Town of Nottingham

P.O. Box 114, 139 Stage Road, Nottingham NH 03290 Office 603-679-9597 ext. 1, Fax 603-679-1013

PLANNING BOARD PROJECT APPLICATION

Subdivision Type: Conventional X Open Space ___ LLA ___

Site Plan Review: Conventional ___ Change of Use___

Concurrent- Subdivision/ Site Plan Review ___

Amendment to Approval of: Subdivision ___ Site Plan ___ Other ___

Total Acreage: 40.55 Acres
Current Use Acreage: Vacant land
# of Proposed Lots: 14
Project Address: Mitchell Road
Current Zoning Districts: Residential/Agricultural
Overlay Districts: Wetland
Map(s): 7
Lot (s): 1N
Request: Proposed 14 lot subdivision.

The Property owner shall designate an agent for the project. This person (the applicant) shall attend pre-application conferences and public hearings, will receive the agenda, recommendations, and case reports, and will communicate all case information to other parties as required.

All contacts for this project will be made through the *Applicant* listed below.

- ( ) Form A "Abutters List" has been filed with this application no earlier than 5 days within submittal of this application with 3 labels per address on address labels (same size as Avery 5160/8160)
- ( ) Form B "Authorization to Enter upon Subject Property" has been filed with this application
- ( ) Form C "Authorization to Represent" has been filed with this application
- ( ) 6 sets of full size plans
- ( ) 10 sets of 11"x17" plans
- ( ) Waiver Form(s)
- ( ) Completed Checklist

Case#:
Project Name: Stone Grey Drive & Lipizzan Drive
Date: 3-16-20

Case# Project Name Date

Owner 1: Robert Diberto
Company:
Phone: 603-781-4321 | Fax: | E-mail: stonegreyhouse@comcast.com
Address: 324 Route 108, Madbury NH 03823

Owner 1 Signature *Date*

Owner 2:
Company:
Phone: | Fax: | E-mail:
Address:

Owner 2 Signature *Date*

Owner 3:
Company:
Phone: | Fax: | E-mail:
Address:

Owner 3 Signature *Date*

Owner 4:
Company:
Phone: | Fax: | E-mail:
Address:

Owner 4 Signature *Date*

Applicant (Contact): Same as owner
Company: SAME
Phone: | Fax: | E-mail:
Address:

Developer: Same as owner
Company:
Phone: | Fax: | E-mail:
Address:

Engineer: Kenneth A. Berry
Company: Berry Surveying and Engineering
Phone: 603-332-2863 | Fax: | E-mail: k.berry@berrysurveying.com
Address: 335 Second Crown Point Road, Barrington, NH 03825

PROJECT MANAGER
CHRISTOPHER R. BERRY
603-781-3403
CRBERRY@METROCAST.NET

Case# Project Name Date

Town of Nottingham
P.O. Box 114, 139 Stage Road, Nottingham NH 03290 Office 603-679-9597 ext. 1, Fax 603-679-1013
Web: http://www.nottingham-nh.gov Email: plan.zone@nottingham-nh.gov

AUTHORIZATION TO ENTER UPON SUBJECT PROPERTY

The property owner(s), by the filing of this application, hereby give permission for the members of the Nottingham Planning Board and such agents or employees of the Town as the Nottingham Planning Board may authorize, to enter upon the property which is the subject of this application at any reasonable time for the purpose of such examinations, surveys, tests and/or inspections as may be appropriate to enable this application to be processed.

I/We hereby waive and release any claim or right I/we may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on my/our property in connection with this application. This authorization expires in one year from date of signature

Property Owner(s)

Kurt Diehl 3-16-20
Signature Date

Signature 3/16/20 Date

Property Owner(s)

Signature Date

Signature Date

Property Owner(s)

Signature Date

Signature Date

Property Owner(s)

Signature Date

Signature Date

Case# Project Name Date

Town of Nottingham

P.O. Box 114, 139 Stage Road, Nottingham NH 03290 Office 603-679-9597 ext. 1, Fax 603-679-1013
Web: http://www.nottingham-nh.gov Email: plan.zone@nottingham-nh.gov

OWNER'S AUTHORIZATION FOR REPRESENTATION

Property location: Mitchell, NOTTINGHAM, NH

I, the undersigned owner(s) of the property listed above, hereby verify that I have authorized: BERRY SURVEYING & ENGINEERING to represent me/us and apply for the required approval(s) from the Planning Board in the Town of Nottingham, New Hampshire for the following:

☒ Subdivision/Lot Line Adjustment ☐ Site Plan Review ☐ Backlot Subdivision
☐ Design Review ☐ Other________________

FOR: 14 lot subdivision

Name of Owner	Robert Diberto	
Address of Owner	324 Route 108, Madbury NH 03823	
Signature of Owner		Date 3-16-20

Name of Owner		
Address of Owner		
Signature of Owner		Date

Name of Owner		
Address of Owner		
Signature of Owner		Date

Name of Owner		
Address of Owner		
Signature of Owner		Date

Case# Project Name Date

Waiver Request Form

Under Subdivision Regulations 5.3- Request for Waivers, 8.1 – Waivers for Specific Plan Submission Requirements and 11.1- General Waiver Provisions

If there is more than one waiver requested, each waiver request is to be individually listed and described, as each waiver is considered individually by the Town of Nottingham Planning Board. A petition for waiver shall be submitted in writing by the applicant with the application for review. The request shall fully state the grounds for which the waiver is requested and all facts supporting this request with reference to the applicable Nottingham Subdivision Regulations article, section and paragraph. **Each waiver granted shall be listed on the approved subdivision plan which is to be recorded at the Rockingham County Registry of Deeds.**

Name of Subdivision Plan: Stone Grey Drive & Lipizzan Drive

Tax Map 7 Lot 1N Sub- Lot

Site Location: NORTH SIDE OF Mitchell Road

Zoning District(s): Residential / Agricultural

Owner(s): Robert Diberto

Address of Owner(s): 324 Route 108, Madbury NH 03823

Applicant (if different from owner):

Phone Number: Email:

Land Surveyor: BERRY SURVEYING & ENGINEERING

I, Robert Diberto Seek the following waiver to the Town of Nottingham Subdivision Regulations, Article________ Section________, for the above case submittal:

1. Driveway Design and Construction Standards Table 1, 3:1 side slopes. See attached waiver narrative for justification.
2. Subdivision Regulation 9.7.1.b Streets & Roads, Cul-de-sacs

Signature of Owner/Applicant

3-16-20

Date

Case# Project Name Date

Project Application Checklist
Nottingham Planning Board

This checklist is intended to assist applicants in preparing a complete application for subdivision as required by the Nottingham Subdivision Regulations and must be submitted along with all subdivision applications. An applicant seeking subdivision approval shall be responsible for all requirements specified in the Nottingham Subdivision Regulations even if said requirements are omitted from this checklist.

An applicant seeking subdivision approval shall be responsible for providing all the information listed in the column below entitled "Subdivision" and should place an "x" in each box to indicate that this information has been provided. If an item is considered unnecessary for certain application the "NA" box should be marked instead, indicating "Not Applicable". Only certain checklist items are required for lot line adjustments, as noted by the applicable check boxes below.

Check the Appropriate Box or Boxes Below: ☐ Lot Line Adjustment ☐ Subdivision Plan See Sections I & II See Sections I & II,III, IV & V	Subdivision		Office Use	
	Provided	N/A	Provided	N/A
Section I. **General Requirements**				
1. Completed Application Form	X			
2. Complete abutters list	X			
3. Payment of all required fees	X			
4. <u>Six (6) full size sets of plans and ten (10) sets of plans 11"x 17" submitted</u> with all required information in accordance with the subdivision regulations and this checklist	X			
5. Copies of any proposed easement deeds, protective covenants or other legal documents	X			
6. Any waiver request(s) submitted with justification in writing	X			
7. Technical reports and supporting documents (see Section IX & X of this checklist)	X			
8. Completed Application Checklist	X			
Section II. **General Plan Information**				
1. Size and presentation of sheet(S) per registry requirements and the subdivision regulations				
2. Title block information:				
a) Drawing title	X			
b) Name of subdivision	X			
c) Location of subdivision	X			
d) Tax map & lot numbers of subjects parcel(s)	X			
e) Name & address of owner(s)	X			
f) Date of plan	X			

Case# Project Name Date

	Provided	N/A	Provided	N/A
g) Scale of plan	X			
h) Sheet number	X			
i) Name, address, & telephone number of design firm	X			
j) Name and address of applicant	X			
3. Revision block with provision for amendment dates	X			
4. Planning Board approval block provided on each sheet to be recorded	X			
5. Certification block (for engineer or surveyor)	X			
6. Match lines (if any)	X			
7. Zoning designation of subject parcel(s) including overlay districts	X			
8. Minimum lot area, frontages & setback dimensions	X			
9. List Federal Emergency Managements Agency (FFEMA) sheet(s) used to identify 100-year flood elevation, locate the elevation	X			
10. Note the following: "If, during construction, it becomes apparent that deficiencies exist in the approved design drawings, the Contractor shall be required to correct the deficiencies to meet the requirements of the regulations at no expense to the Town."	X			
11. Note the following: "Required erosion control measures shall be installed prior to any disturbance of the site's surface area and shall be maintained through the completion of all construction activities, If, during construction, it becomes apparent that additional erosion control measures are required to stop any erosion on the construction site due to actual site conditions, the Owner shall be required to install the necessary erosion protection at no expense to the Town.	X			
12. Note identifying which plans are to be recorded and which are on file at the Town.	X			
13. Note the following: "All materials and methods of construction shall conform to Town of Nottingham Subdivision Regulations and the latest edition of New Hampshire Department of Transportation's Standard Specifications for Road & Bridge Construction."	X			
14. North arrow	X			
15. Location & elevation(s) of 100-year flood zone per FEMA Flood Insurance Study	X			
16. Plan and deed references	X			
17. The following notes shall be provided:	X			
a) Purpose of plan	X			
b) Existing and proposed use	X			
c) Water supply source (name of provider (company) if offsite)	X			
d) Zoning variances/special exceptions with conditions	x			
e) List of required permits and permit approval numbers	X			
f) Vicinity sketch showing 1,000 feet surrounding the site	X			
g) Plan index indicating all sheets	X			
18. Boundary of entire property to be subdivided	X			
19. Boundary monuments	X			
a) Monuments found	X			
b) Map number and lot number, name, addresses, and zoning of all abutting land owners	X			
c) Monuments to be set	X			
20. Existing streets:	X			

Case# Project Name Date

a) Name labeled	X			
	Provided	N/A	Provided	N/A
b) Status noted or labeled	X			
c) Right-of-way dimensioned	X			
d) Pavement width dimensioned	X			
21. Municipal boundaries (if any)	X			
22. Existing easements (identified by type)	X			
A. Drainage easement(s)		X		
B. Slope easement(s)		X		
C. Utility easement(s)		X		
D. Temporary easement(s) (Such as temporary turnaround)		X		
E. No-cut zone(s) along streams & wetlands (as may be requested by the Conservation Commission)	X			
F. Vehicular & pedestrian access easement(s)		X		
G. Visibility easement(s)		X		
H. Fire pond/cistern(s)		X		
I. Roadway widening easement(s)		X		
J. Walking trail easement(S)		X		
K. Other easement(s) Note type(s)		X		
23. Designation of each proposed lot (by map & lot numbers as provided by the assessor)	X			
24. Area of each lot (in acres & square feet):	X			
a) Existing lot(s)	X			
b) Contiguous upland(s)	X			
25. Wetland delineation (including Prime Wetlands):	X			
a) Limits of wetlands	X			
b) Wetland delineation criteria	X			
c) Wetland Scientist certification	X			
26. Owner(s) signature(s)	X			
27. All required setbacks	X			
28. Physical features	X			
a) Buildings		X		
b) Wells		X		
c) Septic systems		X		
d) Stone walls	X			
e) Paved drives		X		
f) Gravel drives	X			
29. Location & name (if any) of any streams or water bodies		X		
30. Location of existing overhead utility lines, poles, towers, etc.	X			
31. Two-foot contour interval topography shown over all subject parcels	X			
32. Map & lot numbers, name, addresses, and zoning of all abutting land owners	X			

Case# Project Name Date

Section III **Proposed Site Conditions Plan** **(Use Sections I General Requirements & Section II General Plan Information)**				
1. Surveyor's stamp and signature by Licensed Land Surveyor	X			
	Provided	N/A	Provided	N/A
2. Proposed lot configuration defined by metes & bounds	X			
3. Proposed easements defined by metes & bounds. Check each type of proposed easement applicable to this application:	X			
a) Drainage easement(s)	X			
b) Slope easement(S)	X			
c) Utility easement(s)	X			
d) Temporary easement(s) (such as temporary turnaround)		X		
e) Roadway widening easement(s)		X		
f) Walking trail easement(s)		X		
g) Other easement(s) Note type(s)		X		
4. Area of each lot (in acres & square feet):	X			
a) Total upland(s)	X			
b) Contiguous upland(s)	X			
5) Proposed streets:	X			
a) Name(s) labeled	X			
b) Width of right-of-way dimensioned	X			
c) Pavement width dimensioned	X			
6. Source and datum of topographic information (USGS required)	X			
7. Show at least one benchmark per sheet (min.) and per 5 acres (min.) of total site area	X			
8. Soil Conservation Service (SCS) soil survey information	X			
9. Location, type, size & inverts of the following (as applicable):	X			
a) Existing water systems		X		
b) Existing drainage systems		X		
c) Existing utilities	X			
10. 4K affluent areas with 2 test pit locations shown with suitable leaching areas	X			
11. Location of all water wells with protective radii as required by the NH Department of Environmental Services (meeting Town and NHDES setback requirements)	X			
12. Existing tree lines	X			
13. Existing ledge outcroppings & other significant natural features	X			
14. Drainage, Erosion and Sediment Control Plan(s) containing all of the requirements specified in Section 16.3.2 (Final Plan Requirements) of the Subdivision Regulations	X			
Section IV **Construction Detail Drawings**				
Note: Construction details to conform with NHDOT Standards & Specifications for Roads & Bridges, Town of Nottingham Highway Department requirements, and Subdivision Regulations	X			
1. Typical cross-section of roadway	X			
2. Typical driveway apron detail	X			
3. Curbing detail	X			
4. Guardrail detail	X			

Case# Project Name Date

5. Sidewalk detail		X		
6. Traffic signs and pavement markings	X			
7. Drainage structure(s)	X			
8. Outlet protection riprap apron	X			
	Provided	N/A	Provided	N/A
9. Level spreader	X			
10. Treatments swale	X			
11. Typical section at detention basin	X			
12. Typical pipe trench	X			
13. Fire protection details	X			
14. Erosion control details	X			
15. Construction Notes	X			
a) Construction sequence	X			
b) Erosion control notes	X			
c) Landscaping notes	X			
d) Water system construction notes		X		
e) Sewage system construction notes		X		
f) Existing & finish centerline grades	X			
g) Proposed pavement – Typical cross-section	X			
h) Right-of-way and easement limits	X			
i) Embankment slopes	X			
j) Utilities	X			
Section V. **Supporting Documentation If Required**				
1. Calculation of permitted housing density (for Open Space Subdivisions only as required in the Nottingham Zoning Ordinance)	X			
2. Stormwater management report	X			
3. Traffic impact analysis	X			
4. Environmental impact assessment	X			
5. Hydrogeological study		X		
6. Fiscal impact. study provided	X			
7. Site Inventory and Conceptual Development Plan (from preliminary Open Space Subdivision review only)		X		

Note: This checklist shall be completed and returned as part of the original application packet.

BOUNDARY & TOPOGRAPHIC SURVEYING
CIVIL ENGINEERING
SITE DESIGN
BERRY SURVEYING
& ENGINEERING
SEPTIC SYSTEM DESIGN
WETLANDS PERMITTING
SHORELAND PROTECTION PERMITTING

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

May 5, 2021

Town of Nottingham
Planning Office
Attn: JoAnna Arendarczyk, Planning Secretary
139 Stage Road
P.O. Box 114
Nottingham, NH 03820

RE: Robert Diberto
Subdivision Review
Mitchell Road
Nottingham, NH
Tax Map 7, Lot 1N

Mr. Chairman and Members of the Nottingham Planning Board

In accordance with the Town of Nottingham's Subdivision Regulations, the applicant requests the following waivers:

1. **Identification of Waiver Request**: Road and Driveway Design and Construction Standards Table 1, maximum side slope grades of 3:1.
    - Proposed side slopes of 2:1 or 1:1 within wetland and buffer crossings.

Waiver Justification:
a. Granting the waiver will properly carry out the purpose and intent of the regulations.

The purpose and intent of the max side slope regulation is to ensure that the side slopes do not erode during or after construction. The proposed side slopes will only be constructed within the construction that cross wetlands and through buffer areas. All slopes will either be stabilized with vegetation, or rolled erosion control blankets (RECB), or in the case The RECB will be installed on all slopes greater than 3:1. This will not only help stabilize the slope but it will also promote vegetation growth on the side slopes because the RECB is made of natural coconut fabric.

b. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Strict conformity to the regulations will pose an unnecessary hardship on the applicant. Requiring the applicant to use 3:1 side slopes within the 50' buffer and wetlands will increase the buffer and wetland disturbance. The applicant is proposing the 1:1 and 2:1 side slopes in these areas to limit disturbance.

2. **Identification of Waiver Request**: Roads with Cul-de-sacs. 9.7.1 (b)

- Proposed roadway provides one two cul-d-sac design to access buildable upland.

Waiver Justification:

a. Granting the waiver will properly carry out the purpose and intent of the regulations.

The purpose and intent of the regulation is to force the applicant to considering connecting roadways where possible in an effort to Plan for future uses. In this case it was determined by BS&E that a cul-de-sac would be the best option to access the buildable area north of the center wetland, to limit wetland disturbance. The proposed cul-de-sac will be designed in accordance with the town of Nottingham roadway design standards.

b. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Strict conformity to the regulations will pose an unnecessary hardship on the applicant and the Town whereby increasing road infrastructure needlessly, and impacting valuable wetlands recourses.

Respectfully submitted,
BERRY SURVEYING & ENGINEERING

James Hayden
Engineering Technician

Christopher R. Berry
Principal, President

4/13/21

Christopher Berry
Berry Surveying and Engineering
335 Second Crown Point Road
Barrington NH

Re: Vernal Pool Assessment
Map 7 Lot 1N Route 4 Nottingham &
Map 13 Lot 35-1B Mitchell Road Barrington NH

Dear Chris:

This letter reports the completion of an assessment for vernal pools conducted on the above referenced property by John P. Hayes III on May 13, 2021, The parcel 59 acres in size, and is located on the southwest side of Route 4, and northeast of Mitchell Road, in Nottingham, and Barrington, NH. This assessment was conducted during the breeding period of several of the primary indicator species.

Vernal Pools are defined as temporary bodies of water that occur in shallow basins or depressions, that are intermittently or seasonally flooded, and provide habitat for distinctive amphibians and invertibrates. Additional criteria for vernal pools are discribed in the DES Wetlands Bureau Administrative Code of Rules Env-Wt101.108.

These criteria include:
1.) Cycles annually from flooded to dry conditions.
2.) Forms in a shallow depression or basin
3.) Has no permanently flowing outlet
4.) Holds water for at least 2 continuous months following spring ice-out
5.) Lacks a viable fish population
6.) Supports one or more primary vernal pool indicators, or 3 or more secondary vernal pool indicators.

Excluded from these rules are areas of on-going anthropogenic activities that are not intended to provide compensatory mitigation, including but not limited to:

1.) Gravel pit operations in a pit that has been mined at least every other year.
2.) Logging and agricultural operations conducted in accordance with all applicable New Hampshire statutes and rules.

Conclusion

The above mentioned property is mostly wooded. The wetland areas on the parcel are predominantly forested wetlands and drainageways, some of the forested wetland areas are seasonally ponded, and contain some very poorly drained soils. During my investigation of both the upland and wetland areas on this site, I found there to be no existing vernal pools, or any potential vernal pool habitats. The majority of the poorly drained soils in the wetland areas on the site are of the Ridgebury soil series which is sandy in texture and has a high infiltration rate. This type of soil does not hold water for long periods of time and therefore is not very condusive to vernal pool formation.

Refrences:

Marchant, M. ed. 2016, Identification and Documentation of Vernal Pools in New Hampshire, 3rd edition. New Hampshire Fish and Game Departmant, Nongame and Endangered Wildlife Program, Concord New Hampshire.

Watermelon, D.J. 1995 A key to Eggs of Wisconsin's Amphibians, Research Report 165, Bureau of Environmental Analysis and Review, Wisconsin Department of Natural Resources.

Magee, D.W. And H.E. Ahlis. 1999 Flora of the Northeast: A Manuel of Vascular Flora of New England and Adjacent New York. University of Massachusettes Press, Amherst.

New Hampshire Vernal Pool Documentation Form. New Hampshire Fish and Game Department, 11 Hazen Drive Concord NH Version: March 2015

Please let me know if you have any questions, or need any more information on this project.

Sincerely:

John P. Hayes III

STATE OF NEW HAMPSHIRE - CERTIFIED WETLAND SCIENTIST -
JOHN P. HAYES, III
No. 18

John P. Hayes III CSS, CWS

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N

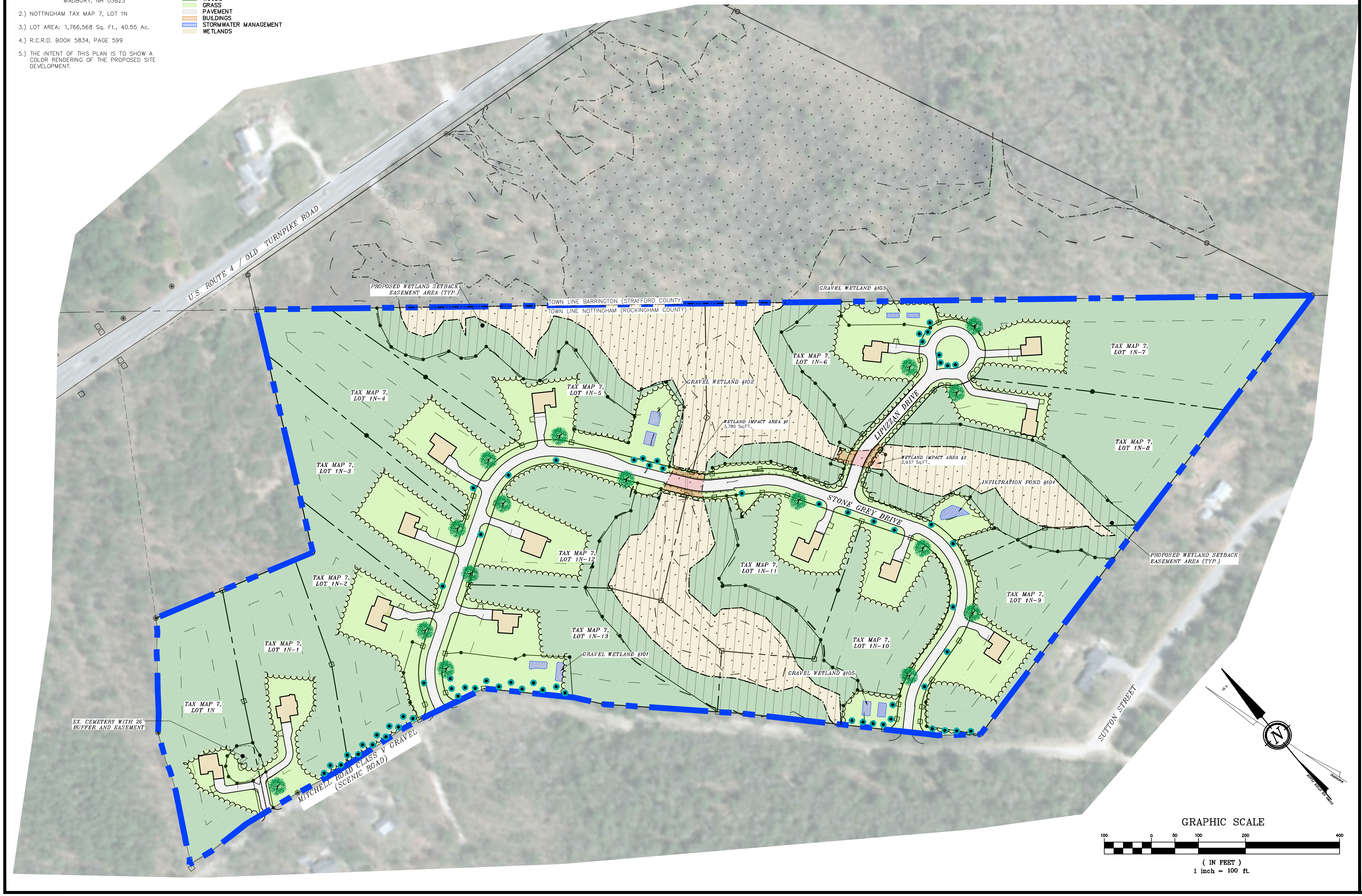
3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO SHOW A COLOR RENDERING OF THE PROPOSED SITE DEVELOPMENT.

LEGEND:

- 🟥 WETLAND IMPACT AREA
- 🟩 WOODS
- 🟩 GRASS
- ⬜ PAVEMENT
- 🟧 BUILDINGS
- 🟦 STORMWATER MANAGEMENT
- 🟨 WETLANDS



REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

COLOR RENDERING
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243

TABLE OF CONTENTS:

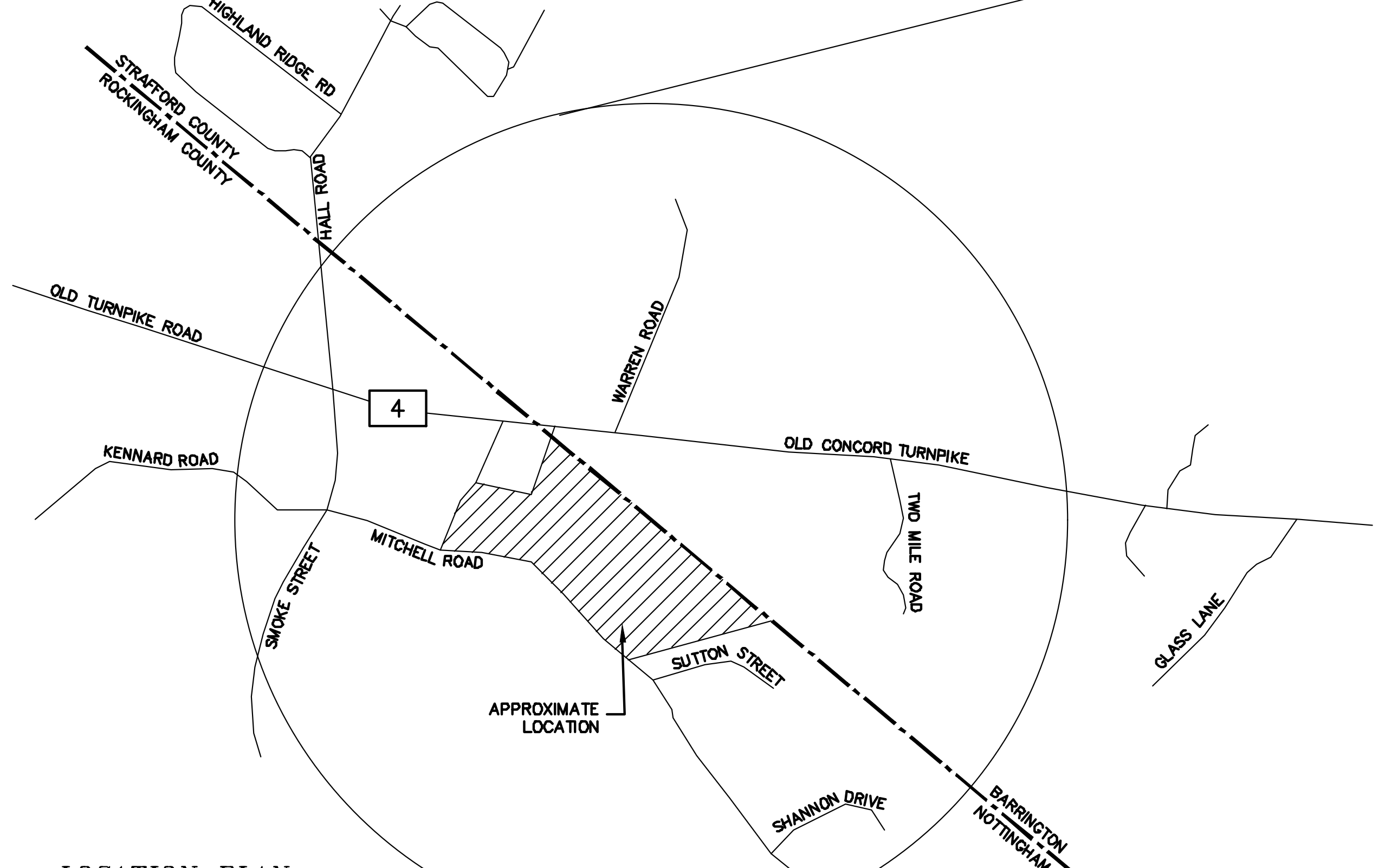
ASTERISKS INDICATE PLANS TO BE RECORDED

MAJOR SUBDIVISION FOR ROBERT L. DIBERTO MITCHELL ROAD NOTTINGHAM, N.H. NOTTINGHAM TAX MAP 7, LOT 1N

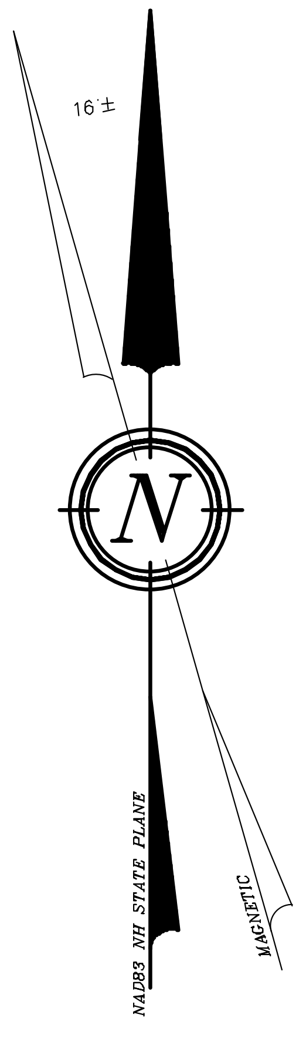
NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

SURVEYOR OF RECORD:	KENNETH A. BERRY, PE, LLS CPSWQ, CPESC, CESSWI BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603) 332-2863
ENGINEER OF RECORD:	KENNETH A. BERRY, PE, LLS CPSWQ, CPESC, CESSWI BERRY SURVEYING & ENGINEERING 335 SECOND CROWN POINT ROAD BARRINGTON, NH 03825 (603) 332-2863
WETLAND SCIENTIST: & SOIL SCIENTIST:	JOHN P. HAYES III, CSS, CWS 7 LIMESTONE WAY NORTH HAMPTON, NH 03862 (603) 205-4396
OWNER:	ROBERT L. DIBERTO 324 ROUTE 108 MADBURY, NH 03823
APPLICANT:	ROBERT L. DIBERTO 324 ROUTE 108 MADBURY, NH 03823



LOCATION PLAN
NOTTINGHAM &
BARRINGTON, NH
NOT TO SCALE



VICINITY SKETCH
NOTTINGHAM &
BARRINGTON, NH
SCALE: 1" = 500' ±

REQUIRED PERMITS:

1.) NHDES SUBDIVISION APPROVAL: (PENDING)

2.) NHDES WETLANDS IMPACT PERMIT: 2020-01685

3.) NHDES ALTERATION OF TERRAIN PERMIT AoT 200602-077

4.) EPA NOTICE OF INTENT / SWPPP: (PENDING)

5.) NATURAL HERITAGE BUREAU: (PENDING)

6.) DIVISION OF HISTORICAL RECOURSES: NHB21-1526

7.) CONDITIONAL USE PERMIT: #11501

GENERAL PLAN SET NOTES:

1.) 11x17" PLANS ARE HALF THE PUBLISHED SCALE.

2.) ALL PLANS ARE CONSIDERED TO BE NOT FOR CONSTRUCTION UNLESS THEY CONTAIN THE APPROVAL STAMP OF THE TOWN OF NOTTINGHAM.

WHETHER OR NOT OTHERWISE EXPRESSLY RECITED ON THIS SITE PLAN, THE SUBDIVISION PLAN APPROVAL GRANTED IS CONDITIONED ON FAITHFUL AND DILIGENT ADHERENCE BY THE OWNER/SUBDIVIDER/DEVELOPER OF ALL TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS OF THE TOWN OF NOTTINGHAM LAND SUBDIVISION REGULATIONS AS AMENDED OR AS MAY LATER BE AMENDED, IN EFFECT ON THE DATE OF APPROVAL, UNLESS OR EXCEPT INSOFAR AS EXPRESSLY WAIVED, IN ANY PARTICULAR, BELOW. NON – ADHERENCE MAY RESULT IN A REVOCATION OF APPROVAL. ANY VARIATION FROM THE APPROVED PLAN WILL REQUIRE A RESUBMISSION FOR SUBDIVISION APPROVAL.

NOTE:

BERRY SURVEYING & ENGINEERING HAS PREPARED AN INSPECTION & MAINTENANCE MANUAL AS PART OF THIS PROJECTS DOCUMENTATION. ALL USERS ARE BOUND TO THIS DOCUMENT AS PART OF THE APPROVAL OF THE PLANNING BOARD. COPIES OF THE YEARLY INSPECTIONS ARE TO BE DELIVERED TO THE TOWN OF NOTTINGHAM TOWN HALL.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
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MAJOR SUBDIVISION
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : AS SHOWN
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14243

ABBREVIATION LEGEND:

BITUM.	BITUMINOUS
E.O.P.	EDGE OF PAVEMENT
E.S.H.W.T	ESTIMATED SEASONAL HIGH WATER TABLE
TYP.	TYPICAL
U.G.E.	UNDER GROUND ELECTRIC / UTILITY
U.D.	UNDER DRAIN
C.O.	CLEAN OUT
INV.	INVERT
ELEV.	ELEVATION
F.E.S.	FLARED END SECTION
HDPE	HIGH DENSITY POLYETHYLENE
RECB	ROLLED EROSION CONTROL BLANKET
F.G.	FINISHED GRADE
E.G.	EXISTING GRADE
E.T.W.	EDGE OF TRAVELED WAY
T.B.R.	TO BE REMOVED
PL	PROPERTY LINE
EL	EASEMENT LINE
R.O.W.	RIGHT OF WAY
CL	CENTER LINE
CF	CUBIC FEET
P.C.	POINT OF CURVATURE
P.T.	POINT OF TANGENCY
P.V.C.	POINT OF VERTICAL CURVATURE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENCY
EX.	EXISTING
PROP.	PROPOSED
R&R	REMOVE AND REPLACE
STA.	STATION
'/.	FOOT / FOOT

{ } SSL ( ) ~ {SIZE} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } DSL ( ) ~ {SIZE} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
{ } SSB ( ) ~ {SIZE} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } SBL ( ) ~ {SIZE} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
{ } DBL ( ) ~ {SIZE} DOUBLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)

EXISTING LEGEND:

DRILL HOLE ~FND~
IRON PIPE ~FND~
IRON BOUND ~FND~
NH HIGHWAY BOUND ~FND~
UTILITY POLE
GUY WIRE
SIGNAGE

TEST PIT

LEDGE PROBE

TEMPORARY BENCHMARK (T.B.M.)

BLAZED/PAINTED TREE

POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
BUILDING SETBACK LINE
EASEMENT LINE
WETLAND SETBACK 50' TO POORLY DRAINED
WETLAND SETBACK 75' TO VERY POORLY POORLY DRAINED
STONE WALL
NRCS SOIL DELINEATION LINE
SITE SPECIFIC SOIL LINE
LIMIT OF SOIL SURVEY
OHU OVERHEAD UTILITIES LINE
D EXISTING DRAIN CULVERT
242 CONTOUR MINOR, EXISTING
240 CONTOUR MAJOR, EXISTING

AREA OF 25% OR GREATER SLOPE

448A	SOIL SERIES
CsB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND

PROPOSED LEGEND:

GRANITE BOUND ~TBS~
3/4" REBAR W/ ID CAP ~TBS~
1/2" EASEMENT IRON BOUND W/ID CAP ~TBS~
UTILITY POLE
OUTLET STRUCTURE
SIGNAGE
CHECK DAM–MATERIAL AS SPECIFIED
FLOW ARROW
W WELL

TEMPORARY BENCH MARK (T.B.M.)

E101/E6 DETAIL SHEET / DETAIL

MATCH POINT
MATCH LINE
F41 CONTOUR MINOR, PROPOSED
F40 CONTOUR MAJOR, PROPOSED
D DRAIN CULVERT W/ FLARED END SECTION (F.E.S.)
GUARD RAIL
SHOULDER
CENTER LINE
CLEAR ZONE LINE
BUILDING SETBACK LINE
SUBDIVISION BOUNDARY LINE
75' PROTECTIVE WELL RADIUS (NHDES)
SAW CUT & MILL
TRANSFORMER / J.BOX
UGE UNDERGROUND UTILITY
U.D UNDER DRAIN
SF SILT FENCE / EROSION MIX BERM
SS FILTREXX 8" – 12" SILT SOXX AS SPECIFIED
C ORANGE CONSTRUCTION PERIMETER FENCE
LIMIT OF ALLOWED DISTURBANCE
NRCS SOIL DELINEATION
CsB SOIL TYPE

RIP–RAP STONE

RAIN GARDEN

BERM

4,000 Sq. Ft. EFFLUENT LEACHING AREA

1 PHOTO POINT

ABUTTERS WITHIN 200':

N/F STEPHEN T. CURWOOD REVOCABLE
TRUST DATED NOVEMBER 3 2006
CURWOOD, STEPHEN T. TRUSTEE
102 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 6, LOT 12
R.C.R.D. BOOK 4909, PAGE 1447

N/F WILHELM WOODS REALTY, LLC
165 INDUSTRIAL PARK DRIVE, UNIT 1
DOVER, NH 03820
NOTTINGHAM TAX MAP 7, LOT 1A
R.C.R.D. BOOK 5213, PAGE 722
BARRINGTON TAX MAP 269, LOT 3
S.C.R.D. BOOK 3923, PAGE 487

N/F BUCK, DENNIS G. & JENNIFER H.
2 SUTTON STREET
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 2N
R.C.R.D. BOOK 3206, PAGE 1803

N/F MARVELL, TOD & PIROG, NICOLE
4 SUTTON STREET
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 2N–2
R.C.R.D. BOOK 5945, PAGE 1645

N/F KENNESON, DYLAN A.
6 SUTTON STREET
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 2N–3
R.C.R.D. BOOK 5676, PAGE 1245

N/F BOULERICE, MICHAEL A. & JESSICA J.
1 SUTTON STREET
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 2N–10
R.C.R.D. BOOK 5534, PAGE 169

ABUTTERS WITHIN 200' CONT.:

N/F FERNALD, DAVID B.
57 RAYMOND ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 9
R.C.R.D. BOOK 5913, PAGE 639

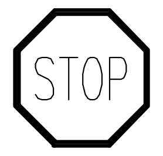
N/F AMABILE, CYNTHIA A.
117 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10
R.C.R.D. BOOK 3647, PAGE 1

N/F ROIX, DONALD R. & PATRICIA C.
115 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10–A
R.C.R.D. BOOK 3343, PAGE 2228

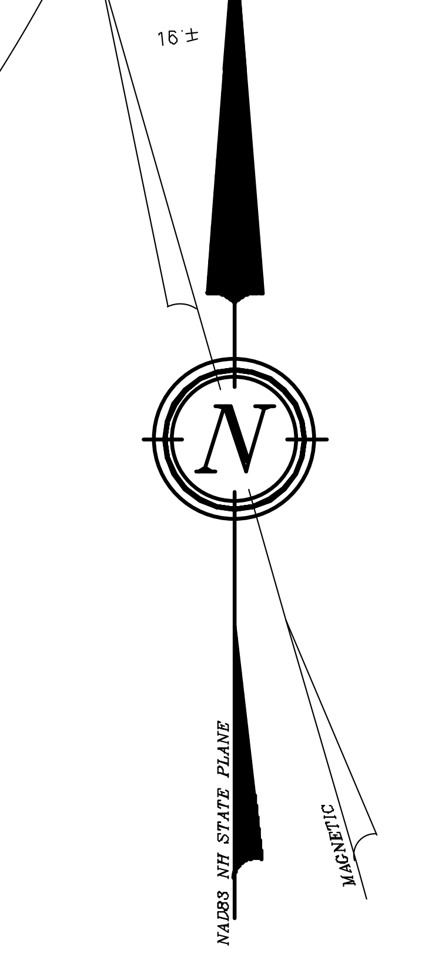
N/F JARVIS, TIMOTHY E. & SIRIPHONE P.
113 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10–B
R.C.R.D. BOOK 4330, PAGE 0842

N/F FRITZ, PAMELA J.
111 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10–C
R.C.R.D. BOOK 6071, PAGE 4

N/F BASSETT, JAMES & HOLDER,
SUZANNA D.
109 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10–D1
R.C.R.D. BOOK 5980, PAGE 536

SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R1–1	30"x30"	 STOP	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	3	RED	WHITE	WHITE	SQUARE (3)
R2–1	24"x30"	 SPEED LIMIT 25	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	3	WHITE	GREEN	GREEN	SQUARE (3)
R6–1R	36"x12"	 ONE WAY	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	BLACK W/ WHITE ARROW	BLACK	WHITE	SQUARE (1)
R8–31	12"x18"	 NO PARKING	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	RED	RED	SQUARE (1)

GIS SKETCH
NOTTINGHAM, NH
SCALE: 1" = 1000' ±



ABUTTERS WITHIN 200' CONT.:

N/F JAMES, BENJAMIN
317 OLD CONCORD TURNPIKE, UNIT 1
BARRINGTON, NH 03825
TAX MAP 269, LOT 1–2–A
S.C.R.D. BOOK 4459, PAGE 409

N/F MILLER, CHRISTINA RYAN
317 OLD CONCORD TURNPIKE, UNIT 2
BARRINGTON, NH 03825
TAX MAP 269, LOT 1–2–B
S.C.R.D. BOOK 4408, PAGE 492

N/F LOPER, DANIEL J. & DENEKA, NICOLE M.
319 OLD CONCORD TURNPIKE
BARRINGTON, NH 03825
TAX MAP 269, LOT 1–3
S.C.R.D. BOOK 4518, PAGE 922

N/F HALEY, JAMES & CARINA
366 OLD CONCORD TURNPIKE
BARRINGTON, NH 03825
TAX MAP 269, LOT 8
NO S.C.R.D. BOOK & PAGE INFO AVAILABLE

ABUTTERS WITHIN 200' CONT.:

N/F COOPER, HEATHER
336 OLD CONCORD TURNPIKE
BARRINGTON, NH 03825
TAX MAP 269, LOT 11–1
S.C.R.D. BOOK 3303, PAGE 683

N/F AYER, DANIEL E.
PO BOX 1679
DOVER, NH 03821–1679
TAX MAP 269, LOT 11–2
S.C.R.D. BOOK 3180, PAGE 481

N/F WILHELM WOODS REALTY LLC
281 MAIN STREET
DURHAM, NH 03824
TAX MAP 269, LOT 3
S.C.R.D. BOOK 3923, PAGE 487

N/F DIBERTO, ROBERT L.
334 DURHAM ROAD
MADBURY, NH 03823
TAX MAP 269, LOT 2
S.C.R.D. BOOK 4490, PAGE 869

KENNETH A. BERRY
No. 805
SIGNATURE

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

NEIGHBORHOOD PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : AS SHOWN
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14247

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

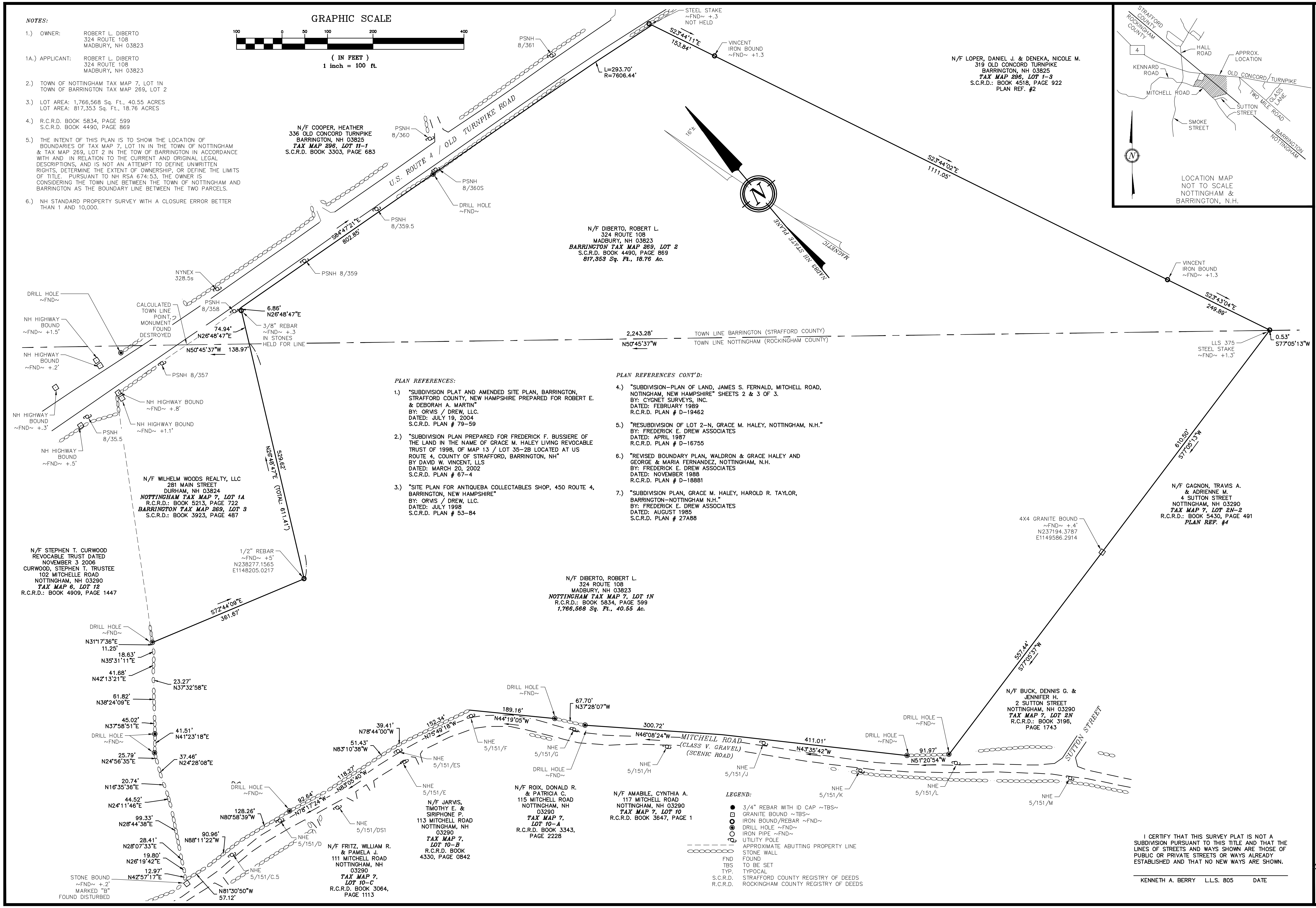
2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N
TOWN OF BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

5.) THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES OF TAX MAP 7, LOT 1N IN THE TOWN OF NOTTINGHAM & TAX MAP 269, LOT 2 IN THE TOW OF BARRINGTON IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT AND ORIGINAL LEGAL DESCRIPTIONS, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE. PURSUANT TO NH RSA 674:53, THE OWNER IS CONSIDERING THE TOWN LINE BETWEEN THE TOWN OF NOTTINGHAM AND BARRINGTON AS THE BOUNDARY LINE BETWEEN THE TWO PARCELS.

6.) NH STANDARD PROPERTY SURVEY WITH A CLOSURE ERROR BETTER THAN 1 AND 10,000.



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79-59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35-2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67-4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53-84

PLAN REFERENCES CONT'D:

4.) "SUBDIVISION-PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D-19462

5.) "RESUBDIVISION OF LOT 2-N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D-16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D-18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON-NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

LEGEND:

●	3/4" REBAR WITH ID CAP ~TBS~
⊡	GRANITE BOUND ~TBS~
○	IRON BOUND/REBAR ~FND~
◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
℺	UTILITY POLE
— — — —	APPROXIMATE ABUTTING PROPERTY LINE
○○○○○○	STONE WALL
FND	FOUND
TBS	TO BE SET
TYP.	TYPOCAL
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

KENNETH A. BERRY L.L.S. 805 DATE

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

BOUNDARY PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 805 KENNETH A. BERRY
SIGNATURE

NRCS SOILS LEGEND:

42B – CANTON FINE SANDY LOAM, 3 TO 8% SLOPES *HSG: B*
43C – CANTON FINE SANDY LOAM, ROCKY, 8 TO 15% SLOPES *HSG: B*
140C – CHATFIELD–HOLLIS–CANTON COMPLEX, 8 TO 15% SLOPES *HSG: B*
447B – SCITUATE–NEWFIELDS COMPLEX, VERY STONY 3 TO 8% SLOPES *HSG: C*
657A – RIDGEBURY FINE SANDY LOAM, VERY STONY 0 TO 3% SLOPES *HSG: D*
125 – SCARBORO MUCK, VERY STONY, 0 TO 3% SLOPES *HSG: A/D*
CsB – CHARLTON FINE SANDY LOAM, 3 TO 8% SLOPES *HSG: B*
HdC – HOLLIS–CHARLTON FINE SANDY LOAM, 8 TO 15% SLOPES *HSG: D*
LcB – LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES *HSG: A/D*
LcB – LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES *HSG: A/D*
Mp – FREETOWN–SWANSEA MUCKY PEAT, 0 TO 2% SLOPES *HSG: B/D*
PdB – PAXTON FINE SANDY LOAM, 3 TO 8% SLOPES *HSG: C*
Wa – WHITMAN VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES *HSG: D*

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BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D–16755

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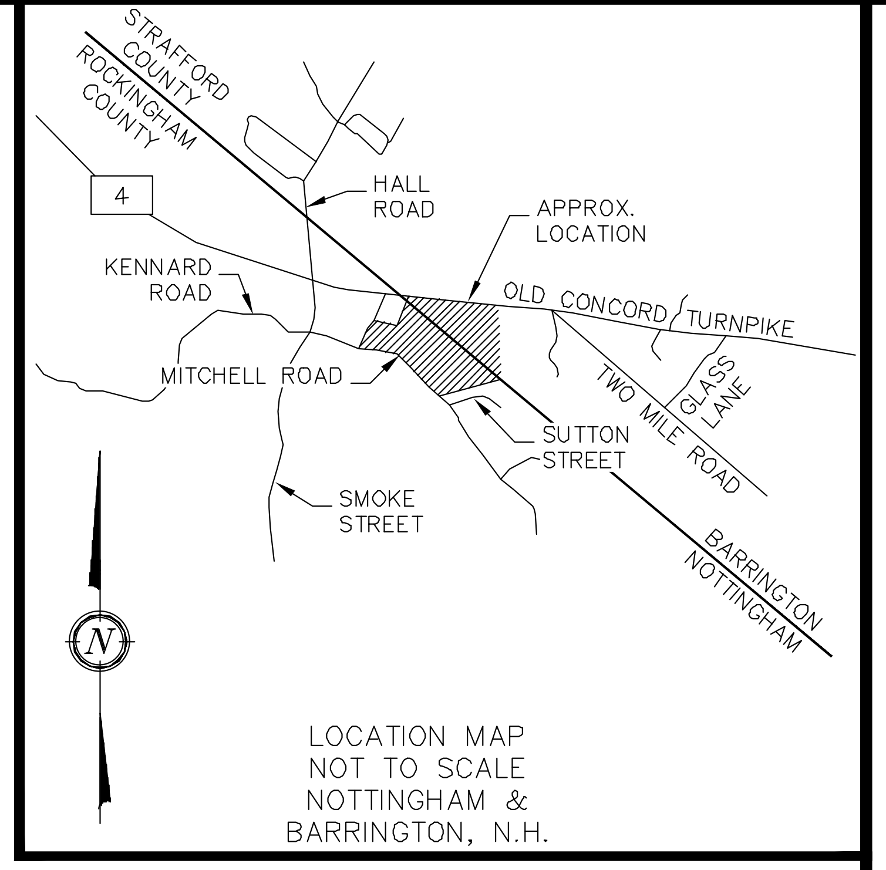
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D–18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON–NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

LEGEND:

⦿	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
◎	IRON BOUND/REBAR ~FND~
□	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
	UTILITY POLE
	TEMPORARY BENCH MARK (T.B.M.)
⊕	TEST PIT
—·—·—	NRCS SOIL DELINEATION LINE
⬭⬭⬭	STONE WALL
	STONE WALL REMAIN
—·—·—	POORLY DRAINED WETLAND LINE
— · —	VERY POORLY DRAINED WETLAND LINE
— ·· —	WETLAND SETBACK 50' TO POORLY DRAINED
— ·· —	WETLAND SETBACK 75' TO VERY POORLY POORLY DRAINED
— ·· —	BUILDING SETBACK LINE
— — —	TOWN LINE
▨	AREA OF 25% OR GREATER SLOPE
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
GsB	NRCS SOILS TYPE



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

REVISION	DATE	DESCRIPTION
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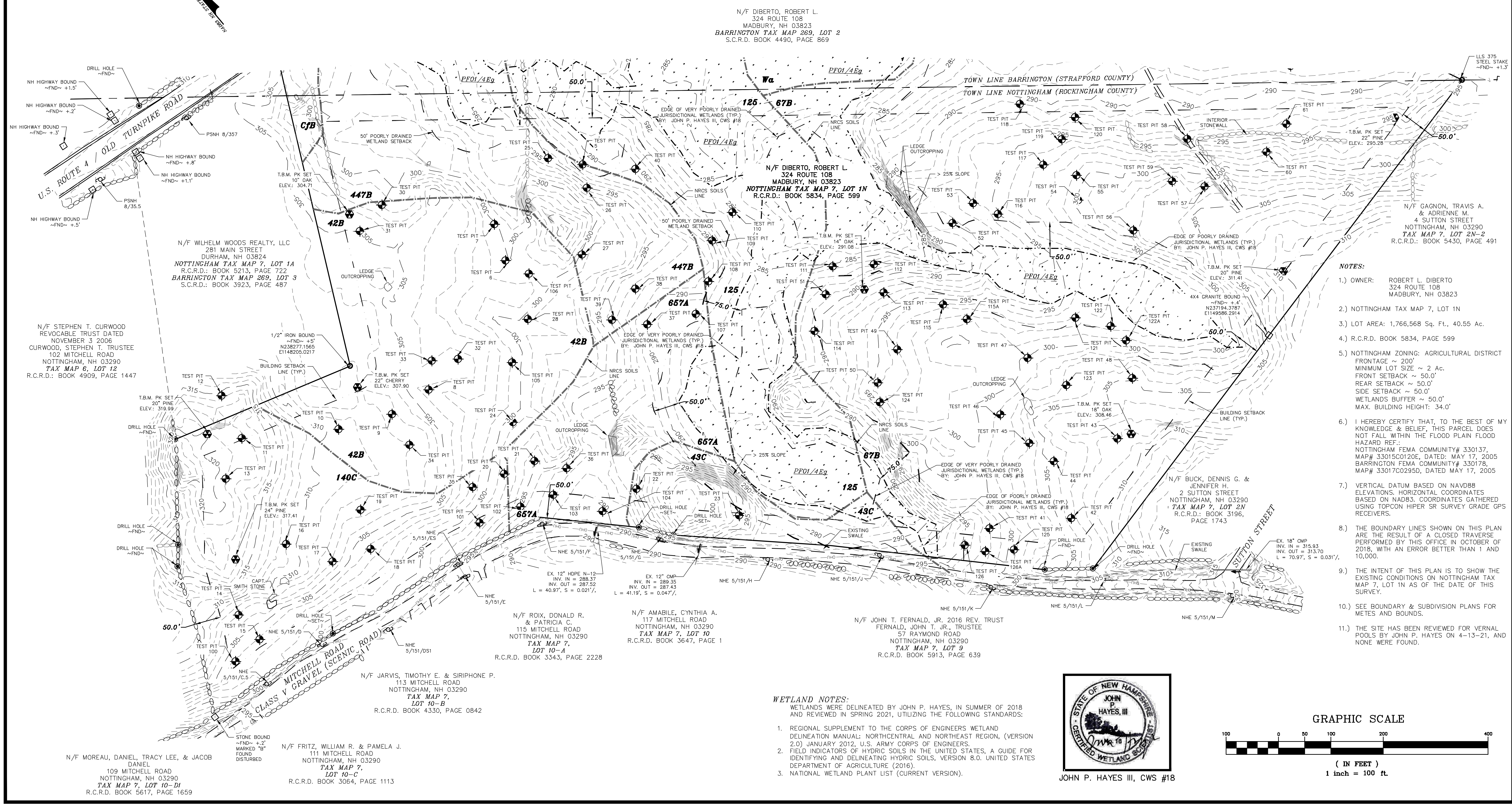


NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) NOTTINGHAM ZONING: AGRICULTURAL DISTRICT
FRONTAGE ~ 200'
MINIMUM LOT SIZE ~ 2 Ac.
FRONT SETBACK ~ 50.0'
REAR SETBACK ~ 50.0'
SIDE SETBACK ~ 50.0'
WETLANDS BUFFER ~ 50.0'
MAX. BUILDING HEIGHT: 34.0'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.:
NOTTINGHAM FEMA COMMUNITY# 330137, MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178, MAP# 33017C0295D, DATED MAY 17, 2005

7.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN OCTOBER OF 2018, WITH AN ERROR BETTER THAN 1 AND 10,000.

9.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1N AS OF THE DATE OF THIS SURVEY.

10.) SEE BOUNDARY & SUBDIVISION PLANS FOR METES AND BOUNDS.

11.) THE SITE HAS BEEN REVIEWED FOR VERNAL POOLS BY JOHN P. HAYES ON 4–13–21, AND NONE WERE FOUND.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES, III
No. 18

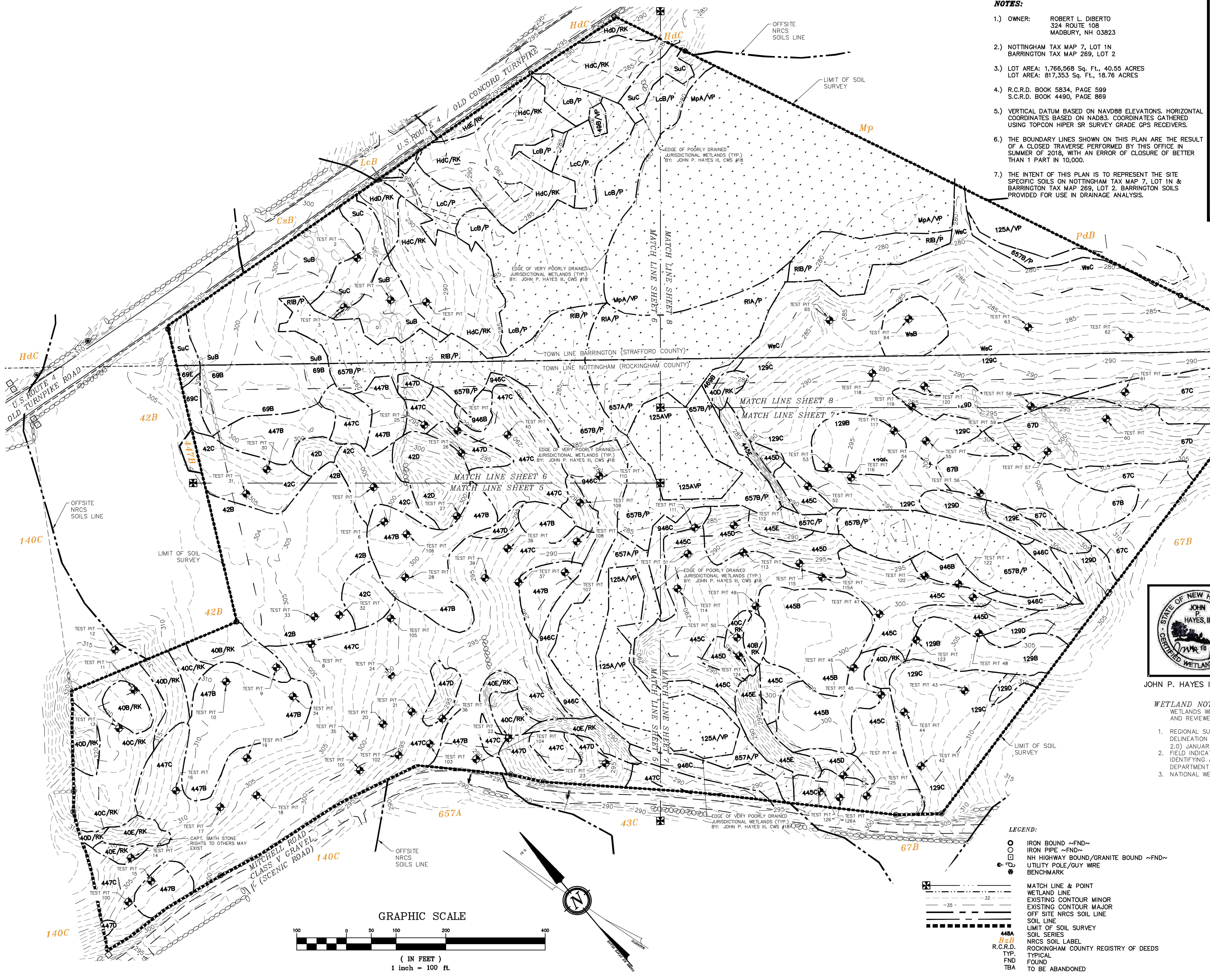
JOHN P. HAYES III, CWS #18

EXISTING CONDITIONS PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

No. 805
KENNETH A. BERRY
SIGNATURE



NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

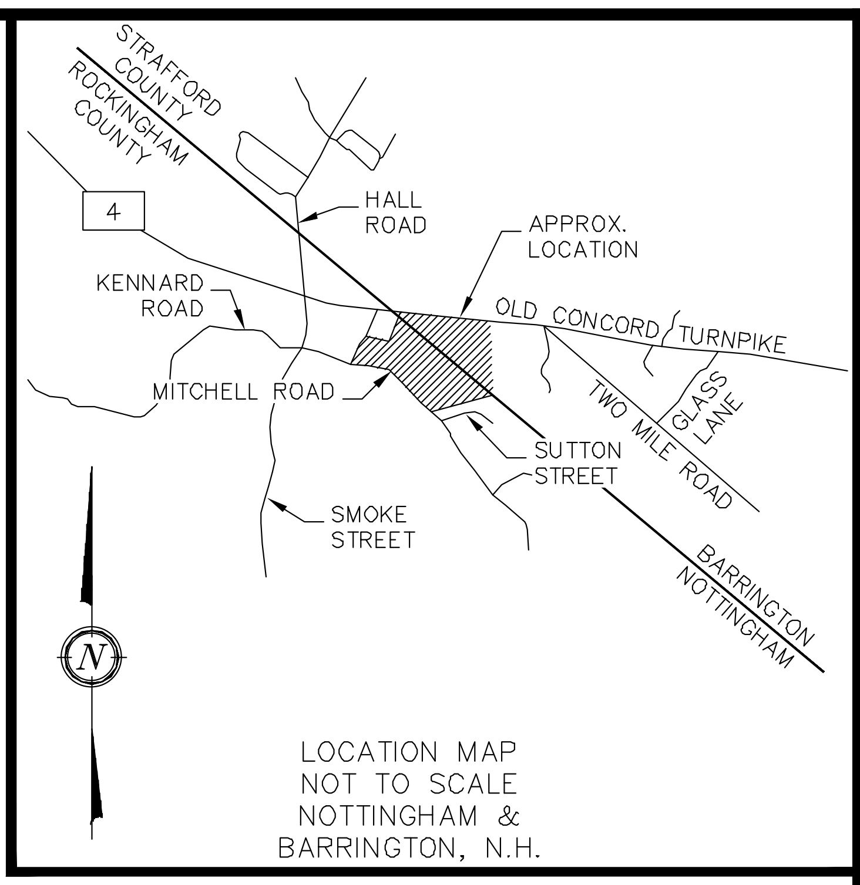
3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

5.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

6.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SUMMER OF 2018, WITH AN ERROR OF CLOSURE OF BETTER THAN 1 PART IN 10,000.

7.) THE INTENT OF THIS PLAN IS TO REPRESENT THE SITE SPECIFIC SOILS ON NOTTINGHAM TAX MAP 7, LOT 1N & BARRINGTON TAX MAP 269, LOT 2. BARRINGTON SOILS PROVIDED FOR USE IN DRAINAGE ANALYSIS.



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES CONTINUED:

8.) SEE SHEETS 9 & 10 FOR TEST HOLE DATA.

9.) SEE SHEET 6 FOR SITE SPECIFIC SOILS LEGEND AND SHEET 8 FOR NRCS SOILS LEGEND.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

OVERVIEW SITE SPECIFIC SOILS MAP
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

WETLAND NOTES:
WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

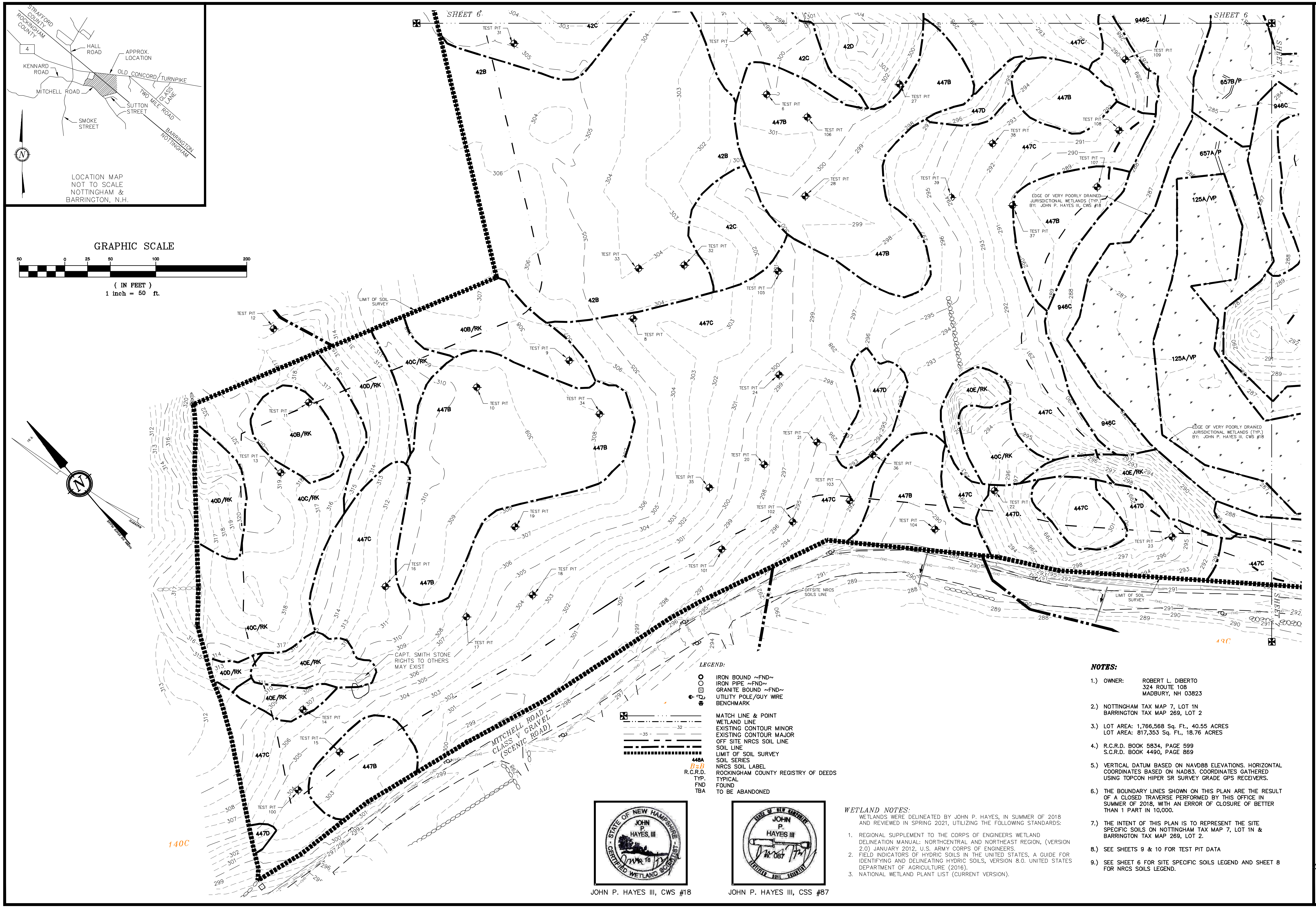
LEGEND:

◉	IRON BOUND ~FND~
○	IRON PIPE ~FND~
⊡	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
◐- ↩	UTILITY POLE/GUY WIRE
⬢	BENCHMARK
⊠ —— · · · ——	MATCH LINE & POINT
— · · — · · —	WETLAND LINE
– – – 32 – –	EXISTING CONTOUR MINOR
—— -35- ——	EXISTING CONTOUR MAJOR
━━ ━ ━ ━━	OFF SITE NRCS SOIL LINE
—— — ——	SOIL LINE
■ ■ ■ ■ ■ ■	LIMIT OF SOIL SURVEY
448A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBA	TO BE ABANDONED

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243



LEGEND:

●	IRON BOUND ~FND~
○	IRON PIPE ~FND~
⊡	GRANITE BOUND ~FND~
	UTILITY POLE/GUY WIRE
	BENCHMARK
	MATCH LINE & POINT
	WETLAND LINE
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3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

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8.) SEE SHEETS 9 & 10 FOR TEST PIT DATA

9.) SEE SHEET 6 FOR SITE SPECIFIC SOILS LEGEND AND SHEET 8 FOR NRCS SOILS LEGEND.

REVISION	DATE	DESCRIPTION
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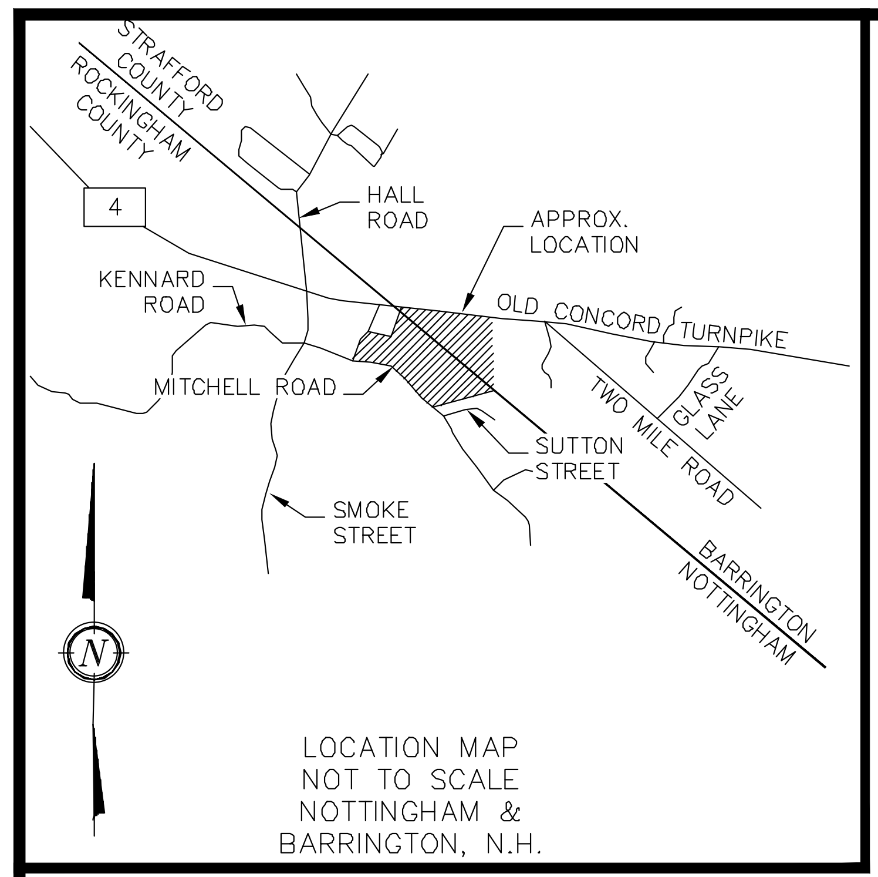
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

SITE SPECIFIC SOILS MAP WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

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8.) SEE SHEETS 9 & 10 FOR TEST PIT DATA

9.) SEE SHEET 8 FOR NRCS SOILS LEGEND.

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

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LEGEND:

O	IRON BOUND ~FND~
○	IRON PIPE ~FND~
⊡	GRANITE BOUND ~FND~
◐	UTILITY POLE/GUY WIRE
⊛	BENCHMARK
	MATCH LINE & POINT
	WETLAND LINE
32	EXISTING CONTOUR MINOR
35	EXISTING CONTOUR MAJOR
	OFF SITE NRCS SOIL LINE
	SOIL LINE
	LIMIT OF SOIL SURVEY
448A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBA	TO BE ABANDONED

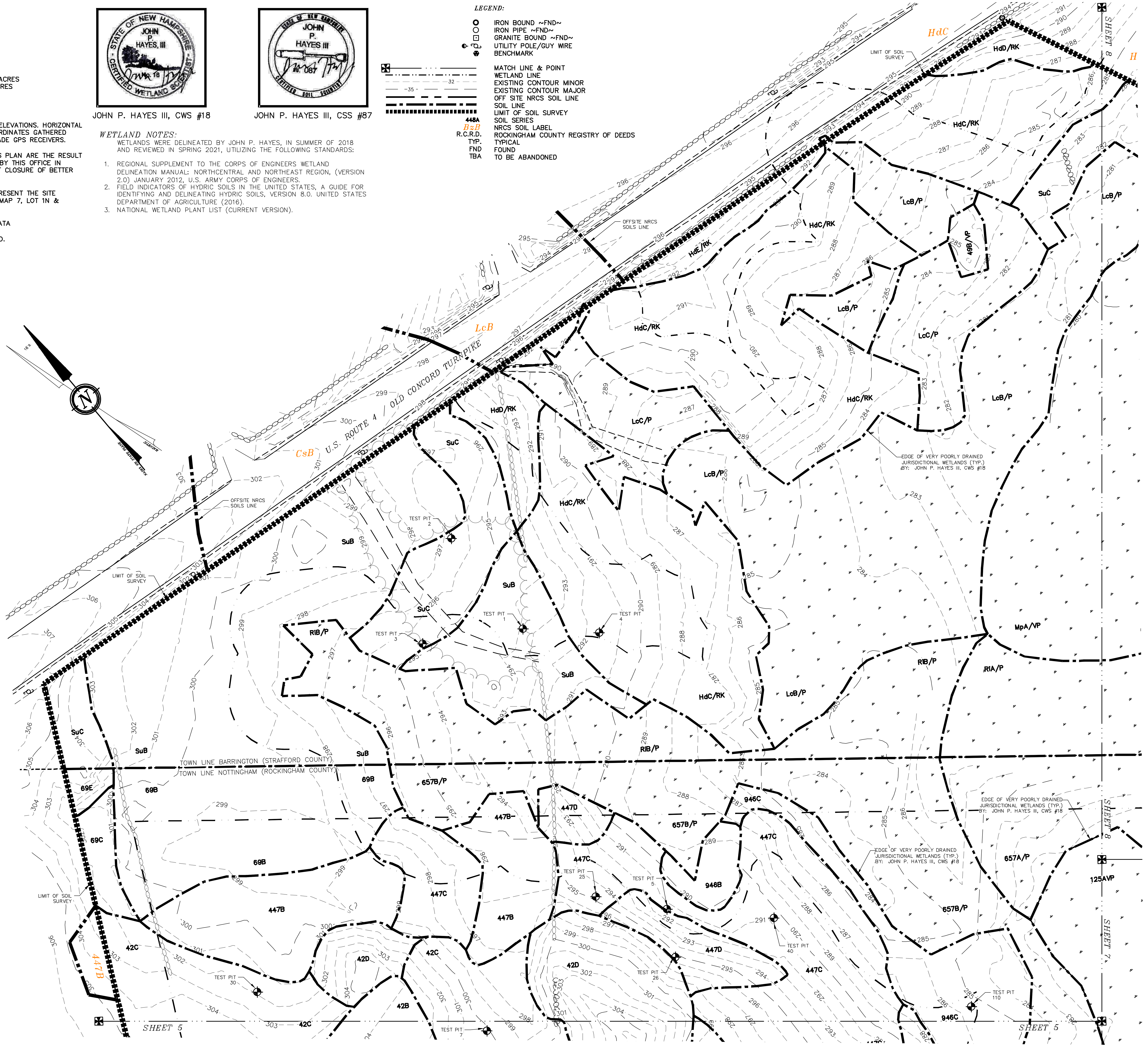
GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

SSSM SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON LOAMY SAND	B
42C	CANTON LOAMY SAND	B
42D	CANTON LOAMY SAND	B
69B–SuB	SUTTON LOAMY SOIL	B
69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
HdE	HOLLIS–CANTON COMPLEX	D
445B	NEWFIELDS LOAMY SOIL	B
445C	NEWFIELDS LOAMY SOIL	B
445D	NEWFIELDS LOAMY SOIL	B
445E	NEWFIELDS LOAMY SOIL	B
447B	SCITUATE–NEWFIELDS COMPLEX	B
447C	SCITUATE–NEWFIELDS COMPLEX	B
447D	SCITUATE–NEWFIELDS COMPLEX	B
67B	PAXTON LODGMENT TILL	C
67C	PAXTON LODGMENT TILL	C
67D	PAXTON LODGMENT TILL	C
129B–WsB	WOODBRIDGE LOAMY SOIL	C
129C–WsC	WOODBRIDGE LOAMY SOIL	C
129D	WOODBRIDGE LOAMY SOIL	C
129E	WOODBRIDGE LOAMY SOIL	C
LcB	LEICESTER LOAMY TILL	C
LcC	LEICESTER LOAMY TILL	C
657A–RiA	RIDGEBURY LODGMENT TILL	C
657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
657C–946C–RiC	RIDGEBURY LODGMENT TILL	C
40B	CHATFIELD–HOLLIS COMPLEX	D
40C	CHATFIELD–HOLLIS COMPLEX	D
40D	CHATFIELD–HOLLIS COMPLEX	D
40E	CHATFIELD–HOLLIS COMPLEX	D
49B	WHITMAN LODGMENT TILL	D
125A	SCARBORO STONY SOIL	D
125B	SCARBORO STONY SOIL	D
MpA	GREENWOOD ORGANIC SOIL	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED
/Rk = ROCKY



KENNETH A. BERRY No. 14243

REVISION	DATE	DESCRIPTION
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#3	11–2–20	REVISED PER WETLANDS RFMI
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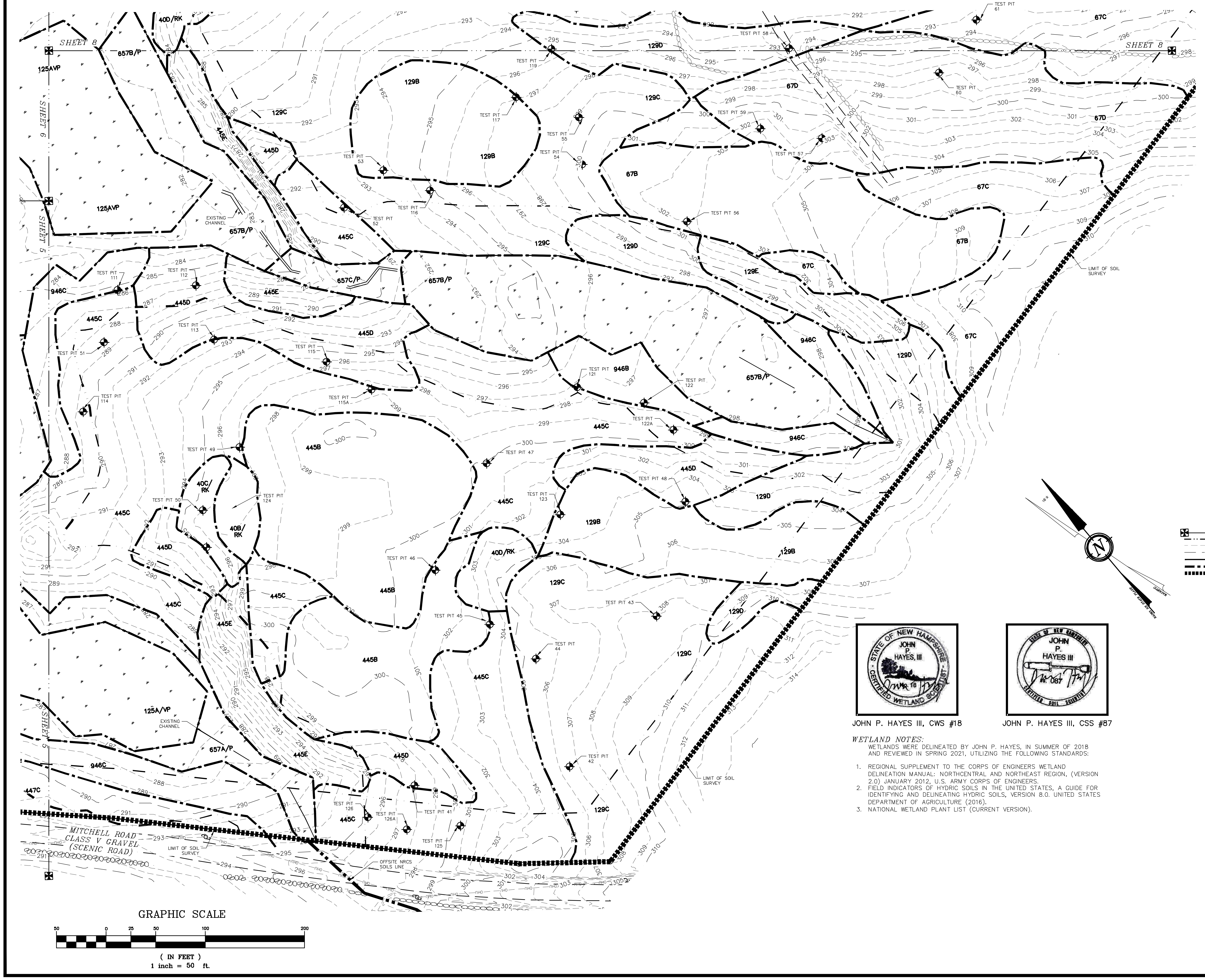
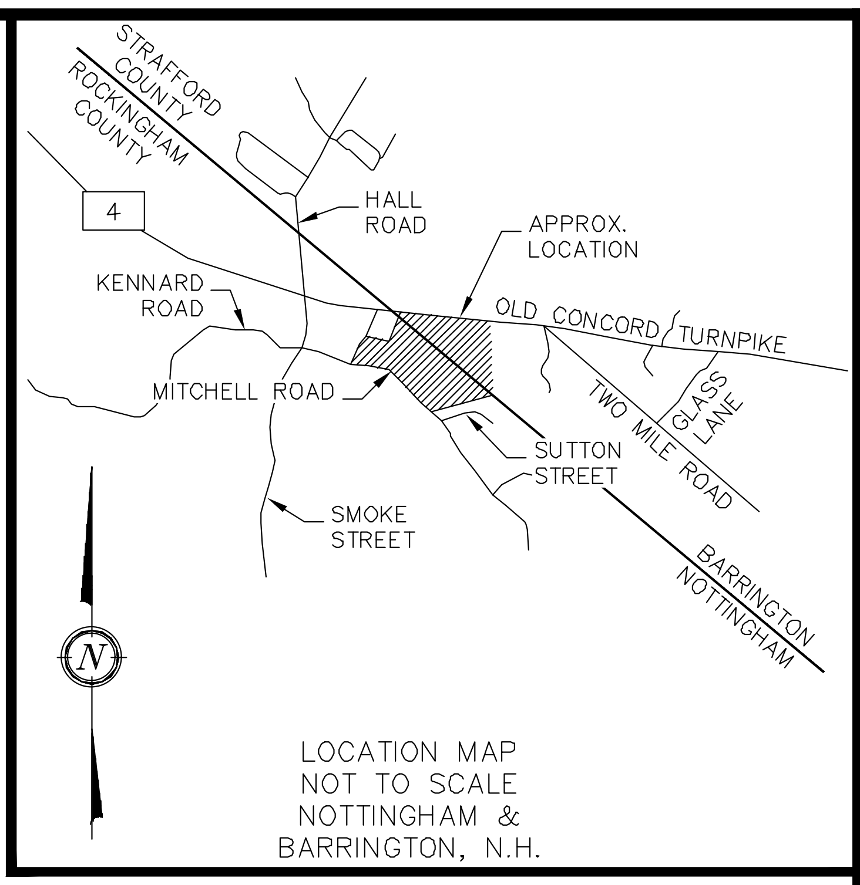
SITE SPECIFIC SOILS MAP NORTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125





LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES:

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324 ROUTE 108
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4.) R.C.R.D. BOOK 5834, PAGE 599
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LEGEND:

●	IRON BOUND ~FND~
○	IRON PIPE ~FND~
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◐	UTILITY POLE/GUY WIRE
⊕	BENCHMARK
⊠ —— · · · ——	MATCH LINE & POINT
— · · — · · —	WETLAND LINE
— — — 32 — —	EXISTING CONTOUR MINOR
—— –35– ——	EXISTING CONTOUR MAJOR
—— — — ——	OFF SITE NRCS SOIL LINE
▬ ■ ▬ ■ ▬	SOIL LINE
■■■■■■■■	LIMIT OF SOIL SURVEY
448A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
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SITE SPECIFIC SOILS MAP SOUTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
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KENNETH A. BERRY
No. 14243

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON FINE SANDY LOAM	B
43C	CANTON FINE SANDY LOAM VERY STONY	B
67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD–HOLLIS–CANTON COMPLEX ROCKY	B
447B	SCITUATE–NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS–CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
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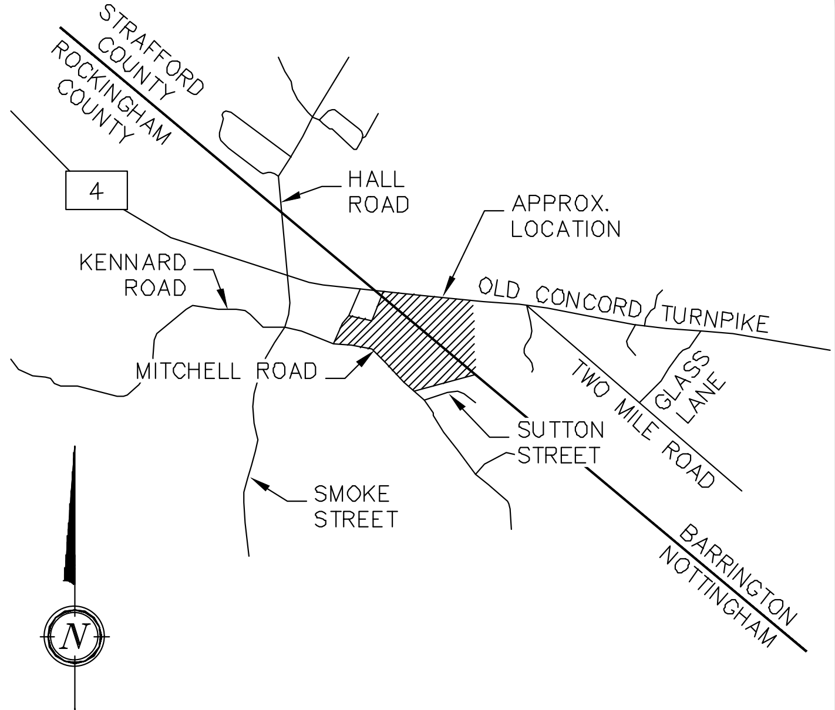

LOCATION MAP
NOT TO SCALE
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NOTES:

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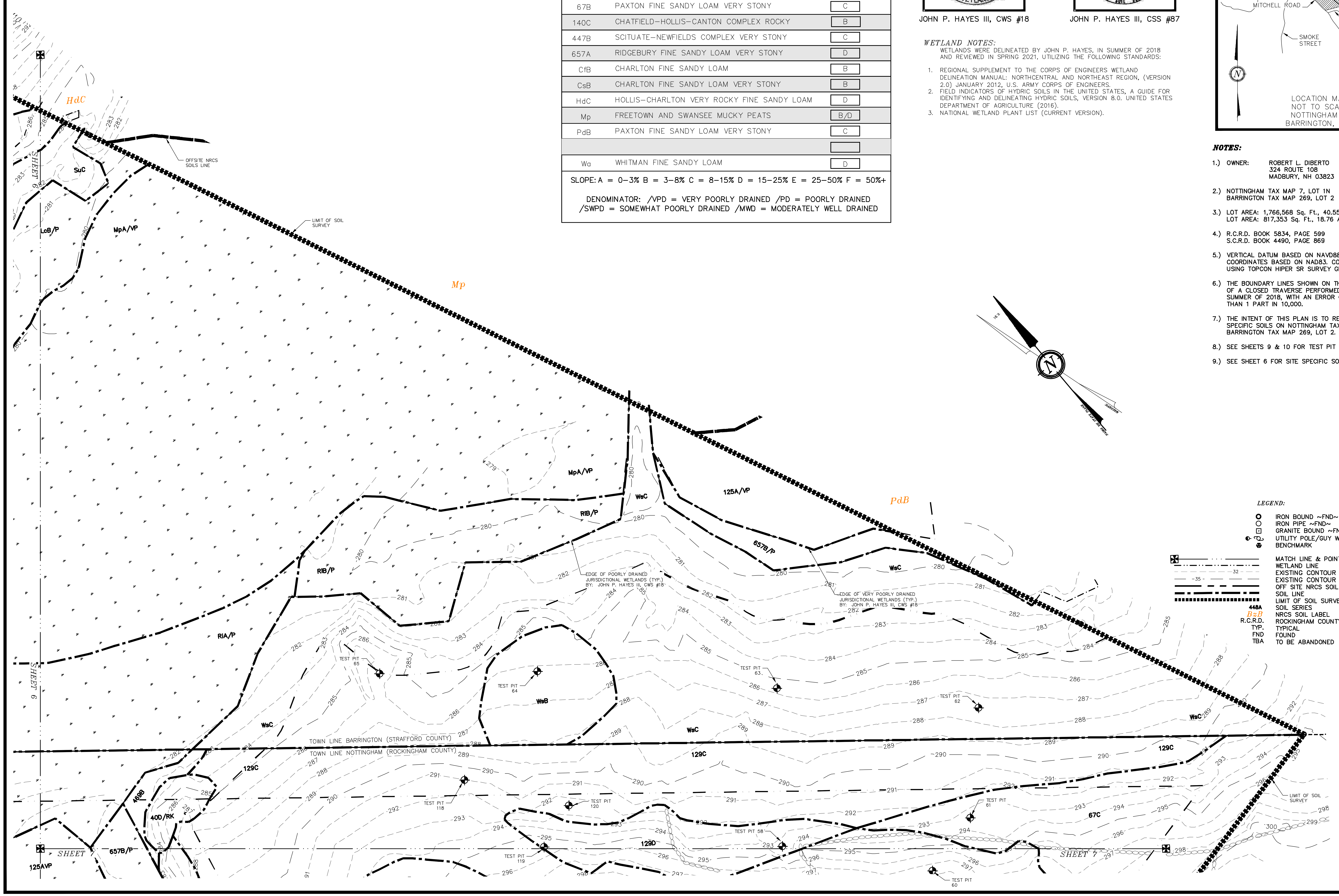

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SITE SPECIFIC SOILS MAP EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

TEST PIT #1
0-8 " 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64 "
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #2
0-8 " 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-26" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
26-68" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 68 "
E.S.H.W.T. @ 26"
RESTRICTIVE LAYER @ 26"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #3
0-8 " 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
14-18" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
18-38" 2.5Y 5/2 VERY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 38 "
E.S.H.W.T. @ 18"
RESTRICTIVE LAYER @ 18"
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED: N/A
P = 16 MIN./IN.

TEST PIT #4
TERMINATED @ 24 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 24"
GROUND WATER OBSERVED: N/A

TEST PIT #5
0-6 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
6-22 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-38" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 38 "
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ 30"
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #6
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-55" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 55 "
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #7
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-40" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
40-65" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 40"
RESTRICTIVE LAYER @ 40"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #8
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
36-62" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 36 "
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #9
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-33" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 33"
E.S.H.W.T. @ 33 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 33"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #10
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 " 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #11
TERMINATED @ 24"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 24"
GROUND WATER OBSERVED: N/A

TEST PIT #12
TERMINATED @ 18"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED: N/A

TEST PIT #13
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-28" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36"
E.S.H.W.T. @ 36 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #14
TERMINATED @ 26 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 26"
GROUND WATER OBSERVED: N/A

TEST PITS #15
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #16
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-28" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
36-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 36 "
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #17
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-20" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #18
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #19
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #20
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #21
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #22
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #23
0-6 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
6-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-62" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #24
0-8 " 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-20" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
20-26" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
26-42" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 42"
E.S.H.W.T. @ 26 "
RESTRICTIVE LAYER @ 26"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #25
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-68" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 68 "
E.S.H.W.T. @ 24 "
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED @ 30"
P = 12 MIN./IN.

TEST PIT #26
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-36" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #27
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-12 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-36" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #28
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-22" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-58" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 58 "
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 58"
GROUND WATER OBSERVED @ 50"
P = 16 MIN./IN.

TEST PIT #29
TERMINATED @ 12 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 12"
GROUND WATER OBSERVED: N/A

TEST PIT #30
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-48" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
48-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70 "
E.S.H.W.T. @ 48 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #31
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
38-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #32
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-48" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
48-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 48 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 4 MIN./IN.

TEST PIT #33
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
38-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 38 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #34
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-62" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 62"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 62"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #35
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #36
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-44" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 44"
GROUND WATER OBSERVED @ 22"
P = 10 MIN./IN.

TEST PIT #37
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-21" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
21-38" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 38"
E.S.H.W.T. @ 21 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED @ 22"
P = 12 MIN./IN.

TEST PIT #38
TERMINATED @ 14 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 14"
GROUND WATER OBSERVED: N/A

TEST PIT #39
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20" 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 30"
E.S.H.W.T. @ 20 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 30"
GROUND WATER OBSERVED @ 22"
P = 16 MIN./IN.

TEST PIT #40
TERMINATED @ 20 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 20"
GROUND WATER OBSERVED: N/A

TEST PIT #41
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 " 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44"
E.S.H.W.T. @ 18 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED @ 18"
P = 16 MIN./IN.

TEST PIT #42
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 36"
P = 12 MIN./IN.

TEST PIT #43
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-52" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 52"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 52"
GROUND WATER OBSERVED @ 48"
P = 8 MIN./IN.

TEST PIT #44
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 46"
P = 8 MIN./IN.

TEST PIT #45
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-36" 10YR 5/4 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #46
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
30-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #47
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #48
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 " 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-42" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 42"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 42"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #49
TERMINATED @ 12 "
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 12"
GROUND WATER OBSERVED: N/A

TEST PIT #50
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 28"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 28"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #51
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-12 " 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 18 "
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 40"
P = 16 MIN./IN.

TEST PIT #52
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
18-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 18 "
RESTRICTIVE LAYER @18"
REFUSAL: N/A
GROUND WATER OBSERVED @ 40"
P = 16 MIN./IN.

TEST PIT #53
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED @ 42"
P = 8 MIN./IN.

TEST PIT #54
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-70" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER: @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #55
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80"
E.S.H.W.T. @ 30 "
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #56
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-38" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
38-70" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70" "
E.S.H.W.T. @ 38 "
RESTRICTIVE LAYER @ 38"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #57
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
38-82" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 82 "
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #58
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-76" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 76 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #59
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-36" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
36-80" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80 "
E.S.H.W.T. @ 36 "
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #60
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-34" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
34-50" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50 "
E.S.H.W.T. @ 34 "
RESTRICTIVE LAYER @ 34"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #61
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 24 "
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #62
0-6 " 10YR 3/2 VERY DARK GREYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
18-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 18 "
RESTRICTIVE LAYER @ 18"
REFUSAL: N/A
GROUND WATER OBSERVED @ 28"
P = 12 MIN./IN.

TEST PIT #63
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 24 "
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED @ 36"
P = 12 MIN./IN.

TEST PIT #64
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
28-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #65
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

TEST PIT DATA
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : N/A
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SHEET 9 OF 55

TEST PIT #100
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-22 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-52" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 52 "
E.S.H.W.T. @ 32 "
RESTRICTIVE LAYER @ 32"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A

TEST PIT #101
0-7 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-19 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
19-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-42" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
42-66" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 66 "
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER @ 42"
REFUSAL: 66"
GROUND WATER OBSERVED: N/A

TEST PIT #102
0-7 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-19 " 10YR 4/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
19-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-40" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
40-66" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 65 "
E.S.H.W.T. @ 28 "
RESTRICTIVE LAYER @ 40"
REFUSAL: 65"
GROUND WATER OBSERVED: 60"

TEST PIT #103
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-29 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 29 "
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 29"
GROUND WATER OBSERVED: N/A

TEST PIT #104
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-15 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
15-48" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 48 "
E.S.H.W.T. @ 15"
RESTRICTIVE LAYER @ N/A
REFUSAL: 48"
GROUND WATER OBSERVED: N/A

TEST PIT #105
0-7 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
7-18 " 10YR 4/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 " 10YR 4/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-72" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 72 "
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #106
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-16 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-26 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
26-48" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 48 "
E.S.H.W.T. @ 26"
RESTRICTIVE LAYER @ 26"
REFUSAL: 48"
GROUND WATER OBSERVED: N/A

TEST PIT #107
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 60 "
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A

TEST PIT #108
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24 "
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A

TEST PIT #109
0-6 " 10YR 3/3 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-28 " 7.5YR 5/6 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24 "
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A.

TEST PIT #110
0-8 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-20 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60 "
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A

TEST PIT #111
0-5 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-14 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-22 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-76" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76 "
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER @ 22"
REFUSAL: N/A
GROUND WATER OBSERVED: 58"

TEST PIT #112
0-5 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-16 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-78" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76 "
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ 16"
REFUSAL: N/A
GROUND WATER OBSERVED: 55"

TEST PIT #113
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-22 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-76" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76 "
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER @ 22"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #114
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 " 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-16 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-60" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60 "
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ 16"
REFUSAL: N/A
GROUND WATER OBSERVED: 50"

TEST PIT #115
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-24 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-36" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 36 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: 36"
GROUND WATER OBSERVED: N/A

TEST PIT #115A
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20 " 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-24 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24 "
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A

TEST PIT #116
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-64" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 64 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #117
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #118
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-80" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 80 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #119
0-6 " 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 80 "
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #120
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-78" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 78 "
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #121
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-15 " 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
15-44" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44 "
E.S.H.W.T. @ 15"
RESTRICTIVE LAYER @ N/A
REFUSAL: 44"
GROUND WATER OBSERVED: 24"

TEST PIT #122
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-58" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 58 "
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ N/A
REFUSAL: 58"
GROUND WATER OBSERVED: 20"

TEST PIT #122A
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-68" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 68 "
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ N/A
REFUSAL: 68"
GROUND WATER OBSERVED: 22"

TEST PIT #123
0-6 " 10YR 3/2 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 " 10YR 5/6 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-21 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
21-64" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 64 "
E.S.H.W.T. @ 21"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #124
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 " 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-45" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 45 "
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: 45"
GROUND WATER OBSERVED: N/A

TEST PIT #124A
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 " 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 " 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
28-85" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 85 "
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: 43"

TEST PIT #125
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-10 " 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10-18 " 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-75" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 75 "
E.S.H.W.T. @ 18"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #126
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-13 " 7.5Y 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
13-22" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 22 "
E.S.H.W.T. @ 13"
RESTRICTIVE LAYER @ N/A
REFUSAL: 22"
GROUND WATER OBSERVED: N/A

TEST PIT #126A
0-6 " 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 " 7.5Y 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-26" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 26 "
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 26"
GROUND WATER OBSERVED: N/A

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

TEST PIT DATA CONTINUED
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : N/A
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHEREI USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW SUBDIVISION LAYOUT FOR THE PROPOSED PROJECT.

9.) THE CURRENT USE OF THE PROPERTY IS VACANT LAND. ALL PROPOSED LOTS WILL BE FOR RESIDENTIAL SINGLE FAMILY HOMES WITH ON SITE WELLS AND SEPTIC SYSTEMS.

NOTES CONTINUED:

10.) IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE OWNER SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN.

11.) REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBENCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THOUGHT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.

12.) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN REGULATIONS AND THE LATEST EDITION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

13.) THIS IS A 55 SHEET PLAN SET. SHEETS 11–14 ARE THE SUBDIVISION PLANS. SHEETS 19–21 ARE THE EASEMENT PLANS. SHEETS 15–18 ARE THE TOPOGRAPHY SHEETS. SHEETS 11–14 & 19–21 WILL BE RECORDED AT THE ROCKINGHAM REGISTRY OF DEEDS. ALL SHEETS WILL BE ON FILE AT THIS OFFICE AND THE TOWN OF NOTTINGHAM.

14.) MITCHELL ROAD IS A SCENIC ROAD. AS SUCH THE SCENIC ROAD POLICY WITHIN THE TOWN OF NOTTINGHAM APPLIES TO THE FRONTAGE ALONG MITCHELL ROAD.

15.) THE FRONT SETBACK OF LOTS 1N, 1N–1, 1N–2, 1N–9 & 1N–13 IS A BUFFER AND THERE SHALL BE NO TREE CLEARING WITH THE EXCEPTION OF THE SHOWN DRIVEWAY WITH PROVIDED EASEMENTS. ONLY DEAD, DISEASED OR HAZARD TREES CAN BE REMOVED OUTSIDE ABOVE MENTIONED AREAS.

15.) SEE DETAIL SHEET C–102 FOR "SMITH STONE" DETAILS AND DHR COMMENTS/RECOMMENDATIONS.

PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79–59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35–2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67–4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53–84

PLAN REFERENCES CONT'D:

4.) "SUBDIVISION–PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D–19462

5.) "RESUBDIVISION OF LOT 2–N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D–16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D–18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON–NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

LEGEND:

⊡ GRANITE BOUND ~TBS~
● 3/4" REBAR W/ ID CAP ~TBS~
• 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
◉ DRILL HOLE ~FND~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
□ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
UTILITY POLE

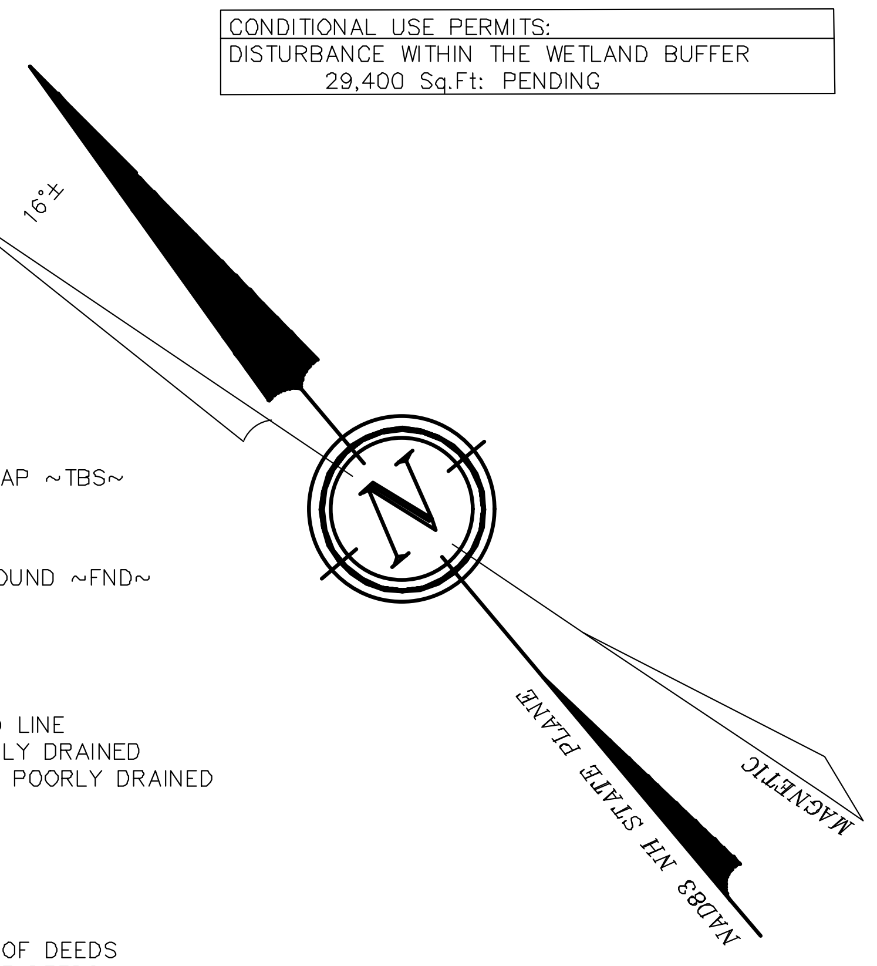
PROPOSED BOUNDARY LINE
BUILDING SETBACK LINE
POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
WETLAND SETBACK 50' TO POORLY DRAINED
WETLAND SETBACK 75' TO VERY POORLY DRAINED
EASEMENT LINE
BLANKET EASEMENT LINE
TOWN LINE
MATCH LINE
MATCH POINT

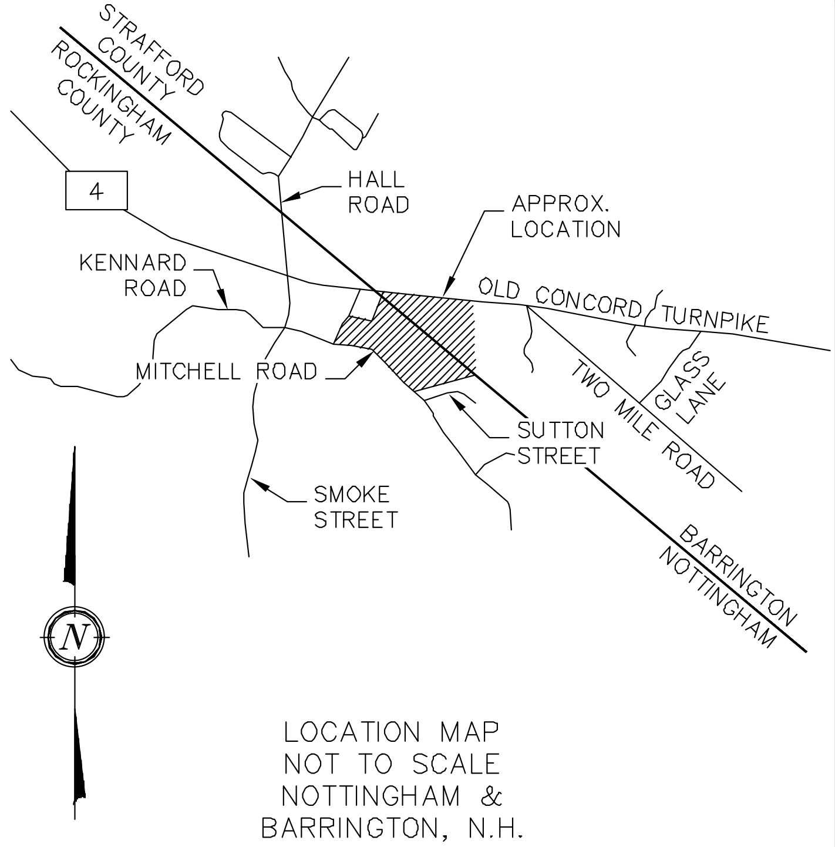
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET

VARIANCE REQUEST:
CASE 20–014–VA PROPOSED 6,717 SF OF FILL WITHIN THE WETLANDS: APPROVED

WAIVER REQUESTS:
ROADS WITH CUL–DE–SAC: PENDING
SIDE SLOPES STEEPER THAN 3:1: PENDING

CONDITIONAL USE PERMITS:
DISTURBANCE WITHIN THE WETLAND BUFFER 29,400 Sq.Ft: PENDING

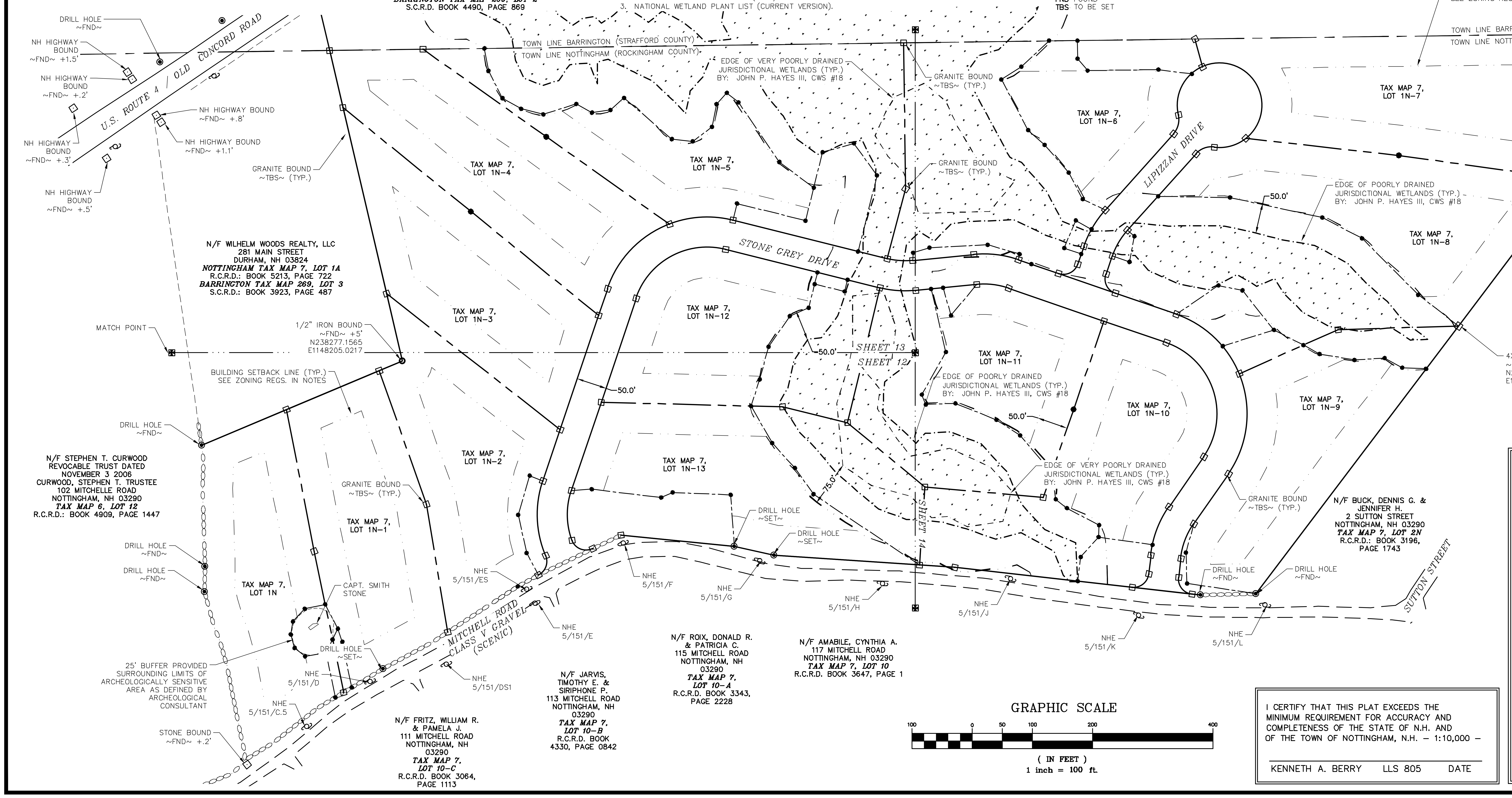




LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

OVERVIEW SUBDIVISION PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N



I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE TOWN OF NOTTINGHAM, N.H. – 1:10,000 –

KENNETH A. BERRY LLS 805 DATE

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

CONFORMANCE CHART:

REQUIREMENT	LOT 1N	LOT 1N–1	LOT 1N–2	LOT 1N–13
FRONT ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
SIDE ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
REAR ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
WETLANDS SETBACK ~ 50.0' & 75.0' POORLY DRAINED	NONE REQUIRED	NOT REQUIRED	NOT REQUIRED	50.0' & 75.0' AS SHOWN
MIN. LOT SIZE ~ 87,120 Sq. Ft.,	88,520 Sq.Ft,	87,149 Sq.Ft, PROVIDED	87,189 Sq.Ft. PROVIDED	126,270 Sq.FT. PROVIDED
MIN. LOT FRONTAGE ~ 200.0'	200.00' PROVIDED	200.00' PROVIDED	425.95' PROVIDED	814.98' PROVIDED
MAX. BLDG. HEIGHT ~ 34'				
	ENCUMBERED BY DRIVEWAY EASEMENT #1 & SMITH STONE EASEMENT #1 & FRONT BUFFER	ENCUMBERED BY DRIVEWAY EASEMENT #2 & SMITH EASEMENT #2 & FRONT BUFFER	ENCUMBERED BY GRADING EASEMENT #6	ENCUMBERED BY GRADING EASEMENT #1 AND WETLAND SETBACK EASEMENT #1

NOTES CONTINUED:

16.) LOTS ARE SUBJECT TO A WETLAND SETBACK EASEMENT AS SHOWN.

