Office of the Planning Board

Incorporated December 15, 1727

NEWMARKET PLANNING BOARD
TUESDAY, DECEMBER 14, 2021
TOWN COUNCIL CHAMBERS
7:00 PM

AGENDA

1. **Pledge of Allegiance**
2. **Public Comments**
3. **Review and Approval of Minutes**
   - **a.** 11/09/21
4. **Regular Business**
   - **a.** Seacoast Materials LLC/Chris & Chad Bennett - public hearing for an application for renewal of an excavation permit, for the property located at 421 Wadleigh Falls Road, Tax Map R6, Lot 2, B3 Zone.
   - **b.** b. Seacoast Pool Plastering LLC/Robert MacInnis - Public hearing for an application for Site Plan & Special Use Permit to permit the proposed construction of a 6,000 square foot building consisting of 1,000 sq. ft. of office space and 5,000 sq. ft. for an equipment/construction storage warehouse. Two existing lots will be combined and access will be from an existing paved driveway off Route 152 (Wadleigh Fall Road). The office/warehouse is expected to consist of three employees, proposed paved driveway extension and 8 paved parking spaces, a proposed septic system and leach field, well and water line, and approximately 78,000 sq. ft. of gravel parking for storage of truck trailers, containers and equipment. The applicant is requesting a Special Use Permit for a wetlands buffer disturbance for the proposed driveway extension for site access and minor grading near a small wetlands buffer area pursuant Section 32-155 (e) of the Zoning Ordinance. A. portion of the proposed building and site and drainage improvements, including a bioretention area (rain garden)fall within the Town's Aquifer Protection Overlay District under Section 32-153 of the Zoning Ordinance. The lots are located at 446 & 451 Wadleigh Falls Road, Tax Map R6, Lots 50-7 & 50-8, B3 Zone.
5. **New/Old Business**
   - **a.** a. . Updating Stormwater Regulations (under Site Plan and Subdivision Regulations) Worksession with Bill Arcieri, VHB Consultants
   - **b.** b. Follow-up on November 8, 2021 correspondence from Town Council requesting the Planning Board to review current Accessory Dwelling Unit regulations.
   - **c.** c. Discussion of Planning Board's review of Housing and Land Use Chapters of the Master Plan and possible zoning changes to permitted uses and density regulations in

the Residential Districts and changes to current B-1 Zoning along North Main Street corridor in order to allow opportunities for .mixed-use (commercial/residential) development.

6. **Chairman's Report**
7. **Committee Reports**
8. **Planner's Report**
9. **Adjourn**

Town Hall
186 Main Street
Newmarket, NH 03857

Tel: (603) 659-3617
Fax: (603) 659-8508

Founded December 15, 1727
Chartered January 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE

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TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
11/09/21	11/17/2021	Backup Material

NEWMARKET PLANNING BOARD
TUESDAY, NOVEMBER 9, 2021
TOWN COUNCIL CHAMBERS
7:00 PM

Members Present: Valerie Shelton (Vice Chair), Diane Hardy (Town Planner), Bill Doucet, Jane Ford, and Scott Blackstone (Town Council ex officio.)
Member Absent: Eric Botterman (Chair), Jeff Goldknopf, Timothy Rossignol, Michal Zahorik (Alternate) were excused this evening.

The Vice Chair opened the meeting at 7:00 PM.

1. Pledge of Allegiance

2. Public Comments

3. Review and Approval of Minutes
a. October 12, 2021

Motion: **Bill Doucet** made a motion to approve the draft minutes of October 12, 2021.
Second: **Jane Ford**
Discussion: None
Vote: **4-0-0**

4. Chairman's Report
Vice Chair **Valerie Shelton** gave a report on the recent annual joint meeting on November 3, 2021 of the Planning Board and Town Council. Mr. Stuart Arnett, Economy Development Consultant and CEO at ADG - Arnett Development Group LLC, Concord, NH, was invited to give a presentation/update on his consultation work for the Town on the economic development of the north corridor, west corridor (B3 zone), and south corridor gateways into Newmarket. His presentation contained many slides from last year's presentation to the joint boards. He did, however, add two new slides with his recommendations. The full video of this joint meeting may be found at: Newmarket NH Video on Demand (telvue.com) . Unfortunately, the presentation took up most of the time allotted not leaving time for the Planning Board to discuss several items. **Valerie Shelton** feels that the Planning Board can begin working on the northern corridor Rt. 108 to extend the M2-A zone in that area. As the Town has already updated all of the infrastructure in that area, the PB can pursue some of the recommendations by the Town Economic Development Committee and Consultant. **Diane Hardy** has received some serious inquiries from a developer about property in the north Rt.108 area. The Vice Chair believes that the Board should review the policies on Accessory Dwelling Units (ADUs) possibly creating more housing opportunities and perhaps allowing detached ADUs (an item also discussed at the own Council meeting recently). **Valerie Shelton** recommends that the Planning Board revisit the related Housing and Land Use Sections of the Master Plan and Zoning Ordinance, with an eye to permitted housing uses and density in residential zones, and the possibility of modifying ADU requirements and adding this as an agenda item for the next meeting agenda to begin these discussions. **Valerie Shelton** did speak with TC Chair, Toni Weinstein, about setting this joint meeting earlier in the year (perhaps as soon after the new boards are set by election in March) to

discuss actions plans. Doing this would allow both working boards to set goals for the next 8 months or so.

5. Committee Reports

Town Council: **Scott Blackstone** had nothing further to report from the recent joint meeting with the PB or other activities of the Town Council.

CIP: **Jane Ford** reported that the CIP met their deadline and is inactive now.

6. Planner's Report

Diane Hardy had nothing to report this evening.

7. New/Old Business

a. Project update from Rob Graham representing Maplewood and Vaughan LLC (aka Shearwater Investment Corporation – Susan Conway) for properties at 177 and 175 Exeter Road at the Newmarket Industrial Park, Tax Map R-3, Lot 6 and 7. Projects involve a 22,000 square foot industrial building on Lot 6, and a 24,000 square foot industrial building on Lot 7. (Planning Board Chairman signed final plans on November 4, 2019).

The Vice Chair reported that Mr. Rob Graham did not appear this evening to give an update to the Planning Board.

There was a member of the public who attended the meeting this evening to speak.
Ms. Beverly Potter, 3 Stanorm Drive, rose to report that she recently made a formal citizen's complaint about Mr. Graham's property at 177 and 175 Exeter Road (Lots 6 and 7). Traffic accidents have been occurring frequently because of line-of-site issues caused by the huge piles of gravel/sand between Forbes Road and Rt.108. Those piles of gravel/sand were a hazard, unsightly, and sand was blowing all around the homes and property in the area. She contacted **Diane Hardy** and was truly pleased to see how quickly and competently the problem was resolved (especially by the operator of the earth-moving heavy equipment for Mr. Graham). Underwood Engineers is keeping tabs on the project for the Town. The Board thanked Beverly very much for bringing this matter to our attention!

Diane Hardy was disappointed that Mr. Rob Graham did not appear this evening. She was hoping for an update on the progress of the project.

8. Regular Business

a. Stormwater Management

The discussion of the Stormwater Management was tabled for this meeting and moved to a workshop agenda item for the next meeting in December 14, 2021.

Valerie Shelton asked **Diane Hardy** to provide a little background to the Board regarding the status of our program. **Diane** included an item called Draft Changes to the Stormwater section of the Subdivision and Site Review Regulations to the packet. This is a project that has been in the works for some time. Initially, some may recall the Town received a NH DES grant to work on these. We worked for several months with the staff of the Regional Planning Commission and a subcommittee of Planning Board members and representatives of the Conservation Commission and others interested in water quality issues. Meanwhile, there was a legal challenge to the NH MS4 Program (filed by others) which postponed work on this project. This eventually was

resolved in December 2019 and resulted in changes in the requirements for the program regulations reverting back to an earlier model that had been developed by the Southeast Watershed Alliance in 2012. The pandemic then hit in 2020 and, due to limitations placed on public meetings and social distancing, we put the project on hold. She mentions that having stormwater regulations that meet certain standards are mandatory as set forth in the EPA General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer systems in New Hampshire of which Newmarket is a part of permit under Section 2.3.6. The Town is required to develop, implement and enforce a program to address post-construction stormwater run-off for New Development and Redevelopment, which will be satisfied by the proposed changes in the drafts.

Diane has spent considerable time in the last few months modifying our regulations in consultation with Bill Arcieri (kindly provided pro bono), who is a Senior Water Resource Scientist with Vanasse Hangen Brustlin, Inc., living in Town. At this point, we are ready to present these long overdue changes to the Planning Board. She would like to introduce these to the Board tonight and ask the Board to set this up for a workshop at the December 14 meeting at which time we can go through these regulations in more detail. Bill Arcieri has agreed to attend the meeting in December. She asks that everyone please review the draft and maps and have a list of their questions ready for the workshop.

Other Agenda Items for December:
*The owner of the gravel pit will need to come before the Planning Board to make a presentation (required every three years). The gravel pit has a new owner.
*There may be an application from the people who wanted to undertake the Seacoast Pool Plastering warehousing facility on Rt. 152 in the B3 zone.

9. Adjourn

Motion: **Bill Doucet** made a motion to adjourn 7:36 PM
Second: **Jane Ford**
Discussion: None
Vote: Unanimously Approved

Respectfully submitted,

Sue Frick
Recording Secretary

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Fax: (603) 659-8508

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TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
Reclamation Plan	12/2/2021	Backup Material
Excavation & Reclamation Checklist	12/8/2021	Backup Material



NOTES:

1. REFERENCE: TAX MAP R6, LOT 2.
2. OWNER OF RECORD: [redacted] Seacoast Materials LLC, 130 Main St, Hampstead, NH 03841
   R.C.R.D. BOOK 3085, PAGE 1083
3. FIELD SURVEY PERFORMED BY J.A.G. ON 8/12 USING A TRIMBLE GEO XH 6000 GPS UNIT. (±1' ACCURACY)
4. THIS IS NOT A BOUNDARY PLAN & SHOULD NOT BE USED AS SUCH. PROPERTY LINES ARE BASED ON PRELIMINARY RESEARCH AND REF. PLAN.
5. VERTICAL DATUM IS BASED ON ASSUMED ELEV. OF 100.00' ON STONE BOUND AT SOUTHWEST CORNER. THE NGVD 29 ELEVATION ON THIS BOUND IS 142.87'
6. RECLAMATION AREA: FORMERLY EXCAVATED AND NOW GRASSED.

REFERENCE PLANS:

1. "GRAVEL PIT SITE PLAN FOR WAYNE ROSA, WADLEIGH FALLS ROAD, NEWMARKET, NH," BY THE NLS GROUP, DATED OCTOBER 15, 1993.

RECLAMATION PROGRESS PLAN
OF
ROSA GRAVEL PIT
ROUTE 152
NEWMARKET, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

NOTE:
ALL ELECTRIC, GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

DRAWN BY: J.A.G.	DATE: November 2021
CHECKED BY: W.J.D.	DRAWING NO.: 1788D
JOB NO.: 1788	SHEET 1 OF 1

: updated by Chad Barrett

DOUCET SURVEY INC
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I:\Program Files\Land Projects 2004\1788\dwg\1788D.dwg 8/27/2012 1:28:31 PM EDT

;

DATE: December 7, 2021
TO: Newmarket Planning Board
FROM: Diane Hardy, Town Planner Diane Hardy
RE: Public Hearing for an application for renewal of an excavation permit for property located at 421 Wadleigh Falls Road, Tax Map R6, Lot 2, B3 Zone

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We have received a request from Seacoast Materials, LLC for the renewal of their excavation permit, for the 24.4 acre property located at 421 Wadleigh Falls Road. Their current permit will expire on December 31, 2021. The applicant has requested that the permit be renewed for a five (5) year period to run from December 31, 2021, to December 31, 2026 The renewal process requires a duly notice public hearing and an updated excavation and reclamation plan, pursuant to RSA 155-E-8. The applicant has provided an updated reclamation and excavation plan, which shows existing conditions as of November 2021 noting any changes to reclamation activities.

Background. This is a gravel pit that has been in existence since 1984, formerly owned and developed by Wayne and Janice Rosa. The Rosas conveyed the pit to the current owners, Seacoast Materials, LLC on December 27, 2018. It is the only pit in Newmarket that is "permitted" under the Town's Excavation/Reclamation Regulations, which were adopted in February 2000. The gravel pit is being reviewed for a renewal pursuant to the Town's Excavation Regulations. The property is located in the B3 zone and the Aquifer Protection Overlay District.

On November 18, 2003, the Planning Board approved the excavation plan, subject to several conditions, which are recommended to be carried forward, as part of this renewal. These include:

1. Notification of any future buyers regarding permit approval requirement.
2. No on-site open burning.
3. No on-site fuel storage.
4. Any blasting is permitted, in accordance with the requirements of the Fire Department and the State of New Hampshire.
5. The provisions of the conditional approval to be binding upon any successors in title.
6. Any changes in the plan would be subject to further approval by the Planning Board.

7. No biosolids.
8. Old wells to be decommissioned according to NH DES requirements.
9. Agreements for cross-excavation shall remain in effect.

A review of the Town's files indicates the applicant has filed all required annual and quarterly reports and Notices of Intent to Excavate and Reports of Excavated Materials with the NH Department of Revenue Administration. The Town holds a $27,000 Cash Surety as a performance guarantee, which is current and in effect.

At the Planning Board meeting held on November 13, 2018 when the Rosas last came before the Planning Board for their permit renewal, they indicated that they would be selling the property shortly and wanted assurances that the permit would be assignable to the new owners to continue operation under the same terms and conditions as they were required to comply with. Upon a unanimous vote, of the Planning Board voted to allow the transfer the permit to the new owners of the property upon sale of the property.

As part of the renewal process, the site has been inspected by myself and Peter Rowell, Interim Code Enforcement Officer, to determine if the operations are in conformance with the Town's regulations and the approved plans. A copy of the inspection checklist and , is attached to this memo as well as the excavation and reclamation permit checklist to assist in the review of the application.

Staff Recommendations

A. As the application is substantially complete, a vote to accept the application for technical review is recommended.

B. The application be approved by the Planning Board with an expiration date of December 31, 2026 subject to the following conditions:

1. Reclamation Progress Plan of Seacoast Material, LLC Gravel Pit dated November 2021, as updated by Chris Bennett, acting as an agent for the LLC.
2. Continuation of the performance guarantee in the amount of $27,000 for the duration of permit.
3. Compliance with all Planning Board's Conditions of the revised November 18, 2003 plan, prepared by Doucet Survey and MJS Engineering (now Horizon Engineering).
4. Compliance with applicable Town of Newmarket ordinances, State laws, and RSA RSA 155E.
5. Continued due diligence with respect to maintenance and upkeep of the stabilized construction entrance.
6. Addressing the need for safety measures, as applicable, pursuant to RSA 155 E: 4 VI "where temporary slopes exceed a grade of 1:1, a fence or suitable barricade shall be erected to warn of danger or limit access to the site

Excavation and Reclamation Permit Checklist

Application: Seacoast Materials LLC 130 Main Street
Hampstead, NH 03841
(603) 329-4800

Location: 421 Wadleigh Falls Road, Newmarket, NH Route 152, Tax Map R6 Lot 2

Submitted: November 12, 2021 **Public Hearing: December 14, 2021**

Completeness of Application

Has the applicant submitted a completed application form?	Yes	☑	No	☐
Has the applicant filed three (3) copies of the plans	Yes	☑	No	☐
Has the applicant submitted a permit fee? (New Permit was issued to Seacoast Materials, LLC dated December 31, 2018 upon conveyance of property from Janice and Wayne Rosa)	Yes	☑	No	☐
Have the abutters been properly notified?	Yes	☑	No	☐
Has the notice been properly advertised	Yes	☑	No	☐
Has a copy been sent to the Conservation Commission?	Yes	☑	No	☐
Have quarterly reports been filed?	Yes	☑	No	☐

2019

01/1/2019
03/25/2019 (for Year ending December 31, 2018-certification of no excavation along floor of pit)
04/01/2019 (for January 1, 2019 to March 28, 2019
07/01/2019 (for April, May and June 2019)
10/01/2019 (for July, August, September 2019)

2020

1/18/2020 (for Oct, November, December 2019)

4/01/2020 (for January, February, March 2020)
7/01/2020 (for April, May and June 2020)
10/01/2020 (for July, August, September 2020)

2021

1/02/2021 (for Oct, November, December 2021)
4/01/2021 (for January, February, March 2021)
7/26/2021 (for April, May, and June 2021)
10/04/2021 (for July, August, September 2021)

Oct, Nov, and Dec 2021 to be filed in January 2022.

Have yearly statement regarding no excavation along the floor of site been filed? Yes,

1/01/2020 , 1/4/21, (next one due January 1)	Yes	☑	No	☐	
Have Notices of Intent to Excavate been filed?	Yes	☑	No	☐	
4/1/2018 to 3/31/2019	Yes	☑	No	☐	(By former owner)
4/1/2019 to 3/31/2020	Yes	☑	No	☐	
4/1/2020 to 3/31/2021	Yes	☑	No	☐	
4/1/2021 to 3/31/2022	Yes	☑	No	☐	

Is $27,000 Performance Bond (in the form of a Cash escrow) current and in place? Yes ☑ No ☐

It has been verified that it is on file in then Town's Finance Department on December 7, 2021 by Diane Hardy)

2. Excavation Plan

A. Has the applicant submitted an excavation plan? Yes ☑ No ☐

Excavation/Reclamation Plan for Wayne Rosa Gravel Pit, prepared by MJS Engineering, PC, revised December 11, 2003 was submitted by former owner.

1.	Does the plan address fuel and chemical handling and storage?	Yes	☑	No ☐	
2.	Does the plan include plans for dust control?	Yes	☑	No ☐	
3.	Are the plans to a scale of 1"=100'?	Yes	☐	No ☑	
	If no, is there sufficient detail for the Board to make an	Yes	☑	No ☐	

informed decision on the application?

4. Does the plan include plans for traffic? Yes ☑ No ☐

5. Noise control and abatement? Yes ☑ No ☐

Applicant has recently posted the land for no trespassing in response to complaints about target shooting noise and improper disposal of trash and shell casing from intruders.

6. Comprehensive site safety of unauthorized persons? Yes ☑ No ☐

7. Does the Plan show the following: Yes ☑ No ☐

a. Name and address of owner? Yes ☑ No ☐

b. Name, address of the signature of the person who prepared the plan, date, bar scale and north arrow Yes ☑ No ☐

c. Zoning district within 200 feet of the boundary Yes ☑ No ☐

d. Sketch and description of the location and boundaries Yes ☑ No ☐

e. Location of buildings, structures, septic systems and wells within 200 feet. Yes ☑ No ☐

f. Lot lines of all lots within similar and contiguous ownership, public streets, driveways, intersections, rights-of-way and easements within 200 feet Yes ☑ No ☐

g. Topography at contour intervals of two feet Yes ☑ No ☐

h. All surface drainage patterns, wetlands, and standing water Yes ☑ No ☐

i. Sketch and description of existing and proposed access roads Yes ☑ No ☐

j. The breadth, depth, and slope of the proposed excavation and the estimated duration of the project. Yes ☑ No ☐

k. The elevation of the highest annual average groundwater table within and next to the proposed excavation. Yes ☑ No ☐

l. Test pits, at a frequency of two per acre, distributed evenly throughout the excavation area

Completed in 2003, Planning Board waived further test pits in June 2005, request for a waiver approved. Applicant has provided certification that there has been no excavation has occurred along the floor of the gravel pit. Only work that is occurring is for restoration activity.

☑ Yes ☐ No

m. Proposed fencing, buffers, or other visual barriers, including height and materials. ☑ Yes ☐ No

n. Measures to control erosion, sedimentation, water pollution, air pollution and hazards to human safety; and ☑ Yes ☐ No

B. Reclamation Plan

1. Has the applicant submitted a Reclamation Plan? ☑ Yes ☐ No

Excavation/Reclamation Plan for Wayne Rosa Gravel Pit, prepared by MJS Engineering, PC, revised December 11, 2003, submitted by former owner.

Reclamation Progress Plan for (former) Rosa Gravel Pit, Existing Conditions updated November 16, 2021 updated Chris Bennett and submitted with application.

2. *Does the plan show the following:*

a. Name, Address and signature of the person who prepared the plan ☑ Yes ☐ No

b. Date, bar scale and north arrow ☑ Yes ☐ No

c. All boundaries of the area proposed for Reclamation and land within 200 feet of the boundary of the site? ☑ Yes ☐ No

d. Timetable as to fully-depleted sites within ☑ Yes ☐ No

the excavation area;

e. Schedule of final reclamation activities, seeding mixtures, cover vegetation, fertilizer types, and application rates. Yes ☑ No ☐

f. Plan shows that reclamation is to occur within 12 months for any area of greater than 5 acres.
Yes ☑ No ☐

C. Inspection by Code Enforcement

1. Has the Code Enforcement Officer inspected the site? Yes ☑ No ☐

(See attached Inspection Checklist completed by Town Planner and Code Enforcement Officer)

a. Is the site in compliance with Section 2.01, 2.02, 2.03 and 2.04 of the Town's Excavation Regulations, the Minimum and Express Operational Standards?

Yes ☑ No ☐ ***(See criteria as outlined in Inspection Checklist)***

With one exception noted, as described in the attached inspection report.

Excavation Inspection Checklist
Town of Newmarket

Name of individuals inspecting the Pit –**Peter Rowell, Interim Code Enforcement Officer and Diane Hardy, Town Planner.** Owner Chad Bennett was also present.

Name of the Pit Owners-Seacoast Materials LLC, Hampstead, New Hampshire

Date and time of Inspection: Tuesday, December 7, 2021 10:00 am at the site

Are the operations in conformance with the Town's Excavation Regulations and the approved plans?

Yes ☑ No ☐

1. Is the site in compliance with Section 2.01
   Minimum and Express Operational Standards

   Within one exception noted regarding safety signage Yes ☑ No ☐

   A. Is the excavation closer than 150 feet to an existing dwelling or building site? Yes ☐ No ☑

   B. Is the excavation below road level within within 50 feet of the right-of-way of a public highway? Yes ☐ No ☑

   C. Has vegetation been maintained within the buffer areas? Yes ☑ No ☐

   D. Are there fuels, lubricants, other toxic or polluting chemicals stored on site? Yes ☐ No ☑

   E. In areas where there are temporary slopes in excess 1:1 grade, is there a fence or barrier to warn of danger or limit access to the site?

   Yes ☐ No ☑

   In one area along the southerly boundary of the subject lot, adjacent to the land of the Newmarket Sand and Gravel, there is a very steep slope here excavation has occurred in the past. It is unclear whether the precise location of the boundary is. The Applicant has agreed to

install some signage up to warn of the potential hazard that exists at that location and to discourage access to the steep slopes which could be unstable.

See recommended condition of approval

F. Has appropriate drainage been provided to prevent freestanding water for prolonged periods? Yes ☑ No ☐

G. Are there any signs of siltation of surface waters or degradation of water quality of public or private water supplies? Yes ☐ No ☑

H. Has any excavation occurred within 75 feet of any great pond, navigable river, or any other standing body of water (10 acres in size), or within 25 feet of any other stream, river, or brook which normally flows throughout the year or a prime wetland or wetland greater than 5 acres in size. Yes ☐ No ☑

2. Is the site in compliance with Section 2.02 Minimum and Site Reclamation Express Standards?
Yes ☑ No ☐

3. Is the site in compliance with Section 2.03 Incremental Reclamation?

A. Has the operator depleted an area of five contiguous acres or more within the last two year period ? Yes ☐ No ☑

4. Is the excavation and reclamation work that has been conducted in compliance with the approved plans for the gravel pit?

Yes ☑ No ☐

(With modification as recommended below)

Comments:

E. Along the southerly boundary is a steep exposed slope where there appears to be slopes in excess of 1:1. The applicant has been asked to install safety signs to warn of the potential hazard that exist in attempting to traverse the slopes due to possible instability.

F. There were also a few small areas where there were rain puddles on the road surface. The applicant indicates that they grade the area and shape the topography as they work so as to minimize erosion. The site inspection was conducted on a day following rain. The applicant indicated the puddles are temporary in nature and usually dry out within a couple of days.

The documents and plans that were referred to for compliance are the "Excavation/Reclamation Plan" for Wayne Rosa Gravel Pit, Route 152, Newmarket, New Hampshire. Dated, September 29, 2003, revised December 11, 2003 and dated, December 29, 2003 as approved by the Newmarket Planning Board, specifically the notes at C1, C2, C3, and D1 that apply for compliance inspection, as stated below:

Plan C1:

8. In compliance – No fuels on site.
9. No wetlands – small puddles of standing water were observed along the floor of the pit.
10. State Permits are on files. In compliance.
    a. NH DOT Highway Access permit – C-337-163
    b. NH DES Site Specific (Alteration of Terrain) permit – WPE #1182
15. During the renewal process, in 2005, the Seasonal High Water Table (SHWT) was mapped and it was found that a small portion of the floor of the pit was below the 4 foot separation horizon above the seasonal high water table, which required remedial action. The operator corrected the situation and has since provided certified annual statements indicating that no excavations have occurred along the floor of the pit. ***In compliance.***
16. The applicant should provide warning signs in areas where there are steep slopes and slopes in excess of five feet since the last inspection. It was noted that safety signage should be installed. **See recommendation above.**
17. Records on File. **In compliance.**
18. Permit is valid. **In compliance**. Applicant is currently in the process of renewing permit.
19. No Bio-solids were observed. **In compliance.**

Plan C2 and notes as numbered:

5. Materials are being stockpiled in an orderly fashion, but not as exactly laid out in the original plan. It should be noted that these are temporary locations, as the materials are depleted, they will be moved. As noted in previous reports, the location of materials has not caused a non-compliant situation. The owner will be asked to maintain an up-to-date, as-built plan to document the location of the materials prior to final reclamation.

Sequencing Notes: 2.4.7.8.9. Operations appear to be in compliance with all conditions.

Well Abandonment Notes: Abandoned wells have been sealed and grouted as required.

Plan C3:

3. Remediation work to restore four feet of separation below the floor of the pit and Seasonal High Water Table (SHWT) was completed accordingly to Town records. (Letter of Clay

Mitchell, dated June 27, 2005.) Quarterly reports and annual statements have been filed indicating that no further excavation has occurred below the floor of the site, since that time.

Plan D1:

Entrance: Since the last report, Applicant has provided on-going maintenance to the stabilized construction entrance by laying down crushed stone and periodically grading the driveway and adjacent areas to properly channel drainage and to minimize the flow of water onto the stone. The base of the driveway is very compact and there are no signs of puddles, rutting and/or erosion. There were no indications of siltation or soils being tracked on to the public roadway from the tires of trucks or construction equipment exiting the site.

It was noted at the time of previous inspections, that a small quantity of materials and goods were being stored on- site, which were not the products of mining. These included concrete culvert pipe, stone, well tiles, and iron pipe. The current owner indicated that these materials have been removed from the site.

Staff Recommendations

The staff recommends that the excavation permit be renewed for an additional five (5) years subject to the conditions below. Typically, excavation permits are written for three (3) years as set forth in the Town's excavation regulations. Due to low level of activity, the Applicant has requested a five (5) year period. This has been reviewed with the Town's Legal counsel who has advised that such an action is appropriate given the low level of excavation activity and the on-going pandemic which has slowed the economy and rate at which excavation activity is occurring.

1. A warning sign needs to be installed along the southerly escarpment that straddles the property line of the applicant and abutter Newmarket Sand and Gravel.

2. The Applicants continue with their due diligence with respect to maintenance of the stabilized construction entrance.

3. The prior approval conditions of November 18, 2003, as stated below, remain in effect:

    a. Notification of any future buyers regarding permit approval requirements.
    b. No on-site open burning, fuel storage, or biosolids.
    c. Any blasting to be done in accordance with the requirements of the Fire Department and the State of New Hampshire.
    d. The provisions of this conditional approval to be binding upon any successors in title.
    e. Any changes in the plan would be subject to further approval by the Planning Board.
    f. Old wells, if located, to be de-commissioned according to NH DES requirements.
    g. Agreements for cross-excavation shall remain in effect.

4. The performance bond, in the amount of $27,000, shall continue to be held by the Town to cover the cost of reclamation of any open areas.

Peter Rowell, Interim Code Enforcement Officer

Dec 7, 2021
Date

Diane F. Hardy
Diane F. Hardy, Town Planner

Dec 7, 2021
Date

Town Hall
186 Main Street
Newmarket, NH 03857

Tel: (603) 659-3617
Fax: (603) 659-8508

Founded December 15, 1727
Chartered January 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
Legal Notice	11/22/2021	Cover Memo
Cover Letter	11/22/2021	Backup Material
Waiver Requests	11/22/2021	Backup Material
Abutters List	11/22/2021	Backup Material
Summary Drainsge Report	11/22/2021	Backup Material
Drainsge Report	11/22/2021	Backup Material
Stormwater Mgt Checklist	11/22/2021	Backup Material
Plans	11/22/2021	Backup Material

FOUNDED DECEMBER 15, 1727 CHARTERED JANUARY 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE
PLANNING OFFICE

LEGAL NOTICE

NEWMARKET PLANNING BOARD

TUESDAY, DECEMBER 14, 2021
7:00 P.M.

TOWN COUNCIL CHAMBERS

There will be a public hearing for an application for Site Plan & Special Use Permit to permit the proposed construction of a 6,000 square foot building consisting of 1,000 sq. ft. of office space and 5,000 sq. ft. for an equipment/construction storage warehouse. Two existing lots will be combined and access will be from an existing paved driveway off Route 152 (Wadleigh Falls Road). The office/warehouse is expected to consist of three employees, proposed paved driveway extension and 8 paved parking spaces, a proposed septic system and leach field, well and water line, and approximately 78,000 sq. ft. of gravel parking for storage of truck trailers, containers and equipment, requested by Seacoast Pool Plastering LLC/Robert MacInnis. The applicant is requesting a Special Use Permit for a wetlands buffer disturbance for the proposed driveway extension for site access and minor grading near a small wetlands buffer area pursuant Section 32-155 (e) of the Zoning Ordinance and a portion of the proposed building and site and drainage mprovements, including a bioretention area (rain garden) which fall within the Town's Aquifer Protection Overlay District under Section 32-153 of the Zoning Ordinance. The lots are located at 446 & 451 Wadleigh Falls Road, Tax Map R6, Lots 50-7 & 50-8, B3 Zone.

Tighe&Bond
Engineers | Environmental Specialists

S5132-001
November 18, 2021

Diane Hardy, Town Planner/Zoning Administrator
Town of Newmarket, NH
186 Main Street
Newmarket, NH 03857

Re: **Proposed Office and Equipment Storage - Tax Map R6 Lots 50-7 & 50-8**
446 & 451 Wadleigh Falls Road, Newmarket, New Hampshire

Dear Ms. Hardy:

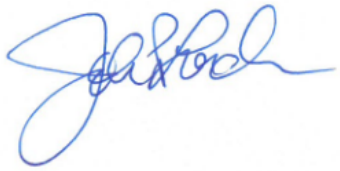
On behalf of our client, Rob MacInnis of Seacoast Pool Plastering, LLC, enclosed please find a submission for Major Site Review and a Special Use Permit for the above-referenced project. The following material are included in this submission:

- Abutters List (12 copies and 3 set of mailing labels);
- $1063 Fee, payable to the Town of Newmarket;
- Plans "446 & 450 Wadleigh Falls Road, Newmarket, New Hampshire Proposed Office and Equipment Storage Permit Drawings", prepared by Tighe & Bond, dated November 12, 2021 (3 copies at 22"x34", 9 copies at 11"x17", and an electronic copy);
- Drainage Report (3 Full reports, 9 summary reports)
- PB Comprehensive Application Form & Owner's Authorization (12 copies);
- Stormwater Management Checklist (12 copies);
- Waiver Request letter (12 copies); and
- Special Use Permit Request (12 copies)

The project proposes to construct a 6,000 sf office/warehouse building with 8 paved parking spaces, utilities and stormwater practices. In addition, an area of approximately 78,000 sf of gravel space will be provided for equipment storage. The project proposes to combine lots 7 & 8 into one larger lot and utilize the existing entrance off Wadleigh Fall Road/Route 152 for access. A small portion of the 25' poorly drained buffer will be impacted for site access while avoiding impacts to the on-site wetlands. The disturbance to the 25' poorly drained buffer will require a Special Use Permit.

We look forward to reviewing this project with the Planning Board and respectfully request to be added to the December 14, 2021 Planning Board agenda.

Very truly yours,
TIGHE & BOND, INC.



John Lorden, PE
Project Manager

cc: Robert MacInnis - (emailed copy)

Tighe&Bond
Engineers | Environmental Specialists

S-5132-001
November 12, 2021

Diane Hardy, Town Planner/Zoning Administrator
Town of Newmarket
186 Main Street
Newmarket, NH 03857

Re: **Proposed Office & Equipment Storage – Tax Map R6 Lots 7 & 8**
446 & 450 Wadleigh Falls Road, Newmarket, New Hampshire

Dear Ms. Hardy and Members of the Planning Board:

On behalf of our client, Seacoast Pool Plastering, LLC, please allow this letter to be submitted as a request for waivers for the above-referenced project.

Based on our interpretation of the Town of Newmarket's Site Plan Regulations, we are requesting relief in the form of waivers from the following sections as part of the Site Plan Review submission:

Waiver Request #1

Requirement: Section 3.06 (A)(3)(a): In all districts except the M-1 and M-2 districts, either newly planted or existing trees shall be provided at the rate of one tree per 500 square feet of disturbed area.

Reason for Waiver: The existing street buffer is to remain as well as many existing trees on site are to remain throughout the site. Based on a disturbance of 191,427 sf, we are required to plant or maintain 383 trees. Counting the existing trees to remain would be a very large effort.

Waiver Request #2

Requirement: Section 4.08: A scale of 1" equals 20' shall be used in all cases.

Reason for Waiver: Matchlines would be necessary to achieve a scale of 1" equals 20' and can hinder the clarity of the proposed plans. Plans have been provided at a scale of 1" equals 40', which adequately represent the project area.

Waiver Request #3

Requirement: Section 4.10(C)(5): Proposed site plan showing pedestrian, bicycle and transit amenities.

Reason for Waiver: The overall use of the facility is expected to be for 3 office employees that will park on site in the dedicated spaces. The use of pedestrian sidewalks, dedicated bicycle lanes, and transit amenities are not expected to be necessary. Given the site is located outside of the downtown area these requirements would be in excess of the need for this particular development.

Waiver Request #4

Requirement: Section 4.10(D): Elevation view of the front of any building to be altered or constructed.

Reason for Waiver: The building size has been determined by the applicant and is expected to be a typical prefabricated metal building constructed on a concrete slab. The applicant requests that the review of the elevation be a condition of approval until the applicant determines the building to incorporate.

Waiver Request #5

Requirement: Section 3.02(A)1: Minimum number of parking spaces.

Reason for Waiver: Using the parking ratios for office and industrial for the proposed use, the total number of required parking spaces equals 14 spaces. For this commercial use the number of calculated required spaces is far beyond what will be expected for the proposed use of this space. The maximum expected use of the office is 3 employees and the proposed 8 spaces will more than adequately accommodate that expectation.

Waiver Request #6

Requirement: Section 4.10(C)7: Landscaping.

Reason for Waiver: The site is expected to be used by employees only and no customers are expected to visit the business location. A buffer is being maintained between the street and the building and parking areas in the form of existing trees and brush.

Waiver Request #7

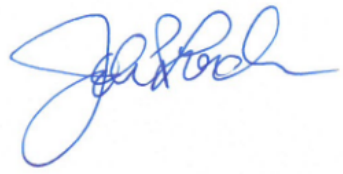
Requirement: Section 4.10(C)13: Outdoor lighting, including type, design, mounting height, shielding and other specifications as needed.

Reason for Waiver: Due to the nature of the business, absence of customers on site, and operating hours, lighting for the gravel area is not necessary.

We look forward to reviewing this project with the Planning Board on December 14, 2021.

Very truly yours,

TIGHE & BOND, INC.



John Lorden, PE
Project Manager
cc: Robert MacInnis – via email

ABUTTERS LIST

Seacoast Pool Plastering, LLC
446 & 450 Wadleigh Falls Road
Newmarket, New Hampshire 03857
November 15, 2021

R6-50-7/Locus/Applicant
Seacoast Pool Plastering, LLC
90 Depot Road
Greenland, NH 03840

R6-50-8/Locus/Applicant
Same as R6-50-7

R6-50
LGT Realty LLC
51 Smith Garrison Road
Newmarket, NH 03857

R6-50-6
Aqua Tech Irrigation LLC
199 Woodland Road
Hampton, NH 03842

R6-6
Paul R Lebeau
443 Wadleigh Falls Road
Newmarket, NH 03857

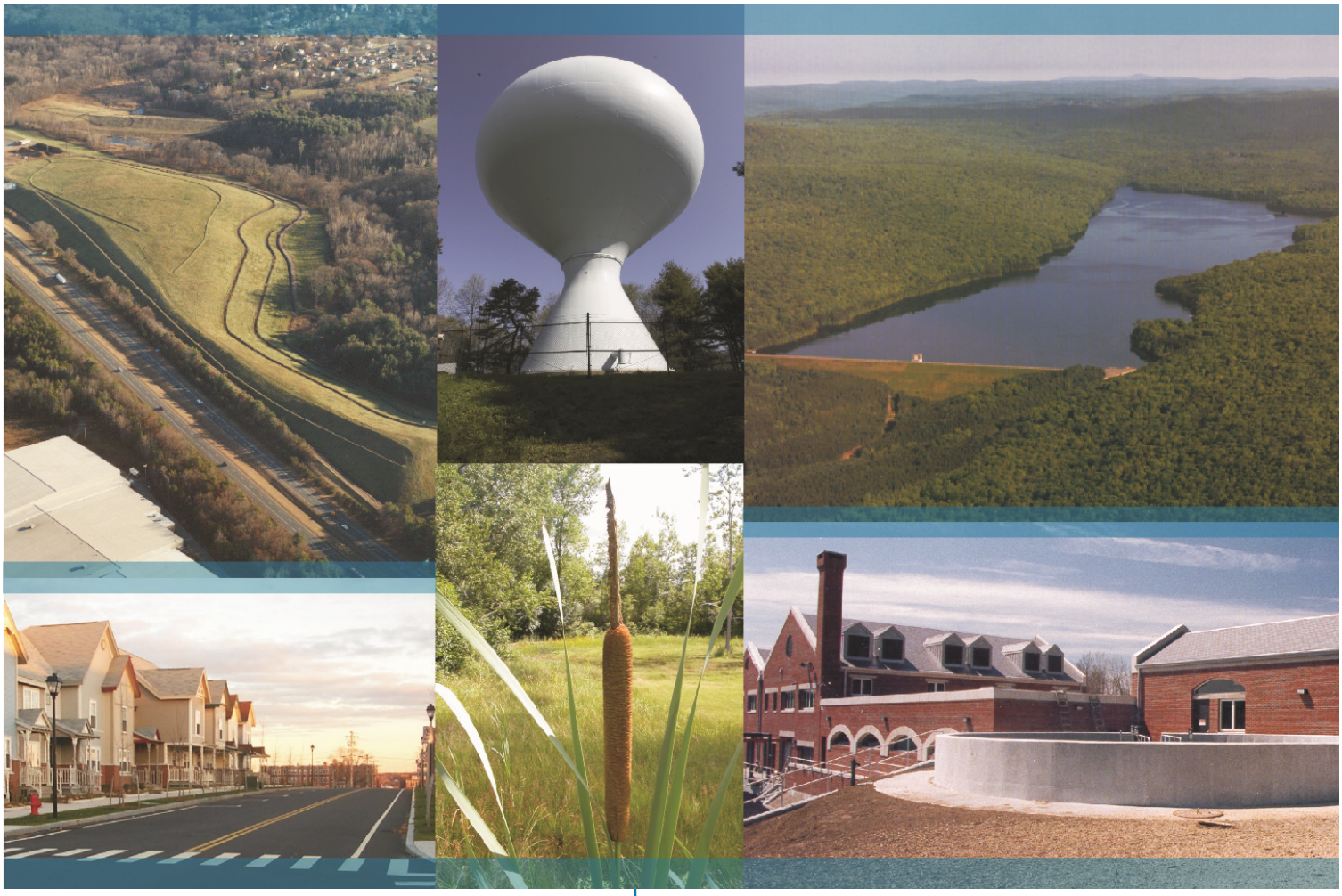
R6-7
David L & Michelle L Silvia
457 Wadleigh Falls Road
Newmarket, NH 03857

R6-8
Eudin & Aida L Aviles
89 Mast Road
Lee, NH 03861-6522

R6-50B
Town of Newmarket
186 Main Street
Newmarket, NH 03857

Applicant's Agent/Engineer/Wetland Scientist
Tighe & Bond
177 Corporate Drive
Portsmouth, New Hampshire 03801

Applicant's Land Surveyor
Doucet Survey, LLC
102 Kent Place
Newmarket, NH 03857



Tighe&Bond

Proposed Office and Equipment Storage

Drainage Report

Prepared For:

Seacoast Pool Plastering
90 Depot Road
Greenland, NH 03824

November 12, 2021

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Section 4 Rip Rap Apron Calculations

Section 5 Long-Term Operation & Maintenance Plan

Appendices

A Extreme Precipitation Tables

Section 1
Narrative

The proposed project is located along Route 152 / Wadleigh Falls Road, in Newmarket, New Hampshire just prior to the turn for Ashswamp Road and is comprised of 2 lots. Lot 50-7 is 3.4 acres and lot 50-8 is 5.04 acres for a total project area of 8.44 acres. Currently, the lots are vacant mostly wooded lots and considered previously undeveloped except for a small portion of an existing access driveway on Lot 50-8. The driveway was constructed as part of a town approved private site development that was not fully executed. There are no building structures on either of the lots. The proposed project will consist of a 6,000-sf building, associated utilities, stormwater management, parking for a 1,000-sf office space within the proposed building, and a gravel area of approximately 78,000-sf for the storage of truck trailers, storage containers as well as construction equipment.

1.1 On-Site Soil Description

The site consists of terrain that is generally slopping from the northwest corner of the lot to the southeast corner to a portion of a wetland system that consist of poorly, very poorly drained soils and a designated prime wetland along the eastern edge of the property. The existing property has an approximate high point of elevation 140 at the northwestern most corner.

A site-specific soils survey was conducted by Leonard Lord, PhD, CSS, CWS of Tighe & Bond, Inc on April 26, 2021 and can be found in Section 9 of this Report. Based on the soil survey, the runoff analyzed within these studies has been modeled using mostly Hydrologic Soil Group C soils and some portions of Hydrologic Soil Group B and a very small portion of D soils, as much of the site is comprised of Udorthents with two drainage classifications, moderately well drained soils, somewhat poorly drained and portions of poorly drained soils.

