TOWN OF WARNER
P.O. Box 265, 5 East Main Street
Warner, New Hampshire 03278-0059
Land Use Office: (603)456-2298 ex. 7
Email: landuse@warnernh.gov

Planning Board Meeting
AGENDA

Monday, November 17th, 2025

Town Hall, Lower Meeting Room
7:00 PM

Join Zoom Meeting: https://us02web.zoom.us/j/87061407427 Meeting ID: 870 6140 7427 Passcode: 1234

I. **OPEN MEETING / Pledge of Allegiance**

II. **ROLL CALL**

III. **PUBLIC COMMENT**

IV. **NEW BUSINESS**

A. **Continuation of Public Hearing** – Site Plan Review
Applicant: Peacock Hill Rd LLC
Owners: Peacock Hill Rd LLC
Agent: Keach-Nordstrom Associates
Surveyor: Jacques E. Belanger Land Surveying PLLC
Address: Map 07 Lot 039 and 039-1 Route 103 East, Warner, NH
District: R-2 and R-3
Description: Two buildings with four units each to be used as multi-family housing.

B. **Public Hearing** – Site Plan Application Edit

C. Accessory Dwelling Unit Document Proposal

V. **UNFINISHED BUSINESS**

A. Charlebois Submission

VI. **REVIEW MINUTES:** November 3rd

VII. **COMMUNICATIONS**

VIII. **PUBLIC COMMENT**

IX. **ADJOURN -** Note: Planning Board meetings will end no later than 10:00 P.M. Items remaining on the agenda will be heard at the next scheduled monthly meeting.

October 20, 2025
File No. 2025-085

Chrissy Almanzar
Land Use Administrator
Town of Warner
5 East Main Street
PO Box 265
Warner, NH 03278
landuse@warnernh.gov

Re: Site Plan Application Review
Map 7, Lot 39 and 39-1
Warner, New Hampshire

Dear Ms. Almanzar:

On behalf of the Town of Warner (Town) Planning Board, Aries Engineering, LLC (Aries) prepared this engineering review of a Site Plan application for the property identified as Lots 39 and 39-1 on Warner Tax Map 7 (site) in Warner, New Hampshire.

The findings and conclusions presented herein are not scientific certainties, but rather our professional opinions concerning our evaluation of information and data submitted by others. Aries anticipates variations in actual site conditions beyond those interpreted and would have to re-evaluate the report conclusions and recommendations if additional site data are made available. Aries conducted this report in general accordance with accepted consulting practices. Aries makes no warranty, either expressed or implied.

OBJECTIVE

As requested by the Planning Board, Aries' objective was to conduct an engineering review of the Site Plan application and provide general comments regarding compliance with Warner's Site Plan and Zoning regulations and comments on requested items such as soils, dredge and fill, drainage and erosion control, driveway pitch and areas where driveway meets roadway, slope stabilization, runoff relative to abutters, and a specific opinion as to whether the NW area runoff would be improved or made worse for the abutter.

SITE DOCUMENTS AND MAPS

In preparing this report, Aries reviewed the following documents and data:

1. *"Residential Site Plan, Jennesstown Manor,"* prepared by Keach-Nordstrom Associates, Inc. (KNA) of Bedford, New Hampshire, and revised May 22, 2025;

2. *"Alteration of Terrain Permit Application & Stormwater Drainage Analysis, Jennesstown Manor,"* prepared by KNA, and revised May 27, 2025;
3. Alteration of Terrain Comment Response Letter, prepared by KNA, dated September 4, 2025;
4. "*Site Plan Review Regulations, Town of Warner, New Hampshire"*, amended March 11, 2020
5. "*Town of Warner, New Hampshire Subdivision Regulations*", amended March 11, 2020 (Subdivision Regulations);
6. "*Town of Warner, New Hampshire Zoning Ordinances*", amended March 13, 2024 (*Zoning Ordinances*);
7. "*Driveway Regulations, Town of Warner, NH*", dated January 22, 2018;
8. *Drainage Class Report,*Web Soil Survey, U.S. Department of Agriculture (USDA);
9. Geographic Information System (GIS) data provided by New Hampshire Geographically Referenced Analysis and Information Transfer System (NH GRANIT), which is maintained by University of New Hampshire and the NH Office of Strategic Initiatives.

In this report, the above-referenced individual plans prepared by KNA are collectively referred to as "site plans".

COMMENT REVIEW

Aries provided the following general comments:

Soils

1. Aries' review of the U.S. Department of Agriculture (USDA) Web Soil Survey indicated site soils are generally moderately to excessively well-drained soil, with the exception of an approximate 8,200-square-foot (sf) area of poorly drained soils along the southwestern property boundary of Lot 39-1. It is unclear if this area was excluded from the "buildable area" calculation for Lot 39-1, but due to the limited area, this area of poorly-drained soils should not reduce the number of permitted dwelling units on the lot. The Web Soil Survey report is attached.

Site Access

2. Site access is proposed via a 20-foot-wide single access road to the proposed site facilities with steep grades of up ~ 15%. Section III (E.) of the Town Site Plan Review Regulations require, *"…suitably located streets of sufficient width to accommodate existing and prospective traffic and to afford adequate light, air, and access for firefighting apparatus and equipment to buildings*". Further, Section XXIII (A.)(6) state that, *"…adequate provisions must be made for fire safety, prevention, and control".* Aries recommends that the proposed site access be reviewed and approved by both

the Town fire and police department to ensure that site access for life-safety responses can be met by the Town.

3. Available Town Driveway Regulations allow for driveway grades of up to 15%. However, consideration should be given to the fact that the proposed driveway provides access to eight dwelling units that will require a greater level of life-safety support than a single-family residence.
4. Site plans show a 20-foot-wide access road with 2-foot-wide shoulders. Aries recommends that the proposed access road meet the Town road construction standards provided in the Town Subdivision Regulations, Appendix B[1], including 24-foot-wide paved roadway, with 3-foot minimum width shoulders.
5. The site plans depict a fire truck turnaround and enclosed dumpster located approximately halfway down the proposed steep access road. Based on this location, it is presumed that fire trucks would need to back halfway down the steep access road to turn around. Aries recommends relocating the turnaround and dumpster area adjacent to and at the same level of the dwelling units where both fire apparatus will need to reverse direction and where refuse will be generated. This would provide a second fire truck turnaround.
6. The site plans indicated an approximate access road starting elevation of 433 feet and a high point elevation of approximately 478 feet for the site access road, which is approximately 420 feet in length. The average grade is approximately 10.7%, while the majority of the access road is at a grade of 14.26%. Aries recommends that the proposed site access road be lengthened to meet the Section VII Design Standards grade of 10% for a local street for all portions of the access road.

Water System

7. Section XXIII (A.) of the Town Site Plan Review Regulations require, *"…the applicant to provide adequate information to prove that the area of the lot is adequate to permit the installation and operation of water and sewage systems…in areas not currently served by public water and sewer"*.

8. The site plans depict four bedrooms per dwelling unit, which results in a total of 32 bedrooms at the proposed development. Although the two four-unit buildings are situated on separate parcels, the buildings share a common access road and other facilities and should be considered one project. NHDES community water system rules, part Env-Dw 405.02, apply to water systems that supply water to 25 or more people, at least 60 days each year. According to Douglas Sayer, NHDES Drinking-Water-and-Groundwater Bureau Design Specialist, the proposed 8-unit development does not qualify as a community water system.
9. The well radius proposed for the two wells (one on each lot) is 125', as depicted on the site plans. Using NHDES Water Supply Rules as best management guidance,

[1] - Appendix B, Street and Road Sample Drawings, Amended 1-24-11.

including Env-Dw 405.10 - Design Flow regulations, a four-bedroom design requires 150 gallons per day (gpd) per bedroom for residential uses. As such, the design flow for each 4-unit building is:

150 gpd/ Bedroom = 600 gpd * 4 units = 2,400 gpd

10. NHDES community water system rules (Env-Dw 405.12) require a source capacity that is two time the required design flow, which is 4,800 gpd, or approximately 3.3 gallons per minute (gpm) on average for each building's water supply system. This accounts for domestic water use but does not account for fire suppression or irrigation. Aries considers this to be a recommended best management practice. Based on a required minimum source capacity of 4,800 gpd per building, a Sanitary Protective Radius of 150' will be required. The current site plans depict 125' well radius.
11. Based on this guidance, the minimum sustainable well yield needs to be greater than 3.3 gpm for each building.
12. Because an adequate water supply is a requirement for Site Plan approval, Aries recommends that certification of sustainable well yield for the proposed development be provided to the Town as a pre-condition of approval of the site plan.

Alteration of Terrain Permit Application #250327-055

13. The site plans depict a cut of approximately 20 feet in Pocket Pond #41, where a proposed base elevation of 434 feet is located in the vicinity an existing ground surface elevation of 454.
14. Test Pit #9 is shown to be located within the proposed pocket pond. The excavation log for Test Pit #9 indicated the ground surface at the test pit was approximately 450 feet, and that the test pit was extended to a depth of approximately 20 feet below ground surface (bgs), or to an elevation of approximately 430 feet. Estimated Seasonal High-Water Table (ESHWT) was present at approximately 15 inches (1.25 feet) bgs, at an estimated elevation of approximately 448.75 feet, with observed water at a depth of 60 inches (5 feet) bgs, or at an elevation of approximately 445 feet. Based on these observations, the pocket pond will constantly discharge groundwater out of the Outlet Control Structure (OCS) #41, which has a proposed outlet invert elevation of 440.1 feet.
15. Based on this configuration, the proposed stormwater management system will unnecessarily cause groundwater levels in this area to decline due to the anticipated constant discharge from OCS #41.
16. The presence of standing water within Pocket Pond #41 will reduce the intended storage capacity[2], which is not likely accounted for in the stormwater model flows.

[2] The KNA hydraulic model indicates a cumulative storage volume of 9,184 cf below an elevation of 440.5 feet, which is near the proposed OCS #41 invert elevation.

17. Lastly, the groundwater discharge from OCS#41 will increase the volume of water discharge to the State Right-of-Way (ROW), where it will flow to catch basing CB#4 and be directed beneath Route 103 through an existing 15-inch reinforce concrete pipe (RCP) culvert. This additional contribution of groundwater is not accounted for in the KNA drainage model and report. However, this additional discharge should not affect the northwesterly abutting property.
18. Aries recommends that the stormwater storage in Pocket Pond #41 be evaluated and redesigned to provide adequate stormwater storage and to mitigate groundwater discharge.

Parking

19. Section IX - Site Plan Application Requirements require provision of off-street parking and loading spaces with a layout of the parking indicated snow storage locations. The site plans appear to provide adequate parking and snow storage.
20. Section XVII - Landscaping Standards require a minimum of one 2-1/2" caliper deciduous tree for every 20 parking spaces and every 60 feet of access roads. Available Landscape Plan details list only three deciduous trees to be planted, which does not meet the Town's Landscaping Standards.
21. Handicapped parking is required under the Town Site Plan Regulations and shall conform to the most current State and Federal law in place at the time of the application. Adequate provisions shall be made for handicapped parking and safe accessibility for the handicapped from the parking spaces to the proposed building(s)/use(s). Handicap parking areas should be shown on the Site Plan and should follow the 2010 Americans with Disabilities Act of 1990 (ADA) Standards for Accessible Design[3]

Refuse

22. Section IX - Site Plan Application Requirements require exterior solid waste disposal or recycling facilities be screened on each side. The site plans provide adequate details for the proposed solid waste disposal infrastructure.

Minimum Buildable Area

23. The 8 residential units are located within the Medium Density Residential (R2) Zoning District, which requires a buildable area of 2 acres per dwelling unit.
24. Note 2 of the Existing Conditions Plan indicates that Lot 39 has a buildable area of 8.774 acres, while Lot 39-1 has a buildable area of 11.05 acres. Both Lots meet the minimum buildable area.

[3] https://www.ada.gov/law-and-regs/design-standards/2010-stds/#parking-spaces

Drainage

25. The site plans depict four proposed stormwater discharge structures that direct stormwater to level spreaders, all of which terminate on steeply sloping land. Aries anticipates that these level spreaders will not adequately distribute the runoff and that rills and channelization will develop over time causing erosion. Aries recommends that riprap armoring be installed downslope of the outlets to a point where slopes moderate. Check dams should be installed along the anticipate flow path.
26. A level spreader is depicted on Lot 39 at an approximate elevation of 498 feet located along the northerly property line. The site plans depict a drainage swale at an approximate elevation starting at 506 feet that captures surface water from the upper portion of Lot 39 and directs this stormwater to the aforementioned level spreader that is located near the northerly boundary of Lot 39. As previously noted, Aries anticipates that the level spreader will not adequately distribute the runoff and that rills and channelization will develop over time causing erosion. Further, this drainage swale concentrates stormwater flows from the upland areas of Lot 39 and directs it without adequate treatment toward the northerly abutting property. It is anticipated that stormwater flows from the swale will cause increased stormwater runoff onto the northerly abutting property. Aries recommends drainage from this outfall be directed to a stormwater infiltration practice located at distance from the northerly site property boundary to limit concentrated stormwater flows toward the northerly abutting property.

Erosion and Sediment Control

27. Erosion Control notes are provided in the site plan construction details. Aries recommends that the Town conduct periodic inspections to ensure that specified erosion control procedures are followed.

Please contact me at (603) 228-0008 if you have any questions regarding this report and its findings.

Sincerely,
Aries Engineering, LLC

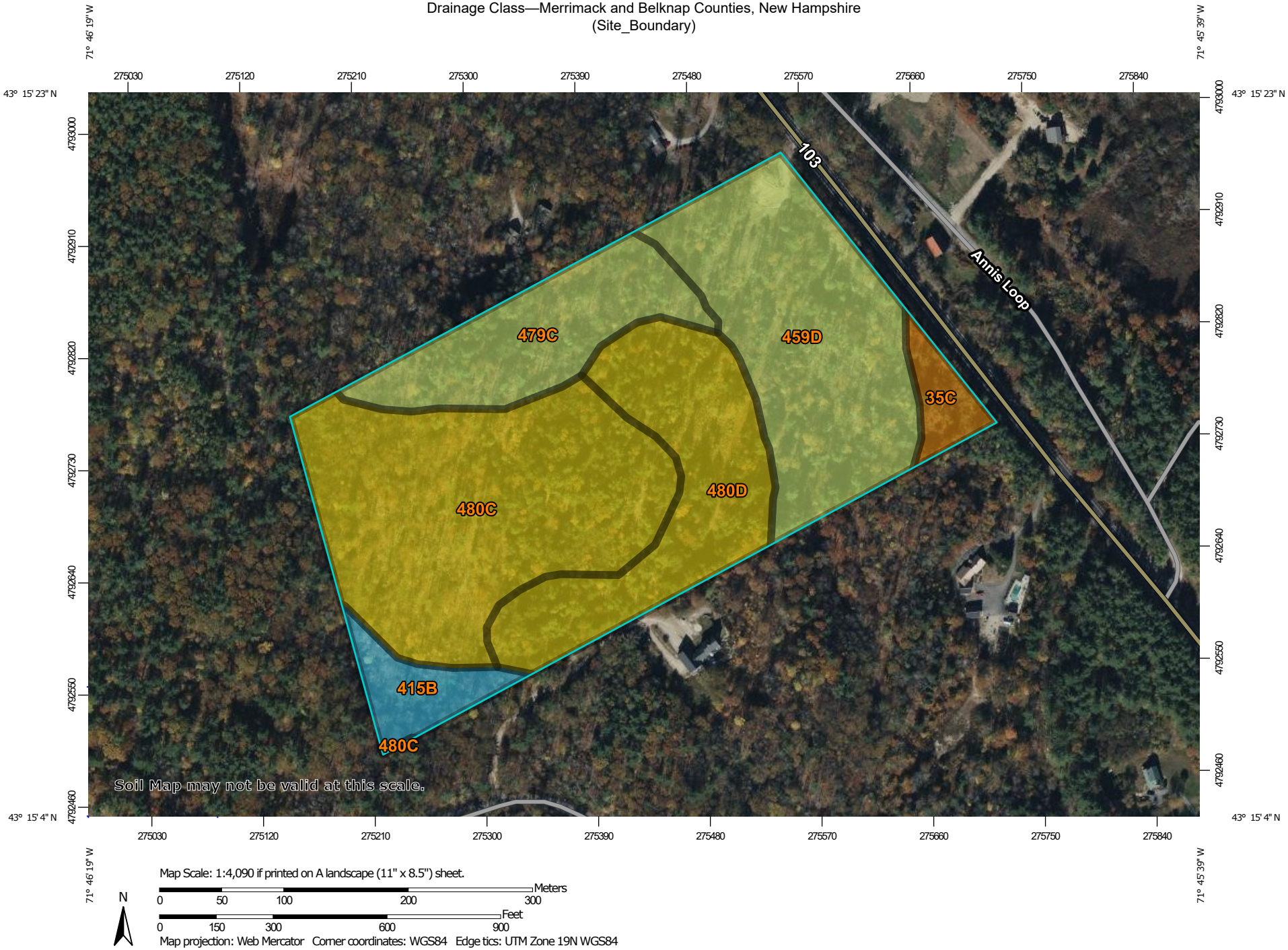
George C. Holt, P.G.
Principal Hydrogeologist

Kathryn A, Ward, P.E.
Principal Engineer

GCH:pj

Attachments: Web Soil Survey Report

Drainage Class—Merrimack and Belknap Counties, New Hampshire
(Site_Boundary)



Map Scale: 1:4,090 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Excessively drained
Somewhat excessively drained
Well drained
Moderately well drained
Somewhat poorly drained
Poorly drained
Very poorly drained
Subaqueous
Not rated or not available

Soil Rating Lines

Excessively drained
Somewhat excessively drained
Well drained
Moderately well drained
Somewhat poorly drained
Poorly drained
Very poorly drained
Subaqueous
Not rated or not available

Soil Rating Points

Excessively drained
Somewhat excessively drained
Well drained
Moderately well drained
Somewhat poorly drained
Poorly drained
Very poorly drained
Subaqueous
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Merrimack and Belknap Counties, New Hampshire
Survey Area Data: Version 31, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 6, 2022—Oct 22, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
35C	Champlain loamy fine sand, 8 to 15 percent slopes	Somewhat excessively drained	1.0	2.9%
415B	Moosilauke fine sandy loam, 3 to 8 percent slopes, very stony	Poorly drained	1.5	4.5%
459D	Metacomet fine sandy loam, 15 to 25 percent slopes, very stony	Moderately well drained	8.9	25.9%
479C	Gilmanton fine sandy loam, 8 to 15 percent slopes, very stony	Moderately well drained	4.6	13.4%
480C	Millsite-Woodstock-Henniker complex, 8 to 15 percent slopes, very stony	Well drained	11.7	34.0%
480D	Millsite-Woodstock-Henniker complex, 15 to 25 percent slopes, very stony	Well drained	6.7	19.4%
Totals for Area of Interest			**34.3**	**100.0%**

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

KEACH-NORDSTROM ASSOCIATES, INC.

October 31, 2025

Chrissy Almanzar
Warner Planning Board
5 East Main Street
Warner, NH 03278

RE: Jennesstown Manor Site Plan Application
Tax Map 7, Lots 39 & 39-1 – Warner

Dear Ms. Almanzar:

Our office is in receipt of the Aries Engineering review comments dated Oct. 20, 2025, and the Fire Department comments dated July 6, 2025. Based on the comments, we have made the required modifications and attached revised plans for review. A response to each comment has been provided below.

Aries Engineering Review Comments, dated October 20, 2025

Soils

1. Aries' review of the U.S. Department of Agriculture (USDA) Web Soil Survey indicated site soils are generally moderately to excessively well-drained soil, with the exception of an approximate 8,200-square-foot (sf) area of poorly drained soils along the southwestern property boundary of Lot 39-1. It is unclear if this area was excluded from the "buildable area" calculation for Lot 39-1, but due to the limited area, this area of poorly-drained soils should not reduce the number of permitted dwelling units on the lot. The Web Soil Survey report is attached.

   The project wetland consultant has flagged all wetlands on the property, and the project surveyor has located all the flags and depicted the location on the plan. All poorly drained soils have been accounted for in the lot sizing calculations.

Site Access

2. Site access is proposed via a 20-foot-wide single access road to the proposed site facilities with steep grades of up ~ 15%. Section III (E.) of the Town Site Plan Review Regulations require, "...suitably located streets of sufficient width to accommodate existing and prospective traffic and to afford adequate light, air, and access for firefighting apparatus and equipment to buildings". Further, Section XXIII (A.)(6) state that, "...adequate provisions must be made for fire safety, prevention, and control". Aries recommends that the proposed site access be reviewed and approved by both the Town fire and police department to ensure that site access for life-safety responses can be met by the Town.

   The common driveway has been reviewed by the Fire Department, and their comments are outlined below. No comments have been received from the Police Department.

3. Available Town Driveway Regulations allow for driveway grades of up to 15%. However,

consideration should be given to the fact that the proposed driveway provides access to eight dwelling units that will require a greater level of life-safety support than a single-family residence.

The design has been reviewed by the Fire Department and the 15% grade will be maintained in accordance with the Town of Warner Driveway Regulations.

4. Site plans show a 20-foot-wide access road with 2-foot-wide shoulders. Aries recommends that the proposed access road meet the Town road construction standards provided in the Town Subdivision Regulations, Appendix B1, including 24-foot-wide paved roadway, with 3-foot minimum width shoulders.

The Town of Warner Subdivision Regulations define street as "means, relates to and includes any street, right-of-way, avenue, road, boulevard, lane, alley, viaduct, highway, freeway, and other public ways. Street shall include the entire right-of-way." The proposed driveway is intended on being a common driveway and not a publicly owned and maintained right-of-way.

The Town of Warner Site Plan Regulations define a common driveway as "Joint / Shared Access: a driveway connecting two or more contiguous sites to the public street system."

The Town of Warner Driveway Regulations require "Driveways shall be a minimum of fifteen (15) feet wide"

National Fire Protection Association access requirements states that an unobstructed width of at least 20 feet and a vertical clearance of at least 13 feet 6 inches be provided. A 16 foot wide paved section flanked on both sides with a 2 foot gravel should fulfills this requirement. Due to the grade we, as the Engineer of Record, have proposed a 20 foot wide pave section with 2 foot gravel shoulders, to maintain pavement under emergency vehicle tires.

Based on compliance with the above mentioned requirements no modifications have been made to the design.

5. The site plans depict a fire truck turnaround and enclosed dumpster located approximately halfway down the proposed steep access road. Based on this location, it is presumed that fire trucks would need to back halfway down the steep access road to turn around. Aries recommends relocating the turnaround and dumpster area adjacent to and at the same level of the dwelling units where both fire apparatus will need to reverse direction and where refuse will be generated. This would provide a second fire truck turnaround.

The Site Plan currently places a fire truck turn-around between the two buildings, as seen on Sheet 3. The location mentioned in this comment is a second location. This location is also shared with the common dumpster location. The Owner/Developer desires to maintain the dumpster in the current location

6. The site plans indicated an approximate access road starting elevation of 433 feet and a high point elevation of approximately 478 feet for the site access road, which is approximately 420 feet in length. The average grade is approximately 10.7%, while the majority of the access road is at a grade of 14.26%. Aries recommends that the proposed site access road be lengthened to meet the Section VII Design Standards grade of 10% for a local street for all portions of the access

road.

We understand the concept of obtaining lower slope based on averaging the number but offer the following. The driveway is located on a state road under the jurisdiction of NHDOT. The edge of road is a fixed elevation. The NHDOT Driveway Policy requires the driveway to slope away from the road for drainage purposes. We also need to maintain a "flat" area for the vehicle to stop and assess approaching vehicles prior to entering the roadway. Due to the slope of the existing property the abrupt change in angle from a negative grade to a positive grade needs to be assessed. This angle needs to be analyzed for a proper vertical curve to transition for drivers comfort and physical limitation of vehicles with long bumper overhangs like fire trucks.

As can be seen on Sheet 11, the centerline profile of the driveway transitions from a -2% grade, to a +8% grade to a +15% grade. Between each change in slope a transition vertical curve has been added. This permits the appropriate platform adjacent to the roadway. To reduce the grade from 15% to the suggested 10.7% grade the point of vertical curve at the top of the "hill" would result in an additional 12 foot cut into the slope. This would also cause the structures to be about 10 lower. We have chosen to hold the 15% grade outlined in the driveway regulations to minimize the cuts and constructability of the project. No modification has been made.

Water System

7. Section XXIII (A.) of the Town Site Plan Review Regulations require, "...the applicant to provide adequate information to prove that the area of the lot is adequate to permit the installation and operation of water and sewage systems...in areas not currently served by public water and sewer".

   This office and the owner are aware of the requirement for a Construction Approval from the NHDES Subsurface System Bureau. Upon conditional approval the Owner will complete the required design and application to obtain approval.

8. The site plans depict four bedrooms per dwelling unit, which results in a total of 32 bedrooms at the proposed development. Although the two four-unit buildings are situated on separate parcels, the buildings share a common access road and other facilities and should be considered one project. NHDES community water system rules, part Env-Dw 405.02, apply to water systems that supply water to 25 or more people, at least 60 days each year. According to Douglas Sayer, NHDES Drinking-Water-and-Groundwater Bureau Design Specialist, the proposed 8-unit development does not qualify as a community water system.

   We concur with this assessment, the project does not qualify as a community water system.

9. The well radius proposed for the two wells (one on each lot) is 125', as depicted on the site plans. Using NHDES Water Supply Rules as best management guidance, including Env-Dw 405.10 - Design Flow regulations, a four-bedroom design requires 150 gallons per day (gpd) per bedroom for residential uses. As such, the design flow for each 4-unit building is:
   150 gpd/ Bedroom = 600 gpd * 4 units = 2,400 gpd

   Part Env-Dw 405 are the Design Standards for Small Community Water Systems. As determined in the prior comment Env-Dw 100 – 1507 do not apply to this project, as it is not a community water system.

The governing Code of Administration Rules is found in Env-Wq 1008.06 Protective Well Radii – Distances.
Each building will be served by it's own well. We agree with the flow calculation of 2,400 gpd per building. Table 1008-4 outlines a well radius of 125' for flows between 1,441 gpd and 4,320 gpd. Therefore, the project complies with the regulations as proposed, no modification has been made.

10. NHDES community water system rules (Env-Dw 405.12) require a source capacity that is two time the required design flow, which is 4,800 gpd, or approximately 3.3 gallons per minute (gpm) on average for each building's water supply system. This accounts for domestic water use but does not account for fire suppression or irrigation. Aries considers this to be a recommended best management practice. Based on a required minimum source capacity of 4,800 gpd per building, a Sanitary Protective Radius of 150' will be required. The current site plans depict 125' well radius.

As outlined above the referenced rules do not apply to this project. The 125' well radius has been maintained.

11. Based on this guidance, the minimum sustainable well yield needs to be greater than 3.3 gpm for each building.

Well yield is addressed by the Licensed Well Contractor at the time of occupancy permit.

12. Because an adequate water supply is a requirement for Site Plan approval, Aries recommends that certification of sustainable well yield for the proposed development be provided to the Town as a pre-condition of approval of the site plan.

This request is not outlined as a requirement in the Site Plan Regulations. As with any residential well there is a certain level of risk with well production. It is the responsibility of the Developer to ensure that well depth or diameter is increased, or storage capacity is provided, if needed, to meet the minimum requirements to obtain an occupancy permit. Simply, no water, no occupancy permit.

Alteration of Terrain Permit Application #250327-055

13. The site plans depict a cut of approximately 20 feet in Pocket Pond #41, where a proposed base elevation of 434 feet is located in the vicinity an existing ground surface elevation of 454.

No response required.

14. Test Pit #9 is shown to be located within the proposed pocket pond. The excavation log for Test Pit #9 indicated the ground surface at the test pit was approximately 450 feet, and that the test pit was extended to a depth of approximately 20 feet below ground surface (bgs), or to an elevation of approximately 430 feet. Estimated Seasonal High-Water Table (ESHWT) was present at approximately 15 inches (1.25 feet) bgs, at an estimated elevation of approximately 448.75 feet, with observed water at a depth of 60 inches (5 feet) bgs, or at an elevation of approximately 445 feet. Based on these observations, the pocket pond will constantly discharge groundwater out of the Outlet Control Structure (OCS) #41, which has a proposed outlet invert elevation of 440.1 feet.

No response required.

15. Based on this configuration, the proposed stormwater management system will unnecessarily cause groundwater levels in this area to decline due to the anticipated constant discharge from OCS #41.

We agree that this will cause a decline in the groundwater level, but disagree with the statement "unnecessarily". Altering the groundwater level in construction projects is a common occupancy. This is like the function of a foundation drain, underdrains installed along roadways, and drainage installed behind retaining walls. In accordance with the NHDES Alteration of Terrain requirements wet ponds and pocket ponds are required to have a large enough area to maintain a permanent pool of water or prove the pool will be maintained by groundwater. The biggest concern with groundwater movement into the pond will be slope stability and "sluffing" of the sidewall. As with any construction project, groundwater management needs to be addressed and controlled. If the contractor determines that the groundwater needs to be reduce in the work zone or on the pond slopes our recommendation would be for the installation of a french drain system surrounding the upslope side of the pond.

16. The presence of standing water within Pocket Pond #41 will reduce the intended storage capacity, which is not likely accounted for in the stormwater model flows.

Env-Wq 1508.03 Stormwater Treatment Practices: Stormwater Ponds. Stormwater ponds, including but not limited to micropool extended detention ponds, wet ponds, wet extended detention ponds, multiple pond systems, and pocket ponds, shall comply with the following:
(b) Stormwater ponds shall have a permanent pool, or combination of permanent pool and extended detention, greater than or equal to the WQV;
(g) The permanent pool depth shall be:
(1) Not less than 3 feet; and
(2) Demonstrated by providing:
a. A stormwater pond having a pond floor at least 5 feet below the SHWT or the lowest elevation pond outlet, whichever is lower; or
b. A hydrologic budget that accounts for the inflow to, outflow from, and storage in the stormwater pond, showing that sufficient water is available to maintain the water depth in the permanent pool;
(h) The permanent pool depth shall not be greater than 8 feet;

Based on the administrative rules a pocket pond is required to maintain the standing water.

Below is a snapshot of Node 41P of the HydroCAD analysis. Storage capacity is adjusted by the use of a starting elevation. In the case of this pond the starting elevation is set at 440.10 to match the elevation of the lowest outlet (device 2). The total cumulative storage of the pond is 10,747 cf, but the flood elevation lists 5,215 cf above start.

The calculations properly address the storage capacity.

Post *Type III 24-hr 100 yr Rainfall=6.94"*
Prepared by Keach-Nordstrom Associates, Inc Printed 10/30/2025
HydroCAD® 10.20-6a s/n 01045 © 2024 HydroCAD Software Solutions LLC

Summary for Pond 41P: Pocket Pond 41P

Inflow Area = 1.681 ac, 8.55% Impervious, Inflow Depth > 2.52" for 100 yr event
Inflow = 4.02 cfs @ 12.12 hrs, Volume= 0.354 af
Outflow = 2.47 cfs @ 12.29 hrs, Volume= 0.331 af, Atten= 39%, Lag= 10.6 min
Primary = 2.47 cfs @ 12.29 hrs, Volume= 0.331 af
Routed to Pond 40P : Existing CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Starting Elev= 440.10' Surf.Area= 2,197 sf Storage= 5,532 cf
Peak Elev= 441.75' @ 12.29 hrs Surf.Area= 3,123 sf Storage= 9,941 cf (4,410 cf above start)
Flood Elev= 442.00' Surf.Area= 3,207 sf Storage= 10,747 cf (5,215 cf above start)

Plug-Flow detention time= 355.2 min calculated for 0.204 af (58% of inflow)
Center-of-Mass det. time= 109.2 min (947.0 - 837.9)

Volume	Invert	Avail.Storage	Storage Description
#1	434.00'	10,747 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
434.00	64	44.5	0	0	64
436.00	472	91.7	473	473	593
438.00	1,164	139.2	1,585	2,058	1,496
440.00	2,142	186.2	3,257	5,315	2,756
441.50	3,044	214.5	3,870	9,184	3,707
442.00	3,207	219.2	1,563	10,747	3,902

Device	Routing	Invert	Outlet Devices
#1	Primary	437.00'	**18.0" Round Culvert** L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 437.00' / 435.00' S= 0.0833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	440.10'	**3.0" Vert. 3" Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	441.60'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.46 cfs @ 12.29 hrs HW=441.75' TW=0.00' (Dynamic Tailwater)
↑1=**Culvert** (Passes 2.46 cfs of 17.01 cfs potential flow)
↑2=**3" Orifice** (Orifice Controls 0.29 cfs @ 5.94 fps)
3=**Grate** (Weir Controls 2.17 cfs @ 1.25 fps)

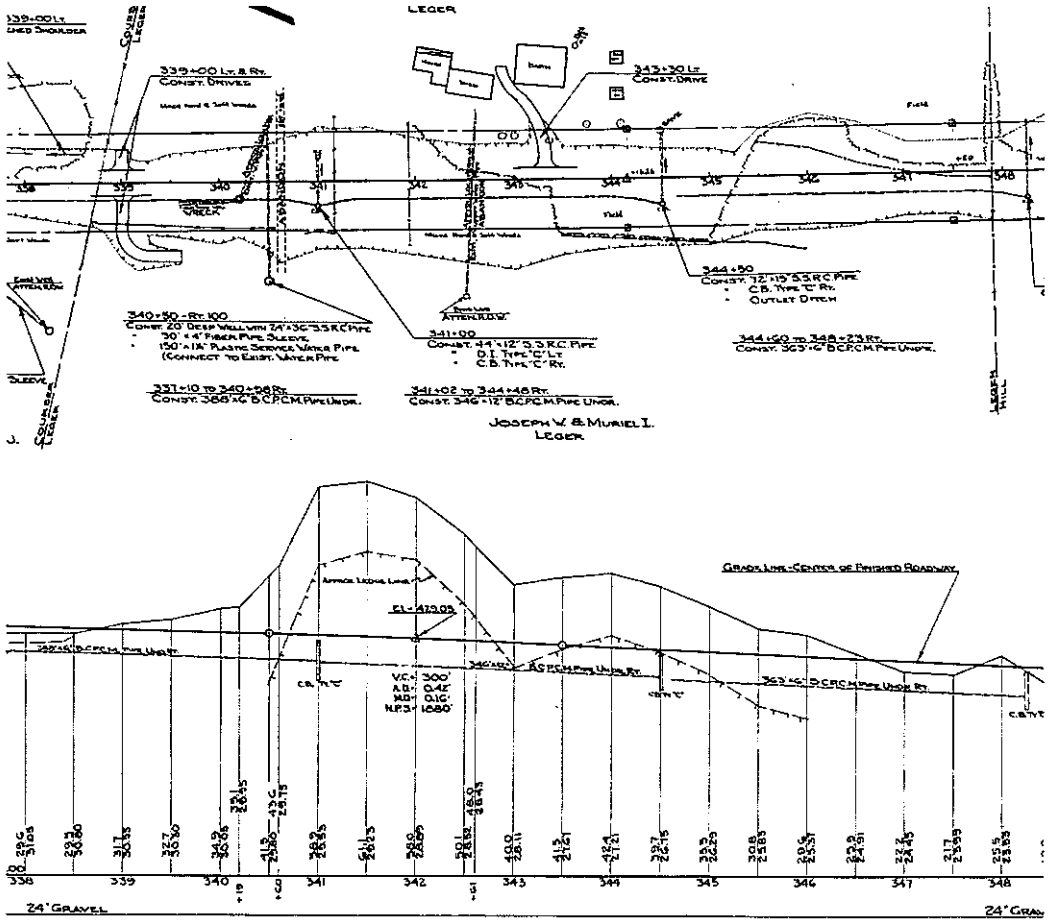
17. Lastly, the groundwater discharge from OCS#41 will increase the volume of water discharge to the State Right-of-Way (ROW), where it will flow to catch basing CB#4 and be directed beneath Route 103 through an existing 15-inch reinforce concrete pipe (RCP) culvert. This additional contribution of groundwater is not accounted for in the KNA drainage model and report. However, this additional discharge should not affect the northwesterly abutting property.

Groundwater discharge is a valid point. Groundwater will be dependent on subsurface water levels and seasonal conditions. Groundwater flow is factor separate from the storm event evaluated by the analysis. Groundwater is potentially flowing while it is not raining.

Based on an educated assumption about our design and the construction of Route 103, it can be suggested that the current subsurface groundwater flows toward Route 103. In 1953 Route 103 was constructed with underdrains on the south side of the highway that outlet into the subject catch basin, as shown in the NHDOT design plan below. Some of the groundwater flow will be intercepted by the underdrains, directed to the catch basin, and then outlet to the

surface through the 15" RCP. Based on the current design groundwater intercepted by the pond will flow to the same catch basin. We suggest that this should reduce the subface flow intercepted by the underdrain system.

What we know is groundwater outlets the pipe in the predevelopment conditions and will outlet in the post development condition. Again, groundwater flow is factor separate from the storm event evaluated by the analysis. But, based on the explanation above we know the Administrative Rules require the introduction of groundwater into the stormwater pond for proper function.



18. Aries recommends that the stormwater storage in Pocket Pond #41 be evaluated and redesigned to provide adequate stormwater storage and to mitigate groundwater discharge.

As previously outlined above, the design complies with the design requirements of NHDES Env-Wq 1500. Further the design has been reviewed by NHDES Alteration of Terrain and did not receive comments to revise the design. No modifications have been made.

Parking

19. Section IX - Site Plan Application Requirements require provision of off-street parking and loading spaces with a layout of the parking indicated snow storage locations. The site plans

appear to provide adequate parking and snow storage.

No response required.

20. Section XVII - Landscaping Standards require a minimum of one 2-1/2" caliper deciduous tree for every 20 parking spaces and every 60 feet of access roads. Available Landscape Plan details list only three deciduous trees to be planted, which does not meet the Town's Landscaping Standards.

The landscape calculations for the deciduous trees have been added to Sheet 7. Twelve additional trees have been added to the plan.

21. Handicapped parking is required under the Town Site Plan Regulations and shall conform to the most current State and Federal law in place at the time of the application. Adequate provisions shall be made for handicapped parking and safe accessibility for the handicapped from the parking spaces to the proposed building(s)/use(s). Handicap parking areas should be shown on the Site Plan and should follow the 2010 Americans with Disabilities Act of 1990 (ADA) Standards for Accessible Design.

Each unit provides 3 exterior parking spaces and 1 garage space. A total of 32 spaces have been provided. 2% of the parking spaces are required to be ADA accessible, which rounds up to one space. The ADA space can be one of the garage spaces. Should a owner request additional accommodations the developer will address on a case by case basis.

Refuse

22. Section IX - Site Plan Application Requirements require exterior solid waste disposal or recycling facilities be screened on each side. The site plans provide adequate details for the proposed solid waste disposal infrastructure.

No response required.

Minimum Buildable Area

23. The 8 residential units are located within the Medium Density Residential (R2) Zoning District, which requires a buildable area of 2 acres per dwelling unit.

No response required.

24. Note 2 of the Existing Conditions Plan indicates that Lot 39 has a buildable area of 8.774 acres, while Lot 39-1 has a buildable area of 11.05 acres. Both Lots meet the minimum buildable area.

No response required.

Drainage

25. The site plans depict four proposed stormwater discharge structures that direct stormwater to level spreaders, all of which terminate on steeply sloping land. Aries anticipates that these level spreaders will not adequately distribute the runoff and that rills and channelization will develop over time causing erosion. Aries recommends that riprap armoring be installed downslope of the outlets to a point where slopes moderate. Check dams should be installed along the anticipate flow path.

The four level spreaders as shown were added to the plan per request of the NH AoT review agent.

26. A level spreader is depicted on Lot 39 at an approximate elevation of 498 feet located along the northerly property line. The site plans depict a drainage swale at an approximate elevation starting at 506 feet that captures surface water from the upper portion of Lot 39 and directs this stormwater to the aforementioned level spreader that is located near the northerly boundary of Lot 39. As previously noted, Aries anticipates that the level spreader will not adequately distribute the runoff and that rills and channelization will develop over time causing erosion. Further, this drainage swale concentrates stormwater flows from the upland areas of Lot 39 and directs it without adequate treatment toward the northerly abutting property. It is anticipated that stormwater flows from the swale will cause increased stormwater runoff onto the northerly abutting property. Aries recommends drainage from this outfall be directed to a stormwater infiltration practice located at distance from the northerly site property boundary to limit concentrated stormwater flows toward the northerly abutting property.

The intent of the swale flowing to the level spreader is to divert "clean" runoff around the area of development. By utilizing this recommended diversion practice, runoff that passes through the construction zone will be limited and the transport of sediment will be minimized. The level spreader meets the design requirements and the drainage analysis documents that the peak rate of runoff in subcatchment 40S will be equal to or less than the predevelopment conditions. The design meets the requirements.

Erosion and Sediment Control

27. Erosion Control notes are provided in the site plan construction details. Aries recommends that the Town conduct periodic inspections to ensure that specified erosion control procedures are followed.

Note 10 on Sheet 6 provides the Town oversight on the placement and function of the erosion control.

Jennesstown Manor, Map 7 Lots 39 & 39-1- FD Comments, email dated July 6, 2025

1. The State Fire Code (NFPA 1, 2021 edition, Chapter 18) requires fire department access. Please clarify the following:
    a. Show turning template for FD access on site plan. We use the 40' bus template.

A Fire Access Plan has been attached to show the turning template.

    b. Confirm the dead-end distance from the FD turnaround between the buildings. NFPA 1 18.2.3.5.4 requires a turnaround for dead-ends over 150'.

A permanent paved turnaround has been provided between the two buildings.

    c. Confirm the approach angle coming off Route 103. See attached fire engine details. (NFPA 1 18.2.3.5.6.2 The angle of approach and departure for any means of fire apparatus access road shall not exceed 1 ft drop in 20 ft or the design limitations of the fire apparatus of the fire department).

The vertical approach angle is demonstrated in the profile view on the Fire Access Plan.

2. Buildings will require automatic sprinkler protection in accordance with the State Building Code and State Fire Code. Submit plans for review prior to construction.

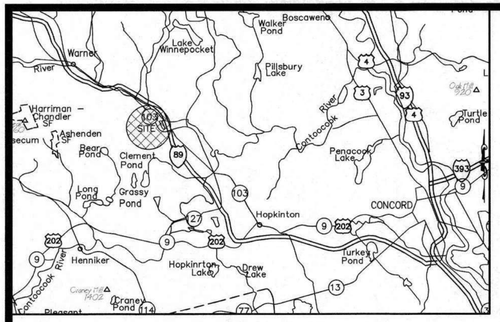
Note 21 has been added to Sheet 3.

I trust the content of this response letter and its attachments will address each of the comments, as noted. Should you have further questions or require additional information, please do not hesitate to contact our office.

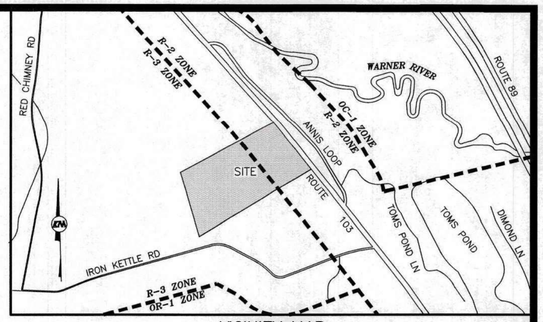
Respectfully,

Jason Lopez
Senior Project Manager
Keach-Nordstrom Associates, Inc.

RESIDENTIAL SITE PLAN
JENNESSTOWN MANOR
MAP 7; LOTS 39 & 39-1
ROUTE 103
WARNER, NEW HAMPSHIRE



LOCATION PLAN
SCALE: 1" = 2,000'±



VICINITY MAP
SCALE: 1" = 1,000'

WILDLIFE PROTECTION NOTES (ENV-WQ 1504.17)

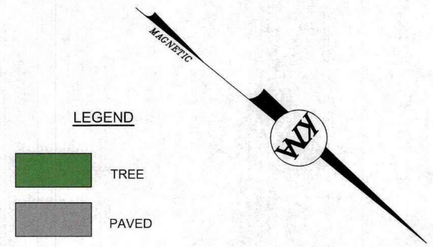
- ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES SHALL BE REPORTED IMMEDIATELY TO THE NEW HAMPSHIRE FISH AND GAME DEPARTMENT NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV. EMAIL SUBJECT LINE: NHB24-0767, JENNESSTOWN MANOR, WILDLIFE SPECIES OBSERVATION.
- PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHF&G IN DIGITAL FORMAT FOR VERIFICATION AS FEASIBLE;
- IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHF&G AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHF&G. IF ANY, TO ASSURE THE PROJECT DOES NOT APPRECIABLY JEOPARDIZE THE CONTINUED EXISTENCE OF THREATENED AND ENDANGERED SPECIES AS DEFINED IN FIS 1002.04
- THE NHF&G, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

SITE PLAN
SCALE: 1" = 40'

LEDGE AND ROCK REMOVAL

PEACOCK HILL ROAD, LLC CERTIFIES THAT THE INTENT IS THAT ALL LEDGE AND ROCK REMOVAL WILL BE CONDUCTED BY MECHANICAL MEANS. SHOULD SITE CONDITIONS DETERMINE BLASTING OF LESS THAN 5,000 CY IS REQUIRED, PEACOCK HILL ROAD, LLC CERTIFIES BLASTING BEST MANAGEMENT PRACTICES OUTLINED IN ENV-WQ 1510 WILL BE FOLLOWED. NO BLASTING IN EXCESS OF 5,000 CY IS PERMITTED WITHOUT CONTACTING THE DESIGN ENGINEER AND NHDES ALTERATION OF TERRAIN.

GARY FITZGERALD, MEMBER _____ DATE



OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281

ENGINEER:
KEACH-NORDSTROM ASSOCIATES, INC.
10 COMMERCE PARK NORTH, SUITE 3B
BEDFORD, NEW HAMPSHIRE 03110
(603) 627-2881

SURVEYOR:
J.E. BELANGER LAND SURVEYING PLLC
61 OLD HOPKINTON ROAD
DUNBARTON, NEW HAMPSHIRE 03046
(603) 774-3601

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J.E. BELANGER LAND SURVEYING PLLC
LICENSED LAND SURVEYOR
61 OLD HOPKINTON ROAD, DUNBARTON, NH 03046
* BOUNDARY SURVEYS
* SUBDIVISIONS
* LAND PLANNING
* SEPTIC DESIGN

KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

MARCH 25, 2024
REVISED OCTOBER 31, 2025
PROJECT NO. 24-0307-1

SHEET TITLE	SHEET No.
EXISTING CONDITIONS PLAN	1 - 2
SITE PLAN	3
EASEMENT PLAN	4
GRADING, DRAINAGE & UTILITY PLAN	5
EROSION CONTROL PLAN	6
LANDSCAPE PLAN	7
LIGHTING PLAN	8
SITE VISIBILITY FROM ROAD PLAN & PROFILE	9
SIGHT DISTANCE PLAN	10
DRIVEWAY PROFILE PLAN	11
CONSTRUCTION DETAILS	12 - 16
ARCHITECTURAL DRAWINGS	A1 - A5

LEGEND

⊠ GB–F	GRANITE BOUND FOUND
● IPIN–F	IRON PIN FOUND
◉ DH–F	DRILL HOLE FOUND
● IPIN–TBS	IRON PIN TO BE SET
	BENCHMARK
	UTILITY POLE
	CATCH BASIN
	ABUTTER LINE
	PROPERTY LINE
	SETBACK
OHU	OVERHEAD UTILITIES
	TREELINE
EOP	EDGE OF PAVEMENT
	EDGE OF GRAVEL
	10' CONTOUR
	2' CONTOUR
	PROPOSED PROPERTY LINE
	EASEMENT
	WETLAND
	WETLAND BUFFER
	STEEP SLOPES NON–BUILDABLE AREA
	WETLAND

MATCH TO SHEET 3

R-3 ZONING DISTRICT

R-2 ZONING DISTRICT

MAP 7 LOT 39–1
665,946 SF
15.288 ACRES
368.04' FRONTAGE

MAP 7 LOT 39
488,497 SF
11.214 ACRES
350.88' FRONTAGE

MAP 7 / LOT 36
DONALD C. LASSONDE
BARBARA M. LASSONDE
402 ROUTE 103 EAST
WARNER, N.H. 03278
RESIDENTIAL USE

MAP 7 / LOT 36–1
DAN A. RICHARDSON
406 ROUTE 103 EAST
WARNER, N.H. 03278
RESIDENTIAL USE

MAP 7 / LOT 39–2
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
RESIDENTIAL USE

MAP 3 / LOT 1
DONALD & LAURA GREEN
460 N.H. ROUTE 103
WARNER, N.H. 03278
RESIDENTIAL USE

MAP 7 / LOT 34
NATHANIAL M. BURRINGTON
58 CALDWELL LANE
SUNAPEE, N.H. 03782
RESIDENTIAL USE

MAP 7 / LOT 38
CZORA REVOCABLE TRUST OF 2016
BRIAN J. CZORA, TRUSTEE
60 ANNIS LOOP
WARNER, N.H. 03278
RESIDENTIAL USE

MAP 3 / LOT 1
DONALD & LAURA GREEN
460 N.H. ROUTE 103
WARNER, N.H. 03278
UNDEVELOPED

N.H. ROUTE 103
(CLASS II STATE HIGHWAY)

EXISTING EDGE OF WETLAND

EXISTING GRAVEL DRIVEWAY

BENCHMARK 2
TRAVERSE SPIKE
ELEV = 487.12'

BENCHMARK 1
TRAVERSE SPIKE
ELEV = 431.52'

CB#1 RIM=424.13'
CB#2 RIM=426.50'
CB#3 RIM=429.24'
CB#4 RIM=430.13'
CB#5 RIM=431.79'

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HISS SYM	HSG
55	HERMON VERY STONY	121	B
442	CHICHESTER	221	B
58	WAUMBEK	321	A
829	WAUMBEK–HERMON ASSOCIATION	321	B
414	MOOSILAUKE POORLY DRAINED	521	C
399	LEDGE OUTCROP	228	D

STATE OF NEW HAMPSHIRE · LUKE D. HURLEY · 3/20/25 · NO. 095 · CERTIFIED SOIL SCIENTIST

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED NOVEMBER 23, 2024 AND WAS PREPARED BY LUKE HURLEY, CSS # 095, HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE–WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF MAP 7 LOTS 39 AND 39–1.
2. MAP AND LOT NUMBERS INDICATE THE TOWN OF WARNER ASSESSOR'S MAP AND LOT NUMBERS.
3. PARCEL INFORMATION

	SQUARE FEET	ACRES	FRONTAGE	BUILDABLE AREA
MAP 7 LOT 39	488,497 SF	11.214 AC	350.88'	8.774 AC
MAP 7 LOT 39–1	665,946 SF	15.288 AC	368.04'	11.050 AC

4. MAP 7 LOTS 39 AND 39–1 ARE PRIMARILY FORESTED AND CONTAIN NO EXISTING STRUCTURES. THEY ARE PARTIALLY CLEARED AND CONTAIN AN EXISTING GRAVEL DRIVEWAY.
5. SUBJECT PARCEL IS SITUATED IN THE R2 AND R3 DISTRICT. THE FOLLOWING DIMENSIONAL STANDARDS APPLY:

REQUIREMENT	R2	R3
MIN BUILDABLE AREA	2 ACRES	3 ACRES
MIN LOT FRONTAGE	200 FT	250 FT
FRONT SETBACK	40 FT	50 FT
SIDE SETBACK	25 FT	40 FT
REAR SETBACK	25 FT	40 FT
MIN STRUCTURE SETBACK FROM WETLANDS	50 FT	50 FT

6. BOUNDARY INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY THE OFFICE OF J.E. BALENGER LAND SURVEYING, PLLC IN MAY OF 2023.
7. THE PARCELS WILL BE SERVICED WITH ON–SITE WATER SUPPLY AND ON–SITE SEWAGE DISPOSAL SYSTEMS.
8. AN INVESTIGATION OF FEMA'S NATIONAL FLOOD INSURANCE RATE MAPPING FOR MERRIMACK COUNTY, NEW HAMPSHIRE (PANEL NO. 33013C0294E) HAVING AN EFFECTIVE DATE OF APRIL 19, 2010 SUGGESTS THOSE PORTIONS OF THE SUBJECT PARCEL SHOWN ON THIS PLAN IS NOT SITUATED IN A DESIGNATED FLOOD HAZARD AREA HAVING A BASE FLOOD ELEVATION (100–YEAR) ELEVATION OF 396.
9. TOPOGRAPHICAL SURVEY INFORMATION SHOWN HEREON IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM (NVGD) OF 1929.
10. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN HEREON IS APPROXIMATE. KEACH–NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR OR OWNER SHALL CONTACT DIG–SAFE AT 811.
11. SUBJECT TO EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE FOUND DURING RESEARCH AT THE MERRIMACK COUNTY REGISTRY OF DEEDS. OTHER EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE SUBJECT PREMISES MAY DETERMINE.