17.) LOTS 1N & 1N–1 ARE SUBJECT TO A DRIVEWAY EASEMENT AND A CEMETERY BUFFER EASEMENT AS SHOWN.

18.) LOTS ARE SERVICED BY ON SITE SEPTIC AND WELLS.

JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
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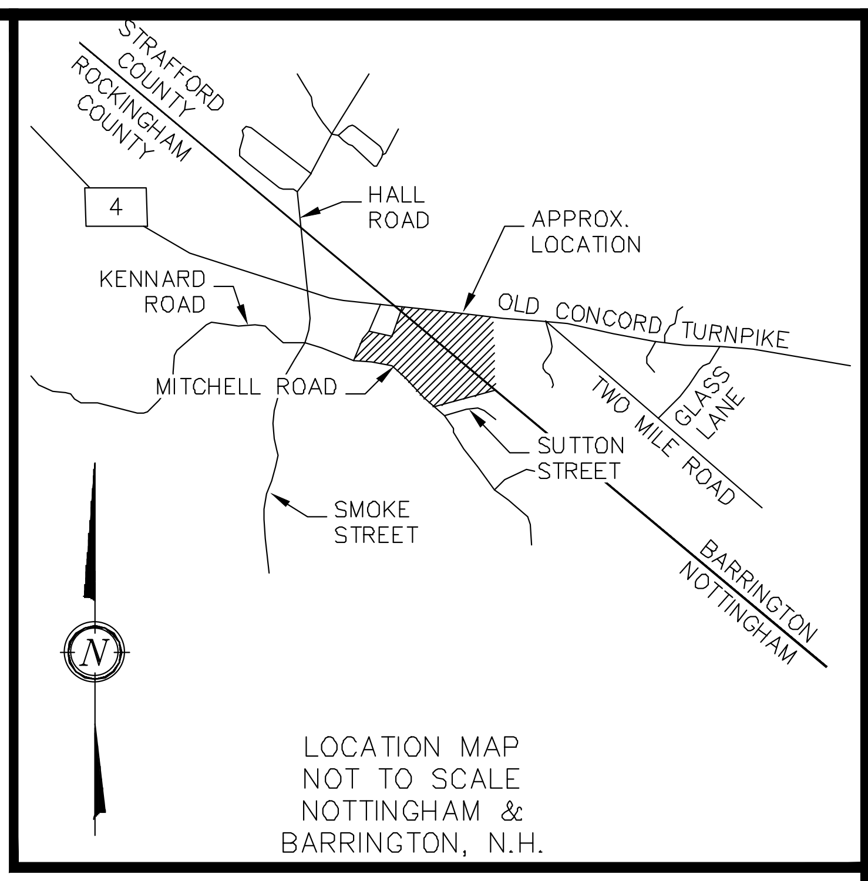
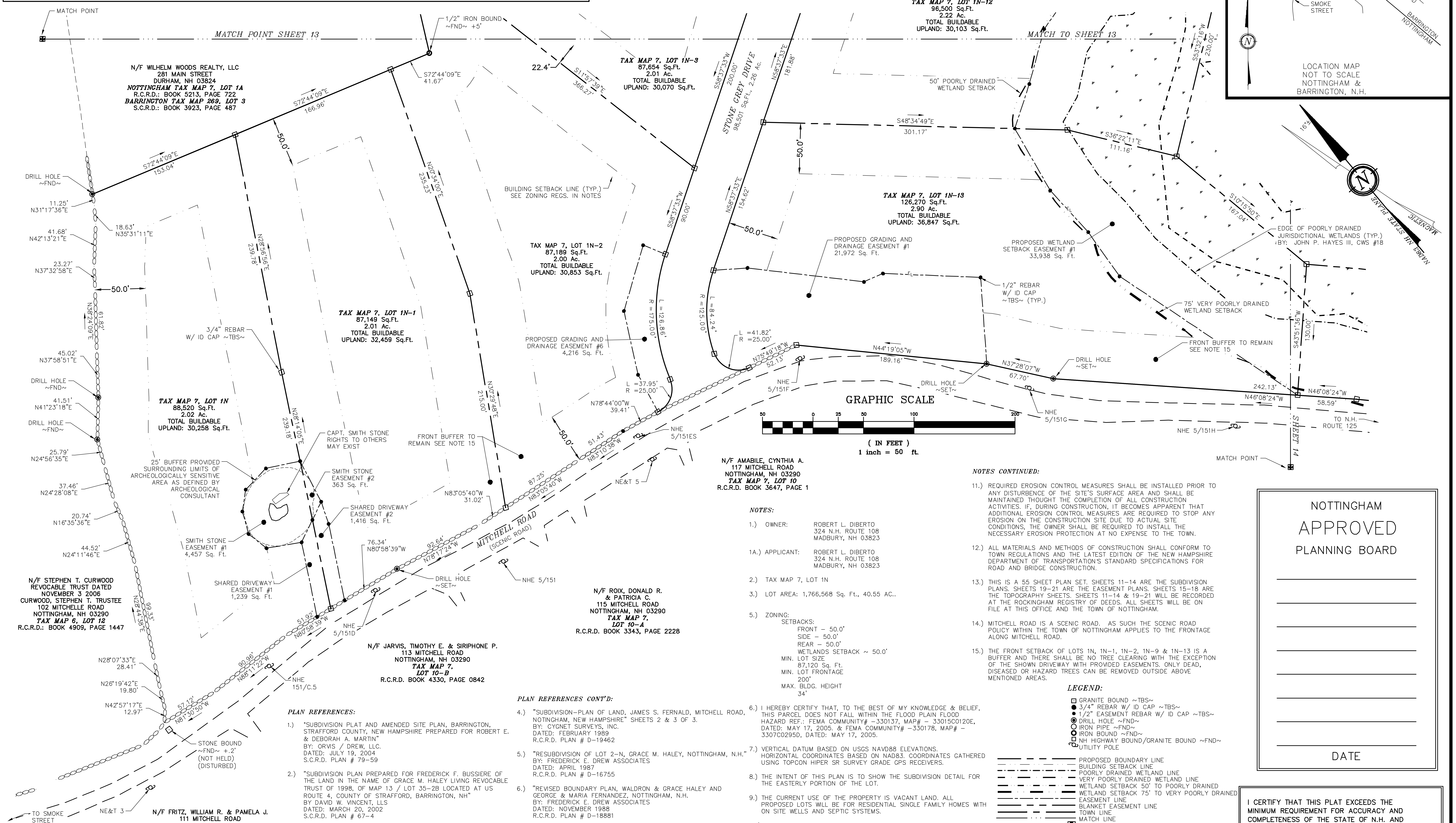


LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.



PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79–59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35–2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67–4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53–84

PLAN REFERENCES CONT'D:

4.) "SUBDIVISION–PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D–19462

5.) "RESUBDIVISION OF LOT 2–N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D–16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D–18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON–NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC..

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE SUBDIVISION DETAIL FOR THE EASTERLY PORTION OF THE LOT.

9.) THE CURRENT USE OF THE PROPERTY IS VACANT LAND. ALL PROPOSED LOTS WILL BE FOR RESIDENTIAL SINGLE FAMILY HOMES WITH ON SITE WELLS AND SEPTIC SYSTEMS.

10.) IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE OWNER SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN.

NOTES CONTINUED:

11.) REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBENCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THOUGHT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.

12.) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN REGULATIONS AND THE LATEST EDITION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

13.) THIS IS A 55 SHEET PLAN SET. SHEETS 11–14 ARE THE SUBDIVISION PLANS. SHEETS 19–21 ARE THE EASEMENT PLANS. SHEETS 15–18 ARE THE TOPOGRAPHY SHEETS. SHEETS 11–14 & 19–21 WILL BE RECORDED AT THE ROCKINGHAM REGISTRY OF DEEDS. ALL SHEETS WILL BE ON FILE AT THIS OFFICE AND THE TOWN OF NOTTINGHAM.

14.) MITCHELL ROAD IS A SCENIC ROAD. AS SUCH THE SCENIC ROAD POLICY WITHIN THE TOWN OF NOTTINGHAM APPLIES TO THE FRONTAGE ALONG MITCHELL ROAD.

15.) THE FRONT SETBACK OF LOTS 1N, 1N–1, 1N–2, 1N–9 & 1N–13 IS A BUFFER AND THERE SHALL BE NO TREE CLEARING WITH THE EXCEPTION OF THE SHOWN DRIVEWAY WITH PROVIDED EASEMENTS. ONLY DEAD, DISEASED OR HAZARD TREES CAN BE REMOVED OUTSIDE ABOVE MENTIONED AREAS.

LEGEND:

⊡	GRANITE BOUND ~TBS~
●	3/4" REBAR W/ ID CAP ~TBS~
•	1/2" EASEMENT REBAR W/ ID CAP ~TBS~
◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
○	IRON BOUND ~FND~
□	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
	UTILITY POLE
	PROPOSED BOUNDARY LINE
	BUILDING SETBACK LINE
	POORLY DRAINED WETLAND LINE
	VERY POORLY DRAINED WETLAND LINE
	WETLAND SETBACK 50' TO POORLY DRAINED
	WETLAND SETBACK 75' TO VERY POORLY DRAINED
	EASEMENT LINE
	BLANKET EASEMENT LINE
	TOWN LINE
	MATCH LINE
⊠	MATCH POINT
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE TOWN OF NOTTINGHAM, N.H. – 1:10,000 –

KENNETH A. BERRY LLS 805 DATE

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

DETAIL SUBDIVISION PLAN WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

SHEET 12 OF 55

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC.

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE SUBDIVISION DETAIL FOR THE NORTHERLY PORTION OF THE LOT.

9.) THE CURRENT USE OF THE PROPERTY IS VACANT LAND. ALL PROPOSED LOTS WILL BE FOR RESIDENTIAL SINGLE FAMILY HOMES WITH ON SITE WELLS AND SEPTIC SYSTEMS.

NOTES CONTINUED:

10.) IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE OWNER SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN.

11.) REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBENCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THOUGHT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.

12.) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN REGULATIONS AND THE LATEST EDITION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

13.) THIS IS A 55 SHEET PLAN SET. SHEETS 11–14 ARE THE SUBDIVISION PLANS. SHEETS 19–21 ARE THE EASEMENT PLANS. SHEETS 15–18 ARE THE TOPOGRAPHY SHEETS. SHEETS 11–14 & 19–21 WILL BE RECORDED AT THE ROCKINGHAM REGISTRY OF DEEDS. ALL SHEETS WILL BE ON FILE AT THIS OFFICE AND THE TOWN OF NOTTINGHAM.

14.) MITCHELL ROAD IS A SCENIC ROAD. AS SUCH THE SCENIC ROAD POLICY WITHIN THE TOWN OF NOTTINGHAM APPLIES TO THE FRONTAGE ALONG MITCHELL ROAD.

15.) THE FRONT SETBACK OF LOTS 1N, 1N–1, 1N–2, 1N–9 & 1N–13 IS A BUFFER AND THERE SHALL BE NO TREE CLEARING WITH THE EXCEPTION OF THE SHOWN DRIVEWAY WITH PROVIDED EASEMENTS. ONLY DEAD, DISEASED OR HAZARD TREES CAN BE REMOVED OUTSIDE ABOVE MENTIONED AREAS.

16.) LOTS ARE SUBJECT TO A WETLAND SETBACK EASEMENT AS SHOWN.

17.) LOTS 1N & 1N–1 ARE SUBJECT TO A DRIVEWAY EASEMENT AND A CEMETERY BUFFER EASEMENT AS SHOWN.

18.) LOTS ARE SERVICED BY ON SITE SEPTIC AND WELLS.

CONFORMANCE CHART:

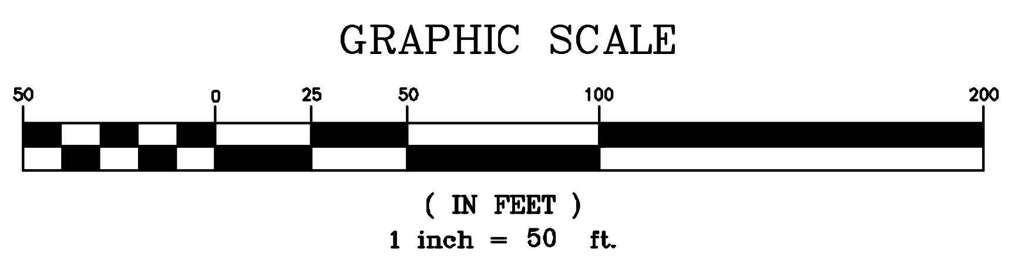
REQUIREMENT	LOT 1N–10	LOT 1N–11	LOT 1N–12
FRONT ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
SIDE ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
REAR ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
WETLANDS SETBACK ~ 50.0' & 75.0' POORLY DRAINED	50.0' & 75.0' AS SHOWN	50.0' & 75.0' AS SHOWN	50.0' & 75.0' AS SHOWN
MIN. LOT SIZE ~ 87,120 Sq. Ft.,	111,660 Sq.Ft, PROVIDED	112,278 Sq.Ft. PROVIDED	96,500 Sq.FT. PROVIDED
MIN. LOT FRONTAGE ~ 200.0'	954.45' PROVIDED	383.10' PROVIDED	632.11' PROVIDED
MAX. BLDG. HEIGHT ~ 34'			
	EASEMENT #5 AND WETLAND SETBACK EASEMENT #5	ENCUMBERED BY GRADING EASEMENT #8 AND WETLAND SETBACK EASEMENT #4	ENCUMBERED BY GRADING EASEMENT #12 AND WETLAND SETBACK EASEMENT #2

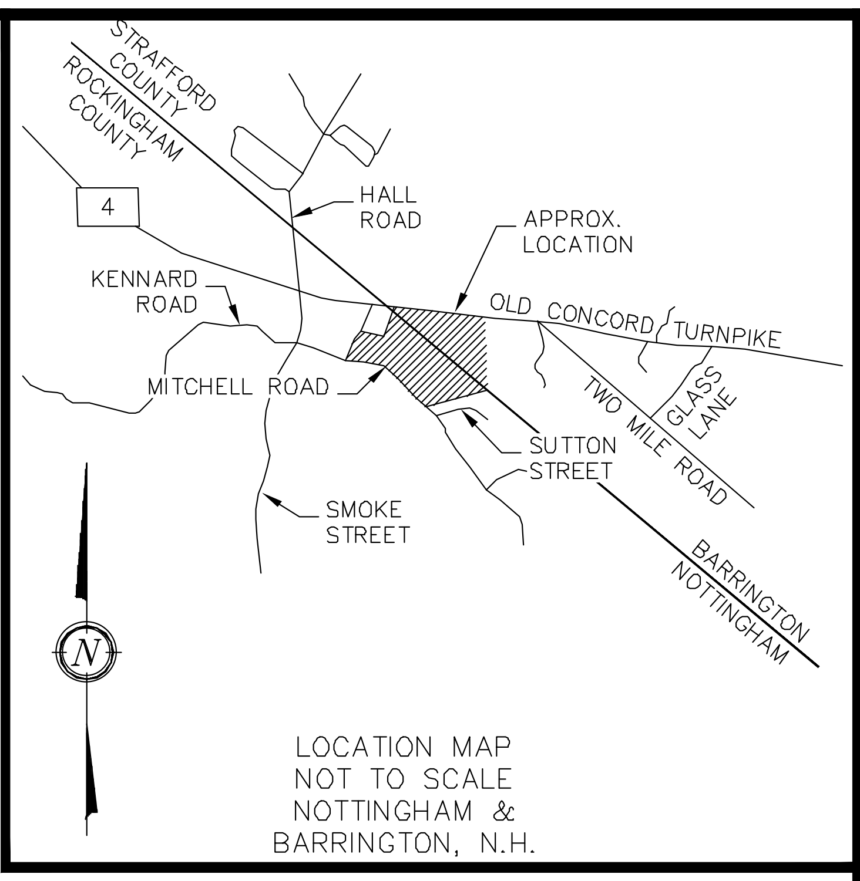
JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).



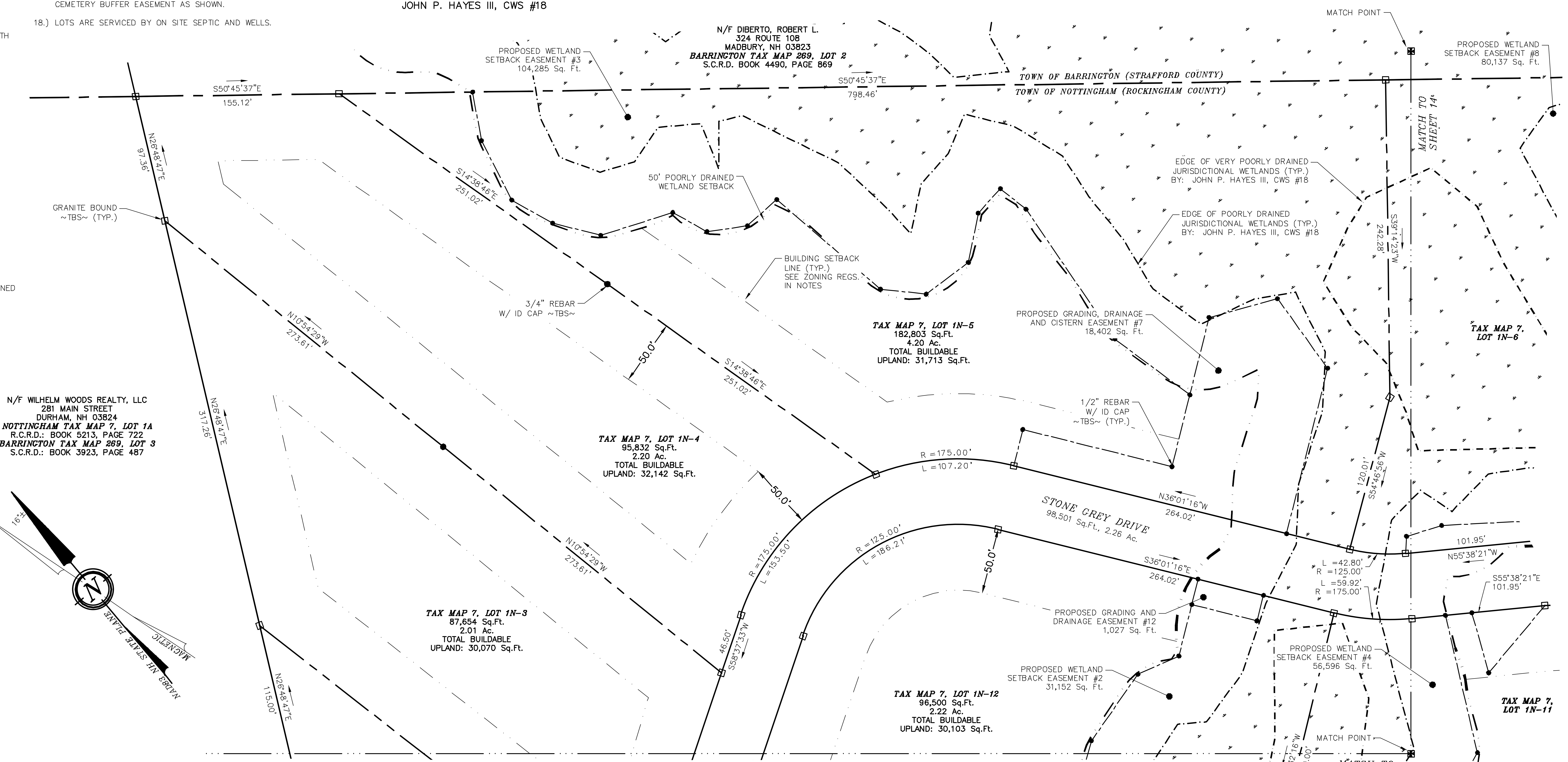


LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- • 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ○ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
- UTILITY POLE
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
- WETLAND SETBACK 75' TO VERY POORLY DRAINED
- EASEMENT LINE
- BLANKET EASEMENT LINE
- TOWN LINE
- MATCH LINE
- ⊠ MATCH POINT

R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET



NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE TOWN OF NOTTINGHAM, N.H. – 1:10,000 –

KENNETH A. BERRY LLS 805 DATE

CONFORMANCE CHART:

REQUIREMENT	LOT 1N–3	LOT 1N–4	LOT 1N–5	LOT 1N–6	LOT 1N–7	LOT 1N–8	LOT 1N–9
FRONT ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
SIDE ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
REAR ~ 50.0'	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED	50.0' PROVIDED
WETLANDS SETBACK ~ 50.0' & 75.0' POORLY DRAINED	NONE REQUIRED	NOT REQUIRED	50.0' PROVIDED	50.0' & 75.0' AS SHOWN	NOT REQUIRED	50.0' & 75.0' AS SHOWN	50.0' & 75.0' AS SHOWN
MIN. LOT SIZE ~ 87,120 Sq. Ft.,	87,654 Sq.Ft,	95,832 Sq.Ft, PROVIDED	182,803 Sq.Ft. PROVIDED	149,220 Sq.FT. PROVIDED	131,955 Sq.Ft. PROVIDED	186,709 Sq.Ft.	93,306 Sq.Ft. PROVIDED
MIN. LOT FRONTAGE ~ 200.0'	200.00' PROVIDED	200.00' PROVIDED	371.22' PROVIDED	731.99' PROVIDED	202.35' PROVIDED	585.81' PROVIDED	500.48' PROVIDED
MAX. BLDG. HEIGHT ~ 34'							
	NO EASEMENTS	NO EASEMENTS	ENCUMBERED BY GRADING EASEMENT #7 AND WETLAND SETBACK EASEMENT #3	ENCUMBERED BY GRADING EASEMENT #3, #7, #10 AND WETLAND SETBACK EASEMENT #8	NO EASEMENTS	ENCUMBERED BY GRADING EASEMENTS #4 & #11 AND WETLAND SETBACK EASEMENT #7	ENCUMBERED BY GRADING EASEMENT #9 AND WETLAND SETBACK EASEMENT #6

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

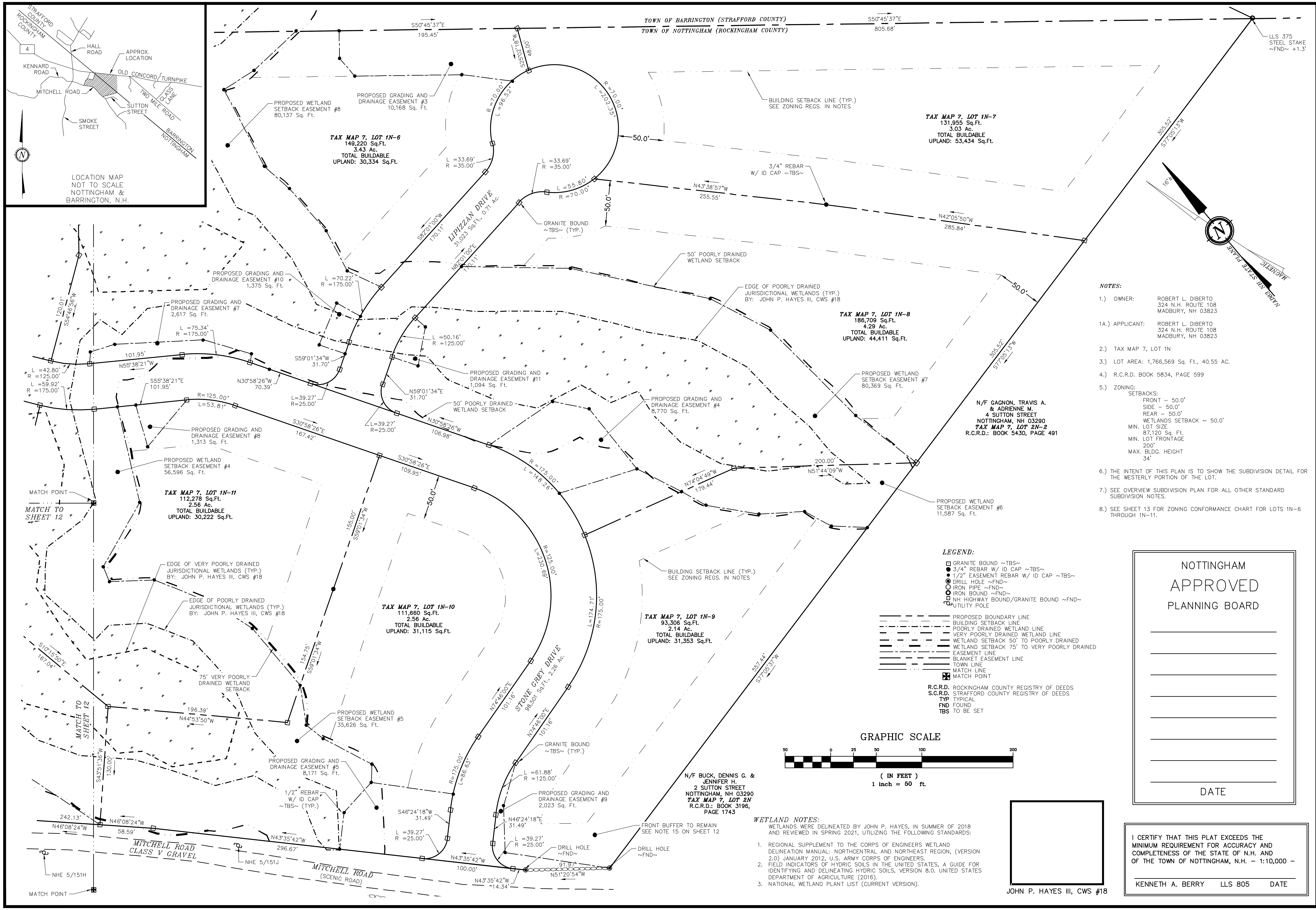
DETAIL SUBDIVISION PLAN NORTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 805
KENNETH A. BERRY
SIGNATURE

SHEET 13 OF 55



NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,569 Sq. Ft., 40.55 AC.

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
- SETBACKS:
  - FRONT – 50.0'
  - SIDE – 50.0'
  - REAR – 50.0'
  - WETLANDS SETBACK ~ 50.0'
- MIN. LOT SIZE
  - 87,120 Sq. Ft.
- MIN. LOT FRONTAGE
  - 200'
- MAX. BLDG. HEIGHT
  - 34'

6.) THE INTENT OF THIS PLAN IS TO SHOW THE SUBDIVISION DETAIL FOR THE WESTERLY PORTION OF THE LOT.

7.) SEE OVERVIEW SUBDIVISION PLAN FOR ALL OTHER STANDARD SUBDIVISION NOTES.

8.) SEE SHEET 13 FOR ZONING CONFORMANCE CHART FOR LOTS 1N–6 THROUGH 1N–11.

LEGEND:

⊡ GRANITE BOUND ~TBS~
⬢ 3/4" REBAR W/ ID CAP ~TBS~
• 1/2" EASEMENT REBAR W/ ID CAP ~TBS~
◉ DRILL HOLE ~FND~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
□ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
UTILITY POLE

PROPOSED BOUNDARY LINE
BUILDING SETBACK LINE
POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
WETLAND SETBACK 50' TO POORLY DRAINED
WETLAND SETBACK 75' TO VERY POORLY DRAINED
EASEMENT LINE
BLANKET EASEMENT LINE
TOWN LINE
MATCH LINE
⊠ MATCH POINT

R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

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2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES III, CWS #18

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE TOWN OF NOTTINGHAM, N.H. – 1:10,000 –

KENNETH A. BERRY LLS 805 DATE

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

DETAIL SUBDIVISION PLAN EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW TOPOGRAPHIC SUBDIVISION LAYOUT FOR THE PROPOSED PROJECT.

9.) THE CURRENT USE OF THE PROPERTY IS VACANT LAND. ALL PROPOSED LOTS WILL BE FOR RESIDENTIAL SINGLE FAMILY HOMES WITH ON SITE WELLS AND SEPTIC SYSTEMS.

NOTES CONTINUED:

10.) IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE OWNER SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN.

11.) REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBENCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THOUGHT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.

12.) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN REGULATIONS AND THE LATEST EDITION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79–59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35–2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67–4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53–84

PLAN REFERENCES CONT'D:

4.) "SUBDIVISION–PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D–19462

5.) "RESUBDIVISION OF LOT 2–N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D–16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D–18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON–NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

LOT LOADING:

LOT 1N
HSG B 8–15% 1.63Ac. = (Q/2000)*1.43 = 2,279

LOT 1N–1
HSG B 3–8% 1.28Ac. = (Q/2000)*1.3 = 1,969
HSG B 8–15% 0.32Ac. = (Q/2000)*1.43 = 448
TOTAL = 2,417 GPD

LOT 1N–2
HSG B 3–8% 1.10Ac. = (Q/2000)*1.3 = 1,692
HSG B 8–15% 0.50Ac. = (Q/2000)*1.43 = 699
TOTAL = 2,391 GPD

LOT 1N–3
HSG B 3–8% 1.42Ac. = (Q/2000)*1.3 = 2,184
HSG C 3–8% 0.16Ac. = (Q/2000)*1.6 = 200
HSG D 0–8% 0.006Ac. = (Q/2000)*1.45 = 8
TOTAL = 2,392 GPD

LOT 1N–4
HSG B 3–8% 0.81Ac. = (Q/2000)*1.3 = 1,246
HSG C 3–8% 0.88Ac. = (Q/2000)*1.6 = 1,100
HSG D 0–8% 0.12Ac. = (Q/2000)*1.45 = 166
TOTAL = 2,512 GPD

LOT LOADING: CONTINUED:

LOT 1N–5
HSG C 3–8% 1.59Ac. = (Q/2000)*1.60 = 1,988
HSG C 0–8% 0.03Ac. = (Q/2000)*1.60 = 40
HSG D 0–8% 2.17Ac. = (Q/2000)*1.45 = 2,988
HSG D 8–15% 0.01Ac. = (Q/2000)*1.60 = 9
TOTAL = 5,025 GPD

LOT 1N–6
HSG C 0–8% 2.59Ac. = (Q/2000)*1.60 = 3,238
HSG D 0–8% 0.43Ac. = (Q/2000)*1.45 = 591
TOTAL = 3,829 GPD

LOT 1N–7
HSG C 0–8% 2.62Ac. = (Q/2000)*1.60 = 3,279 GPD

LOT 1N–8
HSG C 0–8% 3.88Ac. = (Q/2000)*1.60 = 4,851 GPD

LOT 1N–9
HSG C 0–8% 2.14Ac. = (Q/2000)*1.60 = 2,171 GPD

LOT 1N–10
HSG C 0–8% 1.66Ac. = (Q/2000)*1.60 = 2,080
HSG D 0–8% 0.17Ac. = (Q/2000)*1.45 = 239
HSG B 8–15% 0.32Ac. = (Q/2000)*1.43 = 448
TOTAL = 2,767 GPD

LOT 1N–11
HSG C 0–8% 1.47Ac. = (Q/2000)*1.60 = 1,838
HSG D 0–8% 0.68Ac. = (Q/2000)*1.45 = 941
TOTAL = 2,779 GPD

LOT 1N–12
HSG B 3–8% 0.38Ac. = (Q/2000)*1.30 = 585
HSG C 3–8% 0.36Ac. = (Q/2000)*1.60 = 450
HSG D 0–3% 0.67Ac. = (Q/2000)*1.45 = 924
HSG D 0–3% 0.39Ac. = (Q/2000)*1.45 = 538
TOTAL = 2,497 GPD

LOT 1N–13
HSG B 3–8% 0.07Ac. = (Q/2000)*1.30 = 108
HSG D 0–3% 1.30Ac. = (Q/2000)*1.45 = 1,793
HSG D 0–8% 0.32Ac. = (Q/2000)*1.45 = 441
HSG B 8–15% 0.75Ac. = (Q/2000)*1.43 = 1,049
TOTAL = 3,391 GPD

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND:

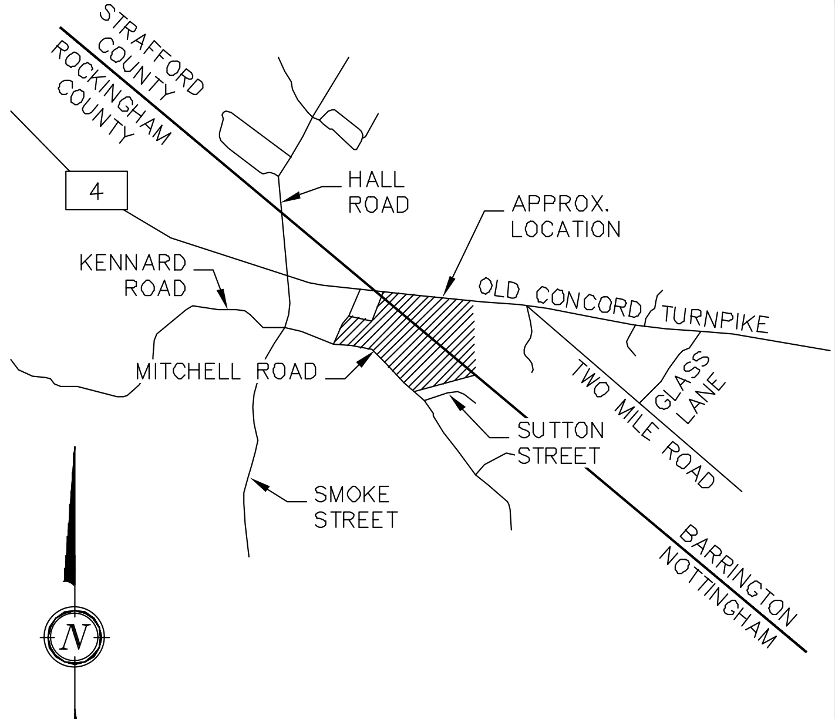
- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- • 1/2" EASEMENT BOUND WITH CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ○ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND ~FND~
- UTILITY POLE

- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
- WETLAND SETBACK 75' TO VERY POORLY DRAINED
- EASEMENT LINE
- TOWN LINE

▨ 25% STEEP SLOPES

R.C.R.D. ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP TYPICAL
FND FOUND
TBS TO BE SET

JOHN P. HAYES III, CWS #18



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
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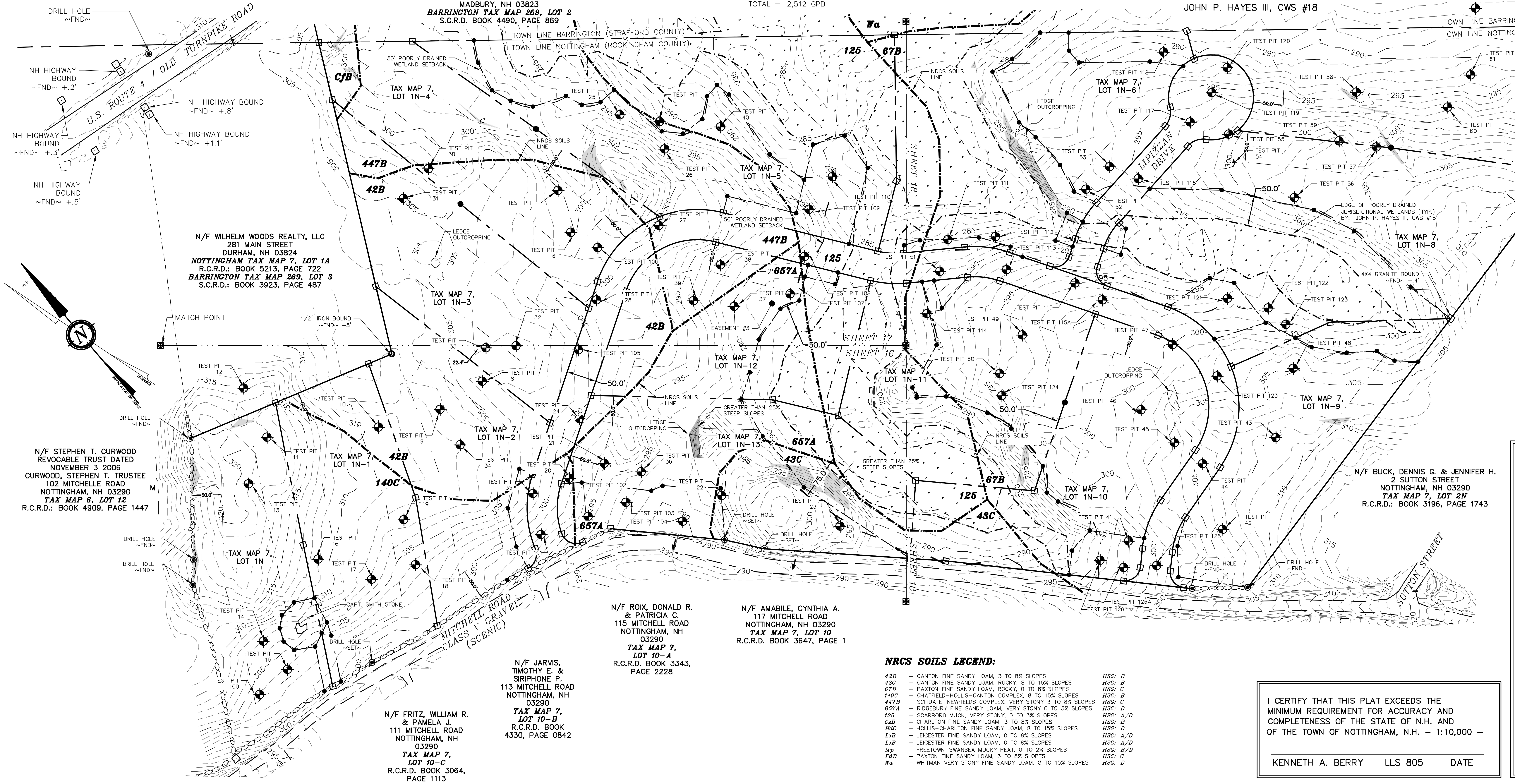
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).



NRCS SOILS LEGEND:

42B	– CANTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
43C	– CANTON FINE SANDY LOAM, ROCKY, 8 TO 15% SLOPES	*HSG: B*
67B	– PAXTON FINE SANDY LOAM, ROCKY, 0 TO 8% SLOPES	*HSG: C*
140C	– CHATFIELD–HOLLIS–CANTON COMPLEX, 8 TO 15% SLOPES	*HSG: B*
447B	– SCITUATE–NEWFIELDS COMPLEX, VERY STONY 3 TO 8% SLOPES	*HSG: C*
657A	– RIDGEBURY FINE SANDY LOAM, VERY STONY 0 TO 3% SLOPES	*HSG: D*
125	– SCARBORO MUCK, VERY STONY, 0 TO 3% SLOPES	*HSG: A/D*
CsB	– CHARLTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
HdC	– HOLLIS–CHARLTON FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*
LcB	– LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES	*HSG: A/D*
LcB	– LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES	*HSG: A/D*
Mp	– FREETOWN–SWANSEA MUCKY PEAT, 0 TO 2% SLOPES	*HSG: B/D*
PdB	– PAXTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: C*
Wa	– WHITMAN VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*

I CERTIFY THAT THIS PLAT EXCEEDS THE MINIMUM REQUIREMENT FOR ACCURACY AND COMPLETENESS OF THE STATE OF N.H. AND OF THE TOWN OF NOTTINGHAM, N.H. – 1:10,000 –

KENNETH A. BERRY LLS 805 DATE

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

OVERVIEW TOPOGRAPHIC SUBDIVISION PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NRCS SOILS LEGEND:

42B	– CANTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
43C	– CANTON FINE SANDY LOAM, ROCKY, 8 TO 15% SLOPES	*HSG: B*
67B	– PAXTON FINE SANDY LOAM, ROCKY, 0 TO 8% SLOPES	*HSG: C*
140C	– CHATFIELD–HOLLIS–CANTON COMPLEX, 8 TO 15% SLOPES	*HSG: B*
447B	– SCITUATE–NEWFIELDS COMPLEX, VERY STONY 3 TO 8% SLOPES	*HSG: C*
657A	– RIDGEBURY FINE SANDY LOAM, VERY STONY 0 TO 3% SLOPES	*HSG: D*
125	– SCARBORO MUCK, VERY STONY, 0 TO 3% SLOPES	*HSG: A/D*
CsB	– CHARLTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
HdC	– HOLLIS–CHARLTON FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*
LcB	– LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES	*HSG: A/D*
LcB	– LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES	*HSG: A/D*
Mp	– FREETOWN–SWANSEA MUCKY PEAT, 0 TO 2% SLOPES	*HSG: B/D*
PdB	– PAXTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: C*
Wa	– WHITMAN VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

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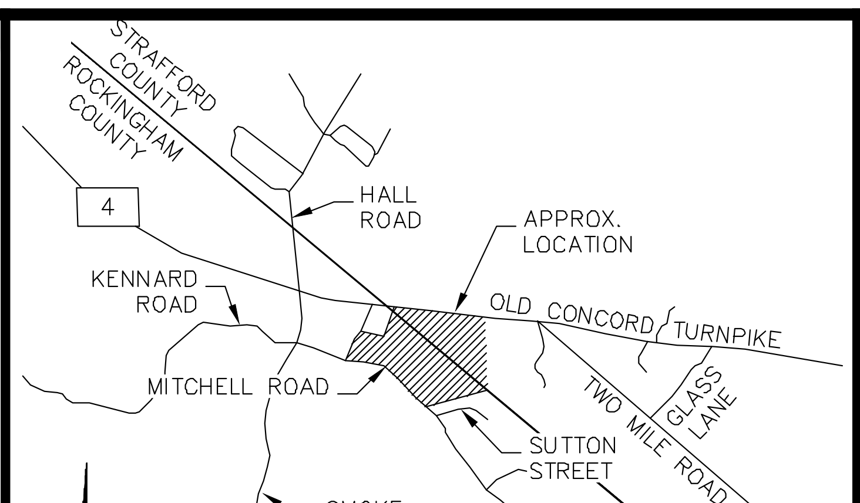
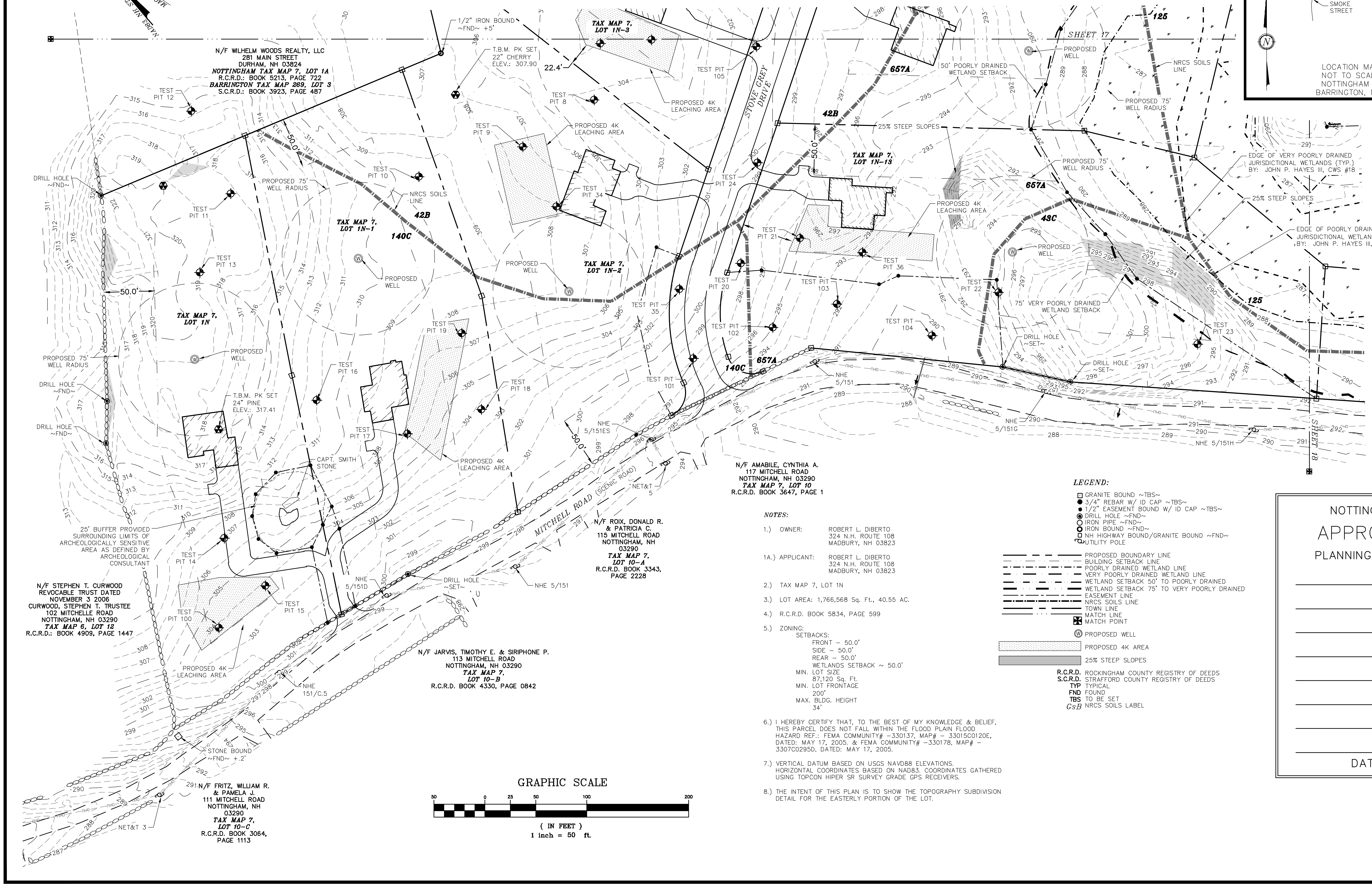


LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.



NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC.

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE TOPOGRAPHY SUBDIVISION DETAIL FOR THE EASTERLY PORTION OF THE LOT.

LEGEND:

⊡ GRANITE BOUND ~TBS~
● 3/4" REBAR W/ ID CAP ~TBS~
• 1/2" EASEMENT BOUND W/ ID CAP ~TBS~
◉ DRILL HOLE ~FND~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
□ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
UTILITY POLE

— — —	PROPOSED BOUNDARY LINE
— · · —	BUILDING SETBACK LINE
–·–·–	POORLY DRAINED WETLAND LINE
— · —	VERY POORLY DRAINED WETLAND LINE
— ·· —	WETLAND SETBACK 50' TO POORLY DRAINED
— ·· —	WETLAND SETBACK 75' TO VERY POORLY DRAINED
— - —	EASEMENT LINE
–·–·–	NRCS SOILS LINE
— – —	TOWN LINE
— ··· —	MATCH LINE
⊠	MATCH POINT
Ⓦ	PROPOSED WELL
▒	PROPOSED 4K AREA
▨	25% STEEP SLOPES
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET
GsB	NRCS SOILS LABEL

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
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#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

TOPOGRAPHIC SUBDIVISION PLAN WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 805 KENNETH A. BERRY
SIGNATURE

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

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SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
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MIN. LOT FRONTAGE
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MAX. BLDG. HEIGHT
34'

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8.) THE INTENT OF THIS PLAN IS TO SHOW THE TOPOGRAPHY SUBDIVISION DETAIL FOR THE EASTERLY PORTION OF THE LOT.

NRCS SOILS LEGEND:

42B	– CANTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
43C	– CANTON FINE SANDY LOAM, ROCKY, 8 TO 15% SLOPES	*HSG: B*
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140C	– CHATFIELD–HOLLIS–CANTON COMPLEX, 8 TO 15% SLOPES	*HSG: B*
447B	– SCITUATE–NEWFIELDS COMPLEX, VERY STONY 3 TO 8% SLOPES	*HSG: C*
657A	– RIDGEBURY FINE SANDY LOAM, VERY STONY 0 TO 3% SLOPES	*HSG: D*
125	– SCARBORO MUCK, VERY STONY, 0 TO 3% SLOPES	*HSG: A/D*
CsB	– CHARLTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: B*
HdC	– HOLLIS–CHARLTON FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*
LcB	– LEICESTER FINE SANDY LOAM, 0 TO 8% SLOPES	*HSG: A/D*
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PdB	– PAXTON FINE SANDY LOAM, 3 TO 8% SLOPES	*HSG: C*
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NOTTINGHAM
APPROVED
PLANNING BOARD

____
____
____
____
____
____
____
____
DATE

LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- • 1/2" EASEMENT BOUND W/ ID CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ○ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
- UTILITY POLE
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
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- TOWN LINE
- MATCH LINE
- ☒ MATCH POINT
- Ⓦ PROPOSED WELL
- ░ PROPOSED 4K AREA
- ▒ 25% STEEP SLOPES

R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET
GsB	NRCS SOILS LABEL

JOHN P. HAYES III, CWS #18

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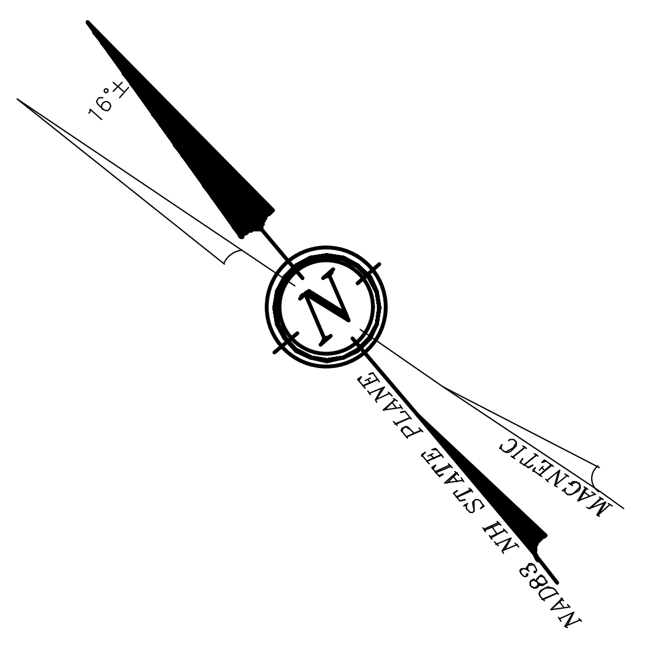
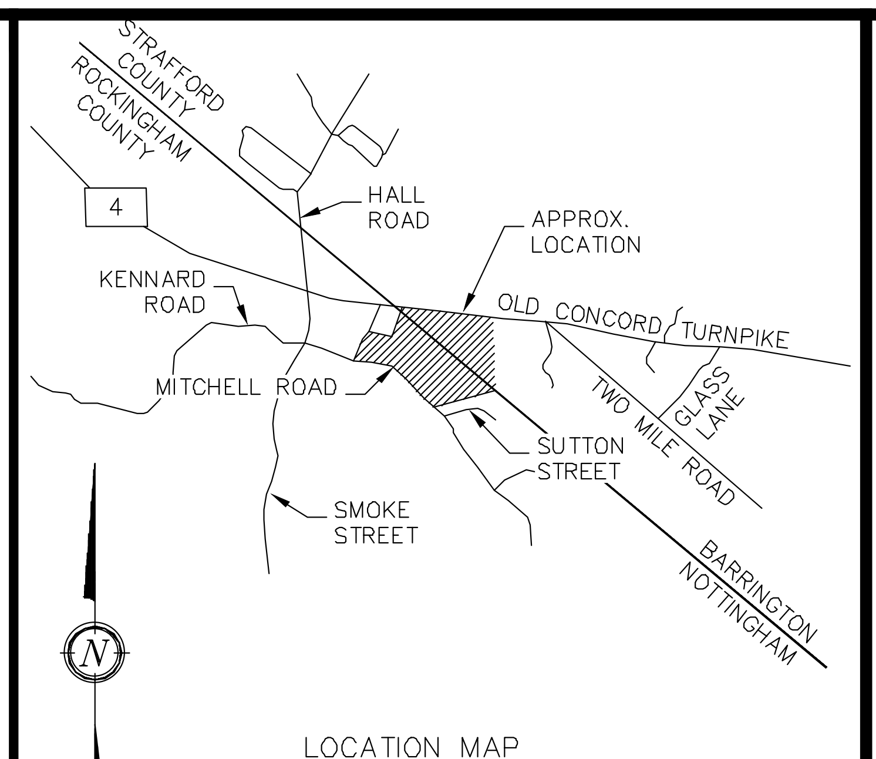


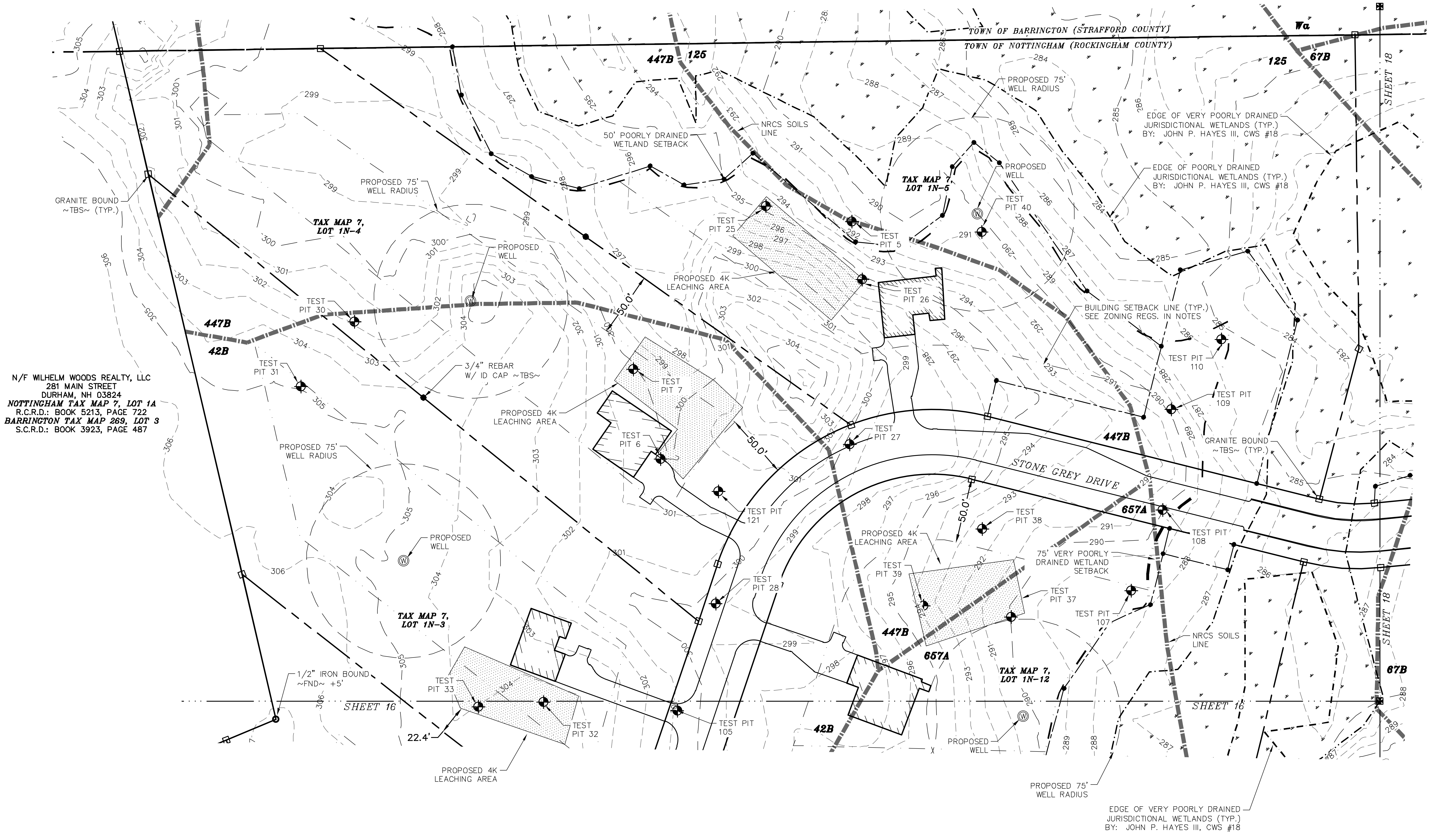


LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

N/F DIBERTO, ROBERT L.
324 ROUTE 108
MADBURY, NH 03823
BARRINGTON TAX MAP 269, LOT 2
S.C.R.D. BOOK 4490, PAGE 869



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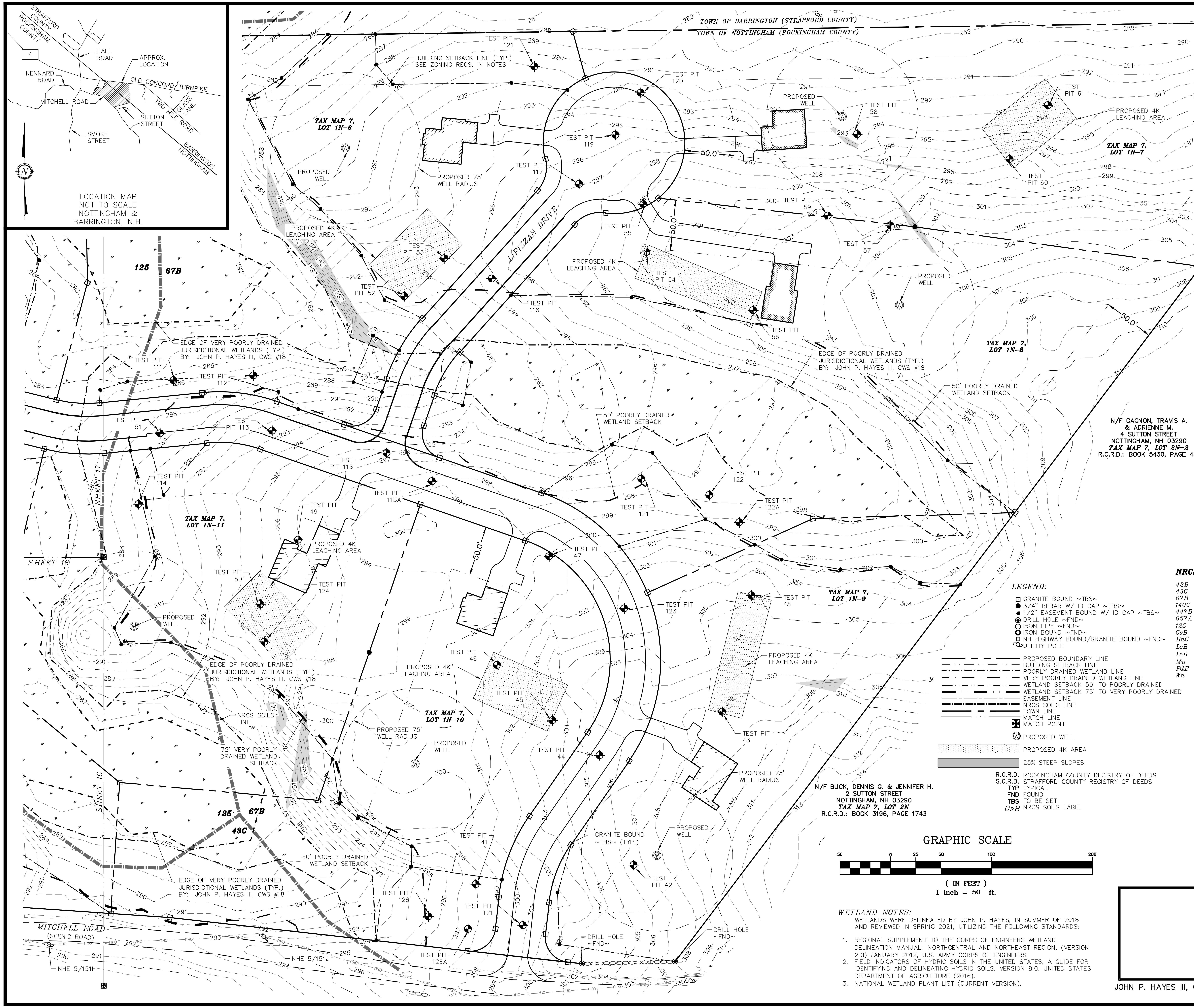
TOPOGRAPHIC SUBDIVISION PLAN NORTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

No. 805
KENNETH A. BERRY
SIGNATURE

SHEET 17 OF 55



LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- • 1/2" EASEMENT BOUND W/ ID CAP ~TBS~
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- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
- WETLAND SETBACK 75' TO VERY POORLY DRAINED
- EASEMENT LINE
- NRCS SOILS LINE
- TOWN LINE
- MATCH LINE
- MATCH POINT
- Ⓦ PROPOSED WELL
- ▨ PROPOSED 4K AREA
- ▨ 25% STEEP SLOPES

R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET
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GRAPHIC SCALE

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(IN FEET)
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JOHN P. HAYES III, CWS #18

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MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

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MAX. BLDG. HEIGHT
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Wa	– WHITMAN VERY STONY FINE SANDY LOAM, 8 TO 15% SLOPES	*HSG: D*

NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

REVISION	DATE	DESCRIPTION
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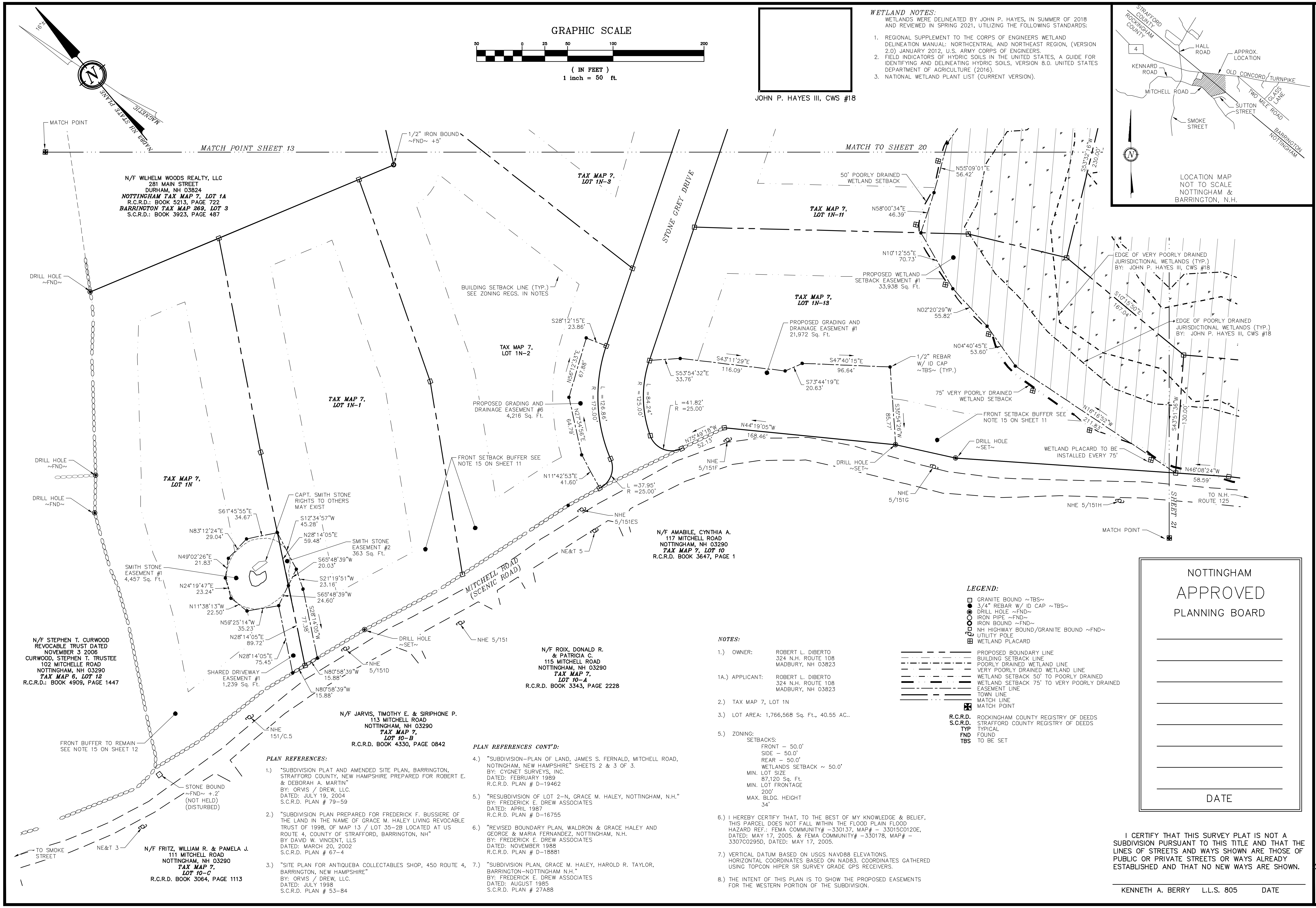
TOPOGRAPHIC SUBDIVISION PLAN EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

No. 805 KENNETH A. BERRY
SIGNATURE



JOHN P. HAYES III, CWS #18

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3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79-59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35-2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67-4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53-84

PLAN REFERENCES CONT'D:

4.) "SUBDIVISION-PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D-19462

5.) "RESUBDIVISION OF LOT 2-N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D-16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D-18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON-NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88

NOTES:

1.)	OWNER:	ROBERT L. DIBERTO 324 N.H. ROUTE 108 MADBURY, NH 03823
1A.)	APPLICANT:	ROBERT L. DIBERTO 324 N.H. ROUTE 108 MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC..

5.) ZONING:
- SETBACKS:
  - FRONT – 50.0'
  - SIDE – 50.0'
  - REAR – 50.0'
  - WETLANDS SETBACK ~ 50.0'
- MIN. LOT SIZE
  - 87,120 Sq. Ft.
- MIN. LOT FRONTAGE
  - 200'
- MAX. BLDG. HEIGHT
  - 34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# -330137, MAP# - 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# -330178, MAP# - 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED EASEMENTS FOR THE WESTERN PORTION OF THE SUBDIVISION.

LEGEND:

⊡	GRANITE BOUND ~TBS~
●	3/4" REBAR W/ ID CAP ~TBS~
◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
○	IRON BOUND ~FND~
□	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
	UTILITY POLE
⊞	WETLAND PLACARD
——— — — ———	PROPOSED BOUNDARY LINE
—— · · —— · · ——	BUILDING SETBACK LINE
—·—·—·—·—	POORLY DRAINED WETLAND LINE
—— · —— · ——	VERY POORLY DRAINED WETLAND LINE
—— · · —— · · ——	WETLAND SETBACK 50' TO POORLY DRAINED
▬▬ ˈ ˈ ▬▬ ˈ ˈ ▬▬	WETLAND SETBACK 75' TO VERY POORLY DRAINED
——— - ——— - ———	EASEMENT LINE
——— — ———	TOWN LINE
——— · · · ———	MATCH LINE
⊠	MATCH POINT
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET

NOTTINGHAM

APPROVED

PLANNING BOARD

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DATE

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

KENNETH A. BERRY L.L.S. 805 DATE

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EASEMENT PLAN WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC..

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED EASEMENTS FOR THE NORTHERN PORTION OF THE SUBDIVISION.

PLAN REFERENCES:

1.) "SUBDIVISION PLAT AND AMENDED SITE PLAN, BARRINGTON, STRAFFORD COUNTY, NEW HAMPSHIRE PREPARED FOR ROBERT E. & DEBORAH A. MARTIN"
BY: ORVIS / DREW, LLC.
DATED: JULY 19, 2004
S.C.R.D. PLAN # 79–59

2.) "SUBDIVISION PLAN PREPARED FOR FREDERICK F. BUSSIERE OF THE LAND IN THE NAME OF GRACE M. HALEY LIVING REVOCABLE TRUST OF 1998, OF MAP 13 / LOT 35–2B LOCATED AT US ROUTE 4, COUNTY OF STRAFFORD, BARRINGTON, NH"
BY DAVID W. VINCENT, LLS
DATED: MARCH 20, 2002
S.C.R.D. PLAN # 67–4

3.) "SITE PLAN FOR ANTIQUEBA COLLECTABLES SHOP, 450 ROUTE 4, BARRINGTON, NEW HAMPSHIRE"
BY: ORVIS / DREW, LLC.
DATED: JULY 1998
S.C.R.D. PLAN # 53–84

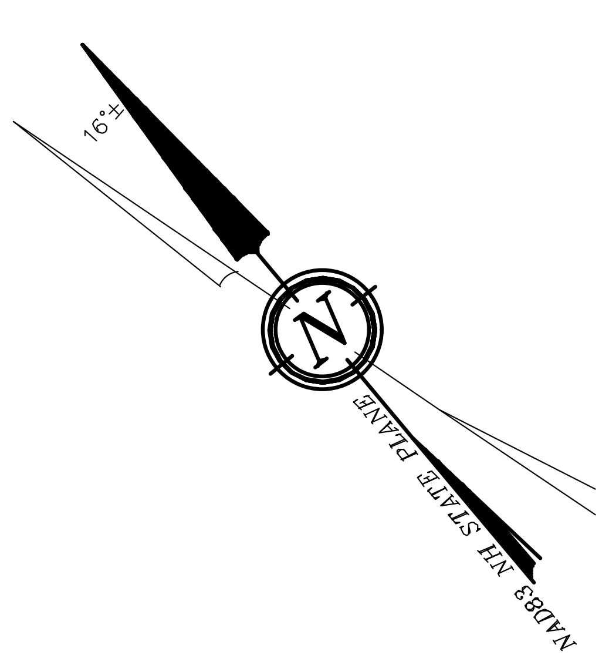
PLAN REFERENCES CONT'D:

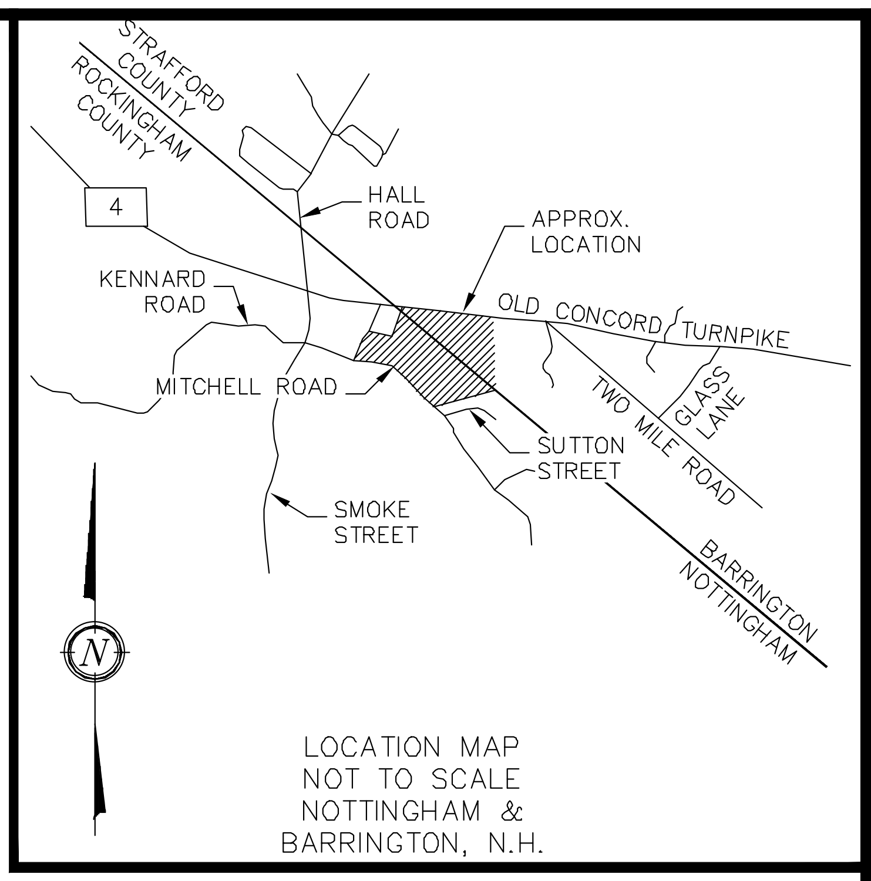
4.) "SUBDIVISION–PLAN OF LAND, JAMES S. FERNALD, MITCHELL ROAD, NOTINGHAM, NEW HAMPSHIRE" SHEETS 2 & 3 OF 3.
BY: CYGNET SURVEYS, INC.
DATED: FEBRUARY 1989
R.C.R.D. PLAN # D–19462

5.) "RESUBDIVISION OF LOT 2–N, GRACE M. HALEY, NOTTINGHAM, N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: APRIL 1987
R.C.R.D. PLAN # D–16755

6.) "REVISED BOUNDARY PLAN, WALDRON & GRACE HALEY AND GEORGE & MARIA FERNANDEZ, NOTTINGHAM, N.H.
BY: FREDERICK E. DREW ASSOCIATES
DATED: NOVEMBER 1988
R.C.R.D. PLAN # D–18881

7.) "SUBDIVISION PLAN, GRACE M. HALEY, HAROLD R. TAYLOR, BARRINGTON–NOTTINGHAM N.H."
BY: FREDERICK E. DREW ASSOCIATES
DATED: AUGUST 1985
S.C.R.D. PLAN # 27A88





LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

JOHN P. HAYES III, CWS #18

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

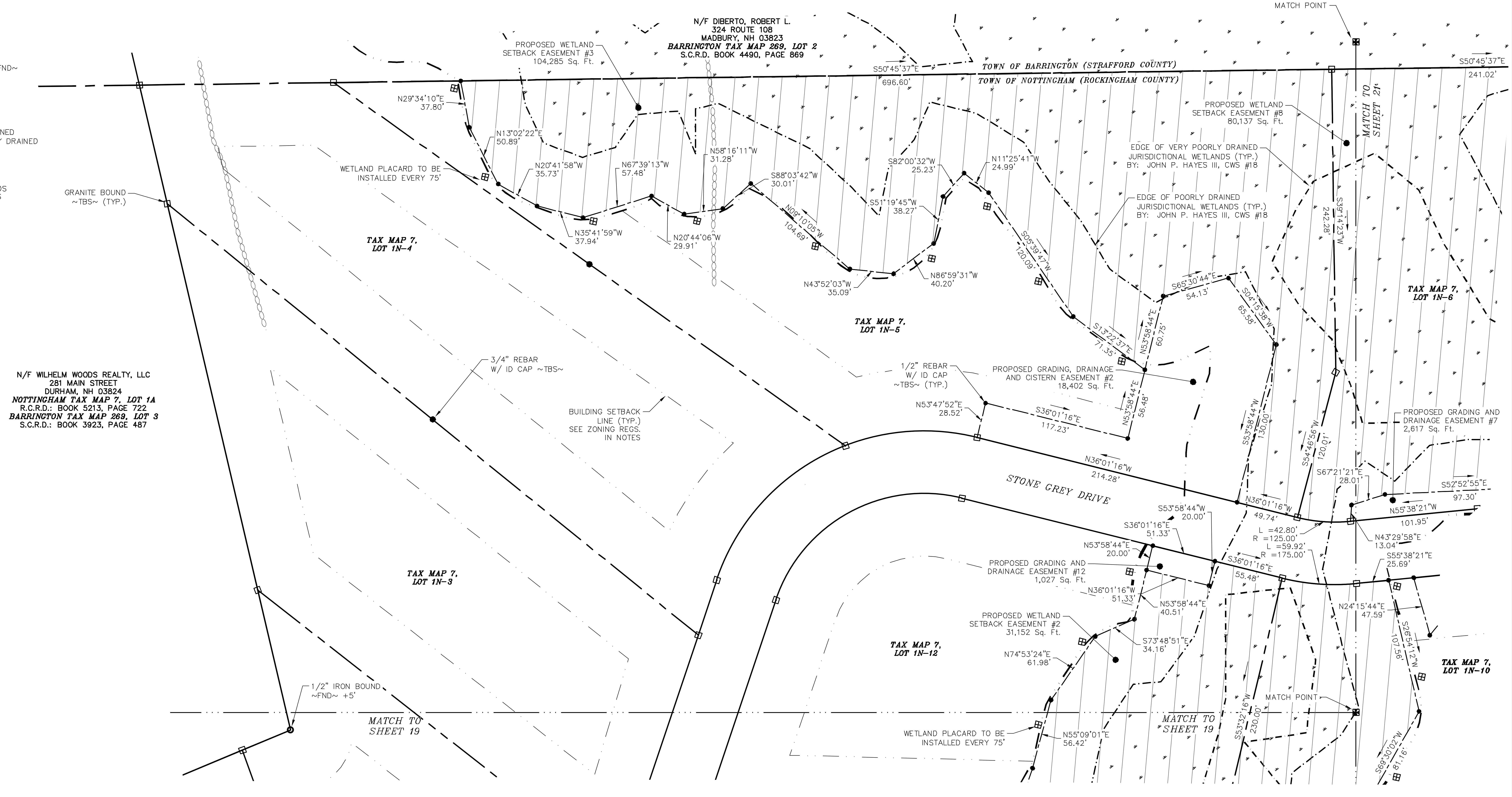
GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ◎ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND/GRANITE BOUND ~FND~
- UTILITY POLE
- ⊞ WETLAND PLACARD
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
- WETLAND SETBACK 75' TO VERY POORLY DRAINED
- EASEMENT LINE
- TOWN LINE
- MATCH LINE
- ⊠ MATCH POINT

R.C.R.D. ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP TYPICAL
FND FOUND
TBS TO BE SET



NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

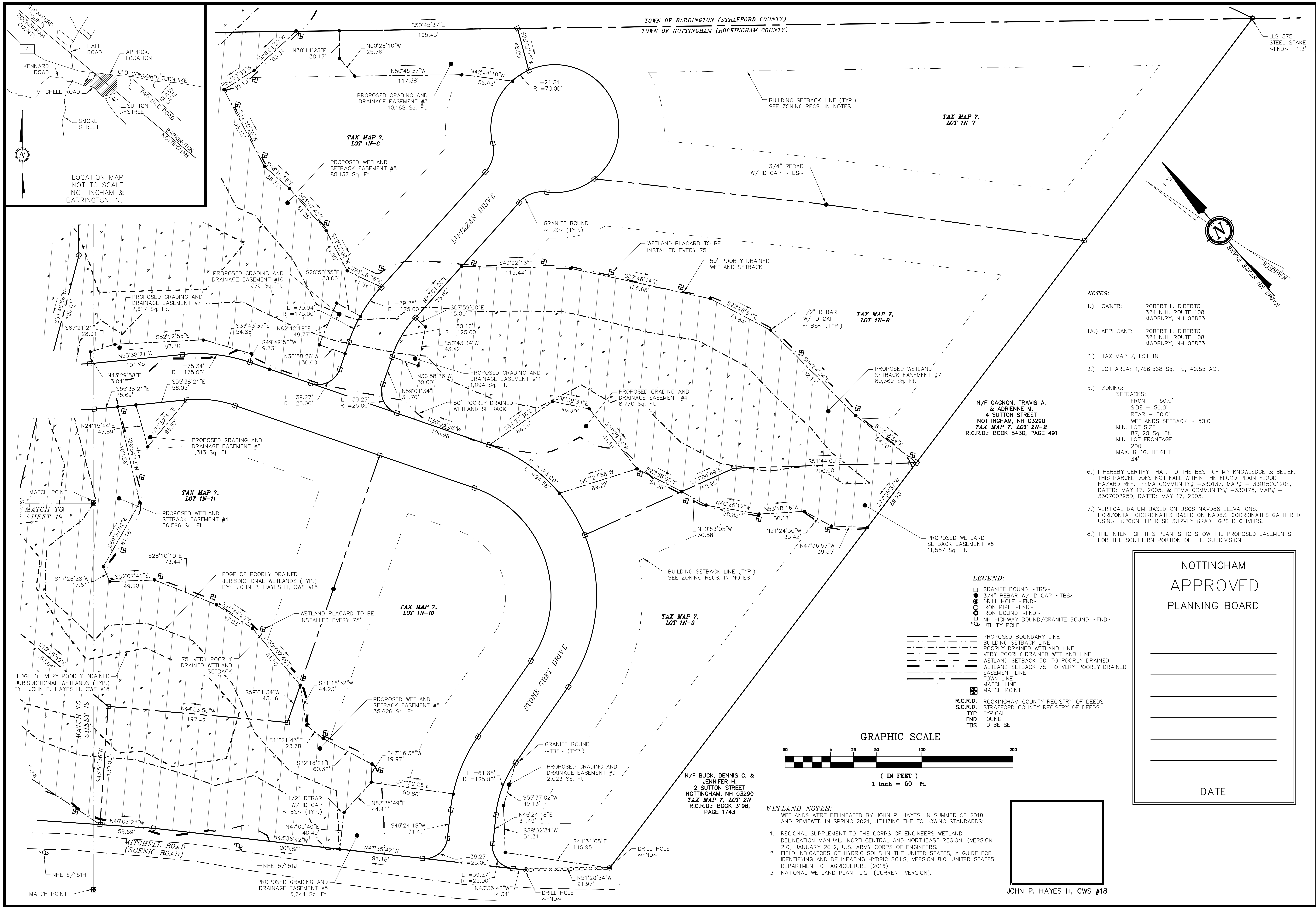
REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EASEMENT PLAN NORTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

No. 805
KENNETH A. BERRY
SIGNATURE



NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC..

5.) ZONING:
SETBACKS:
FRONT – 50.0'
SIDE – 50.0'
REAR – 50.0'
WETLANDS SETBACK ~ 50.0'
MIN. LOT SIZE
87,120 Sq. Ft.
MIN. LOT FRONTAGE
200'
MAX. BLDG. HEIGHT
34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED EASEMENTS FOR THE SOUTHERN PORTION OF THE SUBDIVISION.

NOTTINGHAM

APPROVED

PLANNING BOARD

DATE

LEGEND:

□	GRANITE BOUND ~TBS~
●	3/4" REBAR W/ ID CAP ~TBS~
◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
○	IRON BOUND ~FND~
□	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
	UTILITY POLE
— — —	PROPOSED BOUNDARY LINE
— · · —	BUILDING SETBACK LINE
–·–·–	POORLY DRAINED WETLAND LINE
— · —	VERY POORLY DRAINED WETLAND LINE
—··—··—	WETLAND SETBACK 50' TO POORLY DRAINED
━ ¦ ━	WETLAND SETBACK 75' TO VERY POORLY DRAINED
—·—·—	EASEMENT LINE
— – —	TOWN LINE
— · · · —	MATCH LINE
⊠	MATCH POINT
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

JOHN P. HAYES III, CWS #18

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

DETAIL SUBDIVISION PLAN EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

NOTES:

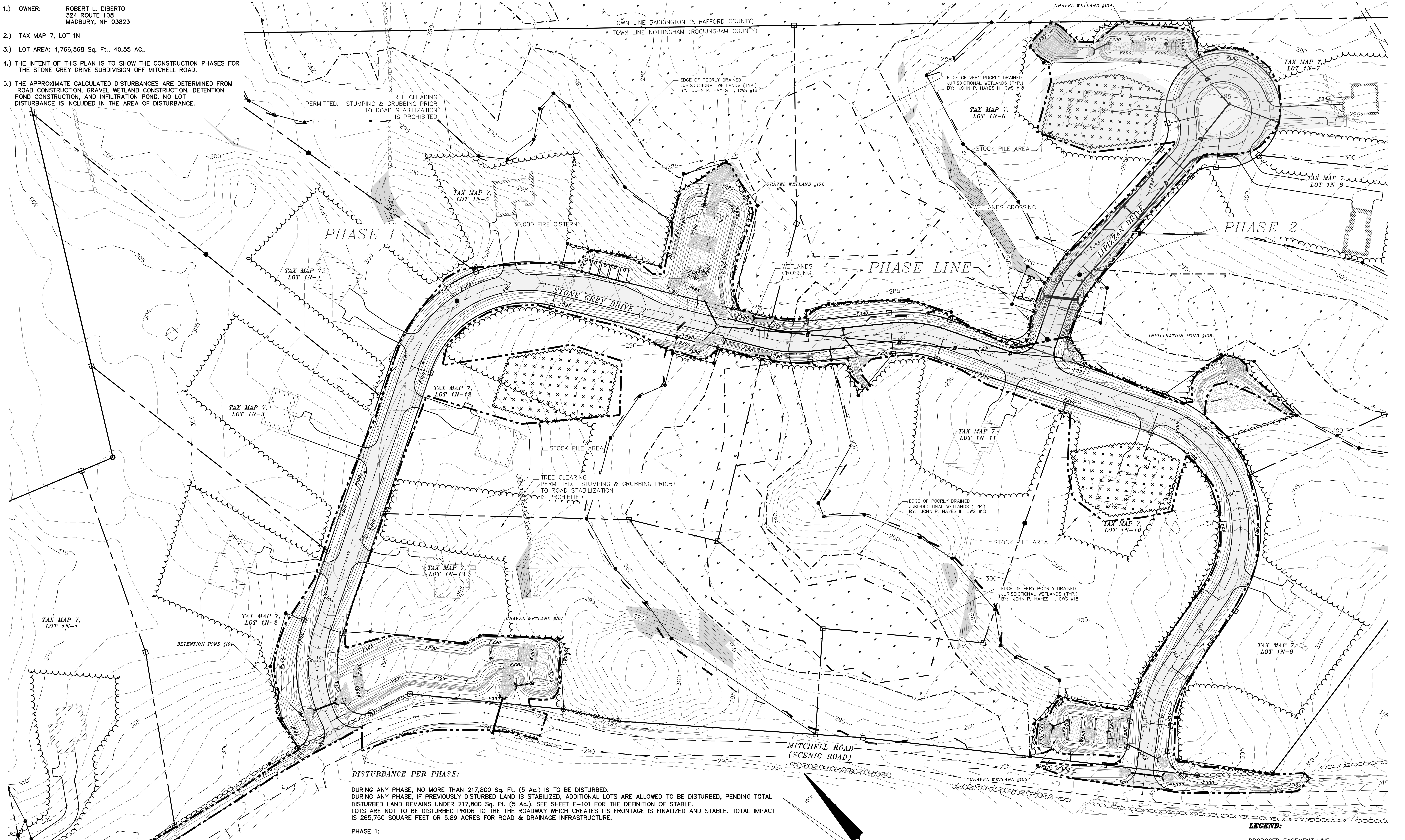
1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 AC..

4.) THE INTENT OF THIS PLAN IS TO SHOW THE CONSTRUCTION PHASES FOR THE STONE GREY DRIVE SUBDIVISION OFF MITCHELL ROAD.

5.) THE APPROXIMATE CALCULATED DISTURBANCES ARE DETERMINED FROM ROAD CONSTRUCTION, GRAVEL WETLAND CONSTRUCTION, DETENTION POND CONSTRUCTION, AND INFILTRATION POND. NO LOT DISTURBANCE IS INCLUDED IN THE AREA OF DISTURBANCE.



DISTURBANCE PER PHASE:

DURING ANY PHASE, NO MORE THAN 217,800 Sq. Ft. (5 Ac.) IS TO BE DISTURBED.
DURING ANY PHASE, IF PREVIOUSLY DISTURBED LAND IS STABILIZED, ADDITIONAL LOTS ARE ALLOWED TO BE DISTURBED, PENDING TOTAL DISTURBED LAND REMAINS UNDER 217,800 Sq. Ft. (5 Ac.). SEE SHEET E-101 FOR THE DEFINITION OF STABLE.
LOTS ARE NOT TO BE DISTURBED PRIOR TO THE THE ROADWAY WHICH CREATES ITS FRONTAGE IS FINALIZED AND STABLE. TOTAL IMPACT IS 265,750 SQUARE FEET OR 5.89 ACRES FOR ROAD & DRAINAGE INFRASTRUCTURE.

PHASE 1:

TOTAL DISTURBANCE: 213,357 ± Sq. Ft., 4.90 Ac.

- STONE GREY DRIVE
- ALL INFRASTRUCTURE SHOWN. TWO STOCKPILE AREA
- NO LOTS ARE TO BE CONSTRUCTED ON OR DISTURBED (OTHER THAN TREE CUTTING) PRIOR TO STABILIZATION OF STONE GREY DRIVE.
- THE CONTRACTOR IS TO ONLY STUMP AND GRUB AREAS THAT WILL BE IMMEDIATELY WORKED. TREE CLEARING CAN TAKE PLACE IN BOTH PHASES. GRUBBING CAN ONLY TAKE PLACE IN PHASE 1 DURING ITS OPERATION.

PHASE 2:

TOTAL AREA: 52,393 ± Sq. Ft., 1.20 Ac.

- LIPPIZAN DRIVE
- INFRASTRUCTURE AS SHOWN.
- LOTS ARE PROHIBITED FROM BEING CONSTRUCTED PRIOR TO ROAD STABILIZATION WITHOUT AN AMENDMENT TO THE ALTERATION OF TERRAIN PERMIT.

LEGEND:

PROPOSED EASEMENT LINE
EXISTING EASEMENT LINE
SUBDIVISION BOUNDARY LINE
POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
STONE WALL
PHASE LINE / LIMIT OF ALLOWED DISTURBANCE DURING CONSTRUCTION

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

CONSTRUCTION PHASING PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

STANDARD CONSTRUCTION NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE OVERVIEW GRADING AND ENGINEERING DETAILS OF STONE GREY DRIVE, LIPIZZAN DRIVE, AND TAX MAP 7, LOT 1N.

6.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE.

7.) ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO TOWN OF NOTTINGHAM SUBDIVISION REGULATIONS AND THE LATEST EDITION OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION.

8.) AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON A REPRODUCIBLE MYLAR MEDIUM AND IN A DIGITAL DXF FORMAT ON DISK TO THE TOWN OF NOTTINGHAM UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E.

9.) TOPOGRAPHIC SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING IN THE SUMMER OF 2018.

10.) DATUM: PROJECT DATUM IS BASED ON GPS COORDINATES ESTABLISHED WITH A TOPCON HIPER SR RECEIVER IN THE SUMMER OF 2018 AND REPRESENTED IN NEW HAMPSHIRE STATE PLANE COORDINATES NAD 1983 AND VERTICALLY BY NAVD 1988.

11.) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVE AND BELOW GROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ANY UTILITY CONFLICTS SHOULD BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.

12.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

13.) SEE DETAILS CONCERNING SITE LAYOUT, DRAINAGE, UTILITY AND SEDIMENT AND EROSION CONTROLS.

14.) SEE SEDIMENT & EROSION CONTROL PLAN FOR INLET PROTECTION AND CONTROLS FOR THE ENTIRE SITE.

15.) REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY DISTURBANCE OF THE SITE'S SURFACE AREA AND SHALL BE MAINTAINED THROUGH THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP AND EROSION ON THE CONSTRUCTION SITE DUE TO ACTUAL SITE CONDITIONS, THE OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE TOWN.

16.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

17.) AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

18.) CONTRACTOR SHALL TAKE SPECIAL CARE IN NOT DISTURBING EXISTING MONUMENTS BOUNDS, AND OR BENCHMARKS WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.

19.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

20.) FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE TOWN OF NOTTINGHAM.

21.) CONTRACTOR SHALL COORDINATE ALL ELECTRICAL INSTALLATIONS WITH EVERSOURCE AT (603)-436-7708. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL. A 48-HOUR MINIMUM NOTICE IS REQUIRED.

22.) CONTRACTOR SHALL COORDINATE ALL CABLE AND TELECOMMUNICATIONS INSTALLATIONS WITH COMCAST.

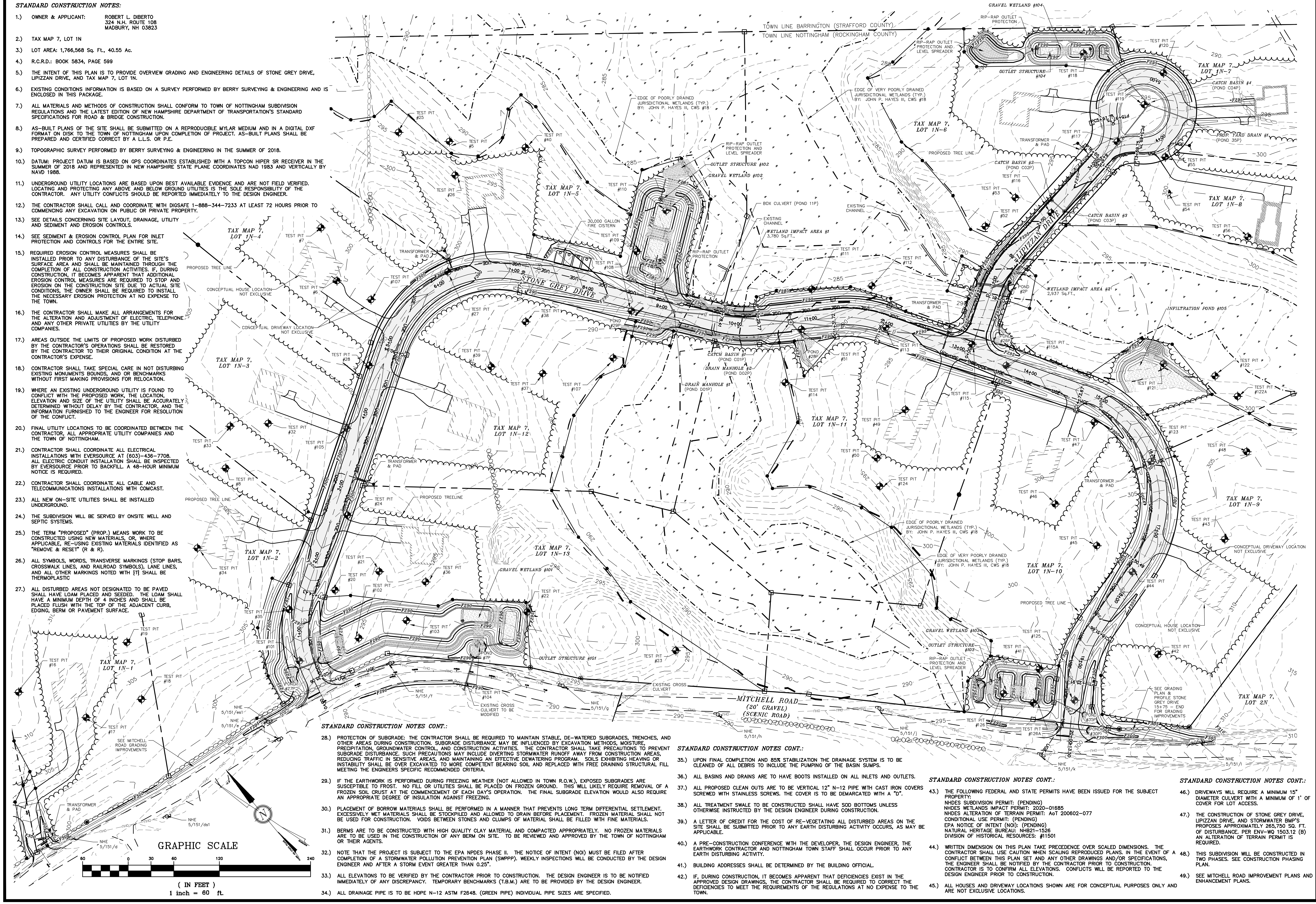
23.) ALL NEW ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.

24.) THE SUBDIVISION WILL BE SERVED BY ONSITE WELL AND SEPTIC SYSTEMS.

25.) THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

26.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH {T} SHALL BE THERMOPLASTIC

27.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.



STANDARD CONSTRUCTION NOTES CONT.:

28.) PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DE-WATERED SUBGRADES, TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL MEETING THE ENGINEERS SPECIFIC RECOMMENDED CRITERIA.

29.) IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER (NOT ALLOWED IN TOWN R.O.W.), EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATION. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.

30.) PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION. VOIDS BETWEEN STONES AND CLUMPS OF MATERIAL SHALL BE FILLED WITH FINE MATERIALS.

31.) BERMS ARE TO BE CONSTRUCTED WITH HIGH QUALITY CLAY MATERIAL AND COMPACTED APPROPRIATELY. NO FROZEN MATERIALS ARE TO BE USED IN THE CONSTRUCTION OF ANY BERM ON SITE. TO BE REVIEWED AND APPROVED BY THE TOWN OF NOTTINGHAM OR THEIR AGENTS.

32.) NOTE THAT THE PROJECT IS SUBJECT TO THE EPA NPDES PHASE II. THE NOTICE OF INTENT (NOI) MUST BE FILED AFTER COMPLETION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP). WEEKLY INSPECTIONS WILL BE CONDUCTED BY THE DESIGN ENGINEER AND AFTER A STORM EVENT GREATER THAN 0.25".

33.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

34.) ALL DRAINAGE PIPE IS TO BE HDPE N-12 ASTM F2648. (GREEN PIPE) INDIVIDUAL PIPE SIZES ARE SPECIFIED.

STANDARD CONSTRUCTION NOTES CONT.:

35.) UPON FINAL COMPLETION AND 85% STABILIZATION THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS TO INCLUDE THE PUMPING OF THE BASIN SUMPS.

36.) ALL BASINS AND DRAINS ARE TO HAVE BOOTS INSTALLED ON ALL INLETS AND OUTLETS.

37.) ALL PROPOSED CLEAN OUTS ARE TO BE VERTICAL 12" N-12 PIPE WITH CAST IRON COVERS SCREWED WITH STAINLESS SCREWS. THE COVER IS TO BE DEMARCATED WITH A "D".

38.) ALL TREATMENT SWALE TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS UNLESS OTHERWISE INSTRUCTED BY THE DESIGN ENGINEER DURING CONSTRUCTION.

39.) A LETTER OF CREDIT FOR THE COST OF RE-VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS, AS MAY BE APPLICABLE.

40.) A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND NOTTINGHAM TOWN STAFF SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

41.) BUILDING ADDRESSES SHALL BE DETERMINED BY THE BUILDING OFFICIAL.

42.) IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT DEFICIENCIES EXIST IN THE APPROVED DESIGN DRAWINGS, THE CONTRACTOR SHALL BE REQUIRED TO CORRECT THE DEFICIENCIES TO MEET THE REQUIREMENTS OF THE REGULATIONS AT NO EXPENSE TO THE TOWN.

STANDARD CONSTRUCTION NOTES CONT.:

43.) THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
NHDES SUBDIVISION PERMIT: (PENDING)
NHDES WETLANDS IMPACT PERMIT: 2020-01685
NHDES ALTERATION OF TERRAIN PERMIT: AoT 200602-077
CONDITIONAL USE PERMIT: (PENDING)
EPA NOTICE OF INTENT (NOI): (PENDING)
NATURAL HERITAGE BUREAU: NHB21-1526
DIVISION OF HISTORICAL RESOURCES: #11501

44.) WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

45.) ALL HOUSES AND DRIVEWAY LOCATIONS SHOWN ARE FOR CONCEPTUAL PURPOSES ONLY AND ARE NOT EXCLUSIVE LOCATIONS.

STANDARD CONSTRUCTION NOTES CONT.:

46.) DRIVEWAYS WILL REQUIRE A MINIMUM 15" DIAMETER CULVERT WITH A MINIMUM OF 1' OF COVER FOR LOT ACCESS.

47.) THE CONSTRUCTION OF STONE GREY DRIVE, LIPIZZAN DRIVE, AND STORMWATER BMP'S PROPOSES APPROXIMATELY 265,750 SQ. FT. OF DISTURBANCE. PER ENV-WQ 1503.12 (B) AN ALTERATION OF TERRAIN PERMIT IS REQUIRED.

48.) THIS SUBDIVISION WILL BE CONSTRUCTED IN TWO PHASES. SEE CONSTRUCTION PHASING PLAN.