1.2 Pre- & Post-Development Flow Comparison

For the purposes of this analysis, runoff generated by the site has been analyzed at three (3) distinct points of analysis (PA-1, PA-2 and PA-3). PA-1 was chosen to be able to compare the Pre and Post-development flows at a point along the eastern property line where the small on-site wetland (intermittent stream) combines to the larger wetland and prime wetland the southeastern portion of the wetland. PA-2 and PA-3 were chosen to analyze the Pre and Post-development flows along the Right of Way and what currently contributes to Wadleigh Falls Road and to determine if any additional runoff would be directed to these areas.

The peak discharge rates at these points of analysis were determined by analyzing Type III 24-hour storm events. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center at Cornell University which can be found in Appendix A. Furthermore, the site is located within a Coastal and Great Bay Community, therefore an added factor of safety of 15% was included as required by Env-Wq 1503.08(l).

Table 1.2

Comparison of Pre- and Post-Development Flows (CFS)

	1-Year Storm	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed					
PA-1	6.10	9.40	21.26	31.55	41.49
PA-2	0.71	0.99	1.91	2.67	3.38
PA-3	0.04	0.05	0.08	0.10	0.12
Post-Development Watershed					
PA-1	3.25	5.03	13.05	26.78	37.10
PA-2	0.71	0.99	1.91	2.67	3.38
PA-3	0.04	0.05	0.08	0.10	0.12

The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for the point of analysis. As shown in Table 1.2 the Post-development flows are decreased from the Pre-development flows for the point of analysis in PA-1 and are unchanged in PA-2 and PA-3.

The Channel Protection requirements of Env-Wq 1507.05 are met for point of analysis PA-1 and are as follows:

PA-1: The 2-year, 24-hour post-development peak flowrate (5.03 cfs) is less than or equal to the 1-year, 24-hour pre-development peak flowrate (6.10 cfs).

The Channel Protection requirements of Env-Wq 1507.05 are not being met for points of analysis PA-2 and PA-3. There is no change in land cover or change to the flow pattern as there is no work proposed in these areas.

1.3 Best Management Practices

All soil erosion and sediment control measures have been designed in accordance with the *NH Stormwater Manual, Volume 3: Erosion and Sediment Controls During Construction*. The intent of the outlined measures is to minimize erosion and sedimentation during construction, stabilize and protect the site from erosion after construction is complete and improve stormwater quality from the site. Best Management Practices for this project include:

- Temporary erosion and sediment control practices to be implemented during construction;
- Permanent stabilization practices to be implemented prior to the completion of construction; and
- Stormwater treatment practices including a sediment forebay and a rain garden/bio-retention basin.

Section 3
Drainage Analysis

3.1 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model.

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

3.2 Pre-Development Conditions

To analyze the pre-development condition, the site has been modeled utilizing three (3) distinct points of analysis (PA-1, PA-2 and PA-3). These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

The points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA-1)

Point of analysis 1 is comprised of one subcatchment area (PRE-1.0). This area includes mostly wooded areas of the lot. Runoff from this area travels from the northwest corner of the lot over land to the southeast corner to small on-site wetlands which flows into a larger system of wetlands and to Point of Analysis 1.

Point of Analysis One (PA-2)

Point of analysis 2 is comprised of one subcatchment area (PRE-2.0). This area is comprised of the area adjacent to the roadway and including the on-site wetlands along the roadway. Two 12" RCPs are present and connect the roadside ditch and existing wetland areas. Runoff from this area travels to Point of Analysis 2.

Point of Analysis One (PA-3)

Point of analysis 3 is comprised of one subcatchment area (PRE-3.0). This area includes existing pavement at the entrance. Runoff from this area flows towards Wadleigh Falls Road and to Point of Analysis 3.

3.3 Post-Development Conditions

The post-development drainage conditions are characterized by three (3) watershed areas modeled at the same points of analysis as the pre-development condition. This point of analysis and subcatchments are depicted on the plan entitled "Post Development Watershed Plan", Sheets C-802.

The points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA-1)

Post-development subcatchment 1.0 (POST-1.0) is comprised of the area adjacent to the gravel area, a portion of proposed driveway and existing wetland areas and wooded areas. This area directs runoff towards the wetlands in the same general manner as in the Pre-Conditions.

Post-development subcatchment 1.1 (POST-1.1) is comprised of the largest area on site. Runoff from this area travels overland from the southwest corner of the property and flows over the proposed gravel surface and transitions from gravel to pavement and terminates at the on-site treatment practices.

Point of Analysis Two (PA-2)

Post-development subcatchment 2.0 (POST 2.0) is the same as Pre 2.0, this area is comprised of the area adjacent to the roadway and including the on-site wetlands along the roadway. Two 12" RCPs are present and connect the roadside ditch and existing wetland areas. Runoff from this area travels to Point of Analysis 2.

Point of Analysis Three (PA-3)

Post-development subcatchment 3.0 (POST 3.0) is the same as Pre 3.0, this area includes existing pavement at the entrance. Runoff from this area flows towards Wadleigh Falls Road and to Point of Analysis 3.

3.3.1 Post-Development Watershed Plan

3.3.2 Post-Development Soil Plan

3.3.3 Post-Development Calculation

3.4 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates from the 2-year, 10-year, 25-year and 50-year storm events at each point of analysis.

Table 3.4

Comparison of Pre- and Post-Development Flows (CFS)

	1-Year Storm	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed					
PA-1	6.10	9.40	21.26	31.55	41.49
PA-2	0.71	0.99	1.91	2.67	3.38
PA-3	0.04	0.05	0.08	0.10	0.12
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PA-1	3.25	5.03	13.05	26.78	37.10
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PA-3	0.04	0.05	0.08	0.10	0.12

The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for the point of analysis. As shown in Table 3.4 the Post-development flows are decreased from the Pre-development flows for the point of analysis in PA-1 and are unchanged in PA-2 and PA-3.

The Channel Protection requirements of Env-Wq 1507.05 are met for point of analysis PA-1 and are as follows:

PA-1: The 2-year, 24-hour post-development peak flowrate (5.03 cfs) is less than or equal to the 1-year, 24-hour pre-development peak flowrate (6.10 cfs).

The Channel Protection requirements of Env-Wq 1507.05 are not being met for points of analysis PA-2 and PA-3. There is no change in land cover or change to the flow pattern as there is no work proposed in these areas.

3.5 Mitigation Description

3.5.1 Mitigation Calculations

The proposed project area has been evaluated to treat the required water quality flow (WQF) per the requirements of Env-Wq 1500. These calculations have been provided in Section 6 of this report (BMP Worksheets).

3.5.2 Pre-Treatment Methods for Protecting Water Quality

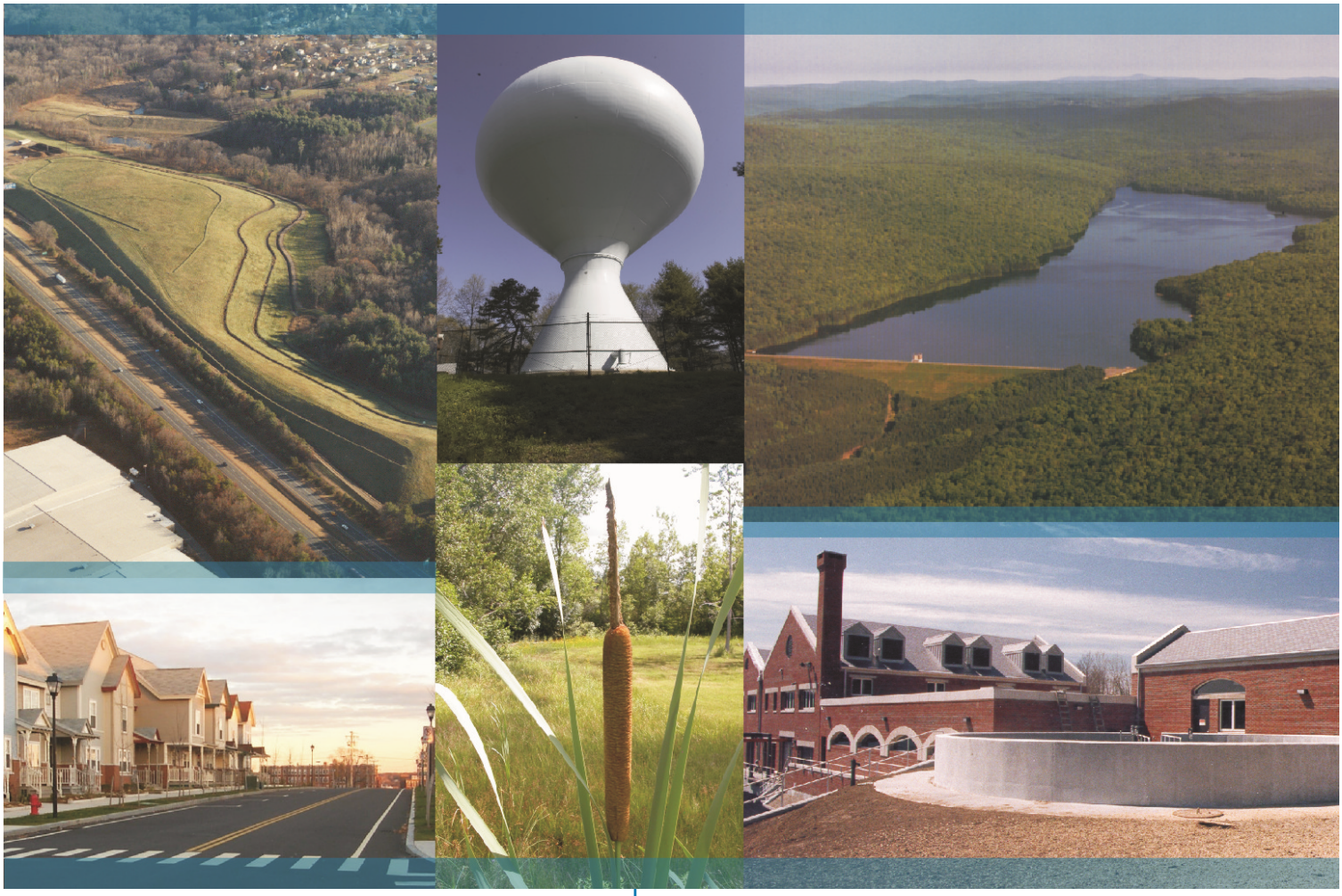
Pretreatment methods for protecting water quality on this site include a sediment forebay.

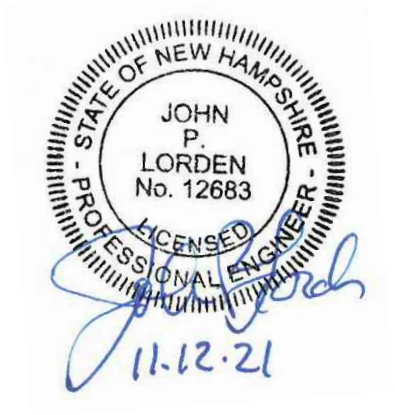
3.5.3 Treatment Methods for Protecting Water Quality

Treatment for the site is included by means of a Rain Garden. The Rain Garden has been sized to contain the 50-year storm without overtopping, as well as treat a volume of runoff greater than the WQV. Due to poor infiltration rates of the surrounding soils, the bottom of the rain garden is proposed to be lined and outfitted with underdrains to convey treated runoff to the system's outlet structure.

The BMP Worksheets for this treatment practice have been included in Section 6 of this report.

The pollutant removal efficiencies for a Rain Garden for Total Suspended Soils, Total Nitrogen and Total Phosphorus are 90%, 65% and 65% respectively. Pollutant Removal efficiencies are taken from NH Stormwater Manual Volume 2, Appendix B.





Tighe&Bond

Proposed Office and Equipment Storage

Drainage Report

Prepared For:

Seacoast Pool Plastering
90 Depot Road
Greenland, NH 03824

November 12, 2021

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1.2 Pre- & Post-Development Flow Comparison

For the purposes of this analysis, runoff generated by the site has been analyzed at three (3) distinct points of analysis (PA-1, PA-2 and PA-3). PA-1 was chosen to be able to compare the Pre and Post-development flows at a point along the eastern property line where the small on-site wetland (intermittent stream) combines to the larger wetland and prime wetland the southeastern portion of the wetland. PA-2 and PA-3 were chosen to analyze the Pre and Post-development flows along the Right of Way and what currently contributes to Wadleigh Falls Road and to determine if any additional runoff would be directed to these areas.

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Table 1.2

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The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for the point of analysis. As shown in Table 1.2 the Post-development flows are decreased from the Pre-development flows for the point of analysis in PA-1 and are unchanged in PA-2 and PA-3.

The Channel Protection requirements of Env-Wq 1507.05 are met for point of analysis PA-1 and are as follows:

PA-1: The 2-year, 24-hour post-development peak flowrate (5.03 cfs) is less than or equal to the 1-year, 24-hour pre-development peak flowrate (6.10 cfs).

The Channel Protection requirements of Env-Wq 1507.05 are not being met for points of analysis PA-2 and PA-3. There is no change in land cover or change to the flow pattern as there is no work proposed in these areas.

1.3 Best Management Practices

All soil erosion and sediment control measures have been designed in accordance with the *NH Stormwater Manual, Volume 3: Erosion and Sediment Controls During Construction*. The intent of the outlined measures is to minimize erosion and sedimentation during construction, stabilize and protect the site from erosion after construction is complete and improve stormwater quality from the site. Best Management Practices for this project include:

- Temporary erosion and sediment control practices to be implemented during construction;
- Permanent stabilization practices to be implemented prior to the completion of construction; and
- Stormwater treatment practices including a sediment forebay and a rain garden/bio-retention basin.

Section 2
BMP Worksheets

The calculations for water quality volume (WQV) are provided on the following Best Management Practice (BMP) worksheets. These calculations comply with the requirements of the NHDES Alteration of Terrain Bureau and have been developed for the proposed stormwater management system (i.e. rain gardens).

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Type/Node Name: **Rain Garden**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
3.86	ac	A = Area draining to the practice	
2.03	ac	A_I = Impervious area draining to the practice	
0.53	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.52	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
2.02	ac-in	WQV= 1" x Rv x A	
7,333	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,833	cf	25% x WQV (check calc for sediment forebay volume)	
5,499	cf	75% x WQV (check calc for surface sand filter volume)	
Sed Forebay		Method of Pretreatment? (not required for clean or roof runoff)	
2,864	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
Yes	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
98.12	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.91	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
4.48	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
95.00	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
93.92	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
91.75	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
91.75	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.08	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
3.25	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
3.25	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
101.23	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
102.25	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
-	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ 75%WQV
-	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
-	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
8,584	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
24.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	C-503	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	C-503	Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
	acres	A_{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Section 3
Drainage Analysis

3.1 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model.

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

3.2 Pre-Development Conditions

To analyze the pre-development condition, the site has been modeled utilizing three (3) distinct points of analysis (PA-1, PA-2 and PA-3). These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

The points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA-1)

Point of analysis 1 is comprised of one subcatchment area (PRE-1.0). This area includes mostly wooded areas of the lot. Runoff from this area travels from the northwest corner of the lot over land to the southeast corner to small on-site wetlands which flows into a larger system of wetlands and to Point of Analysis 1.

Point of Analysis One (PA-2)

Point of analysis 2 is comprised of one subcatchment area (PRE-2.0). This area is comprised of the area adjacent to the roadway and including the on-site wetlands along the roadway. Two 12" RCPs are present and connect the roadside ditch and existing wetland areas. Runoff from this area travels to Point of Analysis 2.

Point of Analysis One (PA-3)

Point of analysis 3 is comprised of one subcatchment area (PRE-3.0). This area includes existing pavement at the entrance. Runoff from this area flows towards Wadleigh Falls Road and to Point of Analysis 3.

3.2.1 Pre-Development Watershed Plan

3.2.2 Pre-Development Soil Plan

3.2.3 Pre-Development Calculation

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

(SOIL #) MAP NUMBER*/ DISTURBED SOIL NUMERATOR**	SOIL TYPE	HSG
(1) 29	WOODBRIDGE	C
(2) 33	SCITICO	C
(3) 134	MAYBID	D
(4) 299*/DFABB	UDORTHENTS, SMOOTHED	B
(5) 500*/DCCCC	UDORTHENTS, LOAMY	C
(6) 500*/EFCCC	UDORTHENTS, LOAMY	C
(7) 600*/FFCCC	ENDOAQUENTS, LOAMY	C

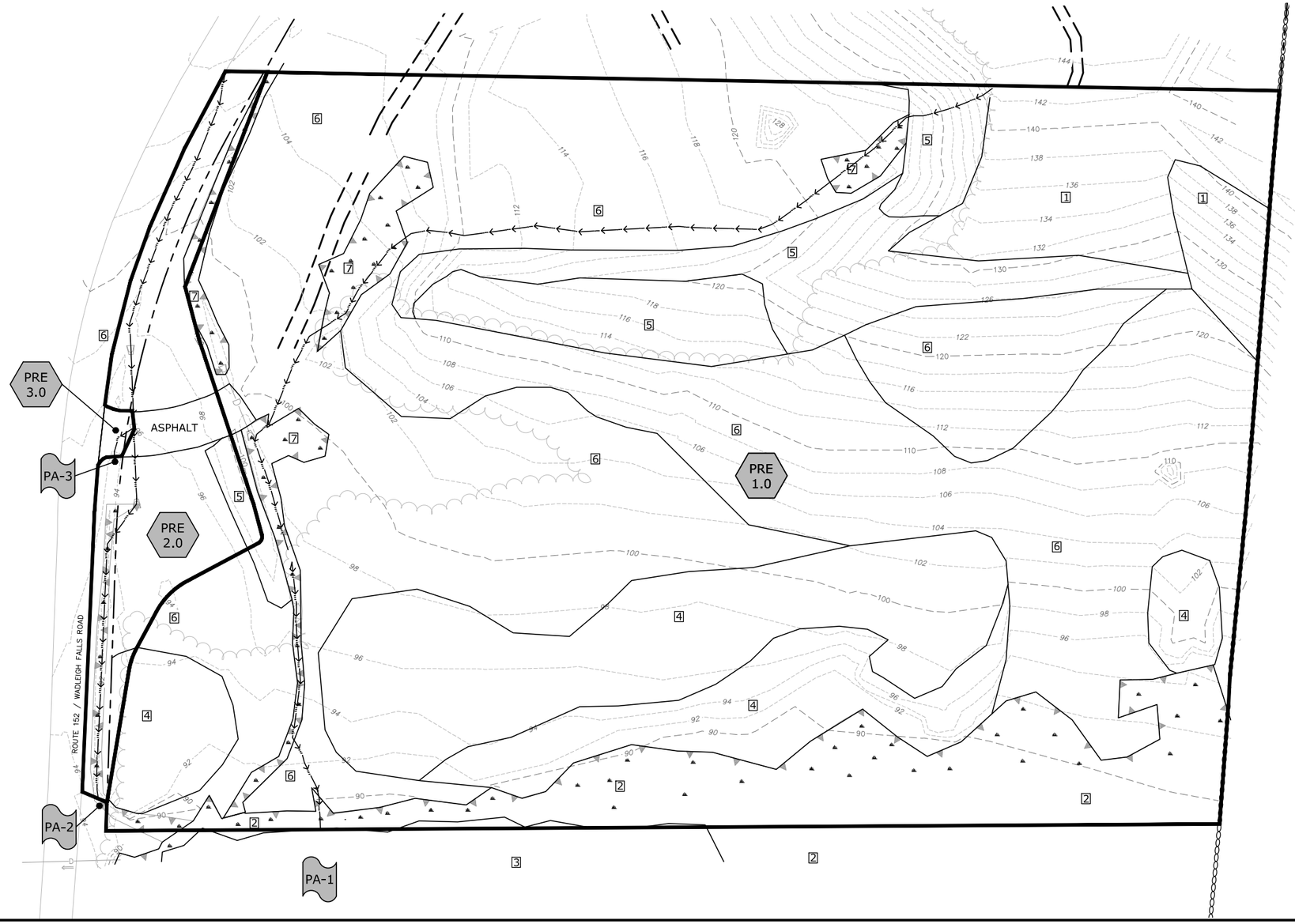
* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)
** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTURBED SOILS FOR ALTERATION OF TERRAIN PERMITS

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON APRIL 26, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

LEGEND

- 4 — SOIL NUMBER PER LEGEND
- SITE SPECIFIC SOIL BOUNDARY
- PRE-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- PA-1 — POINT OF ANALYSIS



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	10/22/2021
FILE:	S5132_C-HYDR.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Saved: 10/14/2021
Plotted: Oct 14, 2021–4:22pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-HYDR.dwg

LEGEND

HYDROLOGIC SOIL GROUP A

HYDROLOGIC SOIL GROUP B

HYDROLOGIC SOIL GROUP C

HYDROLOGIC SOIL GROUP D

IMPERVIOUS AREA

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

(SOIL #) MAP NUMBER*/ DISTURBED SOIL NUMERATOR**	SOIL TYPE	HSG
(1) 29	WOODBRIDGE	C
(2) 33	SCITTICO	C
(3) 134	MAYBID	D
(4) 299*/DFABB	UDORTHENTS, SMOOTHED	B
(5) 500*/DCCCC	UDORTHENTS, LOAMY	C
(6) 500*/EFCCC	UDORTHENTS, LOAMY	C
(7) 600*/FFCCC	ENDOAQUENTS, LOAMY	C

* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)
** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTURBED SOILS FOR ALTERATION OF TERRAIN PERMITS

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON APRIL 26, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

LEGEND

4 — SOIL NUMBER PER LEGEND

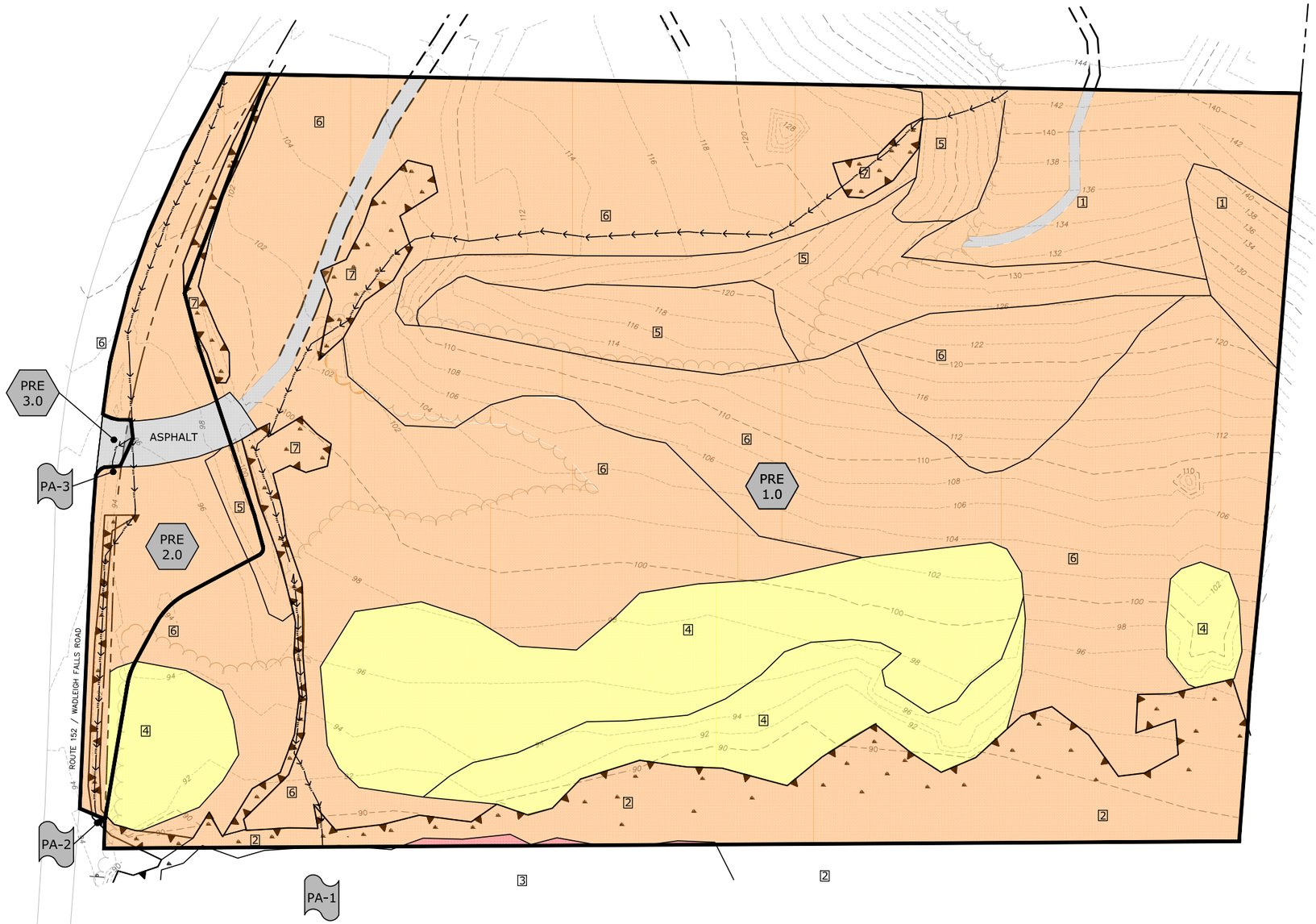
SITE SPECIFIC SOIL BOUNDARY

PRE-DEVELOPMENT WATERSHED BOUNDARY

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PA-1 — POINT OF ANALYSIS



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

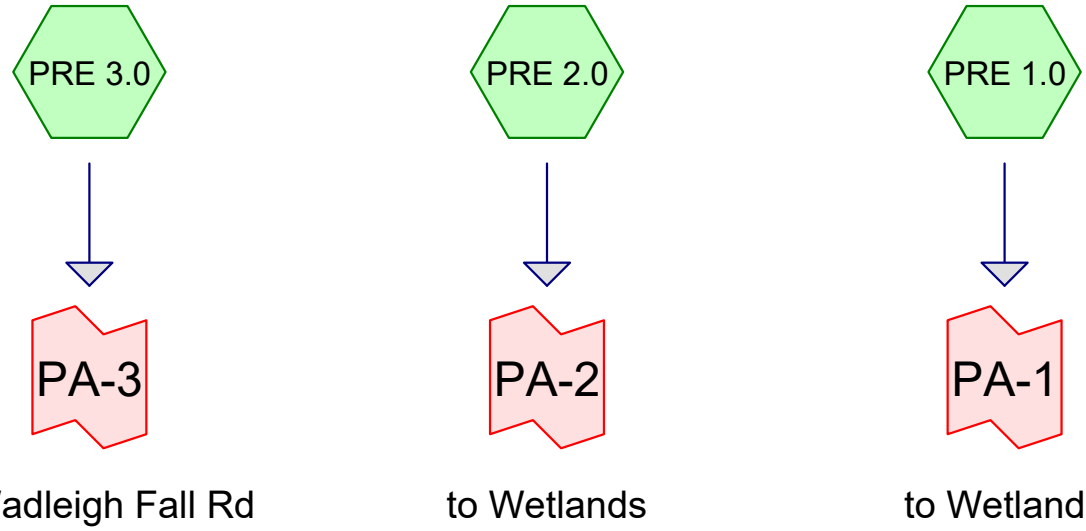
PROJECT NO:	S5132-001
DATE:	10/22/2021
FILE:	S5132_C-HYDR.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

PRE-DEVELOPMENT COLOR SOILS PLAN

SCALE: AS SHOWN

C-803

Last Saved: 10/14/2021
Plotted: Oct 14, 2021-4:22pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-HYDR.dwg



Subcat Reach Pond Link

Routing Diagram for S5132-001_PRE
Prepared by Tighe & Bond, Printed 10/8/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
632	69	50-75% Grass cover, Fair, HSG B (PRE 2.0)
123,579	79	50-75% Grass cover, Fair, HSG C (PRE 1.0, PRE 2.0)
3,487	96	Gravel surface, HSG C (PRE 1.0)
3,001	98	Paved parking, HSG C (PRE 1.0, PRE 2.0, PRE 3.0)
180,223	73	Woods, Fair, HSG C (PRE 1.0, PRE 2.0)
617	79	Woods, Fair, HSG D (PRE 1.0)
64,381	55	Woods, Good, HSG B (PRE 1.0)
375,920	**72**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
65,013	HSG B	PRE 1.0, PRE 2.0
310,290	HSG C	PRE 1.0, PRE 2.0, PRE 3.0
617	HSG D	PRE 1.0
0	Other	
375,920		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=350,736 sf 0.13% Impervious Runoff Depth>1.18"
Flow Length=866' Tc=9.1 min CN=72 Runoff=9.40 cfs 34,619 cf

SubcatchmentPRE 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>1.71"
Flow Length=498' Tc=9.4 min CN=80 Runoff=0.99 cfs 3,508 cf

SubcatchmentPRE 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>3.37"
Flow Length=26' Slope=0.0780 '/' Tc=0.2 min CN=98 Runoff=0.06 cfs 172 cf

Link PA-1: to Wetlands Inflow=9.40 cfs 34,619 cf
Primary=9.40 cfs 34,619 cf

Link PA-2: to Wetlands Inflow=0.99 cfs 3,508 cf
Primary=0.99 cfs 3,508 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.06 cfs 172 cf
Primary=0.06 cfs 172 cf

Total Runoff Area = 375,920 sf Runoff Volume = 38,299 cf Average Runoff Depth = 1.22"
99.20% Pervious = 372,919 sf 0.80% Impervious = 3,001 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=350,736 sf 0.13% Impervious Runoff Depth>2.56"
Flow Length=866' Tc=9.1 min CN=72 Runoff=21.26 cfs 74,865 cf

SubcatchmentPRE 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>3.30"
Flow Length=498' Tc=9.4 min CN=80 Runoff=1.91 cfs 6,761 cf

SubcatchmentPRE 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>5.23"
Flow Length=26' Slope=0.0780 '/' Tc=0.2 min CN=98 Runoff=0.09 cfs 267 cf

Link PA-1: to Wetlands Inflow=21.26 cfs 74,865 cf
Primary=21.26 cfs 74,865 cf

Link PA-2: to Wetlands Inflow=1.91 cfs 6,761 cf
Primary=1.91 cfs 6,761 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.09 cfs 267 cf
Primary=0.09 cfs 267 cf

Total Runoff Area = 375,920 sf Runoff Volume = 81,893 cf Average Runoff Depth = 2.61"
99.20% Pervious = 372,919 sf 0.80% Impervious = 3,001 sf

Summary for Subcatchment PRE 1.0:

Runoff = 21.26 cfs @ 12.14 hrs, Volume= 74,865 cf, Depth> 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
64,381	55	Woods, Good, HSG B
179,969	73	Woods, Fair, HSG C
101,810	79	50-75% Grass cover, Fair, HSG C
3,487	96	Gravel surface, HSG C
472	98	Paved parking, HSG C
617	79	Woods, Fair, HSG D
350,736	72	Weighted Average
350,264		99.87% Pervious Area
472		0.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	60	0.3500	0.35		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.60"
0.3	69	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	255	0.0420	3.30		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	40	0.1250	5.69		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	89	0.0330	2.92		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	161	0.0310	2.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.2	192	0.0410	1.01		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	866	Total			

Summary for Subcatchment PRE 2.0:

Runoff = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
632	69	50-75% Grass cover, Fair, HSG B
21,769	79	50-75% Grass cover, Fair, HSG C
1,917	98	Paved parking, HSG C
254	73	Woods, Fair, HSG C
24,572	80	Weighted Average
22,655		92.20% Pervious Area
1,917		7.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	50	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.60"
0.6	150	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	97	0.0110	5.15	4.05	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	201	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.4	498	Total			

Summary for Subcatchment PRE 3.0:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.09 cfs @ 12.00 hrs, Volume= 267 cf, Depth> 5.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
612	98	Paved parking, HSG C
612		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	26	0.0780	1.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"

Summary for Link PA-1: to Wetlands

Inflow Area = 350,736 sf, 0.13% Impervious, Inflow Depth > 2.56" for 10 Year event
Inflow = 21.26 cfs @ 12.14 hrs, Volume= 74,865 cf
Primary = 21.26 cfs @ 12.14 hrs, Volume= 74,865 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-2: to Wetlands

Inflow Area = 24,572 sf, 7.80% Impervious, Inflow Depth > 3.30" for 10 Year event
Inflow = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf
Primary = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-3: to Wadleigh Fall Rd

Inflow Area = 612 sf,100.00% Impervious, Inflow Depth > 5.23" for 10 Year event
Inflow = 0.09 cfs @ 12.00 hrs, Volume= 267 cf
Primary = 0.09 cfs @ 12.00 hrs, Volume= 267 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=350,736 sf 0.13% Impervious Runoff Depth>3.78"
Flow Length=866' Tc=9.1 min CN=72 Runoff=31.55 cfs 110,500 cf

SubcatchmentPRE 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>4.64"
Flow Length=498' Tc=9.4 min CN=80 Runoff=2.67 cfs 9,505 cf

SubcatchmentPRE 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>6.71"
Flow Length=26' Slope=0.0780 '/' Tc=0.2 min CN=98 Runoff=0.11 cfs 342 cf

Link PA-1: to Wetlands Inflow=31.55 cfs 110,500 cf
Primary=31.55 cfs 110,500 cf

Link PA-2: to Wetlands Inflow=2.67 cfs 9,505 cf
Primary=2.67 cfs 9,505 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.11 cfs 342 cf
Primary=0.11 cfs 342 cf

Total Runoff Area = 375,920 sf Runoff Volume = 120,347 cf Average Runoff Depth = 3.84"
99.20% Pervious = 372,919 sf 0.80% Impervious = 3,001 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=350,736 sf 0.13% Impervious Runoff Depth>4.98"
Flow Length=866' Tc=9.1 min CN=72 Runoff=41.49 cfs 145,493 cf

SubcatchmentPRE 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>5.93"
Flow Length=498' Tc=9.4 min CN=80 Runoff=3.38 cfs 12,136 cf

SubcatchmentPRE 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>8.09"
Flow Length=26' Slope=0.0780 '/' Tc=0.2 min CN=98 Runoff=0.13 cfs 413 cf

Link PA-1: to Wetlands Inflow=41.49 cfs 145,493 cf
Primary=41.49 cfs 145,493 cf

Link PA-2: to Wetlands Inflow=3.38 cfs 12,136 cf
Primary=3.38 cfs 12,136 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.13 cfs 413 cf
Primary=0.13 cfs 413 cf

Total Runoff Area = 375,920 sf Runoff Volume = 158,042 cf Average Runoff Depth = 5.04"
99.20% Pervious = 372,919 sf 0.80% Impervious = 3,001 sf

3.3 Post-Development Conditions

The post-development drainage conditions are characterized by three (3) watershed areas modeled at the same points of analysis as the pre-development condition. This point of analysis and subcatchments are depicted on the plan entitled "Post Development Watershed Plan", Sheets C-802.

The points of analysis and their contributing watershed areas are described below:

Point of Analysis One (PA-1)

Post-development subcatchment 1.0 (POST-1.0) is comprised of the area adjacent to the gravel area, a portion of proposed driveway and existing wetland areas and wooded areas. This area directs runoff towards the wetlands in the same general manner as in the Pre-Conditions.

Post-development subcatchment 1.1 (POST-1.1) is comprised of the largest area on site. Runoff from this area travels overland from the southwest corner of the property and flows over the proposed gravel surface and transitions from gravel to pavement and terminates at the on-site treatment practices.

Point of Analysis Two (PA-2)

Post-development subcatchment 2.0 (POST 2.0) is the same as Pre 2.0, this area is comprised of the area adjacent to the roadway and including the on-site wetlands along the roadway. Two 12" RCPs are present and connect the roadside ditch and existing wetland areas. Runoff from this area travels to Point of Analysis 2.

Point of Analysis Three (PA-3)

Post-development subcatchment 3.0 (POST 3.0) is the same as Pre 3.0, this area includes existing pavement at the entrance. Runoff from this area flows towards Wadleigh Falls Road and to Point of Analysis 3.

3.3.1 Post-Development Watershed Plan

3.3.2 Post-Development Soil Plan

3.3.3 Post-Development Calculation

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

(SOIL #) MAP NUMBER*/ DISTURBED SOIL NUMERATOR**	SOIL TYPE	HSG
(1) 29	WOODBRIDGE	C
(2) 33	SCITICO	C
(3) 134	MAYBID	D
(4) 299*/DFABB	UDORTHENTS, SMOOTHED	B
(5) 500*/DCCCC	UDORTHENTS, LOAMY	C
(6) 500*/EFCCC	UDORTHENTS, LOAMY	C
(7) 600*/FFCCC	ENDOAQUENTS, LOAMY	C

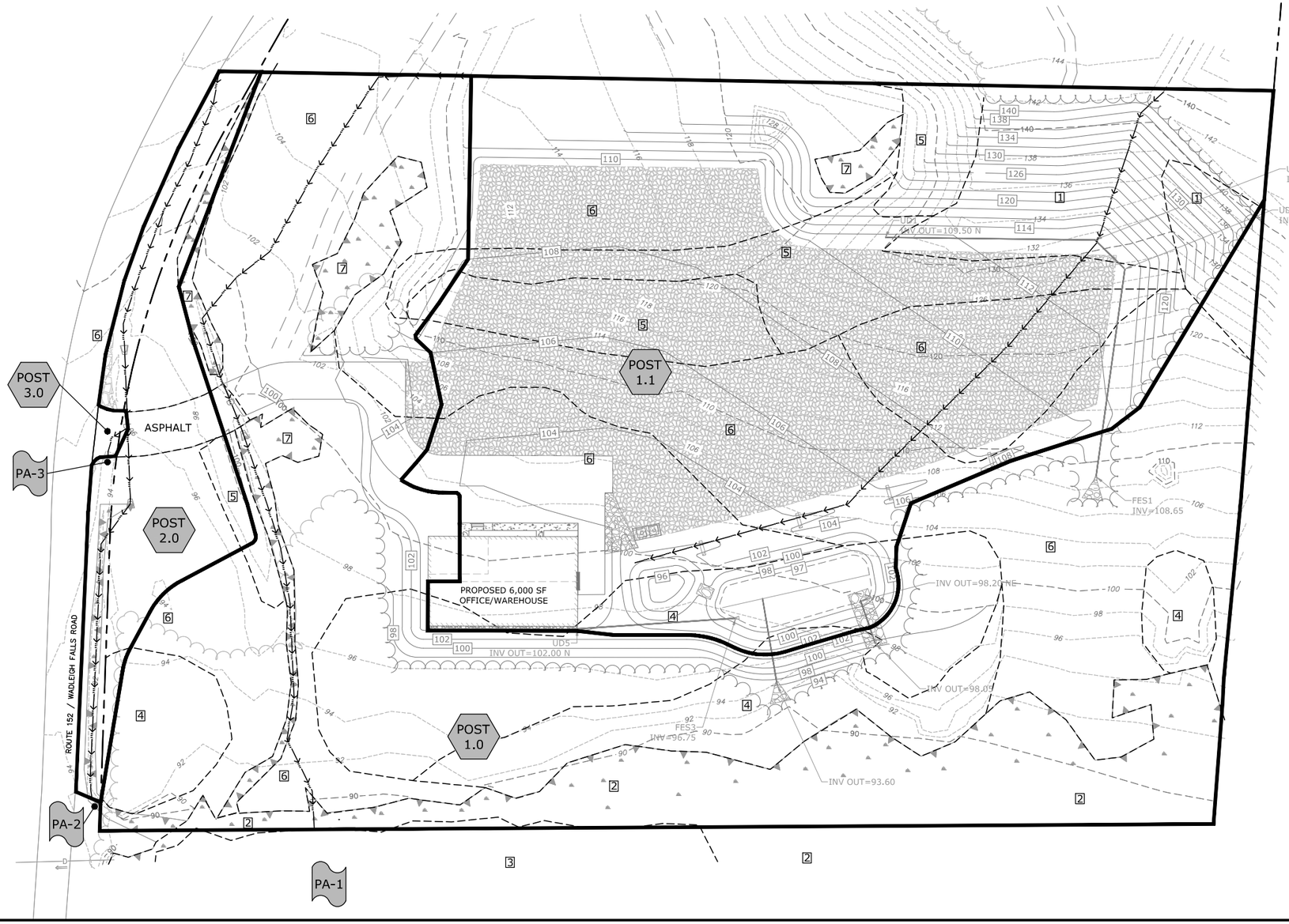
* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)
** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTURBED SOILS FOR ALTERATION OF TERRAIN PERMITS

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON APRIL 26, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

LEGEND

- 4 — SOIL NUMBER PER LEGEND
- SITE SPECIFIC SOIL BOUNDARY
- POST-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- POST POND 1 — POST-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	10/22/2021
FILE:	S5132_C-HYDR.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Saved: 10/14/2021
Plotted: Oct 14, 2021 - 4:22pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-HYDR.dwg

LEGEND

HYDROLOGIC SOIL GROUP A

HYDROLOGIC SOIL GROUP B

HYDROLOGIC SOIL GROUP C

HYDROLOGIC SOIL GROUP D

IMPERVIOUS AREA

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

(SOIL #) MAP NUMBER*/ DISTURBED SOIL NUMERATOR**	SOIL TYPE	HSG
(1) 29	WOODBRIDGE	C
(2) 33	SCITTICO	C
(3) 134	MAYBID	D
(4) 299*/DFABB	UDORTHENTS, SMOOTHED	B
(5) 500*/DCCCC	UDORTHENTS, LOAMY	C
(6) 500*/EFCCC	UDORTHENTS, LOAMY	C
(7) 600*/FFCCC	ENDOAQUENTS, LOAMY	C

* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)
** SUPPLEMENTAL SYMBOLS ARE USED TO FURTHER CHARACTERIZE DISTURBED SOILS FOR ALTERATION OF TERRAIN PERMITS

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON APRIL 26, 2021.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.

