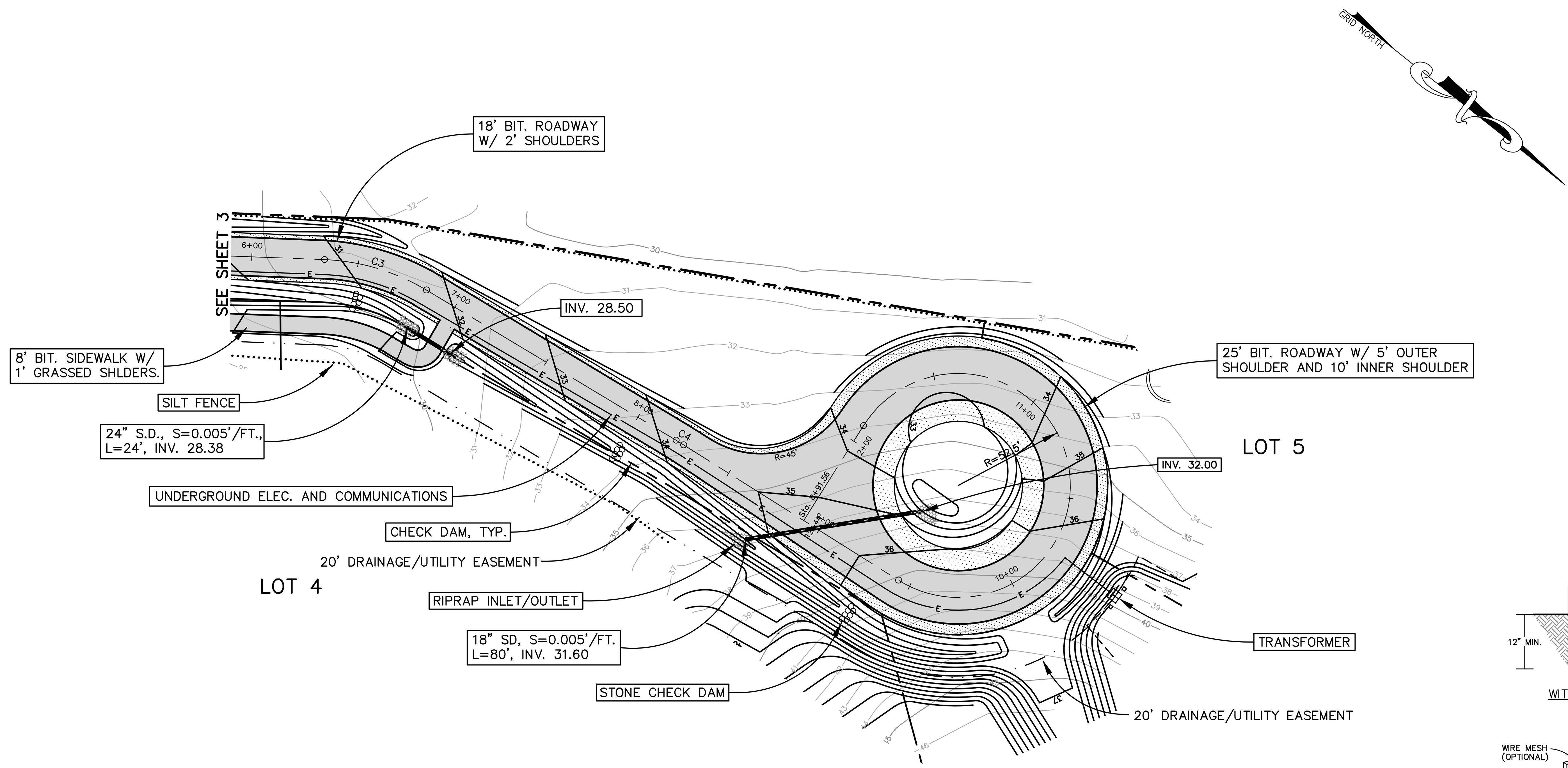
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
David Springer
12 White Pine Way
North Berwick, ME

ROADWAY PROFILE
GOODWIN SUBDIVISION
76 CEDAR ROAD
ELIOT, MAINE

DESIGNED	DATE
W. Pelkey	April 2023
DRAWN	SCALE
Dept.	As Noted
CHECKED	JOB. NO.
A. Fagan	23008

SHEET
4



HILLSIDE DRIVE

Scale: 1" = 40'

40' 0 40' 80'

℄ CURVE DATA

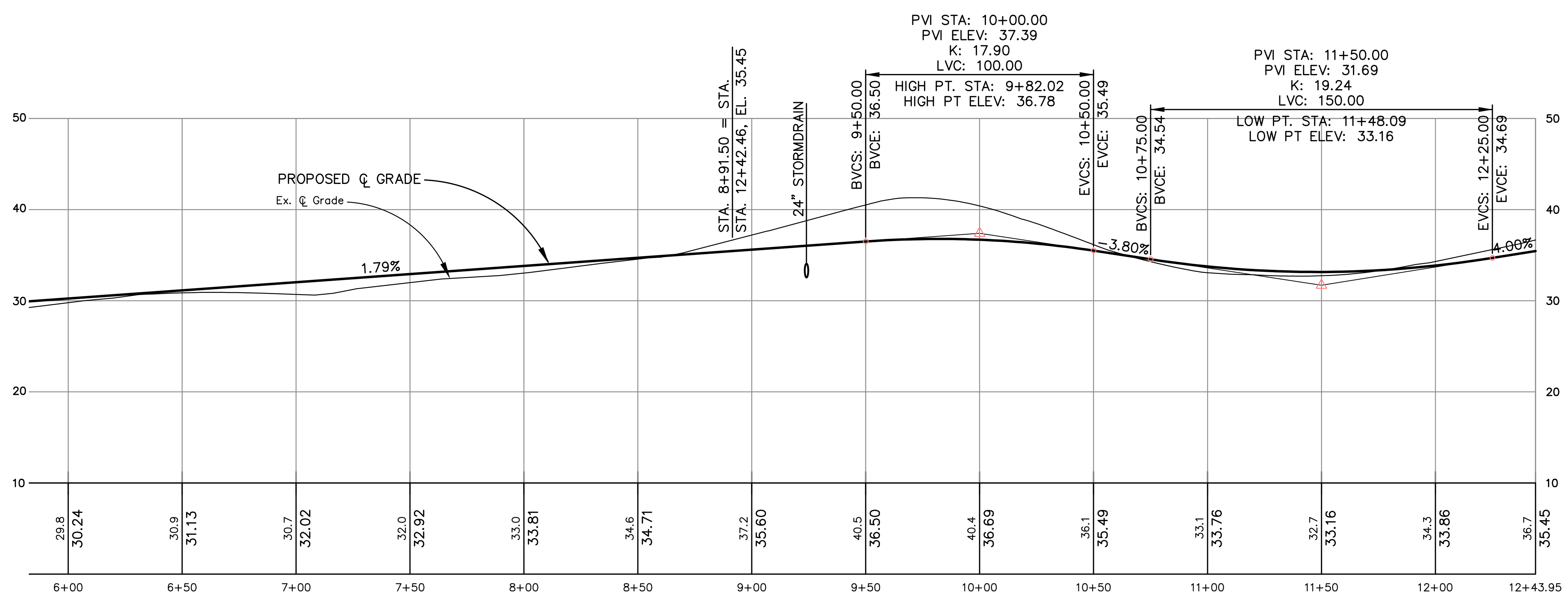
CURVE #3	R=100.00' L=50.30' T=25.69' PC=6+34.10 PT=6+84.40
CURVE #4	R=200.00' L=4.10' T=2.05' PC=8+20.95 PT=8+25.06
CURVE #5	R=52.50' L=247.39' PC=9+44.06 PT=11+91.45

LEGEND

SYMBOL	DESCRIPTION
○	IRON ROD/PIPE FOUND
	UTILITY POLE
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	SILT FENCE/EROSION CONTROL BERM
	EXISTING EDGE OF PAVEMENT
	WETLANDS
	RIGHT OF WAY

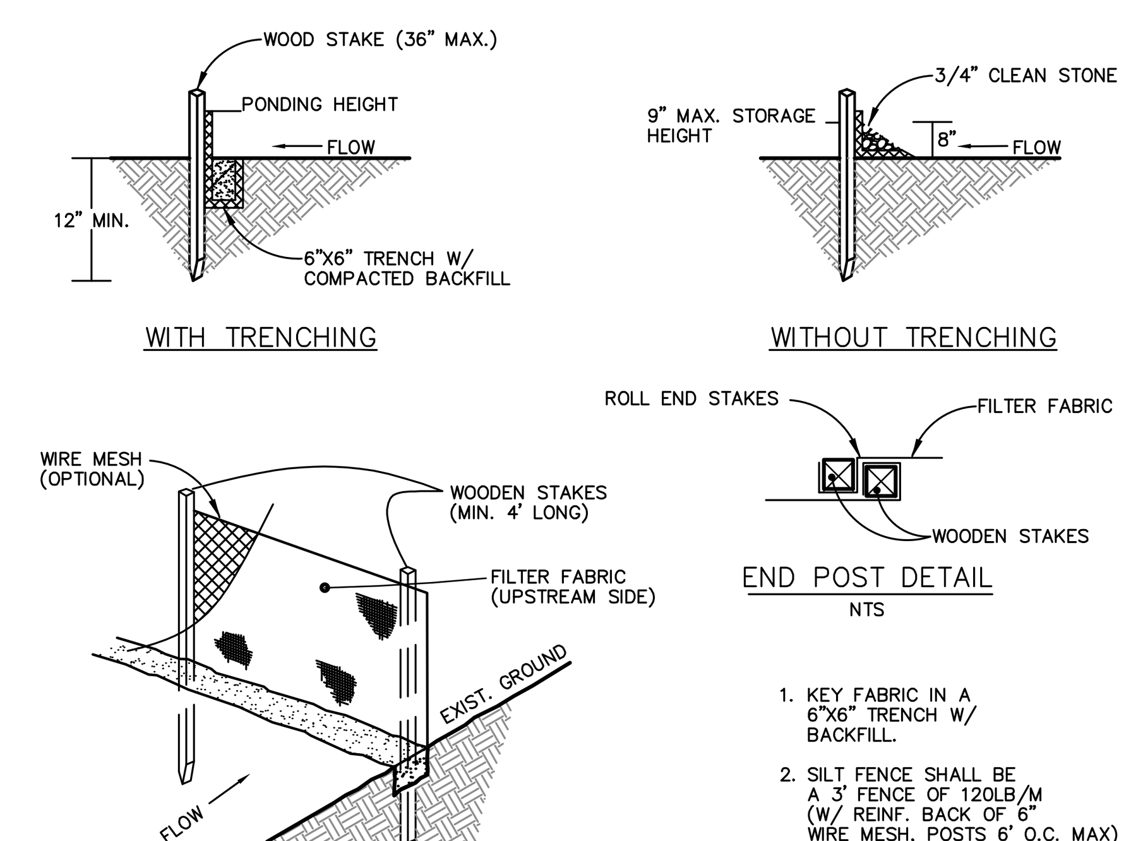
NOTES:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE PRIOR TO CONSTRUCTION, SEE DETAIL.
2. INSTALL SILT FENCE PRIOR TO CONSTRUCTION.



PROFILE

SCALE
VERTICAL: 1" = 10'
HORIZONTAL: 1" = 40'

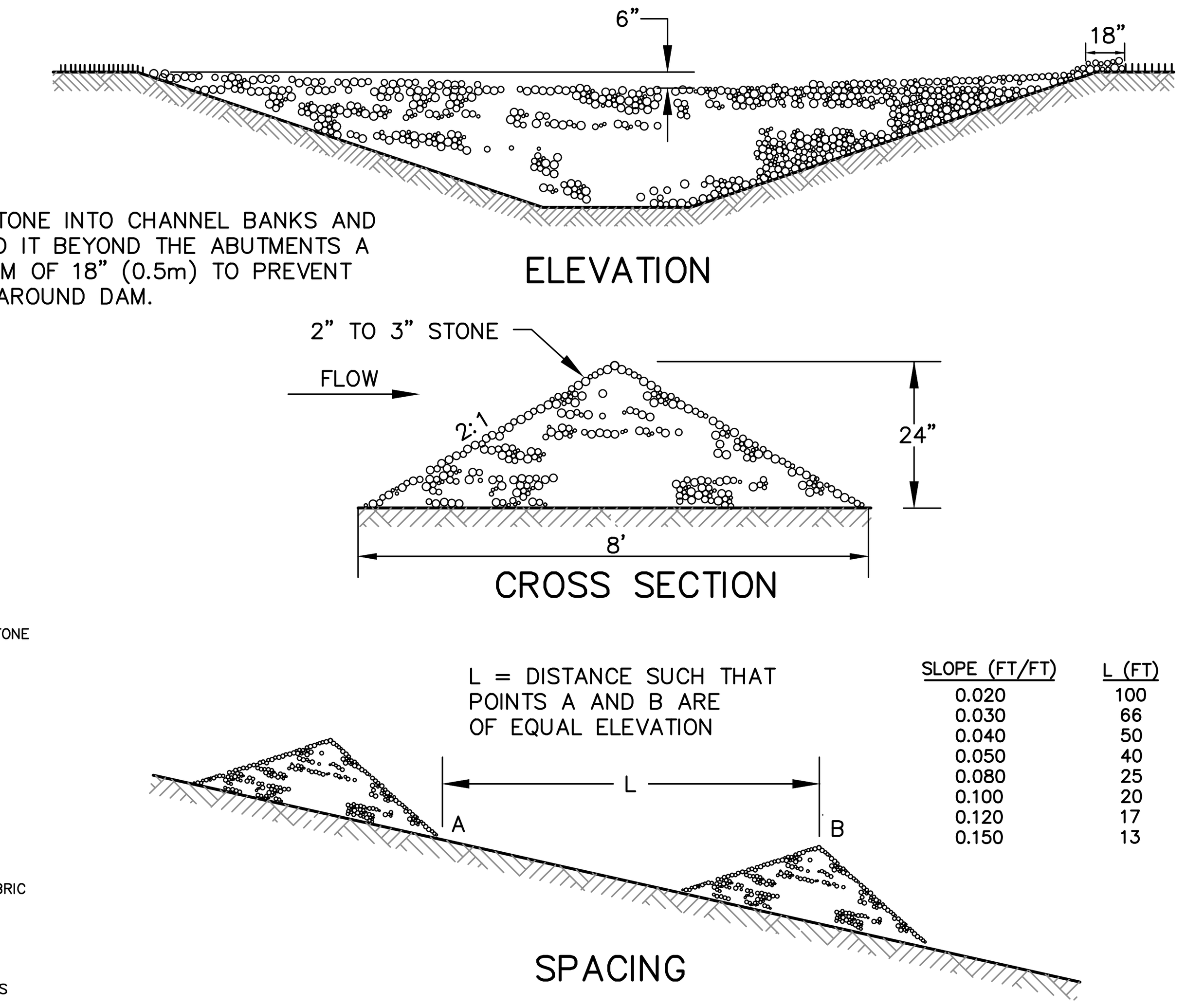


1. KEY FABRIC IN A 6"X6" TRENCH W/ BACKFILL.
2. SILT FENCE SHALL BE A 3' FENCE OF 120LB/M (W/ REINF. BACK OF 6" WIRE MESH, POSTS 6' O.C. MAX) OR 200LB/M (W/ NO REINF. POSTS 6' O.C. MAX)
3. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOUR WITH THE ENDS TURNED UP SLOPE.

SILT FENCE DETAIL

N.T.S.