49.) SEE MITCHELL ROAD IMPROVEMENT PLANS AND ENHANCEMENT PLANS.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

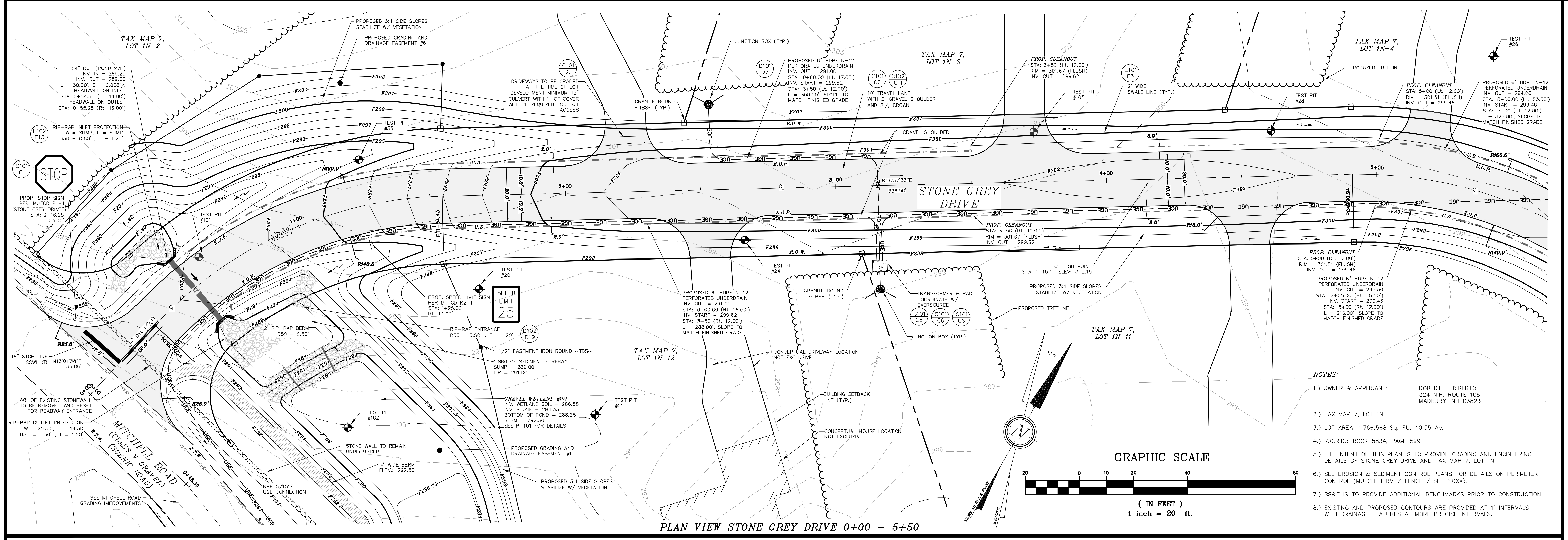
OVERVIEW GRADING PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243
LICENSED

SHEET 23 OF 55



PLAN VIEW STONE GREY DRIVE 0+00 – 5+50

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

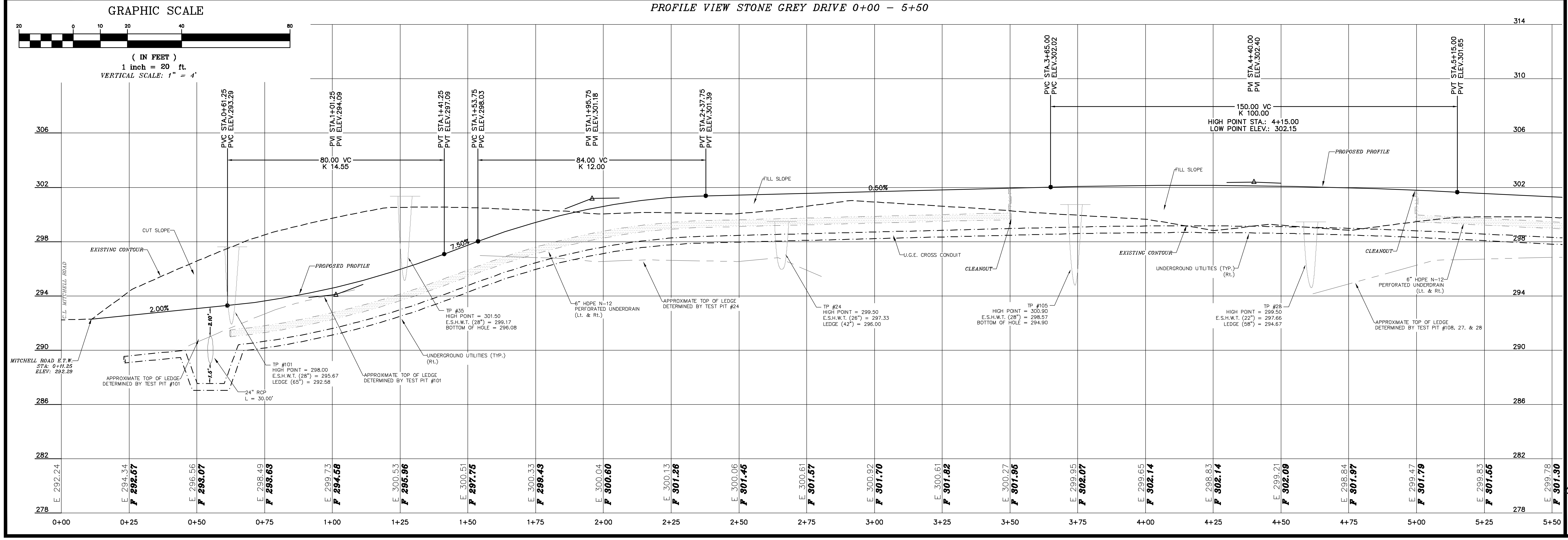
5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF STONE GREY DRIVE AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

PROFILE VIEW STONE GREY DRIVE 0+00 – 5+50



REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING PLAN & PROFILE STONE GREY DRIVE 0+00 – 5+50
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

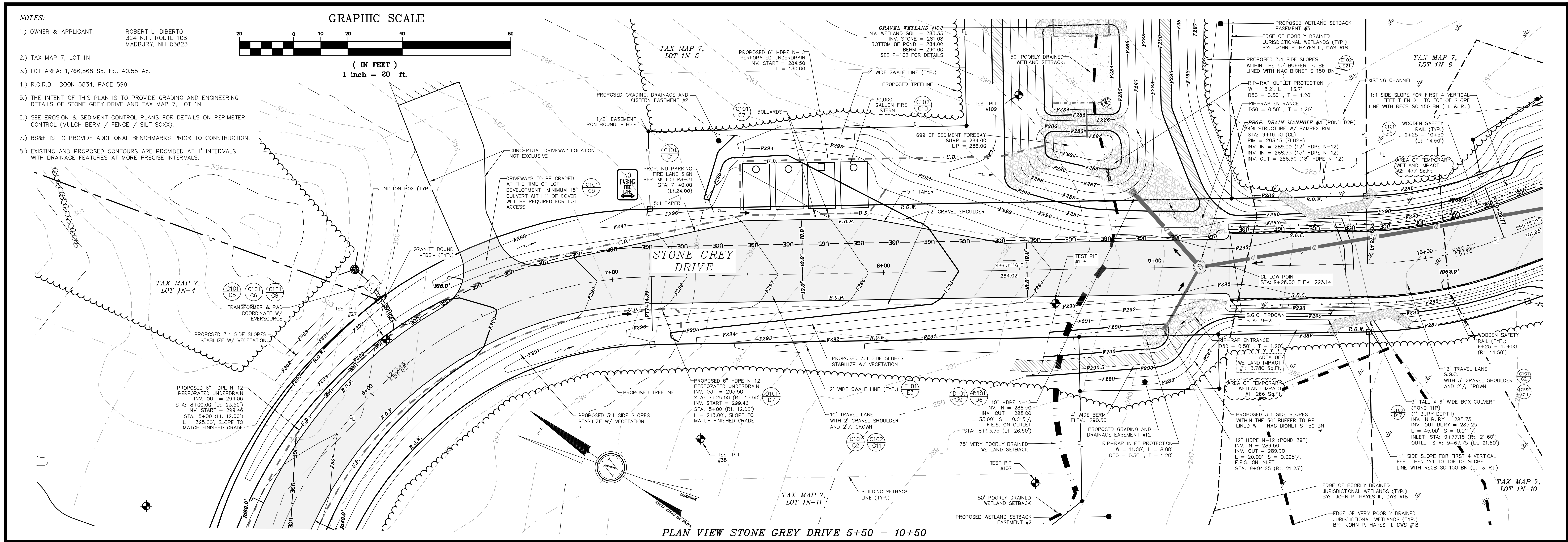
4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF STONE GREY DRIVE AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

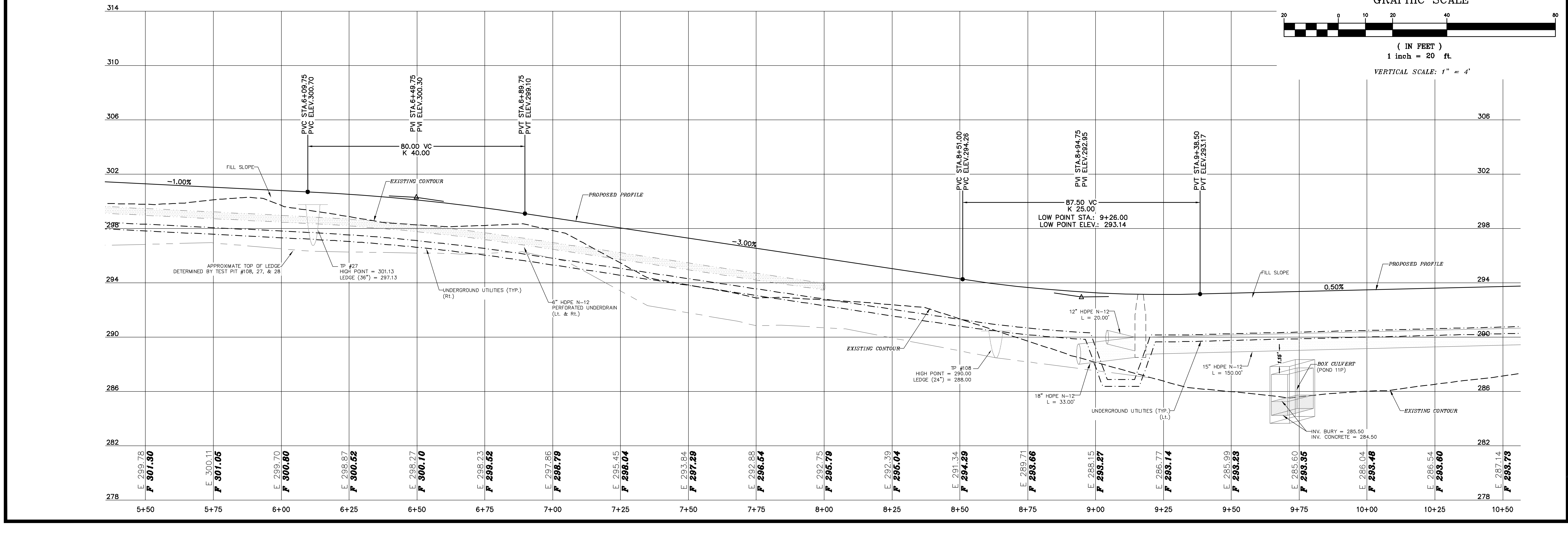
7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.



PLAN VIEW STONE GREY DRIVE 5+50 – 10+50

PROFILE VIEW STONE GREY DRIVE 5+50 – 10+50



5+50	E 299.78	F 301.30
5+75	E 300.11	F 301.05
6+00	E 299.70	F 300.80
6+25	E 298.87	F 300.52
6+50	E 298.27	F 300.10
6+75	E 298.23	F 299.52
7+00	E 297.86	F 298.79
7+25	E 295.45	F 298.04
7+50	E 293.84	F 297.29
7+75	E 292.88	F 296.54
8+00	E 292.75	F 295.79
8+25	E 292.39	F 295.04
8+50	E 291.34	F 294.29
8+75	E 289.71	F 293.66
9+00	E 288.15	F 293.27
9+25	E 286.77	F 293.14
9+50	E 285.99	F 293.23
9+75	E 285.60	F 293.35
10+00	E 286.04	F 293.48
10+25	E 286.54	F 293.60
10+50	E 287.14	F 293.73

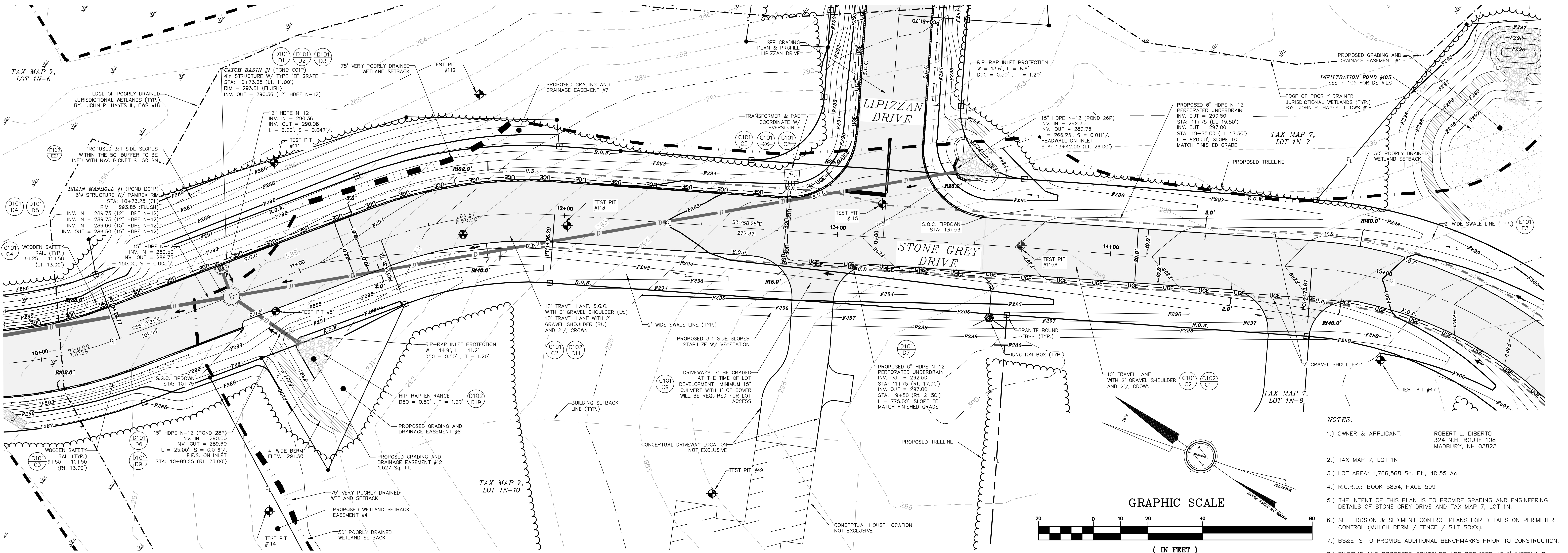
REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING PLAN & PROFILE STONE GREY DRIVE 5+50 – 10+50
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14243



NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF STONE GREY DRIVE AND TAX MAP 7, LOT 1N.

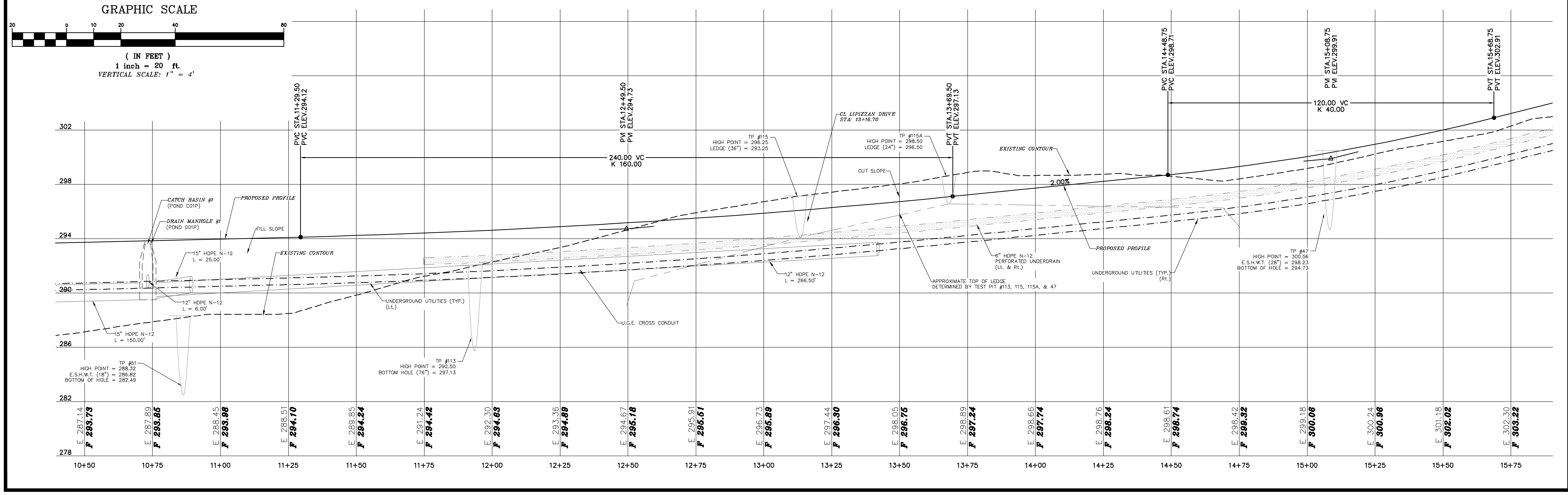
6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

PLAN VIEW STONE GREY DRIVE 10+50 – 15+75

PROFILE VIEW STONE GREY DRIVE 10+50 – 15+75



10+50	E 287.14	F 293.73
10+75	E 287.89	F 293.85
11+00	E 288.45	F 293.98
11+25	E 288.51	F 294.10
11+50	E 289.85	F 294.24
11+75	E 291.24	F 294.42
12+00	E 292.30	F 294.63
12+25	E 293.36	F 294.89
12+50	E 294.67	F 295.18
12+75	E 295.91	F 295.51
13+00	E 296.73	F 295.89
13+25	E 297.44	F 296.30
13+50	E 298.05	F 296.76
13+75	E 298.89	F 297.24
14+00	E 298.66	F 297.74
14+25	E 298.76	F 298.24
14+50	E 298.61	F 298.74
14+75	E 298.42	F 299.32
15+00	E 299.18	F 300.06
15+25	E 300.24	F 300.98
15+50	E 301.18	F 302.02
15+75	E 302.30	F 303.22

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING PLAN & PROFILE STONE GREY DRIVE 10+50 – 15+75
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

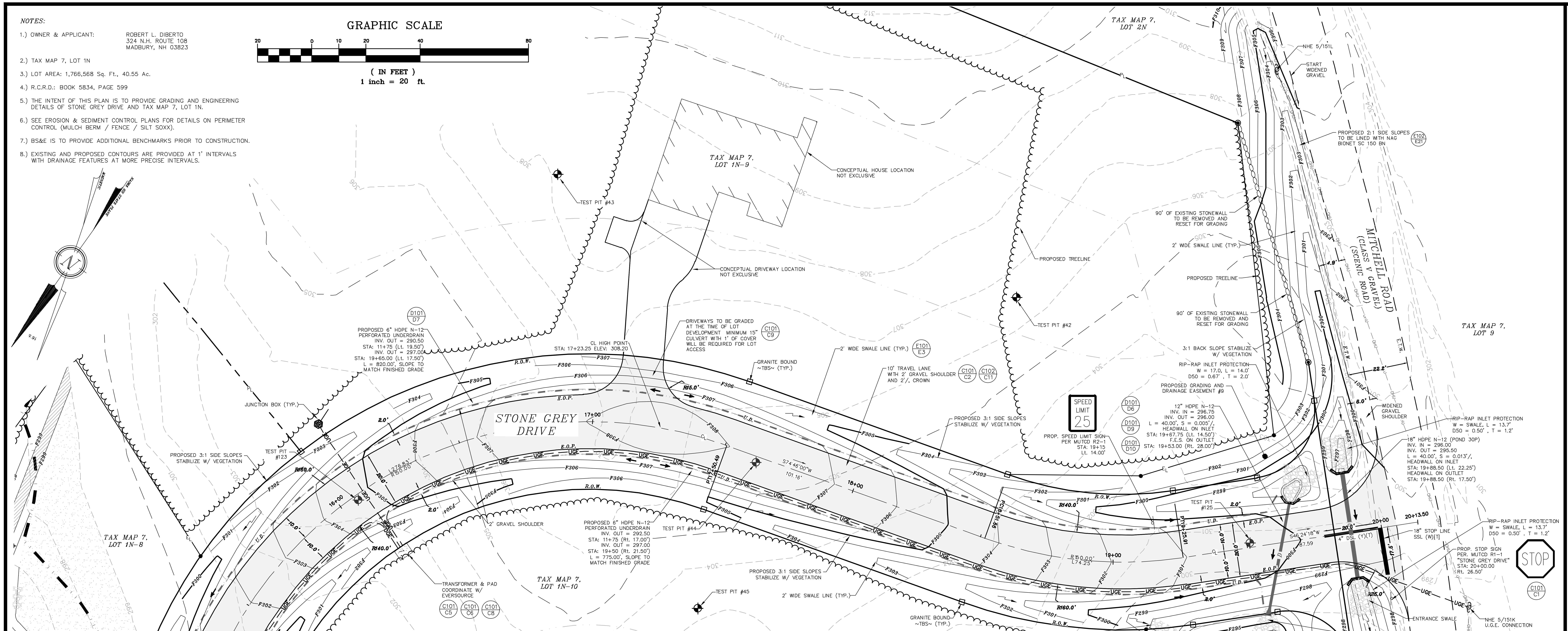
4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF STONE GREY DRIVE AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

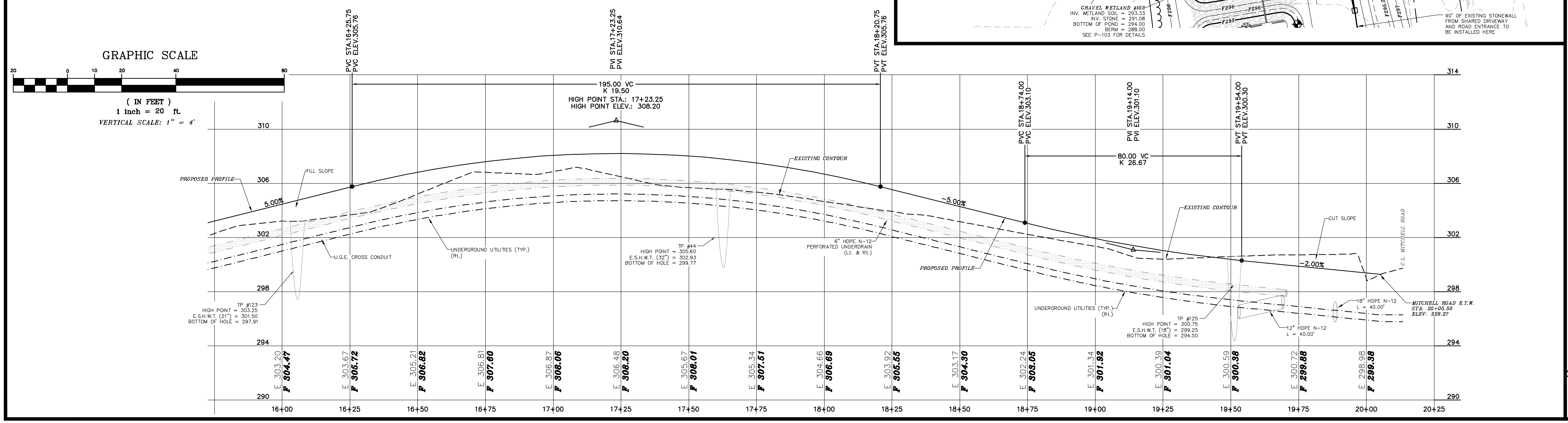
7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.



PLAN VIEW STONE GREY DRIVE 15+75 - END

PROFILE VIEW STONE GREY DRIVE 15+75 - END



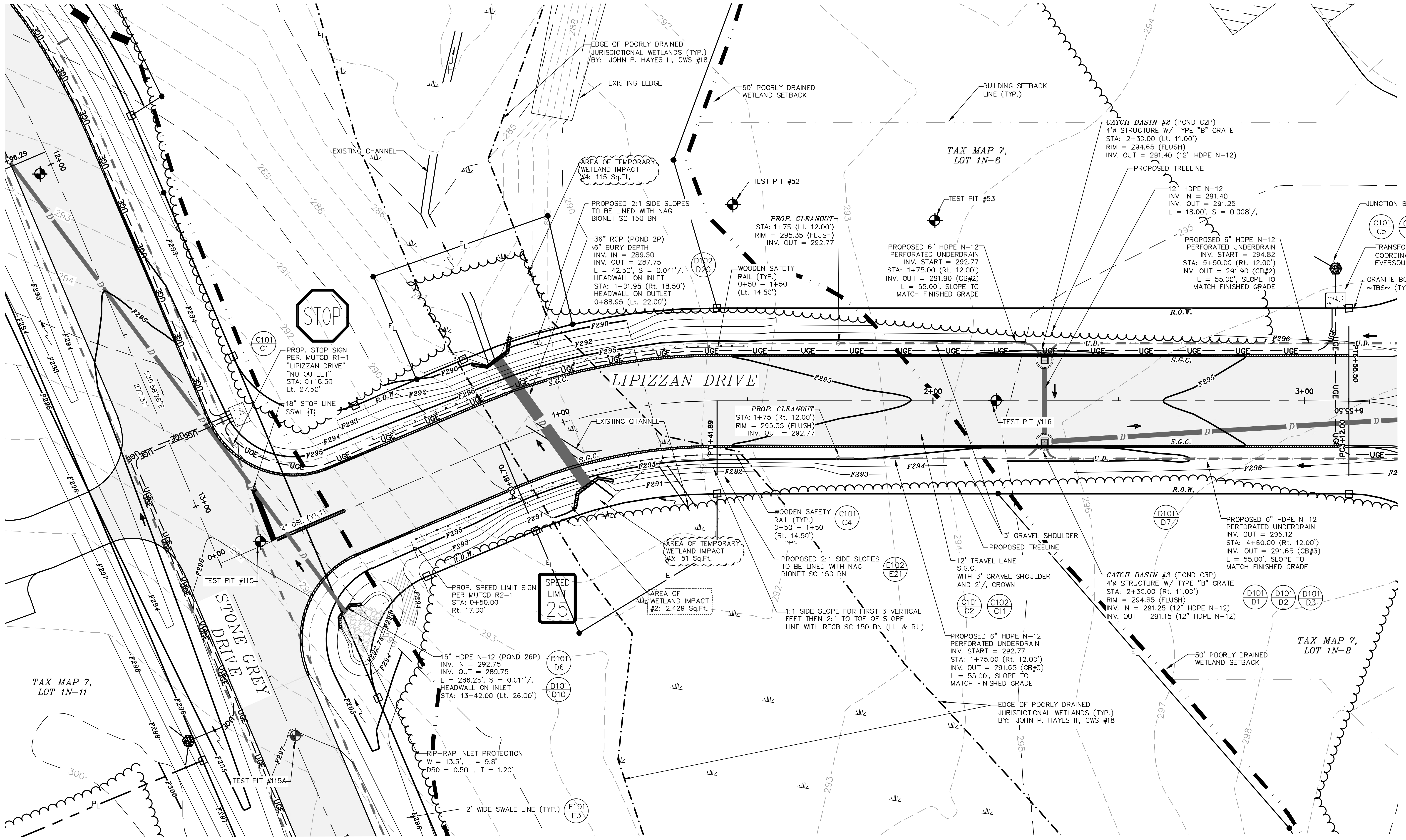
REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING PLAN & PROFILE STONE GREY DRIVE 15+75 - END
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243



PLAN VIEW LIPIZZAN DRIVE 0+00 - 3+25

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF LIPIZZAN DRIVE AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

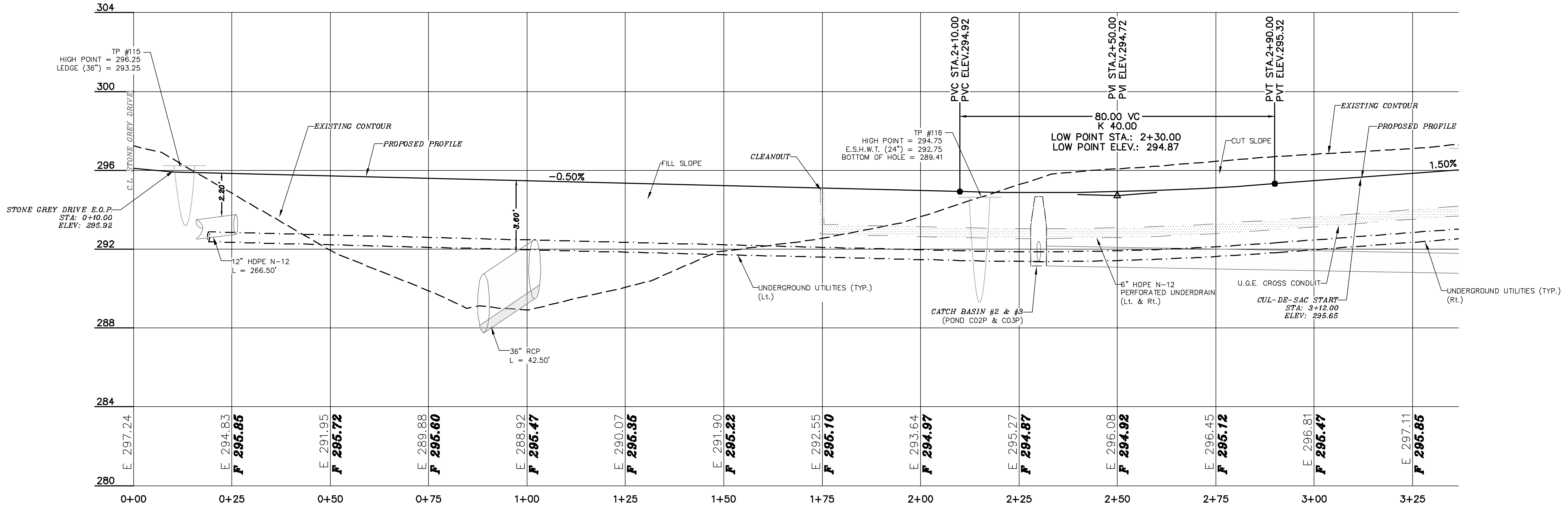
8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

PROFILE VIEW LIPIZZAN DRIVE 0+00 - 3+25



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

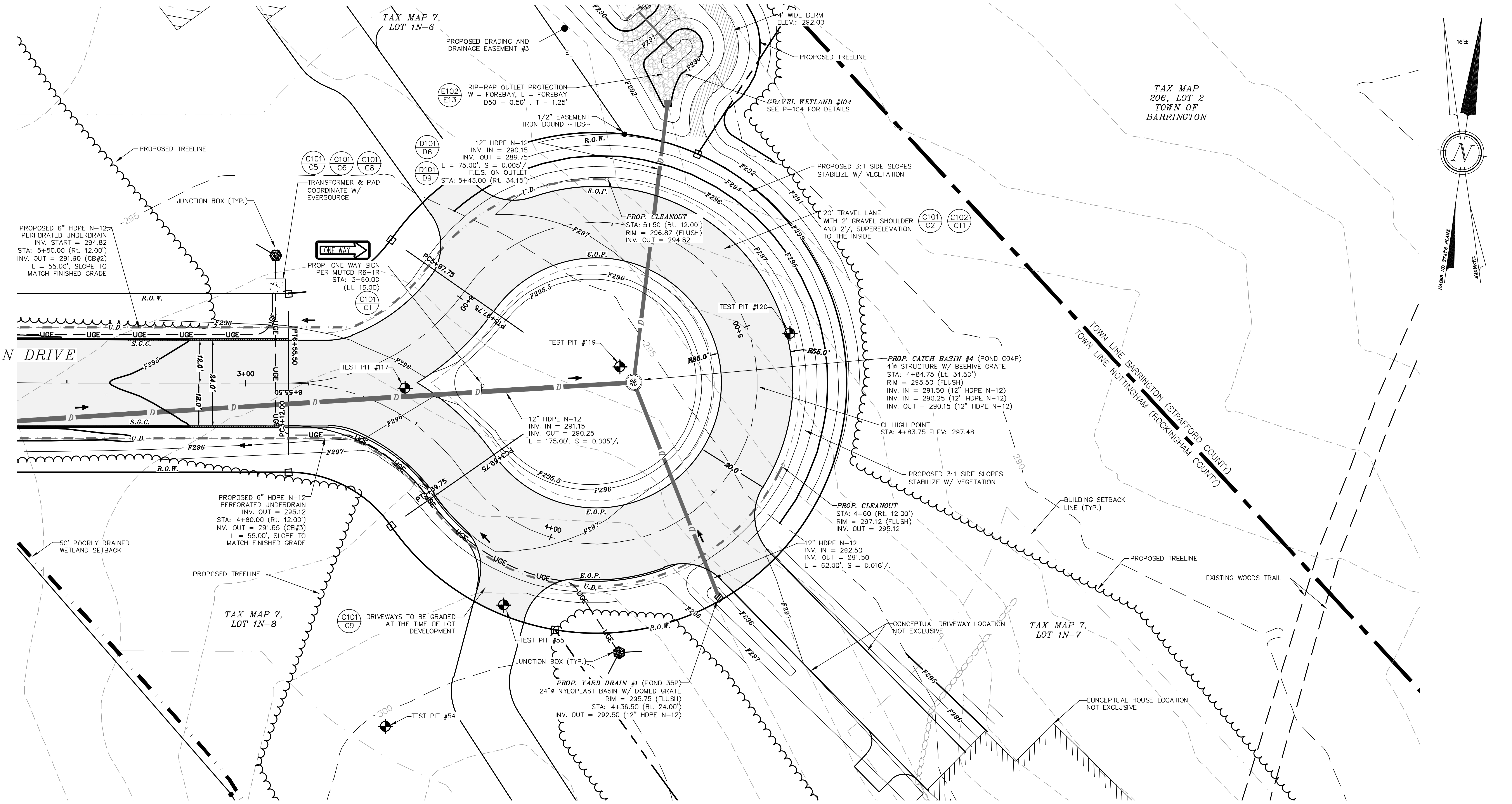
GRADING PLAN & PROFILE LIPIZZAN DRIVE 0+00 - 3+25
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SHEET 28 OF 55



PLAN VIEW LIPIZZAN DRIVE 3+25 - END

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF LIPIZZAN DRIVE AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

GRAPHIC SCALE

20 0 10 20 40 80

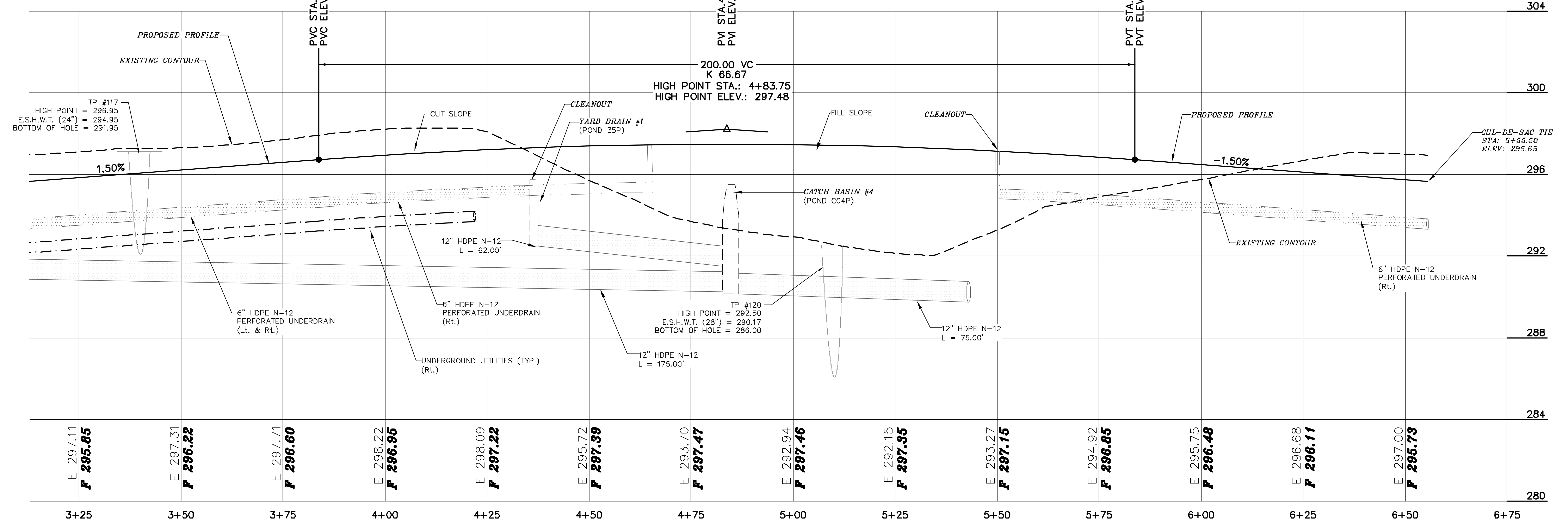
(IN FEET)
1 inch = 20 ft.

PROFILE VIEW LIPIZZAN DRIVE 3+25 - END

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



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#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING PLAN & PROFILE LIPIZZAN DRIVE 3+25 - END
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
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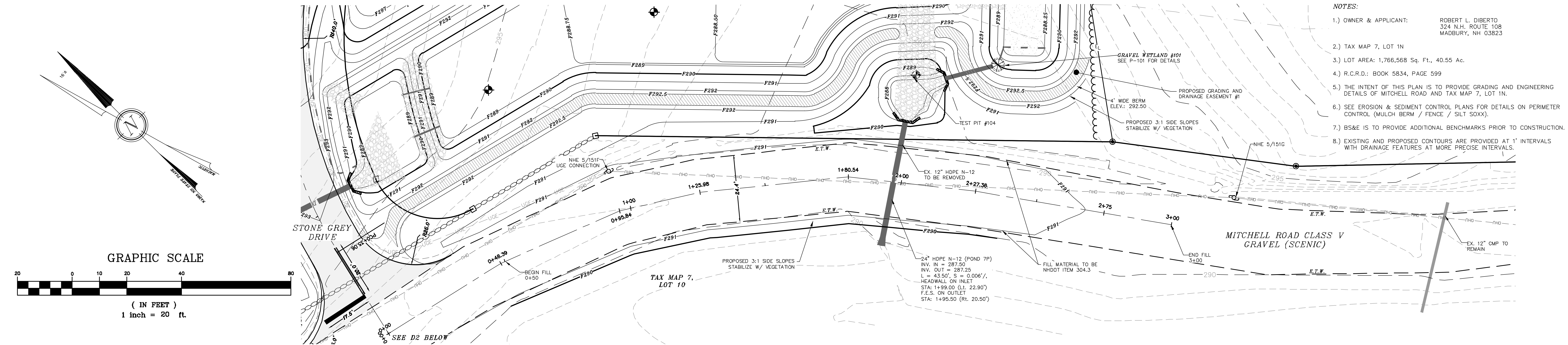
KENNETH A. BERRY
No. 14243



NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING AND ENGINEERING DETAILS OF MITCHELL ROAD AND TAX MAP 7, LOT 1N.

6.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX).

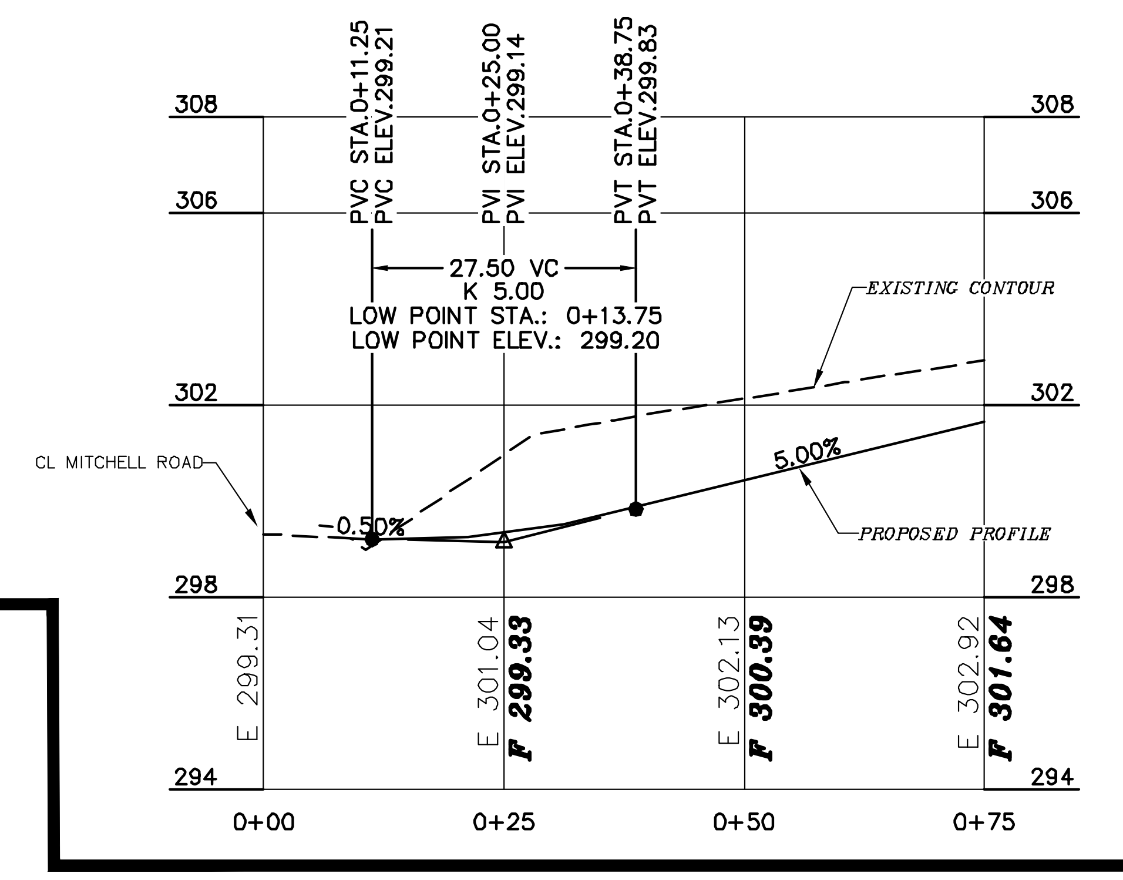
7.) BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

8.) EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

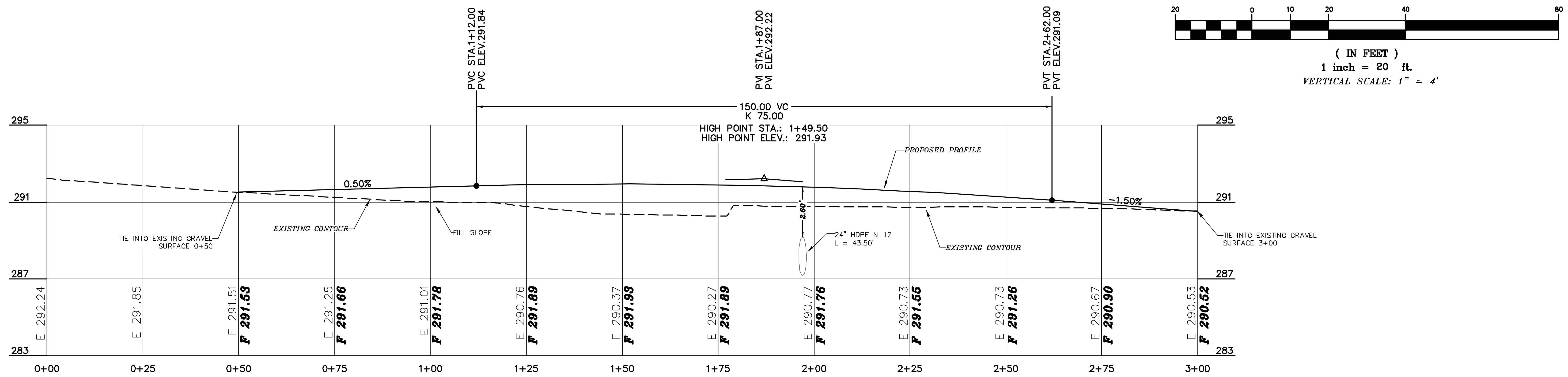
PLAN VIEW MITCHELL ROAD 0+00 – 3+00

D1

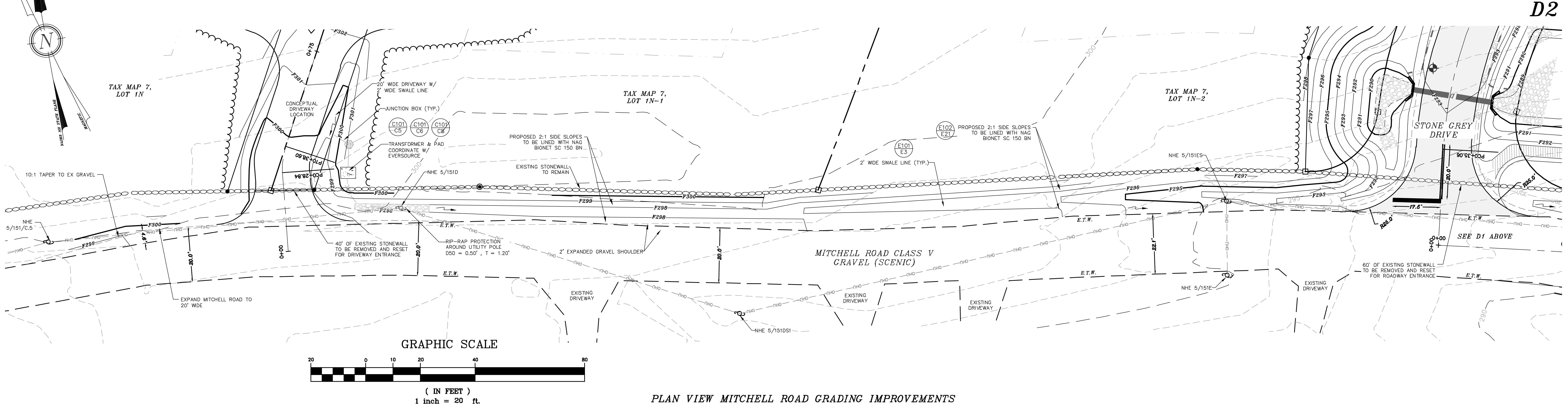
PROFILE VIEW SHARED DRIVEWAY 0+00 – 0+75



PROFILE VIEW MITCHELL ROAD 0+00 – 3+00



D2



PLAN VIEW MITCHELL ROAD GRADING IMPROVEMENTS

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRADING IMPROVEMENTS MITCHELL ROAD
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

MAINTENANCE REQUIREMENTS

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
CHECK FOR INTERNAL EROSION, EVIDENCE OF SHORT-CIRCUITING, AND ANIMAL BURROWS. REMEDY: SOIL EROSION FROM SHORT-CIRCUITING OR ANIMAL BOROUGHS SHOULD BE REPAIRED WHEN THEY OCCUR.	
CHECK THAT THE SYSTEM IS FULLY DRAINING WITHIN A 24-48 HOUR PERIOD AFTER RAIN EVENTS. REMEDY: REPAIR OR RESTORE HYDRAULIC INLET OR OUTLET CONFIGURATION.	
VEGETATION	
CHECK FOR ROBUST VEGETATION COVERAGE THROUGHOUT THE SYSTEM AND DEAD OR DYING PLANTS REMEDY: VEGETATION SHOULD COVER > 75% OF THE SYSTEM AND SHOULD BE RESEEDED AND CARED FOR AS NEEDED	ANNUALLY, OR AS NEEDED
CUT AND REMOVE VEGETATION FROM GRAVEL WETLAND SYSTEM AND FOREBAY IN ORDER TO MAINTAIN NITROGEN REMOVAL PERFORMANCE REMEDY: THE VEGETATION SHOULD BE CUT AND REMOVED FROM THE SYSTEM TO PREVENT NITROGEN FROM CYCLING BACK INTO THE SYSTEM	ONCE EVERY 3 YEARS

3/8" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 - 100
# 4	22 - 55
# 8	0 - 10

* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

1-1/2" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 - 100
1"	20 - 55
1-1/2"	0 -15
3/8"	0 -5

* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

WETLAND SOIL

SIEVE SIZE	% PASSING BY WEIGHT
0.5	100
#10"	90 - 75
#100	40 - 50
#200	25 -50

SIEVE SIZE	% PASSING TOLERANCES
0.5	±10.0
#10	±5.0
#100	±5.0
#200	±5.0

DESIGN REFERENCES

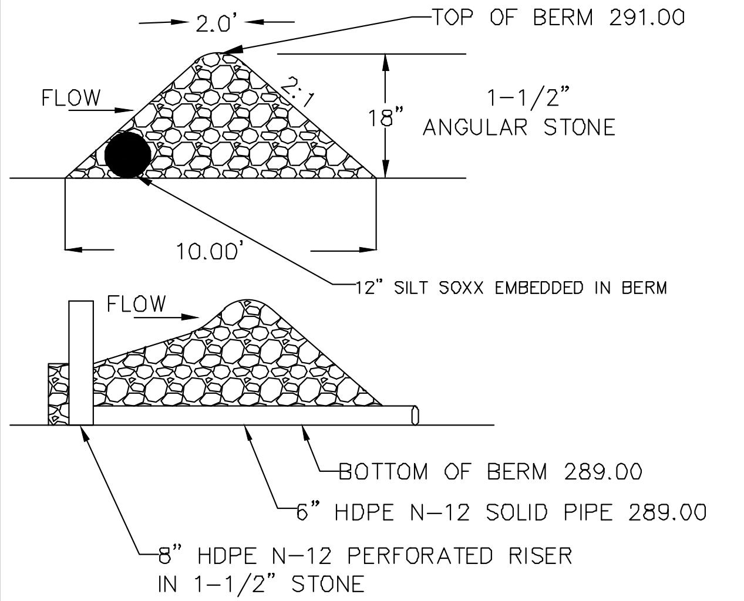
1 UNH STORMWATER CENTER

CONSTRUCTION NOTE: THE DESIGN ENGINEER IS TO BE ON SITE PRIOR TO AND DURING THE PLACEMENT OF THE RESERVOIR STONE, AND TO WITNESS THE INSTALLATION OF THE UNDER-DRAIN AND INTER-CHAMBER PIPES. PLEASE PROVIDE 24 HOURS NOTICE PRIOR TO REQUESTED INSPECTION.

P1

P2

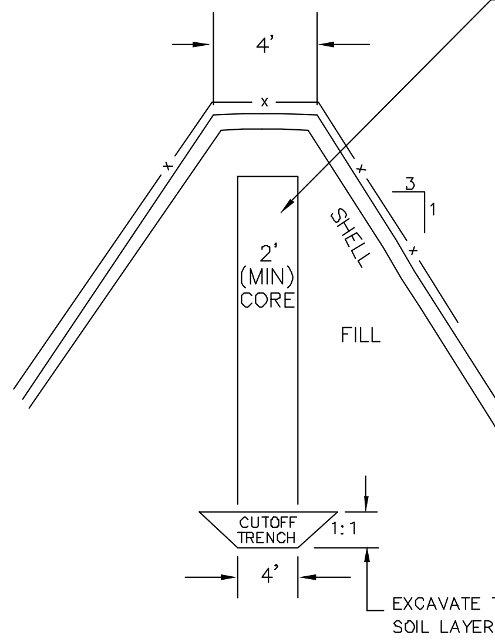
STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 - 100
#40	60 - 95
#100	40 - 60
#200	25 - 45



1.) 2' CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

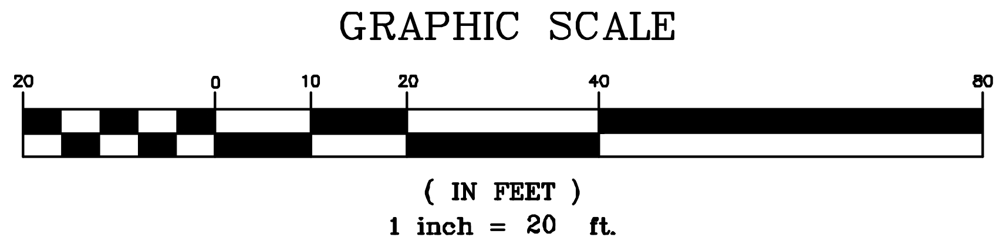
3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

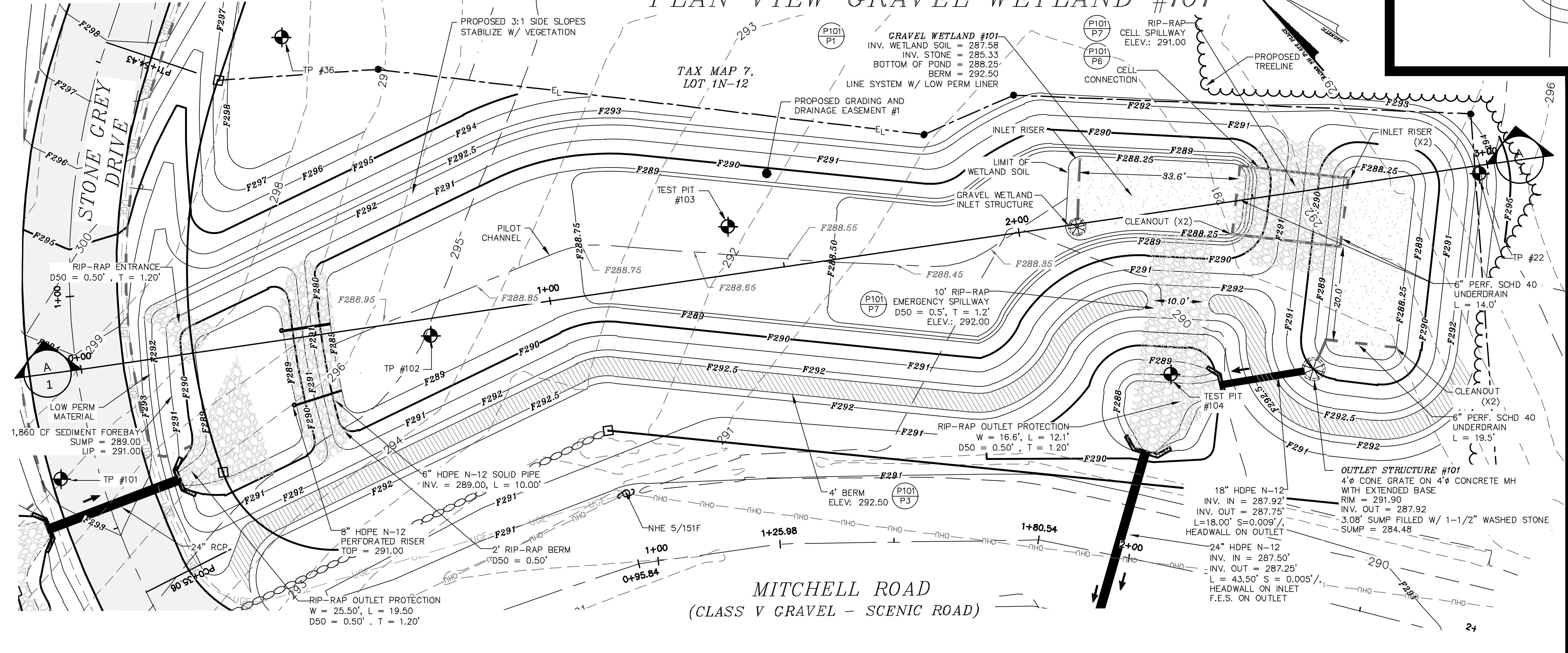
5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

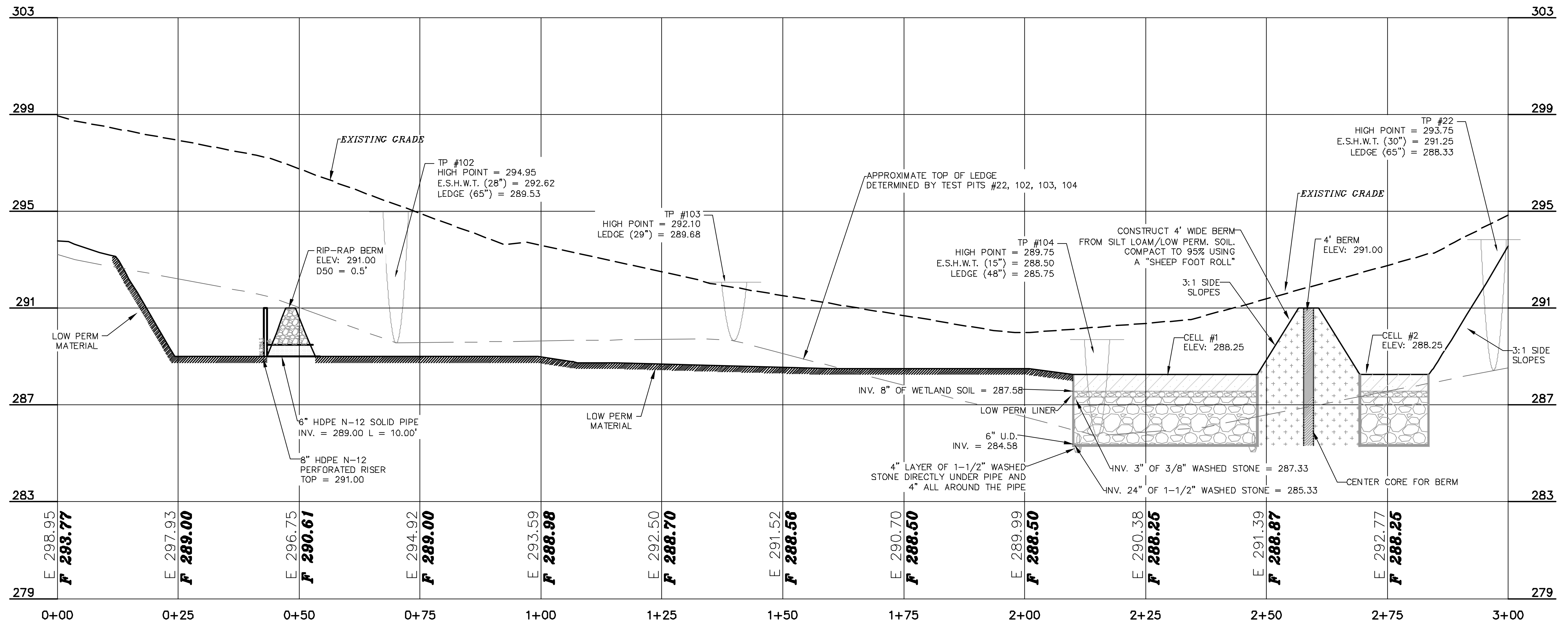
6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

GRAPHIC SCALE



PLAN VIEW GRAVEL WETLAND #101



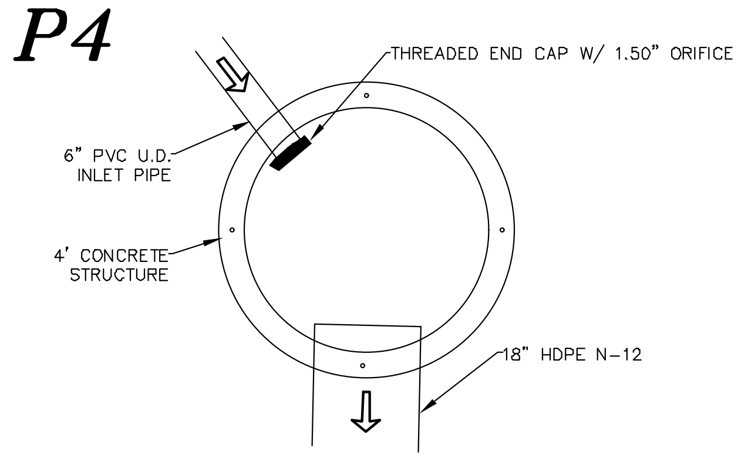


VERTICAL SCALE: 1" = 4'
HORIZONTAL SCALE: 1" = 20'

SECTION OF GRAVEL WETLAND #101

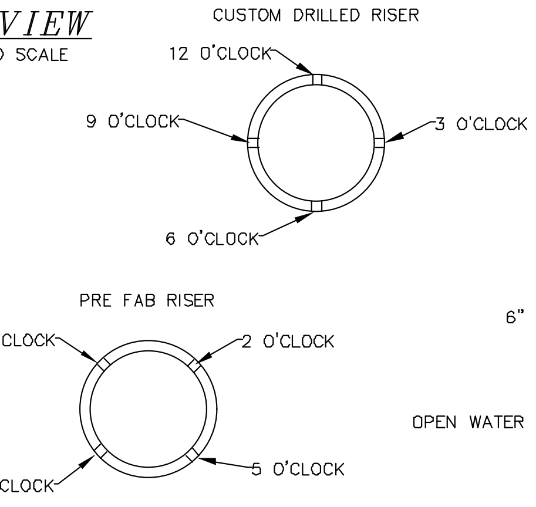
A
1

P4

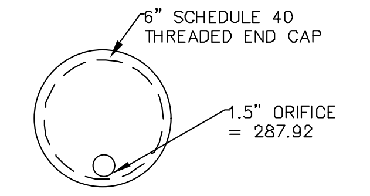


NOT TO SCALE

TOP VIEW
NOT TO SCALE

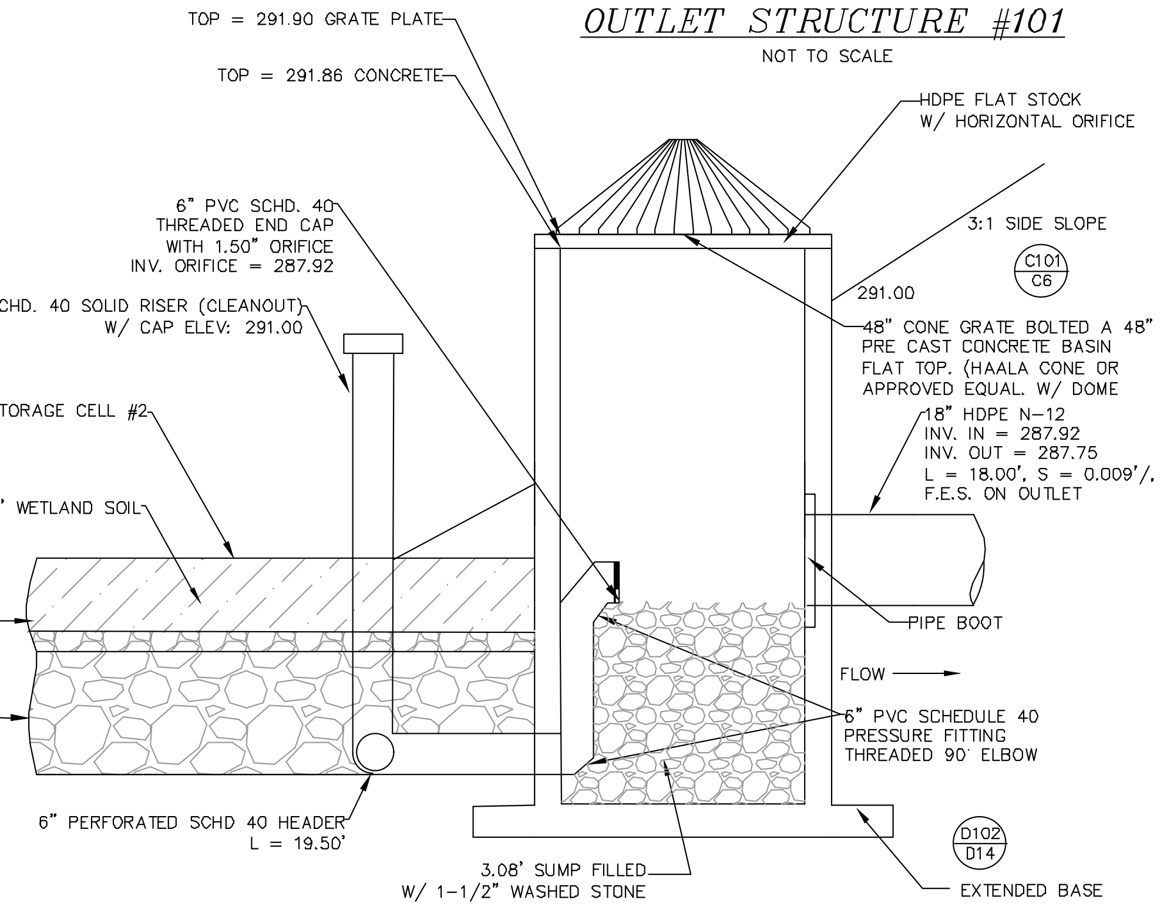


PERFORATED RISER DETAIL
NOT TO SCALE

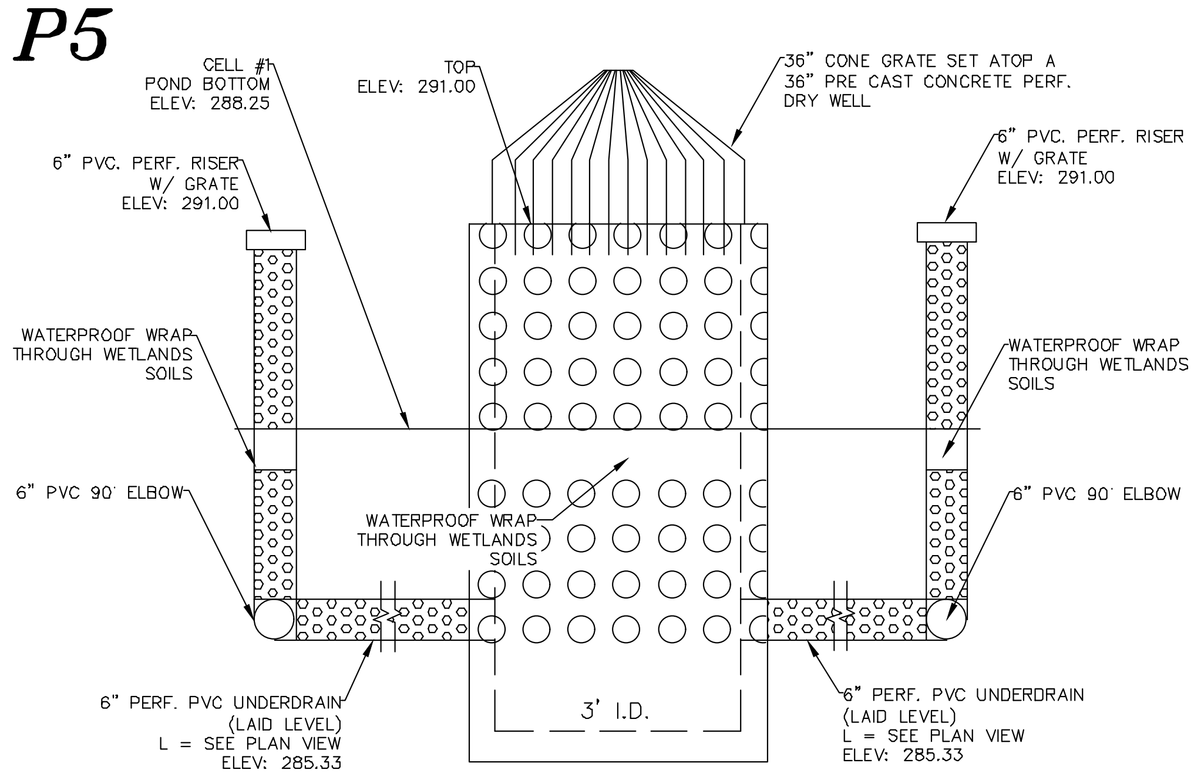


CAP WITH CONTROL ORIFICE
NOT TO SCALE

OUTLET STRUCTURE #101
NOT TO SCALE

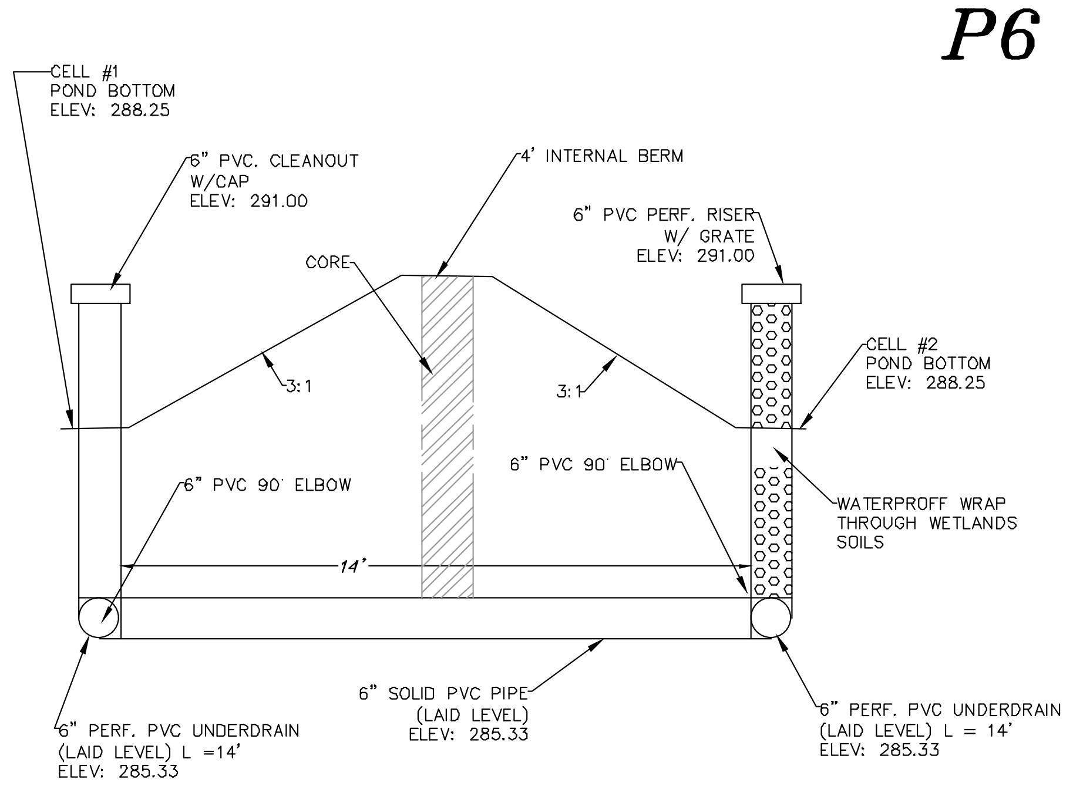


P5



GRAVEL WETLAND INLET SYSTEM
NOT TO SCALE

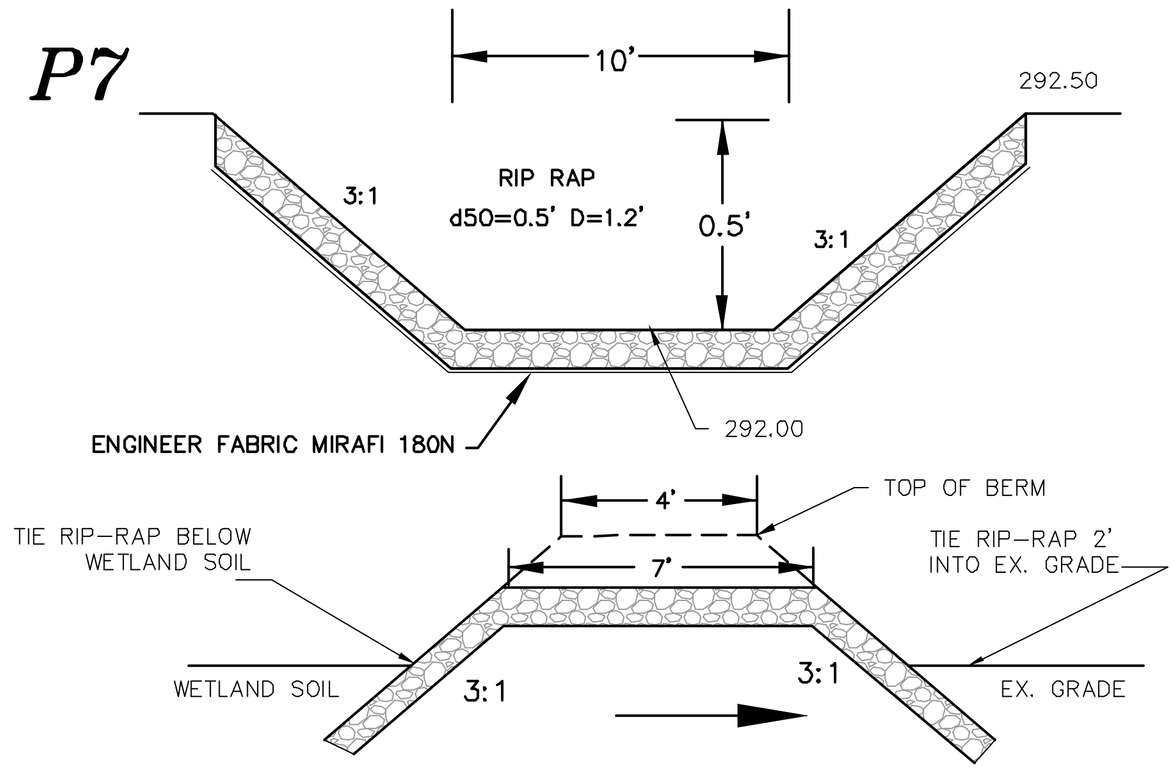
P6



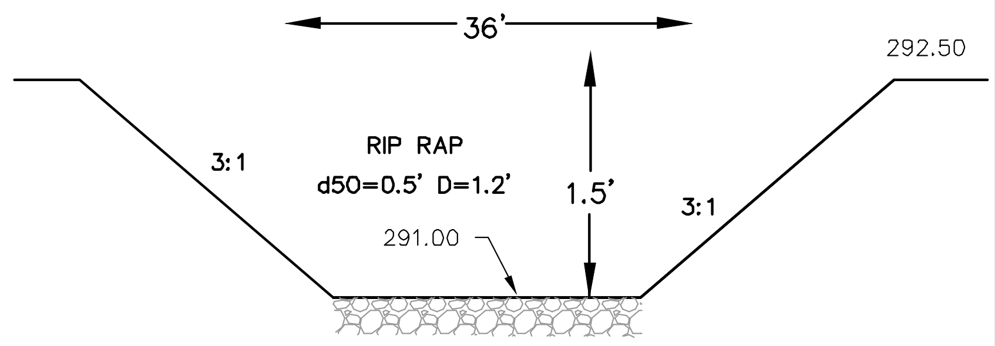
GRAVEL WETLAND CONNECTION SYSTEM
NOT TO SCALE

P7

SPILLWAY DETAILS
NOT TO SCALE



EMERGENCY SPILLWAY PROFILE



GRAVEL WETLAND CELL SPILLWAY PROFILE

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
d50 SIZE= 0.5 FEET 6 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

REVISION	DATE	DESCRIPTION
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GRAVEL WETLAND #101
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

P-101

SHEET 31 OF 55

P1

MAINTENANCE REQUIREMENTS

ACTIVITY — *CLOGGING AND SYSTEM PERFORMANCE*

ACTIVITY	FREQUENCY
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
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SIEVE SIZE	**% PASSING TOLERANCES**
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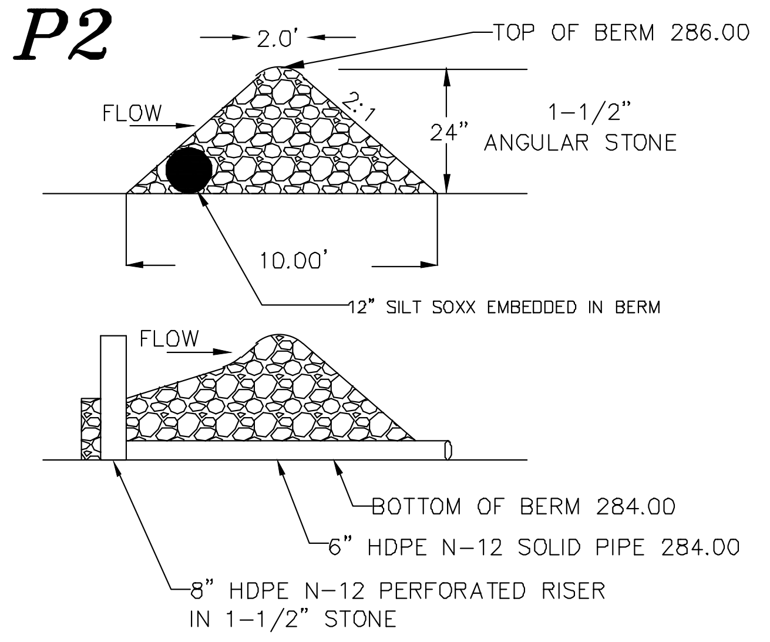
P2

STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
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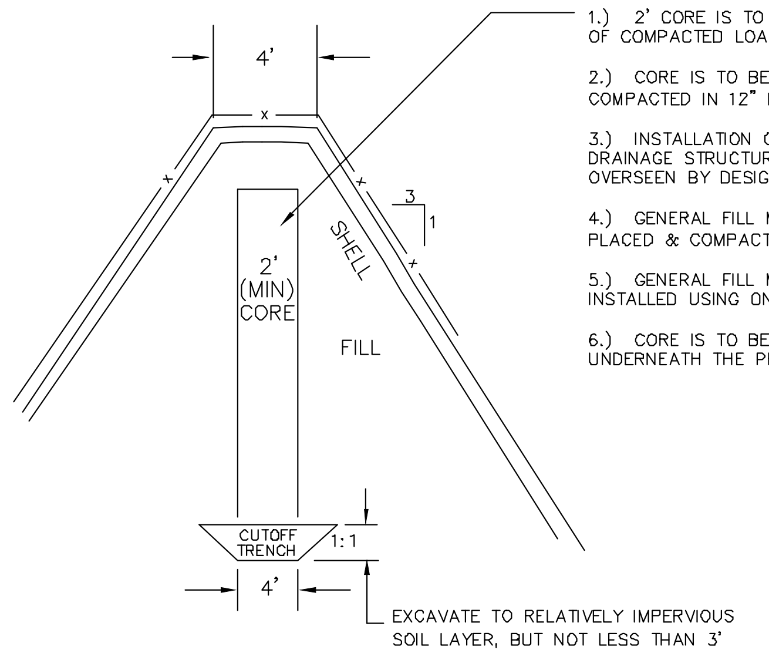

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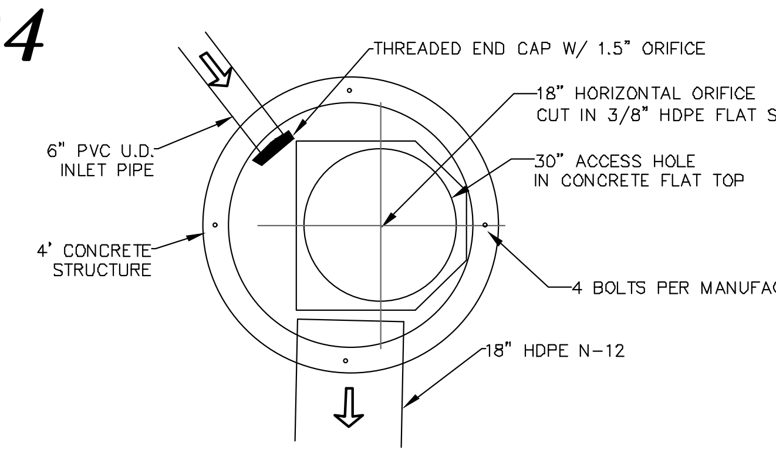
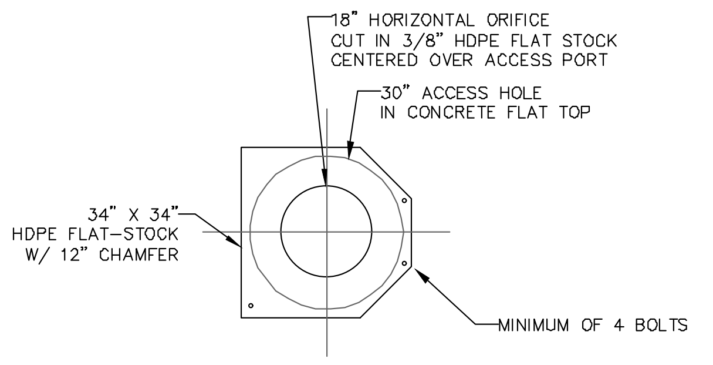
P4



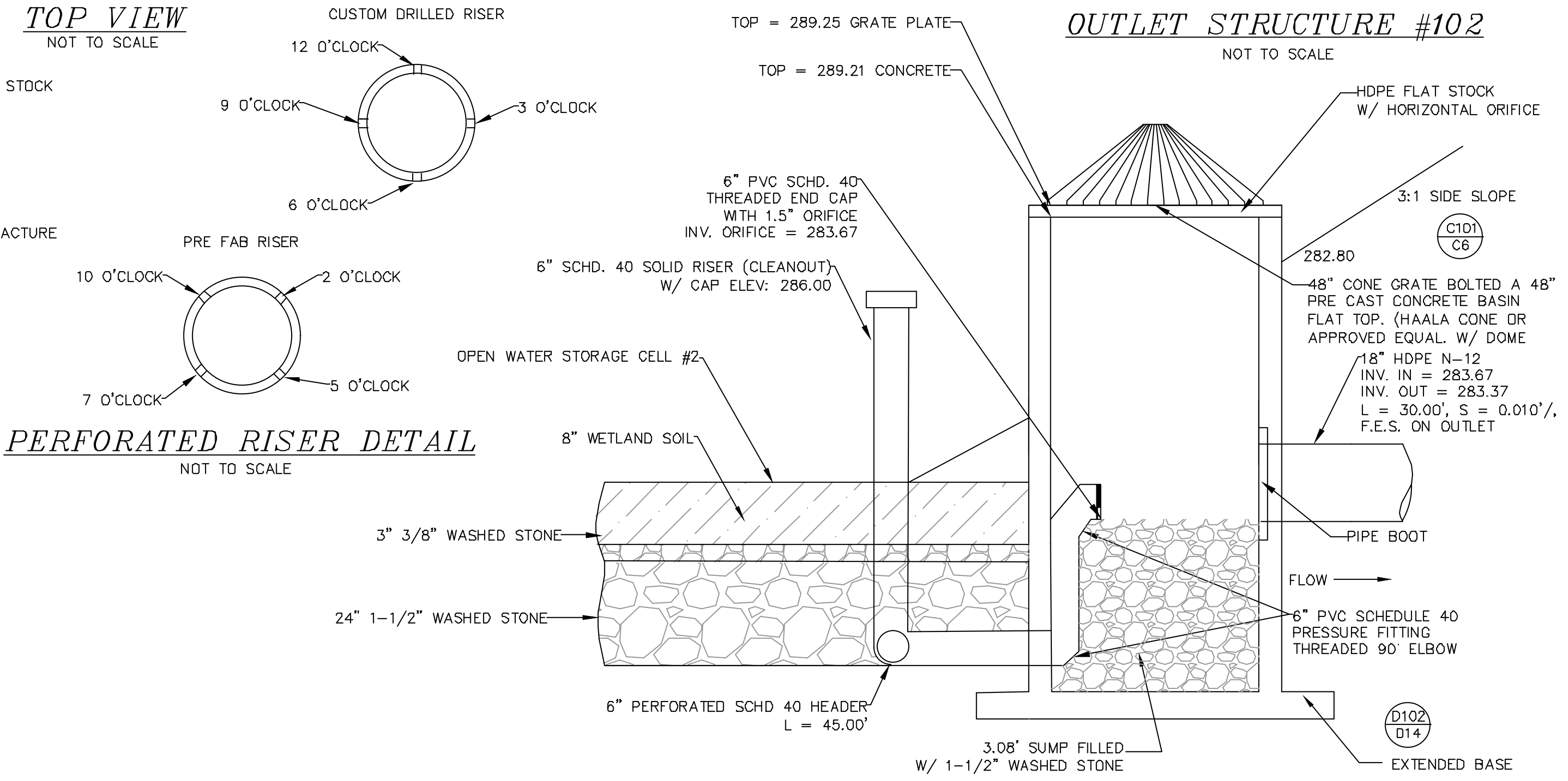
TOP VIEW

NOT TO SCALE



ORIFICE SCHEMATIC #102

NOT TO SCALE

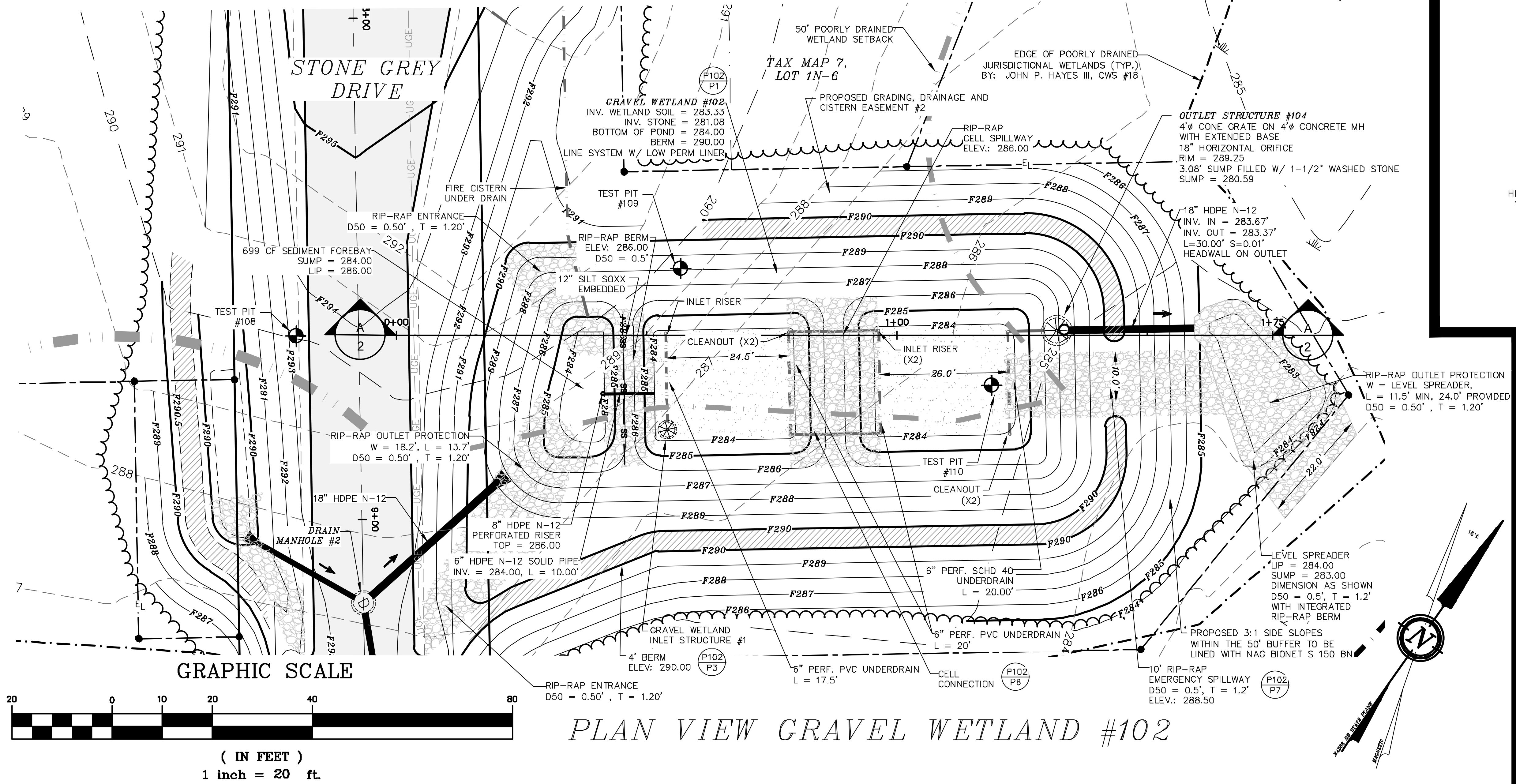


PERFORATED RISER DETAIL

NOT TO SCALE

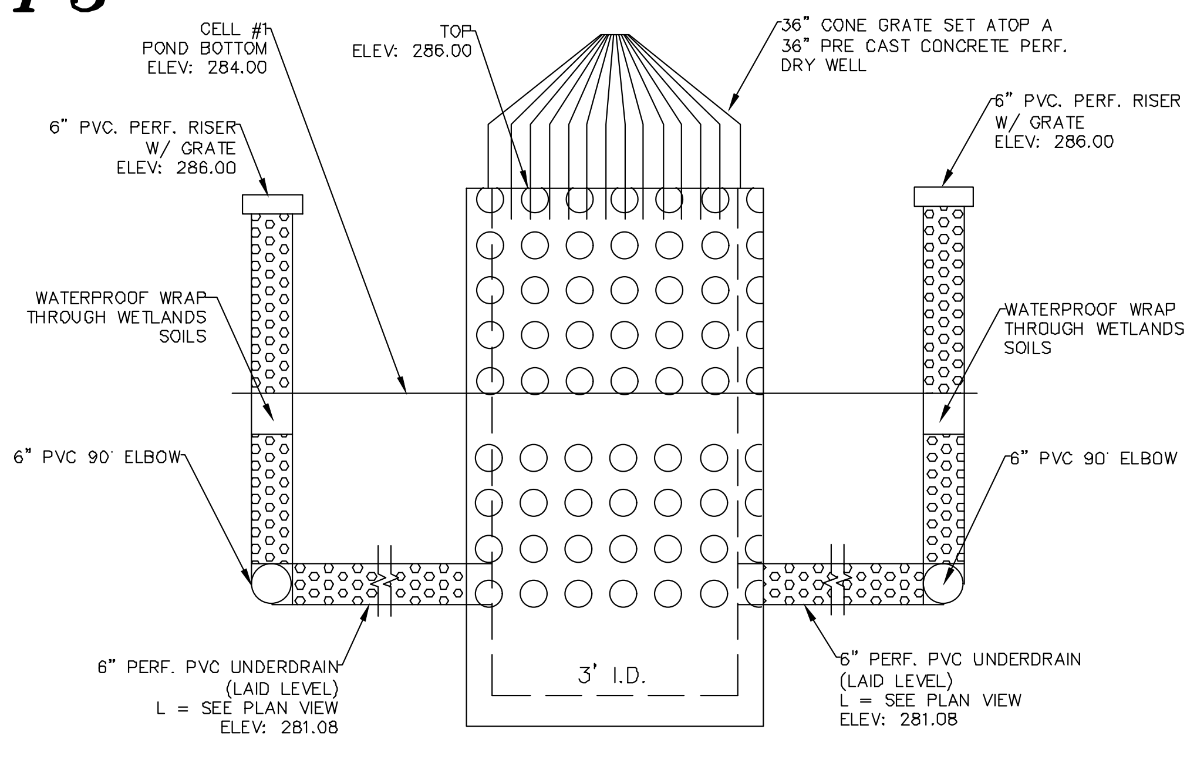
OUTLET STRUCTURE #102

NOT TO SCALE



PLAN VIEW GRAVEL WETLAND #102

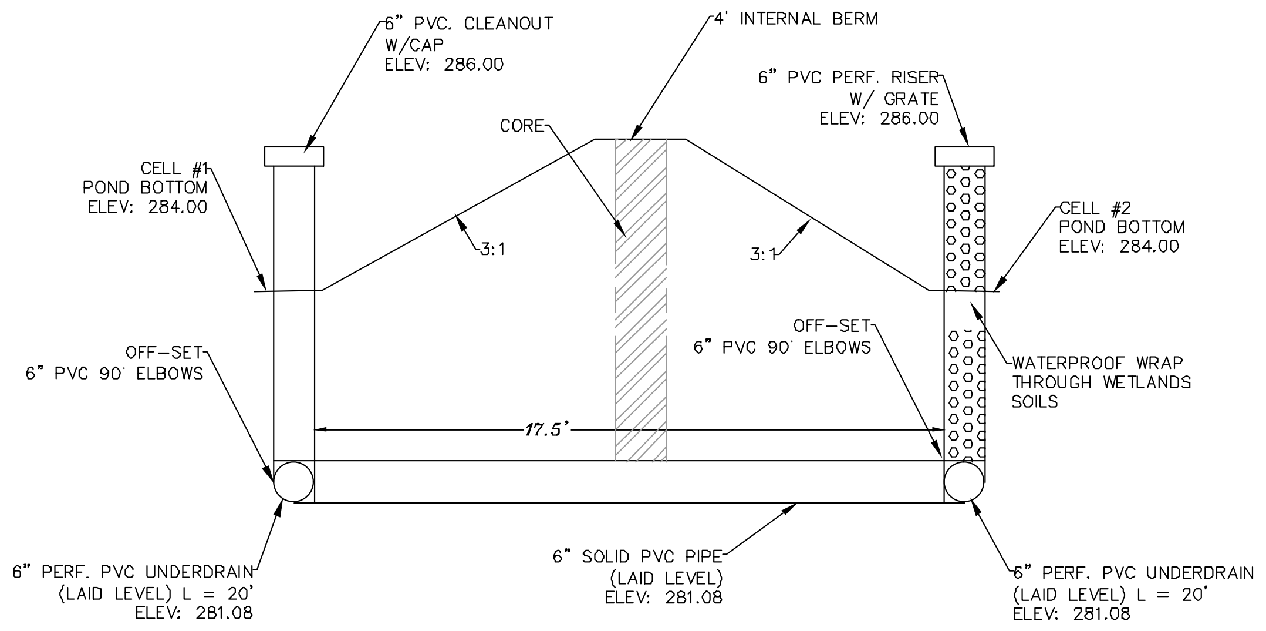
P5



GRAVEL WETLAND INLET SYSTEM

NOT TO SCALE

P6



GRAVEL WETLAND CONNECTION SYSTEM

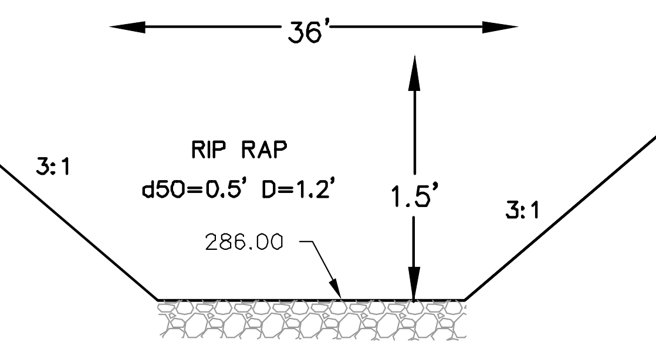
NOT TO SCALE

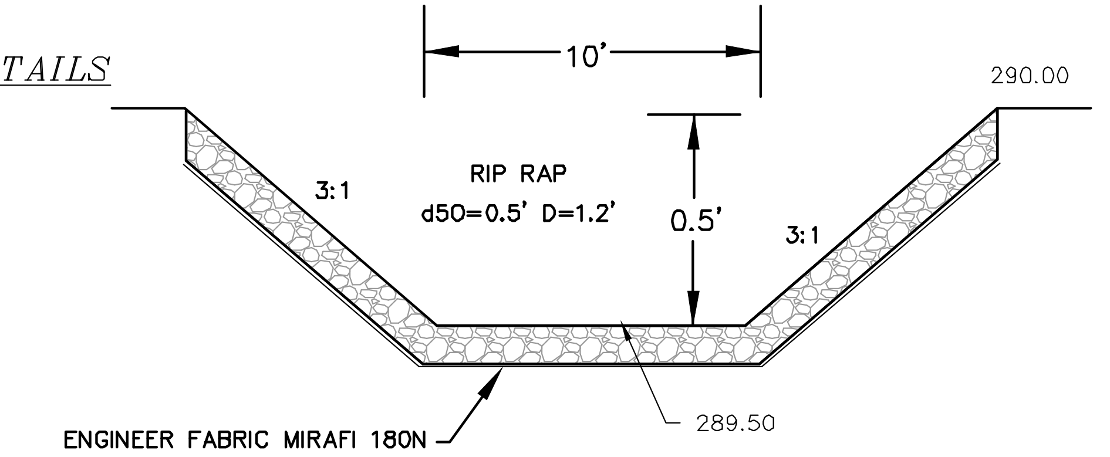
P7

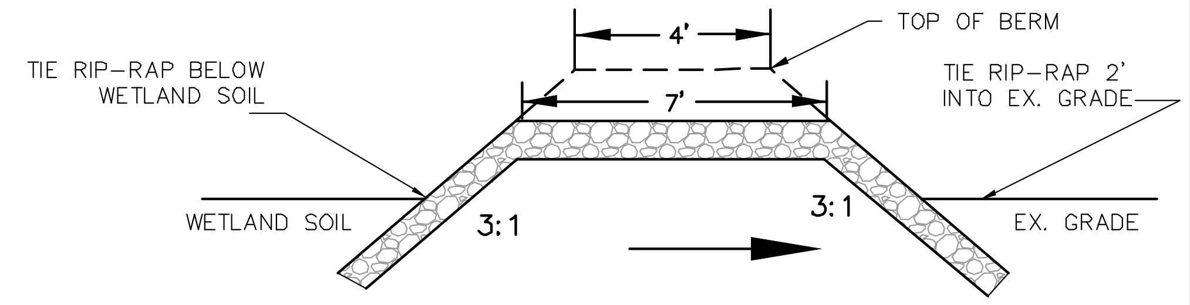
SPILLWAY DETAILS

NOT TO SCALE

GRAVEL WETLAND CELL SPILLWAY PROFILE







EMERGENCY SPILLWAY PROFILE

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
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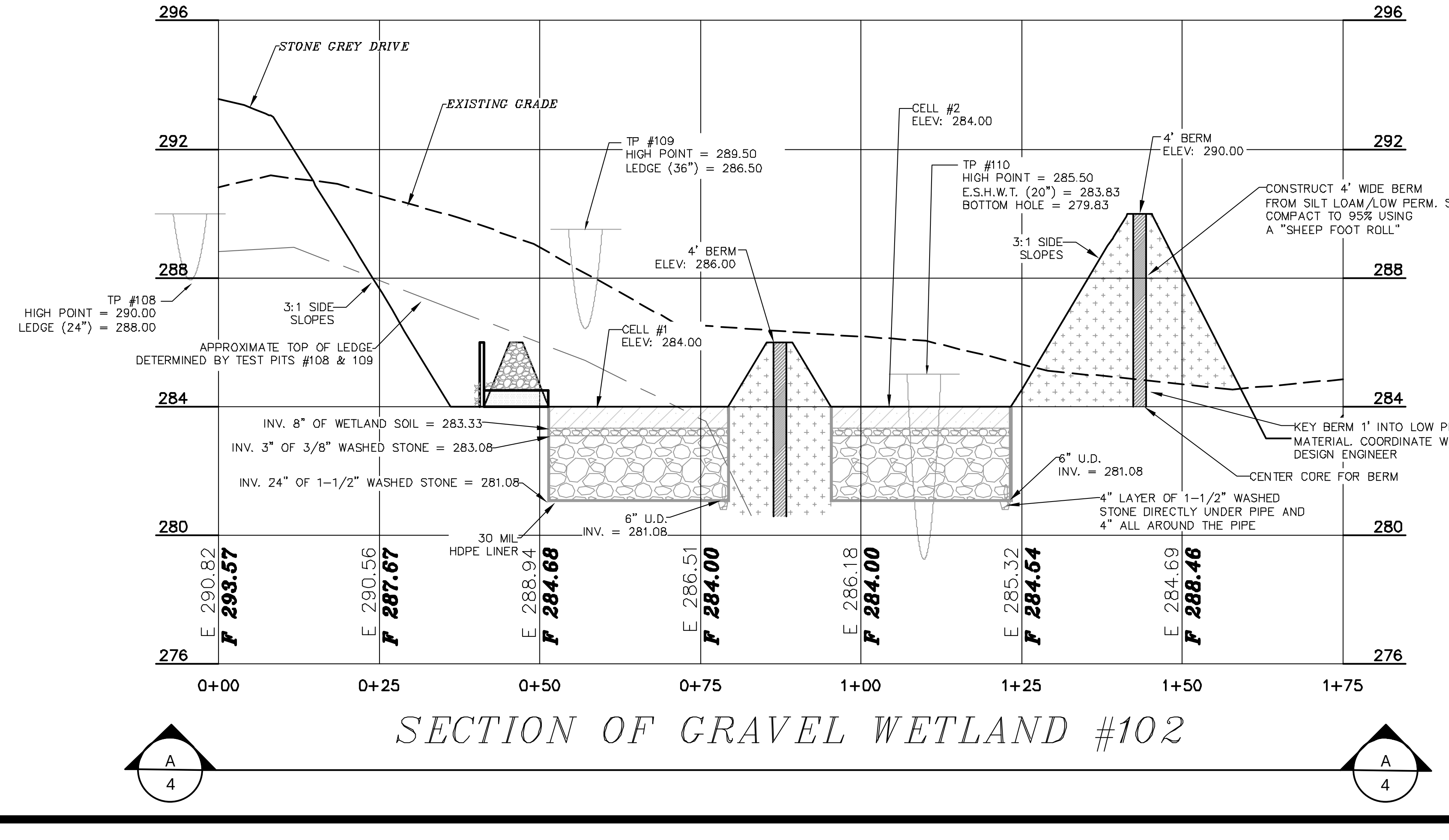
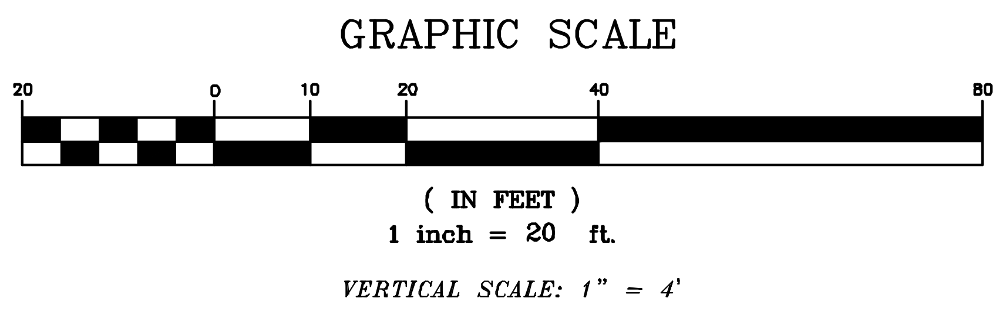


SECTION OF GRAVEL WETLAND #102



REVISION	DATE	DESCRIPTION
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#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRAVEL WETLAND #102
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

P-102

P1

MAINTENANCE REQUIREMENTS

CLOGGING AND SYSTEM PERFORMANCE

ACTIVITY	FREQUENCY
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
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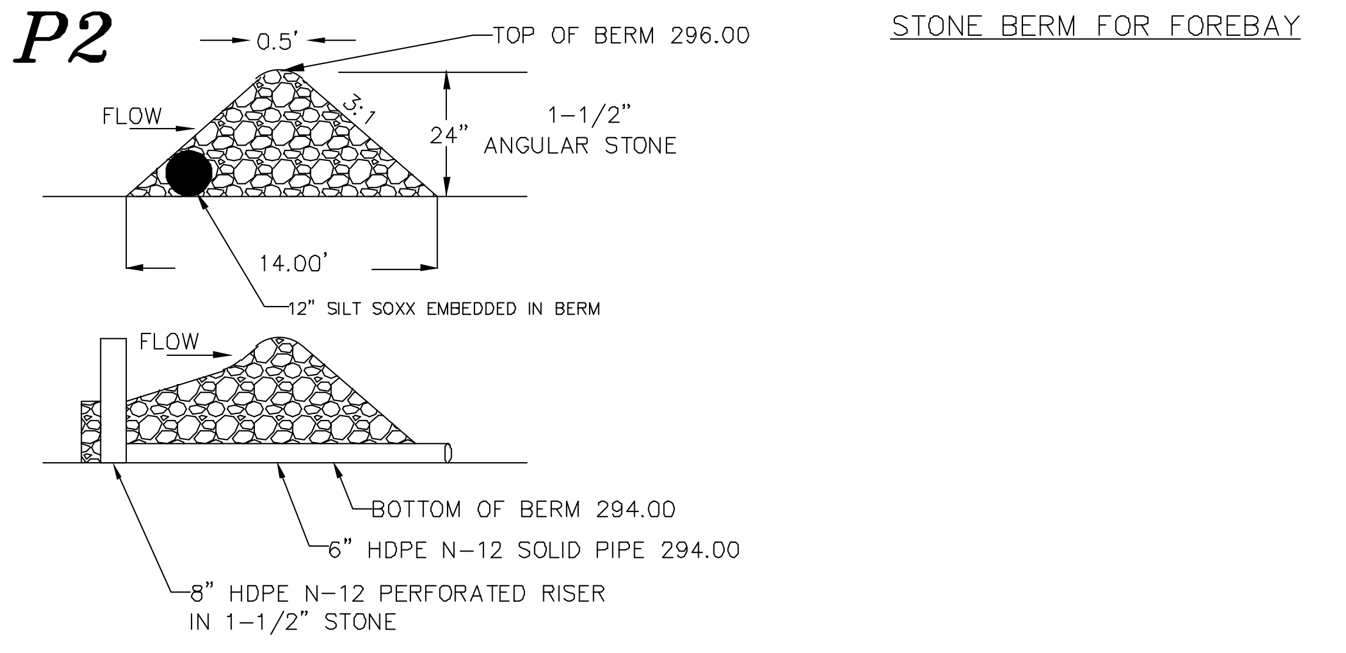
P2

STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
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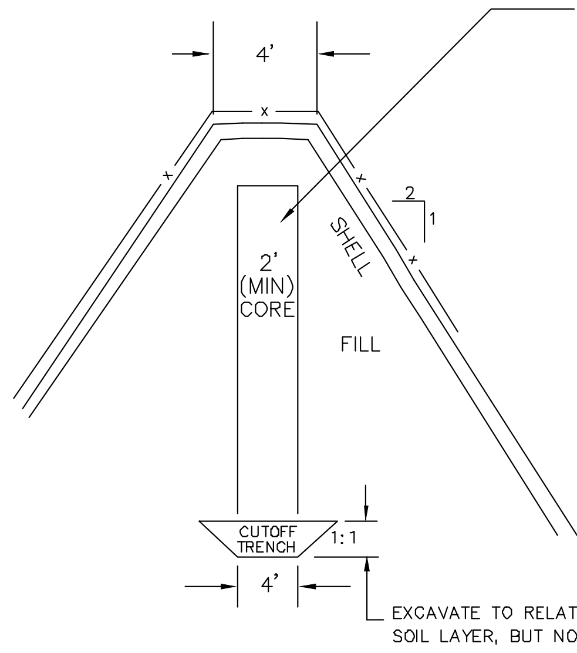

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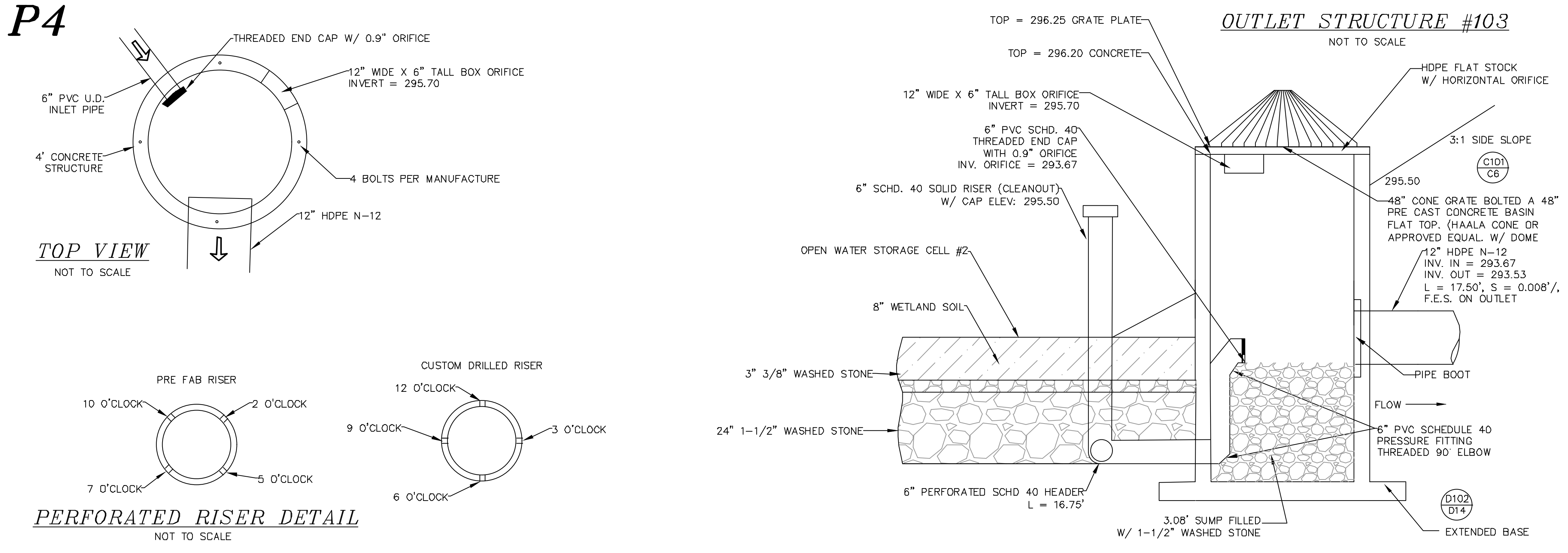
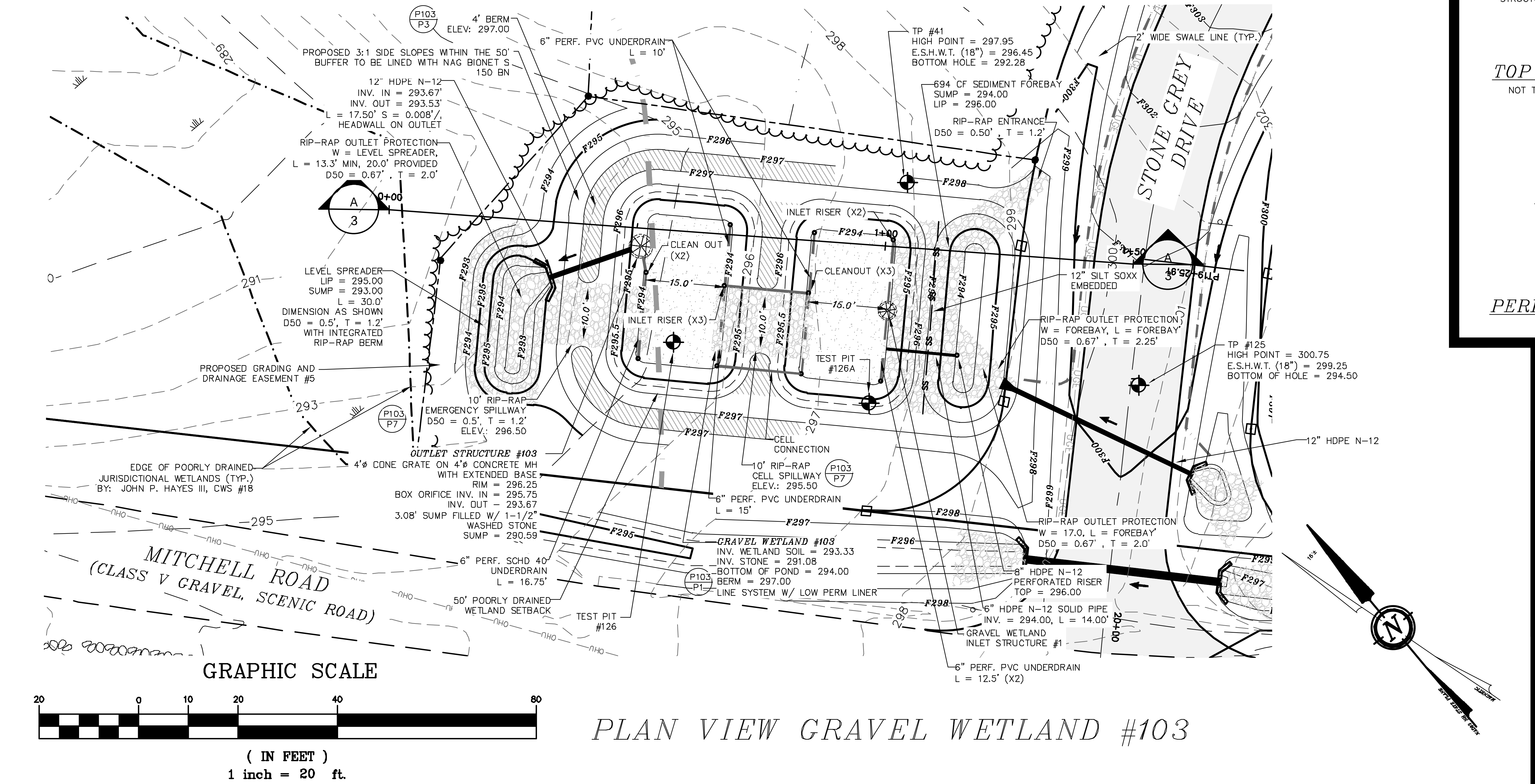
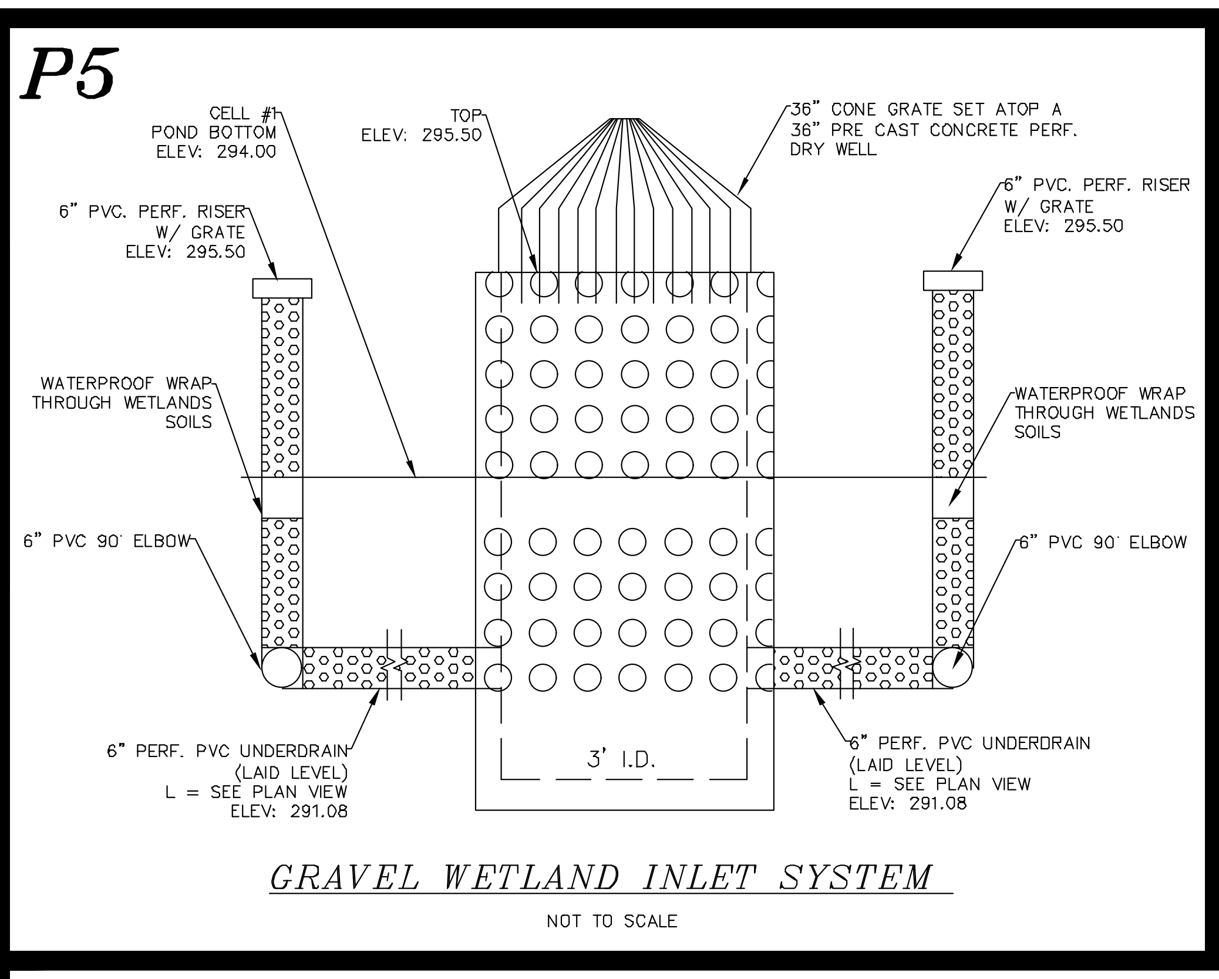
P4





PLAN VIEW GRAVEL WETLAND #103

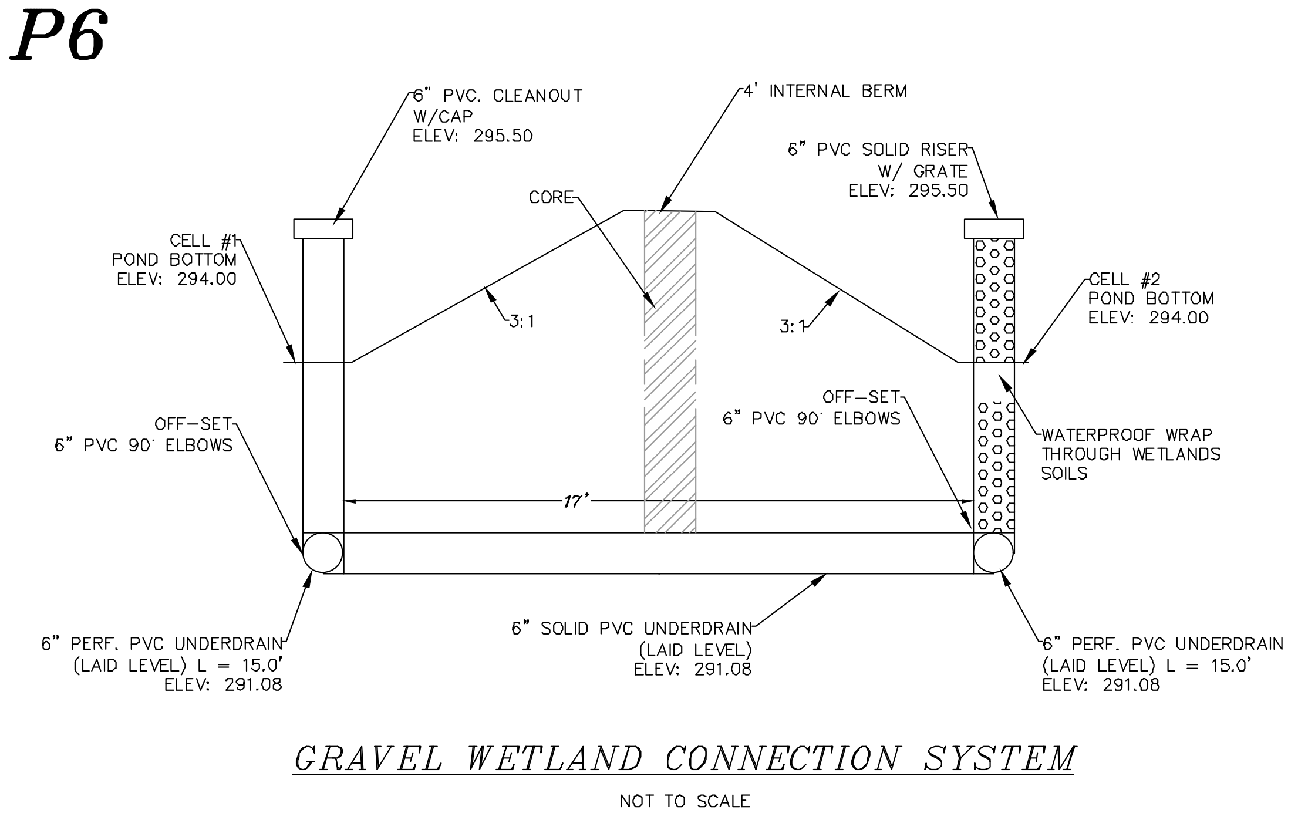
P5



GRAVEL WETLAND INLET SYSTEM

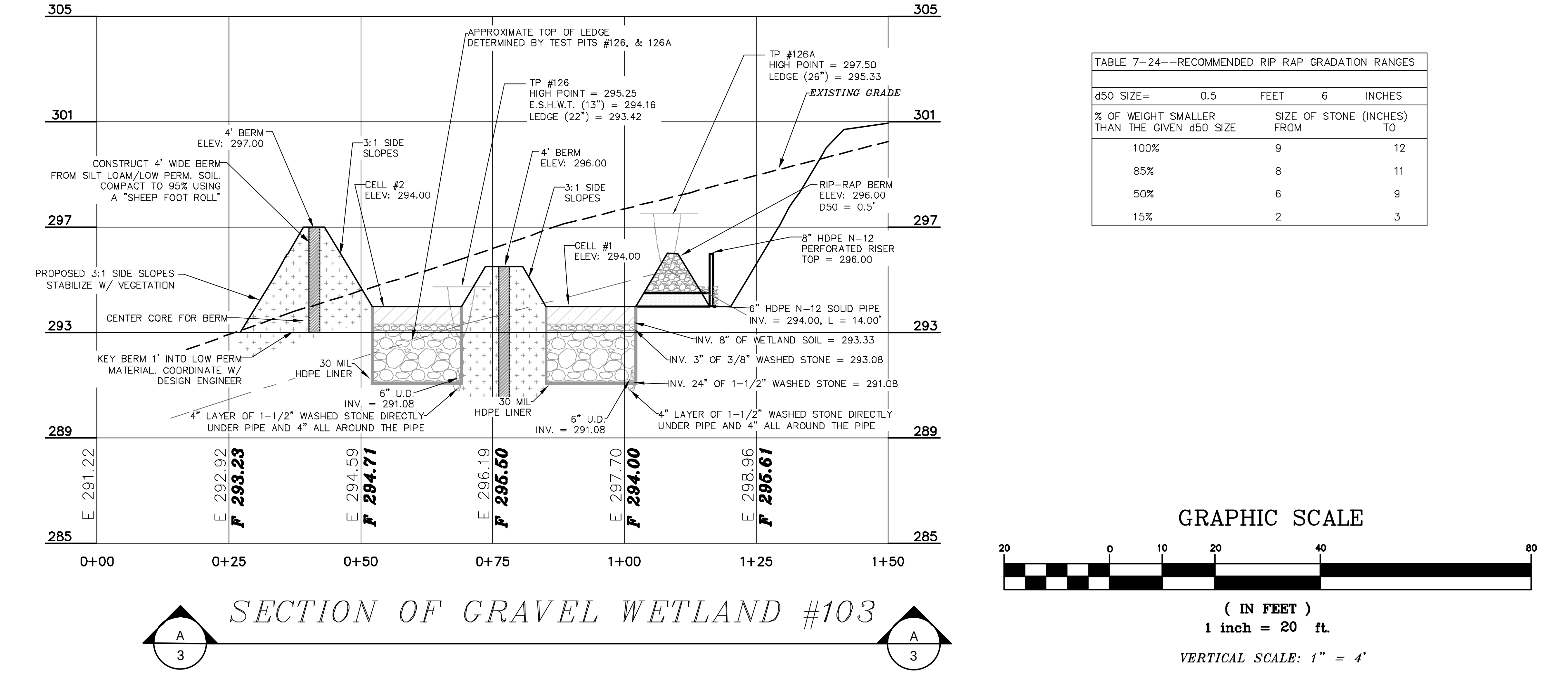
NOT TO SCALE

P6



GRAVEL WETLAND CONNECTION SYSTEM

NOT TO SCALE



SECTION OF GRAVEL WETLAND #103

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
d50 SIZE= 0.5 FEET 6 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

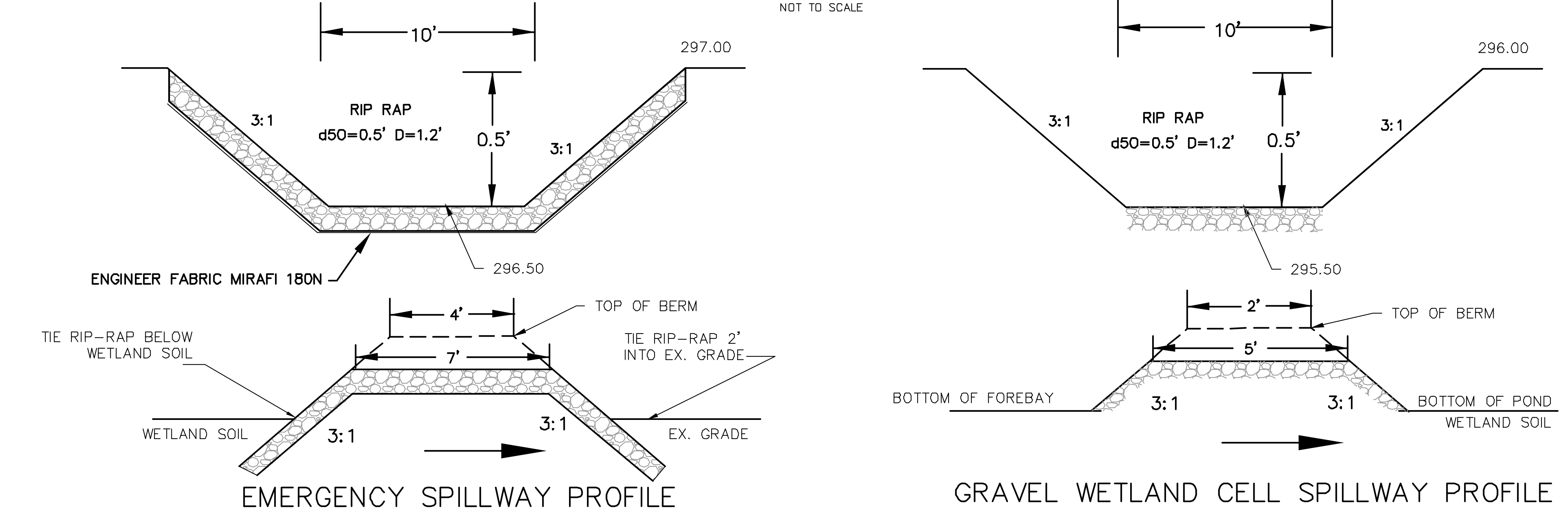
1 inch = 20 ft.