LEGEND

4 — SOIL NUMBER PER LEGEND SITE SPECIFIC SOIL BOUNDARY

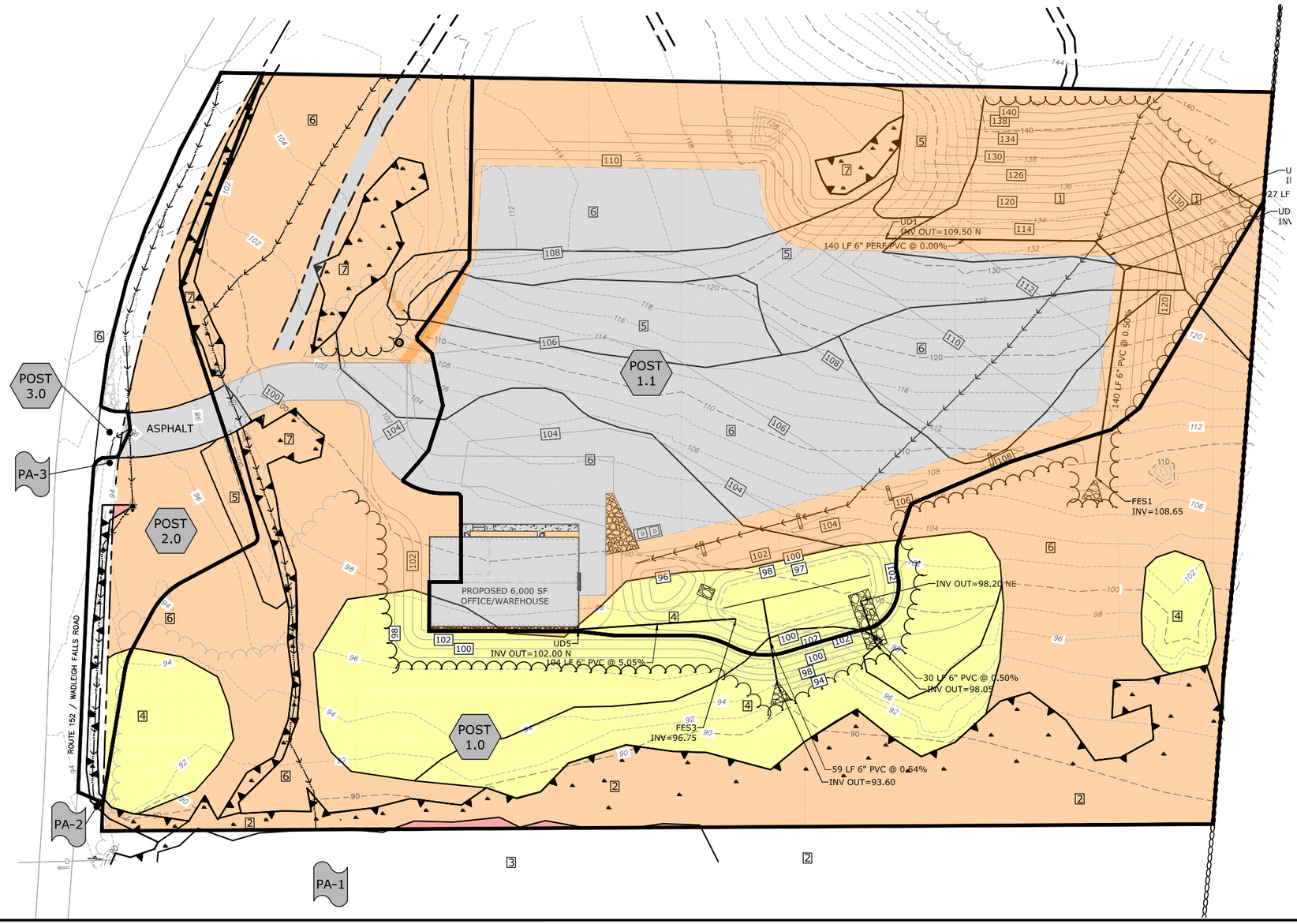
POST-DEVELOPMENT WATERSHED BOUNDARY

LONGEST FLOW PATH

POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

POST POND 1 — POST-DEVELOPMENT POND DESIGNATION

PA-1 — POINT OF ANALYSIS



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

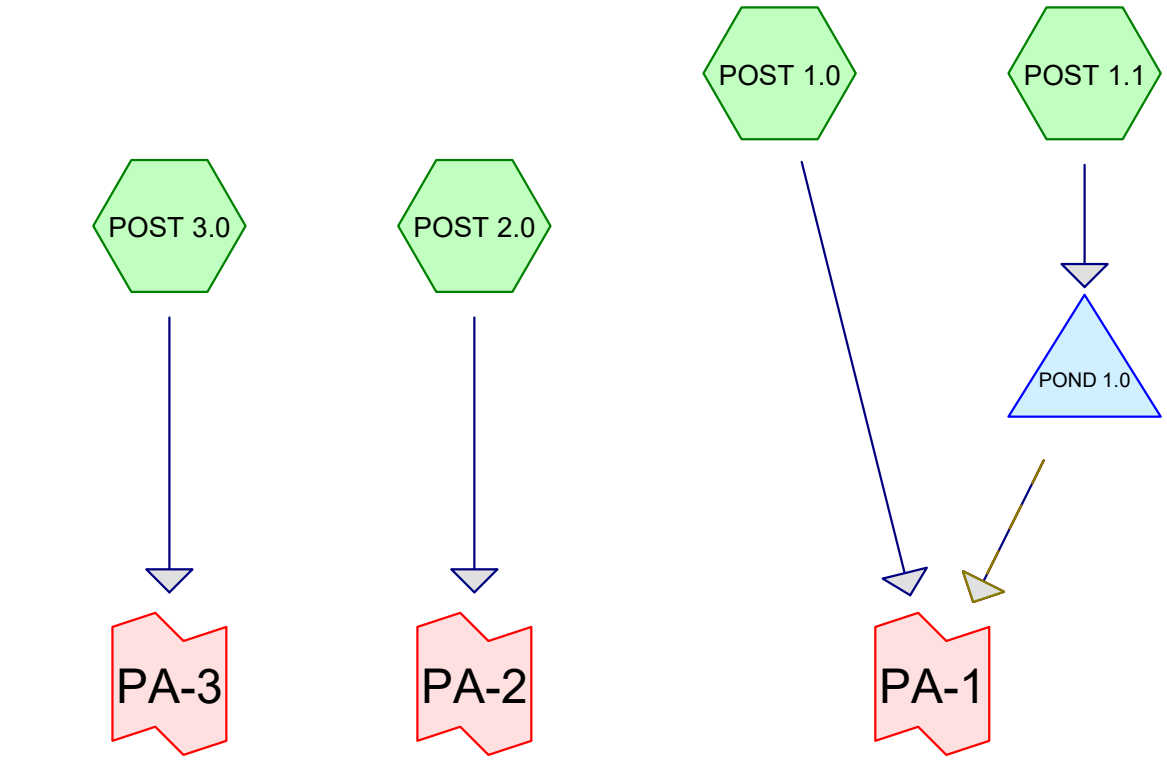
PROJECT NO:	S5132-001
DATE:	10/22/2021
FILE:	S5132_C-HYDR.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

POST-DEVELOPMENT COLOR SOILS PLAN

SCALE: AS SHOWN

C-804

Last Saved: 10/14/2021
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Subcat Reach Pond Link

Routing Diagram for S5132-001_POST
Prepared by Tighe & Bond, Printed 10/14/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
632	69	50-75% Grass cover, Fair, HSG B (POST 2.0)
21,383	79	50-75% Grass cover, Fair, HSG C (POST 2.0)
20,622	61	>75% Grass cover, Good, HSG B (POST 1.0, POST 1.1)
107,420	74	>75% Grass cover, Good, HSG C (POST 1.0, POST 1.1)
386	89	Gravel roads, HSG C (POST 2.0)
1,273	96	Gravel surface, HSG B (POST 1.0, POST 1.1)
78,517	96	Gravel surface, HSG C (POST 1.0, POST 1.1)
13,365	98	Paved parking, HSG C (POST 1.0, POST 1.1, POST 2.0, POST 3.0)
536	98	Unconnected roofs, HSG B (POST 1.1)
5,898	98	Unconnected roofs, HSG C (POST 1.0, POST 1.1)
41,950	60	Woods, Fair, HSG B (POST 1.0)
83,321	73	Woods, Fair, HSG C (POST 1.0, POST 1.1, POST 2.0)
617	79	Woods, Fair, HSG D (POST 1.0)
375,920	**78**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
65,013	HSG B	POST 1.0, POST 1.1, POST 2.0
310,290	HSG C	POST 1.0, POST 1.1, POST 2.0, POST 3.0
617	HSG D	POST 1.0
0	Other	
375,920		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: Runoff Area=187,704 sf 2.83% Impervious Runoff Depth>0.76"
Flow Length=618' Tc=18.0 min CN=71 Runoff=2.37 cfs 11,835 cf

Subcatchment POST 1.1: Runoff Area=163,032 sf 7.34% Impervious Runoff Depth>1.59"
Flow Length=498' Tc=7.0 min CN=85 Runoff=6.65 cfs 21,553 cf

Subcatchment POST 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>1.25"
Flow Length=498' Tc=9.4 min CN=80 Runoff=0.71 cfs 2,555 cf

Subcatchment POST 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>2.77"
Flow Length=26' Slope=0.0780 '/' Tc=5.0 min CN=98 Runoff=0.04 cfs 141 cf

Pond POND 1.0: Peak Elev=98.37' Storage=8,069 cf Inflow=6.65 cfs 21,553 cf
Primary=0.95 cfs 21,189 cf Secondary=0.00 cfs 0 cf Tertiary=0.06 cfs 108 cf Outflow=1.01 cfs 21,298 cf

Link PA-1: Inflow=3.25 cfs 33,133 cf
Primary=3.25 cfs 33,133 cf

Link PA-2: to Wetlands Inflow=0.71 cfs 2,555 cf
Primary=0.71 cfs 2,555 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.04 cfs 141 cf
Primary=0.04 cfs 141 cf

Total Runoff Area = 375,920 sf Runoff Volume = 36,084 cf Average Runoff Depth = 1.15"
94.73% Pervious = 356,121 sf 5.27% Impervious = 19,799 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: Runoff Area=187,704 sf 2.83% Impervious Runoff Depth>1.12"
Flow Length=618' Tc=18.0 min CN=71 Runoff=3.73 cfs 17,562 cf

Subcatchment POST 1.1: Runoff Area=163,032 sf 7.34% Impervious Runoff Depth>2.10"
Flow Length=498' Tc=7.0 min CN=85 Runoff=8.80 cfs 28,551 cf

Subcatchment POST 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>1.71"
Flow Length=498' Tc=9.4 min CN=80 Runoff=0.99 cfs 3,508 cf

Subcatchment POST 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>3.36"
Flow Length=26' Slope=0.0780 '/' Tc=5.0 min CN=98 Runoff=0.05 cfs 172 cf

Pond POND 1.0: Peak Elev=98.98' Storage=10,718 cf Inflow=8.80 cfs 28,551 cf
Primary=1.07 cfs 25,963 cf Secondary=0.00 cfs 0 cf Tertiary=0.52 cfs 2,300 cf Outflow=1.59 cfs 28,263 cf

Link PA-1: Inflow=5.03 cfs 45,825 cf
Primary=5.03 cfs 45,825 cf

Link PA-2: to Wetlands Inflow=0.99 cfs 3,508 cf
Primary=0.99 cfs 3,508 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.05 cfs 172 cf
Primary=0.05 cfs 172 cf

Total Runoff Area = 375,920 sf Runoff Volume = 49,792 cf Average Runoff Depth = 1.59"
94.73% Pervious = 356,121 sf 5.27% Impervious = 19,799 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: Runoff Area=187,704 sf 2.83% Impervious Runoff Depth>2.47"
Flow Length=618' Tc=18.0 min CN=71 Runoff=8.69 cfs 38,613 cf

Subcatchment POST 1.1: Runoff Area=163,032 sf 7.34% Impervious Runoff Depth>3.80"
Flow Length=498' Tc=7.0 min CN=85 Runoff=15.69 cfs 51,644 cf

Subcatchment POST 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>3.30"
Flow Length=498' Tc=9.4 min CN=80 Runoff=1.91 cfs 6,761 cf

Subcatchment POST 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>5.23"
Flow Length=26' Slope=0.0780 '/' Tc=5.0 min CN=98 Runoff=0.08 cfs 267 cf

Pond POND 1.0: Peak Elev=100.44' Storage=18,394 cf Inflow=15.69 cfs 51,644 cf
Primary=1.37 cfs 38,206 cf Secondary=3.10 cfs 3,256 cf Tertiary=1.10 cfs 9,807 cf Outflow=5.57 cfs 51,270 cf

Link PA-1: Inflow=13.05 cfs 89,883 cf
Primary=13.05 cfs 89,883 cf

Link PA-2: to Wetlands Inflow=1.91 cfs 6,761 cf
Primary=1.91 cfs 6,761 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.08 cfs 267 cf
Primary=0.08 cfs 267 cf

Total Runoff Area = 375,920 sf Runoff Volume = 97,284 cf Average Runoff Depth = 3.11"
94.73% Pervious = 356,121 sf 5.27% Impervious = 19,799 sf

Summary for Subcatchment POST 1.0:

Runoff = 8.69 cfs @ 12.26 hrs, Volume= 38,613 cf, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
41,950	60	Woods, Fair, HSG B
77,925	73	Woods, Fair, HSG C
1,117	96	Gravel surface, HSG B
2,020	96	Gravel surface, HSG C
4,678	98	Paved parking, HSG C
11,804	61	>75% Grass cover, Good, HSG B
46,963	74	>75% Grass cover, Good, HSG C
630	98	Unconnected roofs, HSG C
617	79	Woods, Fair, HSG D
187,704	71	Weighted Average
182,396		97.17% Pervious Area
5,308		2.83% Impervious Area
630		11.87% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.1050	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.60"
1.3	246	0.0390	3.18		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.9	54	0.0019	1.03	0.81	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
2.2	77	0.0013	0.58		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.2	191	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.0	618	Total			

Summary for Subcatchment POST 1.1:

Runoff = 15.69 cfs @ 12.10 hrs, Volume= 51,644 cf, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
8,818	61	>75% Grass cover, Good, HSG B
60,457	74	>75% Grass cover, Good, HSG C
536	98	Unconnected roofs, HSG B
5,268	98	Unconnected roofs, HSG C
5,142	73	Woods, Fair, HSG C
156	96	Gravel surface, HSG B
76,497	96	Gravel surface, HSG C
6,158	98	Paved parking, HSG C
163,032	85	Weighted Average
151,070		92.66% Pervious Area
11,962		7.34% Impervious Area
5,804		48.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	50	0.2300	0.19		**Sheet Flow,** Grass: Bermuda n= 0.410 P2= 3.60"
0.2	71	0.2200	7.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	210	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	167	0.0360	2.85		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.0	498	Total			

Summary for Subcatchment POST 2.0:

Runoff = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
1,917	98	Paved parking, HSG C
254	73	Woods, Fair, HSG C
386	89	Gravel roads, HSG C
632	69	50-75% Grass cover, Fair, HSG B
21,383	79	50-75% Grass cover, Fair, HSG C
24,572	80	Weighted Average
22,655		92.20% Pervious Area
1,917		7.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	50	0.0300	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.60"
0.6	150	0.0670	3.88		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.3	97	0.0110	5.15	4.05	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
1.9	201	0.0120	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.4	498	Total			

Summary for Subcatchment POST 3.0:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 267 cf, Depth> 5.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=5.47"

Area (sf)	CN	Description
612	98	Paved parking, HSG C
612		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	26	0.0780	1.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.2	26	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond POND 1.0:

Inflow Area = 163,032 sf, 7.34% Impervious, Inflow Depth > 3.80" for 10 Year event
Inflow = 15.69 cfs @ 12.10 hrs, Volume= 51,644 cf
Outflow = 5.57 cfs @ 12.40 hrs, Volume= 51,270 cf, Atten= 65%, Lag= 18.1 min
Primary = 1.37 cfs @ 12.40 hrs, Volume= 38,206 cf
Secondary = 3.10 cfs @ 12.40 hrs, Volume= 3,256 cf
Tertiary = 1.10 cfs @ 12.40 hrs, Volume= 9,807 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 100.44' @ 12.40 hrs Surf.Area= 5,903 sf Storage= 18,394 cf
Flood Elev= 102.25' Surf.Area= 7,415 sf Storage= 28,745 cf

Plug-Flow detention time= 90.5 min calculated for 51,163 cf (99% of inflow)
Center-of-Mass det. time= 85.9 min (890.3 - 804.4)

Volume	Invert	Avail.Storage	Storage Description
#1	93.92'	28,745 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.92	3,064	249.0	0.0	0	0	3,064
95.00	3,064	249.0	40.0	1,324	1,324	3,333
97.00	3,064	249.0	30.0	1,838	3,162	3,831
98.00	3,821	262.0	100.0	3,436	6,598	4,418
100.00	5,505	300.0	100.0	9,275	15,872	6,208
102.00	7,415	337.0	100.0	12,873	28,745	8,189

Device	Routing	Invert	Outlet Devices
#1	Primary	93.92'	**6.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 93.92' / 93.60' S= 0.0054 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	93.92'	**10.000 in/hr Exfiltration over Surface area**
#3	Secondary	100.20'	**8.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Tertiary	98.20'	**6.0" Round Culvert-Through Spillway** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 98.20' / 98.05' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=1.37 cfs @ 12.40 hrs HW=100.44' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 1.37 cfs of 1.60 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 1.37 cfs)

Secondary OutFlow Max=3.09 cfs @ 12.40 hrs HW=100.44' TW=0.00' (Dynamic Tailwater)
↑—**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.09 cfs @ 1.61 fps)

Tertiary OutFlow Max=1.10 cfs @ 12.40 hrs HW=100.44' TW=0.00' (Dynamic Tailwater)
↑—**4=Culvert-Through Spillway** (Barrel Controls 1.10 cfs @ 5.61 fps)

Summary for Link PA-1:

Inflow Area = 350,736 sf, 4.92% Impervious, Inflow Depth > 3.08" for 10 Year event
Inflow = 13.05 cfs @ 12.35 hrs, Volume= 89,883 cf
Primary = 13.05 cfs @ 12.35 hrs, Volume= 89,883 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-2: to Wetlands

Inflow Area = 24,572 sf, 7.80% Impervious, Inflow Depth > 3.30" for 10 Year event
Inflow = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf
Primary = 1.91 cfs @ 12.13 hrs, Volume= 6,761 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Link PA-3: to Wadleigh Fall Rd

Inflow Area = 612 sf,100.00% Impervious, Inflow Depth > 5.23" for 10 Year event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 267 cf
Primary = 0.08 cfs @ 12.07 hrs, Volume= 267 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: Runoff Area=187,704 sf 2.83% Impervious Runoff Depth>3.67"
Flow Length=618' Tc=18.0 min CN=71 Runoff=13.03 cfs 57,383 cf

Subcatchment POST 1.1: Runoff Area=163,032 sf 7.34% Impervious Runoff Depth>5.20"
Flow Length=498' Tc=7.0 min CN=85 Runoff=21.18 cfs 70,648 cf

Subcatchment POST 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>4.64"
Flow Length=498' Tc=9.4 min CN=80 Runoff=2.67 cfs 9,505 cf

Subcatchment POST 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>6.71"
Flow Length=26' Slope=0.0780 '/' Tc=5.0 min CN=98 Runoff=0.10 cfs 342 cf

Pond POND 1.0: Peak Elev=100.78' Storage=20,432 cf Inflow=21.18 cfs 70,648 cf
Primary=1.44 cfs 44,650 cf Secondary=11.33 cfs 13,171 cf Tertiary=1.20 cfs 12,391 cf Outflow=13.96 cfs 70,212 cf

Link PA-1: Inflow=26.78 cfs 127,595 cf
Primary=26.78 cfs 127,595 cf

Link PA-2: to Wetlands Inflow=2.67 cfs 9,505 cf
Primary=2.67 cfs 9,505 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.10 cfs 342 cf
Primary=0.10 cfs 342 cf

Total Runoff Area = 375,920 sf Runoff Volume = 137,878 cf Average Runoff Depth = 4.40"
94.73% Pervious = 356,121 sf 5.27% Impervious = 19,799 sf

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: Runoff Area=187,704 sf 2.83% Impervious Runoff Depth>4.85"
Flow Length=618' Tc=18.0 min CN=71 Runoff=17.25 cfs 75,880 cf

Subcatchment POST 1.1: Runoff Area=163,032 sf 7.34% Impervious Runoff Depth>6.53"
Flow Length=498' Tc=7.0 min CN=85 Runoff=26.28 cfs 88,666 cf

Subcatchment POST 2.0: Runoff Area=24,572 sf 7.80% Impervious Runoff Depth>5.93"
Flow Length=498' Tc=9.4 min CN=80 Runoff=3.38 cfs 12,136 cf

Subcatchment POST 3.0: Runoff Area=612 sf 100.00% Impervious Runoff Depth>8.09"
Flow Length=26' Slope=0.0780 '/' Tc=5.0 min CN=98 Runoff=0.12 cfs 412 cf

Pond POND 1.0: Peak Elev=101.02' Storage=21,986 cf Inflow=26.28 cfs 88,666 cf
Primary=1.49 cfs 50,042 cf Secondary=19.14 cfs 23,292 cf Tertiary=1.26 cfs 14,829 cf Outflow=21.89 cfs 88,163 cf

Link PA-1: Inflow=37.10 cfs 164,044 cf
Primary=37.10 cfs 164,044 cf

Link PA-2: to Wetlands Inflow=3.38 cfs 12,136 cf
Primary=3.38 cfs 12,136 cf

Link PA-3: to Wadleigh Fall Rd Inflow=0.12 cfs 412 cf
Primary=0.12 cfs 412 cf

Total Runoff Area = 375,920 sf Runoff Volume = 177,095 cf Average Runoff Depth = 5.65"
94.73% Pervious = 356,121 sf 5.27% Impervious = 19,799 sf

3.4 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates from the 2-year, 10-year, 25-year and 50-year storm events at each point of analysis.

Table 3.4

Comparison of Pre- and Post-Development Flows (CFS)

	1-Year Storm	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed					
PA-1	6.10	9.40	21.26	31.55	41.49
PA-2	0.71	0.99	1.91	2.67	3.38
PA-3	0.04	0.05	0.08	0.10	0.12
Post-Development Watershed					
PA-1	3.25	5.03	13.05	26.78	37.10
PA-2	0.71	0.99	1.91	2.67	3.38
PA-3	0.04	0.05	0.08	0.10	0.12

The Peak Runoff Control Requirements of Env-Wq 1507.06 are required to be met for the point of analysis. As shown in Table 3.4 the Post-development flows are decreased from the Pre-development flows for the point of analysis in PA-1 and are unchanged in PA-2 and PA-3.

The Channel Protection requirements of Env-Wq 1507.05 are met for point of analysis PA-1 and are as follows:

PA-1: The 2-year, 24-hour post-development peak flowrate (5.03 cfs) is less than or equal to the 1-year, 24-hour pre-development peak flowrate (6.10 cfs).

The Channel Protection requirements of Env-Wq 1507.05 are not being met for points of analysis PA-2 and PA-3. There is no change in land cover or change to the flow pattern as there is no work proposed in these areas.

3.5 Mitigation Description

3.5.1 Mitigation Calculations

The proposed project area has been evaluated to treat the required water quality flow (WQF) per the requirements of Env-Wq 1500. These calculations have been provided in Section 6 of this report (BMP Worksheets).

3.5.2 Pre-Treatment Methods for Protecting Water Quality

Pretreatment methods for protecting water quality on this site include a sediment forebay.

3.5.3 Treatment Methods for Protecting Water Quality

Treatment for the site is included by means of a Rain Garden. The Rain Garden has been sized to contain the 50-year storm without overtopping, as well as treat a volume of runoff greater than the WQV. Due to poor infiltration rates of the surrounding soils, the bottom of the rain garden is proposed to be lined and outfitted with underdrains to convey treated runoff to the system's outlet structure.

The BMP Worksheets for this treatment practice have been included in Section 6 of this report.

The pollutant removal efficiencies for a Rain Garden for Total Suspended Soils, Total Nitrogen and Total Phosphorus are 90%, 65% and 65% respectively. Pollutant Removal efficiencies are taken from NH Stormwater Manual Volume 2, Appendix B.

Section 4
Rip Rap Apron Calculations

(see following sheets)

In order to determine an accurate size of the Rip-Rap at FES 1, the contributing 6" underdrain pipe was evaluated for the maximum flow that can be expected when flowing at maximum capacity.

Tighe&Bond

Engineers | Environmental Specialists

Project: Seacoast Pool Plastering
Location: Newmarket, NH
T&B #: S5132-001
Calculations By: JRW
Checked By: JPL
Date: 10/14/2021

APRON DESIGN

Terms: Rip-Rap Apron 1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	0.52	cfs
Do (ft.)	0.50	ft
T_w (ft.)	0.20	ft

Output:		
Width of Apron (W1)	2	ft.
Width of Apron (W2)	8	ft.
Length of Apron (L_a)	6	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

Tighe&Bond

Engineers | Environmental Specialists

Project: Seacoast Pool Plastering
Location: Newmarket, NH
T&B #: S5132-001
Calculations By: JRW
Checked By: JPL
Date: 10/15/2021

APRON DESIGN

Terms: Rip-Rap Apron

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

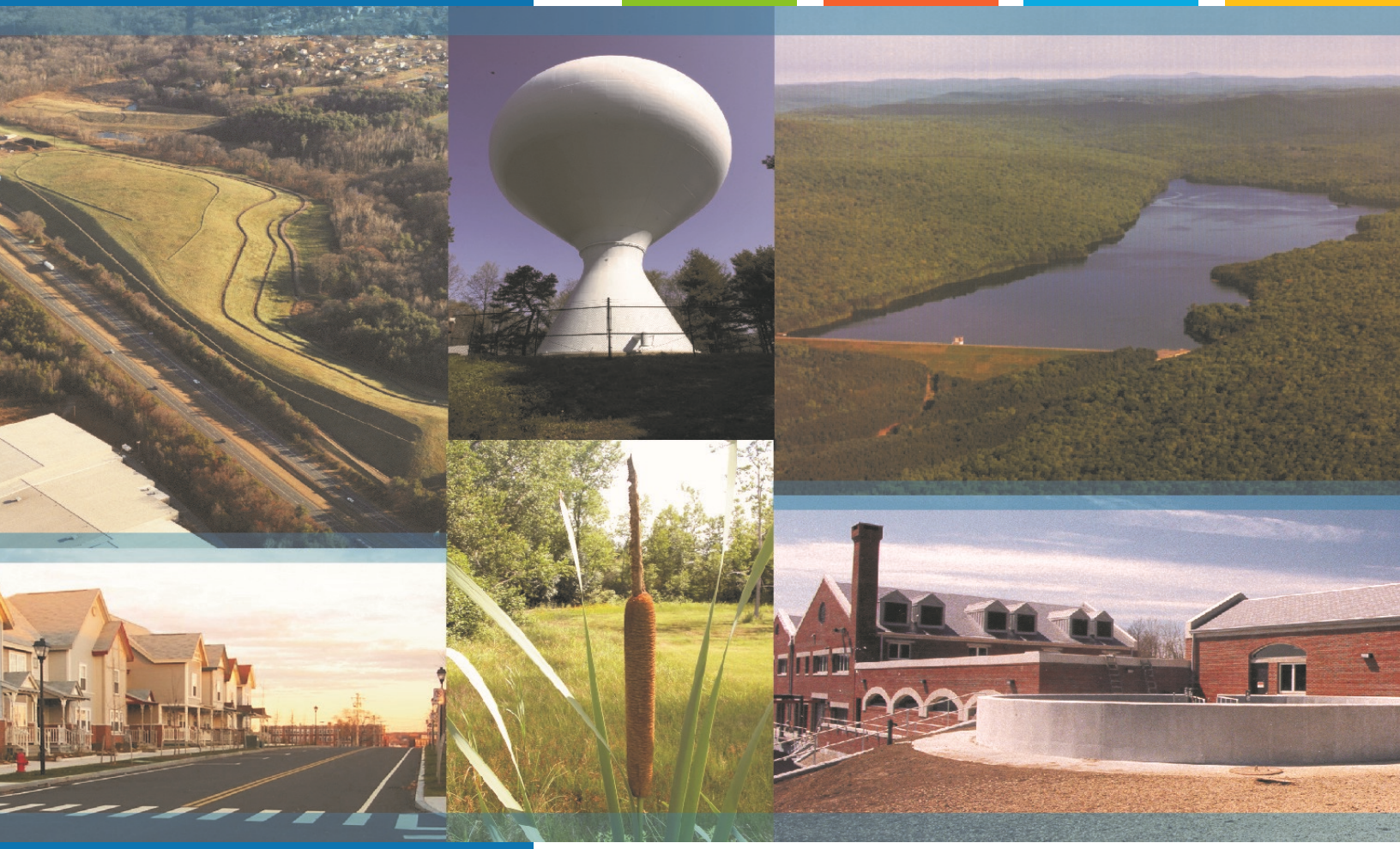
when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	1.44	cfs
Do (ft.)	0.50	ft
T_w (ft.)	0.20	ft

Output:		
Width of Apron (W1)	2	ft.
Width of Apron (W2)	12	ft.
Length of Apron (L_a)	11	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

Section 5
Long-Term Operation & Maintenance Plan



Proposed Office and Equipment Storage

Town of Newmarket, NH

Operation and Maintenance Manual

Prepared For:

Seacoast Pool Plastering, LLC

90 Depot Road

Greenland, New Hampshire 03824

November, 2021

100% Recyclable

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Tighe&Bond

Executive Summary

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1.4 Rain Garden Maintenance Requirements 1-2
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Section 2 Invasive Species

Section 3 Annual Updates and Log Requirements

Section 1
Long Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as implementing a plan to assure routine maintenance. By identifying the areas of concern as well as implementing a frequent and routine maintenance schedule the site will maintain a high-quality stormwater runoff.

1.1 Contact/Responsible Party

Seacoast Pool Plastering LLC
90 Depot Road
Greenland, NH 03824

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

1.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Pavement Sweeping
- Rain Garden
- Rip Rap Outlets

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect site for trash and debris

1.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance	Location
Litter/Debris Removal	Weekly	Lot
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Annually	Map R-6, Lot 7 & 8
Rain Garden - Trash and debris to be removed. - Any required maintenance shall be addressed.	Two (2) times annually and after any rainfall event exceeding 2.5" in a 24-hr period	Map R-6, Lot 7 & 8

1.3.1 Disposal Requirements

Disposal of debris, trash, sediment and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

1.4 Rain Garden Maintenance Requirements

Rain Garden Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor to ensure that Rain Gardens function effectively after storms	Two (2) times annually and after any rainfall event exceeding 2.5" in a 24-hr period	- Trash and debris to be removed - Any required maintenance shall be addressed
Inspect Vegetation	Annually	- Inspect the condition of all Rain Garden vegetation - Prune back overgrowth - Replace dead vegetation - Remove any invasive species
Inspect Drawdown Time - The system shall drawdown within 48-hours following a rainfall event.	Annually	- Assess the condition of the facility to determine measures required to restore the filtration function, including but not limited to removal of accumulated sediments or reconstruction of the filter.

1.5 Rip Rap Maintenance Requirements

Rip Rap Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Visual Inspection	Annually	- Visually inspect for damage and deterioration - Repair damages immediately

1.6 Snow & Ice Management for Standard Asphalt and Walkways

Snow storage areas shall be located such that no direct untreated discharges are possible to receiving waters from the storage site (snow storage areas have been shown on the Site Plan). The property manager will be responsible for timely snow removal from all private sidewalks, driveways, and parking areas. Snow removal will be hauled off-site and legally disposed of when snowbanks exceed 6 feet in height. Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt and sand shall be used to the minimum extent practical (refer to the attached for de-icing application rate guideline from the New Hampshire Stormwater Management Manual, Volume 2).

Deicing Application Rate Guidelines

24' of pavement (typcial two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

			Pounds per two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Salt Prewetted / Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand (abrasives)
> 30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not recommended
	Freezing Rain	Apply Chemical	80 - 160	70 - 140	100 - 200*	Not recommended
30° ↓	Snow	Plow and apply chemical	80 - 160	70 - 140	100 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↑	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↓	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↓	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↑	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240 - 320	210 - 280	300 - 400*	500 for freezing rain
0° - 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 - 400	Not recommended	500 - 750 spot treatment as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 - 600**	Not recommended	500 - 750 spot treatment as needed

* Dry salt is not recommended. It is likely to blow off the road before it melts ice.

** A blend of 6 - 8 gal/ton $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as -10°.

Anti-icing Route Data Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

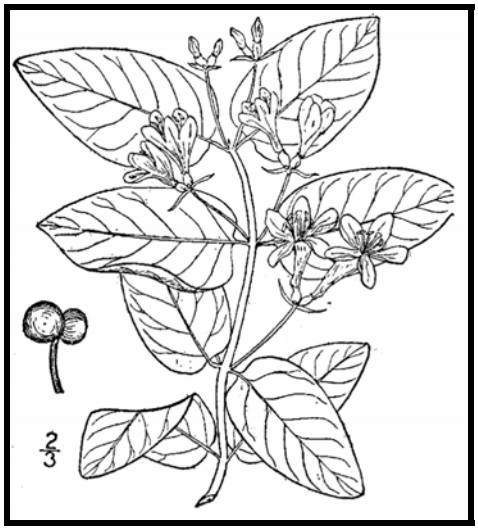
Section 2
Invasive Species

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem is classified as an invasive species. Refer to the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species.

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

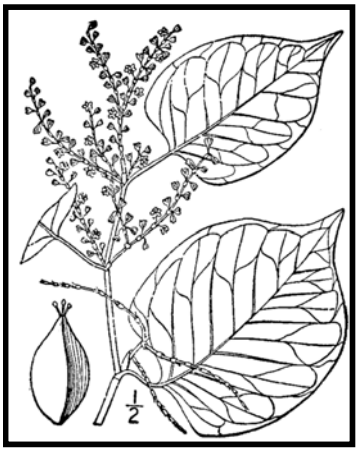
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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Managing Invasive Plants
Methods of Control

by Christopher Mattrick

They're out there. The problem of invasive plants is as close as your own backyard.

Maybe a favorite dogwood tree is struggling in the clutches of an Oriental bittersweet vine. Clawlike canes of multiflora rose are scratching at the side of your house. That handsome burning bush you planted few years ago has become a whole clump in practically no time … but what happened to the azalea that used to grow right next to it?

If you think controlling or managing invasive plants on your property is a daunting task, you're not alone. Though this topic is getting lots of attention from federal, state, and local government agencies, as well as the media, the basic question for most homeowners is simply, "How do I get rid of the invasive plants in my own landscape?" Fortunately, the best place to begin to tackle this complex issue is in our own backyards and on local conservation lands. We hope the information provided here will help you take back your yard. We won't kid you—there's some work involved, but the payoff in beauty, wildlife habitat, and peace of mind makes it all worthwhile.

PLAN OF ATTACK

Three broad categories cover most invasive plant control: mechanical, chemical, and biological. Mechanical control means physically removing plants from the environment through cutting or pulling. Chemical control uses herbicides to kill plants and inhibit regrowth. Techniques and chemicals used will vary depending on the species. Biological controls use plant diseases or insect predators, typically from the targeted species' home range. Several techniques may be effective in controlling a single species, but there is usually one preferred method—the one that is most resource efficient with minimal impact on non-target species and the environment.



Spraying chemicals to control invasive plants.

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.



Using tools to remove woody stems.





Volunteers hand pulling invasive plants.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic—invasive and non-invasive plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse.

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-B-Gone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed.

For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle.



Cut stem treatment tools.

For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems.

It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye.

There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.



Hollow stem injection tools.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. **Burn it**—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.

2. **Pile it**—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.

3. **Compost it**—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.



Injecting herbicide into the hollow stem of phragmites.

4. **Dry it/cook it**—Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.

Care should be taken in the disposal of all invasive plants, but several species need extra attention. These are the ones that have the ability to sprout vigorously from plant fragments and should ideally be burned or dried prior to disposal: Oriental bittersweet, multiflora rose, Japanese honeysuckle, phragmites, and Japanese knotweed.

Christopher Mattrick is the former Senior Conservation Programs Manager for New England Wild Flower Society, where he managed conservation volunteer and invasive and rare plant management programs. Today, Chris and his family work and play in the White Mountains of New Hampshire, where he is the Forest Botanist and Invasive Species Coordinator for the White Mountain National Forest.



Controlling Invasive Plants in Wetlands

Special concerns; special precautions

Control of invasive plants in or around wetlands or bodies of water requires a unique set of considerations. Removal projects in wetland zones can be legal and effective if handled appropriately. In many cases, herbicides may be the least disruptive tools with which to remove invasive plants. You will need a state-issued pesticide license to apply herbicide on someone else's property, but all projects in wetland or aquatic systems fall under the jurisdiction of the Wetlands Protection Act and therefore require a permit. ***Yes, even hand-pulling that colony of glossy buckthorn plants from your own swampland requires a permit.*** Getting a permit for legal removal is fairly painless if you plan your project carefully.

1. Investigate and understand the required permits and learn how to obtain them. The entity charged with the enforcement of the Wetlands Protection Act varies from state to state. For more information in your state, contact:

   ME: Department of Environmental Protection
   www.state.me.us/dep/blwq/docstand/nrpapage.htm

   NH: Department of Environmental Services
   www.des.state.nh.us/wetlands/

   VT: Department of Environmental Conservation
   www.anr.state.vt.us/dec/waterq/permits/htm/pm_cud.htm

   MA: Consult your local town conservation commission

   RI: Department of Environmental Management
   www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm

   CT: Consult your local town Inland Wetland and Conservation Commission

2. Consult an individual or organization with experience in this area. Firsthand experience in conducting projects in wetland zones and navigating the permitting process is priceless. Most states have wetland scientist societies whose members are experienced in working in wetlands and navigating the regulations affecting them. A simple Web search will reveal the contact point for these societies. Additionally, most environmental consulting firms and some nonprofit organizations have skills in this area.

3. Develop a well-written and thorough project plan. You are more likely to be successful in obtaining a permit for your project if you submit a project plan along with your permit application. The plan should include the reasons for the project, your objectives in completing the project, how you plan to reach those objectives, and how you will monitor the outcome.

4. Ensure that the herbicides you plan to use are approved for aquatic use. Experts consider most herbicides harmful to water quality or aquatic organisms, but rate some formulations as safe for aquatic use. Do the research and select an approved herbicide, and then closely follow the instructions on the label.

5. If you are unsure—research, study, and most of all, ask for help. Follow the rules. The damage caused to aquatic systems by the use of an inappropriate herbicide or the misapplication of an appropriate herbicide not only damages the environment, but also may reduce public support for safe, well-planned projects.

Section 3
Annual Updates and Log Requirements

The Owner and/or Contact/Responsible Party shall review this Operation and Maintenance Plan once per year for its effectiveness and adjust the plan and deed as necessary.

A log of all preventative and corrective measures for the stormwater system shall be kept on-site and be made available upon request by any public entity with administrative, health environmental or safety authority over the site including NHDES.

Copies of the Stormwater Maintenance report shall be submitted to the City of Portsmouth on an annual basis.

Stormwater Management Report						
		Seacoast Pool Plastering LLC				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Rain Garden			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			
			❑Yes ❑No			

APPENDIX A

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.985 degrees West
Latitude	43.081 degrees North
Elevation	0 feet
Date/Time	Wed, 11 Nov 2020 12:26:17 -0500

2 yr=3.60"
5 yr=4.57"
10 yr=5.47"
25 yr=6.95"
50 yr=8.33"
100 yr=9.98"

add 15% for coastal community

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.82	1.04	**1yr**	0.70	0.98	1.21	1.55	2.01	2.61	2.82	**1yr**	2.31	2.72	3.12	3.84	4.43	**1yr**
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.50	1.91	2.44	3.13	3.47	**2yr**	2.77	3.33	3.84	4.56	5.19	**2yr**
5yr	0.37	0.57	0.72	0.97	1.23	1.59	**5yr**	1.07	1.45	1.86	2.39	3.08	3.97	4.45	**5yr**	3.52	4.28	4.89	5.79	6.56	**5yr**
10yr	0.41	0.64	0.81	1.10	1.43	1.86	**10yr**	1.23	1.70	2.20	2.84	3.67	4.76	5.38	**10yr**	4.21	5.17	5.88	6.95	7.82	**10yr**
25yr	0.47	0.75	0.95	1.31	1.74	2.29	**25yr**	1.50	2.11	2.72	3.56	4.64	6.04	6.91	**25yr**	5.34	6.65	7.50	8.84	9.89	**25yr**
50yr	0.52	0.84	1.08	1.50	2.03	2.70	**50yr**	1.75	2.48	3.22	4.24	5.55	7.24	8.36	**50yr**	6.41	8.04	9.02	10.61	11.81	**50yr**
100yr	0.59	0.95	1.23	1.74	2.36	3.17	**100yr**	2.04	2.92	3.80	5.03	6.61	8.68	10.12	**100yr**	7.68	9.73	10.86	12.74	14.11	**100yr**
200yr	0.66	1.07	1.39	1.99	2.75	3.74	**200yr**	2.37	3.44	4.51	5.99	7.91	10.41	12.25	**200yr**	9.21	11.78	13.06	15.31	16.87	**200yr**
500yr	0.77	1.27	1.66	2.41	3.38	4.64	**500yr**	2.91	4.28	5.61	7.52	10.01	13.24	15.77	**500yr**	11.72	15.16	16.69	19.54	21.38	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.94	1.26	1.54	2.04	2.51	**1yr**	1.81	2.41	2.90	3.37	3.96	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.82	2.34	3.03	3.36	**2yr**	2.68	3.23	3.72	4.42	5.00	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.14	2.76	3.68	4.07	**5yr**	3.25	3.92	4.50	5.44	6.07	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.61	**10yr**	1.15	1.57	1.82	2.43	3.11	4.21	4.71	**10yr**	3.73	4.53	5.20	6.33	6.93	**10yr**
25yr	0.44	0.67	0.84	1.20	1.57	1.92	**25yr**	1.36	1.87	2.11	2.83	3.64	4.88	5.67	**25yr**	4.32	5.46	6.29	7.74	8.61	**25yr**
50yr	0.49	0.74	0.93	1.33	1.79	2.20	**50yr**	1.55	2.15	2.36	3.19	4.09	5.54	6.51	**50yr**	4.90	6.26	7.25	9.02	9.95	**50yr**
100yr	0.55	0.83	1.04	1.50	2.05	2.52	**100yr**	1.77	2.46	2.65	3.58	4.59	6.28	7.47	**100yr**	5.56	7.18	8.38	10.51	11.46	**100yr**
200yr	0.61	0.92	1.16	1.68	2.35	2.88	**200yr**	2.02	2.82	2.95	4.01	5.14	7.10	9.30	**200yr**	6.29	8.94	9.68	12.25	13.23	**200yr**
500yr	0.71	1.06	1.36	1.98	2.82	3.47	**500yr**	2.43	3.39	3.43	4.66	6.01	8.33	11.36	**500yr**	7.37	10.93	11.73	15.02	15.95	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.71	0.88	1.08	**1yr**	0.76	1.05	1.24	1.72	2.19	2.85	3.08	**1yr**	2.52	2.97	3.44	4.14	4.83	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.47	1.94	2.49	3.28	3.59	**2yr**	2.90	3.45	3.97	4.73	5.45	**2yr**
5yr	0.40	0.61	0.76	1.04	1.32	1.59	**5yr**	1.14	1.55	1.85	2.48	3.16	4.27	4.84	**5yr**	3.78	4.65	5.30	6.16	7.05	**5yr**
10yr	0.46	0.71	0.88	1.23	1.59	1.93	**10yr**	1.37	1.89	2.23	3.01	3.80	5.30	6.08	**10yr**	4.69	5.84	6.61	7.58	8.68	**10yr**
25yr	0.57	0.86	1.07	1.53	2.01	2.49	**25yr**	1.74	2.43	2.88	3.91	4.86	7.20	8.24	**25yr**	6.37	7.92	8.85	10.00	11.08	**25yr**
50yr	0.66	1.00	1.25	1.79	2.41	3.01	**50yr**	2.08	2.95	3.49	4.75	5.87	8.95	10.40	**50yr**	7.92	10.00	11.05	12.33	13.57	**50yr**
100yr	0.77	1.16	1.46	2.11	2.89	3.65	**100yr**	2.49	3.57	4.24	5.80	7.10	11.14	13.12	**100yr**	9.86	12.61	13.78	15.22	16.64	**100yr**
200yr	0.90	1.35	1.71	2.48	3.45	4.43	**200yr**	2.98	4.33	5.16	7.08	8.58	13.92	15.42	**200yr**	12.32	14.83	17.20	18.76	20.44	**200yr**
500yr	1.10	1.64	2.12	3.07	4.37	5.70	**500yr**	3.77	5.58	6.68	9.23	11.03	18.70	20.70	**500yr**	16.55	19.91	23.06	24.79	26.85	**500yr**

Powered by ACIS Northeast Regional Climate Center

[Sec. 6.01.] - Stormwater management checklist.