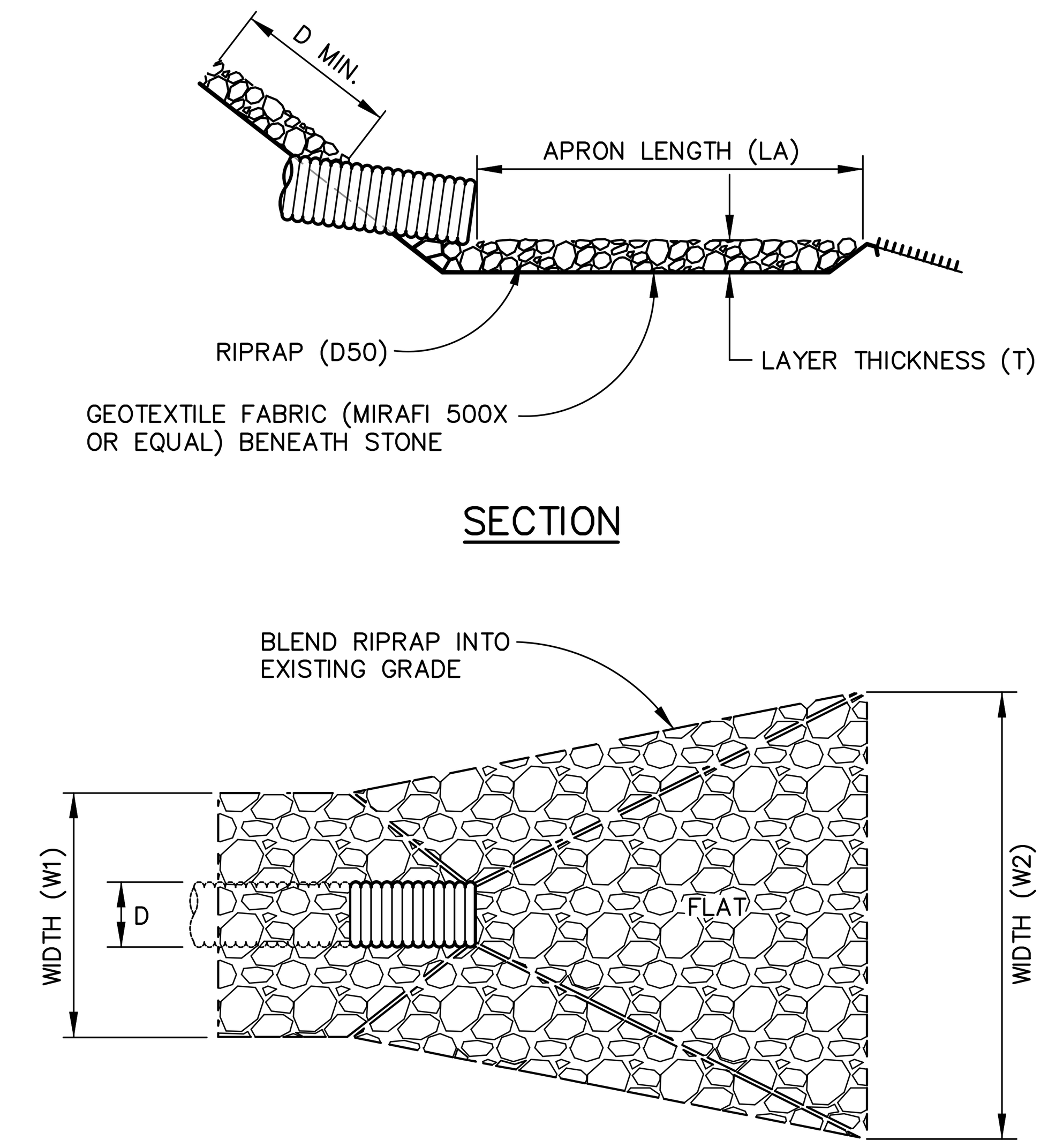
NOTE:
KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" (0.5m) TO PREVENT FLOW AROUND DAM.



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

STONE CHECK DAM DETAIL

NTS



PLAN

APRON SCHEDULE

CULV. DIA. (D)	D50 (IN.)	T (IN.)	LA (FT.)	W1 (FT.)	W2 (FT.)
12" OR LESS	6"	15"	10'	3'	13'
15"	6"	15"	10'	3.75'	14'
18"	6"	15"	12'	4.5'	17'
24"	6"	15"	14'	6'	20'
30"	6"	15"	18'	7.5'	26'
36"	6"	18"	24'	9'	33'
42"	12"	24"	30'	10.5'	41'
48"	12"	24"	34'	12'	46'
60"	18"	32"	38'	15'	53'

PIPE INLET/OUTLET PROTECTION

NTS

REVISION

NO.	DATE	DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim Subdivision Plans to Town
5	5/8/24	Rev'd. Per Staff Review

BH2M
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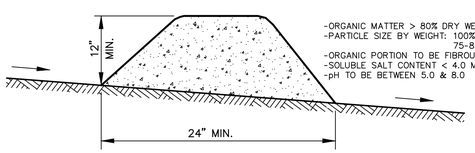
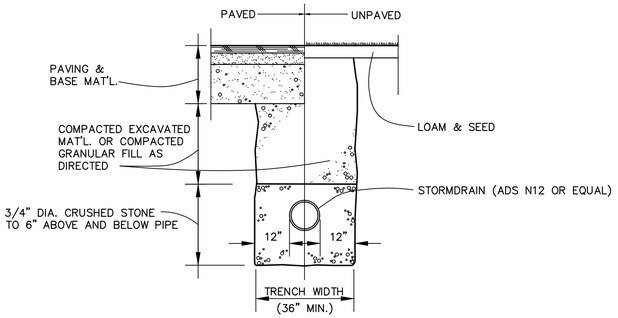
FOR
David Springer
12 White Pine Way
North Berwick, ME

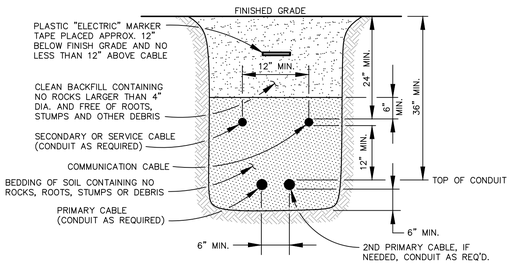
ROADWAY PROFILE
GOODWIN SUBDIVISION
76 CEDAR ROAD
ELIOT, MAINE

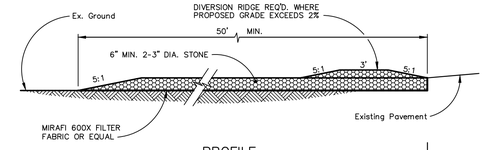
DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE As Noted
CHECKED A. Fagan	JOB. NO. 23008

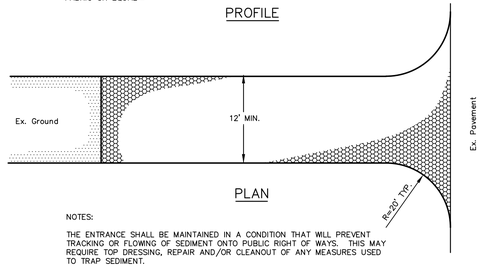
SHEET
5

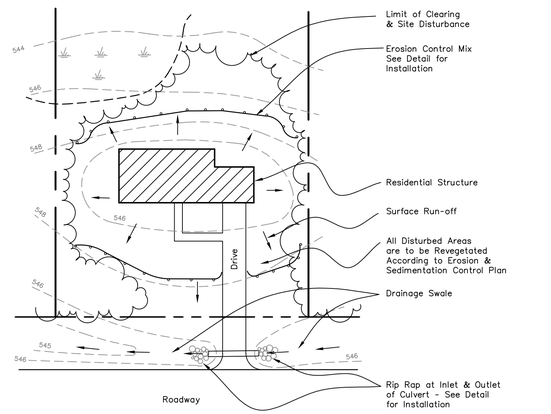


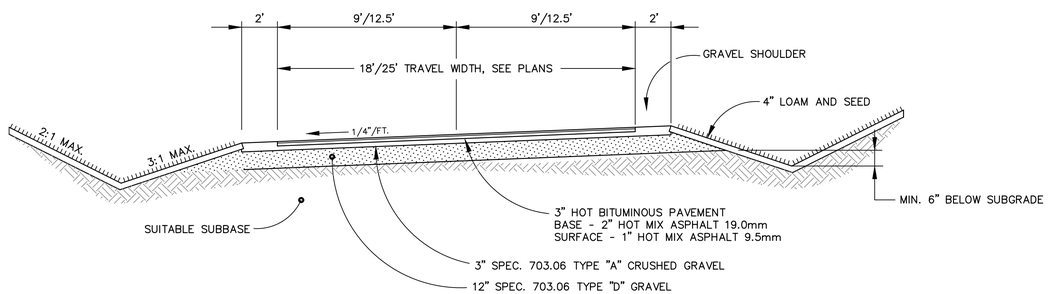












EROSION AND SEDIMENT CONTROL PLAN

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 TO 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.

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.

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

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 (1 INCH OR MORE IN A 24 HOUR PERIOD). CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 5 YEARS.
2. THE SCOPE OF CONSTRUCTION INSPECTIONS INCLUDE THE EROSION AND SEDIMENTATION CONTROL MEASURES AS WELL AS DISTURBED AREAS, MATERIAL STORAGE AREAS, AND LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S", DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.
4. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE AREA SHALL BE STABILIZED WITHIN 2 DAYS OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
5. EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRES OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
6. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.
7. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO MORE THAN ONE ACRE OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION.
8. SEDIMENT BARRIERS (EROSION CONTROL MIX, STONE CHECK DAMS, STABILIZED CONSTRUCTION ENTRANCE, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
9. ALL SEDIMENT BARRIERS SHOULD BE INSTALLED ALONG THE CONTOUR, WITH THE ENDS TURNED UP SLOPE.
10. INSTALL EROSION CONTROL MIX AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE E.C. MIX DETAIL FOR PROPER INSTALLATION. EROSION CONTROL MIX WILL REMAIN IN PLACE PER NOTE #7. THE USE OF AN EROSION CONTROL MIX BERM IS PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER.
11. ALL ERSOION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED, AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY BEFORE AND FOLLOWING ANY SIGNIFICANT RAINFALL (1.0 INCH OR MORE IN A 24-HOUR PERIOD) OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF. EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS 90% GRASS CATCH IN VEGETATED AREAS.
12. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5 TO 1).
13. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
14. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED BY AUG. 15 OR 45 DAYS PRIOR TO THE FIRST KILLING FROST (OCT. 1) TO PROTECT FROM SPRING RUNOFF PROBLEMS.
15. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
16. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
    a. FOUR INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
    b. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10–20–20 (N–P205–K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
    c. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS: SEEDING RATE IS 1.03 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED. SEED MIX SHALL CONTAIN 10% ANNUAL RYE GRASS.
    d. HAY MULCH AT THE RATE OF 70–90 LBS PER 1000 SQUARE FEET FOR OVER 75% COVERAGE. FOR UNPROTECTED OR WINDY AREAS, ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD./BLOCK). HYDRAULIC MULCHES MAY ALSO BE USED, APPLIED AT A RATE OF 5 LBS PER 1000 SQUARE FEET FOR PAPER MULCH OR 40 LBS PER 1000 SQUARE FEET OR AS DIRECTED BY THE MANUFACTURER. ON SLOPES GREATER THAN 3:1 EROSION CONTROL MIX MAY BE USED, SEE EROSION CONTROL MIX NOTES BELOW.
    e. FOR DISTURBED AREAS TO BE MAINTAINED IN POST–CONSTRUCTION AS A MEADOW BUFFER, APPLY NEW ENGLAND CONSERVATION WILDLIFE MIX BY NEW ENGLAND WETLAND PLANTS, INC., OF AMHERST, MASSACHUSETTS OR APPROVED EQUAL.
14. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS ONCE THE SITE IS STABILIZED WITH 90% GRASS CATCH IN VEGETATED AREAS. TEMPORARY EROSION AND SEDIMENT CONTROL BLANKET SHALL BE USED IN ALL DITCHES AND SWALES AS SHOWN IN DETAILS.
15. WETLANDS WILL BE PROTECTED WITH A DOUBLE ROW OF EROSION CONTROL MIX OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS DURING WINTER CONSTRUCTION.
16. ALL STORMWATER WILL BE PREVENTED FROM RUNNING ONTO STOCKPILES. SEDIMENT BARRIERS WILL BE INSTALLED DOWNGRADIENT OF ALL STOCKPILES.
17. PERMANENT POST-CONSTRUCTION BMP'S (VEGETATED SWALES, WET PONDS, ETC.) WILL NOT BE USED TO MANAGE FLOWS DURING CONSTRUCTION WITHOUT SPECIAL PROTECTION AND/OR RESTORATION.

ADDITIONAL TEMPORARY SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS):

SEASON	SEED	RATE
SUMMER (5/15 – 8/15)	SUDANGRASS	40 LBS/ACRE
	OATS	80 LBS/ACRE
LATE SUMMER/EARLY FALL (8/15 – 9/15)	PERENNIAL RYEGRASS	40 LBS/ACRE
FALL (9/15 – 11/1)	WINTER RYE	112 LBS/ACRE
WINTER (11/1 – 4/1)	MULCH W/ DORMANT SEED	80 LBS/ACRE**
SPRING (4/1 – 7/1)	OATS	80 LBS/ACRE
	ANNUAL RYEGRASS	40 LBS/ACRE

**SEED RATE ONLY

EROSION CONTROL MIX

EROSION CONTROL MIX (ECM) SHALL MEET THE REQUIREMENTS PROVIDED IN THE LATEST REVISION 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 2:1. ECM SHALL CONSIST OF WELL–GRADED ORGANIC COMPONENT 50 – 100% OF DRY WEIGHT, AND COMPRISED OF FIBROUS AND ELONGATED FRAGMENTS. ECM SHALL BE FREE FROM REFUSE, MATERIAL TOXIC 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.

NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5:1). EROSION CONTROL MIX IS AN ACCEPTABLE STABILIZATION MEASURE FOR SLOPES UP TO 3:1, WITH LIMITS THAT ARE COVERED BY NOTES ON THIS SHEET. SLOPES BETWEEN 3:1 AND 2:1 SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS, AND ALL SLOPES GREATER THAN 2:1 SHALL BE STABILIZED WITH RIPRAP. SEE SLOPE STABILIZATION DETAIL FOR ADDITIONAL INFORMATION.

EROSION CONTROL DURING CONSTRUCTION

WINTER CONSTRUCTION

1. 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. ALL 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 FALL AND WINTER.
    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 ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING SOD AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD FROM SLOUGHING DURING FLOW CONDITIONS. SEE THE PERMANENT VEGETATION BMP SECTION.
    B. INSTALL A STONE LINING IN THE DITCH:
       A DITCH MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST BE HIRED TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO 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 STONE-COVERED SLOPES MUST BE CONSTRUCTED 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 15% 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 SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS. BY OCTOBER 1 THE DISTURBED SLOPE MUST BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SLOPE BY NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP AS DESCRIBED IN THE FOLLOWING STANDARDS.
    A. STABILIZE THE SOIL 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 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 33% (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
    B. STABILIZE THE SOIL WITH EROSION CONTROL MIX:
       EROSION CONTROL MIX MUST BE PROPERLY INSTALLED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE. SEE THE EROSION CONTROL MIX NOTES FOR ADDITIONAL CRITERIA.
    C. STABILIZE THE SOIL WITH STONE RIPRAP:
       PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.
4. OVERWINTER STABILIZATION OF DISTURBED SOILS:
   BY SEPTEMBER 15, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% MUST BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
    A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION:
       BY OCTOBER 1, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 90% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED BELOW.
    B. STABILIZE THE SOIL WITH SOD:
       STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLINIG THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
    C. STABILIZE THE SOIL WITH MULCH:
       BY NOVEMBER 15, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL. PROVIDE NETTING ON ALL SLOPES GREATER THAN 8%.
5. MAINTENANCE:
   IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. ONCE A WEEK AND BEFORE AND AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE 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 MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGES AND/OR BARE SPOTS. AN ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85 TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

   STABILIZATION SCHEDULE BEFORE WINTER:

SEPTEMBER 15	ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. ALL GRASS LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR AN EROSION CONTROL BLANKET
OCTOBER 1	IF THE SLOPE IS STABILIZED WITH AN EROSION CONTROL BLANKET AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED 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 THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.

6. DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
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 IN 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 1. ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
2. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY, AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.
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 MY NOT BE USED FOR DUST CONTROL. ANY OFFSITE TRACKING OF MUD OR SEDIMENT SHALL BE VACUUMED IMMEDIATELY AND PRIOR TO THE NEXT SIGNIFICANT STORM EVENT.
4. DEBRIS AND OTHER MATERIALS: LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. TRENCH OR FOUNDATION DE-WATERING: TRENCH DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND 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.
6. NON-STORMWATER DISCHARGES: IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:
    - DISCHARGES FROM FIREFIGHTING ACTIVITY;
    - FIRE HYDRANT FLUSHINGS;
    - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
    - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3) OF MAINE DEP 06-096 CHAPTER 500;
    - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
    - PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
    - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
    - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
    - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
    - UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5) MAINE DEP 06-096 CHAPTER 500);
    - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
    - LANDSCAPE IRRIGATION.
7. UNAUTHORIZED NON-STORMWATER DISCHARGES: THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C(6) MAINE DEP 06-096 CHAPTER 500. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
    - WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
    - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
    - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
    - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. ADDITIONAL REQUIREMENTS: ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

PLACE BARRIER ALONG RELATIVELY LEVEL CONTOUR.
ECM BERM PROHIBITED AT THE BASE OF SLOPES > 8% OR WHERE THERE IS FLOWING WATER.
SEE MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS FOR INSTALLATION INSTRUCTIONS.

EROSION CONTROL MIX SHOULD CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. ECM SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINATES, AND MATERIAL TOXIC TO PLANT GROWTH.

EROSION CONTROL MIX BERM

NTS

NOTES:

1. Trench width shown is payment width for rockexcavation & replacement of unsuitable material.
2. Do not mechanically compact directly over flexible pipe (e.g. PVC, Poltyethylene)
3. Concrete pipe shall have sand bedding.

TRENCH DETAIL

NTS

NOTES:

INSTALLATION SHOULD NOT ALLOW THE INTER-TWINING OF CABLES.

COMMUNICATION AND POWER CABLES SHALL HAVE NO LESS THAN 12" OF RADIAL SEPARATION.

CONDUITS FOR POWER AND COMMUNICATION CABLES SHALL BE SPECIFIED BY APPROPRIATE UTILITY COMPANIES.

UNDERGROUND CABLE TRENCH

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.

STABILIZED CONSTRUCTION ENTRANCE

NTS

TYPICAL EROSION CONTROL MEASURES FOR RESIDENTIAL LOTS

NTS

ROADWAY SECTION

NTS

REVISION		
NO.	DATE	DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim Subdivision Plans to Town
5	5/8/24	Rev'd. Per Staff Review

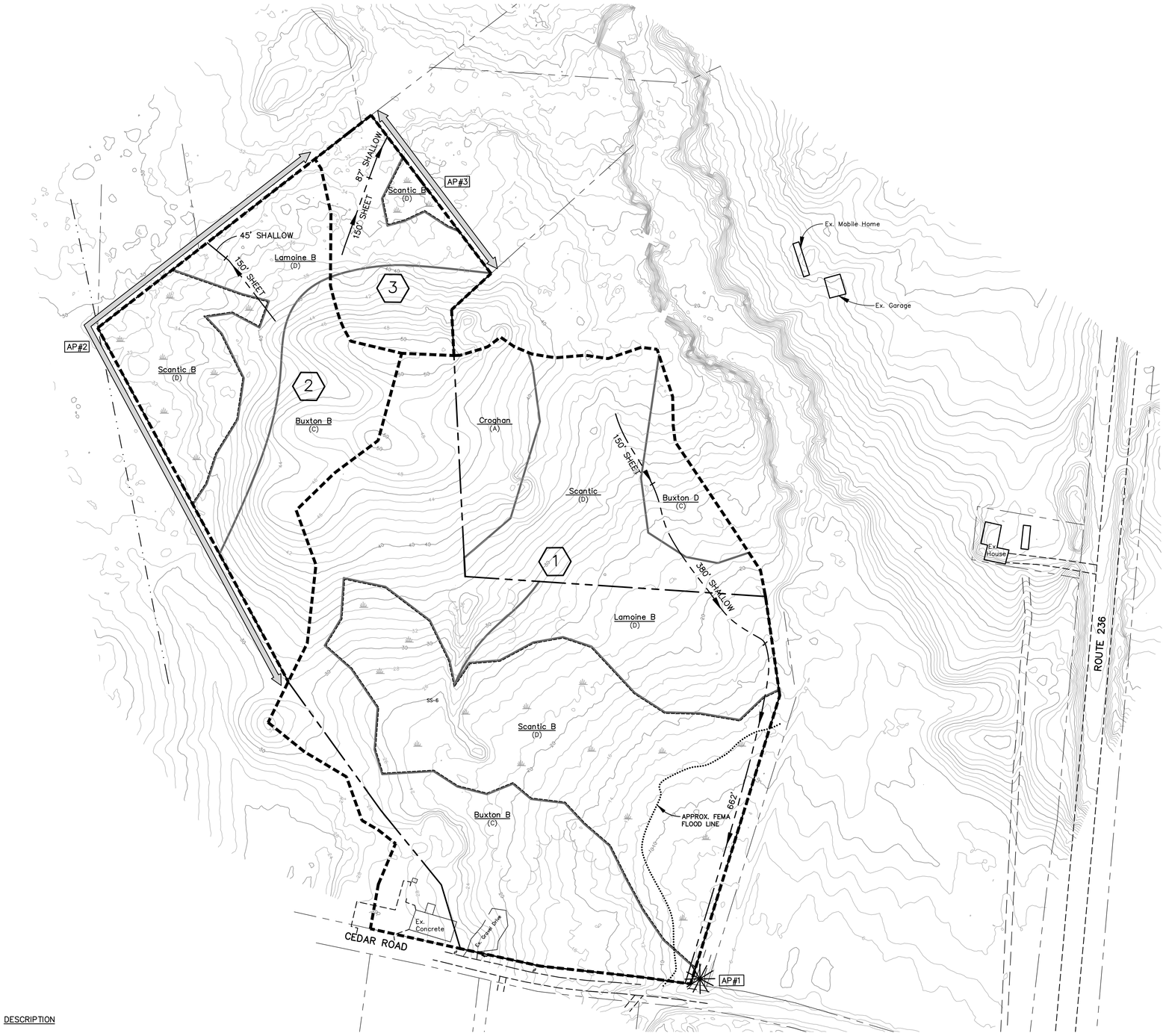
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

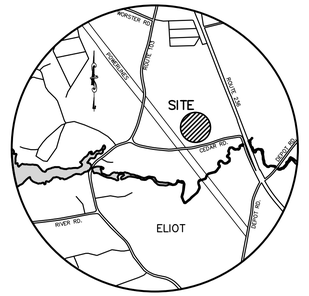
FOR
David Springer
12 White Pine Way
North Berwick, ME

DETAILS
GOODWIN SUBDIVISION
76 CEDAR ROAD
ELIOT, MAINE

DESIGNED W. Pelkey	DATE April 2023
DRAWN Dept.	SCALE As Noted
CHECKED A. Fagan	JOB. NO. 23008

SHEET
6





LOCATION MAP
SCALE: 1" = 2000'

NOTES:

1. BOUNDARY/TOPOGRAPHY: BH2M
ROBERT C. LIBBY JR. PLS#2190
380B MAIN STREET
GORHAM, MAINE

2. SOILS MAPPING: OFFSITE:
YORK COUNTY MEDIUM INTENSITY
SOILS MAPS

ONSITE:
MARK HAMPTON ASSOCIATES
CLASS B SOIL STUDY

3. TEST PITS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE

4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

PRE DEVELOPMENT FLOWS

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM	50 YR. STORM
AP-1 (SA-1)	10.37 CFS	22.44 CFS	33.19 CFS	42.62 CFS
AP-2 (SA-2)	5.19 CFS	10.76 CFS	15.64 CFS	19.89 CFS
AP-3 (SA-3)	1.61 CFS	3.34 CFS	4.85 CFS	6.17 CFS

ONSITE SOILS 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	C
LAMOINE	D
SCANTIC	D

OFFSITE SOIL LEGEND
HYDROLOGIC SOIL GROUP

SOIL	GROUP
BUXTON	C
CROGHAN	A
SCANTIC	D

LEGEND

SYMBOL	DESCRIPTION
12	POND
12	DRAINAGE SUB AREA
R12	REACH
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
- - - - - -	LIMIT OF WETLANDS
61	EXISTING CONTOUR
64	PROPOSED CONTOUR

NO.	DATE	REVISION DESCRIPTION
1	5/4/23	Sketch Plan Submission
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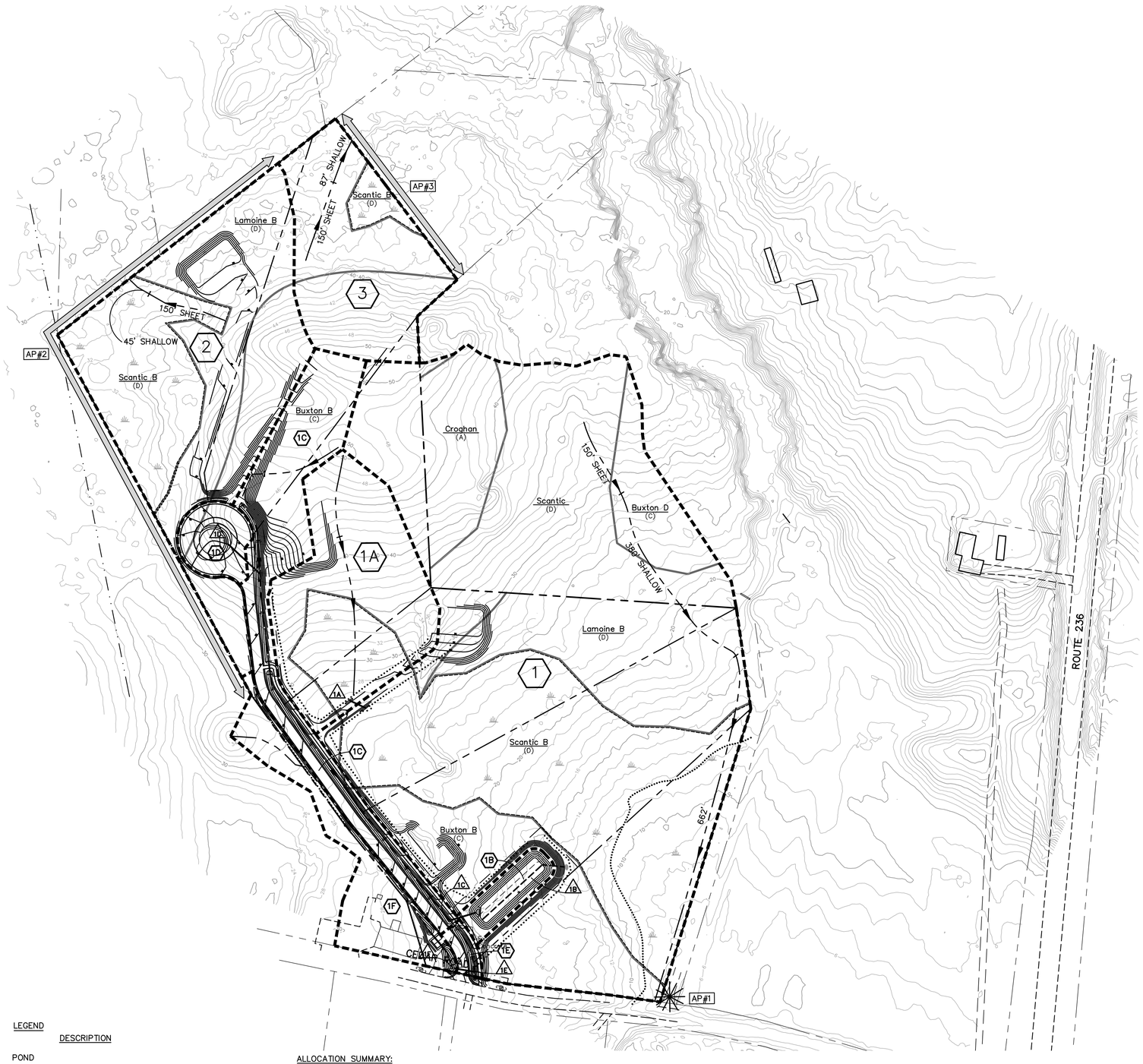
FOR
David Springer
12 White Pine Way
North Berwick, ME

PRE-DEVELOPMENT WATERSHED

GOODWIN SUBDIVISION
76 CEDAR ROAD
ELIOT, MAINE

DESIGNED	DATE
W. Pelkey	February 2023
DRAWN	SCALE
Dept.	1" = 100'
CHECKED	JOB. NO.
A. Fagan	23008

SHEET
A



LEGEND

SYMBOL	DESCRIPTION
12	POND
12	DRAINAGE SUB AREA
R12	REACH
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
	LIMIT OF WETLANDS
64	EXISTING CONTOUR
64	PROPOSED CONTOUR

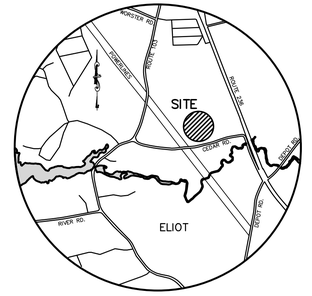
ALLOCATION SUMMARY:

THE FOLLOWING IS A SUMMARY OF THE ALLOCATED IMPERVIOUS AREA FOR EACH LOT.