MAGNETIC NORTH

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

DIG SAFE
NEW HAMPSHIRE 811 CALL TOLL FREE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

UTILITY NOTE

THE UNDERGROUND UTILITIES DEPICTED HEREON HAVE BEEN DRAWN FROM FIELD SURVEY INFORMATION AND OR PLOTTED FROM EXISTING DRAWINGS. KEACH–NORDSTROM ASSOCIATES, INC. MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, KEACH–NORDSTROM ASSOCIATES, INC. DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. KEACH–NORDSTROM ASSOCIATES, INC. HAS NOT PHYSICALLY LOCATED THE UNDERGROUND PORTIONS OF THE UTILITIES.

REFERENCE PLANS:

1. PLAN ENTITLED "BOUNDARY PLAN PREPARED FOR MURIEL I. LEGER", SCALE: 1"=100', DATED FEB. 14, 1991. PREPARED BY RICHARD D. BARTLETT & ASSCCIATES, INC. AND RECORDED AT M.C.R.D. ON JUNE 26, 1991 AS PLAN NO. 12109.
2. PLAN ENTITLED "SUBDIVISION PLAN PROPERTY OF THEODORE & ELIZABETH YOUNG LOCATED IN WARNER, NEW HAMPSHIRE" SCALE: 1"=100', DATED FEBRUARY 1988. PREPARED BY JEFFREY A. EVANS AND RECORDED AT M.C.R.D. ON JUNE 7, 1988 AS PLAN NO. 10385.
3. PLAN PREPARED BY B.F. HOWARD ASSOCIATES, FOR GILBERT J. TEDSTONE, SCALE: 1"=100', DATED 8/29/77. RECORDED AT M.C.R.D. ON NOVEMBER 14, 1977 AS PLAN NO. 5047.
4. STATE OF NEW HAMPSHIRE R.O.R. PLANS – PROJECT NO. F243(8) FISCAL YEAR 1953, SHEETS 10 THRU 12.
5. "SUBDIVISION PLAN JENESSTOWN MANOR MAP 7 LOT 39 PREPARED FOR PEACOCK HILL ROAD, LLC", SCALE: 1"=100', DATED MARCH 25, 2025. PREPARED BY KEACH–NORDSTROM ASSOCIATES, INC.

STATE OF NEW HAMPSHIRE · TIMOTHY J. FERWERDA · No. 039 · CERTIFIED WETLAND SCIENTIST

WETLAND CERTIFICATION:

TIMOTHY FERWERDA, CERTIFIED WETLAND SCIENTIST #39 OF FERWERDA MAPPING LLC, OF DEERING, NH, PERFORMED THE WETLAND IDENTIFICATION AND DELINEATION IN DECEMBER, 2022 ACCORDING TO THE CORPS OF ENGINEERING WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL; NORTH CENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.

CERTIFIED WETLAND SCIENTIST — DATE 3/24/25

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE BY THIS OFFICE DURING MAY OF 2023. SAID SURVEY HAS A RELATIVE ERROR OF CLOSURE OF ONE PART IN TEN THOUSAND (1:10,000) OR BETTER.

LICENSED LAND SURVEYOR — DATE March 21/25

STATE OF NEW HAMPSHIRE · No. 968 · LAND SURVEYOR · 3/24/25

EXISTING CONDITIONS PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39–1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 — SCALE: 1" = 60'
PROJECT NO: 24–0307–1 — SHEET 1 OF 16

CL:\project\24\0307\1\dwg\Production Drawings\Site.dwg 11/3/2025 3:53:34 PM

LEGEND

- GB–F — GRANITE BOUND FOUND
- IPIN–F — IRON PIN FOUND
- DH–F — DRILL HOLE FOUND
- IPIN–TBS — IRON PIN TO BE SET
- BENCHMARK
- UTILITY POLE
- CATCH BASIN
- ABUTTER LINE
- PROPERTY LINE
- SETBACK
- OHU — OVERHEAD UTILITIES
- TREELINE
- EOP — EDGE OF PAVEMENT
- EDGE OF GRAVEL
- 10' CONTOUR
- 2' CONTOUR
- PROPOSED PROPERTY LINE
- EASEMENT
- WETLAND
- WETLAND BUFFER
- STEEP SLOPES NON–BUILDABLE AREA
- WETLAND

DIG SAFE

811 CALL TOLL FREE

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

SITE SPECIFIC SOIL MAP UNIT KEY

STATE OF NEW HAMPSHIRE — LUKE D HURLEY — 3/20/25 — NO. 095 — CERTIFIED SOIL SCIENTIST

SYMBOL	MAP UNIT	HISS SYM	HSG
55	HERMON VERY STONY	121	B
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58	WAUMBEK	321	A
829	WAUMBEK–HERMON ASSOCIATION	321	B
414	MOOSILAUKE POORLY DRAINED	521	C
399	LEDGE OUTCROP	228	D

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED NOVEMBER 23, 2024 AND WAS PREPARED BY LUKE HURLEY, CSS # 095, HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE–WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF MAP 7 LOTS 39 AND 39–1.
2. MAP AND LOT NUMBERS INDICATE THE TOWN OF WARNER ASSESSOR'S MAP AND LOT NUMBERS.
3.

PARCEL INFORMATION	SQUARE FEET	ACRES	FRONTAGE	BUILDABLE AREA
MAP 7 LOT 39	488,497 SF	11.214 AC	350.88'	8.774 AC
MAP 7 LOT 39–1	665,946 SF	15.288 AC	368.04'	11.050 AC

4. OWNER OF RECORD:
   PEACOCK HILL ROAD, LLC
   145 OLD TOWN ROAD
   WEARE, NH 03281
   BK. 3829 PG. 2512
5. MAP 7 LOTS 39 AND 39–1 ARE PRIMARILY FORESTED AND CONTAIN NO EXISTING STRUCTURES. THEY ARE PARTIALLY CLEARED AND CONTAIN AN EXISTING GRAVEL DRIVEWAY.
6. SUBJECT PARCEL IS SITUATED IN THE R2 AND R3 DISTRICT. THE FOLLOWING DIMENSIONAL STANDARDS APPLY:

REQUIREMENT	R2	R3
MIN BUILDABLE AREA	2 ACRES	3 ACRES
MIN LOT FRONTAGE	200 FT	250 FT
FRONT SETBACK	40 FT	50 FT
SIDE SETBACK	25 FT	40 FT
REAR SETBACK	25 FT	40 FT
MIN STRUCTURE SETBACK FROM WETLANDS	50 FT	50 FT

7. BOUNDARY INFORMATION SHOWN HEREON IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY THE OFFICE OF J.E. BALENGER LAND SURVEYING, PLLC IN MAY OF 2023.
8. THE PARCELS WILL BE SERVICED WITH ON–SITE WATER SUPPLY AND ON–SITE SEWAGE DISPOSAL SYSTEMS.
9. AN INVESTIGATION OF FEMA'S NATIONAL FLOOD INSURANCE RATE MAPPING FOR MERRIMACK COUNTY, NEW HAMPSHIRE (PANEL NO. 33013C0294E) HAVING AN EFFECTIVE DATE OF APRIL 19, 2010 SUGGESTS THOSE PORTIONS OF THE SUBJECT PARCEL SHOWN ON THIS PLAN IS NOT SITUATED IN A DESIGNATED FLOOD HAZARD AREA HAVING A BASE FLOOD ELEVATION (100–YEAR) ELEVATION OF 396.
10. TOPOGRAPHICAL SURVEY INFORMATION SHOWN HEREON IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM (NVGD) OF 1929.
11. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN HEREON IS APPROXIMATE. KEACH–NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR OR OWNER SHALL CONTACT DIG–SAFE AT 811.
12. SUBJECT TO EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE FOUND DURING RESEARCH AT THE MERRIMACK COUNTY REGISTRY OF DEEDS. OTHER EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE SUBJECT PREMISES MAY DETERMINE.

MAGNETIC

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

EXISTING CONDITIONS PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39–1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

UTILITY NOTE

THE UNDERGROUND UTILITIES DEPICTED HEREON HAVE BEEN DRAWN FROM FIELD SURVEY INFORMATION AND OR PLOTTED FROM EXISTING DRAWINGS. KEACH–NORDSTROM ASSOCIATES, INC. MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, KEACH–NORDSTROM ASSOCIATES, INC. DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. KEACH–NORDSTROM ASSOCIATES, INC. HAS NOT PHYSICALLY LOCATED THE UNDERGROUND PORTIONS OF THE UTILITIES.

REFERENCE PLANS:

1. PLAN ENTITLED "BOUNDARY PLAN PREPARED FOR MURIEL I. LEGER", SCALE: 1"=100', DATED FEB. 14, 1991. PREPARED BY RICHARD D. BARTLETT & ASSCCIATES, INC. AND RECORDED AT M.C.R.D. ON JUNE 26, 1991 AS PLAN NO. 12109.
2. PLAN ENTITLED "SUBDIVISION PLAN PROPERTY OF THEODORE & ELIZABETH YOUNG LOCATED IN WARNER, NEW HAMPSHIRE" SCALE: 1"=100', DATED FEBRUARY 1988. PREPARED BY JEFFREY A. EVANS AND RECORDED AT M.C.R.D. ON JUNE 7, 1988 AS PLAN NO. 10385.
3. PLAN PREPARED BY B.F. HOWARD ASSOCIATES, FOR GILBERT J. TEDSTONE, SCALE: 1"=100', DATED 8/29/77. RECORDED AT M.C.R.D. ON NOVEMBER 14, 1977 AS PLAN NO. 5047.
4. STATE OF NEW HAMPSHIRE R.O.R. PLANS – PROJECT NO. F243(8) FISCAL YEAR 1953, SHEETS 10 THRU 12.

WETLAND CERTIFICATION:

STATE OF NEW HAMPSHIRE — TIMOTHY J. FERWERDA — No. 039 — CERTIFIED WETLAND SCIENTIST

TIMOTHY FERWERDA, CERTIFIED WETLAND SCIENTIST #39 OF FERWERDA MAPPING LLC, OF DEERING, NH, PERFORMED THE WETLAND IDENTIFICATION AND DELINEATION IN DECEMBER, 2022 ACCORDING TO THE CORPS OF ENGINEERING WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.

3/24/25

CERTIFIED WETLAND SCIENTIST — DATE

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE BY THIS OFFICE DURING MAY OF 2023. SAID SURVEY HAS A RELATIVE ERROR OF CLOSURE OF ONE PART IN TEN THOUSAND (1:10,000) OR BETTER.

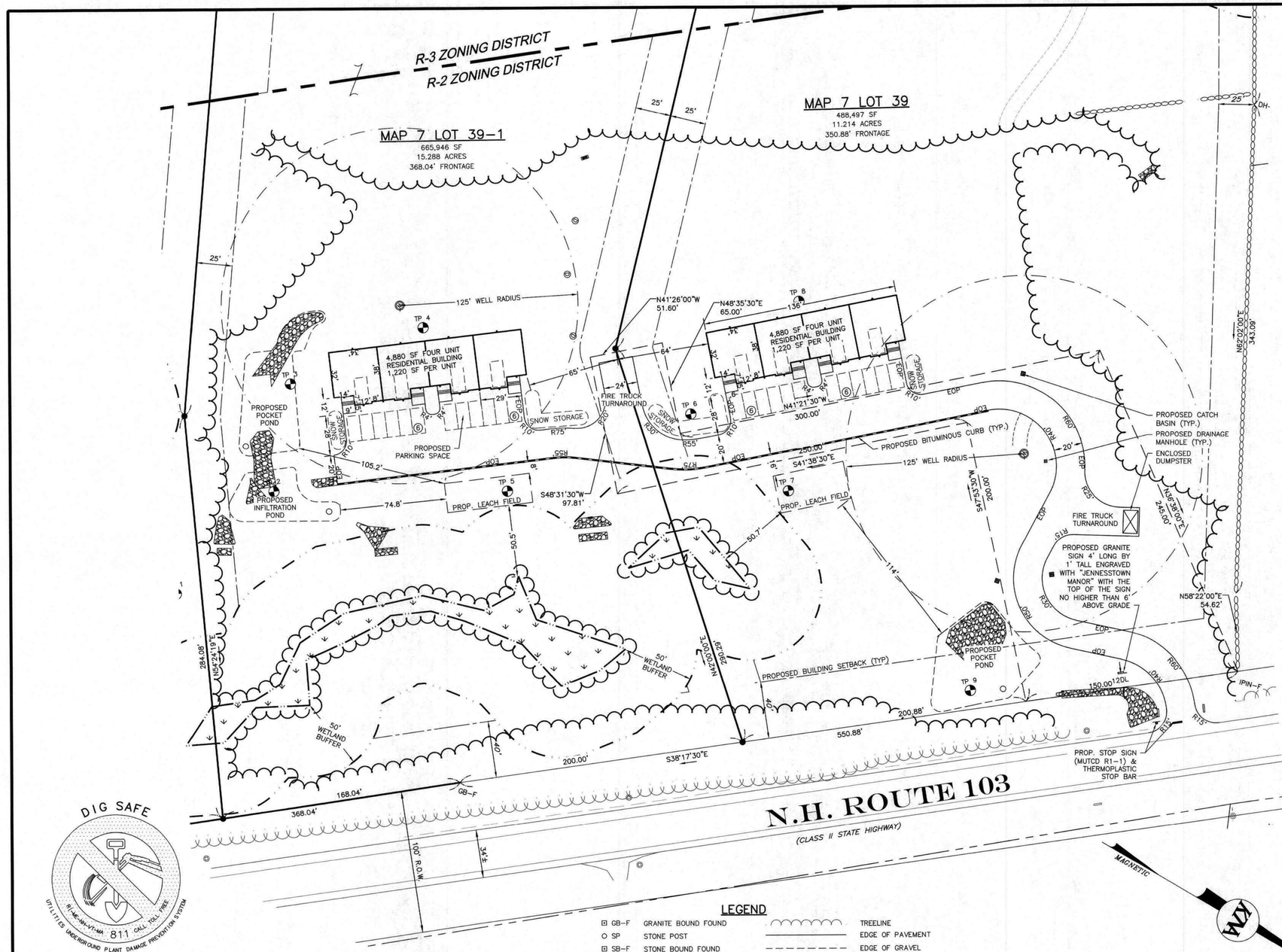
March 21, 25

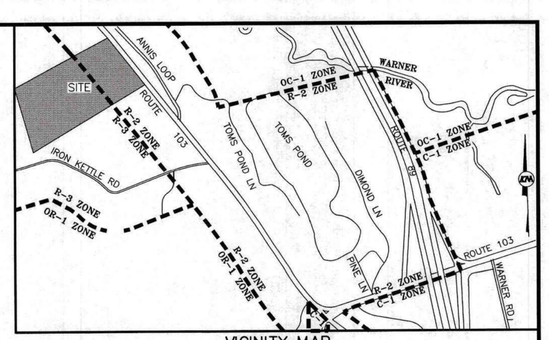
LICENSED LAND SURVEYOR — DATE

STATE OF NEW HAMPSHIRE — No. 794 — LICENSED LAND SURVEYOR — JOSEPH E. BALENGER — 3/21/25

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025	SCALE: 1" = 60'
PROJECT NO: 24–0307–1	SHEET 2 OF 16





VICINITY MAP
SCALE: 1" = 1,000'

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE IMPROVEMENT REQUIRED FOR A 4-UNIT BUILDING ON ASSESSOR'S MAP 7 LOTS 39 AND 39-1, SHOWN HEREON.
2. REFERENCE THESE PARCELS AS LOT 39 ON WARNER TAX MAP 7.
3. MAP 7 LOT 39 IS PRIMARILY FORESTED AND CONTAINS NO EXISTING STRUCTURES. IT IS PARTIALLY CLEARED AND CONTAINS AN EXISTING GRAVEL DRIVEWAY AND RIPRAP DRAINAGE DITCHES. THE EXISTING AREA IS 1,507,247 S.F. OR 34.60 AC.
4. SUBJECT PARCELS ARE SITUATED IN THE R2 AND R3 DISTRICT, BUT CONSTRUCTION IN ITS ENTIRETY WILL TAKE PLACE IN R2. THE FOLLOWING DIMENSIONAL STANDARDS APPLY:

REQUIREMENT	R2	R3
MIN BUILDABLE AREA	2 ACRES	3 ACRES
MIN LOT FRONTAGE	200 FT	250 FT
FRONT SETBACK	40 FT	50 FT
SIDE SETBACK	25 FT	40 FT
REAR SETBACK	25 FT	40 FT
MIN STRUCTURE SETBACK FROM WETLANDS	50 FT	50 FT

5. BUILDABLE AREA REQUIRED
   4 UNITS ON MAP 7 LOT 39
   MINIMUM AREA REQUIRED: 2 ACRES + ($\frac{1}{4}$ x 2 ACRES)/EXTRA UNIT x 3 EXTRA UNITS = 5 ACRES
   MINIMUM AREA PROVIDED: 8.774 ACRES
   4 UNITS ON MAP 7 LOT 39-1
   MINIMUM AREA REQUIRED: 2 ACRES + ($\frac{1}{4}$ x 2 ACRES)/EXTRA UNIT x 3 EXTRA UNITS = 5 ACRES
   MINIMUM AREA PROVIDED: 11.050 ACRES
6. THE PROPOSED PARCELS ARE ALL OVER 5 ACRES IN SIZE AND THEREFORE DO NOT REQUIRE NHDES SUBDIVISION APPROVAL.
7. MAP 7 LOTS 39 AND 39-1 WILL HAVE A SHARED DRIVEWAY.
8. THE PROPOSED PARCELS WILL BE SERVICED WITH ON-SITE WATER SUPPLY AND SEWAGE DISPOSAL SYSTEMS.
9. AN INVESTIGATION OF FEMA'S NATIONAL FLOOD INSURANCE RATE MAPPING FOR MERRIMACK COUNTY, NEW HAMPSHIRE (PANEL NO. 33013C0294E) HAVING AN EFFECTIVE DATE OF APRIL 19, 2010 SUGGESTS THOSE PORTIONS OF THE SUBJECT PARCEL SHOWN ON THIS PLAN IS NOT SITUATED IN A DESIGNATED FLOOD HAZARD AREA HAVING A BASE FLOOD ELEVATION (100-YEAR) ELEVATION OF 396.
10. TOPOGRAPHICAL SURVEY INFORMATION SHOWN HEREON IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM (NVGD) OF 1929.
11. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN HEREON IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR OR OWNER SHALL CONTACT DIG-SAFE AT 811.
12. SUBJECT TO EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE FOUND DURING RESEARCH AT THE MERRIMACK COUNTY REGISTRY OF DEEDS. OTHER EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE SUBJECT PREMISES MAY DETERMINE.
13. THE APPLICANT SHALL OBTAIN ANY OTHER FEDERAL, STATE, OR LOCAL APPROVALS THAT MAY BE REQUIRED.
14. REQUIRED PERMITS:
    A. DOT DRIVEWAY PERMIT
    B. DOT R.O.W. WORK PERMIT
    C. ALTERATION OF TERRAIN
15. EPA NOTICE OF INTENT- REQUIRED 14 DAYS PRIOR TO CONSTRUCTION
16. THE SUBDIVISION REGULATIONS OF THE TOWN OF WARNER ARE A PART OF THIS PLAT, AND APPROVAL OF THE PLAT REQUIRES THE COMPLETION OF ALL THE REQUIREMENTS OF SAID SUBDIVISION REGULATIONS EXCEPTING ONLY ANY RELAXATION OF REQUIREMENTS GRANTED IN WRITING BY THE PLANNING BOARD.
17. PARKING: EACH UNIT HAS 3 PARKING SPACES AND ONE GARAGE SPACE.
18. PER THE TOWN OF WARNER EARTH EXCAVATION REGULATIONS, SECTION IV.E. ALL EXCAVATION ASSOCIATED WITH THIS APPLICATION IS INCIDENTAL TO CONSTRUCTION AND CAN COMMENCE UPON RECEIPT OF LOCAL AND STATE PERMITS AND/OR APPROVALS
19. ALL ELECTRIC AND COMMUNICATIONS SERVICES SHALL BE INSTALLED UNDERGROUND FROM THE NEW POLE TO BE PROVIDED BY THE UTILITY COMPANY.
20. THE PROJECT IS LOCATED WITHIN ½ MILE OF THE WARNER RIVER.
21. THE METHOD OF FIRE PROTECTION AND/OR FIRE SUPPRESSION SHALL BE DESIGNED AND PRESENTED AT THE TIME OF BUILDING PERMIT. THE DESIGN SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION.

DIG SAFE
811 CALL TOLL FREE
RI-CAE-MA-VT-NH
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

LEGEND

⊡ GB-F	GRANITE BOUND FOUND		TREELINE
○ SP	STONE POST		EDGE OF PAVEMENT
⊡ SB-F	STONE BOUND FOUND		EDGE OF GRAVEL
◉ DH-S	DRILL HOLE SET		SETBACK
	BENCHMARK		EASEMENT
	UTILITY POLE		WETLAND
	CATCH BASIN		WETLAND BUFFER
	PROPOSED CATCH BASIN		PROPOSED TREELINE
	PROPOSED OUTLET STRUCTURE		PROPOSED BITUMINOUS CURB
	PROPOSED END SECTION		PROPOSED SWALE
	PROPOSED UTILITY POLE		ABUTTER LINE
			PROPERTY LINE
			PARKING SPACE LINES

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

UTILITY NOTE

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NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

LOT NUMBER	LOT AREA (SF)	LOT AREA (ACRES)	R-2 BUILDABLE AREA (ACRES)	R-3 BUILDABLE AREA (ACRES)	TOTAL BUILDABLE AREA (ACRES)
MAP 7 LOT 39	488,497	11.2140	4.3100	4.4640	8.7740
MAP 7 LOT 39-1	665,946	15.2280	2.5480	8.5020	11.0500

REFERENCE PLANS:

1. PLAN ENTITLED "BOUNDARY PLAN PREPARED FOR MURIEL I. LEGER", SCALE: 1"=100', DATED FEB. 14, 1991. PREPARED BY RICHARD D. BARTLETT & ASSCIATES, INC. AND RECORDED AT M.C.R.D. ON JUNE 26, 1991 AS PLAN NO. 12109.
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4. STATE OF NEW HAMPSHIRE R.O.R. PLANS - PROJECT NO. F243(8) FISCAL YEAR 1953, SHEETS 10 THRU 12.
5. "SUBDIVISION PLAN JENESSTOWN MANOR MAP 7 LOT 39 PREPARED FOR PEACOCK HILL ROAD, LLC", SCALE: 1"=100', DATED MARCH 25, 2025. PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC.

SITE PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

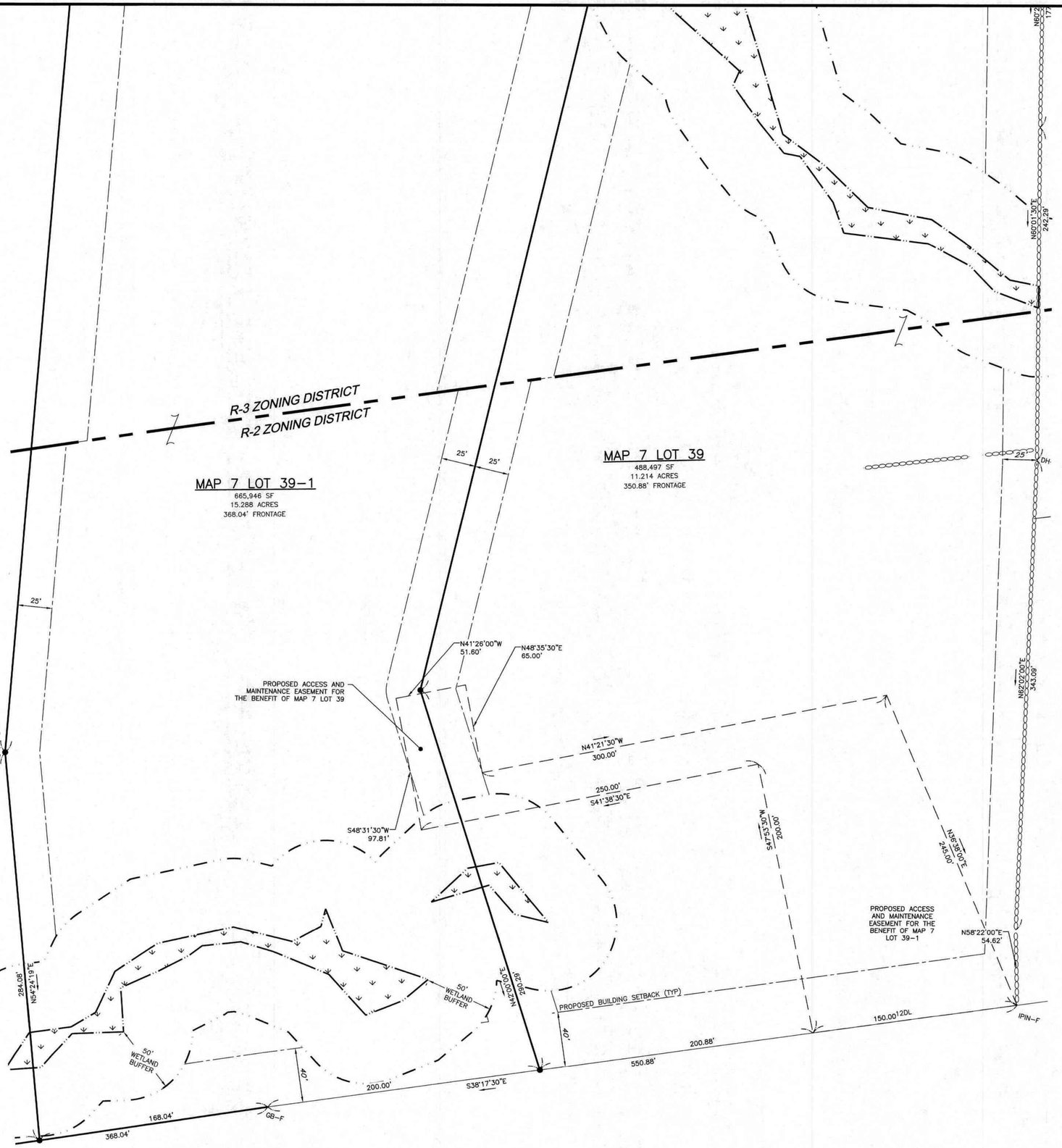
KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE
STEVEN B. KEACH
No. 7659
LICENSED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 | SCALE: 1" = 40'
PROJECT NO: 24-0307-1 | SHEET 3 OF 16



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE PROPOSED EASEMENTS ON ASSESSOR'S MAP 7 LOTS 39 AND 39-1, SHOWN HEREON.
2. REFERENCE THESE PARCELS AS LOT 39 ON WARNER TAX MAP 7.
3. EASEMENTS:
   ACCESS AND MAINTENANCE EASEMENT – ON MAP 7 LOT 39 TO BENEFIT MAP 7 LOT 39-1
   ACCESS AND MAINTENANCE EASEMENT – ON MAP 7 LOT 39-1 TO BENEFIT MAP 7 LOT 39
   DRAINAGE EASEMENT – GENERAL DRAINAGE EASEMENT ON MAP 7 LOTS 39 AND 39-1 FOR MUTUAL BENEFIT

DIG SAFE
811 CALL TOLL FREE
RI-MA-NH-VT-MA
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

LEGEND

⊡ GB-F	GRANITE BOUND FOUND
⊡ SB-F	STONE BOUND FOUND
◉ DH-S	DRILL HOLE SET
	ABUTTER LINE
	PROPERTY LINE
	SETBACK
	EASEMENT
	WETLAND
	WETLAND BUFFER

REFERENCE PLANS:

1. PLAN ENTITLED "BOUNDARY PLAN PREPARED FOR MURIEL I. LEGER", SCALE: 1"=100', DATED FEB. 14, 1991. PREPARED BY RICHARD D. BARTLETT & ASSCOIATES, INC. AND RECORDED AT M.C.R.D. ON JUNE 26, 1991 AS PLAN NO. 12109.
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3. PLAN PREPARED BY B.F. HOWARD ASSOCIATES, FOR GILBERT J. TEDSTONE, SCALE: 1"=100', DATED 8/29/77. RECORDED AT M.C.R.D. ON NOVEMBER 14, 1977 AS PLAN NO. 5047.
4. STATE OF NEW HAMPSHIRE R.O.R. PLANS – PROJECT NO. F243(8) FISCAL YEAR 1953, SHEETS 10 THRU 12.
5. "SUBDIVISION PLAN JENESSTOWN MANOR MAP 7 LOT 39 PREPARED FOR PEACOCK HILL ROAD, LLC", SCALE: 1"=100', DATED MARCH 25, 2025. PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC.

MAGNETIC

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

EASEMENT PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

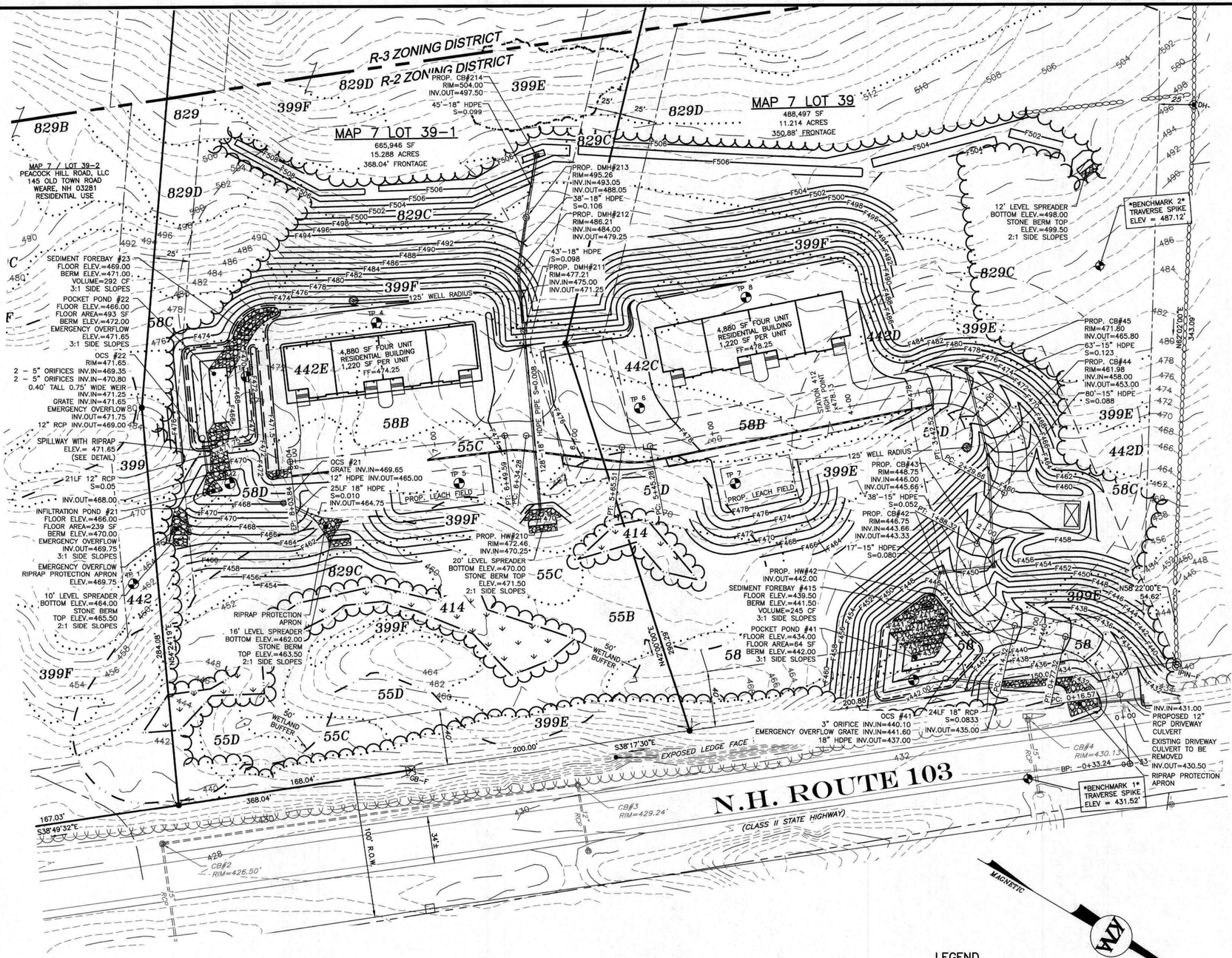
KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE No. 758 LICENSED LAND SURVEYOR
3/27/26

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 | SCALE: 1" = 40'
PROJECT NO: 24-0307-1 | SHEET 4 OF 16



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HISS SYM	HSG
55	HERMON VERY STONY	121	B
442	CHICHESTER	221	B
58	WAUMBEK	321	A
829	WAUMBEK–HERMON ASSOCIATION	321	B
414	MOOSILAUKE POORLY DRAINED	521	C
399	LEDGE OUTCROP	228	D

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED NOVEMBER 23, 2024 AND WAS PREPARED BY LUKE HURLEY, CSS # 095, HURLEY ENVIRONMENTAL AND LAND PLANNING, LLC.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE–WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

STATE OF NEW HAMPSHIRE
LUKE
D
HURLEY
3/20/25
NO. 095
CERTIFIED SOIL SCIENTIST

LOAM & SEED ALL DISTURBED AREAS (TYP.)

CONSTRUCTION NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED GRADING, DRAINAGE AND UTILITY SYSTEMS FOR THIS SITE.
2. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF WARNER, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2016 ARE HEREBY INCORPORATED BY REFERENCE.
3. ALL STUMPS, ROOTS, BRANCHES, BRUSH, WOODS AND OTHER PERISHABLE MATERIAL RESULTING FROM THE CLEARING AND GRUBBING OPERATIONS SHALL BE DISPOSED OF BY AN APPROVED METHOD.
4. DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
5. PARKING LOT CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE REQUIREMENTS.
6. ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED.
7. SEE DETAILS FOR DRAINAGE SPECIFICATIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
9. NO TEST BORINGS WERE COMPLETED OR PROVIDED.

UTILITY NOTE

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NPDES NOTE

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DIG SAFE
811 CALL TOLL FREE
DIAL 811 OR 1-888-DIG-SAFE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

REMOVAL NOTES:

1. ALL STUMPS, ROOTS, BRANCHES, BRUSH, WOODS AND OTHER PERISHABLE MATERIAL RESULTING FROM THE CLEARING AND GRUBBING OPERATIONS SHALL BE DISPOSED OF BY AN APPROVED METHOD.
2. ALL EXISTING PAVEMENT AND GRAVEL WITHIN THE CROSS HATCHED AREA IS TO BE REMOVED DURING THE DEMOLITION PHASE OF THE PROJECT. EXCESS MATERIAL FROM THESE AREAS SHALL BE APPROPRIATELY DISPOSED OF OFFSITE BY AN APPROVED METHOD.
3. THE CONTRACTOR SHALL CONTROL ALL DUST GENERATED DURING THE REMOVAL PHASE AND CONSTRUCTION PHASE SO THAT NO DUST LEAVES THE SITE.
4. ANY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR AT THE SITE CONTRACTORS EXPENSE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
6. DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

LEGEND

- GB–F GRANITE BOUND FOUND
- SP STONE POST
- SB–F STONE BOUND FOUND
- DH–S DRILL HOLE SET
- BENCHMARK
- TP TEST PIT
- CATCH BASIN
- OUTLET STRUCTURE
- END SECTION
- UTILITY POLE
- ABUTTER LINE
- PROPERTY LINE
- EASEMENT
- WETLAND
- WETLAND BUFFER
- TREELINE
- EOP EDGE OF PAVEMENT
- EDGE OF GRAVEL
- 10' CONTOUR
- 2' CONTOUR
- SETBACK
- OHU PROPOSED OVERHEAD UTILITIES
- UGU PROPOSED UNDERGROUND UTILITIES
- PROPOSED DRAINAGE LINE
- PROPOSED TREELINE
- PROPOSED BITUMINOUS CURB
- PROPOSED 2' CONTOUR
- PROPOSED SWALE

GRADING, DRAINAGE, & UTILITIES PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

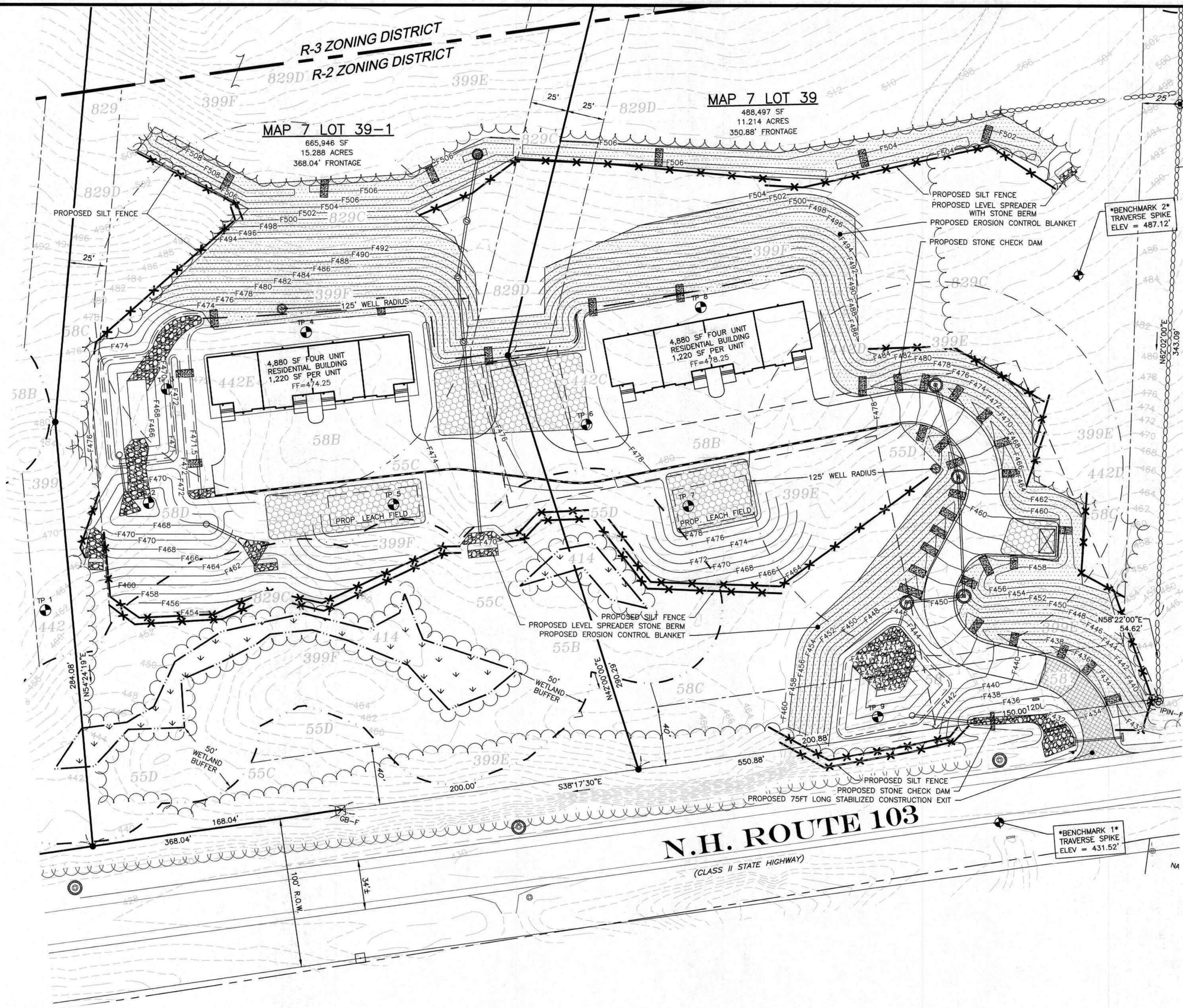
KNA KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

STATE OF NEW HAMPSHIRE
STEVEN R. KEACH
No. 7659
LICENSED
PROFESSIONAL ENGINEER
11/30/25

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 **SCALE:** 1" = 40'
PROJECT NO: 24–0307–1 **SHEET** 5 **OF** 16



GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

LEGEND

- IR-F — IRON ROD FOUND
- RRSPK-F — RAILROAD FOUND
- DH-F — DRILL HOLE FOUND
- BENCHMARK
- UTILITY POLE
- SPOT LIGHT
- WELL
- DOUBLE CATCH BASIN
- FLARED END SECTION
- ABUTTER LINE
- PROPERTY LINE
- DRAINAGE LINE
- TREELINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- 10' CONTOUR
- 2' CONTOUR
- STONEWALL
- SOIL LINE
- SETBACK
- EASEMENT
- RIP-RAP

LOAM & SEED ALL DISTURBED AREAS (TYP.)

EROSION & SEDIMENT CONTROL LEGEND

- PERMANENT OUTLET PROTECTION APRON (RIP RAP)
- PERIMETER CONTROL
- TEMPORARY INLET CONTROLS
- STABILIZED CONSTRUCTION EXIT
- STAGING AND STOCKPILE AREA
- EROSION CONTROL BLANKETS

EROSION CONTROL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE REQUIRED ONSITE TEMPORARY CONSTRUCTION EROSION CONTROL MEASURES AS WELL AS THE PERMANENT EROSION CONTROL MEASURES.
2. ALL MEASURES IN THE PLAN SHALL MEET AS A MINIMUM THE BEST MANAGEMENT PRACTICES SET FORTH IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUEL TITLED "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION," DATED DECEMBER 2010, AS AMENDED FROM TIME TO TIME.
3. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED OR SUPPLEMENTED. THE STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION.
4. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE USING WILDLIFE FRIENDLY EROSION CONTROL MATERIALS TO PREVENT TRAPPING OF ANIMALS.
5. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 5 DAYS SHALL BE STABILIZED.
6. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
7. OFFSITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED NON-EROSIVELY THROUGH THE PROJECT AREA. INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
8. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 5 DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
10. THE TOWN OF WARNER SHALL RESERVE THE RIGHT TO REQUIRE FURTHER EROSION CONTROL PRACTICES DURING CONSTRUCTION SHOULD THEY FIND IT NECESSARY.
11. SNOW ACCUMULATED DURING THE WINTER CONSTRUCTION CONDITIONS SHOULD BE STORED IN THE STAGING & STOCKPILE AREA DETERMINED BY THE CONTRACTOR, SURROUNDED BY SILT FENCE.
12. THE CONTRACTOR SHALL NOT DISCHARGE RUNOFF FROM UNSTABILIZED AREAS OF THE SITE TO INFILTRATION BMPS.
13. PERIODIC INSPECTION AND MAINTENANCE OF THE CULVERTS AND CATCH BASINS SHALL OCCUR. SEE OPERATIONS AND MAINTENANCE PLAN FOR DETAILS.

UTILITY NOTE

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DIG SAFE

811 CALL TOLL FREE

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

MAGNETIC

EROSION CONTROL PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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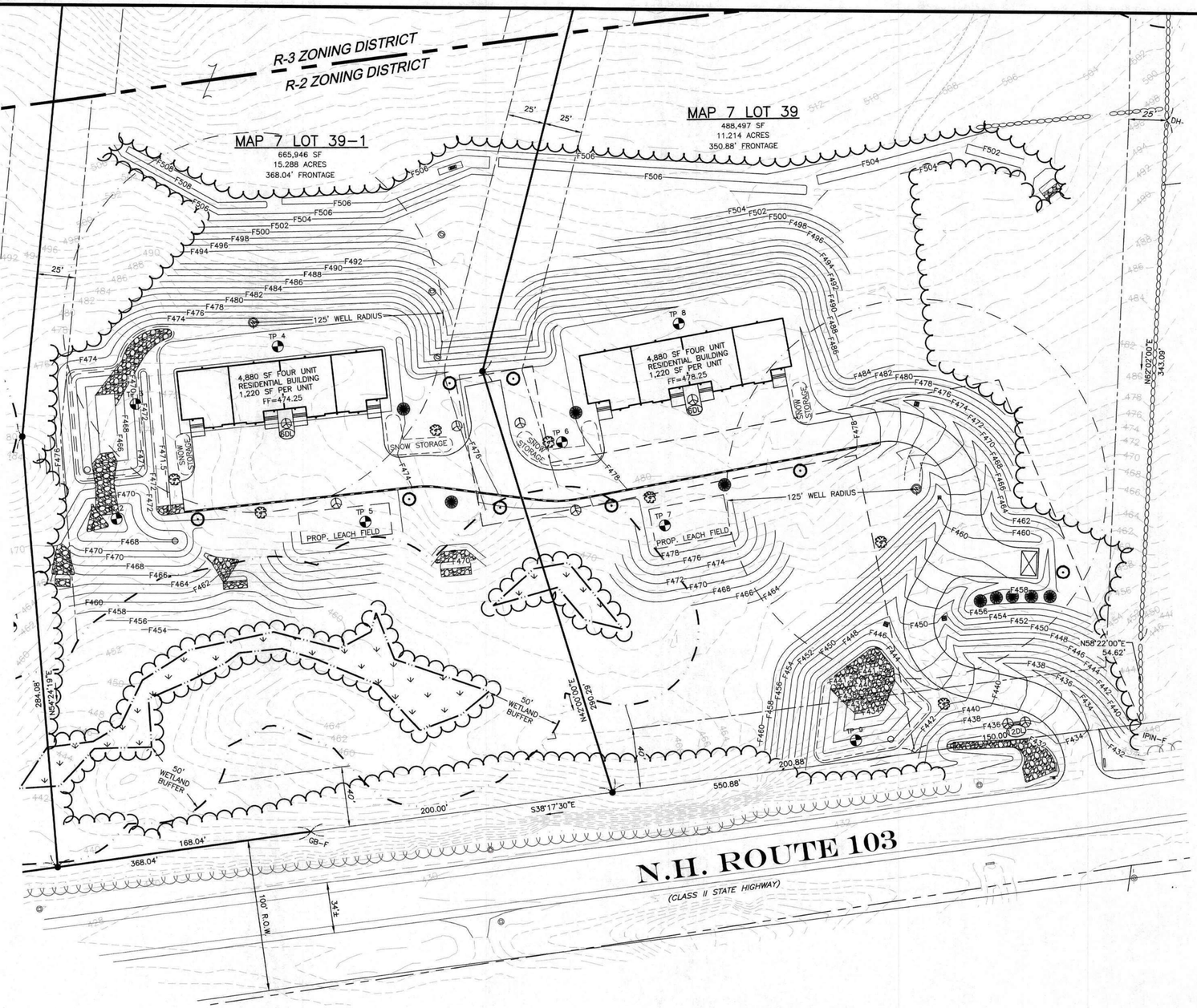
DATE: MARCH 25, 2025 | SCALE: 1" = 40'
PROJECT NO: 24-0307-1 | SHEET 6 OF 16



LANDSCAPE NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE LANDSCAPE WHICH PROVIDES CLIMATIC RELIEF AND AESTHETIC APPEAL.
2. STRIPPED TOPSOIL SHALL BE STOCKPILED AND REUSED ON THE SITE WHERE NEEDED. TOPSOIL SHALL BE A MINIMUM OF 4 INCHES DEEP (MEASURED WHEN CONSOLIDATED). TOPSOIL SHALL BE TREATED IF NEEDED TO PROMOTE HEALTHY GRASS WHEN SEEDED. SCARIFY AND REPEAT SEEDING AS NECESSARY.
3. SITE PREPARATION IS TO BE CONDUCTED WITH MINIMAL DISTURBANCE TO EXISTING VEGETATION WHICH WILL REMAIN.
4. CONSTRUCTION MATERIALS, EQUIPMENT, VEHICLES OR TEMPORARY SOIL DEPOSITS SHALL NOT BE LOCATED WITHIN THE DRIP-LINE OF TREES THAT ARE TO BE PRESERVED.
5. EXISTING TREES WHICH REMAIN SHALL BE PRUNED AND THINNED IF APPROPRIATE PER UNH COOPERATIVE EXTENSION RECOMMENDATIONS TO MAINTAIN HEALTHY APPEARANCES.
6. ALL OPEN SPACE AREAS NOT COVERED WITH PLANTINGS SHALL BE COVERED WITH GRASS OR OTHER VEGETATIVE GROUNDCOVERS, WITH THE EXCEPTION OF PLANTING BEDS WHICH MAY BE MULCHED.
7. WHERE SLOPES OF 33% OR GREATER ARE CREATED OR DISTURBED, THEY SHALL BE COVERED OR PLANTED WITH DEEP ROOTED SPECIES TO PREVENT EROSION.
8. ALL DEAD, DYING, OR DISEASED VEGETATION SHALL BE PROMPTLY REPLACED, BASED ON SEASONAL PLANTING PRACTICES, WITH HEALTHY LIVING PLANTS IN ALL REQUIRED LANDSCAPE AREAS.
9. PROVIDE A MAINTENANCE ESCROW ACCOUNT TO ENSURE THAT ANY PLANTED MATERIALS WILL BE REPLACED IN THE EVENT THEY ARE DAMAGED OR DIE WITHIN ONE YEAR AFTER FINAL COMPLETION OF THE PROJECT.
10. NO PLANTINGS SHALL CONFLICT WITH SNOW STORAGE AREAS, LIGHT FIXTURES AND UNDERGROUND UTILITIES.
11. NO LANDSCAPING CONFLICTS WITH SIGHT DISTANCE.