Stormwater Management Checklist

Please use the following checklist as a guide to assess whether the various stormwater management components as required by Site Plan Regulations have been completed and are included in the site design and application materials. Please check each box as it applies consistent with the regulations. If certain items could not be completed or are not included in the site design, please provide separate written explanations as to why these items could not be completed or be included in the site design process due to site conditions.

Project Contact Information		
Project Name Proposed Office and Equipment Storage		
Project Street Address 446 & 450 Wadleigh Falls Road		
Applicant's Name Seacoast Pool Plastering, LLC Robert P. MacInnis	Phone No. 617-504-2833	Email rmacinnis@myfairpoint.net
Engineer's Name /Company John P. Lorden / Tighe & Bond	Phone No. 603-433-8818	Email jlorden@tighebond.com
Property Owner (if different)	Phone No.	Email
Architect	Phone No.	Email

Basic Project Information and Type of Development		
☒	Completed Site Plan Review Application	Date of Submittal 11/18/ 2021
☒	New Development ☐	Redevelopment
☒	Describe Type of Development The proposed project is for the construction of a 1,000 SF office and 5,000 SF proposed equipment/construction storage warehouse area. The existing vacant lots are proposed to be combined and the access will be maintained from the existing paved driveway segment that was previously constructed. The 6,000-sf office/warehouse is expected to consist of 3 employees, 14 paved parking spaces and approximately 80,000 sf of gravel parking for storage of truck trailers, containers and equipment.	
☒	Total Area of Site 8.44 acres	
☒	Describe Existing Use/Land Cover of Property The existing lots are currently vacant wooded lots previously used as gravel pits. A small portion of a 30' wide paved driveway off of Route 152 / Wadleigh Falls Road will be maintained. Along the frontage of the property there exists a small wetland that flows to a larger wetland along the western property line. A portion of the site is within the Aquifer Protection Overlay District	
☒	List Adjacent Receiving Water Bodies unnamed wetland	
☒	Onsite and Adjacent Wetland Areas have been Delineated	

Thresholds for Requiring a Stormwater Management and Erosion Control Report			
Total Area of Proposed Disturbance			Square Feet
	☐	< 20,000 square feet	Not Required
	☐	>20,000 square feet	Required
OR			
Total Amount of new impervious area added			Square Feet
	☐	< 5,000 square feet impervious area	Not Required
	☒	> 5,000 square feet impervious area	Required

Stormwater Management and Erosion Report Contents			
☒	***Existing Conditions Plans***	*Section 3.07 (B) (1)*	
	☒	Title Block, Scale, Legend, Datum, Locus Plan, Professional Stamp(s)	
	☒	Topographic Contours and Benchmarks	
	☒	Pre-development Watershed Boundaries, Drainage Patterns, Channelized Flow Areas	
	☒	Conveyance Structures, Location where runoff exits the site	
	☒	Buffer and Setback limits as required by Town Ordinances and State Regulations	
	☒	Buildings, Structures, Wells, Septic systems, Utilities	
	☒	Water Bodies, Wetlands, Hydrologic Features, Soils Codes	

	☒	Areas of Existing vegetation and mature trees shown			
☒	***Proposed Conditions Plans***		*Section 3.07 (B) (2)*		
	☒	Title Block, Scale, Legend, Datum, Locus Plan, Professional Stamp(s)			
	☒	Topographic Contours and Benchmarks			
	☒	Post-development Watershed boundaries, drainage patterns, channelized flow areas			
	☒	Proposed areas of disturbance			
	☒	Proposed impervious areas			
	☒	Temporary stock pile areas			
	☐	Construction refueling areas			
	☒	Temporary and permanent stormwater treatment BMP location and details are shown			
	☒	Erosion Control Measure locations and details are shown on plans			
	☒	Stormwater outlet locations			
	☐	Drainage and Access Maintenance Easements			
	☒	Name of Receiving Waters			
	☐	Connection to municipal stormwater drainage facilities			
☒	**Drainage Analysis Completed**		*Section 3.07 B (3)*		
	24 – Hour Storm Event		**Runoff**	**Pre-development**	**Post-development**
	2-Year		Rate	(CFS)	(CFS)
	2-Year		Volume	(CF)	(CF)
	10-Year		Rate	(CFS)	(CFS)
	10-Year		Volume	(CF)	(CF)
	25-Year see attached		Rate	(CFS)	(CFS)
	25-Year		Volume	(CF)	(CF)
	50-Year		Rate	(CFS)	(CFS)
	50-Year		Volume	(CF)	(CF)
	100-Year		Rate	(CFS)	(CFS)
	100-Year		Volume	(CF)	(CF)
Stormwater BMP Design					
Have Low Impact Development measures been included in Design ☒ Yes, list below; ☐ No, Explain separately					
List LID Measures included: Bioretention and preserving the wooded buffer to the maximum extent practicable					
☒	Have the stormwater BMP and erosion control measures been designed and sized in accordance with NHDES Stormwater Manual Design Guidance as required by Site Plan Regulations *3.07 (B) 6*				
☒	Percentage of Impervious Area Treated 87%			Type of BMP treatment: Bioretention System	
☐	Landscaping plans and details of planting areas have been included and specify planting species that are native, non-invasive and appropriate for site conditions. *Section 3.07 (B) (7)*				
☐	Covenants and deed restrictions for access prepared for filing with the Register of Deeds. *Section 3.07 (B) (9)*				
☐	**Other Permits or Plans Required by US EPA or NH DES** (as applicable) *Section 3.07 (B) (10)*				
	☒	US EPA Notice of Intent			
	☒	NH DES Alteration of Terrain Permit			
	☒	Other (Please list) NH DES Individual Sewage Disposal System			
☒	**Operations and Maintenance Plan** *Section 3.07 (B) (8)*				
	Responsible Party for Future Maintenance Robert P. MacInnis				
☐	Need for 3rd Party Review		Yes	No	

[Sec. 6.02.] - Application completeness checklist for minor review.

[Sec. 6.03.] - Application completeness checklist for major review.

Newmarket Site Plan Review Regulations
Major Review
Application Completeness Checklist

Applicable Section of Site Plan Regulations:	*(PB Application Checklists.xls)*	Provided? YES	NO	N.A.	Waiver Req.
	Application Form:				
2.04 (A)(1)	correctly completed	X			
2.04 (A)(1)	signed by owner(s)	X			
	Abutters List:				
2.04 (A)(2)	includes all abutters	X			
RSA 676:4 I, (b)	includes owner(s)	X			
RSA 676:4 I, (d)	includes authorized representative	X			
2.10	includes towns/regions for regional notice if requred	X			
2.04 (A)(2)	includes 3 sets of mailing labels: 1" X 2.75"	X			
2.04 (A)(2)	signed and dated by preparer	X			
RSA 676:4 I, (b)	dated within 5 days of submittal of application	X			
	Fees: Site Plan Review + Special Use Permit fees				
2.04 (A)(3)	amount for administration: $ 850				
2.04 (A)(3)	amount for public notice: $ 150 + $63 (abutter fees)				
	total amount paid: $ 1063.00				
	correct amount paid	X			
	Site Plan:				
2.04 (A)(4)	three paper copies submitted	X			
4.01	correct size: 22" X 34"	X			
	title block:				
4.03 (A)(1)	title of sheet/name of project	X			
4.03 (A)(2)	name of owner	X			
4.03 (A)(4)	tax map & parcel number	X			
4.03 (A)(5)	name and address fo preparer	X			
	scale:				
4.03 (B)	given in text and graphic form	X			
4.08	correct: 1" = 20'				X
4.03 (C)	north arrow	X			

		Y	N	N/A	WAIVER
	dates:				
4.03 (D)	original preparation	X			
4.03 (D)	updates, with description of changes	X			
	approval sheet:				
4.06 (A)	2" X 4" approval block for Board	X			
4.06 (B)	supplemental plat note w/names & dates	X			
4.06 (C)	locus map	X			
4.07	match lines for multiple sheets			X	
	area of coverage:				
4.09	correctly determined	X			
4.09	supplemental location drawing	X			
4.04	LLS stamp and signature where needed	X			
4.05	PE stamp and signature where needed	X			
	boundary survey:				
4.10 (A)	prepared by LLS	X			
4.10 (A)(1)	complete boundary survey documentation	X			
4.10 (A)(2)	names, addresses and map/parcel of abutters	X			
4.10 (A)(3)	roads, ROWs, intersections & driveways within 50'	X			
	existing conditions on the site:				
4.10 (B)(1)	contours at 2' intervals, with elevation benchmark	X			
4.10 (B)(2)	soil types	X			
4.10 (B)(3)	buildings in plan view, w/sizes and uses			X	
4.10 (B)(4)	approx. location of buildings within 50' of site			X	
4.10 (B)(5)	details of existing site improvements	X			
4.10 (B)(6)	surface waters, stone walls & other resources	X			
4.10 (B)(7)(a)	notes re: easements, deed restrictions, covenants	X			
4.10 (B)(7)(b)	notes re: base and overlay zoning districts	X			
4.10 (B)(7)(c)	notes re: area of lot and length of road frontage	X			
4.10 (B)(8)	municipal and zoning district boundaries	X			
4.10 (B)(9)	setbacks	X			
4.10 (B)(10)	elevation contour of the 100 year floodplain			X	
4.10 (B)(10)	first floor elevations of buildings within floodplain			X	
	proposed site plan:				
4.05	stamped and signed by a PE	X			
4.10 (C)(1)	contours at 2' intervals	X			

		Y	N	N/A	WAIVER
4.10 (C)(2)	buildings in plan view, w/sizes and uses	X			
4.10 (C)(3)	design of new or modified site improvements	X			
4.10 (C)(4)	parking calculations	X			
4.10 (C)(4)	accessible parking spaces	X			
4.10 (C)(5)	pedestrian and bicycle facilities				X
4.10 (C)(6)	snow storage areas	X			
4.10 (C)(10)	wheelchair access	X			
4.10 (C)(7)	landscaping				X
4.10 (C)(8)	drainage facilities and paths of drainage flow	X			
4.10 (C)(9)	location of utilities, water and sewage disposal	X			
4.10 (C)(12)	solid waste and recycling facilities			X	
4.10 (C)(13)	outdoor lighting				X
4.10 (C)(11)	elevation contour of the 100 year floodplain			X	
4.10 (C)(11)	first floor elevations of buildings within floodplain			X	
4.10 (C)(14)(a)	notes re: easements, deed restrictions, covenants				
4.10 (C)(14)(b)	notes re: base and overlay zoning districts	X			
4.10 (C)(14)(c)	notes re: area of lot and length of road frontage	X			
4.10 (C)(14)(d)	notes re: calculation of impervious area	X			
4.10 (C)(14)(e)	notes re: plan for snow removal	X			
4.10 (C)(14)(f)	notes re: list of waivers and substitutions	X			
4.10 (C)(15)	other as needed				
4.10 (D)	elevation view of the front of prosposed/altered building				X
	Other Documentation:				
2.04 (A)(5)(a)	letter to Police Chief	X			
2.04 (A)(5)(a)	letter to Fire Chief	X			
2.04 (A)(5)(a)	letter to Code Enforcement Officer re: compliance	X			
2.04 (A)(5)(a)	letter to Public Works Director	X			
	application for State permits:				
2.04 (A)(5)(b)	septic	X			
2.04 (A)(5)(b)	driveway	X			
2.04 (A)(5)(b)	wetlands			X	
2.04 (A)(5)(b)	site specific	X			
2.04 (A)(5)(b)	underground storage tank			X	
2.04 (A)(5)(b)	other: _____				

Stormwater Management Checklist Attachment

	Rate (cfs)	Volume (cf)	Rate (cfs)	Volume (cf)	Rate (cfs)	Volume (cf)	Rate (cfs)	Volume (cf)	Rate (cfs)	Volume (cf)
PA-1	2 yr		10 yr		25 yr		50 yr		100 yr	
Pre	9.40	34,619	21.26	74,865	31.55	110,500	41.49	145,493	53.57	188,799
Post	5.03	45,825	13.05	89,883	26.78	127,595	37.10	164,044	48.32	208,374
PA-2	2 yr		10 yr		25 yr		50 yr		100 yr	
Pre	0.99	3,508	1.91	6,761	2.67	9,505	3.38	12,136	4.23	15,341
Post	0.99	3,508	1.91	6,761	2.67	9,505	3.38	12,136	4.23	15,341
PA-3	2 yr		10 yr		25 yr		50 yr		100 yr	
Pre	0.05	172	0.08	267	0.10	342	0.12	412	0.14	496
Post	0.05	172	0.08	267	0.10	342	0.12	412	0.14	496

446 & 450 WADLEIGH FALLS ROAD

NEWMARKET, NEW HAMPSHIRE

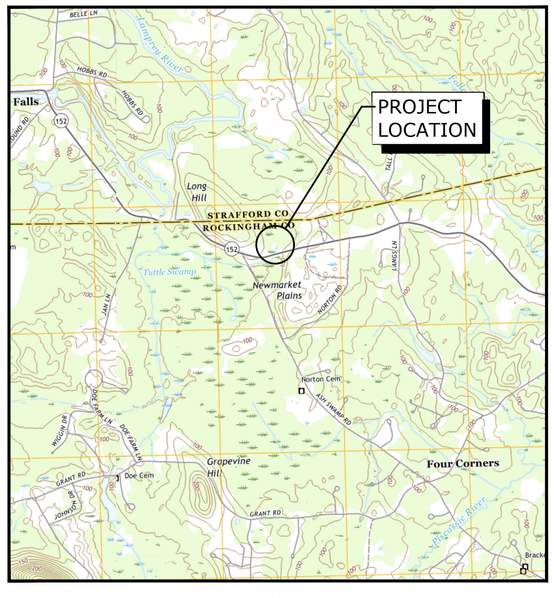
PROPOSED OFFICE AND EQUIPMENT STORAGE

PERMIT DRAWINGS

NOVEMBER 12, 2021

LIST OF DRAWINGS	
SHEET NO.	SHEET TITLE
	COVER
1 OF 1	EXISTING CONDITIONS PLAN (BY DOUCET SURVEY)
C-101	EXISTING & DEMOLITION PLAN
C-102	SITE PLAN
C-103	GRADING, DRAINAGE, AND EROSION CONTROL PLAN
C-104	UTILITY PLAN
C-105	PHASING PLAN
C-501	EROSION CONTROL NOTES
C-502	DETAILS
C-503	DETAILS
C-504	DETAILS

LIST OF PERMITS	
PERMIT	STATUS
SITE PLAN REVIEW/SPECIAL USE PERMIT (WETLAND BUFFER IMPACTS)	SUBMITTED
NHDOT - DRIVEWAY PERMIT	SUBMITTED
NHDES - ALTERATION OF TERRAIN PERMIT	SUBMITTED
NHDES - INDIVIDUAL SEWAGE DISPOSAL SYSTEM	SUBMITTED
USEPA - NOTICE OF INTENT	PENDING SUBMITTAL



LOCATION MAP
SCALE: 1" = 2000'

PREPARED BY:

Tighe&Bond
Engineers | Environmental Specialists

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 11-12-21

JOHN P LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 11.12.21

PREPARED FOR:

SEACOAST POOL PLASTERING, LLC
ROBERT P. MACINNIS
90 DEPOT ROAD
GREENLAND, NEW HAMPSHIRE 03840

PREPARED WITH:

DOUCET SURVEY LLC
102 KENT PLACE
NEWMARKET, NEW HAMPSHIRE 03857

PROJECT NO: S-5132-001

PERMIT DRAWINGS
COMPLETE SET 11 SHEETS

Last Saved: 11/10/2021
Plotted: Nov 10, 2021 - 3:55pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings, Figures\AutoCAD\Sheet\S5132_C-COVR.dwg

REFERENCE PLAN #1

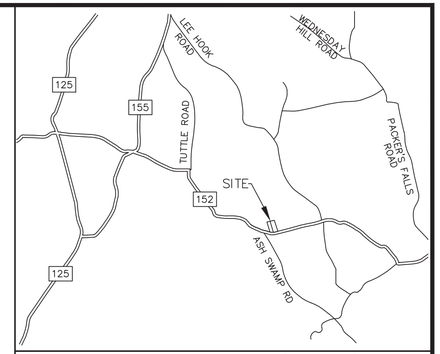
TBM 278
2 HEAD NAIL FOUND IN UTILITY POLE
77/12/NETT/109
ELEV.=110.05'

PAVED DRIVEWAY

GRAVEL DRIVEWAY

LEGEND

	UTILITY POLE & GUY WIRE
	GUY POLE
	SIGN
	GRANITE BOUND FOUND
	DRILL HOLE FOUND
	IRON PIPE/ROD FOUND
	5/8" RE-BAR W/ I.D. CAP TO BE SET
	POST
	JURISDICTIONAL WETLAND SYMBOL
	BOULDER
DYL	DOUBLE YELLOW LINE
SWL	SINGLE WHITE LINE
D.H.F.	DRILL HOLE FOUND
OHW	OVERHEAD WIRES
D	DRAIN LINE
	APPROX. ABUTTERS LOT LINE
	GUARDRAIL
	EDGE OF GRAVEL
	TREE LINE
	STONE WALL
	BUILDING SETBACK LINE
	GUARDRAIL
BEARING / DIST	PROPERTY LINES
-100-	CONTOUR LINE
	EDGE OF JURISDICTIONAL WETLAND (SEE NOTE #7)
	AQUIFER PROTECTION OVERLAY DISTRICT LINE



Location Map (n.t.s.)

PSNH/77/13S/108S/NETT

GRAVEL DRIVEWAY

FALL ROAD

N 62°29'05" W 43.64'

TBM 632
MAG SET UP 12" IN UTILITY POLE
77/13/NETT/108
ELEV.=105.44'

10' CLEARING EASEMENT PER REFERENCE PLAN #1

Delta=16°31'07"
R=600.00
T=87.10
L=172.98
Cb=S71°43'39"E
Cd=172.38

PSNH/14S/NETT/107S

W/ UNDERGROUND UTILITIES 77/14/NETT/107

1 1/4" IRON PIPE FOUND, UP 16", LEANING

GRANITE HEADWALLS

12" CPP ELEV.=93.2'

12" CMP ELEV.=97.2'

12" CMP ELEV.=97.1'

ACCESS EASEMENT FOR LOTS 50-7 & 50-8 PER REFERENCE PLAN #1

12" CPP ELEV.=92.1'

Delta=10°56'31"
R=600.00
T=57.47
L=114.58
Cb=S85°27'27"E
Cd=114.41

77/15/NETT/106

EDGE OF PAVEMENT

194.72'

3'X1' STONE BOX ELEV.=84.0'

24" RCP ELEV.=84.0'

77/16/NETT/7/105

N 01°52'34" W 678.32'

DIRT PILE

LOT 50-7
148,143 sq.ft.
3.401 acres

LOT 50-8
219,549 sq.ft.
5.040 acres

AQUIFER PROTECTION OVERLAY DISTRICT (SEE NOTE #4)

745.46'
S 69° E

743.65'
S 03°17'12" E

S 87°25'47" E 30.59'

S 88°39'04" E 64.17'

S 87°24'47" E 117.13'

N 88°32'24" E 16.58'

S 88°40'19" E 81.19'

D.H.F.

20" X 18" GRANITE STONE 3 FOOT LONG, OUT OF GROUND LYING ON SIDE

EDGE OF HYDRIC B SOILS (SEE NOTE #7)

EDGE OF HYDRIC A SOILS (SEE NOTE #7)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOTES:

1. REFERENCE: TAX MAP R-6, LOTS 50-7 & 50-8
2. TOTAL PARCEL AREA: LOT 50-7 148,143 sq. ft. OR 3.401 AC.
   LOT 50-8 219,549 sq. ft. OR 5.040 AC.
3. OWNER OF RECORD:
   GREYSTONE OF MAINE LTD.
   334 DURHAM ROAD
   MADBURY, NH 03824
   R.C.R.D. BOOK 3058, PAGE 2450
4. ZONE: B-3
   DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA	2 AC.
MIN. FRONTAGE	150 ft.
MIN. ROAD SETBACK	75 ft.
MIN. SIDE/REAR SETBACK	20 ft.
MIN. SIDE/REAR SETBACK TO RESIDENTIAL DISTRICT	75 ft.
MIN. HYDRIC A SOIL SETBACK	50 ft.
MIN. HYDRIC B SOIL SETBACK	25 ft.

   PORTIONS OF THE PARCELS ARE ALSO LOCATED IN THE WETLANDS PROTECTION OVERLAY DISTRICT AND THE AQUIFER PROTECTION OVERLAY DISTRICT, SEE THE TOWN OF NEWMARKET ZONING ORDINANCE FOR SPECIFIC REGULATIONS.
5. FIELD SURVEY PERFORMED BY K.J.B. & J.G.G. ON 11/03 USING A LEICA TCRA 1105 PLUS TOTAL STATION AND A SOKKIA B20 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
6. FLOOD HAZARD ZONE: "X" PER COMMUNITY PANEL #330136 0005 B DATED 5/2/91
7. HYDRIC SOILS DELINEATED BY N.H. SOIL CONSULTANTS, INC. DURING OCTOBER 2003 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATIONS MANUAL, TECHNICAL REPORT Y-87-1.
8. HORIZONTAL DATUM IS BASED ON REFERENCE PLAN #1.
9. VERTICAL DATUM IS BASED ON NGVD 29.
10. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

REFERENCE PLANS:

1. "SUBDIVISION PLAN FOR GREYSTONE OF MAINE, WADLEIGH FALLS ROAD (ROUTE 1520 NEWMARKET, NH", BY DOUCET SURVEY, INC., DATED NOVEMBER 3, 1999.
2. "SUBDIVISION PLAN FOR LEO P. LAROCHELLE IN NEWMARKET, N.H." BY BRUCE L. POHOPEK, DATED MARCH 12, 1982. R.C.R.D. PLAN # D-10780.
3. "PLAN OF LAND SHOWING PROPOSED SUBDIVISION FOR JOHN W. CLARK IN NEWMARKET, N.H." BY BRUCE L. POHOPEK DATED MAY 17, 1977. R.C.R.D. PLAN # C-6943
4. "SUBDIVISION OF LAND FOR LLOYD WALKER IN NEWMARKET, N.H." BY BRUCE L. POHOPEK DATED MAY 17, 1977. R.C.R.D. PLAN # D-7311.
5. "PLAN OF SUBDIVISION FOR HERBERT RICHMOND, ROUTE 152, WADLEIGH FALLS ROAD, LEE & NEWMARKET, NEW HAMPSHIRE" BY K.E. MOORE & B.G. STAPLES, DATED MAY 1978. S.C.R.D. PLAN #170-68.
6. "SUBDIVISION OF LAND OF HERBERT RICHMOND, ROUTE 152, LEE, N.H." BY ERNEST J. COTE, DATED JUNE 2, 1979. S.C.R.D. PLAN #19A-23.
7. "PLAN OF LAND OF HERBERT RICHMOND, OFF ROUTE 152, LEE, N.H." BY ERNEST J. COTE, DATED SEPTEMBER 1981, S.C.R.D. PLAN # 22A-15.
8. "LOT LINE AMENDMENTS FOR RUSSELL RICHMOND & PATRICIA KUCHARSKI IN LEE, N.H." BY BRUCE L. POHOPEK, DATED FEBRUARY 17, 1986. S.C.R.D. PLAN #29-61.
9. "PLAN OF LAND FOR CHICK TRUCKING INC., ROUTE 152, NEWMARKET, N.H." BY DOUCET SURVEY, INC. DATED FEBRUARY 21, 1996.
10. "PLAN OF BOUNDARY LINE AGREEMENT BETWEEN LEBEAU, LUNDGREN & CLARK, WADLEIGH FALLS ROAD, NEWMARKET, N.H." BY DOUCET SURVEY, INC. DATED APRIL 20, 1998.

NO.	DATE	DESCRIPTION	BY

NOTE:
ALL ELECTRIC, GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

STATE OF NEW HAMPSHIRE — No. 824 — LICENSED LAND SURVEYOR
WILLIAM J. DOUCET
William Doucet
SIGNATURE

"I certify that this survey plat is not a subdivision pursuant to this title and that the lines of streets and ways shown are those of public or private streets or ways already established and that no new ways are shown."

William Doucet L.L.S. #824
11-21-03 DATE

The certifications shown hereon are intended to meet registry of deed requirements and are not a certification to title or ownership of property shown. Owners of adjoining properties are according to current town assessors records.

EXISTING CONDITIONS PLAN
FOR
PROULX NORTH INVESTMENTS
ROUTE 152 (WADLEIGH FALLS ROAD)
NEWMARKET, NEW HAMPSHIRE

DRAWN BY:	M.W.F.	DATE:	NOV. 12, 2003
CHECKED BY:	S.V.M.	DRAWING NO.:	1677A
JOB NO.:	1677	SHEET	1 OF 1

DOUCET SURVEY INC®
Serving Your Professional Surveying & Mapping Needs
28 Beech Street Extension, Unit 102, Newmarket, NH 03857
(603) 659-6560 http://www.doucetsurvey.com

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY, LLC, DATED 2004 AND UPDATED CONDITIONS IN OCTOBER 2020.
2. JURISDICTIONAL WETLANDS WERE DELINEATED SEPTEMBER 23, 2020 BY LEONARD A. LORD, PHD, NHCWS #14, NHCSS #19 OF TIGHE & BOND. WETLAND CRITERIA USED INCLUDES: CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 (JANUARY 1987), REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, NORTHCENTRAL AND NORTHEAST REGION (JANUARY 2012), FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4 (2018), U.S. ARMY CORPS OF ENGINEERS NORTHCENTRAL AND NORTHEAST 2016 REGIONAL WETLAND PLANT LIST (LICHVAR ET AL., 2016), AND NHDES WETLANDS BUREAU ADMINISTRATIVE RULES (2020), AND FIELD LOCATED BY DOUCET, SURVEY, LLC.
3. HORIZONTAL DATUM IS ASSUMED AND BASED ON WORK PREVIOUSLY COMPLETED BY DOUCET SURVEY, LLC ON THIS SITE. MORE SPECIFICALLY, NEW WORK WAS COORDINATED TO MONUMENTATION FOUND ON SITE AT TIME OF SURVEY AS ALL OTHER SURVEY CONTROL HAS BEEN DESTROYED.
4. VERTICAL DATUM IS APPROXIMATELY BASED ON THE ELEVATION PREVIOUSLY MEASURED AT THE SOUTH END OF THE STONE BOX CULVERT ON THE EAST END OF THE PROJECT AS SHOWN HEREON. ALL OTHER SURVEY CONTROL HAS BEEN DESTROYED AND ALL OTHER CULVERTS WITHIN THE AREA OF SURVEY HAVE BEEN RECONSTRUCTED.
5. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH. APPROXIMATE LOT LINES ARE BASE ON SURVEY COMPLETED BY DOUCET SURVEY, LLC IN 2004 AND HAVE NOT BEEN VERIFIED.

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
10. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE TOWN OF NEWMARKET AND NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
11. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. ALL STUMPS WITHIN WETLAND BUFFERS SHALL REMAIN IN PLACE.
12. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
13. PROVIDE INLET PROTECTION BARRIERS. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
14. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
15. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

LEGEND

TBR	TO BE REMOVED
TYP	TYPICAL
DYL	DOUBLE YELLOW LINE
SWL	SINGLE WHITE LINE
MW	EXISTING MONITORING WELL
	EXISTING UTILITY POLE
	EXISTING GUY POLE
	EXISTING BOULDER
	EXISTING FLARED END SECTION
	PERCOLATION TEST
	TEST PIT
	APPROXIMATE LIMIT OF PROPOSED SAW CUT
	LIMIT OF WORK
	PROPERTY LINE
	PROPERTY LINE TO BE ELIMINATED
	EDGE OF PRIME WETLAND
	EDGE OF PRIME WETLAND/POORLY DRAINED SOILS
	EDGE OF AQUIFER PROTECTION OVERLAY DISTRICT
	125' SEPTIC SETBACK FROM PRIME
	100' STRUCTURE SETBACK FROM PRIME
	75' PRIME WETLAND BUFFER
	25' POORLY DRAINED BUFFER
	50' VERY POORLY DRAINED BUFFER
	EDGE OF EXISTING GRAVEL PATH
	MAJOR CONTOUR LINE
	MINOR CONTOUR LINE
	EXISTING TREELINE
	EXISTING TREELINE TO BE REMOVED
	PROPOSED TREELINE
	EDGE OF WETLAND
	SILT SOCK
	DOUBLE ROW OF SILT SOCK
	STONE WALL
	EXISTING DRAIN LINE/FLOW PATH
	APPROX. CENTERLINE OF INTERMITTENT STREAM
	SETBACK LINE
	EXISTING GUARDRAIL
	WETLANDS

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08836 LICENSED PROFESSIONAL ENGINEER – 11.12.21

STATE OF NEW HAMPSHIRE – JOHN P. LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER – 11.12.21

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	11/12/2021
FILE:	S5132_C-DSGN.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

EXISTING & DEMOLITION PLAN

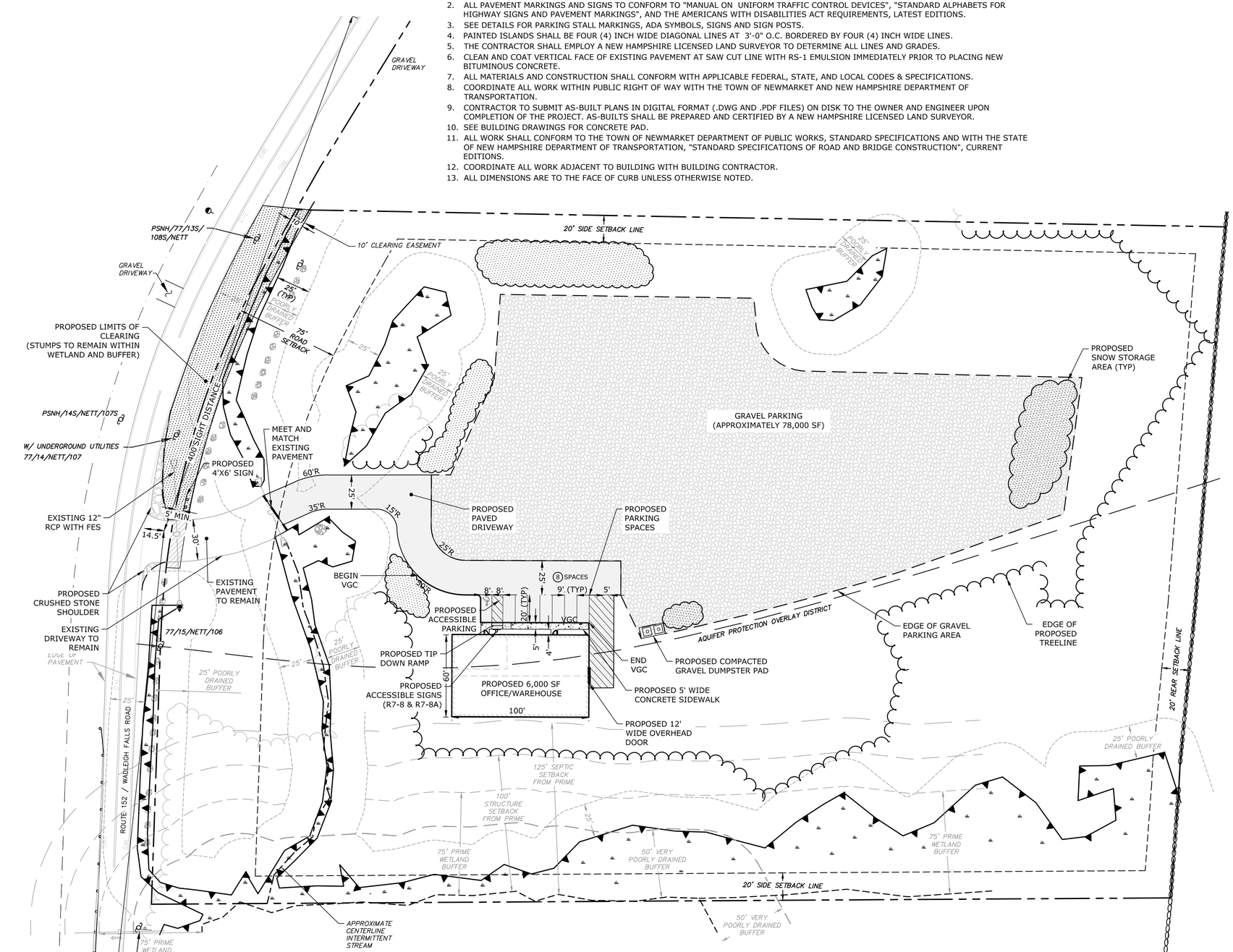
SCALE: AS SHOWN

C-101

Last Saved: 11/10/2021
Plotted On: Nov 15, 2021-3:39pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-DSGN.dwg

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, ADA SYMBOLS, AND PAINTED ISLANDS SHALL BE FAST DRYING TRAFFIC PAINT. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
5. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
6. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE TOWN OF NEWMARKET AND NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
9. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
10. SEE BUILDING DRAWINGS FOR CONCRETE PAD.
11. ALL WORK SHALL CONFORM TO THE TOWN OF NEWMARKET DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITIONS.
12. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
13. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.



SITE DATA:
LOCATION:TAX MAP R-6, LOT 50-7 & 50-8
446 & 450 WADLEIGH FALLS ROAD
NEWMARKET, NEW HAMPSHIRE

ZONING DISTRICT: B-3, AQUIFER PROTECTION OVERLAY DISTRICT
ALLOWED USE(S): WAREHOUSE, OFFICE

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT SIZE :	2 ACRES	8.44 ACRES (LOT 7 & 8 COMBINED)
MINIMUM ROAD FRONTAGE:	150 FT	525 FT
MINIMUM SETBACKS:		
• FRONT:	75 FT	>75 FT
• SIDE:	20 FT	>20 FT
• REAR:	20 FT	>20 FT
MAXIMUM BUILDING HEIGHT:	35 FT	<35 FT

PARKING REQUIREMENTS:	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	9' X 18'	9' X 20'
• ACCESSIBLE 90°	8' X 20'	8' X 20'

PARKING SPACE REQUIREMENTS:
OFFICE:
1 SPACE / 250 SF = 1,000 SF / 250 SF/SPACE = 4 SPACES PLUS
INDUSTRIAL (WAREHOUSE):
1 / 500 SF = 5,000 SF / 500 SF/SPACE = 10 SPACES

TOTAL REQUIRED PARKING: = 14 SPACES
TOTAL PROVIDED: =8 SPACES*(INCLUDES ONE (1) ADA SPACE)

* WAIVER REQUESTED

LEGEND

•	PROPOSED BOLLARD
TYP	TYPICAL
15'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
♿	PROPOSED ACCESSIBLE PARKING SPACE
	PROPERTY LINE
	EDGE OF POORLY DRAINED SOILS
	EDGE OF WETLAND
	FRONT/SIDE/REAR YARD SETBACKS
	AQUIFER PROTECTION AREA OVERLAY DISTRICT
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	125' SEPTIC SETBACK FROM PRIME
	100' STRUCTURE SETBACK FROM PRIME
	75' PRIME WETLAND BUFFER
	25' POORLY DRAINED BUFFER
	50' VERY POORLY DRAINED BUFFER
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED BUILDING
	PROPOSED PAVEMENT
	PROPOSED CONCRETE SIDEWALK
	PROPOSED GRAVEL PARKING AREA
	PROPOSED PAVEMENT PAINT
	WETLANDS
	PROPOSED SNOW STORAGE AREA

WAIVER REQUESTS:
THE FOLLOWING LIST OF WAIVER ARE BEING REQUESTED FROM THE TOWN OF NEWMARKET'S SITE PLAN REGULATIONS:
1. SECTION 3.06 (A)(3)(a) - TO PROVIDE TREES AT A RATE OF 1 TREE PER 500 SF OF DISTURBED AREA;
2. SECTION 4.08 - TO PROVIDE DRAWINGS AT A SCALE OF 1"=20";
3. SECTION 4.10 (C)(5) - TO PROVIDE PEDESTRIAN, BICYCLE AND TRANSIT AMENITIES;
4. SECTION 4.10(D) - TO PROVIDE ELEVATION VIEW OF THE FRONT OF THE PROPOSED BUILDING;
5. SECTION 3.02(A)1 - TO PROVIDE LESS THAN THE REQUIRED PARKING SPACES;
6. SECTION 4.10(C)7 - TO PROVIDE LANDSCAPING; AND
7. SECTION 4.10(C)13 - TO PROVIDE OUTDOOR LIGHTING.

IMPERVIOUS CALCULATION:

TOTAL LOT AREA (LOTS 7 & 8 COMBINED)	= 8.441 ACRES=367,690 SF
EXISTING IMPERVIOUS AREA	= 2,476 SF
PROPOSED IMPERVIOUS AREA	= 97,616 SF
TOTAL IMPERVIOUS AREA	= 100,092 SF
% IMPERVIOUS	= 27.2 %

NEWMARKET PLANNING BOARD APPROVAL

DATE: _____

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
11/12/21

STATE OF NEW HAMPSHIRE - JOHN P. LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER
11.12.21

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	11/12/2021
FILE:	S5132_C-DSGN.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102

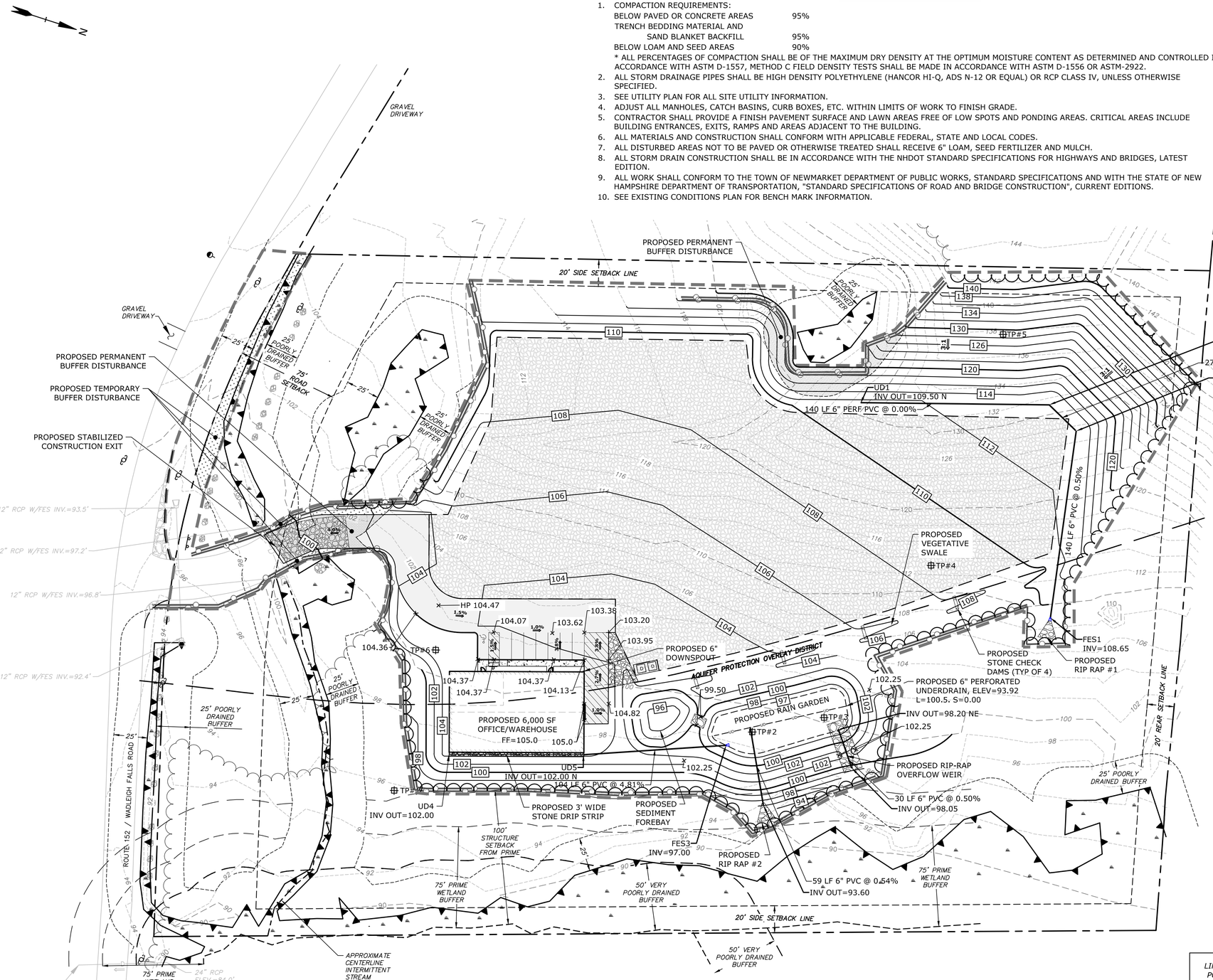
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Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings, Figures\AutoCAD\Sheet\S5132_C-DSGN.dwg

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:
   BELOW PAVED OR CONCRETE AREAS 95%
   TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
   BELOW LOAM AND SEED AREAS 90%
   * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND AREAS ADJACENT TO THE BUILDING.
6. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
7. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
8. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
9. ALL WORK SHALL CONFORM TO THE TOWN OF NEWMARKET DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITIONS.
10. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT.
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
7. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
8. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
9. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
10. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
11. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
12. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.