VERTICAL SCALE: 1" = 4'

P7

SPILLWAY DETAILS

NOT TO SCALE



REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

GRAVEL WETLAND #103
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

P-103

SHEET 33 OF 55

P1

MAINTENANCE REQUIREMENTS

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
INSPECT INLETS AND OUTLETS TO ENSURE GOOD CONDITION AND NO EVIDENCE OF DETERIORATION. CHECK TO SEE IF HIGH-FLOW BYPASS IS FUNCTIONING. REMEDY: REPAIR OR REPLACE ANY DAMAGED STRUCTUAL PARTS, INLETS AND OUTLETS. CLEAR OR REMOVE DEBRIS OR RESTRICTIONS.	ANNUALLY, MORE FREQUENTLY IN THE FIRST YEAR OF OPERATION
CHECK FOR INTERNAL EROSION, EVIDENCE OF SHORT-CIRCUITING, AND ANIMAL BURROWS. REMEDY: SOIL EROSION FROM SHORT-CIRCUITING OR ANIMAL BOROUGHS SHOULD BE REPAIRED WHEN THEY OCCUR.	
CHECK THAT THE SYSTEM IS FULLY DRAINING WITHIN A 24-48 HOUR PERIOD AFTER RAIN EVENTS. REMEDY: REPAIR OR RESTORE HYDRAULIC INLET OR OUTLET CONFIGURATION.	
VEGETATION	
CHECK FOR ROBUST VEGETATION COVERAGE THROUGHOUT THE SYSTEM AND DEAD OR DYING PLANTS REMEDY: VEGETATION SHOULD COVER > 75% OF THE SYSTEM AND SHOULD BE RESEEDED AND CARED FOR AS NEEDED	ANNUALLY, OR AS NEEDED
CUT AND REMOVE VEGETATION FROM GRAVEL WETLAND SYSTEM AND FOREBAY IN ORDER TO MAINTAIN NITROGEN REMOVAL PERFORMANCE REMEDY: THE VEGETATION SHOULD BE CUT AND REMOVED FROM THE SYSTEM TO PREVENT NITROGEN FROM CYCLING BACK INTO THE SYSTEM	ONCE EVERY 3 YEARS

3/8" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
3/8"	95 - 100
# 4	22 - 55
# 8	0 - 10

* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

1-1/2" WASHED CRUSHED STONE*

SIEVE SIZE	% PASSING BY WEIGHT
2"	100
1-1/2"	90 - 100
1"	20 - 55
1-1/2"	0 -15
3/8"	0 -5

* EQUIVALENT TO STANDARD WASHED STONE - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS

WETLAND SOIL

SIEVE SIZE	% PASSING BY WEIGHT
0.5	100
#10"	90 - 75
#100	40 - 50
#200	25 -50
SIEVE SIZE	**% PASSING TOLERANCES**
0.5	±10.0
#10	±5.0
#100	±5.0
#200	±5.0

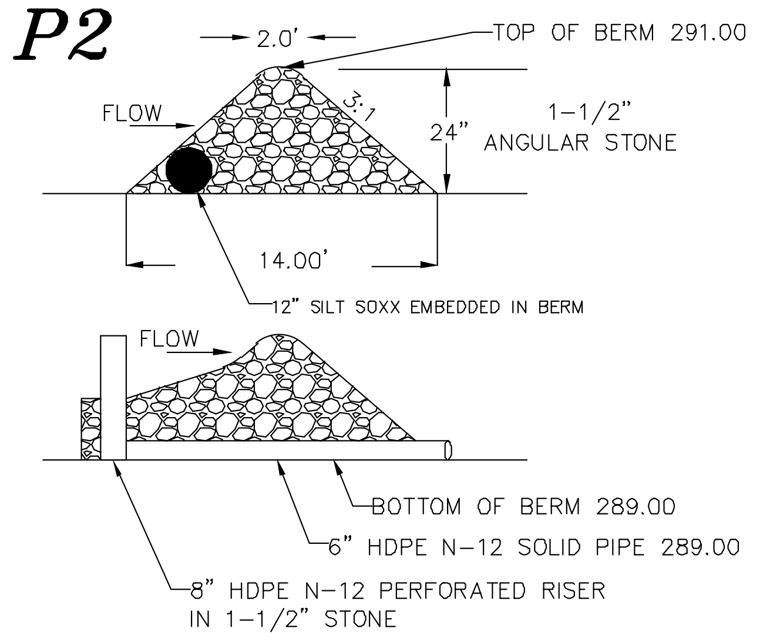
DESIGN REFERENCES

1 UNH STORMWATER CENTER

CONSTRUCTION NOTE: THE DESIGN ENGINEER IS TO BE ON SITE PRIOR TO AND DURING THE PLACEMENT OF THE RESERVOIR STONE, AND TO WITNESS THE INSTALLATION OF THE UNDER-DRAIN AND INTER-CHAMBER PIPES. PLEASE PROVIDE 24 HOURS NOTICE PRIOR TO REQUESTED INSPECTION.

P2

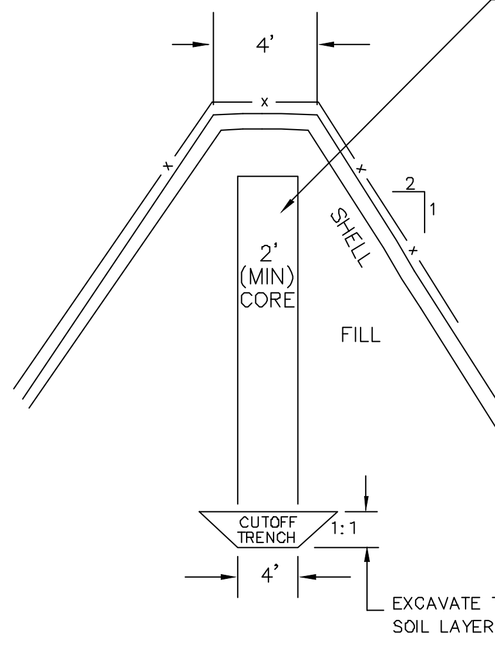
STONE BERM FOR FOREBAY



P3

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 - 100
#40	60 - 95
#100	40 - 60
#200	25 - 45



1.) 2' CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

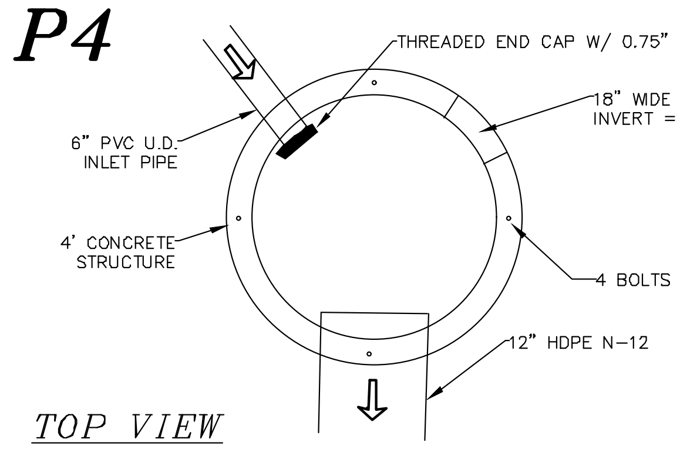
3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

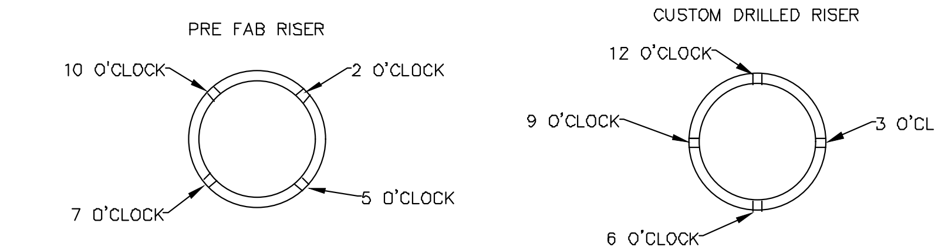
5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

P4

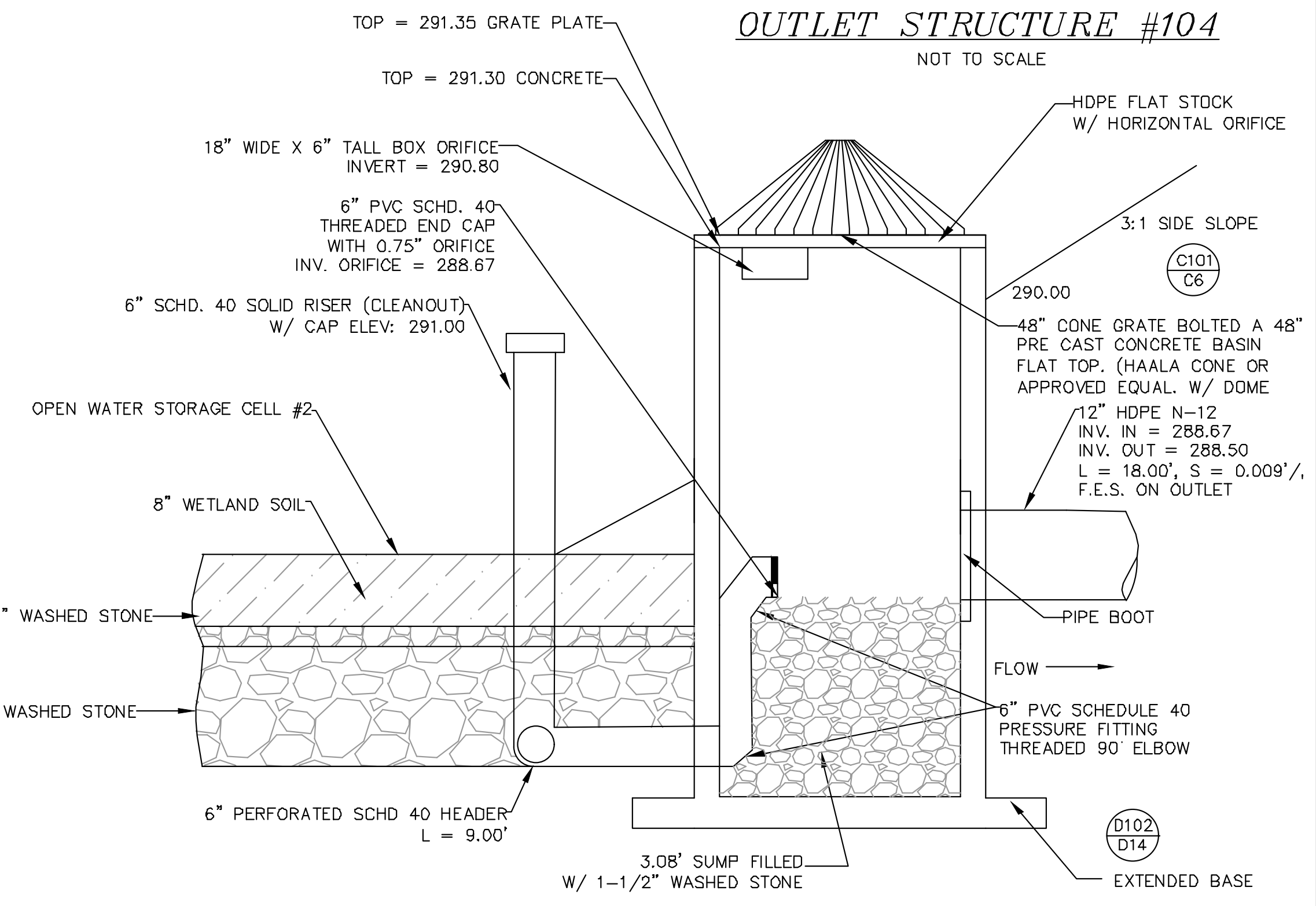


TOP VIEW
NOT TO SCALE

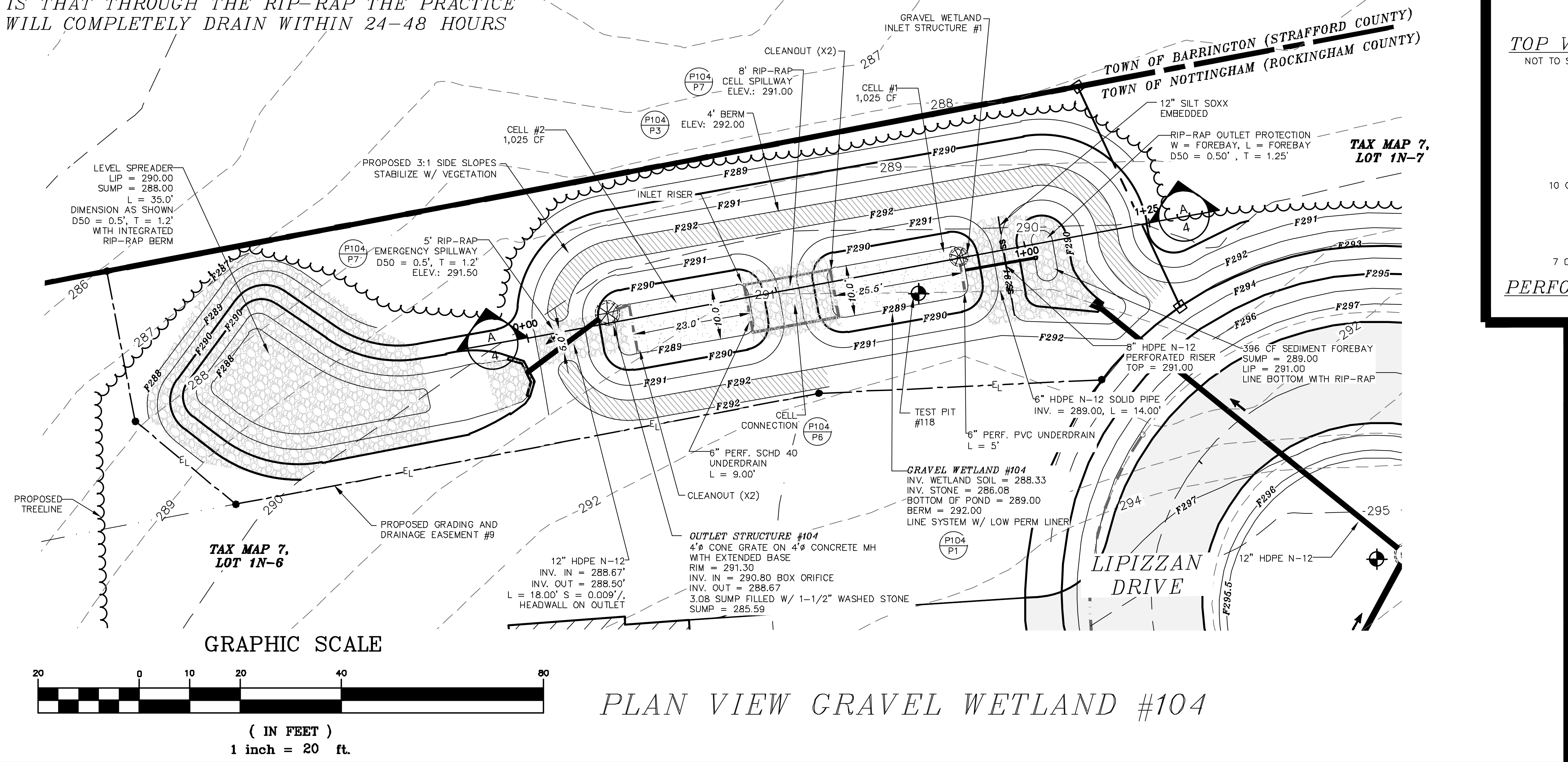


PERFORATED RISER DETAIL
NOT TO SCALE

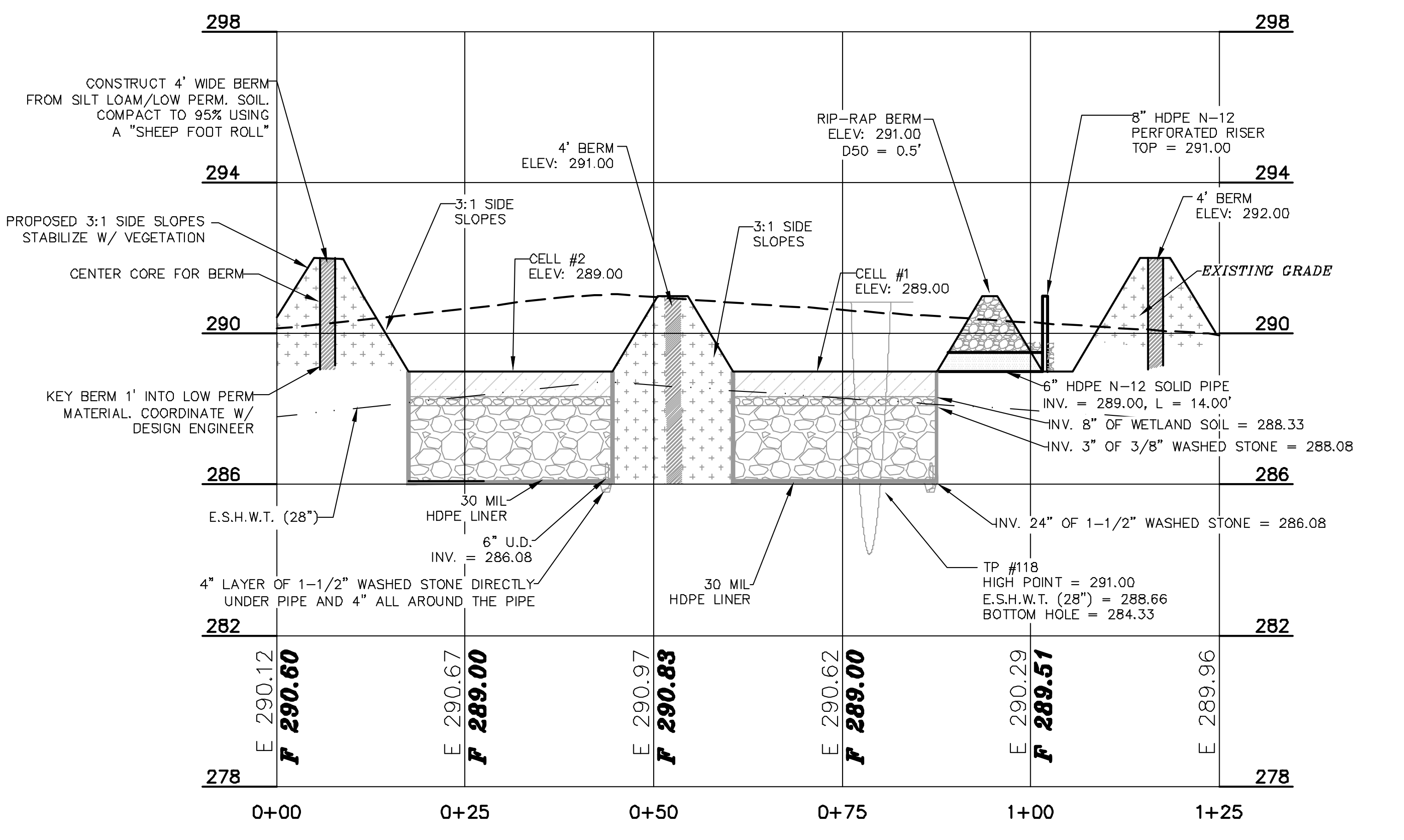
OUTLET STRUCTURE #104
NOT TO SCALE



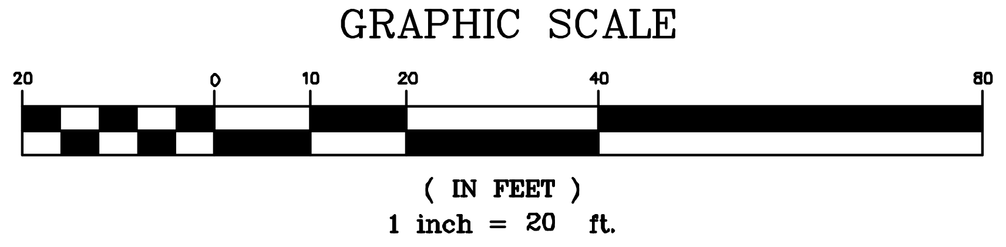
LEVEL SPREADER INTENT (THROUGHOUT):
IS THAT THROUGH THE RIP-RAP THE PRACTICE
WILL COMPLETELY DRAIN WITHIN 24-48 HOURS



PLAN VIEW GRAVEL WETLAND #104



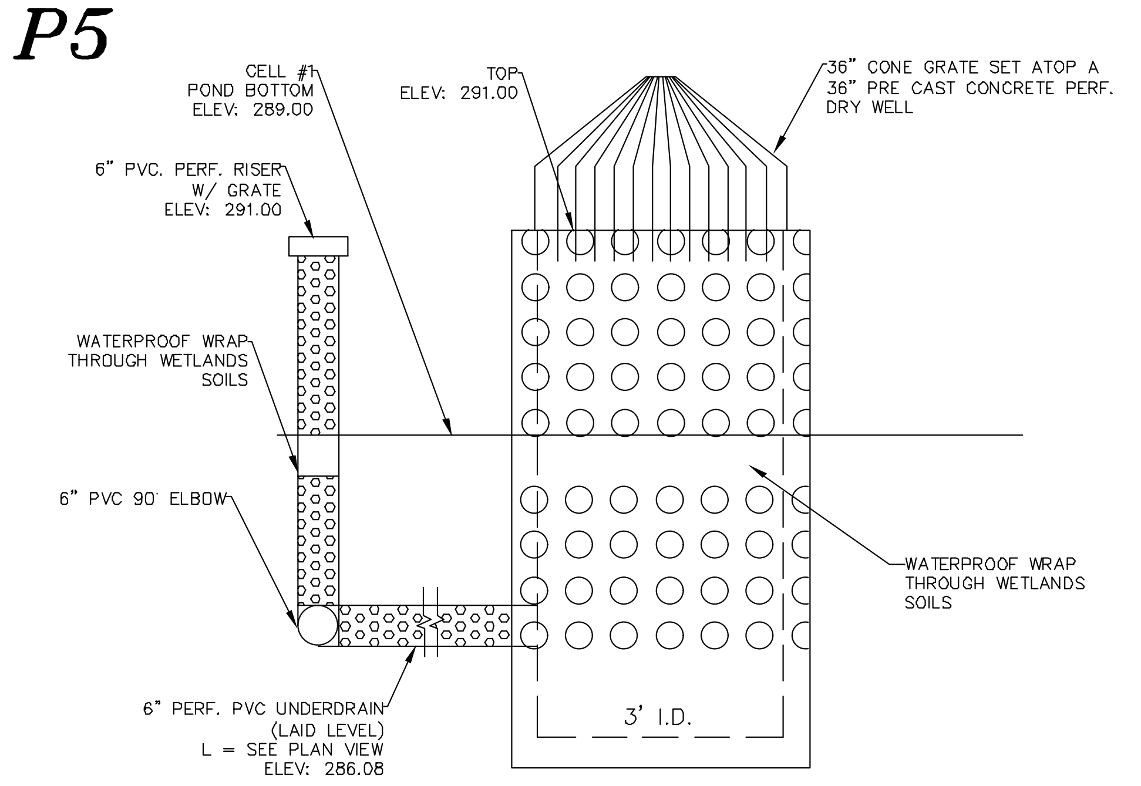
SECTION OF GRAVEL WETLAND #104



VERTICAL SCALE: 1" = 4'

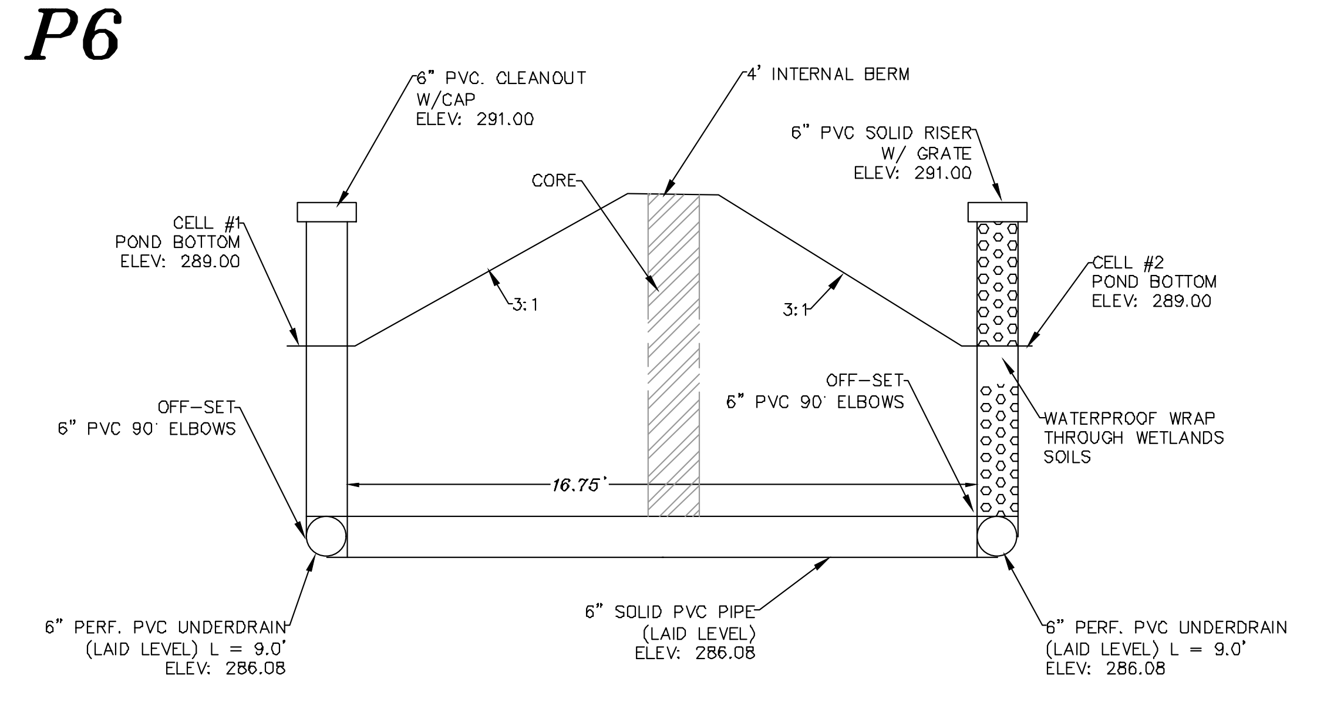
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES				
d50 SIZE=	0.5	FEET	6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM			TO
100%	9			12
85%	8			11
50%	6			9
15%	2			3

P5



GRAVEL WETLAND INLET SYSTEM
NOT TO SCALE

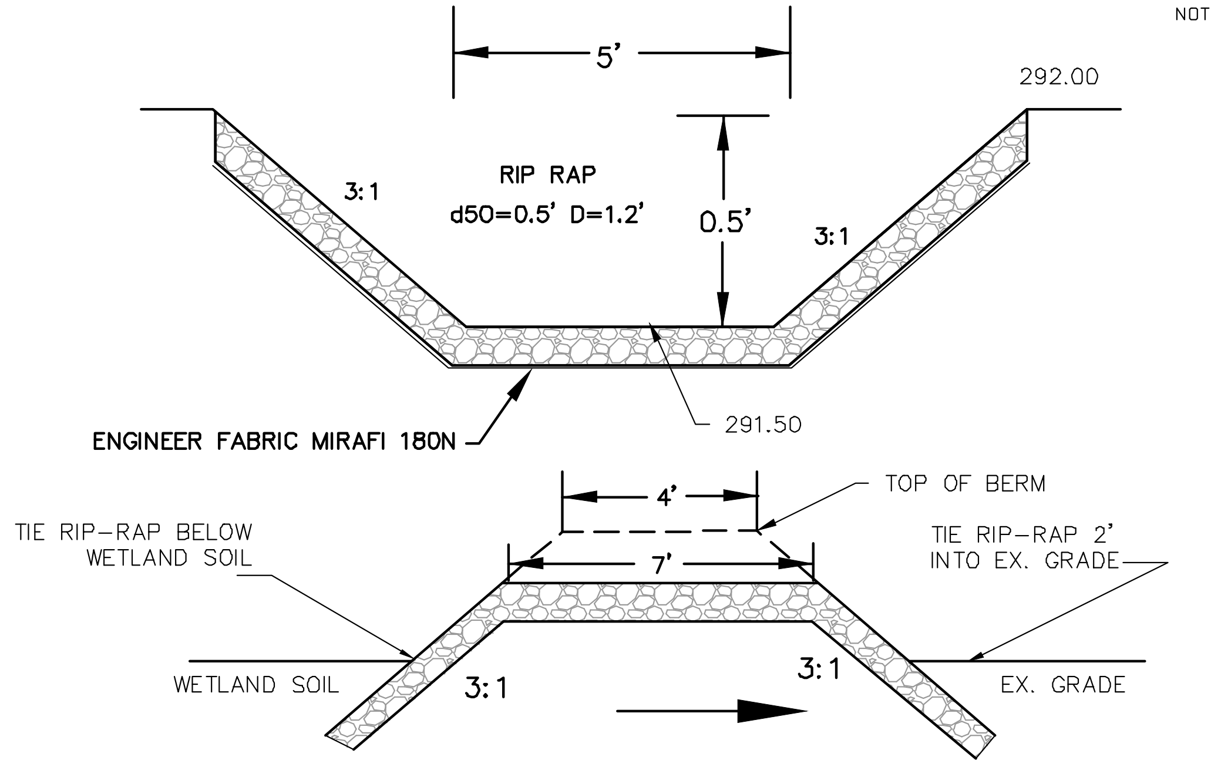
P6



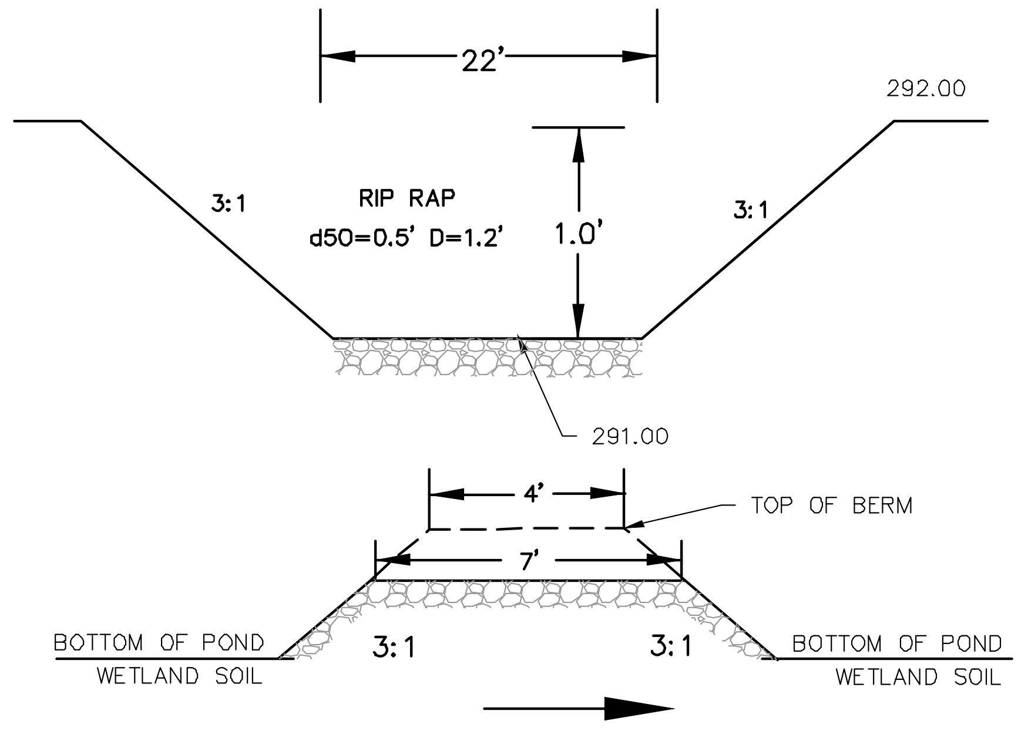
GRAVEL WETLAND CONNECTION SYSTEM
NOT TO SCALE

P7

SPILLWAY DETAILS
NOT TO SCALE



EMERGENCY SPILLWAY PROFILE



GRAVEL WETLAND CELL SPILLWAY PROFILE

P-104

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

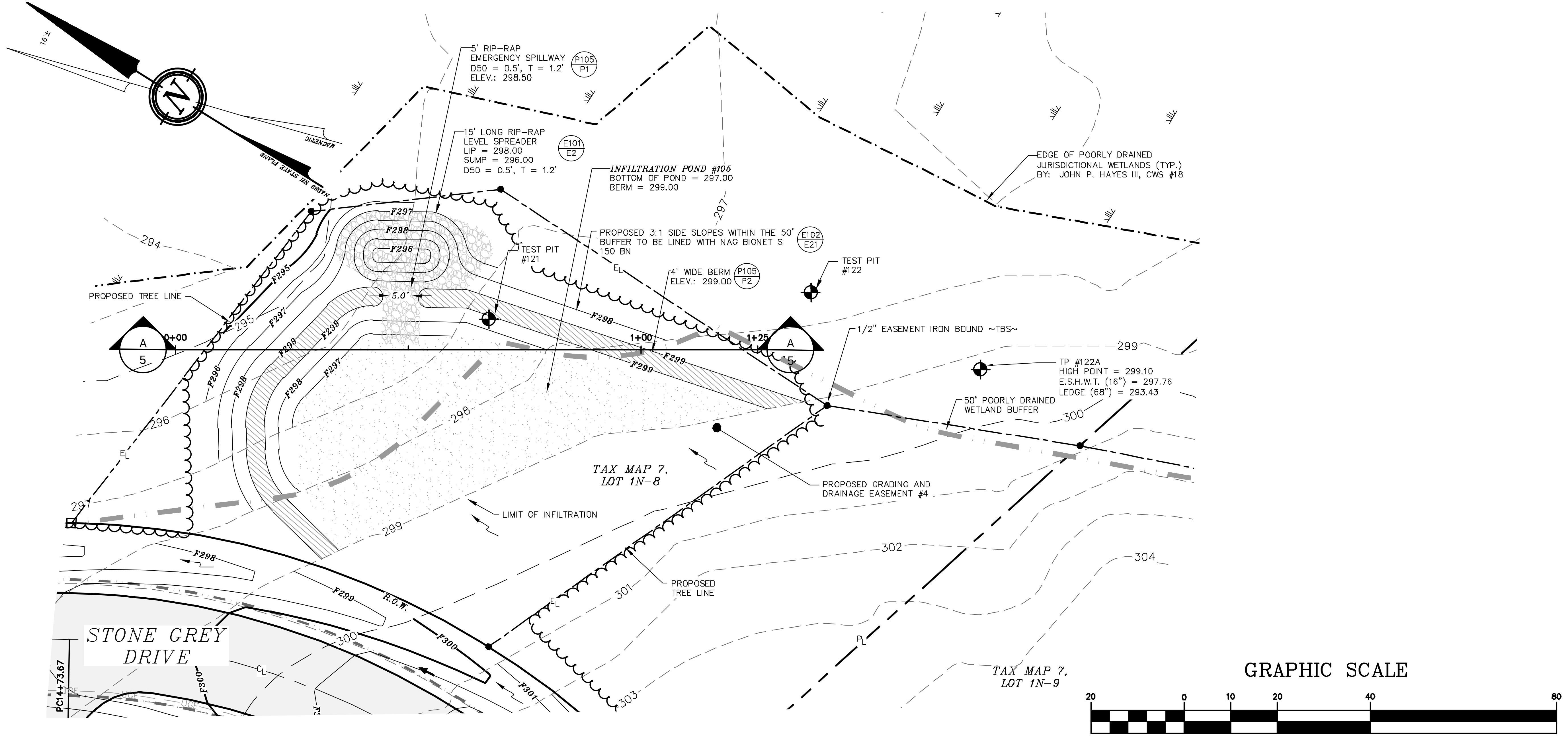
GRAVEL WETLAND #104
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

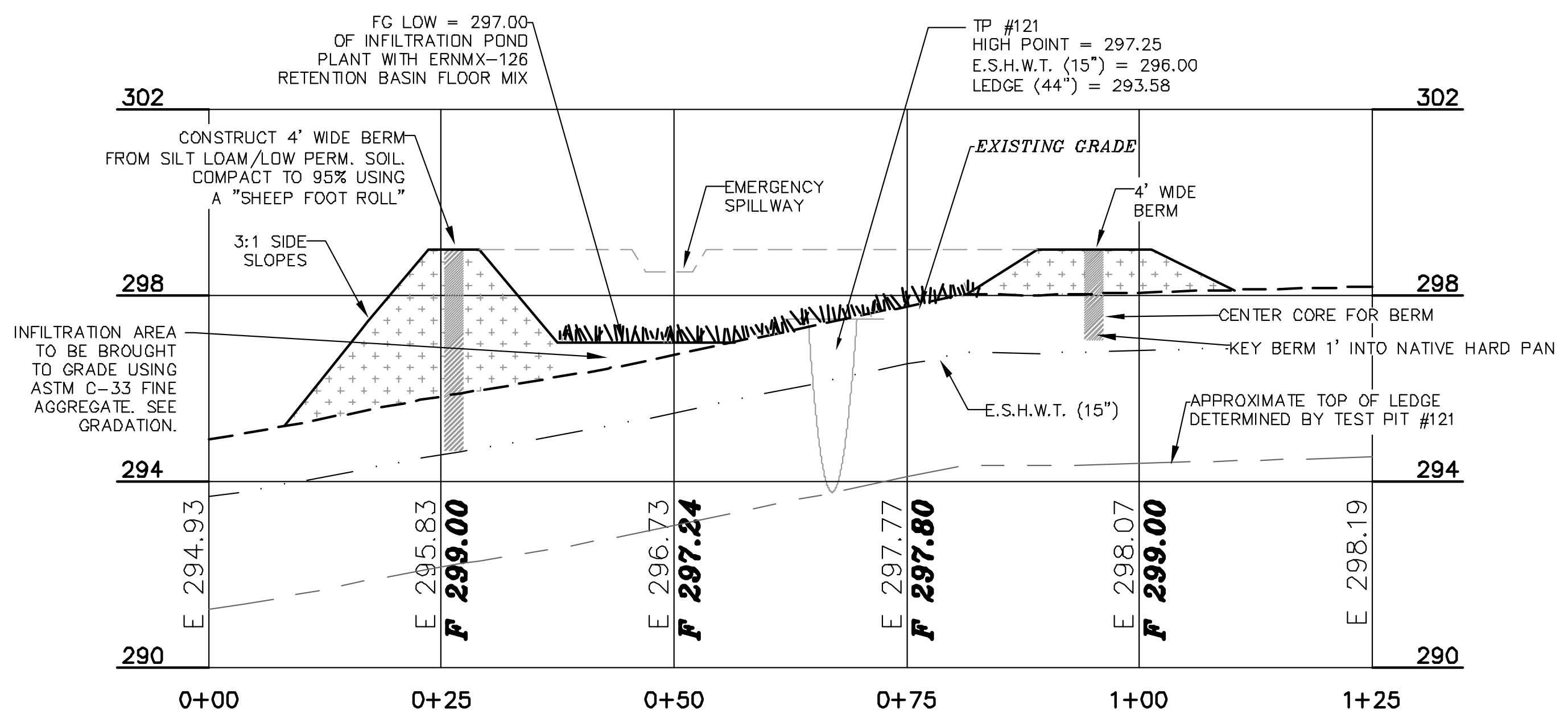
KENNETH A. BERRY No. 14243

SHEET 34 OF 55



PLAN VIEW INFILTRATION POND #105

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



ASTM C-33 FINE AGGREGATE

SIEVE SIZE	% PASSING BY WEIGHT
3/8"	100
# 4	95 – 100
# 8	80 – 100
# 16	50 – 85
# 30	25 – 60
# 16	10 – 30
# 30	2 – 10

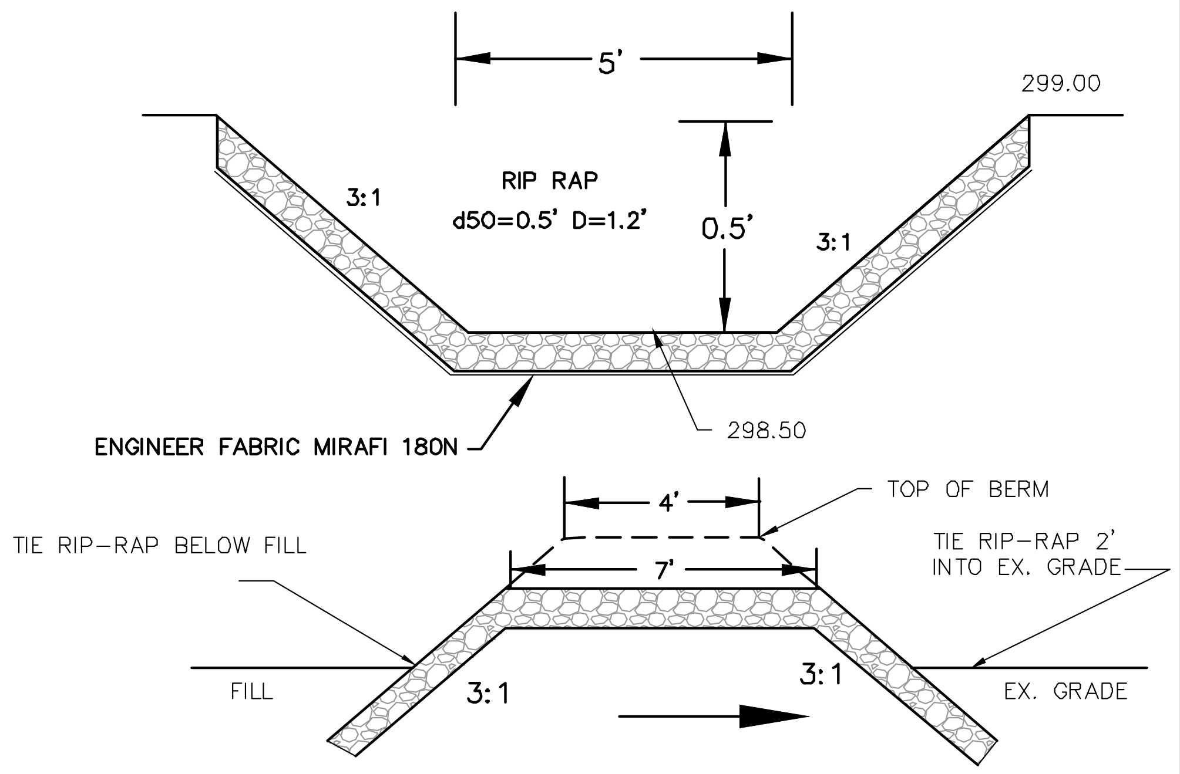
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

SECTION OF INFILTRATION POND #105

A
5

A
5

P1

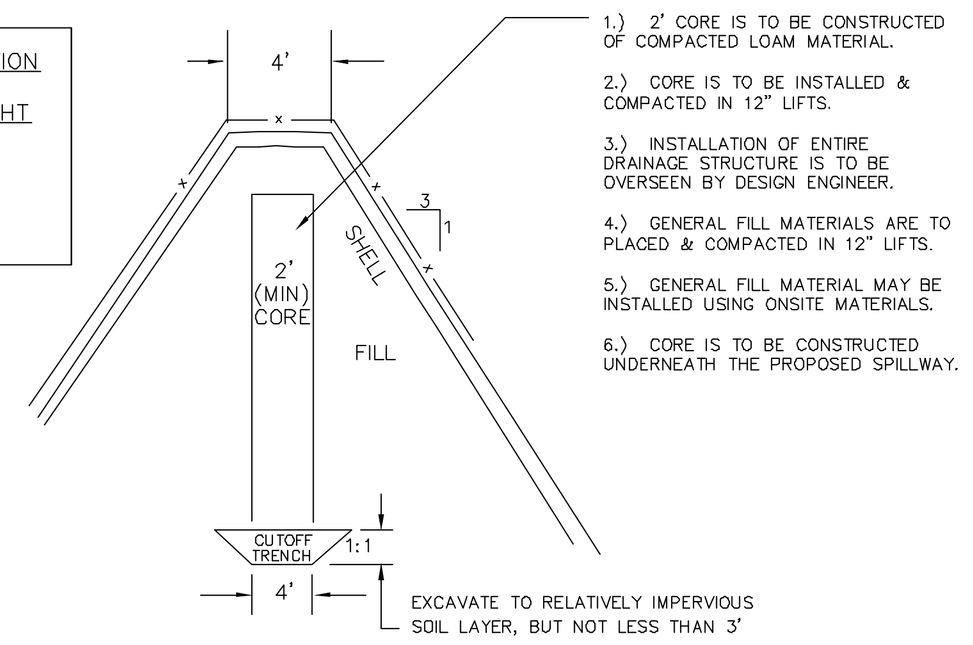


EMERGENCY SPILLWAY PROFILE

P2

LOW PERMEABILITY MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
#4	95 – 100
#40	60 – 95
#100	40 – 60
#200	25 – 45



1.) 2' CORE IS TO BE CONSTRUCTED OF COMPACTED LOAM MATERIAL.

2.) CORE IS TO BE INSTALLED & COMPACTED IN 12" LIFTS.

3.) INSTALLATION OF ENTIRE DRAINAGE STRUCTURE IS TO BE OVERSEEN BY DESIGN ENGINEER.

4.) GENERAL FILL MATERIALS ARE TO PLACED & COMPACTED IN 12" LIFTS.

5.) GENERAL FILL MATERIAL MAY BE INSTALLED USING ONSITE MATERIALS.

6.) CORE IS TO BE CONSTRUCTED UNDERNEATH THE PROPOSED SPILLWAY.

EXCAVATE TO RELATIVELY IMPERVIOUS SOIL LAYER, BUT NOT LESS THAN 3'

REVISION	DATE	DESCRIPTION
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INFILTRATION POND #105
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14247

P–105

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE AT 1–888–344–7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

5.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

6.) UPON FINAL COMPLETION AND 85% STABILIZATION, THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS. SEDIMENT CONTROL PRACTICES REMOVED AND DISPOSED OF PROPERLY, AND ANNUAL MAINTENANCE PREFORMED ON ALL DRAINAGE PRACTICES.

7.) EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24–HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP 4.1.1 AND INSPECTION REPORTS SUBMITTED TO THE TOWN OF NOTTINGHAM, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED. SEE ALSO TOWN OF NOTTINGHAM ADDITIONAL INSPECTION REQUIREMENTS BELOW.

8.) SILT FENCE MAY BE SUBSTITUTED WITH FILTREXX SILT SOXX OR EROSION CONTROL MIX BERM. SILT FENCE IS NOT A SUBSTITUTE FOR FILTREXX SILT SOXX OR APPROVED EQUAL.

9.) PER EPA CGP Z.1.2.2 (INSTALL PERIMETER CONTROL), "YOU MUST INSTALL SEDIMENT CONTROLS ALONG THOSE PERIMETER AREAS OF YOUR SITE THAT WILL RECEIVE STORMWATER FROM EARTH DISTURBING ACTIVITIES." AS A RESULT OF SWPPP INSPECTIONS, THE CONTRACTOR MAY HAVE TO EXPAND PERIMETER CONTROLS TO MEET THIS REQUIREMENT. THE E&SC PLAN IS INITIAL GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.

10.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PROPOSED ROADS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO MITCHELL ROAD.

11.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

12.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV–A 1000.

13.) CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51–57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

14.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV–WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

15.) CATCH BASIN HOODS WILL BE INSTALLED AS SOON AS THE BASIN IS PUT ON LINE. RIM IS TO BE RAISED WITH FINAL GRADE SO THAT STORMWATER RUNOFF CAN DRAIN PROPERLY THROUGHOUT CONSTRUCTION.

16.) MULCH BERM MAY BE USED AS A SUBSTITUTE FOR SILT SOXX AS PERIMETER CONTROL.

17.) CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING EROSION AND SEDIMENT CONTROL MEASURES DURING RESIDENTIAL LOT CONSTRUCTION AND ALL EROSION AND SEDIMENT CONTROL MEASURES FOR RESIDENTIAL CONSTRUCTION SHALL REMAIN IN PLACE UNTIL THE LOT IS STABILIZED.

18.) ROADSIDE CHECK DAMS SHOULD BE CLEANED AND REPAIRED AS NEEDED.

19.) PERIMETER CONTROL FOR PONDS IS TO BE INSTALLED AS SOON AS THE PONDS ARE CONSTRUCTED AND ARE INTENDED TO REMAIN IN PLACE UNTIL THE UPHILL AREAS ARE STABILIZED.

20.) CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING CONSTRUCTION ENTRANCES.

21.) SEE CONSTRUCTION PHASING PLAN FOR LIMIT OF ALLOWED DISTURBANCE, TREE CLEARING, GRUBBING, AND STUMPING WITHIN EACH PHASE.

SOILS & DEWATERING:

SEE SITE SPECIFIC SOILS MAP (SSSM)
SEE WEBSOIL USDA–NRCS
ERODIBILITY FACTOR – K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. & ROCKINGHAM COUNTTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

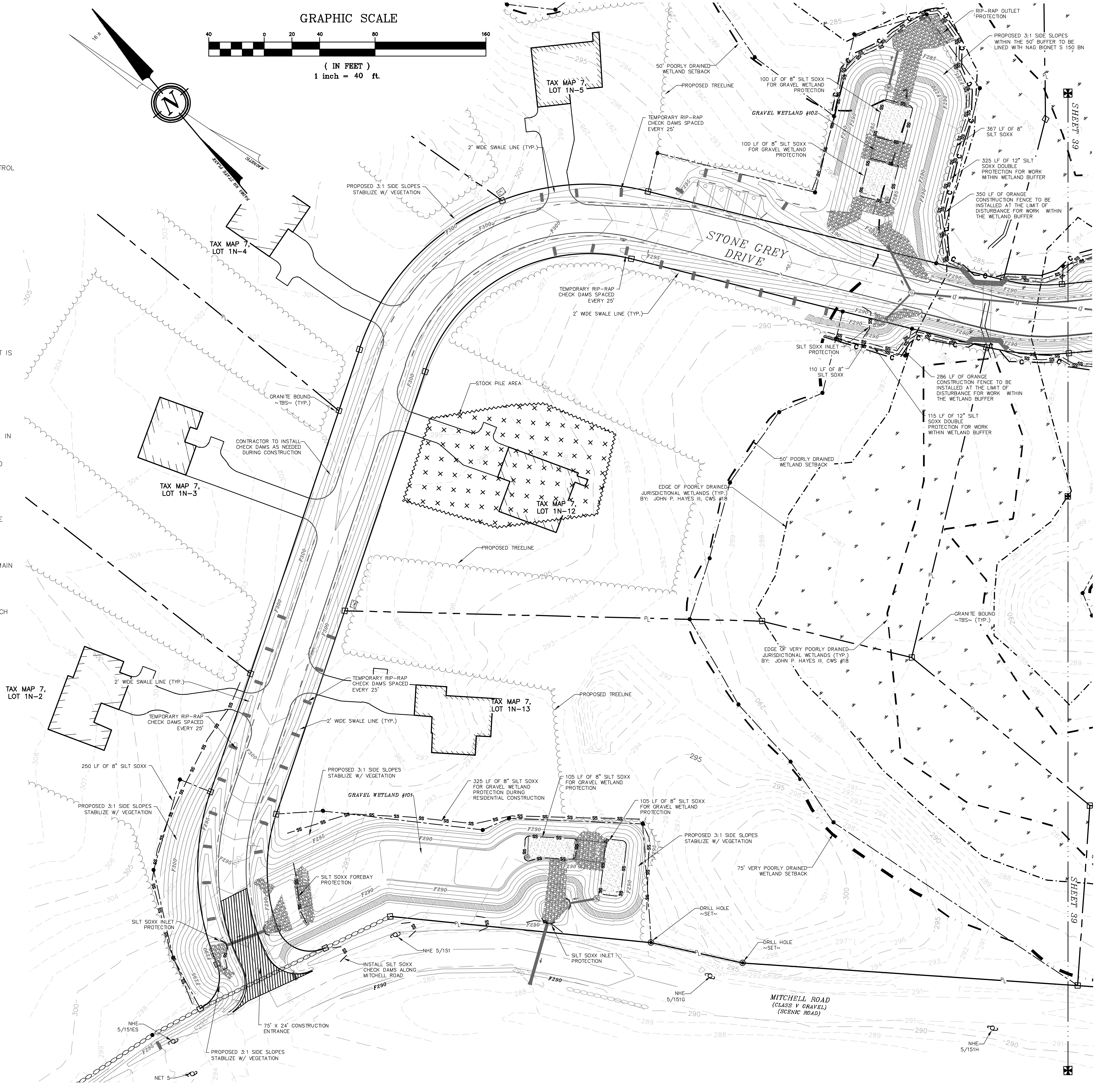
CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) AND OTHER NH SPECIFIC INFORMATION FOR THE U.S. EPA 2012 NPDES CONSTRUCTION GENERAL PERMIT (CGP)" DATED MAY 3, 2012 INCLUDED IN THE SWPPP.

COVER MANAGEMENT DURING CONSTRUCTION FOR EXPOSED SOIL WILL INCLUDE HAY / STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE, TEMPORARY SEEDING OF ANNUAL RYE GRASS, AND PERMANENT SEEDING AT THE EARLIES OPPORTUNITY. SEE ADDITIONAL REQUIREMENT FOR STABILIZATION ON THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS, E–101 AND E–102.

THE CONSTRUCTION SCHEDULE WILL BE MANAGED SO THAT ALL STORMWATER STRUCTURES WILL BE BUILT AND STABILIZED PRIOR TO RECEIVING SURFACE WATER RUNOFF. CONTRACTOR TO BE RESPONSIBLE FOR ALL DIVERSIONS DURING CONSTRUCTION AND FOR INTERIM SEDIMENT AND EROSION CONTROL MEASURES.

LEGEND:

Ⓡ	RAIN GARDEN BIO–MEDIA PROTECTION
Ⓟ	PERIMETER CONTROL
Ⓒ	RESIDENTIAL/ROADWAY CONSTRUCTION
◉	IRON PIPE (FND)
●	IRON BOUND (FND)
○	REBAR (FND)
	UTILITY POLE
◐	GUY WIRE
—— SF ——	SILT FENCE
—— SS —— SS —— SS ——	FILTREXX SILTSOXX
	TREE LINE
	STOCK PILE



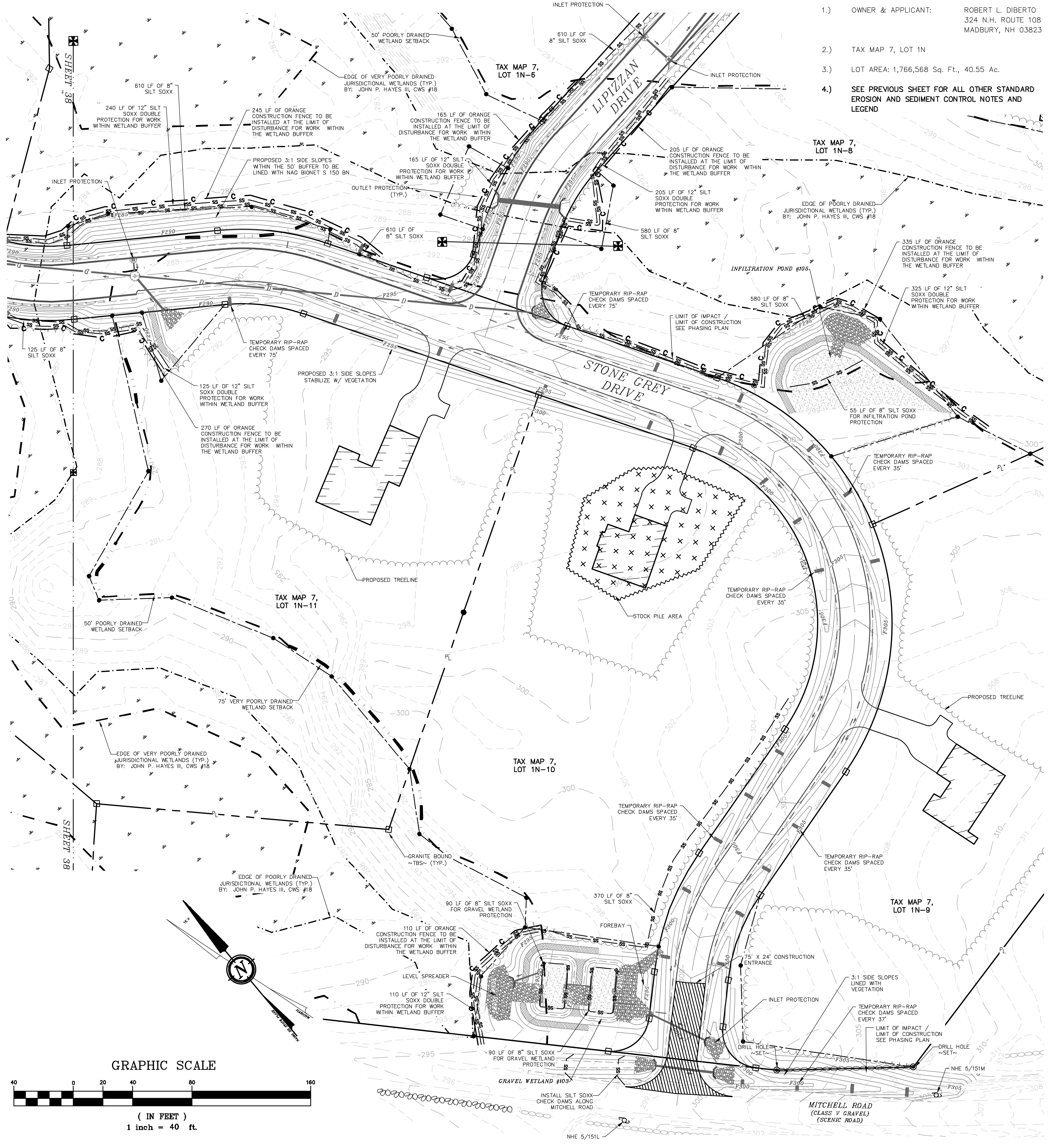
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT
REVISION	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 40 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14243



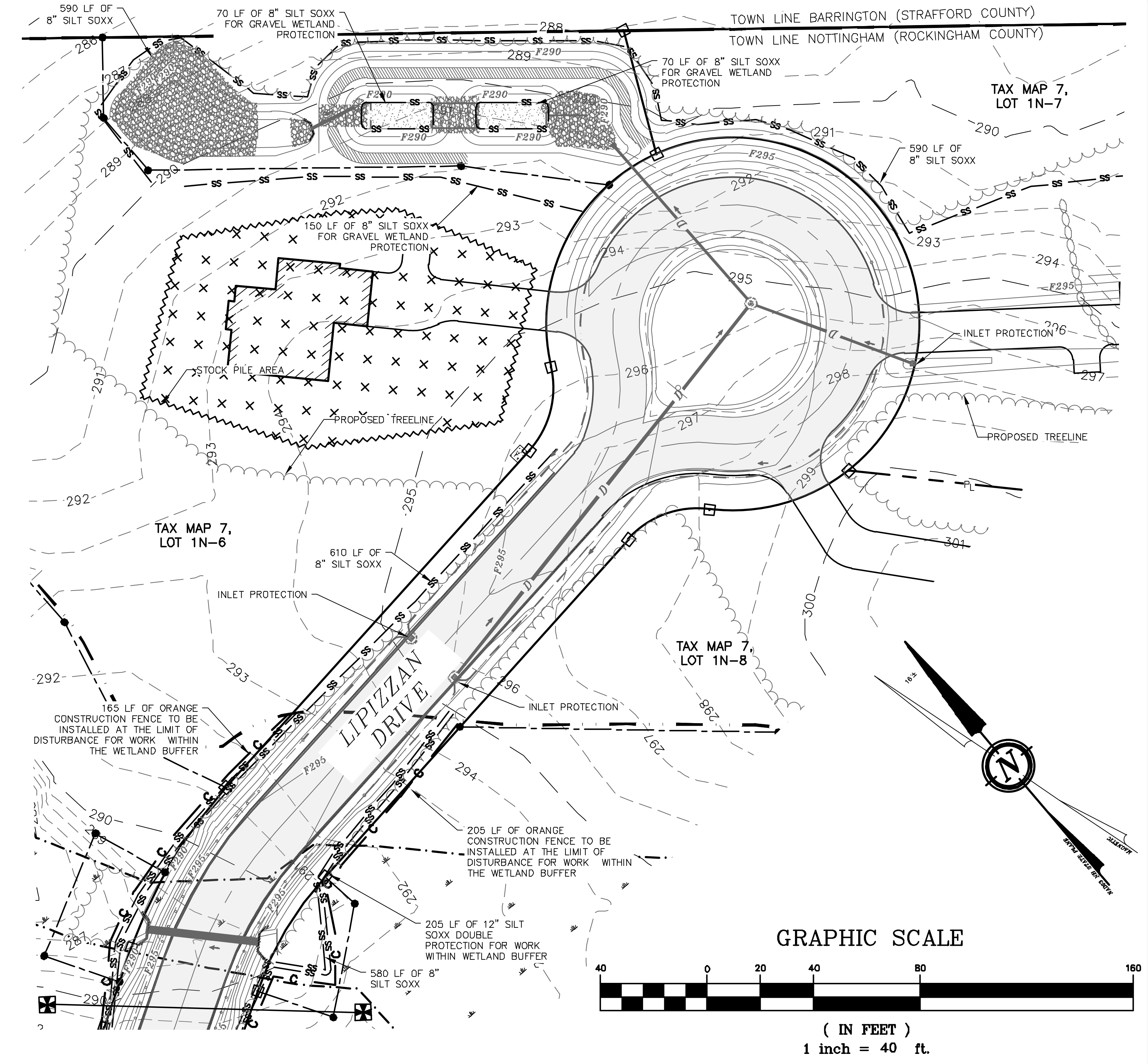
NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

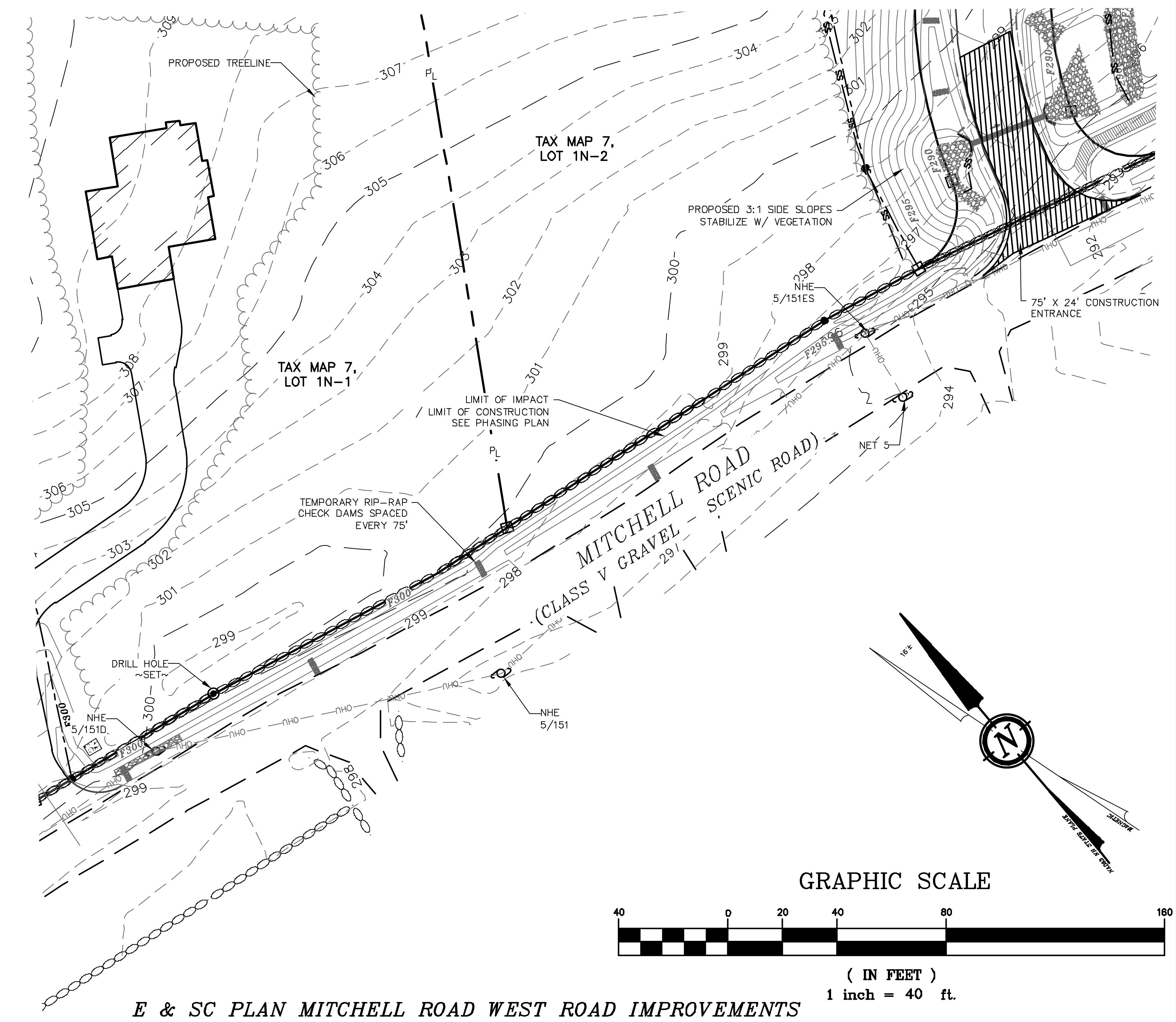
2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) SEE PREVIOUS SHEET FOR ALL OTHER STANDARD EROSION AND SEDIMENT CONTROL NOTES AND LEGEND



E & SC PLAN LIPIZZAN DRIVE



E & SC PLAN MITCHELL ROAD WEST ROAD IMPROVEMENTS

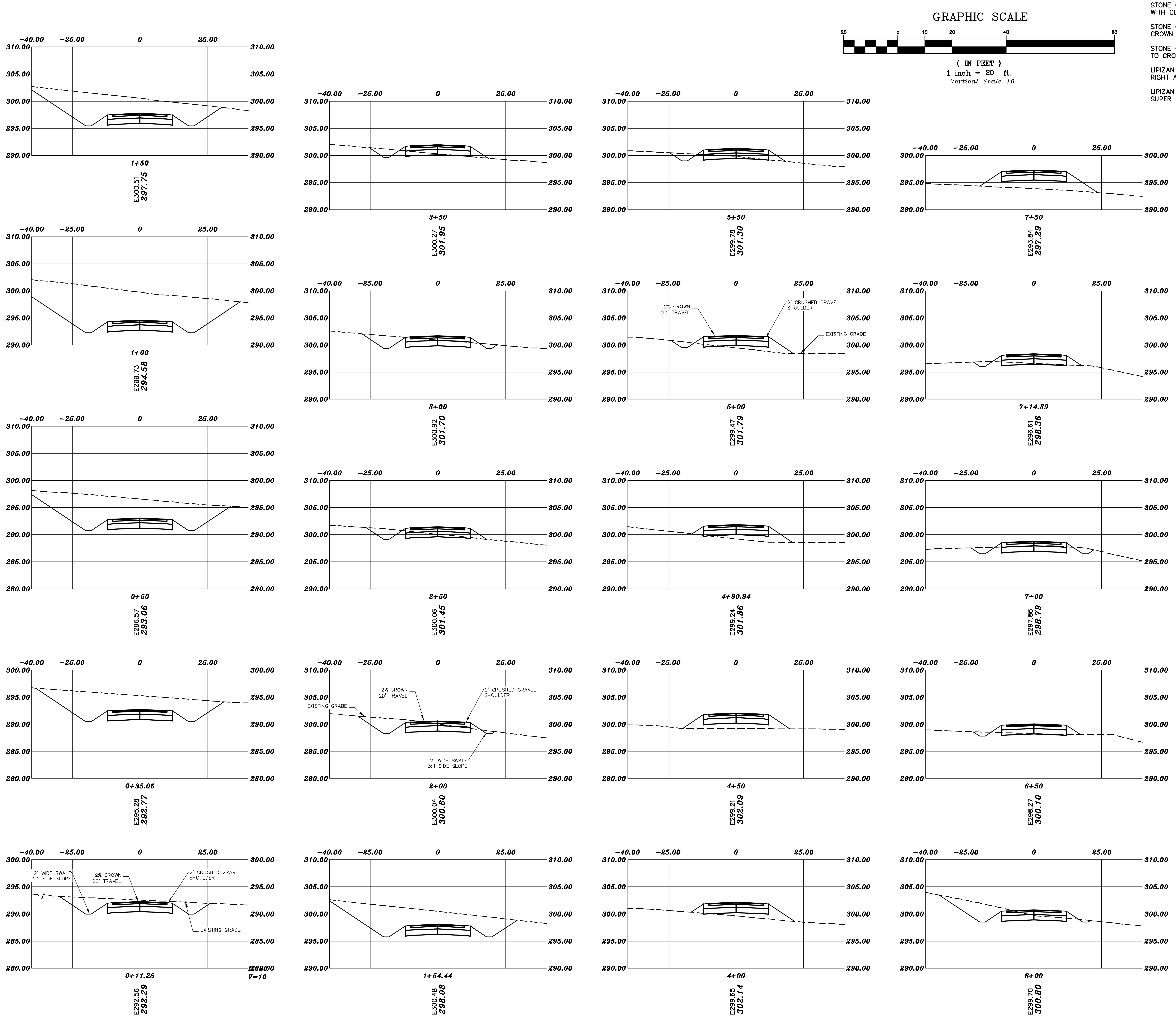
REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EROSION AND SEDIMENT CONTROL PLAN EAST, & MITCHELL RD
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 40 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243



CROSS SECTIONS TRANSITIONS:

STONE GREY DRIVE TRANSITIONS FROM CROWN WITH NO CURB TO CROWN WITH CURB BOTH SIDES AT STATION 9+26.25.

STONE GREY DRIVE TRANSITIONS FROM CROWN WITH CURB BOTH SIDES TO CROWN WITH CURB ON THE LEFT AT STATION 10+26.25

STONE GREY DRIVE TRANSITIONS FROM CROWN WITH CURB ON THE LEFT TO CROWN WITH NO CURB AT STATION 10+26.25

LIPIZAN DRIVE TRANSITIONS FROM CURB BOTH SIDES TO CURB ON THE RIGHT AT STATION 3+12

LIPIZAN DRIVE TRANSITIONS FROM CURB ON RIGHT SIDE TO CUL-DE-SAC SUPER ELEVATION AT STATION 4+40

REVISION	DATE	DESCRIPTION
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#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

CROSS SECTIONS STONE GREY DRIVE 0+00 - 7+50
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

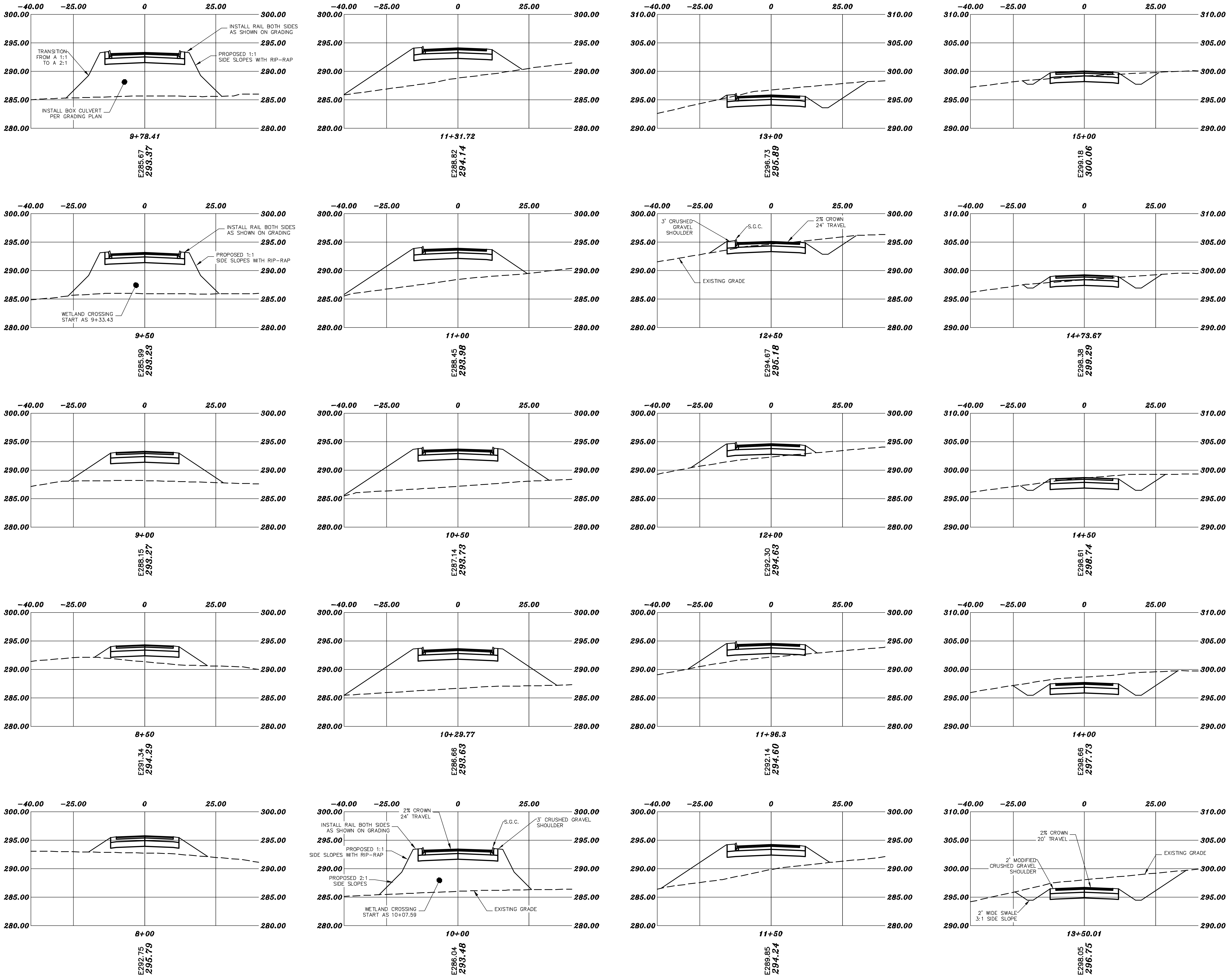
SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
Vertical Scale 10



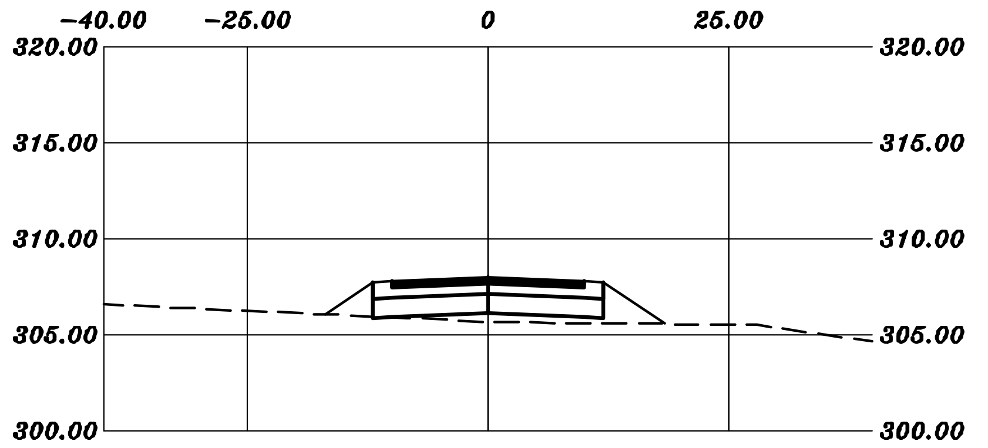
REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

CROSS SECTIONS STONE GREY DRIVE 8+00-15+00
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

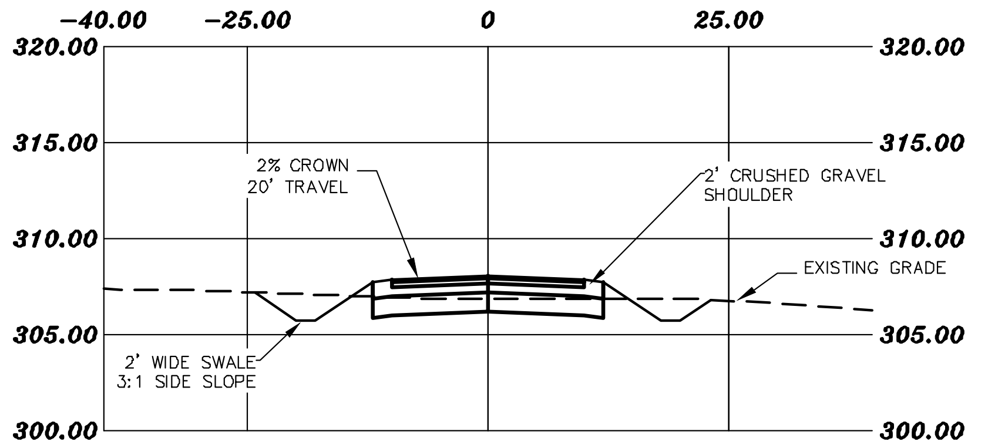
SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243



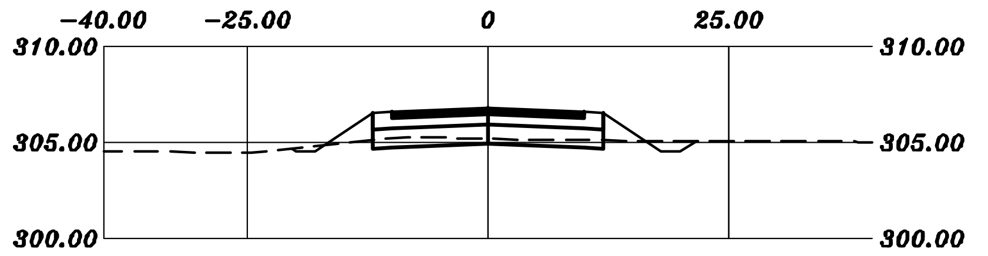
17+50

E305.67
308.01



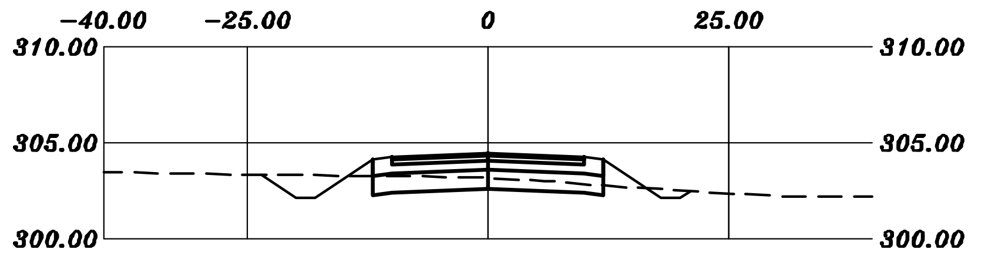
17+00

E306.87
308.06



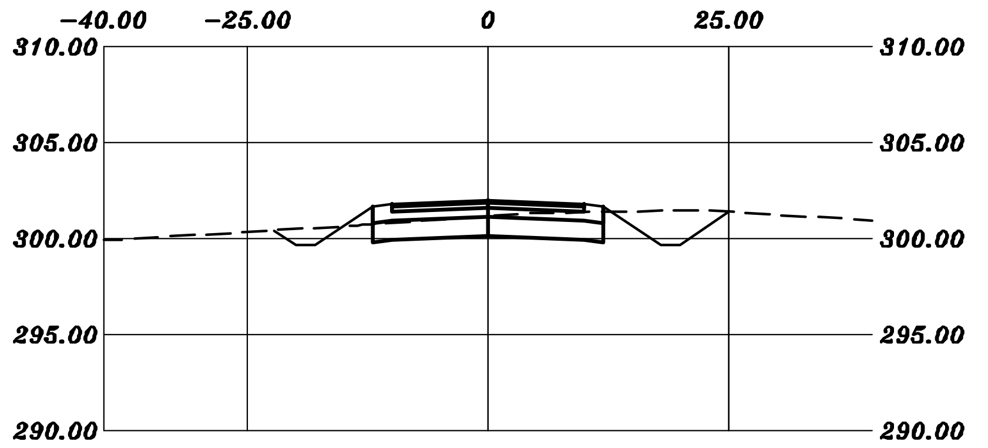
16+50

E305.21
306.82



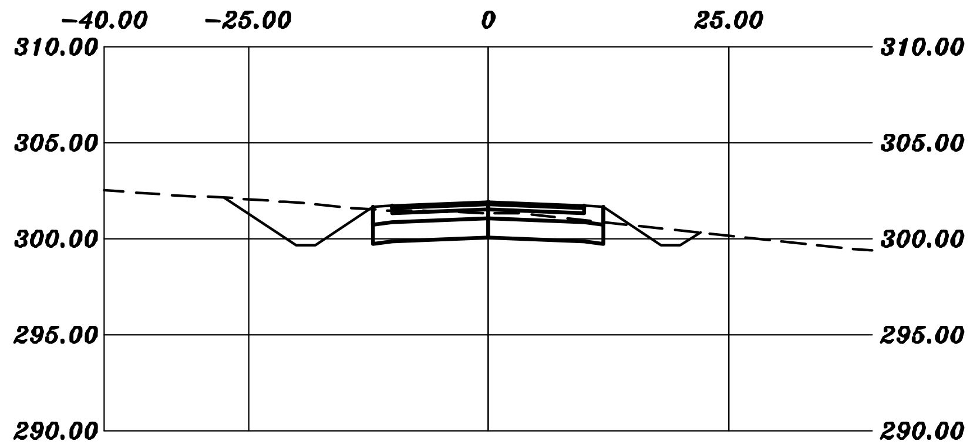
16+00

E303.20
304.47



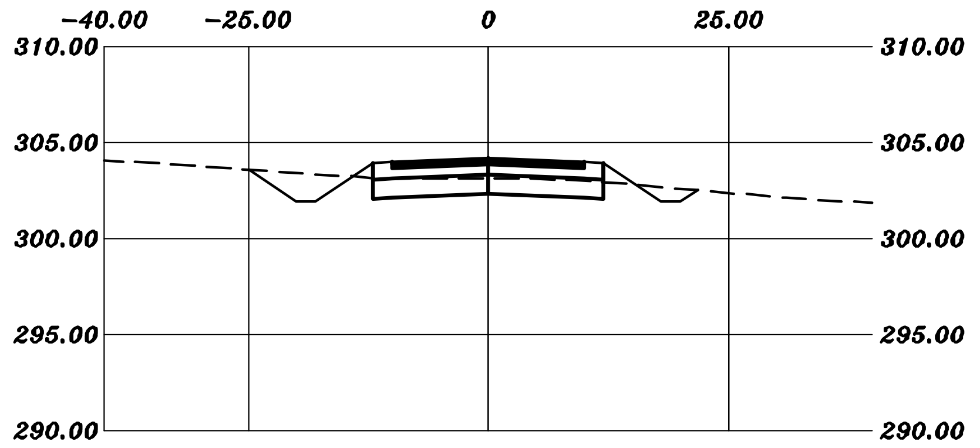
15+50

E301.18
302.02



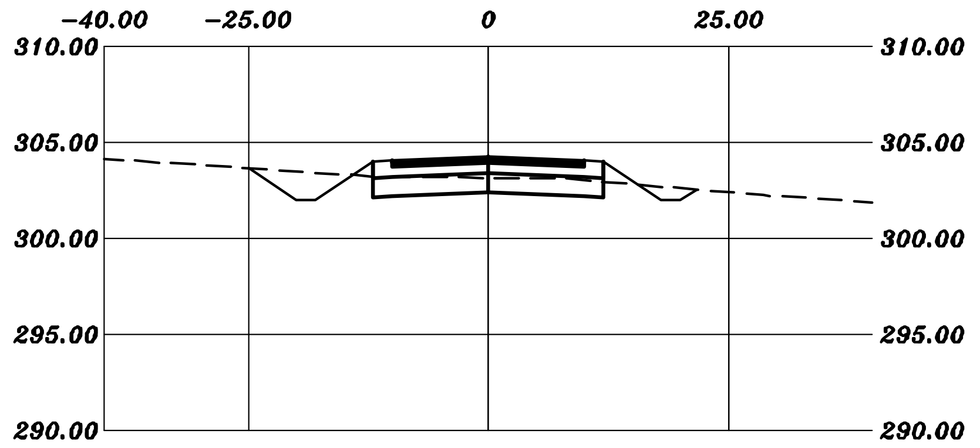
19+00

E301.34
301.92



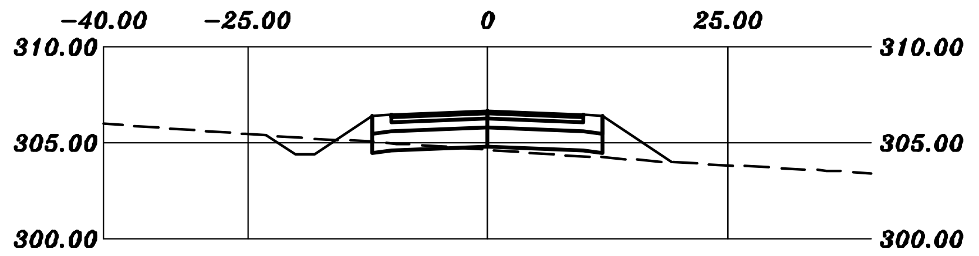
18+51.66

E303.11
304.21



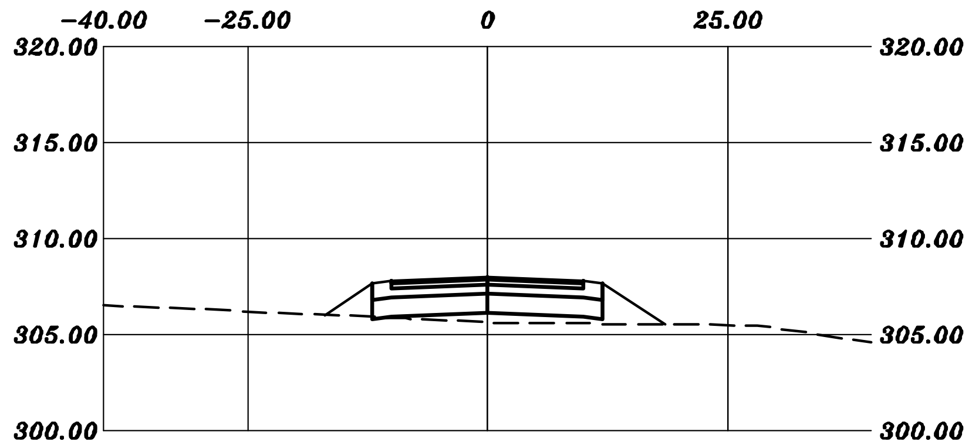
18+50

E303.17
304.30



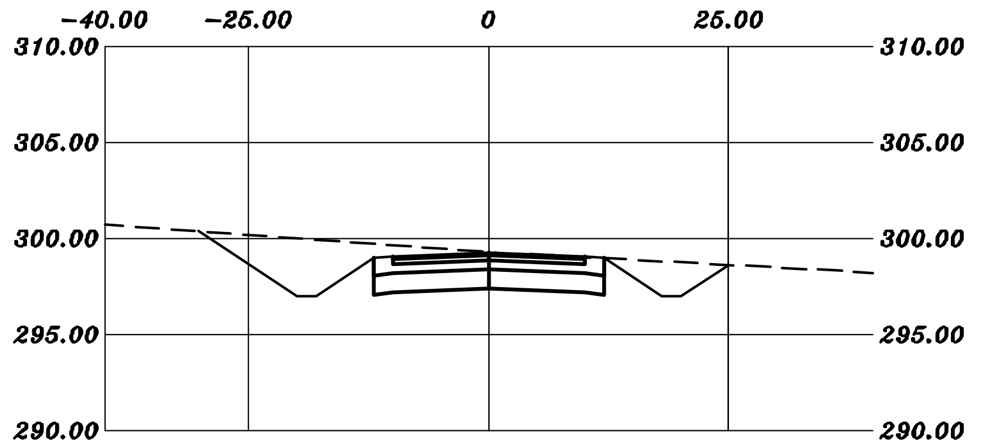
18+00

E304.66
306.69



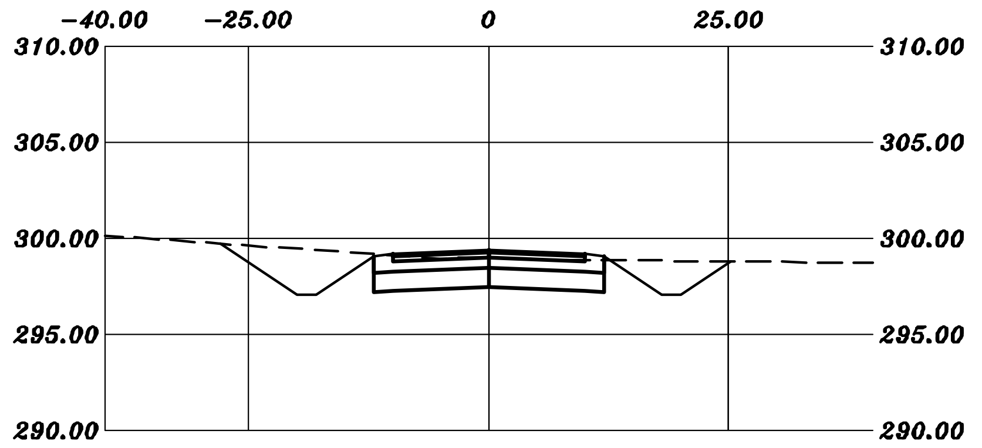
17+50.49

E305.67
308.01



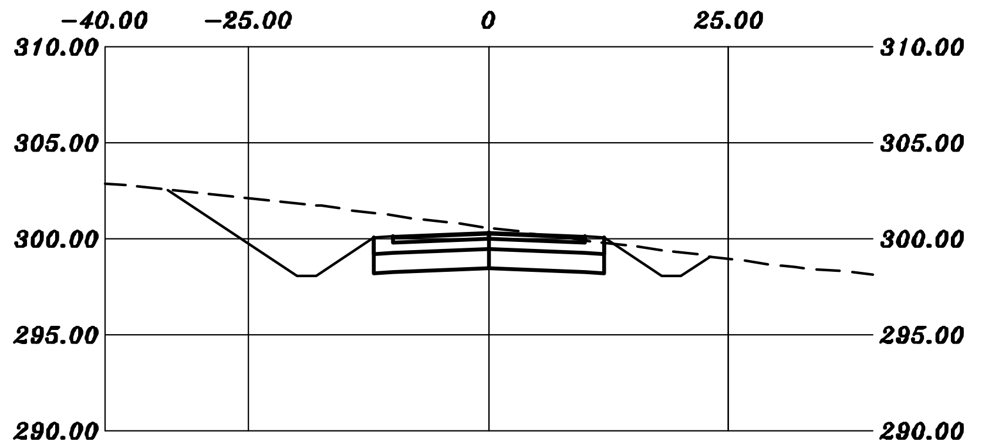
20+05.5

E299.29
299.27



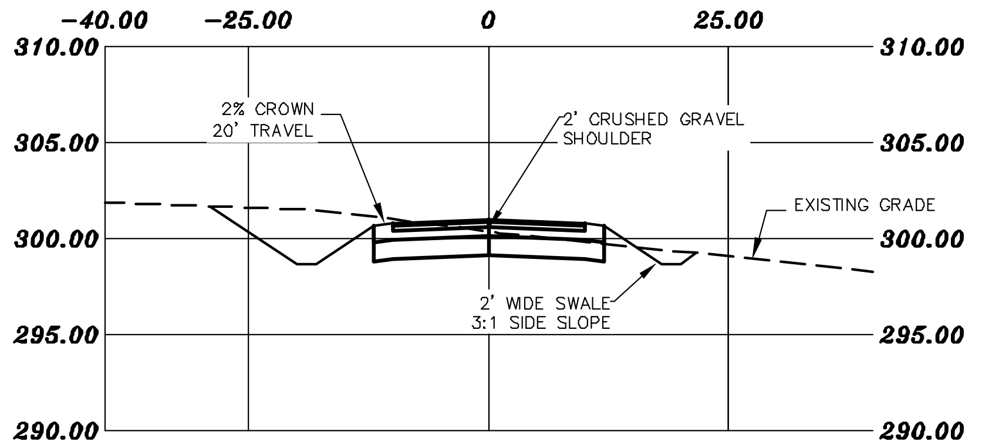
20+00

E298.99
299.38



19+50

E300.59
300.38



19+25.91

E300.40
301.01

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.
Vertical Scale 10

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
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#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

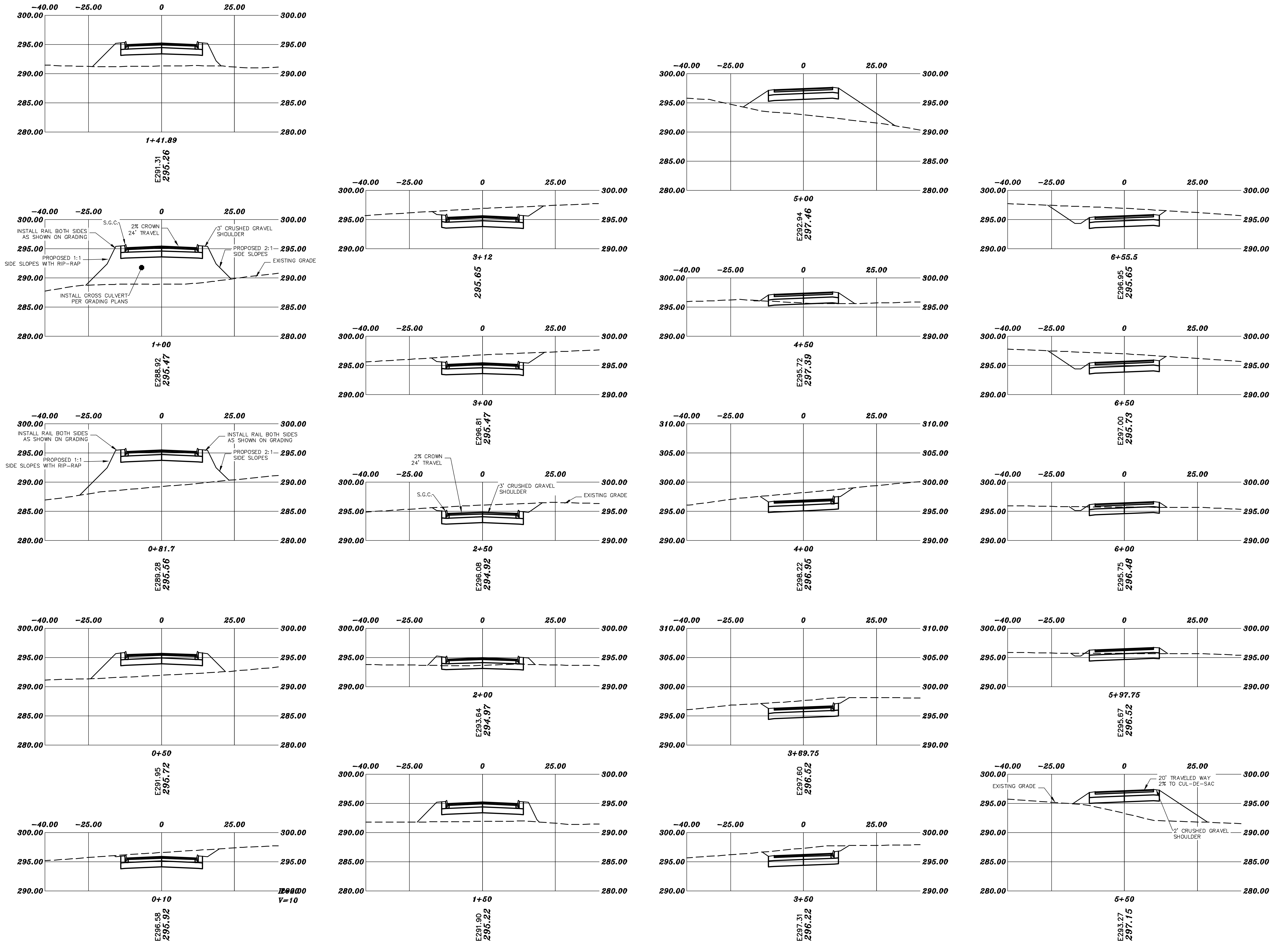
CROSS SECTIONS STONE GREY DRIVE 15+50-END
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

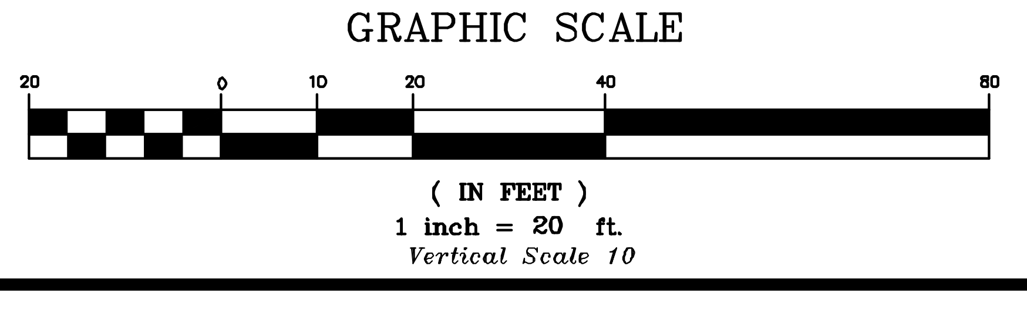
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14247

SHEET 40 OF 55





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#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

CROSS SECTIONS LIPIZZAN DRIVE 0+00-END
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14247

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THIS IS A RESIDENTIAL SUBDIVISION.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED ROADWAY KNOWN AS STONE GREY DRIVE.