LANDSCAPE CALCULATION:

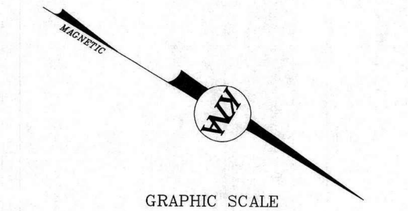
ONE TREE PER 60 FEET OF ACCESS WAY: 800 LF / 60 FT = 13.3 TREES

ONE TREE PER 20 PARKING SPACES: 24 SPACES / 20 SPACES = 1.2 TREES

14.5 = 15 TREES

PROJECT PLANT LIST

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	MATURE HEIGHT	SPREAD
⊙	8	ACER RUBRUM "REDPOINTE"	RED MAPLE	12' B&B	30'-40'	30-40'
❁	7	PRUNUS SEROTINA	BLACK CHERRY	12' B&B	40'-60'	30-40'
✲	8	SYRINGA PATULA "MISS KIM"	MISS KIM LILAC	2'-2.5' B&B	8'-10'	6'-8'
●	9	RHODODENDRON PRINOPHYLLUM	EARLY AZALEA	#7	6'-8"	4'-5'
(#DL)	24	HEMEROCALLIS HYBRIDS	DAYLILY	#3	4'-8'	4'-8'
				#2	2'-3'	3'



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
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LEGEND

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○ SP	STONE POST		EDGE OF PAVEMENT
⊡ SB-F	STONE BOUND FOUND		EDGE OF GRAVEL
◉ DH-S	DRILL HOLE SET		SETBACK
	BENCHMARK		EASEMENT
	UTILITY POLE		WETLAND
	CATCH BASIN		WETLAND BUFFER
	PROPOSED CATCH BASIN		PROPOSED TREELINE
	PROPOSED OUTLET STRUCTURE		PROPOSED BITUMINOUS CURB
	PROPOSED END SECTION		PROPOSED SWALE
	PROPOSED UTILITY POLE		ABUTTER LINE
			PROPERTY LINE

LANDSCAPE PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

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STATE OF NEW HAMPSHIRE
STEVEN R. KEACH
No. 7659
LICENSED
PROFESSIONAL ENGINEER
9/4/25

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
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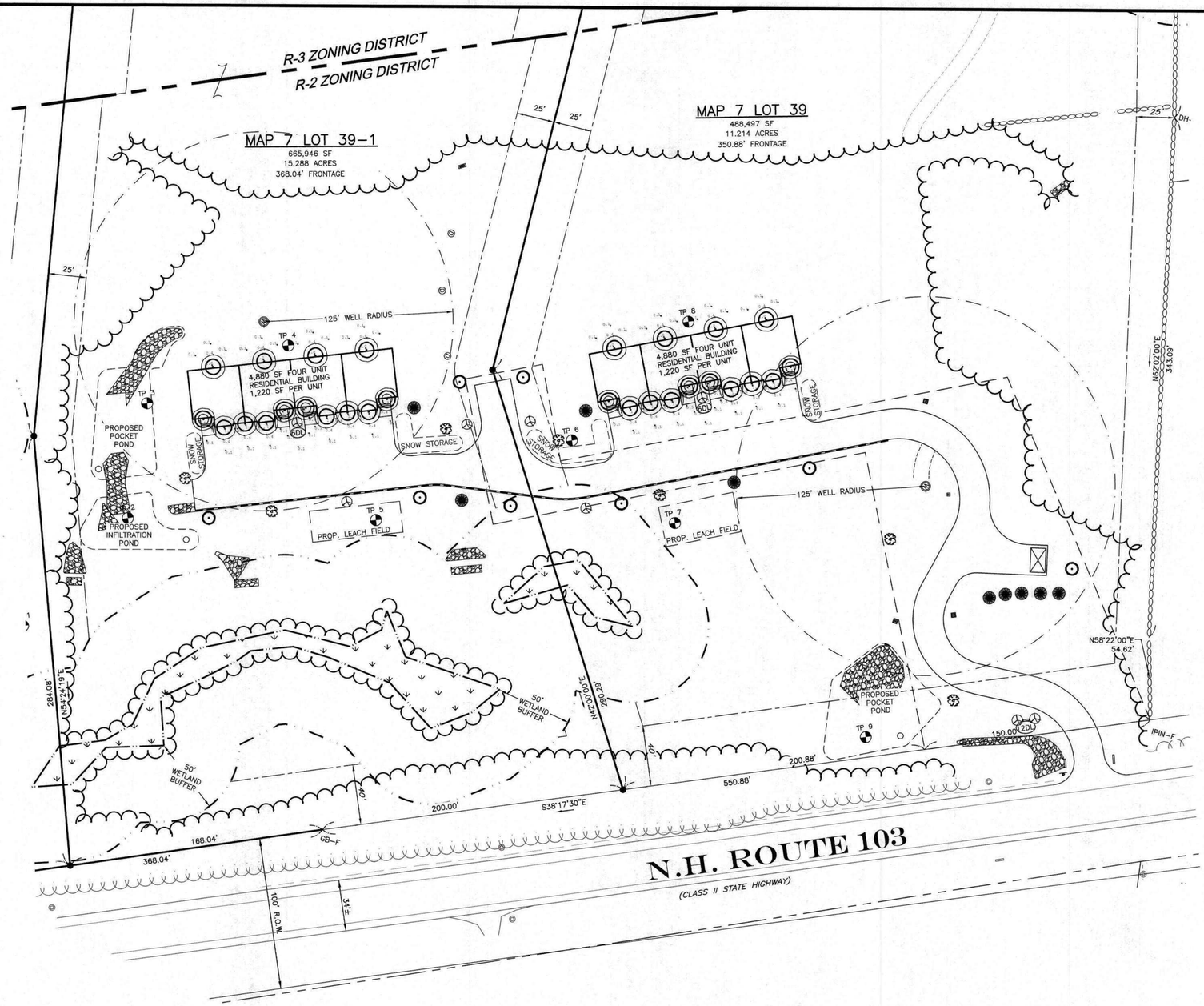
DATE: MARCH 25, 2025 | **SCALE:** 1" = 40'
PROJECT NO: 24-0307-1 | **SHEET** 7 **OF** 16



LIGHTING NOTES:

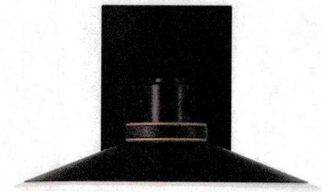
EXTERIOR LIGHTING

1. EXTERIOR LIGHTING SHALL BE DESIGNED TO COORDINATE WITH THE BUILDING ARCHITECTURE AND LANDSCAPING, AND SHOULD CONTRIBUTE TO THE CHARACTER OF THE PROPERTY, NEIGHBORHOOD, AND STREET.
2. THE STYLE OF LIGHTING FIXTURES USED SHALL BE UNIFORM FOR THE ENTIRE SITE.
3. OUTDOOR LIGHTING IS RESTRICTED TO THAT WHICH IS NECESSARY FOR SAFETY AND SECURITY OF THE DEVELOPMENT.
4. WHERE PRACTICAL, EXTERIOR LIGHTING INSTALLATIONS SHALL INCLUDE TIMERS, DIMMERS, MOTION SENSORS, OR PHOTOCELL CONTROLLERS THAT TURN THE LIGHTS OFF DURING DAYLIGHT HOURS OR HOURS WHEN LIGHTING IS NOT NEEDED ELIMINATE UNNEEDED LIGHTING.
5. EXTERIOR LIGHTING INSTALLATIONS SHALL BE DESIGNED TO AVOID HARSH CONTRASTS IN LIGHTING LEVELS.

CONTROL OF GLARE

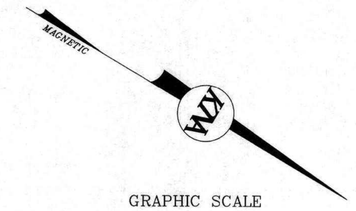
6. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE LIGHTING.
7. LIGHTING SHALL BE POSITIONED TO PREVENT UNDESIRABLE INCIDENTAL ILLUMINATION OF ABUTTING PROPERTIES, THE STREET, AND THE NIGHTTIME SKY.
8. SECURITY, [PARKING LOT, AND SIGN LIGHTING SHALL BE SHIELDED OR OTHERWISE DESIGN THE ENSURE THE LIGHT IS DIRECTED DOWNWARD.
9. TO PREVENT LIGHT POLLUTION AND IMPACTS ON ABUTTING PROPERTIES, THE TOTAL CUTOFF OF LIGHT SHOULD OCCUR WITHIN THE PROPERTY LINES OF THE LOT TO BE DEVELOPED.

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
⊖	28	W	Single	47356-016	EUROFASE



DECKARD, 12IN INTEGRATED
LED OUTDOOR WALL LANTERN

NOT TO SCALE



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
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LIGHTING PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

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STATE OF NEW HAMPSHIRE
STEVEN B. KEACH No. 7859 LICENSED PROFESSIONAL ENGINEER
7-25-2025

REVISIONS			
No.	DATE	DESCRIPTION	BY
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DATE: MARCH 25, 2025 | **SCALE:** 1" = 40'
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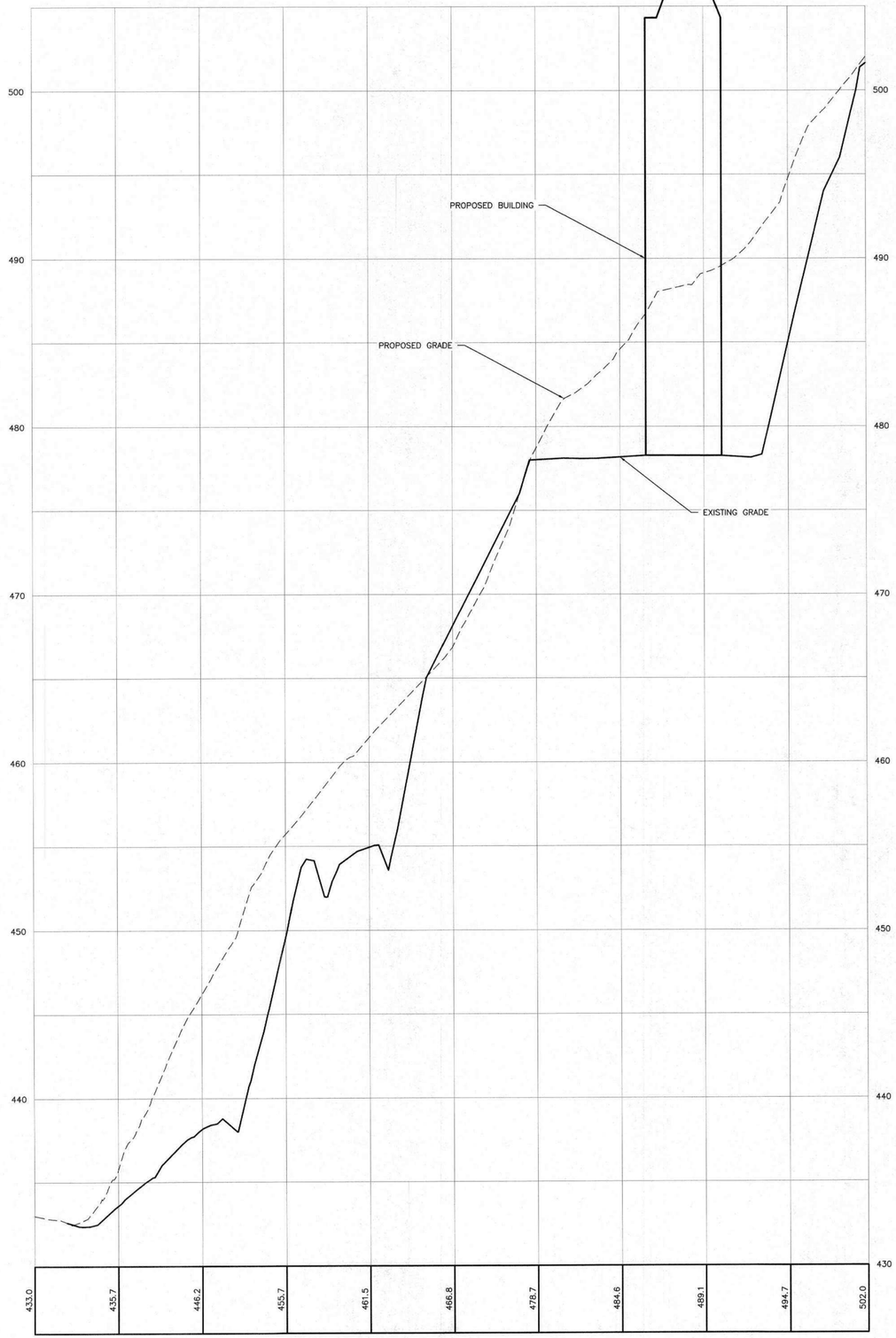
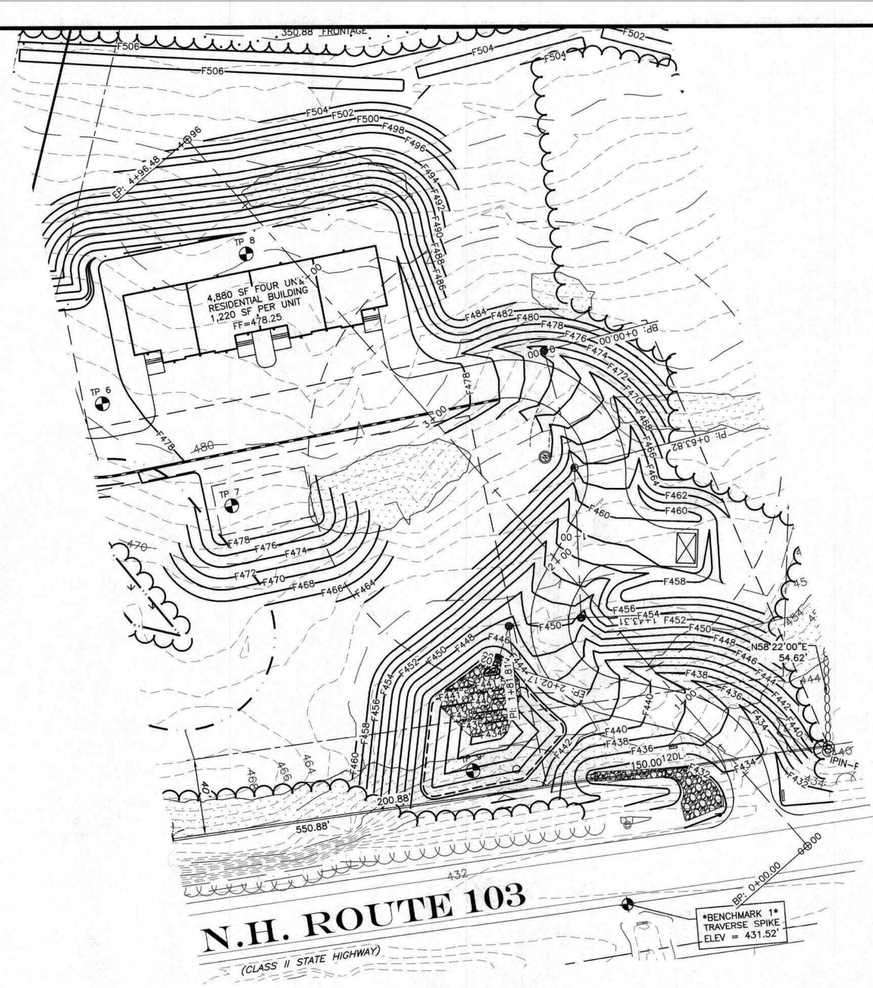


SITE VISIBILITY FROM ROAD PROFILE
SCALE: 1" = 40'(HORIZ.) 1" = 4'(VERT.)



SITE VISIBILITY FROM ROAD PLAN
SCALE: 1" = 40'

GRAPHIC SCALE
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1 inch = 40 ft.

DIG SAFE
811 CALL TOLL FREE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

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NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1–ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

STATE OF NEW HAMPSHIRE
STEVEN B. KEACH
No. 7859
LICENSED PROFESSIONAL ENGINEER
11-03-2025

SITE VISIBILITY FROM ROAD PLAN & PROFILE

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

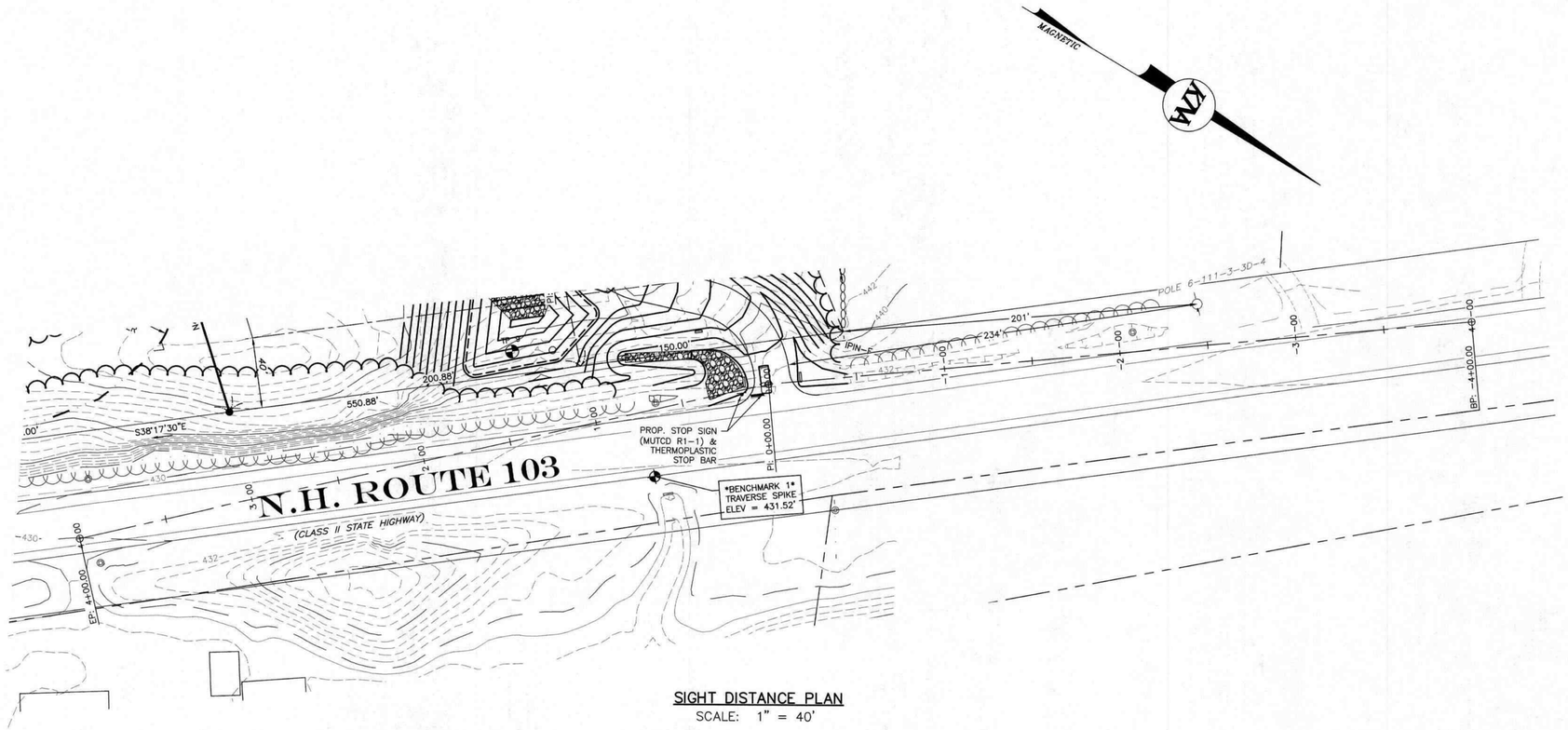
OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

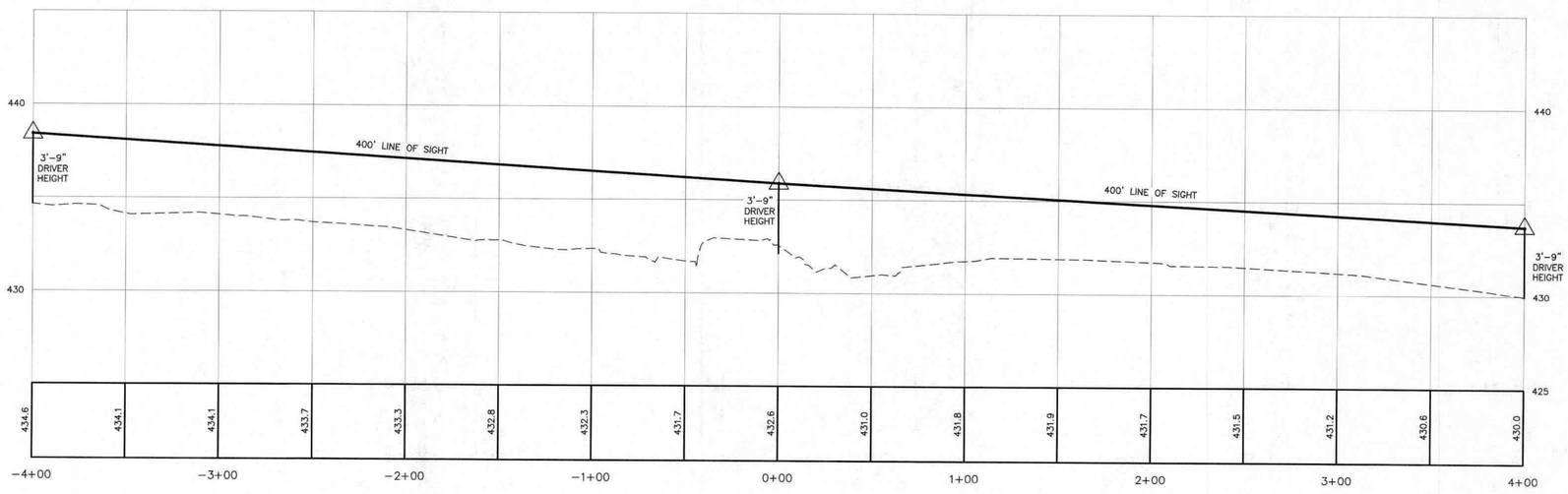
REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 **SCALE:** 1" = 40'
PROJECT NO: 24–0307–1 **SHEET** 9 **OF** 16

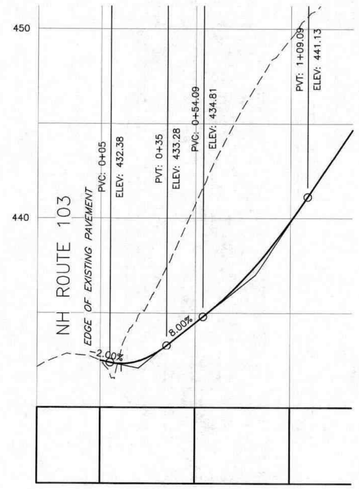


SIGHT DISTANCE PLAN
SCALE: 1" = 40'



SIGHT DISTANCE PROFILE
SCALE: 1" = 40'(HORIZ.)
1" = 4'(VERT.)

NOTES:
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE SIGHT DISTANCE FOR MAP 7 LOT 39 IN WARNER, NEW HAMPSHIRE.
2. THE POSTED SPEED LIMIT ON ROUTE 103 IS 50 MPH.
3. ALL WORK PERFORMED WITHIN THE STATE R.O.W. SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NHDOT STANDARD SPECIFICATIONS AND DETAILS.
4. LANDOWNER SHALL REMOVE VEGETATION AND OBSTRUCTIONS AS NEEDED TO MAINTAIN ALL SEASON SIGHT DISTANCE.



DRIVEWAY PROFILE
SCALE: 1" = 40'(HORIZ.)
1" = 4'(VERT.)

GRAPHIC SCALE

40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

DIG SAFE
811 CALL TOLL FREE
811 UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

UTILITY NOTE

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SITE DISTANCE PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
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WEARE, NH 03281
BK. 3829 PG. 2512

KNA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE
STEVEN B. KEACH No. 7659 LICENSED PROFESSIONAL ENGINEER
11-03-2025

REVISIONS

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1	5/22/25	PER PB AND AOT COMMENTS	AEW
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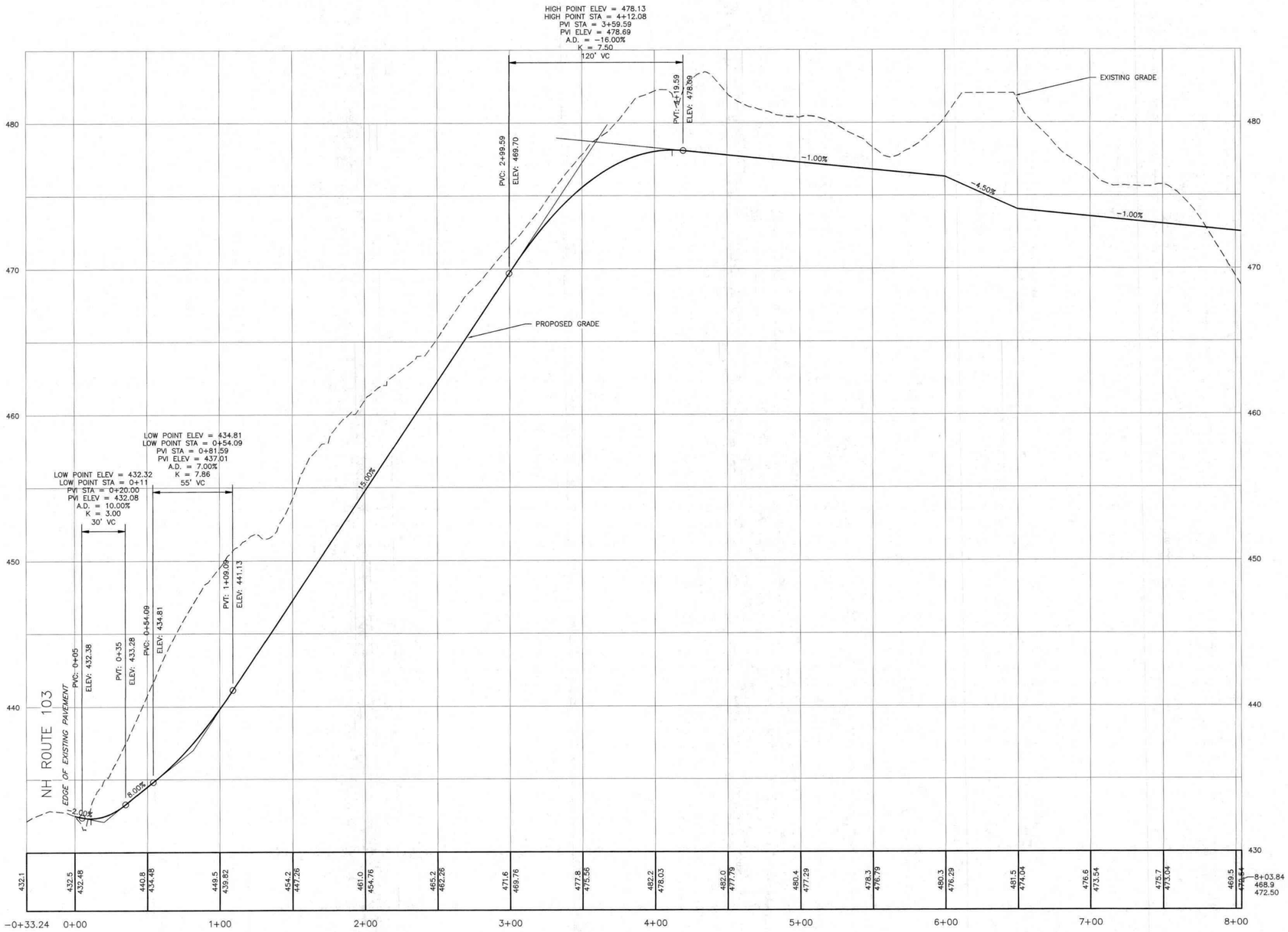
DATE: MARCH 25, 2025 | SCALE: 1" = 40'
PROJECT NO: 24-0307-1 | SHEET 10 OF 16



DRIVEWAY PROFILE
SCALE: 1" = 40'(HORIZ.)
1" = 4'(VERT.)

DIG SAFE
811 CALL TOLL FREE
811.ME.NH.VT.MA
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

UTILITY NOTE

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GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

DRIVEWAY PROFILE PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
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STATE OF NEW HAMPSHIRE
STEVEN B. KEACH No. 7659
LICENSED PROFESSIONAL ENGINEER
11/05/2025

REVISIONS

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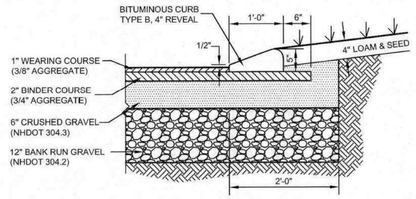
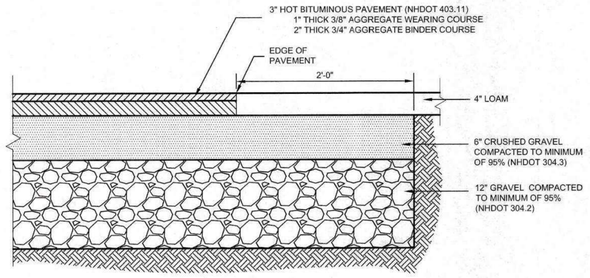
DATE: MARCH 25, 2025 | SCALE: 1" = 40'
PROJECT NO: 24–0307–1 | SHEET 11 OF 16



BITUMINOUS CURB TYPE B DETAIL

NOT TO SCALE

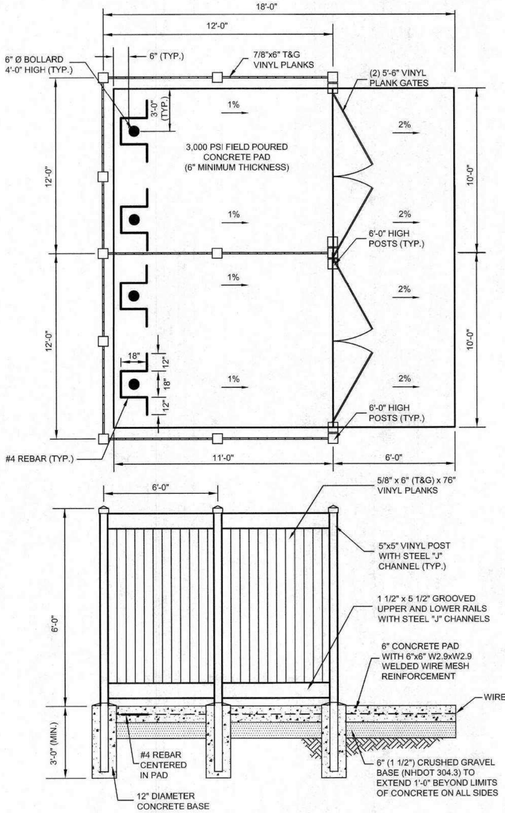
(MARCH 2008)



DRIVEWAY AND PARKING LOT SECTION

(MARCH 2008)

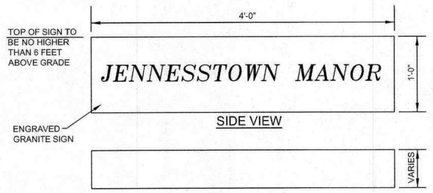
NOT TO SCALE



NOTE:
THIS DUMPSTER ENCLOSURE WILL ACCOMMODATE MOST 2, 4, 6 AND 8 CY DUMPSTERS.

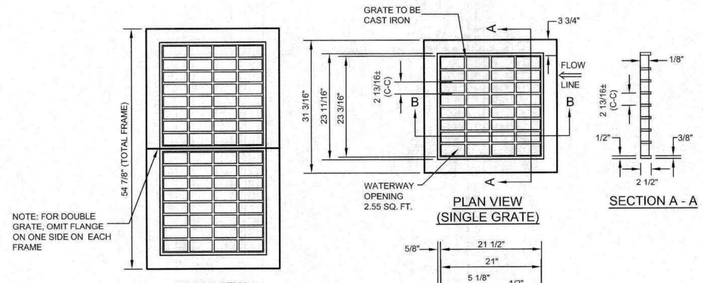
VINYL DOUBLE TRASH ENCLOSURE DETAIL

NOT TO SCALE



GRANITE SIGN DETAIL

NOT TO SCALE



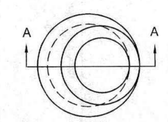
TYPE B FRAME & GRATE DETAIL

NOT TO SCALE

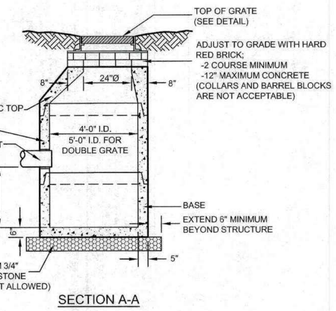
(MARCH 2008)

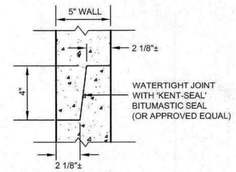
NOTES:

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 PSI). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCH PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
2. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCH PER LINEAR FOOT.
3. RISER OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
4. MATERIALS AND CONSTRUCTION TO NHDOT STANDARDS.



PLAN



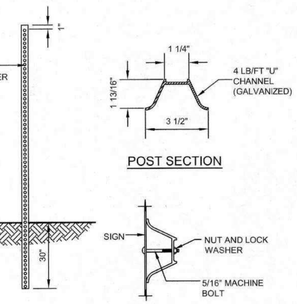


DETAIL OF TONGUE AND GROOVE JOINT

PRECAST REINFORCED CATCH BASIN

NOT TO SCALE

(MAY 2012)

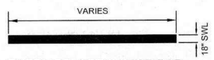


NOTE:
POST SHALL CONFORM TO NHDOT 615.2.5.3

STEEL SIGN POST DETAIL

NOT TO SCALE

(MARCH 2008)



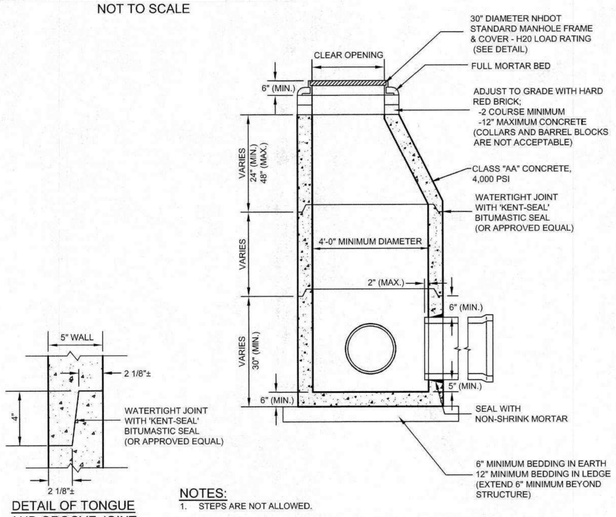
THERMOPLASTIC STOP BAR

R1-1
36" x 36"

STOP SIGN DETAIL

NOT TO SCALE

(MARCH 2008)



DETAIL OF TONGUE AND GROOVE JOINT

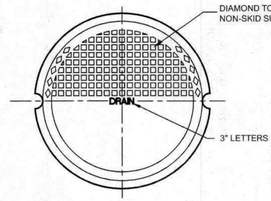
NOTES:

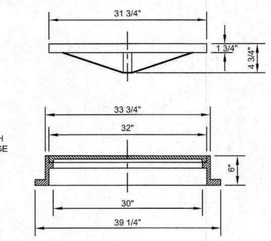
1. STEPS ARE NOT ALLOWED.
2. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4,000 PSI). CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER L.F. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER L.F.
4. MATERIALS AND CONSTRUCTION TO NHDOT STANDARDS.

PRECAST REINFORCED DRAIN MANHOLE DETAIL

NOT TO SCALE

(MARCH 2008)





NOTES:

NEW HAMPSHIRE MAINTAINS A CLEAR OPENING DESIGNATION OF 30" FOR ITS MANHOLE CASTINGS.

FEATURES:

- 3" LETTERING
- COVERS MARKED DRAIN
- NONROCKING COVER
- DIAMOND SURFACE DESIGN

SPECIFICATIONS:

- FULLY MACHINED FRAME AND COVER
- H-20 LOAD RATED
- GRAY CAST IRON MEETS ASTM A48 CLASS 30

DRAIN MANHOLE FRAME AND COVER DETAIL

NOT TO SCALE

(JANUARY 2012)

CONSTRUCTION DETAILS

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

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STATE OF NEW HAMPSHIRE
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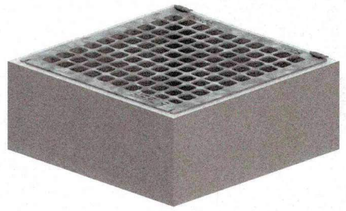
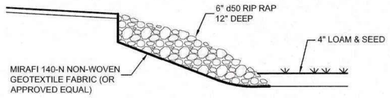
DATE: MARCH 25, 2025 **SCALE:** AS SHOWN
PROJECT NO: 24-0307-1 **SHEET** 12 **OF** 16

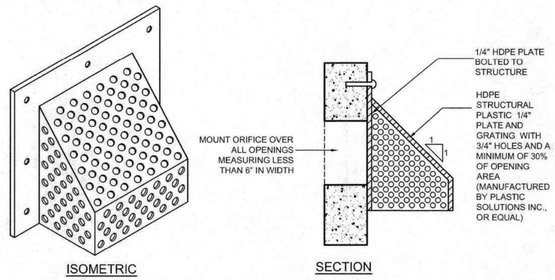


NOTES
1. CONTRACTOR TO USE SQUARE 48" X 48" HAALA GRATE OR APPROVED EQUAL

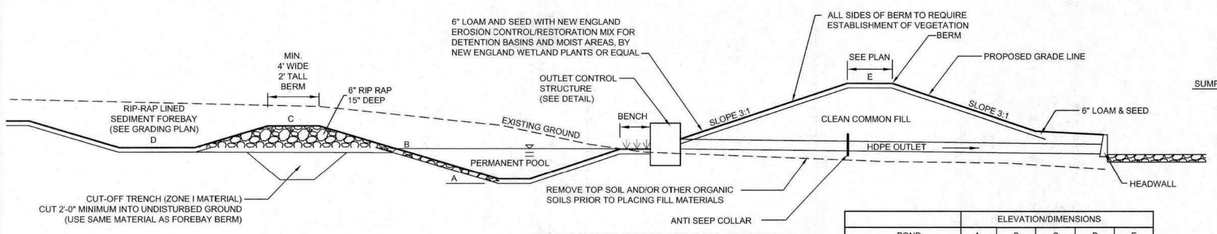
HAALA GRATE
NOT TO SCALE



RIP RAP SPILLWAY DETAIL
NOT TO SCALE
(SEPTEMBER 2010)

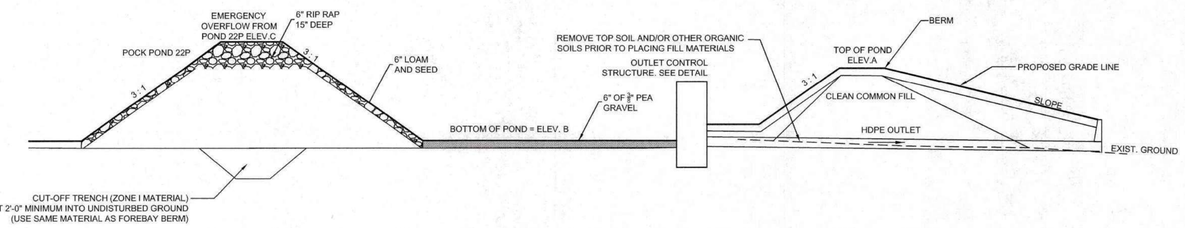


TRASH RACK DETAIL
NOT TO SCALE



POCKET POND CROSS SECTION
NOT TO SCALE

	ELEVATION/DIMENSIONS				
POND	A	B	C	D	E
POCKET POND 22P	466.00	469.35	471.00	469.00	472.00
POCKET POND 41P	434.00	440.10	440.50	438.50	442.00



MAINTENANCE REQUIREMENTS:

SEDIMENT FOREBAYS:
- INSPECT AT LEAST ANNUALLY;
- CONDUCT PERIODIC MOWING OF EMBANKMENTS (GENERALLY TWO TIMES PER YEAR) TO CONTROL GROWTH OF WOODY VEGETATION ON EMBANKMENTS;
- REMOVE DEBRIS FROM OUTLET STRUCTURES AT LEAST ONCE ANNUALLY;
- REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION;
- INSTALL AND MAINTAIN A STAFF GAGE OR OTHER MEASURING DEVICE, TO INDICATE DEPTH OF SEDIMENT ACCUMULATION AND LEVEL AT WHICH CLEAN-OUT IS REQUIRED.

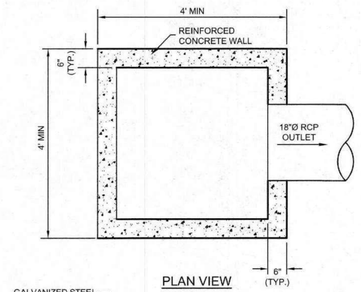
INFILTRATION:
- REMOVAL OF DEBRIS FROM INLET AND OUTLET STRUCTURES;
- REMOVAL OF ACCUMULATED SEDIMENT;
- INSPECTION AND REPAIR OF OUTLET STRUCTURES AND APPURTENANCES;
- INSPECTION OF INFILTRATION COMPONENTS AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION;
- INSPECTION OF PRETREATMENT MEASURES AT LEAST TWICE ANNUALLY, AND REMOVAL OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY;
- PERIODIC MOWING OF EMBANKMENTS;
- REMOVAL OF WOODY VEGETATION FROM EMBANKMENTS;
- INSPECTION AND REPAIR OF EMBANKMENTS AND SPILLWAYS;
- IF AN INFILTRATION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE INFILTRATION FUNCTION, INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE INFILTRATION TRENCH.

TYPICAL INFILTRATION POND SECTION
NOT TO SCALE

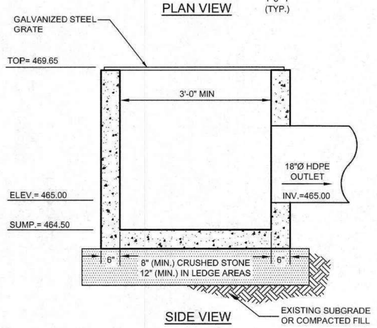
POND NUMBER	ELEV. A	ELEV. B	ELEV. C
21P	470.00	466.00	471.75

CONSTRUCTION PRACTICE REQUIREMENTS:

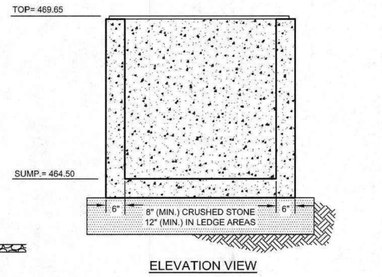
1. STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE INSTALLED BEFORE ROUGH GRADING TO SITE.
2. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.
3. STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
4. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATION WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
5. AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
6. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
7. INFILTRATION BASIN FLOOR PREPARATION WILL INCLUDE GRASS TURF THAT CAN BE INUNDATED FOR UP TO 72 HOURS.
8. INFILTRATION AREAS ARE TO BE PROTECTED FROM OVER-COMPACTION DURING CONSTRUCTION.



PLAN VIEW



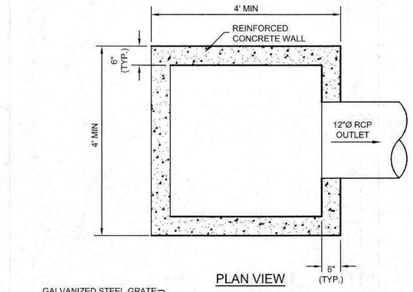
SIDE VIEW



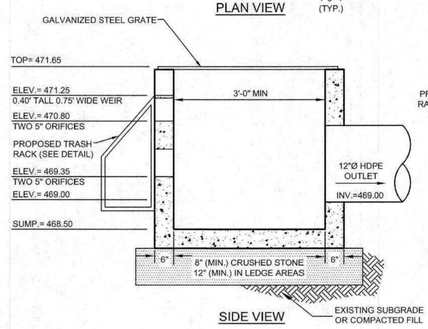
ELEVATION VIEW

1. ALL CONCRETE TO BE 4000 PSI MIN.
2. GALVANIZED STEEL GRATE TO BE BOLTED TO THE TOP OF THE STRUCTURE WITH 1/2" STAINLESS STEEL BOLTS AND THREADED INSERTS.

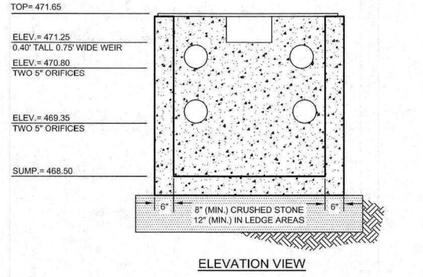
OUTLET CONTROL STRUCTURE #21P DETAIL
NOT TO SCALE



PLAN VIEW



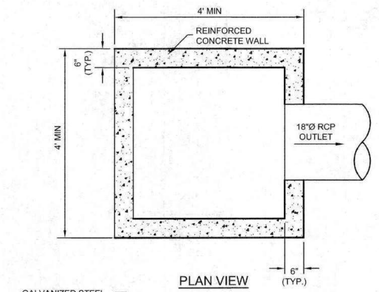
SIDE VIEW



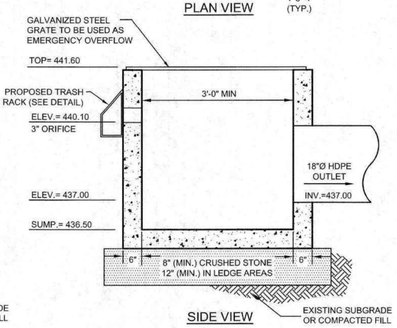
ELEVATION VIEW

1. ALL CONCRETE TO BE 4000 PSI MIN.
2. GALVANIZED STEEL GRATE TO BE BOLTED TO THE TOP OF THE STRUCTURE WITH 1/2" STAINLESS STEEL BOLTS AND THREADED INSERTS.

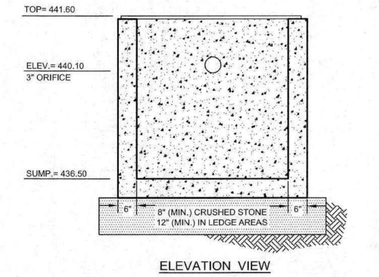
OUTLET CONTROL STRUCTURE #22P DETAIL
NOT TO SCALE



PLAN VIEW



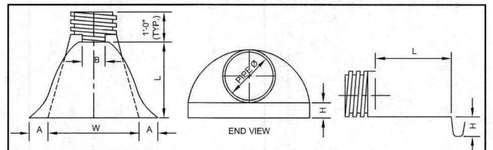
SIDE VIEW



ELEVATION VIEW

1. ALL CONCRETE TO BE 4000 PSI MIN.
2. GALVANIZED STEEL GRATE TO BE BOLTED TO THE TOP OF THE STRUCTURE WITH 1/2" STAINLESS STEEL BOLTS AND THREADED INSERTS.

OUTLET CONTROL STRUCTURE #41P DETAIL
NOT TO SCALE



PIPE DIAMETER	DIMENSIONS, INCHES (MM)					
	PART No.	A (± 1")	B (MAX.)	H (± 1")	L (± 1/2")	W (± 2)
12" & 15"	1210 NP	6.5"	10"	6.5"	25"	29"
18"	1810 NP	7.5"	15"	6.5"	32"	35"
24"	2410 NP	7.5"	18"	6.5"	36"	45"

ADS END SECTION DETAIL
NOT TO SCALE
(MARCH 2008)

CONSTRUCTION DETAILS

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

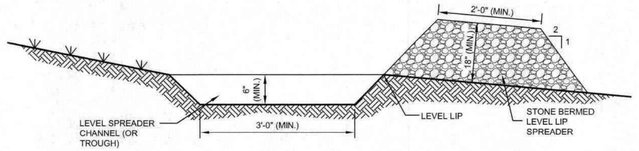
KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE
STEVEN B. KEACH
NO. 7659
LICENSED
PROFESSIONAL ENGINEER

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 **SCALE:** AS SHOWN
PROJECT NO: 24-0307-1 **SHEET** 13 **OF** 16

GRADATION OF STONE FOR LEVEL SPREADER BERM	
SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES
12 INCH	100%
6 INCH	84 - 100%
3 INCH	68 - 83%
1 INCH	42 - 55%
NO. 4	8 - 12%



NOTES:

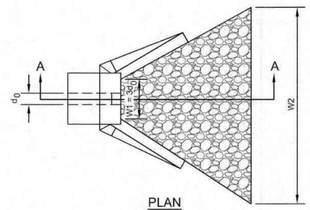
1. CONSTRUCT THE LEVEL SPREADER LIP ON A ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUN-OFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET INTO STABILIZED AREAS. WATER SHOULD NOT RECONCENTRATE IMMEDIATELY BELOW THE SPREADER.
4. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.

MAINTENANCE REQUIREMENTS:

1. INSPECT AT LEAST ONCE ANNUALLY FOR ACCUMULATION OF SEDIMENT AND DEBRIS AND FOR SIGNS OF EROSION WITHIN APPROACH CHANNEL, SPREADER CHANNEL OR DOWN-SLOPE OF THE SPREADER.
2. REMOVE DEBRIS WHENEVER OBSERVED DURING INSPECTION.
3. REMOVE SEDIMENT WHEN ACCUMULATION EXCEEDS 25% OF SPREADER CHANNEL DEPTH.
4. MOW AS REQUIRED BY LANDSCAPE DESIGN. AT A MINIMUM, MOW ANNUALLY TO CONTROL WOODY VEGETATION WITHIN THE SPREADER.
5. SNOW SHOULD NOT BE STORED WITHIN OR DOWN-SLOPE OF THE LEVEL SPREADER OR ITS APPROACH CHANNEL.
6. REPAIR ANY EROSION AND RE-GRADE OR REPLACE STONE BERM MATERIAL, AS WARRANTED BY INSPECTION.
7. RECONSTRUCT THE SPREADER IF DOWN-SLOPE CHANNELIZATION INDICATES THAT THE SPREADER IS NOT LEVEL OR THAT DISCHARGE HAS BECOME CONCENTRATED, AND CORRECTIONS CANNOT BE MADE THROUGH MINOR RE-GRADING.