LEGEND

10	PROPOSED MAJOR CONTOUR LINE
12	PROPOSED MINOR CONTOUR LINE
	PROPOSED DRAIN LINE (TYP)
	PROPOSED SILT SOCK
FES	FLARED END SECTION
FF	FINISHED FLOOR ELEVATION
ELEV	ELEVATION
INV	INVERT
L	LENGTH
OCS	OUTLET CONTROL STRUCTURE
PERF	PERFORATED
PVC	POLYVINYL CHLORIDE
S	SLOPE
UD	UNDERDRAIN

LIMITS OF TEMPORARY DISTURBANCE:
POORLY DRAINED WETLAND BUFFER = 2,847 SF

LIMITS OF PERMANENT DISTURBANCE:
POORLY DRAINED WETLAND BUFFER = 3,993 SF

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08836 LICENSED PROFESSIONAL ENGINEER
11-12-21

STATE OF NEW HAMPSHIRE - JOHN P. LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER
11.12.21

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	11/12/2021
FILE:	S5132_C-DSGN.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

GRADING, DRAINAGE, AND EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

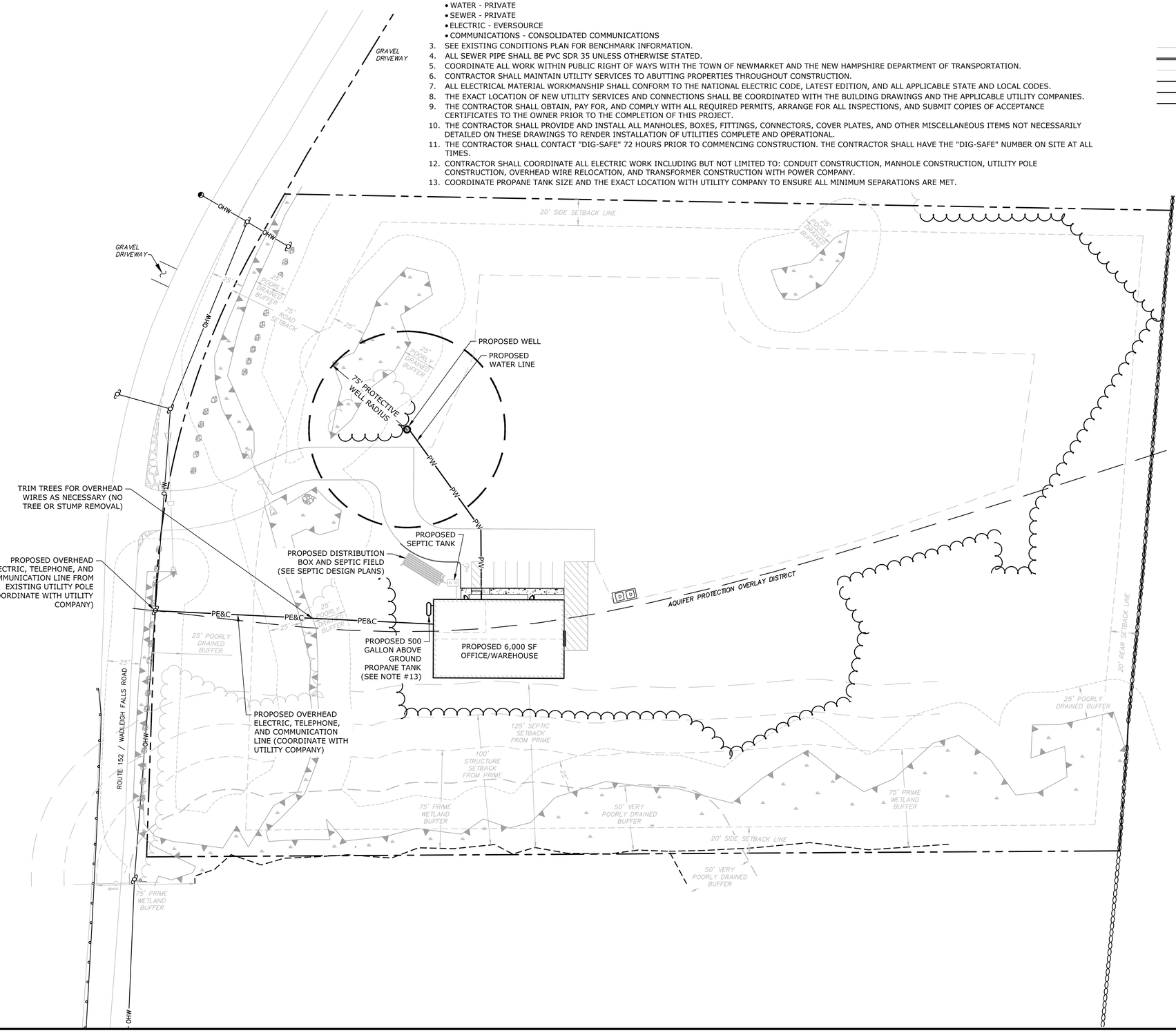
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UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - PRIVATE
   - WATER - PRIVATE
   - SEWER - PRIVATE
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - CONSOLIDATED COMMUNICATIONS
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
5. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE TOWN OF NEWMARKET AND THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
6. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
7. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
8. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
9. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
10. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
11. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
12. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
13. COORDINATE PROPANE TANK SIZE AND THE EXACT LOCATION WITH UTILITY COMPANY TO ENSURE ALL MINIMUM SEPARATIONS ARE MET.

LEGEND

BLDG	BUILDING
TYP	TYPICAL
	PROPOSED CATCHBASIN
	PROPOSED DRAIN MANHOLE
	PROPOSED WELL
OHW	EXISTING OVERHEAD UTILITY
	PROPOSED STORM DRAIN
SFM SFM	PROPOSED FORCE MAIN
	PROPOSED WATER
	PROPOSED GAS
PE&C	PROPOSED OVERHEAD ELECTRIC



SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER - BRADLEE MEZQUITA No. 08830 LICENSED
11-12-21

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER - JOHN P. LORDEN No. 12683 LICENSED
11.12.21

PERMIT DRAWINGS

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446 & 450
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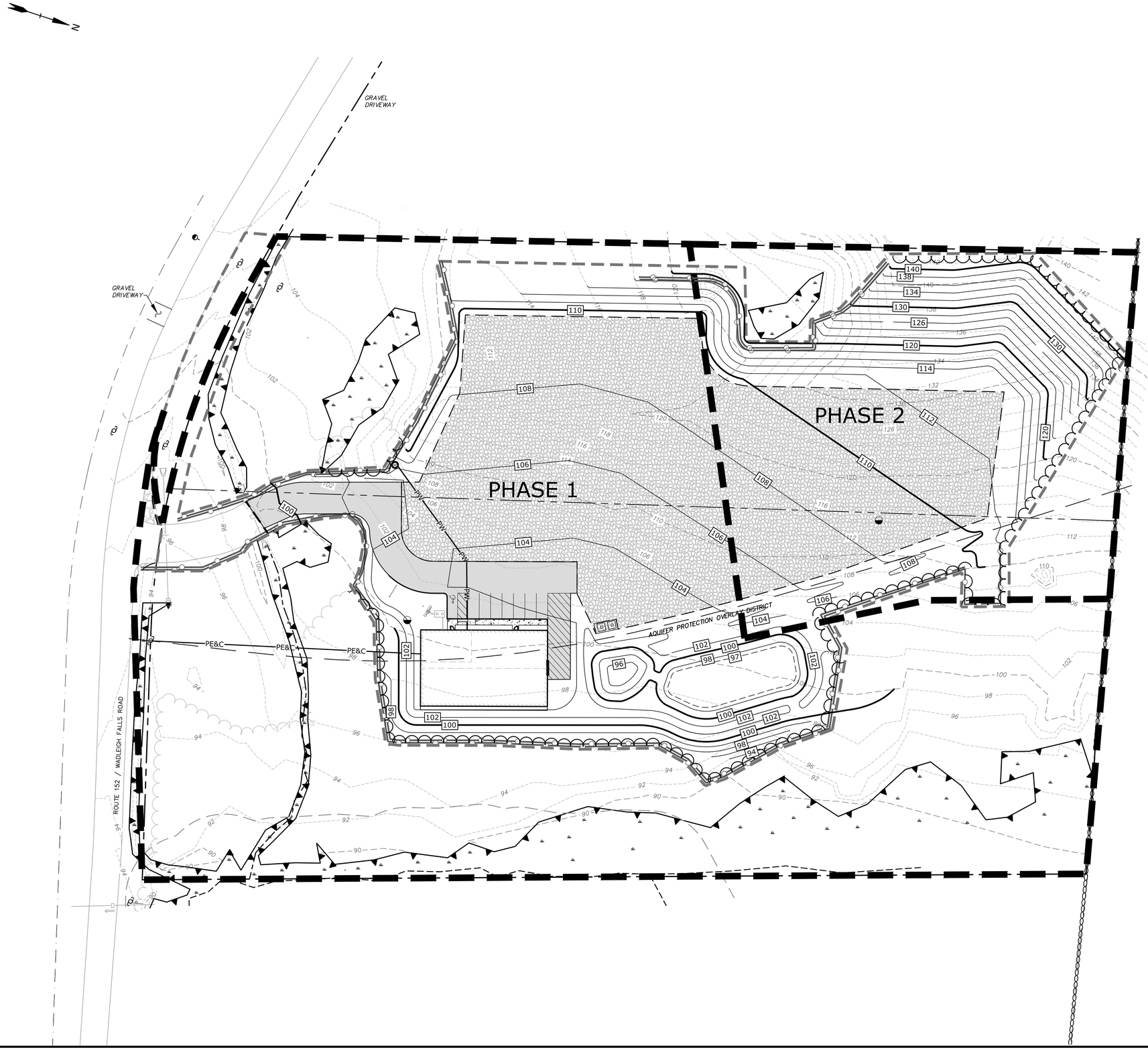
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UTILITY PLAN

SCALE: AS SHOWN

C-104

Last Saved: 11/10/2021
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LEGEND

•	PROPOSED BOLLARD
TYP	TYPICAL
15'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
♿	PROPOSED ACCESSIBLE PARKING SPACE
	PROPERTY LINE
	EDGE OF POORLY DRAINED SOILS
	EDGE OF WETLAND
	FRONT/SIDE/REAR YARD SETBACKS
	AQUIFER PROTECTION AREA OVERLAY DISTRICT
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	125' SEPTIC SETBACK FROM PRIME
	100' STRUCTURE SETBACK FROM PRIME
	75' PRIME WETLAND BUFFER
	25' POORLY DRAINED BUFFER
	50' VERY POORLY DRAINED BUFFER
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED BUILDING
	PROPOSED PAVEMENT
	PROPOSED BITUMINOUS SIDEWALK
	PROPOSED GRAVEL PARKING AREA
	PROPOSED PAVEMENT PAINT
	WETLANDS

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
11-12-21

STATE OF NEW HAMPSHIRE - JOHN P. LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER
11.12.21

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

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DATE:	11/12/2021
FILE:	S5132_C-DSGN.dwg
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APPROVED BY:	BLM

PHASING PLAN

SCALE: AS SHOWN

C-105

Last Saved: 10/22/2021
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GENERAL PROJECT INFORMATION

PROJECT OWNER: SEACOAST POOL PLASTERING, LLC
90 DEPOT ROAD
GREENLAND, NH 03840
PROJECT NAME: PROPOSED OFFICE AND EQUIPMENT STORAGE
PROJECT ADDRESS: 446 & 450 WADLEIGH FALLS ROAD
NEWMARKET, NEW HAMPSHIRE
PROJECT MAP / LOT: MAP R-6/ LOT 50-7 & 8
PROJECT LATITUDE: 43.079640 N
PROJECT LONGITUDE: -70.985217 W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF DEVELOPING A VACANT LOT WITH AN OFFICE AND EQUIPMENT STORAGE FACILITY ON A GRAVEL PAD AREA FOR TRUCK TRAILERS, STORAGE CONTAINERS AND EQUIPMENT VEHICLES.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 4.75 ACRES.

SOIL CHARACTERISTICS

A SITE SPECIFIC SOIL SURVEY WAS CONDUCTED BY TIGHE & BOND ON APRIL 26, 2021. THE SOILS ON SITE CONSIST OF WOODBRIDGE, SCITICO, MAYBID, UDORTHENTS, AND ENDOAQUENT SOILS WHICH ARE WELL DRAINED, POORLY DRAINED, VERY POORLY DRAINED, MODERATELY WELL DRAINED, SOMEWHAT POORLY DRAINED & POORLY DRAINED SOILS WITH HYDROLOGIC SOIL GROUP RATINGS OF B, C, D. REFER TO SITE SPECIFIC SOIL SURVEY REPORT FOR FULL DESCRIPTIONS.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW TO SURROUNDING UNNAMED WETLANDS AND ULTIMATELY FLOWS TO THE LAMPREY RIVER.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - DEVELOPMENT OF BORROW PIT AREAS
   - DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
   - EXCAVATION WORK
   - STREAM CHANNEL MODIFICATIONS
   - CONTROL OF DUST
   - CONSTRUCTION OF ACCESS ROAD AND PARKING AREAS
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING DRIVEWAY AND PARKING LOT.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF EARTHBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. PERMANENT MEASURES AND PLANTINGS:
   A. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
   B. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
   C. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
   D. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
   E. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
   F. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
   G. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
   H. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
RED FESCUE (CREEPING	50 LBS/ACRE
KENTUCKY BLUEGRASS	100 LBS/ACRE
PERENNIAL RYE GRASS	50 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

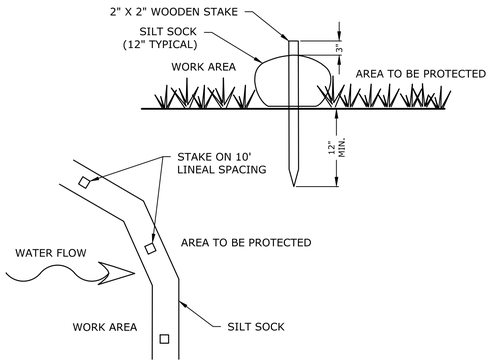
1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
      i. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
      ii. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      iii. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
      iv. INSPECT FUEL STORAGE AREAS WEEKLY;
      v. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
      vi. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
      vii. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
      viii. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
         (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
         (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
         (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
         (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
         (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
      ix. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT.
      HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
      b. FERTILIZERS:
      i. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
      ii. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
      iii. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
      i. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
      ii. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
      iii. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT DOES EXCEED ONE (1) ACRE OF DISTURBANCE AND THUS DOES REQUIRE A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

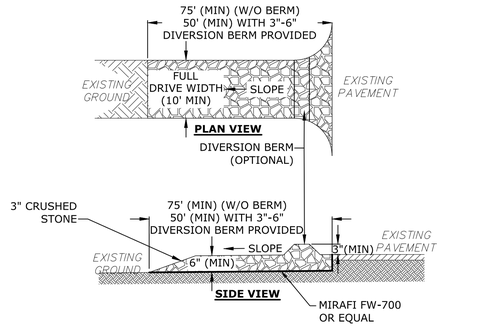
BLASTING NOTES:

1. CONTRACTOR SHALL CONTACT THE NHDES PRIOR TO COMMENCING ANY BLASTING ACTIVITIES
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT:
   A. A BLASTING PLAN THAT IDENTIFIES:
      a. WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
      b. THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
      c. SITE-SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.
3. IF MORE THAN 5000 CUBIC YARDS OF BLAST ROCK WILL BE GENERATED AND THERE ARE ONE OR MORE PUBLIC DRINKING WATER WELLS WITHIN 2000 FEET OF THE BLASTING ACTIVITIES, A PLAN TO MONITOR GROUNDWATER TO DETECT ANY CONTAMINATION IN SUFFICIENT TIME TO PROTECT THE WATER SUPPLY WELLS SHALL BE PROVIDED TO THE NHDES. THE GROUNDWATER MONITORING PLAN SHALL INCLUDE:
   A. MONITORING FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA:
      a. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY THE NHDES.
   B. THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:
      a. LOADING PRACTICES - THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
      i. DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDITIONS;
      ii. EXPLOSIVE PRODUCTS SHALL BE MANAGED ON-SITE SO THAT THEY ARE EITHER USED IN THE BOREHOLE, RETURNED TO THE DELIVERY VEHICLE, OR PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL;
      iii. SPILLAGE AROUND THE BOREHOLE SHALL EITHER BE PLACED IN THE BOREHOLE OR CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL;
      iv. LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND SHALL NOT BE LEFT IN THE BLASTHOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED;
      v. LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT;
      vi. EXPLOSIVES SHALL BE LOADED TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION. INDUSTRY ACCEPTED LOADING PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE NEED TO BE ATTENDED TO.
      b. EXPLOSIVE SELECTION - THE FOLLOWING BMPS SHALL BE FOLLOWED TO REDUCE THE POTENTIAL FOR GROUNDWATER CONTAMINATION WHEN EXPLOSIVES ARE USED:
      i. EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT ARE APPROPRIATE FOR SITE CONDITIONS AND SAFE BLAST EXECUTION;
      ii. EXPLOSIVE PRODUCTS SHALL BE SELECTED THAT HAVE THE APPROPRIATE WATER RESISTANCE FOR THE SITE CONDITIONS PRESENT TO MINIMIZE THE POTENTIAL FOR HAZARDOUS EFFECT OF THE PRODUCT UPON GROUNDWATER
      c. PREVENTION OF MISFIRES. APPROPRIATE PRACTICES SHALL BE DEVELOPED AND IMPLEMENTED TO PREVENT MISFIRES.
      d. MUCK PILES MANAGEMENT - MUCK PILES (THE BLASTED PIECES OF ROCK) AND ROCK PILES SHALL BE MANAGED IN A MANNER TO REDUCE THE POTENTIAL FOR CONTAMINATION BY IMPLEMENTING THE FOLLOW



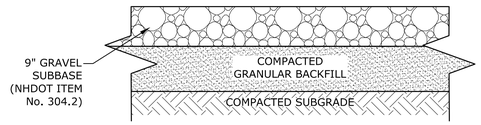
NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISCHARGE POINT.

SILT SOCK
NO SCALE



NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE

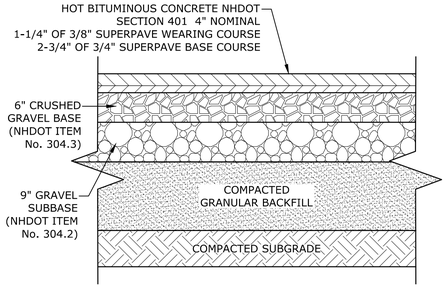


NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

GRAVEL BASE AREA
NO SCALE

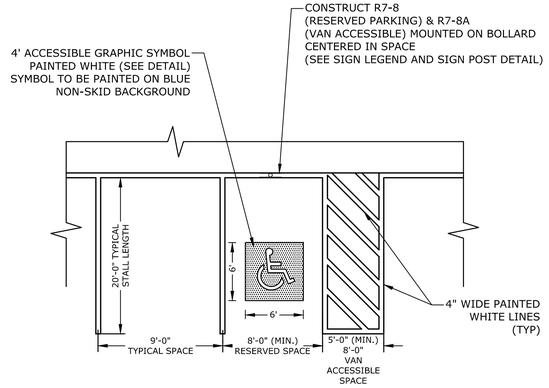
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



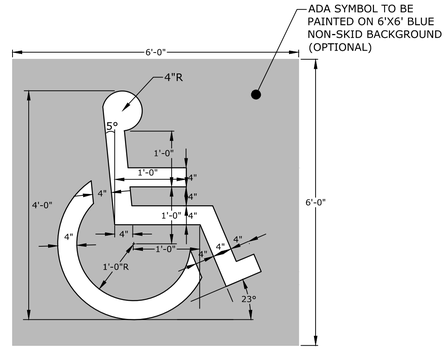
NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.

PAVEMENT SECTION
NO SCALE



NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

STALL STRIPING - SINGLE STRIPE
NO SCALE



NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.

2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08836 LICENSED PROFESSIONAL ENGINEER
11-12-21

STATE OF NEW HAMPSHIRE - JOHN P. LORDEN No. 12683 LICENSED PROFESSIONAL ENGINEER
11.12.21

PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

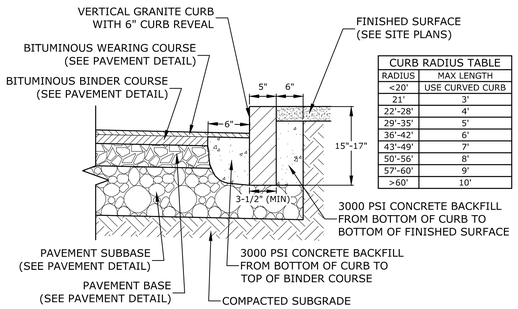
PROJECT NO:	S5132-001
DATE:	11/12/2021
FILE:	S5132_C-DTLS.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

C-502

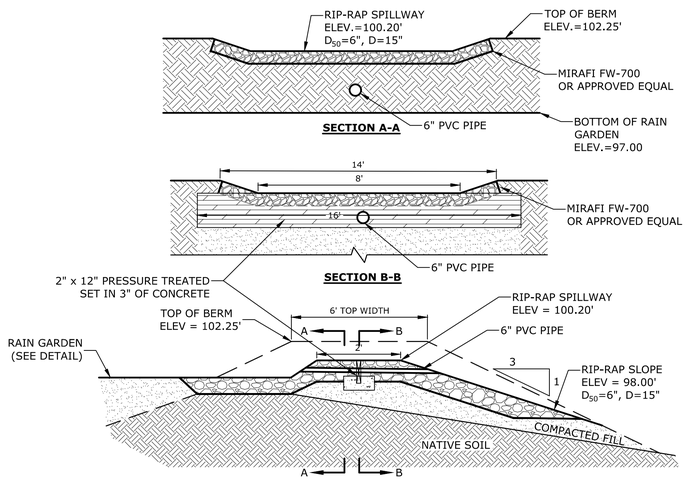
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Plotted On: Nov 15, 2021 - 3:56pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-DTLS.dwg



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

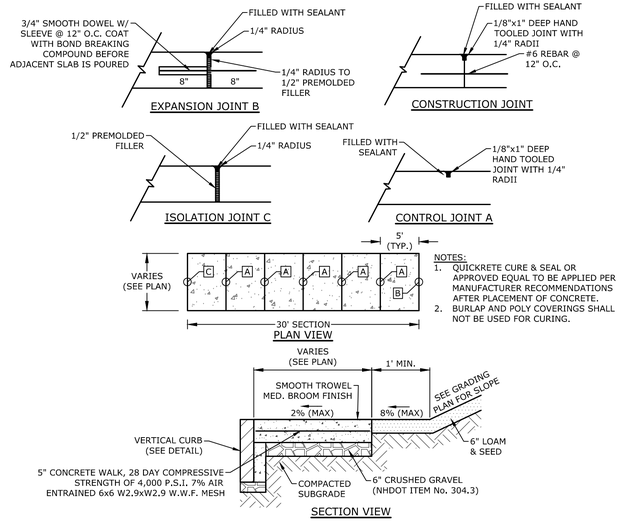
NOTES:
1. SEE SITE PLAN FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



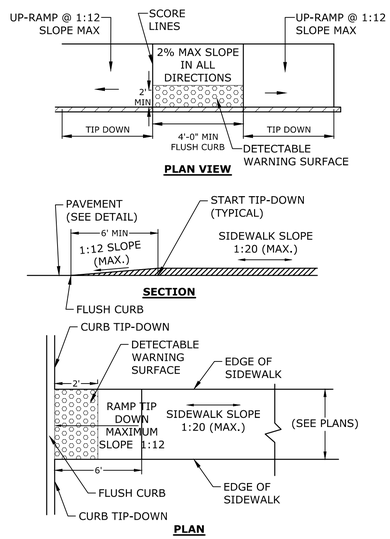
NOTES:
1. SEE GRADING, DRAINAGE & EROSION CONTROL PLANS, SHEET C-103, FOR LOCATIONS AND ELEVATIONS.
2. THE FOUNDATION AREA OF THE SPILLWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING OF THE SPILLWAY.
3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED SPILLWAY.
4. RIP-RAP SHALL BE PLACED IN THE SPILLWAY PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW OVER THE WEIR.
5. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING PLACEMENT OF THE ROCK RIPRAP BY PLACING A CUSHION OF SAND OVER THE FABRIC. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
6. A WELL GRADED MIXTURE OF ROCK SIZES SHALL BE USED FOR THE STONE. FIFTY PERCENT BY WEIGHT OF THE STONE MIXTURE SHALL BE SMALLER THAN THE MEDIAN SIZE STONE (d50). THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 TIMES THE d50 SIZE.
7. STONES FOR RIPRAP SHALL BE ANGULAR OR SUBANGULAR. THE STONES SHALL BE SHAPED SO THAT THE LEAST DIMENSION OF THE STONE FRAGMENT SHALL BE NOT LESS THAN ONE-THIRD OF THE GREATEST DIMENSION OF THE FRAGMENT. FLAT ROCKS SHALL NOT BE USED FOR RIPRAP.
8. STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT DISPLACEMENT OF THE UNDERLYING MATERIALS. HAND PLACEMENT MAY BE REQUIRED TO PREVENT DAMAGE TO ANY PERMANENT STRUCTURES.
9. VOIDS IN THE ROCK RIPRAP SHOULD BE FILLED WITH SPALLS AND SMALLER ROCKS.
10. RIPRAP CHANNELS SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO SEE THAT ROCK IS STILL IN PLACE. IF ROCK HAS BEEN DISPLACED OR UNDERMINED, THE DAMAGED AREAS SHALL BE REPAIRED IMMEDIATELY.
11. WOODY VEGETATION SHALL NOT BE ALLOWED TO BECOME ESTABLISHED IN THE ROCK RIPRAP, AND DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE CHANNEL.

RIP-RAP OVERFLOW WEIR
NO SCALE



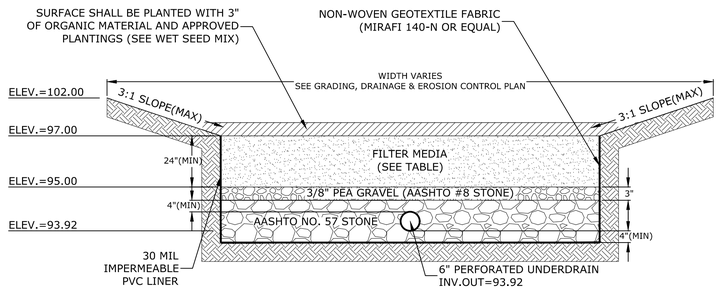
NOTES:
1. QUICKRETE CURE & SEAL OR APPROVED EQUAL TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AFTER PLACEMENT OF CONCRETE.
2. BURLAP AND POLY COVERINGS SHALL NOT BE USED FOR CURING.

CONCRETE SIDEWALK
NO SCALE



NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 9" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

CONCRETE SIDEWALK TIP-DOWN RAMPS WITH DETECTABLE WARNING PANEL
NO SCALE



WET SEED MIX
50% NEW ENGLAND WETLAND PLANTS-NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS & MOIST SITES

50% NEW ENGLAND PLANTS-NEW ENGLAND CONSERVATION WILDLIFE MIX

FILTER MEDIA COMPOSITION:

COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL SIEVE NO.	PERCENT PASSING
ASTM C-33 CONCRETE SAND	50-55	SEE NOTE #5	
LOAMY SAND TOPSOIL	20-30	200	15-25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30	200	5 MAX

NOTES:
1. RAIN GARDENS SHALL NOT BE PLACED INTO SERVICE UNTIL THE PRACTICE HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE OF THE LIMIT OF THE RAIN GARDEN.
3. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR LOCATIONS, LAYOUTS, AND ELEVATIONS.
4. THE SAND PORTION OF THE FILTER MEDIA SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	5-30
#100	0-10

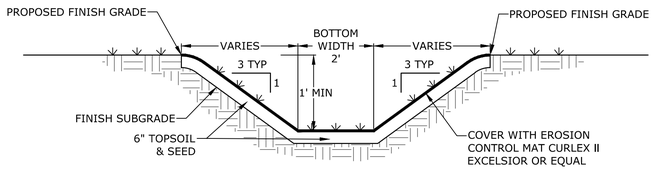
AASHTO #8 STONE (#8 to 3/8")

SIEVE SIZE	% PASSING
1/2"	100
3/8"	85-100
#4	10-30
#8	0-10
#16	0-5

AASHTO #57 STONE (#4 to 1")

SIEVE SIZE	% PASSING
1-1/2"	100
1"	95-100
1/2"	25-60
#4	0-10
#8	0-5

RAIN GARDEN
NO SCALE



NOTES:
1. THE FOUNDATION AREA OF THE WATERWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING OF THE WATERWAY.
2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS-SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA. THE WATERWAY SHALL BE FREE OF IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED WATERWAY. EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO MINIMIZE EROSION AND AIR AND WATER POLLUTION. ALL APPROPRIATE STATE AND LOCAL LAWS AND REGULATIONS SHALL BE COMPLIED WITH FOR INSTALLATION.
5. VEGETATION SHALL BE ESTABLISHED IN THE SWALE PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW THROUGH THE SWALE.
6. MAINTENANCE OF THE VEGETATION IN THE GRASSED WATERWAY IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE WATERWAY. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP THE GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHOULD NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE WATERWAY.
7. THE WATERWAY SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE WATERWAY. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.
8. PERIODIC APPLICATIONS OF LIME AND FERTILIZER MAY BE NEEDED TO MAINTAIN VIGOROUS GROWTH.

GRASS-LINED SWALE
NO SCALE

Tighe&Bond





PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

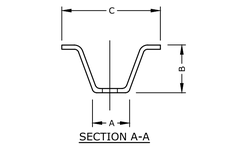
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DATE:	11/12/2021
FILE:	S5132_C-DTLS.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

C-503

Last Saved: 11/17/2021
Plotted On: Nov 17, 2021 - 2:15pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-DTLS.dwg



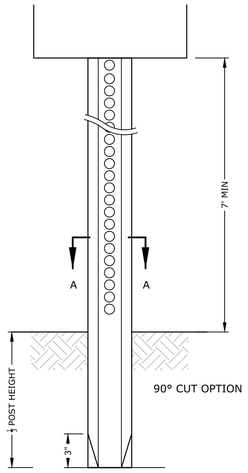
SECTION A-A



R7-8
12"X18"
GREEN ON WHITE
W/WHITE ON BLUE
ACCESSIBLE SYMBOL



R7-8A
12"X6"
WHITE ON
BLUE



90° CUT OPTION

NOTES:
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
6. MEET REQUIREMENTS OF SECTION 615 SIGNS OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2010 EDITION, AS AMENDED.

* IN LEDGE DRILL & GROUT TO A MIN OF 2'

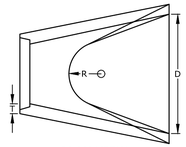
WT.	A	B	C
3 LBS	1 3/4" OR 1 7/8"	1 3/4" OR 1 5/8"	3 1/4"
4 LBS	1 5/8"	1 1/2"	3 1/4"

SIGN POST TO COMPLY WITH ALL ASPECTS OF NHDOT SECTION 615.

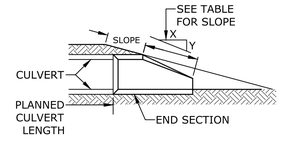
LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

SIGN LEGEND & SIGN POST
NO SCALE

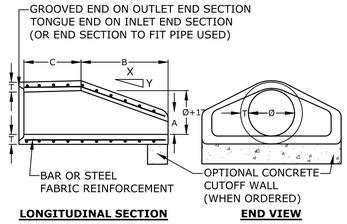
PIPE Ø	APPROX. SLOPE X to Y	A	B	C	D	R	T
12"	3 to 1	4"	24"	48-7/8"	24"	9"	2"
15"	3 to 1	6"	27"	46"	30"	11"	2-1/4"
18"	3 to 1	9"	27"	46"	36"	12"	2-1/2"
24"	3 to 1	9-1/2"	43-1/2"	30"	48"	14"	3"
30"	3 to 1	12"	54"	19-3/4"	60"	15"	3-1/2"
36"	3 to 1	15"	63"	33"	72"	20"	4"
42"	3 to 1	21"	63"	33"	78"	22"	4-1/2"
48"	3 to 1	24"	72"	24"	84"	22"	5"



PLAN VIEW



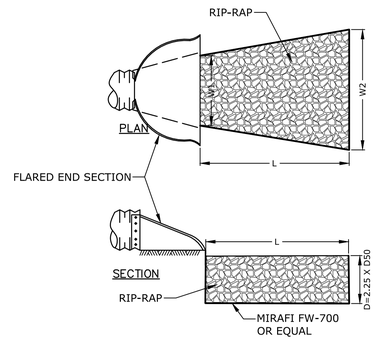
SLOPE DETAIL



LONGITUDINAL SECTION **END VIEW**

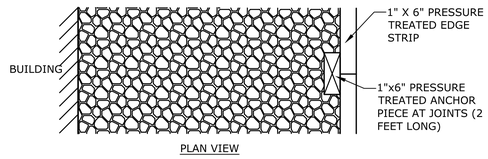
NOTES:
1. DESIGN OF END SECTION SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE.
2. CUT OFF WALL TO BE POURED IN FIELD, IF NECESSARY, AS DIRECTED BY THE ENGINEER.

CONCRETE END SECTION
NO SCALE



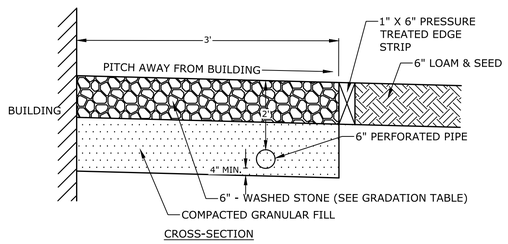
NOTES:
1. STONE SIZE AND MAT DIMENSIONS DETAILED ON PLANS.
2. STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNHEWN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. FLAT OR ROUND ROCKS ARE NOT ACCEPTABLE. THE STONE SHALL BE HARD AND OF SUCH QUALITY THAT IT WILL NOT DISINTEGRATE ON EXPOSURE TO WATER OR WEATHERING, BE CHEMICALLY STABLE AND IT SHALL BE SUITABLE IN ALL OTHER RESPECTS FOR THE PURPOSE INTENDED. THE BULK SPECIFIC GRAVITY (SATURATED SURFACE-DRY BASIS) OF THE INDIVIDUAL STONES SHALL BE AT LEAST 2.5.
3. THE STONE SHALL BE COMPOSED OF A WELL-GRADED MIXTURE DOWN TO THE ONE-INCH SIZE PARTICLE SUCH THAT 50 PERCENT OF THE MIXTURE BY WEIGHT SHALL BE LARGER THAN THE D50 SIZE SPECIFIED. A WELL-GRADED MIXTURE IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF THE LARGER STONE SIZE BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE PROGRESSIVELY SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE SIZE IN SUCH A MIXTURE SHALL BE 1.5 TIMES THE D50 SIZE.

RIP-RAP APRON DETAIL
NO SCALE



PLAN VIEW

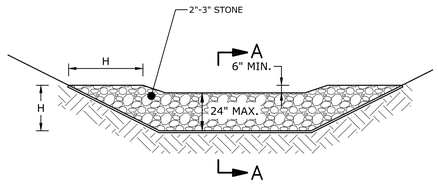
WASHED STONE	
SIEVE SIZE	% FINER BY WEIGHT
1"	100
3/4"	90-100
3/8"	20-55
#4	0



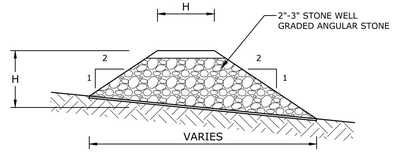
CROSS-SECTION

NOTES:
1. SEE SITE PLAN FOR LIMITS OF DRIP STRIP.
2. IN BUILDING CORNERS THE DRIP STRIP SHALL BE 5' OFF THE EDGE OF BUILDING.

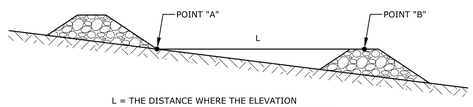
DRIP STRIP
NO SCALE



BERM STONE SIZE	
SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
12 IN	100
6 IN	84-100
3 IN	68-83
1 IN	42-55
NO. 4	8-12



SECTION A-A

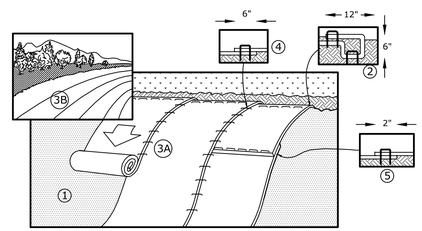


L = THE DISTANCE WHERE THE ELEVATION
OF POINT "A" EQUALS THE ELEVATION OF POINT "B"

STONE CHECK DAM SPACING

NOTES:
1. CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THAN ONE ACRE.
3. THE CHECK DAM SHOULD NOT BE USED IN A FLOWING STREAM.
4. CHECK DAMS SHOWN ON THE DRAWINGS SHALL BE LEFT IN PLACE PERMANENTLY.
5. CHECK DAMS INSTALLED AS PART OF TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE THE SWALE OR DITCH HAS BEEN STABILIZED:
   a. IN TEMPORARY DITCHES AND SWALES, CHECK DAMS SHOULD BE REMOVED AND THE DITCH FILLED IN WHEN IT IS NO LONGER NEEDED
   b. IN PERMANENT STRUCTURES, CHECK DAMS SHOULD BE REMOVED WHEN PERMANENT LINING HAS BEEN ESTABLISHED. IF THE PERMANENT LINING IS VEGETATION, THEN THE CHECK DAM SHOULD BE RETAINED UNTIL THE GRASS HAS MATURED TO PROTECT THE DITCH OR SWALE. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER REMOVAL.

STONE CHECK DAM
NO SCALE



NOTES:
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE, 36" OVER THE GRADE BREAK, BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES SPACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS DOWN THE SLOPE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SHOWN ON THE STAPLE PATTERN GUIDE.
4. STAPLE LENGTHS SHALL BE A MINIMUM OF 8 INCHES.
5. EROSION CONTROL BLANKET SHALL BE INSTALLED WHERE SHOWN ON PLANS AND WHERE SLOPES EXCEED 3:1.

EROSION CONTROL BLANKET FOR SLOPE PROTECTION
NO SCALE

Tighe&Bond





PERMIT DRAWINGS

Proposed Office and Equipment Storage

Seacoast Pool Plastering, LLC

446 & 450
Wadleigh Falls Road
Newmarket,
New Hampshire

MARK	DATE	DESCRIPTION

PROJECT NO:	S5132-001
DATE:	11/12/2021
FILE:	S5132_C-DTLS.dwg
DRAWN BY:	JRW/BJL
CHECKED BY:	JPL
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

C-504

Last Saved: 11/10/2021
Plotted: Nov 10, 2021-4:06pm By: JWinston
Tighe & Bond: J:\S\S5132 Seacoast Pool Plastering LLC\001 446 & 450 Wadleigh Falls Rd\Drawings_Figures\AutoCAD\Sheet\S5132_C-DTLS.dwg

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Founded December 15, 1727
Chartered January 1, 1991

TOWN OF NEWMARKET, NEW HAMPSHIRE

ATTACHMENTS:

Description	Upload Date	Type
Final Draft Subdivision Regulations	12/13/2021	Backup Material
Final Draft Site Plan Regulations	12/13/2021	Backup Material
Comparison Subdivision Regulations	12/13/2021	Backup Material
Comparison Site P]lan Regulations	12/13/2021	Backup Material
Appoendix B As Built	12/13/2021	Backup Material

Draft Revisions to Newmarket's Subdivision Regulations

Appendix A - Subdivisions

Sec. 3.03 – Stormwater Management

(A) Purpose and Goals

The goals of this section is to set forth stormwater management standards for the development and redevelopment of subdivisions for the purposes of preventing both onsite and downstream flooding; reducing the water quality impacts of such development, providing effective water quality treatment; and minimizing erosion and maintaining sediments on construction sites and adjacent downgradient areas so they are not transported in stormwater and allowed to discharge into the waters of the U.S, thereby degrading water quality. Through these regulations, the Planning Board seeks to balance the public's interest in promoting orderly growth and development and protecting and enhancing water quality and the individual rights of private property owners.

These regulations seek to meet those goals through the following objectives:

(1) Mitigate stormwater runoff from development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
(2) Minimize the water quality impacts from all new development and redevelopment projects considered subdivisions under the Town's subdivision regulations. This applies to projects if the project is part of a larger common plan.
(3) Manage nonpoint source pollution caused by stormwater runoff from new development and redevelopment which otherwise would degrade local water quality.
(4) Control the total volume and runoff rates of surface water which flows from any specific site during and following development and redevelopment to not exceed the pre-development hydrologic conditions.
(5) Reduce stormwater runoff rates and volumes, soil erosion and non-point source pollution through stormwater management controls that are properly maintained and pose no threat to public health and safety or cause excessive municipal expenditures.
(6) Protect the quality of groundwater resources, surface water bodies, and wetlands.
(7) Control waste on construction sites involving subdivisions; such as demolition debris, litter, and sanitary wastes.

(B) Definitions

Definitions shall be those provided in the Newmarket Zoning Ordinance adopted February 14, 1996, as amended in Chapter 32 Zoning Sec 32-111, Appendix A - Subdivisions, Sec 1.03, Appendix B: Site Plan Regulations, and other additional definitions referenced below. The definitions in this section are to be used strictly for Stormwater Regulations under Appendix B – Site Plans and Appendix A – Subdivisions.

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In a case where there are alternative or inconsistent definitions elsewhere in Chapter 32 Zoning, the definitions in the stormwater management section shall apply.

Best Management Practices (BMP's): A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities. BMP's also include treatment requirements, operating procedures, maintenance protocols, and management practices to prevent and/or reduce discharges of pollutants to waters of the United States.

Bioretention: A water quality practice that utilizes vegetation and soils to treat urban stormwater runoff by collecting it in shallow depressions, before filtering through an engineered bioretention planting soil media.

Buffer: A special type of preserved area along a watercourse or wetland where development is restricted or prohibited. Buffers protect and physically separate a resource from development. Buffers also provide stormwater control and flood storage and protect habitat values.

Disturbed Area: An area in which the natural vegetative soil cover has been removed or altered and, therefore, is susceptible to erosion.