LOT 1= 5,000 SF
LOT 2= 12,000 SF
LOT 3= 5,000 SF
LOT 4= 12,000 SF
LOT 5= 12,000 SF

Scale: 1" = 100'

100' 0 100' 200'



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NOTES:

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ONSITE:
MARK HAMPTON ASSOCIATES
CLASS B SOIL STUDY

3. TEST PITS: MARK HAMPTON ASSOCIATES
PORTLAND, MAINE

4. SEE STORMWATER MANAGEMENT REPORT FOR ADDITIONAL INFORMATION.

POST DEVELOPMENT FLOWS
FLOW RATE = POST (PRE)

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM	50 YR. STORM
AP-1	10.18 (10.37) CFS	20.88 (22.44) CFS	30.49 (33.19) CFS	41.68 (42.62) CFS
AP-2	4.61 (5.19) CFS	9.00 (10.76) CFS	12.77 (15.64) CFS	16.02 (19.89) CFS
AP-3	1.61 (1.61) CFS	3.34 (3.34) CFS	4.85 (4.85) CFS	6.17 (6.17) CFS

ONSITE SOILS 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	C
LAMOINE	D
SCANTIC	D

OFFSITE SOIL LEGEND

HYDROLOGIC SOIL GROUP

SOIL	GROUP
BUXTON	C
CROGHAN	A
SCANTIC	D

Tc SUMMARY
(FOR THOSE NOT LABELED ON THE PLAN)

SUBCATCHMENT	Tc ROUTE
SA-1A	150' SHEET, 290' SHALLOW
SA-1B	6 MIN. DIRECT ENTRY
SA-1C	150' SHEET, 23' SHALLOW, 64' SHALLOW, 297' CHANNEL, 24' PIPE, 563' CHANNEL
SA-1D	31' SHEET, 70' SHEET
SA-1E	6 MIN. DIRECT ENTRY
SA-1F	150' SHEET, 377' CHANNEL, 50' PIPE, 31' CHANNEL

NO.	DATE	REVISION DESCRIPTION
1	5/4/23	Sketch Plan Submission
2	9/21/23	Sketch Plan II Submission
3	11/8/23	Added Open Space
4	4/1/24	Submitted Prelim. Subdivision Plans to Town

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Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
David Springer
12 White Pine Way
North Berwick, ME

POST DEVELOPMENT WATERSHED

GOODWIN SUBDIVISION

76 CEDAR ROAD
ELIOT, MAINE

DESIGNED	DATE
W. Pelkey	February 2023
DRAWN	SCALE
Dept.	1" = 100'
CHECKED	JOB. NO.
A. Fagan	23008

SHEET
B

STORMWATER MANAGEMENT REPORT

Goodwin Subdivision

76 Cedar Road
Eliot, Maine

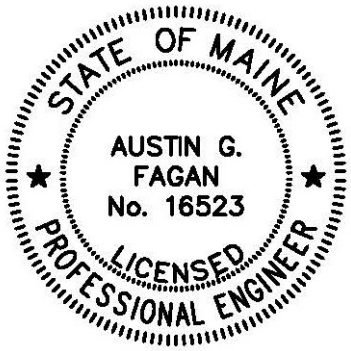
Submitted by:

David Springer
12 White Pine Way
North Berwick, Maine 03906

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024



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LIST OF APPENDICES

1.0 INTRODUCTION

The applicant, David Springer, is proposing a 5-lot residential subdivision known as Goodwin Subdivision (the project). The parcel (Tax Map 71, Lot 25) is approximately 21.5 acres and is located at 76 Cedar Road in Eliot, Maine. The project lies within the Towns designated MS4 area, and does not require an individual stormwater permit from the Maine DEP.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a paved roadway and 5' paved walking path
- Installation of underground electric and communications conduit and transformer pads
- Installation of storm drain system including stormdrain culverts
- Construction of a Grassed Underdrained Soil Filter
- Final site stabilization

The proposed infrastructure improvements will create approximately 35,926 sf (0.82 acres) of new impervious area and 55,005 sf (1.26 acres) of newly vegetated area totaling 90,931 sf (2.08 acres) of newly developed area. To accurately size the proposed stormwater infrastructure and to assure that post development stormwater conditions will not impact the downstream properties, we have allocated 5,000 sf of impervious area to lots 1 & 3, and 12,000 sf if impervious area to lots 2, 4, & 5. We have also allocated up to 20,000 sf of newly vegetated area for lots with wooded portions. These allocations are not required to be counted towards the thresholds for Site Law permitting (3 acre of impervious and 20 acres of developed) because the applicant intends to sell the lots.

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, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the Town of Eliot's Stormwater Ordinance.

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 onsite soils used for the stormwater analysis were digitized from a high intensity soil survey that was completed by Mark Hampton Associates. The offsite 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 onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Fine sandy loam, 3-8% slopes	C
Lamoine	Fine sandy loam, 0-8% slopes	D
Scantic	Silt loam, 0-8% slopes	D

The offsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Silt loam, 3-8% slopes	C
Croghan	Loamy fine sand, 0-8% slopes	A
Scantic	Silt loam, 0-3% slopes	D

Topography: NOAA Lidar Topography

Natural Resources: Mark Hampton, Mark Hampton Associates

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at three Analysis Points as described below:

Analysis Point #1
Description: Flow to a wetland and culvert on southeastern property corner
Pre Development Tributary Drainage Areas: SA-1
Post Development Tributary Drainage Areas: SA-1, 1A-1F

Analysis Point #2
Description: Flow to the wetland along the northwestern property line
Pre Development Tributary Drainage Areas: SA-2
Post Development Tributary Drainage Areas: SA-2

Analysis Point #3
Description: Flow along the northeastern property line
Pre Development Tributary Drainage Areas: SA-3
Post Development Tributary Drainage Areas: SA-3

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 21.5 acres and is located on Cedar Road in Eliot. The parcel currently consists of undeveloped fields and woodland and lies within the Sturgeon Creek watershed.

The watershed that was analyzed for this project is approximately 26.9 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows from west to east and is bounded by Cedar Road to the south, and a mix of farmland and residential properties to the north, east, and west.

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	10.37	22.44	33.19
AP-2	5.19	10.76	15.64
AP-3	1.61	3.34	4.85

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include construction of a 1,242 linear foot paved roadway, a paved walking path, and associated stormwater infrastructure. Below is a summary of the proposed developed areas associated with construction of the public infrastructure.

Proposed Impervious Area	=	35,926 sf
Proposed Landscaped Area	=	55,005 sf
Proposed Developed Area	=	90,931 sf

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	9.58	21.91	32.16
AP-2	5.39	10.53	15.64
AP-3	1.61	3.34	4.85

1.5 BASIC STANDARDS

The proposed project is required to meet the Basic Standards for the Maine DEP. 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 (Maine DEP) 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 5 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 not required to meet the General Standards for the Maine DEP.

1.7 PHOSPHORUS STANDARD

The proposed project is in the watershed of Sturgeon Creek. 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 in the watershed of Sturgeon Creek. Sturgeon Creek is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is not required to meet the Flooding Standards of the Maine DEP, however, pre and post development runoff modelling be evaluated to mitigate post construction stormwater flows. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.

b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.

c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.

d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year storm events. Refer to Appendix C for the Pre-Development model and Appendix D for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	10.37	9.58	22.44	21.91	33.19	32.16
AP-2	5.19	5.39	10.76	10.53	15.64	15.64
AP-3	1.61	1.61	3.34	3.34	4.85	4.85

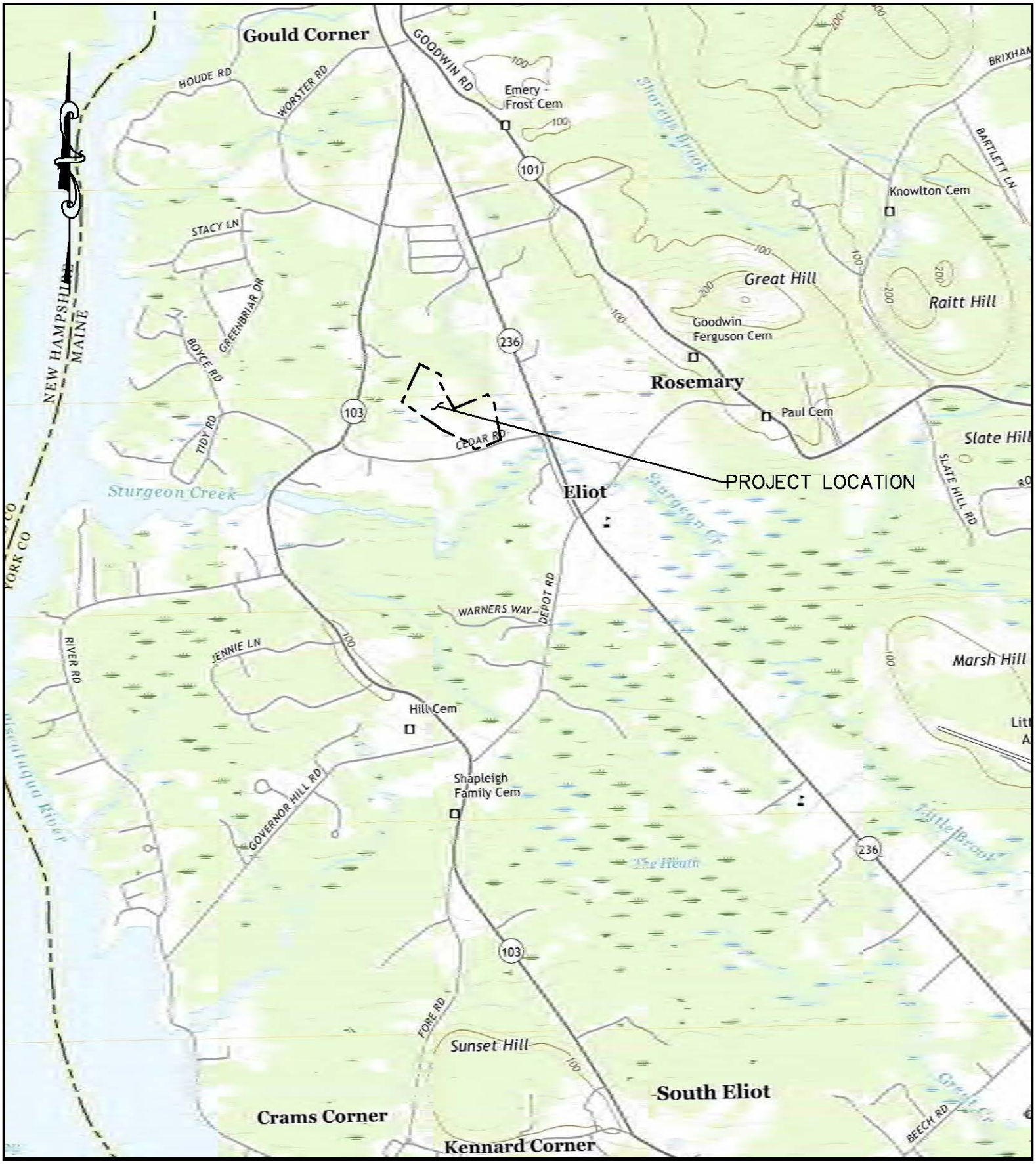
As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site exceed the peak flows of stormwater prior to undertaking the project at Analysis Point 2 for the 2-year storm event. This predicted 3.8% increase in flow rate is minor and will not create adverse impacts to the downstream wetland.

The development of this project will not create any adverse impacts to the downstream conditions. Please see the post development stormwater model for additional information.

1.7 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 Basic, General and Flooding Standards required by Chapter 500.

Appendix A
Figures



REFERENCES:
1. USGS QUADRANGLE EAST DOVER, NH 2021

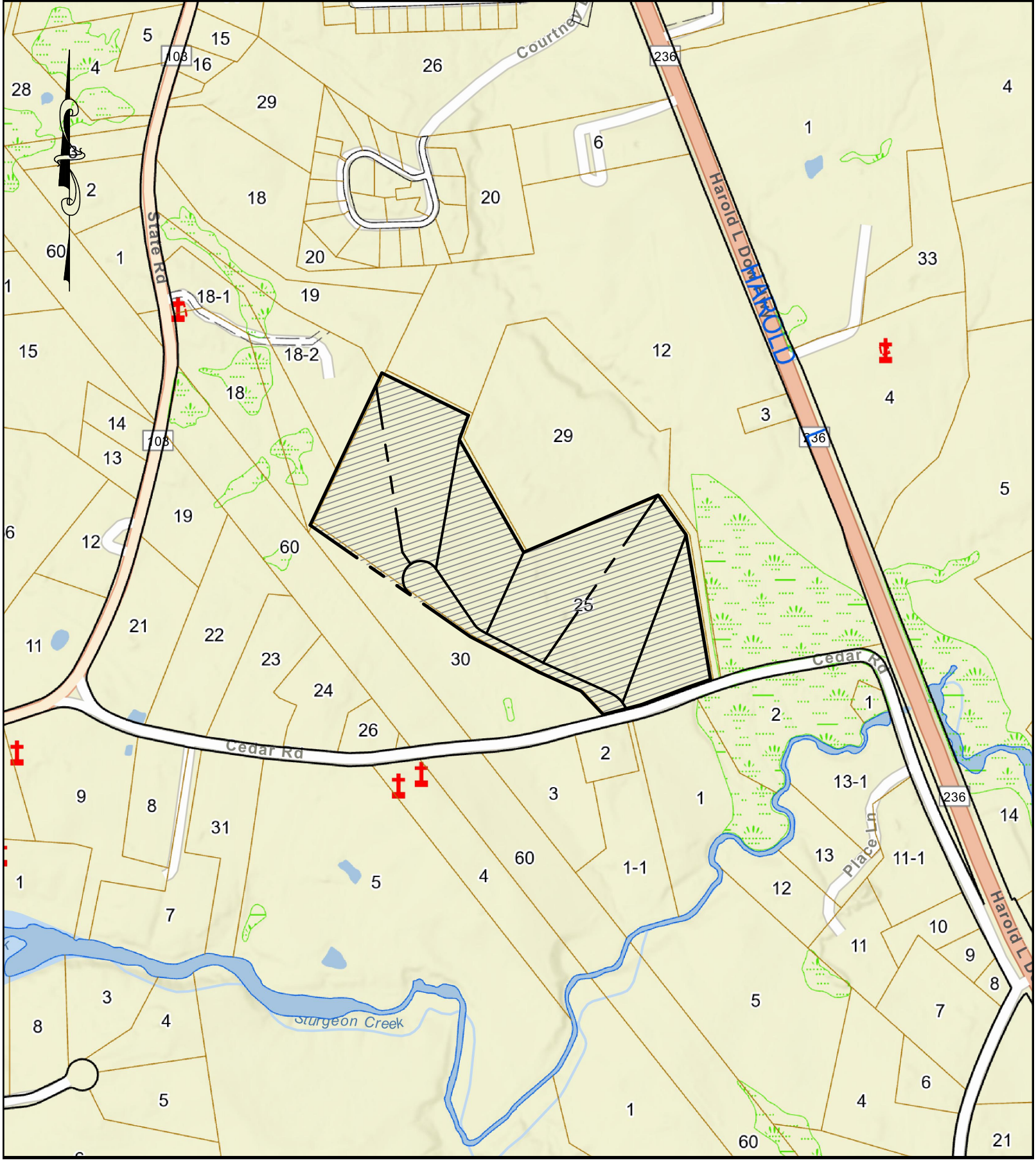
Scale: 1" = 2000'

2000' 0 2000' 4000'

BH2M

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

380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
Fax (207) 839-8250



REFERENCES:
TOWN OF ELIOT GIS MAPS

Scale: 1" = 500'

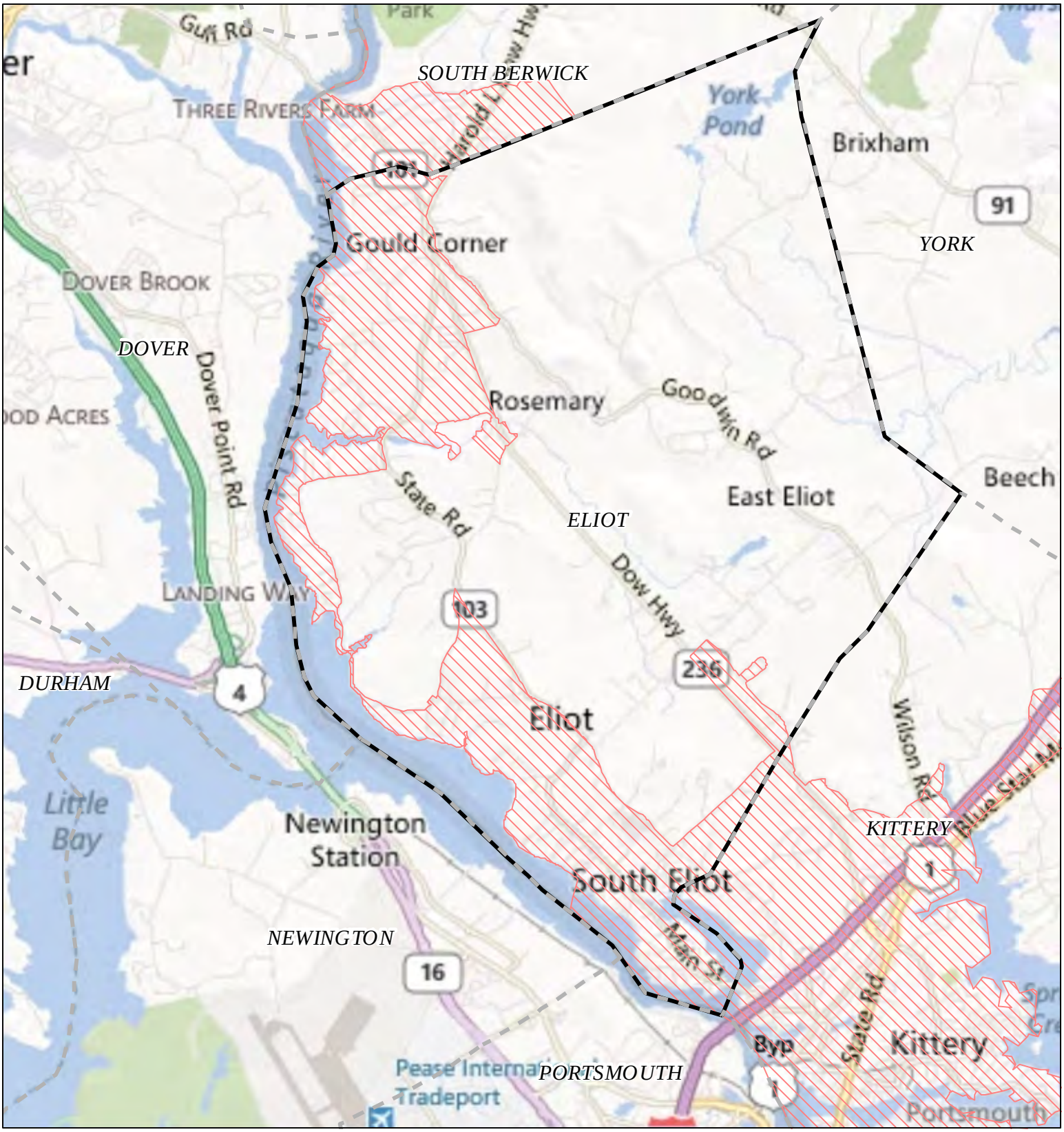
500' 0 500' 1000'