STONED BERMED LEVEL LIP SPREADER DETAIL

NOT TO SCALE
(APRIL 2010)



PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

NOT TO SCALE
(MARCH 2008)

	ELEVATION/DIMENSIONS				
LOCATION	LENGTH FT	W1 FT	W2 FT	d50 IN.	DEPTH IN.
POCKET POND 41P OUTLET	11	5	16	4	6
INFILTRATION POND 21P OUTLET	13	5	18	5	8
POCKET POND 22P OUTLET	13	3	16	6	9
DMH 211P OUTLET (HW #210)	14	5	19	3	6
	ALL LOCATIONS USE			6	9

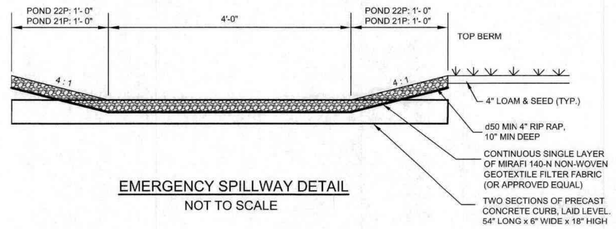
TABLE 7-24 -- RECOMMENDED RIP RAP GRADATION RANGES	
PERCENT OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100%	1.5 TO 2.0 d50
85%	1.3 TO 1.8 d50
50%	1.0 TO 1.5 d50
15%	0.3 TO 0.5 d50

CONSTRUCTION SPECIFICATIONS:

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP. 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.
4. STONE FOR THE RIP RAP 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 SEGREGATION OF THE STONE SIZES.

MAINTENANCE:

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR RAIN EVENT. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

CONSTRUCTION DETAILS

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
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OWNER/APPLICANT:
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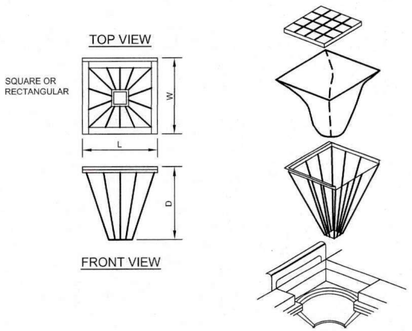
STATE OF NEW HAMPSHIRE — STEVEN B. KEACH — NO. 7659 — LICENSED PROFESSIONAL ENGINEER — 11-03-2025

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 | **SCALE:** AS SHOWN
PROJECT NO: 24-0307-1 | **SHEET** 14 **OF** 16



FILTER BASKET NOTES:

1. INLET BASKETS SHALL BE USED ON ALL CATCH BASINS WITHIN THE PROJECT LIMITS WITH PAVED AREAS. INLET FILTER BASKETS SHALL BE "SILT SAK©" OR APPROVED EQUAL.
2. FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND EXTEND AT LEAST 6 INCHES PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.
3. THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC: POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
   GRAB STRENGTH: 300 LB. MINIMUM IN ANY PRINCIPAL DIRECTION (ASTM D-4632).
   MULLEN BURST STRENGTH: MINIMUM 600 PSI (ASTM D-3786).
4. THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 40 U.S. STANDARD SIEVE AND MINIMUM PERMEABILITY OF 40 GPM/SQ.FT.
5. THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM ENTERING THE DRAINAGE PIPING SYSTEM AND/OR CAUSING SURFACE FLOODING.
6. INLET BASKET SHALL BE MAINTAINED IN PLACE UNTIL ALL PAVING IS COMPLETED AND ALL UNPAVED AREAS HAVE BEEN STABILIZED WITH VEGETATION.

DETAIL FOR INLET FILTER BASKET
NOT TO SCALE

MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE AND SHALL BE DOUBLE NET STRAW BLANKETS BY NORTH AMERICAN GREEN OR APPROVED EQUAL

1. BURY THE TOP END OF THE JUTE STRIPS IN A TRENCH 6 INCHES OR MORE IN DEPTH.
2. TAMP THE TRENCH FULL OF SOIL. SECURE WITH ROW OF STAPLES, 6 INCH SPACING, 4 INCHES DOWN FROM THE TRENCH.
3. OVERLAP: BURY UPPER END OF LOWER STRIP AS IN "A" AND "B". OVERLAP END OF TOP STRIP 4 INCHES AND STAPLE.
4. EROSION STOP: FOLD OF JUTE BURIED IN SILT TRENCH AND TAMPED; DOUBLE ROW OF STAPLES.
5. OVERFLOW

4 INCH OVERLAP OF JUTE STRIPS WHERE TWO OR MORE STRIP WIDTHS ARE REQUIRED (STAPLE ON 18 INCH CENTERS)

STAPLE OUTSIDE EDGE ON 2 INCH CENTERS

TYPICAL STAPLES No. 11 GAUGE WIRE

6" 10" 1-1/2"

EROSION CONTROL BLANKETS - SWALE INSTALLATION
NOT TO SCALE
(MARCH 2008)

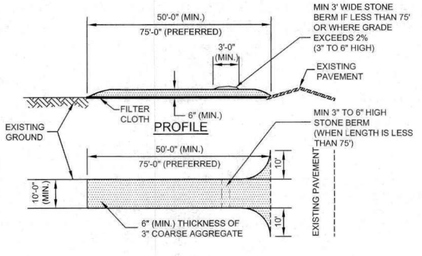
MAINTENANCE:

MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE CRUSHED STONE AND THE EFFECTIVENESS OF THE CRUSHED STONE PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOPDRESSED WITH NEW CRUSHED STONE OR COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.

IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS:

1. STONE FOR A STABILIZED CONSTRUCTION EXIT SHALL BE 3 INCH STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT.
2. THE MINIMUM LENGTH OF THE PAD SHALL BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IS A 3-INCH TO 6-INCH HIGH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED EXIT SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE EXIT SHALL NOT BE LESS THAN THE FULL WIDTH OF THE AREA WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION EXIT SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY . WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.



PLAN VIEW

STABILIZED CONSTRUCTION EXIT DETAIL
NOT TO SCALE
(APRIL 2018)

CONSTRUCTION SEQUENCE

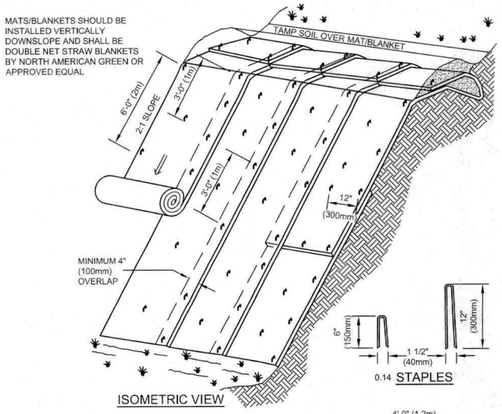
1. FIRST CUT AND CLEAR TREES AND BRUSH ONLY WITHIN DESIGNATED LIMITS OF CLEARING AS NECESSARY TO FACILITATE PROPOSED CONSTRUCTION. ALL TREES, BRANCHES AND OTHER VEGETATIVE MATERIALS SHALL BE PROPERLY DISPOSED OF OFF SITE BY THE CONTRACTOR. THIS PROJECT IS MANAGED TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
2. PRIOR TO COMMENCEMENT OF ANY EARTHMOVING OPERATIONS, ALL APPLICABLE TEMPORARY EROSION CONTROL MEASURES, INCLUDING SPECIFIED PERIMETER SILTATION FENCING AND STABILIZED CONSTRUCTION EXIT SHALL BE IN PLACE AS SHOWN ON THE PROJECT PLANS.
3. COMPLETE GRUBBING OPERATIONS. ALL STUMPS AND SIMILAR ORGANIC DEBRIS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR. NATIVE ORGANIC SOIL MATERIALS SUITABLE FOR USE AS TOPSOIL SHALL BE STOCKPILED WITHIN AREAS OUT OF THE WAY OF OTHER CONSTRUCTIONS ACTIVITIES AND DRAINAGE FLOW. STOCKPILES SHALL BE TEMPORARILY SEEDED WITH WINTER RYE AND BE SURROUNDED WITH HAY BALES AND/OR FABRIC SILTATION FENCE IN ORDER TO PREVENT LOSS DUE TO EROSION.
4. BEGIN EARTHMOVING OPERATIONS, COMMENCING WITH WORK NEEDED TO BALANCE SITE AND FACILITATE BUILDING FOUNDATION AND RETAINING WALL CONSTRUCTION. PERMANENT DOWNSLOPE WORK SHALL BE PROTECTED FROM UPGRADIENT STORMWATER FLOW BY THE CONSTRUCTION OF TEMPORARY EARTHEN DIKES OR EXCAVATED SWALES.
5. ONCE BUILDING FOUNDATION WORK IS UNDERWAY, CONTINUE EARTHMOVING OPERATIONS UNTIL DESIGN SUBGRADE IS ACHIEVED.
6. INSTALL DRAINAGE SWALE SYSTEMS AND OTHER UTILITIES WORKING FROM LOW TO HIGH. INCOMPLETE WORK SHALL BE PROTECTED FROM SILTATION BY THE USE OF SILTATION BARRIERS AROUND SWALES UNTIL THE SITE HAS BECOME FULLY STABILIZED.
7. PLACE GRAVEL AND CRUSHED GRAVEL OVER PROPOSED DRIVEWAY, WALKS AND PARKING AREAS AND COMPACT IN SPECIFIED LIFT THICKNESS.
8. COMPLETE EXCAVATION/STABILIZATION GRADING ACTIVITIES. WHEN COMPLETE, IMMEDIATELY BEGIN TOPSOILING PROPOSED TURF AREAS USING STOCKPILED LOAM SUPPLEMENTED WITH BORROW LOAM, IF NECESSARY, TO LEAVE A THICKNESS OF 4 INCHES OF FRIABLE LOAM.
9. FINE GRADE ALL FUTURE TURF AREAS AND HYDROSEED WITH THE SPECIFIED SEED MIXTURE IMMEDIATELY AFTER FINE GRADING IS COMPLETED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
10. INSTALL THE BINDER COURSE OF PAVEMENT OVER ALL DESIGNATED AREAS.
11. CONTINUE TO MONITOR AND RECTIFY MINOR SITE AND SLOPE EROSION UNTIL ENTIRE SITE APPEARS TO BE COMPLETELY STABILIZED AND VEGETATED WITH A HEALTHY STAND OF TURF OR GROUND COVER. MAINTAIN SPECIFIED SILTATION/EROSION CONTROL MEASURES THROUGH ONE WINTER.
12. INSTALL THE SPECIFIED WEARING COURSE OF PAVEMENT OVER THE BINDER COURSE.
13. COMPLETE INSTALLATION OF LANDSCAPING, SIGNAGE AND OTHER SITE AMENITIES.

EROSION CONTROL NOTES

1. EXPOSED EARTHWORK SHALL BE CONFINED TO AS LIMITED AN AREA AS IS PRACTICAL AT ANY GIVEN TIME THROUGHOUT THE CONSTRUCTION SEQUENCE. AT NO TIME SHALL MORE THAN FIVE (5) ACRES OF SITE AREA BE IN AN UNSTABLE CONDITION. NO GIVEN AREA OF THE SITE SHALL BE LEFT IN AN UNSTABILIZED CONDITION FOR A PERIOD OF TIME EXCEEDING THIRTY (30) CALENDAR DAYS.
2. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH PROJECT PLANS. IN ADDITION, SIMILAR MEASURES SHALL BE INSTALLED WHERE AND WHEN THE FIELD CONDITION, OR FIELD OPERATION OF THE INDIVIDUAL SITE CONTRACTOR, MAY WARRANT. ALL TEMPORARY EROSION CONTROL MEASURES USED SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OF RAINFALL OR MORE. THEY SHALL BE CLEANED AND MAINTAINED AND OTHERWISE KEPT IN AN EFFECTIVE OPERATING MANNER THROUGHOUT THE CONSTRUCTION PERIOD.
3. ALL DISTURBED AREAS DESIGNATED TO BE TURF, SHALL RECEIVE A MINIMUM APPLICATION OF 4 INCHES OF LOAM (COMPACTED THICKNESS), PRIOR TO FINAL SEEDING AND MULCHING.
4. ALL SWALES AND DITCHLINES SHALL BE PERIODICALLY CLEANED OF DEPOSITED SEDIMENT SO AS TO MAINTAIN AN EFFECTIVE GRADE AND CROSS SECTION. ALL SWALES AND DITCHLINES SHALL BE FULLY STABILIZED PRIOR TO HAVING STORMWATER DIRECTED TOWARDS THEM.
5. IN THE EVENT THAT, DURING CONSTRUCTION OF ANY PORTION OF THIS PROJECT, A WINTER SHUTDOWN IS NECESSARY, THE CONTRACTOR SHALL STABILIZE ALL INCOMPLETE WORK AND PROVIDE FOR SUITABLE METHODS OF DIVERTING RUNOFF IN ORDER TO ELIMINATE SHEET FLOW ACROSS FROZEN SURFACES.
6. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS ARE 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 RIP RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
7. DUST SHALL BE CONTROLLED BY THE USE OF WATER AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD, IN ACCORDANCE WITH ENV-A 1000.
8. IN NO WAY ARE THOSE TEMPORARY EROSION CONTROL MEASURES INDICATED ON THESE PLANS TO BE CONSIDERED ALL INCLUSIVE. THE CONTRACTOR SHALL USE JUDGEMENT IN INSTALLING SUPPLEMENTARY EROSION CONTROL MEASURES WHERE AND WHEN SPECIFIC SITE CONDITIONS AND/OR CONSTRUCTION METHODOLOGIES MAY WARRANT.
9. AREAS HAVING FINISH GRADE SLOPES OF 3 : 1 OR STEEPER, SHALL BE STABILIZED WITH JUTE MATTING WHEN AND IF FIELD CONDITIONS WARRANT, OR IF SO ORDERED. JUTE MATTING INSTALLED TO CONFORM WITH THE RECOMMENDED BEST MANAGEMENT PRACTICE OUTLINED IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION."
10. ALL DETENTION PONDS AND TREATMENT SWALES SHALL BE CONSTRUCTED PRIOR TO ANY EARTH MOVING ACTIVITIES THAT WILL INFLUENCE STORMWATER RUNOFF.
11. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

WINTER CONSTRUCTION NOTES:

1. ALL PROPOSED POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 4:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT 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.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES 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.
4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS ARE 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 RIP RAP HAS BEEN INSTALLED; OR
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.



CROSS-SECTION

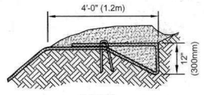
STONE CHECK DAM DETAIL
NOT TO SCALE

L = THE DISTANCE SUCH THAT POINTS A AND B ARE EQUAL ELEVATION, OR FOR FLAT SLOPES L = 75' MAXIMUM

STONE CHECK DAM SPACING DETAIL
NOT TO SCALE

MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE AND SHALL BE DOUBLE NET STRAW BLANKETS BY NORTH AMERICAN GREEN OR APPROVED EQUAL

ISOMETRIC VIEW



BERM

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. UTILIZE "WILDLIFE FRIENDLY" MATTING CONSISTING OF COCO OR JUTE, AND LACKING PLASTIC MESH TO PROTECT SNAKES. WELDED PLASTIC OR "BIODEGRADABLE PLASTIC" NETTING OR THREAD (E.G., POLYPROPYLENE) SHOULD NOT BE USED.

EROSION CONTROL BLANKETS - SLOPE INSTALLATION
NOT TO SCALE

PERSPECTIVE VIEW

SECTION

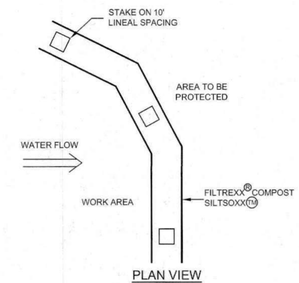
SILT FENCE DETAIL
NOT TO SCALE
(MARCH 2008)

CONSTRUCTION SPECIFICATIONS:

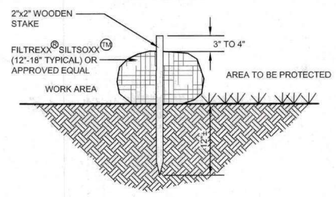
1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES.
2. THE FABRIC SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND AND THE SOIL COMPACTED OVER THE EMBEDDED FABRIC.
3. WOVEN WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIE OR STAPLES WHERE NOTED OR AS DIRECTED BY DESIGN ENGINEER.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP, MIDSECTION AND BOTTOM.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
6. FENCE POSTS SHALL BE A MINIMUM OF 36 INCHES LONG AND DRIVEN A MINIMUM OF 16 INCHES INTO THE GROUND. WOOD POSTS SHALL BE OF SOUND QUALITY HARDWOOD AND SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQUARE INCHES.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.



PLAN VIEW



SECTION VIEW

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

FILTREXX® SILTSOXX™ DETAIL
NOT TO SCALE

CONSTRUCTION DETAILS

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

STATE OF NEW HAMPSHIRE — STEVEN B. KEACH No. 7659 — LICENSED PROFESSIONAL ENGINEER — 11-25-2025

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 — SCALE: AS SHOWN
PROJECT NO: 24-0307-1 — SHEET 15 OF 16

TP #1

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
12"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, COBBLES, ROOTS
16"	10YR 5/3, GRANULAR, FRIABLE, SAND, FEW ROOTS
55" E.S.H.W.T.	10 YR 4/2, FIRM, SAND, W/ REDOX FEATURES
90" BOTTOM OF HOLE	

TP #2

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
10"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, COBBLES, ROOTS
32" E.S.H.W.T.	10YR 6/2, SAND, STONES
84"	10 YR 4/2, FIRM, SILTY FINE SAND, W/ REDOX FEATURES
144" BOTTOM OF HOLE	

TP #3

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
10"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, COBBLES, ROOTS
32" E.S.H.W.T.	10YR 6/2, SAND, STONES
84"	10 YR 4/2, FIRM, SILTY FINE SAND, W/ REDOX FEATURES
144" BOTTOM OF HOLE	

TP #4

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
8"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, ROOTS
16"	10YR 5/3, GRANULAR, FRIABLE, SAND
30" BOTTOM OF HOLE	LEDGE

TP #5

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
10"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, ROOTS
24"	10YR 6/2, GRANULAR, FRIABLE, SAND ROOTS TO 48"
96" BOTTOM OF HOLE	

TP #6

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: 80"

0"	FOREST MAT
10"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, ROOTS
32" E.S.H.W.T.	10YR 6/2, GRANULAR, FRIABLE, SAND ROOTS TO 48"
108" BOTTOM OF HOLE	

TP #7

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: NONE

0"	FOREST MAT
10"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, COBBLES, ROOTS
24"	10YR 6/2, SAND, STONES
72" E.S.H.W.T.	10 YR 6/1, FIRM, SILTY FINE SAND, W/ REDOX FEATURES
108" BOTTOM OF HOLE	

TP #8

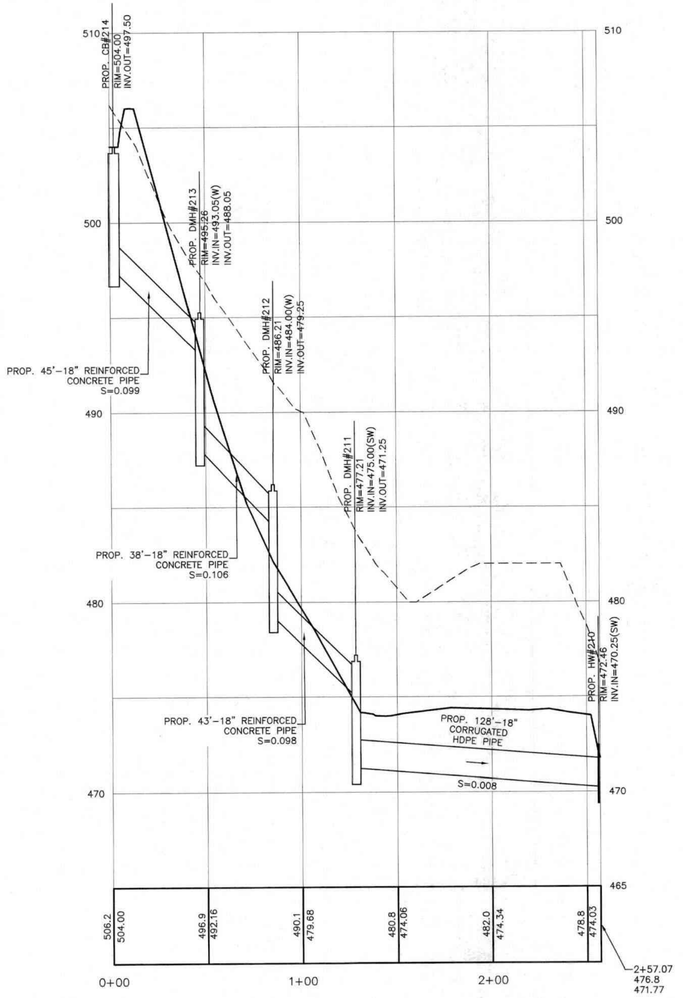
LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: 60"

0"	FOREST MAT
12"	10YR 6/2, GRANULAR, FRIABLE, SAND
60" BOTTOM OF HOLE	LEDGE

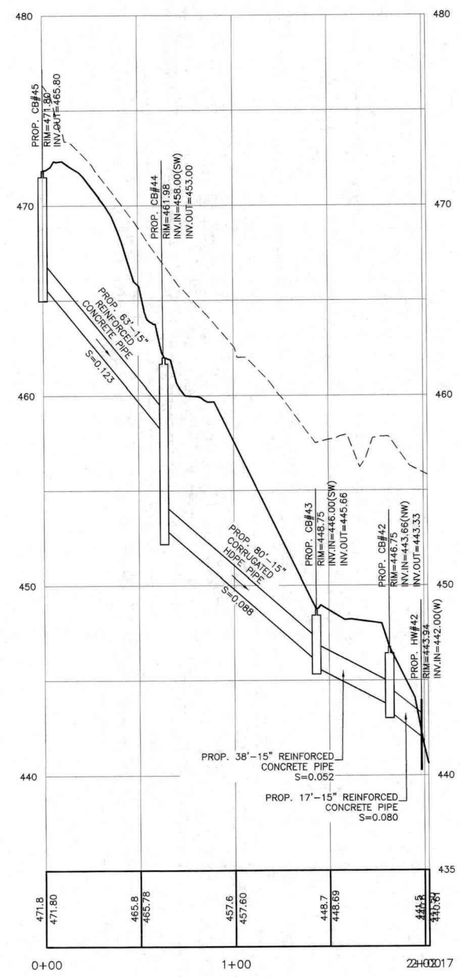
TP #9

LOGGED BY GPC
PERC TEST @ 20"
DATE: 2-3-2024
PERC RATE: 8 MIN./INCH
IMPERVIOUS LAYER: NONE
WATER ENCOUNTERED: 60"

0"	FOREST MAT
6"	7.5YR 4/6, GRANULAR, FRIABLE LOAMY SAND, COBBLES, ROOTS
15" E.S.H.W.T.	10YR 6/2, SAND, STONES
96"	10 YR 6/1, FIRM, SILTY FINE SAND, W/ REDOX FEATURES
240" BOTTOM OF HOLE	



214P TO 211P PIPE NETWORK PROFILE
SCALE: 1" = 40' (HORZ.)
1" = 4' (VERT.)



44P TO 41P PIPE NETWORK PROFILE
SCALE: 1" = 40' (HORZ.)
1" = 4' (VERT.)

CONSTRUCTION DETAILS

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
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KNA KEACH-NORDSTROM ASSOCIATES, INC.
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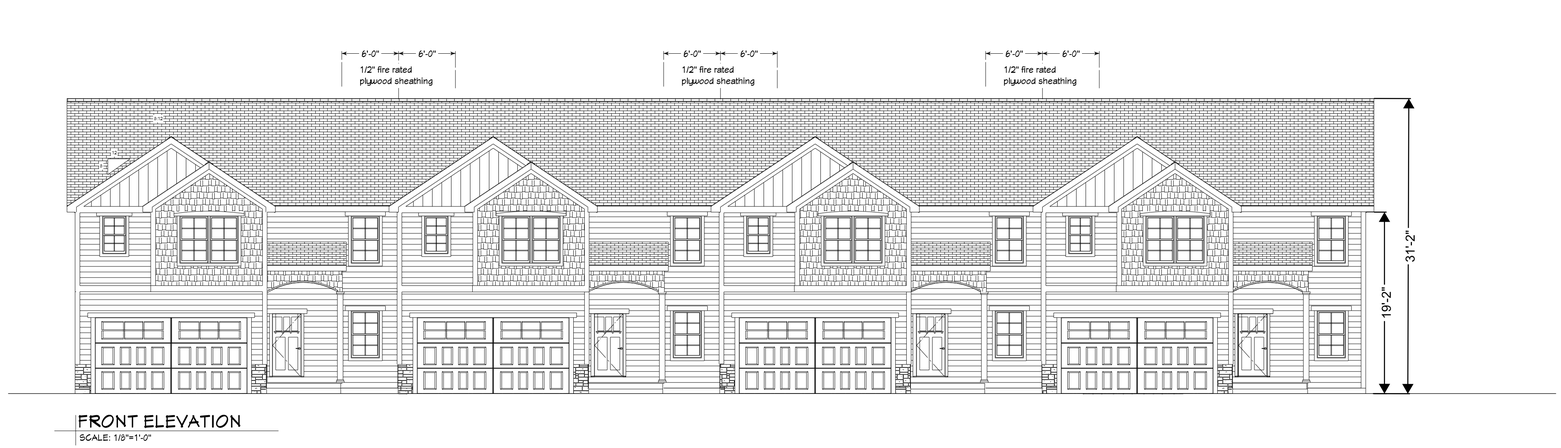
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

STATE OF NEW HAMPSHIRE — STEVEN J. KEACH NO. 7659 LICENSED PROFESSIONAL ENGINEER — 11-25-25

DATE: MARCH 25, 2025 **SCALE:** AS SHOWN
PROJECT NO: 24-0307-1 **SHEET** 16 **OF** 16



FRONT ELEVATION
SCALE: 1/8"=1'-0"

RIGHT SIDE ELEVATION
SCALE: 1/8"=1'-0"

LEFT SIDE ELEVATION
SCALE: 1/8"=1'-0"

REAR ELEVATION
SCALE: 1/8"=1'-0"

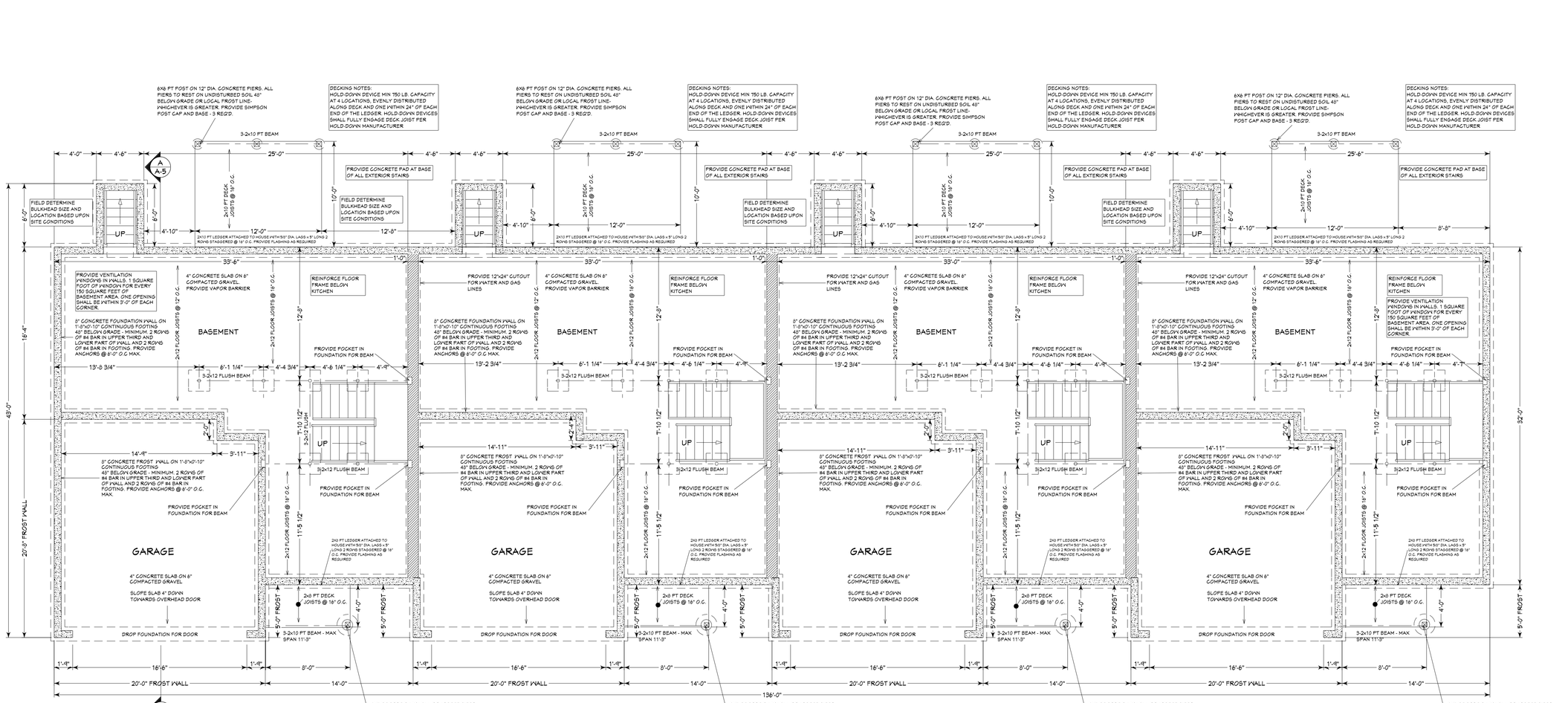
TO THE BEST OF MY KNOWLEDGE THESE PLANS HAVE BEEN DRAWN TO COMPLY WITH OWNERS AND/ OR BUILDERS SPECIFICATIONS. ANY CHANGES MADE AFTER PLANS HAVE BEEN ISSUED WILL BE AT THE RESPONSIBILITY AND EXPENSE OF THE OWNER AND/OR CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS ALSO

RESIDENTIAL DESIGN SOLUTIONS
BY LISA MELVIN, LLC
PO BOX 548 MONT VERNON, NH 03057

PREPARED FOR:
4 UNIT DWELLING

REV

DATE:
SCALE:
DRAWN BY:
JOB NO.: F



FOUNDATION PLAN

A A-5

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

1. 8" POUR
2. 8" CONCRETE FOUNDATION WALL ON 2'-0"x1'-0" CONTINUOUS FOOTING

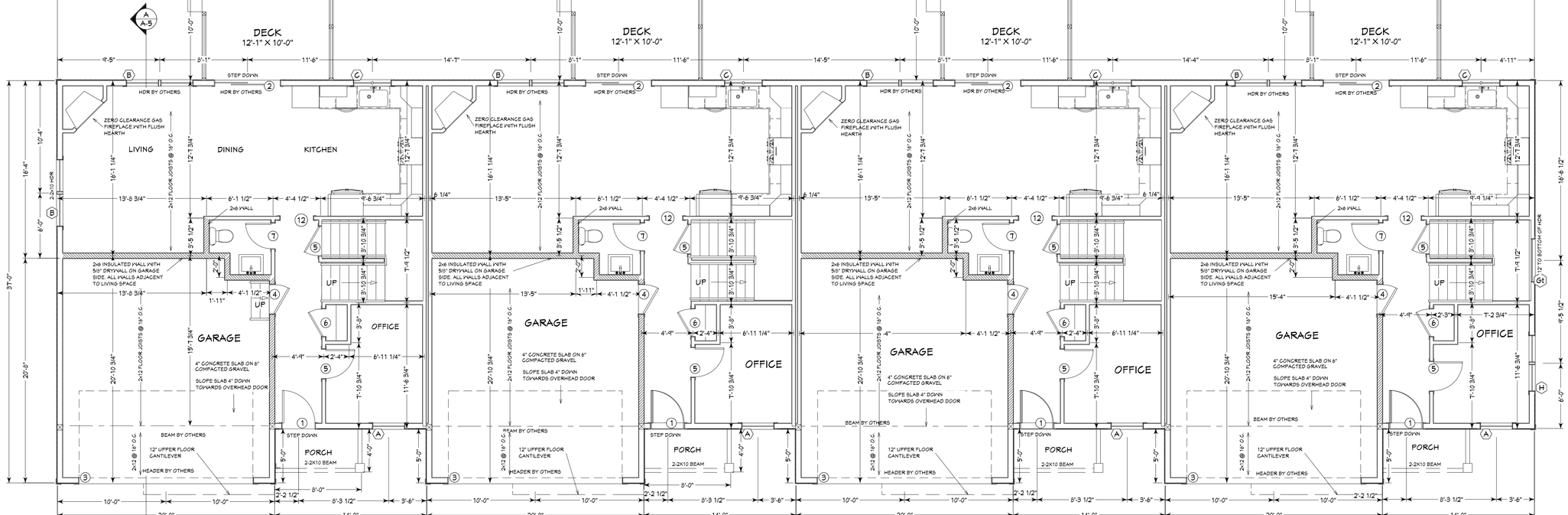
TO THE BEST OF MY KNOWLEDGE THESE PLANS HAVE BEEN DRAWN TO COMPLY WITH OWNERS AND/ OR BUILDERS SPECIFICATIONS. ANY CHANGES MADE AFTER PLANS HAVE BEEN ISSUED WILL BE AT THE ENGINEERS ASSESSMENT. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS ALSO

RESIDENTIAL DESIGN SOLUTIONS
BY LISA MELVIN, LLC
PO BOX 548 MONT VERNON, NH 03057

PREPARED FOR:
4 UNIT DWELLING

REV

DATE:
SCALE:
DRAWN BY:
JOB NO.:



TO THE BEST OF MY KNOWLEDGE THESE PLANS HAVE BEEN DRAWN TO COMPLY WITH OWNERS AND/ OR BUILDERS SPECIFICATIONS. ANY CHANGES MADE AFTER PLANS HAVE BEEN ISSUED WILL BE AT THE EXPENSE AND RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS ALSO

RESIDENTIAL DESIGN SOLUTIONS
BY LISA MELVIN, LLC
PO BOX 548 MONT VERNON, NH 03057

PREPARED FOR:
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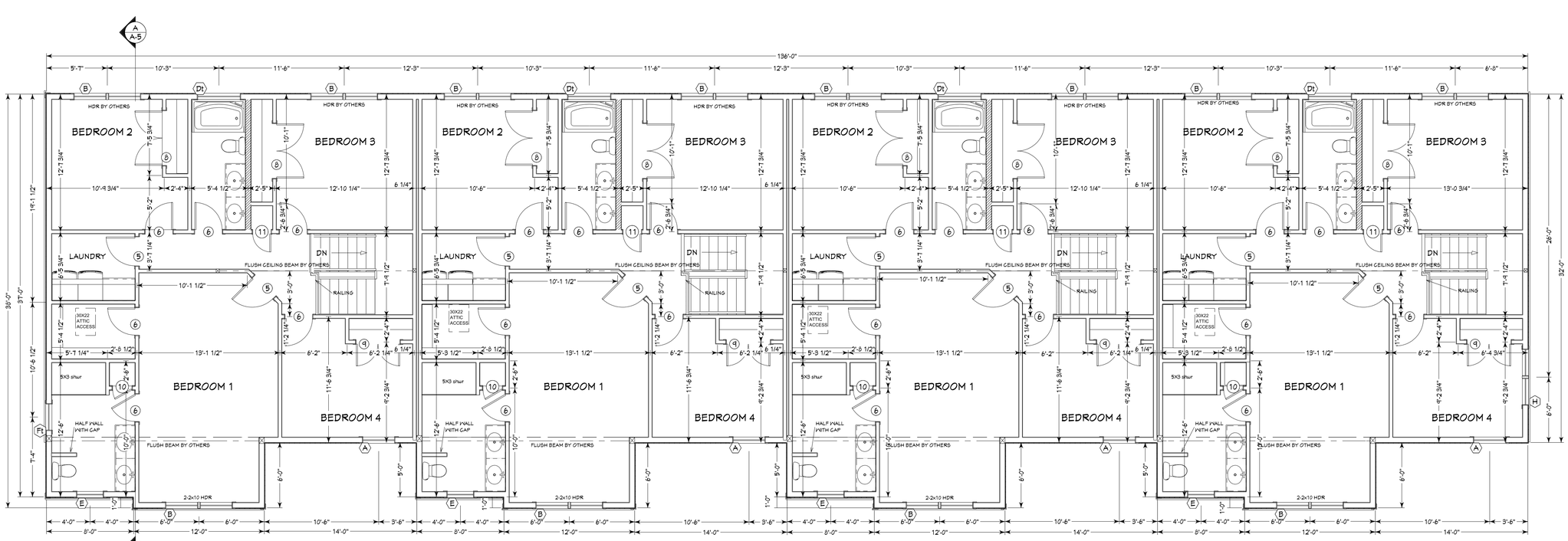


UPPER FLOOR PLAN

SCALE: 3/16"=1'-0"
1,045 SQUARE FEET CONDITIONED LIVING SPACE

1. 8'-0" PLATE HEIGHT
2. ALL EXTERIOR WINDOW HEADERS TO BE 2-2x8 UNLESS OTHERWISE NOTED

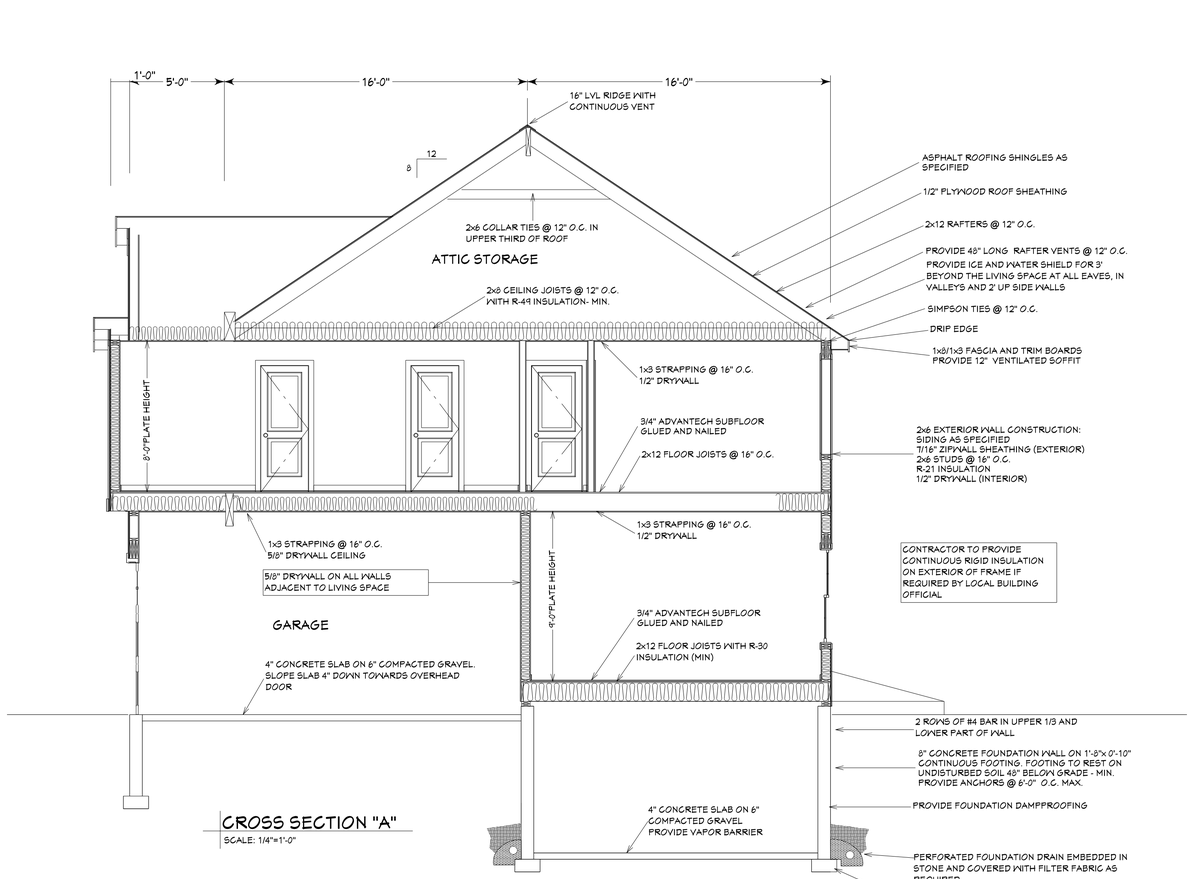
TO THE BEST OF MY KNOWLEDGE THESE PLANS HAVE BEEN DRAWN TO COMPLY WITH OWNERS AND/ OR BUILDERS SPECIFICATIONS. ANY CHANGES MADE AFTER PLANS HAVE BEEN ISSUED WILL BE AT THE BUILDERS ASSESSMENT. IT IS THE GENERAL CONTRACTOR'S RESPONSIBLE FOR VERIFYING EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS ALSO

RESIDENTIAL DESIGN SOLUTIONS
BY LISA MELVIN, LLC
PO BOX 548 MONT VERNON, NH 03057

PREPARED FOR:
4 UNIT DWELLING

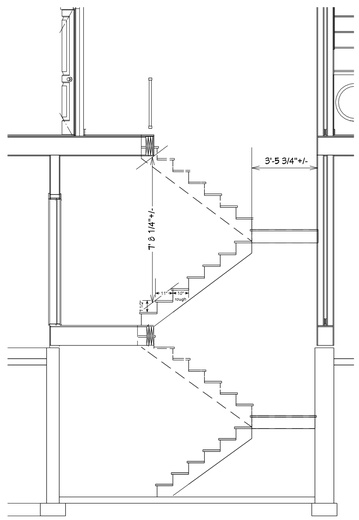
REV

DATE:
SCALE:
DRAWN BY:
JOB NO.: F



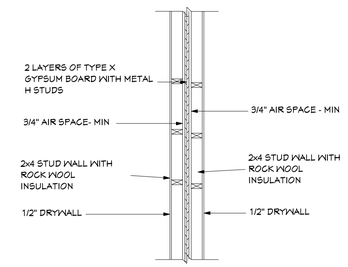
CROSS SECTION "A"

SCALE: 1/4"=1'-0"



STAIR SECTION

SCALE: 1/4"=1'-0"



FIREWALL DETAIL

NOT TO SCALE
(FIREWALL TO BE APPROVED BY LOCAL BUILDING OFFICIAL PRIOR TO CONSTRUCTION)

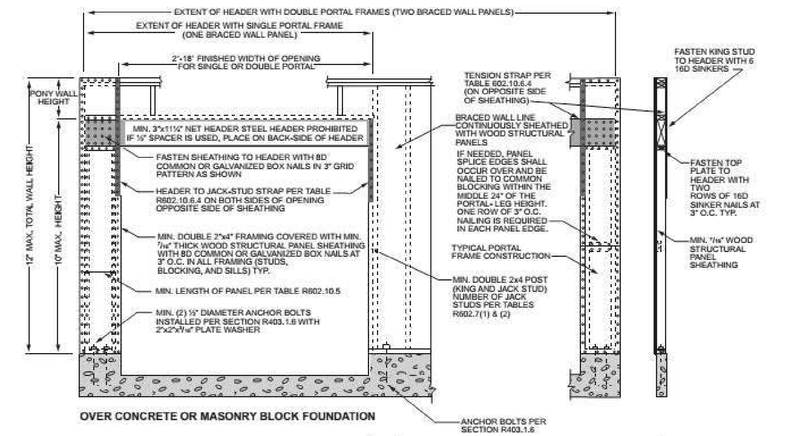
NOTE: SILLS OF ALL WINDOWS TO BE 24" ABOVE FLOOR (MIN.) IF THEY ARE HIGHER THAN 6'-0" ABOVE GRADE

WINDOW SCHEDULE

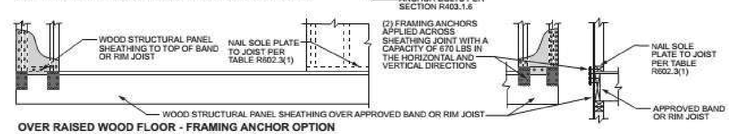
MARK	QTY	R.O.	DESIGNATION	DESCRIPTION
A	8	36"x60"+/-		DOUBLE HUNG - EGRESS
B	17	72"x60"+/-		MULLED DOUBLE HUNG- EGRESS
C	4	42"x42"+/-		DOUBLE CASEMENT
Dt	4	48"x18"+/-		AWNING - TEMPERED
E	4	30"x48"+/-		DOUBLE HUNG
Ft	1	30"x48"+/-		DOUBLE HUNG - TEMPERED
Gt	1	48"x60"+/-		FIXED - TEMPERED
H	2	60"x60"+/-		MULLED DOUBLE HUNG

DOOR SCHEDULE

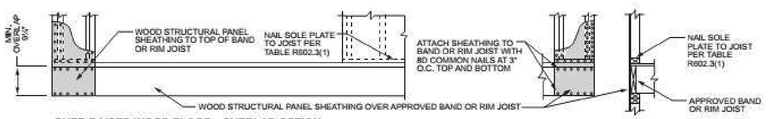
MARK	QTY	SIZE	DESCRIPTION
1	4	3068	GLAZED ENTRY
2	4	6068	SLIDER
3	4	16'x8'	OVERHEAD GARAGE DOOR
4	4	2868	B-LABEL W/ SELF CLOSING HINGES
5	16	2868	INTERIOR
6	28	2668	INTERIOR
7	4	2468	INTERIOR
8	8	5068	INTERIOR DOUBLE
9	4	4068	INTERIOR DOUBLE
10	4	2068	INTERIOR
11	4	1868	INTERIOR
12	4	3068	CASED OPENING



OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION
(WHERE PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISED WOOD FLOOR - OVERLAP OPTION

TO THE BEST OF MY KNOWLEDGE THESE PLANS HAVE BEEN DRAWN TO COMPLY WITH OWNERS AND/ OR BUILDERS SPECIFICATIONS. ANY CHANGES MADE AFTER PLANS HAVE BEEN ISSUED WILL BE AT THE RESPONSIBILITY OF THE OWNER AND/OR BUILDER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS ALSO

RESIDENTIAL DESIGN SOLUTIONS
BY LISA MELVIN, LLC
PO BOX 548 MONT VERNON, NH 03057

PREPARED FOR:
4 UNIT DWELLING

REV

DATE:
SCALE:
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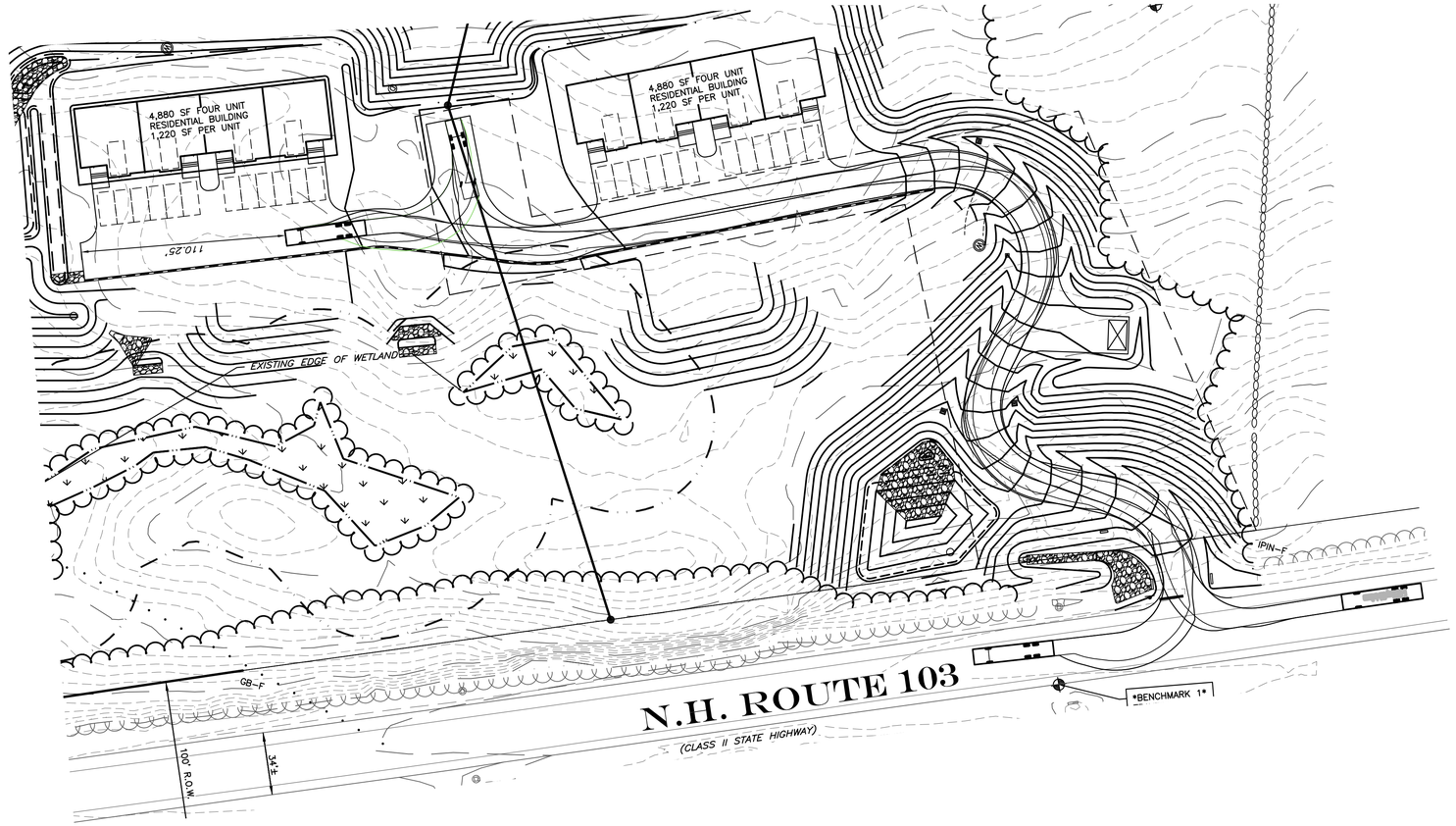
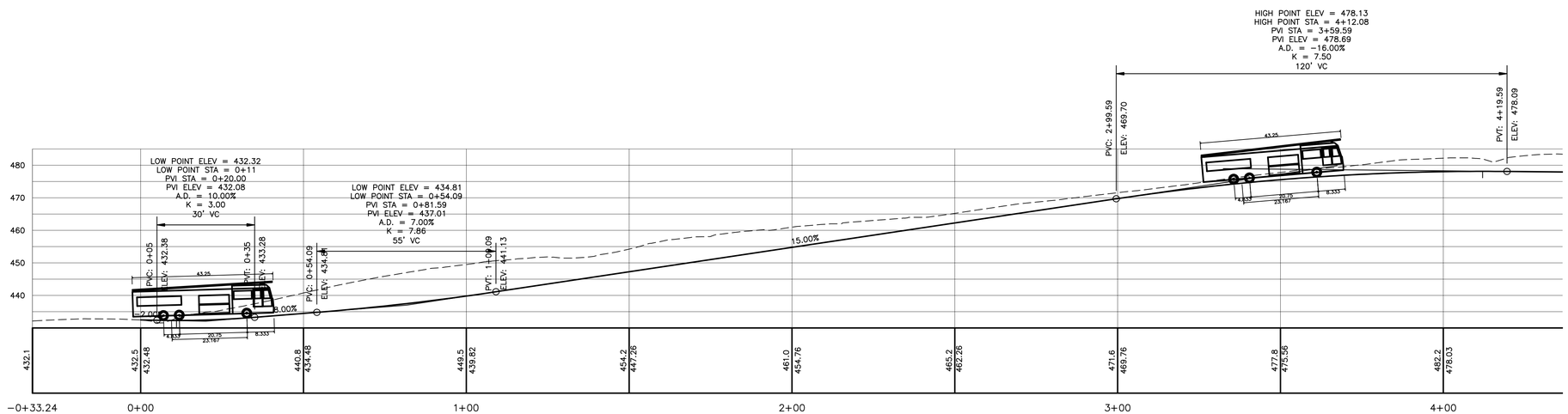
JOB NO.: F



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.