Effective Impervious Cover (EIC): The total impervious surface area less the area of disconnected impervious cover (area where runoff is captured and infiltrated or otherwise treated).

Filtration: The process of physically or chemically removing pollutants from runoff; practices that capture and store stormwater runoff and pass it through a filtering media such as sand, organic material, or native soil for pollutant removal. Stormwater filters are primarily water quality control devices designed to remove particulate pollutants and, to a lesser degree, bacteria and nutrients.

Groundwater Recharge: The process by which water seeps into the ground, eventually replenishing groundwater aquifers and surface waters such as lakes, streams, and oceans. This process helps maintain water flow in streams and wetlands and preserves water table levels that support drinking water supplies.

Groundwater Recharge Volume: The post-development design recharge volume (i.e., on a storm event basis) required to minimize the loss of annual pre-development groundwater recharge. The recharge volume is determined as a function of annual pre-development recharge for site-specific soils or surficial materials, average annual rainfall volume, and amount of impervious cover on a site.

Impaired Waters: Those waterbodies not meeting water quality standards. Pursuant to Section 303(d) of the federal Clean Water Act, each state prepares a list of impaired waters (known as the 303(d) list) which is presented in the state's Integrated Water Report as Category 5 waters. Those impaired waters for which a total maximum daily load (TMDL) has been approved by US EPA and is not otherwise impaired.

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Impervious Cover: Those surfaces that cannot effectively infiltrate rainfall such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots).

Infiltration: The process of runoff percolating into the ground (subsurface materials). Stormwater treatment practices designed to capture stormwater runoff and infiltrate it into the ground over a period of days.

Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture, infiltrate, and manage runoff as close to its source as possible. Examples of LID strategies are pervious pavement, rain gardens, green roofs, bioretention basins and swales, filtration trenches, and other functionally similar BMPs located near the runoff source.

Major Subdivision:

(1) The division of a lot into a greater number of lots, but which does not fit the definition of a Minor Subdivision.
(2) An increase in the number of residential units on a single lot, but which does not fit the definition of a Minor Subdivision.

Maximum Extent Practicable (MEP): A proposed development meets a standard to the maximum extent practicable, by demonstrating the following:

(1) All reasonable efforts have been made to meet the standard;
(2) A complete evaluation of all possible management measures has been performed; and
(3) If full compliance cannot be achieved, the highest practicable level of management is being implemented.

Minor Subdivision:

(1) The division of a lot into a greater number of lots, provided that no new road is required; and that the resulting number of lots does not exceed six.
(2) An increase in the number of residential units on a single lot, provided that the total proposed number of such units does not exceed six.

Mitigation: Activities, strategies, policies, programs, and actions that, over time, will serve to avoid, minimize, or compensate for (by treating or removing pollution sources) the impacts to or disruption of water quality and water resources.

MS4: Refers to the Small Municipal Separate Storm Sewer System General Permit - the MS4 General Permit - issued by the EPA under the Clean Water Act. MS4 applies to municipalities that contain any portion of an urbanized area as defined by the Census. It applies to stormwater conveyances owned by a state, city, town, or other public entity that discharge to the 'Waters of the United States'. The MS4 Permit requires that operators of small MS4s develop a Stormwater Management Program that uses

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appropriate Best Management Practices (BMPs) for each of the six minimum control measures required in the MS4 permit.

Native Vegetation and Plantings: Plants that are indigenous to the region, adapted to the local soil and rainfall conditions, and require minimal supplemental watering, fertilizer, and pesticide application.

New Development: Any construction, land alteration, or improvement of a site or structure with less than 40% of existing impervious surface, calculated by dividing the total existing impervious surface by the size of the parcel, and converting it to a percentage.

Pollutant Load: An amount of pollutants that is introduced into a receiving waterbody measured in units of concentration or mass over a specific time period (i.e. (lbs/day or lbs per year).

Redevelopment: For purposes of determining whether a site must meet either new development or redevelopment requirements, a site is considered redevelopment if it has 40 percent or more of existing impervious surface, calculated by dividing the total existing impervious surface by the size of the parcel and converting it to a percentage. Otherwise, the project must meet the new development treatment standards. The following activities listed below are, by definition, not considered redevelopment:

a. Interior and exterior building renovation
b. Resurfacing an existing paved surface (e.g. parking lot, walkway, or roadway)
c. Pavement excavation and patching that is incidential to the primary project purpose
d. Landscaping installation and maintenance

Regulated Substances: petroleum, petroleum products, regulated contaminants for which an ambient groundwater quality standard has been established under NH RSA 485-C:6, and substances listed under 40 CFR 302, 7-1-05 edition, as amended, excluding substances used in the treatment of drinking water or wastewater at town facilities.

Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a subdivision.

Surface Water Body: Surface waters, including lakes, rivers, and other navigable waters, streams, wetlands, and coastal areas protected under the federal Clean Water Act.

Total Suspended Solids (TSS): The total amount of soil and particulate matter which are suspended in the water column.

Water Quality Volume: The amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis. The

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recommended volume is that associated with the first one-inch of rainfall, which is equivalent to capturing and treating the runoff from the 90th percentile of all rainfall. Source: New Hampshire Stormwater Manual: Volume 2 Post Construction Best Management Practices: Selection and Design, December 2008.

Watershed: All land and water area from which runoff may run to a common (design) discharge point.

(C) Minimum Threshold for Applicability

(1) These stormwater management regulations shall apply to all subdivisions, whether for new development or redevelopment, as defined in Section 3.03 (B) that result in the creation of a private or private road and disturbs a minimium of one or more acres and discharges into the Town of Newmarket's MS4. All stormwater runoff generated from the proposed private or public roadway(s) and any other runoff contributing to the stormwater management system shall be managed and treated in full compliance with these standards.

(2) For subdivisions on existing private and public roadways, roadside drainage and any other stormwater runoff from the new lots discharging to the roadside drainage system must be managed for stormwater runoff quantity and quality.

(3) Conditions for Granting of Waivers.

The Planning Board may grant a waiver from these regulations as set forth in Section 5.01 (A) and upon the submission of appropriate demonstration by the applicant as to why these regulations should not apply and with consideration by the Planning Board of the following conditions of approval:

a. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.
b. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).
c. All runoff generated from new impervious surfaces shall be retained on the development or redevelopment site and property.
d. Determination of compliance with standards (a.-c. above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals.

(4) The following activities are considered exempt from preparing and submitting a stormwater management plan for Major Subdivisions for new development and redevelopment.

e. Agricultural and forestry practices in accordance with BMP's published by the NH Department of Agriculture.
f. Resurfacing and routine maintenance of roads and parking lots.
g. Exterior and interior alterations and maintenance to existing buildings and structures.

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(2) All applications shall be accompanied by a completed Subdivision Application and Stormwater Management Checklist to the Planning Board prior to consideration for review. Prior to commencement of land disturbance, the applicant must obtain an approved permit under these regulations.

(3) All subdivisions of magnitude under review by the Planning Board may require a stormwater permits from EPA Construction General Permit (CGP) program or NH Department of Environmental Services (NHDES) and shall comply with the standards of EPA and/or NH DES permits and this section, where the stricter standards apply. Copies of the following permits shall be required, as applicable, as conditions of approval.

a. EPA Construction General Permit – A permit issued by EPA that authorizes the discharge of pollutants to the waters of the United States. For a cumulative disturbance of one (1) acre or more of land that is considered "construction activity' which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit is required, in addition to any state or local permits.

b. Alteration of Terrain Permit (AOT) - RSA 485-A:1 requires a permit from the New Hampshire Department of Environmental Services (NH DES) Water Supply and Pollution Control Division for "any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural and unnatural runoff. Under this program, a permit is required for projects involving more than 100,000 contiguous square feet of disturbance or if such an activity occurs in or on the border of surface waters of the state.

(D) Stormwater Management for New Development related to Subdivisions

All proposed stormwater management practices and treatment systems shall meet the following performance standards for new development related to subdivisions:

(1) Projects subject to the new development standards related to Subdivisions include all proposed projects on completely undeveloped parcels or previously developed parcels where less than 40% of the total parcel areas is comprised of impervious areas. Impervious surfaces include all paved surfaces, rooftops and compacted gravel or dirt surfaces. If 40% or more of the proposed new development consists of impervious surfaces then the project is subject to the redevelopment standards listed in Section E below.

(2) All proposed stormwater practices and measures shall be installed and maintained in accordance with manufacturer's specifications and performance standards in the NH Stormwater Management Manual Volume 2 (December 2008 or current revision), a copy of which is available from the NH DES website. www.des.nh.government/organization/water/ stormwater/manual.

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(3) Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH DES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means.

(4) In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (20209 Modification to the NPDES Permit - Appendix F; Attachment 3.)

(5) Where practical, the use of natural, vegetated filtration and/or infiltration practices or sub-surface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious areas draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NH DES Stormwater Manual.

(6) Measures shall be taken to control the post-development peak runoff so that it does not exceed pre-development runoff. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volume (in cubic feet) for the 1-inch rainstorm and the 2-year, 10-year, 25-year and 50-year, 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GRV) according to ratios referenced in the NH DES "Stormwater Manual Volume 2" and any subsequent revisions. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment. Infiltration structures should be in locations with the highest permeability on the site, to the extent possible.

(7) The physical, biological, and chemical integrity of receiving water shall not be degraded by the stormwater runoff from the site.

(8) Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused on-site.

(9) Every effort shall be made to use pervious parking surfaces as an alternative to impervious asphalt or concrete for general and overflow parking areas. Pervious pavement shall be appropriately sited and designed for traffic and vehicle loading conditions.

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(10) Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable to reduce stormwater runoff volumes, protect water quality, and maintain pre-development site hydrology. LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious areas, locate impervious areas in low infiltration soil areas (i.e. HSG-D), and use enhanced stormwater BMP's (such as rain gardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. The capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.

(11) The design of the stormwater drainage systems shall provide for the discharge of stormwater without flooding or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetlands, stream channels or vegetation.

(12) The design of the stormwater management systems shall account for upstream and upgradient runoff within the watershed that flows onto, over, or through the site to be developed. Any runoff that flows through the site from upgradient properties shall be included in the drainage calculations.

(13) All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions including grasses, shrubs, trees, and/or other native plants in sufficient numbers and density to prevent soil erosion and achieve the water quality treatment requirements of this section.

(14) All stormwater installations and areas that receive rainfall runoff shall be designed to drain within a maximum of 72 hours for vector control.

(15) The site design shall include adequate temporary and permanent erosion control measures consistent with the design guidelines and specifications included in the NH DES "Stormwater Manual Volume 3", and any subsequent revisions. Appropriate sediment and erosion control measures for construction sites, include: minimizing the amount of disturbed area, protecting natural resources, stabilizing sites when projects are complete or operations have temporarily ceased, protecting slopes on the site, protecting all storm drain inlets and armoring all newly constructed outlets, the use of perimeter controls, stabilizing construction site entrances and exits to prevent off-site tracking; and inspecting stormwater controls at consistent intervals.

(16) The site design shall include provisions to control wastes, including, but not limited to, discarded building materials, concrete truck wash-out, chemicals, litter and sanitary wastes, all of which shall not discharged into the stormwater system.

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(17) Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from construction equipment.

(18) Stormwater management and erosion and sediment control practices shall be located outside of specific buffer zones unless otherwise approved by the Planning Board. Alternatives to stream and wetland crossings that eliminate or minimize environmental impacts shall be considered, whenever possible.

(19) Salt storage areas shall be fully covered with permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NH DES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm, or as amended.

(20) Runoff shall be directed into recessed vegetated and landscaped areas designed for the treatment and/or infiltration to the Maximum Extent Practical to minimize Effective Impervious Cover (EIC) and reduce the need for irrigation systems.

(21) All newly generated stormwater from subdivisions shall be treated on the development site. Runoff shall not be discharged from the development site to municipal drainage systems or privately-owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than discharged under existing conditions. A development plan shall include provisions to retain natural pre-development watershed areas on the site by using the natural drainage flow patterns. Any new development that proposes to connect to the municipal storm drainage system shall comply with Section I: Municipal Storm Connections.

(22) Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.

(23) After erosion control measures have been installed and the areas to be protected are clearly marked, an on-site meeting shall be held with the Town's Engineering Consultant prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.

(24) All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm drain system or treatment areas shall be removed using appropriate measures consistent with the maintenance plan included in the approved Stormwater Management Plan.

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(25) The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineering Consultant or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.

(26) The applicant shall submit as-built drawings of the constructed stormwater management systems following construction as set forth in the "As-Built Survey Checklist" in Appendix B.

(E) Stormwater Management for Redevelopment Subdivisions

For proposed projects meeting the definition of a redevelopment (if it has 40 percent or more of impervious surface area), the applicant shall meet the minimum stormwater management requirements of this section for the entire developed area of the subdivision to the maximum extent practical.

(1) Redevelopment applications shall comply with the requirements of Sections (G) Submission Requirements for Stormwater Management Report and Plans, and (H) General Performance Criteria for Stormwater Management Plans.

(2) A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH DES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means. In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH Modified Permit December 2020 - Appendix F; Attachment 3).

(3) Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious areas draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.

(4) All newly generated stormwater from redevelopment shall be treated on the redevelopment site. Runoff shall not be discharged from the redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open

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drainage) or to surface water bodies and wetlands in rates greater than that discharged under existing conditions and in accordance with (I) Municipal Storm Connections.

(5) For sites meeting the definition of a redevelopment project, stormwater shall be managed for water quality in accordance with one or more of the following techniques listed in order of preference:

a. Implement measures onsite that result in disconnection or treatment of at least 30% of the existing impervious cover as well as 50% of the additional proposed impervious surfaces and pavement areas through the application of filtration media; or

b. Implement other LID techniques onsite to the maximum extent practicable to provide treatment for at least 50% of the entire site area.

(6) Salt storage areas shall be fully covered and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm or as amended.

(7) The applicant shall submit as-built drawings of the constructed stormwater management system following construction, as set forth in Appendix B "As-Built Survey Checklist".

(F) Options to Allow for Mitigation for Redevelopment

For subdivision sites having less than 40% impervious areas, the stormwater management requirements will be the same as for new development under Section D New Development with the exception that the applicant can meet those requirements either on-site or at an approved off-site location, as set forth below:

(1) In cases where the applicant demonstrates, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the maximum extent possible or is not feasible, off-site mitigation will be an acceptable alternative. Off-site mitigation shall be implemented within the same subwatershed as the redevelopment, within the project's drainage area, or within the drainage area of the receiving waterbody.

(2) Off-site mitigation shall treat no less than the total area of impervious area not treated on-site. Treatment of the impervious area shall comply with all standards of this regulation.

(3) An approved off-site location shall be identified, the specific management measures shall be stipulated and an implementation schedule shall be developed in accordance with the Planning

Board's review. Municipally-owned land should be considered as a first priority in the selection of lands for off-site mitigation. If the off-site location is not owned by the applicant, a written agreement with the property owner(s) shall be submitted as part of the application.

(4) As part of the request to utilize the off-site mitigation option for redevelopment, the applicant shall also demonstrate there are no adverse downstream flooding impacts that would result from not providing appropriate on-site management from the 50-yr or greater storm.

(G) Submission Requirements for Stormwater Management Plan (SMP)

A Stormwater Management Plan (SMP) shall be submitted with the Subdivision application and shall be prepared and certified by a NH licensed Professional Engineer specializing in Civil Engineering. This plan shall include the following information:

(1) A narrative of existing conditions showing all pre-development impervious surfaces, buildings, and structures; surface water bodies and wetlands; sub-catchment and watershed boundaries, drainage patterns; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with a minimum of 2-foot intervals and spot grades, where necessary, for sites that are flat.

(2) A narrative of proposed conditions showing all post-development important hydrologic features created or preserved on the site; subcatchment and watershed boundaries, drainage patterns, channelized flow areas; proposed areas of disturbance; temporary stock pile areas, construction refueling areas; proposed impervious surfaces, buildings, and structures; all temporary and permanent stormwater treatment BMPs and management elements, including BMP GIS coordinates and GIS files; building setbacks and buffers; proposed tree clearing and topographic contours with a minimum of 2-foot intervals; erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. The Plan shall provide calculations and identification of the total area of disturbance proposed on-site (and off-site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms (See Table 1: Stormwater Infrastructure Design Criteria) at each point of analysis shall be included in the Plan.

(3) A description of the general approach and strategies implemented, and the facts and assumptions relied upon, to meet the purpose and goals for stormwater management. The SMP shall include design plans and/or graphic sketches of all proposed above ground LID practices.

(4) Calculations of the change in impervious area, pollution loading and reductions for each best management practice. GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, and piping) shall be provided upon request.

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(5) A description and plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES "Stormwater Manual Volume 3" and any subsequent revisions, as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.

(6) A drainage analysis that includes a description of all methods, assumptions, and estimates of pre- and post development peak stormwater flow rates (cubic feet per second) and volumes (acre-feet) for the 2-, 10-, 25-, 50-, and 100-year, 24-hour frequency storm event.

(7) Landscaping plan and details that show planting areas, proposed plant species focusing on native species suitable to anticipated site conditions, and provisions for controlling the establishment of nuisance invasive species.

(8) A short and long-term operations and maintenance (O&M) plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control, permanent stormwater treatment measures, and best management practices.

(9) The (O&M) plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the qualified and responsible individuals or parties (and contact information) who will perform these activities. The inspection frequency, maintenance, reporting protocols, and sample reporting forms shall be included.

(10) The plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended).

(11) Covenant documents for filing with the Rockingham County Registry of Deeds which demonstrate the owner's obligation for stormwater BMP maintenance, which run with the land and that provide the Town legal access to inspect and/or maintain, if necessary, on-site stormwater infrastructure.

(12) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.

(13) A description of identified locations of any proposed deicing chemicals and/or snow storage areas. The SMP shall describe how deicing chemical use will be minimized or used more efficiently.

(14) For urbanized areas that are subject to the EPA MS4 Stormwater Permit which drain to chloride-impaired waters, a description of measures that will be used to minimize salt usage, and track

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and report amounts applied using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) (as amended) in accordance with Appendix H of the NH MS4 Permit, as applicable, shall be submitted.

(15) All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The landscaping plan must be prepared by a registered landscape architect.

(H) General Performance Criteria for Stormwater Management Plans

(1) All applications shall apply practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize the discharge of stormwater to the municipal stormwater management systems.

(2) Water Quality Protection

(a) All stormwater runoff generated from new development and redevelopment shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.

(b) All new developments and redevelopments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment.

(3) On-site groundwater recharge shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post-development site shall remain equal or exceed the annual recharge from pre-development site conditions. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This may include, but not be limited to:

(a) Maximizing flow paths from collection points to outflow points.

(b) Use of multiple best management practices.

(c) Retention of and discharge to fully vegetated areas.

(d) Maximizing use of infiltration practices.

(4) Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1: Stormwater Infrastructure Design Criteria. Calculations shall include sizing of all structures and best management practices. Sizing of emergency overflow structures shall be based on assessment of the 100-year 24-hour frequency storm discharge rate.

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(5) The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.

(6) The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. All invasive plant species identified in Chapter Agr 3800, pursuant to RSA 430:55 are prohibited. All non-native plant species identified in the New Hampshire Restricted Invasive Plant Species/Watch List (as amended) are strongly discouraged.

(I) Municipal Storm Connections

Connection to the municipal storm drainage system shall be allowed only if the use of vegetated or on-site materials are not available or infeasible due to existing soils, space limitations or other property constraints, or as otherwise determined necessary by the Planning Board. All projects shall meet the criteria below to the maximum extent practicable, whether or not the onsite drainage facilities are connected to the municipal system.

(1) The design and installation of any on-site structural BMP measure shall be in accordance with the NH DES Stormwater Manual, Vols. 1 and 2, dated Dec. 8. 2008, or as amended, and meet the requirements therein.

(2) The applicant shall demonstrate that adequate on-site stormwater provisions and drainage facilities are included to prevent increases in the pre-development peak runoff rate leaving the site for various design storm frequencies up to a 50-year, 24-hour design storm, consistent with the requirements of § 3.03(B) of these Subdivision Regulations. Provisions for water quality treatment and groundwater recharge shall also be included. Runoff potentially generated from additional lot development aside from the roadway itself shall be included in the analysis.

(3) Such drainage facilities shall be located in the street rights-of-way, where feasible, to allow convenient access for future maintenance. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road

(4) Where curbing is included in the road design to channel stormwater into the drainage system, the curbing shall consist of granite.

(J) Stormwater Management Plan and Site Inspections

The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of

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these regulations and as approved by the Planning Board, including emergency repairs completed by the Town.

(K) Stormwater Management Plan Recordation

(1) Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved subdivision plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the County Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.

(2) The applicant shall submit as-built drawings of the constructed stormwater management system following construction in accordance with "As-Built Survey Checklist: as found in Appendix B.

(L) Inspection, Maintenance, and Reporting Responsibilities

(1) The Code Enforcement Officer or other duly, appointed designee of the Town Manager shall be responsible for enforcement [as referenced in Sec. 5.08] and have site access to undertake routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner during project construction.

(2) If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report to the Code Enforcement Officer, documenting these violations of non-compliance including recommended corrective actions. The Code Enforcement Officer shall notify the property owner in writing of these violations of non-compliance and corrective actions necessary to bring the property into full compliance.

(3) If a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.08].

(4) Landowners shall be responsible for submitting an annual report to the Planning Department by June 1 each year. Such documents shall be prepared by a Professional Engineer or stormwater professional certifying that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and

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include details regarding when the infrastructure shall be repaired and functioning as approved. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended).

(5) If no report is filed by June 1, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.07] and to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

(6) The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with any onsite or offsite BMPs, if these inspections and/or maintenance activities are not performed by the landowner(s) or other responsible party.

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1 Table 1: Stormwater Infrastructure Design Criteria

Design Criteria	Description
Water Quality Volume (WQV)	WQV = (P)(Rv)(A) P = 1 inch of rainfall Rv = unitless runoff coefficient, Rv = 0.05 + 0.9(I) I = percent impervious cover draining to the structure converted to decimal form A = total site area draining to the structure
Water Quality Flow (WQF)	WQF = (q_u)(WQV) WQV = water quality volume calculated as noted above q_u = unit peak discharge from TR-55 exhibits 4-II and 4-III Variables needed for exhibits 4-II and 4-III: Ia = the initial abstraction = 0.2S S = potential maximum retention in inches = (1000/CN) - 10 CN = water quality depth curve number = $1000/(10+5P+10Q-10[Q^2 +1.25(Q)(P)]^{0.5})$ P = 1 inch of rainfall Q = the water quality depth in inches = WQV/A A = total area draining to the design structure
Groundwater Recharge Volume (GRV)	GRV = $(A_I)(R_d)$ A_I = the total area of effective impervious surfaces that will exist on the site after development R_d = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group, as follows: Hydrologic Group — R_d (inches) A — 0.40 B — 0.25 C — 0.10 D — 0.00
Channel Protection Volume (CPV)	If the 2-year, 24-hour post-development storm volume ***does not increase*** due to development then: control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour predevelopment level. If the 2-year, 24-hour post-development storm volume ***does increase*** due to development then: control the 2-year, 24-hour post-development peak flow rate to ½ of the 2-year, 24-hour pre-development level or to the 1-year, 24-hour pre- development level.
Peak Control	Post-development peak discharge rates shall not exceed pre-development peak discharge rates for the 10-year and 50-year, 24-hour storms
EIC and UDC	%EIC = area of effective impervious cover/total drainage areas within a project area x 100 %UDC = area of undisturbed cover/total drainage area within a project area x 100

2 NHDES Stormwater Manual: Volume 2 Post-Construction Best Management Practices Selection & Design (December 2008)

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Draft Revisions to Newmarket's Site Plan Regulations

Appendix B – Site Plan

Sec. 3.07 – Stormwater Management

(A) Purpose and Goals

The purpose of stormwater management standards is to provide reasonable guidance for the regulation of stormwater runoff that protects local natural resources from degradation and prevents adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land development projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff. Through these regulations, the Planning Board seeks to balance the public's interest in promoting orderly growth and development and protecting and enhancing water quality with the individual rights of private property owners. These regulations also provide measures for construction site stormwater runoff control as well as stormwater management for new development and redevelopment and post construction stormwater management. These regulations seek to meet the above goals through the following objectives:

(1) Mitigate stormwater runoff from development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels.
(2) Minimize the water quality impact from all new and redevelopment projects. This applies to projects if the project is part of a larger common plan of development or redevelopment.
(3) Manage nonpoint source pollution caused by stormwater runoff from development which otherwise would degrade local water quality.
(4) Control the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic conditions.
(5) Reduce stormwater runoff rates and volumes, soil erosion and non-point source pollution through stormwater management controls that are properly maintained and pose no threat to public health and safety or cause excessive municipal expenditures.
(6) Protect the quality of groundwater resources, surface water bodies, and wetlands.
(7) Control for other wastes on construction sites such as demolition debris, litter, and sanitary wastes.

(B) Definitions

Definitions shall be those provided in the Newmarket Zoning Ordinance adopted February 14, 1996, as amended in Chapter 32 Zoning Sec 32-111, Appendix A - Subdivisions, Sec 1.03, Appendix B: Site Plan Regulations, and other additional definitions referenced below. These definitions are to be used strictly for Stormwater Regulations under Appendix B – Site Plans and Appendix A – Subdivisions. In a case where there are alternative or inconsistent definitions elsewhere in Chapter 32 Zoning, the definitions in the stormwater management section shall apply.

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Best Management Practices (BMPs): A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities. BMPs also include treatment requirements, operating procedures, maintenance protocols, and management practices to prevent and/or reduce the discharge of pollutants to waters of the United States.

Bioretention: A water quality practice that utilizes vegetation and soils to treat urban stormwater runoff by collecting it in shallow depressions, before filtering through an engineered bioretention planting soil media

Buffer: A special type of preserved area along a watercourse or wetland where development is restricted or prohibited. Buffers protect and physically separate a resource from development. Buffers also provide stormwater control flood storage and habitat values.

Disturbed Area: An area in which the natural vegetative soil cover has been removed or altered and, therefore, is susceptible to erosion.

Effective Impervious Cover (EIC): The total impervious surface areas less the area of disconnected impervious cover (area where runoff is captured and infiltrated or otherwise treated).

Filtration: The process of physically or chemically removing pollutants from runoff; practices that capture and store stormwater runoff and pass it through a filtering media such as sand, organic material, or the native soil for pollutant removal. Stormwater filters are primarily water quality control devices designed to remove particulate pollutants and, to a lesser degree, bacteria and nutrients

Groundwater Recharge: The process by which water seeps into the ground, eventually replenishing groundwater aquifers and surface waters such as lakes, streams, and the oceans. This process helps maintain water flow in streams and wetlands and preserves water table levels that support drinking water supplies.

Groundwater Recharge Volume: The post-development design recharge volume (i.e., on a storm event basis) required to minimize the loss of annual pre-development groundwater recharge. The recharge volume is determined as a function of annual pre-development recharge for site-specific soils or surficial materials, average annual rainfall volume, and amount of impervious cover on a site.

Impaired Waters: Those waterbodies not meeting water quality standards. Pursuant to Section 303(d) of the federal Clean Water Act, each state prepares a list of impaired waters (known as the 303(d) list) which is presented in the state's Integrated Water Report as Category 5 waters. Those impaired waters for which a total maximum daily load (TMDL) has been approved by US EPA and is not otherwise impaired.

Impervious Cover: Those surfaces that cannot effectively infiltrate rainfall such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots.

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Infiltration: The process of runoff percolating into the ground (subsurface materials). Stormwater treatment practices designed to capture stormwater runoff and infiltrate it into the ground over a period of days.

Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture, infiltrate, and manage runoff as close to its source as possible. Examples of LID strategies are pervious pavement, rain gardens, green roofs, bioretention basins and swales, filtrations trenches, and other functionally similar BMPs located near the runoff source.

Maximum Extent Practicable (MEP): A proposed development meets a standard to the maximum extent practicable, by demonstrating the following:

(1) All reasonable efforts have been made to meet the standard;
(2) A complete evaluation of all possible management measures has been performed; and
(3) If full compliance cannot be achieved, the highest practicable level of management is being implemented.

Mitigation: Activities, strategies, policies, programs, and actions that, over time, will serve to avoid, minimize, or compensate for (by treating or removing pollution sources) the impacts to or disruption of water quality and water resources.

MS4 Program: Refers to the Small Municipal Separate Storm Sewer System General Permit - the MS4 General Permit - issued by the EPA under the Clean Water Act. MS4 applies to municipalities, of which Newmarket is one, that contain any portion of an urbanized area as defined by the federal Census. It applies to stormwater conveyances owned by a State, city, town, or other public entity that discharge to 'Waters of the United States'. The MS4 Permit requires that operators of small MS4s develop a Stormwater Management Program that uses appropriate Best Management Practices (BMPs) for each of the six minimum control measures required in the MS4 permit under National Pollution Discharge Elimination System (NPDES), including construction site stormwater runoff control and stormwater management for new development and redevelopment (also referred to as post construction stormwater management.

Native Vegetation and Plantings: Plants that are indigenous to the region, adapted to the local soil and rainfall conditions, and require minimal supplemental watering, fertilizer, and pesticide application. (New Definition)

New Development: Any construction, land alteration, or improvement of a site or structure with less than 40 percent of the existing impervious surface, calculated by dividing the total existing impervious surfaces, by the size of the parcel, and convert to a percentage.

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Pollutant Load: An amount of pollutants that is introduced into a receiving waterbody measured in units of concentration of mass or weight over a specified time period (i.e. lbs/day or lbs/year).

Redevelopment: For purposes of determining whether a site must meet either new development or redevelopment requirements, a site is considered redevelopment if it has 40 percent or more of existing impervious surface, calculated by dividing the total existing impervious surface by the size of the parcel, and converting it a percentage. Otherwise, the project must meet the new development treatment standards. The following activities are not considered redevelopment:

a. Interior and exterior building renovation
b. Resurfacing of an existing paved surface (e.g. parking lot, walkway or roadway)
c. Pavement excavation and patching that is incidental to the primary project purpose, such as replacement of a collapsed storm drain
d. Landscaping installation and maintenance.

Regulated Substances: petroleum, petroleum products, regulated contaminants for which an ambient groundwater quality standard has been established under RSA 485-C:6, and substances listed under 40 CFR 302, 7-1-05 edition, as amended, excluding substances used in the treatment of drinking water or wastewater at town facilities.

Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a subdivision.

Surface Water Body: Surface waters, including lakes, rivers and other navigable waters, streams, wetlands, coastal areas protected under the federal Clean Water Act.

Total Suspended Solids (TSS): The total amount of soils and particulate matter which are suspended in the water column.

Water Quality Volume: The amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis. The recommended volume is that associated with the first one-inch of rainfall, which is equivalent to capturing and treating the runoff from the 90^{th} percentile of all rainfall. Source: NH DES Stormwater Manual: Volume 2 Post-Construction Best Management Practices: Selection and Design, December 2008.

Watershed: All land and water area from which runoff may run to a common (design) discharge point.

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(C) Minimum Thresholds for Applicability

(1) These stormwater management standards apply to all proposed developments and redevelopment projects that are subject to the Town of Newmarket Site Plan Review regulations and disturb more than 5,000 square feet of area or more than 2,500 square feet of area if within 100 feet of a surface water body.

(2) Conditions for Granting Waivers

The Planning Board may grant a waiver from these regulations as set forth in Section 5.01 (A) and upon the submission of appropriate demonstration by the applicant as to why these regulations should not apply and with consideration by the Planning Board of the following conditions of approval:

a. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow.
b. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses).
c. All runoff generated from new impervious surfaces shall be retained on the development site and property.
d. Determination of compliance with standards (a.-c. above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals.

(3) The following activities are considered exempt from preparing and submitting a stormwater management plan:

a. Agricultural and forestry practices in accordance with BMP's published by the NH Department of Agriculture.
b. Resurfacing and routine maintenance of roads and parking lots.
c. Exterior and interior alterations and maintenance to existing buildings and structures.

(4) All applications shall be accompanied by a completed Site Plan Review Application and Stormwater Management Checklist to the Planning Board prior to consideration for review. Prior to commencement of land disturbance, the applicant must obtain an approved permit under these regulations.

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(5) All projects of magnitude under review by the Planning Board may require a stormwater permits from EPA Construction General Permit (CGP) program or NH Department of Environmental Services (NHDES) and shall comply with the standards of EPA and/or NH DES permits and this section, where the stricter standards apply. Copies of the following permits shall be required, as applicable, as conditions of approval.

a. EPA Construction General Permit – A permit issued by EPA that authorizes the discharge of pollutants to waters of the Unites States. For a cumulative disturbance of one (1) acre of land that is considered "construction activity' which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit is required, in addition to any state or local permits)

b. Alteration of Terrain Permit (AOT) - RSA 485-A:1 requires a permit from the New Hampshire Department of Environmental Services (NH DES) Water Supply and Pollution Control Division for "any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural runoff and unnatural runoff. Under this program, a permit is required for a project involving more than 100,000 contiguous square feet of disturbance or if such an activity occurs in or on the border of surface waters of the state.

(D) Stormwater Management for New Development

All proposed stormwater supervision practices and treatment systems shall meet the following performance standards:

(1) Projects subject to the new development standards include all proposed projects on completely undeveloped parcels or previously developed parcels where less than 40% of the total parcel areas is comprised of impervious areas. Impervious surfaces include all paved surfaces, rooftops and compacted gravel or dirt surfaces. If 40% or more of the proposed development parcel consists of impervious surfaces then the project is subject to the redevelopment standards listed in Section E below.

(2) All proposed stormwater practices and measures shall be installed and maintained in accordance with manufacturer's specifications and performance standards in the NH Stormwater Management Manual Volume 2 (December 2008 or current revision), a copy of which is available from the NH DES website.
www.des.nh.government/organization/divisions/water/stormwater/manual

(3) Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 50% removal of both total nitrogen and total phosphorus using

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appropriate treatment measures, as specified in the NHDES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means.

(4) In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH 2017 M Permit - Appendix F; Attachment.

(5) Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious area draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.

(6) Measures shall be taken to control the post-development peak rate runoff so that it does not exceed pre-development runoff. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volumes (cubic feet) for the 1-inch rainstorm and the 2-year, 10-year, 25-year and 50-year, 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the ground water recharge volume (GRV) according to ratios referenced in the NHDES "Stormwater Manual Volume 2" and any subsequent revisions. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment. Infiltration structures should be in locations with the highest permeability on the site, to the extent possible.

(7) They physical, biological, and chemical integrity of receiving water shall not be degraded by the stormwater runoff from the site.

(8) Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite.

(9) Every effort shall be made to use pervious parking surfaces as an alternative to impervious asphalt or concrete for general and overflow parking areas. Pervious pavement shall be appropriately sited and designed for traffic and vehicle loading conditions. (

(10) Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious areas, locate impervious areas in low

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infiltration soil areas (i.e. HSG-D), and use enhanced stormwater BMP's (such as raingardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. The capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.

(11) The design of the stormwater drainage systems shall provide for the discharge of stormwater without flooding or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetlands, stream channels or vegetation.

(12) The design of the stormwater management systems shall account for upstream and upgradient runoff within the watershed that flows onto, over, or through the site to be developed. Any runoff that flows through the site from upgradient properties shall be included in the calculations.

(13) All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions: grasses, shrubs, trees, and/or other native plants in sufficient numbers and density to prevent soil erosion and achieve the water quality treatment requirements of this section.

(14) All stormwater installations and areas that receive rainfall runoff shall be designed to drain within a maximum of 72 hours for vector control.

(15) The site design shall include adequate temporary and permanent erosion control measures consistent with the design guidelines and specifications included in the NHDES "Stormwater Manual Volume 3", and any subsequent revisions. Appropriate sediment and erosion control measures for construction sites, include: minimizing the amount of disturbed area, protecting natural resources, stabilizing sites when projects ad complete of operations have temporarily ceased, protecting slopes on the site, protecting all storm drain inlets and armoring all newly constructed outlets the use of perimeter controls, stabilizing construction site entrances and exits to prevent off-site tracking; and inspecting stormwater controls at consistent intervals.

(16) The site design shall include provisions to control wastes, including, but not limited to, discarded building materials, concrete truck wash-out, chemicals, litter and sanitary wastes, all of which shall not discharged into the stormwater system.

(17) Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from construction equipment.

(18) Stormwater management and erosion and sediment control practices shall be located outside any specific buffer zones unless otherwise approved by the Planning Board. Alternatives to

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stream and wetland crossings that eliminate or minimize environmental impacts shall be considered whenever possible.

(19) Salt storage areas shall be fully covered with permanent material and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm, or as amended.

(20) Runoff shall be directed into recessed vegetated and landscaped areas designed for the treatment and/or filtration to the Maximum Extent Practical to minimize Effective Impervious Cover (EIC) and reduce the need for irrigation systems.

(21) All newly generated stormwater shall be treated on the development site. Runoff shall not be discharged from the development site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than discharged under existing conditions. A development plan shall include provisions to retain natural predevelopment watershed areas on the site by using the natural flow patterns. Any new development that proposes to connect to the municipal storm drainage system shall comply with Section K: Municipal Storm Connections.

(22) Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.

(23) After erosion control measures have been installed and the areas to be protected are clearly marked, an onsite meeting shall be held with the Town's Engineering consultant prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.

(24) All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm drain system or treatment areas shall be removed using appropriate measures consistent with the maintenance plan included in the approved Stormwater Management Plan.

(25) The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineer or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.

(26) The applicant shall submit as-built drawings of the constructed stormwater management system following construction as setforth in the "As-Built Survey Checklist" in Appendix B.

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(E) Stormwater Management for Redevelopment

For proposed projects meeting the definition of a redevelopment project, the applicant shall meet the minimum stormwater management requirements of this section for the entire developed area of the site to the maximum extent practical.

(1) Redevelopment applications shall comply with the requirements of Sections (G) Submission Requirements for Stormwater Management Report and Plans, (H) General Performance Criteria for Stormwater Management Plans, and (I) Spill Prevention, Control, and Response (SPCR) Plan.

(2) A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NHDES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means. In urbanized areas where Pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH 2017 M Permit - Appendix F; Attachment3).

(3) Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious areas draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.

(4) All newly generated stormwater from redevelopment shall be treated on the development site. Runoff shall not be discharged from the redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than that discharged under existing system shall comply with Section J: Municipal Storm Connections.

(5) For sites meeting the definition of a redevelopment project, stormwater shall be managed for water quality in accordance with one the following techniques:

a. Implement measures onsite that result in disconnection or treatment of 30% of the

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additional proposed impervious surface area and at least 50% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices.

b. Implement LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 50% of the entire developed site area.

(6)) Salt storage areas shall be fully covered with permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/ commissioner/pip/factsheets/wmb/index.htm or as amended.

(7) The applicant shall submit as-built drawings of the constructed stormwater management system following construction, as set forth in Appendix B "As-Built Survey Checklist".

(F) Options to Allow for Mitigation for Redevelopment

For sites having less than 40% impervious areas, the stormwater management requirements will be the same as for new development under Section D New Development with the exception that the applicant can meet those requirements either on-site or at an approved off-site location, as set forth below:

(1) In cases where the applicant demonstrates, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the maximum extent possible or is not feasible, off-site mitigation will be an acceptable alternative. Off-site mitigation shall be implemented within the same subwatershed as the redevelopment, within the project's drainage area, or within the drainage area of the receiving waterbody.

(2) Off-site mitigation shall treat no less than the total area of impervious area not treated on-site. Treatment of the impervious area shall comply with all standards of this regulation.

(3) An approved off-site location shall be identified, the specific management measures shall be stipulated and an implementation schedule shall be developed in accordance with the Planning Board's review. Municipally-owned land should be considered as a first priority in the selection of lands for off-site mitigation. If the off-site location is not owned by the applicant, a written agreement with the property owner(s) shall be submitted as part of the application.

(4) As part of their request to utilize the off-site mitigation option for redevelopment, the applicant shall also demonstrate there are no adverse downstream flooding impacts that would result from not providing appropriate on-site management from the 50-yr or greater storm event.

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(G) Submission Requirements for Stormwater Management Plan (SMP)

A Stormwater Management Plan (SMP) shall be submitted with the Site Plan Review Application, as applicable, and shall be prepared and certified by a NH licensed Professional Engineer, specializing in Civil Engineering. This plan shall include the following information:

(1) A narrative of existing conditions plan showing all pre-development impervious surfaces, buildings, and structures; surface water bodies and wetlands; sub-catchment and watershed boundaries, drainage patterns; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades, where necessary, for sites that are flat.

(2) A narrative of proposed conditions showing all post-development important hydrologic features created or preserved on the site; subcatchment and watershed boundaries, drainage patterns, channelized flow areas; proposed areas of disturbance; temporary stock pile areas, construction refueling areas; proposed impervious surfaces, buildings, and structures; all temporary and permanent stormwater treatment BMPs and management elements, including BMP GIS coordinates and GIS files; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals; erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. The plan shall provide calculations and identification of the total area of disturbance proposed on site (and off-site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms (see Table 1: Stormwater Infrastructure Design Criteria) at each point of analysis shall be included.

(3) A description of the general approach and strategies implemented, and the facts and assumptions relied upon, to meet the purpose and goals for stormwater management. The SMP shall include design plans and/or graphic sketches of all proposed LID practices.

(4) Calculations of the change in impervious area, pollution loading and reductions for each best management practice. GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, and piping) upon request.

(5) A description and a proposed site plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES "Stormwater Manual Volume 3" and any subsequent revisions, as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.

(6) A drainage analysis that includes a description of all methods, assumptions and estimates of pre and post-development peak stormwater flow rates (cubic feet per second) and volumes (acre-feet) for the 2-, 10-, 25-, 50- and 100-year, 24-hour frequency storm events.

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(7) Landscaping plan and details that show planting areas, proposed plant species focusing of native species suitable to anticipated site conditions, and provisions for controlling the establishment of nuisance invasive species.

(8) A short and long-term operations and maintenance (O&M) plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control, permanent stormwater treatment measures, and best management practices.

(9) The O&M plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the qualified and responsible individuals or parties (and their contact information) who will perform these activities. The inspection frequency, maintenance, reporting protocols, and sample reporting forms shall be included.

(10) The O&M plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended)

(11) Covenant documents for filing with the Rockingham County Registry of Deeds which demonstrate the owner's obligation for stormwater BMP maintenance, which runs with the land and that the Town has legal access to inspect and/or maintain, if necessary, onsite stormwater infrastructure.

(12) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.

(13) A description of identified locations of any proposed deicing chemicals and/or snow storage areas. The SMP shall describe how deicing chemical use will be minimized or used more efficiently.