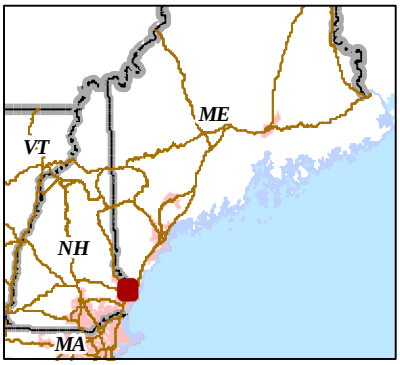
BH2M

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

380B Main Street
Gorham, Maine 04038

Tel. (207) 839-2771
Fax (207) 839-8250





NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Eliot ME

Regulated Area (2000 + 2010 Urbanized Area)

0 1 2 3 4 Kilometers

0 1 2 3 Miles

Town Population:	6204
Regulated Population:	3227

(Populations estimated from 2010 Census)

EPA

Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2010 Microsoft Corporation
and its data suppliers

US EPA Region 1 GIS Center Map #8824, 11/19/2012

MS4

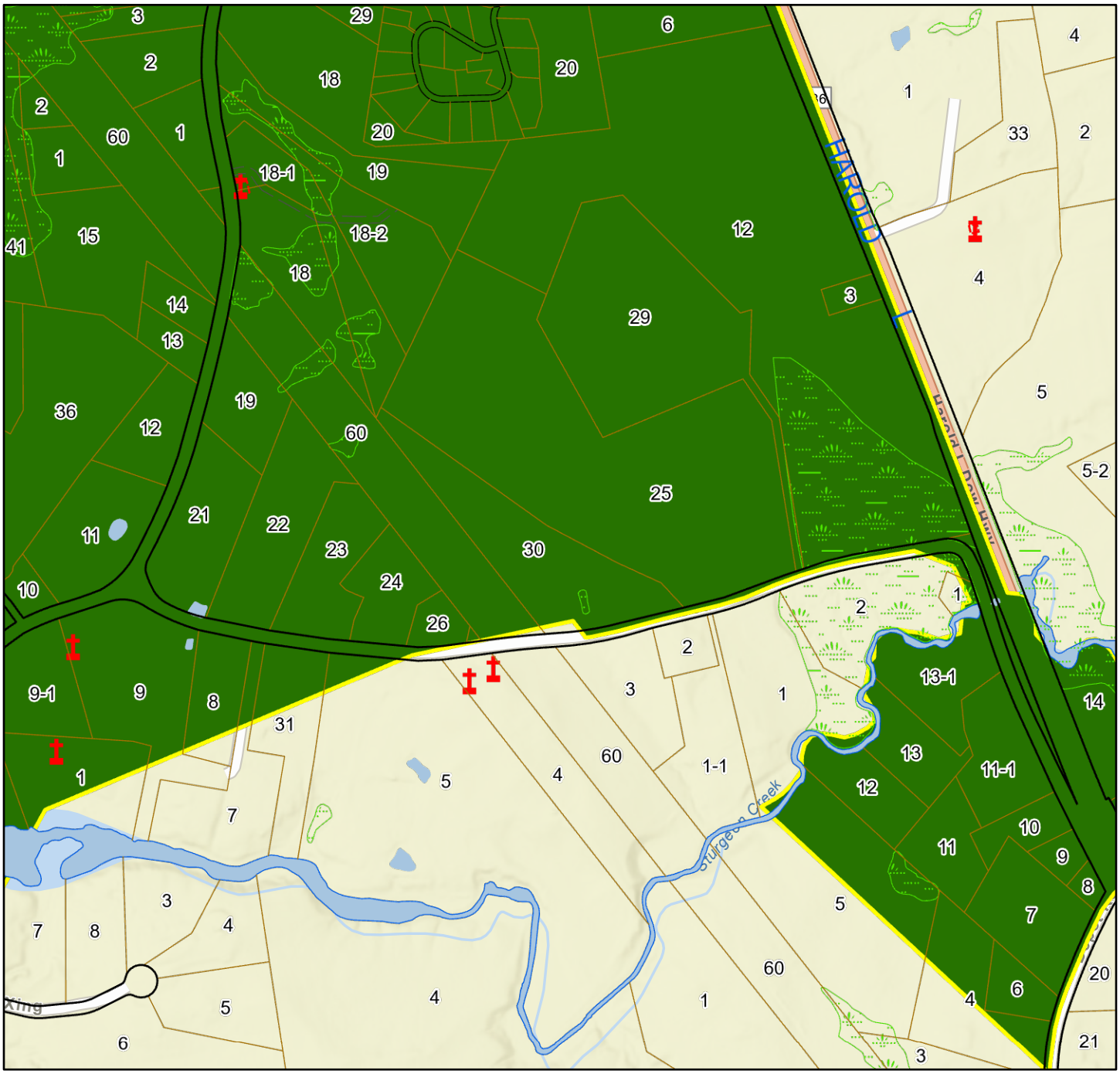
Town of Eliot, ME

1 inch = 550 Feet

March 27, 2024

0 550 1100 1650

CAI Technologies
Precision Mapping. Geospatial Solutions.
www.cai-tech.com



PWater
Private Road
Property Line
Public Road
Wetland
Private Road ROW
Cemetery Boundary
Cemetery Centroids
Water-poly
Urbanized_Areas

Appendix B
Soils Report

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Soil Narrative Report

DATE:	Soil Profiles observed on April 6, 2023
BASE MAP:	Base plan provided by BH2M Scale 1 inch equals 100 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or less.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing, or taping from known survey control points
Base Map –5 foot contour intervals

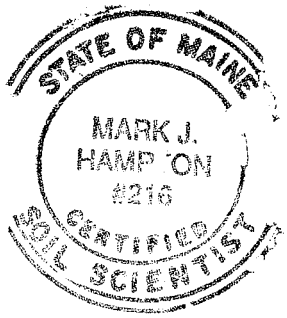
Provided:

Mapping units of 1 acre or less
Base map scale of 1"= 60 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by pacing and taping from know survey control points.
Ground topographic survey with one foot contours and ground control provided.

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

C.S.S. #216, L.S.E. #263 4/6/23

Mark J. Hampton Date



Legend for Soil Maps

1. Drainage Class

Excessively Well Drained	EWD
Well Drained	WD
Moderately Well Drained	MWD
Somewhat Poorly Drained	SPD
Poorly Drained	PD
Very Poorly Drained	VPD

2. Slope Designation

0-3%	A
3-8%	B
8-15%	C
15-25%	D
>25%	E

3. Note: High Intensity Soil Survey has been prepared by Mark Hampton Associates, Inc. in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Buxton
(Aquic Dystric Eutrochrepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.5 to 3.0 feet below the surface at some time from November to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Olive brown, silt loam, 8-15"
Subsoil Layer:	Olive gray silty clay loam, 15-32"
Substratum:	Gray silty clay loam +32"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 60 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Scantic, Lamoine

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Lamoine
(Aeric Haplaquepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3 %,(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 0.5 to 2.0 feet below the surface at some time from November to June or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine sandy loam 0-7"
Subsurface Layer:	Lt. Olive brown silt loam, 7-14"
Subsoil Layer:	Olive silty clay loam, 14-21"
Substratum:	Olive, silty clay loam, 21-65"

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Buxton, Scantic

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7414

Cedar Road
Eliot, ME
David Springer

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%, (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark grayish brown, silt loam 0-9"
Subsurface Layer:	Olive gray silt loam, 9-16"
Substratum:	Gray silty clay loam, 16"+

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Lamoine, Buxton

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

7414

PAGE ____ OF ____

FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Subdivision | Applicant Name: David Springer | Project Location (municipality): Eliot

Exploration Symbol # SS-9 ☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Depth	Horizon	Color	Texture	Structure	Consistence	Redox
0–6	Ap	Black	F. Sandy Loam	Grand	Very Friable	
6–16	Bg	Brown	F. Sandy Loam	Weak Sub Ang Blocky	Friable	
16–40	Bg	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	Common and Distinct
40–60	Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details: Soil Series/Phase Name: Buxton

Limiting Factor: ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock — Depth: 16 "

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

Slope: 6 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group: ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details: Soil Series/Phase Name: ______ Limiting Factor ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock ______ " Depth; Drainage Class ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope ______ Percent; Hydric Soil ☐ No ☐ Yes; Hydrologic Soil Group ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details: Soil Series/Phase Name: ______ Limiting Factor ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock ______ " Depth; Drainage Class ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope ______ Percent; Hydric Soil ☐ No ☐ Yes; Hydrologic Soil Group ______

Exploration Symbol # ______ ☐ Test Pit ☐ Boring ☐ Probe

______ " Organic horizon thickness Ground surface elev. ______

______ " Depth: ☐ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox

Soil Details: Soil Series/Phase Name: ______ Limiting Factor ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock ______ " Depth; Drainage Class ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☐ PD ☐ VPD; Slope ______ Percent; Hydric Soil ☐ No ☐ Yes; Hydrologic Soil Group ______

SOIL SCIENTIST INFORMATION AND SIGNATURE

[signature] Signature — Date: 4/6/2023

Mark J. Hampton — Name Printed

216 — SS License No.

STATE OF MAINE — MARK J. HAMPTON — #216 — CERTIFIED SOIL SCIENTIST

affix professional seal

7414

PAGE ____ OF ____ FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Subdivision	David Springer	Eliot

Exploration Symbol # SS-1

☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Very Friable	
Bg1	Gray	F. Sandy Loam	Weak Sub Ang Blocky	Firm	Common and Distinct
Bg2	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	
Cg	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-2

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Dark Brown	F. Sandy Loam	Weak Angular	Very Friable	
Bg	Brown	F. Sandy Loam	Sub Ang Blocky	Friable	
Bg	Olive Gray	Silty Clay Loam	Thin Platy	Firm	Common and Distinct
Cd	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Lamoine

Limiting Factor: 13 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-3

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☒ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	Silt Loam	Fine Grandul	Friable	
Bg1	Gray	Silt Loam	Weak Sub Ang Blocky	Firm	Common and Distinct
Bg2	Gray Brown	Silty Clay Loam	Thin Platy	Firm	
Cg	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Scantic

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 2 Percent

Hydric Soil: ☐ No ☒ Yes

Hydrologic Soil Group:

Exploration Symbol # SS-4

☐ Test Pit ☒ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth: ☐ of exploration, or ☐ to refusal

Depth below mineral soil horizon (inches)

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Dark Brown	F. Sandy Loam	Grand	Friable	
Bhs	Brown	F. Sandy Loam	Fine Grandul	Friable	
Bs	Olive Brown	Silty Clay Loam	Fine Grandul	Firm	Common and Distinct
Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details

Soil Series/Phase Name: Buxton

Limiting Factor: 15 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

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

Slope: 6 Percent

Hydric Soil: ☒ No ☐ Yes

Hydrologic Soil Group:

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Mark J. Hampton

Name Printed

4/6/2023

Date

216

SS License No.

MARK J. HAMPTON 216 SOIL SCIENTIST

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7414

PAGE ____ OF ____

FORM F (SS1) Rev. 7/21

SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Subdivision | Applicant Name: David Springer | Project Location (municipality): Eliot

Exploration Symbol # SS-5

☐ Test Pit ☒ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Very Friable	
Bg	Brown	F. Sandy Loam	Weak Sub Ang Blocky	Friable	
Bg	Olive Brown	Silty Clay Loam	Fine Grandu	Firm	Common and Distinct
Cd	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details: Soil Series/Phase Name: Buxton; Limiting Factor: 16 " Depth; ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☒ MWD ☐ SPD ☐ PD ☐ VPD; Slope: 6 Percent; Hydric Soil: ☒ No ☐ Yes; Hydrologic Soil Group:

Exploration Symbol # SS-6

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Weak Angular	Very Friable	
Bg1	Gray	F. Sandy Loam	Sub Ang Blocky	Firm	Common and Distinct
Bg2	Olive Gray	Silty Clay Loam	Thin Platy	Firm	
Cg	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details: Soil Series/Phase Name: Scantic; Limiting Factor: 6 " Depth; ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☐ SPD ☒ PD ☐ VPD; Slope: 3 Percent; Hydric Soil: ☐ No ☒ Yes; Hydrologic Soil Group:

Exploration Symbol # SS-7

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	Silt Loam	Fine Grandul	Friable	
Bg	Brown	Silt Loam	Weak Sub Ang Blocky	Friable	
Bg	Gray Brown	Silty Clay Loam	Thin Platy	Firm	Common and Distinct
Cd	Olive	Silty Clay Loam	Medium Platy	Very Firm	

Soil Details: Soil Series/Phase Name: Lamoine; Limiting Factor: 13 " Depth; ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☐ MWD ☒ SPD ☐ PD ☐ VPD; Slope: 4 Percent; Hydric Soil: ☒ No ☐ Yes; Hydrologic Soil Group:

Exploration Symbol # SS-8

☐ Test Pit ☒ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth: ☒ of exploration, or ☐ to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
Ap	Black	F. Sandy Loam	Grand	Friable	
Bg1	Gray	F. Sandy Loam	Fine Grandul	Firm	Common and Distinct
Bg2	Olive Brown	Silty Clay Loam	Fine Grandul	Firm	
Cg	Olive Gray	Silty Clay Loam	Platy	Very Firm	

Soil Details: Soil Series/Phase Name: Scantic; Limiting Factor: 6 " Depth; ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Drainage Class: ☐ ED ☐ SED ☐ WD ☒ MWD ☐ SPD ☒ PD ☐ VPD; Slope: 6 Percent; Hydric Soil: ☒ No ☐ Yes; Hydrologic Soil Group:

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature

Mark J. Hampton
Name Printed

4/6/2023
Date

216
SS License No.

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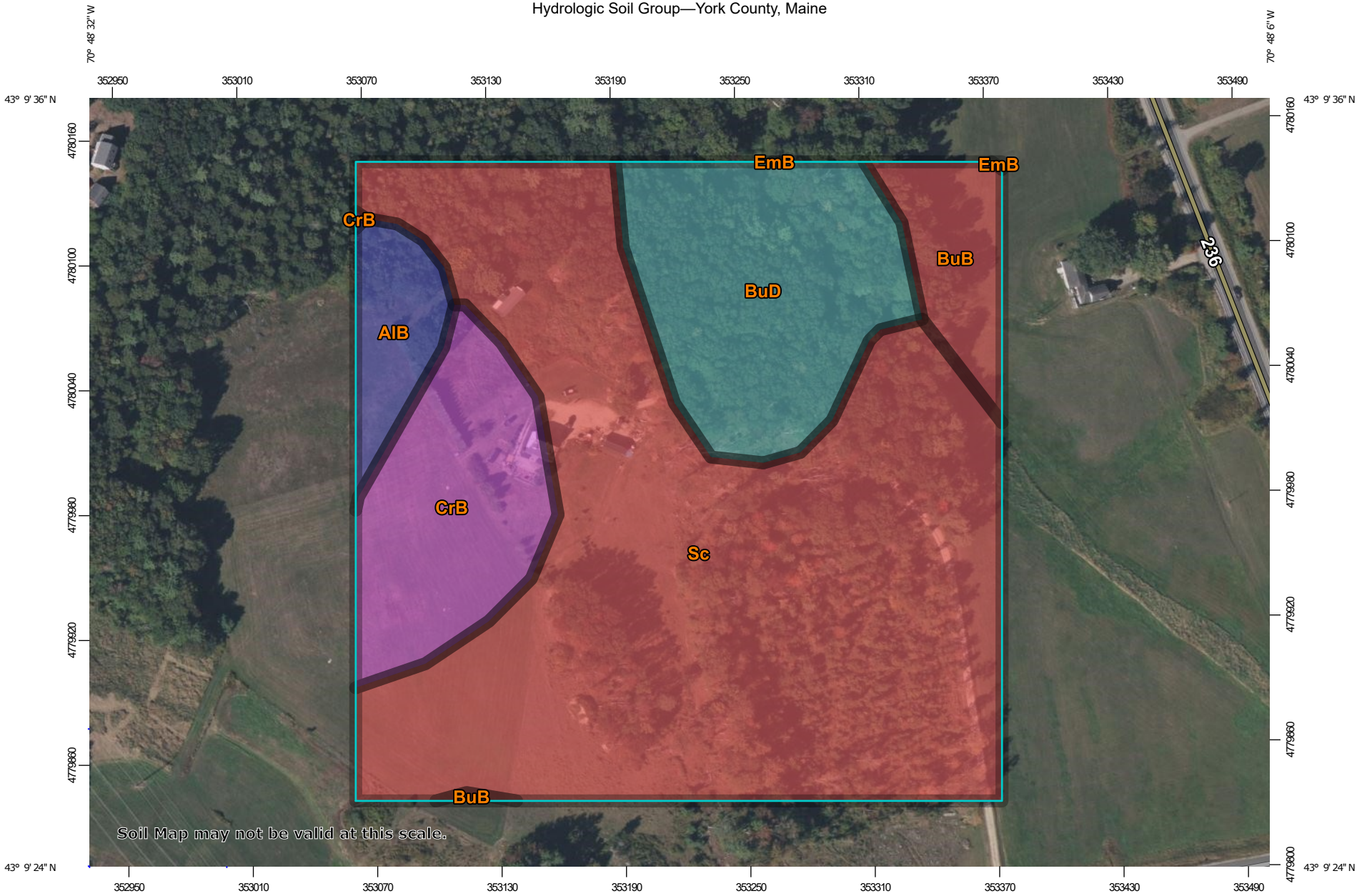


Map Scale: 1:2,600 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 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
AlB	Allagash very fine sandy loam, 3 to 8 percent slopes	B	1.0	4.2%
BuB	Buxton silt loam, 3 to 8 percent slopes	D	1.2	4.9%
BuD	Buxton silt loam, 15 to 25 percent slopes	C	3.9	16.3%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	2.8	12.0%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	B	0.0	0.0%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	14.9	62.6%
Totals for Area of Interest			**23.8**	**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.

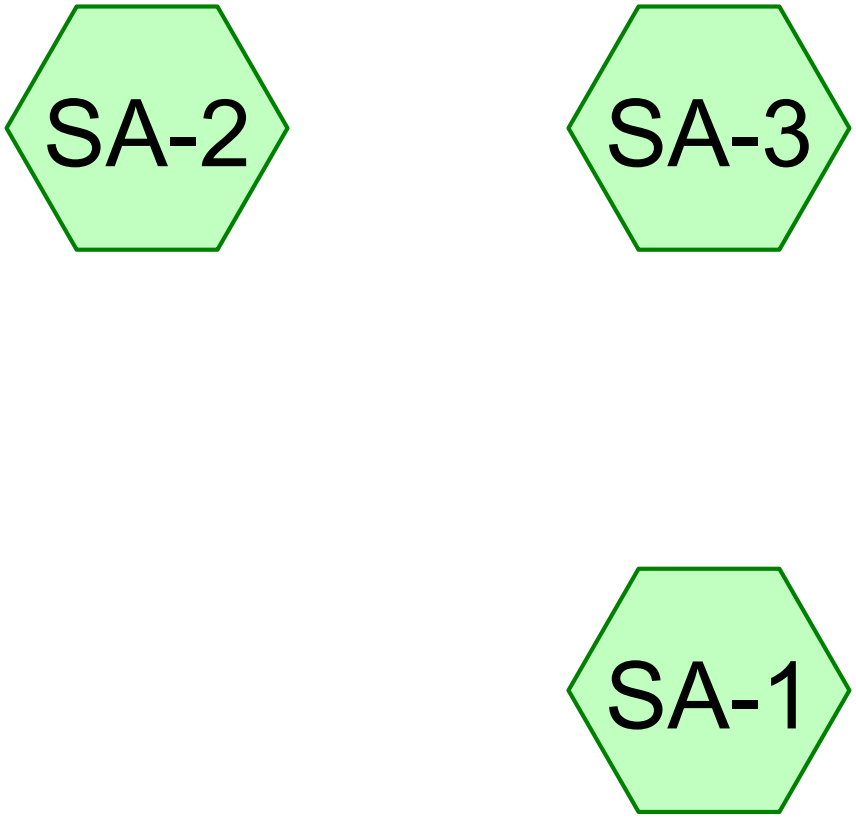
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C
Pre Development Calculations



Subcat Reach Pond Link

Routing Diagram for Pre Development - Goodwin Sub
Prepared by HP Inc., Printed 3/29/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.000	39	>75% Grass cover, Good, HSG A (SA-1)
8.964	74	>75% Grass cover, Good, HSG C (SA-1, SA-2, SA-3)
4.721	80	>75% Grass cover, Good, HSG D (SA-1, SA-2, SA-3)
0.308	98	Existing Impervious (SA-1)
1.729	70	Woods, Good, HSG C (SA-1, SA-3)
10.172	77	Woods, Good, HSG D (SA-1, SA-2, SA-3)
26.894	**75**	**TOTAL AREA**

Summary for Subcatchment SA-1:

Runoff = 10.37 cfs @ 12.72 hrs, Volume= 1.574 af, Depth> 0.99"

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

	Area (sf)	CN	Description
*	13,435	98	Existing Impervious
	43,542	39	>75% Grass cover, Good, HSG A
	256,281	74	>75% Grass cover, Good, HSG C
	174,078	80	>75% Grass cover, Good, HSG D
	70,841	70	Woods, Good, HSG C
	274,223	77	Woods, Good, HSG D
	832,400	74	Weighted Average
	818,965		98.39% Pervious Area
	13,435		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
7.1	380	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	662	0.0151	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
49.0	1,192	Total			

Summary for Subcatchment SA-2:

Runoff = 5.19 cfs @ 12.32 hrs, Volume= 0.535 af, Depth> 1.11"

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

Area (sf)	CN	Description
102,888	74	>75% Grass cover, Good, HSG C
27,820	80	>75% Grass cover, Good, HSG D
120,376	77	Woods, Good, HSG D
251,084	76	Weighted Average
251,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	45	0.0333	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	195	Total			

Summary for Subcatchment SA-3:

Runoff = 1.61 cfs @ 12.42 hrs, Volume= 0.187 af, Depth> 1.11"

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

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Summary for Subcatchment SA-1:

Runoff = 22.44 cfs @ 12.69 hrs, Volume= 3.314 af, Depth> 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.90"

	Area (sf)	CN	Description
*	13,435	98	Existing Impervious
	43,542	39	>75% Grass cover, Good, HSG A
	256,281	74	>75% Grass cover, Good, HSG C
	174,078	80	>75% Grass cover, Good, HSG D
	70,841	70	Woods, Good, HSG C
	274,223	77	Woods, Good, HSG D
	832,400	74	Weighted Average
	818,965		98.39% Pervious Area
	13,435		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
7.1	380	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	662	0.0151	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
49.0	1,192	Total			

Summary for Subcatchment SA-2:

Runoff = 10.76 cfs @ 12.31 hrs, Volume= 1.088 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.90"

Area (sf)	CN	Description
102,888	74	>75% Grass cover, Good, HSG C
27,820	80	>75% Grass cover, Good, HSG D
120,376	77	Woods, Good, HSG D
251,084	76	Weighted Average
251,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	45	0.0333	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	195	Total			

Summary for Subcatchment SA-3:

Runoff = 3.34 cfs @ 12.41 hrs, Volume= 0.381 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.90"

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Summary for Subcatchment SA-1:

Runoff = 33.19 cfs @ 12.68 hrs, Volume= 4.900 af, Depth> 3.08"

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

	Area (sf)	CN	Description
*	13,435	98	Existing Impervious
	43,542	39	>75% Grass cover, Good, HSG A
	256,281	74	>75% Grass cover, Good, HSG C
	174,078	80	>75% Grass cover, Good, HSG D
	70,841	70	Woods, Good, HSG C
	274,223	77	Woods, Good, HSG D
	832,400	74	Weighted Average
	818,965		98.39% Pervious Area
	13,435		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0333	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
7.1	380	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	662	0.0151	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
49.0	1,192	Total			

Summary for Subcatchment SA-2:

Runoff = 15.64 cfs @ 12.30 hrs, Volume= 1.586 af, Depth> 3.30"

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

Area (sf)	CN	Description
102,888	74	>75% Grass cover, Good, HSG C
27,820	80	>75% Grass cover, Good, HSG D
120,376	77	Woods, Good, HSG D
251,084	76	Weighted Average
251,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.8	45	0.0333	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	195	Total			

Summary for Subcatchment SA-3:

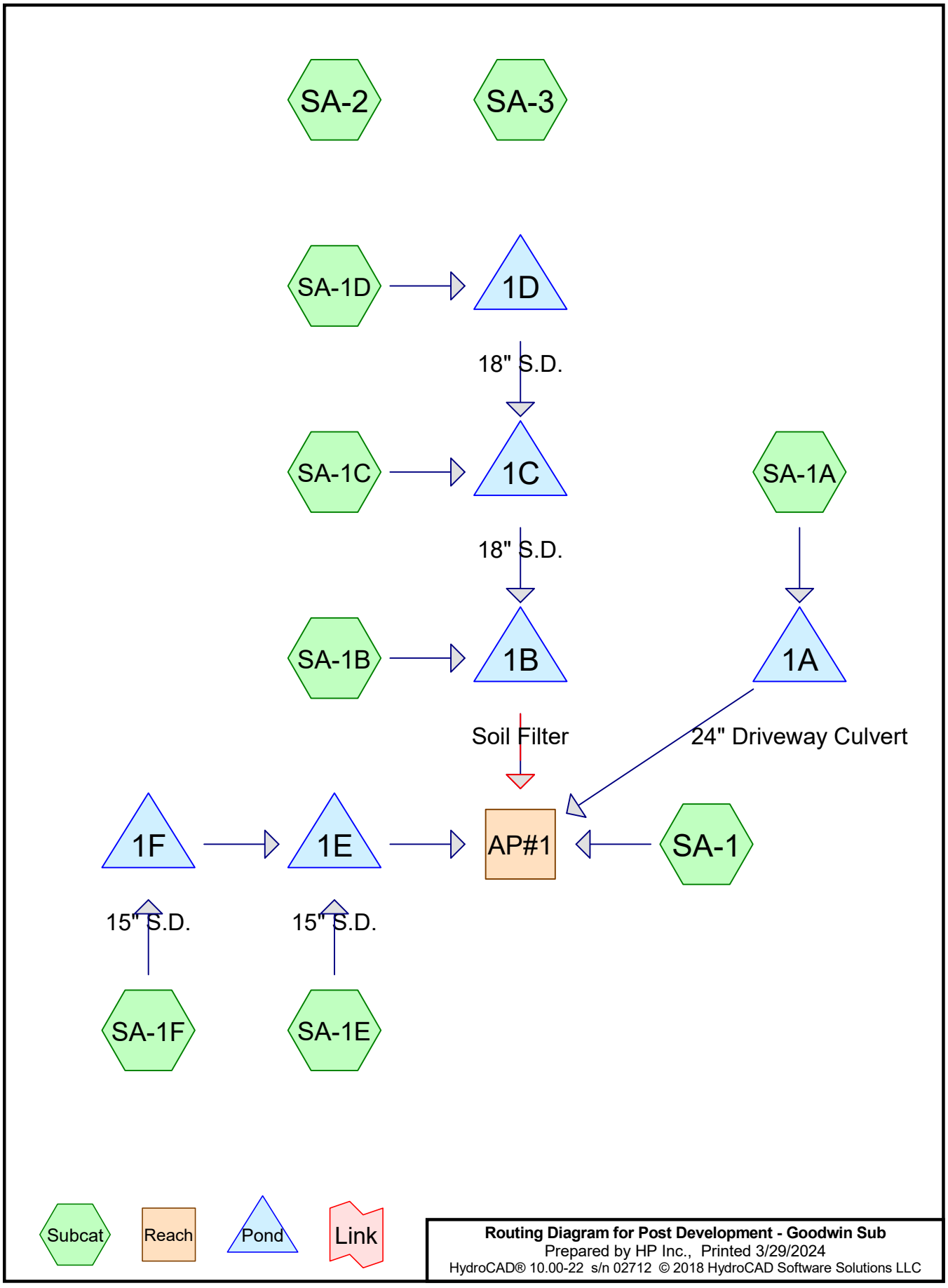
Runoff = 4.85 cfs @ 12.40 hrs, Volume= 0.555 af, Depth> 3.29"

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

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Appendix D
Post Development Calculations



Routing Diagram for Post Development - Goodwin Sub
Prepared by HP Inc., Printed 3/29/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.000	39	>75% Grass cover, Good, HSG A (SA-1)
6.041	74	>75% Grass cover, Good, HSG C (SA-1, SA-1A, SA-1E, SA-1F, SA-2, SA-3)
4.770	80	>75% Grass cover, Good, HSG D (SA-1, SA-1A, SA-2, SA-3)
1.722	74	Allocated Grass (C) (SA-1, SA-1A, SA-2)
0.574	80	Allocated Grass (D) (SA-1, SA-2)
1.056	98	Allocated Impervious (SA-1, SA-1A, SA-2)
0.308	98	Existing Impervious (SA-1, SA-1F)
1.126	74	Proposed Grass (C) (SA-1B, SA-1C, SA-1D, SA-1F, SA-2)
0.053	80	Proposed Grass (D) (SA-1C, SA-1D, SA-2)
0.825	98	Proposed Impervious (SA-1C, SA-1D, SA-1E, SA-1F, SA-2)
0.830	70	Woods, Good, HSG C (SA-1, SA-3)
8.590	77	Woods, Good, HSG D (SA-1, SA-2, SA-3)
26.894	**77**	**TOTAL AREA**

Summary for Reach AP#1:

Inflow Area = 19.833 ac, 8.22% Impervious, Inflow Depth > 1.02" for 2 Year event
Inflow = 9.58 cfs @ 12.65 hrs, Volume= 1.691 af
Outflow = 9.58 cfs @ 12.65 hrs, Volume= 1.691 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment SA-2:

Runoff = 5.39 cfs @ 12.31 hrs, Volume= 0.544 af, Depth> 1.30"

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

	Area (sf)	CN	Description
*	360	98	Proposed Impervious
*	24,000	98	Allocated Impervious
*	3,410	74	Proposed Grass (C)
*	2,050	80	Proposed Grass (D)
*	25,000	74	Allocated Grass (C)
*	15,000	80	Allocated Grass (D)
	56,478	74	>75% Grass cover, Good, HSG C
	17,820	80	>75% Grass cover, Good, HSG D
	75,432	77	Woods, Good, HSG D
	219,550	79	Weighted Average
	195,190		88.90% Pervious Area
	24,360		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	45	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	195	Total			