7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 2' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

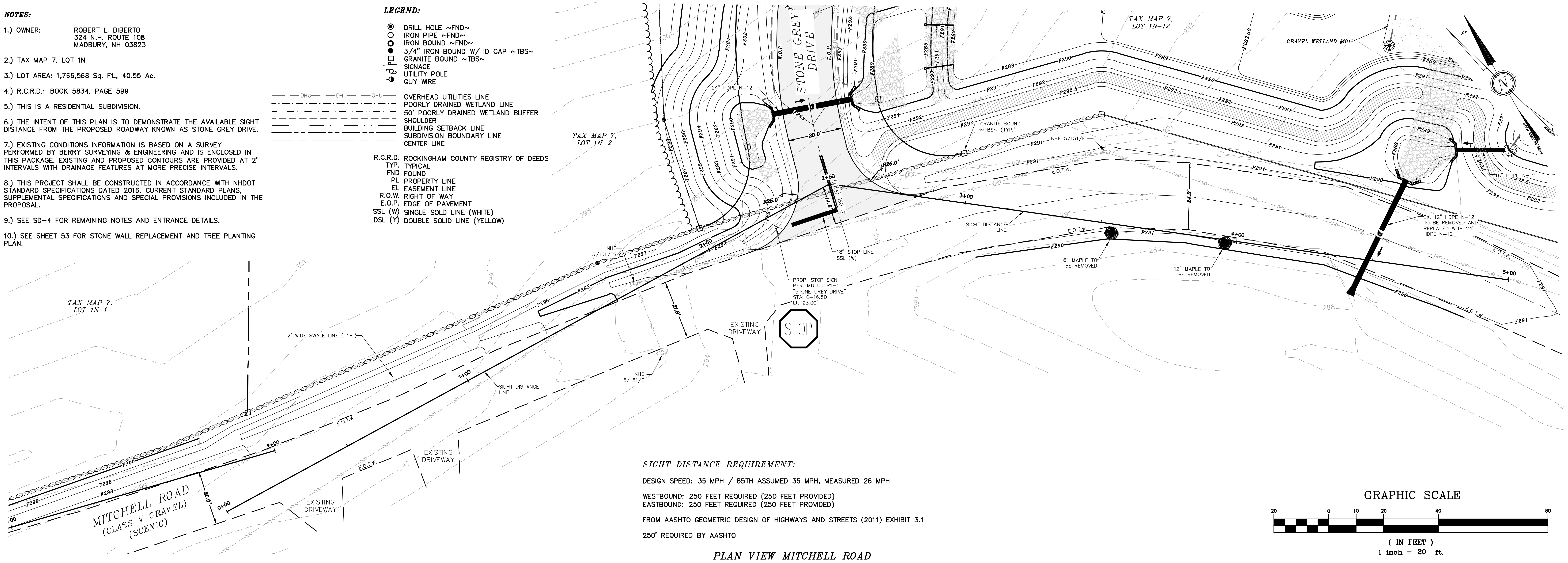
8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

9.) SEE SD-4 FOR REMAINING NOTES AND ENTRANCE DETAILS.

10.) SEE SHEET 53 FOR STONE WALL REPLACEMENT AND TREE PLANTING PLAN.

LEGEND:

◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
◯	IRON BOUND ~FND~
●	3/4" IRON BOUND W/ ID CAP ~TBS~
□	GRANITE BOUND ~TBS~
	SIGNAGE
	UTILITY POLE
◑	GUY WIRE
—OHU— —OHU— —OHU—	OVERHEAD UTILITIES LINE
—·—·—·—	POORLY DRAINED WETLAND LINE
—··—··—	50' POORLY DRAINED WETLAND BUFFER
— — — —	SHOULDER
—— · · ——	BUILDING SETBACK LINE
—— - - ——	SUBDIVISION BOUNDARY LINE
—— — ——	CENTER LINE
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
PL	PROPERTY LINE
EL	EASEMENT LINE
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
SSL (W)	SINGLE SOLD LINE (WHITE)
DSL (Y)	DOUBLE SOLID LINE (YELLOW)



SIGHT DISTANCE REQUIREMENT:

DESIGN SPEED: 35 MPH / 85TH ASSUMED 35 MPH, MEASURED 26 MPH

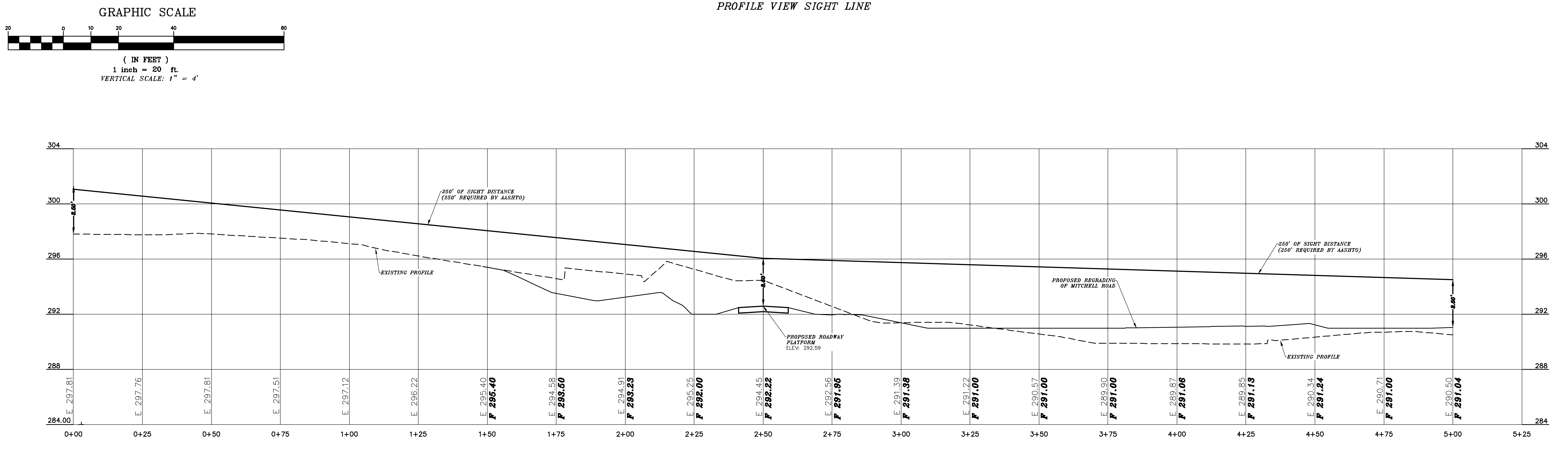
WESTBOUND: 250 FEET REQUIRED (250 FEET PROVIDED)
EASTBOUND: 250 FEET REQUIRED (250 FEET PROVIDED)

FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (2011) EXHIBIT 3.1

250' REQUIRED BY AASHTO

PLAN VIEW MITCHELL ROAD

PROFILE VIEW SIGHT LINE



0+00	E 297.81	
0+25	E 297.76	
0+50	E 297.81	
0+75	E 297.51	
1+00	E 297.12	
1+25	E 296.22	
1+50	E 295.40	F 295.40
1+75	E 294.58	F 293.50
2+00	E 294.91	F 293.23
2+25	E 295.25	F 292.00
2+50	E 294.45	F 292.22
2+75	E 292.56	F 291.95
3+00	E 291.39	F 291.38
3+25	E 291.22	F 291.00
3+50	E 290.57	F 291.00
3+75	E 289.90	F 291.00
4+00	E 289.87	F 291.06
4+25	E 289.85	F 291.13
4+50	E 290.34	F 291.24
4+75	E 290.71	F 291.00
5+00	E 290.50	F 291.04
5+25		

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

SIGHT DISTANCE STONE GREY DRIVE WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SD-1

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THIS IS A RESIDENTIAL SUBDIVISION.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE PROPOSED ROADWAY KNOWN AS STONE GREY DRIVE.

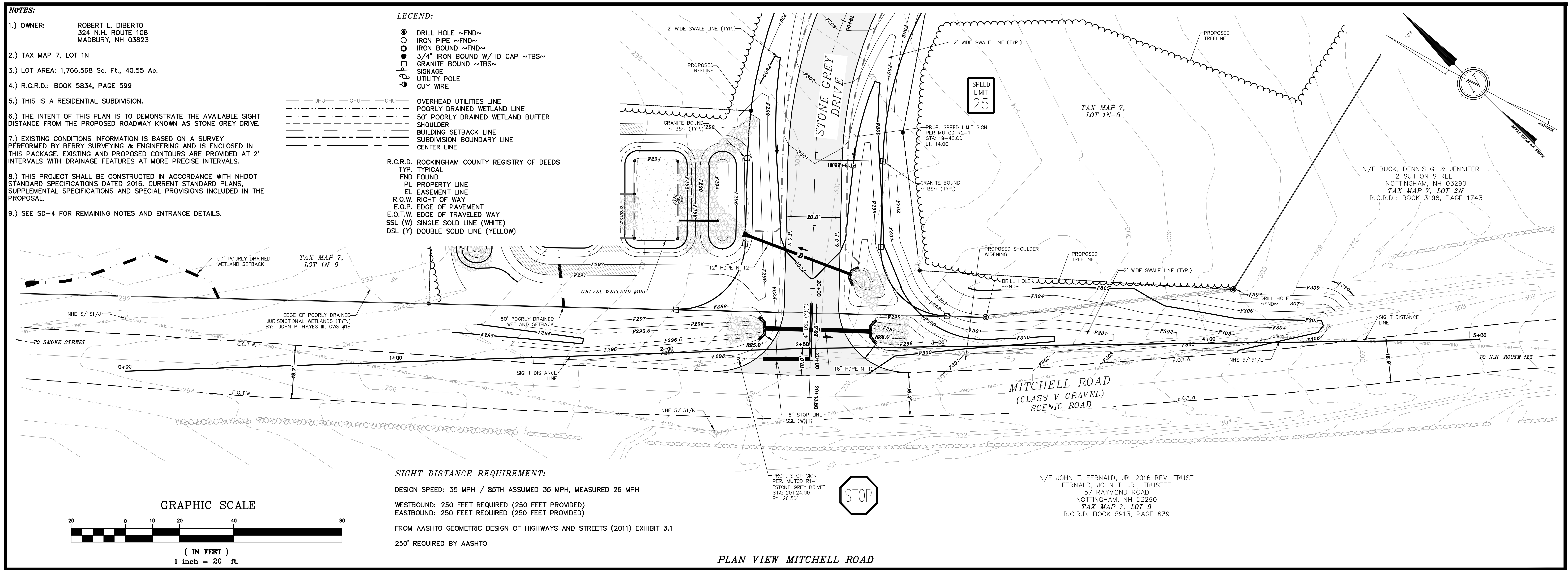
7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 2' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

9.) SEE SD-4 FOR REMAINING NOTES AND ENTRANCE DETAILS.

LEGEND:

◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
◎	IRON BOUND ~FND~
●	3/4" IRON BOUND W/ ID CAP ~TBS~
□	GRANITE BOUND ~TBS~
	SIGNAGE
	UTILITY POLE
	GUY WIRE
—OHU—	OVERHEAD UTILITIES LINE
	POORLY DRAINED WETLAND LINE
	50' POORLY DRAINED WETLAND BUFFER
	SHOULDER
	BUILDING SETBACK LINE
	SUBDIVISION BOUNDARY LINE
	CENTER LINE
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
PL	PROPERTY LINE
EL	EASEMENT LINE
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
E.O.T.W.	EDGE OF TRAVELED WAY
SSL (W)	SINGLE SOLD LINE (WHITE)
DSL (Y)	DOUBLE SOLID LINE (YELLOW)



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

SIGHT DISTANCE REQUIREMENT:

DESIGN SPEED: 35 MPH / 85TH ASSUMED 35 MPH, MEASURED 26 MPH

WESTBOUND: 250 FEET REQUIRED (250 FEET PROVIDED)
EASTBOUND: 250 FEET REQUIRED (250 FEET PROVIDED)

FROM AASHTO GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (2011) EXHIBIT 3.1

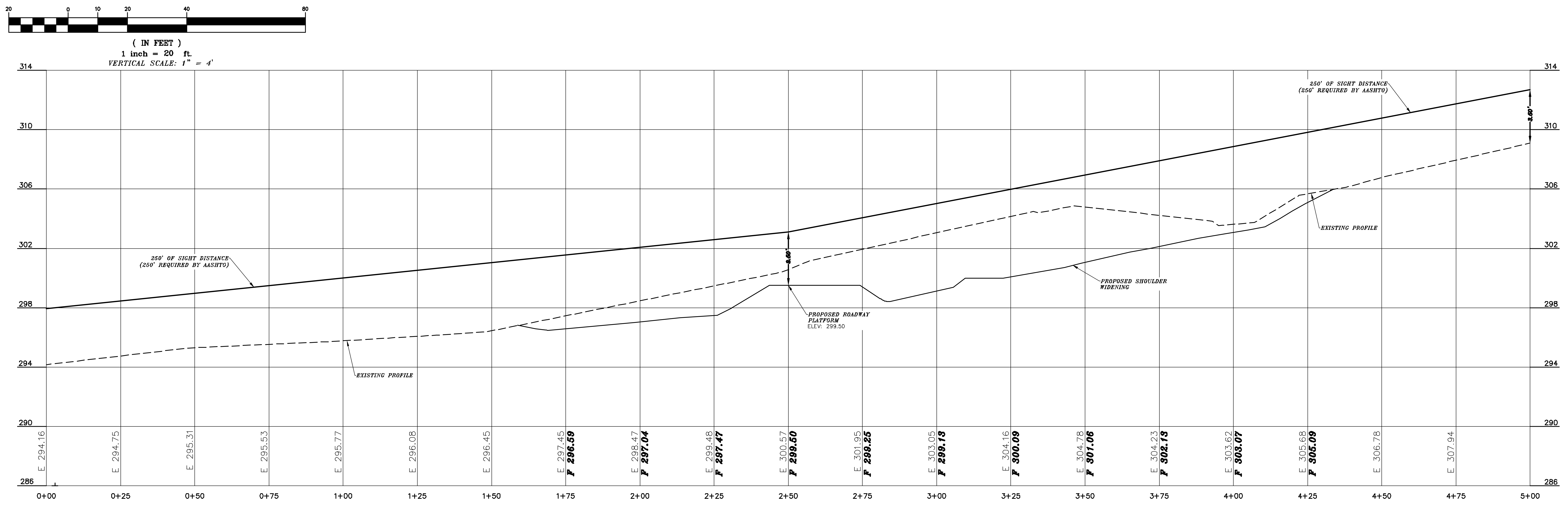
250' REQUIRED BY AASHTO

PLAN VIEW MITCHELL ROAD

PROFILE VIEW SIGHT LINE

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.
VERTICAL SCALE: 1" = 4'



SD-2

REVISION	DATE	DESCRIPTION
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#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

SIGHT DISTANCE STONE GREY DRIVE EXIT
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THIS IS A RESIDENTIAL SUBDIVISION.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE AVAILABLE SIGHT DISTANCE FROM THE COMMON DRIVEWAY LOCATION.

7.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING AND IS ENCLOSED IN THIS PACKAGE. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 2' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

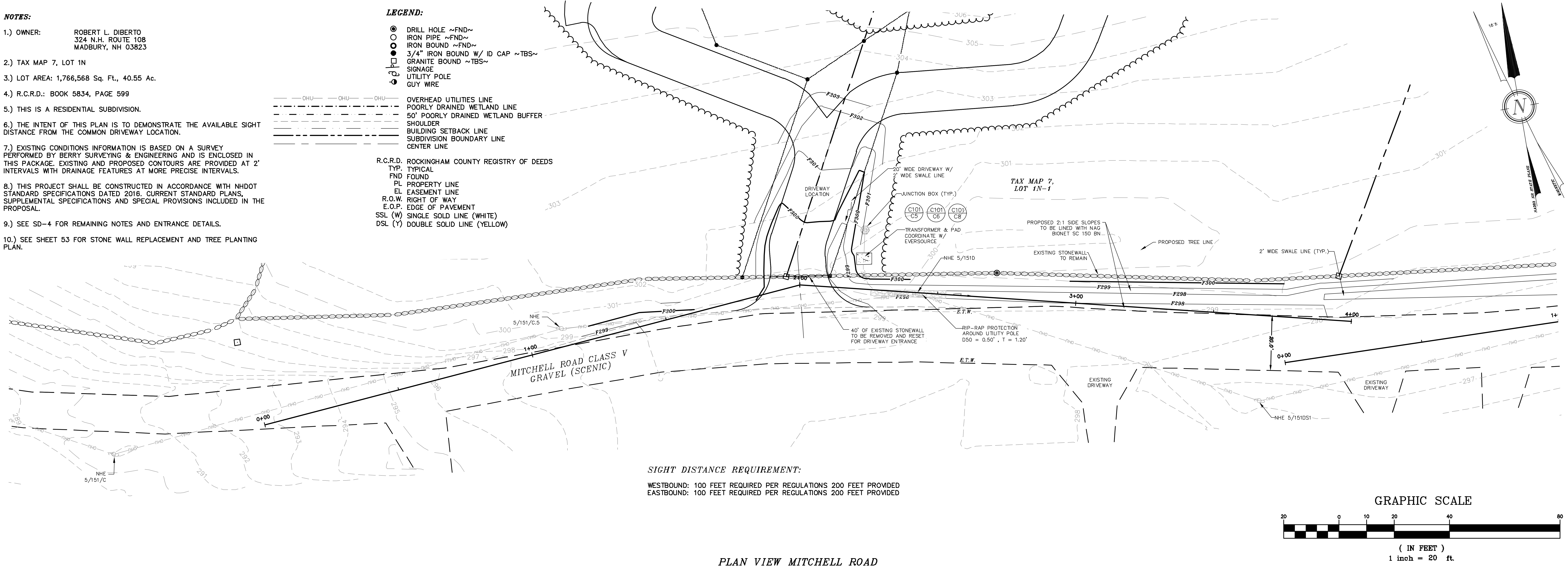
8.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

9.) SEE SD-4 FOR REMAINING NOTES AND ENTRANCE DETAILS.

10.) SEE SHEET 53 FOR STONE WALL REPLACEMENT AND TREE PLANTING PLAN.

LEGEND:

◉	DRILL HOLE ~FND~
○	IRON PIPE ~FND~
◯	IRON BOUND ~FND~
●	3/4" IRON BOUND W/ ID CAP ~TBS~
□	GRANITE BOUND ~TBS~
	SIGNAGE
	UTILITY POLE
◑	GUY WIRE
—OHU—	OVERHEAD UTILITIES LINE
-·-·-	POORLY DRAINED WETLAND LINE
—··—	50' POORLY DRAINED WETLAND BUFFER
— — —	SHOULDER
—··—	BUILDING SETBACK LINE
—-—-	SUBDIVISION BOUNDARY LINE
— —	CENTER LINE
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
PL	PROPERTY LINE
EL	EASEMENT LINE
R.O.W.	RIGHT OF WAY
E.O.P.	EDGE OF PAVEMENT
SSL (W)	SINGLE SOLD LINE (WHITE)
DSL (Y)	DOUBLE SOLID LINE (YELLOW)

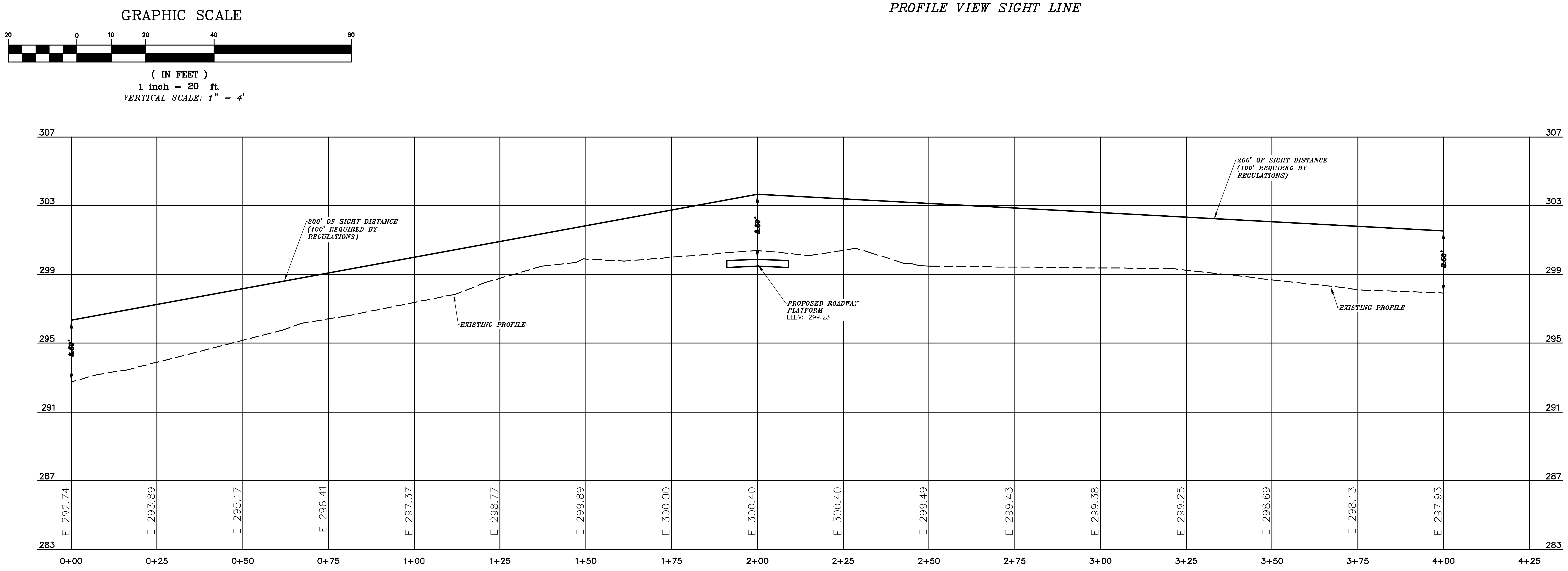


SIGHT DISTANCE REQUIREMENT:

WESTBOUND: 100 FEET REQUIRED PER REGULATIONS 200 FEET PROVIDED
EASTBOUND: 100 FEET REQUIRED PER REGULATIONS 200 FEET PROVIDED

PLAN VIEW MITCHELL ROAD

PROFILE VIEW SIGHT LINE



REVISION	DATE	DESCRIPTION
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SIGHT DISTANCE SHARED DRIVEWAY

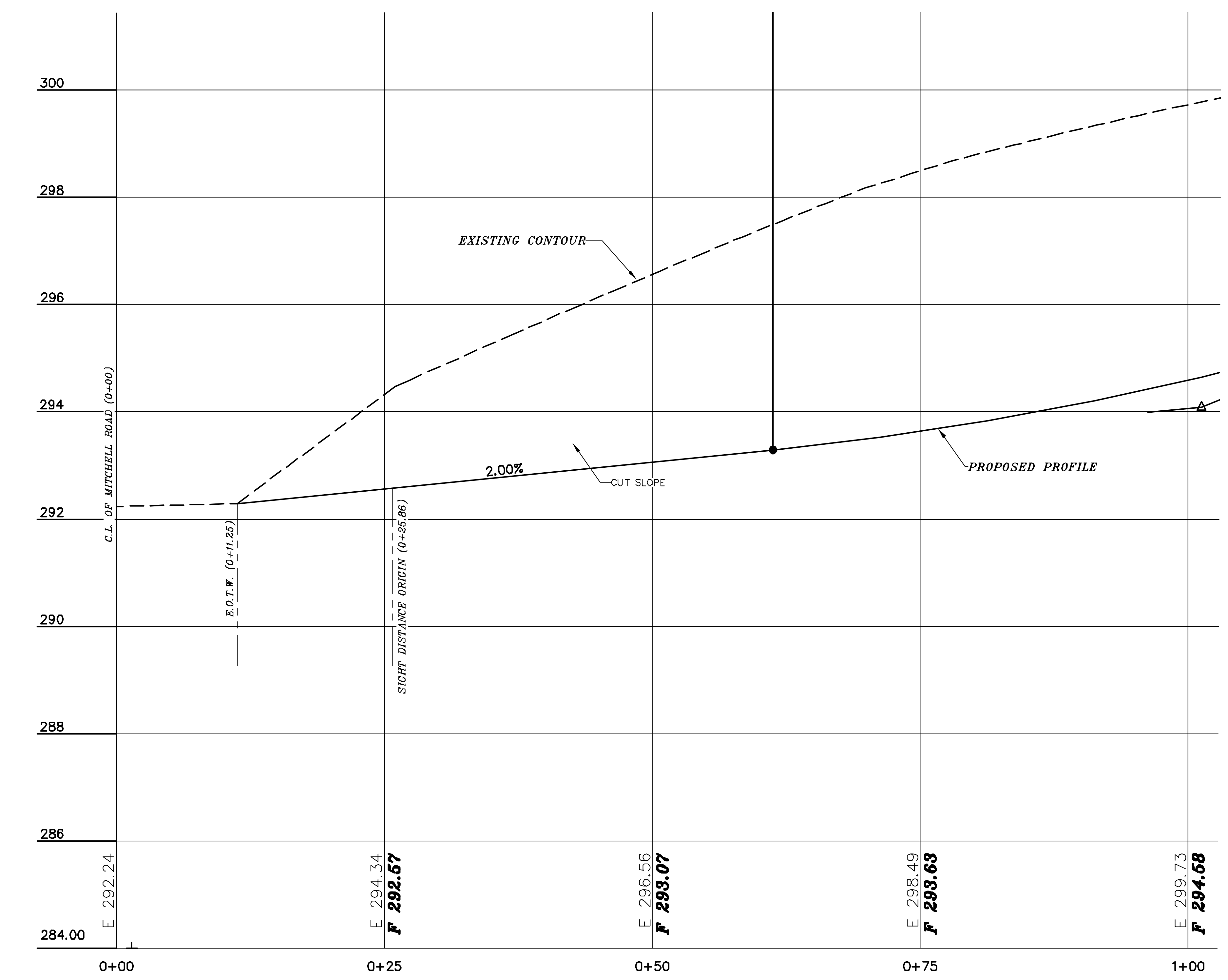
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SD-3



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.
VERTICAL SCALE: 1" = 2'

PROFILE VIEW STONE GREY DRIVE ENTRANCE

DETAIL–1

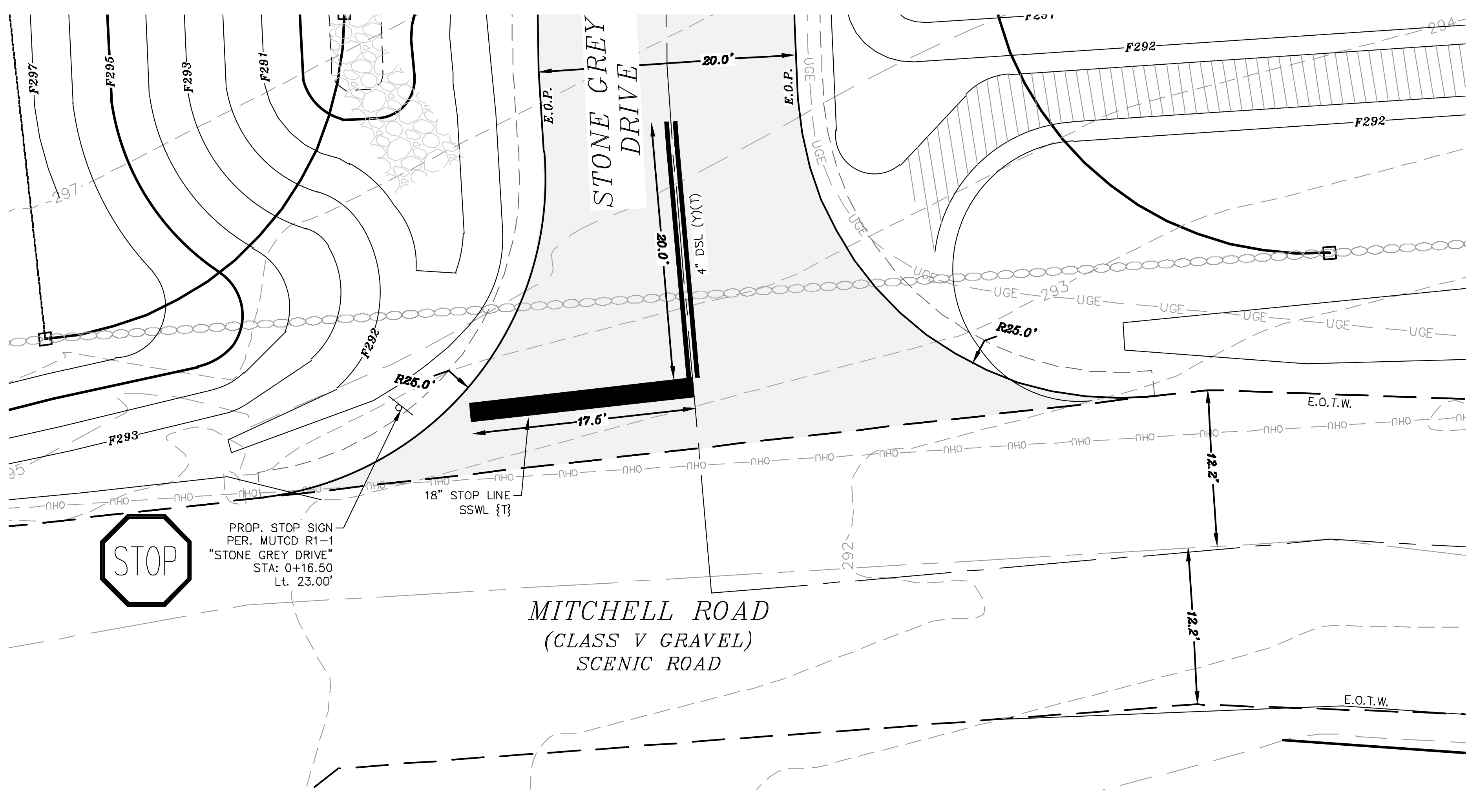
GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

STONE GREY DRIVE ENTRANCE INTERSECTION PAVEMENT MARKINGS & SIGNAGE DETAILS

DETAIL–2



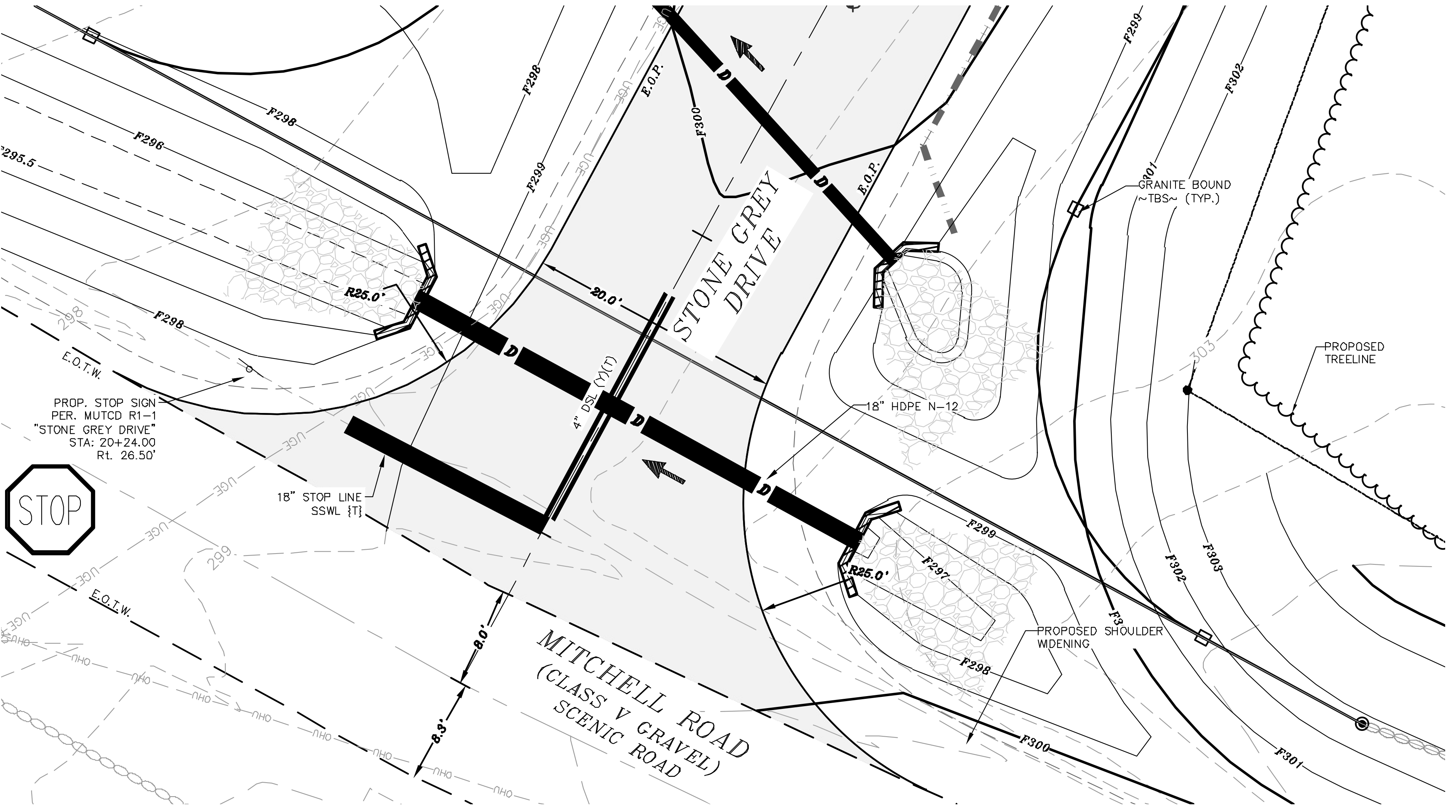
GRAPHIC SCALE

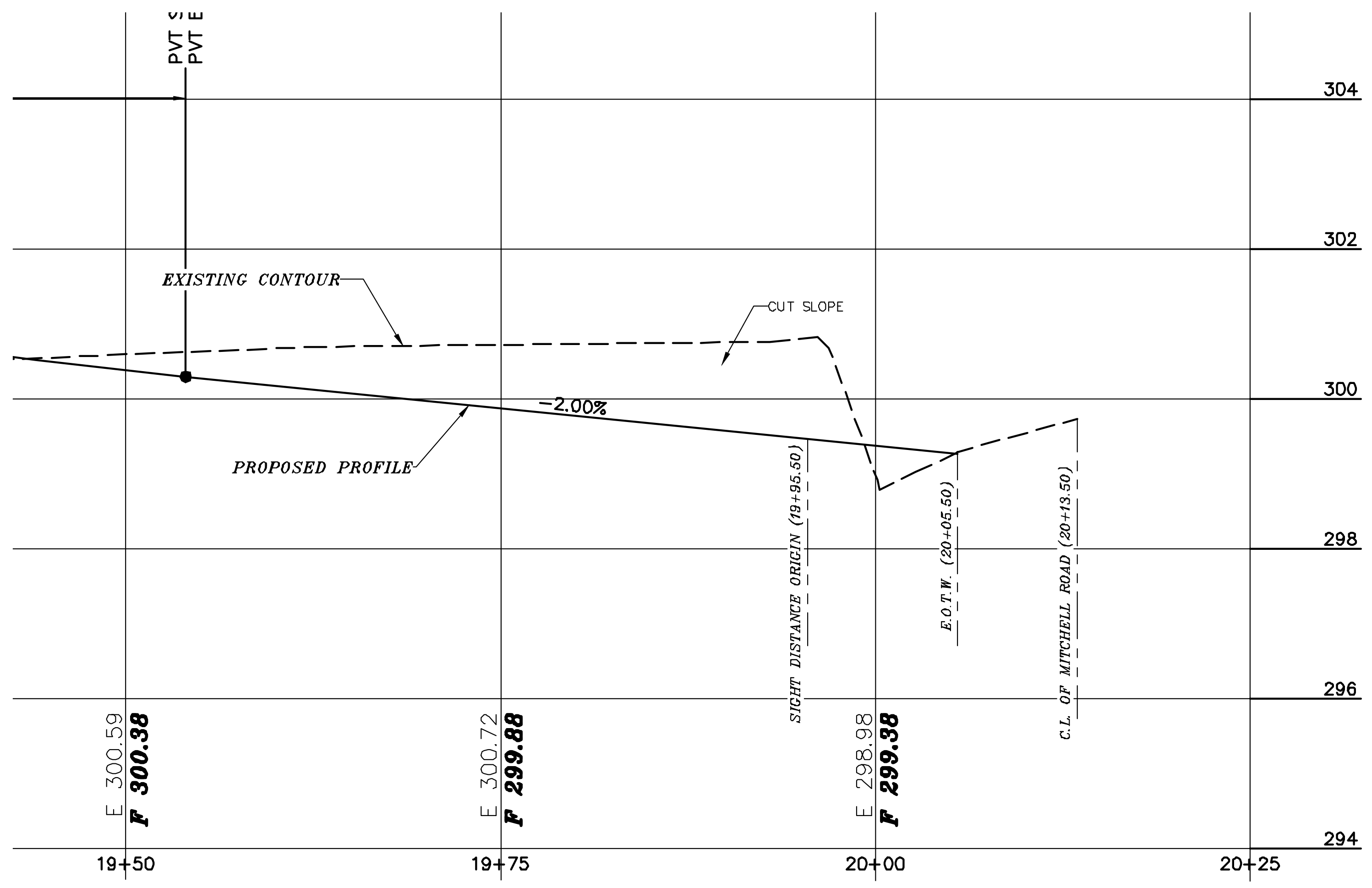
10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

STONE GREY DRIVE EXIT INTERSECTION PAVEMENT MARKINGS & SIGNAGE DETAILS

DETAIL–3





GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.
VERTICAL SCALE: 1" = 2'

PROFILE VIEW STONE GREY DRIVE EXIT

DETAIL–4

DETAIL–5

PM–9 GENERAL NOTES

1.) EDGELINE DETAILS ARE SHOWN FOR MAINLINE ROADWAYS WITHOUT TURN LANE. THE PRESENCE OF TURN LANES MAY REQUIRE DIFFERENT EDGELINE TREATMENTS,

2.) EDGELINES ON THE SIDE ROADS, WHEN CALLED FOR, SHALL FOLLOW THE ABOVE MAINLINE TYPICALS. EDGELINES SHALL NOT BE CONTINUOUS AROUND THE MAINLINE/SIDE ROAD RADIUS. EDGELINES SHALL END AT STOP BARS.

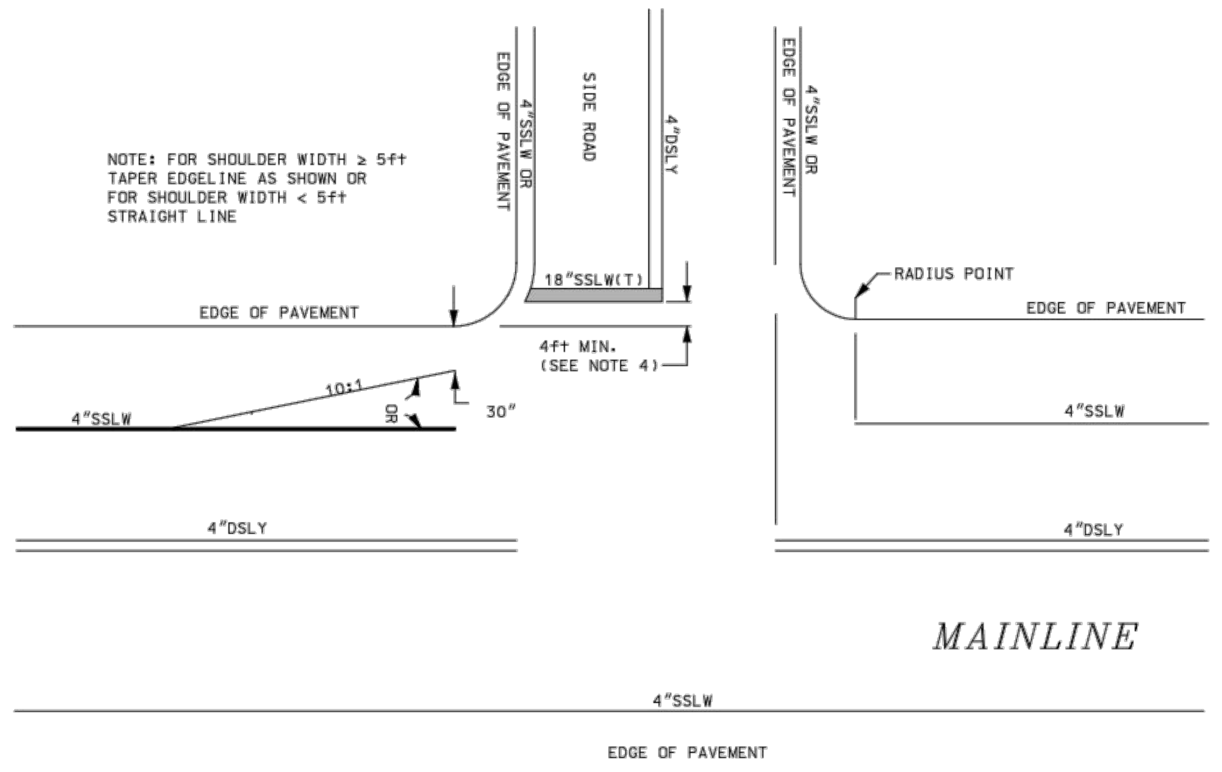
3.) CENTERLINE AND EDGELINE SHALL BE CONTINUOUS PAST RESIDENTIAL DRIVEWAYS. CENTERLINE AND EDGELINE SHALL BREAK FOR COMMERCIAL DRIVES W/TRAFFIC CONTROLS, MINOR SIDE ROADS, OR PRIVATE INTERSECTIONS.

4.) LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADIUS AND MAY NOT ALWAYS COINCIDE WITH THE LOCATION OF THE STOP SIGN.

5.) IF THERE IS NO EDGELINE, END STOP BAR 12" FROM EDGE OF PAVEMENT.

6.) STOP BARS, WORDS, LANE LINES, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC (T).

CENTERLINE AND EDGELINE "CUTS" AT SIDE ROAD



NOTES CONT.:

10.) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION

11.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

NOTES CONT.:

12.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

13.) AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

14.) THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

15.) ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.

NOTES CONT.:

16.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH (T) SHALL BE THERMOPLASTIC.

17.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.

18.) ALL PAVEMENT MARKINGS TO BE PAINTED TO NHDOT STANDARD NO. PM-9.

19.) THE SPEED LIMIT ON MITCHELL ROAD IS 30 MPH, 85TH ASSUMED TO BE 35 MPH.

DETAIL–6

SD–4

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

EGRESS DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

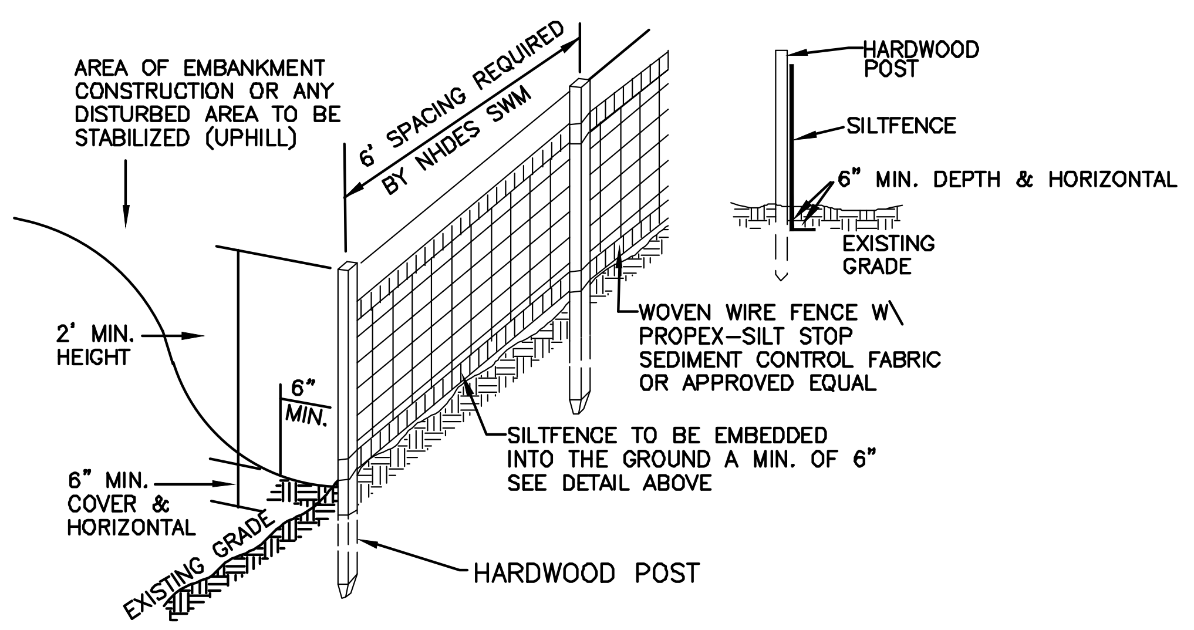
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14243

SHEET 45 OF 55

E1



SILT FENCE CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF. SEE MAINTENANCE NOTE BELOW, REMOVAL OF SEDIMENT REQUIRED AT A DEPTH OF 6-INCHES.
4. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
5. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
6. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
7. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, SILT FENCE, PAGE 90.

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 REMOVED WHEN THEY REACH SIX-INCHES IN DEPTH.
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.

SILT FENCE DETAIL

NOT TO SCALE

E2

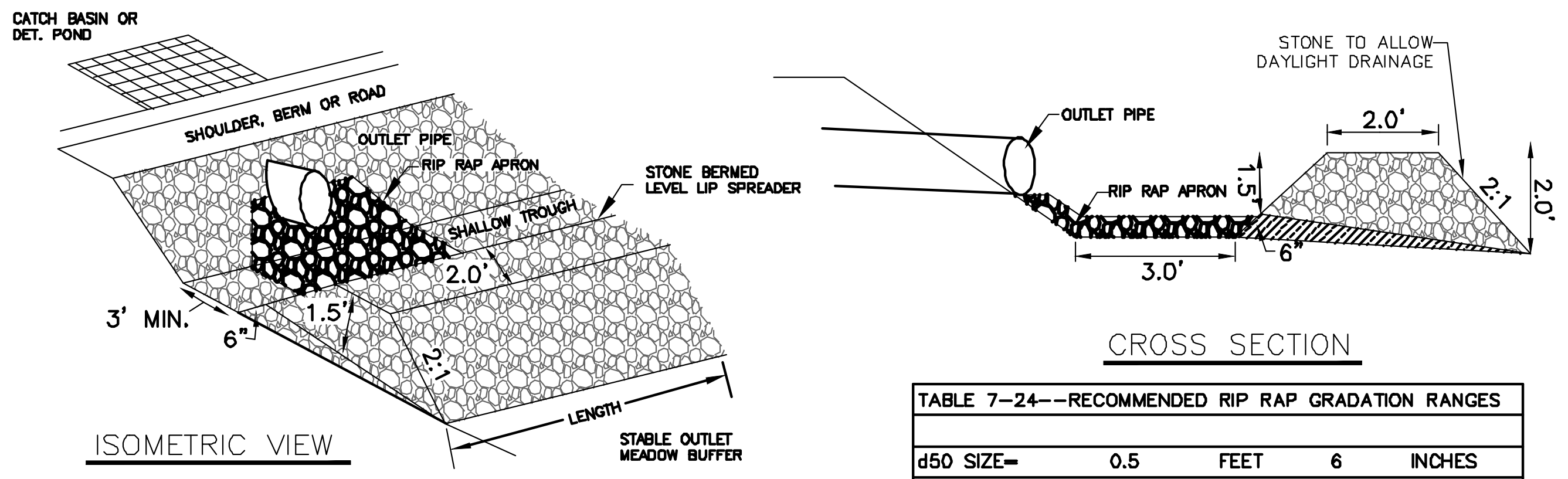


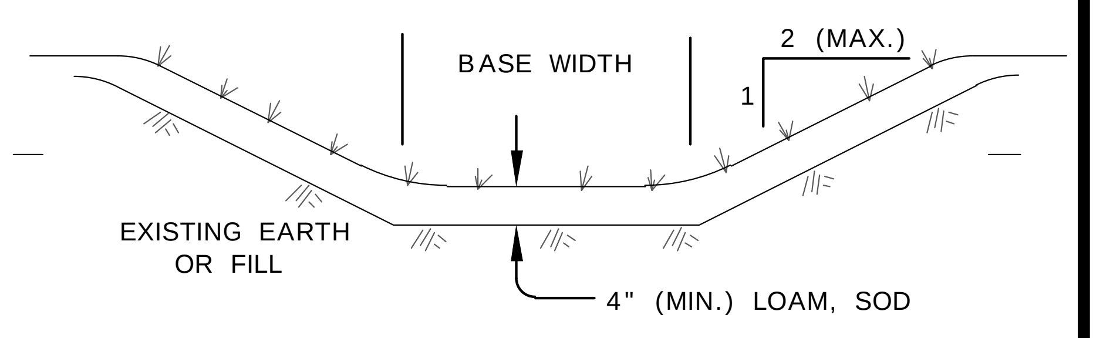
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES				
d50 SIZE=	0.5	FEET	6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM			TO
100%	9			12
85%	8			11
50%	6			9
15%	2			3

1. CONSTRUCT THE LEVEL SPREADER LIP ON A 0% GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING EXCELSIOR ENFORCER MATTING BENEATH THE STONE. EACH STRIP SHALL OVERLAP BY AT LEAST SIX INCHES.
4. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
5. MAINTENANCE: THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND THE DESIGN CONDITIONS HAVE NOT CHANGED. ANY DETRIMENTAL SEDIMENT ACCUMULATION SHOULD BE REMOVED. IF STONE REMOVAL HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED.
6 REFERENCE IS MADE TO NHDES SWM VOL. 2, 4-6, STONE BERM LEVEL SPREADERS, PAGE 162

STONE BERM LEVEL SPREADER

NOT TO SCALE

E3



GRASS TREATMENT SWALE

NOT TO SCALE

INSPECT ANNUALLY FOR EROSION, SEDIMENT ACCUMULATIONS, VEGETATION LOSS, & INVASIVE SPECIES. REPAIR AS NECESSARY.

MOW GRASS ANNUALLY TO A DEPTH OF 4".

INSTALL STABILIZATION MATTING DURING CONSTRUCATION

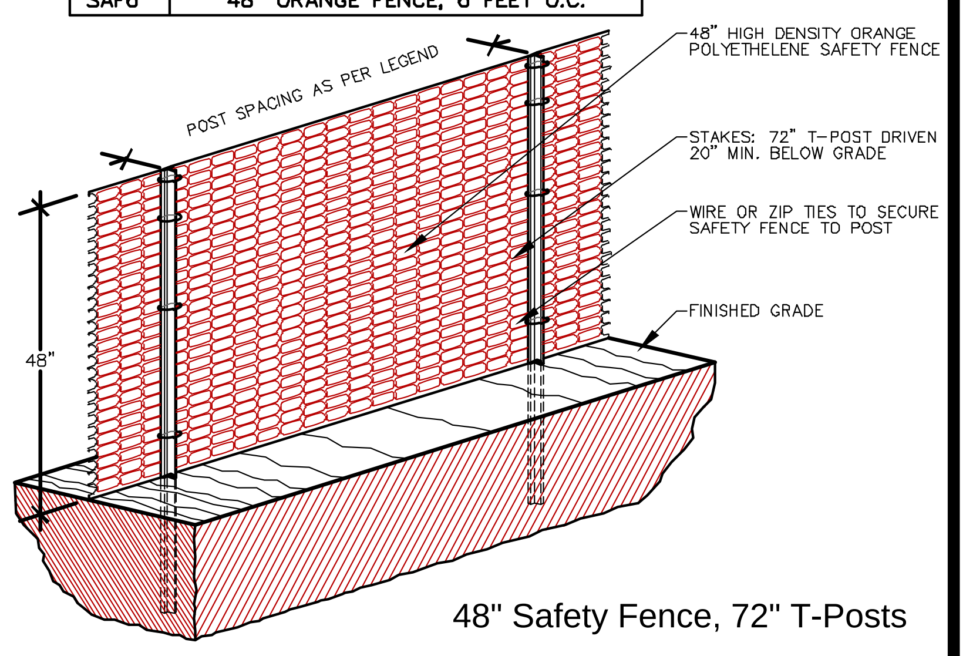
TO BE CONSTRUCTED IAW NH SWM #2 CHAPTER 4, #5 TREATMENT SWALES, PAGE 123.

E4 *CONSTRUCTION SAFETY FENCE*

NOT TO SCALE

LEGEND

SAF12	48" ORANGE FENCE, 12 FEET O.C.
SAF11	48" ORANGE FENCE, 11 FEET O.C..
SAF10	48" ORANGE FENCE, 10 FEET O.C.
SAF9	48" ORANGE FENCE, 9 FEET O.C.
SAF8	48" ORANGE FENCE, 8 FEET O.C..
SAF7	48" ORANGE FENCE, 7 FEET O.C.
SAF6	48" ORANGE FENCE, 6 FEET O.C.

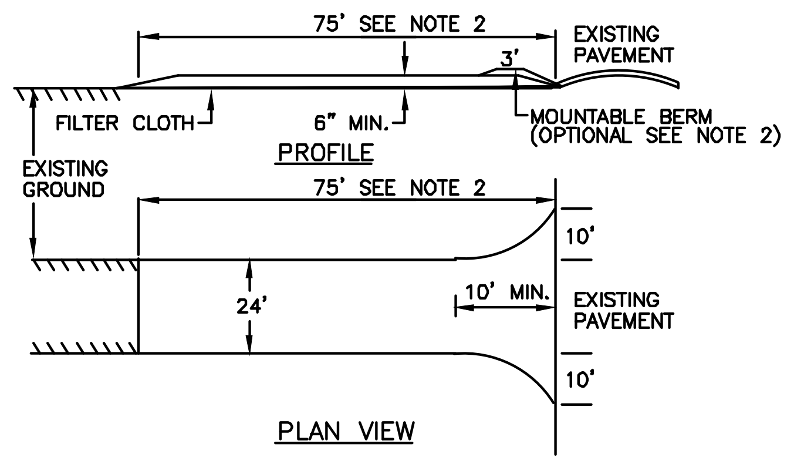


48" Safety Fence, 72" T-Posts

1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE AS PER PLAN.
3. WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
4. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
5. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

E5 *STABILIZED CONSTRUCTION ENTRANCE*

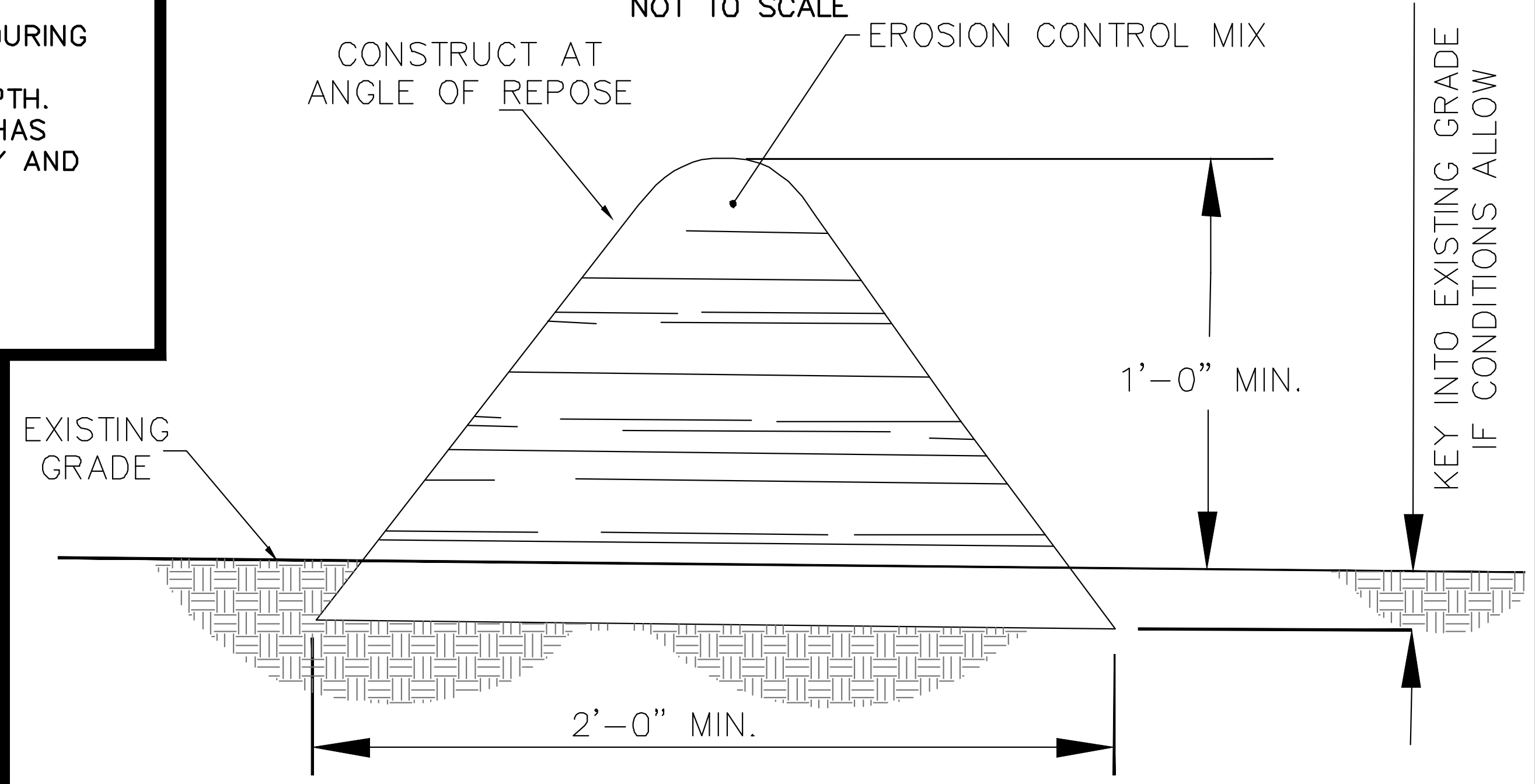
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CONSTRUCTION EXIT, PAGE 124.

E6 *EROSION CONTROL MIX BERM*

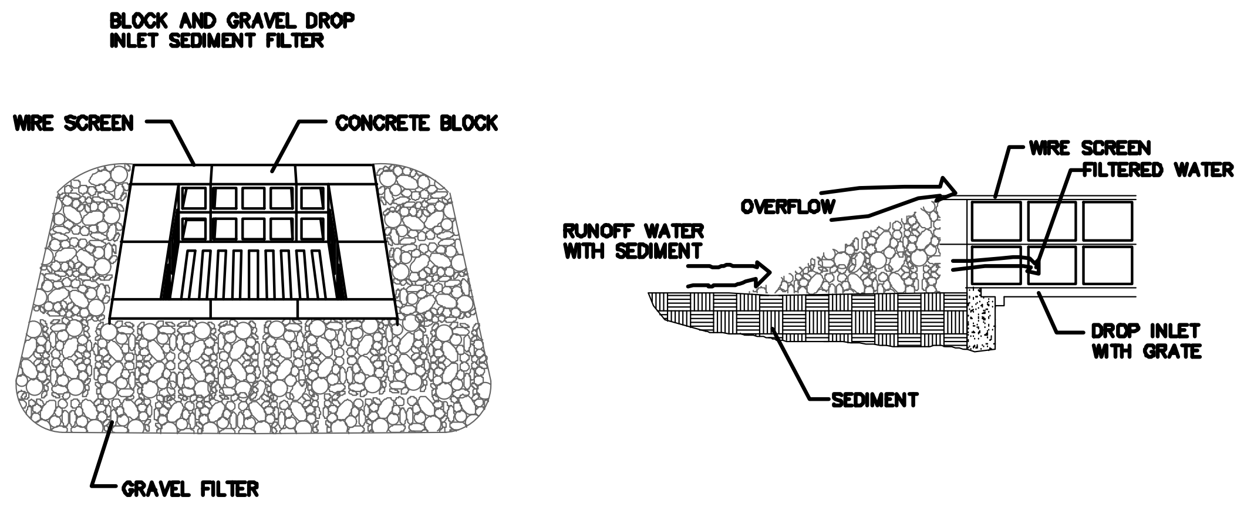
NOT TO SCALE



EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSLY AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%.
4. SUBJECT TO (E), BELOW, THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
7. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.
8. THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
9. THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
10. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, EROSION CONTROL MIX BERMS, PAGE 106.

E7



MAINTENANCE

ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAIN STORM AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED OF IN A SUITABLE AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

BLOCK & GRAVEL DROP INLET SEDIMENT FILTER

NOT TO SCALE

TO BE USED IN ALL AREAS WHERE THERE WILL BE NO TRAFFIC.

TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

E8

TEMPORARY EROSION CONTROL MEASURES

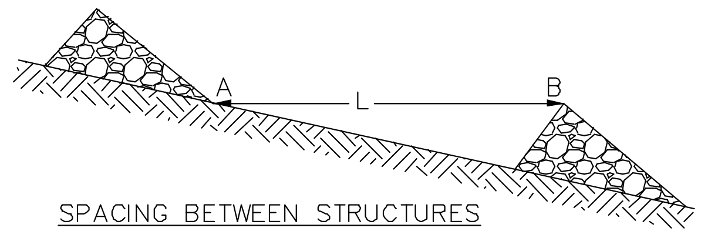
1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. (SEE SEED SPECIFICATIONS THIS SHEET)
4. ALL DISTURBED AREAS WILL BE RESTABILIZED WITHIN 45 DAYS. AT ANY ONE TIME, NO MORE THAN 5 ACRES, (217,800 Sq. Ft.) WILL BE DISTURBED.
5. SILT FENCES AND PERIMETER BARRIERS SHALL BE INSPECTED PERIODICALLY AND AFTER EVERY RAIN DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
6. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
7. PER THE EPA CGP REQUIREMENTS THERE WILL BE REPORTS OF THE EROSION CONTROL INSPECTIONS IAW SWPPP PREPARED BY BS&E. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OR GREATER RAIN EVENT.
8. DITCHES, SWALES, AND BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
9. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
10. DRIVEWAYS AND CUT AND FILL SPLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADE.
11. STABILIZATION MEANS:
    - 11.1. A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED.
    - 11.2. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED, OR
    - 11.3. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
12. THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
13. THE NHDES STORMWATER MANUAL, IN THREE VOLUMES, DATED DECEMBER 2008, IS A PART OF THIS PLAN SET AND THE MORE RESTRICTIVE WILL GOVERN. (NH SWM)

E9

STONE CHECK DAM

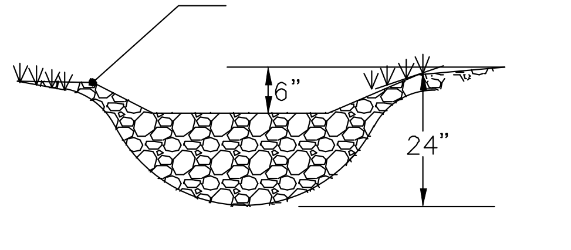
NOT TO SCALE

THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION.

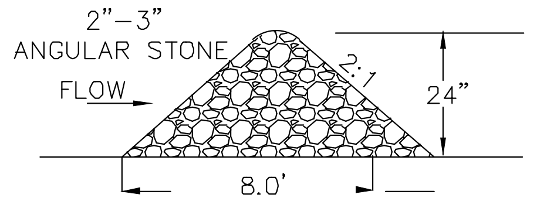


SPACING BETWEEN STRUCTURES

NOTE: KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIUM OF 18" TO PREVENT FLOW AROUND THE DAM.

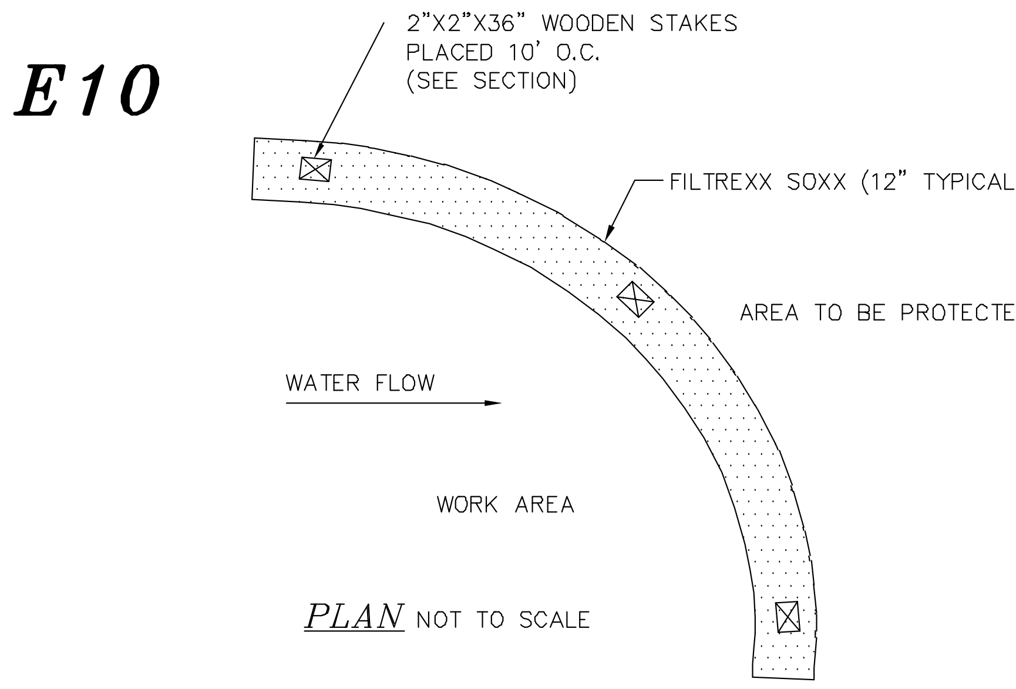


1.) CHECK DAMS SHOULD BE INSTALLED BEFORE RUNOFF IS DIRECTED TO THE SWALE OR DRAINAGE DITCH.
2.) THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHOULD BE LESS THEN ONE ACRE.
3.) THE MAXIMUM HEIGHT OF THE DAM SHOULD BE TWO FEET.
4.) THE CENTER OF THE DAM SHOULD BE AT LEAST SIX INCHES LOWER THAN THE OUTER EDGES.
5.) THE MAXIMUM SPACING IS AS SHOWN ON THE PROJECT SITE PLANS.
6.) CHECK DAMS WILL NOT BE USED IN A FLOWING STREAM.
7.) TEMPORARY CHECK DAMS WILL BE REMOVED ONCE THE SWALE OR DITCH IS DETERMINED STABLE.
8.) TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CHECK DAMS, PAGE 114.



STONE GRADE STABILIZATION STRUCTURE

E10



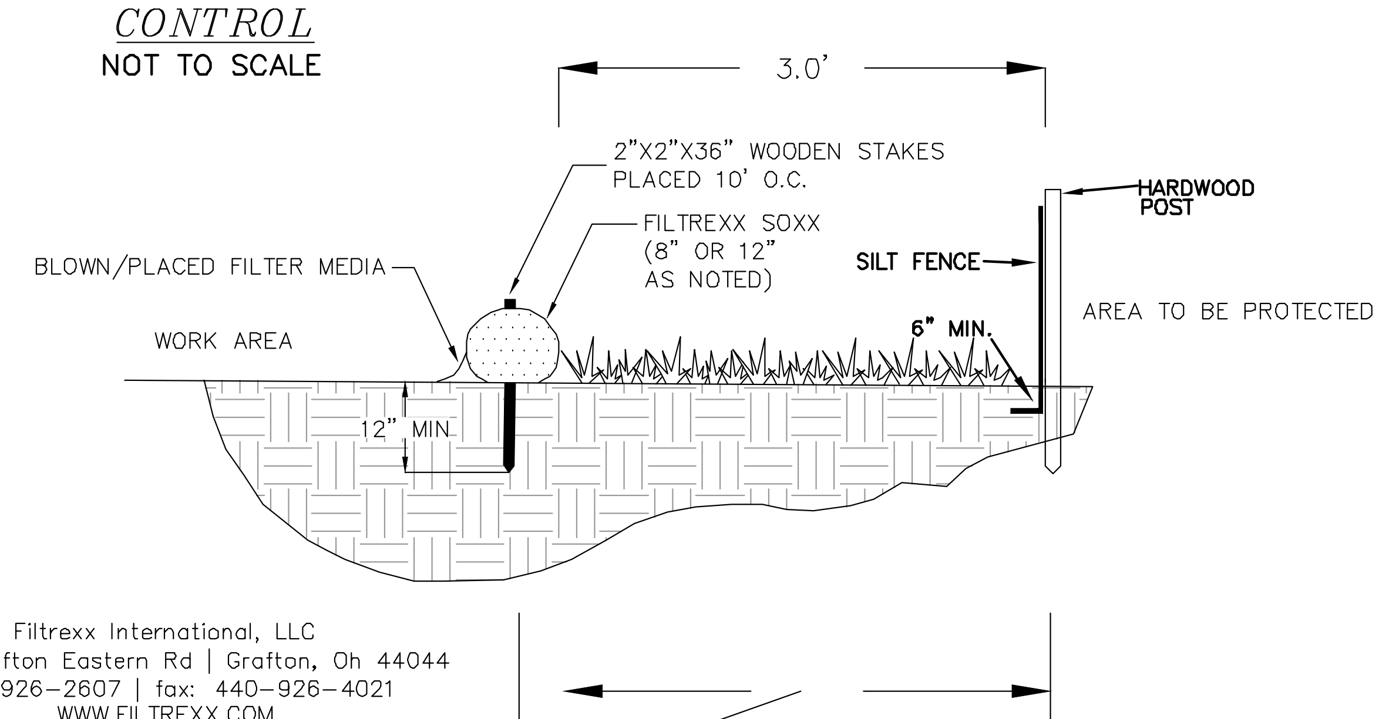
PLAN NOT TO SCALE

NOTES

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIRMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. SILTSOXX MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
5. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIRMENTS OF THE SPECIFIC APPLICATION.
6 FILTREXX SOXX IS A REGISTERED TRADEMARK OF FILTREXXIN TERNATIONAL, LLC.
7. SILT FENCE IS NOT A SUBSTITUTION FOR SILT SOXX AND ANY EQUAL SUBSTITUTION TO BE APPROVED.
8. TO BE CONSTRUCTED IAW FILTREXX, SECTION 1:EROSION & SEDIMENT CONTROL (PAGE 323) - CONSTRUCTION ACTIVITIES, SWPPP CUT SHEET: FILTREXX SEDIMENT CONTROL

FILTREXX SEDIMENT CONTROL

NOT TO SCALE

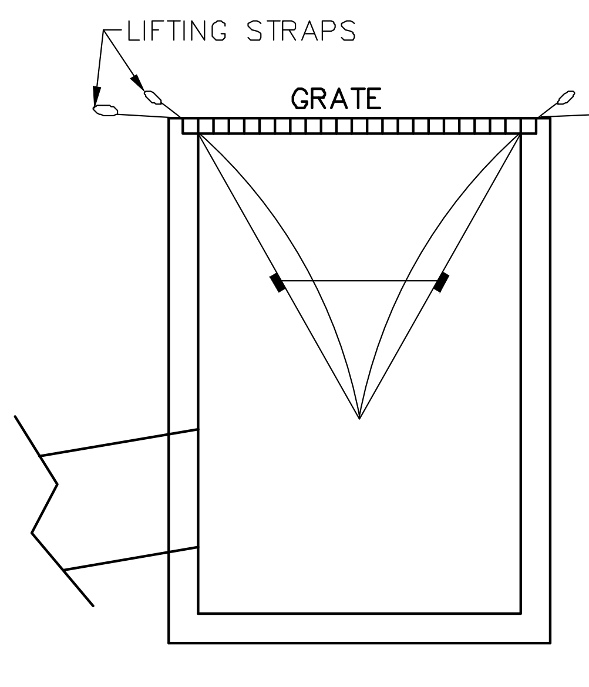


Filtrexx International, LLC
35481 Grafton Eastern Rd | Grafton, Oh 44044
440-926-2607 | fax: 440-926-4021
WWW.FILTREXX.COM
OR APPROVED EQUAL

NOTE: FOR AREAS REQUIRING DOUBLE PERIMETER CONTROL WITHIN 50' OF JURISDICTIONAL WETLANDS AND NOT FOR ALL SILT SOXX APPLICATIONS. THIS DUPLICATION MAY BE SPECIFIED AS 12" SILT SOXX OR ORANGE CONSTRUCTION FENCE AS NOTED.

SECTION NOT TO SCALE

E11



RECOMMENDED MAINTENANCE SCHEDULE

-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT, AND MUST BE MAINTAINED.

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS.

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

-TO BE USED IN ALL AREAS WHERE THERE WILL BE TRAFFIC.

- ARE SUBJECT TO DAMAGE BY SNOW PLOWS, AND MUST BE INSPECTED AFTER ANY SNOW EVENT AND REPLACED AS REQUIRED.

TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

SILTSACK DETAIL

NOT TO SCALE

E-101

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

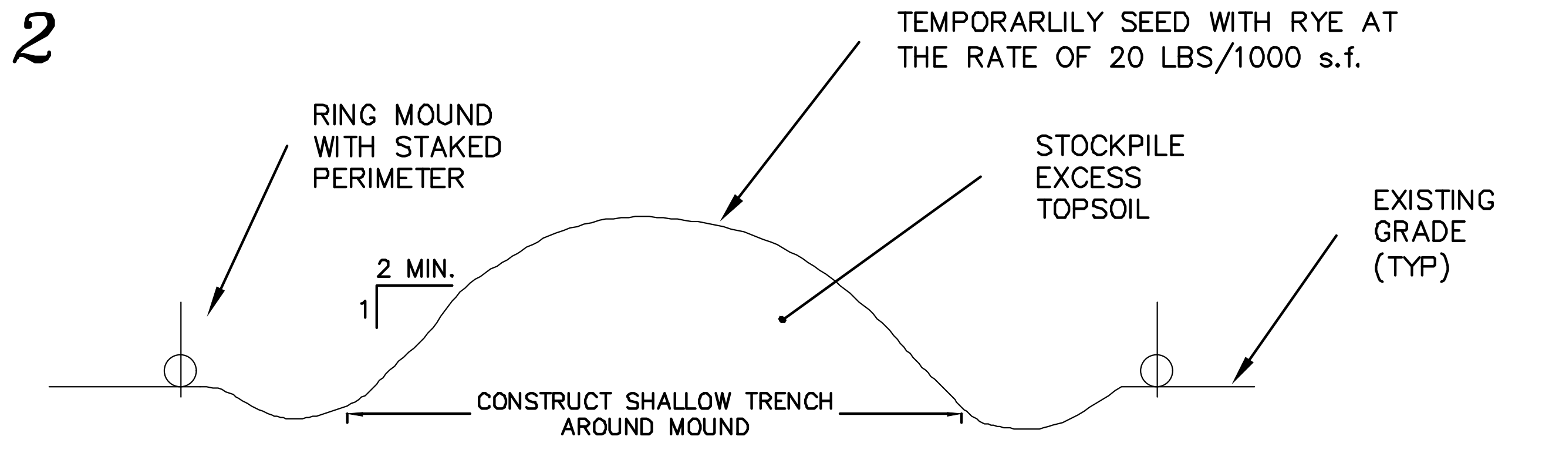
EROSION & SEDIMENT CONTROL DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14247
LICENSED
PROFESSIONAL ENGINEER

E12



TOPSOIL STOCKPILE MOUND

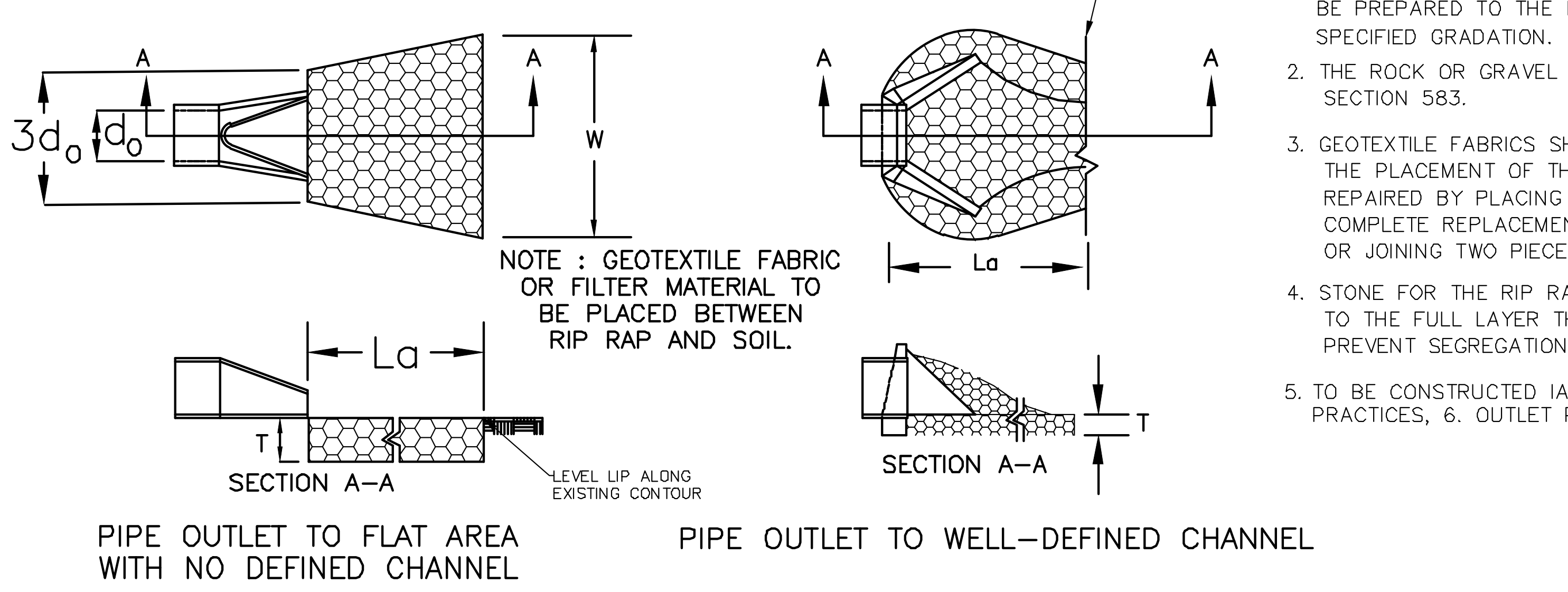
NOT TO SCALE

TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, SOIL STOCKPILE PRACTICES, PAGE 46.

E13

PIPE OUTLET PROTECTION

NOT TO SCALE



PIPE OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

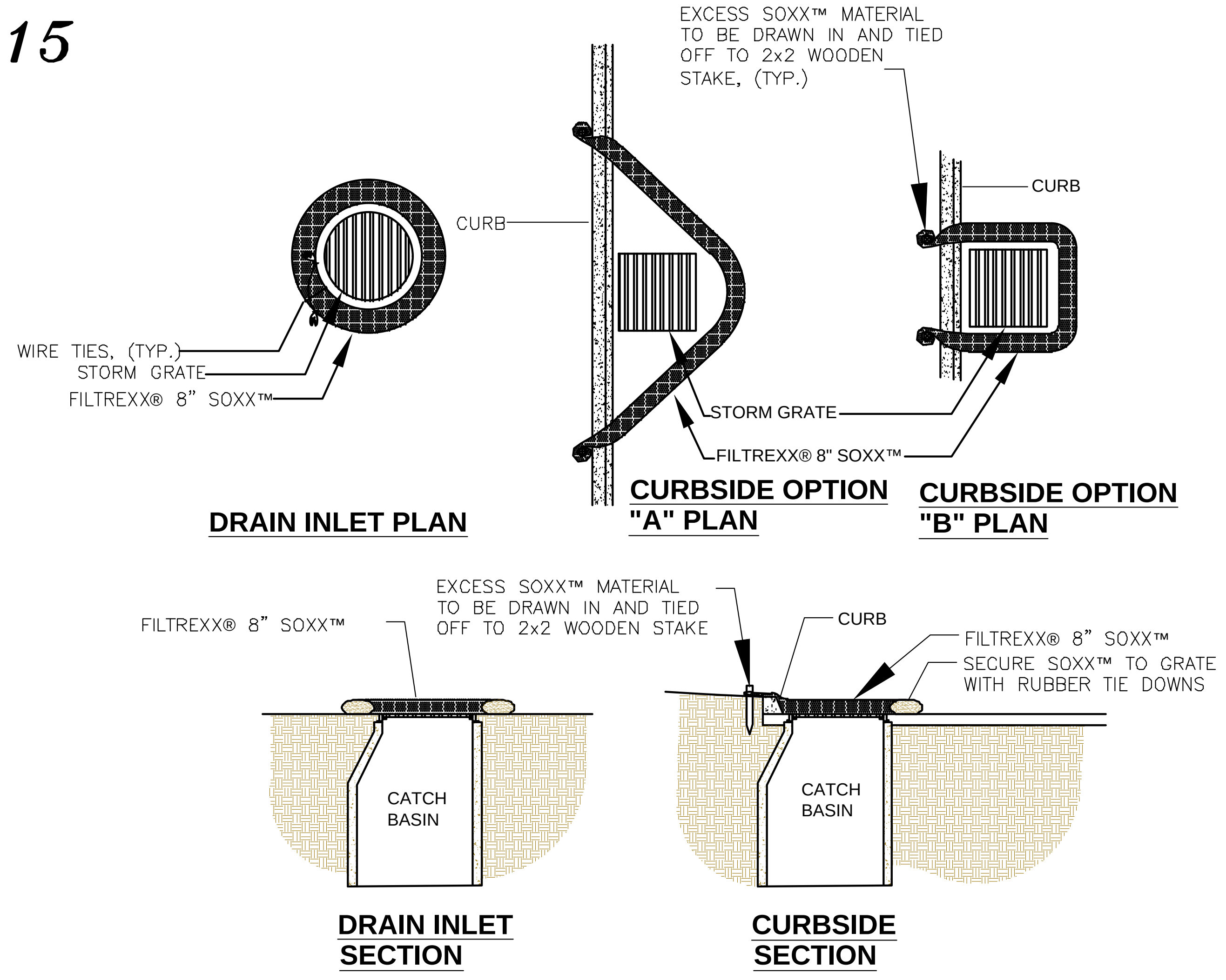
1. THE SUB GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS. SPECIFIED GRADATION.
2. THE ROCK OR GRAVEL USED FOR FILTER OF RIP RAP SHALL CONFORM TO NHDOT SECTION 583.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING 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.
5. TO BE CONSTRUCTED IAW NH SWM #2 4-6 CONVEYANCE PRACTICES, 6. OUTLET PROTECTION, PAGE 172.

E14

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
d50 SIZE= 0.5 FEET 6 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	9	12
85%	8	11
50%	6	9
15%	2	3

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES		
d50 SIZE= 1.0 FEET 12 INCHES		
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM	TO
100%	18	24
50%	12	18
15%	4	6

E15



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX INLET PROTECTION

NOT TO SCALE

E16

NOTE: THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/

RECOMMENDED

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7-36.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

*

SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
C. TALL FESCUE	24	0.55
CREEPING RED FESCUE	24	0.55
BIRDS FOOT TREFOIL	REMOVED	REMOVED
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

CONSERVATION MIX	POUNDS PER ACRE	POUNDS PER 1,000 S.F.
TALL FESCUE (35%)	15	0.35
CREEPING RED FESCUE (25%)	15	0.35
ANNUAL RYEGRASS (12%)	5	0.12
PERENNIAL RYEGRASS (10%)	5	0.12
KENTUCKY BLUEGRASS (10%)	15	0.35
WHITE CLOVER (3%)	7	0.16

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1;3:1 SLOPES OR FLATTER ARE PREFERRED.
   WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEED BED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING
   AND INCORPORATED INTO THE SOIL KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE,
   THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
   AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100LBS. PER 1,000 SQ.FT.
   NITROGEN(N), 50LBS. PER ACRE OR 1.1LBS. PER 1,000 SQ.FT.
   PHOSPHATE(P205), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   POTASH(K20), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   (NOTE: THIS IS THE EQUIVALENT OF 500LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO TABLE(G-E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H-E1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT TREFOIL, AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.
6. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, PERMANENT VEGETATION, PAGE 60.

E17

CONSTRUCTION SEQUENCE:

1.) CUT AND REMOVE TREES IN CONSTRUCTION AREA ONLY AS REQUIRED, RELOCATE ANY PROJECT T.B.M.

2.) CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS SPECIFIED. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.

3.) EROSION, SEDIMENT AND DETENTION CONTROL FACILITY SHALL BE INSTALLED & STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.TEMPORARY DIVERSIONS MAY BE REQUIRED. POST CONSTRUCTION STORM WATER MANAGEMENT PRACTICES MUST BE INITIATED AND STABILIZED EARLY IN THE PROCESS. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.

4.) CLEAR, CUT AND DISPOSE OF DEBRIS IN APPROVED FACILITY

5.) CONSTRUCT TEMPORARY CULVERTS AS REQUIRED, OR DIRECTED

6.) CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY. SEE BEST MANAGEMENT PRACTICES FOR BLASTING ON SHEET C-102.

7.) START BUILDING CONSTRUCTION

8.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. INSTALL RAIN GARDENS. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.

9.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 45 DAYS BEFORE BEING STABILIZED. DAILY, OR AS REQUIRED. ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.

10.) CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.

11.) INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION. ALL SWPPP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORM WATER INSPECTOR (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT. EROSION AND SEDITMENT CONTROL PRACTICES ARE TO BE INSPECTED WEEKLY AND AFTER 0.5" OF RAINFALL.

12.) COMPLETE PERMANENT SEEDING AND LANDSCAPING.

13.) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.

14.) SMOOTH AND REVEGETATE ALL DISTURBED AREAS.

15.) FINISH PAVING ALL ROADWAYS.

16.) 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.

E18

DEFINITION OF STABLE:

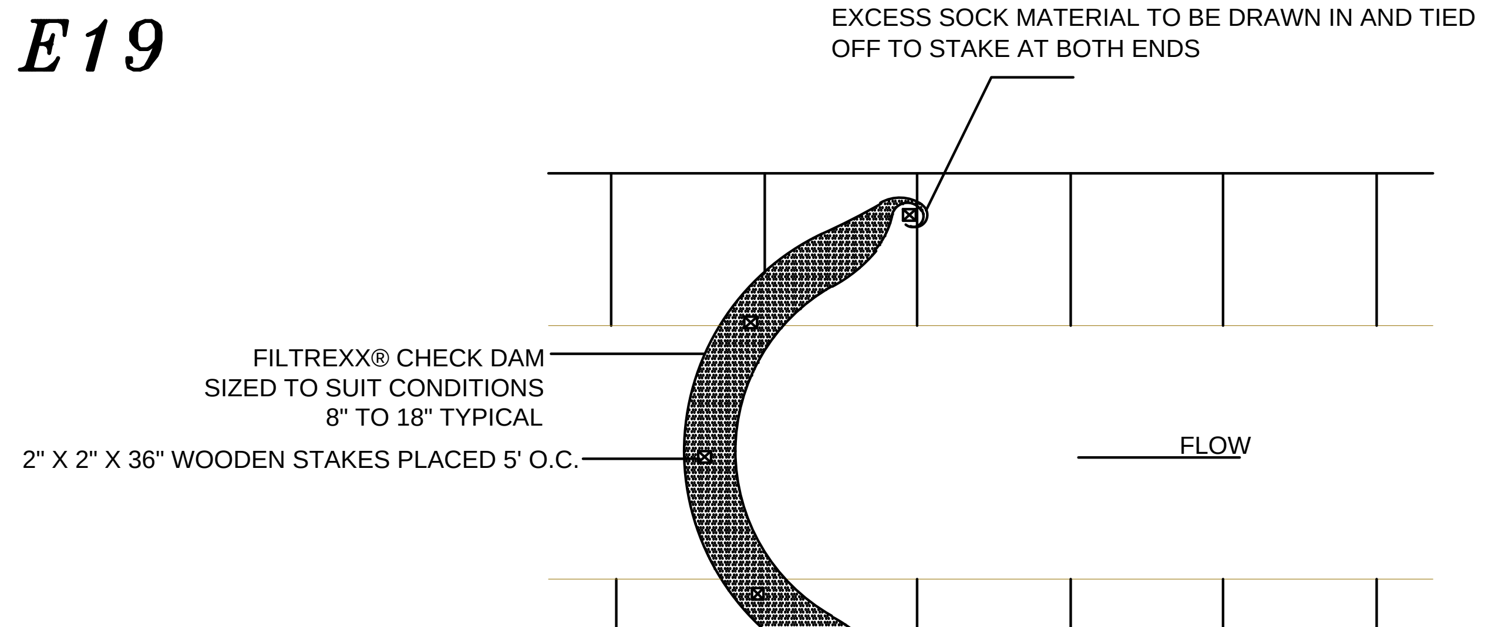
PER ENV-WQ 1500 ALTERATION OF TERRAIN

1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
2. A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED..
3. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED.
4. OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

ADDITION STABILIZATION NOTES:

5. HAY MULCH OR OTHER APPROVED METHODS SHALL BE USED TO CONTROL EROSION OF NEWLY GRADED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER THEIR CONSTRUCTION.
6. DISTURBED SOIL AREAS SHALL BE EITHER TEMPORARILY OR PERMANENTLY STABILIZED. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN (7) CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN ONE HUNDRED (100) FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE (3) CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.

E19



FILTREXX CHECK DAM

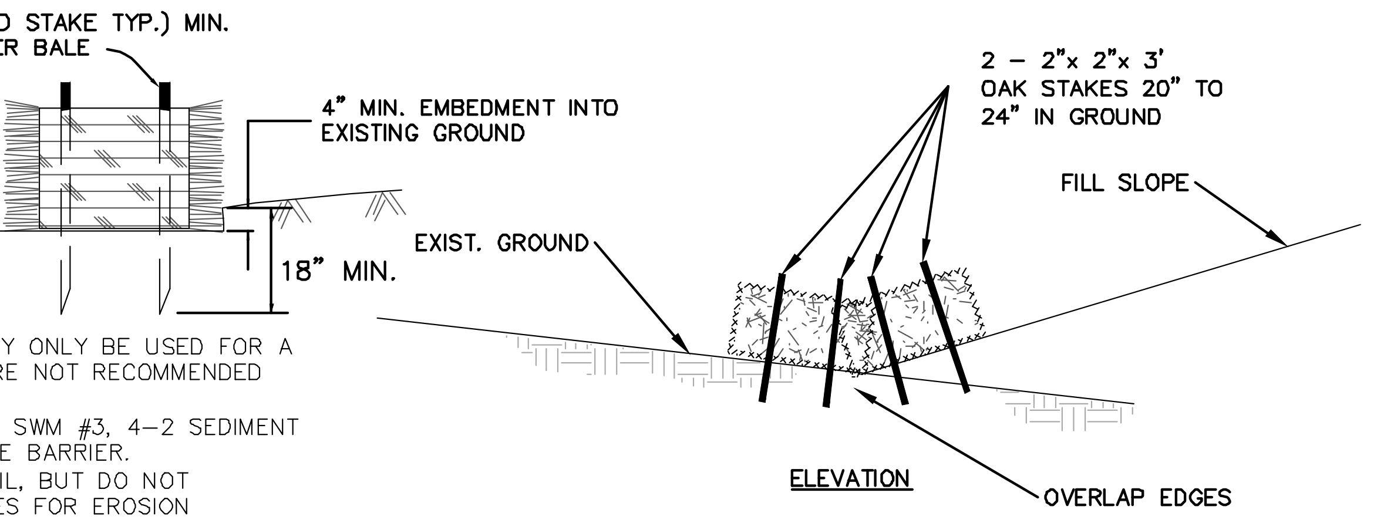
NOT TO SCALE

NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. CHECK DAM SHOULD BE USED IN AREAS THAT DRAIN 1 ACRE OR LESS.
3. SEDIMENT SHOULD BE REMOVED FROM BEHIND CHECK DAM ONCE THE ACCUMULATED HEIGHT HAS REACHED ½ THE HEIGHT OF THE CHECK DAM.
4. CHECK DAM CAN BE DIRECT SEEDED AT THE TIME OF INSTALLATION.
5. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED™ INSTALLER.

E20

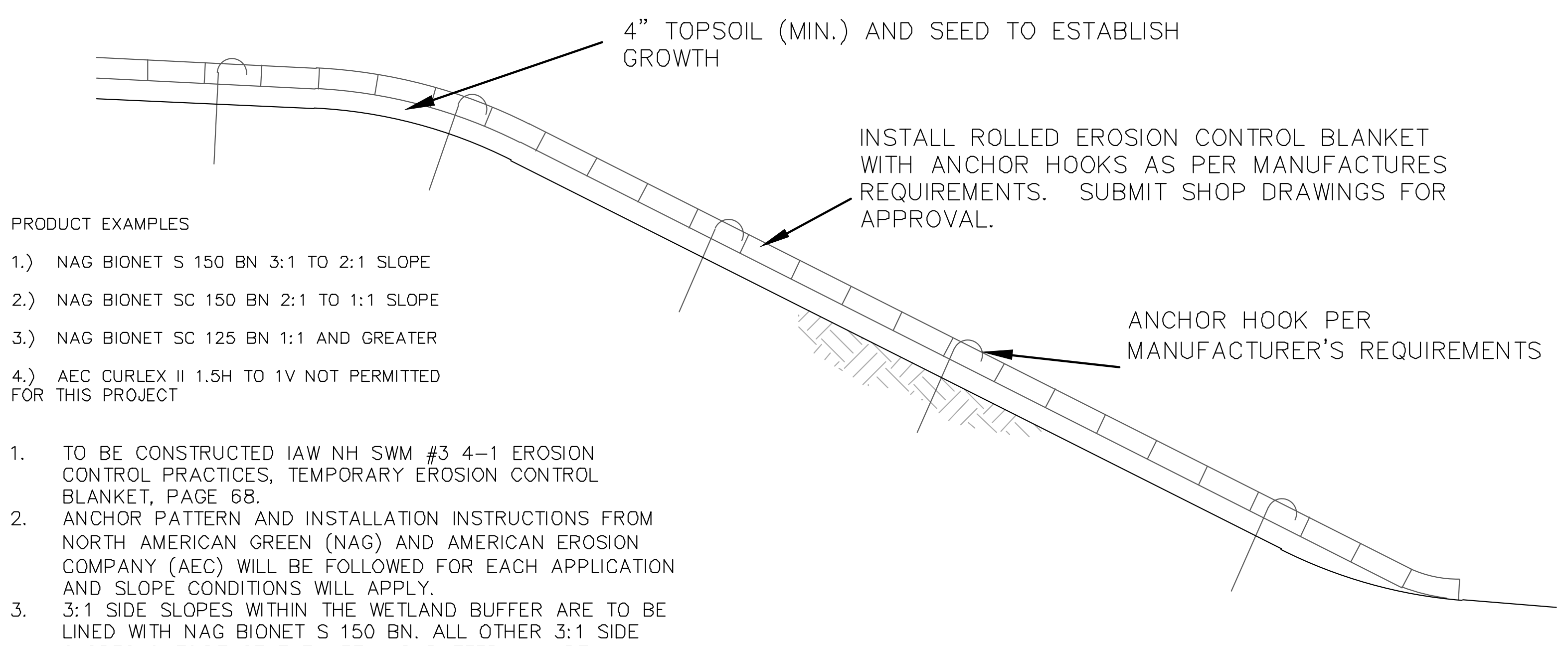
STAKED HAYBALE DETAIL

NOT TO SCALE



1.) HAY BALES BARRIERS MAY ONLY BE USED FOR A MAXIMUM OF 60 DAYS AND ARE NOT RECOMMENDED FOR PERIMETER CONTROL.
2.) TO BE INSTALLED IAW NH SWM #3, 4-2 SEDIMENT CONTROL, STRAW OR HAY BALE BARRIER.
3.) REQUIRED TO SHOW DETAIL, BUT DO NOT RECCOMEND USE OF HAY BALES FOR EROSION CONTROL.

E21



PRODUCT EXAMPLES

1.) NAG BIONET S 150 BN 3:1 TO 2:1 SLOPE
2.) NAG BIONET SC 150 BN 2:1 TO 1:1 SLOPE
3.) NAG BIONET SC 125 BN 1:1 AND GREATER
4.) AEC CURLEX II 1.5H TO 1V NOT PERMITTED FOR THIS PROJECT

1. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 68.
2. ANCHOR PATTERN AND INSTALLATION INSTRUCTIONS FROM NORTH AMERICAN GREEN (NAG) AND AMERICAN EROSION COMPANY (AEC) WILL BE FOLLOWED FOR EACH APPLICATION AND SLOPE CONDITIONS WILL APPLY.
3. 3:1 SIDE SLOPES WITHIN THE WETLAND BUFFER ARE TO BE LINED WITH NAG BIONET S 150 BN. ALL OTHER 3:1 SIDE SLOPES OUTSIDE OF THE WETLAND BUFFER MAY BE STABILIZED WITH VEGETATION. HOWEVER THE DESIGN ENGINEER RESERVES THE RIGHT TO REQUEST ADDITIONAL MATTING BE INSTALLED IF NEEDED.

ROLLED EROSION CONTROL BLANKET (RECB) SLOPE STABILIZATION DETAIL

NOT TO SCALE

E22

WINTER STABILIZATION NOTES

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.

2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.

3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.

4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EROSION & SEDIMENT CONTROL DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

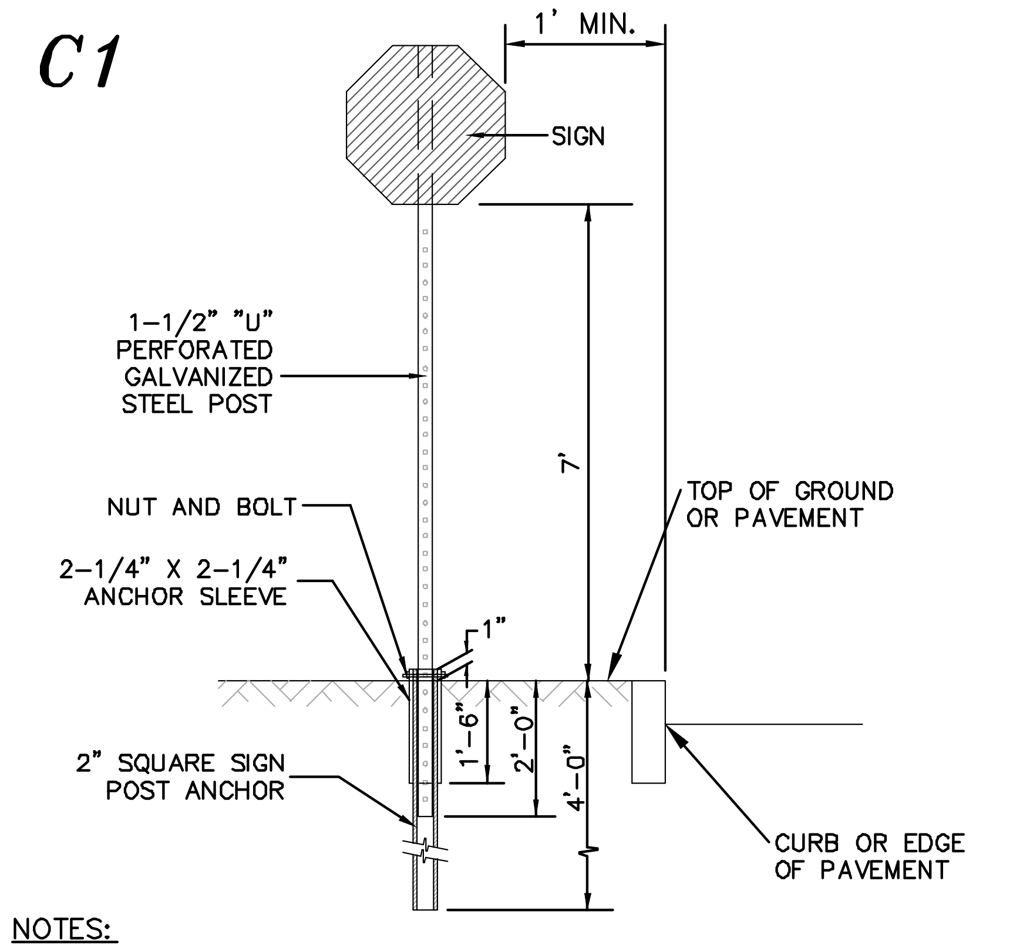
AS NOTED
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

E-102

SHEET 47 OF 55

C1



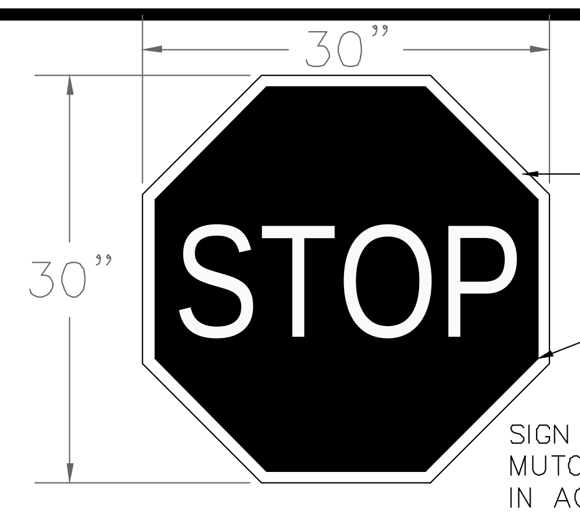
NOTES:

ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.

THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.

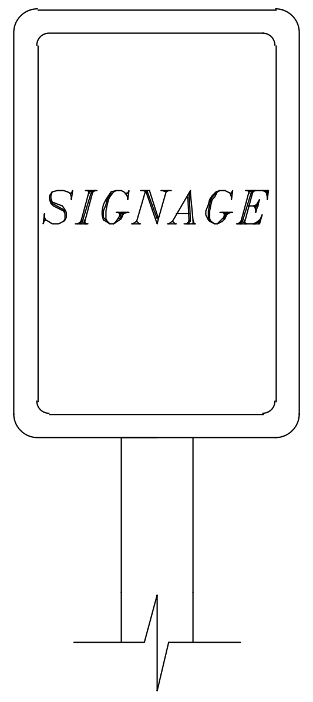
THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF ROCHESTER DEPARTMENT OF PUBLIC WORKS.

TYPICAL SIGN POST
NOT TO SCALE

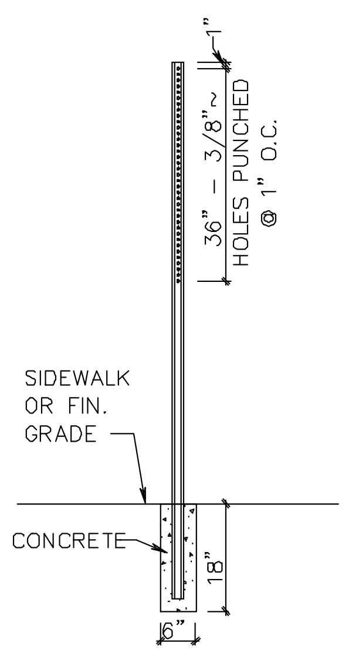


SIGN BACKGROUND TO BE WHITE.
LETTERING TO BE WHITE.
OCTAGON TO BE RED.

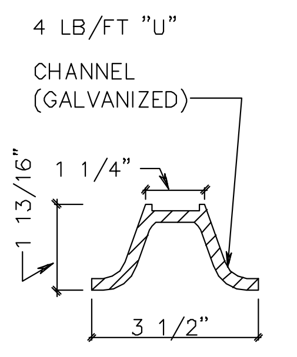
SIGN R1-1 AS SHOWN IN THE MUTCD. INSTALLATION WILL BE IN ACCORDANCE WITH THE MUTCD.



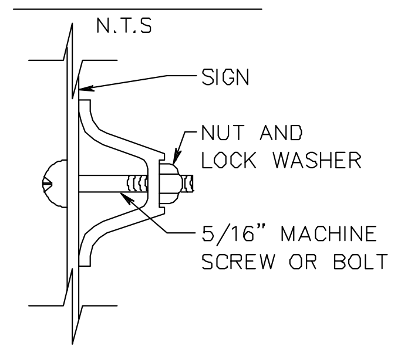
PARTIAL ELEVATION
N.T.S.



POST
N.T.S.