(14) For urbanized areas that are subject to the EPA MS4 Stormwater Permit which drain to chloride-impaired waters, a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) (as amended) in accordance with Appendix H of the NH MS4 Permit, as applicable, shall be submitted.

(15) All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The landscaping plan must be prepared by a registered landscape architect.

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(H) General Performance Criteria for Stormwater Management Plans

(1) All applications shall apply practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize the discharge of stormwater to the municipal stormwater management system.

(2) Water Quality Protection

a. All stormwater runoff generated from new development shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment.
b. All developments shall provide reatment and management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment

(3) Onsite groundwater recharge shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post development site shall remain equal or exceed the annual recharge from pre-development site conditions. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This may include, but not be limited to:

a. Maximizing flow paths from collection points to outflow points.
b. Use of multiple best management practices.
c. Retention of and discharge to fully vegetated areas.
d. Maximizing use of infiltration practices.

(4) Stormwater system design performance standards shall be provided as prescribed in Table 1: Stormwater Infrastructure Design Criteria. Calculations shall include sizing of all structures and best management practices. Sizing of emergency overflow structures shall be based on assessment of the 100-year 24-hour frequency storm discharge rate.

(5) The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.

(6) The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. All invasive plant species identified in Chapter Agr 3800, pursuant to RSA 430:55 are prohibited. All non-native plant species identified in the New Hampshire Restricted Invasive Plant Species/Watch List (as amended) are strongly discouraged.

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(l) Spill Prevention, Control, and Response (SPCR) Plan

(1) For any application under this section for a proposed commercial or industrial use having regulated substances in amounts greater than 55 gallons or 660lbs of a regulated substance, the applicant shall submit a spill prevention, control, and response plan to the Fire Department. The Fire Department shall determine whether the plan will prevent, contain, and minimize releases from ordinary or catastrophic events as spills, floods, or fires that may cause large releases of regulated substances, which shall include the following:

a. Disclosure statements describing the types, quantities, and storage locations of all regulated substances.
b. Owner and spill response manager's contact information.
c. Location of all surface waters and drainage patterns.
d. A narrative of spill prevention practices to be employed when routinely using such substances.
e. Containment controls, both structural and non-structural.
f. Spill reporting procedures, including a list of personnel or agencies to be contacted
g. A description of equipment to prevent regulated substances from infiltrating into the ground and discharging to the Town's stormwater system.

(2) All regulated substances in a container with a capacity of five (5) gallons or more shall be stored in product tight containers, on an impervious surface, and maintained to prevent flow to exposed soils, flow drains, and outside drains. (New Section under NPDES Permit)

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(J) Municipal Storm Connections

Connections to the municipal storm drainage system shall be allowed only, as necessary, after required provisions to control the peak rate and volume of post-development run-off through onsite detention, water quality treatment and groundwater recharge have been fully explored and included in the site design to the maximum extent practicable, as determined by the Board, after a review and recommendation by the Town's engineer. If onsite stormwater management is not feasible due to site constraints, the applicant must fully demonstrate why onsite LID strategies and stormwater BMPs are not feasible and submit a written request for a waiver pursuant to Appendix B – Site Plans Section 5.01 Waivers or Substitutions.

(1) Any proposed connection to the municipal stormwater drainage system shall be designed and constructed in accordance with standards and specifications of the Town of Newmarket. Stormwater contributions to the Town's sanitary sewer system are strictly prohibited.

(2) Where adequate municipal stormwater drainage facilities are not available at the time of application and are deemed necessary due to site constraints or if onsite treatment has been determined to potentially result in adverse impacts to abutting properties (e.g., wet basements, flooding, etc.) or natural resources, it will be the applicant's responsibility to install the necessary municipal storm drain system improvements including additional capacity needed downgradient of the site, as determined by the Public Works Director and/or Town Engineer

(3) Any new connections or extensions to the municipal storm drain as approved by the Planning Board shall be in the form of a subsurface piped storm sewer system. Such drainage facilities shall be located in the street rights-of-way where feasible. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road. Any new connection or extension to municipal storm drain system shall include water quality treatment provisions to capture sediment and petroleum products that may be generated onsite from driveways, roads and parking lots prior to exiting the site.

(K) Stormwater Management Plan and Site Inspections

The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the Town.

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(L) Stormwater Management Plan Recordation

(1) Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the County Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board

(2) The applicant shall submit as-built drawings of the constructed stormwater management system following construction in accordance with "As Bui8lt Survey Checklist" as found in Appendix B.

(M) Inspection, Maintenance, and Reporting Responsibilities

(1) The Code Enforcement Officer or other duly, appointed designee of the Town Manager shall be responsible for enforcement [as referenced in Sec. 5.08 and have site access to undertake routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner during project construction.

(2) If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report to the Code Enforcement Officer, documenting these violations of non-compliance including recommended corrective actions. The Code Enforcement Officer shall notify the property owner in writing of these violations of non-compliance and corrective actions necessary to bring the property into full compliance.

(3) If a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly, the Code Enforcement Officer or other duly, appointed designee of the Town Manager or, shall be responsible for enforcement [as referenced in Sec. 5.08].

(4) Landowners shall be responsible for submitting an annual report to the Planning Department by June each year. Such documents shall be prepared by a Professional Engineer or stormwater professional certifying that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and include

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details regarding when the infrastructure shall be repaired and functioning as approved. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended).

(5) If no report is filed by June 1, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.07] and to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.

(6) The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with any onsite or offsite BMPs, if these inspections and/or maintenance activities are not performed by the landowner(s) or other responsible party

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1 Table 1: Stormwater Infrastructure Design Criteria

Design Criteria	Description
Water Quality Volume (WQV)	WQV = (P)(Rv)(A) P = 1 inch of rainfall Rv = unitless runoff coefficient, Rv = 0.05 + 0.9(I) I = percent impervious cover draining to the structure converted to decimal form A = total site area draining to the structure
Water Quality Flow (WQF)	WQF = (q_u)(WQV) WQV = water quality volume calculated as noted above q_u = unit peak discharge from TR-55 exhibits 4-II and 4-III Variables needed for exhibits 4-II and 4-III: Ia = the initial abstraction = 0.2S S = potential maximum retention in inches = (1000/CN) - 10 CN = water quality depth curve number = $1000/(10+5P+10Q-10[Q^2 +1.25(Q)(P)]^{0.5})$ P = 1 inch of rainfall Q = the water quality depth in inches = WQV/A A = total area draining to the design structure
Groundwater Recharge Volume (GRV)	GRV = $(A_I)(R_d)$ A_I = the total area of effective impervious surfaces that will exist on the site after development R_d = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group, as follows: Hydrologic Group — R_d (inches) A — 0.40 B — 0.25 C — 0.10 D — 0.00
Channel Protection Volume (CPV)	If the 2-year, 24-hour post-development storm volume ***does not increase*** due to development then: control the 2-year, 24-hour post-development peak flow rate to the 2-year, 24-hour predevelopment level. If the 2-year, 24-hour post-development storm volume ***does increase*** due to development then: control the 2-year, 24-hour post-development peak flow rate to ½ of the 2-year, 24-hour pre-development level or to the 1-year, 24-hour pre- development level.
Peak Control	Post-development peak discharge rates shall not exceed pre-development peak discharge rates for the 10-year and 50-year, 24-hour storms
EIC and UDC	%EIC = area of effective impervious cover/total drainage areas within a project area x 100 %UDC = area of undisturbed cover/total drainage area within a project area x 100

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Side by Side Comparison of Subdivision Regulations [Town of Newmarket and SWA Model Stormwater Regulations]	
Existing Regulatory Language	Final Draft Recommendations
Purpose and Goals *(for stormwater)*	(A) Purpose and Goals
New Section, not in Town's current existing regulations. Added new item 7 to address other construction site wastes from 2020 NPDES modified permit.	The goals of this section is to set forth stormwater management standards for the development of major subdivisions for the purposes of preventing both onsite and downstream flooding; reducing the water quality impacts of such development, providing effective water quality treatment; and minimizing erosion and maintaining sediments on construction sites and adjacent and downgradient areas so it is not transported in stormwater and allowed to discharge into the waters of the U.S, thereby degrading water quality. Through these regulations, the Planning Board seeks to balance the public's interest in promoting orderly growth and development and protecting and enhancing water quality and the individual rights of private property owners. These regulations seek to meet those goals through the following objectives: (1) Mitigate stormwater runoff from development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels . (2) Minimize the water quality impacts from all new development and redevelopment projects considered major subdivisions under the Town's subdivision regulations. This applies to projects if the project is part of a larger common plan. (3) Manage nonpoint source pollution caused by stormwater runoff from development which otherwise would degrade local water quality. (4) Control the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic condition. (5) Reduce stormwater runoff rates and volumes, soil erosion and non-point source pollution through stormwater management controls that are properly maintained and pose no threat to public health and safety or cause excessive municipal expenditures. (6) Protect the quality of groundwater resources, surface water bodies, and wetlands. (7) Control waste on construction site, such as demolition debris, litter, and sanitary wastes.
	(B) Definitiions
Current definitions as provided in the Newmarket Zoning Ordinance adopted February 14, 1996, Appendix A Subdivisions, in § 1.03. Some existing definitions have been modified and added from the 2012 Model Ordinance and amended 2020 NPDES permit.	Definitions shall be those provided in the Newmarket Zoning Ordinance adopted February 14, 1996, as amended in Chapter 32 Zoning Sec 32-111, Appendix A - Subdivisions, Sec 1.03, Appendix B: Site Plan Regulations, and other additional definitions referenced below. These definitions are to be used strictly for Stormwater Regulations under Appendix B – Site Plans and Appendix A – Subdivisions. In a case where there are alternative or inconsistent definitions elsewhere in Chapter 32 Zoning, the definitions in the stormwater management section shall apply.
Best Management Practices (BMP): As outlined in the NHDES Stormwater Manual, (Vols. 1—3), published in Dec. 2008 or as amended, BMPs are generally considered to be the most effective and practical means of preventing soil erosion and/or controlling peak flow rates as well as minimizing pollutant loads and runoff volumes generated from site development. These may include both structural and non-structural measures associated with site development.	Best Management Practices (BMP): A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities. BMPs also include treatment requirements, operating procedures, maintenance practices to prevent/and or reduce the discharge of pollutants to the waters of the United States.
Bioretention Area : Also often referred to as a Rain Garden, consists of a shallow, landscaped depression that receives runoff from impervious surfaces and allows the initial "first-flush" of runoff (typically first 1 inch of runoff) to infiltrate into native soils or an engineered soil matrix for water quality treatment. These areas are generally planted with a mix of native grasses, sedges and	Bioretention: A water quality practice that utilizes vegetation and soils to treat urban stormwater runoff by collecting it in shallow depressions, before filtering through an engineered bioretention planting soil media.
Boundary Line Adjustment: (1) The alteration of lot boundaries between two or more adjoining lots which does not increase the number of lots. (2) The creation of a different form or division of ownership of an existing property, which does not require physical changes.	Removed (not applicable)
Not in town's existing regulations.	Buffer: A special type of preserved area along a watercourse or wetland where development is restricted or prohibited. Buffers protect and physically separate a resource from development. Buffers also provide stormwater control flood storage and habitat values.
Disturbance : Any activity that involves altering the existing terrain which includes clearing and grubbing, grading and adding impervious area that will change the runoff flow and volume from an existing site.	Disturbed Area: An area in which the natural vegetative soil cover has been removed or altered and, therefore, is susceptible to erosion.
Not in town's existing regulations.	Effective Impervious Cover (EIC): The total impervious surface areas less the area of disconnected impervious cover (area where runoff is captured and infiltrated or otherwise treated).

Not in town's existing regulations.	Filtration: The process of physically or chemically removing pollutants from runoff; practices that capture and store stormwater runoff and pass it through a filtering media such as sand, organic material, or the native soil for pollutant removal. Stormwater filters are primarily water quality control devices designed to remove particulate pollutants and, to a lesser degree, bacteria and nutrients.
Not in town's existing regulations.	Groundwater Recharge: The process by which water seeps into the ground, eventually replenishing groundwater aquifers and surface waters such as lakes, streams, and the oceans. This process helps maintain water flow in streams and wetlands and preserves water table levels that support drinking water supplies.
Not in town's existing regulations.	Groundwater Recharge Volume: The post-development design recharge volume (i.e., on a storm event basis) required to minimize the loss of annual pre-development groundwater recharge. The recharge volume is determined as a function of annual pre-development recharge for site-specific soils or surficial materials, average annual rainfall volume, and amount of impervious cover on a site.
Not in town's existing regulations.	Impaired Waters: Those waterbodies not meeting water quality standards. Pursuant to Section 303(d) of the federal Clean Water Act, each state prepares a list of impaired waters (known as the 303(d) list) which is presented in the state's Integrated Water Report as Category 5 waters. Those impaired waters for which a total maximum daily load (TMDL) has been approved by US EPA and is not otherwise impaired.
Impervious Surface : Any surface that cannot effectively infiltrate rainfall and consist of surfaces such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots).	Impervious Cover: Those surfaces that cannot effectively infiltrate rainfall such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots).
Not in town's existing regulations.	Infiltration: The process of runoff percolating into the ground (subsurface materials). Stormwater treatment practices designed to capture stormwater runoff and infiltrate it into the ground over a period of days.
Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture and infiltrate runoff as close to its source as possible. Where existing soils limit the natural infiltration potential, LID strategies may include, but not be limited to, preserving existing wooded buffer areas, use of cisterns to capture and reuse stormwater or the use of roof gardens to minimize the generation of	Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture, infiltrate, and manage runoff as close to its source as possible. Examples of LID strategies are pervious pavement, rain gardens, green roofs, bioretention basins and swales, filtrations trenches, and other functionally similar BMPs located near the runoff source.
Major Subvision: (1) The division of a lot into a greater number of lots, but which does not fit the definition of a Minor Subdivision. (2) An increase in the number of residential units on a single lot, but which does not fit the definition of a Minor Subdivision.	Major Subdivision: (1) The division of a lot into a greater number of lots, but which does not fit the definition of a Minor Subdivision. (2) An increase in the number of residential units on a single lot, but which does not fit the definition of a Minor Subdivision.
Maximum Extent Practicable (MEP): To show that a proposed development has met a standard to the maximum extent practicable, the applicant must demonstrate the following: (1) All reasonable efforts have been made to meet the standard, (2) A complete evaluation of all possible management measures has been performed, and (3) If full compliance cannot be achieved, the highest practicable level of management is being	Maximum Extent Practicable (MEP): A proposed development meets a standard to the maximum extent practicable, by demonstrating the following: (1) All reasonable efforts have been made to meet the standard; (2) A complete evaluation of all possible management measures has been performed; and (3) If full compliance cannot be achieved, the highest practicable level of management is being implemented.
Minor Subvision: (1) The division of a lot into a greater number of lots, provided that no new road is required; that there is no potential for a road to be required for the full development of any remaining developable portion of the land; and that the resulting number of lots does not exceed six. (2) An increase in the number of residential units on a single lot, provided that the total proposed number of such units does not exceed six.	Minor Subdivision: (1) The division of a lot into a greater number of lots, provided that no new road is required; and that the resulting number of lots does not exceed six. (2) An increase in the number of residential units on a single lot, provided that the total proposed number of such units does not exceed six.
Not in town's existing regulations.	Mitigation: Activities, strategies, policies, programs, and actions that, over time, will serve to avoid, minimize, or compensate for (by treating or removing pollution sources) the impacts to or disruption of water quality and water resources.
Not in town's existing regulations.	MS4: Refers to the Small Municipal Separate Storm Sewer System General Permit - the MS4 General Permit - issued by the EPA under the Clean Water Act. MS4 applies to municipalities that contain any portion of an urbanized area as defined by the Census. It applies to stormwater conveyances owned by a State, city, town, or other public entity that discharge to 'Waters of the United States'. The MS4 Permit requires that operators of small MS4s develop a Stormwater Management Program that uses appropriate Best Management Practices (BMPs) for each of the six minimum control measures required in the MS4 permit.
Not in town's existing regulations.	Native Vegetation and Plantings: Plants that are indigenous to the region, adapted to the local soil and rainfall conditions, and require minimal supplemental watering, fertilizer, and pesticide application.

Not in town's existing regulations.	New Development: Any construction, land alteration, or improvement of a site or structure with less than 40% of existing impervious surface, calculated by dividing the total existing impervious surfaces by the size of the parcel, and converting it to a percentage.
Not in town's existing regulations.	Pollutant Load: An amount of pollutants that is introduced into a receiving waterbody measured in units of concentration or mass over a spedific time period (i.e. lbs/day or lbs per year)
Not in town's existing regulations.	Redevelopment: For purposes of determining whether a site must meet either new development or redevelopment requirements a site is considered redevelopment if it has 40 percent or more of existing impervious surface, calculated by dividing the total existing impervious surface by the size of the parcel and converting it to a percentage. Otherwise, the project must meet the new development treatment standards. The following activities listed below are not considered redevelopment: a. Interior and exterior building renovations, b. Resurfacing and existing paved surface (e.g. parking lots, walkway, or roadway), c. Pavement excavation and patching that is incidential to the primary project purposes, and d. Lanscaping installation and maintenance.
Not in town's existing regulations.	Regulated Substances: petroleum, petroleum products, regulated contaminants for which an ambient groundwater quality standard has been established under RSA 485-C:6, and substances listed under 40 CFR 302, 7-1-05 edition, as amended, excluding substances used in the treatment of drinking water or wastewater at town facilities.
Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a	Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a subdivision.
Not in town's existing regulations.	Surface Water Body: Surface waters, including lakes, rivers, and other navigable waters, streams, wetlands, and coastal areas protected under the federal Clean Water Act.
Not in town's existing regulations.	Total Suspended Solids (TSS): The total amount of soil and particulate matter which are suspended in the water column.
Not in town's existing regulations.	Water Quality Volume: The amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis. The recommended volume is that associated with the first one-inch of rainfall, which is equivalent to capturing and treating the runoff from the 90th percentile of all rainfall. Source: New Hampshire Stormwater Manual: Volume 2 Post Construction Management Practices: Selection and Design, December 2008.
Not in town's existing regulations.	Watershed: All land and water area from which runoff may run to a common (design) discharge point.
Minimum Thresholds for Applicability	(C) Minimum Thresholds for Applicability

All development and redevelopment will include on-site control of peak flows and run-off volumes as well as water quality treatment as described in detail below and requires the submission of a Stormwater Management and Erosion Control Report with accompanying plans for review and approval by the Planning Board. The Stormwater Management and Erosion Control Plan shall satisfy the report requirements as specified in § 3.03(B) below. All subdivisions shall be subject to the following minimum requirements unless a waiver has been granted by the Planning Board:	(1) These stormwater management regulations shall apply to all subdivisions as defined in Sec 1.03 (B)- Definitions that result in the creation of a private or public road. and disturb a minimum of one or more acres. All stormwater runoff generated from the proposed private or public roadway(s) and any other runoff contributing to the stormwater management system shall be managed and treated in full compliance with these standards. (2) For subdivisions on existing private or public roadways, roadside drainage and any other stormwater runoff from the new lots discharging to the roadside drainage system must be managed for stormwater runoff quantity. and (quality?) (3) Conditions for Granting of Waivers. The Planning Board may grant a waiver from these regulations as set forth in Section 5.01 (A) and upon the submission of appropriate demonstration by the applicant as to why these regulations should not apply and with consideration by the Planning Board of the following conditions of approval: a. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or properly discharged to a naturally occurring or fully replanted and vegetated area with slopes of 15 percent or less and with adequate controls to prevent soil erosion and concentrated flow. b. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses). c. All runoff generated from new impervious surfaces shall be retained on the development or redevelopment site and property. d. Determination of compliance with standards (a.-c. above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals. (4) The following activities are considered exempt from preparing and submitting a stormwater management plan for Major Subdivisions for new development and redevelopment. a. Agricultural and forestry practices in accordance with BMP's published by the NH Department of Agriculture. b. Resurfacing and routine maintenance of roads and parking lots. c. Exterior and interior alterations and maintenance to existing buildings and structures. (5) All applications shall be accompanied by a completed Major Subdivision Application and Stormwater Management Checklist to the Planning Board prior to consideration for review. Prior to commencement of land disturbance, the applicant must obtain an approved permit under these regulations. (6) All major subdivisions of magnitude under review by the Planning Board may require a stormwater permits from EPA Construction General Permit (CGP) program or NH Department of Environmental Services (NHDES) and shall comply with the standards of EPA and/or NH DES permits and this section, where the stricter standards apply. Copies of
New Section	(5) All subdivisions of magnitude under review by the Planning Board may require a stormwater permits from EPA Construction General Permit (CGP) program or NH Department of Environmental Services (NHDES) and shall comply with the standards of EPA and/or NH DES permits and this section, where the stricter standards apply. Copies of the following permits shall be required, as applicable, as conditions of approval.
New Section	a. EPA Construction General Permit – A permit issued by EPA that authorizes the discharge of pollutants to waters of the Unites States. For a cumulative disturbance of one (1) acre or more of land that is considered "construction activity' which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit is required, in addition to any state or local permits.
New Section	b. Alteration of Terrain Permit (AOT) - RSA 485-A: 1 requires a permit from the New Hampshire Department of Environmental Services (NH DES) Water Supply and Pollution Control Division for "any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural and unnatural runoff. Under this program, a permit is required for a project involving more than 100,000 contiguous square feet of disturbance or if such an activity occurs in or on the border of surface waters of the state.
Replace (c) Minimum Requirements for Stormwater with new (D)	**(D) Stormwater Management for New Development related to Subdivisions**
(1) The subdivision shall include measures to control the post-development peak rate of runoff at each point where runoff leaves the site so as to not exceed the estimated pre-development peak rate, for the 2-, 10-, 25- and 50-year, 24-hour storm events. Any site that was wooded in the last five years shall be considered undisturbed woods for purposes of estimating pre-development rates and volumes. Any runoff that flows through the site from upgradient properties should be included in the calculations.	(1) Projects subject to the new development standards related to Subdivisions include all proposed projects on completely undeveloped parcels or previously developed parcels where less than 40% of the total parcel areas is comprised of impervious areas. Impervious surfaces include all paved surfaces, rooftops and compacted gravel or dirt surfaces. If 40% or more of the proposed new development parcel consists of impervious surfaces then the project is subject to the redevelopment standards listed in Section E below.

(2) Efforts shall be made to maintain existing natural drainage patterns and existing mature vegetation to the maximum extent practicable.	(2) All proposed stormwater practices and measures shall be installed and maintained in accordance with manufacturer's specifications and performance standards in the NH Stormwater Management Manual Volume 2 (December 2008 or current revision), a copy of which is available from the NH DES website. www.des.nh.government/organization/water/
(3) The site design shall include Low Impact Development (LID) strategies and design measures to the maximum extent practicable to promote groundwater recharge and minimize increases in runoff volumes. For sites where infiltration is limited due to existing soil conditions, the applicant must demonstrate that any increase in the pre-development runoff volumes will not cause additional channel scour, erosion, flooding, damage to downstream properties or result and/or contribute to a water quality impairment.	(3) Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and at least 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH DES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means.
(4) Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. Impervious areas shall be disconnected through the use of bioretention areas, infiltration areas, dry wells, vegetated buffers, use of cisterns or other similar measure to capture and/or treat runoff onsite.	(4) In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (December 9, 2019 Modification to the Permit - Appendix F; Attachment 3.)
	(5)Where practical, the use of natural, vegetated filtration and/or infiltration practices or sub- surface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious area draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.
(5) The design of the stormwater drainage system shall provide for the discharge of stormwater without damage or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetland areas, stream channels or vegetation.	(6) Measures shall be taken to control the post-development peak runoff so that it does not exceed pre-development runoff. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volume (in cubic feet) for the 1-inch rainstorm and the 2-year, 10-year, 25-year and 50-year, 24-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GRV) according to ratios referenced in the NH DES "Stormwater Manual Volume 2" and any subsequent revisions. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment. Infiltration structures should be in locations with the highest permeability on the site, to the extent possible.
	(7) The physical, biological, and chemical integrity of receiving water shall not be degraded by the stormwater runoff from the site.
(6) All stormwater treatment Best Management Practices (BMPs) shall be designed in accordance with the NH Stormwater Manual, Dec. 2008, or as amended.	(8) Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused onsite.
(7) All stormwater BMPs shall be planted with appropriate native grasses, shrubs, trees, and/or other plantings sufficient to prevent soil erosion and enhance vegetative uptake of nutrients and other stormwater pollutants.	(9) Every effort shall be made to use pervious parking surfaces as an alternative to impervious asphalt or concrete for general and overflow parking areas. Pervious pavement shall be appropriately sited and designed for traffic and vehicle loading conditions.

(8) All stormwater BMPs that will detain runoff shall be designed to drain within a maximum of 24 hours for vector control. BMPs designed to contain a permanent pool of water for water quality treatment purposes shall be shaped and include shoreline shallow marsh areas to limit the size of the permanent pool.	(10) Low Impact Development (LID) site planning and design strategies shall be used to the maxi- mum extent practicable to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious areas, locate impervious areas in low infiltration soil areas (i.e. HSG-D), and use enhanced stormwater BMP's (such as rain gardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. The capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater
(9) Runoff from roadway shall be treated to achieve 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Vol. 1 and 2, December 2008, as amended, or other equivalent means. Where practical, the use of gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency, as reported by the UNH Stormwater Center.	(11) The design of the stormwater drainage systems shall provide for the discharge of stormwater without flooding or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetlands, stream channels or vegetation.
(10) The subdivision plan shall include adequate temporary and permanent erosion control measures consistent with the design guidelines and specifications included in the NH Stormwater Manual, Vol. 3, December 2008, or as amended,	(12) The design of the stormwater management systems shall account for upstream and upgradient runoff within the watershed that flows onto, over, or through the site to be developed. Any runoff that flows through the site from upgradient properties shall be included in the calculations.
Not in town's existing regulations.	(13) All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions: grasses, shrubs, trees, and/or other native plants in sufficient numbers and density to prevent soil erosion and achieve the water quality treatment requirements of this section.
(11) Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from construction equipment.	(14) All stormwater installations and areas that receive rainfall runoff shall be designed to drain within a maximum of 72 hours for vector control.
Not in town's existing regulations.	(15) The site design shall include adequate temporary and permanent erosion control measures con sistent with the design guidelines and specifications included in the NH DES "Stormwater Manual Volume 3", and any subsequent revisions. Appropriate sediment and erosion control measures for construction sites, include: minimizing the amount of disturbed area, protecting natural resources, stabilizing sites when projects are complete or operations have temporarily ceased, protecting slopes on the site, protecting all storm drain inlets and armoring all newly constructed outlets, the use of perimeter controls, stabilizing construction site entrances and exits to prevent off-site tracking; and inspecting stormwater controls at consistent intervals.

Not in town's existing regulations.	(16) The site design shall include provisions to control wastes, including, but not limited to, dis- carded building materials, concrete truck wash-out, chemicals, litter and sanitary wastes, all of which shall not discharged into the stormwater system.
Not in town's existing regulations.	(17) Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from con- struction equipment.
Not in town's existing regulations.	(18) Stormwater management and erosion and sediment control practices shall be located outside any specific buffer zones unless otherwise approved by the Planning Board. Alternatives to stream and wetland crossings that eliminate or minimize environmental impacts shall be considered whenever possible.
(12) After erosion control measures have been installed and the areas to be protected are clearly marked, an onsite meeting shall be held with the Town Planner and Engineer prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.	(19)Salt storage areas shall be fully covered with permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm, or as amended.
(13) The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineer or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.	(20) Runoff shall be directed into recessed vegetated and landscaped areas designed for the treatment and/or filtration to the Maximum Extent Practical to minimize Effective Impervious Cover (EIC) and reduce the need for irrigation systems.
	(21) All newly generated stormwater from major subdivisions shall be treated on the development site. Runoff shall not be discharged from the development site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than discharged under existing conditions. A development plan shall include provisions to retain natural predevelopment watershed areas on the site by using the natural flow patterns. Any new development that proposes to connect to the municipal storm drainage system shall comply with Section G: Municipal Storm Connections.
	(22) Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.
	(23) After erosion control measures have been installed and the areas to be protected are clearly marked, an onsite meeting shall be held with the Town's Engineering Consultant prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.

(14) All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm drain system or treatment areas shall be removed using appropriate measures consistent with the maintenance plan included in the approved Stormwater Management and Erosion Control Report.	(24) All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm drain system or treatment areas shall be removed using appropriate measures consistent with the maintenance plan included in the approved Stormwater Management Plan.
	(25) The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineer or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.
(15) The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with onsite BMPs, if not performed by the landowner(s) or other responsible party.	(26) The applicant shall submit as-built drawings of the constructed stormwater management systems following construction as set forth in the "As-Built Survey Checklist" in Appendix B.
New Section to Address Subdivisions involving Redevelopment as defined in revised 2021 NHDES Permit	**(E) Stormwater Management for Redevelopment Subdivisions**
	For proposed projects meeting the definition of a redevelopment (if it has 40 percent or more of impervious surface area), the applicant shall meet the minimum stormwater management requirements of this section for the entire developed area of the subdivision to the maximum extent practical.
	(1) Redevelopment applications shall comply with the requirements of Sections (G) Submission Requirements for Stormwater Management Plas, and (H) General Performance Criteria for Stormwater Management Plans.
	(2) A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NH DES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means. In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH Modified Permit December 2020 - Appendix F; Attachment 3).
	(3) Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious areas draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.

	(4) All newly generated stormwater from redevelopment shall be treated on the redevelopment site. Runoff shall not be discharged from the redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than that discharged under existing conditions and in accordance with (J) Municipal Storm Connections.
	(5) For sites meeting the definition of a redevelopment project, stormwater shall be managed for water quality in accordance with one or more of the following techniques listed in order of preference: a. Implement measures onsite that result in disconnection or treatment of at least 30% of the existing impervious cover as well as 50% of the additional proposed impervious surfaces and pavement areas through the application of filtration media; or b. Implement other LID techniques onsite to the maximum extent practicable to provide treatment for at least 50% of the entire site area.
	(6) Salt storage areas shall be fully covered and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm or as amended.
	(7) The applicant shall submit as-built drawings of the constructed stormwater management system following construction, as set forth in Appendix B "As-Built Survey Checklist".
New Section to Address Subdivisions involving Redevelopment as defined in revised 2021 NHDES Permit	(F) Options to Allow for Mitigation for Redevelopment
	For subdivision sites having less than 40% impervious areas, the stormwater management requirements will be the same as for new development under Section D New Development with the exception that the applicant can meet those requirements either on-site or at an approved off-site location, as set forth below:
	(1) In cases where the applicant demonstrates, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the maximum extent possible or is not feasible, off-site mitigation will be an acceptable alternative. Off-site mitigation shall be implemented within the same subwatershed as the redevelopment, within the project's drainage area, or within the drainage area of the receiving waterbody.
	(2) Off-site mitigation shall treat no less than the total area of impervious area not treated on-site. Treatment of the impervious area shall comply with all standards of this regulation.

	(3) An approved off-site location shall be identified, the specific management measures shall be stipulated and an implementation schedule shall be developed in accordance with the Planning Board's review. Municipally-owned land should be considered as a first priority in the selection of lands for off-site mitigation. If the off-site location is not owned by the applicant, a written agreement with the property owner(s) shall be submitted as part of the application.
	(4) An approved off-site location shall be identified, the specific management measures shall be stipulated and an implementation schedule shall be developed in accordance with the Planning Board's review. Municipally-owned land should be considered as a first priority in the selection of lands for off-site mitigation. If the off-site location is not owned by the applicant, a written agreement with the property owner(s) shall be submitted as part of the application.
Stormwater Management and Erosion Control Report	(G) Submissions Requirements for Stormwater Management Plan
The Stormwater Management and Erosion Control Report and accompanying plans shall be submitted with the Site Plan Review Application, if applicable, and shall be prepared and certified by a licensed NH Professional Engineer specializing in Civil Engineering. This Report and plans shall include the following information:	The Stormwater Management Plan (SMP) shall be submitted with the Subdivision application and shall be prepared and certified by a licensed NH Professional Engineer specializing in Civil Engineering. This plan shall include the following information.
(1) An existing conditions plan that shows all of the items listed in § 4.00 of these Site Plan Requirements as well as the pre-development watershed boundaries, drainage patterns, channelized flow areas, existing vegetation, conveyance structures and all locations where runoff exits the site. Buffer setback limits as required by the Town's Zoning Ordinances and/or State regulations shall be clearly shown.	(1) A narrative description and an existing conditions plan showing all pre-development impervious surfaces, buildings, and structures; surface water bodies and wetlands; sub-catchment and watershed boundaries, drainage patterns; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades, where necessary, for sites that are flat.
(2) A proposed conditions plan that shows all of the items listed in § 4.00 of these Site Plan Requirements as well as post-development watershed boundaries, drainage patterns, channelized flow areas, proposed areas of disturbance, proposed impervious areas, temporary stock pile areas, construction refueling areas, all temporary and permanent stormwater treatment BMPs, erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms at each of the outlet locations shall be included on the plan.	(2) A narrative description and a proposed conditions plan showing all post-development important hydrologic features created or preserved on the site; subcatchment and watershed boundaries, drainage patterns, channelized flow areas; proposed areas of disturbance; temporary stock pile areas, construction refueling areas; proposed impervious surfaces, buildings, and structures; all temporary and permanent stormwater treatment BMPs and management elements, including BMP GIS coordinates and GIS files; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals; erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. The plan shall provide calculations and identification of the total area of disturbance proposed on site (and off-site if applicable) and total area of new impervious surface created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design st
(3) A drainage analysis that includes a description of all methods, assumptions and estimates of pre and post-development peak stormwater flow rates (cubic feet per second) and volumes (acre-feet) for the 2-, 10-, 25-, 50- and 100-year, 24-hour frequency storm events.	(3) A description of the general approach and strategies implemented, and the facts and assumptions relied upon, to meet the purpose and goals for stormwater management. The SMP shall include design plans and/or graphic sketches of all proposed above ground LID practices.
(4) Design details for all measures used to control peak flow rates, provide for groundwater recharge and/or to capture and reuse stormwater shall be in accordance with the NHDES Stormwater Manual, Dec. 2008 or as amended.	(4) Calculations of the change in impervious area, pollution loading and reductions for each best management practice. GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, and piping) upon request.
(5) A description and associated design and sizing details of all stormwater treatment measures that will be used for water quality protection. Stormwater treatment measures shall be sized to treat the water quality volume produced from 1 inch of runoff from all impervious areas.	(5) A description and a proposed subdivision plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES "Stormwater Manual Volume 3" and any subsequent revisions, as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.
(6) A description and design details of the erosion control measures to be used during the construction and vegetation establishment phase to minimize erosion and sediment movement into drainage structures, wetlands and surface waters.	Removed
(7) Landscaping plan and details that show planting areas, proposed plant species focusing on native species suitable to anticipated site conditions and provisions for controlling the establishment of nuisance invasive species.	(6) Landscaping plan and details that show planting areas, proposed plant species focusing of native species suitable to anticipated site conditions, and provisions for controlling the establishment of nuisance invasive species.

(8) An Operations and Maintenance Plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control and permanent stormwater treatment measures. The Plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the responsible individuals or parties that will perform these activities. The Plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program.	(7) A short and long-term operations and maintenance (O&M) plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control, permanent stormwater treatment measures, and best management practices. The Plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the qualified and responsible individuals or parties (and contact information) who will perform these activities. The inspection frequency, maintenance, reporting protocols, and sample reporting forms shall be included. The Plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended)
(9) The applicant shall provide covenant documents for filing with the registry of deeds which demonstrate that the obligation of stormwater BMP maintenance runs with the land and that the Town has legal access to inspect and/or maintain, if necessary, onsite stormwater infrastructure.	(8) Covenant documents for filing with the Rockingham County Registry of Deeds which demonstrate the owner's obligation for stormwater BMP maintenance, which runs with the land and that the Town has legal access to inspect and/or maintain, if necessary, onsite stormwater infrastructure.
(10) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.	(9) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.
Not in town's existing regulations.	(10) A description of identified locations of any proposed deicing chemicals and/or snow storage areas. The SMP shall describe how deicing chemical use will be minimized or used more efficiently.
Not in town's existing regulations.	(11) For urbanized areas that are subject to the EPA MS4 Stormwater Permit which drain to chloride-impaired waters, a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) (as amended) in accordance with Appendix H of the NH MS4 Permit, as applicable, shall be submitted.
Not in town's existing regulations.	(12) All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The landscaping plan must be prepared by a registered landscape architect.
General Performance Criteria for Stormwater Management Plans	H. General Performance Criteria for Stormwater Management Plans
Not in town's existing regulations.	(1) All applications shall apply practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize the discharge of stormwater to the municipal stormwater management system.
	(2) Water Quality Protection(2) Water Quality Protection (a) All stormwater runoff generated from new development shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment. (b) All developments shall provide adequate management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment
	(3) Onsite groundwater recharge shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post development site shall remain equal or exceed the annual recharge from pre-development site conditions. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This may include, but not be limited to: (a) Maximizing flow paths from collection points to outflow points. (b) Use of multiple best management practices. (c) Retention of and discharge to fully vegetated areas. (d) Maximizing use of infiltration practices.
	(4) Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1: Stormwater Infrastructure Design Criteria. Calculations shall include sizing of all structures and best management practices. Sizing of emergency overflow structures shall be based on assessment of the 100-year 24-hour frequency storm discharge rate.
	(5) The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.

	(6) The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. All invasive plant species identified in Chapter Agr 3800, pursuant to RSA 430:55 are prohibited. All non-native plant species identified in the New Hampshire Restricted Invasive Plant Species/Watch List (as amended) are strongly discouraged.
Municipal Storm Drain Connections	(I) Municipal Storm Drain Connections
Connection to the municipal storm drainage system shall be allowed only as necessary if the use of vegetated or onsite measures are not available or infeasible due to existing soils, space limitations or other property constraints, or as otherwise determined necessary by the Board. All projects shall meet the criteria below to the maximum extent practicable, whether or not the onsite drainage facilities are connected to the municipal system.	Connection to the municipal storm drainage system shall be allowed only if the use of vegetated or onsite materials are not available or infeasible due to existing soils, space limitations or other property constraints, or as otherwise determined necessary by the Planning Board. All projects shall meet the criteria below to the maximum extent practicable, whether or not the onsite drainage facilities are connected to the municipal system.
(1) The design and installation of any on-site structural BMP measure shall be in accordance with the NHDES Stormwater Manual, Vols. 1 and 2, dated Dec. 8. 2008, or as amended, and meet the requirements therein.	(1) The design and installation of any on-site structural BMP measure shall be in accordance with the NH DES Stormwater Manual, Vols. 1 and 2, dated Dec. 8. 2008, or as amended, and meet the requirements therein.
(2) The applicant shall demonstrate that adequate onsite stormwater provisions and drainage facilities are included to prevent increases in the predevelopment peak runoff rate leaving the site for various design storm frequencies up to a 50-year, 24-hour design storm, consistent with the requirements of § 3.03(B) of these Subdivision Regulations. Provisions for water quality treatment and groundwater recharge shall also be included. Runoff potentially generated from additional lot development aside from the roadway itself shall be included in the analysis.	(2) The applicant shall demonstrate that adequate onsite stormwater provisions and drainage facilities are included to prevent increases in the predevelopment peak runoff rate leaving the site for various design storm frequencies up to a 50-year, 24-hour design storm, consistent with the requirements of § 3.03(B) of these Subdivision Regulations. Provisions for water quality treatment and groundwater recharge shall also be included. Runoff potentially generated from additional lot development aside from the roadway itself shall be included in the analysis.
(3) Such drainage facilities shall be located in the street rights-of-way where feasible to allow convenient access for future maintenance. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road. An Operations and Maintenance Plan shall be included for all stormwater BMPs as described in § 3.03(C) of these Subdivision Regulations.	(3) Such drainage facilities shall be located in the street rights-of-way, where feasible, to allow convenient access for future maintenance. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road. An Operations and Maintenance Plan shall be included for all stormwater BMPs as described in § 3.03(C) of these Subdivision Regulations.
(4) Where curbing is included in the road design to channel stormwater into the drainage system, the curbing shall consist of granite.	(4) Where curbing is included in the road design to channel stormwater into the drainage system, the curbing shall consist of granite.
Stormwater Management Plan and Site Inspections	(J) Stormwater Management Plan and Site Inspections
Not in town's existing regulations.	The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the Town
Stormwater Management Plan Recordation	(K) Stormwater Management Plan Recordation
Not in town's existing regulations.	(1) Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved subdivision plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the County Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the Planning Board.
	(2) The applicant shall submit as-built drawings of the constructed stormwater management system following construction.
Inspection and Maintenance Responsibility	(L) Inspection, Maintenance, and Reporting Responsibilities
Not in town's existing regulations.	(1) The Code Enforcement Officer or other duly, appointed designee of the Town Administrator shall be responsible for enforcement [as referenced in Sec. 5.08] and have site access to undertake routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner during project construction.
	(2) If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report to the Code Enforcement Officer, documenting these violations of non-compliance including recommended corrective actions. The Code Enforcement Officer shall notify the property owner in writing of these violations of non-compliance and corrective actions necessary to bring the property into full compliance.
	(3) If a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.08].

Not in town's existing regulations.	(4) Landowners shall be responsible for submitting an annual report to the Planning Department by June 1 each year. Such documents shall be prepared by a Professional Engineer or stormwater professional certifying that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and include details regarding when the infrastructure shall be repaired and functioning as approved. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended).
	(5) If no report is filed by June 1, the Code Enforcement Officer or other duly, appointed designee of the Town Administrator, shall be responsible for enforcement [as referenced in Sec. 5.07] and to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.
This was previously #15 in the minimum requriements for new development section	(6) The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with any onsite or offsite BMPs, if these inspections and/or maintenance activities are not performed by the landowner(s) or other responsible party.