Summary for Subcatchment SA-3:

Runoff = 1.61 cfs @ 12.42 hrs, Volume= 0.187 af, Depth> 1.11"

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

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Summary for Reach AP#1:

Inflow Area = 19.833 ac, 8.22% Impervious, Inflow Depth > 2.17" for 10 Year event
Inflow = 21.91 cfs @ 12.55 hrs, Volume= 3.592 af
Outflow = 21.91 cfs @ 12.55 hrs, Volume= 3.592 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment SA-2:

Runoff = 10.53 cfs @ 12.30 hrs, Volume= 1.058 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.90"

	Area (sf)	CN	Description
*	360	98	Proposed Impervious
*	24,000	98	Allocated Impervious
*	3,410	74	Proposed Grass (C)
*	2,050	80	Proposed Grass (D)
*	25,000	74	Allocated Grass (C)
*	15,000	80	Allocated Grass (D)
	56,478	74	>75% Grass cover, Good, HSG C
	17,820	80	>75% Grass cover, Good, HSG D
	75,432	77	Woods, Good, HSG D
	219,550	79	Weighted Average
	195,190		88.90% Pervious Area
	24,360		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	45	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	195	Total			

Summary for Subcatchment SA-3:

Runoff = 3.34 cfs @ 12.41 hrs, Volume= 0.381 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.90"

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Summary for Pond 1A: 24" Driveway Culvert

Inflow Area = 2.491 ac, 6.45% Impervious, Inflow Depth > 3.41" for 25 Year event
Inflow = 8.74 cfs @ 12.17 hrs, Volume= 0.708 af
Outflow = 7.61 cfs @ 12.24 hrs, Volume= 0.708 af, Atten= 13%, Lag= 4.5 min
Primary = 7.61 cfs @ 12.24 hrs, Volume= 0.708 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 25.92' @ 12.24 hrs Surf.Area= 3,050 sf Storage= 1,440 cf
Flood Elev= 27.50' Surf.Area= 18,922 sf Storage= 18,841 cf

Plug-Flow detention time= 1.2 min calculated for 0.705 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (791.6 - 790.4)

Volume	Invert	Avail.Storage	Storage Description
#1	24.50'	18,841 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
24.50	10	0	0
25.00	57	17	17
26.00	3,324	1,691	1,707
27.00	14,322	8,823	10,530
27.50	18,922	8,311	18,841

Device	Routing	Invert	Outlet Devices
#1	Primary	24.50'	**24.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 24.50' / 24.12' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.57 cfs @ 12.24 hrs HW=25.91' (Free Discharge)
1=Culvert (Inlet Controls 7.57 cfs @ 3.19 fps)

Summary for Pond 1B: Soil Filter

Inflow Area = 1.571 ac, 47.39% Impervious, Inflow Depth > 4.25" for 25 Year event
Inflow = 6.79 cfs @ 12.11 hrs, Volume= 0.557 af
Outflow = 5.19 cfs @ 12.21 hrs, Volume= 0.372 af, Atten= 23%, Lag= 6.3 min
Primary = 0.06 cfs @ 12.21 hrs, Volume= 0.056 af
Secondary = 5.14 cfs @ 12.21 hrs, Volume= 0.316 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.21' @ 12.21 hrs Surf.Area= 5,316 sf Storage= 9,115 cf
Flood Elev= 20.00' Surf.Area= 7,407 sf Storage= 20,486 cf

Plug-Flow detention time= 118.0 min calculated for 0.370 af (67% of inflow)
Center-of-Mass det. time= 49.4 min (819.4 - 769.9)

Volume	Invert	Avail.Storage	Storage Description
#1	16.00'	20,486 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.00	2,978	0	0
17.00	4,000	3,489	3,489
18.00	5,078	4,539	8,028
19.00	6,215	5,647	13,675
20.00	7,407	6,811	20,486

Device	Routing	Invert	Outlet Devices
#1	Primary	13.50'	**6.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.50' / 13.29' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	13.50'	**1.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	18.00'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.06 cfs @ 12.21 hrs HW=18.20' (Free Discharge)
↑—**1=Culvert** (Passes 0.06 cfs of 1.52 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.40 fps)

Secondary OutFlow Max=4.97 cfs @ 12.21 hrs HW=18.20' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Weir Controls 4.97 cfs @ 1.21 fps)

Summary for Pond 1C: 18" S.D.

Inflow Area = 1.326 ac, 56.18% Impervious, Inflow Depth > 4.46" for 25 Year event
Inflow = 5.98 cfs @ 12.10 hrs, Volume= 0.493 af
Outflow = 5.85 cfs @ 12.11 hrs, Volume= 0.493 af, Atten= 2%, Lag= 0.9 min
Primary = 5.85 cfs @ 12.11 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 21.51' @ 12.11 hrs Surf.Area= 250 sf Storage= 136 cf
Flood Elev= 22.00' Surf.Area= 400 sf Storage= 297 cf

Plug-Flow detention time= 0.2 min calculated for 0.491 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (767.1 - 766.9)

Volume	Invert	Avail.Storage	Storage Description
#1	20.00'	297 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1	0	0
21.00	96	49	49
22.00	400	248	297

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**18.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 20.00' / 18.00' S= 0.0400 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.78 cfs @ 12.11 hrs HW=21.48' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.78 cfs @ 3.28 fps)

Summary for Pond 1D: 18" S.D.

Inflow Area = 0.346 ac, 69.89% Impervious, Inflow Depth > 4.87" for 25 Year event
Inflow = 1.83 cfs @ 12.11 hrs, Volume= 0.140 af
Outflow = 1.22 cfs @ 12.22 hrs, Volume= 0.138 af, Atten= 34%, Lag= 6.6 min
Primary = 1.22 cfs @ 12.22 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 33.34' @ 12.22 hrs Surf.Area= 2,877 sf Storage= 942 cf
Flood Elev= 33.50' Surf.Area= 3,711 sf Storage= 1,483 cf

Plug-Flow detention time= 22.2 min calculated for 0.138 af (99% of inflow)
Center-of-Mass det. time= 16.1 min (770.2 - 754.1)

Volume	Invert	Avail.Storage	Storage Description
#1	32.75'	1,483 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	928	0	0
33.00	1,172	263	263
33.50	3,711	1,221	1,483

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**18.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.49' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.21 cfs @ 12.22 hrs HW=33.33' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.21 cfs @ 2.82 fps)

Summary for Pond 1E: 15" S.D.

Inflow Area = 1.109 ac, 25.81% Impervious, Inflow Depth > 3.70" for 25 Year event
Inflow = 4.03 cfs @ 12.17 hrs, Volume= 0.341 af
Outflow = 3.99 cfs @ 12.19 hrs, Volume= 0.341 af, Atten= 1%, Lag= 1.2 min
Primary = 3.99 cfs @ 12.19 hrs, Volume= 0.341 af

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

Peak Elev= 17.86' @ 12.19 hrs Surf.Area= 200 sf Storage= 125 cf
Flood Elev= 19.00' Surf.Area= 645 sf Storage= 590 cf

Plug-Flow detention time= 0.4 min calculated for 0.340 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (784.1 - 783.8)

Volume	Invert	Avail.Storage	Storage Description
#1	16.50'	590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.50	10	0	0
17.00	54	16	16
18.00	224	139	155
19.00	645	435	590

Device	Routing	Invert	Outlet Devices
#1	Primary	16.50'	**15.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 16.50' / 16.25' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.96 cfs @ 12.19 hrs HW=17.85' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.96 cfs @ 3.23 fps)

Summary for Pond 1F: 15" S.D.

Inflow Area = 1.007 ac, 22.52% Impervious, Inflow Depth > 3.61" for 25 Year event
Inflow = 3.71 cfs @ 12.17 hrs, Volume= 0.303 af
Outflow = 3.66 cfs @ 12.18 hrs, Volume= 0.303 af, Atten= 1%, Lag= 1.1 min
Primary = 3.66 cfs @ 12.18 hrs, Volume= 0.303 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.73' @ 12.18 hrs Surf.Area= 192 sf Storage= 108 cf
Flood Elev= 21.00' Surf.Area= 848 sf Storage= 1,229 cf

Plug-Flow detention time= 0.4 min calculated for 0.302 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (786.8 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	1,229 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	11	0	0
18.00	57	17	17
19.00	242	150	167
20.00	517	380	546
21.00	848	683	1,229

Device	Routing	Invert	Outlet Devices
#1	Primary	17.50'	**15.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 17.50' / 17.10' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.61 cfs @ 12.18 hrs HW=18.72' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.61 cfs @ 2.96 fps)

Summary for Reach AP#1:

Inflow Area = 19.833 ac, 8.22% Impervious, Inflow Depth > 3.21" for 25 Year event
Inflow = 32.16 cfs @ 12.54 hrs, Volume= 5.297 af
Outflow = 32.16 cfs @ 12.54 hrs, Volume= 5.297 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment SA-1:

Runoff = 26.24 cfs @ 12.68 hrs, Volume= 3.877 af, Depth> 3.17"

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 25 Year Rainfall=6.20"

	Area (sf)	CN	Description
*	4,080	98	Existing Impervious
*	15,000	98	Allocated Impervious
*	25,000	74	Allocated Grass (C)
*	10,000	80	Allocated Grass (D)
	43,542	39	>75% Grass cover, Good, HSG A
	100,031	74	>75% Grass cover, Good, HSG C
	159,078	80	>75% Grass cover, Good, HSG D
	31,664	70	Woods, Good, HSG C
	250,288	77	Woods, Good, HSG D
	638,683	75	Weighted Average
	619,603		97.01% Pervious Area
	19,080		2.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	150	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
7.1	380	0.0320	0.89		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	662	0.0151	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
49.0	1,192	Total			

Summary for Subcatchment SA-1A:

Runoff = 8.74 cfs @ 12.17 hrs, Volume= 0.708 af, Depth> 3.41"

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

	Area (sf)	CN	Description
*	7,000	98	Allocated Impervious
*	25,000	74	Allocated Grass (C)
	49,355	74	>75% Grass cover, Good, HSG C
	27,136	80	>75% Grass cover, Good, HSG D
	108,491	77	Weighted Average
	101,491		93.55% Pervious Area
	7,000		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	150	0.0530	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
2.9	290	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.9	440	Total			

Summary for Subcatchment SA-1B:

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 3.12"

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

	Area (sf)	CN	Description
*	10,703	74	Proposed Grass (C)
	10,703		100.00% Pervious Area

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

Summary for Subcatchment SA-1C:

Runoff = 5.04 cfs @ 12.09 hrs, Volume= 0.354 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 Rainfall=6.20"

	Area (sf)	CN	Description
*	21,916	98	Proposed Impervious
*	20,591	74	Proposed Grass (C)
*	180	80	Proposed Grass (D)
	42,687	86	Weighted Average
	20,771		48.66% Pervious Area
	21,916		51.34% Impervious Area

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

Summary for Subcatchment SA-1D:

Runoff = 1.83 cfs @ 12.11 hrs, Volume= 0.140 af, Depth> 4.87"

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

	Area (sf)	CN	Description
*	4,476	74	Proposed Grass (C)
*	60	80	Proposed Grass (D)
*	10,527	98	Proposed Impervious
	15,063	91	Weighted Average
	4,536		30.11% Pervious Area
	10,527		69.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.11		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
7.3	70	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
7.8	101	Total			

Summary for Subcatchment SA-1E:

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 4.55"

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

	Area (sf)	CN	Description
*	2,591	98	Proposed Impervious
	1,866	74	>75% Grass cover, Good, HSG C
	4,457	88	Weighted Average
	1,866		41.87% Pervious Area
	2,591		58.13% Impervious Area

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

Summary for Subcatchment SA-1F:

Runoff = 3.71 cfs @ 12.17 hrs, Volume= 0.303 af, Depth> 3.61"

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

	Area (sf)	CN	Description
*	532	98	Proposed Impervious
*	9,345	98	Existing Impervious
*	9,878	74	Proposed Grass (C)
	24,095	74	>75% Grass cover, Good, HSG C
	43,850	79	Weighted Average
	33,973		77.48% Pervious Area
	9,877		22.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	150	0.0330	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.0	377	0.0210	6.22	74.68	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=2.00' Z= 3.0 & 2.0 '/' Top.W=11.00' n= 0.035
0.1	50	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
0.0	31	0.1000	13.66	191.17	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=2.00' Z= 3.0 '/' Top.W=13.00' n= 0.035
12.0	608	Total			

Summary for Subcatchment SA-2:

Runoff = 14.93 cfs @ 12.29 hrs, Volume= 1.511 af, Depth> 3.60"

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

	Area (sf)	CN	Description
*	360	98	Proposed Impervious
*	24,000	98	Allocated Impervious
*	3,410	74	Proposed Grass (C)
*	2,050	80	Proposed Grass (D)
*	25,000	74	Allocated Grass (C)
*	15,000	80	Allocated Grass (D)
	56,478	74	>75% Grass cover, Good, HSG C
	17,820	80	>75% Grass cover, Good, HSG D
	75,432	77	Woods, Good, HSG D
	219,550	79	Weighted Average
	195,190		88.90% Pervious Area
	24,360		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	45	0.0670	1.81		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
21.2	195	Total			

Summary for Subcatchment SA-3:

Runoff = 4.85 cfs @ 12.40 hrs, Volume= 0.555 af, Depth> 3.29"

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

Area (sf)	CN	Description
31,320	74	>75% Grass cover, Good, HSG C
3,743	80	>75% Grass cover, Good, HSG D
4,477	70	Woods, Good, HSG C
48,481	77	Woods, Good, HSG D
88,021	76	Weighted Average
88,021		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
2.7	87	0.0115	0.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.6	237	Total			

Appendix E

Water Quality Calculations and Vegetated Soil Filter Sizing Calculations

BH2M
380B Main Street
Gorham, Maine 04038

WATER QUALITY CALCULATIONS
Goodwin Subdivision

Subcatchment ID	Proposed Impervious Area (sq. ft.)	Allocated Lot Impervious Area (sq.ft.)	Proposed Lawn Area (sq. ft.)	Allocated Lot Lawn Area (sq.ft.)	Proposed Developed Area (sq. ft.)	Existing Impervious Area (sq.ft.)	Existing Vegetated Area (sq.ft.)	Treated Impervious Area (sq. ft.)	Treated Developed Area (sq. ft.)	BMP ID
1	0	15,000	0	35,000	0	4,080	584,603	0	0	None
1A	0	7,000	1,791	25,000	1,791	0	74,700	0	1,791	None
1B	0	0	10,703	0	10,703	0	0	0	10,703	Filter A
1C	21,916	0	20,771	0	42,687	0	0	21,877	42,687	Filter A
1D	10,527	0	4,536	0	15,063	0	0	10,527	15,063	Filter A
1E	2,591	0	1,866	0	4,457	0	0	0	0	None
1F	532	0	9,878	0	10,410	9,345	24,095	0	0	None
2	360	24,000	5,460	40,000	5,820	0	149,730	0	0	None
3	0	0	0	0	0	0	88,021	0	0	None
Total	**35,926**	**46,000**	**55,005**	**100,000**	**90,931**	**13,425**	**921,149**	**32,404**	**70,244**	

Treatment Summary	
Proposed Linear Impervious Area (sq. ft.)=	35,926
Proposed Linear Developed Area (sq. ft.)=	90,931
Treated Linear Impervious Area (sq. ft.)=	32,404
Treated Linear Developed Area (sq. ft.)=	70,244
Impervious Area Treatment % =	**90.20%**
Developed Area Treatment % =	**77.25%**