DRIVEWAY PROFILE
SCALE: 1" = 20'(HORIZ.)
1" = 10'(VERT.)

FIRE ACCESS PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

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REVISIONS

No.	DATE	DESCRIPTION	BY
1	5/22/25	PER PB AND AOT COMMENTS	AEW
2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW

DATE: MARCH 25, 2025 | **SCALE:** 1" = 40'
PROJECT NO: 24-0307-1 | **SHEET** 11 **OF** 16

Alteration of Terrain Application & Stormwater Drainage Analysis

Jennesstown Manor

Map 7, Lots 39
Route 103
Warner, New Hampshire

February 20, 2025
REVISED: OCTOBER 2, 2025

KNA Project No. 24-0307-1

Prepared For: Peacock Hill Road, LLC
145 Old Town Road
Weare, NH 03281

Prepared By: Keach-Nordstrom Associates, Inc.
10 Commerce Park North, Suite 3
Bedford, New Hampshire 03110
(603) 627-2881
(603) 627-2915 (fax)

KNA KEACH-NORDSTROM ASSOCIATES, INC.

Table of Contents

1. **SIGNED APPLICANT AFFADAVIT**

Owner Affidavit

I, Gary Fitzgerald, Member of Peacock Hill Road, LLC and owner of the property referenced on Tax Map 7 as Lot 39, located on Route 103 Warner, New Hampshire, hereby verify that I have authorized Keach-Nordstrom Associates, Inc. to submit on my behalf, any and all applicable State and local permit applications as they pertain to improvements on said property.

Additionally, I authorize Keach-Nordstrom Associates, Inc. to aid in the representation of these applications throughout the approval process.

Signature of Owner: _____

Printed Name of Owner: Gary Fitzgerald, Member

Address of Owner: 145 Old Town Road
Weare, NH 03281

Date: 12/10/24

2. AOT APPLICATION

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division / Land Resources Management

Check the status of your application

RSA / Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)		
Applicant Name: Peacock Hill Road, LLC	Contact Name: Gary Fitzgerald	
Email: hotrodda57@hotmail.com	Daytime Telephone: 603-325-3112	
Mailing Address: 145 Old Town Road		
Town/City: Weare	State: NH	ZIP Code: 03281
2. APPLICANT'S AGENT INFORMATION If none, check here: ☐		
Agent's Name:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town/City:	State:	ZIP Code:
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT) Check here if more than one property owner, and attach additional sheets as necessary: ☐		
Owner's Name:	Contact Name:	
Email:	Daytime Telephone:	
Mailing Address:		
Town/City:	State:	ZIP Code:
4. PROPERTY OWNER'S AGENT INFORMATION If none, check here: ☐		
Business Name:	Contact Name:	
Email:	Daytime Telephone:	
Address:		
Town/City:	State:	ZIP Code:
5. CONSULTANT INFORMATION If none, check here: ☐		
Engineering Firm: Keach-Nordstrom Associates, Inc.	Contact Name: Jason Lopez	
Email: jlopez@keachnordstrom.com	Daytime Telephone: 603-627-2881	
Address: 10 Commerce Park N Suite 3B		
Town/City: Bedford	State: NH	ZIP Code: 03110

6. PROJECT TYPE

☐ Excavation Only ■ Residential ☐ Commercial ☐ Golf Course ☐ School ☐ Municipal
☐ Agricultural ☐ Land Conversion ☐ Other:

7. PROJECT LOCATION INFORMATION

Project Name: Jennesstown Manor

Street/Road Address: Route 103

Town/City: Warner	County: Merrimack		
Tax Map: 7	Block:	Lot Number: 39 & 39-1	Unit:

Post-development, will the proposed project withdraw from or directly discharge to any of the following? If yes, identify the purpose.

1. Stream or Wetland Purpose:	☐ Yes ■ No	☐ Withdrawal	☐ Discharge
2. Artificial pond created by impounding a stream or wetland Purpose:	☐ Yes ■ No	☐ Withdrawal	☐ Discharge
3. Unlined pond dug into the water table Purpose: Pocket Pond	■ Yes ■ No	☐ Withdrawal	☐ Discharge

Post-development, will the proposed project discharge to:
- Within one-quarter mile of a surface water impaired for phosphorus and/or nitrogen? ■ No ☐ **Yes**
- Within one-quarter mile of a Class A surface water or within the watershed area of an Outstanding Resource Water? ■ No ☐ **Yes**
- Within one-quarter mile of a lake or pond not covered previously? ■ No ☐ **Yes**

Is the project a High Load area? ☐ Yes ■ No
If yes, specify the type of high load land use or activity:

Is the project within a Water Supply Intake Protection Area (WSIPA)? ☐ Yes ■ No
Is the project within a Groundwater Protection Area (GPA)? ☐ Yes ■ No
Will the well setbacks identified in Env-Wq 1508.02 be met? ☐ Yes ■ No
For more details on the restrictions in these areas, read Chapter 3.1 in Volume 2 of the NH Stormwater Manual.

Is any part of the property within the 100-year floodplain? ☐ Yes ■ No
If yes: Cut volume: cubic feet within the 100-year floodplain.
Fill volume: cubic feet within the 100-year floodplain.

■ Project *is* within ¼ **mile of a designated river** Name of River: Warner River
☐ Project *is not* within ¼ mile of a designated river.

☐ Project *is* within a Coastal/Great Bay Region community.
■ Project *is not* within a Coastal/Great Bay Region community.

8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")

Two four unit buildings each with shared driveway and a parking area to take place on Map 7 Lots 39 & 39-1.

9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT.

Tree clearing per intent to cut filed with Town.

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality, as required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed):

(Attach proof of delivery)

B. Date a copy of the application was sent to the local river advisory committee, if required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river): N/A

(Attach proof of delivery)

C. Type of plan required: ☐ Land Conversion ■ Detailed Development ☐ Excavation, Grading and Reclamation ☐ Steep Slope

D. Additional plans required: ■ Stormwater Drainage and Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance, in square feet 275,000

F. Additional impervious cover as a result of the project, in square feet (use "-"to indicate a net reduction in impervious coverage).

Total final impervious cover, in square feet Total Cover: 37,244 SF Additional Cover: 25,352 SF

G. Total undisturbed cover, in square feet 1,317,247

H. Number of lots proposed: 2

I. Total length of roadway, in linear feet: 0

J. Name(s) of receiving water(s): Warner River

K. Identify all other NHDES permits required for the project. For each, indicate whether an application has been filed and is pending. If the required approval has been issued, provide the permit number, registration date, or approval letter number, as applicable.

Type of Approval	Application Filed?	Pending?	If Issued
1. Water Supply Approval	☐ Yes ☐ No ■ N/A	☐	Permit number:
2. Wetlands Permit	☐ Yes ☐ No ■ N/A	☐	Permit number:
3. Shoreland Permit	☐ Yes ☐ No ■ N/A	☐	Registration date:
4. UIC Registration	☐ Yes ☐ No ■ N/A	☐	Approval letter date:
5. Large/Small Community Well Approval	☐ Yes ☐ No ■ N/A	☐	Permit number:
6. Large Groundwater Withdrawal Permit	☐ Yes ☐ No ■ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No		

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern:

Wood Turtle

M. Using the NHDES OneStop Data Mapper with the Surface Water Impairment layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A."

N/A

N. Did the applicant or applicant's agent have a pre-application meeting with Alteration of Terrain Bureau staff?

☐ Yes ■ No If yes, name of staff member:

O. Will blasting of bedrock be required? ☐ Yes ■ No If yes, estimated quantity of blast rock in cubic yards:
If yes, standard blasting Best Management Practices notes must be placed on the plans.

NOTE: If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact Alteration of Terrain Bureau staff for additional detail.

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN THE ORDER LISTED BELOW)

LOOSE:

- ■ Signed application form, with attached proof(s) of delivery.
- ■ Check for the application fee, calculated using the fee schedule available on the NHDES Land Development page.
- ■ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale).
- ☐ If the applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

BOUND, IN A REPORT, IN THE FOLLOWING ORDER:

- ■ Copy of the signed application form and application checklist.
- ■ Copy of the check.
- ■ Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale).
- ■ Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points.
- ■ Printout of NHDES OneStop Mapper with "Surface Water Impairments" layer turned on.
- ■ Printout of NHDES OneStop Mapper with Alteration of Terrain screening layers turned on.
- ■ Printout of Natural Heritage Bureau DataCheck Tool letter and any relevant correspondence with New Hampshire Fish and Game.
- ■ USDA Web Soil Survey Map with project's watershed outlined.
- ■ Aerial photograph (1" = 2,000' scale with the site boundaries outlined).
- ■ Photographs representative of the site.
- ■ Groundwater recharge volume calculations (include one Best Management Practices worksheet per permit application).
- ■ Drainage analysis, stamped by a professional engineer (see "Application Checklist" at the end of this document).
- ■ Riprap apron or other energy dissipation or stability calculations.
- ■ Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the Site Specific Soil Mapping standards of the Society of Soil Scientists of Northern New England.
- ■ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)].
- ☐ Registration and Notification Form for Stormwater Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches).
- ■ Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)].
- ☐ Source control plan.

PLANS:

- ■ One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).
- ■ Pre- and post-development color-coded soil plans on 11" x 17" (see Application Checklist for details).
- ■ Pre- and post-construction drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).

100-YEAR FLOODPLAIN REPORT:

- ☐ All information required in Env-Wq 1503.09, submitted as a separate report.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- ■ See Application Checklist (Attachment A) for details.

- ■ **REVIEW APPLICATION FOR COMPLETENESS. CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.**

12. REQUIRED SIGNATURES

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3.

☒ **APPLICANT** ☐ **APPLICANT'S AGENT:**

Signature: _____ Date: 3/13/25

Name (print or type): GARY Fitzgerald Title: manager

☒ **PROPERTY OWNER** ☐ **PROPERTY OWNER'S AGENT:**

Signature: _____ Date: 3/13/25

Name (print or type): GARY Fitzgerald Title:

3. AOT APPLICATION CHECKLIST

ALTERATION OF TERRAIN PERMIT ATTACHMENT A: APPLICATION CHECKLIST

Check each box to indicate the item has been provided, or indicate why it does not apply.

DESIGN PLANS

- [x] Plans printed on 34 - 36" by 22 - 24" white paper.
- [x] Professional Engineer stamp.
- [x] Wetland delineation.
- [x] Temporary erosion control measures.
- [x] Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and nonresidential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the New Hampshire Stormwater Management Manual.
- [x] Pre-existing 2-foot contours.
- [x] Proposed 2-foot contours.
- [x] Drainage easements protecting the drainage/treatment structures.
- [x] Compliance with state statute governing fill and dredge in wetlands, RSA 482- A. Note that artificial detention in wetlands is prohibited.
- [ ] Compliance with the New Hampshire Shoreland Protection Act, RSA 483-B. Site not in Shoreland Zone.
- [x] Benching – needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope.
- [ ] Check to see if any proposed ponds require state dam permits. No state dam permits required.

DETAILS

- [x] Typical roadway cross-section.
- [x] Detention basin with inverts noted on the outlet structure.
- [x] Stone berm level spreader.
- [x] Outlet protection – riprap aprons.
- [x] A general installation detail for an erosion control blanket.
- [x] Silt fences or mulch berm.
- [x] Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.
- [ ] Hay bale barriers. No hale bale barriers proposed.
- [ ] Stone check dams. No stone check dams proposed.
- [x] Gravel construction exit.
- [x] Temporary sediment trap.
- [x] The treatment BMPs proposed.
- [ ] Any innovative BMPs proposed. No innovative BMPs proposed.

CONSTRUCTION SEQUENCE / EROSION CONTROL

■ Note that the project must be managed to meet the requirements and intent of RSA 430:53 and Agr 3800 relative to invasive species.

■ Note that perimeter controls shall be installed prior to earth moving operations.

■ Note that temporary water diversion (swales, basins, etc.) must be used as necessary until areas are stabilized.

■ Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).

■ Note that all ditches and swales shall be stabilized prior to directing runoff to them.

■ Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.

■ Note that all cut and fill slopes shall be seeded or loamed within 72 hours of achieving finished grade

■ Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.

■ Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

■ Note the definition of the word "stable."

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

■ Note the limit of time an area may be exposed.

Example note: All areas shall be stabilized within 45 days of initial disturbance.

■ Provide temporary and permanent seeding specifications. Note that although reed canary grass is listed in the Green Book; it is a problematic species according to the Wetlands Bureau and therefore should not be specified.

■ Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- 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.
- 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.
- 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.

■ Note at the end of the construction sequence that "Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable." – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.

DRAINAGE ANALYSES

Please provide double-side 8 ½" × 11" sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

☐ Professional Engineer stamp.

☐ Rainfall amount obtained from the Northeast Regional Climate Center. Include extreme precipitation table as obtained from this source.

☐ Drainage analyses, in the following order:

- Pre-development analysis: Drainage diagram.
- Pre-development analysis: Area Listing and Soil Listing.
- Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
- Pre-development analysis: Full summary of the 10-year storm.
- Post-development analysis: Drainage diagram.
- Post-development analysis: Area Listing and Soil Listing.
- Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
- Post-development analysis: Full summary of the 10-year storm.

☐ Review the Area Listing and Soil Listing reports

- Hydrologic Soil Groups (HSG) match the HSGs on the soil maps provided.
- There is the same or less HSG A soil area after development (check for each HSG).
- There is the same or less "woods" cover in the post-development.
- Undeveloped land was assumed to be in "good" condition.
- The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre-analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses or units proposed. Do these numbers make sense?

☐ Check the storage input used to model the ponds.

☐ Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.

☐ Check the outlet structure proposed and make sure it matches that modeled.

☐ Check to see if the total areas in the pre and post analyses are same.

☐ Confirm the correct NRCS storm type was modeled (Coos, Carroll and Grafton counties are Type II, all others Type III).

PRE- AND POST-CONSTRUCTION DRAINAGE AREA PLANS

☐ Plans printed on 34 - 36" by 22 - 24" on white paper.

☐ Submit these plans separate from the soil plans.

☐ A north arrow.

☐ A scale.

☐ Labeled subcatchments, reaches and ponds.

- [x] Tc lines.
- [x] A clear delineation of the subcatchment boundaries.
- [ ] Roadway station numbers.
- [x] Culverts and other conveyance structures.

PRE- AND POST-CONSTRUCTION COLOR-CODED SOIL PLANS

- [x] 11" × 17" sheets suitable, as long as it is readable.
- [x] Submit these plans separate from the drainage area plans.
- [x] A north arrow.
- [x] A scale.
- [x] Name of the soil scientist who performed the survey and date the soil survey took place.
- [x] 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.
- [x] Delineation of the soil boundaries and wetland boundaries.
- [x] Delineation of the subcatchment boundaries.
- [x] Soil series symbols (e.g., 26).
- [x] A key or legend identifying each soil series symbol and its associated soil series name (for example: 26 = Windsor).
- [x] The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, and Impervious = gray).

Please note that excavation projects (including gravel pits) have similar requirements to those above, with the following common exceptions or additions:

- [ ] Drainage report is not needed if site does not have off-site flow.
- [ ] 5-foot contours are allowed rather than 2-foot.
- [ ] No Professional Engineer stamp is needed on the plans.
- [ ] Add a note to the plans that the applicant must provide NHDES a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.
- [ ] Add reclamation notes.
- [ ] A description of the subsurface conditions to the planned depth of excavation, including the elevation of the location of the Seasonal High Water Table (SHWT), as observed and described by a certified soil scientist, or an individual holding a valid permit as a permitted designer as issued by the department's Subsurface Systems Bureau.

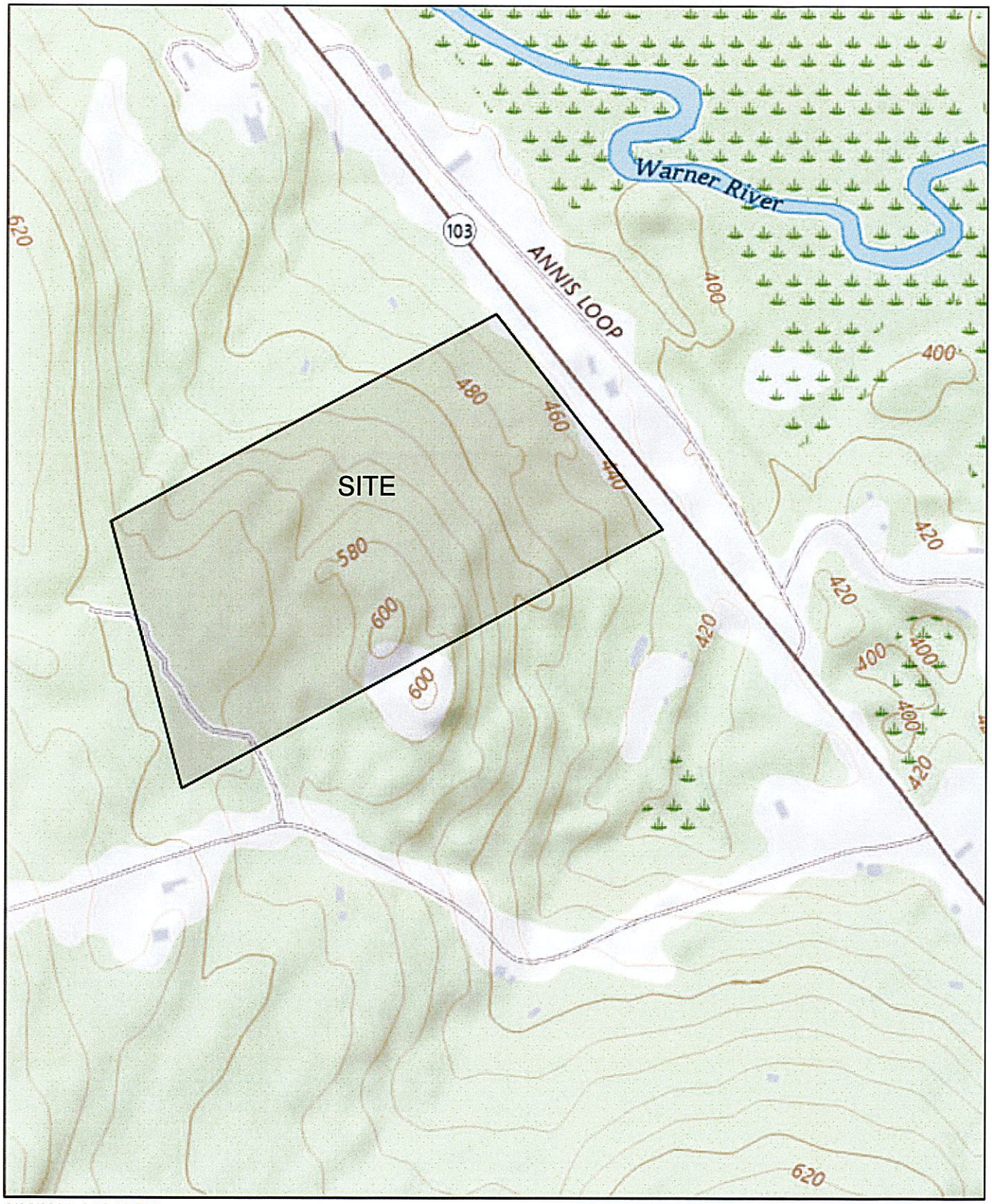
For more resources, refer to the Natural Resources Conservation Service's Vegetating New Hampshire Sand and Gravel Pits publication.

4. COPY OF AOT APPLICATION CHECK

5. MUNICIPAL SUBMISSION: WARNER

6. USGS LOCATION MAP

USGS Map by NH DES OneStop Data Mapper



3/25/2025, 1:18:19 PM

City/Town

Layers

Red: Band_1

Green: Band_2

Blue: Band_3

1:5,000

0 0.04 0.08 0.16 mi

0 0.05 0.1 0.2 km

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S.

7. PROJECT NARRATIVE

1. INTRODUCTION

A. Project Description

The project proposes the development of Warner Tax Map 7, Lots 39 and 39-1, on the west side of Route 103. The proposal seeks to develop two buildings for multi-family residence. Each building will have four units. The project will include associated parking and utilities.

The buildings will be served by on-site septic systems and wells. Access will be provided by connection to a proposed driveway off of Route 103. The buildings will share access to the driveway. The drainage system will have two pocket ponds and an infiltration basin. After treatment and mitigation of peak runoff, the water flows to the existing catch basins on Route 103 in front of the subject parcel.

B. Existing Site Conditions

The subject lot is 34.60 acres and is currently undeveloped in Warner's Residential 2 (R-2) and Residential 3 (R-3) Zoning Districts; however, the area of proposed work is entirely within the R-2 District. The abutting properties are residential or undeveloped uses. Previously, the subject lot was partially cleared. There are wetland pockets and many ledge outcroppings on site.

According to the Site-Specific Soil Survey soil mapping, the parcel consists of soils as shown below:

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
55	Hermon Very Stony	121	B
442	Chichester	221	B
58	Waumbek	321	A
829	Waumbek-Hermon Association	321	B
414	Moosilauke Poorly Drained	521	C
399	Ledge Outcrop	228	D

II. STORM DRAINAGE ANALYSIS & DESIGN

A. Methodology

In accordance with the provisions of the Town of Warner, NHDES, and generally accepted engineering practice, the 2-year, 10-year, 25-year and 50-year frequency storms have each been used in the various aspects of analysis and design of stormwater management considerations for the subject residential development project. All proposed stormwater measures have been designed for the 10-year return frequency storms, in accordance with the State regulations and for the 25-year return frequency storms, in accordance with the Town regulations.

KNA utilizes HydroCAD version 10.2 to analyze both pre and post-development watershed characteristics. This computer software system is based largely on hydrology techniques (TR-20) developed by the Soil Conservation Service (now the Natural Resources Conservation Service). In addition, the software derives Time of Concentration values using the methodology contained within USDA-S.C.S. publication Urban Hydrology for Small Watersheds Technical Release No. 55 (TR 55).

Rainfall data utilized in the analysis is obtained from the "Extreme Precipitation in a Changing Climate for New York and the New England States", version 1.12, published by the USDA, NRCS and Cornell University's Northeast Regional Climate Center and can be found in Section 9.

All design and analysis calculations performed using the referenced methodologies are attached to this report. The minimum time of concentrations used for the analysis is 6 minutes. These calculations document each catchment area, a breakdown of surface type, time of concentration, rainfall intensity, peak discharge volume, Manning's "n" value, peak velocity, and other descriptive design data for each watershed and pipe segment evaluated. In addition, the "Pre/Post Development Drainage Area Plans" graphically define and illustrate the extent of each watershed or catchment area investigated.

B. Pre-Development Drainage Conditions

In the pre-development scenario, 5 points of analysis (POA) were identified as the appropriate points to compare pre vs. post development rates of stormwater discharge. These points of analysis reflect the main discharge points of the site and were analyzed to show the impact of the proposed improvements.

The pre-development drainage model's POA is further described as follows:

10P Flow to Existing CB

20P Flow to Existing CB

30P Flow to Existing CB

40P Flow to Existing CB

In general, the site slopes in an easterly direction to the catch basins along Route 103.

For a more visual description of the information presented in this section, please refer to the attached "Pre-Development Drainage Areas Plan" attached in the appendix of this report. The pre-development drainage model recognizes five points of analysis to compare pre vs. post-development peak rates of stormwater discharge.

C. Post-Development Drainage Conditions:

The same POA's that were identified in the pre-development scenario have been analyzed in the post-development scenario.

The proposed stormwater management system utilizes closed and open drainage that incorporates various best management practices for the collection, storage, and treatment of runoff. Stormwater runoff generated from the proposed development will be collected in a series of closed structures (catch basins and drain manholes) and conveyed towards the pocket ponds and the infiltration basin. The proposed ponds discharge through outlet control structures to overland flow prior to entering the closed drainage system in the Route 103 Right-Of-Way. The areas flowing towards each point of analysis are equal to or less than in comparison to the pre-development conditions. The proposal has also been designed to convey runoff in a manner consistent with the pre-development conditions. The drainage system was properly sized to control runoff for the full build-out of the project.

The proposed pocket ponds are designed to intercept groundwater and maintain a permanent pool. The ponds have been designed to mitigate the increased runoff from the proposed parking areas and common driveway.

The proposed infiltration basin is designed to infiltrate the runoff from the proposed development.

The peak stormwater runoff rate for the specific storm frequencies is presented and analyzed in the subsequent summary section of this report (Table 1). For a more visual description of the information presented in this section, please refer to the attached "Post-Development Drainage Areas Plan" attached in the appendix of this report.

D. Summary:

Through the use of the stormwater management techniques described above, we were able to implement the proposed development goals while maintaining appropriate peak rates of runoff, providing volume control, and providing treatment of stormwater generated from the proposed development. As shown in the Tables below, through the use of the aforementioned stormwater management techniques, the peak rates of stormwater discharge and volume to the point of analysis was controlled within an acceptable limit.

Table 1: Peak Flow Discharge Rate

Site Pre-Development vs. Post-Development (cfs)								
Description	2-Year		10-Year		25-Year (not in printout)		50-Year	
24-hr Rainfall	2.78 in/hr		4.04 in/hr		5.01 in/hr		5.89 in/hr	
	Pre	Post	**Pre**	Post	**Pre**	Post	**Pre**	Post
10P (Lot 3-1)	**0.85**	0.84	**1.93**	1.93	**3.00**	2.99	**4.07**	4.05
20P (Lot 7-38)	**2.01**	1.84	**4.94**	4.22	**8.10**	8.09	**11.29**	11.11
30P (Lot 7-38)	**0.63**	0.49	**1.36**	0.87	**2.08**	1.19	**2.80**	1.48
40P (Lot 7-38)	**1.06**	0.70	**2.46**	2.14	**4.08**	3.84	**5.77**	5.65
50L (Lots 7-36 & 7-36-1)	**0.04**	0.04	**0.13**	0.13	**0.25**	0.25	**0.39**	0.39

Table 2: Channel Protection Requirements

Site Pre-Development vs. Post-Development Flow Volume (af)			
Description	2-Year		Comments
24- hr Rainfall	2.78 in/hr		
	Pre	Post	
10P	0.104	0.103	NHDES 1507.05,(b),(1), a
20P	0.255	0.261	NHDES 1507.05,(b),(1), a
30P	0.083	0.053	NHDES 1507.05,(b),(1), a
40P	0.150	0.167	NHDES 1507.05,(b),(1), a
50L	0.006	0.006	NHDES 1507.05,(b),(1), a

III. EROSION & SEDIMENTATION CONTROL PROVISIONS

A. Temporary Erosion Control Measures

As an integral part of the engineering design of this site, an erosion and sedimentation control plan has been developed with the intent of limiting the potential for soil loss and associated receiving water quality degradation, both during and after the construction period. As the project plans indicate, traditional temporary erosion and sedimentation control devices and practices, such as siltation fencing, block and gravel sediment filters, and seeding have been specified for use during the construction period. In preparation of these provisions, reference was made to the New Hampshire Stormwater Manual; Volume 3: Erosion and Sediment Temporary Controls During Construction. Construction details for each temporary erosion control measure and practice specified have been added to the project plans. These plans also contain a number of erosion control notes, which are offered to the selected contractor in order to supplement the specified measures and practices to the extent practical.

B. Construction Sequence

A site-specific construction sequence sensitive to limiting soil loss due to erosion and associated water quality degradation was prepared specifically for this project and is shown on the project plans. As pointed out in the erosion control notes, it is important for the contractor to recognize that proper judgment in the implementation of work will be essential if erosion is to be limited and protection of completed work is to be realized. Moreover, any specific changes in sequence and/or field conditions affecting the ability of specific erosion control measures to adequately serve their intended purpose should be reported to this office by the contractor. Furthermore, the contractor is encouraged to supplement specified erosion control measures during the construction period where and when in his/ her best judgment, additional protection is warranted.

C. Permanent Erosion Control Measures

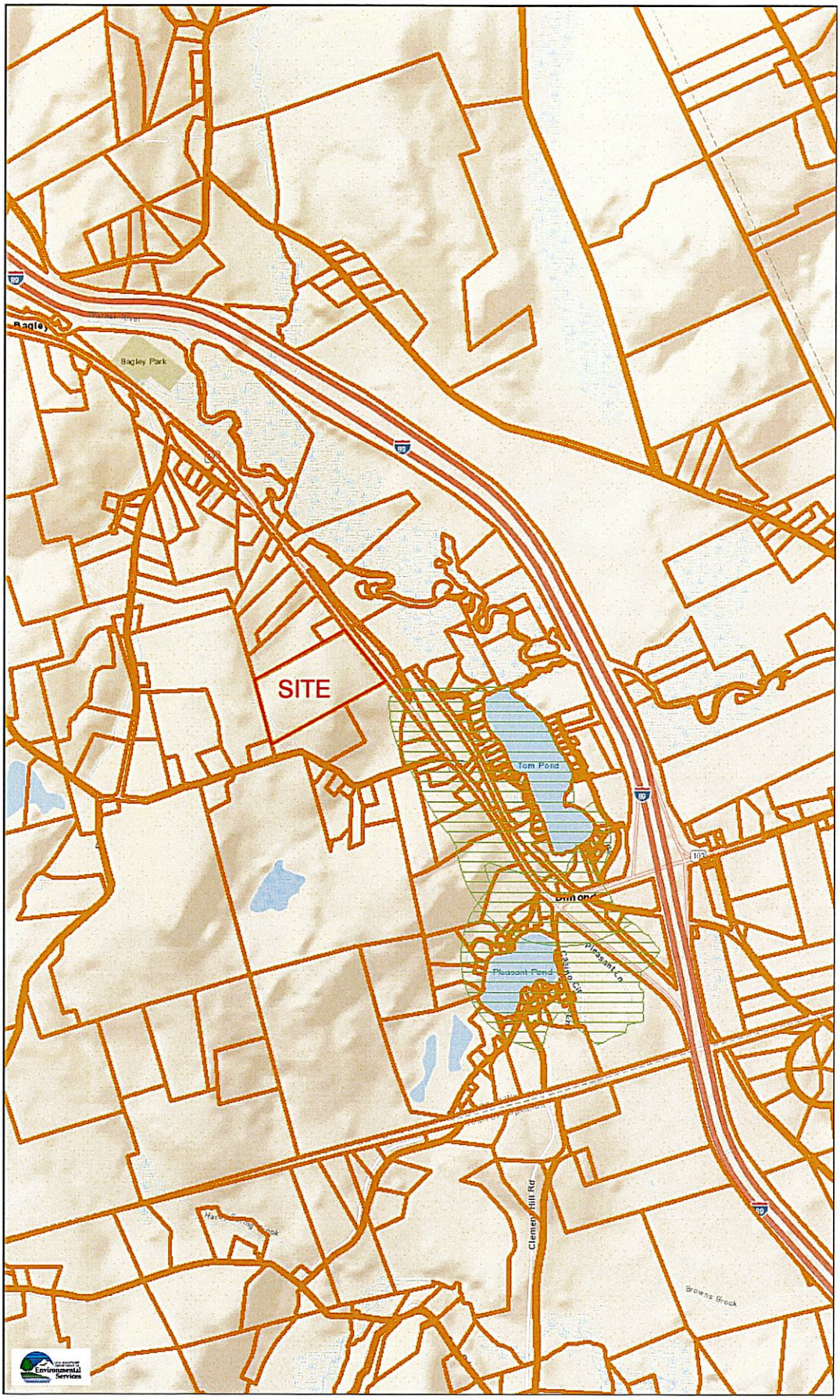
In the design of this site, consideration was given to limiting the potential for long-term erosion of completed improvements. As a result, several permanent erosion control measures were incorporated into the site design. These provisions include:

1) Specification of a turf establishment schedule and seed mixture, utilizing materials and workmanship recognized as appropriate for the site conditions at hand;

2) The design has provided catch basins to capture runoff and reduce the overland flow, thereby reducing erosion.

8. SURFACE WATER IMPAIRMENTS

Surface Water Impairments



Legend

- Surface Waters with Impairm with Quarter Mile Buffer
- Parcels
- Additional Lines

Map Scale

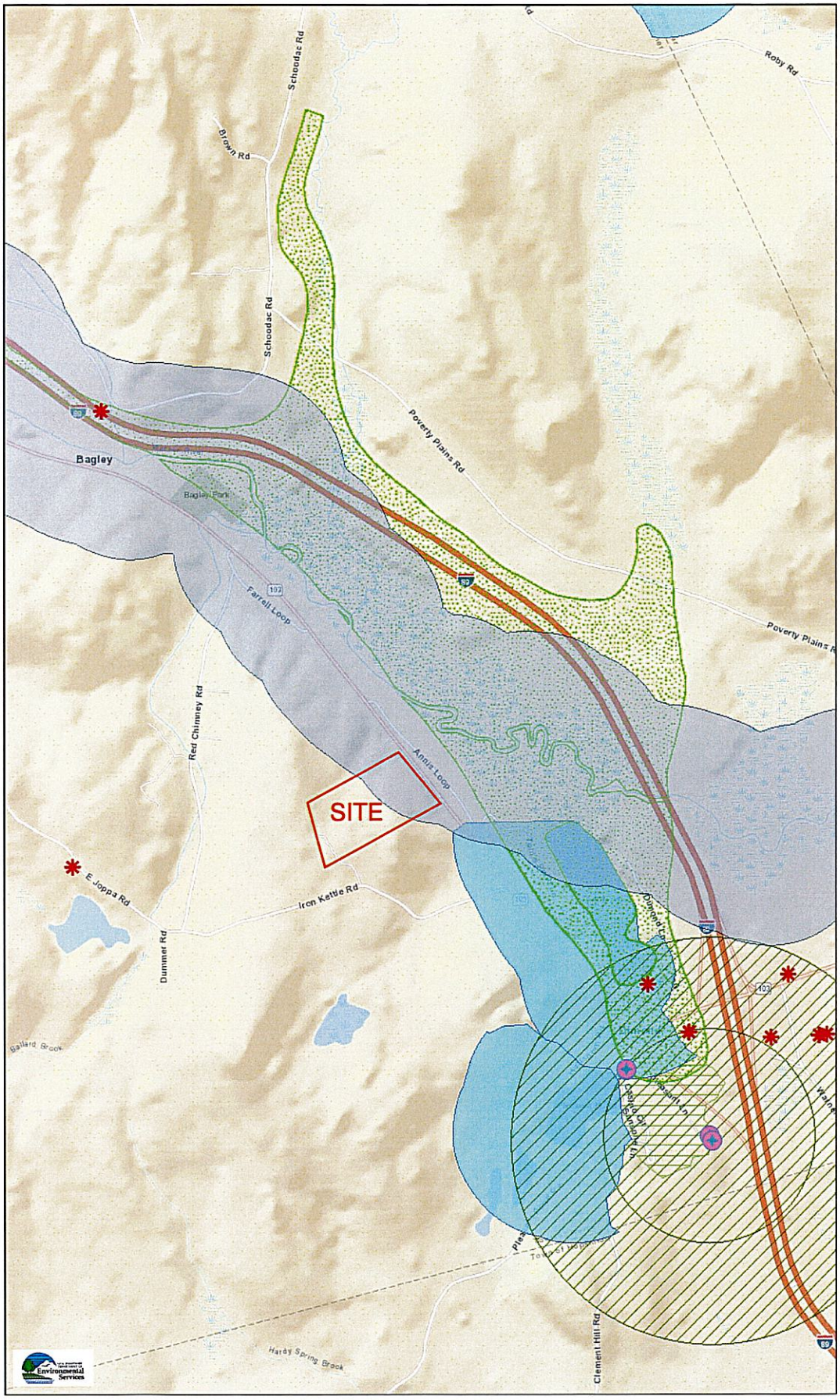
1: 24,000

Map Generated: 11/27/2024

Notes

9. WEB GIS FIGURES

Web GIS Figure



Legend

- Remediation Sites
- Coastal and Great Bay Regi Communities
- Designated Rivers Quarterm Buffer
- Public Water Supply Wells
- Groundwater Classification / GA1
- Groundwater Classification / GA2
- Water Supply Intake Protect Areas
- Wellhead Protection Areas
- Class A Lakes with a Quarte Buffer
- Class A - All Features
- All Lakes, with a Quarter Mil Buffer
- Outstanding Resource Wate Watersheds
- Surface Waters with Impairn with Quarter Mile Buffer
- Watersheds with Chloride Impairments

Map Scale

1: 24,000

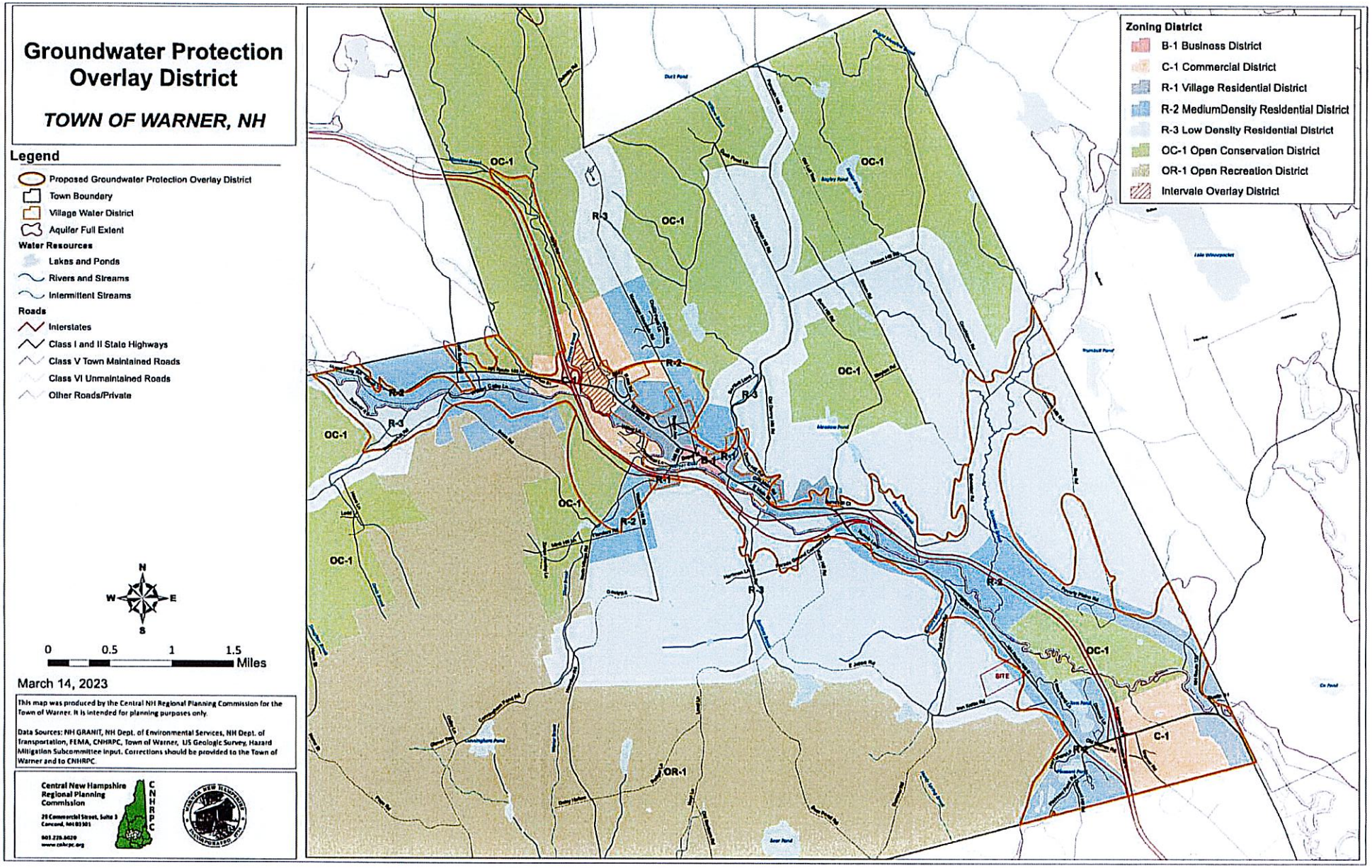
Map Generated: 12/2/2024

Notes

10. WARNER GROUNDWATER PROTECTION OVERLAY DISTRICT

Groundwater Protection Overlay District

TOWN OF WARNER, NH



March 14, 2023

This map was produced by the Central NH Regional Planning Commission for the Town of Warner. It is intended for planning purposes only.

Data Sources: NH GRANIT, NH Dept. of Environmental Services, NH Dept. of Transportation, FEMA, CNHRPC, Town of Warner, US Geologic Survey, Hazard Mitigation Subcommittee input. Corrections should be provided to the Town of Warner and to CNHRPC.

Central New Hampshire Regional Planning Commission
20 Commercial Street, Suite 3
Concord, NH 03301
603.226.6020
www.cnhrpc.org

11. NEW HAMPSHIRE NATURAL HERITAFE INVENTORY DATABASE CHECK

NHB DataCheck Results Letter
NH Natural Heritage Bureau
Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

To: Jason Lopez, Keach-Nordstrom Associates, Inc.
10 Commerce Park North Suite 3B
Bedford, NH 03110
jlopez@keachnordstrom.com

From: NHB Review
NH Natural Heritage Bureau
Main Contact: Ashley Litwinenko - nhbreview@dncr.nh.gov

cc: NHFG Review

Date: 06/13/2024 (valid until 06/13/2025)
Re: DataCheck Review by NH Natural Heritage Bureau and NH Fish & Game
Permits: MUNICIPAL POR - Warner, NHDES - Alteration of Terrain Permit, USEPA - Stormwater Pollution Prevention

NHB ID: NHB24-0767

Town: Warner
Location: NH Route 103

Project Description: Four lot subdivision with each lot containing a 4 unit building. All lots served by a common driveway.

Next Steps for Applicant:

NHB's database has been searched for records of rare species and exemplary natural communities. Please carefully read the comments and consultation requirements below.

NHB Comments: No comments at this time.

NHFG Comments: Please refer to NHFG consultation requirements below.

NHB Consultation

If this NHB DataCheck letter includes records of rare plants and/or natural communities/systems, please contact NHB and provide any requested supplementary materials by emailing nhbreview@dncr.nh.gov.

If this NHB DataCheck letter DOES NOT include any records of rare plants and/or natural communities/systems, no further consultation with NHB is required.

NH Fish and Game Department Consultation

If this NHB DataCheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB DataCheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://www.wildlife.nh.gov/wildlife-and-habitat/nongame-and-endangered-species/environmental-review. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line**.

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule*), coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the NHB DataCheck results letter number and "review request" in the email subject line.
Contact NH Fish & Game at (603) 271-0467 with questions.

NHB DataCheck Results Letter
NH Natural Heritage Bureau
Please note: maps and NHB record pages are **confidential** and shall be redacted from public documents.

NHB Database Records:
The following record(s) have been documented in the vicinity of the proposed project.
Please see the map and detailed information about the record(s) on the following pages.

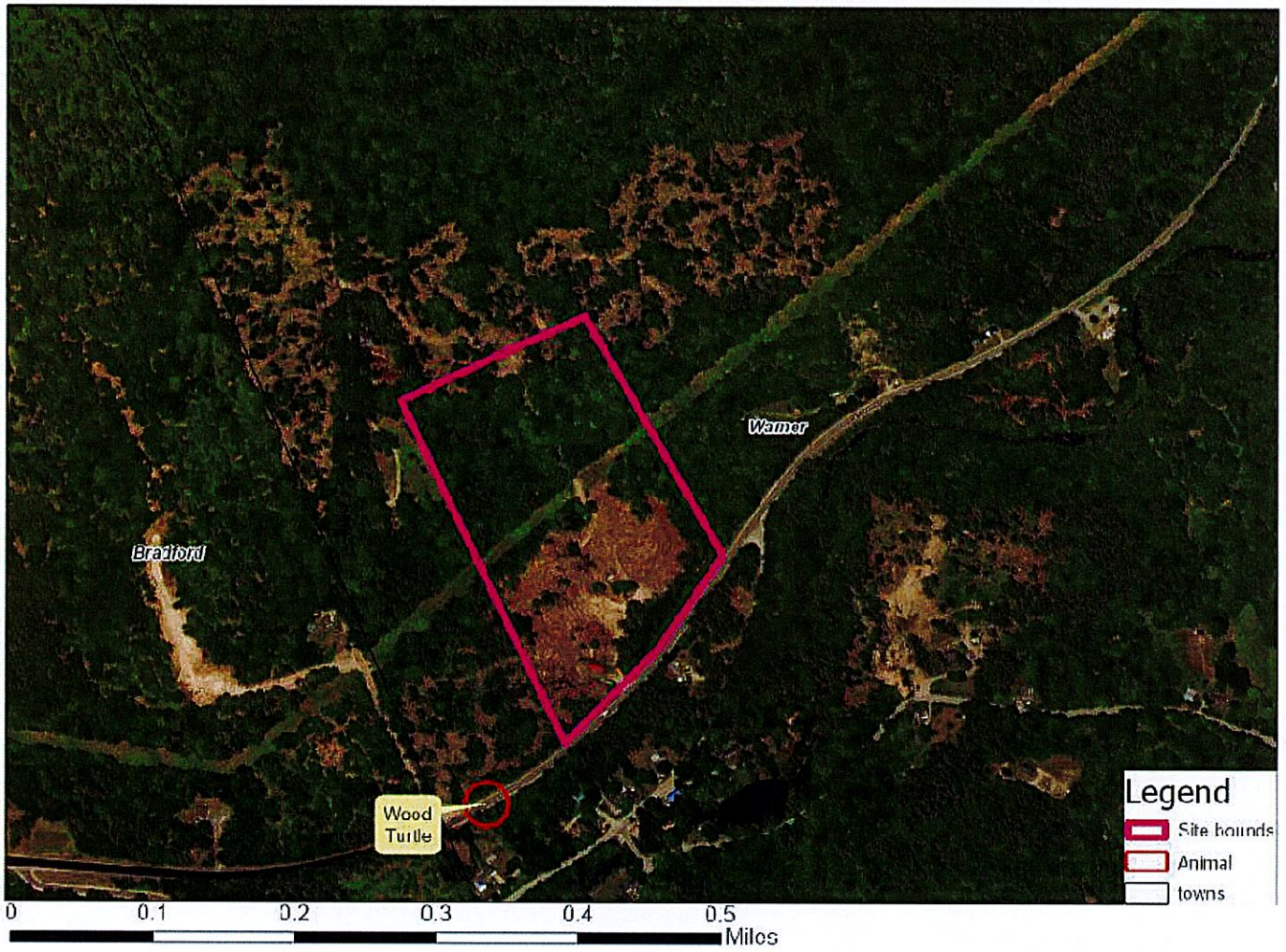
Vertebrate species	State[1]	Federal	Notes
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list.
An asterisk (*) indicates that the most recent report for that occurrence was 20 or more years ago.

For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section above.

Disclaimer: NHB's database can only tell you of known occurrences that have been reported to NHFG/NHB. Known occurrences are based on information gathered by qualified biologists or members of the public, reported to our offices, and verified by NHB/NHFG.
However, many areas have never been surveyed, or have only been surveyed for certain species.
NHB recommends surveys to determine what species/natural communities are present onsite.

NHB24-0767


Warner
Bradford
Wood Turtle
Legend
Site bounds
Animal
towns
0
0.1
0.2
0.3
0.4
0.5
Miles

NHB24-0767 EOCODE: ARAAD02020*161*NH

New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Imperiled due to rarity or vulnerability
State:	Special Concern	State:	Rare or uncommon

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank: --

Detailed Description: 2022: Area 15062: 1 adult observed, sex unknown. 2011: Area 12918: 1 adult observed, dead on road. 2007: Area 12247: 1 observed. 2005: Area 12133: 1 observed.

General Area: 2022: Area 15062: Fallow field with clover, cinquefoil, dandelion, and other grasses and forbs. 2011: Area 12918: Roadside. 2007: Area 12247: This area contains a relatively large, open floodplain forest of white pine, maple, American hophornbeam, and various grasses and other herbaceous plants. 2005: Area 12133: Residential yard.

General Comments: --

Management Comments: --

Location

Survey Site Name: West Branch of Hoyt River
Managed By: Bradford Pines Natural Area

County: Merrimack
Town(s): Bradford
Size: 40.9 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2022: Area 15062: Field next to Hoyt Brook on east side of Center Road in Bradford, just south of NH Route 103 and Warner River. 2011: Area 12918: On Warner Road (Rte. 103) near Bradford town line. 2007: Area 12247: In the West Branch Warner River, about 500 feet downstream from the large white pines of the Bradford Natural Pines area. 2005: Area 12133: 56 Fairgrounds Road, Bradford.