Side by Side Comparison of Site Plan Review Regulations [Town of Newmarket and SWA Model Stormwater Regulations]	
Existing Regulatory Language	Final Draft Recommendations
Purpose and Goals *(for stormwater)*	
Not in town's existing regulations.	The purpose of stormwater management standards is to provide reasonable guidance for the regulation of stormwater runoff that protects local natural resources from degradation and prevents adverse impacts to adjacent and downstream land, property, facilities and infrastructure. These standards regulate discharges from stormwater and runoff from land development projects and other construction activities to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff. Through these regulations, the Planning Board seeks to balance the public's interest in promoting orderly growth and development and protecting and enhancing water quality with the individual rights of private property owners. These regulations also provide measures for construction site stormwater runoff control as well as stormwater management for new development and redevelopment (post construction stormwater management). These regulations seek to meet those goals through the following objectives: (1) Mitigate stormwater runoff from development to reduce flooding, siltation and streambank erosion and maintain the integrity of stream channels. (2) Minimize the water quality impact from all new and redevelopment project. This applies to projects if the project is part of a larger common plan of development or redevelopment. (3) Manage nonpoint source pollution caused by stormwater runoff from development which otherwise would degrade local water quality. (4) Control the total volume of surface water runoff which flows from any specific site during and following development to not exceed the pre-development hydrologic condition. (5) Reduce stormwater runoff rates and volumes, soil erosion and non-point source pollution through stormwater management controls that are properly maintained and pose no threat to public health and safety or cause excessive municipal expenditures. (6) Protect the quality of groundwater resources, surface water bodies, and wetlands. (7) Control for other wastes on construction sites such as demolition debris, litter, and sanitary wastes.
Definitions shall be those provided in the Newmarket Zoning Ordinance adopted February 14, 1996, in Zoning Ordinance § 1.11, and the additional definitions as follows:	Definitions shall be those provided in the Newmarket Zoning Ordinance, adopted February 14, 1996, as amended in Chapter 32 Zoning Sec 32-111, Appendix A - Subdivisions, Sec 1.03, Appendix B: Site Plan Regulations, and other additional definitions referenced below. These definitions are to be used strictly for Stormwater Regulations under Appendix B – Site Plans and Appendix A – Subdivisions. In a case where there are alternative or inconsistent definitions elsewhere in Chapter 32 Zoning, the definitions in the stormwater management section shall apply.
Best Management Practices (BMP): As outlined in the NHDES Stormwater Manual, (Vols. 1—3), published in Dec. 2008 or as amended, BMPs are generally considered to be the most effective and practical means of preventing soil erosion and/or controlling peak flow rates as well as minimizing pollutant loads and runoff volumes generated from site development. These may include both structural and non-structural measures associated with site development.	Best Management Practices (BMP): A structural or non-structural device designed to temporarily store or treat urban stormwater runoff in order to mitigate flooding, reduce pollution, and provide other amenities. BMPs also include treatment requirements, operating procedures, maintenance practices to prevent and/or reduce the discharge of pollutants to waters of the United States.
Bioretention Area : Also often referred to as a Rain Garden, consists of a shallow, landscaped depression that receives runoff from impervious surfaces and allows the initial "first-flush" of runoff (typically first 1 inch of runoff) to infiltrate into native soils or an engineered soil matrix for water quality treatment. These areas are generally planted with a mix of native grasses, sedges and shrubs.	Bioretention: A water quality practice that utilizes vegetation and soils to treat urban stormwater runoff by collecting it in shallow depressions, before filtering through an engineered bioretention planting soil media.
Not in town's existing regulations.	Buffer: A special type of preserved area along a watercourse or wetland where development is restricted or prohibited. Buffers protect and physically separate a resource from development. Buffers also provide stormwater control flood storage and habitat values.
Disturbance : Any activity that involves altering the existing terrain which includes clearing and grubbing, grading and adding impervious area that will change the runoff flow and volume from an existing site.	Disturbed Area: An area in which the natural vegetative soil cover has been removed or altered and, therefore, is susceptible to erosion.
Not in town's existing regulations.	Effective Impervious Cover (EIC): The total impervious surface areas less the area of disconnected impervious cover (area where runoff is captured and infiltrated or otherwise treated).
Not in town's existing regulations.	Filtration: The process of physically or chemically removing pollutants from runoff; practices that capture and store stormwater runoff and pass it through a filtering media such as sand, organic material, or the native soil for pollutant removal. Stormwater filters are primarily water quality control devices designed to remove particulate pollutants and, to a lesser degree, bacteria and nutrients.
Not in town's existing regulations.	Groundwater Recharge: The process by which water seeps into the ground, eventually replenishing groundwater aquifers and surface waters such as lakes, streams, and the oceans. This process helps maintain water flow in streams and wetlands and preserves water table levels that support drinking water supplies.
Not in town's existing regulations.	Groundwater Recharge Volume: The post-development design recharge volume (i.e., on a storm event basis) required to minimize the loss of annual pre-development groundwater recharge. The recharge volume is determined as a function of annual pre-development recharge for site-specific soils or surficial materials, average annual rainfall volume, and amount of impervious cover on a site.

Not in town's existing regulations.	Impaired Waters: Those waterbodies not meeting water quality standards. Pursuant to Section 303(d) of the federal Clean Water Act, each state prepares a list of impaired waters (known as the 303(d) list) which is presented in the state's Integrated Water Report as Category 5 waters. Those impaired waters for which a total maximum daily load (TMDL) has been approved by US EPA and is not otherwise impaired.
Impervious Surface : Any surface that cannot effectively infiltrate rainfall and consist of surfaces such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots).	Impervious Cover: Those surfaces that cannot effectively infiltrate rainfall such as building rooftops, pavement, sidewalks, driveways and compacted gravel (e.g., driveways and parking lots).
Not in town's existing regulations.	Infiltration: The process of runoff percolating into the ground (subsurface materials). Stormwater treatment practices designed to capture stormwater runoff and infiltrate it into the ground over a period of days.
Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture and infiltrate runoff as close to its source as possible. Where existing soils limit the natural infiltration potential, LID strategies may include, but not be limited to, preserving existing wooded buffer areas, use of cisterns to capture and reuse stormwater or the use of roof gardens to minimize the generation of roof runoff.	Low Impact Development (LID): Low impact development is a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small scale practices integrated throughout the site to capture, infiltrate, and manage runoff as close to its source as possible. Examples of LID strategies are pervious pavement, rain gardens, green roofs, bioretention basins and swales, filtrations trenches, and other functionally similar BMPs located near the runoff source.
Maximum Extent Practicable (MEP): To show that a proposed development has met a standard to the maximum extent practicable, the applicant must demonstrate the following: (1) All reasonable efforts have been made to meet the standard, (2) A complete evaluation of all possible management measures has been performed, and (3) If full compliance cannot be achieved, the highest practicable level of management is being implemented.	Maximum Extent Practicable (MEP): A proposed development meets a standard to the maximum extent practicable, by demonstrating the following: (1) All reasonable efforts have been made to meet the standard; (2) A complete evaluation of all possible management measures has been performed; and (3) If full compliance cannot be achieved, the highest practicable level of management is being implemented.
Not in town's existing regulations.	Mitigation: Activities, strategies, policies, programs, and actions that, over time, will serve to avoid, minimize, or compensate for (by treating or removing pollution sources) the impacts to or disruption of water quality and water resources.
Not in town's existing regulations.	MS4: Refers to the Small Municipal Separate Storm Sewer System General Permit - the MS4 General Permit - issued by the EPA under the Clean Water Act. MS4 applies to municipalities, of which Newmarket is one, that contain any portion of an urbanized area as defined by the Census. It applies to stormwater conveyances owned by a State, city, town, or other public entity that discharge to 'Waters of the United States'. The MS4 Permit requires that operators of small MS4s develop a Stormwater Management Program that uses appropriate Best Management Practices (BMPs) for each of the six minimum control measures required in the MS4 permit.
Not in town's existing regulations. From2020 modified permit.	New Development: Any construction, land alteration, or improvement of a site or structure with less than 40 percent of the existing impervious surface, calculated by dividing the total existing impervious surfaces, by the size of the parcel, and convert to a percentage.
Not in town's existing regulations.	Native Vegetation and Plantings: Plants that are indigenous to the region, adapted to the local soil and rainfall conditions, and require minimal supplemental watering, fertilizer, and pesticide application.
Not in town's existing regulations.	Pollutant Load: An amount of pollutants that is introduced into a receiving waterbody measured in units of concentration of mass or weight over a specified time period (i.e. concentration (lbs/day) or mass (lbs/year).
Redevelopment: Any construction, alteration, or improvement that disturbs more than 20,000 square feet of area or adds more than 5,000 square feet of impervious area on an existing developed parcel This definition of redevelopment only pertains to the Stormwater Management and Sediment requirements of Section 3.07. (To be replaced with new 2020 modified permit language)	Redevelopment: For purposes of determining whether a site must meet either new development or redevelopment requirements, a site is considered redevelopment if it has 40% or more of existing impervious surfaces, calculated by dividing the total existing impervious surface by the size of the parcel, and converting it to a percentage. Otherwise, the project must meet the new development treatment standards. The following activities are not considered redevelopment: a. Interior and exterior building renovation b. Resurfacing of an existing paved surface (e.g. parking lot, walkway, or roadway) c. Pavement excavation and patching that is incidential to the primary project purpose, such as replacement of a colllapsed storm drain d. landscaping installation and maintenance.
Not in town's existing regulations.	Regulated Substances: petroleum, petroleum products, regulated cantaminants for which an ambient groundwater quality standards has been established under RSA 485-C:6, and substances listend under 40 CFR 302, 7-1-05 edition, as amended excluding substances used in the treatment of drinking water or wastewater at town facilities.
Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a subdivision.	Subdivision: Division of a lot into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes re-subdivision and, where appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. The division of a parcel of land held in common and subsequently divided into parts among several owners shall be deemed a subdivision. The granting of an easement in gross for public utilities shall not be deemed a subdivision.
Not in town's existing regulations.	Surface Water Body: Surface waters, including lakes, rivers, and other navigable waters, streams, wetlands, coastal areas protected under the federal Clean Water Act.
Not in town's existing regulations.	Total Suspended Solids (TSS): The total amount of soils and particulate matter which are suspended in the water column.

Not in town's existing regulations.	Water Quality Volume: The amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis. The recommended volume is that associated with the first one-inch of rainfall, which is equivalent to capturing and treating the runoff in the 90th percentile of all rainfall. Source: NH DES Stormwater Manual: Volume 2 Post-Construction Best Management Practices: Selection and Design, December 2008.	
Not in town's existing regulations.	Watershed: All land and water area from which runoff may run to a common (design) discharge point.	
(C) Minimum Thresholds for Applicability	Minimum Thresholds for Applicability	
All development and redevelopment projects that will disturb more than *20,000 square feet of area* or will add more than 5,*000 square feet of impervious areas* shall submit a Stormwater Management and Erosion Control Report with accompanying plans for review and approval by the Planning Board. All applications shall be accompanied by a completed Site Plan Review Application Stormwater Management Checklist to the Planning Board prior to consideration for review. The Stormwater Management Report shall satisfy the report requirements specified in § 3.07(B) below.	(1) These stormwater management standards apply to new development projects subject to Site Plan Review regulations and disturb more than 5,000 square feet or disturb more than 2,500 square feet within 100 feet of a surface water body.	Committee recommendation ?
	(2) These stormwater management standards apply to redevelopment projects subject to Site Plan Review regulations and disturb more than 5,000 square feet in the downtown community revitalization district (see map titled, "Town of Newmarket Community Revitalization District under RSA 79-E") or 10,000 square feet outside the downtown community revitalization district.	Committee recommendation ?
	(2) Conditions for Granting Waivers: The Planning Board may grant a waiver from these regulations as set forth in Section 5.01 (A) and upon the submission of appropriate demonstration by the applicaant as to why these regulations should not apply and with consideration by the Planning Board of the following conditions of approval: a. All runoff from new impervious surfaces and structures shall be directed to a subsurface filtration and/or infiltration device or property discharged to a naturally occuring or fully re-planted and vegetated area with slopes of 15 percent or less and with adequate slopes of 15% percent or less and with adequate controls to prevent soil erosion and concentrated flow. b. Impervious surfaces for parking areas and roads shall be minimized to the extent possible (including minimum parking requirements for proposed uses). c. All runoff generated from new impervious surfaces shall be retained on the developed site and property. d. Determination of compliance with standards (a.c.above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals.	New (2)
	a. Agricultural and forestry practices in accordance with BMP's published by the NH Department of Agriculture. b. Resurfacing and routine maintenance of roads and parking lots. c. Exterior and interior alterations and maintenance to existing buildings and structures	
	(4.) Prior to commencement of land disturbance, the applicant shall obtain an approved permit under these regulations. All applications shall be accompanied by a completed Site Plan Review Application and Stormwater Management Checklist to the Planning Board prior to consideration for review.	
	(5) All projects under review by the Planning Board may require a stormwater permits from EPA Construction General Permit (CGP) program or NH Department of Environmental Services (NHDES) shall comply with the standards of EPA and/or NH DES permits and this section, where the stricter standards apply. Copies of the following permits shall be required, as applicable, as conditions of approval.	
	a. EPA Construction General Permit – A permit issued by EPA that authorizes the discharge of pollutants to waters of the Unites States. For a cumulative disturbance of one (1) acre of land that is considered "construction activity' which includes, but is not limited to clearing, grading, excavation, and other activities that expose soil typically related to landscaping, demolition, and construction of structures and roads, a federal permit is required, in addition to any state or local permits	
	b. Alteration of Terrain Permit (AOT) - RSA 485-A:1 requires a permit from the New Hampshire Department of Environmental Services (NH DES) Water Supply and Pollution Control Division for "any person proposing to significantly alter the characteristic of the terrain, in such a manner as to impede natural runoff and unnatural runoff. Under this program, a permit is required for a project involving more than 100,000 contiguous square feet of disturbance or if such an activity occurs in or on the border of surface waters of the state. 76	
	(D) Stormwater Management for New Development	
All development projects subject to these Site Plan regulations per § 1.05 that meet the threshold requirements set forth in § 3.07 shall also meet the following minimum requirements unless a waiver has been granted by the Planning Board:	(3) Low Impact Development (LID) site planning and design strategies shall be used to the maximum extent practicable to reduce stormwater runoff volumes, protect water quality, and maintain predevelopment site hydrology. LID techniques that preserve existing vegetation, reduce the development footprint, minimize or disconnect impervious areas, locate impervious areas in low infiltration soil areas (i.e. HSG-D), and use enhanced stormwater BMP's (such as raingardens, bioretention systems, tree box filters, and similar stormwater management landscaping techniques) shall be incorporated into landscaped areas. Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. The capture and reuse of stormwater is strongly encouraged. The applicant must document in writing why LID strategies are not appropriate when not used to manage stormwater.	

1. The site design shall include measures to control the post-development peak rate of runoff at each point where runoff leaves the site so as to not exceed the estimated pre-development peak rate, for the 2-, 10-, 25- and 50-year, 24-hour storm events. Any site that was wooded in the last five years shall be considered undisturbed woods for purposes of estimating pre-development rates and volumes. Any runoff that flows through the site from upgradient properties should be included in the calculations.	(4) The design of the stormwater drainage systems shall provide for the discharge of stormwater without flooding or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetlands, stream channels or vegetation.
2. Efforts shall be made to maintain existing natural drainage patterns and existing mature vegetation to the maximum extent practicable.	(5) The design of the stormwater management systems shall account for upstream and upgradient runoff within the watershed that flows onto, over, or through the site to be developed. Any runoff that flows through the site from upgradient properties shall be included in the calculations.
3. The site design shall include Low Impact Development (LID) strategies and design measures to the maximum extent practicable to promote groundwater recharge and minimize increases in runoff volumes. For sites where infiltration is limited due to existing soil conditions, the applicant must demonstrate that any increase in the pre-development runoff volumes will not cause additional channel scour, erosion, flooding, damage to downstream properties or result and/or contribute to a water quality impairment. Efforts shall be made to limit any single, contiguous section of impervious area draining to one outlet area to be no more than 10% of the lot area. Impervious areas shall be disconnected by using bioretention areas, infiltration areas, dry wells, vegetated buffers between impervious areas or use cisterns or other similar measure to capture and/or treat runoff onsite.	(6) All stormwater treatment areas shall be planted with native plantings appropriate for the site conditions: grasses, shrubs, trees, and/or other native plants in sufficient numbers and density to prevent soil erosion and achieve the water quality treatment requirements of this section.
4. The design of the stormwater drainage system shall provide for the discharge of stormwater without causing damage or functional impairment to adjacent and downstream properties, streets, drainage structures, culverts, soils, wetland areas, stream channels or vegetation.	(7) All stormwater installations and areas that receive rainfall runoff shall be designed to drain within a maximum of 72 hours for vector control.
5. All stormwater treatment Best Management Practices (BMPs) shall be designed in accordance with the NH Stormwater Manual, Dec. 2008, or as amended.	(8) Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and 60% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NHDES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means. In urbanized areas where pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH 2017 MS4 Permit - Appendix F; Attachment 3). Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred givecompared to developing raw land, the Planning Board will work with the applicant to arrive at an acceptable level of stormwater management measures, where meeting the stormwater management requirements for at least 50% of the developed area are shown to be impractical or infeasible. These determinations will be made on a case by case basis as site conditions and constraints will differ great
6. All stormwater BMPs shall be planted with appropriate native grasses, shrubs, trees, and/or other plantings sufficient to prevent soil erosion and enhance vegetative uptake of nutrients and other stormwater pollutants.	(9) The site design shall include adequate temporary and permanent erosion control measures consistent with the design guidelines and specifications included in the NHDES "Stormwater Manual Volume 3", and any subsequent revisions. Appropriate sediment and erosion control measures for construction sites, include: minimizing the amount of disturbed area, protecting natural resources, stabilizing sites when projects ad complete of operations have temporarily ceased, protecting slopes on the site, protecting all storm drain inlets and armoring all newly constructed outlets the use of perimeter controls, stabilizing construction site entrances and exits to prevent off-site tracking; and inspecting stormwater controls at consistent intervals.
7. All stormwater BMPs that will detain runoff shall be designed to drain within a maximum of 72 hours for vector control. BMPs designed to contain a permanent pool of water for water quality treatment purposes shall be shaped and include shoreline shallow marsh areas to limit the size of permanent pool.	(10) The site design shall include provisions to control wastes, including, but not limited to, discarded building materials, concrete truck wash-out, chemicals, litter and sanitary wastes, all of which shall not discharged into the stormwater system.
8. Runoff from impervious surfaces shall be treated to achieve 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and phosphorus using appropriate treatment measures, as specified in the NH Stormwater Manual. Vol. 1 and 2, December 2008 or as amended or other equivalent means. Where practical, the use of gravel wetlands for water quality treatment is preferred given its relatively high nitrogen removal efficiency as reported by the UNH Stormwater Center.	(11) Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from construction equipment.
9. The site design shall include adequate temporary and permanent erosion control measures consistent with the design guidelines and specifications included in the NH Stormwater Manual, Vol. 3, December 2008, or as amended,	(12) Stormwater management and erosion and sediment control practices shall be located outside any specific buffer zones unless otherwise approved by the Planning Board. Alternatives to stream and wetland crossings that eliminate or minimize environmental impacts shall be considered whenever possible.
Not in town's existing regulations.	(13) Salt storage areas shall be fully covered with permanent or semi-permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm, or as amended.
10. Prior to any soil disturbance or tree clearing, appropriate erosion and sediment control measures shall be installed and areas to be protected shall be clearly marked and delineated using construction fencing or some other appropriate means to prevent damage from construction equipment.	(14) All newly generated stormwater from major subdivisions shall be treated on the development site. Runoff shall not be discharged from the development site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than discharged under existing conditions. A development plan shall include provisions to retain natural predevelopment watershed areas on the site by using the natural flow patterns. Any new development that proposes to connect to the municipal storm drainage system shall comply with Section F: Municipal Storm Connections.

Not in town's existing regulations.	(15) Whenever practicable, native site vegetation shall be retained, protected, or supplemented. Any stripping of vegetation shall be done in a manner that minimizes soil erosion.
Not in town's existing regulations.	(16) After erosion control measures have been installed and the areas to be protected are clearly marked, an onsite meeting shall be held with the Town Planner and Engineer prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.
Not in town's existing regulations.	This item was moved to #18 in this section.
Not in town's existing regulations.	(17) All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm drain system or treatment areas shall be removed using appropriate measures consistent with the maintenance plan included in the approved Stormwater Management Plan.
11. After erosion control measures have been installed and the areas to be protected are clearly marked, an onsite meeting shall be held with the Town Planner and Engineer prior to the start of any soil disturbance activities to review the construction sequence, timing and measures to protect sensitive areas.	(18) The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineer or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.
12. The Planning Board may request weekly erosion control inspections to be conducted by either the Town Engineer or another qualified professional at the expense of the applicant, depending on the development size, anticipated construction period, time of year and sensitivity of adjacent resources.	This item was moved to Inspection, Maintenance, and Reporting Responsibilities
13. All temporary control measures shall be removed after final site stabilization. Any trapped sediment contained within the storm	E. Stormwater Management for Redevelopment
Refer to #12 in this section.	For proposed projects meeting the definition of a redevelopment project, the applicant shall meet the minimum stormwater management requirements of this section for the entire developed area of the site to the maximum extent practical.
14. The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with onsite BMPs, if these inspections and/or maintenance activities are not performed by the landowner(s) or other responsible party.	(1) Redevelopment applications shall comply with the requirements of Sections (G) Submission Requirements for Stormwater Management Report and Plans, (H) General Performance Criteria for Stormwater Management Plans, and (I) Spill Prevention, Control, and Response (SPCR) Plan.
	(2) A development plan shall include provisions to retain stormwater on the site by using the natural flow patterns. Runoff from impervious surfaces shall be treated to achieve at least 80% removal of Total Suspended Solids and 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the NHDES "Stormwater Manual Volume 1 and Volume 2", and any subsequent revisions (refer to Volume 2, for Summary of Design Criteria, Water Quality Volume, as amended, for treatment criteria) or other equivalent means. In urbanized areas where Pollutant loading concentrations may be higher and space constraints have been demonstrated, equivalent means of calculating nutrient load reductions may include the EPA BMP Performance Curves published in "Methods to Calculate Phosphorus and Nitrogen Load Reductions for Structural Stormwater Best Management Practices in the Watershed" (NH 2017 M Permit - Appendix F; Attachment3).
	(3) Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred given their relatively higher nitrogen removal efficiency. All new impervious areas draining to surface waters listed as nutrient shall be treated with stormwater BMP's designed to optimize pollutant removal efficiencies for such nutrients based on design standards and performance data published by the UNH Stormwater Center and/or included in the latest version of the NHDES Stormwater Manual.
	(4) All newly generated stormwater from redevelopment shall be treated on the development site. Runoff shall not be discharged from the redevelopment site to municipal drainage systems or privately owned drainage systems (whether enclosed or open drainage) or to surface water bodies and wetlands in rates greater than that discharged under existing system shall comply with Section J: Municipal Storm Connections.
For proposed projects meeting the definition of a redevelopment project, the applicant shall attempt to meet the minimum stormwater management requirements of this section for the entire developed area of the site to the maximum extent practical. Where it is not practical or feasible to meet the stormwater management requirements for the entire developed portion of the site, the applicant shall attempt to meet these requirements for at least 50 percent of the total developed area under proposed conditions. Applicants can meet the requirements through a combination of measures including disconnection of impervious area through the use of LID measures, reducing the overall size of the existing impervious area, capturing and reusing stormwater for irrigation	(5) For sites meeting the definition of a redevelopment project, stormwater shall be managed for water quality in accordance with one or more the following techniques listed in order of preference. a. Implement measures onsite that result in disconnection or treatment of 30% of the additional proposed impervious surface area and at least 50% of the existing impervious area and pavement areas, preferably using filtration and/or infiltration practices. b. Implement other LID practices to the maximum extent practicable to provide treatment of runoff generated from at least 50 % of the entire developed site area.

purposes and providing structural BMPs for peak flow and water quality treatment as described in the NHDES Stormwater Manual, dated December 8, 2008, or as amended. In recognizing the benefits of redevelopment activities and reuse of existing buildings as compared to developing raw land, the Planning Board will work with the applicant to arrive at an acceptable level of stormwater management measures, where meeting the stormwater management requirements for at least 50% of the developed area are shown to be impractical or infeasible. These determinations will be made on a case by case basis as site conditions and constraints will differ greatly between various redevelopment proposals.	(6) Salt storage areas shall be fully covered with permanent measures and loading/offloading areas shall be located and designed to not drain directly to receiving waters and maintained with good housekeeping measures in accordance with NHDES published guidance. Runoff from snow and salt storage areas shall enter treatment areas as specified above before being discharged to receiving waters or allowed to infiltrate into the groundwater. Reference published guidance fact sheets on road salt and water quality, and snow disposal: http://des.nh.gov/organization/commissioner/pip/factsheets/wmb/index.htm or as amended. (7) The applicant shall submit as-built drawings of the constructed stormwater management system following construction, as set forth in Appendix B "As-Built Survey Checklist".
Options to Allow for Mitigation for Redevelopment	(F) Options to Allow for Mitigation for Redevelopment
	For sites having less than 40% impervious areas, the stormwater management requirements will be the same as for new development under Section D New Development with the exception that the appplicant can meet those requirements either on-site or at an approved site location, as set forth below:
Not in the town's existing regulations, only in the model.	(1) In cases where the applicant demonstrates, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the maximum extent possible or is not feasible, off-site mitigation will be an acceptable alternative. Off-site mitigation shall be implemented within the same subwatershed as the redevelopment, within the project's drainage area, or within the drainage area of the receiving water body. (2) Off-site mitigation shall be equivalent to no less than the total area of impervious area NOT treated on-site. Treatment of the impervious area shall comply with all standards of this regulation. (3) An approved off-site location shall be identified, the specific management measures shall be stipulated and an implementation schedule shall be developed in accordance with the Planning Board's review. If the off-site location is not owned by the applicant, a written agreement with the property owner(s) shall be submitted as part of the application. The applicant must also demonstrate there are no adverse downstream flooding impacts that would result from not providing appropriate on-site management for large storm events.
Stormwater Management and Erosion Control Report	(4) As part of their request to utilize the off-site mitigation option for redevelopment, the applicant shall also demonstrate there are no adverse downstream flooding impacts that would result from not providing appropriate on-site management from the 50-yr or greater storm event.
The Stormwater Management and Erosion Control Report and accompanying plans shall be submitted with the Site Plan Review Application, if applicable, and shall be prepared and certified by a licensed NH Professional Engineer specializing in Civil Engineering. This Report and plans shall include the following information:	G. Submission Requirements for Stormwater Management Plan
(1) An existing conditions plan that shows all of the items listed in § 4.00 of these Site Plan Requirements as well as the pre-development watershed boundaries, drainage patterns, channelized flow areas, existing vegetation, conveyance structures and all locations where runoff exits the site. Buffer setback limits as required by the Town's Zoning Ordinances and/or State regulations	A Stormwater Management Plan (SMP) shall be submitted with the Major Subdivision application and shall be prepared and certified by a NH licensed Professional Engineer specializing in Civil Engineering. This plan shall include the following information.
(2) A proposed conditions plan that shows all of the items listed in § 4.00 of these Site Plan Requirements as well as post-development watershed boundaries, drainage patterns, channelized flow areas, proposed areas of disturbance, proposed impervious areas, temporary stock pile areas, construction refueling areas, all temporary and permanent stormwater treatment BMPs, erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms at each of the outlet locations shall be included on the plan.	(1) A narrative of existing conditions showing all pre-development impervious surfaces, buildings, and structures; surface water bodies and wetlands; sub-catchment and watershed boundaries, drainage patterns; building setbacks and buffers, locations of various hydrologic group soil types, mature vegetation, land topographic contours with minimum 2-foot intervals and spot grades, where necessary, for sites that are flat.
(3) A drainage analysis that includes a description of all methods, assumptions and estimates of pre and post-development peak stormwater flow rates (cubic feet per second) and volumes (acre-feet) for the 2-, 10-, 25-, 50- and 100-year, 24-hour frequency storm events.	(2) A narrative of proposed conditions showing all post-development important hydrologic features created or preserved on the site; subcatchment and watershed boundaries, drainage patterns, channelized flow areas; proposed areas of disturbance; temporary stock pile areas, construction refueling areas; impervious surfaces, buildings, and structures; all temporary and permanent stormwater treatment BMPs and management elements, including BMP GIS coordinates and GIS files; building setbacks and buffers; proposed tree clearing and topographic contours with minimum 2-foot intervals; erosion control measures, stormwater outlet locations and any drainage and maintenance access easements. The plan shall provide calculations and identification of the total area of disturbance proposed on site (and off-site if applicable) and total area of new impervious surfaces created. A summary of the drainage analysis showing a comparison of the estimated peak flow and volumes for various design storms (see Table 1: Stormcompared to developing raw land, the Planning Board will work with the applicant to a
(4) Design details for all measures used to control peak flow rates, provide for groundwater recharge and/or to capture and reuse stormwater shall be in accordance with the NHDES Stormwater Manual, Dec. 2008 or as amended.	(3) A description of the general approach and strategies implemented, and the facts and assumptions relied upon, to meet the purpose and goals for stormwater management. The SMP shall include design plans and/or graphic sketches of all proposed above ground LID practices.

(5) A description and associated design and sizing details of all stormwater treatment measures that will be used for water quality protection. Stormwater treatment measures shall be sized to treat the water quality volume produced from 1 inch of runoff from all impervious areas.	(4) Calculations of the change in impervious area, pollution loading and reductions for each best management practice. GIS files containing the coordinates of all stormwater infrastructure elements (e.g. catch basins, swales, detention/bioretention areas, and piping) upon request.
	(5) A description and a proposed site plan showing proposed erosion and sediment control measures, limits of disturbance, temporary and permanent soil stabilization measures in accordance with the NHDES "Stormwater Manual Volume 3" and any subsequent revisions, as well as a construction site inspection plan including phased installation of best management practices and final inspection upon completion of construction.
	(6) A drainage analysis that includes a description of all methods, assumptions and estimates of pre and post-development peak stormwater flow rates (cubic feet per second) and volumes (acre-feet) for the 2-, 10-, 25-, 50- and 100-year, 24-hour frequency storm events.
(6) A description and design details of the erosion control measures to be used during the construction and vegetation establishment phase to minimize erosion and sediment movement into drainage structures, wetlands and surface waters.	(7) Landscaping plan and details that show planting areas, proposed plant species focusing of native species suitable to anticipated site conditions, and provisions for controlling the establishment of nuisance invasive species.
(7) Landscaping plan and details that show planting areas, proposed plant species focusing on native species suitable to anticipated site conditions and provisions for controlling the establishment of nuisance invasive species.	(8) A short and long-term operations and maintenance (O&M) plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control, permanent stormwater treatment measures, and best management practices.
(8) An Operations and Maintenance Plan that outlines the proposed inspection and maintenance schedule for all temporary erosion control and permanent stormwater treatment measures. The Plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the responsible individuals or parties that will perform these activities. The Plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program.	(9) The Plan shall describe the inspection protocols and thresholds for determining when maintenance activities are needed and identify the qualified and responsible individuals or parties (and contact information) who will perform these activities. The inspection frequency, maintenance, reporting protocols, and sample reporting forms shall be included.
(9) The applicant shall provide covenant documents for filing with the registry of deeds which demonstrate that the obligation of stormwater BMP maintenance runs with the land and that the Town has legal access to inspect and/or maintain, if necessary, onsite stormwater infrastructure.	(10) The Plan shall also describe the methods for reporting and recordkeeping to ensure the activities have been performed. Records shall be submitted to the Code Enforcement Officer annually as to comply with the maintenance program. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended)
(10) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.	(11) Covenant documents for filing with the Rockingham County Registry of Deeds which demonstrate the owner's obligation for stormwater BMP maintenance, which runs with the land and that the Town has legal access to inspect and/or maintain, if necessary, onsite stormwater infrastructure.
Not in town's existing regulations.	(12) A listing and copies of any additional federal or state permit application documents and associated correspondence that may be required.
Not in town's existing regulations.	(13) A description of identified locations of any proposed deicing chemicals and/or snow storage areas. The SMP shall describe how deicing chemical use will be minimized or used more efficiently.
Not in town's existing regulations.	(14) For urbanized areas that are subject to the EPA MS4 Stormwater Permit which drain to chloride-impaired waters, a description of measures that will be used to minimize salt usage, and track and report amounts applied using the UNH Technology Transfer Center online tool (http://www.roadsalt.unh.edu/Salt/) (as amended) in accordance with Appendix H of the NH MS4 Permit, as applicable, shall be submitted.
	(15) All stormwater management practices involving bioretention and vegetative cover as a key functional component must have a landscaping plan detailing both the type and quantities of plants and vegetation to be in used in the practice and how and who will manage and maintain this vegetation. The landscaping plan must be prepared by a registered landscape architect.
General Performance Criteria for Stormwater Management Plans	(H) General Performance Criteria for Stormwater Management Plans
	(1) All applications shall apply practices to reduce the generation of stormwater in the post-developed condition, reduce overall impervious surface coverage, seek opportunities to capture and reuse and minimize the discharge of stormwater to the municipal stormwater management system.
	(2) Water Quality Protection(2) Water Quality Protection (a) All stormwater runoff generated from new development shall not be discharged directly into a jurisdictional wetland or surface water body without adequate treatment. (b) All developments shall provide adequate treatment and management of stormwater runoff and prevent discharge of stormwater runoff from creating or contributing to water quality impairment

Not in town's existing regulations.	(3) Onsite groundwater recharge shall be maintained by promoting infiltration through use of structural and non-structural methods. The annual recharge from the post development site shall remain equal or exceed the annual recharge from pre-development site conditions. Capture and reuse of stormwater runoff is encouraged in instances where groundwater recharge is limited by site conditions. All stormwater management practices shall be designed to convey stormwater to allow for maximum groundwater recharge. This may include, but not be limited to: (a) Maximizing flow paths from collection points to outflow points. (b) Use of multiple best management practices. (c) Retention of and discharge to fully vegetated areas. (d) Maximizing use of infiltration practices.
	(4) Stormwater system design, performance standards and protection criteria shall be provided as prescribed in Table 1: Stormwater Infrastructure Design Criteria. Calculations shall include sizing of all structures and best management practices. Sizing of emergency overflow structures shall be based on assessment of the 100-year 24-hour frequency storm discharge rate.
	(5) The sizing and design of stormwater management practices shall utilize new precipitation data from the Northeast Region Climate Center (NRCC) or the most recent precipitation atlas published by the National Oceanic and Atmospheric Administration (NOAA) for the sizing and design of all stormwater management practices. See the NRCC website at http://precip.eas.cornell.edu/.
	(6) The use of native plantings appropriate for site conditions is strongly encouraged for these types of stormwater treatment areas. All invasive plant species identified in Chapter Agr 3800, pursuant to RSA 430:55 are prohibited. All non-native plant species identified in the New Hampshire Restricted Invasive Plant Species/Watch List (as amended) are strongly discouraged.
Spill Prevention, Control, and Countermeasure (SPCC) Plan	**I. Spill Prevention, Control, and Response (SPRC) Plan**
Not in town's existing regulations.	(1) For any application under this section for a proposed commercial or industrial use having regulated substances in amounts greater than 55 gallons or 660 lbs of a regulated substance, the applicant shall submit a spill prevention, control, and response plan to the Fire Department. The Fire Department shall determine whether the plan will prevent, contain, and minimize releases from ordinary or catastrophic events as spills, floods, or fires that may cause large releases of regulated substances, which shall include the following: a. Disclosure statements describing the types, quantities, and storage locations of all regulated substances. b. Owner and spill response manager's contact information. c. Location of all surface waters and drainage patterns. d. A narrative of spill prevention practices to be employed when routinely using such substances. e. Containment controls, both structural and non-structural. f. Spill reporting procedures, including a list of personnel or agencies to be contacted g. A description of equipment to prevent regulated substances from infiltrating into the ground and discharging to the Town's stormwater system.
	(2) All regulated substances in a container with a capacity of five (5) gallons or more shall be stored in product tight containers, on an impervious surface, and maintained to prevent flow to exposed soils, flow drains, and outside drains.
Municipal Storm Drain Connections	**J. Municipal Storm Drain Connections**
Any proposed connection to the municipal storm drainage system shall be allowed only as necessary, after adequate provisions to provide onsite detention, treatment and groundwater recharge have been fully evaluated and included in the site design to the maximum extent practicable, or as otherwise determined necessary by the Board. If onsite stormwater management is not feasible due to site constraints, the applicant must fully demonstrate why onsite LID strategies and stormwater BMPs are not feasible and	Connections to the municipal storm drainage system shall be allowed only, as necessary, after required provisions to control the peak rate and volume of post-development run-off through onsite detention, water quality treatment and groundwater recharge have been fully explored and included in the site design to the maximum extent practicable, as determined by the Board, after a review and recommendation by the Town's engineer. If onsite stormwater management is not feasible due to site constraints, the applicant must fully demonstrate why onsite LID strategies and stormwater BMPs are not feasible and submit a written request for a waiver pursuant to Appendix B – Site Plans Section 5.01 Waivers or Substitutions.
(1) Any proposed connection to the municipal stormwater drainage system shall be designed and constructed in accordance with standards and specifications of the Town of Newmarket. Stormwater contributions to the Town's sanitary sewer system are strictly prohibited.	(1) Any proposed connection to the municipal stormwater drainage system shall be designed and constructed in accordance with standards and specifications of the Town of Newmarket. Stormwater contributions to the Town's sanitary sewer system are strictly prohibited.
	(2) Where adequate municipal stormwater drainage facilities are not available at the time of application and are deemed necessary due to site constraints or if onsite treatment has been determined to potentially result in adverse impacts to abutting properties (e.g., wet basements, flooding, etc.) or natural resources, it will be the applicant's responsibility to install the necessary municipal storm drain system improvements including additional capacity needed downgradient of the site, as determined by the Public Works Director and/or Town Engineer.

(2) Where adequate municipal stormwater drainage facilities are not available at the time of application and are deemed necessary due to site constraints or if onsite treatment has been determined to potentially result in adverse impacts to abutting properties (e.g., wet basements, flooding, etc.) or natural resources, it will be the applicant's responsibility to install the necessary municipal storm drain system and any additional capacity improvements needed downgradient of the site, as determined by the Public Works Director and/or Town Engineer.	(3) Any new connections or extensions to the municipal storm drain as approved by the Planning Board shall be in the form of a subsurface piped storm sewer system. Such drainage facilities shall be located in the street rights-of-way where feasible. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance, repair and upgrade of the system shall be provided across all properties. Such easements shall be 25' or more in width, and shall have satisfactory access to the road. Any new connection or extension to municipal storm drain system shall include water quality treatment provisions to capture sediment and petroleum products that may be generated onsite from driveways, roads and parking lots prior to exiting the site.
(3) Any new connections or extensions to the municipal storm drain as proposed by the Applicant shall be in the form of a subsurface piped storm sewer system. Such drainage facilities shall be located in the street rights-of-way where feasible. Where topography or other conditions are such as to make this impractical, perpetual unobstructed easements for future maintenance	(K) Stormwater Management Plan and Site Inspections
Stormwater Management Plan and Site Inspections	The property owner shall bear responsibility for the installation, construction, inspection, and maintenance of all stormwater management and erosion control measures required by the provisions of these regulations and as approved by the Planning Board, including emergency repairs completed by the Town
Not in town's existing regulations.	(L) Stormwater Management Plan Recordation
Stormwater Management Plan Recordation	(1) Stormwater management and sediment and erosion control plans shall be incorporated as part of any approved site plan. A Notice of Decision acknowledging the Planning Board approval of these plans shall be recorded at the County Registry of Deeds. The Notice of Decision shall be referenced to the property deed (title/book/page number) and apply to all persons that may acquire any property subject to the approved stormwater management and sediment control plans. The Notice of Decision shall reference the requirements for maintenance pursuant to the stormwater management and erosion and sediment control plans as approved by the
Not in town's existing regulations.	(2) The applicant shall submit as-built drawings of the constructed stormwater management system following construction in accordance with "As-Built Survey Checklist" as found Appendix B.
	(M) Inspection, Maintenance, and Reporting Responsibilities
Inspection and Maintenance Responsibility	(1) The Code Enforcement Officer or other duly, appointed designee of the Town Manager shall be responsible for enforcement [as referenced in Sec. 5.08] and have site access to undertake routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner during project construction.
Not in town's existing regulations.	(2) If violations or non-compliance with a condition(s) of approval are found on the site during routine inspections, the inspector shall provide a report to the Code Enforcement Officer, documenting these violations of non-compliance including recommended corrective actions. The Code Enforcement Officer shall notify the property owner in writing of these violations of non-compliance and
	(3) If a property is abandoned or becomes vacant; and in the event a property owner refuses to repair infrastructure that is damaged or is not functioning properly, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.08].
	(4) Landowners shall be responsible for submitting an annual report to the Planning Department by June 30 each year. Such documents shall be prepared by a Professional Engineer or stormwater professional certifying that all stormwater management and erosion control measures are functioning per the approved stormwater management plan. The annual report shall note if any stormwater infrastructure has needed any repairs other than routine maintenance and the results of those repairs. If the stormwater infrastructure is not functioning per the approved stormwater management plan the landowner shall report on the malfunction in their annual report and include details regarding when the infrastructure shall be repaired and functioning as approved. Annual reporting records shall also be uploaded to the Great Bay Pollution Tracking and Accounting Program (PTAP) Data Base hosted at https://www.unh.edu/unhsc/ptapp (as amended).
	(5) If no report is filed by June 30, the Code Enforcement Officer or other duly, appointed designee of the Town Manager, shall be responsible for enforcement [as referenced in Sec. 5.07] and to complete routine inspections to ensure compliance with the approved stormwater management and sediment and erosion control plans. Such inspections shall be performed at a time agreed upon with the landowner.
	(6) The Planning Board reserves the right to request the applicant to post a performance bond or other security to cover the costs of future inspections or maintenance activities associated with any onsite or offsite BMPs, if these inspections and/or maintenance activities are not performed by the landowner(s) or other responsible party.
This was previously #14 in the minimum requriements for new development section	

AS-BUILT SURVEY CHECKLIST

Project: _____

Location: _____

Town: _____

Survey for:

☐ _____

Details to be Located (Check all that apply):

☐ Property/ROW lines
☐ Easement lines
☐ Spot grades
☐ Pavement edge
☐ Sidewalks
☐ Driveway edges
☐ Pavements markings
☐ Curbing
☐ Buildings
☐ Light poles
☐ Utilities (observable)
☐ Drainage structure rims
☐ Property/ROW lines with metes and bounds
☐ Easement lines with metes and bounds
☐ Contours at _____ ft intervals
☐ Pavement centerline
☐ Roadway shoulder
☐ Driveway centerlines
☐ Signage
☐ Top of curbing
☐ Building sills
☐ Mailboxes
☐ Utilities (SUE ☐ Level A ☐ Level B ☐ Level C ☐ Level D)
☐ Drainage structure inverts & material type
☐ Accessory drainage structures (i.e. culverts, swales, detention ponds)
☐ Sewer structure rims
☐ Walkways & material type
☐ Tree lines
☐ Shrubs & other landscaping
☐ Sewer structure inverts & material type
☐ Retaining walls
☐ Trees (individual) > ____ inches
☐ Fences (& material type)

☐ Other _____
☐ Other _____
☐ Other _____
☐ Other _____

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Chartered January 1, 1991

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