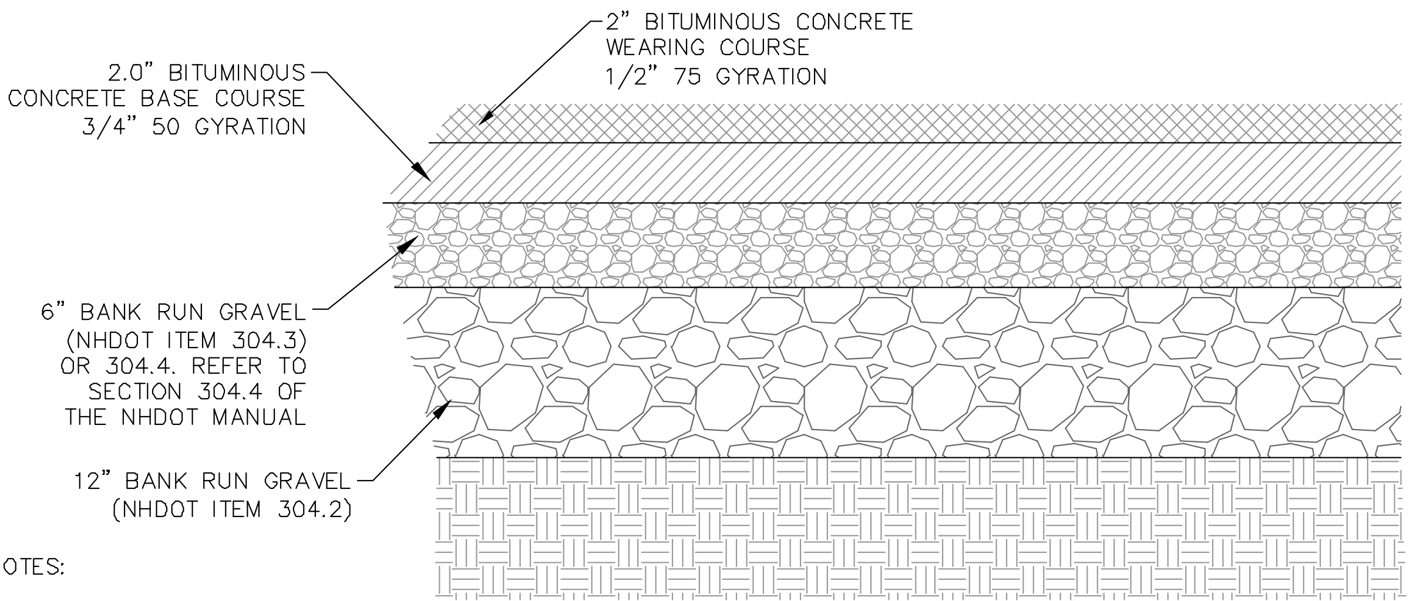


POST SECTION
N.T.S



MOUNTING
N.T.S.

C2



NOTES:

1.) BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SUBSECTION 401.3.6.

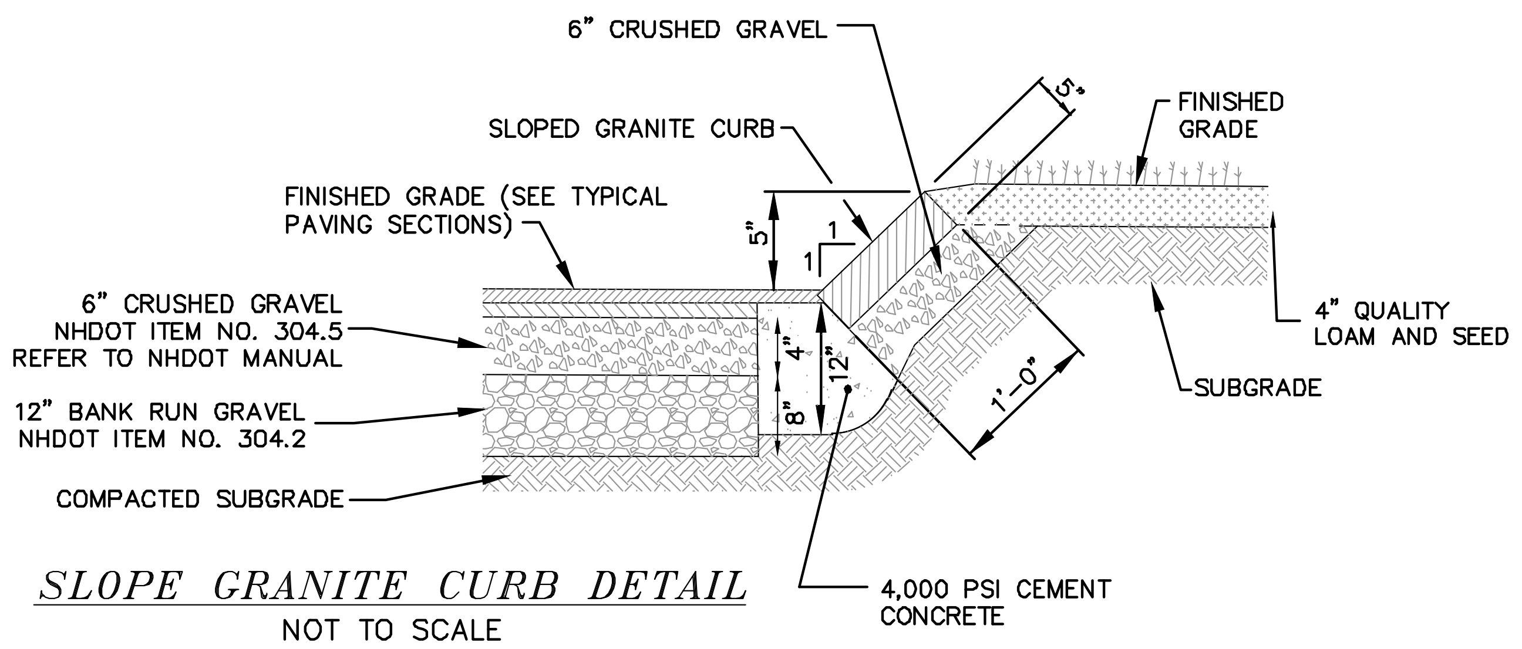
2.) PAVEMENT BASE COURSE AGGEGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3.) PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOFROLLED AND COMPABED TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY. FOR NEW CONSTRUCTION AREAS ONLY. IN EXISTING PAVEMENT AREAS THE CONTRACTOR IS TO ENSURE THE BASE MATERIAL IS SUITABLE TO THE OWNER FOR RE-PAVING

COMPACTED SUBGRADE TO 95% MAXIMUM DRY DENSITY PER ASTM D1557 WITHIN 3% OF OPTIMUM MOISTURE CONTENT

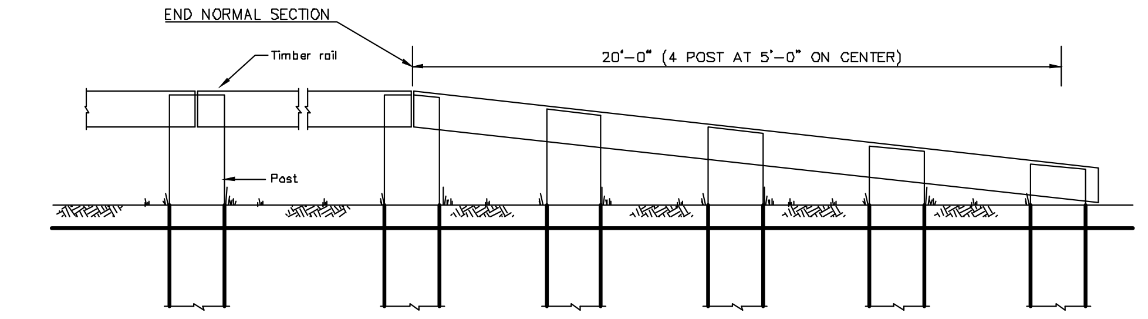
BITUMINOUS CONCRETE PAVEMENT SECTION
NOT TO SCALE

C3



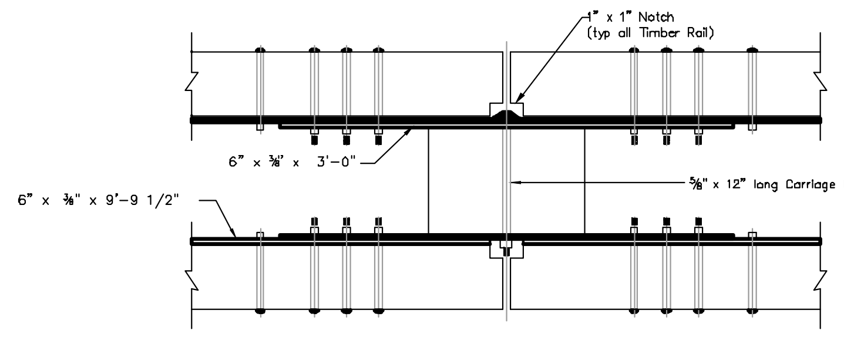
SLOPE GRANITE CURB DETAIL
NOT TO SCALE

C4



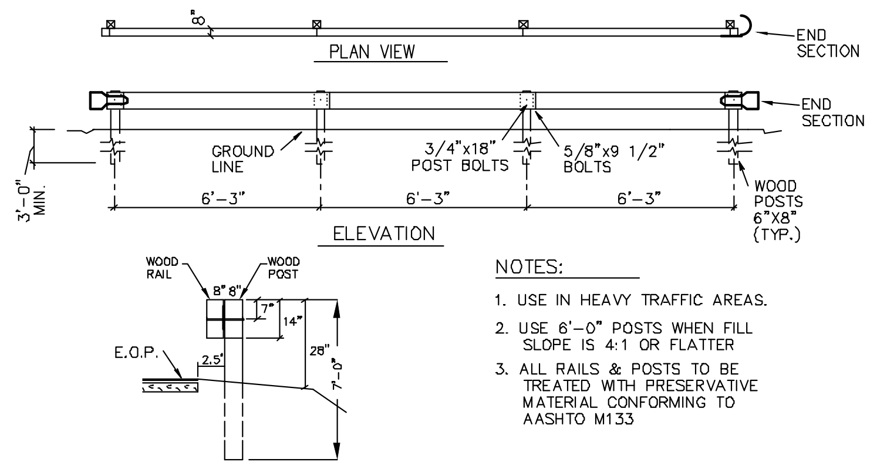
NOTES:
1. POST TYPE : 10" x 12" WOOD
2. BEAM TYPE : 6" x 10" WOOD
3. POST SPACING : 5'-0" O.C.
4. NOMINAL BARRIER HEIGHT : 27"

STEEL BACKED WOOD GUARD RAIL TERMINAL UNIT DETAIL



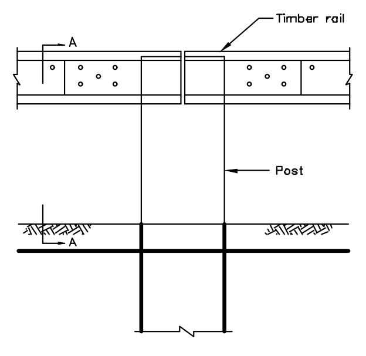
POST/RAIL CONNECTION DETAIL

GUARD RAIL STEEL PLATE BACKED (WOODEN RAIL)
NOT TO SCALE

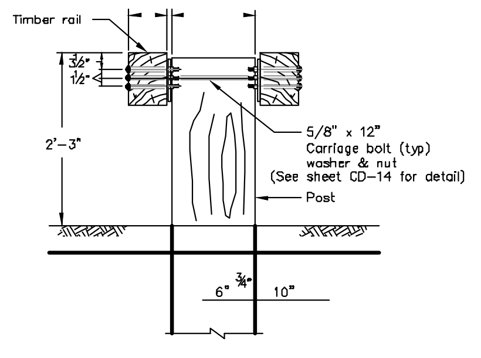


NOTES:
1. USE IN HEAVY TRAFFIC AREAS.
2. USE 6'-0" POSTS WHEN FILL SLOPE IS 4:1 OR FLATTER
3. ALL RAILS & POSTS TO BE TREATED WITH PRESERVATIVE MATERIAL CONFORMING TO AASHTO M133

NOT TO SCALE



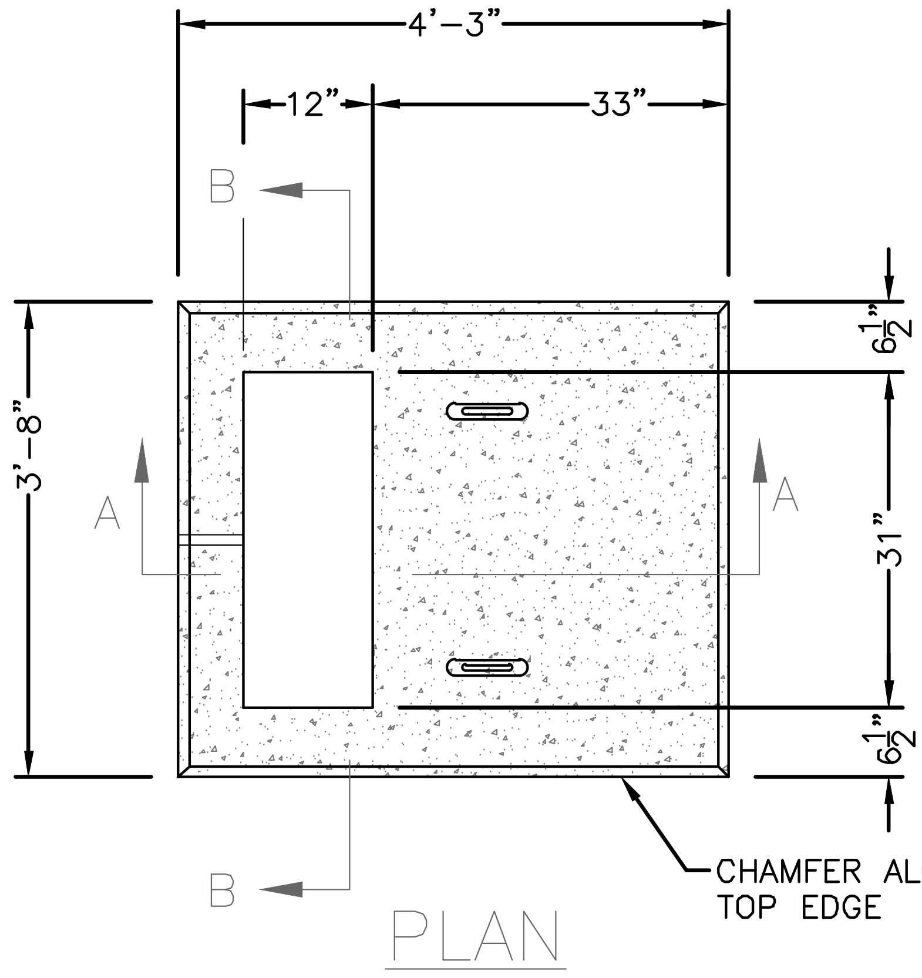
POST CONNECTION DETAIL



SECTION A-A

NOTES:
1. POST TYPE : 10" x 12" WOOD
2. BEAM TYPE : 6" x 10" WOOD WITH STEEL PLATE BACKING
3. POST SPACING : 10'-0" O.C.
4. NOMINAL BARRIER HEIGHT : 27"
5. STEEL PLATE BACKING AND SPLICE PLATE – A36 GALVANIZED STEEL
6. ALL BOLTS & WASHERS TO BE GALVANIZED

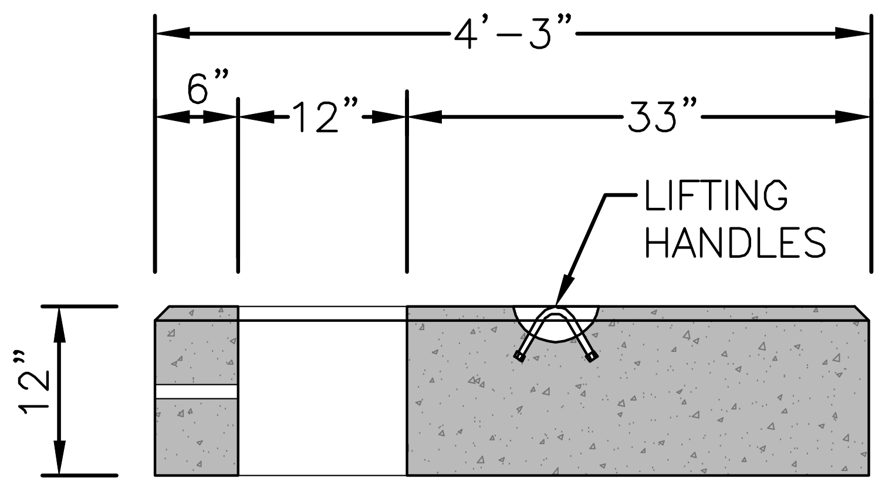
C5



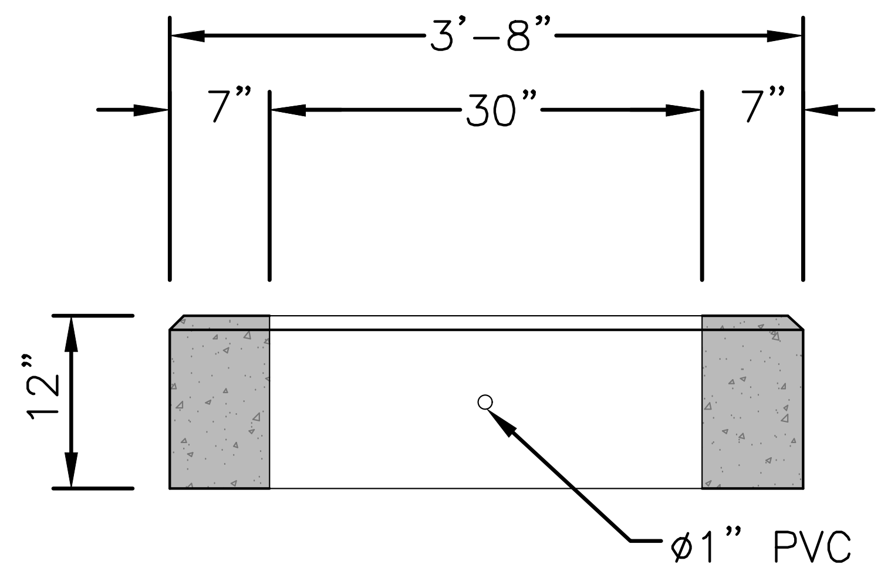
PLAN

NOTES:
1. CONCRETE MINIMUM STRENGTH 4,000 PSI AFTER 28 DAYS
2. REINFORCEMENT STEEL CONFORMS TO ASTM A615 GRADE 60 #6 REBAR.
3. MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS.
4. MUST BE A SHEA CONCRETE PRODUCT OR EQUAL.

TRANSFORMER AND PAD DETAIL
NOT TO SCALE

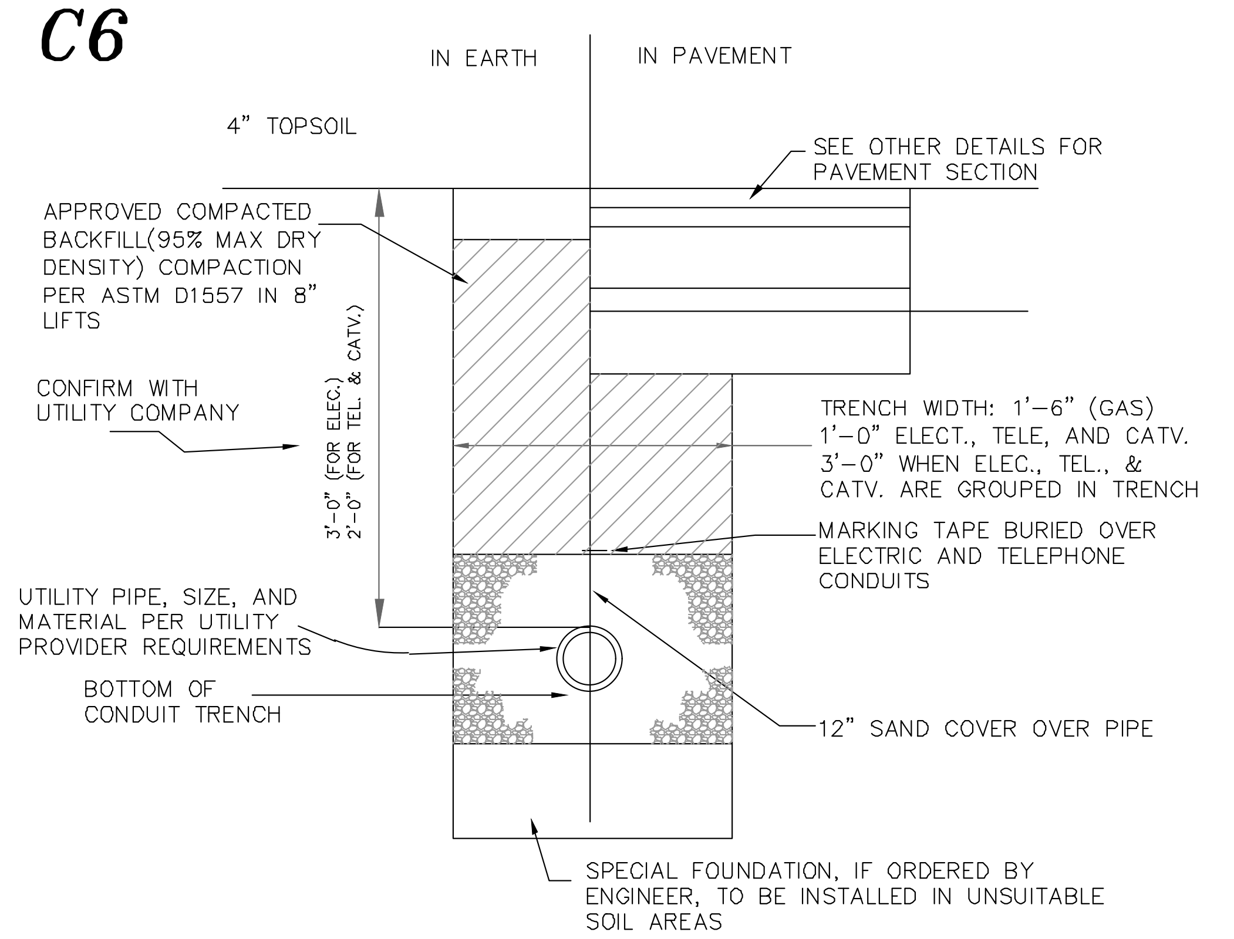


SECTION A-A



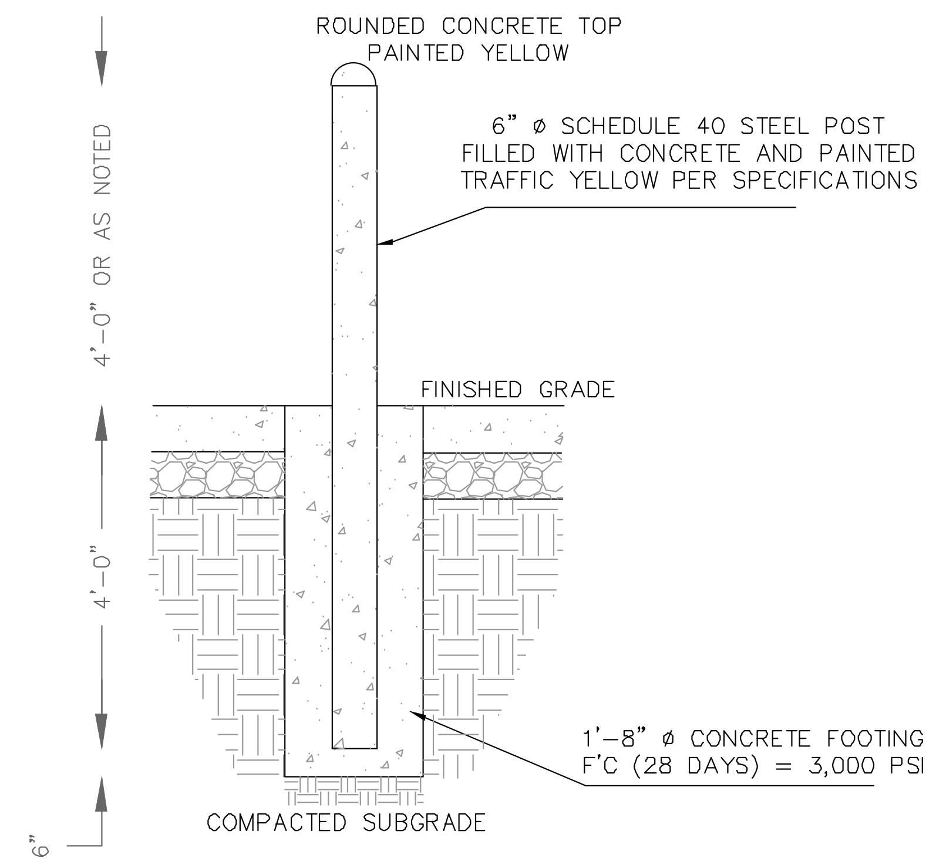
SECTION B-B

C6



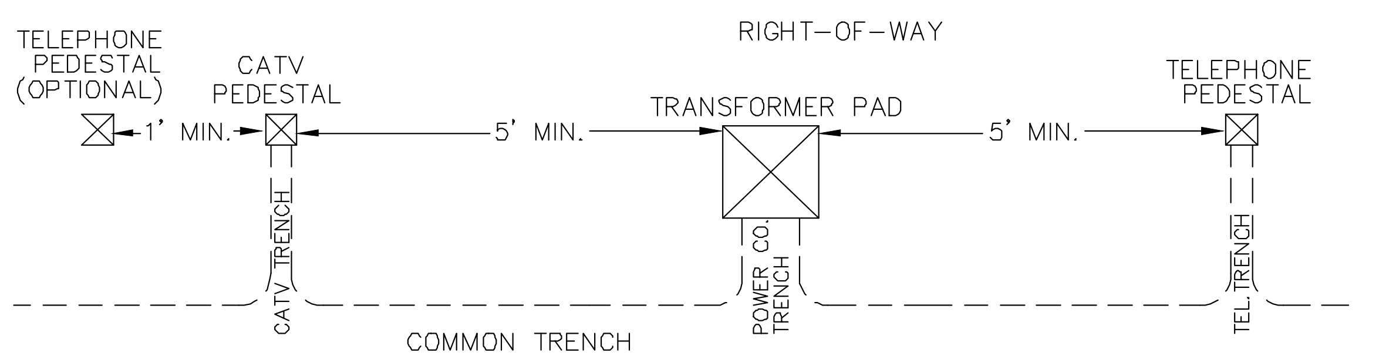
ELECTRICAL, TELEPHONE, TRENCH
NOT TO SCALE

C7



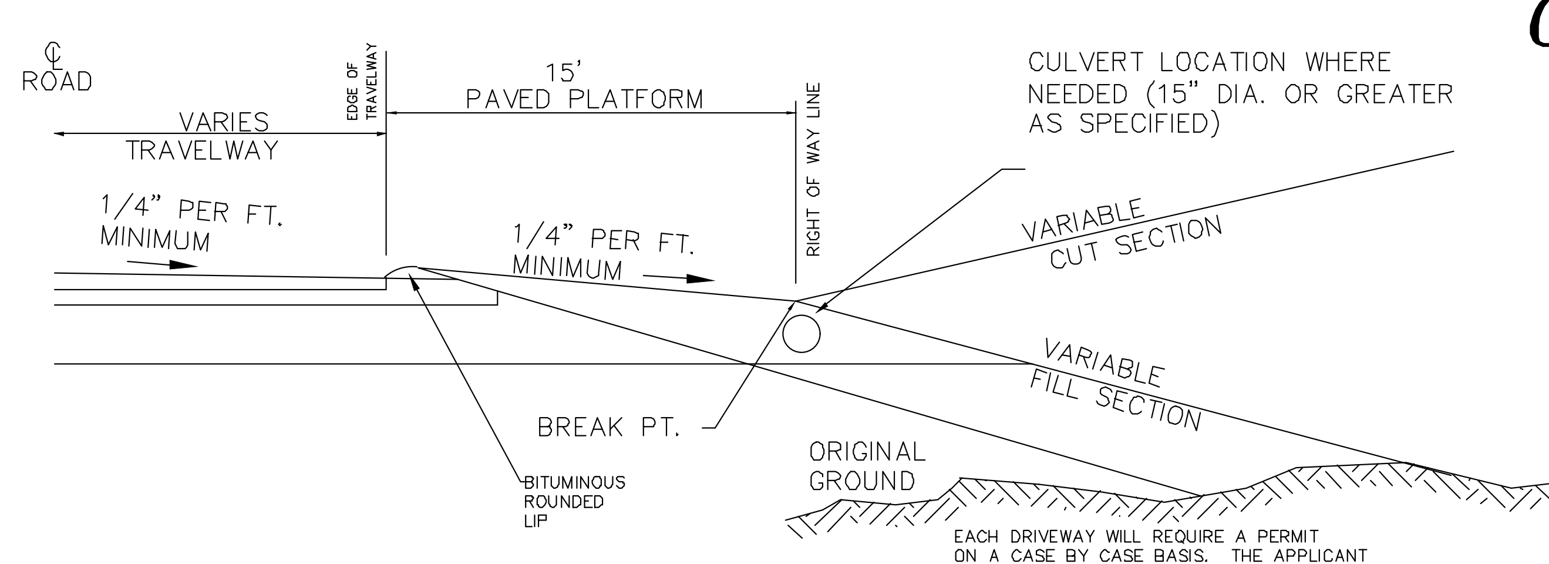
BOLLARD DETAIL
NOT TO SCALE

C8



PEDESTAL PLACEMENT
NOT TO SCALE

C9



TYPICAL RURAL DRIVEWAY CROSS SECTION
NOT TO SCALE

EACH DRIVEWAY WILL REQUIRE A PERMIT ON A CASE BY CASE BASIS. THE APPLICANT AT THAT TIME IS TO WORK WITH DPW TO DETERMINE THE MOST APPROPRIATE PLATFORM AND DRIVEWAY SLOPE / GRADING. THE APPLICANT SHOULD SUBMIT A DETAILED DRAWING FOR REVIEW AS PART OF THE DRIVEWAY PERMIT APPLICATION PROCESS.

C-101

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

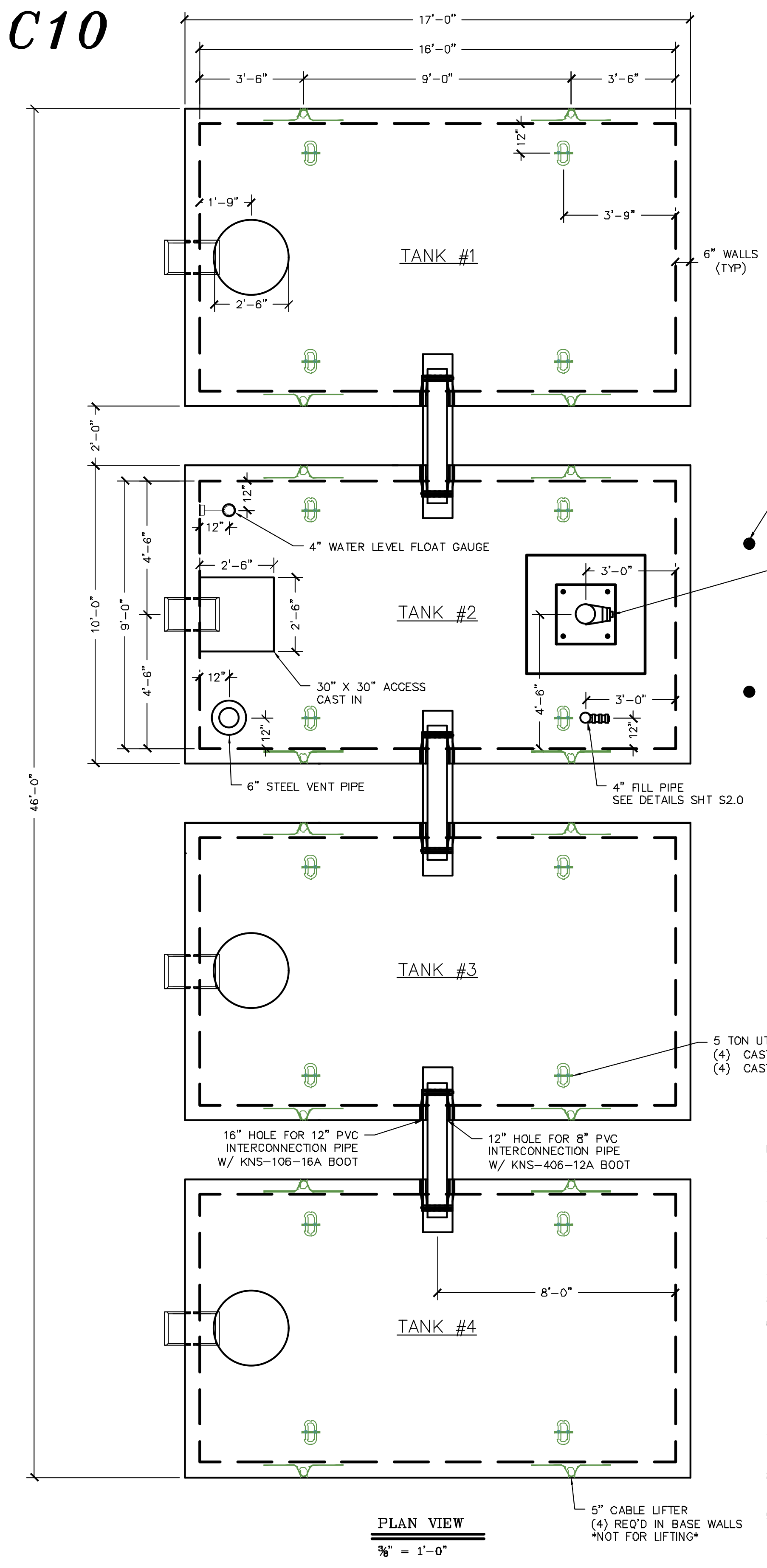
CONSTRUCTION DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : AS NOTED
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

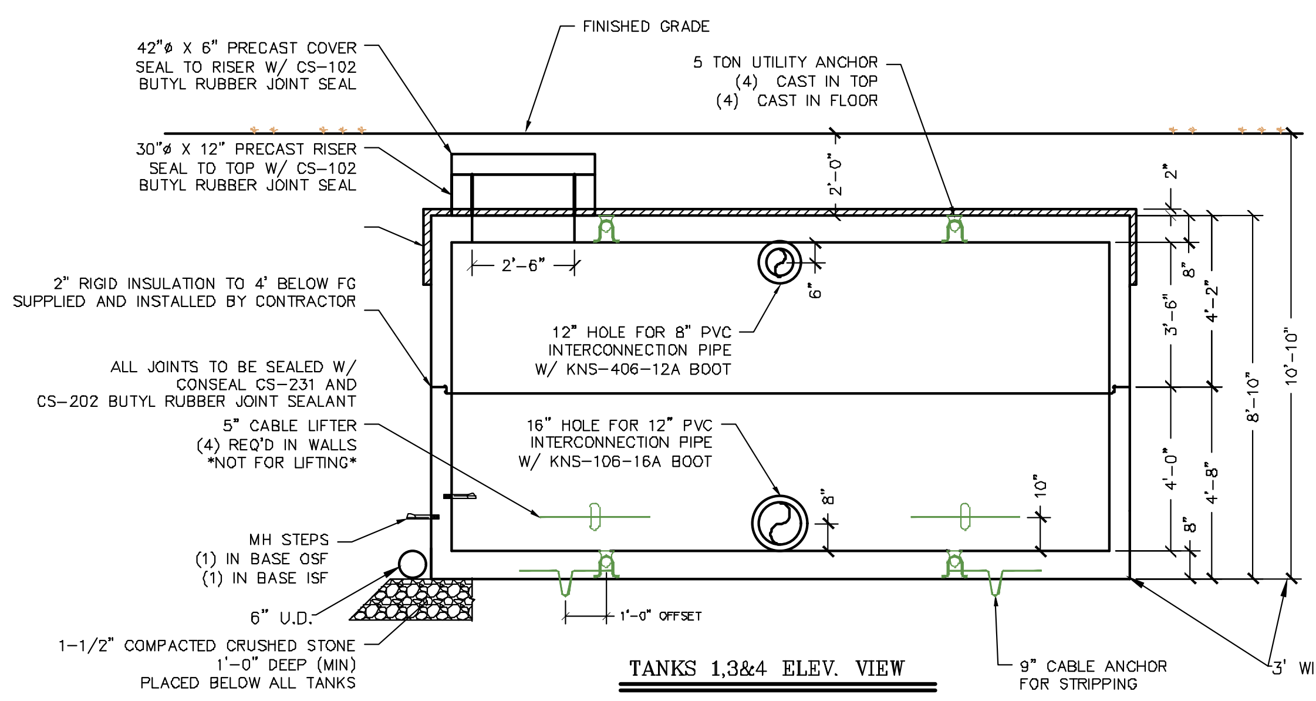
SHEET 48 OF 55

C10

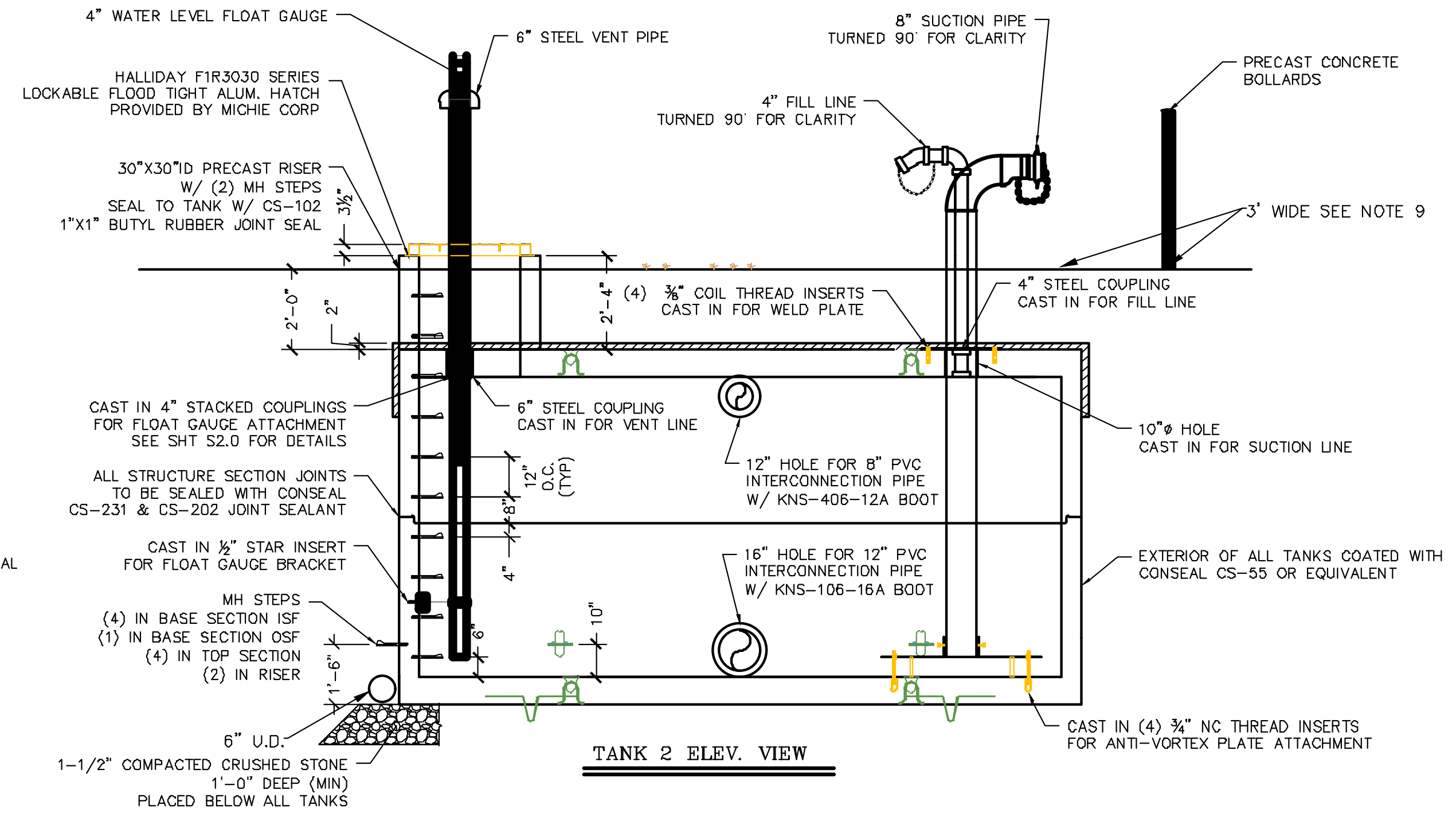


PLAN VIEW

⅜" = 1'-0"



TANKS 1,3&4 ELEV. VIEW



TANK 2 ELEV. VIEW

30K CISTERN

UNIT WEIGHT AND VOLUME:
ITEM No. 279350
TOP SECTION: 31,200# (7.43CY)
ITEM No. 279056
BOTTOM SECTION: 33,700# (8.04CY)

CISTERN USEABLE CAPACITY 30,200 GAL
(32,300 GAL TO FILL TO CAPACITY)

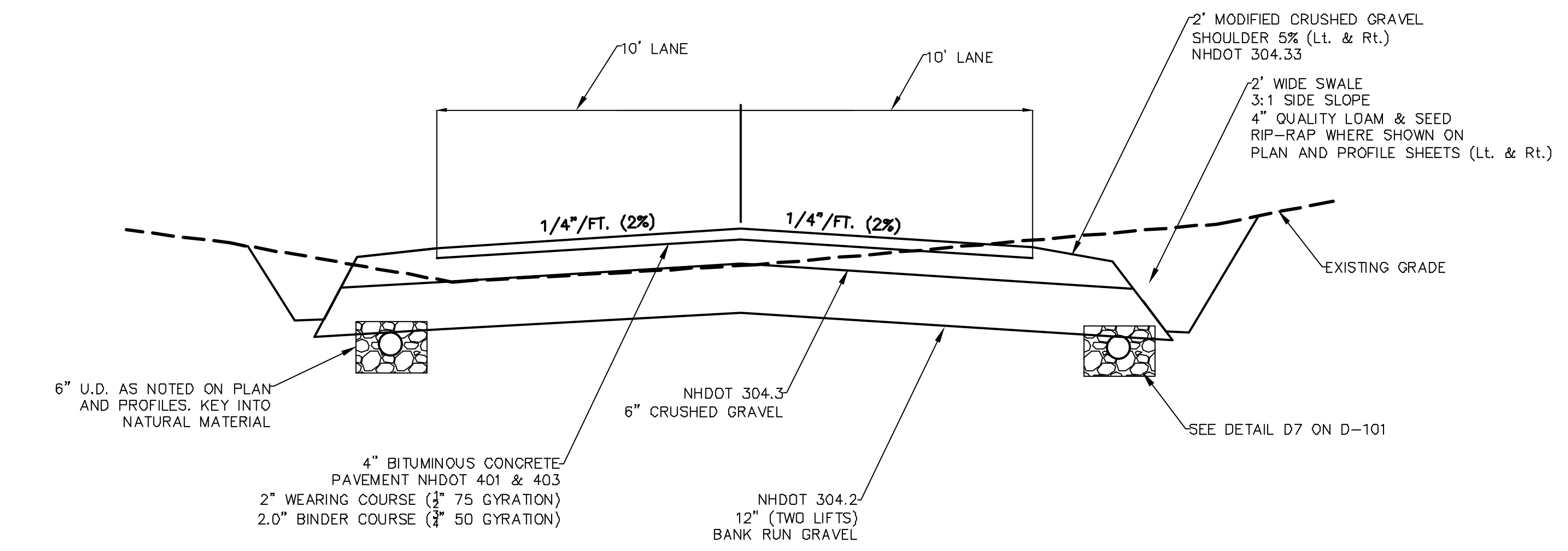
NOTES:

1. MAINTAIN MINIMUM 60 DEGREE SLING ANGLE WHEN HANDLING PRECAST COMPONENTS.
2. PRECAST COMPONENTS SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO STRIPPING, AND THE MINIMUM DESIGN COMPRESSIVE STRENGTH PRIOR TO SHIPPING, UNLESS OTHERWISE APPROVED.
3. CONCRETE SHALL BE SELF-CONSOLIDATING CONFORMING TO ASTM C260 WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. AGGREGATE SHALL CONFORM TO ASTM C-33 WITH A MAXIMUM DIAMETER OF ¾". CEMENT SHALL CONFORM TO ASTM C150.
4. REINFORCING SHALL BE 60,000 PSI GRADE 60 DEFORMED BLACK BARS CONFORMING TO ASTM A-615. ALL BARS SHALL BE BENT COLD.
5. ALL JOINTS AND VOIDS SHALL BE FILLED WITH NON-SHRINK GROUT. VERTICAL SURFACE VOIDS MAY BE FILLED WITH FOAM SEALANT.
6. TANK DESIGNED USING THE FOLLOWING PROPERTIES:
   - DESIGN LOAD: ASHTO HS-20
   - EARTH COVER:
     - 0-2' FOR WATER TABLE 5' BELOW GRADE.
     - 0-2.5' FOR WATER TABLE 3.5'-5' BELOW GRADE.
   - LATERAL EARTH PRESSURES: DRY - 40PCF; SAT - 81PCF
   - ADEQUACY OF THE ABOVE INFORMATION SHALL BE REVIEWED FOR SITE SPECIFIC CONDITIONS BY QUALIFIED LICENSED PROFESSIONAL ENGINEER.
7. ALL EXCAVATED HOLES SHALL BE PREPARED PER OSHA STANDARDS; NOTHING IN THESE PLANS SHALL BE CONSTRUED TO PROVIDE EXCAVATION GUIDANCE. TANK EXCAVATION SHALL BE KEPT DEWATERED THROUGHOUT INSTALLATION AND BACKFILL OPERATIONS.
8. STRUCTURE SHALL BE PLACED AT ELEVATIONS SHOWN ON THE DRAWINGS ON A MINIMUM OF 12" OF COMPACTED CRUSHED STONE WITH AN AGGREGATE SIZE OF ¾" TO 1½". ALL TOPSOIL, LOOSE FILL, AND DELETERIOUS MATERIALS SHALL BE REMOVED BEFORE PLACING MATERIAL.
9. BACKFILL MATERIAL SHALL BE SCREENED GRAVEL OR SAND, FREE OF DELETERIOUS MATERIAL WITH A MAXIMUM AGGREGATE SIZE OF 1½". BACKFILL SHALL EXTEND FOR A MINIMUM DISTANCE OF 3'-0" BEYOND THE HORIZONTAL LIMITS OF THE STRUCTURE. MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 12" AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DENSITY DETERMINED BY ASTM D1557

FIRE CISTERN DETAIL

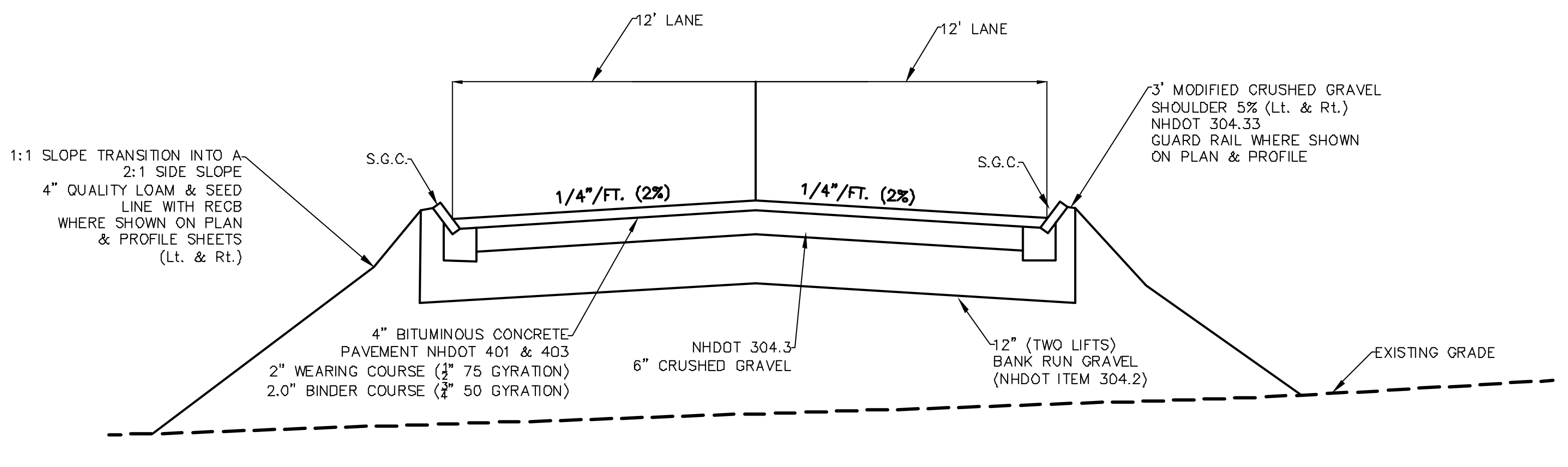
NOT TO SCALE

C11



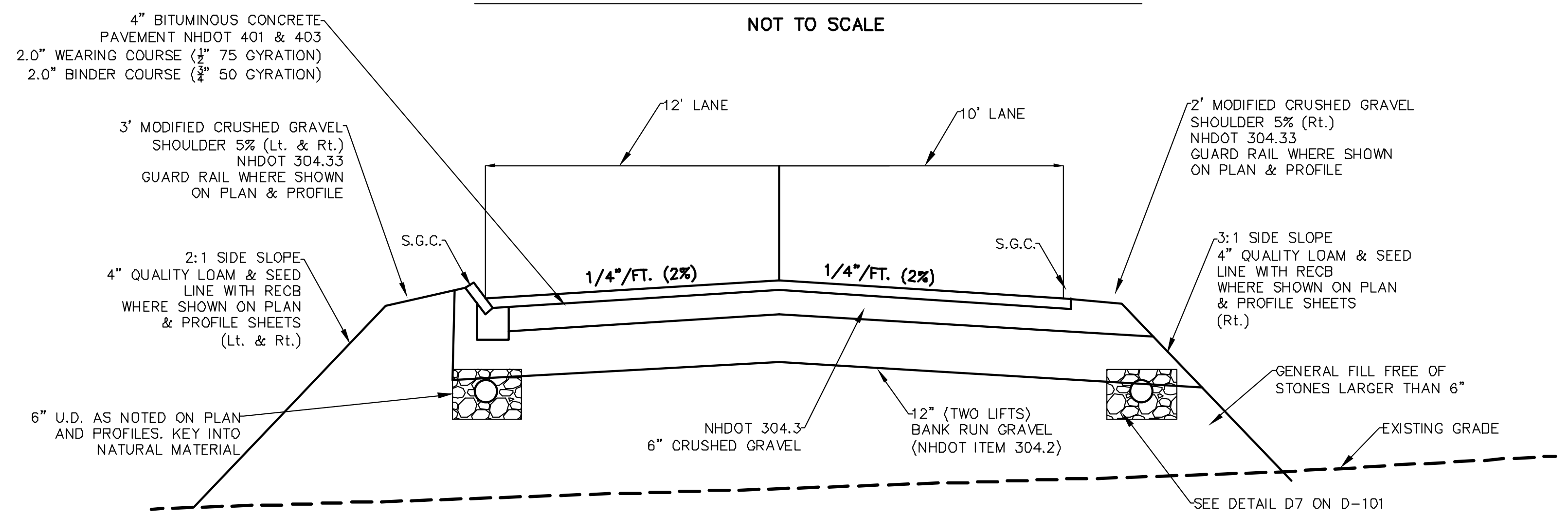
TYPICAL ROADWAY SECTION STONE GREY DRIVE 0+00-9+50 & 13+50-END

NOT TO SCALE



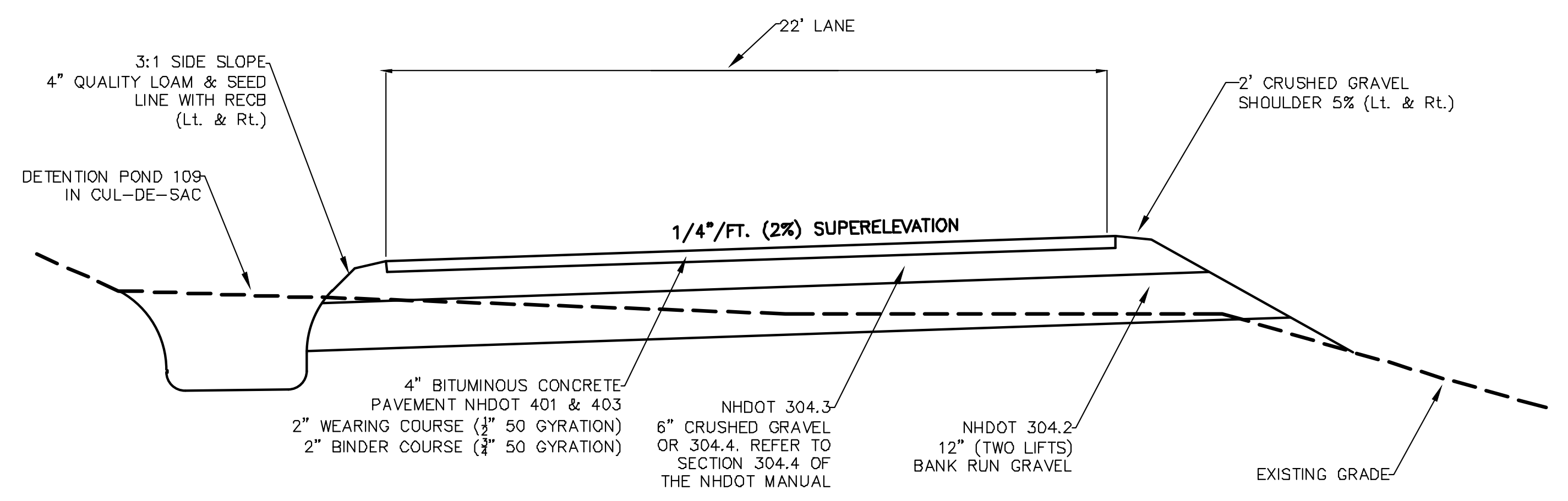
TYPICAL ROADWAY SECTION STONE GREY DRIVE 9+26.25 – 10+26.25
LIPIZZAN DRIVE 0+00 – 3+12

NOT TO SCALE



TYPICAL ROADWAY SECTION STONE GREY DRIVE 10+72 – 13+50

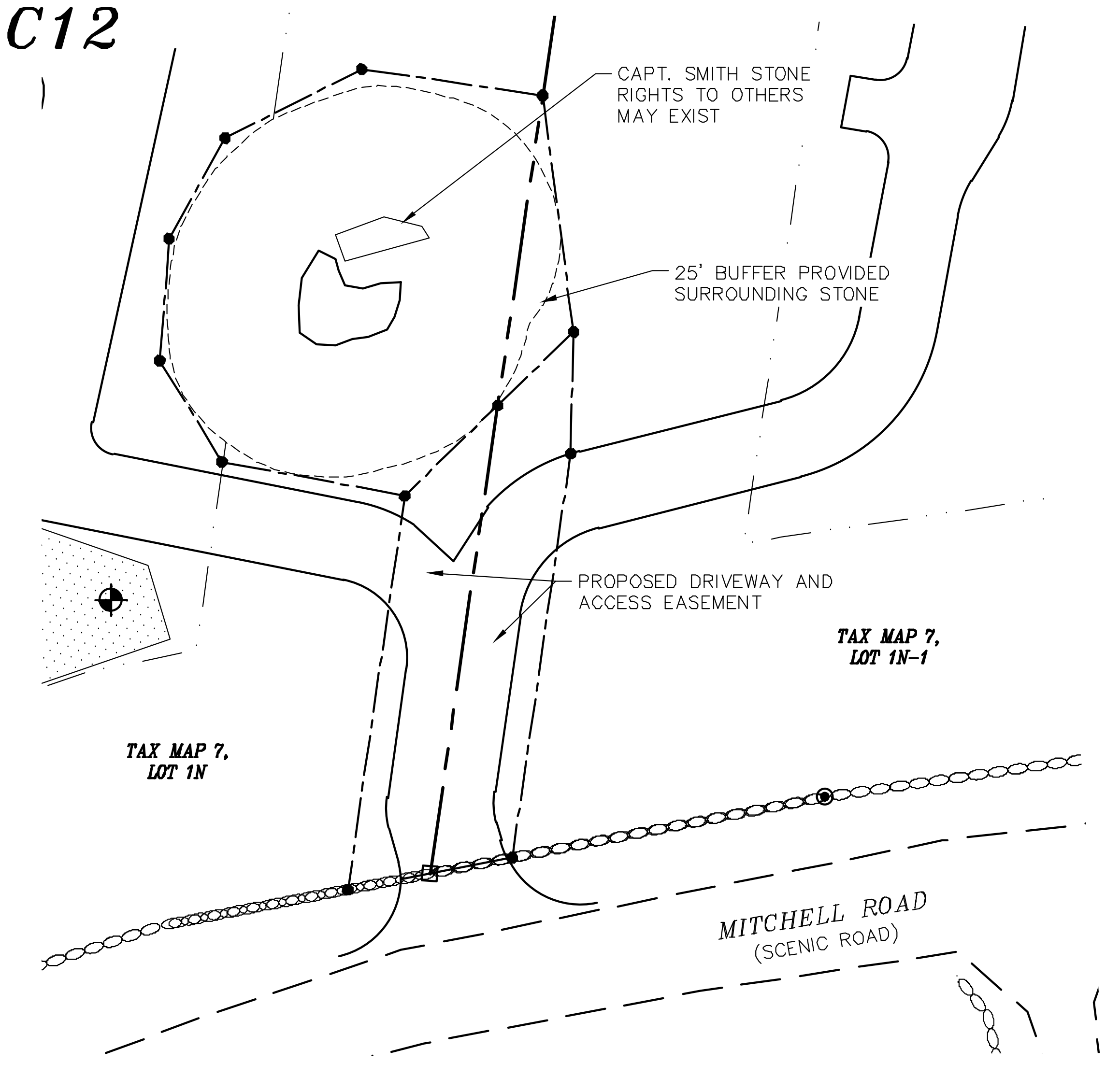
NOT TO SCALE

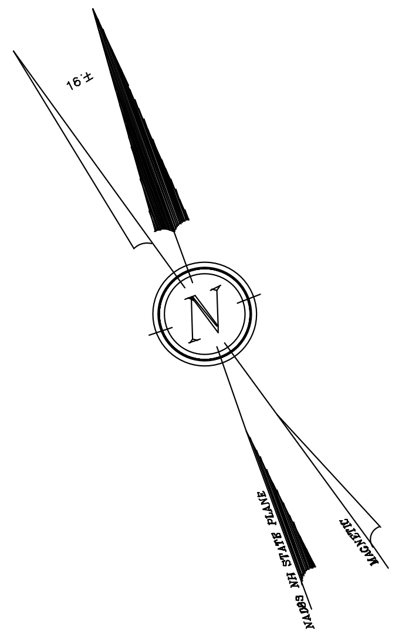


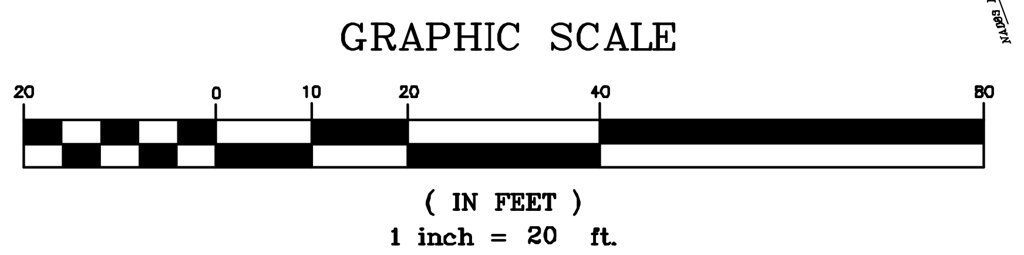
TYPICAL CUL-DE-SAC SECTION LIPIZZAN DRIVE 4+40-END

NOT TO SCALE

C12







SMITH STONE DETAIL

DHR NOTES REGARDING SMITH STONE

THIS PLAN SHOULD INCLUDE THE FOLLOWING STEPS:

- CEASE WORK AND HALT CONSTRUCTION ACTIVITIES WITHIN 100 FEET OF THE DISCOVERY
- IMMEDIATELY NOTIFY THE COUNTY MEDICAL EXAMINER AND THE STATE ARCHEOLOGIST AT NH DIVISION OF HISTORICAL RESOURCES
- COVER AND PROTECT THE BURIAL
- INSTALL TEMPORARY PROTECTION MEASURES SUCH AS FENCING OR SIGNAGE TO PREVENT UNINTENTIONAL INCURSION AND POTENTIAL DAMAGE TO REMAINS
- IF THE BURIAL IS RECENT (LESS THAN 50 YEARS OLD) OR A POTENTIAL CRIME SCENE, THE COUNTY MEDICAL EXAMINER AND LAW ENFORCEMENT AUTHORITIES WILL TAKE MEASURES. IF THE BURIAL IS OLDER THAN 50 YEARS, RESPONSIBILITY WILL BE RELEASED TO THE STATE ARCHEOLOGIST
- IF THE BURIAL IS DETERMINED TO BE NATIVE AMERICAN, THE STATE ARCHEOLOGIST WILL NOTIFY LEADERS, OFFICIALS OR SPOKESPERSONS TO DETERMINE APPROPRIATE TREATMENT.
- IF THE BURIAL IS DETERMINED TO NOT BE NATIVE AMERICAN, THE STATE ARCHEOLOGIST WILL SEEK TO IDENTIFY DESCENDANTS TO DETERMINE WISHES FOR TREATMENT OF THE BURIAL

IN ADDITION, IT IS RECOMMENDED THAT OTHER MEASURES BE IMPLEMENTED TO PROTECT THE GRAVEYARD, INCLUDING:

- MARKING THE REQUIRED 25-FOOT BUFFER IN THE FIELD PRIOR TO CONSTRUCTION ACTIVITIES TO PREVENT IMPINGEMENT AND DAMAGE
- CARE IN MAINTENANCE AND LANDSCAPING ACTIVITIES SUCH AS TREE FELLING OR GRADING THAT COULD ALTER THE INTEGRITY OF THE GRAVEYARD
- REFRAIN FROM STUMPING WITHIN THE 25-FOOT BUFFER TO PREVENT DAMAGE TO INTERMENTS
- ENCOURAGE PROPERTY OWNERS TO PRACTICE GOOD STEWARDSHIP PRACTICES AND RESPECTFUL TREATMENT OF THE GRAVEYARD, VISIBLE ELEMENTS, AND IMMEDIATE SURROUNDS. THIS COULD ENTAIL DETERRING VANDALISM, DIGGING FOR ARTIFACTS, STONE SCAVENGING, OR DEMOLITION OF FUNERARY ELEMENTS

CROSS SECTION NOTES

1. ALL ROADWAY FILL TO BRING ROAD TO SUBGRADE SHALL BE INSTALLED IN LIFTS NO GREATER THAN 12".
2. ALL FILL SHALL BE COMPACTED UNTIL 95% MAXIMUM DRY DENSITY IS ACHIEVED IN ACCORDANCE WITH AASHTO T99. COMPACTION TESTS TO BE CONDUCTED AT THE START OF THE PROJECT AND NO FURTHER THAN 100 FEET APART.
3. GUARD RAIL REQUIRED AS NOTED ON PLAN & PROFILE SHEETS.
4. TEST PITTING WAS DONE WITHIN THE ROADWAY ALIGNMENT BY JOHN P. HAYES III, CSS, CWS, AND NO UNSUITABLE MATERIALS WERE ENCOUNTERED IN THOSE TEST PITS. CONTRACTOR TO REVIEW LEDGE DEPTHS IN PROFILE.
5. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE ROAD BED. THE ROAD BED IS DEFINED AS THE LIMITS OF THE ROADWAY INCLUDING THE ARE ONE (1) FOOT BEYOND THE SHOULDERS, DITCHES, OR TOE OF FILL SLOPE.
6. COMPACTED SUBGRADE – CONTRACTOR SHALL SCARIFY SUBGRADE TO A DEPTH OF 30 INCHES BELOW F-GRADE. ALL STONES GREATER THAN 6" IN DIAMETER SHALL BE REMOVED FROM THE SCARIFIED LAYER. ANY IMPORTED FILL SHALL BE FREE OF ORGANICS AND FROST AND SHALL HAVE NO ROCKS LARGER THAN 6" IN DIAMETER. FILL MATERIAL SHALL BE APPROVED BY THE TOWNS AGENT AND/OR THE TOWNS ENGINEER.
7. 304.4 TO NOTE NHDOT STANDARD.
8. UNDERDRAIN IS REQUIRED IN PORTIONS OF THE ROADWAY. SEE GRADING PLAN AND PROFILES FOR LOCATIONS AND DEPTHS.

BEST MANAGEMENT PRACTICES FOR BLASTING

ENV-WQ 1510.03 LOADING PRACTICES. THE FOLLOWING BLAST HOLE LOADING PRACTICES SHALL BE IMPLEMENTED:
(A) THE DRILLER SHALL MAINTAIN DRILLING LOGS TO DOCUMENT:
  (1) THE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED; AND
  (2) GROUNDWATER CONDITIONS;
(B) THE DRILLER SHALL COMMUNICATE THE CONTENTS OF THE DRILLING LOGS DIRECTLY TO THE BLASTER;
(C) EXPLOSIVE PRODUCTS SHALL BE MANAGED ON SITE SUCH THAT THEY ARE:
  (1) USED IN THE BOREHOLE;
  (2) RETURNED TO THE DELIVERY VEHICLE; OR
  (3) PLACED IN SECURE CONTAINERS FOR OFF-SITE DISPOSAL;
(D) SPILLAGE AROUND THE BOREHOLE SHALL BE:
  (1) PLACED IN THE BOREHOLE; OR
  (2) CLEANED UP AND RETURNED TO AN APPROPRIATE VEHICLE FOR HANDLING OR PLACEMENT IN SECURED CONTAINERS FOR OFF-SITE DISPOSAL;
(E) LOADED EXPLOSIVES SHALL BE DETONATED AS SOON AS POSSIBLE AND NOT LEFT IN THE BLAST HOLES OVERNIGHT, UNLESS WEATHER OR OTHER SAFETY CONCERNS REASONABLY DICTATE THAT DETONATION SHOULD BE POSTPONED;
(F) LOADING EQUIPMENT SHALL BE CLEANED IN AN AREA WHERE WASTEWATER CAN BE PROPERLY CONTAINED AND HANDLED IN A MANNER THAT PREVENTS RELEASE OF CONTAMINANTS TO THE ENVIRONMENT; AND
(G) EXPLOSIVES SHALL BE LOADED IN ACCORDANCE WITH INDUSTRY STANDARD PRACTICES FOR PRIMING, STEMMING, DECKING AND COLUMN RISE TO MAINTAIN GOOD CONTINUITY IN THE COLUMN LOAD TO PROMOTE COMPLETE DETONATION.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
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#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

CONSTRUCTION DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

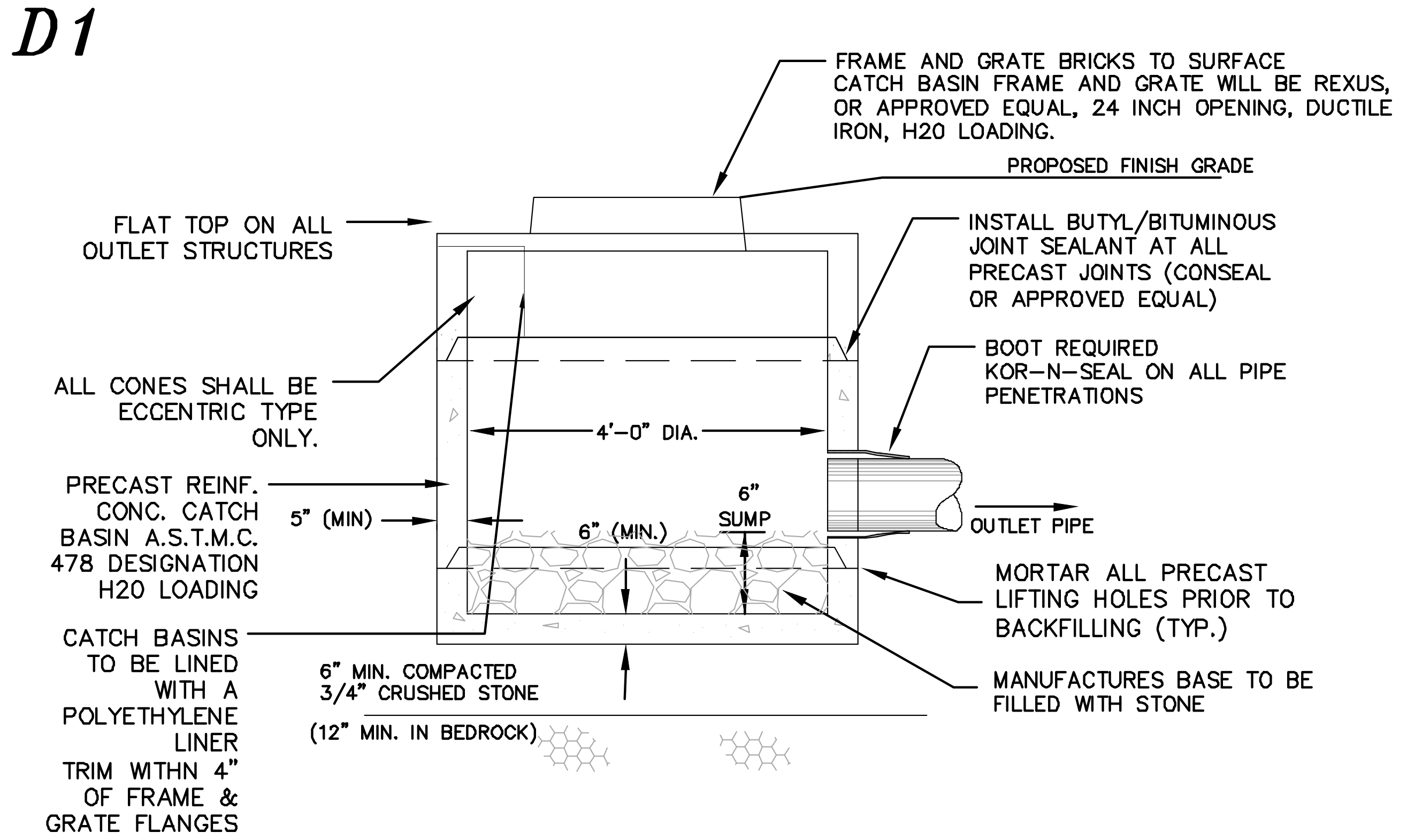
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243

C-102

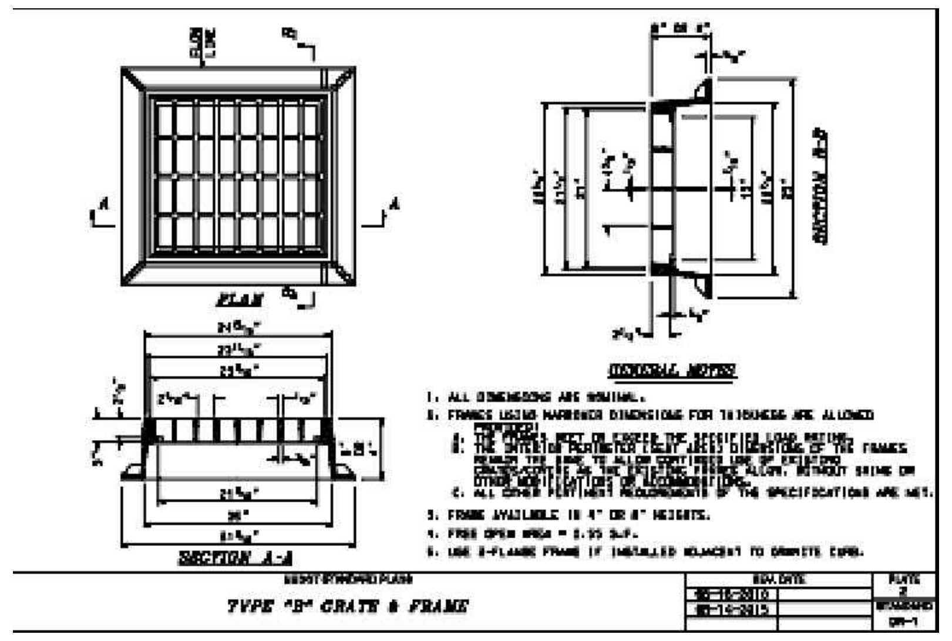
D1



CATCH BASIN DETAIL

NOT TO SCALE

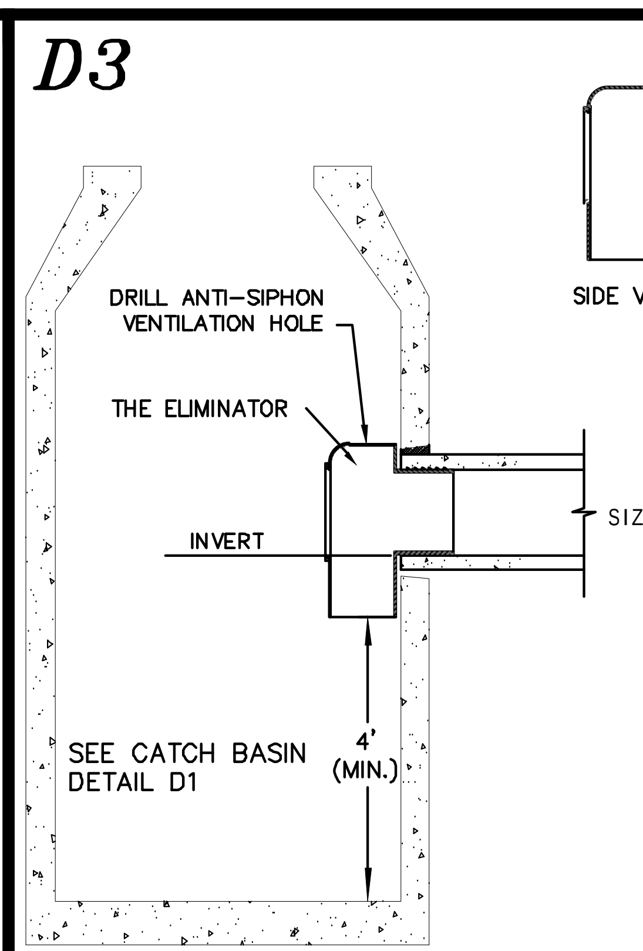
D2



CATCH BASIN GRATE

NOT TO SCALE

D3

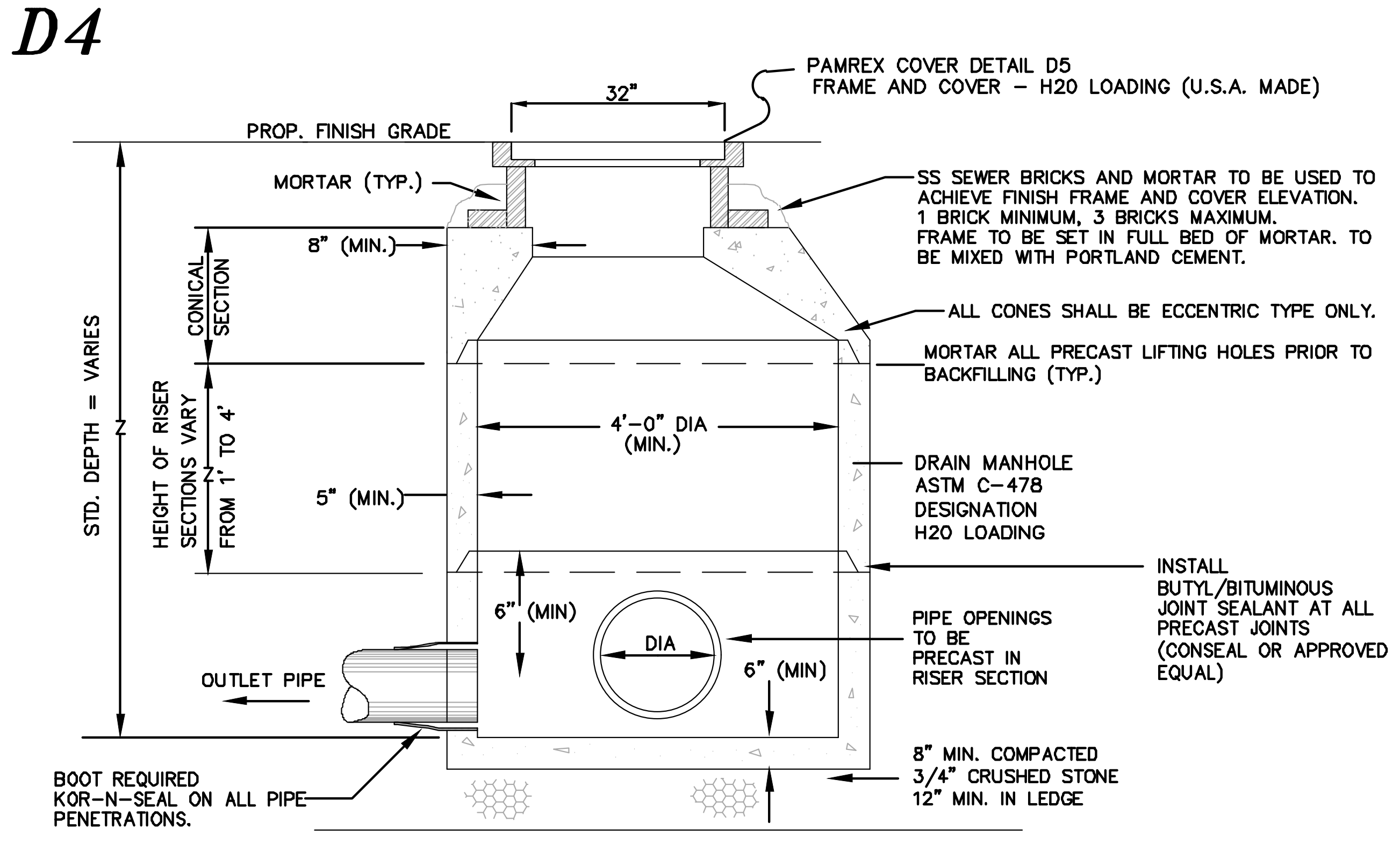


1. HOOD SHALL BE "THE ELIMINATOR" OIL & FLOATING DEBRIS TRAP AS MANUFACTURED BY GROUND WATER RESCUE, INC., QUINCY, MA., TEL. 617-773-1128 ON THE WEB @ WWW.KLEANSTREAM.COM

CATCH BASIN HOOD DETAIL

NOT TO SCALE

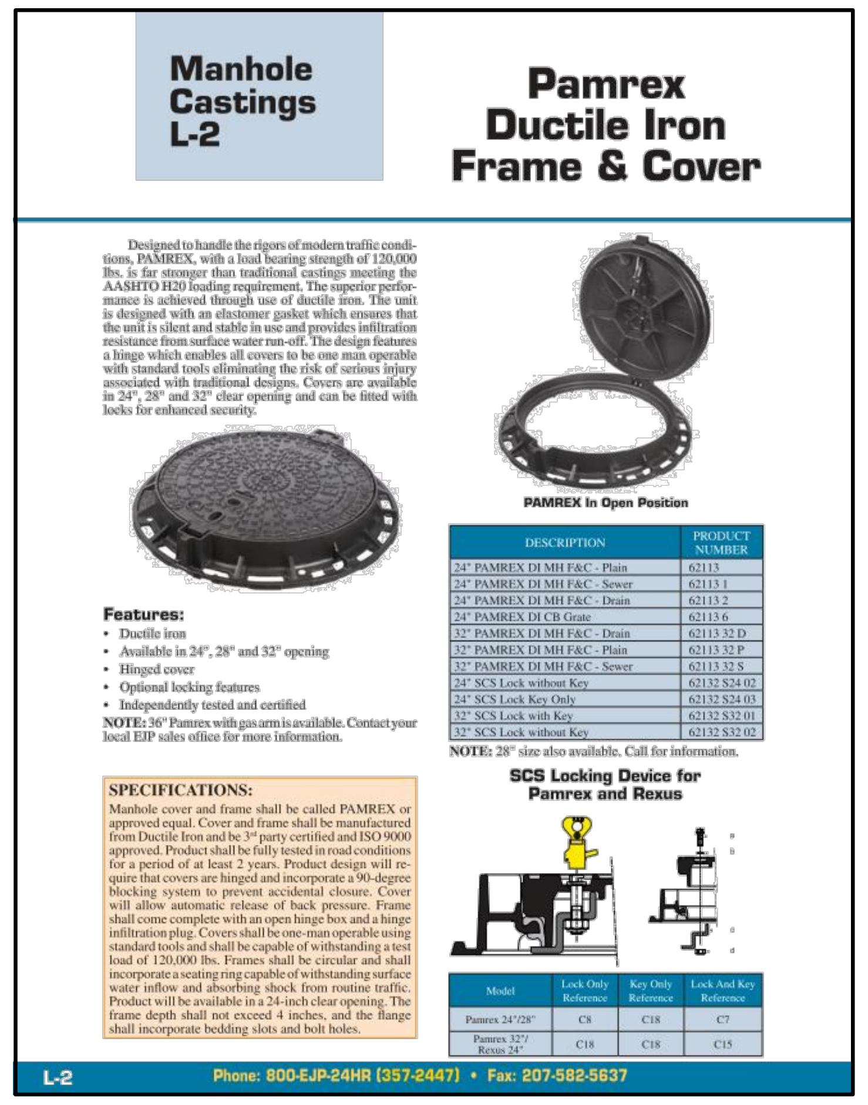
D4



PRECAST DRAIN MANHOLE DETAIL

NOT TO SCALE

D5



Manhole Castings L-2

Pamrex Ductile Iron Frame & Cover

Designed to handle the rigors of modern traffic conditions, PAMREX, with a load bearing strength of 120,000 lbs. is far stronger than traditional castings meeting the AASHTO H20 loading requirement. The superior performance is achieved through use of ductile iron. The unit is designed with an elastomer gasket which ensures that the unit is silent and stable in use and provides infiltration resistance from surface water run-off. The design features a hinge which enables all covers to be one man operable with standard tools eliminating the risk of serious injury associated with traditional designs. Covers are available in 24", 28" and 32" clear opening and can be fitted with locks for enhanced security.

PAMREX In Open Position

Features:
- Ductile iron
- Available in 24", 28" and 32" opening
- Hinged cover
- Optional locking features
- Independently tested and certified

NOTE: 36" Pamrex with gas arm is available. Contact your local EJP sales office for more information.

DESCRIPTION	PRODUCT NUMBER
24" PAMREX DI MH F&C - Plain	62113
24" PAMREX DI MH F&C - Sewer	62113 1
24" PAMREX DI MH F&C - Drain	62113 2
24" PAMREX DI CB Grate	62113 6
32" PAMREX DI MH F&C - Drain	62113 32 D
32" PAMREX DI MH F&C - Plain	62113 32 P
32" PAMREX DI MH F&C - Sewer	62113 32 S
24" SCS Lock without Key	62132 S24 02
24" SCS Lock Key Only	62132 S24 03
32" SCS Lock with Key	62132 S32 01
32" SCS Lock without Key	62132 S32 02

NOTE: 28" size also available. Call for information.

SPECIFICATIONS:
Manhole cover and frame shall be called PAMREX or approved equal. Cover and frame shall be manufactured from Ductile Iron and be 3rd party certified and ISO 9000 approved. Product shall be fully tested in road conditions for a period of at least 2 years. Product design will require that covers are hinged and incorporate a 90-degree blocking system to prevent accidental closure. Cover will allow automatic release of back pressure. Frame shall come complete with an open hinge box and a hinge infiltration plug. Covers shall be one-man operable using standard tools and shall be capable of withstanding a test load of 120,000 lbs. Frames shall be circular and shall incorporate a seating ring capable of withstanding surface water inflow and absorbing shock from routine traffic. Product will be available in a 24-inch clear opening. The frame depth shall not exceed 4 inches, and the flange shall incorporate bedding slots and bolt holes.

SCS Locking Device for Pamrex and Rexus

Model	Lock Only Reference	Key Only Reference	Lock And Key Reference
Pamrex 24"/28"	C8	C18	C7
Pamrex 32"/ Rexus 24"	C18	C18	C15

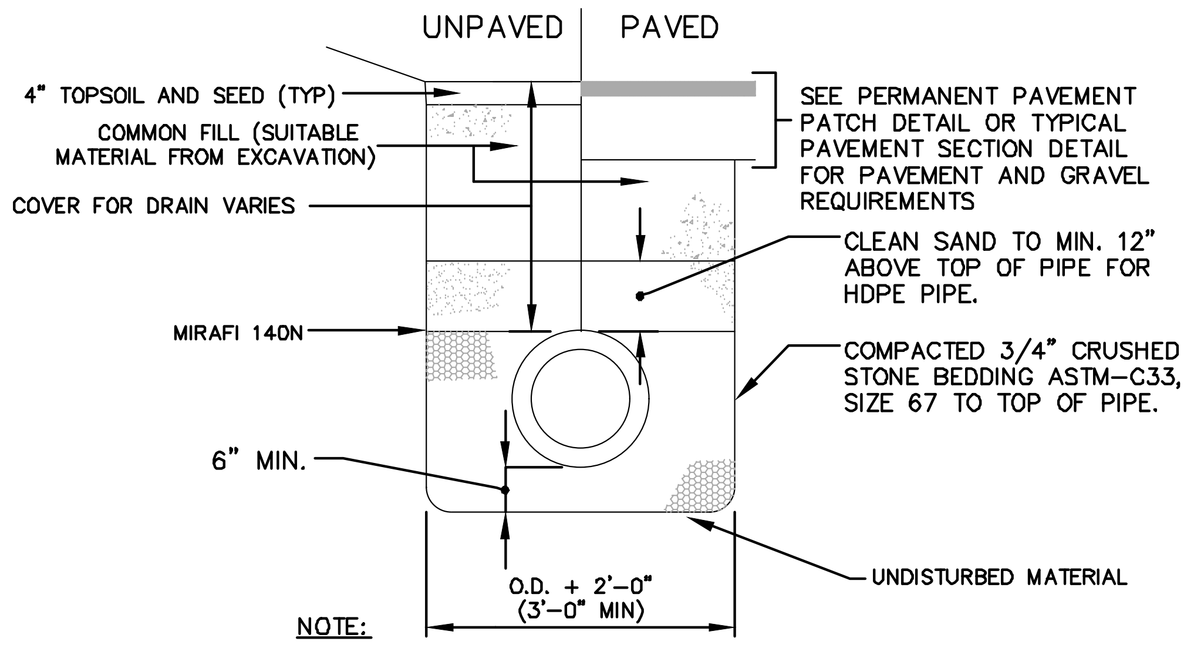
L-2 Phone: 800-EJP-24HR (357-2447) • Fax: 207-582-5637

DRAIN MAN HOLE FRAME AND GRATE WILL BE PAMREX, OR APPROVED EQUAL, 24 INCH OPENING, DUCTILE IRON, H20 LOADING.

DRAIN MANHOLE COVER DETAIL

NOT TO SCALE

D6



NOTE:

PLASTIC DRAIN PIPE (HDPE) SHALL BE ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.

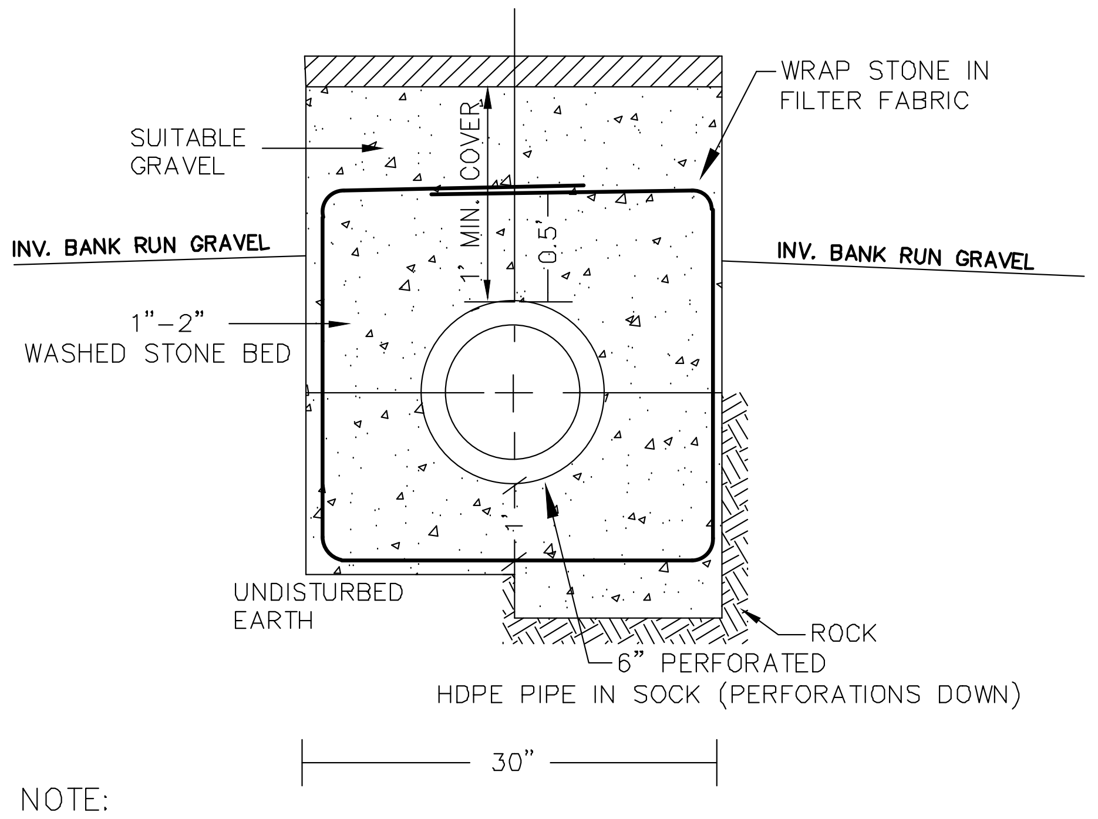
DI DRAIN PIPE SHALL BE CL. 50.

RC DRAIN PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.

TYPICAL DRAIN PIPE TRENCH

NOT TO SCALE

D7

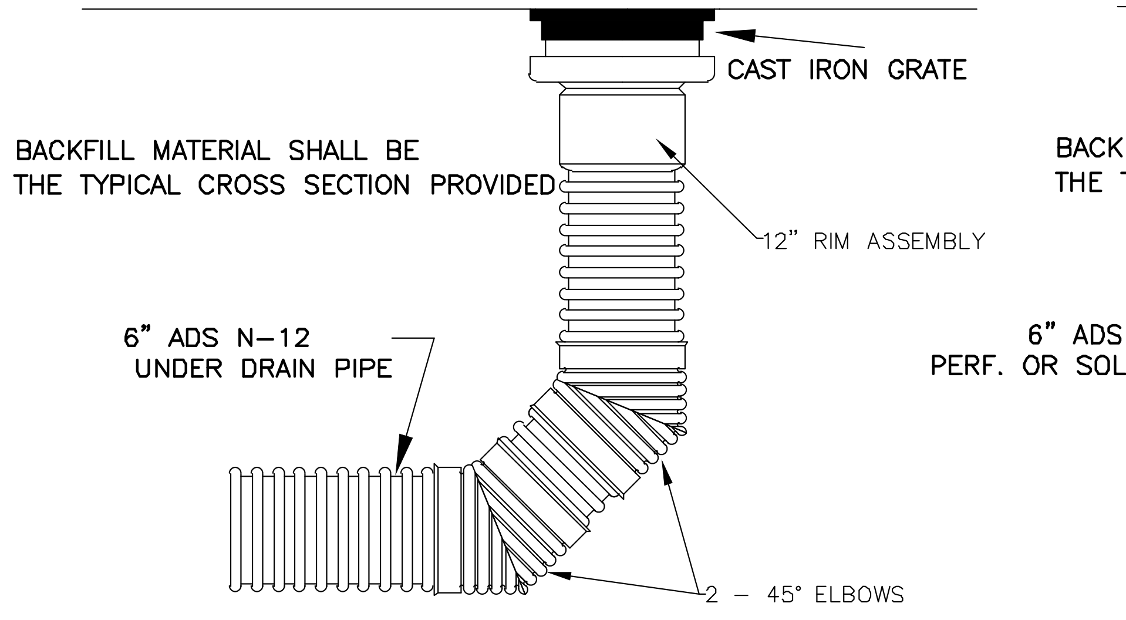


NOTE:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.

UNDERDRAIN TRENCH DETAIL

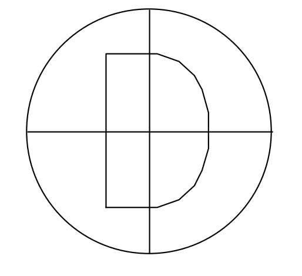
NOT TO SCALE

D8A



ADS N-12 INLINE DRAIN

NOT TO SCALE USED FOR CLEANOUTS



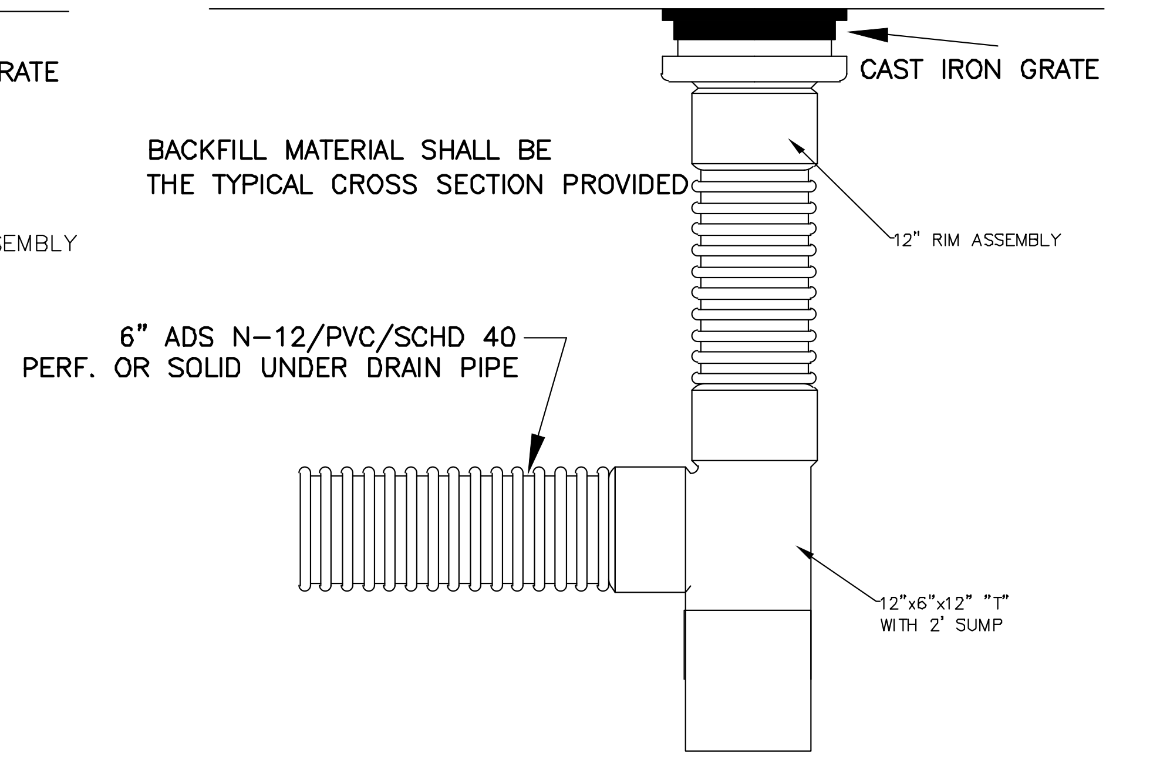
12" CAST IRON GRATE

NOT TO SCALE

CASTINGS ARE RATED FOR H20 WHEEL LOAD TRAFFIC

PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

D8B



ADS N-12, PVC, SCHD. 40 INLINE DRAIN

NOT TO SCALE USED FOR GRAVEL WETLAND CLEANOUTS

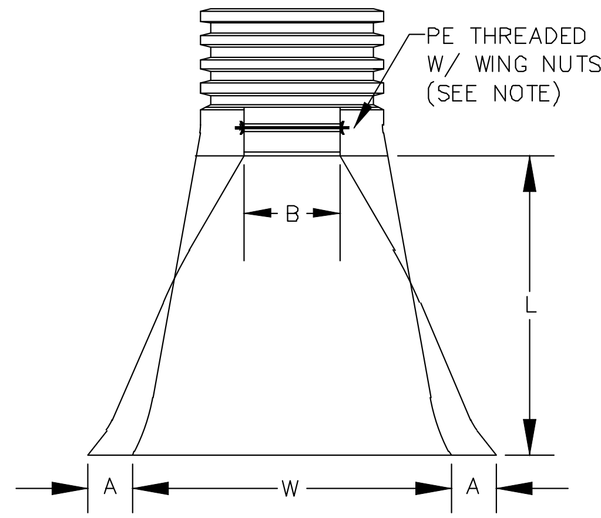
D9

PART No.	PIPE SIZE	A	B(MAX)	H	L	W
1510–NP	15" 375 mm	6.5" 165 mm	10" 254 mm	6.5" 165 mm	25" 635 mm	29" 735 mm
1810–NP	18" 450 mm	7.5" 190 mm	15" 380 mm	6.5" 165 mm	32" 812 mm	35" 890 mm
2410–NP	24" 600 mm	7.5" 190 mm	18" 450 mm	6.5" 165 mm	36" 900 mm	45" 1140 mm
3010–NP	30" 750 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm
3610–NP	36" 900 mm	10.5" 266 mm	N/A	7.0" 178 mm	53" 1345 mm	68" 1725 mm

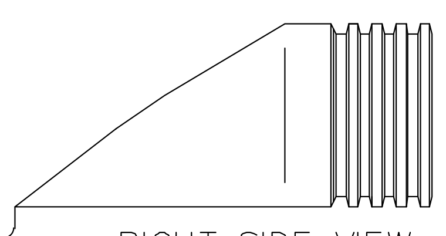
NOTE: PE THREADED ROD W/ WING NUTS PROVIDED FOR END SECTIONS 15"–24". 30" & 36" END SECTIONS TO BE WELDED PER MANUFACTURER'S RECOMMENDATIONS.

ADS N-12 FLARED END SECTIONS

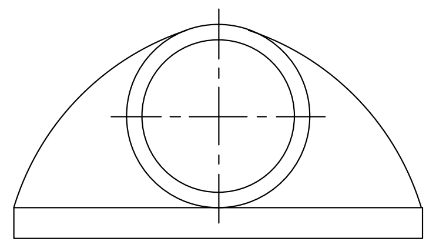
NOT TO SCALE (ALL DIMENSIONS ARE NOMINAL)



TOP VIEW



RIGHT SIDE VIEW

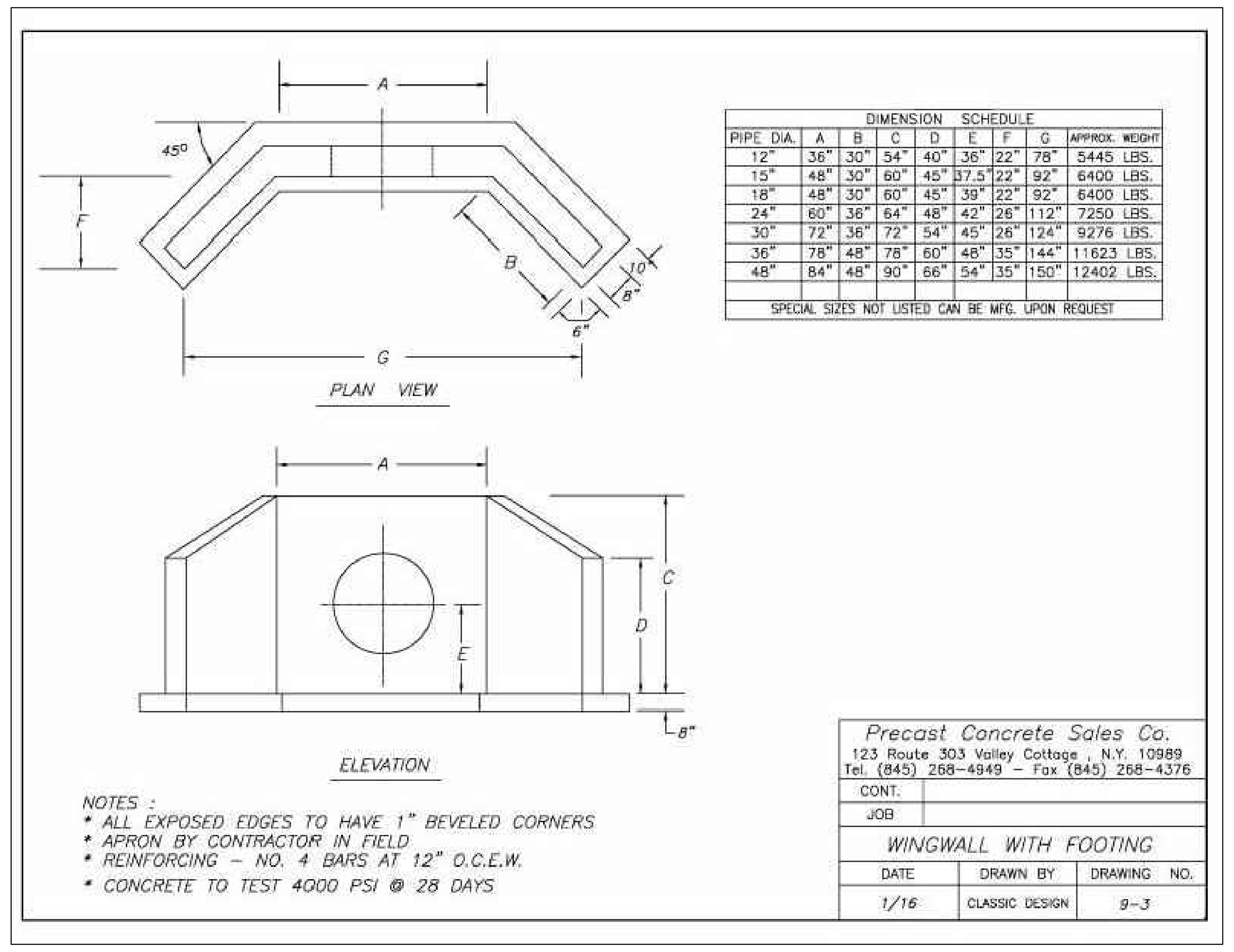


FRONT VIEW

D10

HEADWALL (CONCRETE)

NOT TO SCALE



DIMENSION SCHEDULE								
PIPE DIA.	A	B	C	D	E	F	G	APPROX. WEIGHT
12"	36"	30"	54"	40"	36"	22"	78"	5445 LBS.
15"	48"	30"	60"	45"	37.5"	22"	92"	6400 LBS.
18"	48"	30"	60"	45"	39"	22"	92"	6400 LBS.
24"	60"	36"	64"	48"	42"	26"	112"	7250 LBS.
30"	72"	36"	72"	54"	45"	26"	124"	9276 LBS.
36"	78"	48"	78"	60"	48"	35"	144"	11623 LBS.
48"	84"	48"	90"	66"	54"	35"	150"	12402 LBS.

SPECIAL SIZES NOT LISTED CAN BE MFG. UPON REQUEST

NOTES :
- * ALL EXPOSED EDGES TO HAVE 1" BEVELED CORNERS
- * APRON BY CONTRACTOR IN FIELD
- * REINFORCING – NO. 4 BARS AT 12" O.C.E.W.
- * CONCRETE TO TEST 4000 PSI @ 28 DAYS

Precast Concrete Sales Co.
123 Route 303 Valley Cottage , N.Y. 10989
Tel. (845) 268-4949 – Fax (845) 268-4376

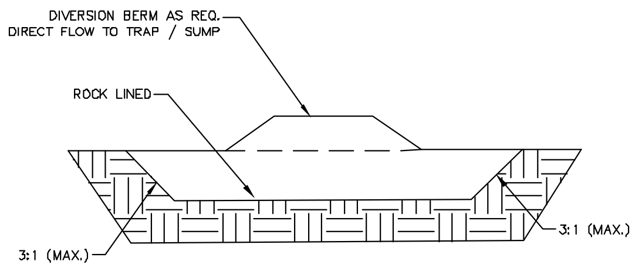
CONT.
JOB

WINGWALL WITH FOOTING

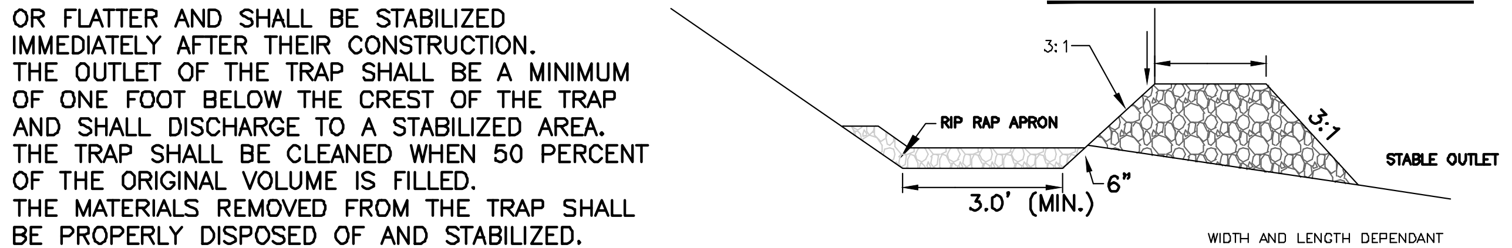
DATE	DRAWN BY	DRAWING NO.
1/16	CLASSIC DESIGN	9-3

D11

1. TRAP TO BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
6. THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

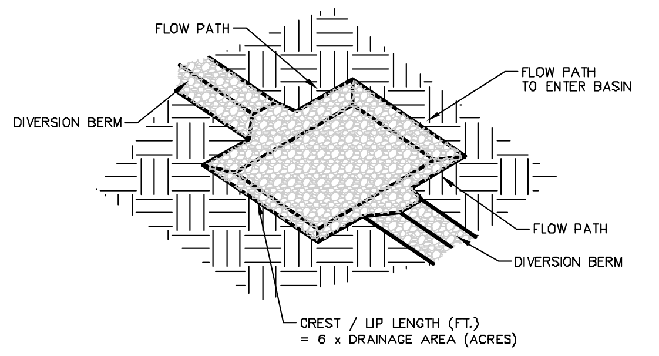


CUT SECTION WITH DIVERSION BERM



CROSS SECTION

WIDTH AND LENGTH DEPENDANT ON CONTRIBUTING AREA EXCAVATION SECTION IS PERFFERED OVER A BERMED SECTION



ISOMETRIC VIEW

SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84–100%	6
68–83%	3
42–55%	1
8–12%	NO. 4

STONE LINED SEDIMENT TRAP

NOT TO SCALE

REFERENCE IS MADE TO A LONG TERM MAINTENANCE MANUAL PREPARED BY BERRY SURVEYING & ENGINEERING, WHICH IS ON FILE AT THE TOWN OF NOTTINGHAM PLANNING DEPARTMENT, AND CAN BE FOUND AT THE OFFICE OF BERRY SURVEYING & ENGINEERING. (603) 332-2863

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

DRAINAGE DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED

DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

D-101

D12

ANGLE GRATE
NOT TO SCALE

NOTE:
MUST BE HAALA INDUSTRIES INC. OR EQUAL.

Angle Grates For Manholes

AG0808-58
Part No. AG0808-58

Save Trees

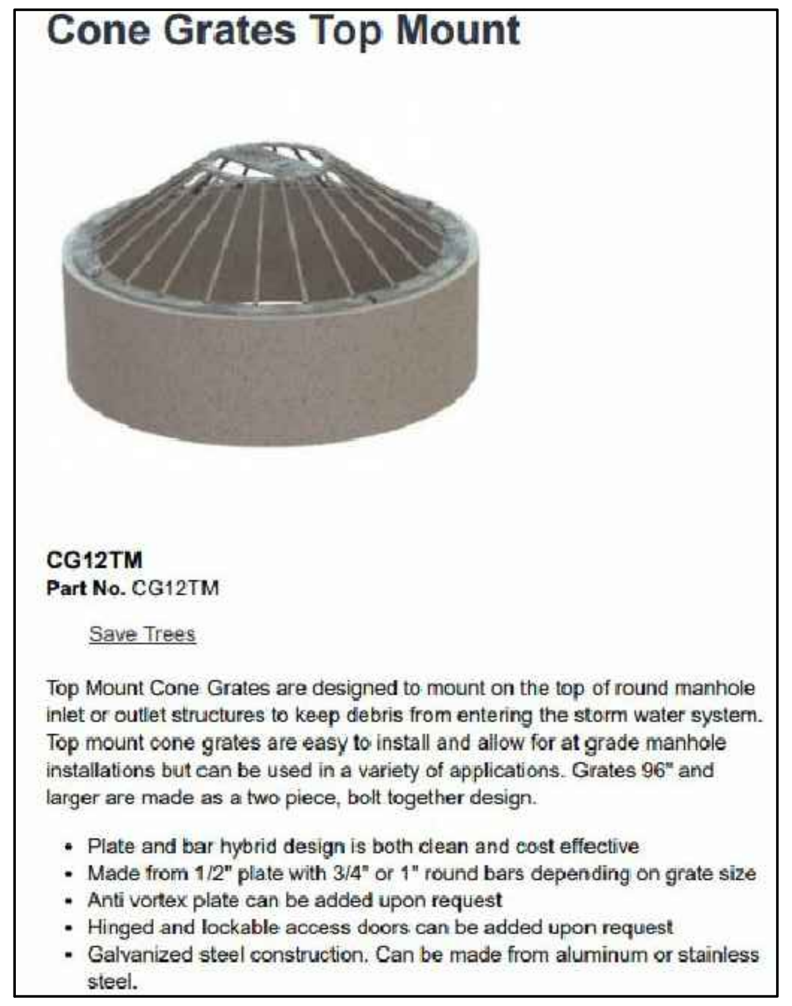
Angle Grates are designed to cover inlet orifices and prevent small to medium debris from passing through. The top angled design helps to minimize the amount of debris that settles on top after the water receeds. All grates are made from plate for a clean and smooth contact surface.