Dates documented

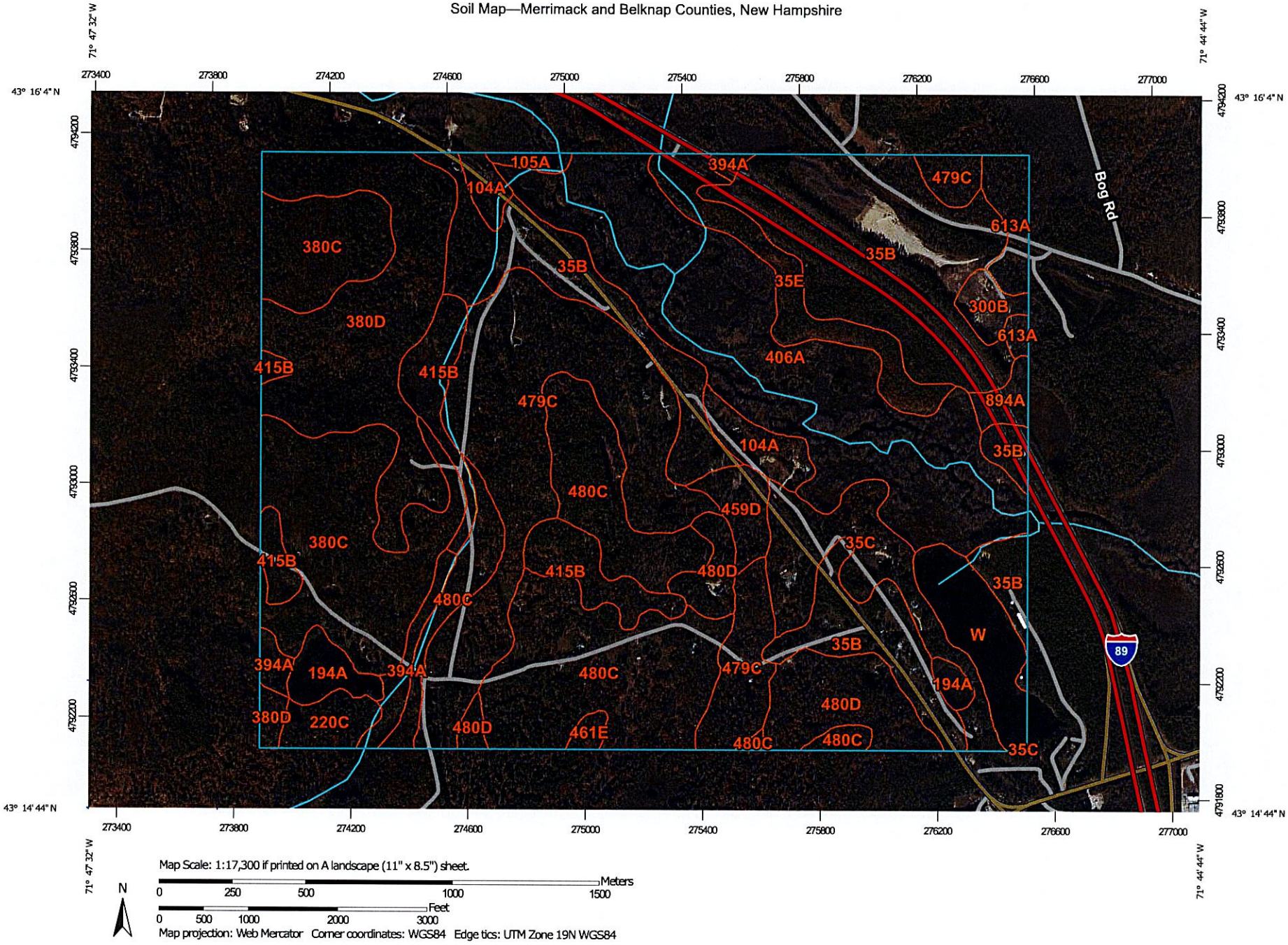
First reported: 2005-06-11 Last reported: 2022-05-21

NHB24-0767 EOCODE: ARAAD02020*161*NH

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

12. WEB SOIL SURVEY

Soil Map—Merrimack and Belknap Counties, New Hampshire



Map Scale: 1:17,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 250 500 1000 1500

Feet: 0 500 1000 2000 3000

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

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

Soil Survey Area: Merrimack and Belknap Counties, New Hampshire
Survey Area Data: Version 29, Aug 22, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 6, 2022—Oct 22, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
35B	Champlain loamy fine sand, 3 to 8 percent slopes	224.3	16.9%
35C	Champlain loamy fine sand, 8 to 15 percent slopes	50.2	3.8%
35E	Champlain loamy fine sand, 15 to 60 percent slopes	36.2	2.7%
104A	Podunk fine sandy loam, 0 to 3 percent slopes, frequently flooded	21.1	1.6%
105A	Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded	3.7	0.3%
194A	Catden mucky peat, 0 to 1 percent slopes, ponded	16.2	1.2%
220C	Boscawen fine sandy loam, 8 to 15 percent slopes	13.0	1.0%
300B	Udipsamments, 0 to 6 percent slopes	9.0	0.7%
380C	Tunbridge-Lyman-Becket complex, 8 to 15 percent slopes, very stony	132.3	10.0%
380D	Tunbridge-Lyman-Becket complex, 15 to 25 percent slopes, very stony	116.7	8.8%
394A	Chocorua mucky peat, 0 to 1 percent slopes	16.8	1.3%
406A	Medomak mucky silt loam, 0 to 2 percent slopes, frequently flooded	183.8	13.9%
415B	Moosilauke fine sandy loam, 3 to 8 percent slopes, very stony	48.2	3.6%
459D	Metacomet fine sandy loam, 15 to 25 percent slopes, very stony	13.4	1.0%
461E	Woodstock-Millsite-Rock outcrop complex, 35 to 60 percent slopes	3.2	0.2%
479C	Gilmanton fine sandy loam, 8 to 15 percent slopes, very stony	172.7	13.0%
480C	Millsite-Woodstock-Henniker complex, 8 to 15 percent slopes, very stony	158.9	12.0%
480D	Millsite-Woodstock-Henniker complex, 15 to 25 percent slopes, very stony	50.9	3.8%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
613A	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	16.9	1.3%
894A	Meadowsedge peat, 0 to 1 percent slopes	7.3	0.5%
W	Water	31.0	2.3%
Totals for Area of Interest		**1,325.7**	**100.0%**

13. AERIAL PHOTOGRAPH

Aerial Map

Legend

- Parcels
- State
- County
- City/Town

Map Scale
1: 5,000

Map Generated: 2/25/2025

Notes

14. SITE PHOTOGRAPHS

Photo No. 1: Looking west on Map 7 Lot 39 (taken: 2/3/25)

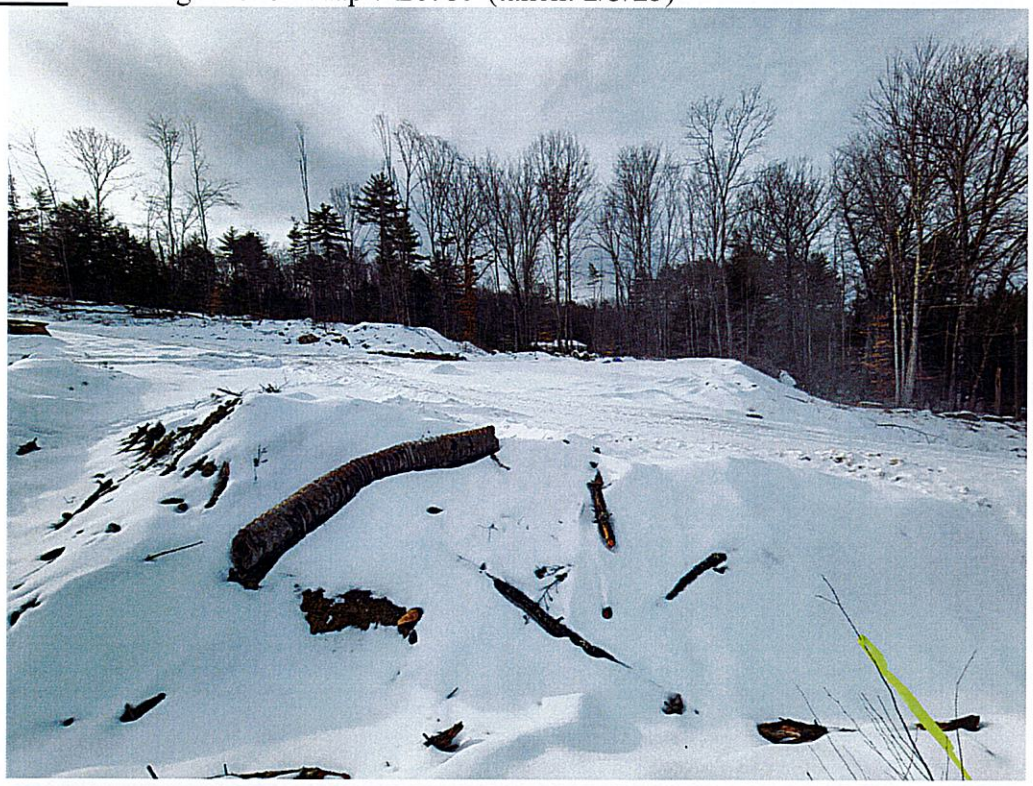


Photo No. 2: Looking east on Map 7 Lot 39 (taken: 2/3/25)

Photo No. 3: Looking north to Route 103 from Map 7 Lot 39 (taken: 2/3/25)

Photo No. 4: Looking south on Map 7 Lot 39 (taken: 2/3/25)

15. GRV CALCULATIONS

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

0.44	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.42	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
-	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.33	inches	Rd = Weighted groundwater recharge depth	
0.281	ac-in	GRV = AI * Rd	
1,020	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

16. BMP WORKSHEETS

17. EXTREME PRECIPITATION TABLES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Practice 21P**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
2.46	ac	A = Area draining to the practice	
0.64	ac	A_I = Impervious area draining to the practice	
0.26	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.28	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.70	ac-in	WQV= 1" x Rv x A	
2,537	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
634	cf	25% x WQV (check calc for sediment forebay volume)	
NA		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
3,200	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
238	sf	A_{SA} = Surface area of the bottom of the pond	
3.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
42.6	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
466.00	feet	E_{BTM} = Elevation of the bottom of the basin	
464.22	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
456.89	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.78	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
9.1	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
3.0	:1	If a basin is proposed, pond side slopes.	≥3:1
469.75	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
469.82	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
470.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Summary for Pond 21P: Infiltration Basin

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 1.68" for 10 yr event
Inflow = 1.43 cfs @ 12.29 hrs, Volume= 0.344 af
Outflow = 1.36 cfs @ 12.51 hrs, Volume= 0.283 af, Atten= 5%, Lag= 12.8 min
Discarded = 0.13 cfs @ 12.51 hrs, Volume= 0.140 af
Primary = 1.23 cfs @ 12.51 hrs, Volume= 0.142 af
Routed to Reach 20R : Overland Flow to 20P
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 20R : Overland Flow to 20P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 469.75' @ 12.51 hrs Surf.Area= 1,822 sf Storage= 3,378 cf
Flood Elev= 470.00' Surf.Area= 1,983 sf Storage= 3,854 cf

Plug-Flow detention time= 140.7 min calculated for 0.283 af (82% of inflow)
Center-of-Mass det. time= 62.0 min (898.4 - 836.4)

Volume	Invert	Avail.Storage	Storage Description
#1	466.00'	3,854 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
466.00	238	61.0	0	0	238
468.00	887	160.0	1,056	1,056	1,993
470.00	1,983	201.0	2,797	3,854	3,225

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	465.00'	**18.0" Round Culvert** L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 465.00' / 464.75' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	469.65'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads
#4	Secondary	469.75'	**4.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.13 cfs @ 12.51 hrs HW=469.75' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=1.23 cfs @ 12.51 hrs HW=469.75' TW=453.59' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 1.23 cfs of 17.02 cfs potential flow)
↑—**3=Grate** (Weir Controls 1.23 cfs @ 1.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=466.00' TW=453.50' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 21P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
466.00	238	0
466.05	249	12
466.10	261	25
466.15	272	38
466.20	284	52
466.25	297	67
466.30	309	82
466.35	322	98
466.40	335	114
466.45	348	131
466.50	362	149
466.55	375	167
466.60	389	186
466.65	404	206
466.70	418	227
466.75	433	248
466.80	448	270
466.85	463	293
466.90	479	316
466.95	495	341
467.00	511	366
467.05	527	392
467.10	544	419
467.15	561	446
467.20	578	475
467.25	595	504
467.30	613	534
467.35	631	565
467.40	649	597
467.45	667	630
467.50	686	664
467.55	705	699
467.60	724	735
467.65	744	771
467.70	763	809
467.75	783	848
467.80	804	887
467.85	824	928
467.90	845	970
467.95	866	1,012
468.00	887	1,056
468.05	909	1,101
468.10	931	1,147
468.15	954	1,194
468.20	977	1,243
468.25	1,000	1,292
468.30	1,024	1,343
468.35	1,047	1,394
468.40	1,071	1,447
468.45	1,096	1,502
468.50	1,120	1,557
468.55	1,145	1,614
468.60	1,170	1,671
468.65	1,195	1,731
468.70	1,221	1,791
468.75	1,247	1,853
468.80	1,273	1,916
468.85	1,300	1,980
468.90	1,326	2,046
468.95	1,353	2,113
469.00	1,381	2,181
469.05	1,408	2,251
469.10	1,436	2,322
469.15	1,464	2,394
469.20	1,492	2,468
469.25	1,521	2,544
469.30	1,550	2,620
469.35	1,579	2,699
469.40	1,609	2,778
469.45	1,638	2,859
469.50	1,668	2,942
469.55	1,698	3,026
469.60	1,729	3,112
469.65	1,760	3,199
469.70	1,791	3,288
469.75	1,822	3,378
469.80	1,854	3,470
469.85	1,886	3,564
469.90	1,918	3,659
469.95	1,950	3,755
470.00	**1,983**	**3,854**

Summary for Pond 21P: Infiltration Basin

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 2.90" for 50 yr event
Inflow = 3.07 cfs @ 12.38 hrs, Volume= 0.594 af
Outflow = 3.06 cfs @ 12.40 hrs, Volume= 0.522 af, Atten= 0%, Lag= 1.2 min
Discarded = 0.13 cfs @ 12.40 hrs, Volume= 0.155 af
Primary = 2.76 cfs @ 12.40 hrs, Volume= 0.360 af
Routed to Reach 20R : Overland Flow to 20P
Secondary = 0.18 cfs @ 12.40 hrs, Volume= 0.008 af
Routed to Reach 20R : Overland Flow to 20P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 469.82' @ 12.40 hrs Surf.Area= 1,867 sf Storage= 3,508 cf
Flood Elev= 470.00' Surf.Area= 1,983 sf Storage= 3,854 cf

Plug-Flow detention time= 88.4 min calculated for 0.522 af (88% of inflow)
Center-of-Mass det. time= 32.6 min (857.0 - 824.4)

Volume	Invert	Avail.Storage	Storage Description
#1	466.00'	3,854 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
466.00	238	61.0	0	0	238
468.00	887	160.0	1,056	1,056	1,993
470.00	1,983	201.0	2,797	3,854	3,225

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	465.00'	**18.0" Round Culvert** L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 465.00' / 464.75' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	469.65'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads
#4	Secondary	469.75'	**4.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.13 cfs @ 12.40 hrs HW=469.82' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=2.75 cfs @ 12.40 hrs HW=469.82' TW=453.63' (Dynamic Tailwater)
↑—**2=Culvert** (Passes 2.75 cfs of 17.17 cfs potential flow)
↑—**3=Grate** (Weir Controls 2.75 cfs @ 1.35 fps)

Secondary OutFlow Max=0.18 cfs @ 12.40 hrs HW=469.82' TW=453.63' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 0.18 cfs @ 0.63 fps)

Stage-Area-Storage for Pond 21P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
466.00	238	0
466.05	249	12
466.10	261	25
466.15	272	38
466.20	284	52
466.25	297	67
466.30	309	82
466.35	322	98
466.40	335	114
466.45	348	131
466.50	362	149
466.55	375	167
466.60	389	186
466.65	404	206
466.70	418	227
466.75	433	248
466.80	448	270
466.85	463	293
466.90	479	316
466.95	495	341
467.00	511	366
467.05	527	392
467.10	544	419
467.15	561	446
467.20	578	475
467.25	595	504
467.30	613	534
467.35	631	565
467.40	649	597
467.45	667	630
467.50	686	664
467.55	705	699
467.60	724	735
467.65	744	771
467.70	763	809
467.75	783	848
467.80	804	887
467.85	824	928
467.90	845	970
467.95	866	1,012
468.00	887	1,056
468.05	909	1,101
468.10	931	1,147
468.15	954	1,194
468.20	977	1,243
468.25	1,000	1,292
468.30	1,024	1,343
468.35	1,047	1,394
468.40	1,071	1,447
468.45	1,096	1,502
468.50	1,120	1,557
468.55	1,145	1,614
468.60	1,170	1,671
468.65	1,195	1,731
468.70	1,221	1,791
468.75	1,247	1,853
468.80	1,273	1,916
468.85	1,300	1,980
468.90	1,326	2,046
468.95	1,353	2,113
469.00	1,381	2,181
469.05	1,408	2,251
469.10	1,436	2,322
469.15	1,464	2,394
469.20	1,492	2,468
469.25	1,521	2,544
469.30	1,550	2,620
469.35	1,579	2,699
469.40	1,609	2,778
469.45	1,638	2,859
469.50	1,668	2,942
469.55	1,698	3,026
469.60	1,729	3,112
469.65	1,760	3,199
469.70	1,791	3,288
469.75	1,822	3,378
469.80	1,854	3,470
469.85	1,886	3,564
469.90	1,918	3,659
469.95	1,950	3,755
470.00	**1,983**	**3,854**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Pocket Pond 22P**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

2.46	ac	A = Area draining to the practice	
0.64	ac	A_I = Impervious area draining to the practice	
0.26	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.28	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.70	ac-in	WQV= 1" x Rv x A	
2,537	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
254	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
1,269	cf	50% x WQV (check calc for extended detention volume)	
292	cf	V_{SED} = Sediment forebay volume	**≥ 10%WQV**
3,827	cf	V_{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention?[1]	**≤ 50% WQV**
-		V_{ED} = Volume of extended detention (if "yes" is given in box above)	
		E_{ED} = Elevation of WQV if "yes" is given in box above[2]	
-	cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
	cfs	Q_{EDmax} = Discharge at the E_{ED} (attach stage-discharge table)	**< $2Q_{avg}$**
-	hours	T_{ED} = Drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	**≥ 24-hrs**
3.00	:1	Pond side slopes	**≥3:1**
468.63	ft	Elevation of seasonal high water table	
469.35	ft	Elevation of lowest pond outlet	
463.63	ft	Max floor = Maximum elevation of pond bottom (ft)	
460.63	ft	Minimum floor (to maintain depth at less than 8')	**≤ 8 ft**
466.00	ft	Elevation of pond floor[3]	**≤ Max floor and > Min floor**
80.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
30.00	ft	Average width ([average of the top width + average bottom width]/2)	
2.67	:1	Length to average width ratio	**≥ 3:1**
No	Yes/No	Is the perimeter curvilinear.	**← Yes**
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	**← Yes**
No	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:		grades	
		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
471.54	ft	Peak elevation of the 50-year storm event	
472.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	**←yes**

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.

2. This is the elevation of WQV if the hydrologic analysis is set up to include the permanent pool storage in the node description.

3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Summary for Pond 22P: Pocket Pond 22P

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 2.97" for 50 yr event
Inflow = 6.86 cfs @ 12.11 hrs, Volume= 0.607 af
Outflow = 3.07 cfs @ 12.38 hrs, Volume= 0.594 af, Atten= 55%, Lag= 15.9 min
Primary = 3.07 cfs @ 12.38 hrs, Volume= 0.594 af
Routed to Pond 21P : Infiltration Basin
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 21P : Infiltration Basin

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Starting Elev= 469.35' Surf.Area= 1,930 sf Storage= 3,827 cf
Peak Elev= 471.54' @ 12.38 hrs Surf.Area= 4,541 sf Storage= 9,824 cf (5,997 cf above start)
Flood Elev= 472.00' Surf.Area= 5,229 sf Storage= 12,066 cf (8,239 cf above start)

Plug-Flow detention time= 144.4 min calculated for 0.506 af (83% of inflow)
Center-of-Mass det. time= 28.1 min (824.4 - 796.3)

Volume	Invert	Avail.Storage	Storage Description
#1	466.00'	12,066 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
466.00	492	103.6	0	0	492
468.00	1,258	151.6	1,691	1,691	1,500
470.00	2,304	194.4	3,510	5,201	2,728
471.00	2,916	213.3	2,604	7,805	3,374
471.50	4,482	493.2	1,836	9,640	19,111
472.00	5,229	502.6	2,425	12,066	19,897

Device	Routing	Invert	Outlet Devices
#1	Primary	469.00'	**12.0" Round Culvert** L= 21.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 469.00' / 468.00' S= 0.0476 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	469.35'	**5.0" Vert. 5" Orifices X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	470.80'	**5.0" Vert. 5" Orifices X 2.00** C= 0.600 Limited to weir flow at low heads
#4	Device 1	471.25'	**Weir, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.40 Width (feet) 0.75 0.75
#5	Device 1	471.65'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads
#6	Secondary	471.75'	**4.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=3.06 cfs @ 12.38 hrs HW=471.54' TW=469.82' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 3.06 cfs of 4.96 cfs potential flow)
  ↑—**2=5" Orifices** (Orifice Controls 1.72 cfs @ 6.31 fps)
  —**3=5" Orifices** (Orifice Controls 0.96 cfs @ 3.51 fps)
  —**4=Weir** (Weir Controls 0.38 cfs @ 1.76 fps)
  —**5=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=469.35' TW=466.00' (Dynamic Tailwater)
↑—**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Stage-Area-Storage for Pond 22P: Pocket Pond 22P

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
466.00	492	0
466.10	522	51
466.20	553	104
466.30	584	161
466.40	617	221
466.50	650	285
466.60	685	351
466.70	720	422
466.80	756	495
466.90	793	573
467.00	831	654
467.10	870	739
467.20	909	828
467.30	950	921
467.40	991	1,018
467.50	1,033	1,119
467.60	1,077	1,225
467.70	1,121	1,335
467.80	1,166	1,449
467.90	1,211	1,568
468.00	1,258	1,691
468.10	1,303	1,819
468.20	1,348	1,952
468.30	1,395	2,089
468.40	1,442	2,231
468.50	1,490	2,377
468.60	1,539	2,529
468.70	1,588	2,685
468.80	1,639	2,846
468.90	1,690	3,013
469.00	1,742	3,184
469.10	1,794	3,361
469.20	1,848	3,543
469.30	1,902	3,731
469.40	1,957	3,924
469.50	2,013	4,122
469.60	2,070	4,326
469.70	2,127	4,536
469.80	2,185	4,752
469.90	2,244	4,973
470.00	2,304	5,201
470.10	2,362	5,434
470.20	2,421	5,673
470.30	2,480	5,918
470.40	2,540	6,169
470.50	2,601	6,426
470.60	2,663	6,689
470.70	2,725	6,959
470.80	2,788	7,234
470.90	2,852	7,516
471.00	2,916	7,805
471.10	3,202	8,111
471.20	3,502	8,446
471.30	3,815	8,811
471.40	4,142	9,209
471.50	4,482	9,640
471.60	4,627	10,096
471.70	4,774	10,566
471.80	4,923	11,051
471.90	5,075	11,551
472.00	**5,229**	**12,066**

Summary for Pond 23P: Sediment Forebay 23P

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 2.97" for 50 yr event
Inflow = 6.86 cfs @ 12.11 hrs, Volume= 0.607 af
Outflow = 6.86 cfs @ 12.11 hrs, Volume= 0.607 af, Atten= 0%, Lag= 0.0 min
Primary = 6.86 cfs @ 12.11 hrs, Volume= 0.607 af
Routed to Pond 22P : Pocket Pond 22P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 471.75' @ 12.13 hrs Surf.Area= 570 sf Storage= 0 cf
Flood Elev= 472.00' Surf.Area= 650 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	469.00'	0 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 792 cf Overall x 0.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
469.00	3	16.6	0	0	3
470.00	135	65.6	53	53	326
471.00	363	86.1	240	292	585
472.00	650	105.0	500	792	888

Device	Routing	Invert	Outlet Devices
#1	Primary	471.00'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=6.86 cfs @ 12.11 hrs HW=471.74' TW=471.03' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 6.86 cfs @ 2.31 fps)

Stage-Area-Storage for Pond 23P: Sediment Forebay 23P

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
469.00	3	**0**
469.05	5	0
469.10	7	0
469.15	10	0
469.20	14	0
469.25	18	0
469.30	22	0
469.35	27	0
469.40	32	0
469.45	38	0
469.50	45	0
469.55	51	0
469.60	59	0
469.65	67	0
469.70	75	0
469.75	84	0
469.80	93	0
469.85	103	0
469.90	113	0
469.95	124	0
470.00	135	0
470.05	144	0
470.10	153	0
470.15	162	0
470.20	172	0
470.25	182	0
470.30	192	0
470.35	202	0
470.40	213	0
470.45	224	0
470.50	235	0
470.55	247	0
470.60	259	0
470.65	271	0
470.70	283	0
470.75	296	0
470.80	309	0
470.85	322	0
470.90	335	0
470.95	349	0
471.00	363	0
471.05	375	0
471.10	388	0
471.15	401	0
471.20	414	0
471.25	427	0
471.30	440	0
471.35	454	0
471.40	468	0
471.45	482	0
471.50	496	0
471.55	511	0
471.60	525	0
471.65	540	0
471.70	555	0
471.75	570	0
471.80	586	0
471.85	602	0
471.90	618	0
471.95	634	0
472.00	**650**	0

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Pocket Pond 41P**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

1.68	ac	A = Area draining to the practice	
0.14	ac	A_I = Impervious area draining to the practice	
0.09	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.13	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.21	ac-in	WQV= 1" x Rv x A	
775	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
77	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
387	cf	50% x WQV (check calc for extended detention volume)	
245	cf	V_{SED} = Sediment forebay volume	**≥ 10%WQV**
5,532	cf	V_{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention?[1]	**≤ 50% WQV**
-		V_{ED} = Volume of extended detention (if "yes" is given in box above)	
		E_{ED} = Elevation of WQV if "yes" is given in box above[2]	
-	cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
	cfs	Q_{EDmax} = Discharge at the E_{ED} (attach stage-discharge table)	**< $2Q_{avg}$**
-	hours	T_{ED} = Drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	**≥ 24-hrs**
3.00	:1	Pond side slopes	**≥3:1**
437.00	ft	Elevation of seasonal high water table	
440.10	ft	Elevation of lowest pond outlet	
432.00	ft	Max floor = Maximum elevation of pond bottom (ft)	
429.00	ft	Minimum floor (to maintain depth at less than 8')	**≤ 8 ft**
434.00	ft	Elevation of pond floor[3]	**≤ Max floor and > Min floor**
51.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
67.00	ft	Average width ([average of the top width + average bottom width]/2)	
0.76	:1	Length to average width ratio	**≥ 3:1**
Yes	Yes/No	Is the perimeter curvilinear.	**← Yes**
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	**← Yes**
No	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:		grades	
		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
441.67	ft	Peak elevation of the 50-year storm event	
442.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	**←yes**

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.

2. This is the elevation of WQV if the hydrologic analysis is set up to include the permanent pool storage in the node description.

3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Summary for Pond 41P: Pocket Pond 41P

Inflow Area = 1.681 ac, 8.55% Impervious, Inflow Depth > 1.88" for 50 yr event
Inflow = 2.92 cfs @ 12.12 hrs, Volume= 0.263 af
Outflow = 1.07 cfs @ 12.49 hrs, Volume= 0.248 af, Atten= 63%, Lag= 22.6 min
Primary = 1.07 cfs @ 12.49 hrs, Volume= 0.248 af
Routed to Pond 40P : Existing CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Starting Elev= 440.10' Surf.Area= 2,197 sf Storage= 5,532 cf
Peak Elev= 441.67' @ 12.49 hrs Surf.Area= 3,100 sf Storage= 9,718 cf (4,187 cf above start)
Flood Elev= 442.00' Surf.Area= 3,207 sf Storage= 10,747 cf (5,215 cf above start)

Plug-Flow detention time= 451.0 min calculated for 0.121 af (46% of inflow)
Center-of-Mass det. time= 137.8 min (981.2 - 843.3)

Volume	Invert	Avail.Storage	Storage Description
#1	434.00'	10,747 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
434.00	64	44.5	0	0	64
436.00	472	91.7	473	473	593
438.00	1,164	139.2	1,585	2,058	1,496
440.00	2,142	186.2	3,257	5,315	2,756
441.50	3,044	214.5	3,870	9,184	3,707
442.00	3,207	219.2	1,563	10,747	3,902

Device	Routing	Invert	Outlet Devices
#1	Primary	437.00'	**18.0" Round Culvert** L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 437.00' / 435.00' S= 0.0833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	440.10'	**3.0" Vert. 3" Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	441.60'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.06 cfs @ 12.49 hrs HW=441.67' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Passes 1.06 cfs of 16.85 cfs potential flow)
↑**2=3" Orifice** (Orifice Controls 0.28 cfs @ 5.79 fps)
3=Grate (Weir Controls 0.78 cfs @ 0.88 fps)

Stage-Area-Storage for Pond 41P: Pocket Pond 41P

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
434.00	64	0
434.10	75	7
434.20	88	15
434.30	101	25
434.40	115	35
434.50	131	48
434.60	147	62
434.70	164	77
434.80	182	94
434.90	201	114
435.00	221	135
435.10	242	158
435.20	264	183
435.30	286	210
435.40	310	240
435.50	335	273
435.60	360	307
435.70	387	345
435.80	414	385
435.90	443	427
436.00	472	473
436.10	499	522
436.20	527	573
436.30	556	627
436.40	586	684
436.50	616	744
436.60	647	808
436.70	679	874
436.80	712	944
436.90	745	1,016
437.00	780	1,093
437.10	815	1,172
437.20	850	1,256
437.30	887	1,342
437.40	924	1,433
437.50	962	1,527
437.60	1,001	1,625
437.70	1,041	1,727
437.80	1,081	1,834
437.90	1,122	1,944
438.00	1,164	2,058
438.10	1,206	2,177
438.20	1,248	2,299
438.30	1,292	2,426
438.40	1,336	2,558
438.50	1,381	2,693
438.60	1,426	2,834
438.70	1,473	2,979
438.80	1,520	3,128
438.90	1,567	3,283
439.00	1,616	3,442
439.10	1,665	3,606
439.20	1,715	3,775
439.30	1,766	3,949
439.40	1,818	4,128
439.50	1,870	4,313
439.60	1,923	4,502
439.70	1,976	4,697
439.80	2,031	4,897
439.90	2,086	5,103
440.00	2,142	5,315
440.10	2,197	5,532
440.20	2,253	5,754
440.30	2,310	5,982
440.40	2,367	6,216
440.50	2,425	6,456
440.60	2,484	6,701
440.70	2,543	6,953
440.80	2,603	7,210
440.90	2,664	7,473
441.00	2,726	7,743
441.10	2,788	8,018
441.20	2,851	8,300
441.30	2,915	8,589
441.40	2,979	8,883
441.50	3,044	9,184
441.60	3,076	9,490
441.70	3,109	9,800
441.80	3,141	10,112
441.90	3,174	10,428
442.00	**3,207**	**10,747**

Summary for Pond 415P: Sediment Forebay 415P

Inflow Area = 1.023 ac, 13.11% Impervious, Inflow Depth > 2.21" for 50 yr event
Inflow = 2.06 cfs @ 12.12 hrs, Volume= 0.189 af
Outflow = 2.05 cfs @ 12.13 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.7 min
Primary = 2.05 cfs @ 12.13 hrs, Volume= 0.183 af
Routed to Pond 41P : Pocket Pond 41P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 441.85' @ 12.13 hrs Surf.Area= 408 sf Storage= 369 cf
Flood Elev= 442.00' Surf.Area= 454 sf Storage= 435 cf

Plug-Flow detention time= 33.7 min calculated for 0.183 af (97% of inflow)
Center-of-Mass det. time= 16.4 min (840.8 - 824.4)

Volume	Invert	Avail.Storage	Storage Description
#1	439.50'	435 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
439.50	7	13.1	0	0	7
441.50	313	89.1	245	245	633
442.00	454	98.5	191	435	781

Device	Routing	Invert	Outlet Devices
#1	Primary	441.50'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=2.03 cfs @ 12.13 hrs HW=441.85' TW=441.07' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.03 cfs @ 1.47 fps)

Stage-Area-Storage for Pond 415P: Sediment Forebay 415P

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
439.50	7	0
439.55	9	0
439.60	12	1
439.65	14	2
439.70	17	2
439.75	20	3
439.80	24	4
439.85	28	6
439.90	32	7
439.95	36	9
440.00	41	11
440.05	46	13
440.10	51	15
440.15	57	18
440.20	63	21
440.25	69	24
440.30	75	28
440.35	82	32
440.40	89	36
440.45	96	41
440.50	103	46
440.55	111	51
440.60	119	57
440.65	128	63
440.70	136	70
440.75	145	77
440.80	154	84
440.85	164	92
440.90	174	101
440.95	184	110
441.00	194	119
441.05	205	129
441.10	216	139
441.15	227	150
441.20	238	162
441.25	250	174
441.30	262	187
441.35	274	201
441.40	287	215
441.45	300	229
441.50	313	245
441.55	326	261
441.60	339	277
441.65	353	294
441.70	366	312
441.75	380	331
441.80	394	350
441.85	409	371
441.90	424	391
441.95	439	413
442.00	**454**	**435**

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.255 degrees North
Longitude	71.765 degrees West
Elevation	140 feet
Date/Time	Wed Jun 05 2024 12:33:03 GMT-0400 (Eastern Daylight Time)

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	0.81	1.02	**1yr**	0.70	0.97	1.18	1.48	1.87	2.35	2.55	**1yr**	2.08	2.45	2.90	3.60	4.12	**1yr**
2yr	0.31	0.48	0.60	0.79	0.99	1.25	**2yr**	0.86	1.14	1.44	1.80	2.23	2.78	3.11	**2yr**	2.46	2.99	3.48	4.16	4.75	**2yr**
5yr	0.37	0.58	0.72	0.97	1.24	1.57	**5yr**	1.07	1.44	1.81	2.26	2.79	3.44	3.93	**5yr**	3.04	3.78	4.38	5.15	5.84	**5yr**
10yr	0.42	0.66	0.83	1.13	1.47	1.87	**10yr**	1.27	1.72	2.17	2.69	3.31	4.04	4.70	**10yr**	3.58	4.52	5.21	6.05	6.83	**10yr**
25yr	0.49	0.79	1.00	1.38	1.83	2.35	**25yr**	1.58	2.16	2.73	3.38	4.14	5.01	5.94	**25yr**	4.43	5.71	6.56	7.50	8.40	**25yr**
50yr	0.56	0.90	1.15	1.61	2.17	2.80	**50yr**	1.87	2.58	3.25	4.03	4.90	5.89	7.11	**50yr**	5.22	6.83	7.81	8.82	9.82	**50yr**
100yr	0.64	1.03	1.33	1.89	2.58	3.34	**100yr**	2.22	3.07	3.89	4.80	5.81	6.94	8.50	**100yr**	6.14	8.17	9.31	10.38	11.49	**100yr**
200yr	0.73	1.20	1.55	2.22	3.06	3.98	**200yr**	2.64	3.67	4.63	5.70	6.88	8.17	10.17	**200yr**	7.23	9.78	11.09	12.22	13.45	**200yr**
500yr	0.88	1.45	1.88	2.73	3.83	5.01	**500yr**	3.30	4.64	5.84	7.17	8.61	10.16	12.90	**500yr**	8.99	12.41	14.00	15.18	16.57	**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	0.61	0.75	0.88	1yr	0.64	0.86	0.95	1.28	1.57	1.90	2.28	1yr	1.68	2.19	2.58	3.07	3.62	1yr
2yr	0.30	0.46	0.57	0.77	0.95	1.13	2yr	0.82	1.10	1.29	1.71	2.21	2.69	3.00	2yr	2.38	2.88	3.35	4.02	4.60	2yr
5yr	0.34	0.52	0.65	0.89	1.13	1.33	5yr	0.97	1.30	1.50	1.96	2.54	3.17	3.59	5yr	2.81	3.45	3.98	4.74	5.42	5yr
10yr	0.38	0.58	0.72	1.01	1.30	1.52	10yr	1.12	1.48	1.68	2.17	2.82	3.60	4.10	10yr	3.19	3.95	4.52	5.36	6.09	10yr
25yr	0.43	0.65	0.81	1.16	1.53	1.78	25yr	1.32	1.74	1.96	2.48	3.23	4.25	4.89	25yr	3.76	4.70	5.35	6.33	7.11	25yr
50yr	0.47	0.72	0.89	1.29	1.73	1.99	50yr	1.49	1.95	2.18	2.76	3.57	4.83	5.57	50yr	4.28	5.36	6.07	7.19	8.03	50yr
100yr	0.52	0.79	0.99	1.42	1.95	2.24	100yr	1.68	2.19	2.43	3.07	3.96	5.50	6.37	100yr	4.87	6.12	6.89	8.18	9.07	100yr
200yr	0.57	0.86	1.09	1.57	2.20	2.52	200yr	1.90	2.46	2.71	3.42	4.39	6.28	7.27	200yr	5.55	6.99	7.83	9.33	10.24	200yr
500yr	0.65	0.97	1.25	1.81	2.58	2.92	500yr	2.23	2.85	3.13	3.95	5.03	7.48	8.67	500yr	6.62	8.34	9.25	11.12	12.05	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.45	0.55	0.73	0.90	1.11	1yr	0.78	1.09	1.21	1.59	1.96	2.61	2.80	1yr	2.31	2.69	3.21	3.94	4.48	1yr
2yr	0.33	0.51	0.63	0.85	1.05	1.24	2yr	0.91	1.21	1.41	1.85	2.37	2.89	3.25	2yr	2.56	3.12	3.64	4.31	4.99	2yr
5yr	0.41	0.63	0.78	1.07	1.36	1.63	5yr	1.18	1.59	1.85	2.36	3.00	3.73	4.32	5yr	3.30	4.16	4.81	5.55	6.30	5yr
10yr	0.49	0.76	0.94	1.31	1.69	2.02	10yr	1.46	1.98	2.27	2.86	3.60	4.53	5.38	10yr	4.01	5.18	5.97	6.70	7.57	10yr
25yr	0.63	0.96	1.19	1.70	2.24	2.69	25yr	1.93	2.63	3.01	3.66	4.58	5.85	7.18	25yr	5.18	6.90	7.94	8.61	9.69	25yr
50yr	0.76	1.15	1.43	2.06	2.77	3.36	50yr	2.39	3.28	3.70	4.43	5.51	7.09	8.95	50yr	6.28	8.61	9.86	10.42	11.67	50yr
100yr	0.92	1.39	1.74	2.51	3.44	4.19	100yr	2.97	4.10	4.57	5.34	6.63	8.62	11.17	100yr	7.63	10.74	12.25	12.60	14.06	100yr
200yr	1.11	1.67	2.11	3.06	4.27	5.23	200yr	3.68	5.12	5.66	6.46	7.96	10.44	13.93	200yr	9.24	13.39	15.23	15.22	16.93	200yr
500yr	1.44	2.14	2.75	4.00	5.68	7.03	500yr	4.90	6.87	7.50	8.30	10.19	13.50	18.67	500yr	11.95	17.96	20.33	19.55	21.65	500yr

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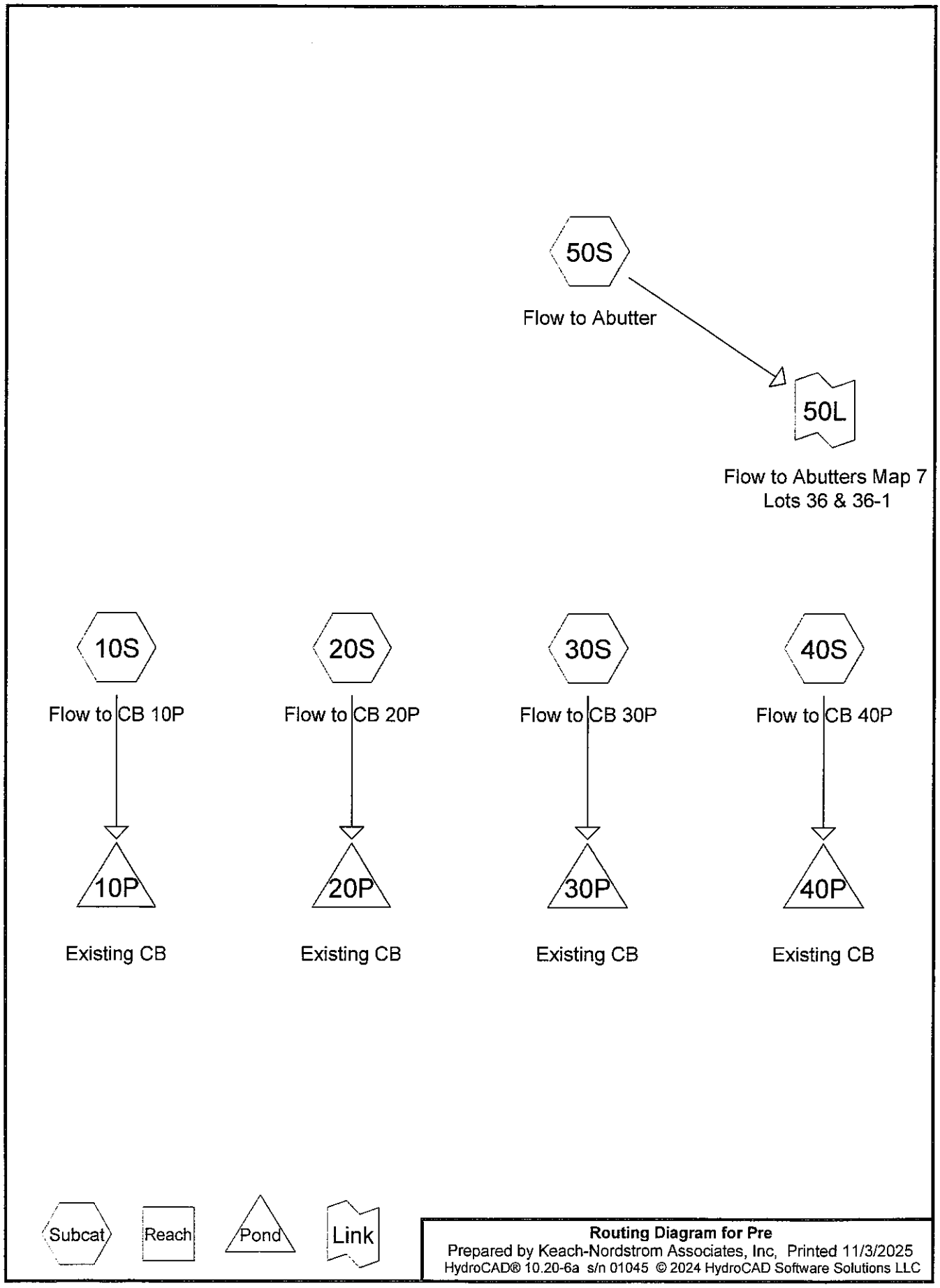
Northeast Regional Climate Center

18. HYDROCAD DRAINAGE ANALAYSIS



Routing Diagram for Pre

Prepared by Keach-Nordstrom Associates, Inc, Printed 11/3/2025

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10S: Flow to CB 10P Runoff Area=138,949 sf 3.22% Impervious Runoff Depth>1.23"
Flow Length=1,135' Tc=17.9 min CN=WQ Runoff=3.00 cfs 0.326 af

Subcatchment20S: Flow to CB 20P Runoff Area=314,828 sf 3.69% Impervious Runoff Depth>1.45"
Flow Length=1,000' Tc=16.1 min CN=WQ Runoff=8.10 cfs 0.871 af

Subcatchment30S: Flow to CB 30P Runoff Area=85,116 sf 6.62% Impervious Runoff Depth>1.52"
Flow Length=905' Tc=21.0 min CN=WQ Runoff=2.08 cfs 0.247 af

Subcatchment40S: Flow to CB 40P Runoff Area=196,868 sf 3.70% Impervious Runoff Depth>1.31"
Flow Length=1,199' Tc=18.5 min CN=WQ Runoff=4.08 cfs 0.493 af

Subcatchment50S: Flow to Abutter Runoff Area=11,007 sf 0.00% Impervious Runoff Depth>1.22"
Flow Length=213' Tc=10.6 min CN=WQ Runoff=0.25 cfs 0.026 af

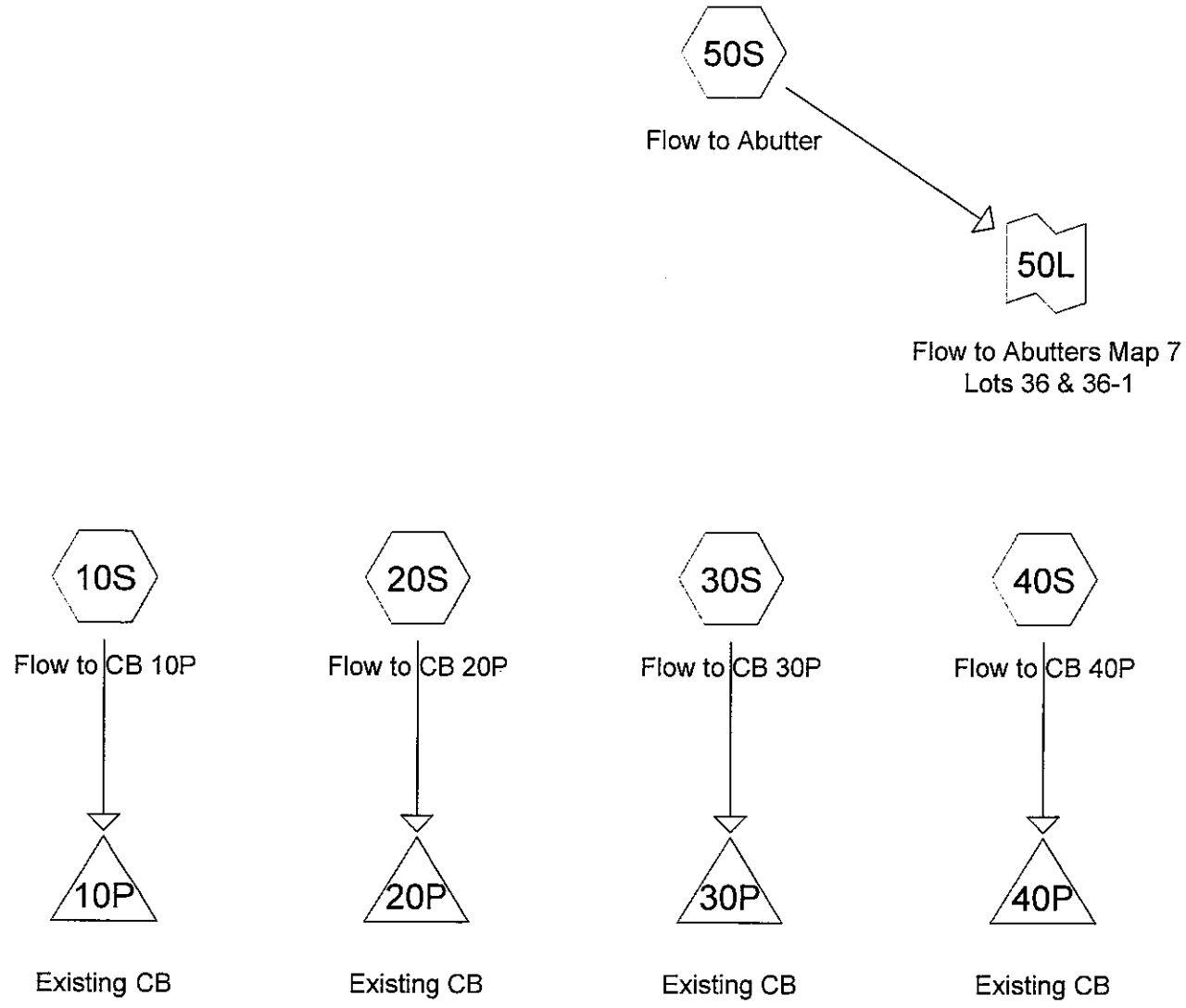
Pond 10P: Existing CB Inflow=3.00 cfs 0.326 af
Primary=3.00 cfs 0.326 af

Pond 20P: Existing CB Inflow=8.10 cfs 0.871 af
Primary=8.10 cfs 0.871 af

Pond 30P: Existing CB Inflow=2.08 cfs 0.247 af
Primary=2.08 cfs 0.247 af

Pond 40P: Existing CB Inflow=4.08 cfs 0.493 af
Primary=4.08 cfs 0.493 af

Link 50L: Flow to Abutters Map 7 Lots 36 & 36-1 Inflow=0.25 cfs 0.026 af
Primary=0.25 cfs 0.026 af



Subcat Reach Pond Link

Routing Diagram for Pre

Prepared by Keach-Nordstrom Associates, Inc, Printed 11/3/2025

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.460	39	>75% Grass cover, Good, HSG A (30S, 40S)
0.355	61	>75% Grass cover, Good, HSG B (10S, 30S, 40S)
0.263	80	>75% Grass cover, Good, HSG D (20S, 30S, 40S)
0.209	96	Gravel surface, HSG A (40S)
0.111	96	Gravel surface, HSG B (30S, 40S, 50S)
0.231	98	Paved parking, HSG A (30S, 40S)
0.242	98	Paved parking, HSG B (10S, 20S, 30S, 40S)
0.011	98	Paved parking, HSG D (40S)
0.183	98	Water Surface, HSG C (10S, 20S)
2.812	30	Woods, Good, HSG A (10S, 20S, 30S, 40S)
8.875	55	Woods, Good, HSG B (10S, 20S, 30S, 40S, 50S)
3.392	77	Woods, Good, HSG D (10S, 20S, 30S, 40S, 50S)
17.143	**58**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.460	0.355	0.000	0.263	0.000	1.078	>75% Grass cover, Good	10S, 20S, 30S, 40S
0.209	0.111	0.000	0.000	0.000	0.320	Gravel surface	30S, 40S, 50S
0.231	0.242	0.000	0.011	0.000	0.483	Paved parking	10S, 20S, 30S, 40S
0.000	0.000	0.183	0.000	0.000	0.183	Water Surface	10S, 20S
2.812	8.875	0.000	3.392	0.000	15.079	Woods, Good	10S, 20S, 30S, 40S, 50S
3.712	**9.582**	**0.183**	**3.666**	**0.000**	**17.143**	**TOTAL AREA**	

Summary for Subcatchment 10S: Flow to CB 10P

Runoff = 1.93 cfs @ 12.26 hrs, Volume= 0.220 af, Depth> 0.83"
Routed to Pond 10P : Existing CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
3,674	98	Paved parking, HSG B
6,224	61	>75% Grass cover, Good, HSG B
801	98	Water Surface, HSG C
49,768	30	Woods, Good, HSG A
39,726	55	Woods, Good, HSG B
38,756	77	Woods, Good, HSG D
138,949		Weighted Average
134,474		96.78% Pervious Area
4,475		3.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.2100	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
8.9	1,035	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.9	1,135	Total			

Summary for Subcatchment 20S: Flow to CB 20P

Runoff = 4.94 cfs @ 12.24 hrs, Volume= 0.571 af, Depth> 0.95"
Routed to Pond 20P : Existing CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
4,461	98	Paved parking, HSG B
5,323	80	>75% Grass cover, Good, HSG D
7,166	98	Water Surface, HSG C
39,209	30	Woods, Good, HSG A
179,013	55	Woods, Good, HSG B
79,656	77	Woods, Good, HSG D
314,828		Weighted Average
303,201		96.31% Pervious Area
11,627		3.69% Impervious Area

Area (sf)	CN	Description
5,021	98	Paved parking, HSG A
474	98	Paved parking, HSG D
1,792	98	Paved parking, HSG B
13,245	39	>75% Grass cover, Good, HSG A
6,161	61	>75% Grass cover, Good, HSG B
2,604	80	>75% Grass cover, Good, HSG D
20,716	30	Woods, Good, HSG A
124,642	55	Woods, Good, HSG B
3,540	96	Gravel surface, HSG B
9,098	96	Gravel surface, HSG A
9,575	77	Woods, Good, HSG D
196,868		Weighted Average
189,581		96.30% Pervious Area
7,287		3.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.2100	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
9.5	1,099	0.1500	1.94		**Shallow Concentrated Flow, Shallow** Woodland Kv= 5.0 fps
18.5	1,199	Total			