Grassed Underdrained Soil Filter Calculations

Subcatchment ID	Impervious Area (sf)	WQ Impervious Area Runoff Depth (inches)	WQ Impervious Volume Required (ft3)	Landscaped Area (sf)	WQ Landscape Area Runoff Depth (inches)	WQ Landscape Volume Required (ft^3)	Total WQ Volume Required (ft^3)
1B	0	1.00	0	10,703	0.40	357	357
1C	21,916	1.00	1,826	20,771	0.40	692	2,519
1D	10,527	1.00	877	4,536	0.40	151	1,028
Total	**32,443**		**2,704**	**36,010**		**1,200**	**3,904**

Summary of Underdrain Filter Sizing	
Total WQ Volume Required (ft^3)	3,904
WQ Volume Provided (ft^3)	**5,624**
Filter Surface Elevation	16.00
WQ Surface Elevation	18.00
Invert of Underdrain	13.67
5% of Tributary Impervious Area (ft^2)	1,622
2% of Tributary Landscaped (ft^2)	720
Filter Surface Area Required (ft^2)	2,342
Filter Surface Area Provided (ft^2)	**2,978**

Underdrain Filter Volume				
Elevation	Surface Area (ft^2)	Average Stage Area (ft^2)	Stage Volume (ft^3)	Cumulative Volume (ft^3)
16	2,978			0
17	4,000	3,489	3,489	3,489
17.5	4,539	4,270	2,135	5,624
18	5,078	4,809	2,404	8,028
19	6,215	5,647	5,647	13,675
20	7,407	6,811	6,811	20,486
Water Quality Volume Provided (at Elevation 17.5) =				**5,624**

Orifice Sizing	
Discharge Coefficient	0.62
Orifice Size (inches)	1
Orifice Size (feet)	0.08
Orifice Area (ft^2)	0.005
Orifice Centerline Elevation	13.92

Orifice Eqn: $C*A*(2gH)^{\wedge 1/2}$

Q (cfs)	Stage Elevation	Total Drawdown at Stage	Pond Area	Drawdown Time (hrs)
0.0391	**16**	**0.00**	**2,978**	**0.00**
0.0476	**17**	**1.00**	**4,000**	**23.35**
0.0513	**17.5**	**0.50**	**4,539**	**12.29**
		Total Drawdown Time =		**35.63**

Required Sediment Storage		
Area to be Sanded	0.7	acres
Sand Used per Storm	500	lbs/acre-storm
Weight of Sand	90	lbs/cf
# of Storms per Year	10	storms/year
Sediment Storage Required	**41.38**	**cf/year**

Provided Storage Volume		
Total # of CB's	0	
Sump Depth	2	ft
CB Diameter	4	ft
CB Sediment Storage Volume	0.00	cf
Forebay Volume	42	cf
Total Volume	**42.00**	**cf**

Appendix F
Inspection and Maintenance Manual

EROSION AND SEDIMENTATION CONTROL
INSPECTION AND MAINTENANCE PLAN

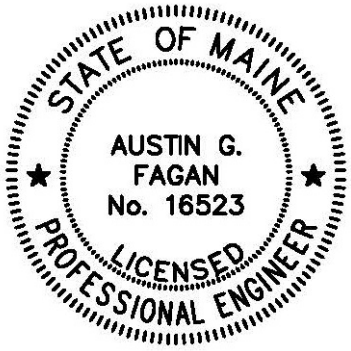
Goodwin Subdivision
76 Cedar Road
Elliot, Maine

Submitted by:

David Springer

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors



Date:
March 2024

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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 Goodwin Subdivision Project. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management, the Town of Elliot Post-Construction Stormwater Management Ordinance, and the Maine Construction General Permit.

1.1 PROJECT DESCRIPTION

David Springer is proposing a 5-lot subdivision at 76 Cedar Road in Eliot, Maine. The parcel of land (Tax Map 71, Lot 25) is approximately 21.5 acres in size. The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a roadway and pedestrian access infrastructure
- Installation of underground electric and communications conduit
- Installation of stormdrain system including vegetated ditches and stormdrain culverts
- Construction of a Grassed Underdrained Soil Filter

1.2 REQUIRED PERMITS

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

Municipal
Town Elliot Subdivision Approval

State of Maine
Stormwater Permit by Rule

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, Maine 04038 (207) 839-2771
Developer/Applicant:	David Springer 12 White Pine Way North Berwick, Maine 03906
Site Contractor:	_____ _____ _____
Owner:	David Springer 12 White Pine Way North Berwick, Maine 03906
Post Construction Stormwater Inspector*:	Austin G Fagan, PE BH2M 380B Main Street Gorham, Maine 04038 (207) 839-2771
Stormwater Maintenance**:	
During Construction:	David Springer 12 White Pine Way North Berwick, Maine 03906
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 Owner or their representatives until a Home Owners Association (HOA) is established. Once the Goodwin Subdivision Home Owners Association is established they will be responsible for Post Construction operations and maintenance.

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 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 should be 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
- Pipe Inlet/Outlet Protection
- Temporary Grass/Stone Lined Swale
- Roadway and Sidewalks
- Snow Storage Areas
- Storm Drains and Culverts
- 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. 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.

1. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.

2. 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.

3. 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

a) 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 Guardian Estates Subdivision include the following:

   - Underdrained Soil Filter
   - Roadway and Sidewalks
   - Storm Drain System (including culverts, storm drains, vegetated and reinforced ditches/swales).
   - Snow storage areas
   - Rip rap inlet and outlet aprons
   - Sediment forebay

1.7 RECERTIFICATION OF STORMWATER MANAGEMENT SYSTEMS

As required by the Town's MS4 program the Owner/Applicant is required to enter into a Maintenance Agreement with the Town of Elliot. The Maintenance Agreement (contained in Appendix E) requires that annual inspections and periodic maintenance be performed on the post-construction BMP's. The Owner must retain a qualified post-construction stormwater inspector to inspect and certify the post-construction BMP's. Refer to Appendix F for the Annual Post-Construction BMP Certification Form to be prepared and submitted to the Town of Elliot on or by June 30th of each year.

The general inspection and maintenance requirements include but are not limited to the following:

1. Identification and repair of erosion problems: All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

2. Inspection and repair of stormwater control system: All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

3. Maintenance: The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

   Note: Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

1.8 SITE-SPECIFIC BMP MAINTENANCE AND ANNUAL REPORTING REQUIREMENTS

The Town of Elliot is a regulated community under the National Pollutant Discharge Elimination System (NPDES) MS4 Program. Below is a site-specific of list BMP's implemented for the Project as well as their ID, discharge location, and inspection and certification requirements.

Table 1 - Post-Construction BMP Designation Table

Post-Const. BMP ID	Type of Post-Const. BMP	Discharge Location	MS4 (YES/NO)	Inspection Frequency	Post-Const. Certification Requirement	Post-Const. Responsibility
BMP-A	Vegetated Areas	N/A	N/A	N/A	N/A	Owner
BMP-B	Stormdrain System	Soil Filter & Swales	Yes	Annual	Annual Report	Owner
BMP-E	Roadway & Sidewalks	Stormdrain System	Yes	Biannual	Annual Report	Owner
BMP-F	Soil Filter	Offsite Swale	Yes	Biannual	Annual Report	Owner

1.9 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

Goodwin Subdivision **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:

Goodwin Subdivision **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:

Goodwin Subdivision
Post-Construction Inspection Form (Roadway and Sidewalks)

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:

Goodwin Subdivision **Post-Construction Inspection Form (Storm Drain System including 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:

Goodwin Subdivision **Post-Construction Inspection Form (Grassed Underdrained Soil 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:		

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-April15th)			
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
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	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
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	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
		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
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	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
		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
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		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
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for 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

APPENDIX 1

Maintenance Agreement for Stormwater Management Facilities

This Maintenance Agreement is made this ____ day of _____ 20____ by and between _____ and the Town of Eliot, Maine.

The project name is _____.

The location is: _____, Eliot, Maine.

The project's Tax Map and Lot Numbers are Tax Map Lot _____

The project is shown on a plan entitled "_____" dated _____ and most recently revised on _____, approved by the _____ [Municipal Permitting Board] on _____ and recorded in the _____ County Registry of Deeds in Plan Book _____ Page _____ (the "Project").

WHEREAS, the approval of the Project includes Stormwater Management Facilities which requires periodic maintenance; and

WHEREAS, in consideration of the approval of the Project the Town of Eliot requires that periodic maintenance be performed on the Stormwater Management Facilities;

NOW, THEREFORE, in consideration of the mutual benefits accruing from the approval of the Project by the Town and the agreement of _____ to maintain the Stormwater Management Facilities, the parties hereby agree as follows:

1. _____, for itself, and its successors and assigns, agrees to the following:
   (a) To clean, maintain, and repair the Stormwater Management Facilities, which includes, to the extent they exist, parking areas, catch basins, detention basins or ponds, drainage swales, pipes and related structures, at least annually, to prevent the build up and storage of sediment and debris in the system as described in the Post-Construction Maintenance Plan for the facilities;
   (b) To allow access by Town personnel or the Town's designee for annual inspection of the Stormwater Management Facilities for conformance with these requirements;
   (c) To pay the Town of Eliot an annual fee to conduct the inspections;
   (d) To repair any deficiencies in the Stormwater Management Facilities noted during the annual inspection; and
   (e) For subdivisions, to create a homeowners' association for the purpose of maintaining the Stormwater Management Facilities.
2. For subdivisions, upon creation of the homeowners' association, the homeowners' association shall become responsible for compliance with the terms of this Agreement.

3. This Agreement shall constitute a covenant running with the land, and _____ shall reference this Agreement in all deeds to lots and/or units within the Project.

_____ By:_____
Witness Its:

TOWN OF ELIOT, MAINE

_____ By:_____
Witness Its:

STATE OF MAINE _____, ss. _____, 20____

Personally appeared the above-named _____, the _____ of _____, and acknowledged the foregoing Agreement to be said person's free act and deed in said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print Name: _____

STATE OF MAINE _____, ss. _____, 20____

Personally appeared the above-named _____, the _____ of the Town of _____, and acknowledged the foregoing Agreement to be said his/her free act and deed in said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print Name: _____

Appendix F
Stormwater Report Narrative

STORMWATER MANAGEMENT REPORT

Goodwin Subdivision

76 Cedar Road
Eliot, Maine

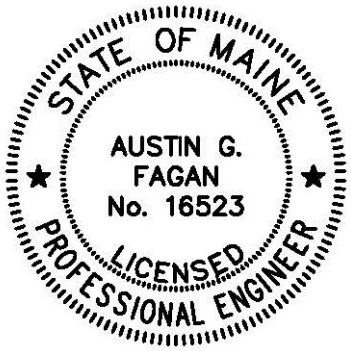
Submitted by:

David Springer
12 White Pine Way
North Berwick, Maine 03906

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2024



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LIST OF APPENDICES

1.0 INTRODUCTION

The applicant, David Springer, is proposing a 5-lot residential subdivision known as Goodwin Subdivision (the project). The parcel (Tax Map 71, Lot 25) is approximately 21.5 acres and is located at 76 Cedar Road in Eliot, Maine. The project lies within the Towns designated MS4 area, and does not require an individual stormwater permit from the Maine DEP.

The scope of work includes but is not limited to:

- Tree clearing and grubbing
- Stump and boulder removal
- Construction of a paved roadway and 5' paved walking path
- Installation of underground electric and communications conduit and transformer pads
- Installation of storm drain system including stormdrain culverts
- Construction of a Grassed Underdrained Soil Filter
- Final site stabilization

The proposed infrastructure improvements will create approximately 35,926 sf (0.82 acres) of new impervious area and 55,005 sf (1.26 acres) of newly vegetated area totaling 90,931 sf (2.08 acres) of newly developed area. To accurately size the proposed stormwater infrastructure and to assure that post development stormwater conditions will not impact the downstream properties, we have allocated 5,000 sf of impervious area to lots 1 & 3, and 12,000 sf if impervious area to lots 2, 4, & 5. We have also allocated up to 20,000 sf of newly vegetated area for lots with wooded portions. These allocations are not required to be counted towards the thresholds for Site Law permitting (3 acre of impervious and 20 acres of developed) because the applicant intends to sell the lots.

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, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the Town of Eliot's Stormwater Ordinance.

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 onsite soils used for the stormwater analysis were digitized from a high intensity soil survey that was completed by Mark Hampton Associates. The offsite 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 onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Fine sandy loam, 3-8% slopes	C
Lamoine	Fine sandy loam, 0-8% slopes	D
Scantic	Silt loam, 0-8% slopes	D

The offsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
Buxton	Silt loam, 3-8% slopes	C
Croghan	Loamy fine sand, 0-8% slopes	A
Scantic	Silt loam, 0-3% slopes	D

Topography: NOAA Lidar Topography

Natural Resources: Mark Hampton, Mark Hampton Associates

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at three Analysis Points as described below:

Analysis Point #1
Description: Flow to a wetland and culvert on southeastern property corner
Pre Development Tributary Drainage Areas: SA-1
Post Development Tributary Drainage Areas: SA-1, 1A-1F

Analysis Point #2
Description: Flow to the wetland along the northwestern property line
Pre Development Tributary Drainage Areas: SA-2
Post Development Tributary Drainage Areas: SA-2

Analysis Point #3
Description: Flow along the northeastern property line
Pre Development Tributary Drainage Areas: SA-3
Post Development Tributary Drainage Areas: SA-3

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet A of the accompanying plans. The parcel to be developed encompasses an area of approximately 21.5 acres and is located on Cedar Road in Eliot. The parcel currently consists of undeveloped fields and woodland and lies within the Sturgeon Creek watershed.

The watershed that was analyzed for this project is approximately 26.9 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows from west to east and is bounded by Cedar Road to the south, and a mix of farmland and residential properties to the north, east, and west.

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	10.37	22.44	33.19
AP-2	5.19	10.76	15.64
AP-3	1.61	3.34	4.85

1.4 POST DEVELOPMENT CONDITIONS

The proposed project will include construction of a 1,242 linear foot paved roadway, a paved walking path, and associated stormwater infrastructure. Below is a summary of the proposed developed areas associated with construction of the public infrastructure.

Proposed Impervious Area	=	35,926 sf
Proposed Landscaped Area	=	55,005 sf
Proposed Developed Area	=	90,931 sf

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	9.58	21.91	32.16
AP-2	5.39	10.53	15.64
AP-3	1.61	3.34	4.85

1.5 BASIC STANDARDS

The proposed project is required to meet the Basic Standards for the Maine DEP. 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 (Maine DEP) 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 5 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 not required to meet the General Standards for the Maine DEP.

1.7 PHOSPHORUS STANDARD

The proposed project is in the watershed of Sturgeon Creek. 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 in the watershed of Sturgeon Creek. Sturgeon Creek is not listed in 06-096 Chapter 502 as an Urban Impaired Stream. The Urban Impaired Stream Standard does not apply to this project.

1.9 FLOODING STANDARD

The proposed project is not required to meet the Flooding Standards of the Maine DEP, however, pre and post development runoff modelling be evaluated to mitigate post construction stormwater flows. To meet the Flooding Standard, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project.

b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits.

c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be defined, and no buildings or other similar facilities may be planned within such areas.

d) Runoff from the project may not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm.

The following Table compares the Pre and Post Development peak flow rates for the 2-year, 10-year, and 25-year storm events. Refer to Appendix C for the Pre-Development model and Appendix D for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis Point	2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post
AP-1	10.37	9.58	22.44	21.91	33.19	32.16
AP-2	5.19	5.39	10.76	10.53	15.64	15.64
AP-3	1.61	1.61	3.34	3.34	4.85	4.85

As illustrated in the table above, development of the proposed project will create a condition where peak flows of stormwater from the project site exceed the peak flows of stormwater prior to undertaking the project at Analysis Point 2 for the 2-year storm event. This predicted 3.8% increase in flow rate is minor and will not create adverse impacts to the downstream wetland.

The development of this project will not create any adverse impacts to the downstream conditions. Please see the post development stormwater model for additional information.

1.7 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 Basic, General and Flooding Standards required by Chapter 500.