- Plate design for a clean appearance
- Standard 2" openings (other sizes can be made)
- Angled top/front plate to maximize debris deflection
- Mounting flanges on 3 sides allows grate to be mounted at floor level inverts
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D13

CONE GRATE
NOT TO SCALE

NOTE:
MUST BE HAALA INDUSTRIES INC. OR EQUAL.



Cone Grates Top Mount

CG12TM
Part No. CG12TM

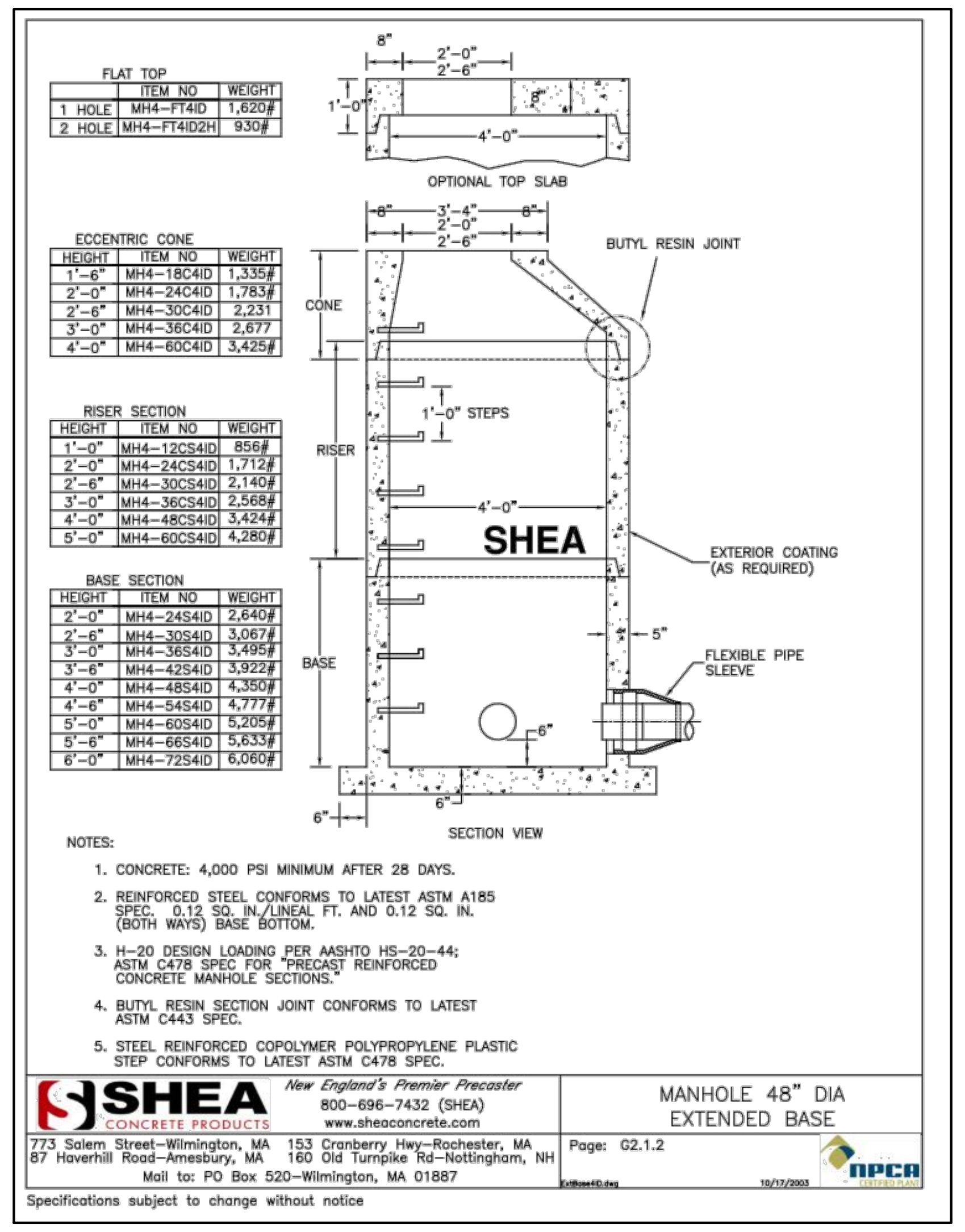
Save Trees

Top Mount Cone Grates are designed to mount on the top of round manhole inlet or outlet structures to keep debris from entering the storm water system. Top mount cone grates are easy to install and allow for at grade manhole installations but can be used in a variety of applications. Grates 96" and larger are made as a two piece, bolt together design.

- Plate and bar hybrid design is both clean and cost effective
- Made from 1/2" plate with 3/4" or 1" round bars depending on grate size
- Anti vortex plate can be added upon request
- Hinged and lockable access doors can be added upon request
- Galvanized steel construction. Can be made from aluminum or stainless steel.

D14

48" MANHOLE ROUND EXTENDED BASE
NOT TO SCALE



FLAT TOP

	ITEM NO	WEIGHT
1 HOLE	MH4-FT4ID	1,620#
2 HOLE	MH4-FT4ID2H	930#

ECCENTRIC CONE

HEIGHT	ITEM NO	WEIGHT
1'-6"	MH4-18C4ID	1,335#
2'-0"	MH4-24C4ID	1,783#
2'-6"	MH4-30C4ID	2,231
3'-0"	MH4-36C4ID	2,677
4'-0"	MH4-60C4ID	3,425#

RISER SECTION

HEIGHT	ITEM NO	WEIGHT
1'-0"	MH4-12CS4ID	856#
2'-0"	MH4-24CS4ID	1,712#
2'-6"	MH4-30CS4ID	2,140#
3'-0"	MH4-36CS4ID	2,568#
4'-0"	MH4-48CS4ID	3,424#
5'-0"	MH4-60CS4ID	4,280#

BASE SECTION

HEIGHT	ITEM NO	WEIGHT
2'-0"	MH4-24S4ID	2,640#
2'-6"	MH4-30S4ID	3,067#
3'-0"	MH4-36S4ID	3,495#
3'-6"	MH4-42S4ID	3,922#
4'-0"	MH4-48S4ID	4,350#
4'-6"	MH4-54S4ID	4,777#
5'-0"	MH4-60S4ID	5,205#
5'-6"	MH4-66S4ID	5,633#
6'-0"	MH4-72S4ID	6,060#

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

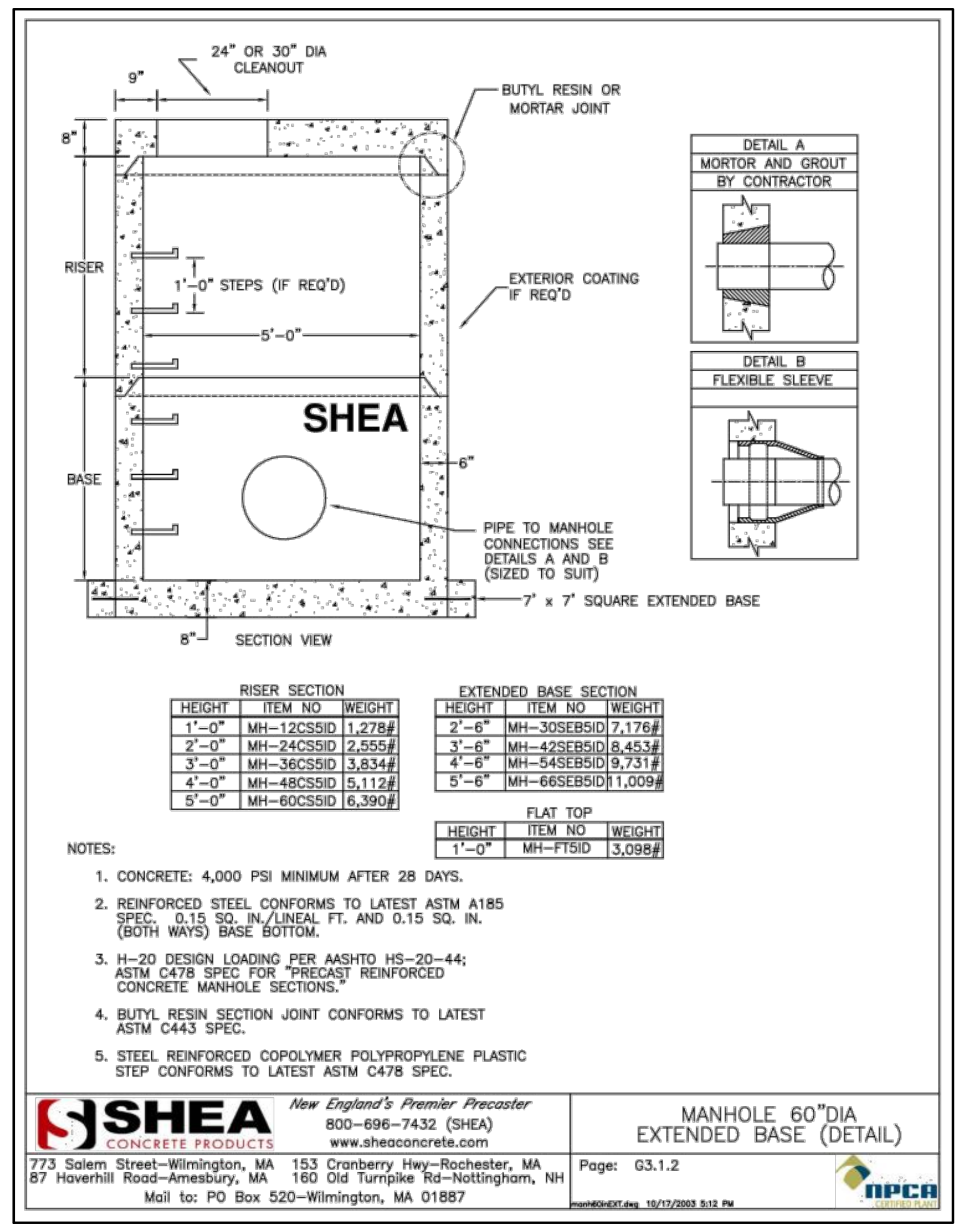
SHEA CONCRETE PRODUCTS
New England's Premier Precaster
800-696-7432 (SHEA)
www.sheaconcrete.com
773 Salem Street-Wilmington, MA 153 Cranberry Hwy-Rochester, MA
87 Haverhill Road-Amesbury, MA 160 Old Turnpike Rd-Nottingham, NH
Mail to: PO Box 520-Wilmington, MA 01887

MANHOLE 48" DIA
EXTENDED BASE
Page: G2.1.2
ExtBase4ID.dwg 10/17/2003

Specifications subject to change without notice

D15

60" MANHOLE RECTANGLE EXTENDED BASE
NOT TO SCALE



RISER SECTION

HEIGHT	ITEM NO	WEIGHT
1'-0"	MH-12CS5ID	1,278#
2'-0"	MH-24CS5ID	2,555#
3'-0"	MH-36CS5ID	3,834#
4'-0"	MH-48CS5ID	5,112#
5'-0"	MH-60CS5ID	6,390#

EXTENDED BASE SECTION

HEIGHT	ITEM NO	WEIGHT
2'-6"	MH-30SEB5ID	7,176#
3'-6"	MH-42SEB5ID	8,453#
4'-6"	MH-54SEB5ID	9,731#
5'-6"	MH-66SEB5ID	11,009#

FLAT TOP

HEIGHT	ITEM NO	WEIGHT
1'-0"	MH-FT5ID	3,098#

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.15 SQ. IN./LINEAL FT. AND 0.15 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.
5. STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.

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Mail to: PO Box 520-Wilmington, MA 01887

MANHOLE 60"DIA
EXTENDED BASE (DETAIL)
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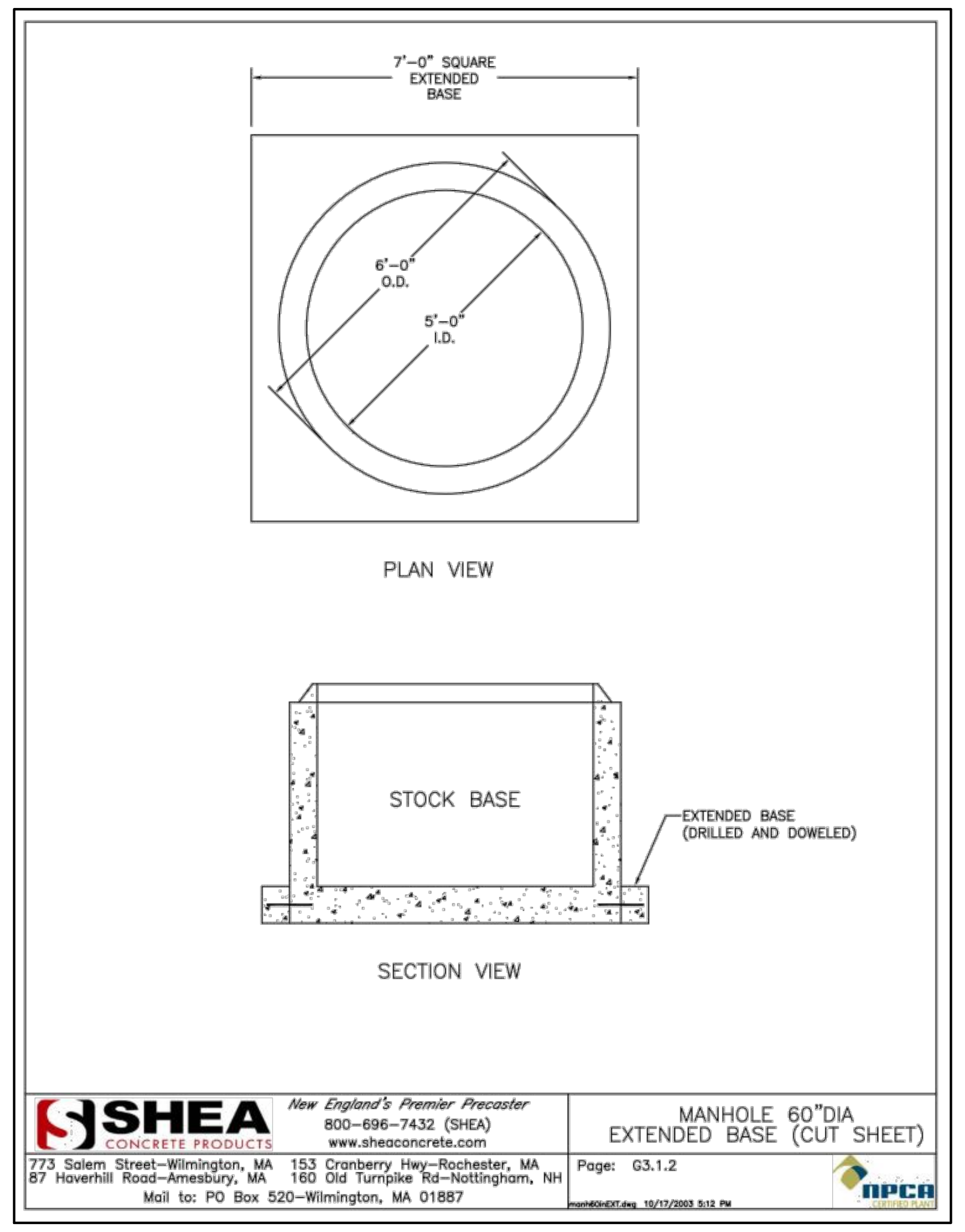
D16

60" MANHOLE RECTANGLE EXTENDED BASE
NOT TO SCALE



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MANHOLE 60"DIA
EXTENDED BASE (CUT SHEET)
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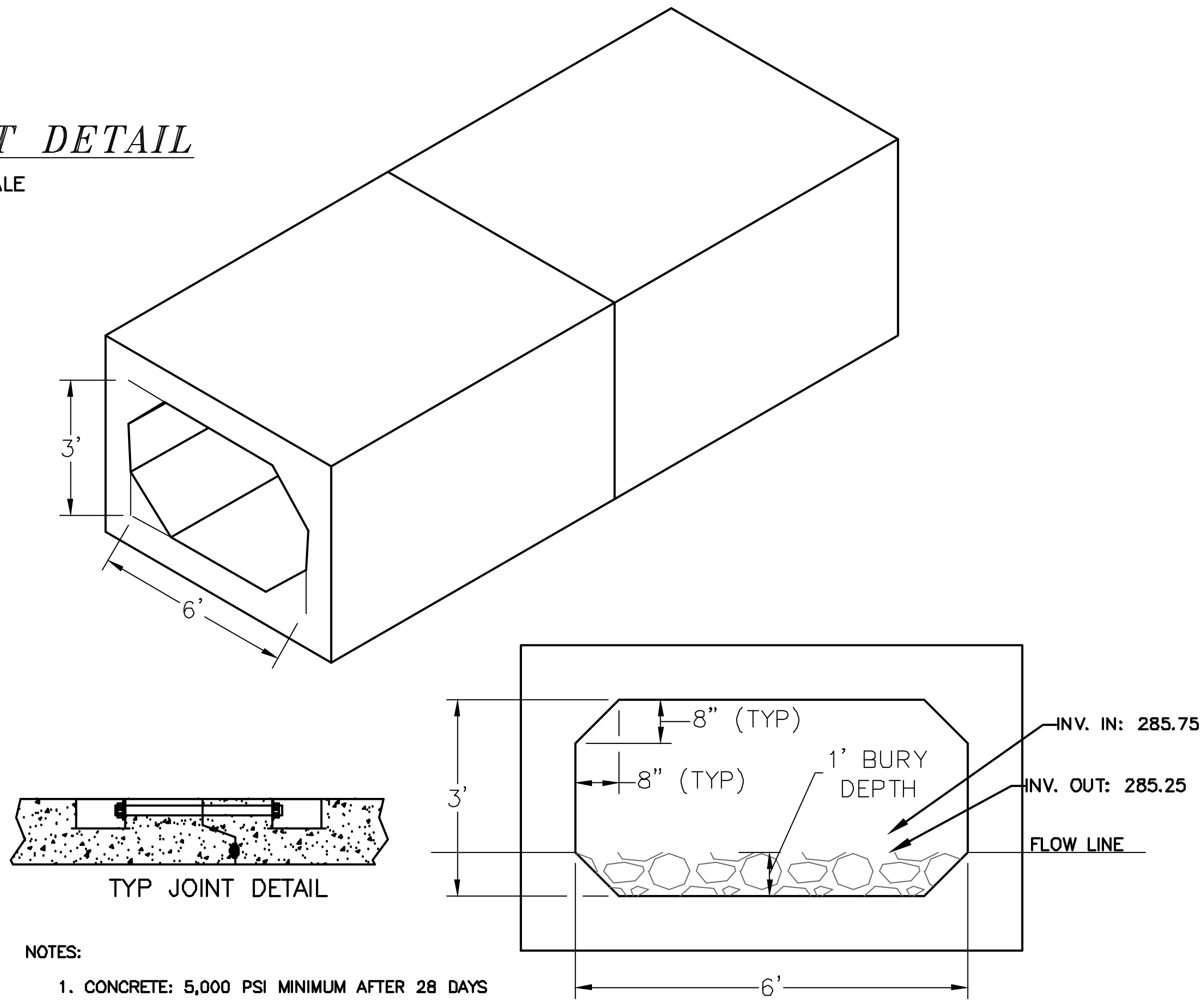
D17

BOX CULVERT DETAIL
NOT TO SCALE

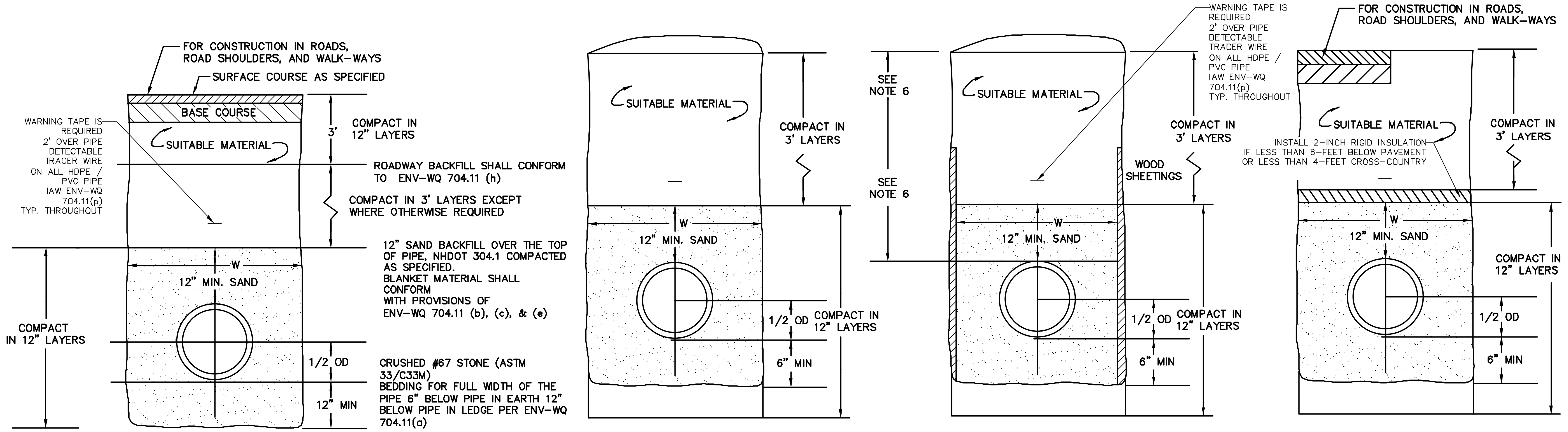


END VIEW

NOTES:
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS
2. DESIGN PER ASTM C1433 BOX CULVERT
3. ALL REINFORCEMENT PER ASTM A615
4. DESIGNED FOR AASHTO HS-20 LOADING
5. MUST BE SHEA CONCRETE OR EQUAL.
6. HEADWALLS ARE TO BE INSTALLED PER GRADING PLAN.

DESIGNED FOR LOADS/SIZES AS NEEDED

D18



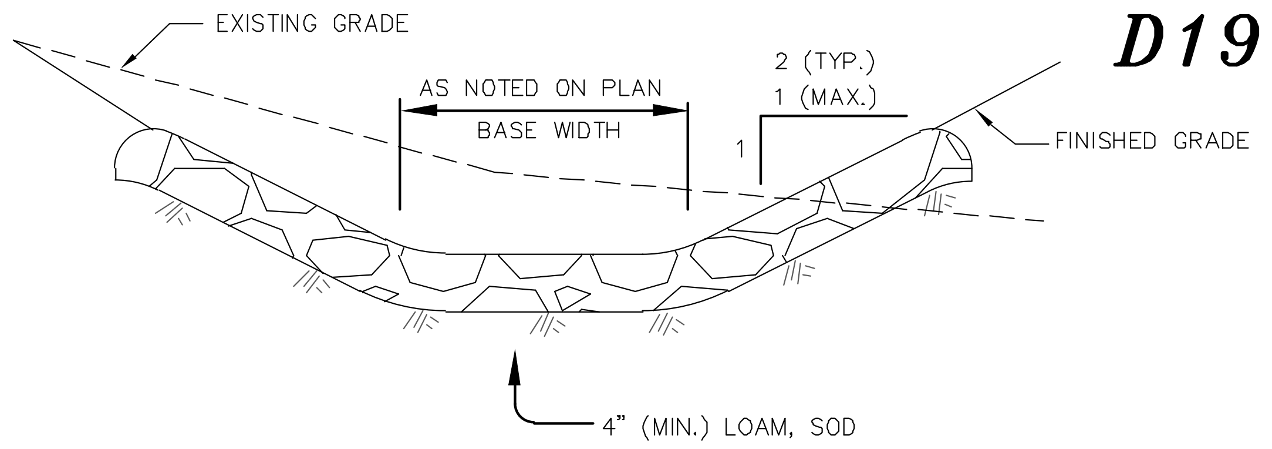
LEDGE CONSTRUCTION
NOT TO SCALE

EARTH CONSTRUCTION
NOT TO SCALE

EARTH CONSTRUCTION WITH SHEETING
NOT TO SCALE

TRENCH INSULATION
NOT TO SCALE

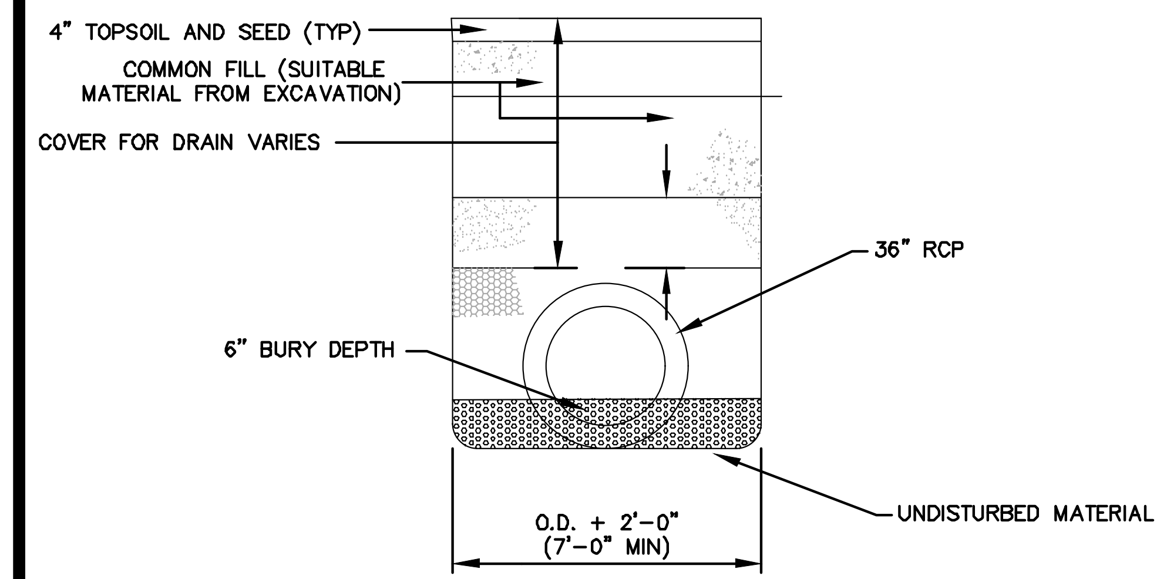
D19



NOTES:
1.) INSTALL CHECK TEMPORARY SILT SOXX CHECK DAM UNTIL SWALES ARE STABILIZED
2.) SEE GRADING PLAN FOR DEGRADATION AND THICKNESS

RIP-RAP LINED SWALE
NOT TO SCALE

D20



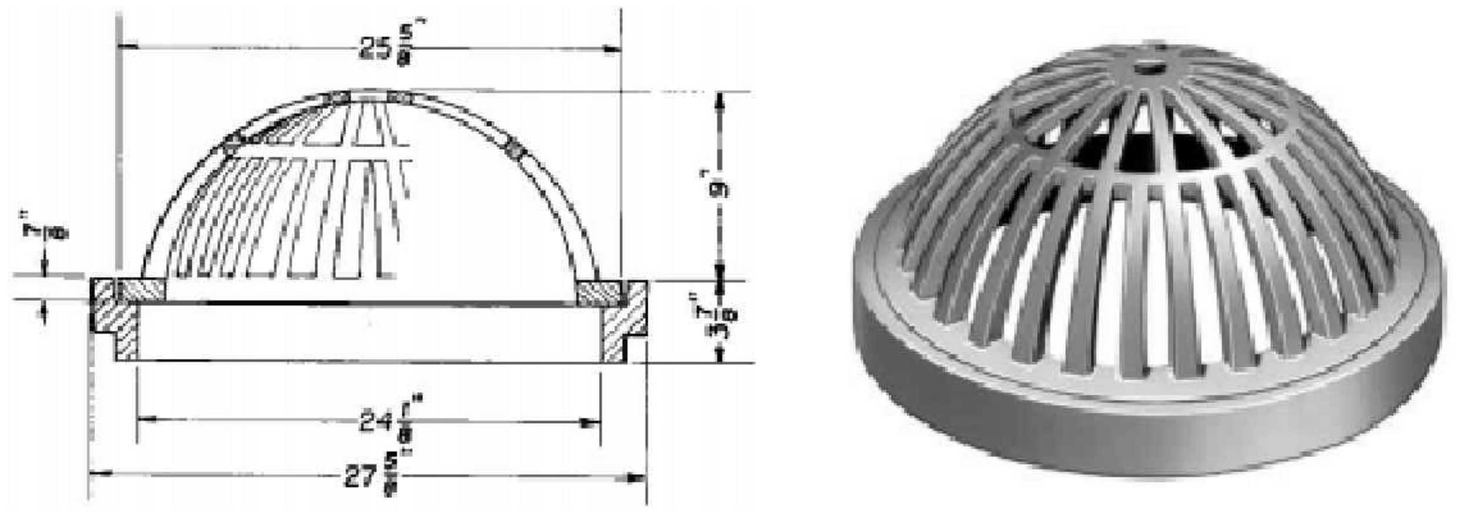
NOTE:
PLASTIC DRAIN PIPE (HDPE) SHALL BE ADS N-12 (CORRUGATED EXTERIOR/SMOOTH INTERIOR) OR EQUAL MEETING AASHTO M-252 AND H-20 LOADING.

D21

R-4353
Beehive Grate, Frame

Light Duty

CATALOG NUMBER	GRATE TYPE	SQ. FT. OPEN	WEIR PERIMETER LINEAL FEET
R-4353	Beehive	1.8	6.7



Also available with 2 - 7/8" tall frame, if requested.

CATCH BASIN IN GRASSED AREA FRAME & GRATE DETAIL
NOT TO SCALE

REVISION	DATE	DESCRIPTION
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DRAINAGE DETAILS
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

AS NOTED

DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

D-102

AMERICAN BUMBLE BEE

IDENTIFICATION/DESCRIPTION:

BOMBUS PENSYLVANICUS IS A LARGE BUMBLE BEE WITH THE QUEEN MEASURING 1 IN, THE WORKER FROM 0.5 IN, AND THE MALE FROM 0.75 IN IN LENGTH. THE QUEEN IS MOSTLY BLACK, INCLUDING THE LEGS, SPURS AND TEGULAE (BASE OF WING). TERGITE 1, OR THE MOST ANTERIOR BACK PORTION OF THE QUEEN IS OFTEN YELLOW ESPECIALLY IN THE MIDDLE. WORKER BEES' MIDDLE TERGITES ARE YELLOW, THE TAIL BLACK, AND FACE LONG. THEIR CHEEKS ARE SLIGHTLY LONGER THAN BROAD, AND THE CLYPEUS (NOSE) HAS LARGE PUNCTURES EXCEPT ON THE MID LINE. THE HAIR ON THE TOP OF THE HEAD IS BLACK, SHORT AND EVEN. MALES HAVE A YELLOW ABDOMEN WITH A BLACK HEAD AND BLACK STRIPING IN THE LOWER THORAX.

BLANDINGS TURTLE

IDENTIFICATION/DESCRIPTION:

A 7– TO 9–INCH TURTLE WITH YELLOW SPECKLES THAT OFTEN RUN TOGETHER TO FORM STREAKS ON THE CARAPACE. EASILY IDENTIFIED WHEN BASKING FROM ITS CHARACTERISTIC YELLOW THROAT AND CHIN.

NORTHERN BLACK RACER

IDENTIFICATION/DESCRIPTION:

A SLENDER BLACK SNAKE MEASURING 36–60 INCHES. BLACK RACERS ARE GLOSSY BLACK ON THE TOP AND BOTTOM WITH A WHITE THROAT AND CHIN. YOUNG RACERS ARE PATTERNED WITH BROWN OR REDDISH PATCHES ON A LIGHTER BASE OF GRAY.

SMOOTH GREEN SNAKE

IDENTIFICATION/DESCRIPTION:

A THIN, SLENDER BRIGHT–GREEN SNAKE MEASURING 10–20 INCHES. THE UNDERSIDE IS WHITE OR A PALE YELLOW.

LITTLE BROWN BAT

IDENTIFICATION/DESCRIPTION:

THE LITTLE BROWN BAT IS A SMALL MAMMAL WITH A BODY LENGTH OF 2 1/2 – 4" AND WEIGHING APPROXIMATELY 1/8 TO 1/2 AN OUNCE. THE WINGSPAN OF LITTLE BROWN BATS RANGE FROM 9 – 11". BATS ARE THE ONLY MAMMALS THAT ENGAGE IN TRULY ACTIVE FLIGHT. AS THEIR NAME SUGGESTS THEY ARE GLOSSY BROWN ABOVE WITH A LIGHTER GRAY COLOR BELOW. THESE BATS CAN LIVE 20 TO 30 YEARS.

NORTHERN LONG–EARED BAT

IDENTIFICATION/DESCRIPTION:

THE NORTHERN LONG–EARED BAT IS A MEDIUM–SIZED BAT WITH A BODY LENGTH OF 3 TO 3.7 INCHES BUT A WINGSPAN OF 9 TO 10 INCHES. THEIR FUR COLOR CAN BE MEDIUM TO DARK BROWN ON THE BACK AND TAWNY TO PALE–BROWN ON THE UNDERSIDE. AS ITS NAME SUGGESTS, THIS BAT IS DISTINGUISHED BY ITS LONG EARS, PARTICULARLY AS COMPARED TO OTHER BATS IN ITS GENUS, MYOTIS

EASTERN SMALL–FOOTED BAT

IDENTIFICATION/DESCRIPTION:

THE EASTERN SMALL–FOOTED BAT HAS BROWNISH FUR, OFTEN WITH A GOLDEN SHEEN, THAT CONTRASTS WITH ITS BLACKISH FACE AND EARS, AND BLACKISH–BROWN WINGS AND TAIL MEMBRANE. IT CAN BE DISTINGUISHED FROM OTHER MYOTIS SPECIES BY ITS BLACK MASK AND SMALL SIZE. THE BODY IS LITTLE MORE THAN 3½ INCHES LONG, INCLUDING A 1½–INCH TAIL. ITS SMALL FEET, WHICH PROVIDE THE COMMON NAME, ARE LESS THAN A HALF–INCH AND ITS WINGSPAN RANGES FROM 8¼ TO 9¾INCHES. THIS SPECIES FLIES SLOWLY AND ERRATICALLY, USUALLY ABOUT ONE TO THREE YARDS ABOVE THE GROUND.

SILVER HAIRED BAT

IDENTIFICATION/DESCRIPTION:

THE SILVER–HAIRED BAT IS A MEDIUM–SIZED BAT WITH VERY DARK FUR TIPPED WITH SILVER OR WHITE. THE WINGS AND TAIL MEMBRANE ARE BLACK. EARS ARE SHORT AND ROUND WITH A SHORT, BLUNT–TIPPED TRAGUS. THE DORSAL SURFACE OF THE TAIL MEMBRANE IS PARTIALLY FURRED AND THE CALCAR LACKS A KEEL

TRI–COLORED BAT

IDENTIFICATION/DESCRIPTION:

THE TRICOLORED BAT, FORMERLY KNOWN AS THE EASTERN PIPISTRELLE (PIPISTRELLUS SUBFLAVUS), IS A SMALL BAT WEIGHING 0.2 TO 0.3 OUNCES (5 TO 8 GR) AND HAS A WINGSPAN OF 8 TO 10 INCHES. THE TERM "TRICOLORED"REFERS TO THE BAT'S YELLOWISHBROWN COAT THAT IS DARK AT THE BASE, YELLOWISH–BROWN IN THE MIDDLE, AND DARK AT THE TIPS. THE WING MEMBRANES ARE BLACKISH, BUT THE FACE AND EARS HAVE A PINKISH COLOR. AN OBVIOUS IDENTIFYING CHARACTERISTIC OF THIS SPECIES IS THE PINK COLOR OF THE SKIN ON THE RADIUS BONE. THE FEET ARE ALSO RELATIVELY LARGE COMPARED TO ITS BODY SIZE.

SPOTTED TURTLE

IDENTIFICATION/DESCRIPTION:

A SMALL 3–5 INCH TURTLE RECOGNIZED BY NUMEROUS YELLOW SPOTS COVERING A DARK CARAPACE. THE NUMBER OF SPOTS IS VARIABLE. SPOTS CAN ALSO BE FOUND ON THE HEAD AND LIMBS.

WOOD TURTLE

IDENTIFICATION/DESCRIPTION:

A 5–8 INCH TURTLE CHARACTERIZED BY ITS HIGHLY SCULPTED SHELL WHERE EACH LARGE SCUTE TAKES AN IRREGULAR PYRAMIDAL SHAPE. THE NECK AND FORELIMBS ARE ORANGE.

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WILDLIFE IDENTIFICATION PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

AS NOTED

DATE : MARCH 16, 2020

FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

W–101

SHEET 52 OF 55

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES

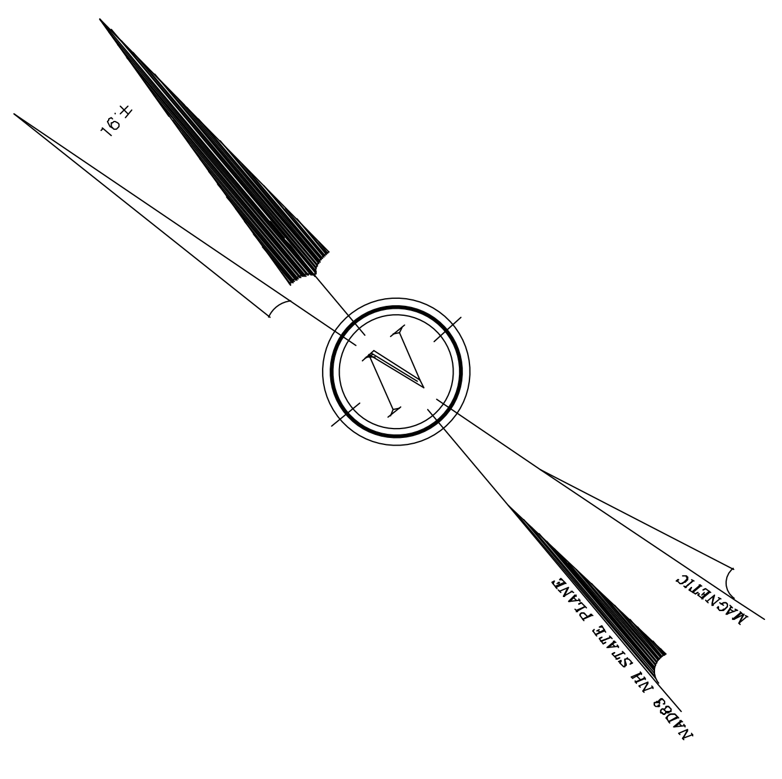
4.) R.C.R.D. BOOK 5834, PAGE 599

5.) ZONING:
    SETBACKS:
        FRONT – 50.0'
        SIDE – 50.0'
        REAR – 50.0'
        WETLANDS SETBACK ~ 50.0'
    MIN. LOT SIZE
        87,120 Sq. Ft.
    MIN. LOT FRONTAGE
        200'
    MAX. BLDG. HEIGHT
        34'

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.: FEMA COMMUNITY# –330137, MAP# – 33015C0120E, DATED: MAY 17, 2005. & FEMA COMMUNITY# –330178, MAP# – 3307C0295D, DATED: MAY 17, 2005.

7.) VERTICAL DATUM BASED ON USGS NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

8.) THE INTENT OF THIS PLAN IS TO SHOW THE OVERVIEW PLAN AS IT RELATES TO THE MITCHELL ROAD ENHANCEMENTS.



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

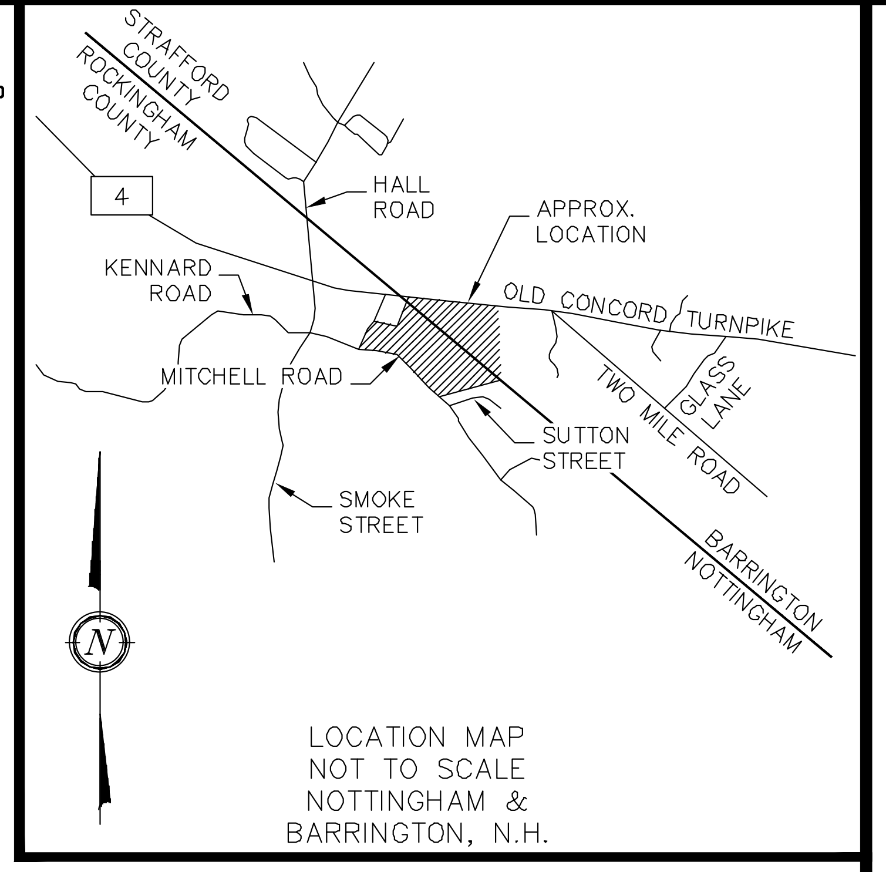
LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ○ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND ~FND~
- UTILITY POLE

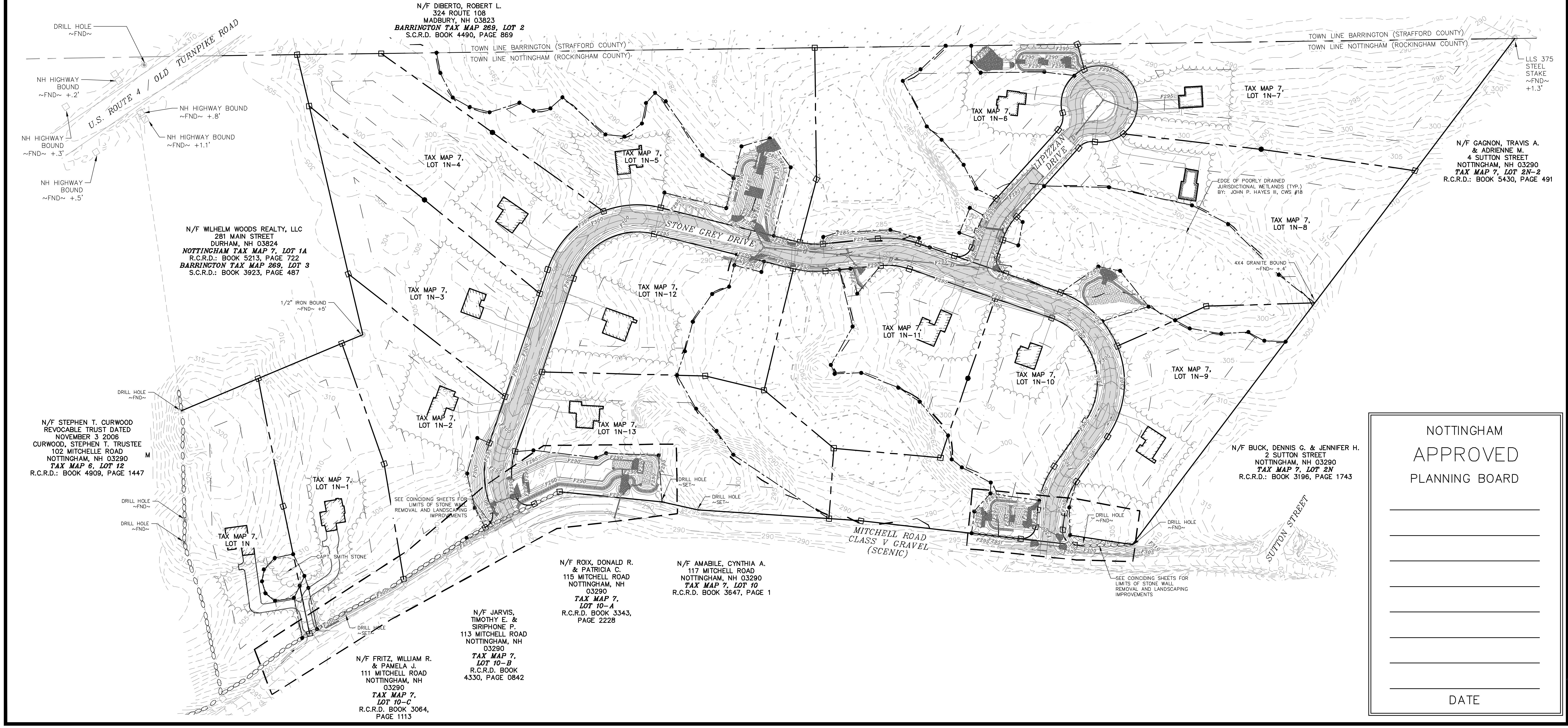
- PROPOSED BOUNDARY LINE
- BUILDING SETBACK LINE
- POORLY DRAINED WETLAND LINE
- VERY POORLY DRAINED WETLAND LINE
- WETLAND SETBACK 50' TO POORLY DRAINED
- WETLAND SETBACK 75' TO VERY POORLY DRAINED
- EASEMENT LINE
- TOWN LINE

▨ 25% STEEP SLOPES

R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP	TYPICAL
FND	FOUND
TBS	TO BE SET



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.



NOTTINGHAM
APPROVED
PLANNING BOARD

DATE

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

OVERVIEW MITCHELL ROAD ENHANCEMENT PLAN

LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

SHEET 53 OF 55

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO SHOW THE MITCHELL ROAD ENACTMENTS AT THE WESTERN SIDE OF THE PROPOSED SUBDIVISION.

LEGEND:

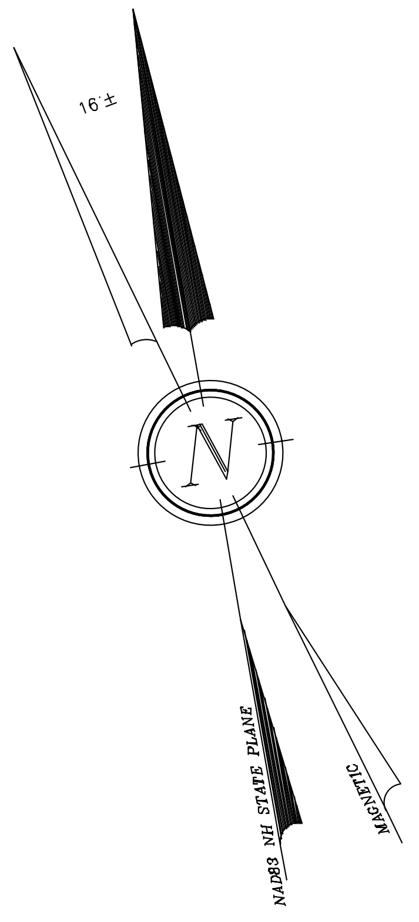
⊡ GRANITE BOUND ~TBS~
● 3/4" REBAR W/ ID CAP ~TBS~
◉ DRILL HOLE ~FND~
○ IRON PIPE ~FND~
○ IRON BOUND ~FND~
□ NH HIGHWAY BOUND ~FND~
UTILITY POLE

PROPOSED BOUNDARY LINE
BUILDING SETBACK LINE
POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
WETLAND SETBACK 50' TO POORLY DRAINED
WETLAND SETBACK 75' TO VERY POORLY DRAINED
EASEMENT LINE
TOWN LINE

STONE WALL TO BE REMOVED AN RESET
PROPOSED STONE WALL RECONSTRUCTION AREA

R.C.R.D. ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP TYPICAL
FND FOUND
TBS TO BE SET

① PHOTO POINT

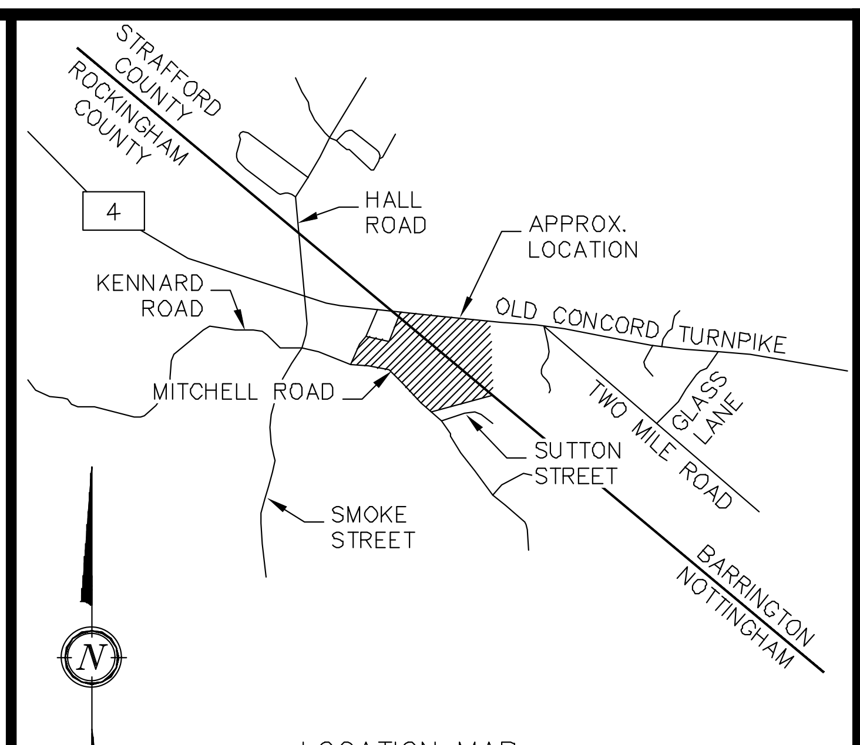


TREES

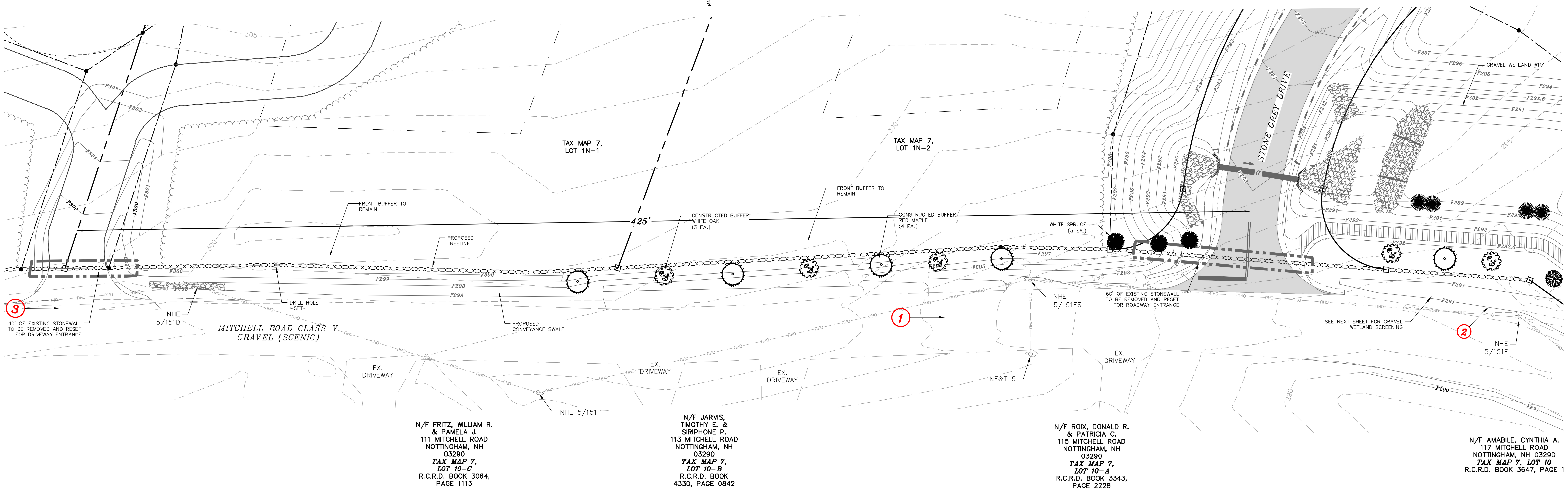
Qty	Botanical Name / Common Name	Root Sized
3	WHITE SPRUCE	CONT. 6'-8' TALL, BALLED AND BURLAPPED
4	RED MAPLE	CONT. 3" CALIPER, BALLED AND BURLAPPED
3	WHITE OAK	CONT. 3" CALIPER, BALLED AND BURLAPPED

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.



N/F FRITZ, WILLIAM R.
& PAMELA J.
111 MITCHELL ROAD
NOTTINGHAM, NH
03290
TAX MAP 7,
LOT 10-C
R.C.R.D. BOOK 3064,
PAGE 1113

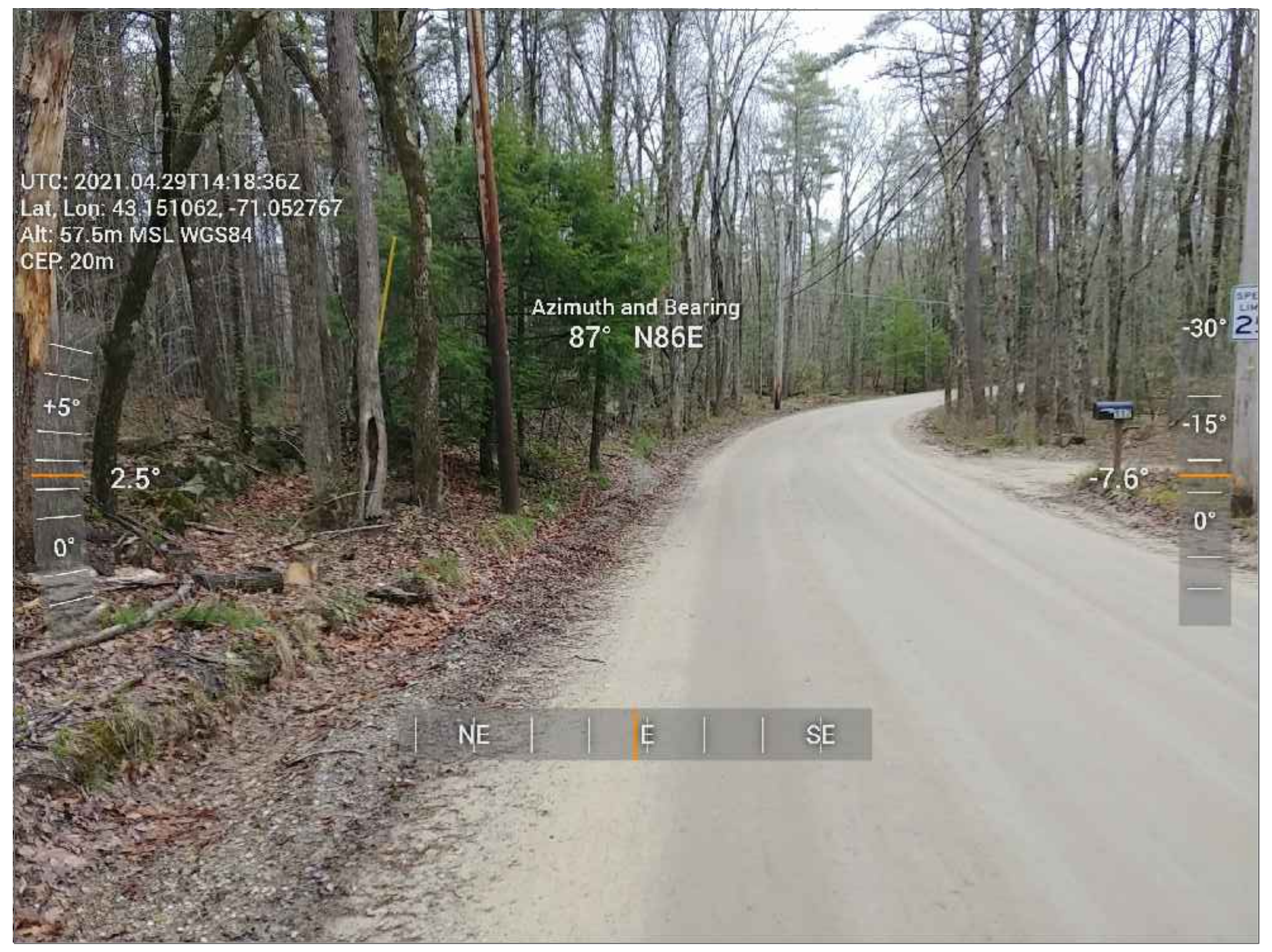
N/F JARVIS,
TIMOTHY E. &
SIRIPHONE P.
113 MITCHELL ROAD
NOTTINGHAM, NH
03290
TAX MAP 7,
LOT 10-B
R.C.R.D. BOOK
4330, PAGE 0842

N/F ROIX, DONALD R.
& PATRICIA C.
115 MITCHELL ROAD
NOTTINGHAM, NH
03290
TAX MAP 7,
LOT 10-A
R.C.R.D. BOOK 3343,
PAGE 2228

N/F AMABILE, CYNTHIA A.
117 MITCHELL ROAD
NOTTINGHAM, NH 03290
TAX MAP 7, LOT 10
R.C.R.D. BOOK 3647, PAGE 1

PICTURE 1

PICTURE 2



PICTURE 3

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

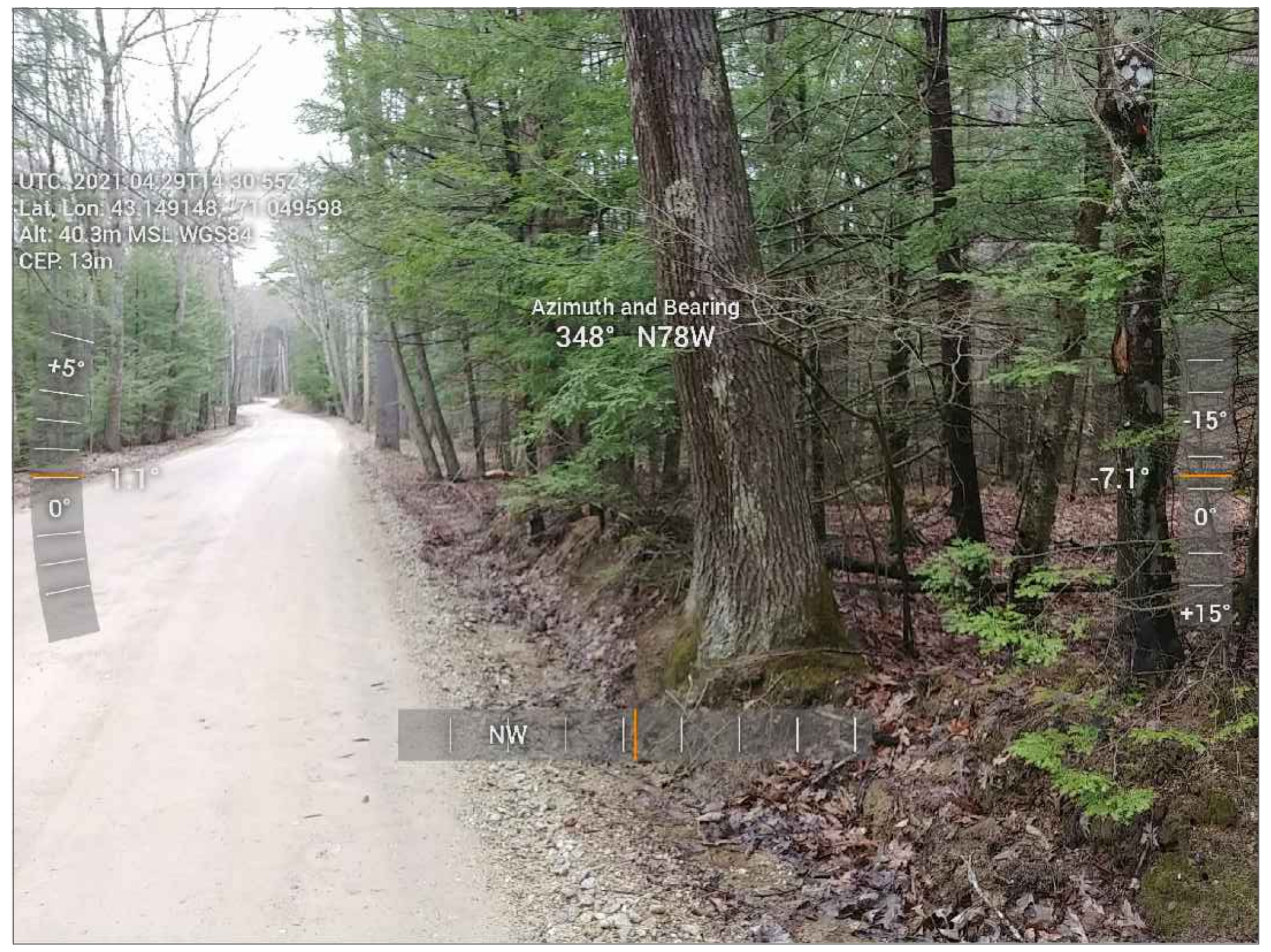
MITCHELL ROAD ENHANCEMENT PLAN WEST ENTRANCE
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
LICENSED LAND SURVEYOR
SIGNATURE

PICTURE 4



PICTURE 5

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

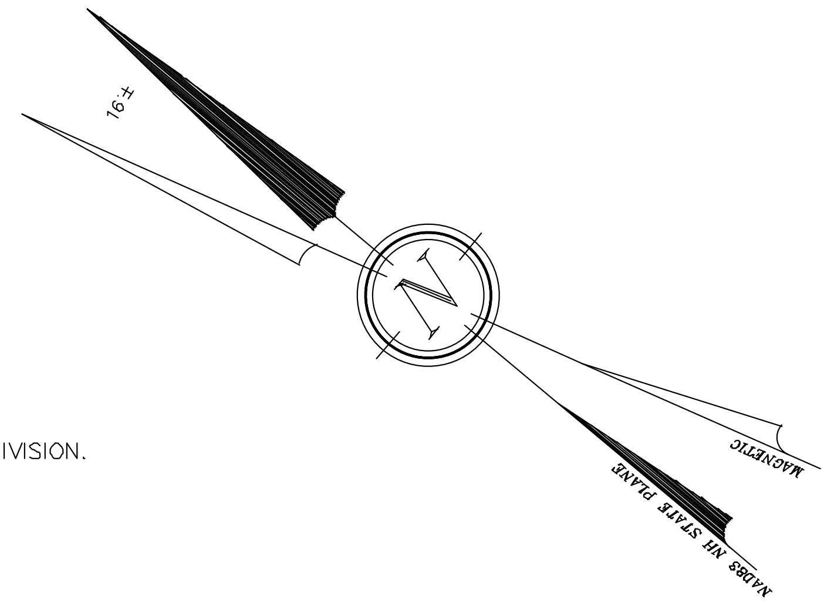
1A.) APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TOWN OF NOTTINGHAM TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO SHOW THE MITCHELL ROAD ENACTMENTS AT THE EASTERN SIDE OF THE PROPOSED SUBDIVISION.



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

LEGEND:

- ⊡ GRANITE BOUND ~TBS~
- ● 3/4" REBAR W/ ID CAP ~TBS~
- ◉ DRILL HOLE ~FND~
- ○ IRON PIPE ~FND~
- ○ IRON BOUND ~FND~
- □ NH HIGHWAY BOUND ~FND~
- UTILITY POLE

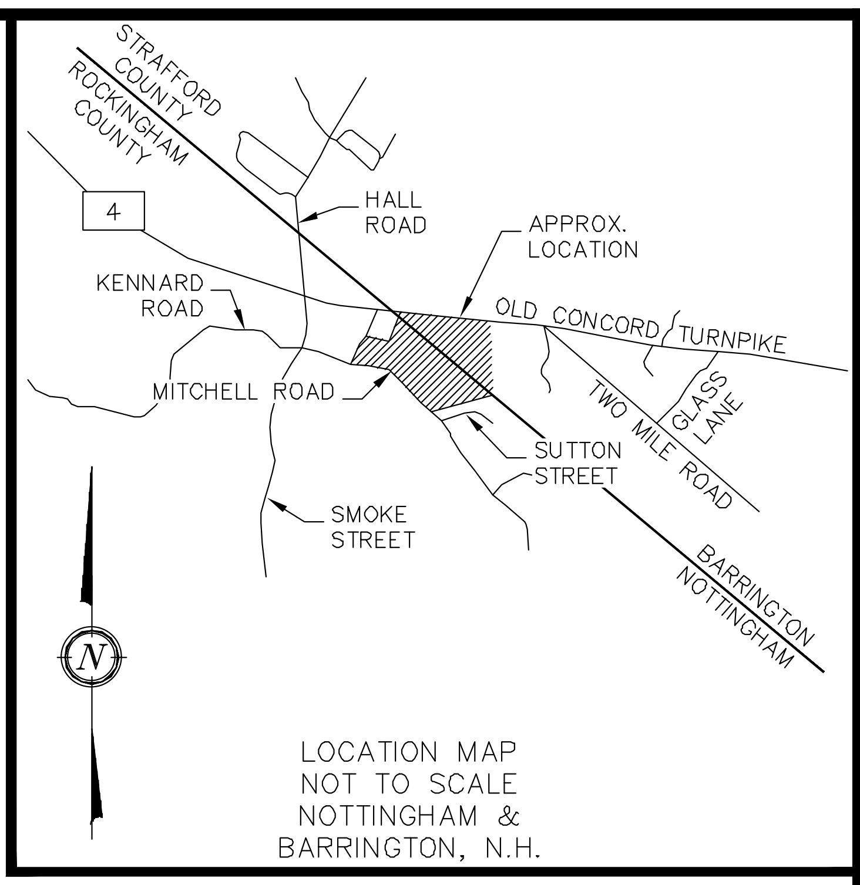
PROPOSED BOUNDARY LINE
BUILDING SETBACK LINE
POORLY DRAINED WETLAND LINE
VERY POORLY DRAINED WETLAND LINE
WETLAND SETBACK 50' TO POORLY DRAINED
WETLAND SETBACK 75' TO VERY POORLY DRAINED
EASEMENT LINE
TOWN LINE

STONE WALL TO BE REMOVED AN RESET
PROPOSED STONE WALL RECONSTRUCTION AREA

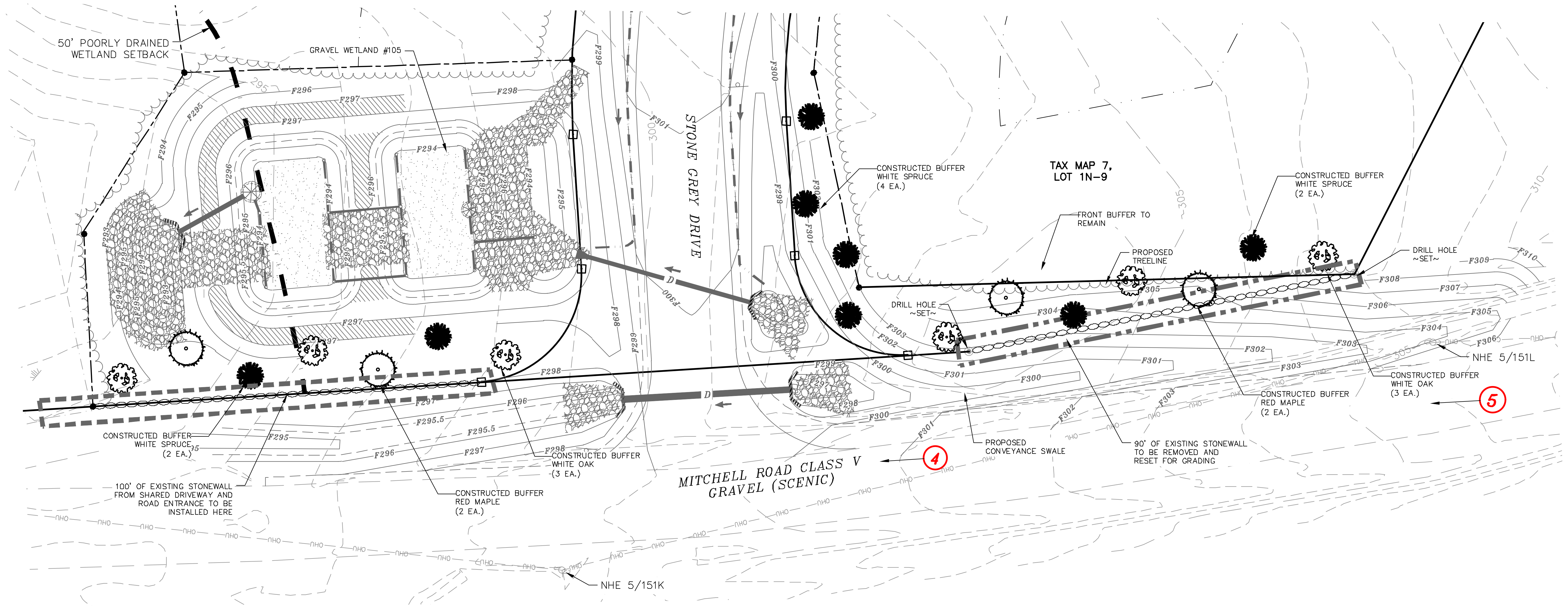
R.C.R.D. ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
TYP TYPICAL
FND FOUND
TBS TO BE SET
① PHOTO POINT

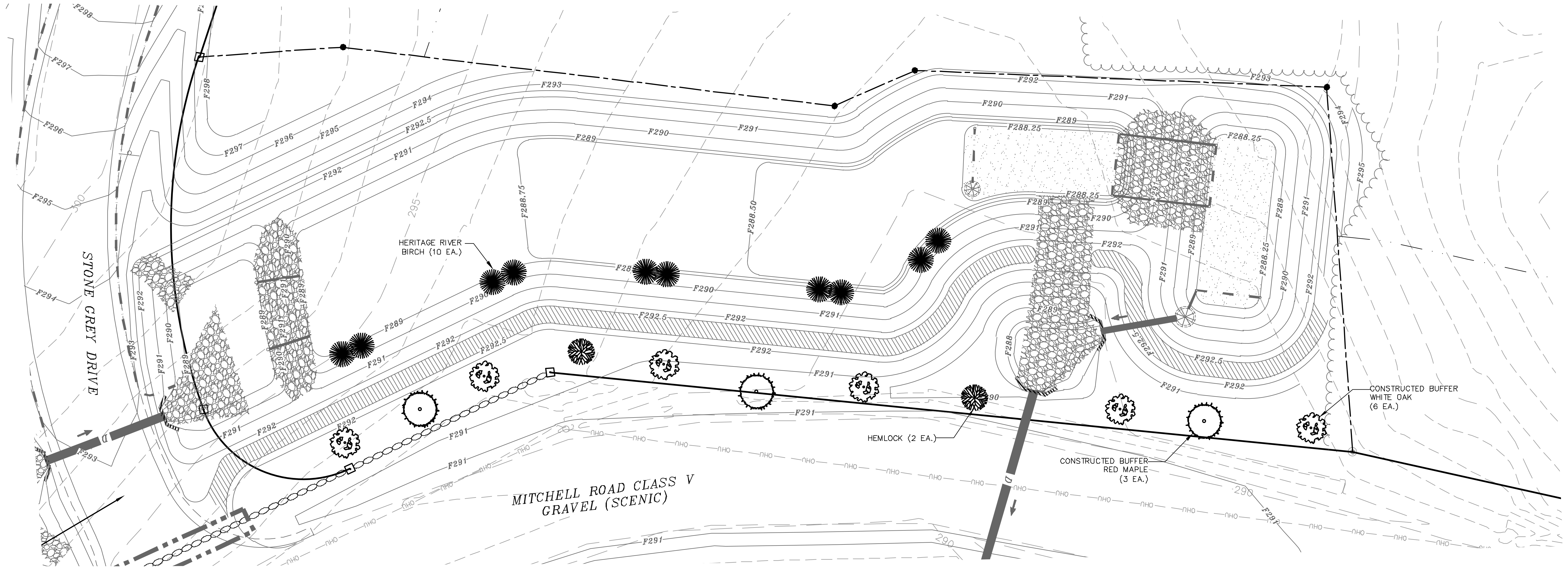
TREES

Qty	Botanical Name / Common Name	Root	Sized
8	WHITE SPRUCE		CONT. 6'–8' TALL, BALLED AND BURLAPPED
4	RED MAPLE		CONT. 3" CALIPER, BALLED AND BURLAPPED
6	WHITE OAK		CONT. 3" CALIPER, BALLED AND BURLAPPED



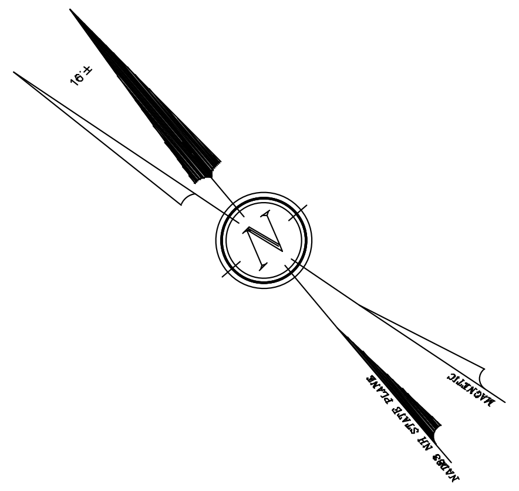
LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.





TREES

Qty	Botanical Name / Common Name	Root	Sized
2	HEMLOCK		CONT. 6'–8' TALL, BALLED AND BURLAPPED
3	RED MAPLE		CONT. 3" CALIPER, BALLED AND BURLAPPED
6	WHITE OAK		CONT. 3" CALIPER, BALLED AND BURLAPPED
10	HERITAGE RIVER BIRCH		CONT. 3" CALIPER, BALLED AND BURLAPPED



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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MITCHELL ROAD ENHANCEMENT PLAN EAST ENTRANCE
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 805
LICENSED LAND SURVEYOR
SIGNATURE

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

Town of Nottingham Planning Office
Attention: JoAnna Arendarczyk, Planning Secretary
139 Stage Road
P.O. Box 114
Nottingham, NH 03290

April 9, 2020
Revised: May 5, 2021

RE: Traffic Impact Analysis & Distribution
Robert L. DiBerto
Mitchell Road
Tax Map 242, Lot 1N
Nottingham, NH 03290

Mr. Chairman & Members of the Board,

Pursuant to the Town of Nottingham Subdivision Regulations, Berry Surveying & Engineering (BS&E), on behalf of Robert L. DiBerto, has prepared a Standard Traffic Impact Analysis for the development of fourteen residential units on Tax Map 7, Lot 1N. The three points of analysis are the two intersections of Stone Grey Drive with Mitchell Road and a shared driveway with Mitchell Road.

The following conclusions were reached as a result Traffic Impact Analysis:

- A total of 4 vehicle trips (1 enter/3 exit) are predicted to occur at the AM peak hour and 6 vehicle trips (4 enter/2 exit) at the PM peak hour for Stone Grey Drive East.

- A total of 4 vehicle trips (1 enter/3 exit) are predicted to occur at the AM peak hour and 6 vehicle trips (4 enter/2 exit) at the PM peak hour for Stone Grey Drive West.

- A total of 2 vehicle trips (1 enter/1 exit) are predicted to occur at the AM peak hour and 2 vehicle trips (1 enter/1 exit) at the PM peak hour for the shared driveway.

- A total of 10 vehicle trips (3 enter/7 exit) are predicted to occur at the AM peak hour and 14 vehicle trips (9 enter/5 exit) at the PM peak hour for the entire project site.

- It is recommended that gravel shoulder widenings with drainage swales are proposed to improve the cross section of Mitchell Road and will be able to handle the minimal projected increase in vehicle trips and peak hour and all other hours. Required grading and drainage along Stone Grey Drive west enhances sight distance for this entrance way.

Table of Contents

List of Tables

List of Figures

Proposed Development & Introduction

The proposal is to subdivide Tax Map 7, Lot 1N into fourteen single family lots. Tax Map 7, Lot 1N is proposed to contain the following: Stone Grey Drive, a 1,994 LF loop road from Mitchell Road for access to nine single family lots, Lipizzan Drive, a 645 LF cul-de-sac road accessed via Stone Grey Drive providing access to three single family lots, and a shared driveway on Mitchell Road, providing access to two single family lots. Stone Grey Drive intersections with Mitchell Road will be referred to as Stone Grey Drive East and Stone Grey Drive West. Stone Grey Drive and Lipizzan Drive are proposed to have 25-foot pavement entrance radii for emergency vehicle turning, 10-foot paved travel lanes (20 foot total paved width), and 2 foot gravel shoulders or sloped granite curbing on both sides of the roadway within wetland crossings. Several grading and drainage improvements are proposed on Mitchell Road, including a widened gravel shoulder entrance to Stone Grey Drive East and improved roadside drainage swales between Stone Grey Drive West and the shared driveway. Off-street parking will consist of individual driveways, providing adequate parking for house lots. On street parking will be permitted in all locations except for the fire cistern apron on Stone Grey Drive and Lipizzan Drive cul-de-sac. The intersections of Stone Grey Drive and Mitchell Road and the shared driveway with Mitchell Road are the points of analysis. Stone Grey Drive East and West are located 950 feet apart. The shared driveway is located 400 feet to the west of the Stone Grey Drive West and are considered the points of analysis. The purpose of this analysis is to determine the maximum number of trips coming to and leaving Stone Grey Drive during certain peak periods of the day. This information is then used in determining the impact on safety as it relates to the existing roadway infrastructure. The following components of the analysis are typical for a project of this size pursuant to the Institute of Traffic Engineers (ITE) manual.

Existing Conditions

Existing Site Description

The existing site consists of Tax Map 7, Lot 1N containing 1,766,568 Sq. Ft. (40.55 Ac.) of land. Tax Map 7, Lot 1N is a vacant lot that is primarily wooded. Tax Map 7, Lot 1N is located in the Residential - Agricultural district. Sutton Street is located 250 feet from the eastern property corner and four residential driveway cuts exist across from the western portion of frontage on Mitchell Road.

Mitchell Road and Surrounding Roadway Descriptions

Mitchell Road is a two-lane gravel local road. This road provides access to Smoke Street/U.S. Route 4/Nottingham to the west and N.H. 125/Lee to the east. It has an Average Annual Daily Traffic (AADT) of approximately 165 (2019) divided between east and west, as shown in the traffic counts performed by Accurate Counts.

Mitchell Road in the area of the project is composed of a gravel variable width, sixteen to twenty-four foot wide gravel surface with the narrowest section being located closer to Smoke Street. There is no centerline delineation and fog / edge lines provided. The posted speed limit of the roadway is 25 miles per hour (MPH). The geometry of Mitchell Road in the area of Stone Grey Drive East is relatively flat to the west (1.75% +/-), steeper to the east (4.0% +/-) and straight. The geometry of Mitchell Road in the area of Stone Grey Drive West is relatively flat to the east (1.0% +/-), steeper to the west (4.0% +/-) and is located near the apex of a curve. There are no existing sidewalks, crosswalks, or other pedestrian amenities in the area of the project.

Smoke Street & Sutton Street.

Approximately 0.2 miles to the east of the project site is the four-way, partial stop-controlled intersection of Smoke Street and Mitchell Road/Kennard Road. Kennard Road and Smoke Street are low volumes local roads. Kennard Road runs east-west and is a continuation of Mitchell Road to the West. Smoke Street runs north-south and intersects with U.S. Route 4, 0.2 miles to the north. According to traffic counts obtained from Accurate Counts, Smoke Street has an ADT 852 (2019). It is assumed that Kennard Road experiences an ADT equal to or less than Mitchell Road of 165 (2019). Due to the minimal trip generation of the proposed site and the distance from these intersections, there is no anticipated impact on the existing level of service at these intersections.

Approximately 250 feet to the east of the western front property corner of the project site is the three-way, partial stop controlled intersection of Mitchell Road and Sutton Street. Sutton Street is a local cul-de-sac that provides access to ten single family lots. There is no anticipated impact from this development on the intersection of Sutton and Mitchell Road.

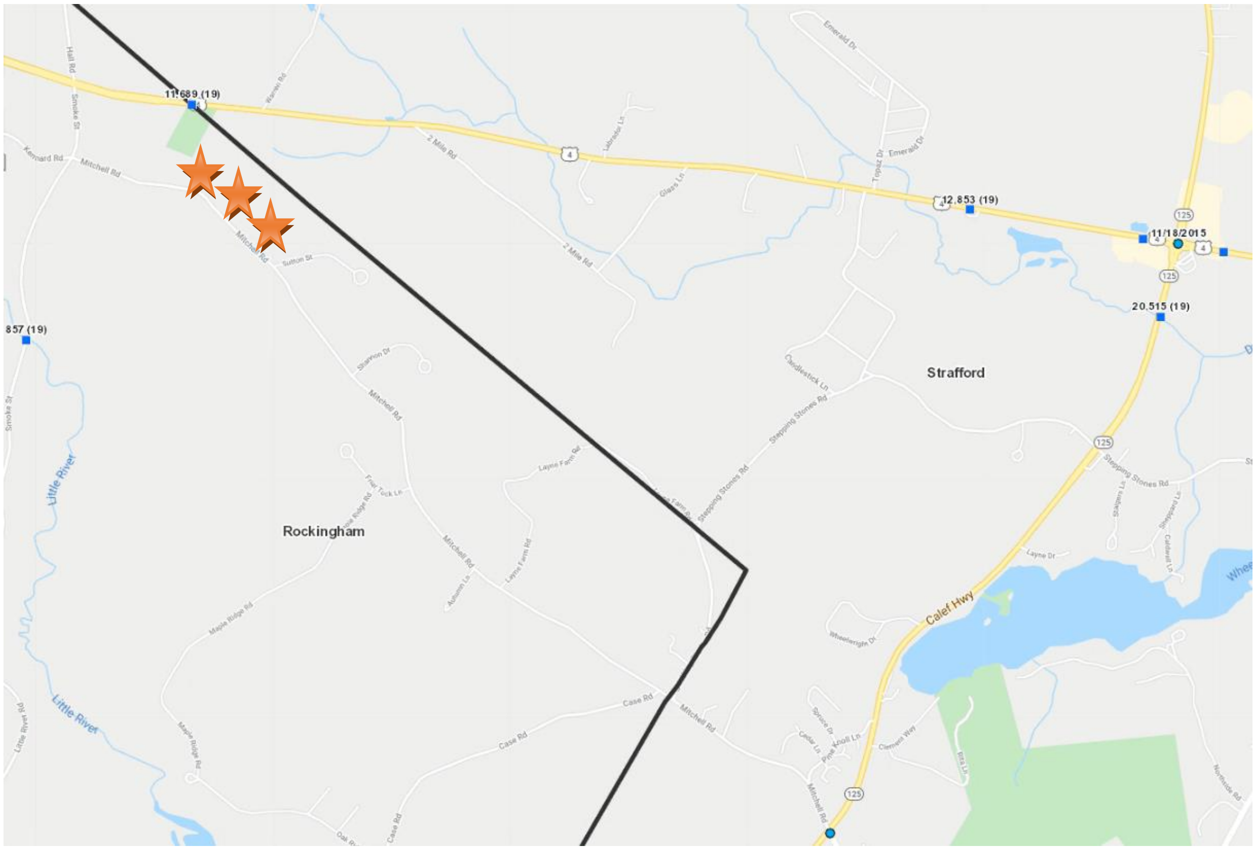


Figure 1: Mitchell Road with surrounding roadways (NHDOT)

Existing Traffic Volumes

According to traffic counts recorded by Accurate Counts for December 12 - 14, 2019, Mitchell Road experienced weekday AM, PM, and Saturday two-way peaks of 23 trips, 25 trips, and 14 respectively. It was found that Mitchell Road has an AADT of 165 vehicles.

The highest weekday peak hour traffic volume on this section of Mitchell Road eastbound occurred from 8-9 AM with 9 vehicles and from 4-5 PM with 7 vehicles. Westbound highest weekday peak hour traffic volume occurred from 7-8 AM with 17 vehicles and from 4-5 PM with 19 vehicles. Table #2 shows the traffic direction breakdown of Mitchell Road and Figures #1-3 are graphical representations of the traffic variations occurring throughout the day. It can be seen from the directional percent distribution that the primary direction of travel during the AM and PM peak hour is westbound towards Smoke Street and U.S. Route 4. Traffic counts of Mitchell Road are provided in Appendix A as Figure 7.

Maple Ridge Road is a 43 lot Open Space Subdivision that is located approximately 0.9 miles south east from where Stone Grey Drive east intersects Mitchell Road. BS&E has obtained the traffic Impact and Access Study performed by Vanasse & Associates, Inc, (V&AI)[1] dated July

2010 to account for additional trips that have been generated via completed residential construction on Maple Ridge Road between the date of Mitchell Road traffic counts (December 2019) and the date of this analysis. Based upon aerial photographs obtained from Google Earth, fourteen houses had been constructed on Maple Ridge Road as of May 2018. The next available Google Earth image is dated October of 2020 where forty houses had been constructed total. From May of 2018 to October of 2020, twenty-six houses were constructed on Maple Ridge Road. Is has been assumed that an average of nine houses were constructed in during the summer season. With the addition of the remaining lots not shown in the October 2020 aerial photo, this assumption would result in all but twelve houses constructed would have been accounted for in the 2019 Mitchell Road traffic counts.

V&AI had calculated that Maple Ridge Road was expected to generate approximately 478 trips on the average weekday (239 entering and 239 exiting), with 40 vehicle trips (10 entering and 30 existing) during the weekday AM peak hour and 49 vehicle trips (31 entering and 18 existing) during the weekday PM peak hour. Using the assumption that twelve of the forty-three houses were not accounted for during the 2019 Mitchell Road traffic counts, approximately 28% of the Maple Ridge Road volume was not accounted for. Further in the analysis V&AI assigns the total traffic volume across four different directions; to/from Mitchell Road east (35%), to/from Mitchell Road west (10%), to/from Mill Pond Road east (40%), and to/from Mill Pond Road west (15%). From this directional assignment, the 28% of the unaccounted for traffic volume can be reduced to 10% for travel to/from Mitchell Road east. Table #1 provides a breakdown of V&AI Maple Ridge Road traffic analysis assumptions and the increase that is needed to be taken into account for the 2019 Mitchell Road Traffic counts. [These derived trip Mitchell Road trip increases] are then added to the 2019 Mitchell Road traffic counts for pass-by traffic. It can be seen that one additional eastbound and westbound trip during the weekday AM and PM peak hours. Excerpts from the V&AI Traffic Impact and Access Study can be found in Appendix E as Figures 15-18.

V&AI Maple Ridge Road Traffic Generation			Buildout Reduction (27.9%)		2019 Mitchell Road Pass-by Addition (10%)	
Time Period	Enter	Exit	ENTER	EXIT	ENTER (Mitchell EB)	EXIT (Mitchell WB)
Weekday Total	239	239	66.7	66.7	6.7	6.7
Weekday AM Peak	10	30	2.8	8.4	0.3	0.8
Weekday PM Peak	31	18	8.6	5.0	0.9	0.5

Table 1: V&AI Maple Ridge Road TIA Mitchell Road traffic volume addition

[1] Vanasse & Associates, Inc., *Traffic Impact and Access Study Proposed Residential Development Nottingham, NH*, Newbury Development, Nottingham, New Hampshire. July 2010

Traffic Distribution Mitchell Road						
Date	Eastbound		Westbound		Two-Way	
Thursday 12/12/2019	AM Peak	10	AM Peak	18	AM Peak	25
	PM Peak	7	PM Peak	20	PM Peak	27
Friday 12/13/2019	AM Peak	7	AM Peak	17	AM Peak	24
	PM Peak	8	PM Peak	9	PM Peak	17
Average Peak Hour Traffic	AM Peak	8.5	AM Peak	17.5	AM Peak	24.5
	PM Peak	7.5	PM Peak	14.5	PM Peak	22.0
% Distribution	AM Peak	32.7	AM Peak	67.3		
	PM Peak	34.1	PM Peak	65.9		
Saturday 12/13/2019	Peak	7	Peak	9	Peak	16
% Distribution	Peak	43.8	Peak	56.3		

Table 2: Directional breakdown of trips occurring on Mitchell Road

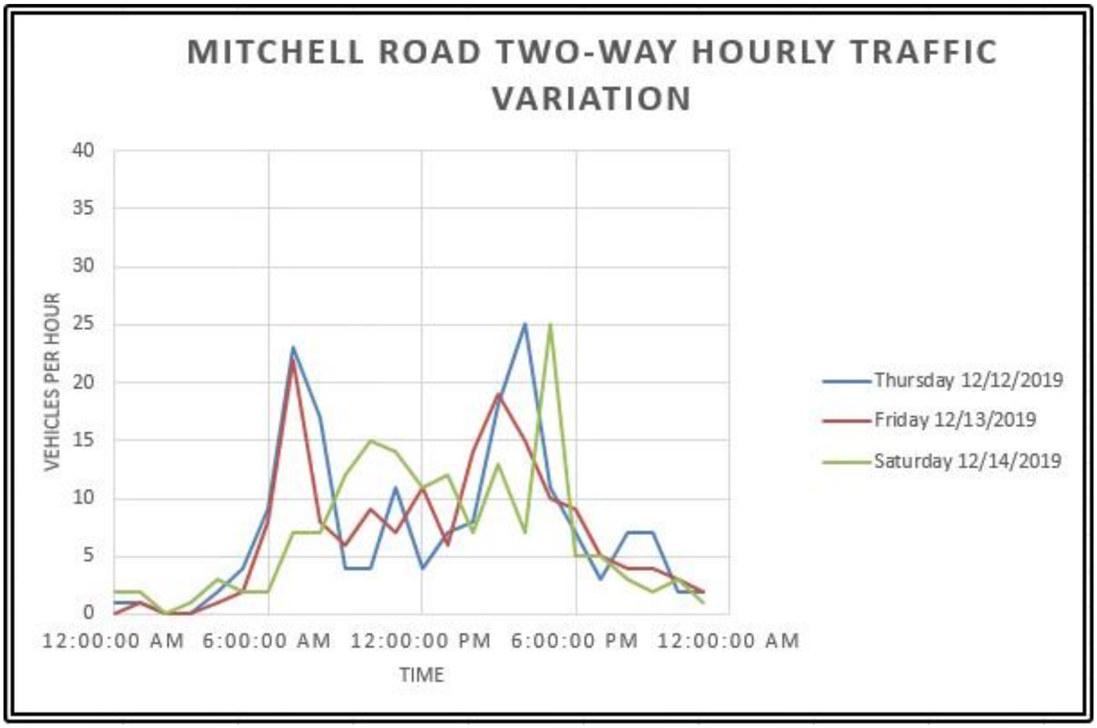


Figure 2: Graph of Mitchell Road two-way hourly traffic variation

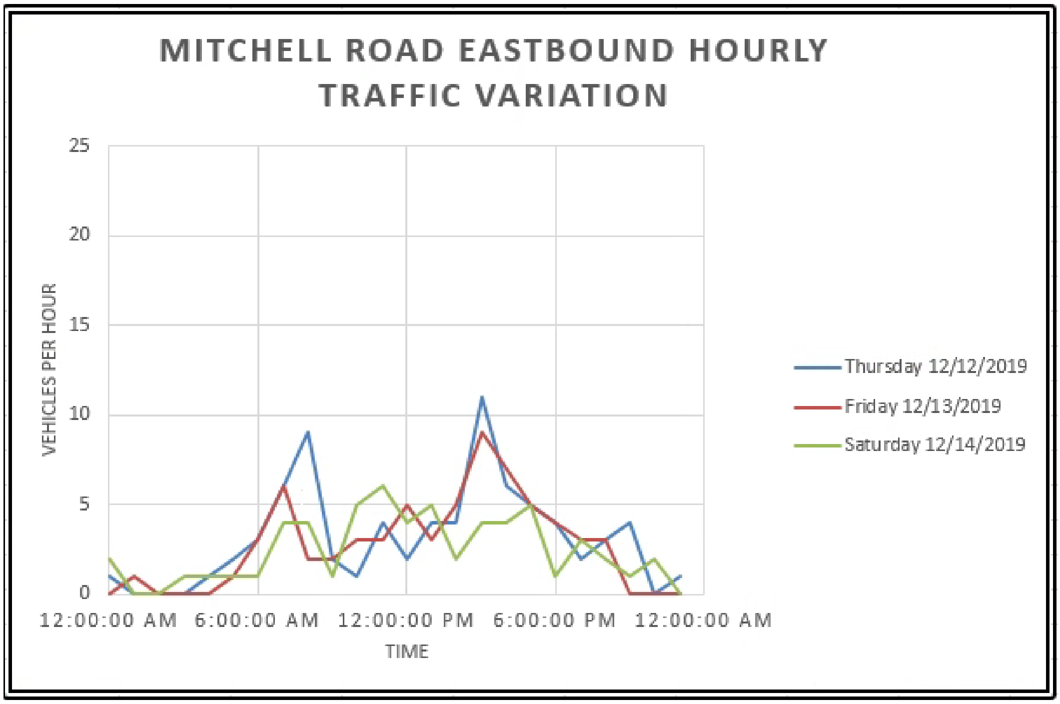


Figure 3: Graph of Mitchell Road eastbound hourly traffic variation

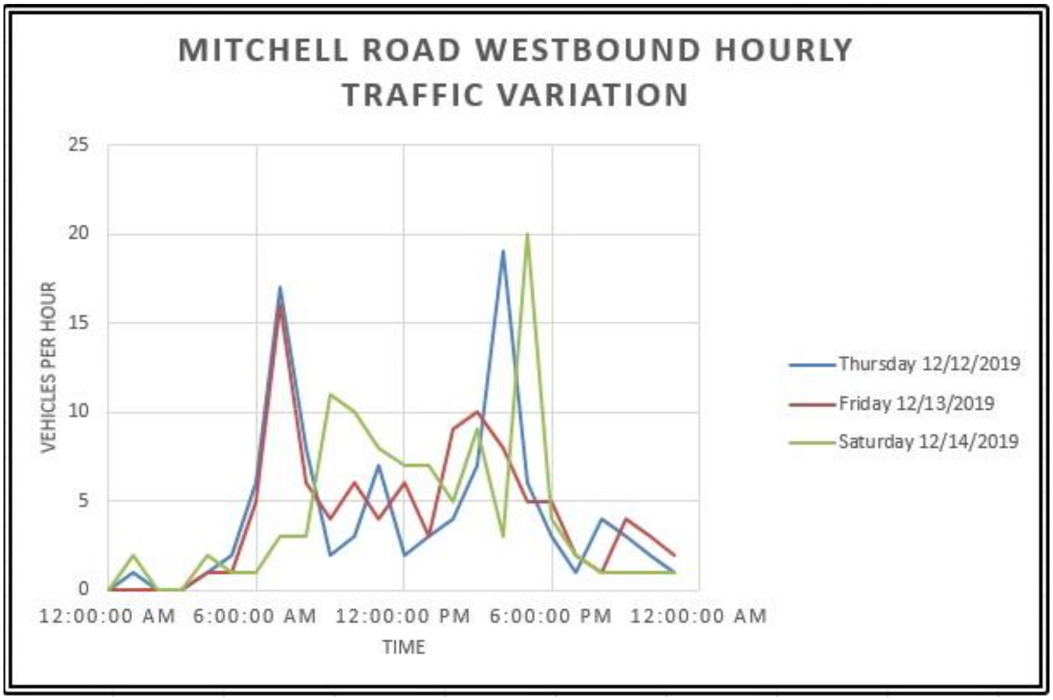


Figure 4: Graph of Mitchell Road westbound hourly traffic variation

Existing Vehicle Speeds

As previously mentioned, the posted speed limit of Mitchell Road is 25 MPH. For the purposes of the safety analysis, the 85th percentile of speed is required. This section of Mitchell Road was measured by Accurate Counts to analyze the pass by traffic, reviewing speed. Excessive speeds were rare, and most operators obeyed the posted speed limits within a deviation of 4 MPH. The 85th percentile derived by measurement was found to be 26 MPH. Mitchell Road experienced 50th percentile speeds of 22 MPH 95th percentile speed of 29 MPH. Collected Mitchell Road vehicle speeds can be found in Appendix B as Figures #8-11.

Proposed Trip Generation

The 10th Edition ITE Trip Generation Manual was used to determine the proposed volume of trips, as well as the percentage of entrance-to-exit traffic experienced at the AM & PM peak hours between 7 and 9 AM and 4 and 6 PM, and the weekday total volume. Single Family Detached Housing (210) was used in deriving the proposed trip generation for the Stone Grey Drive and the shared driveway. Tables 3-5 provide average trip rate, total trips generated, enter to exit ratio, and the enter to exit distribution for Stone Grey Drive East, Stone Grey Drive West, and the shared driveway. Table 6 shows the combined proposed trip generation. As the use of the site will be single family residences, the primary vehicle trips generated will be two axel cars and trucks. A single-family lot was assigned either Stone Grey Drive East or West based on proximity to intersection.

<u>Single Family Detached Housing Trip Generation Stone Grey Drive East:</u>

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	6			# Units	6			# Units	6		
Avg. Rate	9.44			Avg. Rate	0.74			Avg. Rate	0.99		
Total Trips	56.6			Total Trips	4.4			Total Trips	5.9		
% Enter	50.0	Total Enter	28.3	% Enter	25.0	Total Enter	1.1	% Enter	63.0	Total Enter	3.7
% Exit	50.0	Total Exit	28.3	% Exit	75.0	Total Exit	3.3	% Exit	37.0	Total Exit	2.2

Table 3: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, Saturday & weekday total

<u>Single Family Detached Housing Trip Generation Stone Grey Drive West:</u>

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	6			# Units	6			# Units	6		
Avg. Rate	9.44			Avg. Rate	0.74			Avg. Rate	0.99		
Total Trips	56.6			Total Trips	4.4			Total Trips	5.9		
% Enter	50.0	Total Enter	28.3	% Enter	25.0	Total Enter	1.1	% Enter	63.0	Total Enter	3.7
% Exit	50.0	Total Exit	28.3	% Exit	75.0	Total Exit	3.3	% Exit	37.0	Total Exit	2.2

Table 4: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, Saturday & weekday total

Single Family Detached Housing Trip Generation Shared Driveway:

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	2			# Units	2			# Units	2		
Avg. Rate	9.44			Avg. Rate	0.74			Avg. Rate	0.99		
Total Trips	18.9			Total Trips	1.5			Total Trips	2.0		
% Enter	50.0	Total Enter	9.4	% Enter	25.0	Total Enter	0.4	% Enter	63.0	Total Enter	1.2
% Exit	50.0	Total Exit	9.4	% Exit	75.0	Total Exit	1.1	% Exit	37.0	Total Exit	0.7

Table 5: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, Saturday & weekday total

Total Proposed Trip Generation Stone Grey Drive and Shared Driveway

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
Total Trips	132.2			Total Trips	10.4			Total Trips	13.9		
% Enter	50.0	Total Enter	66.1	% Enter	25.0	Total Enter	2.6	% Enter	63.0	Total Enter	8.7
% Exit	50.0	Total Exit	66.1	% Exit	75.0	Total Exit	7.8	% Exit	37.0	Total Exit	5.1

Table 6: Total combined trip generation Stone Grey Drive and Shared Driveway

Build Traffic Projections and Turning Analysis

Traffic data obtained from Accurate Counts in December 2019 has been projected to 2021 and ten years further to 2031. This has been done using a December peak seasonal adjustment factor of 2.38 (AM & PM) and using an annual growth rate of 1%, compounded annually. The derivation of the peak seasonal adjustment factor comes from an average series of values from other scenic highways from across New Hampshire, which can be found as Table 15 in Appendix D. Figures 5 and 6 show the build turning movements to and from Stone Grey Drive East, Stone Grey Drive West and a shared driveway during AM and PM peak hours. This data is used to provide a visualization of trips project to occur to and from the project site.

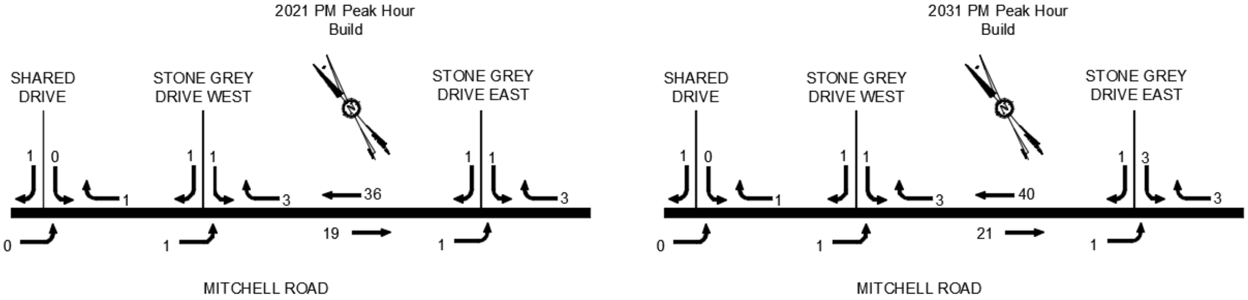


Figure 5: Weekday PM build projected traffic volumes and movements Stone Grey Drive and Shared DW

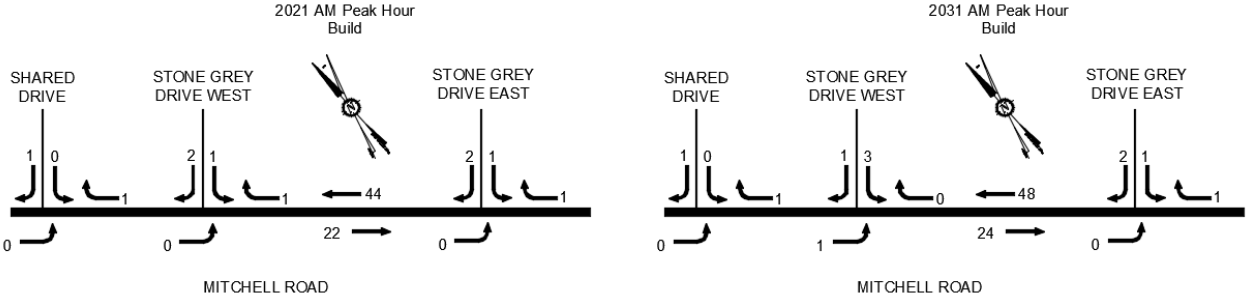


Figure 6: Weekday AM build d projected traffic volumes and turning Stone Grey Drive and Shared DW

Tables 7-12 show in a tabular format the total trips that are calculated to occur to and from Stone Grey Drive East, Stone Grey Drive West, and the shared driveway are shown at AM and PM weekday peak hours in a build situation. These trips are further broken down into enter and exit to and from the site as well as percentage of left and right turns. Tables 13 and 14 show total directional breakdown of trips generated by the site.

Time	AM Peak Hour Stone Grey Drive East	# Trips	Turn Type	% Distribution
Total Trips	4.4			
Trips Enter from Mitchell Road Eastbound		0.4	Left	8.2
Trips Enter from Mitchell Road Westbound		0.7	Right	16.8
Trips Exit to Mitchell Road Eastbound		1.1	Left	24.5
Trips Exit to Mitchell Road Westbound		2.2	Right	50.5

Table 7: Summary of AM build turning movements to and from Stone Grey Drive East

Time	PM Peak Hour Stone Grey Drive East	# Trips	Turn Type	% Distribution
Total Trips	5.9			
Trips Enter from Mitchell Road Eastbound		1.3	Left	21.5
Trips Enter from Mitchell Road Westbound		2.5	Right	41.5
Trips Exit to Mitchell Road Eastbound		0.7	Left	12.6
Trips Exit to Mitchell Road Westbound		1.4	Right	24.4

Table 8: Summary of PM build turning movements to and from Stone Grey Drive East

Time	AM Peak Hour Stone Grey Drive West	# Trips	Turn Type	% Distribution
Total Trips	4.4			
Trips Enter from Mitchell Road Eastbound		0.4	Left	8.2
Trips Enter from Mitchell Road Westbound		0.7	Right	16.8
Trips Exit to Mitchell Road Eastbound		1.1	Left	24.5
Trips Exit to Mitchell Road Westbound		2.2	Right	50.5

Table 9: Summary of AM build turning movements to and from Stone Grey Drive West

Time	PM Peak Hour Stone Grey Drive West	# Trips	Turn Type	% Distribution
Total Trips	5.9			
Trips Enter from Mitchell Road Eastbound		1.3	Left	21.5
Trips Enter from Mitchell Road Westbound		2.5	Right	41.5
Trips Exit to Mitchell Road Eastbound		0.7	Left	12.6
Trips Exit to Mitchell Road Westbound		1.4	Right	24.4

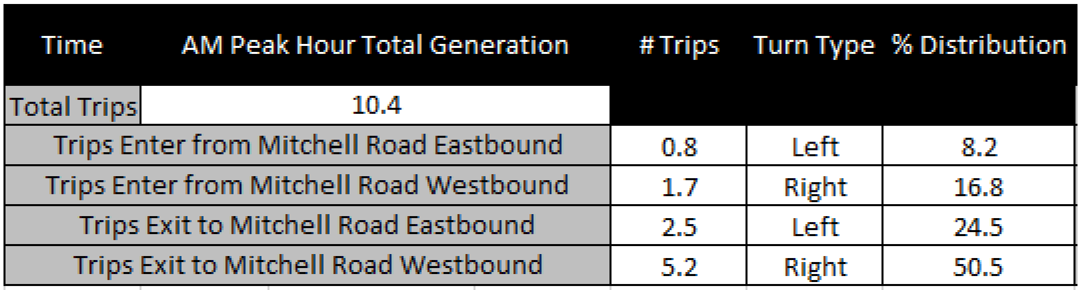
Table 10: Summary of PM build turning movements to and from Stone Grey Drive West

Time	AM Peak Hour Shared DW	# Trips	Turn Type	% Distribution
Total Trips	1.5			
Trips Enter from Mitchell Road Eastbound		0.1	Left	8.2
Trips Enter from Mitchell Road Westbound		0.2	Right	16.8
Trips Exit to Mitchell Road Eastbound		0.4	Left	24.5
Trips Exit to Mitchell Road Westbound		0.7	Right	50.5

Table 11: Summary of AM build turning movements to and from shared driveway

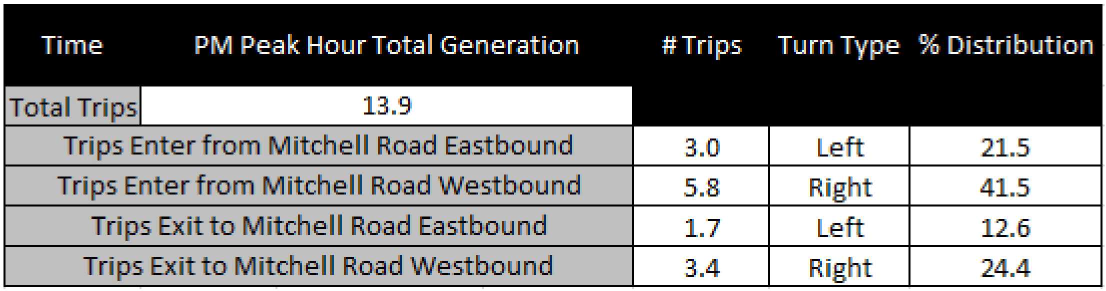
Time	PM Peak Hour Shared DW	# Trips	Turn Type	% Distribution
Total Trips	2.0			
Trips Enter from Mitchell Road Eastbound		0.4	Left	21.5
Trips Enter from Mitchell Road Westbound		0.8	Right	41.5
Trips Exit to Mitchell Road Eastbound		0.2	Left	12.6
Trips Exit to Mitchell Road Westbound		0.5	Right	24.4

Table 12: Summary of PM build turning movements to and from shared driveway



Time	AM Peak Hour Total Generation	# Trips	Turn Type	% Distribution
Total Trips	10.4			
Trips Enter from Mitchell Road Eastbound		0.8	Left	8.2
Trips Enter from Mitchell Road Westbound		1.7	Right	16.8
Trips Exit to Mitchell Road Eastbound		2.5	Left	24.5
Trips Exit to Mitchell Road Westbound		5.2	Right	50.5

Table 13: Summary of total AM build turning movements



Time	PM Peak Hour Total Generation	# Trips	Turn Type	% Distribution
Total Trips	13.9			
Trips Enter from Mitchell Road Eastbound		3.0	Left	21.5
Trips Enter from Mitchell Road Westbound		5.8	Right	41.5
Trips Exit to Mitchell Road Eastbound		1.7	Left	12.6
Trips Exit to Mitchell Road Westbound		3.4	Right	24.4

Table 14: Summary of total PM build turning movements

Sight Distance and Safety Analysis

Sight distance on Stone Grey Drive East and Stone Grey Drive West to the east and west, as well as roadway alignment are the two determining factors of safety. For a conservative measurement of sight distance, an 85th percentile speed of 35 MPH will be used instead of the measured 85th percentile speed of 26 MPH for Mitchell Road. For Stone Grey Drive East, sight distance to the east un-obstructed for well over 250 feet (measured), while sight distance to the west is un-obstructed for well over 250 feet (measured). Using Exhibit 3-1 (Stopping Sight Distance) (Figure 14) in the Geometric Design Manual, and a 35 mph 85th percentile speed, requires a stopping sight distance of 250 feet for eastbound and westbound traffic. To the east of Stone Grey Drive, a six foot, widened gravel shoulder on the north side of Mitchell Road is proposed for right turns entering the site. The regrading associated with this gravel shoulder allow for adequate sight distance to the east.