Summary for Subcatchment 50S: Flow to Abutter

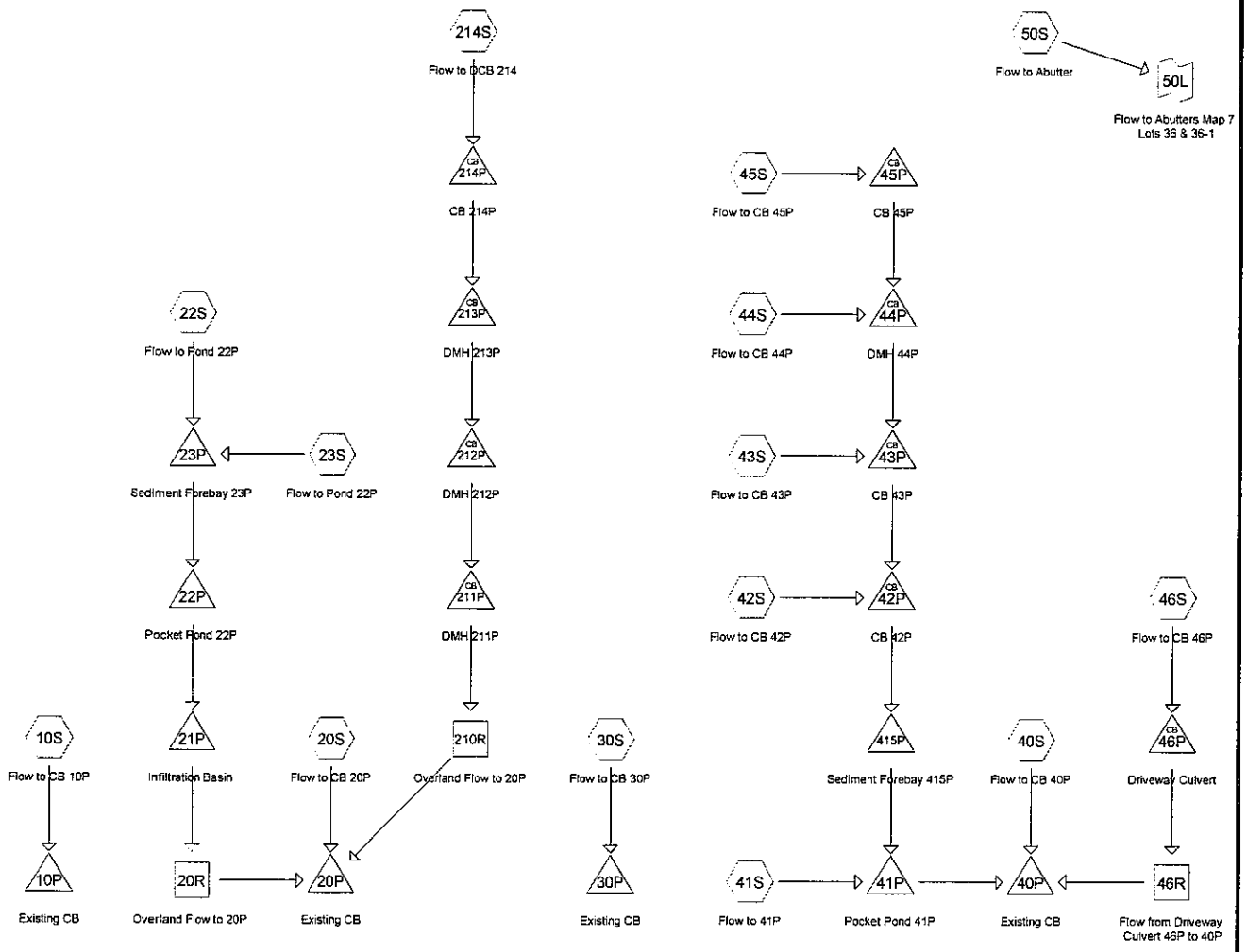
Runoff = 0.13 cfs @ 12.18 hrs, Volume= 0.016 af, Depth> 0.74"
Routed to Link 50L : Flow to Abutters Map 7 Lots 36 & 36-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
506	96	Gravel surface, HSG B
485	77	Woods, Good, HSG D
10,016	55	Woods, Good, HSG B
11,007		Weighted Average
11,007		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1800	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
1.0	113	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.6	213	Total			

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs



Routing Diagram for Post

Prepared by Keach-Nordstrom Associates, Inc, Printed 11/3/2025

Reach 210R: Overland Flow to 20P Avg. Flow Depth=0.06' Max Vel=3.93 fps Inflow=0.55 cfs 0.069 af
n=0.013 L=486.0' S=0.0874 '/' Capacity=1,073.41 cfs Outflow=0.54 cfs 0.069 af

Pond 10P: Existing CB Inflow=0.84 cfs 0.103 af
Primary=0.84 cfs 0.103 af

Pond 20P: Existing CB Inflow=1.84 cfs 0.248 af
Primary=1.84 cfs 0.248 af

Pond 21P: Infiltration Basin Peak Elev=469.70' Storage=3,286 cf Inflow=1.01 cfs 0.196 af
Discarded=0.12 cfs 0.125 af Primary=0.43 cfs 0.026 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.151 af

Pond 22P: Pocket Pond 22P Peak Elev=470.15' Storage=5,551 cf Inflow=2.18 cfs 0.200 af
Primary=1.01 cfs 0.196 af Secondary=0.00 cfs 0.000 af Outflow=1.01 cfs 0.196 af

Pond 23P: Sediment Forebay 23P Peak Elev=471.36' Storage=0 cf Inflow=2.18 cfs 0.200 af
Outflow=2.18 cfs 0.200 af

Pond 30P: Existing CB Inflow=0.49 cfs 0.053 af
Primary=0.49 cfs 0.053 af

Pond 40P: Existing CB Inflow=0.70 cfs 0.167 af
Primary=0.70 cfs 0.167 af

Pond 41P: Pocket Pond 41P Peak Elev=440.50' Storage=6,444 cf Inflow=0.60 cfs 0.059 af
Outflow=0.12 cfs 0.054 af

Pond 42P: CB 42P Peak Elev=443.62' Inflow=0.43 cfs 0.048 af
18.0" Round Culvert n=0.013 L=17.0' S=0.0782 '/' Outflow=0.43 cfs 0.048 af

Pond 43P: CB 43P Peak Elev=445.90' Inflow=0.31 cfs 0.037 af
18.0" Round Culvert n=0.013 L=38.0' S=0.0526 '/' Outflow=0.31 cfs 0.037 af

Pond 44P: DMH 44P Peak Elev=453.18' Inflow=0.16 cfs 0.018 af
15.0" Round Culvert n=0.013 L=79.0' S=0.0886 '/' Outflow=0.16 cfs 0.018 af

Pond 45P: CB 45P Peak Elev=465.96' Inflow=0.13 cfs 0.015 af
15.0" Round Culvert n=0.013 L=64.0' S=0.1219 '/' Outflow=0.13 cfs 0.015 af

Pond 46P: Driveway Culvert Peak Elev=431.37' Inflow=0.49 cfs 0.094 af
12.0" Round Culvert n=0.013 L=31.0' S=0.0161 '/' Outflow=0.49 cfs 0.094 af

Pond 211P: DMH 211P Peak Elev=473.56' Inflow=0.55 cfs 0.069 af
18.0" Round Culvert n=0.013 L=128.0' S=0.0078 '/' Outflow=0.55 cfs 0.069 af

Pond 212P: DMH 212P Peak Elev=479.57' Inflow=0.55 cfs 0.069 af
18.0" Round Culvert n=0.013 L=43.0' S=0.0988 '/' Outflow=0.55 cfs 0.069 af

Pond 213P: DMH 213P Peak Elev=488.37' Inflow=0.55 cfs 0.069 af
18.0" Round Culvert n=0.013 L=38.0' S=0.1066 '/' Outflow=0.55 cfs 0.069 af

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10S: Flow to CB 10P Runoff Area=138,730 sf 3.23% Impervious Runoff Depth>1.23"
Flow Length=1,135' Tc=17.9 min CN=WQ Runoff=2.99 cfs 0.325 af

Subcatchment20S: Flow to CB 20P Runoff Area=102,298 sf 14.98% Impervious Runoff Depth>2.12"
Flow Length=578' Tc=16.9 min CN=WQ Runoff=3.87 cfs 0.414 af

Subcatchment22S: Flow to Pond 22P Runoff Area=77,035 sf 6.46% Impervious Runoff Depth>1.78"
Flow Length=363' Tc=9.5 min CN=WQ Runoff=3.01 cfs 0.262 af

Subcatchment23S: Flow to Pond 22P Runoff Area=29,933 sf 76.64% Impervious Runoff Depth>3.80"
Flow Length=412' Tc=6.0 min CN=WQ Runoff=2.65 cfs 0.218 af

Subcatchment30S: Flow to CB 30P Runoff Area=21,407 sf 23.53% Impervious Runoff Depth>3.05"
Flow Length=310' Slope=0.0100 '/' Tc=17.8 min CN=WQ Runoff=1.19 cfs 0.125 af

Subcatchment40S: Flow to CB 40P Runoff Area=6,946 sf 32.42% Impervious Runoff Depth>3.22"
Flow Length=126' Tc=6.3 min CN=WQ Runoff=0.55 cfs 0.043 af

Subcatchment41S: Flow to 41P Runoff Area=28,634 sf 1.45% Impervious Runoff Depth>1.05"
Flow Length=142' Tc=6.0 min CN=WQ Runoff=0.69 cfs 0.057 af

Subcatchment42S: Flow to CB 42P Runoff Area=6,835 sf 27.53% Impervious Runoff Depth>1.78"
Flow Length=128' Tc=8.1 min CN=WQ Runoff=0.25 cfs 0.023 af

Subcatchment43S: Flow to CB 43P Runoff Area=19,681 sf 12.09% Impervious Runoff Depth>1.56"
Flow Length=358' Tc=11.6 min CN=WQ Runoff=0.59 cfs 0.059 af

Subcatchment44S: Flow to CB 44P Runoff Area=2,108 sf 18.50% Impervious Runoff Depth>1.97"
Flow Length=54' Slope=0.1400 '/' Tc=6.0 min CN=WQ Runoff=0.10 cfs 0.008 af

Subcatchment45S: Flow to CB 45P Runoff Area=15,951 sf 7.49% Impervious Runoff Depth>1.70"
Flow Length=159' Tc=6.0 min CN=WQ Runoff=0.66 cfs 0.052 af

Subcatchment46S: Flow to CB 46P Runoff Area=201,304 sf 2.48% Impervious Runoff Depth>1.07"
Flow Length=1,111' Tc=17.7 min CN=WQ Runoff=3.39 cfs 0.411 af

Subcatchment50S: Flow to Abutter Runoff Area=11,007 sf 0.00% Impervious Runoff Depth>1.22"
Flow Length=213' Tc=10.6 min CN=WQ Runoff=0.25 cfs 0.026 af

Subcatchment214S: Flow to DCB 214 Runoff Area=84,870 sf 0.00% Impervious Runoff Depth>1.59"
Flow Length=816' Tc=15.2 min CN=WQ Runoff=2.50 cfs 0.258 af

Reach 20R: Overland Flow to 20P Avg. Flow Depth=0.11' Max Vel=6.11 fps Inflow=2.10 cfs 0.253 af
n=0.013 L=244.0' S=0.0922 '/' Capacity=1,102.26 cfs Outflow=2.10 cfs 0.253 af

Reach 46R: Flow from Driveway Culvert Avg. Flow Depth=1.18' Max Vel=0.63 fps Inflow=3.39 cfs 0.411 af
n=0.150 L=50.0' S=0.0074 '/' Capacity=12.13 cfs Outflow=3.37 cfs 0.411 af

Pond 214P: CB 214P Peak Elev=498.23' Inflow=2.50 cfs 0.258 af
18.0" Round Culvert n=0.013 L=45.0' S=0.0989 '/' Outflow=2.50 cfs 0.258 af

Pond 415P: Sediment Forebay 415P Peak Elev=441.79' Storage=345 cf Inflow=1.52 cfs 0.142 af
Outflow=1.51 cfs 0.136 af

Link 50L: Flow to Abutters Map 7 Lots 36 & 36-1 Inflow=0.25 cfs 0.026 af
Primary=0.25 cfs 0.026 af

Reach 210R: Overland Flow to 20P Avg. Flow Depth=0.14' Max Vel=6.99 fps Inflow=3.53 cfs 0.351 af
n=0.013 L=486.0' S=0.0874 '/' Capacity=1,073.41 cfs Outflow=3.50 cfs 0.351 af

Pond 10P: Existing CB Inflow=4.05 cfs 0.435 af
Primary=4.05 cfs 0.435 af

Pond 20P: Existing CB Inflow=11.11 cfs 1.253 af
Primary=11.11 cfs 1.253 af

Pond 21P: Infiltration Basin Peak Elev=469.82' Storage=3,508 cf Inflow=3.07 cfs 0.594 af
Discarded=0.13 cfs 0.155 af Primary=2.76 cfs 0.360 af Secondary=0.18 cfs 0.008 af Outflow=3.06 cfs 0.522 af

Pond 22P: Pocket Pond 22P Peak Elev=471.54' Storage=9,824 cf Inflow=6.86 cfs 0.607 af
Primary=3.07 cfs 0.594 af Secondary=0.00 cfs 0.000 af Outflow=3.07 cfs 0.594 af

Pond 23P: Sediment Forebay 23P Peak Elev=471.75' Storage=0 cf Inflow=6.86 cfs 0.607 af
Outflow=6.86 cfs 0.607 af

Pond 30P: Existing CB Inflow=1.48 cfs 0.156 af
Primary=1.48 cfs 0.156 af

Pond 40P: Existing CB Inflow=5.65 cfs 0.882 af
Primary=5.65 cfs 0.882 af

Pond 41P: Pocket Pond 41P Peak Elev=441.67' Storage=9,718 cf Inflow=2.92 cfs 0.263 af
Outflow=1.07 cfs 0.248 af

Pond 42P: CB 42P Peak Elev=443.99' Inflow=2.06 cfs 0.189 af
18.0" Round Culvert n=0.013 L=17.0' S=0.0782 '/' Outflow=2.06 cfs 0.189 af

Pond 43P: CB 43P Peak Elev=446.26' Inflow=1.74 cfs 0.159 af
18.0" Round Culvert n=0.013 L=38.0' S=0.0526 '/' Outflow=1.74 cfs 0.159 af

Pond 44P: DMH 44P Peak Elev=453.49' Inflow=1.05 cfs 0.080 af
15.0" Round Culvert n=0.013 L=79.0' S=0.0886 '/' Outflow=1.05 cfs 0.080 af

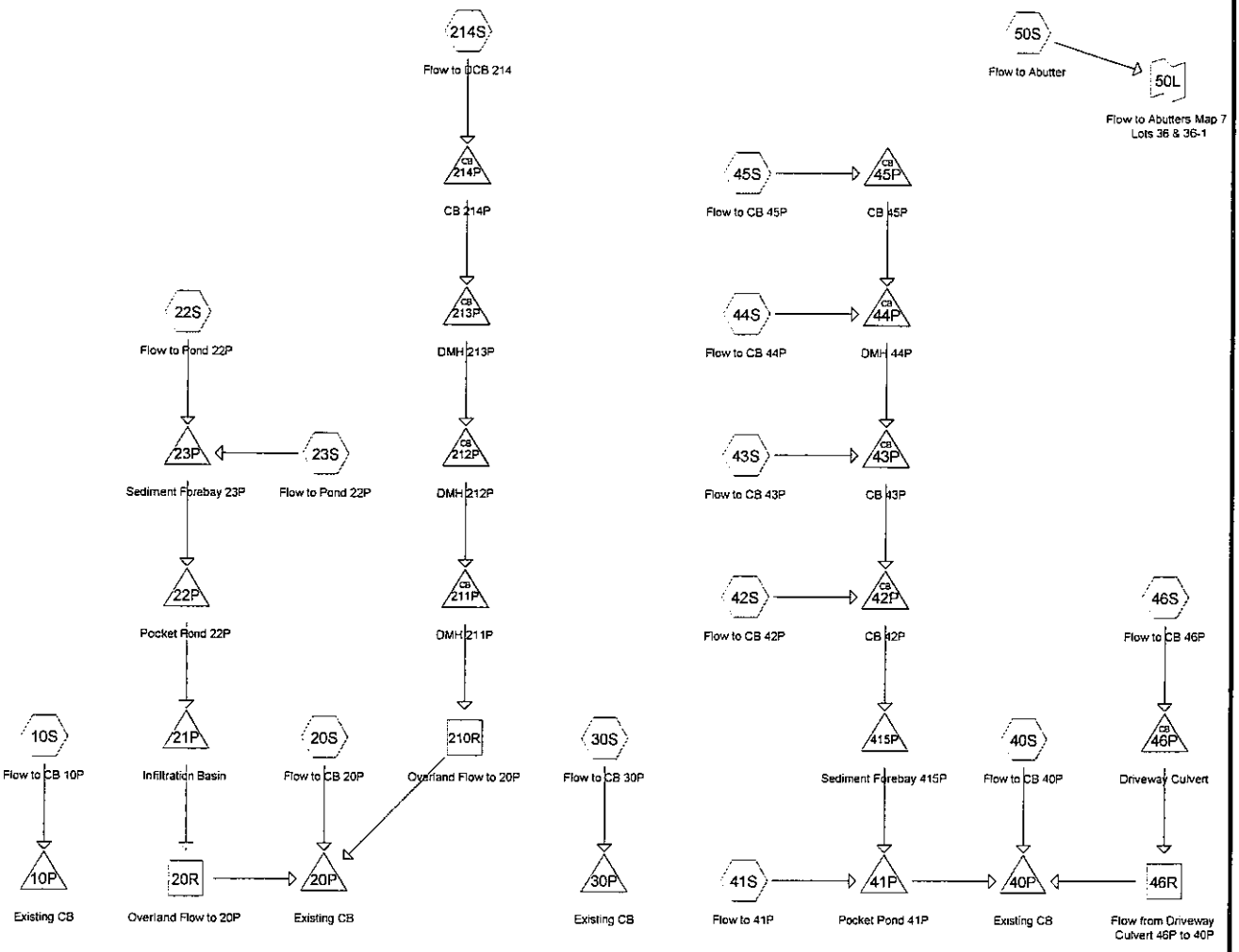
Pond 45P: CB 45P Peak Elev=466.25' Inflow=0.92 cfs 0.070 af
15.0" Round Culvert n=0.013 L=64.0' S=0.1219 '/' Outflow=0.92 cfs 0.070 af

Pond 46P: Driveway Culvert Peak Elev=433.71' Inflow=5.09 cfs 0.582 af
12.0" Round Culvert n=0.013 L=31.0' S=0.0161 '/' Outflow=5.09 cfs 0.582 af

Pond 211P: DMH 211P Peak Elev=473.88' Inflow=3.51 cfs 0.351 af
18.0" Round Culvert n=0.013 L=128.0' S=0.0078 '/' Outflow=3.53 cfs 0.351 af

Pond 212P: DMH 212P Peak Elev=480.14' Inflow=3.51 cfs 0.351 af
18.0" Round Culvert n=0.013 L=43.0' S=0.0988 '/' Outflow=3.51 cfs 0.351 af

Pond 213P: DMH 213P Peak Elev=488.94' Inflow=3.51 cfs 0.351 af
18.0" Round Culvert n=0.013 L=38.0' S=0.1066 '/' Outflow=3.51 cfs 0.351 af



Subcat Reach Pond Link

Routing Diagram for Post

Prepared by Keach-Nordstrom Associates, Inc, Printed 11/3/2025

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.300	39	>75% Grass cover, Good, HSG A (20S, 22S, 23S, 40S, 41S, 42S, 43S, 44S, 46S)
2.775	61	>75% Grass cover, Good, HSG B (10S, 20S, 22S, 23S, 30S, 41S, 42S, 43S, 44S, 45S, 46S, 214S)
1.025	80	>75% Grass cover, Good, HSG D (20S, 22S, 30S, 40S, 41S, 42S, 43S, 45S, 46S, 214S)
0.044	96	Gravel surface, HSG B (46S, 50S)
0.605	98	Paved parking, HSG A (22S, 23S, 30S, 40S, 41S, 42S, 43S, 44S, 46S)
0.502	98	Paved parking, HSG B (10S, 20S, 22S, 23S, 42S, 43S, 44S, 45S)
0.008	98	Paved parking, HSG D (40S, 46S)
0.065	98	Roofs, HSG A (22S, 23S)
0.159	98	Roofs, HSG B (22S, 23S)
0.001	98	Roofs, HSG D (22S)
0.183	98	Water Surface, HSG C (10S, 20S)
1.742	30	Woods, Good, HSG A (10S, 20S, 22S, 30S, 46S)
6.103	55	Woods, Good, HSG B (10S, 20S, 22S, 43S, 46S, 50S, 214S)
2.632	77	Woods, Good, HSG D (10S, 20S, 22S, 30S, 43S, 46S, 50S, 214S)
17.143	**61**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.300	2.775	0.000	1.025	0.000	5.100	>75% Grass cover, Good	10S, 20S, 22S, 23S, 30S, 40S, 41S, 42S, 43S, 44S, 45S, 46S, 214S
0.000	0.044	0.000	0.000	0.000	0.044	Gravel surface	46S, 50S
0.605	0.502	0.000	0.008	0.000	1.114	Paved parking	10S, 20S, 22S, 23S, 30S, 40S, 41S, 42S, 43S, 44S, 45S, 46S
0.065	0.159	0.000	0.001	0.000	0.224	Roofs	22S, 23S
0.000	0.000	0.183	0.000	0.000	0.183	Water Surface	10S, 20S
1.742	6.103	0.000	2.632	0.000	10.477	Woods, Good	10S, 20S, 22S, 30S, 43S, 46S, 50S, 214S
3.712	**9.582**	**0.183**	**3.666**	**0.000**	**17.143**	**TOTAL AREA**	

Reach 210R: Overland Flow to 20P Avg. Flow Depth=0.09' Max Vel=5.38 fps Inflow=1.50 cfs 0.166 af
n=0.013 L=486.0' S=0.0874 '/' Capacity=1,073.41 cfs Outflow=1.48 cfs 0.166 af

Pond 10P: Existing CB Inflow=1.93 cfs 0.219 af
Primary=1.93 cfs 0.219 af

Pond 20P: Existing CB Inflow=4.22 cfs 0.599 af
Primary=4.22 cfs 0.599 af

Pond 21P: Infiltration Basin Peak Elev=469.75' Storage=3,378 cf Inflow=1.43 cfs 0.344 af
Discarded=0.13 cfs 0.140 af Primary=1.23 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=1.36 cfs 0.283 af

Pond 22P: Pocket Pond 22P Peak Elev=470.82' Storage=7,304 cf Inflow=3.91 cfs 0.349 af
Primary=1.43 cfs 0.344 af Secondary=0.00 cfs 0.000 af Outflow=1.43 cfs 0.344 af

Pond 23P: Sediment Forebay 23P Peak Elev=471.52' Storage=0 cf Inflow=3.91 cfs 0.349 af
Outflow=3.91 cfs 0.349 af

Pond 30P: Existing CB Inflow=0.87 cfs 0.092 af
Primary=0.87 cfs 0.092 af

Pond 40P: Existing CB Inflow=2.14 cfs 0.402 af
Primary=2.14 cfs 0.402 af

Pond 41P: Pocket Pond 41P Peak Elev=440.99' Storage=7,705 cf Inflow=1.39 cfs 0.127 af
Outflow=0.21 cfs 0.120 af

Pond 42P: CB 42P Peak Elev=443.77' Inflow=0.98 cfs 0.096 af
18.0" Round Culvert n=0.013 L=17.0' S=0.0782 '/' Outflow=0.98 cfs 0.096 af

Pond 43P: CB 43P Peak Elev=446.05' Inflow=0.78 cfs 0.079 af
18.0" Round Culvert n=0.013 L=38.0' S=0.0526 '/' Outflow=0.78 cfs 0.079 af

Pond 44P: DMH 44P Peak Elev=453.32' Inflow=0.47 cfs 0.040 af
15.0" Round Culvert n=0.013 L=79.0' S=0.0886 '/' Outflow=0.47 cfs 0.040 af

Pond 45P: CB 45P Peak Elev=466.09' Inflow=0.40 cfs 0.034 af
15.0" Round Culvert n=0.013 L=64.0' S=0.1219 '/' Outflow=0.40 cfs 0.034 af

Pond 46P: Driveway Culvert Peak Elev=431.83' Inflow=1.79 cfs 0.250 af
12.0" Round Culvert n=0.013 L=31.0' S=0.0161 '/' Outflow=1.79 cfs 0.250 af

Pond 211P: DMH 211P Peak Elev=473.64' Inflow=1.49 cfs 0.166 af
18.0" Round Culvert n=0.013 L=128.0' S=0.0078 '/' Outflow=1.50 cfs 0.166 af

Pond 212P: DMH 212P Peak Elev=479.80' Inflow=1.49 cfs 0.166 af
18.0" Round Culvert n=0.013 L=43.0' S=0.0988 '/' Outflow=1.49 cfs 0.166 af

Pond 213P: DMH 213P Peak Elev=488.60' Inflow=1.49 cfs 0.166 af
18.0" Round Culvert n=0.013 L=38.0' S=0.1066 '/' Outflow=1.49 cfs 0.166 af

Summary for Subcatchment 10S: Flow to CB 10P

Runoff = 1.93 cfs @ 12.26 hrs, Volume= 0.219 af, Depth> 0.82"
Routed to Pond 10P : Existing CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
3,674	98	Paved parking, HSG B
6,224	61	>75% Grass cover, Good, HSG B
801	98	Water Surface, HSG C
49,768	30	Woods, Good, HSG A
39,726	55	Woods, Good, HSG B
38,537	77	Woods, Good, HSG D
138,730		Weighted Average
134,255		96.77% Pervious Area
4,475		3.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.2100	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
8.9	1,035	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.9	1,135	Total			

Summary for Subcatchment 20S: Flow to CB 20P

Runoff = 2.65 cfs @ 12.24 hrs, Volume= 0.291 af, Depth> 1.49"
Routed to Pond 20P : Existing CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
8,155	98	Paved parking, HSG B
7,166	98	Water Surface, HSG C
7,214	39	>75% Grass cover, Good, HSG A
39,175	61	>75% Grass cover, Good, HSG B
12,295	80	>75% Grass cover, Good, HSG D
2,837	30	Woods, Good, HSG A
8,405	55	Woods, Good, HSG B
17,051	77	Woods, Good, HSG D
102,298		Weighted Average
86,977		85.02% Pervious Area
15,321		14.98% Impervious Area

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
4,494	39	>75% Grass cover, Good, HSG A
2,498	61	>75% Grass cover, Good, HSG B
1,562	98	Roofs, HSG A
3,736	98	Roofs, HSG B
10,202	98	Paved parking, HSG A
7,441	98	Paved parking, HSG B
29,933		Weighted Average
6,992		23.36% Pervious Area
22,941		76.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0100	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.78"
2.1	312	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.8	412	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 30S: Flow to CB 30P

Runoff = 0.87 cfs @ 12.24 hrs, Volume= 0.092 af, Depth> 2.25"
Routed to Pond 30P : Existing CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
5,038	98	Paved parking, HSG A
214	61	>75% Grass cover, Good, HSG B
4,495	80	>75% Grass cover, Good, HSG D
995	30	Woods, Good, HSG A
10,665	77	Woods, Good, HSG D
21,407		Weighted Average
16,369		76.47% Pervious Area
5,038		23.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	50	0.0100	0.07		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.78"
6.2	260	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.8	310	Total			

Summary for Subcatchment 42S: Flow to CB 42P

Runoff = 0.19 cfs @ 12.11 hrs, Volume= 0.017 af, Depth> 1.31"
Routed to Pond 42P : CB 42P

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
1,038	98	Paved parking, HSG A
844	98	Paved parking, HSG B
3,444	39	>75% Grass cover, Good, HSG A
1,216	61	>75% Grass cover, Good, HSG B
293	80	>75% Grass cover, Good, HSG D
6,835		Weighted Average
4,953		72.47% Pervious Area
1,882		27.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.2800	0.21		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
0.1	28	0.1070	4.91		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	128	Total			

Summary for Subcatchment 43S: Flow to CB 43P

Runoff = 0.37 cfs @ 12.17 hrs, Volume= 0.039 af, Depth> 1.05"
Routed to Pond 43P : CB 43P

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
2,222	98	Paved parking, HSG A
158	98	Paved parking, HSG B
2,678	39	>75% Grass cover, Good, HSG A
4,288	61	>75% Grass cover, Good, HSG B
1,094	80	>75% Grass cover, Good, HSG D
8,779	55	Woods, Good, HSG B
462	77	Woods, Good, HSG D
19,681		Weighted Average
17,301		87.91% Pervious Area
2,380		12.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.1800	0.38		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.78"
0.3	59	0.2540	3.53		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.7	159	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 46S: Flow to CB 46P

Runoff = 1.79 cfs @ 12.30 hrs, Volume= 0.250 af, Depth> 0.65"
Routed to Pond 46P : Driveway Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Area (sf)	CN	Description
4,985	98	Paved parking, HSG A
13	98	Paved parking, HSG D
10,529	39	>75% Grass cover, Good, HSG A
8,295	61	>75% Grass cover, Good, HSG B
2,562	80	>75% Grass cover, Good, HSG D
20,733	30	Woods, Good, HSG A
144,199	55	Woods, Good, HSG B
1,414	96	Gravel surface, HSG B
8,574	77	Woods, Good, HSG D
201,304		Weighted Average
196,306		97.52% Pervious Area
4,998		2.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.2100	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.78"
8.7	1,011	0.1500	1.94		**Shallow Concentrated Flow, Shallow** Woodland Kv= 5.0 fps
17.7	1,111	Total			

Summary for Subcatchment 50S: Flow to Abutter

Runoff = 0.13 cfs @ 12.18 hrs, Volume= 0.016 af, Depth> 0.74"
Routed to Link 50L : Flow to Abutters Map 7 Lots 36 & 36-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 yr Rainfall=4.04"

Peak Storage= 58 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 4.14'
Defined Flood Depth= 2.25' Flow Area= 31.7 sf, Capacity= 1,396.82 cfs
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 1,102.26 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.013 Corrugated PE, smooth interior
Length= 244.0' Slope= 0.0922 '/'
Inlet Invert= 453.50', Outlet Invert= 431.00'

‡

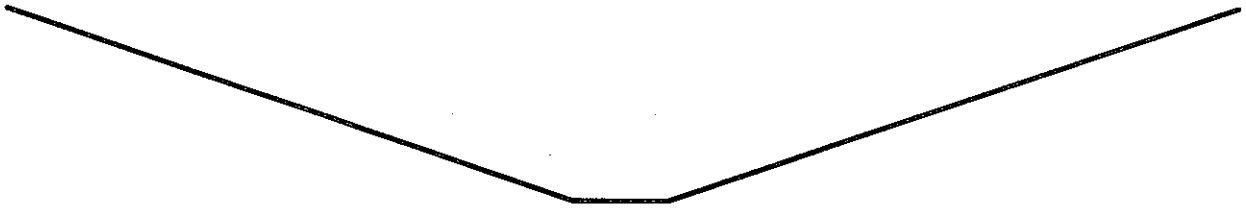
Summary for Reach 46R: Flow from Driveway Culvert 46P to 40P

Inflow Area = 4.621 ac, 2.48% Impervious, Inflow Depth > 0.65" for 10 yr event
Inflow = 1.79 cfs @ 12.30 hrs, Volume= 0.250 af
Outflow = 1.78 cfs @ 12.32 hrs, Volume= 0.250 af, Atten= 1%, Lag= 1.3 min
Routed to Pond 40P : Existing CB

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Max. Velocity= 0.54 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 3.9 min

Peak Storage= 167 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.90' , Surface Width= 6.40'
Bank-Full Depth= 2.00' Flow Area= 14.0 sf, Capacity= 12.13 cfs

1.00' x 2.00' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 3.0 '/' Top Width= 13.00'
Length= 50.0' Slope= 0.0074 '/'
Inlet Invert= 430.50', Outlet Invert= 430.13'



Summary for Reach 210R: Overland Flow to 20P

[80] Warning: Exceeded Pond 211P by 2.09' @ 0.00 hrs (9.57 cfs 1.719 af)

Inflow Area = 1.948 ac, 0.00% Impervious, Inflow Depth > 1.02" for 10 yr event
Inflow = 1.50 cfs @ 12.22 hrs, Volume= 0.166 af
Outflow = 1.48 cfs @ 12.25 hrs, Volume= 0.166 af, Atten= 1%, Lag= 1.9 min
Routed to Pond 20P : Existing CB

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 1.68" for 10 yr event
Inflow = 1.43 cfs @ 12.29 hrs, Volume= 0.344 af
Outflow = 1.36 cfs @ 12.51 hrs, Volume= 0.283 af, Atten= 5%, Lag= 12.8 min
Discarded = 0.13 cfs @ 12.51 hrs, Volume= 0.140 af
Primary = 1.23 cfs @ 12.51 hrs, Volume= 0.142 af
Routed to Reach 20R : Overland Flow to 20P
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 20R : Overland Flow to 20P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 469.75' @ 12.51 hrs Surf.Area= 1,822 sf Storage= 3,378 cf
Flood Elev= 470.00' Surf.Area= 1,983 sf Storage= 3,854 cf

Plug-Flow detention time= 140.7 min calculated for 0.283 af (82% of inflow)
Center-of-Mass det. time= 62.0 min (898.4 - 836.4)

Volume	Invert	Avail.Storage	Storage Description
#1	466.00'	3,854 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
466.00	238	61.0	0	0	238
468.00	887	160.0	1,056	1,056	1,993
470.00	1,983	201.0	2,797	3,854	3,225

Device	Routing	Invert	Outlet Devices
#1	Discarded	466.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	465.00'	**18.0" Round Culvert** L= 25.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 465.00' / 464.75' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	469.65'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads
#4	Secondary	469.75'	**4.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.13 cfs @ 12.51 hrs HW=469.75' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=1.23 cfs @ 12.51 hrs HW=469.75' TW=453.59' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.23 cfs of 17.02 cfs potential flow)
└**3=Grate** (Weir Controls 1.23 cfs @ 1.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=466.00' TW=453.50' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Primary OutFlow Max=1.43 cfs @ 12.29 hrs HW=470.75' TW=469.55' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.43 cfs of 4.14 cfs potential flow)
  ├─**2=5" Orifices** (Orifice Controls 1.43 cfs @ 5.25 fps)
  ├─**3=5" Orifices** (Controls 0.00 cfs)
  ├─**4=Weir** (Controls 0.00 cfs)
  └─**5=Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=469.35' TW=466.00' (Dynamic Tailwater)
└─**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 23P: Sediment Forebay 23P

Inflow Area = 2.456 ac, 26.10% Impervious, Inflow Depth > 1.71" for 10 yr event
Inflow = 3.91 cfs @ 12.11 hrs, Volume= 0.349 af
Outflow = 3.91 cfs @ 12.11 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.0 min
Primary = 3.91 cfs @ 12.11 hrs, Volume= 0.349 af
Routed to Pond 22P : Pocket Pond 22P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 471.52' @ 12.11 hrs Surf.Area= 501 sf Storage= 0 cf
Flood Elev= 472.00' Surf.Area= 650 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	469.00'	0 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 792 cf Overall x 0.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
469.00	3	16.6	0	0	3
470.00	135	65.6	53	53	326
471.00	363	86.1	240	292	585
472.00	650	105.0	500	792	888

Device	Routing	Invert	Outlet Devices
#1	Primary	471.00'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=3.87 cfs @ 12.11 hrs HW=471.51' TW=470.32' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 3.87 cfs @ 1.88 fps)

Device	Routing	Invert	Outlet Devices
#1	Primary	437.00'	**18.0" Round Culvert** L= 24.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 437.00' / 435.00' S= 0.0833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	440.10'	**3.0" Vert. 3" Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	441.60'	**2.0" x 2.0" Horiz. Grate X 10.00 columns** X 10 rows C= 0.600 in 36.0" x 36.0" Grate (31% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.97 hrs HW=440.99' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.21 cfs of 15.31 cfs potential flow)
  ├**2=3" Orifice** (Orifice Controls 0.21 cfs @ 4.20 fps)
  └**3=Grate** (Controls 0.00 cfs)

Summary for Pond 42P: CB 42P

Inflow Area = 1.023 ac, 13.11% Impervious, Inflow Depth > 1.13" for 10 yr event
Inflow = 0.98 cfs @ 12.12 hrs, Volume= 0.096 af
Outflow = 0.98 cfs @ 12.12 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min
Primary = 0.98 cfs @ 12.12 hrs, Volume= 0.096 af
Routed to Pond 415P : Sediment Forebay 415P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 443.77' @ 12.12 hrs
Flood Elev= 447.18'

Device	Routing	Invert	Outlet Devices
#1	Primary	443.33'	**18.0" Round Culvert** L= 17.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 443.33' / 442.00' S= 0.0782 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.97 cfs @ 12.12 hrs HW=443.77' TW=441.72' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.97 cfs @ 2.26 fps)

Summary for Pond 43P: CB 43P

Inflow Area = 0.866 ac, 10.50% Impervious, Inflow Depth > 1.09" for 10 yr event
Inflow = 0.78 cfs @ 12.12 hrs, Volume= 0.079 af
Outflow = 0.78 cfs @ 12.12 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Primary = 0.78 cfs @ 12.12 hrs, Volume= 0.079 af
Routed to Pond 42P : CB 42P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 446.05' @ 12.12 hrs
Flood Elev= 449.41'

Device	Routing	Invert	Outlet Devices
#1	Primary	445.66'	**18.0" Round Culvert** L= 38.0' RCP, square edge headwall, Ke= 0.500

Summary for Pond 46P: Driveway Culvert

Inflow Area = 4.621 ac, 2.48% Impervious, Inflow Depth > 0.65" for 10 yr event
Inflow = 1.79 cfs @ 12.30 hrs, Volume= 0.250 af
Outflow = 1.79 cfs @ 12.30 hrs, Volume= 0.250 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.30 hrs, Volume= 0.250 af
Routed to Reach 46R : Flow from Driveway Culvert 46P to 40P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 431.83' @ 12.31 hrs
Flood Elev= 432.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	**12.0" Round Culvert** L= 31.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 431.00' / 430.50' S= 0.0161 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.79 cfs @ 12.30 hrs HW=431.83' TW=431.40' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.79 cfs @ 3.47 fps)

Summary for Pond 211P: DMH 211P

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=195)

Inflow Area = 1.948 ac, 0.00% Impervious, Inflow Depth > 1.02" for 10 yr event
Inflow = 1.49 cfs @ 12.23 hrs, Volume= 0.166 af
Outflow = 1.50 cfs @ 12.22 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Primary = 1.50 cfs @ 12.22 hrs, Volume= 0.166 af
Routed to Reach 210R : Overland Flow to 20P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 473.64' @ 12.25 hrs
Flood Elev= 479.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	471.25'	**18.0" Round Culvert** L= 128.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 471.25' / 470.25' S= 0.0078 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.48 cfs @ 12.22 hrs HW=473.64' TW=473.59' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.48 cfs @ 0.84 fps)

Peak Elev= 498.05' @ 12.23 hrs
Flood Elev= 504.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	497.50'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 497.50' / 493.05' S= 0.0989 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.49 cfs @ 12.23 hrs HW=498.05' TW=488.60' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.49 cfs @ 2.53 fps)

Summary for Pond 415P: Sediment Forebay 415P

Inflow Area = 1.023 ac, 13.11% Impervious, Inflow Depth > 1.13" for 10 yr event
Inflow = 0.98 cfs @ 12.12 hrs, Volume= 0.096 af
Outflow = 0.96 cfs @ 12.14 hrs, Volume= 0.090 af, Atten= 1%, Lag= 0.9 min
Primary = 0.96 cfs @ 12.14 hrs, Volume= 0.090 af
Routed to Pond 41P : Pocket Pond 41P

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs / 3
Peak Elev= 441.72' @ 12.14 hrs Surf.Area= 371 sf Storage= 318 cf
Flood Elev= 442.00' Surf.Area= 454 sf Storage= 435 cf

Plug-Flow detention time= 58.4 min calculated for 0.090 af (94% of inflow)
Center-of-Mass det. time= 26.1 min (853.9 - 827.8)

Volume	Invert	Avail.Storage	Storage Description
#1	439.50'	435 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
439.50	7	13.1	0	0	7
441.50	313	89.1	245	245	633
442.00	454	98.5	191	435	781

Device	Routing	Invert	Outlet Devices
#1	Primary	441.50'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.96 cfs @ 12.14 hrs HW=441.72' TW=440.58' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.96 cfs @ 1.11 fps)

19. RIPRAP APRON CALCULATIONS

KNA KEACH-NORDSTROM ASSOCIATES, INC.

RIP RAP OUTLET PROTECTION APRON CALCULATIONS

Project:	Jennesstown Manor	Date:	9/9/2025
KNA #:	24-0307-1		

The purpose of this spreadsheet is to calculate the dimensions of Inlet/Outlet Protection apron (riprap) required during the SCS/NRCS 50-year type III 24-hr storm event. The spillway weir(s) inlet/outlet apron protection will be sized for the SCS/NRCS 50-year **type III 24-hr storm event.**

Required Input:

Q	peak flow in CFS
Do	diameter in feet of outlet or width of channel
Tw	tail water at end of apron

Depending on the tail water conditions, either **column 1** or **column 2** is used for calculations

	Column One where Tw<1/2Do	Column Two where Tw>1/2Do
Length of Apron	**La = (1.8Q/Do^3/2)+7Do**	**La = 3*Q/Do^3/2+7Do**
Width of Apron at outfall	W1 = 3*Do W2 = 3*Do + La	W1 = 3*Do W2 = 3*Do+0.4*La

If defined channel, then use channel width for W1 and W2

Rock Rip Rap Size:

d50 = (0.02*Q^4/3)/(Tw*Do)

RIRAP GRADATION ENVELOPE

Calculation Summary Table:

Input to Chart					Calculated Output						d100		d85		d50		d15			USE			
Description (Optional)		Q-25** (cfs)	Do (ft)	Tw (ft)	La	W1	W2 no channel	d50, ft	d50 in	USE d50 in.	FROM in	TO in	FROM in	TO in	FROM in	TO in	FROM in	TO in	depth in	Depth in.	Length ft.	W1 ft.	W2 ft.
41P	Pond Outlet	0.26	1.50	0.75	11	5	15	0.0	0.04	4	6	8	5	7	4	6	1	2	10	10	11	5	15
21P	Infiltration Pond Outlet	2.22	1.50	0.75	13	5	17	0.1	0.62	5	8	10	7	9	5	8	2	3	12.5	13	13	5	17
22P	Pocket Pond Outlet	2.23	1.00	0.50	11	3	14	0.1	1.40	6	9	12	8	11	6	9	2	3	15	15	11	3	14
211P	Outlet Head Wall #210	2.48	1.50	0.75	13	5	17	0.1	0.72	3	5	6	4	5	3	5	1	2	7.5	8	13	5	17

* Center Apron with Headwall and Outlet Pipe (All Cases)
* Line Apron with 6.0 oz. Geotextile Fabric (All Cases)
**Q-100 Used When no Flow is Present in the Q-10

20. SWALE RIPRAP CALCULATIONS

21. SITE SPECIFIC SOIL SURVEY REPORT

Rockingham County Conservation District

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	23S Swale to Pond 22				
BY :	JL		CHECKED BY :		
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	2.7	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.01000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.320	FT
MANNINGS "n" =	0.0230	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.31	SQ FT
WETTED PERIMETER =	2.02	FT
HYDRAULIC RADIUS =	0.15	FT
TOP WIDTH =	1.92	FT
VELOCITY =	1.84	FT/SEC
PEAK DISC. DETERMINED =	0.6	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.0352	FT
NEW "n" =	0.0238	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.0481	FT
NEW "n" =	0.0230	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

		Nf <=0.7, SUB CRITICAL FLOW
Nf =	0.810	Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
		Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW,	Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME,	Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL.,	((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V",	((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n",	(D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

Rockingham County Conservation District

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	23S Swale to Pond 22				
BY :	JL		CHECKED BY :		
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	2.7	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.01000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.320	FT
MANNINGS "n" =	0.0230	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.31	SQ FT
WETTED PERIMETER =	2.02	FT
HYDRAULIC RADIUS =	0.15	FT
TOP WIDTH =	1.92	FT
VELOCITY =	1.84	FT/SEC
PEAK DISC. DETERMINED =	0.6	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.0352	FT
NEW "n" =	0.0238	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.0481	FT
NEW "n" =	0.0230	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

		Nf <=0.7, SUB CRITICAL FLOW
Nf =	0.810	Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
		Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW,	Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME,	Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL.,	((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V",	((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n",	(D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

Rockingham County Conservation District

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	23S Swale to Pond 22				
BY :	JL		CHECKED BY :		
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	2.7	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.01000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.320	FT
MANNINGS "n" =	0.0230	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.31	SQ FT
WETTED PERIMETER =	2.02	FT
HYDRAULIC RADIUS =	0.15	FT
TOP WIDTH =	1.92	FT
VELOCITY =	1.84	FT/SEC
PEAK DISC. DETERMINED =	0.6	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.0352	FT
NEW "n" =	0.0238	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.0481	FT
NEW "n" =	0.0230	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

		Nf <=0.7, SUB CRITICAL FLOW
Nf =	0.810	Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
		Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW, Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME, Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL., ((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V", ((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n", (D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	22S Swale to Pond 22				
BY :	JL			CHECKED BY :	
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	3.0	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.01000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.150	FT
MANNINGS "n" =	0.0203	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.07	SQ FT
WETTED PERIMETER =	0.95	FT
HYDRAULIC RADIUS =	0.07	FT
TOP WIDTH =	0.90	FT
VELOCITY =	1.26	FT/SEC
PEAK DISC. DETERMINED =	0.1	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.0165	FT
NEW "n" =	0.0210	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.0225	FT
NEW "n" =	0.0203	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

Nf = 0.811

Nf <=0.7, SUB CRITICAL FLOW
Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW, Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME, Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL., ((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V", ((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n", (D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	42S Swale to Pond 41				
BY :	JL			CHECKED BY :	
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	0.3	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.15000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.150	FT
MANNINGS "n" =	0.0693	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.07	SQ FT
WETTED PERIMETER =	0.95	FT
HYDRAULIC RADIUS =	0.07	FT
TOP WIDTH =	0.90	FT
VELOCITY =	1.43	FT/SEC
PEAK DISC. DETERMINED =	0.1	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.1812	FT
NEW "n" =	0.0596	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.2477	FT
NEW "n" =	0.0692	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

Nf = 0.919

Nf <=0.7, SUB CRITICAL FLOW
Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW, Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME, Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL., ((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V", ((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n", (D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	43S Swale to CB 43				
BY :	JL			CHECKED BY :	
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	0.6	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.15000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.130	FT
MANNINGS "n" =	0.0676	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.05	SQ FT
WETTED PERIMETER =	0.82	FT
HYDRAULIC RADIUS =	0.06	FT
TOP WIDTH =	0.78	FT
VELOCITY =	1.33	FT/SEC
PEAK DISC. DETERMINED =	0.1	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.1571	FT
NEW "n" =	0.0582	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.2147	FT
NEW "n" =	0.0676	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

		Nf <=0.7, SUB CRITICAL FLOW
Nf =	0.919	Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
		Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW,	Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME,	Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL.,	((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V",	((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n",	(D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

OPEN CHANNEL FLOW DESIGN/ANALYSIS

D_{50} RIPRAP SIZING-FLOW REGIME-FILTER GRADATION CHECK

PROJECT NAME :	Jennesstown Manor, Warner, NH				
PROJECT # :	44S Swale to CB 44				
BY :	JL			CHECKED BY :	
DATE :	11/3/2025	STORM:	25-Yr	DATE :	

UNIFORM STEADY CHANNEL FLOW:

PEAK DISCHARGE REQUIRED =	0.1	CFS
CHANNEL BOTTOM WIDTH =	0.0	FT (USE 0 IF SECTION IS A "V" DITCH)
HYDRAULIC GRADIENT =	0.15000	FT/FT
LEFT SIDE SLOPE =	3.0	:1
RIGHT SIDE SLOPE =	3.0	:1
DEPTH OF FLOW =	0.164	FT
MANNINGS "n" =	0.0703	(CHECK RIPRAP SIZING "n" BELOW)
AREA =	0.08	SQ FT
WETTED PERIMETER =	1.04	FT
HYDRAULIC RADIUS =	0.08	FT
TOP WIDTH =	0.98	FT
VELOCITY =	1.49	FT/SEC
PEAK DISC. DETERMINED =	0.1	CFS

RIPRAP SIZING, TRAPEZOIDAL SECTION:

D_{50} =	0.1981	FT
NEW "n" =	0.0605	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

RIPRAP SIZING, "V" DITCH:

D_{50} =	0.2707	FT
NEW "n" =	0.0703	(ADJUST DESIGN/ANALYSIS "n" ABOVE)

FLOW REGIME:

Nf = 0.919

Nf <=0.7, SUB CRITICAL FLOW
Nf >0.7 BUT <1.3, CRITICAL FLOW ZONE
Nf >1.3, SUPER CRITICAL FLOW

IF Nf>=0.7 A HYDRAULIC JUMP WILL PROBABLY OCCUR, DESIGN ACCORDINGLY

TO AVOID MOVEMENT OF PARTICLES:

Filter fabric required beneath the rock

FORMULAS USED:

UNIFORM CHANNEL FLOW, Q = (A X 1.486 X R^(2/3) X S^(1/2))/"n"
FLOW REGIME, Nf= (Q X T^(1/2))/(A^(3/2) X g^(1/2))
RIPRAP SIZING, TRAPEZDL., ((118 X Q X S^(13/6) X R/P)^(2/5)
RIPRAP SIZING, "V", ((64.4 X Q X S^(13/6) X (Z/(Z^2 + 1))^(2/5)
NEW RIPRAP "n", (D. OF F.^(1/6)/(21.6 X LOG(D. OF F./D50)+14)

REFERENCES: KING'S HANDBOOK OF HYDRAULICS AND NCHRP-REPORT 108

Hurley Environmental
AND LAND PLANNING, LLC

SITE-SPECIFIC SOIL SURVEY REPORT
Route 103
Warner

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 7.0, July 2021. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.
Scale of soil map:
Approximately 1" equals 40'
Contours:
Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 11/23/24
Date(s) of test pits: 2/3/25
Test pits recorded by: Gifford Colburn, Keach Nordstrom

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Warner
Location: Route 103, Map 7, Lot 39
Size of area: approximately 10 acres
Was the map for the entire lot? No
The area where the map was created is for the front, 10 acres of the lot. Tis portion of the lot has been recently cleared. Several areas of open rock outcrops and steep hillsides are present as, well as low areas within the topography. The site slopes steeply from the road up to the west. Several small wetlands are present.

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? Yes
If no, what was the purpose of the map?
Who was the map prepared for? Keach Nordstrom.

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP.
55	Hermon Very Stony	121	B
442	Chichester	221	B
58	Waumbek	321	A
829	Waumbek-Hermon Association	321	B
399	Ledge Outcrop	228	D
414	Moosilauke Poorly Drained	521	C

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E

55 Hermon Very Stony 121 B
The Hermon series consists of very deep, somewhat excessively drained soils on upland till plains, hills and ridges. These soils formed in glacial till. Estimated saturated hydraulic conductivity is high or very high throughout the mineral soil. Slopes ranges from 0 through 60 percent. These soils are dominated by sandy loam over loamy sand and sand. Some profiles have single grain sand to gravel and some cobble. No ESHWT was encountered within 60 inches and no significant ledge was encountered. These soils are found in a few isolated areas on the site.
Typical Profile
0-10" 10YR3/2, FSL, GR, FR
10-24" 7.5YR4/6, LS, GR, FR
24-72" 10YR4/3, FSL, GR, FR
72-108" 2.5Y5/3, S, GR, FR, Redox 20%
ESHWT 72
Observed Water None
Refusal None

442 Chichester 221 B
The Chichester series consists of very deep, well drained soils that formed in a loamy mantle overlying sandy till on glaciated hills, valley sides and till plains. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. Slope ranges from 3 through 50 percent. These soils are found within the central portion of the site. No ESHWT was encountered within 40 inches and no significant ledge was encountered.
Typical Profile
0-12" 10YR3/2, FSL, GR, FR
12-16" 7.5YR4/6, LS, GR, FR
16-55" 10YR5/3, FSL, GR, FR
55-90" 10YR4/2, S, GR, FR, Redox 20%
ESHWT 55
Observed Water None
Refusal None

58 Waumbek 321 A
The Waumbek series consists of very deep, moderately well drained soils formed in stony, sandy till. They are on glaciated uplands. Permeability is moderately rapid or rapid in the solum and rapid in the substratum. These soils are found in the higher elevations on the site. They are dominated by sandy loam in the upper layers and underlain by loam y sand and sand. They have ESHWT between 15-40 inches and no significant ledge was encountered. These soils are found in the mid-slope areas of the site in the southern portion of the site.

Typical Profile
0-10" 10YR3/2, FSL, GR, FR
10-32" 7.5YR4/6, LS, GR, FR
32-108" 10YR6/23, FSL, GR, FR, Redox 20%
ESHWT 32
Observed Water None
Refusal None

829 Waumbek-Hermon Association 321 B
The Waumbek-Hermon Association is an overlapping soil type where the two individual series cannot be separated out into sizeable individual units. This series has an ESHWT between 15-40 inches and no significant ledge.
The Waumbek series consists of very deep, moderately well drained soils formed in stony, sandy till. They are on glaciated uplands. Permeability is moderately rapid or rapid in the solum and rapid in the substratum.
The Hermon series consists of very deep, somewhat excessively drained soils on upland till plains, hills and ridges. These soils formed in glacial till. Estimated saturated hydraulic conductivity is high or very high throughout the mineral soil.

399 Ledge Outcrop 228 D
Several areas of the site have steep rock slopes of either exposed ledge or ledge very close to the surface.

414 Moosilauke Poorly Drained 521 C
The Moosilauke series consists of very deep, poorly and somewhat poorly drained soils that formed in glacial outwash or drift in low depressions and shallow drainageway on uplands. Saturated hydraulic conductivity is high in the solum and high or very high in the substratum. Slope ranges from 0 to 15 percent. These are the small isolated wetlands found on the site.

6. RESPONSIBLE SOIL SCIENTIST
Name: Luke Hurley
Certified Soil Scientist Number: CSS #095

7. OTHER DISTINGUISHING FEATURES OF SITE
Is the site in a natural condition? The current mapping portion, yes.

8. Inclusions
No Inclusions were mapped.

22. INFILTRATION FEASIBILITY REPORT

INFILTRATION FEASIBILITY REPORT

Jenesstown Manor

Map 7; Lots 39 & 39-1
Route 103
Warner, New Hampshire

March 7, 2025

KNA Project No. 24-0307-1

KNA KEACH-NORDSTROM ASSOCIATES, INC.

TABLE OF CONTENTS:

I. Location of Practice

One infiltration practice is proposed for this project. An above ground infiltration pond (21P) is proposed on Map 7 Lot 39-1, but will handle runoff from Map 7 Lot 39 as well as Map 7 lot 39-1. There will a drainage and grading easement between these two lots.

II. Existing Topography

The existing grades on the site are primarily moderately steep (15-25%) or steep slopes (25%+) that slope northeasterly to Route 103.

III. Test Pit Locations

There were nine test pits performed for the area of development. Test Pit 2 was used for the design of the infiltration pond 21P.

IV. Seasonal High Water Table Elevation Summaries

The results from the Test Pit 2 performed is as follows:

Test Pit #2

The existing elevation of the ground in the area of the practice	= 468.89 (approx. original grade)
Distance to SHWT	= 32"
Elevation of SHWT	= 464.22
Lowest Elevation of Test Pit	= 456.89

Elevation of SHWT	= 464.22
Required separation	= 1.0 (prior treatment)
Bottom of infiltration practice	= 466.00

The results from the test pit performed is as follows:

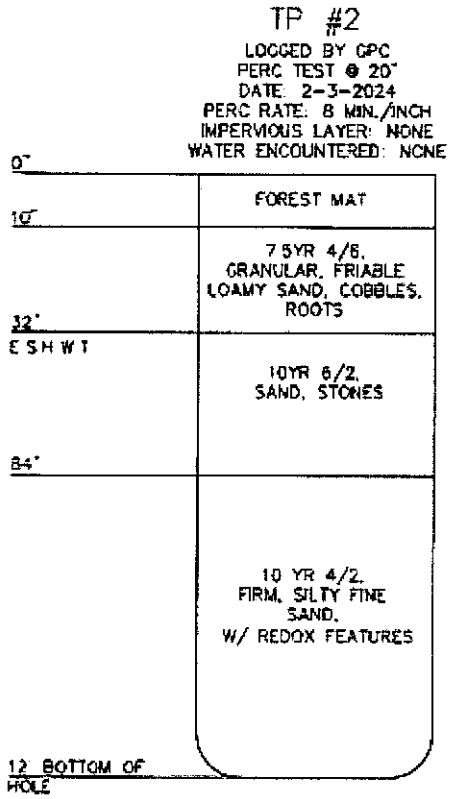
V. Infiltration Rate Summary

The infiltration rate for the Infiltration Pond 21P was calculated by the default method, as described in Env-Wq 1504.14. The practice is located in an area primarily identified in the Site-Specific Soil Survey as 58D – Waumbek. The area for the proposed infiltration system is natural undisturbed woodland, therefore the soil used to determine the infiltration was Waumbek.

The Ksat Values for New Hampshire Soils by USDA Natural for New Hampshire Soils, Society of Soil Scientists for Northern New England, Special Publication No. 5, September 2009, provides a value of the Waumbek soil type of 6.00 inches per hour. Using an applicable factor of safety of 2 at a conservative rate of 6 inches per hour, the infiltration rate utilized in the drainage analysis is 3.0 inches per hour.

VI. Profile Descriptions

Profile descriptions are provided as follows.



23. OPERATIONS AND MAINATENANCE PLAN WITH CHECKLIST

STORMWATER

OPERATION & MAINTENANCE PLAN

Jennesstown Manor
Route 103
Warner, New Hampshire

Map 7 / Lots 39 & 39-1

March 7, 2025

KEACH-NORDSTROM ASSOCIATES, INC.

I. General

Introduction

The project owner or their assigned heirs will maintain the stormwater treatment facilities after construction is completed. The Applicant of the project is Peacock Hill Road, LLC located at 145 Old Town Road Weare, NH. The Applicant will maintain the stormwater system.

The subject property is referenced on Map 7; Lots 39 and 39-1 in Warner, New Hampshire. Any transfer of responsibility for inspection and maintenance activities or transfer of ownership shall be documented to Warner in writing. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction. Long-term operation and maintenance for the stormwater management facilities are presented below.

Maintenance will be performed as described unless and until the system is formally accepted by a municipality or quasi-municipal district or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system.

Post Construction:

The following standards will be met after construction is complete:

Documentation:

A maintenance log will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. The log will be made accessible to department and/or Warner staff and a copy provided upon request.

Outlet Protection:

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.

General:

- If any invasive species begin to grow in the stormwater management practices the species shall be disposed of in an appropriate manner that will not allow the pest to survive or spread. The disposal of such species shall be witnessed or approved by a state inspector. Methods for disposal may include, but not be limited to:
    - Encapsulating the plant(s) in plastic bags and disposing of the plant material in one of the following ways:
        - Trash pickup;
        - Discarding;
        - Open burning;
        - Incineration; or
        - Burial of infested nursery.

Annual Inspection and Maintenance Reporting Form
for
Jennesstown Manor
Warner, New Hampshire

Date: _____

To: **Peacock Hill Road, LLC**

Re: **Certification of Inspection and Maintenance; Submittal of Forms**

Property Name: _____

Property Address: _____

Contact Name: _____

Contact Phone #: _____

Contact Email Address: _____

I verify that the required stormwater facility inspections and required maintenance have been completed in accordance with the Operation & Maintenance Plan associated with the above referenced property.

The required Long-Term Inspection & Maintenance Plan Checklist is attached to this form.

_____ _____
Name of Party Responsible for Inspection & Maintenance | Property Owner

_____ _____
Authorized Signature | Signature

(if no, call a qualified professional for inspection)			
Catch Basins & Closed Drainage Network	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes: Photo:			
Outlet Protection	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			
General	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			

III. Control of Invasive Plants

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some Exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

During maintenance activities, check for the presence of invasive plants and suitably remove according to the methods provided in the table below. The following table, based on the "Control of Invasive Plants" published by the New Hampshire Department of Agriculture, describes the most common invasive plants in this region and proper methods of disposal.

Invasive Shrubs (continued)			
Multiflora Rose	- Formerly recommended for erosion control, hedges, and wildlife habitat - Covered in white flowers in June - Very hard, curved thorns - Fringed edge to leaf stalk	- Huge shrub that chokes out all other vegetation - Too dense for most birds to nest in - Grows up trees like a vine in Shade	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems (at least 6" from the crown and 6" down). Use a forked spade or weed wrench for trees or shrubs. - Controlled burning[4] (on extensive infestations) - Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* (mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants) - Herbicide may be applied in winter when other plants are dormant.
Bush Honeysuckles	- Includes Belle, Amur, Morrow's, and Tatarian Honeysuckle	- Creates dense shade reducing plant diversity and eliminating nest sites in forest interior spaces	- Deadhead to prevent spread of seeds (on ornamentals). Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill. - Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year (on shady sites only, brush cut in early spring and fall). - Controlled burning[4] (during growing season) - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with Glyphosate (late in the growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*

Invasive Woody Vines			
Japanese Honeysuckle	- Gold and White flowers - Heavy scent and sweet nectar in June	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle - Rampant grower - Spirals around trees, often strangling them	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* (fall or early spring when native vegetation is dormant) Plan to re-treat repeatedly
Oriental Bittersweet	- Bright orange seed capsules in clusters all along the stem - Flowers	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits. - Cut stem/ cut stump with Garlon 3a. Follow label directions for cut stump application. Clip off sucker sprouts or paint with Garlon 3a.*
Japanese Knotweed, Mexican Bamboo	- The stems have knotty joints, similar to bamboo - Grows 6-10' tall - Large, pointed oval or triangular leaves	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle - Can grow in shade	- Cut stem/ cut stump with Glyphosate (at least 3 times each during growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* - Treat with Rodeo - In gardens, heavy mulch or dense shade may kill it.

Invasive Herbaceous Plants (continued)			
Mile-A-Minute Vine, Devil's Tail Tearthumb	- Triangular leaves - Barbed stems - Turquoise berries	- Rapid growth - Quickly covers and shades out herbaceous plants	- Pull seedlings and small or shallow-rooted plants when soil is moist (pulled easily in early to mid-summer).Dig out larger plants, including root systems. Use a forked spade or weed wrench for trees or shrubs. Be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to a landfill. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. Mowing weekly or when it has just begun to flower may prevent it from setting seed. - Foliar spray[3*] (use glyphosate or herbicidal soap on large infestations. - Use a corn-based pre-emergence herbicide on annual weeds (spring). This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.
Spotted Knapweed	- Thistle-like flowers	- Dense, crowds out native species	- Do not pull unless the plant is young and the ground is very soft. The root will break and produce several new plants. - Wear sturdy gloves - Deadhead to prevent spread of seeds. Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill. - In lawns, spot treat with broad-leaf weed killer. Good lawn care practices (test soil; use lime and fertilizer only when soil test shows a need; mow high and frequently; leave clippings on lawn) reduce weed infestations. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate * - Foliar spray[3*]

IV. Stormwater Practice Location Plan

24. PLANS

PRE-DEVELOPMENT DRAIN AREAS PLAN (11"x17" - COLORLESS)
POST-DEVELOPMENT DRAIN AREAS PLAN (11"x17" - COLORLESS)
PRE-DEVELOPMENT SOILS MAP (11"x17" - COLOR)
POST-DEVELOPMENT SOILS MAP (11"x17" - COLOR)
PRE-DEVELOPMENT DRAIN AREAS PLAN (22"x34" - COLORLESS)
POST-DEVELOPMENT DRAIN AREAS PLAN (22"x34" - COLORLESS)
NON-RESIDENTIAL SITE PLAN SET (22" x 34" - COLORLESS)

UTILITY NOTE

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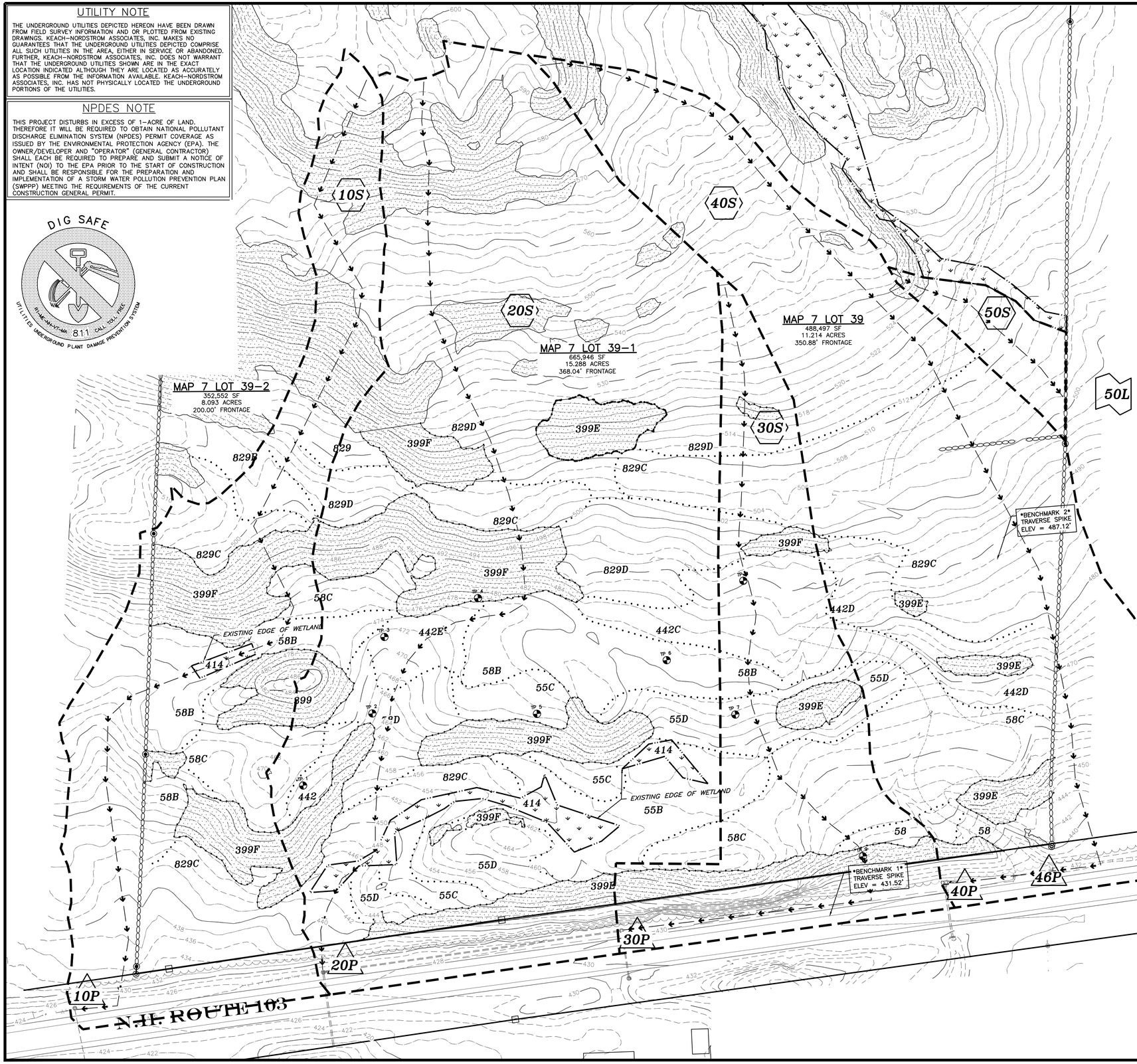
DIG SAFE

UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

811 CALL DIG-SAFE

ME-NH-VT-MA



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

DRAINAGE LEGEND:

THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- SSSM SOIL LINES
- 30B — DENOTES SOIL TYPE
- P — DENOTES POND
- S — DENOTES SUBCATCHMENT AREA
- R — DENOTES REACH
- L — DENOTES POINT OF INTEREST
- LIMIT OF SUBCATCHMENT AREA
- TIME OF CONCENTRATION

MAGNETIC NW

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	HISS SYM	HSG
55	HERMON VERY STONY	121	B
442	CHICHESTER	221	B
58	WAUMBEK	321	A
829	WAUMBEK–HERMON ASSOCIATION	321	B
414	MOOSILAUKE POORLY DRAINED	521	C
399	LEDGE OUTCROP	228	D

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HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

PRE-DEVELOPMENT DRAINAREAS PLAN

JENNESSTOWN MANOR
MAP 7, LOTS 39 & 39-1

ROUTE 103
WARNER, NEW HAMPSHIRE
MERRIMACK COUNTY

OWNER/APPLICANT:
PEACOCK HILL ROAD, LLC
145 OLD TOWN ROAD
WEARE, NH 03281
BK. 3829 PG. 2512

KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

REVISIONS

No.	DATE	DESCRIPTION	BY
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2	9/4/25	PER AOT COMMENTS	AEW
3	10/2/25	PER AOT COMMENTS	AEW
4	10/31/25	PER ARIES & FIRE COMMENTS	JDL

DATE: MARCH 25, 2025 — **SCALE:** 1" = 50'
PROJECT NO: 24–0307–1 — **SHEET** 1 **OF** 2

HYDROLOGIC SOIL GROUP A
HYDROLOGIC SOIL GROUP B
HYDROLOGIC SOIL GROUP D
OPEN WATER FEATURE
IMPERVIOUS COVER

MAP 7 LOT 39-2
352,552 SF
8.093 ACRES
200.00' FRONTAGE

MAP 7 LOT 39-1
665,946 SF
15.288 ACRES
368.04' FRONTAGE

MAP 7 LOT 39
488,497 SF
11.214 ACRES
350.88' FRONTAGE

10S 20S 30S 40S 50S 50L

10P 20P 30P 40P 46P

*BENCHMARK 2"
TRAVERSE SPIKE
ELEV = 487.12'

*BENCHMARK 1"
TRAVERSE SPIKE
ELEV = 431.52'

EXISTING EDGE OF WETLAND

N.H. ROUTE 103

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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MAGNETIC NW

DIG SAFE
811 CALL TOLL FREE
PLAN-IT-NH
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

UTILITY NOTE

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DIG SAFE
811
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

MAP 7 LOT 39–2
352,552 SF
8.093 ACRES
200.00' FRONTAGE

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665,946 SF
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N.H. ROUTE 103

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MAP 7, LOTS 39 & 39-1

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MERRIMACK COUNTY

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DATE: MARCH 25, 2025 — **SCALE:** 1" = 50'
PROJECT NO: 24–0307–1 — **SHEET** 2 **OF** 2

HYDROLOGIC SOIL GROUP A
HYDROLOGIC SOIL GROUP B
HYDROLOGIC SOIL GROUP D
OPEN WATER FEATURE
IMPERVIOUS COVER

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352,552 SF
8.093 ACRES
200.00' FRONTAGE

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MAGNETIC

DIG SAFE
811 CALL BEFORE YOU DIG
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POST-DEVELOPMENT DRAINAREAS PLAN

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DATE: MARCH 25, 2025 | **SCALE:** 1" = 50'
PROJECT NO: 24-0307-1 | **SHEET** 2 **OF** 2

Section V - Scope of Review

A. Whenever any development or change or expansion of use of a site governed by these regulations is proposed or whenever any changes are proposed which differ from an existing site plan as previously approved by the Planning Board; and before any construction, land clearing, building development or change is begun; and before any permit for the erection of any building or authorization for development on such site shall be granted, the owner of the property or his authorized agent shall apply for and secure from the Planning Board approval of such proposed site development in accordance with procedures outlined in this Regulation.

1. The following is a list of activities that would trigger a Site Plan Review:
    a. New construction of non-residential or multi-family development.
    b. Any change or expansion in use of a site or structure when such change is materially or substantially different from the previous use such that there is an effect on the quantitative or qualitative requirements of these Regulations or the Zoning Ordinance.
    c. Exterior projects that entail the development, change, or expansion that exceeds 199 gross square feet of buildings, structures, or parking area.
    d. Internal building modifications to a non-residential use that affect the scale or impact or activity level of the existing use, or
    e. Modifications to previously approved site plans, or
    f. A change in the site configuration that generates or increases the potential for adverse impacts to drainage systems, surface waters, groundwater, wetlands, and/or floodplains.
    g. Development that proposes changes to the landscaping, screening, lighting, driveways, parking lots, architectural appearance or visual appearance of an existing structure or site, or
    h. Expansion of use that impacts traffic flow and lighting as it relates to pedestrian safety, or that will result in an increase in vehicular traffic entering or leaving the site by more than 50 vehicles during peak hour or 100 vehicles per day based on the most recent edition of the ITE Trip Generation Manual, or
    i. Vacancies of units within multi-use, commercial buildings, with the exception of residential use, will be considered abandonment of use if they are vacant for more than 3 years.
    j. When determining if there will be a change of use in an existing multi-use building, the entire building and its current and proposed occupant may be taken into consideration, not just the proposed new occupant.

k. When applying for a change of use for a project with a previously approved site plan for which construction has not been completed, all previously approved waivers of regulations shall be resubmitted for approval.

B. If an applicant is asking to make changes to an existing Site Plan, the Planning Board has the responsibility to determine to what degree, if any, a Site Plan Review needs to be completed. The applicant should fill out an Application for Determination of Site Plan Review with the Planning Board at least 5 days prior to the Planning Board Meeting.

Alternately, the applicant may request a Conceptual Consultation with the Planning Board. If during that meeting the Planning Board decides a Site Plan is not required, there is no need to file an Application for Determination of Site Plan Review. If the Planning Board determines a Site Plan Review is necessary, either through a completed application or through a consultation, they may choose to exempt certain elements of the checklist.

Any changes to an existing Site Plan where elements currently required by these regulations shall require those elements to be provided as part the Site Plan Review, unless there is a previous exemption recorded regarding those elements, or the previous Site Plan was approved before 1982. Any changes to existing site plans must have a Site Plan Amendment, describing the changes to the previous site plan, filed with the Property Card at the Town Hall.

1. A full Site Plan Review may not be required if all the following conditions are met:
   a. Proposed project complies with the Zoning Ordinance.
   b. Exterior projects of less than (200) gross square feet of buildings, structures, or parking area from the date of the previously approved Site Plan (*) unless it affects the scale, impact or activity level of the existing use.
   c. Projects that involve a Change in Use for a property that has a previously approved Site Plan by the Board provided the Change of Use does not affect the scale, impact or activity level of the existing use.
   d. Internal building modifications to a non-residential use that do not affect the scale, impact or activity level of the existing use.
   e. Any proposed construction on the exterior and/or site of existing buildings if it complies with the approved site plan and it is minimal in nature, maintains the existing appearance and/or function of the building and/or site.

f. The overall primary use of an existing multi-use building having multiple occupants does not change such that it would affect the scale or impact or activity level of the existing overall use.
g. An approved project which has changed Ownership without a Change of Use.

"Accessory ~~Apartment~~ Dwelling Unit" means a residential living unit that is appurtenant to a single-family dwelling, and that provides independent living facilities for one or more persons, including provisions for sleeping, eating, cooking, and sanitation on the same parcel of land as the principal dwelling unit it accompanies. An accessory dwelling unit may be ~~within or~~ attached to the principal dwelling unit. [*Amended March 2017 and March 2026*]

"Attached Accessory Dwelling Unit" means a unit that is within or physically connected to the principal dwelling unit or completely contained within a preexisting detached structure. [Amended *March 2026]*

"Detached Accessory Dwelling Unit" means a unit that is neither within nor physically connected to the principal dwelling unit, nor completely contained within a preexisting detached structure. [Amended *March 2026]*

ARTICLE XIV-B
Accessory ~~Apartment~~Dwelling Units

[Adopted March 2021; Updated March, 2026]

Requirements for Accessory Dwelling Units ~~Apartment~~:

A. The Accessory Dwelling Units ~~accessory apartment~~ shall be clearly incidental to the primary use of the property. The ~~apartment~~ Accessory Dwelling Unit shall be a completely separate housekeeping unit that can be isolated from the primary dwelling unit ~~but shall have an interior door connecting it to the primary dwelling unit~~. [Amended March 2017]

B. Only one ~~accessory apartment~~ Accessory Dwelling Unit, attached or detached, may be created within or attached to a single-family dwelling or accessory building per lot. [Amended March, 2026]

~~B.~~C. Accessory Dwelling Units shall obtain a building permit from the Warner Building Inspector prior to construction. [Amended March, 2026]

~~C.~~D. Any Accessory Dwelling Unit ~~accessory apartment~~ whether an addition to or contained within the single-family dwelling or accessory building, shall have an area of no less than 300 square feet and no more than 1,000 square feet~~, no more than 50% of the heated and finished floor area of the primary dwelling unit, and a maximum of 1,000 square feet of gross floor area.~~ [Amended March, 2026]

E. All Accessory Dwelling Units shall comply to setback requirements for the District in which the lot is located, subject to F below. ~~applicable regulations of the Town of Warner shall be met before an accessory apartment is permitted. The capacity/design of the septic system shall be verified~~. [Amended March, 2026]

F. An Accessory Dwelling Unit may be converted from existing structures, including but not limited to detached garages, regardless of whether such structures violate current dimensional requirements for setbacks or lot coverage. Such structures shall not increase the nonconformity or introduce new nonconformities. "Existing" nonconforming structures shall be those in existence prior to July 1, 2025 as demonstrated in one of the following ways:

a. The existing structure could be required to demonstrate that it qualifies as a preexisting, nonconforming structure exempt from the currently applicable dimensional requirements for setbacks and lot coverage according to RSA 674:19 or any local zoning regulation protecting non-conforming structures, or;

~~a.~~b. The existing structure received a prior planning or zoning approval or determination it was exempt from the current dimensional requirements for setbacks and lot coverage. [Amended March, 2026]

~~D.~~G. ~~Accessory apartments~~ Accessory Dwelling Units are not intended for individual ownership. The title shall be inseparable from the primary dwelling.

~~E.~~H. Accessory Dwelling Unit~~s~~ ~~Accessory apartments~~ may be located ~~in a detached accessory building~~ on a lot where a single family home is the sole use of the lot as permitted ~~where allowed~~ in TABLE 1 – USE REGULATIONS of this Zoning Ordinance, ~~provided the detached accessory building~~Accessory Dwelling Unit ~~is within 75 feet of the primary dwelling~~. [Amended March 2021 and Amended March, 2026]

~~F.~~I. The owner shall not separately lease both the primary dwelling unit and the Accessory Dwelling Unit~~s~~ ~~accessory apartment~~ at the same time, nor shall an Accessory Dwelling Unit be permitted on leased land. [Amended March, 2026]

~~G.~~J. Accessory Dwelling Units ~~Accessory apartments~~ may not be established in association with manufactured housing or townhouse-style dwelling units (i.e., attached single family dwellings). [Amended March 17, 2018 and Amended March, 2026.~~]~~

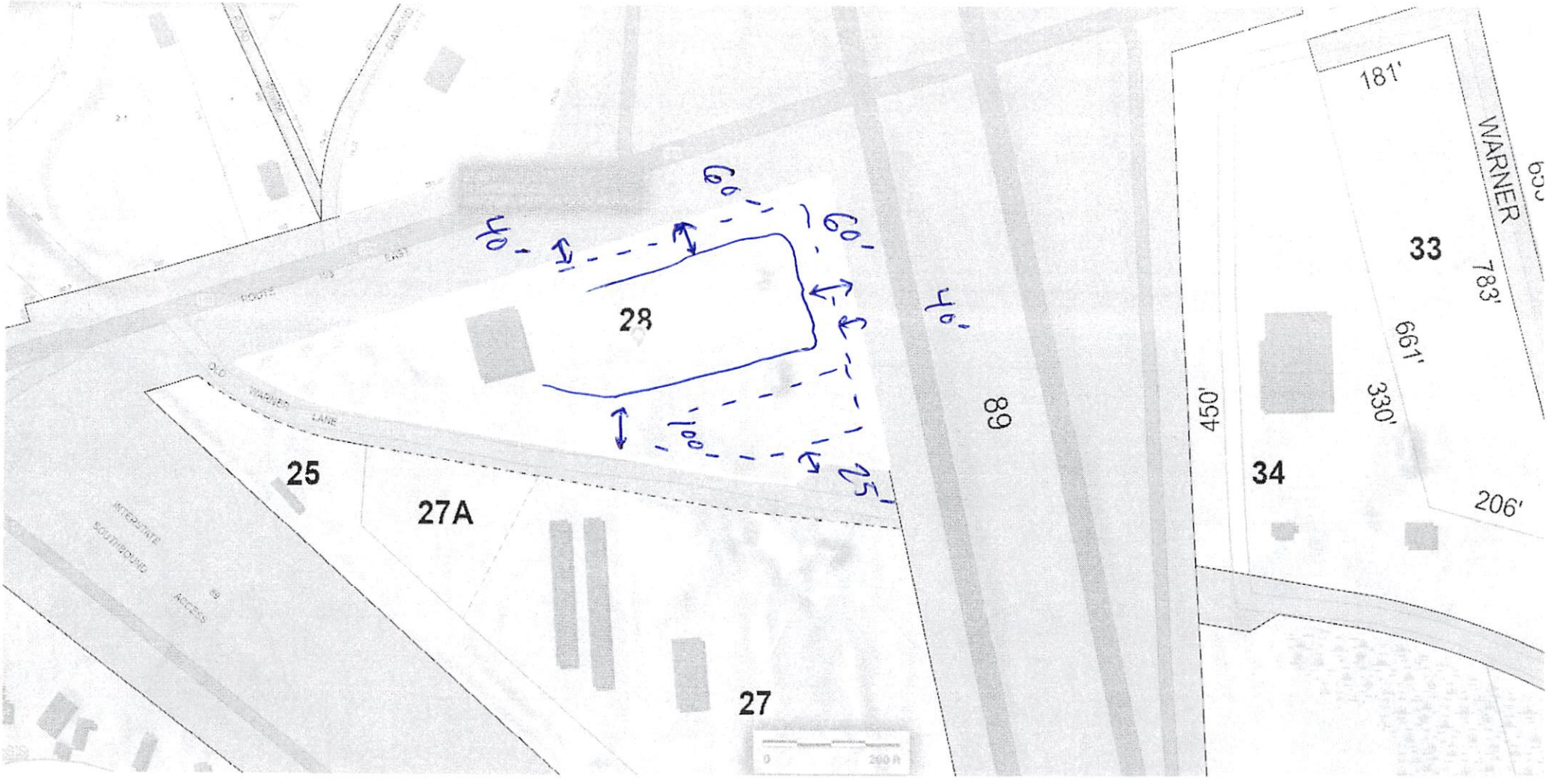
TABLE 1
Use Regulations

Buildings, structures, or land shall be used as permitted by this ordinance. Any use NOT listed in this ordinance is prohibited. [Amended March 2023]

RESIDENTIAL

USES	R-1	R-2	R-3	B-1	C-1	OC-1	INT	OR
1. One-family detached dwelling [Amended March 2012]	P	P	P	P	S	P		P
2. Two-family dwelling [Amended March 2012]	P	P	S	P	S			
3. Multi-family dwelling [Amended March 2012]	P	P	S	P	~~S~~P		P	
4. Conversion of existing dwelling structure to multifamily dwelling	P	P	S	P	P	S		
5. Accessory ~~Apartment~~ Dwelling Unit [Adopted March 2012; Updated March, 2026]	P	P	P	P	P	P	P	P
6. Multi-Family Workforce housing [Amended March 2021]	P	P	S	P	S		~~S~~P	

S (Special Exception) P (Permitted)

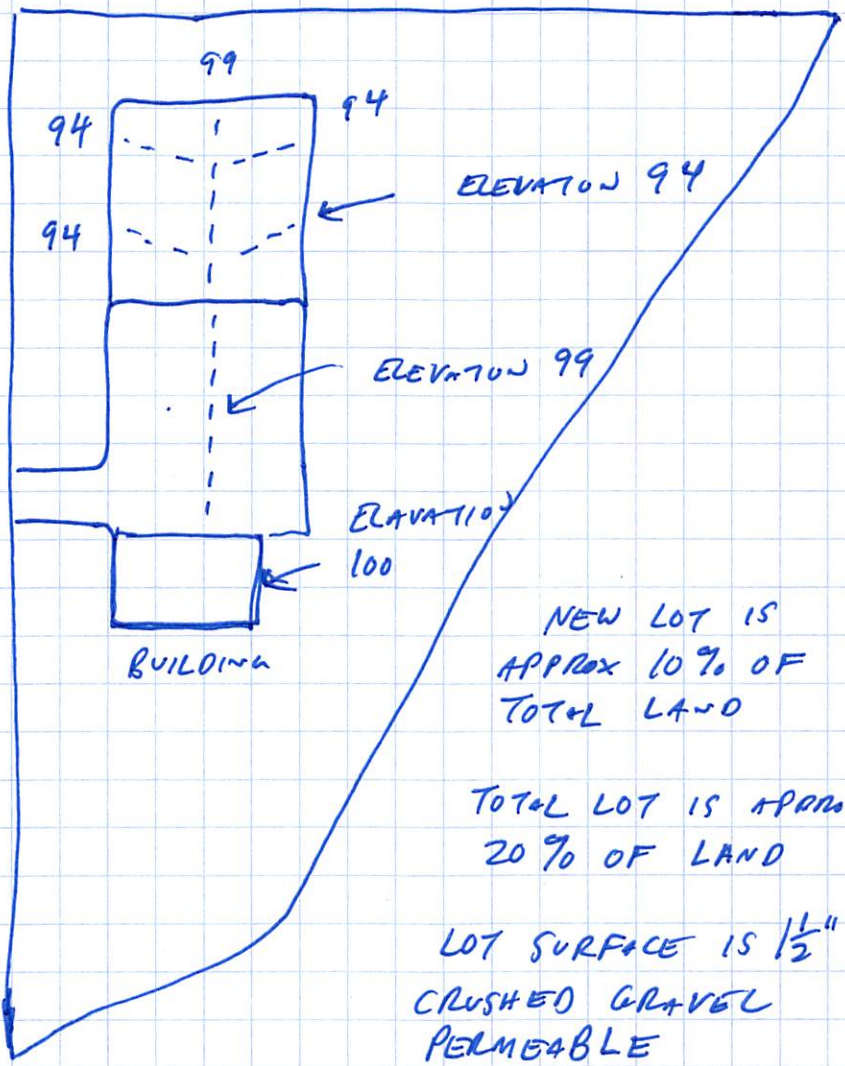

60'
60'
40'
28
40'
89
OLD WARNER LANE
25
27A
27
INTERSTATE
SOUTHBOUND
ACCESS
181'
WARNER
33
783'
661'
330'
450'
34
206'
NORTH

Hanes SUPPLY, INC.

SUMMERVILLE SC 843.200.3757
MYRTLE BEACH SC 843.458.0749
CHARLOTTE/MONROE NC 704.506.4744
SYRACUSE/WATERTOWN 315.782.8247

BUFFALO/HEADQUARTERS 716.826.2636 888.426.3755
ROCHESTER/CENTRAL NY 585.235.0160 ALBANY/NEW ENGLAND 518.438.0139

10/22/25 ELEVATION DRAWING



NEW LOT IS APPROX 10% OF TOTAL LAND

TOTAL LOT IS APPROX 20% OF LAND

LOT SURFACE IS 1½" CRUSHED GRAVEL PERMEABLE

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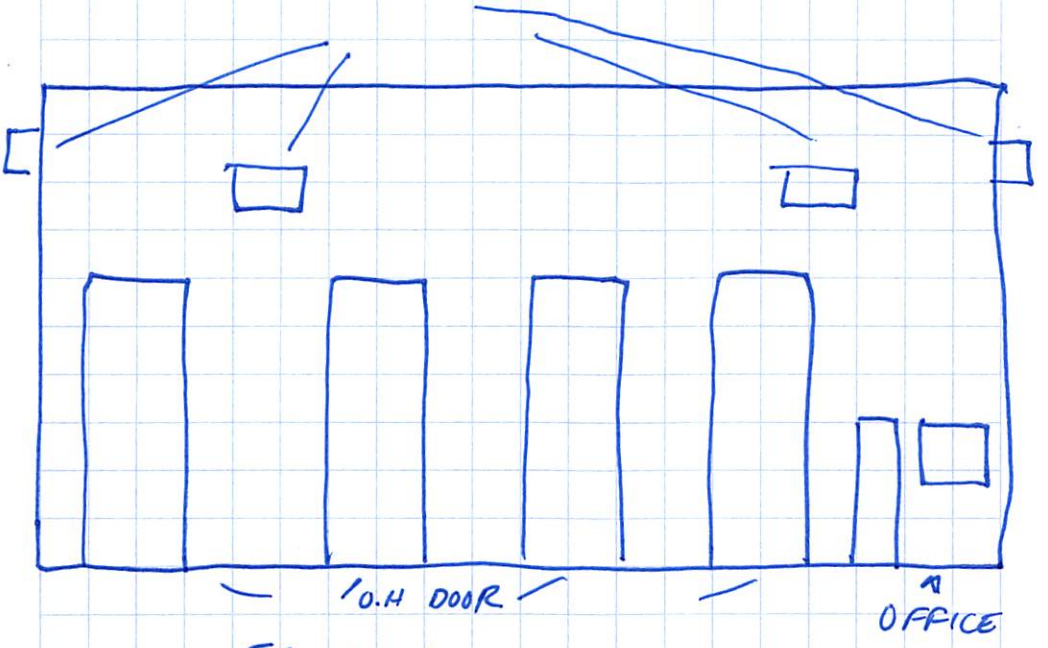
CURRENT LIGHTING PLAN 652 RT 103E



FRONT VIEW

NO LIGHT ADDITIONS WILL BE ADDED

10/22/25

Hanes SUPPLY, INC.
SUMMERVILLE SC 843.200.3757
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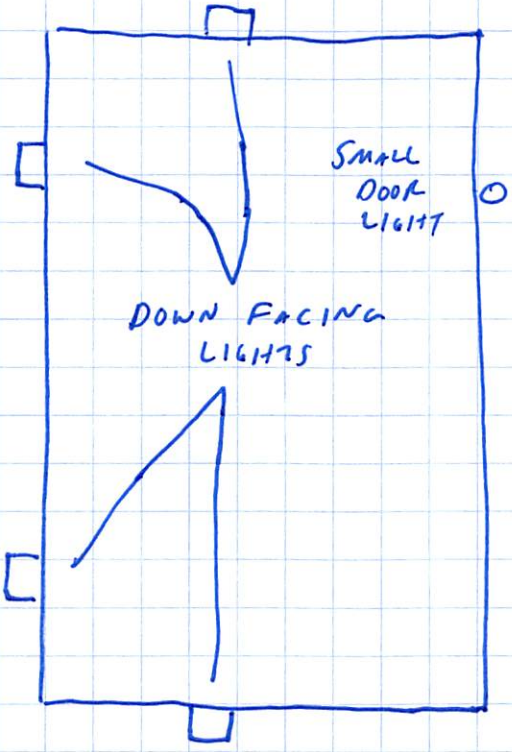
ROCHESTER/CENTRAL NY 585.235.0160 ALBANY/NEW ENGLAND 518.438.0139

CURRENT
LIGHTING PLAN 10/22/25
652 RT 103E
WARNER NH

TOP VIEW



NO LIGHTING ADDITONS WILL BE ADDED

TOWN OF WARNER
PO Box 265
Warner, New Hampshire 03278-0265
Telephone: (603) 456-2298 ex. 7
Warnernh.gov email: landuse@warnernh.gov

Planning Board Meeting Minutes

November 3, 2025, 7:00 PM
Lower Meeting Room, Warner Town Hall, 5 E Main St

I. OPEN MEETING: Chair Karen Coyne called the meeting to order at 7:05 PM.
The Pledge of Allegiance was recited

II. ROLL CALL

Planning Board Member	Present	Absent
Karen Coyne, Chair	✓	
James Gaffney	✓	
Pier D'Aprile	✓	
Barak Greene, Vice Chair	✓	
Ian Rogers	✓ via Zoom	
Mike Smith – Select Board		✓
John Leavitt	✓	
Bob Holmes – Alternate	✓	
Micah Thompson – Alternate	✓	

III. PUBLIC COMMENT

None

IV. NEW BUSINESS

A. Continuation of Public Hearing – Site Plan Review
Applicant: Peacock Hill Rd LLC
Owners: Peacock Hill Rd LLC
Agent: Keach-Nordstrom Associates
Surveyor: Jacques E. Belanger Land Surveying PLLC
Address: Map 07 Lot 039 and 39-1 Route 103 East, Warner, NH
District: R-2 and R-3
Description: Two buildings with four units each to be used as multi-family housing.

Jason Lopez from Keach-Nordstrom explained that comments from the Alteration of Terrain (AOT) and the Fire Department have been received. He stated that scheduling-wise, he did not have enough time to draft a written response to the comments submitted. He stated that they are prepared to ask for a continuance until November 17, 2025. Jason Lopez inquired if the Planning Board had reviewed the Aries Engineering letter and if there was anything specific the Board wanted to discuss. He asked how the Planning Board wanted to move forward. Karen Coyne asked if he had provided a written response to the Aries Engineering addressing their letter. Jason Lopez explained that he drafted a response today and he has copies for the Planning Board.

Karen Coyne opened the floor to Planning Board questions. Micah Thompson spoke about the steep slope of the driveway. Jason Lopez acknowledged that the steep slope of the driveway will be brought down to 14.5%. Micah Thompson asked if there is any consideration given to relocating the driveway to the other side of the property. Jason Lopez explained that in the past it was determined that the amount of material that would need to be removed made the project not feasible. Jason Lopez recapped the revisions that need

to be made to the driveway design. Micah Thompson asked about the amount of ledge removal. Jason Lopez explained that mechanical removal of the ledge is proposed and currently he does not have an estimate of how much.

Bob Holmes questioned the drainage of ground water discharge and storm water as mentioned by Aries Engineering. He expressed concern that it will impact surrounding properties. Jason Lopez explained that detention ponds are required. Jason Lopez stated that if a problem arises, they might need to look at incorporating drains to control some of the groundwater. Bob Holmes spoke about the seasonal stream that runs through the area and how runoff can affect the surrounding area. Jason Lopez explained that the DOT has designed catch basins in the area of the highway which are intended to catch any ground water that comes down that hill. Bob Holmes clarified his concern relates to the water coming off the project lot and off of Route 103. Jason Lopez stated that that would be an existing condition. He explained that the storm water drainage calculation shows no increase in runoff. Jason Lopez stressed that based on the calculation, the project does meet the requirement for storm water runoff.

James Gaffney asked what the line of sight and distance is from the next nearest abutter. He expressed concern regarding the impact on abutters relating to the mechanical removal. Jason Lopez stated that he does not have an estimate of how long the mechanical removal of materials will take. James Gaffney asked an abutter in the audience if they know the distance away. The abutter stated that his home is approximately 40 yards from the property line. James Gaffney explained that in fairness to the abutters, he would like the applicant to provide the Board with an estimate of time for the mechanical removal.

Barak Greene inquired about the possibility of blasting at the site that would create a lot of stone. He asked what the applicant would do with the stone. Jason Lopez explained that relative to the blasting question, it would need to be determined if it is cost effective to bring in that kind of equipment. Jason Lopez stated that if it is cost effective some of the stone would probably be used as fill and some of it would need to be exported. He stated that blasting opens up another set of regulations regarding water quality and quantity.

Barak Greene questioned why on the plans the outline for the units do not match the design of the actual floor plans for the buildings. Jason Lopez noted that a floor plan is missing and he will need to provide the missing floor plans.

Ian Rogers asked if Jason Lopez could address the community water system issue mentioned in the Aries Engineering letter. Jason Lopez explained that based on the population of each building it does not qualify for a community water system. Jason Lopez stated that in this case there are two separate lots with four units each and they are not required to operate on the same well.

Karen Coyne opened the floor to public comment.

Dan Richardson (abutter) expressed concern regarding the drilling and blasting. He stated that he has serious sinkhole issues on his property. He very much opposed to blasting. Dan Richardson stated that the buildable space of this lot is in R-3 and that is where the buildings should be built.

Karen Coyne closed the public comment and continued the hearing until November 17, 2025. Jason Lopez stated that he hopes at the November 17th meeting there will be solid discussion on conditions of approval. Karen Coyne asked George Holt from Aries Engineering to join the conversation. He distributed a supplement to the previous letter. George Holt recommended that the Planning Board require the applicant to demonstrate that they are going to have enough water to support the development.

George Holt spoke about the steep grade of the driveway. He acknowledged that driveways are allowed up to 15% slope but he feels that this goes beyond a driveway situation. He stated that it will have concentrated use more than a typical single-family use. He stated that the Town road regulation should be applied with a maximum of 10%. He encouraged the board to receive input from the police and fire chief regarding their ability to access the property with such a steep grade.

George Holt spoke about the drainage concerns. He explained the water shed area will be affected. He stated that the neighboring property will be impacted. He reviewed the map depicting the drainage issues. George Holt explained that he estimated the area impacted will increase from 41000 square feet to 150,000 square feet an increase of 3 ½ times. George Holt spoke about the overflow of swale. He explained that currently runoff is fairly dispersed, but in the future the runoff will be concentrated to one area and that could cause erosion.

James Gaffney asked if there is way to do this project and not impact the abutting properties. George Holt confirmed that it can be done by channeling the water. He explained that the water needs to be channeled to a detention pond. Pier D'Aprile asked for clarification regarding why the 112,000 square feet of drainage/impacted post development is so large. George Holt explained that they are trying to keep the water from cascading through the development by capturing it up above. George Holt stated that it is a common practice to direct water around a structure.

Pier D'Aprile asked for clarification on language in the Aries Engineering Review;
The pocket pond will constantly discharge groundwater out of the Outlet Control Structure (OCS) #41, which has a proposed outlet invert elevation of 440.1 feet. 15. Based on this configuration, the proposed storm water management system will unnecessarily cause groundwater levels in this area to decline due to the anticipated constant discharge from OCS #41
Pier D'Aprile explained that it was his understanding that it was going to help reduce the drainage. George Holt explained that the test pit data shows the seasonal high groundwater in the area of the pond at a foot and a half below ground surface. He stated that they observed water at 5 feet down but now they are going to extend that 20 feet which will result in being 15 feet below the water table. George Holt stated that the outlet is 10 feet below the water table. He explained that there is already a discharge out of the embankment along the highway that will create a sink where groundwater from the area will flow to the pond because it is now cut out below him and below the level of the ground water. George Holt explained that over time this will cause the water table to drop.

Pier D'Aprile asked if the size of the culvert is sufficient. George Holt believes that it will be fine for continual flow. He stated that he did not see any issues regarding the size of the culvert in a storm event.

Barak Greene stated that to put the road in there will be deep cuts to the ground. He asked about the risks of seeing ground water running across the driveway. George Holts explained that there will be underdrains installed and swales on one side to capture the water.

George Holt reiterated that the Fire Chief and Police Chief need to decide if the 15% driveway grade is going to work for their departments.

Pier D'Aprile asked for further clarification noting that the catchment does flow across the storm wall of the abutter's property. George Holt explained that water comes down from the drainage swale and the water could be redirected from the swale to go another way.

John Leavitt asked how it is determined if there is enough water to support the development prior to construction. George Holt stated that they will need to drill two wells or they need storage to demonstrate

that there is sustainable yield as a precondition. Barak Greene agreed that the fire department needs to weigh in on the water supply and fire suppression. Jason Lopez explained that the fire suppression for each individual unit will be handled by individual suppression systems in each unit. Jason Lopez explained that the question regarding the well is typically handled through the building permit process.

Pier D'Aprile made a motion seconded by James Gaffney to continue the Public Hearing – Site Plan Review for Peacock Hill Rd LLC to the November 17, 2025 Planning Board meeting. Motion Passed unanimously.

B. Public Hearing – Update to Site Plan Amendment

Karen Coyne explained that the public hearing for the site plan amendment was not properly noticed and will need to be rescheduled for November 17, 2025. Barak Greene explained that there is one additional change to be made regarding the time frame to submit, he wants it to match a request for a consultation which is 5 days.

Ian Rogers, attending via zoom, lost internet around one hour and twenty minutes in.

C. Housing Committee Proposal for Accessory Dwelling Unit

Karen Coyne explained that the proposed edits will be forwarded to the Planning Board members and this will be rescheduled to the November 17, 2025 meeting.

V. UNFINISHED BUSINESS

None

VI. MINUTES: October 6, 2025 and October 20, 2025

October 6, 2025

Barak Greene made a motion seconded by Pier D'Aprile to approve the October 6, 2025 Planning Board meeting minutes as amended. Motion passed

October 20, 2025

James Gaffney made a motion seconded by Pier D'Aprile to approve the October 20, 2025 Planning Board meeting minutes as amended. Motion passed

VII. COMMUNICATIONS

Karen Coyne informed the Board that Charlebois has submitted the drawings from his surveyor, the drawings were shown on the overhead screen.

Pier D'Aprile made a motion seconded James Gaffney that the drawings submitted are sufficient to what the Planning Board requested. Motion withdrawn

Discussion on the motion: John Leavitt stated that he cannot vote in favor without actually seeing it.

Karen Coyne stated that this will be added to the November 17, 2025 agenda.

VIII. REPORTS

Chair's Report- Chair, Karen Coyne

None

Select Board – Mike Smith

None

Regional Planning Commission - Ben Frost, Barb Marty

None

Economic Development Advisory Committee – James Sherman

None

Agricultural Commission - James Gaffney

None

Regional Transportation Advisory Committee – Tim Blagden

None

HOP II Update – Bob Holmes

None

IX. PUBLIC COMMENT

Ed Mical asked if the CIP could be posted to the Planning Board website page.

X. ADJOURN

The meeting adjourned at 8:26 PM.

Respectfully submitted by Tracy Doherty