For Stone Grey Drive West, sight distance to the east un-obstructed for well over 250 feet (measured), while sight distance to the west is un-obstructed for well over 250 feet (measured). Using Exhibit 3-1 (Stopping Sight Distance) (Figure 14) in the Geometric Design Manual, and a 35 mph 85th percentile speed, requires a stopping sight distance of 250 feet for eastbound and westbound traffic. There are no improvements required to obtain this sight distance.

With respect to general safety of Mitchell Road in relation to the peak hour trip generation and AADT, it is our assessment that the cross section of Mitchell Road and shoulder widths require two improvements. The first improvement is the previously mentioned, six foot widened gravel shoulder on the north side of Mitchell Road to the east of Stone Grey Drive. The second improvement is an expanded two-foot gravel shoulder, on the north side of Mitchell Road to the west of Stone Grey Drive West. This gravel shoulder and associated drainage swale will improve the drainage conditions of Mitchell Road and help to reduce ponding water, as well as water that currently migrates into and down the roadway

*****AASHTO Geometric Design of Highways and Streets 7th Edition (2018)

Conclusions and Recommendations

1.) A total of 4 vehicle trips (1 enter/3 exit) are predicted to occur at the AM peak hour and 6 vehicle trips (4 enter/2 exit) at the PM peak hour for Stone Grey Drive East.

2.) A total of 4 vehicle trips (1 enter/3 exit) are predicted to occur at the AM peak hour and 6 vehicle trips (4 enter/2 exit) at the PM peak hour for Stone Grey Drive West.

3.) A total of 2 vehicle trips (1 enter/1 exit) are predicted to occur at the AM peak hour and 2 vehicle trips (1 enter/1 exit) at the PM peak hour for the shared driveway.

4.) A total of 10 vehicle trips (3 enter/7 exit) are predicted to occur at the AM peak hour and 14 vehicle trips (9 enter/5 exit) at the PM peak hour for the entire project site.

5.) It is recommended that gravel shoulder widenings with drainage swales are proposed to improve the cross section of Mitchell Road and will be able to handle the minimal projected increase in vehicle trips and peak hour and all other hours. Required grading and drainage along Stone Grey Drive west enhances sight distance for this entrance way

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER
KENNETH
A.
BERRY
No. 14243
LICENSED

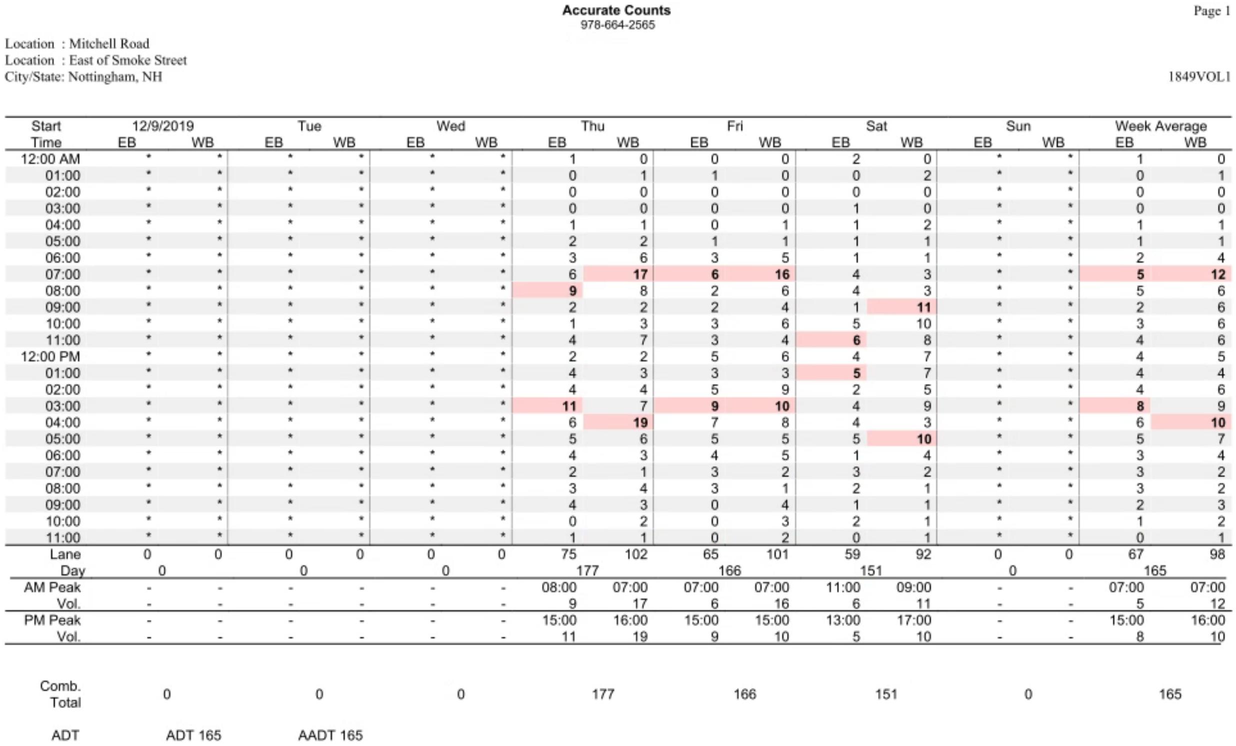
Christopher R. Berry, SIT
Principal, President

Kenneth A. Berry, PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP-Technical Operations

KRP/krp

Appendix A

Traffic Counts



Accurate Counts
978-664-2565

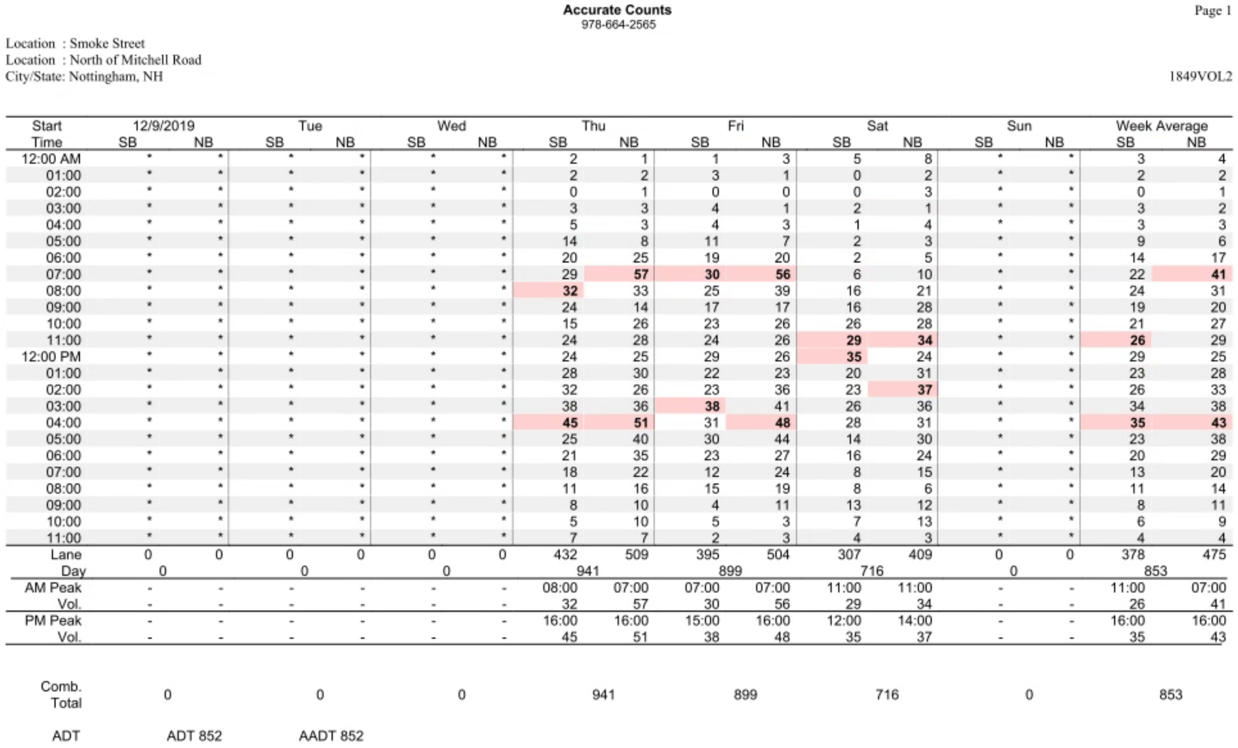
Page 1

Location : Mitchell Road
Location : East of Smoke Street
City/State: Nottingham, NH

1849VOL1

Start	12/9/2019		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	1	0	0	0	2	0	*	*	1	0
01:00	*	*	*	*	*	*	0	1	1	0	0	2	*	*	0	1
02:00	*	*	*	*	*	*	0	0	0	0	0	0	*	*	0	0
03:00	*	*	*	*	*	*	0	0	0	0	1	0	*	*	0	0
04:00	*	*	*	*	*	*	1	1	0	1	1	2	*	*	1	1
05:00	*	*	*	*	*	*	2	2	1	1	1	1	*	*	1	1
06:00	*	*	*	*	*	*	3	6	3	5	1	1	*	*	2	4
07:00	*	*	*	*	*	*	6	**17**	**6**	**16**	4	3	*	*	**5**	**12**
08:00	*	*	*	*	*	*	**9**	8	2	6	4	3	*	*	5	6
09:00	*	*	*	*	*	*	2	2	2	4	1	**11**	*	*	2	6
10:00	*	*	*	*	*	*	1	3	3	6	5	10	*	*	3	6
11:00	*	*	*	*	*	*	4	7	3	4	**6**	8	*	*	4	6
12:00 PM	*	*	*	*	*	*	2	2	5	6	4	7	*	*	4	5
01:00	*	*	*	*	*	*	4	3	3	3	**5**	7	*	*	4	4
02:00	*	*	*	*	*	*	4	4	5	9	2	5	*	*	4	6
03:00	*	*	*	*	*	*	**11**	7	**9**	**10**	4	9	*	*	**8**	9
04:00	*	*	*	*	*	*	6	**19**	7	8	4	3	*	*	6	**10**
05:00	*	*	*	*	*	*	5	6	5	5	5	**10**	*	*	5	7
06:00	*	*	*	*	*	*	4	3	4	5	1	4	*	*	3	4
07:00	*	*	*	*	*	*	2	1	3	2	3	2	*	*	3	2
08:00	*	*	*	*	*	*	3	4	3	1	2	1	*	*	3	2
09:00	*	*	*	*	*	*	4	3	0	4	1	1	*	*	2	3
10:00	*	*	*	*	*	*	0	2	0	3	2	1	*	*	1	2
11:00	*	*	*	*	*	*	1	1	0	2	0	1	*	*	0	1
Lane	0	0	0	0	0	0	75	102	65	101	59	92	0	0	67	98
Day	0		0		0		177		166		151		0		165	
AM Peak	-	-	-	-	-	-	08:00	07:00	07:00	07:00	11:00	09:00	-	-	07:00	07:00
Vol.	-	-	-	-	-	-	9	17	6	16	6	11	-	-	5	12
PM Peak	-	-	-	-	-	-	15:00	16:00	15:00	15:00	13:00	17:00	-	-	15:00	16:00
Vol.	-	-	-	-	-	-	11	19	9	10	5	10	-	-	8	10
Comb. Total	0		0		0		177		166		151		0		165	
ADT	ADT 165		AADT 165													

Figure 7: Mitchell Road Traffic Count Summary



Accurate Counts
978-664-2565

Page 1

Location : Smoke Street
Location : North of Mitchell Road
City/State: Nottingham, NH

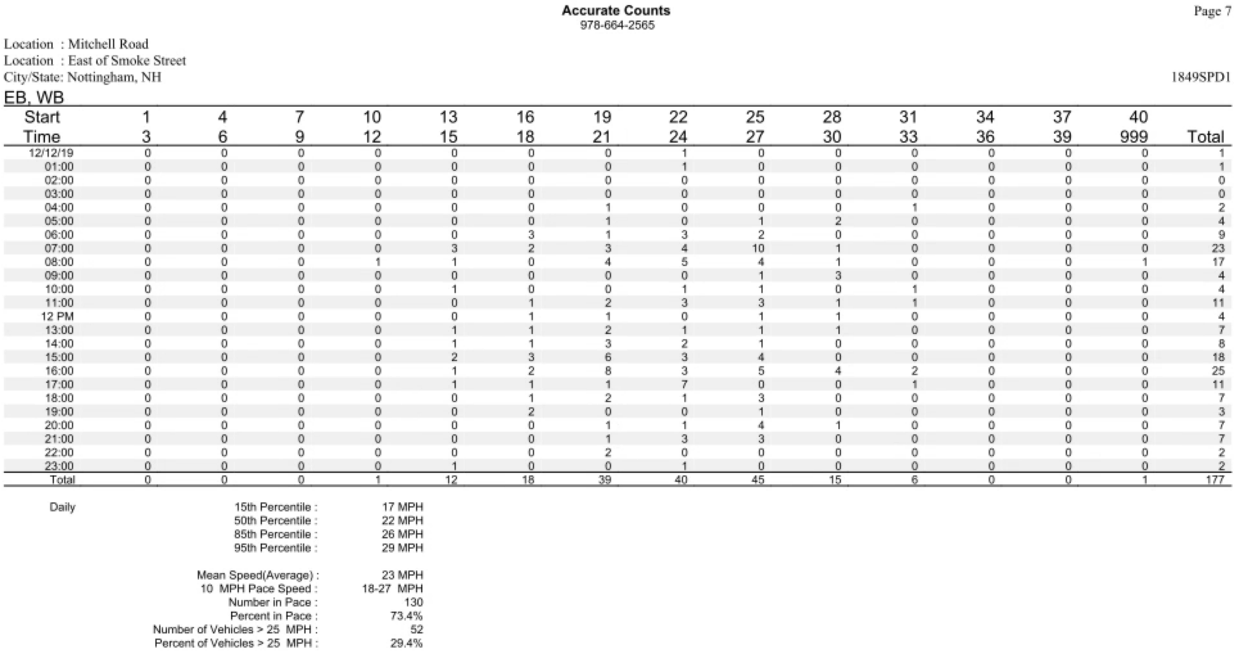
1849VOL2

Start	12/9/2019		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	*	*	*	*	2	1	1	3	5	8	*	*	3	4
01:00	*	*	*	*	*	*	2	2	3	1	0	2	*	*	2	2
02:00	*	*	*	*	*	*	0	1	0	0	0	3	*	*	0	1
03:00	*	*	*	*	*	*	3	3	4	1	2	1	*	*	3	2
04:00	*	*	*	*	*	*	5	3	4	3	1	4	*	*	3	3
05:00	*	*	*	*	*	*	14	8	11	7	2	3	*	*	9	6
06:00	*	*	*	*	*	*	20	25	19	20	2	5	*	*	14	17
07:00	*	*	*	*	*	*	29	**57**	**30**	**56**	6	10	*	*	22	**41**
08:00	*	*	*	*	*	*	**32**	33	25	39	16	21	*	*	24	31
09:00	*	*	*	*	*	*	24	14	17	17	16	28	*	*	19	20
10:00	*	*	*	*	*	*	15	26	23	26	26	28	*	*	21	27
11:00	*	*	*	*	*	*	24	28	24	26	**29**	**34**	*	*	**26**	29
12:00 PM	*	*	*	*	*	*	24	25	29	26	**35**	24	*	*	29	25
01:00	*	*	*	*	*	*	28	30	22	23	20	31	*	*	23	28
02:00	*	*	*	*	*	*	32	26	23	36	23	**37**	*	*	26	33
03:00	*	*	*	*	*	*	38	36	**38**	41	26	36	*	*	34	38
04:00	*	*	*	*	*	*	**45**	**51**	31	**48**	28	31	*	*	**35**	**43**
05:00	*	*	*	*	*	*	25	40	30	44	14	30	*	*	23	38
06:00	*	*	*	*	*	*	21	35	23	27	16	24	*	*	20	29
07:00	*	*	*	*	*	*	18	22	12	24	8	15	*	*	13	20
08:00	*	*	*	*	*	*	11	16	15	19	8	6	*	*	11	14
09:00	*	*	*	*	*	*	8	10	4	11	13	12	*	*	8	11
10:00	*	*	*	*	*	*	5	10	5	3	7	13	*	*	6	9
11:00	*	*	*	*	*	*	7	7	2	3	4	3	*	*	4	4
Lane	0	0	0	0	0	0	432	509	395	504	307	409	0	0	378	475
Day	0		0		0		941		899		716		0		853	
AM Peak	-	-	-	-	-	-	08:00	07:00	07:00	07:00	11:00	11:00	-	-	11:00	07:00
Vol.	-	-	-	-	-	-	32	57	30	56	29	34	-	-	26	41
PM Peak	-	-	-	-	-	-	16:00	16:00	15:00	16:00	12:00	14:00	-	-	16:00	16:00
Vol.	-	-	-	-	-	-	45	51	38	48	35	37	-	-	35	43
Comb. Total	0		0		0		941		899		716		0		853	
ADT	ADT 852		AADT 852													

Figure 8: Smoke Street Traffic Count Summary

Appendix B

Vehicle Speeds



Accurate Counts
978-664-2565

Page 7

Location : Mitchell Road
Location : East of Smoke Street
City/State: Nottingham, NH

1849SPD1

EB, WB

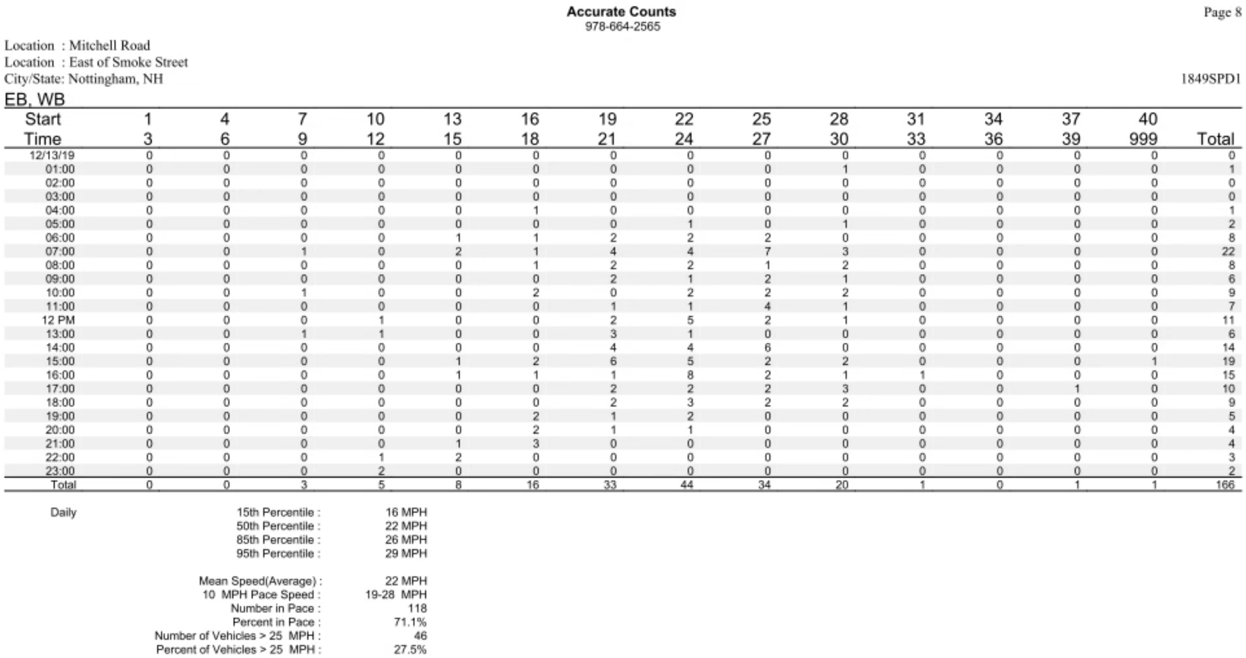
Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
12/12/19	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
05:00	0	0	0	0	0	0	1	0	1	2	0	0	0	0	4
06:00	0	0	0	0	0	3	1	3	2	0	0	0	0	0	9
07:00	0	0	0	0	3	2	3	4	10	1	0	0	0	0	23
08:00	0	0	0	1	1	0	4	5	4	1	0	0	0	1	17
09:00	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4
10:00	0	0	0	0	1	0	0	1	1	0	1	0	0	0	4
11:00	0	0	0	0	0	1	2	3	3	1	1	0	0	0	11
12 PM	0	0	0	0	0	1	1	0	1	1	0	0	0	0	4
13:00	0	0	0	0	1	1	2	1	1	1	0	0	0	0	7
14:00	0	0	0	0	1	1	3	2	1	0	0	0	0	0	8
15:00	0	0	0	0	2	3	6	3	4	0	0	0	0	0	18
16:00	0	0	0	0	1	2	8	3	5	4	2	0	0	0	25
17:00	0	0	0	0	1	1	1	7	0	0	1	0	0	0	11
18:00	0	0	0	0	0	1	2	1	3	0	0	0	0	0	7
19:00	0	0	0	0	0	2	0	0	1	0	0	0	0	0	3
20:00	0	0	0	0	0	0	1	1	4	1	0	0	0	0	7
21:00	0	0	0	0	0	0	1	3	3	0	0	0	0	0	7
22:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
23:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Total	0	0	0	1	12	18	39	40	45	15	6	0	0	1	177

Daily

15th Percentile : 17 MPH
50th Percentile : 22 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Mean Speed(Average) : 23 MPH
10 MPH Pace Speed : 18-27 MPH
Number in Pace : 130
Percent in Pace : 73.4%
Number of Vehicles > 25 MPH : 52
Percent of Vehicles > 25 MPH : 29.4%

Figure 9: Mitchell Road Vehicle Speed Summary Thursday December 12, 2019



Accurate Counts
978-664-2565

Page 8

Location : Mitchell Road
Location : East of Smoke Street
City/State: Nottingham, NH

1849SPD1

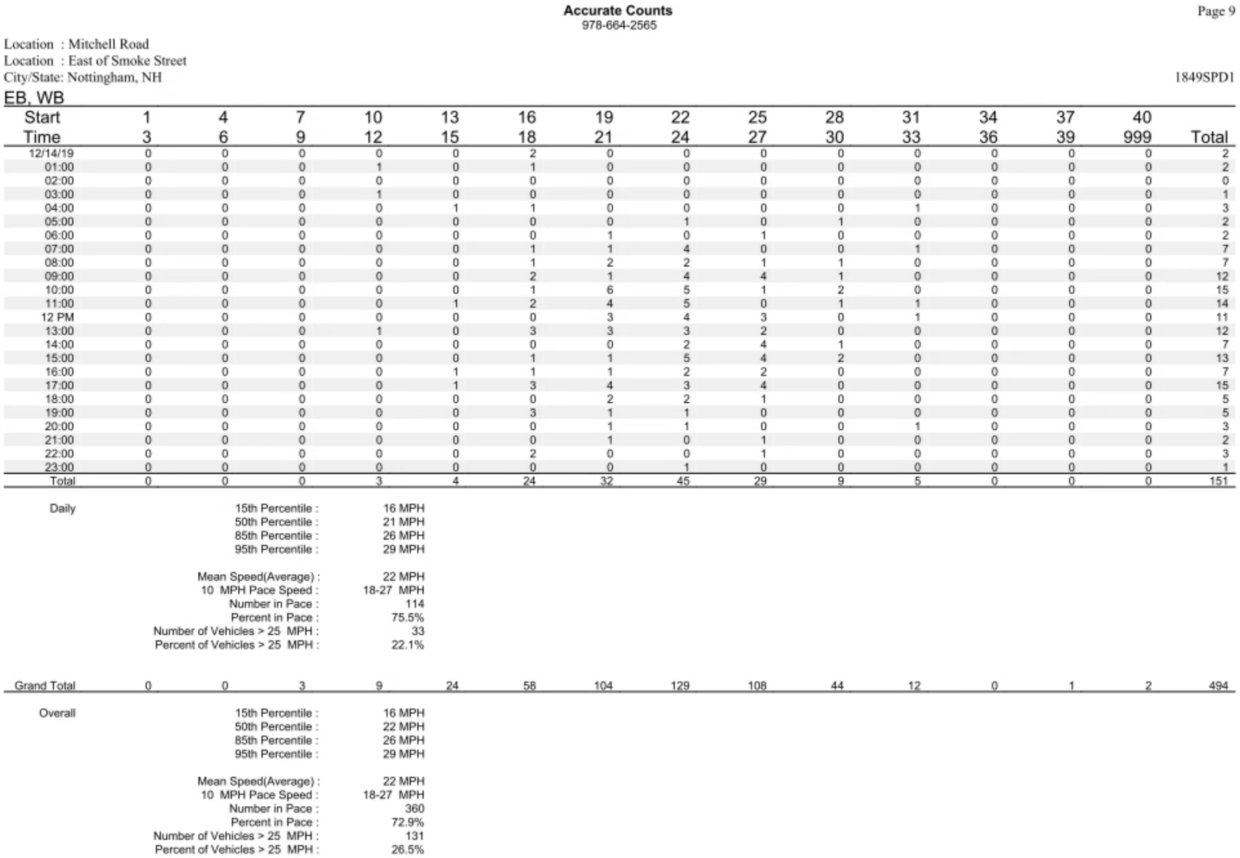
EB, WB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
12/13/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
06:00	0	0	0	0	1	1	2	2	2	0	0	0	0	0	8
07:00	0	0	1	0	2	1	4	4	7	3	0	0	0	0	22
08:00	0	0	0	0	0	1	2	2	1	2	0	0	0	0	8
09:00	0	0	0	0	0	0	2	1	2	1	0	0	0	0	6
10:00	0	0	1	0	0	2	0	2	2	2	0	0	0	0	9
11:00	0	0	0	0	0	0	1	1	4	1	0	0	0	0	7
12 PM	0	0	0	1	0	0	2	5	2	1	0	0	0	0	11
13:00	0	0	1	1	0	0	3	1	0	0	0	0	0	0	6
14:00	0	0	0	0	0	0	4	4	6	0	0	0	0	0	14
15:00	0	0	0	0	1	2	6	5	2	2	0	0	0	1	19
16:00	0	0	0	0	1	1	1	8	2	1	1	0	0	0	15
17:00	0	0	0	0	0	0	2	2	2	3	0	0	1	0	10
18:00	0	0	0	0	0	0	2	3	2	2	0	0	0	0	9
19:00	0	0	0	0	0	2	1	2	0	0	0	0	0	0	5
20:00	0	0	0	0	0	2	1	1	0	0	0	0	0	0	4
21:00	0	0	0	0	1	3	0	0	0	0	0	0	0	0	4
22:00	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3
23:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	3	5	8	16	33	44	34	20	1	0	1	1	166

Daily

Daily	15th Percentile :	16 MPH
	50th Percentile :	22 MPH
	85th Percentile :	26 MPH
	95th Percentile :	29 MPH
	Mean Speed(Average) :	22 MPH
	10 MPH Pace Speed :	19-28 MPH
	Number in Pace :	118
	Percent in Pace :	71.1%
	Number of Vehicles > 25 MPH :	46
	Percent of Vehicles > 25 MPH :	27.5%

Figure 10: Mitchell Road Vehicle Speed Summary Friday December 13, 2019



Accurate Counts
978-664-2565

Page 9

Location : Mitchell Road
Location : East of Smoke Street
City/State: Nottingham, NH

1849SPD1

EB, WB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total
12/14/19	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
01:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	1	1	0	0	0	0	1	0	0	0	3
05:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
06:00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
07:00	0	0	0	0	0	1	1	4	0	0	1	0	0	0	7
08:00	0	0	0	0	0	1	2	2	1	1	0	0	0	0	7
09:00	0	0	0	0	0	2	1	4	4	1	0	0	0	0	12
10:00	0	0	0	0	0	1	6	5	1	2	0	0	0	0	15
11:00	0	0	0	0	1	2	4	5	0	1	1	0	0	0	14
12 PM	0	0	0	0	0	0	3	4	3	0	1	0	0	0	11
13:00	0	0	0	1	0	3	3	3	2	0	0	0	0	0	12
14:00	0	0	0	0	0	0	0	2	4	1	0	0	0	0	7
15:00	0	0	0	0	0	1	1	5	4	2	0	0	0	0	13
16:00	0	0	0	0	1	1	1	2	2	0	0	0	0	0	7
17:00	0	0	0	0	1	3	4	3	4	0	0	0	0	0	15
18:00	0	0	0	0	0	0	2	2	1	0	0	0	0	0	5
19:00	0	0	0	0	0	3	1	1	0	0	0	0	0	0	5
20:00	0	0	0	0	0	0	1	1	0	0	1	0	0	0	3
21:00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
22:00	0	0	0	0	0	2	0	0	1	0	0	0	0	0	3
23:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	3	4	24	32	45	29	9	5	0	0	0	151

Daily
15th Percentile : 16 MPH
50th Percentile : 21 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 18-27 MPH
Number in Pace : 114
Percent in Pace : 75.5%
Number of Vehicles > 25 MPH : 33
Percent of Vehicles > 25 MPH : 22.1%

Grand Total	0	0	3	9	24	58	104	129	108	44	12	0	1	2	494

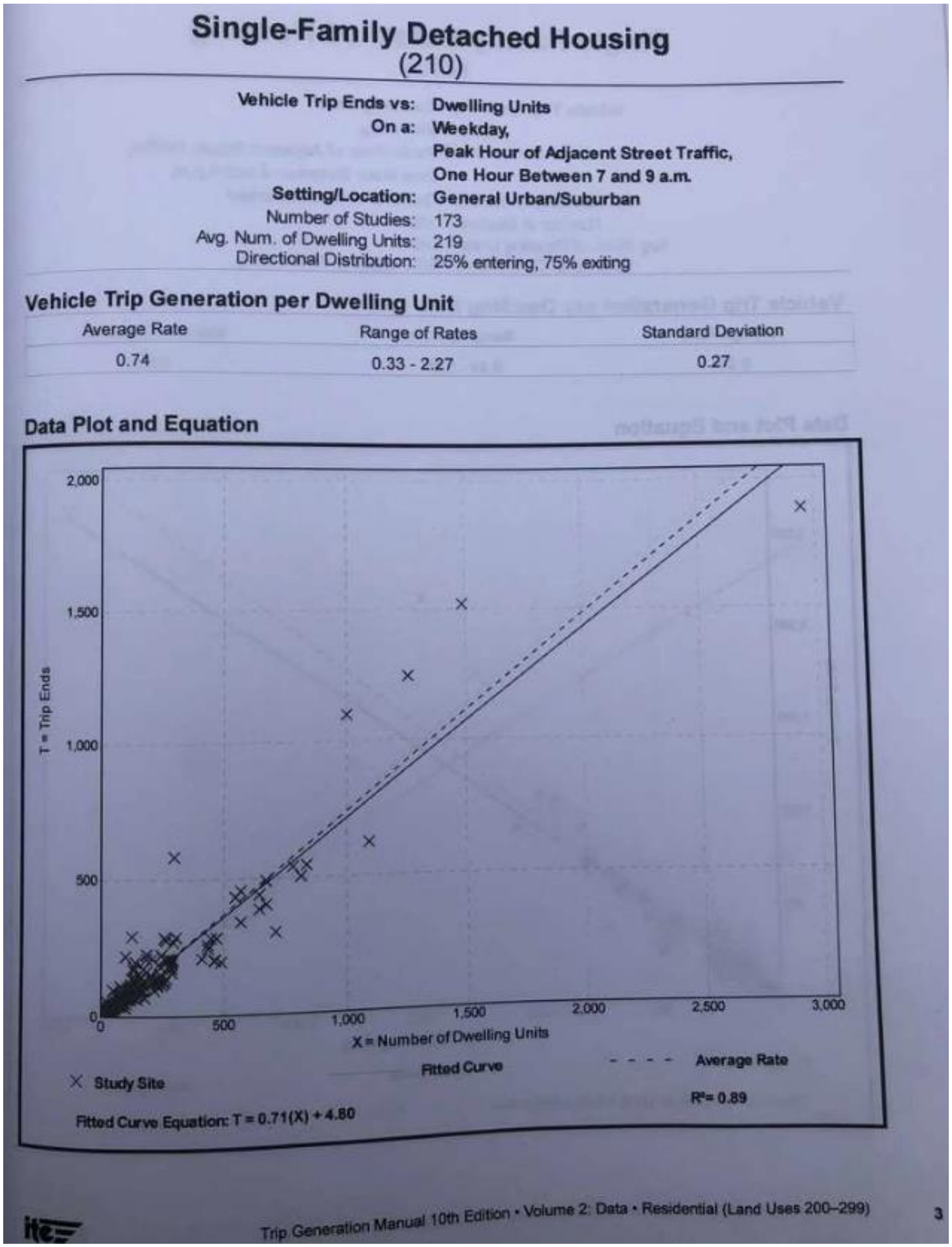
Overall
15th Percentile : 16 MPH
50th Percentile : 22 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 18-27 MPH
Number in Pace : 360
Percent in Pace : 72.9%
Number of Vehicles > 25 MPH : 131
Percent of Vehicles > 25 MPH : 26.5%

Figure 11: Mitchell Road Vehicle Speed Summary Saturday December 14, 2019

Appendix C

Trip Generation Derivation



Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

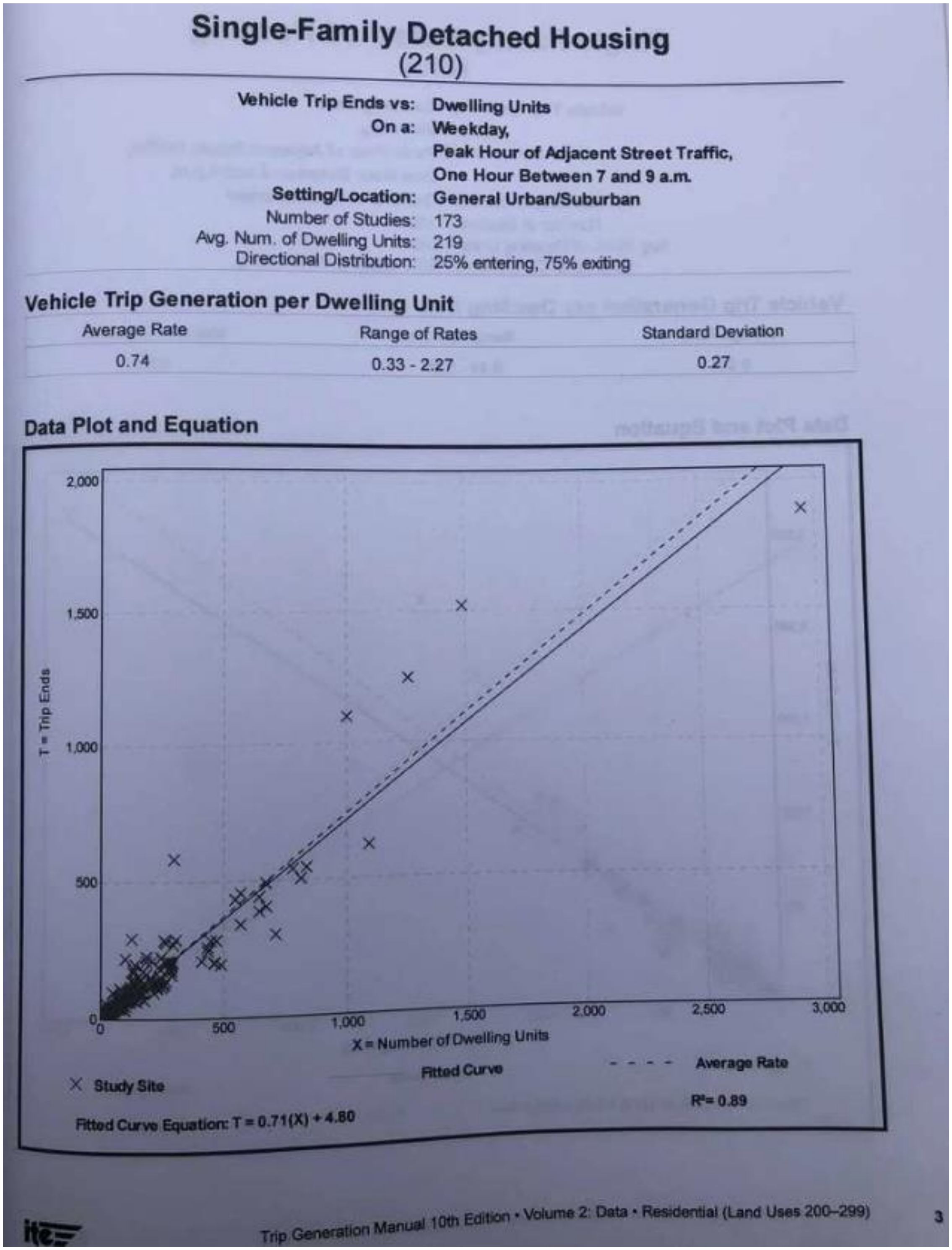
Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation

Trip Generation Manual 10th Edition • Volume 2: Data • Residential (Land Uses 200–299)

3

Figure 12: ITE Trip Generation, 10th Edition



Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,** **Peak Hour of Adjacent Street Traffic,** **One Hour Between 7 and 9 a.m.**
Setting/Location:	**General Urban/Suburban**
Number of Studies:	173
Avg. Num. of Dwelling Units:	219
Directional Distribution:	25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation

Fitted Curve Equation: $T = 0.71(X) + 4.80$

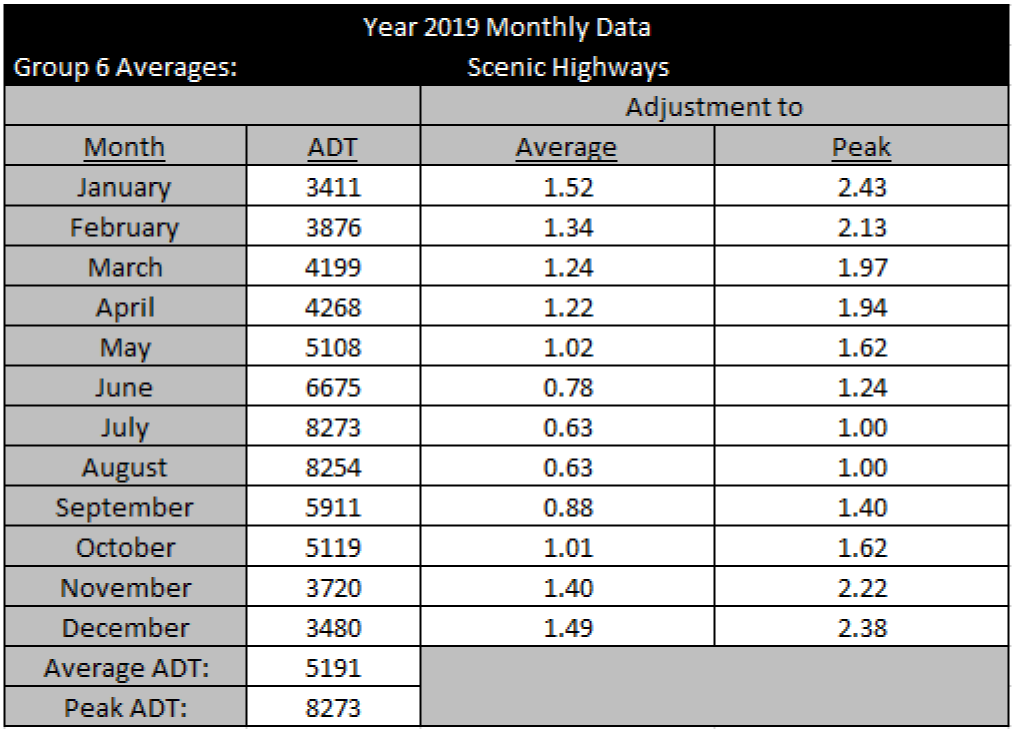
$R^2 = 0.89$

Trip Generation Manual 10th Edition • Volume 2: Data • Residential (Land Uses 200–299) 3

Figure 13: ITE Trip Generation, 10th Edition

Appendix D

Miscellaneous



Year 2019 Monthly Data			
Group 6 Averages:		Scenic Highways	
		Adjustment to	
Month	ADT	Average	Peak
January	3411	1.52	2.43
February	3876	1.34	2.13
March	4199	1.24	1.97
April	4268	1.22	1.94
May	5108	1.02	1.62
June	6675	0.78	1.24
July	8273	0.63	1.00
August	8254	0.63	1.00
September	5911	0.88	1.40
October	5119	1.01	1.62
November	3720	1.40	2.22
December	3480	1.49	2.38
Average ADT:	5191		
Peak ADT:	8273		

Table 15: Derivation of the seasonal peaking factor

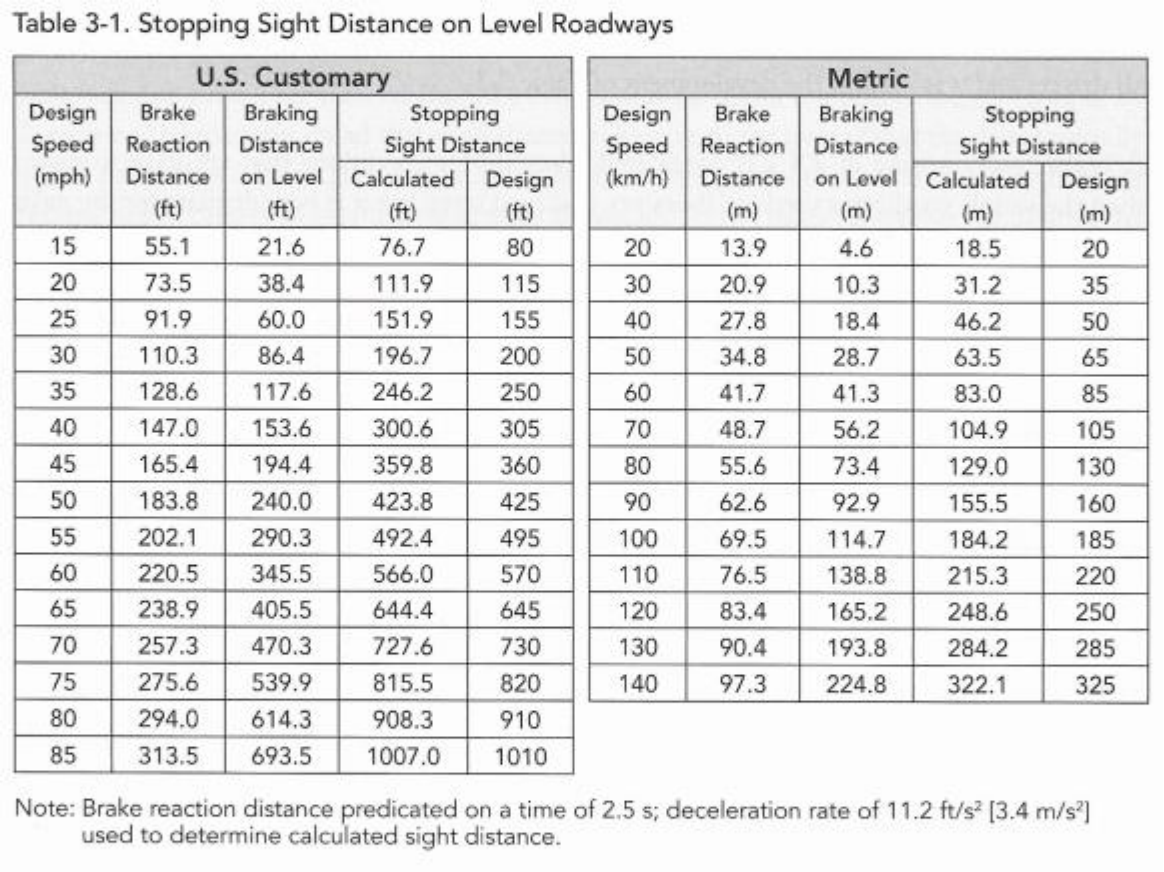


Table 3-1. Stopping Sight Distance on Level Roadways

U.S. Customary				
Design Speed (mph)	Brake Reaction Distance (ft)	Braking Distance on Level (ft)	Stopping Sight Distance	
			Calculated (ft)	Design (ft)
15	55.1	21.6	76.7	80
20	73.5	38.4	111.9	115
25	91.9	60.0	151.9	155
30	110.3	86.4	196.7	200
35	128.6	117.6	246.2	250
40	147.0	153.6	300.6	305
45	165.4	194.4	359.8	360
50	183.8	240.0	423.8	425
55	202.1	290.3	492.4	495
60	220.5	345.5	566.0	570
65	238.9	405.5	644.4	645
70	257.3	470.3	727.6	730
75	275.6	539.9	815.5	820
80	294.0	614.3	908.3	910
85	313.5	693.5	1007.0	1010

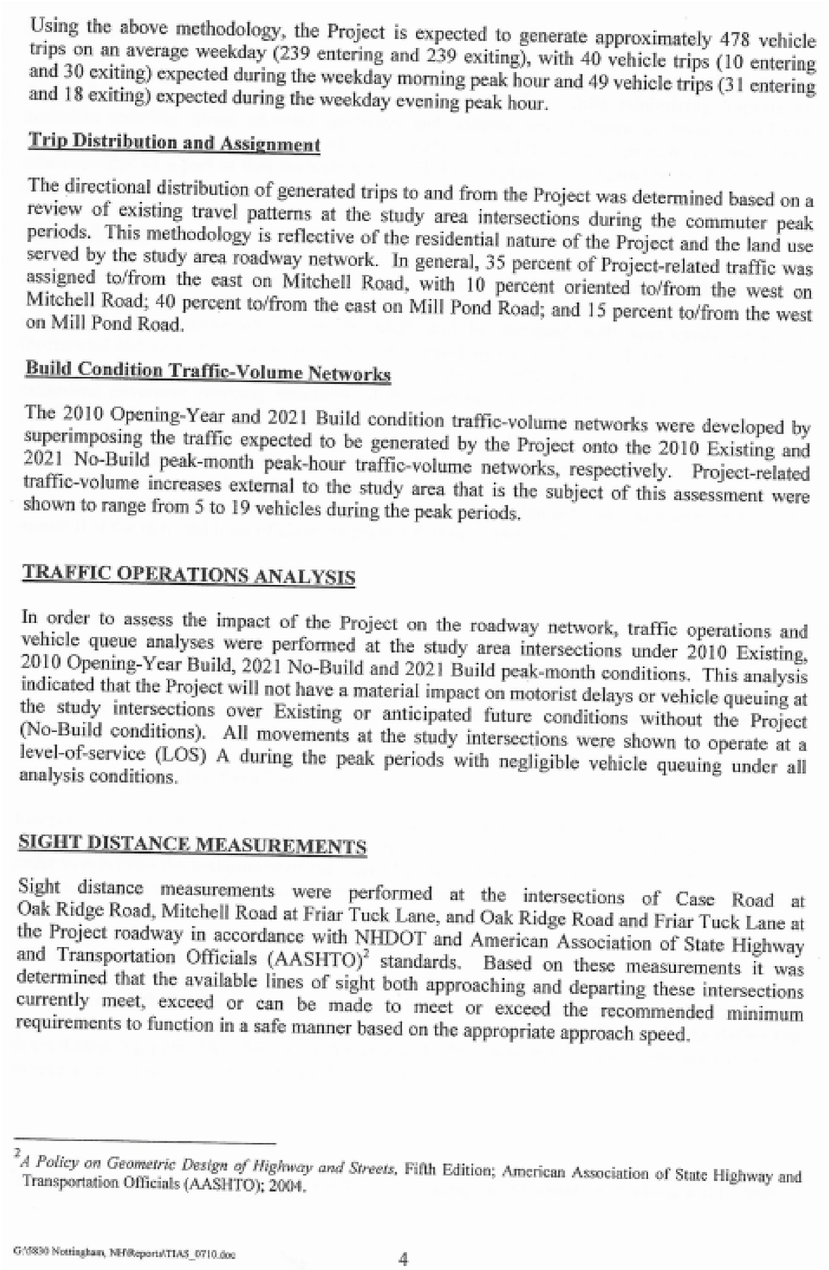
Metric				
Design Speed (km/h)	Brake Reaction Distance (m)	Braking Distance on Level (m)	Stopping Sight Distance	
			Calculated (m)	Design (m)
20	13.9	4.6	18.5	20
30	20.9	10.3	31.2	35
40	27.8	18.4	46.2	50
50	34.8	28.7	63.5	65
60	41.7	41.3	83.0	85
70	48.7	56.2	104.9	105
80	55.6	73.4	129.0	130
90	62.6	92.9	155.5	160
100	69.5	114.7	184.2	185
110	76.5	138.8	215.3	220
120	83.4	165.2	248.6	250
130	90.4	193.8	284.2	285
140	97.3	224.8	322.1	325

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 11.2 ft/s^2 [3.4 m/s^2] used to determine calculated sight distance.

Figure 14: Derivation of stopping sight distance requirements

Appendix E

V&AI Traffic Impact and Access Study Excerpts



Using the above methodology, the Project is expected to generate approximately 478 vehicle trips on an average weekday (239 entering and 239 exiting), with 40 vehicle trips (10 entering and 30 exiting) expected during the weekday morning peak hour and 49 vehicle trips (31 entering and 18 exiting) expected during the weekday evening peak hour.

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project was determined based on a review of existing travel patterns at the study area intersections during the commuter peak periods. This methodology is reflective of the residential nature of the Project and the land use served by the study area roadway network. In general, 35 percent of Project-related traffic was assigned to/from the east on Mitchell Road, with 10 percent oriented to/from the west on Mitchell Road; 40 percent to/from the east on Mill Pond Road; and 15 percent to/from the west on Mill Pond Road.

Build Condition Traffic-Volume Networks

The 2010 Opening-Year and 2021 Build condition traffic-volume networks were developed by superimposing the traffic expected to be generated by the Project onto the 2010 Existing and 2021 No-Build peak-month peak-hour traffic-volume networks, respectively. Project-related traffic-volume increases external to the study area that is the subject of this assessment were shown to range from 5 to 19 vehicles during the peak periods.

TRAFFIC OPERATIONS ANALYSIS

In order to assess the impact of the Project on the roadway network, traffic operations and vehicle queue analyses were performed at the study area intersections under 2010 Existing, 2010 Opening-Year Build, 2021 No-Build and 2021 Build peak-month conditions. This analysis indicated that the Project will not have a material impact on motorist delays or vehicle queuing at the study intersections over Existing or anticipated future conditions without the Project (No-Build conditions). All movements at the study intersections were shown to operate at a level-of-service (LOS) A during the peak periods with negligible vehicle queuing under all analysis conditions.

SIGHT DISTANCE MEASUREMENTS

Sight distance measurements were performed at the intersections of Case Road at Oak Ridge Road, Mitchell Road at Friar Tuck Lane, and Oak Ridge Road and Friar Tuck Lane at the Project roadway in accordance with NHDOT and American Association of State Highway and Transportation Officials (AASHTO)[2] standards. Based on these measurements it was determined that the available lines of sight both approaching and departing these intersections currently meet, exceed or can be made to meet or exceed the recommended minimum requirements to function in a safe manner based on the appropriate approach speed.

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[2] *A Policy on Geometric Design of Highway and Streets*, Fifth Edition; American Association of State Highway and Transportation Officials (AASHTO); 2004.

G:\5830 Nottingham, NH\Reports\TIAS_0710.doc

4

Figure 15: V&AI Traffic Impact & Access Study (Pg. 4) (Public Records)

[1] Vanasse & Associates, Inc., *Traffic Impact and Access Study Proposed Residential Development Nottingham, NH*, Newbury Development, Nottingham, New Hampshire. July 2010

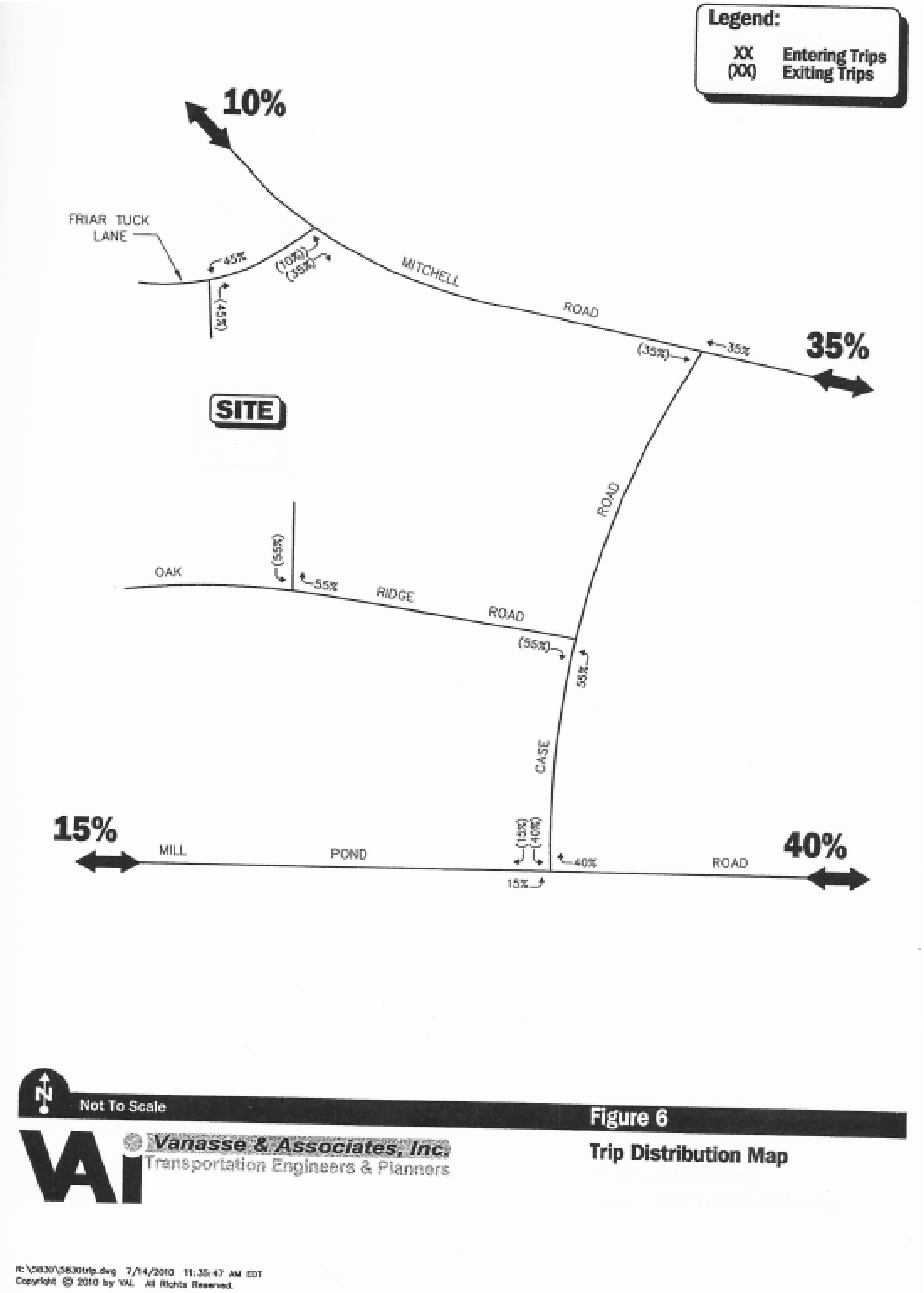


Figure 16: V&AI Traffic Impact & Access Study (Pg. 18) (Public Records)

[1] Vanasse & Associates, Inc., *Traffic Impact and Access Study Proposed Residential Development Nottingham, NH*, Newbury Development, Nottingham, New Hampshire. July 2010

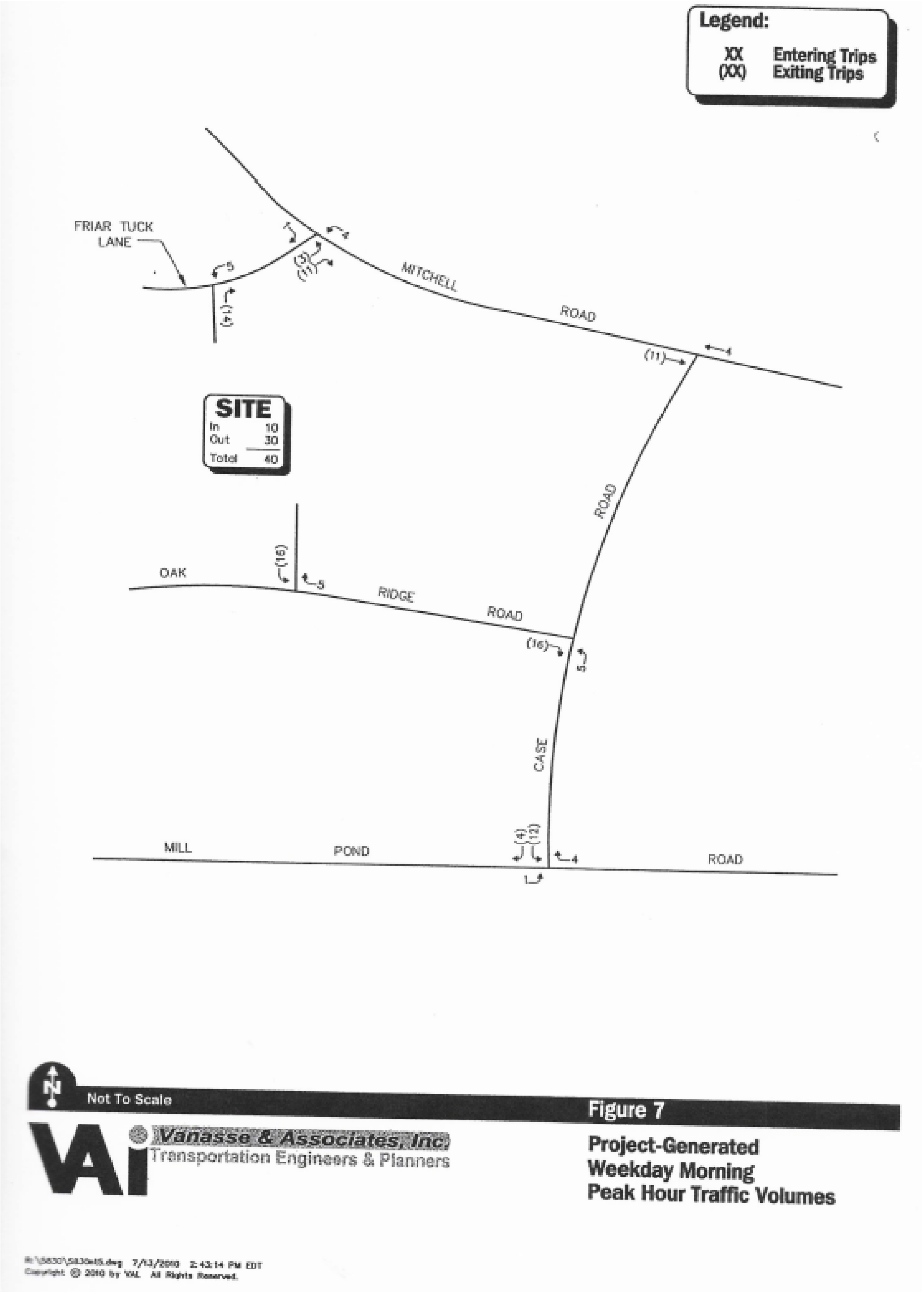


Figure 17: V&AI Traffic Impact & Access Study (Pg. 19) (Public Records)

[1] Vanasse & Associates, Inc., *Traffic Impact and Access Study Proposed Residential Development Nottingham, NH,* Newbury Development, Nottingham, New Hampshire. July 2010

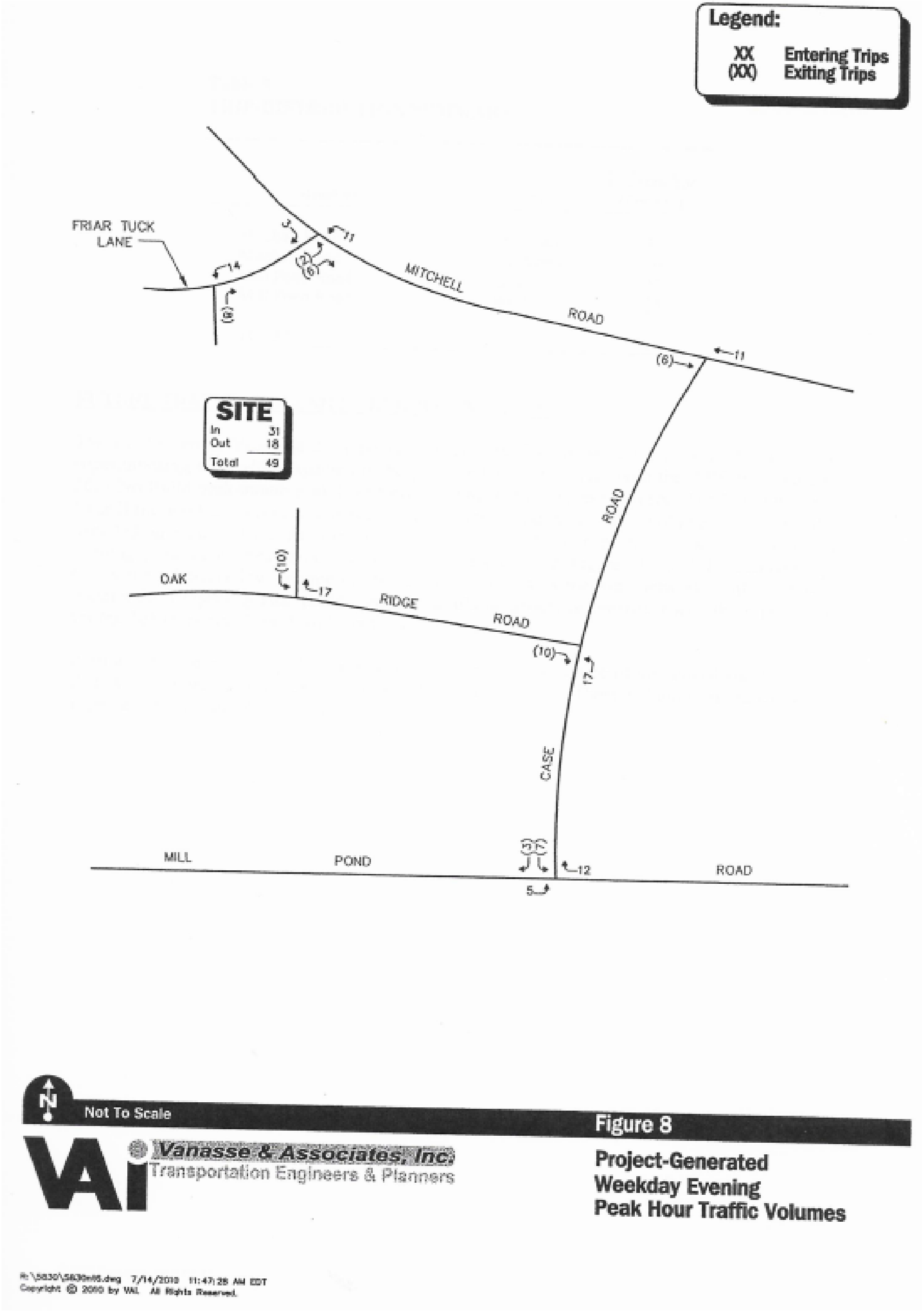


Figure 18: V&AI Traffic Impact & Access Study (Pg. 20) (Public Records)

[1] Vanasse & Associates, Inc., *Traffic Impact and Access Study Proposed Residential Development Nottingham, NH*, Newbury Development, Nottingham, New Hampshire. July 2010

DRAINAGE ANALYSIS
&
EROSION AND SEDIMENT CONTROL PLAN

Tax Map 7, Lot 1N
Mitchell Road
Nottingham, NH

Prepared for:

Robert L. Diberto
324 Route 108
Madbury NH 03823

Land of:
Robert L. Diberto
324 Route 108
Madbury NH 03823

Prepared by:

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825

KENNETH
A.
BERRY
No. 14243

Project Number:
DB 2018-125

March 16, 2020
Rev: May 5, 2021

Table of Contents

Map by NH GRANIT

Legend

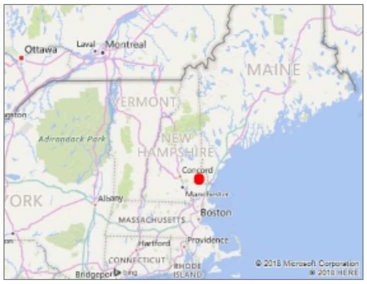
- ▬ State
- — County
- ☐ City/Town

Map Scale

1: 24,000

Map Generated: 7/31/2018

Notes



DESIGN METHOD OBJECTIVES

The Applicants for Tax Map 7, Lot 1N, Robert L. Diberto, is proposing to develop the site into a residential subdivision consisting of 14 lots and 2640 linear feet of road

A topographic survey has been conducted on the property. A Site Specific Soil Survey was conducted by John P. Hayes III CSS #87 and has been included (Appendix III). Off-site soils are being evaluated utilizing the USDA / NRCS Soil Survey (Websoil) which was downloaded after October 1, 2019. Off-site topography was derived from a Google Tin based on the same datum as the survey.

Both Existing and Proposed Conditions analyses were conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate mitigation of drainage. There are three existing drainage discharge points which were identified in the existing analysis and duplicated in the proposed conditions analysis. Two of the Final Analysis Points cross private property lines to the northeast of the proposal. Designing two watershed models we have compared the differences in these rates of peak run-off and surface water volume. Sheet W-1 outlines the characteristics of the site in its existing or pre-construction conditions. The second analysis displays the proposed (post-construction) conditions (See Sheet W-2). The analysis was conducted using data for; 2 Yr - 24 Hr (3.06”), 10 Yr - 24 Hr (4.62”), 25 Yr - 24 Hr (5.85”), 50 Yr - 24 Hr (7.00”), and 100 Yr - 24 Hr (8.37”) storm events. Storm event analysis was accomplished using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment and rainfall quantities are based on the Extreme Precipitation Table for this location from the Northeast Regional Climate Center / Cornell University (http://precip.eas.cornell.edu), in accordance with Alteration of Terrain Administrative Code, ENV-Wq (Attached in Appendix 3).

1.0 Existing Analysis:

Reference: W-1 Sheets - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plans
Site Specific Soil Survey Plans

The existing property is 40.55 acres. A Site Specific Soil Survey was conducted on the subject parcel by John P. Hayes III and is attached in Appendix III. In addition to the subject parcel, off-site properties were evaluated in the analysis with the total existing conditions analysis consisting of 65.45 acres. Off-site area includes land to the southeast where runoff comes onto the locus parcel from the Sutton Street subdivision. USDA NRCS soils data was obtained from WebSoil (Attached in Appendix III). The area evaluated consists of multiple different soil classifications rated HSG A through HSG D and consisted of primarily woodlands, lot areas on Sutton Street, and roadway pavement. The runoff to the final analysis points #1000 eventually flows to the Caldwell Brook a tributary of the Oyster River (NHRIV600030902-02). The known impairments to the watershed are Mercury which is governed by the NE Regional Mercury TMDL ID#33883, Escherichia Coli which is governed by the NH Statewide Bacteria TMDL ID#39278, pH and Dissolver Oxygen, the last two not yet provided a TMDL. The runoff that flows under Mitchell Road is part of the Little River watershed (NHR600030707-03) which is impaired by Mercury, pH, and likely dissolved Oxygen.

Runoff from the 65.45 acres can be divided into seven locations. Final Analysis points #700, #800, and #900, are independent evaluation points. Analysis points #100, #200, #300, and #400 combine together and are evaluated at Final Analysis Point #1000.

Final Reach #1000 – Caldwell Brook Tributary / Wetland

The runoff from the locus site primarily drains into a wetland complex in Barrington which then becomes Caldwell Brook. There are multiple other watershed areas on both sides of the highway that contribute runoff to this system, which will not be evaluated in this analysis. Therefore, this analysis will provide a comparative impact to the wetland from the locus parcel. The watershed from the locus parcel which drains to this point is divided into four subcatchments which have direct connection and three subcatchment which are routed to that point. Of the 65.45 acres in the analysis, 43.32 acres contribute runoff to Final Reach #1000.

Sutton Street – Abutting Subdivision

The land area south of Sutton Street is divided into three subcatchments by assumed culvert under the street. Each subcatchment, #10, #11, and #12 has a corresponding Reaches representing the culvert and a corresponding Reach where the runoff is being routed through an adjacent subcatchment.

Locus Parcel

The land area between Sutton Street and the locus parcel is identified as sub-catchments #1, #2, #3, and #5. Subcatchment #5 is routed through the wetland and channel within Subcatchment #2 (Reach #5). Reach #10 from above is routed through Subcatchment #3 in Reach #10a and #10b. Subcatchment #4 and #6 abut the wetland complex. Subcatchment #1 consists of land between Sutton Street and the wetland where runoff flows in a northeasterly direction. Subcatchment #12 is routed through the culvert (Reach #12) and routed through Subcatchment #1 to this analysis point. In total in the existing conditions, nine subcatchments drain to this analysis point, Final Reach #1000.

Little River Subcatchments and Analysis Points

Final Reach #700: Subcatchment 7 consists of a south and south westerly sloped area where the runoff goes to an existing cross culvert (Pond #7) under Mitchell Road.

Final Reach #800: Subcatchment #8 consists of a very small land area in the westerly corner of the property and the runoff goes into a roadside swale. This subcatchment will remain unchanged.

The runoff from Subcatchment #13 goes into a depression (Pond #13) which discharges runoff to both the northwest and the southeast splitting the runoff to two Final Reach points, #700 and #800.

Final Reach #900: Subcatchment #9 also consists of a very small land area that is divided by the existence on an old Corrugated Metal Culvert that crosses under Mitchell Road. (Pond #9)

2.0 Proposed Analysis:

Reference: W-2 Sheets - Proposed Conditions Watershed Plan (Enclosed)
Proposed Site Plans
Proposed Grading & Drainage Overview Plan
Plan and Profile Sheets

The Sutton Street – Abutting Subdivision subcatchments and reaches remain unchanged. Subcatchment #5, although on both the locus parcel and abutting land, will remain unchanged due to its location.

On the Locus Parcel, Subcatchments #1, #2, #3, and #4 are the remnants of the subcatchments not affected by the proposed roadway. Subcatchment #8 and #13 are altered due to the location of the proposed houses and driveways, by relatively minor areas.

The proposed road and roadside swales, proposed catch basins and drain manholes all divide the runoff into four subsurface gravel wetlands, and an infiltration pond. The runoff is divided so that equal areas contribute runoff into the two separate watersheds as analyzed in the existing conditions analysis.

Final Reach #1000 – Caldwell Brook Tributary / Wetland

Subcatchment #1 is altered by the location of two individual house lots in Nottingham.

Subcatchment #2 is divided by both the proposed loop road, Stone Grey Drive and the cul-de-sac roadway, Lipizzan Drive. Runoff from the subcatchment in the proposed analysis will pass through the cross culvert, with a bury depth, on the cul-de-sac road.

Subcatchment #3 is divided by the loop roadway and the runoff will pass under the roadway through a box culvert with a bury depth.

Subcatchment #4 is altered in area by the location of two houses and driveways.

Subcatchment #6 is altered by the location of the cul-de-sac, Gravel Wetland #104, and a residential dwelling.

Runoff from Stone Grey Drive, that is directed to the Caldwell Brook Tributary, is collected in roadside swales and routed to an infiltration pond (Pond 105) or three subsurface gravel wetlands (Ponds #102, #103 & #104), or collected in catch basins and routed through culvert pipes to the same treatment practices.

Runoff from the southwestern end of Lipizzan Drive is directed to culverts where it is routed either to a subsurface gravel wetland (Pond #102), or collected in catch basins and routed to subsurface gravel wetland Pond #104. The runoff from the northeast end of the cul-de-sac is collected in a catch basin (Pond #C04) within the cul-de-sac and then directed to a small subsurface gravel wetland. (Pond #104).

Little River Subcatchments and Analysis Points

Final Reach #700: Subcatchment #7 is reduced by the location of the loop road, Stone Grey Drive.

The portion of Stone Grey Drive which is directed to the Little River Watershed is collected in roadside swales and directed to a subsurface gravel wetland (Pond #101) and passes under Mitchell Road. (Pond #7). The Road Agent has requested that the existing culvert under Mitchell Road be upgraded to a 24-inch HDPE N-12 culvert and that the road grade be raised to accommodate the replacement culvert.

Final Reaches #800 and #900 are unchanged.

3.0a Stormwater Treatment:

The treatment of stormwater from the proposed development will take place in four Subsurface Gravel Wetlands, Ponds #101, #102, #103, and #104. Channel flow protection will take place as detention in the Subsurface Gravel Wetlands. Pre-treatment of the runoff will take place in the Sediment Forebays designed at the intake of the Treatment Practices. Each of the discharge points will be designed with rip rap outlet protection and a rip rap level lip spreader, the intent of which is to convert the flow from the practice into sheet flow prior to discharge over land into the wetland complex. As runoff flows to two separate watersheds, the road and drainage infrastructure has been divided proportionally so that the watershed integrity is preserved.

3.0b Stormwater Infiltration:

Infiltration will take place in the Infiltration Pond #105.

See Infiltration Feasibility Study also prepared by Berry Surveying & Engineering and published on the same date.

3.1 FULL COMPARATIVE ANALYSIS

ANALYSIS	COMPONENT	PEAK RATE DISCHARGE (Cubic Feet / Second)				
		2 Yr.	10 Yr.	25 Yr.	50 Yr.	100 Yr.
Final Reach #1000	Existing	12.41	41.22	70.03	99.80	137.42
	Proposed	11.19	38.71	65.76	92.90	132.09
Final Reach #700	Existing	0.92	3.73	6.71	12.12	16.86
	Proposed	0.21	0.62	1.72	6.73	16.64
Final Reach #800	Existing	0.33	1.24	2.92	5.13	6.95
	Proposed	0.28	0.98	1.66	2.35	3.23
Final Reach #900	Existing	0.03	0.18	0.36	0.55	0.80
	Proposed	0.03	0.18	0.36	0.55	0.80

ANALYSIS	COMPONENT	VOLUME (ACRE FEET)				
		2 Yr.	10 Yr.	25 Yr.	50 Yr.	100 Yr.
Final Reach #1000	Existing	2.303	6.115	9.795	13.951	18.430
	Proposed	2.268	6.001	9.800	13.749	18.764
Final Reach #700	Existing	0.228	0.727	1.240	1.784	2.493
	Proposed	0.092	0.160	0.702	1.307	2.082
Final Reach #800	Existing	0.049	0.185	0.336	0.494	0.697
	Proposed	0.039	0.106	0.171	0.239	0.324
Final Reach #900	Existing	0.006	0.019	0.033	0.048	0.067
	Proposed	0.006	0.019	0.033	0.048	0.067

4.0 EROSION & SEDIMENT CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plans
Erosion & Sediment Control Details, E-101 & E-102

The proposed site development is protected from erosion and the abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA). Any area disturbed by construction will be re-stabilized within 30 days and abutting properties will not be adversely affected by this development. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them. Reference is also made to the Stormwater System Operation: Inspection & Maintenance Manual which has been written specifically for this project and available to the owner.

Sediment Perimeter Control

The plan set demonstrates the location of perimeter protection for sediment control, consisting of silt fence, erosion control mix berm, or Filtrexx brand Silt Soxx, (or approved equal). The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation and maintenance of the silt fence. Silt fence is rated to be effective for 100 linear feet of fence to capture runoff from one-quarter acre or basically 100 feet of land area sloping toward the fence. Filtrexx silt soxx have a variable area and depth, see Filtrexx supporting documents. The NHDES Stormwater Manual requires that the maximum spacing for support stakes is six-feet.

Filtrexx Silt Soxx, or approved equal, has been specified in numerous locations within the plan set and silt fence is not a substitution for silt soxx. Multiple sizes of this product have been specified for use.

EPA CGP 2012: "You must install sediment control along those perimeter areas of your site that will receive stormwater from earth disturbing activity."

In accordance with EPA CGP 2.1.2.1, Provide Natural Buffers or Equivalent Sediment Controls, and CGP Appendix G, Table G-3, and Table G-7, slopes between 3% and 6% with soils that are Fine Sandy Loams, there is a High Risk Factor and it is required to Double Perimeter Control and 7-Day Site Stabilization.

Erosion Control Mix Berm

As an alternative to the Silt Fence, an Erosion Control Mix Berm can be utilized as a perimeter control. The specifications can be found on Sheet E-101, Detail E6.

Subsurface Gravel Wetland

Description: A Gravel Wetland (NHDES SWM 4-3 Treatment Practice 2D) or Subsurface Gravel Wetland consists of a forebay and multiple flow-through treatment cells. During smaller rain events, the surface water runoff is intended to pass from the forebay, into the gravel media through perforated pipes and structures where it passes through an anaerobic environment where the Water Quality Volume will have 24-72 hours of contact time. The forebay is required to contain 10% of the WQV and each of the two cell must contain 45% of the WQV. During larger storm events, the system works as a detention pond. The design of a Subsurface Gravel Wetland will be constructed in accordance with the most current version of the Design Specifications provided by the UNH Stormwater Center.
Maintenance Considerations: The outlet configuration of the anaerobic subsurface gravel consists of a small discharge orifice that is located in a threaded cap. This goose-neck feature is designed to be disassembled to allow cleaning. This outlet orifice is located within a concrete outlet structure that also contains a control stack used to control and detain runoff in the system. Although this is designed to be "clean water" after the filtering process, the outlet structure in general is going to require periodic maintenance to ensure that it is discharging runoff properly. If the Subsurface Gravel Wetland retains runoff on the surface for more than 72 hours the performance is not correct and maintenance is required.
Debris will need to be removed from the inlet and outlet structures as well as any buildup of sediment. The surface of the ponded area is intended to have wetland plants which may require periodic replanting, depending on the sediment loading. Sediment buildup in the forebay must be removed to maintain the minimum required volume. See also 9 and 10 of the attached UNHSC Subsurface Gravel Wetland Design Specifications 2009, and / or UNHSC Subsurface Gravel Wetland Design Specifications 2016 with Maintenance Guidelines and Checklist.

Rolled Erosion Control Blanket

Description: Rolled Erosion Control Blankets, such as American Excelsior Company Curlex III, (or equal), North American Green BioNet series, consist of interlocking fiber mesh which is bio-degradable, used to stabilize sloping earth while vegetation is being established. The product comes in rolls that are laid out over the earth, normally over-lapped, and secured to the soil by the use of anchors or staples. The RECB may be anchored in the earth at the top of the slope to prevent wash-out. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 3, 4-1 Erosion Control Practices, Temporary Erosion Control Blanket. See the chart on E-102 for compatible products with given slopes.

Construction Considerations: It is recommended that the blanket be installed in the same direction as the water flow or perpendicular to the slope. The manufacturer will recommend the amount of over-lap from one row to the next and on longer slopes between sections. Care must be taken that the RECB is laid directly on the earth / topsoil and that any existing vegetation not cause tenting as this will cause an issue with the blanket not staying in place. The staples or stakes are to be placed according to the manufacturer based on the slope of the receiving soil and forces that may be encountered. Care must be taken to utilize the correct product as specified. The choice of product are all different and in most cases are not interchangeable. NHDES or NH F&G may specify that some RECBs not be used in some applications.

Maintenance Considerations: RECBs will be inspected during the regular inspection schedule and any construction corrections made if the blanket is compromised.

Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet E-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will be used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer.

Rain Garden / Infiltration Pond / Detention Pond Mix

The grass that is planted within a rain garden bio-filtration system within the bio-media must consist of a combination of warm season grass seed and cold season grass seed in order for the grass to start growing for stabilization and continue growing in the sandy well-drained environment. Planting specification will meet the requirements as outlined in 'Vegetation New Hampshire Sand and Gravel Pits' mix 1 (warm season grasses) (15 lbs/ac) and include annual and perennial rye grass seed (15 lbs/ac); the New England native warm season grass mix (23 lbs/ac) by New England Wetland

Plants, inc.; Rain Garden Mix 180 (15 lbs/ac & 15 lbs/ac of rye) or Rain Garden Grass Mix 180-1 (20 lbs/ac & 10 lbs/ac of rye) by Ernst Conservation Seeds, ERNMX-126-Retention Basin Floor Mix; or approved equal.

Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be 3-inch coarse aggregate, and the pad itself constructed to a minimum length of 75’ for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E-102- Erosion and Sediment Control Detail Plan. Alternatives to the length and berm are demonstrated on the detail.

Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-102 using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions.

Deep Sump Catch Basin

Deep Sump Catch Basins are used throughout the site as a pretreatment measure to remove sediment and debris from storm water runoff. Deep Sump Catch Basins will be designed with a sump that is four times the depth of the discharge culvert and a minimum of four feet. All pretreatment deep sump catch basins will have an outlet pipe hood which extends one-foot below the outlet invert and will include a hood vent. Sediment must be removed from Deep Sump Catch Basins on a regular basis, at least twice a year and more often if the sumps become half-full. Inspections should be conducted periodically. See Sheet D-101 for details.

Outlet Protection

Outlet Protection consists of a riprap apron or preformed scour hole that is designed to provide velocity reduction of the surface water run-off that is leaving a culvert. The design is dependent on the culvert size, soil conditions, velocity, and quantity of the run-off. There are to be no bend or curves at the intersection of the conduit and apron. See sheet E-102 for details.

Rip Rap Level Spreader / Stone Berm Level Spreader

The purpose of the level spreader is to convert concentrated flow into sheet flow, for example from a rip rap outlet protection at the end of a culvert discharge pipe prior to discharge overland through a filter strip or buffer. Each level spreader is specifically designed based on the amount of flow and specified on the grading plan. Details for the level spreader can be found on Sheet E-102, detail E12 and page 162 in the referenced NH Stormwater Manual, Volume 2. The level spreader should be inspected after it is installed and stabilized for the deposit of sediment. Any sediment build-up will be removed and transported to a suitable location.

Stockpiled Sediment or Soil

Stockpiled materials including topsoil, excavated materials, borrow materials imported onto the site, construction aggregates, and sediment removed from temporary sediment traps will be located in designated areas at least 50 feet away form concentrated flows. All stockpiles will have erosion protection in the form of silt fence and diversion swales will be applied to protect the material and surrounding areas. Inactive stockpiles will be seeded for temporary stabilization. Erosion control measures will be inspected in accordance with the schedule for all other activities on site.

At a minimum, you must comply with following (EPA 2012 CGP Part 2.1.2.4d) "Do no hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similar effective control,) storm drain inlet, or surface water."

Dewatering Practices

Dewatering practices are not known to be required on this site. If during construction this becomes required, an addendum will be published specific for the requirements. As a general rule, ground water that needs to be removed from an excavation will be pumped to a sediment basin or a storm drain inlet prior to discharge from the site.

At a minimum, you must comply with following (EPA 2012 CGP Part 2.1.3.4) "With backwash water, either haul it away for disposal or return it to the beginning of the treatment process; and replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications."

Regarding dewatering practices in the State of New Hampshire, specifically see Construction General Permit Section 9.1.1 NHR12000 State of New Hampshire and "Clarification of Section 9.1.1 … and other New Hampshire specific information for the U.S. EPA 2012 NPDES Construction General Permit (CGP), January 20, 2017"

Construction Sequence

1. Cut and remove trees in construction areas as directed or required.

2. Install Silt Fence and construct and/or install temporary and permanent sediment erosion and detention control facilities (Vegetated swales, level spreaders, and constructed filter strips), as required. Erosion, sediment and facilities shall be installed and stabilized prior to any earth moving operation, and prior to directing run-off to them.

3. Clear, grub, and dispose of debris in approved facilities.

4. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading.

5. Construct the roadway and its associated drainage structures.

6. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required, or directed.

7. Daily, or as required, construct temporary berms, drainage ditches, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.

8. Inspect and maintain all erosion and sediment control measures during construction.

9. Complete permanent seeding and landscaping.

10. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.

11. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.

12. Finish paving all roadways/parking.

Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion, sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt fences and other barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired, sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and re-vegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 15 days of final grading, or temporarily stabilized within 30 days of initial disturbance of soil.

Inspection and Maintenance Schedule

Perimeter control will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. NHDES Alteration of Terrain requirements and EPA SWPPP criteria will require all controls will be inspected once every 7 days and after storm event greater than 0.25 inches. Inspection reports must be submitted to Nottingham Building Department. If more than 5 acres of impact is allowed, an Environmental Monitor will be required who is a Professional Engineer or Certified Professional in Erosion and Sediment Control.

Sediment build-up in swales and level spreaders will be removed if it is deeper than six inches. See also Stormwater System Management: Inspection and Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) developed in accordance with EPA NPDES requirements.

Corrective Action measures will be made in accordance with SWPPP requirements and records maintained on site by the Contractor.

5.0 CONCLUSION

Peak rates of runoff and volume, as modeled, are reduced in the post construction condition as compared to the preconstruction condition at all analyzed points for all modeled storm events.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is required for this development and site plan due to the area of disturbance being greater than 100,000 SF.

An EPA, Notice of Intent will need to be filed and Construction General Permit conformed to as the impact is greater than one acre.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Christopher R. Berry, SIT 567
Principal, President

Kenneth A. Berry PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP - Technical Operations

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.:
NOTTINGHAM FEMA COMMUNITY# 330137,
MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178,
MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP

SYMBOLS LEGEND:

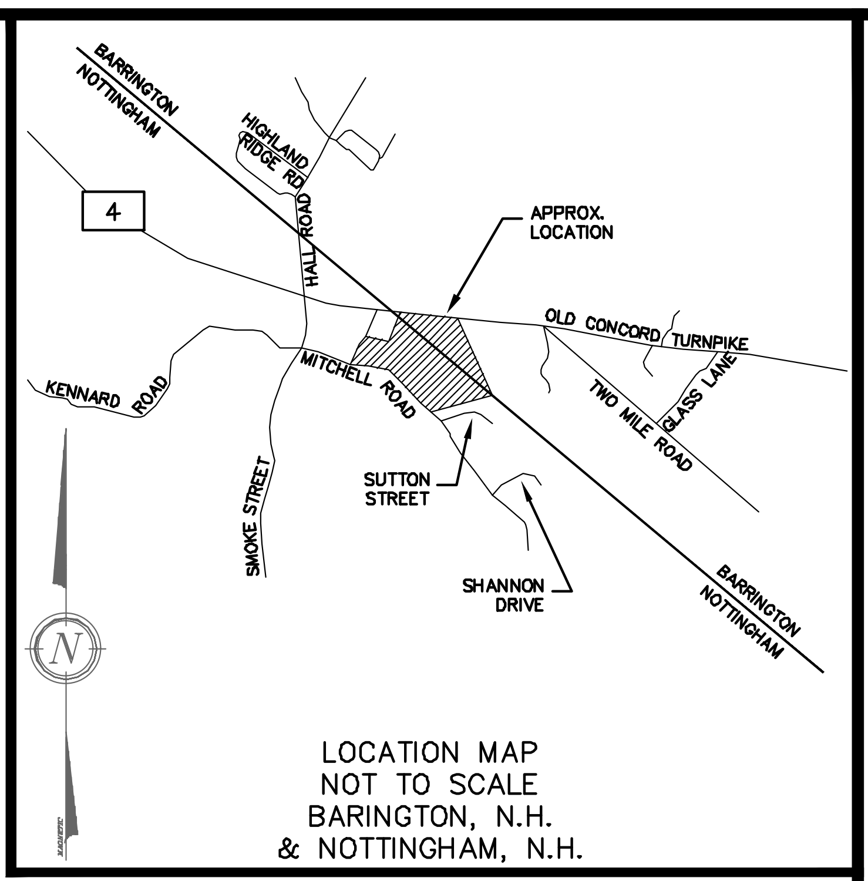
⬡ #	SUBCATCHMENT AREA SYMBOL
☐ #	FLOW REACH SYMBOL
△ #	POND DEVICE SYMBOL
Tc. / (#)	TIME OF CONCENTRATION SEGMENT

STATE OF NEW HAMPSHIRE
JOHN P. HAYES, III
No. 18
CERTIFIED WETLAND SCIENTIST

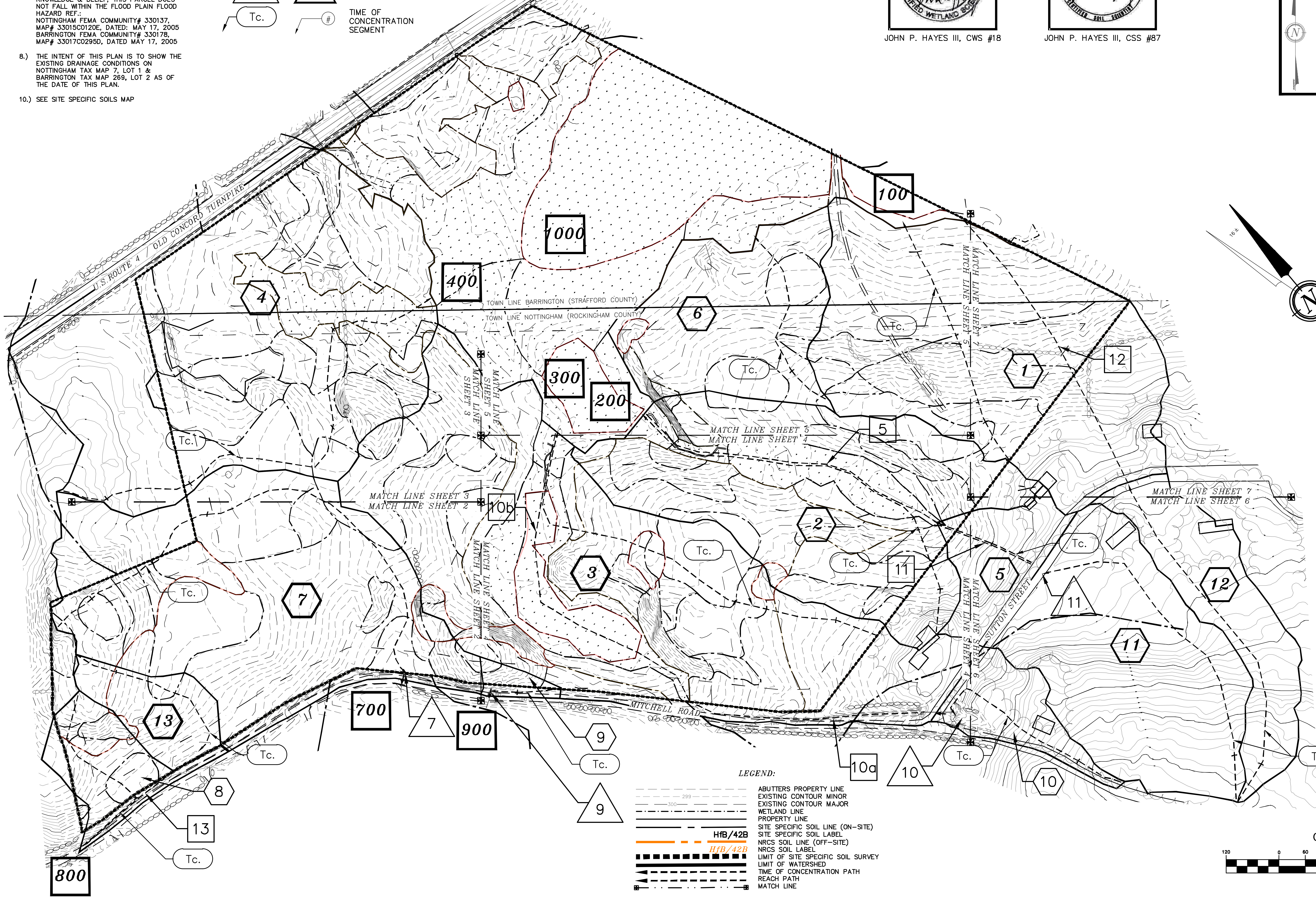
JOHN P. HAYES III, CWS #18

STATE OF NEW HAMPSHIRE
JOHN P. HAYES III
No. 087
CERTIFIED SOIL SCIENTIST

JOHN P. HAYES III, CSS #87



LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.



LEGEND:

	ABUTTERS PROPERTY LINE
299	EXISTING CONTOUR MINOR
300	EXISTING CONTOUR MAJOR
	WETLAND LINE
	PROPERTY LINE
	SITE SPECIFIC SOIL LINE (ON-SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
	NRCS SOIL LINE (OFF-SITE)
HfB/42B	NRCS SOIL LABEL
	LIMIT OF SITE SPECIFIC SOIL SURVEY
	LIMIT OF WATERSHED
	TIME OF CONCENTRATION PATH
	REACH PATH
	MATCH LINE

GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch = 120 ft.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

W-1 EXISTING WATERSHED OVERVIEW

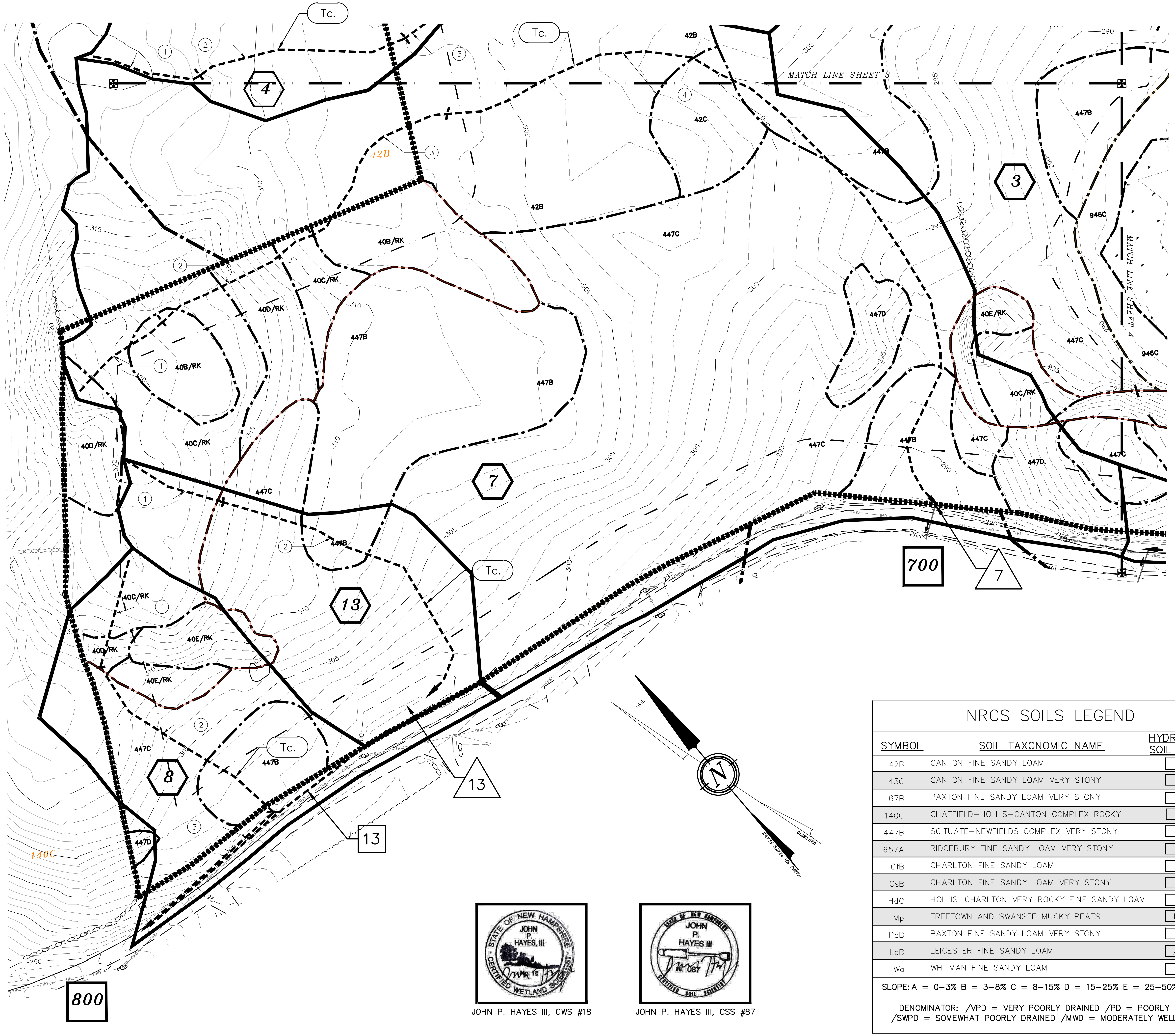
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

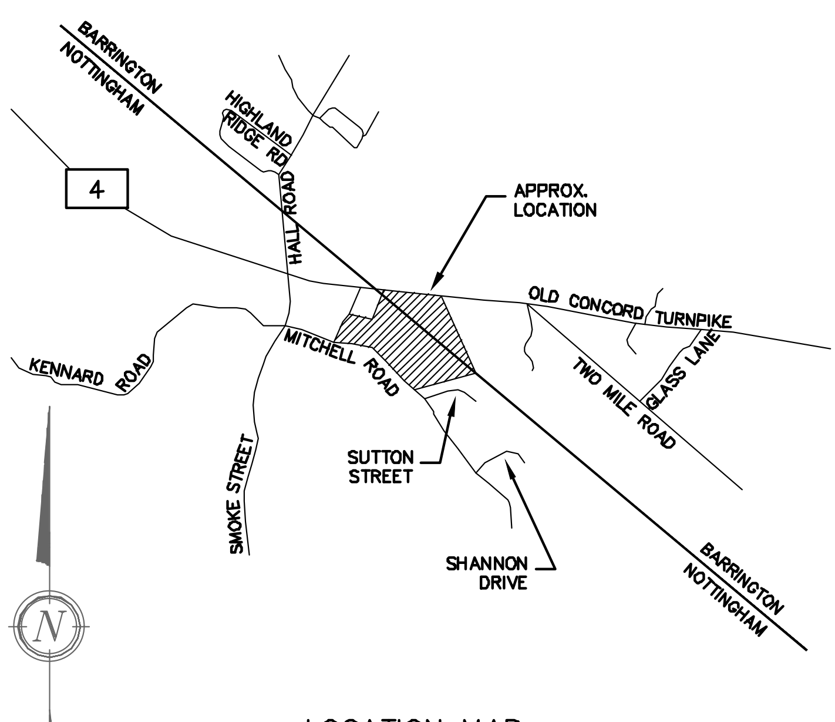
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 120 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

SHEET 1 OF 14





LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

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BARRINGTON TAX MAP 269, LOT 2

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LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

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MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178,
MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP

LEGEND:

— — — — —	ABUTTERS PROPERTY LINE
— — 299 — —	EXISTING CONTOUR MINOR
—300—	EXISTING CONTOUR MAJOR
— · — · —	WETLAND LINE
———	PROPERTY LINE
—— — ——	SITE SPECIFIC SOIL LINE (ON–SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
—— — — ——	NRCS SOIL LINE (OFF–SITE)
HfB/42B	NRCS SOIL LABEL
■ ■ ■ ■ ■	LIMIT OF SITE SPECIFIC SOIL SURVEY
━━━	LIMIT OF WATERSHED
◀ — — — —	TIME OF CONCENTRATION PATH
◀ — — — —	REACH PATH
⊠— · · — · · —⊠	MATCH LINE

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON FINE SANDY LOAM	B
43C	CANTON FINE SANDY LOAM VERY STONY	B
67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD–HOLLIS–CANTON COMPLEX ROCKY	B
447B	SCITUATE–NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS–CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
LcB	LEICESTER FINE SANDY LOAM	A/D
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

SYMBOLS LEGEND:

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□ # □ #	FLOW REACH SYMBOL
△ # △ #	POND DEVICE SYMBOL
Tc. (#)	TIME OF CONCENTRATION SEGMENT

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
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MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

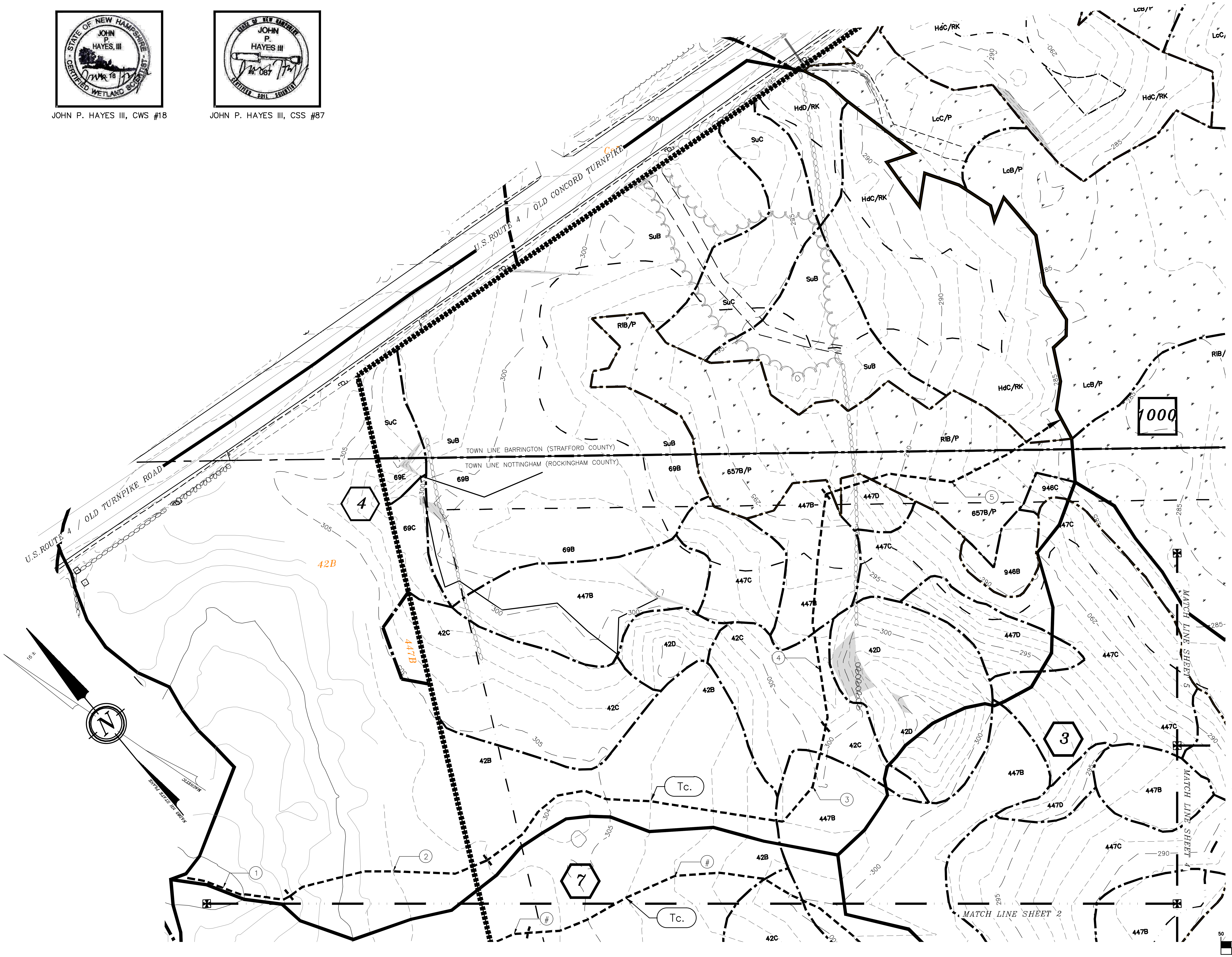
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

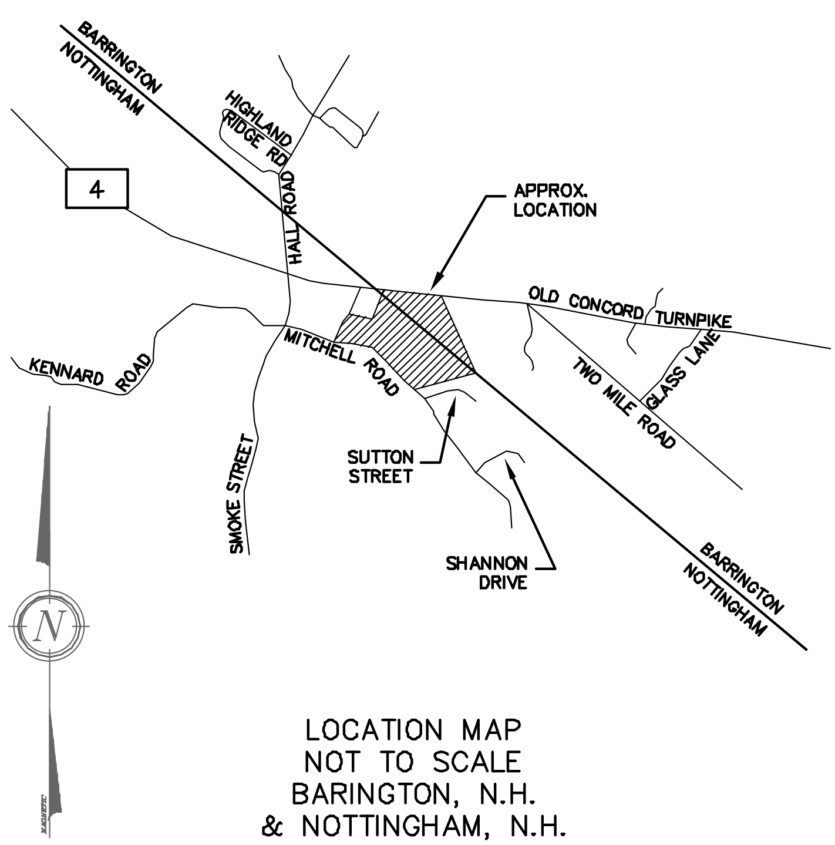
SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87





LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

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324 ROUTE 108
MADBURY, NH 03823

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LEGEND:

ABUTTERS PROPERTY LINE
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EXISTING CONTOUR MAJOR
WETLAND LINE
PROPERTY LINE
SITE SPECIFIC SOIL LINE (ON-SITE)
HfB/42B SITE SPECIFIC SOIL LABEL
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LIMIT OF WATERSHED
TIME OF CONCENTRATION PATH
REACH PATH
MATCH LINE

SYMBOLS LEGEND:

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FLOW REACH SYMBOL
POND DEVICE SYMBOL
Tc. TIME OF CONCENTRATION SEGMENT

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(IN FEET)
1 inch = 50 ft.

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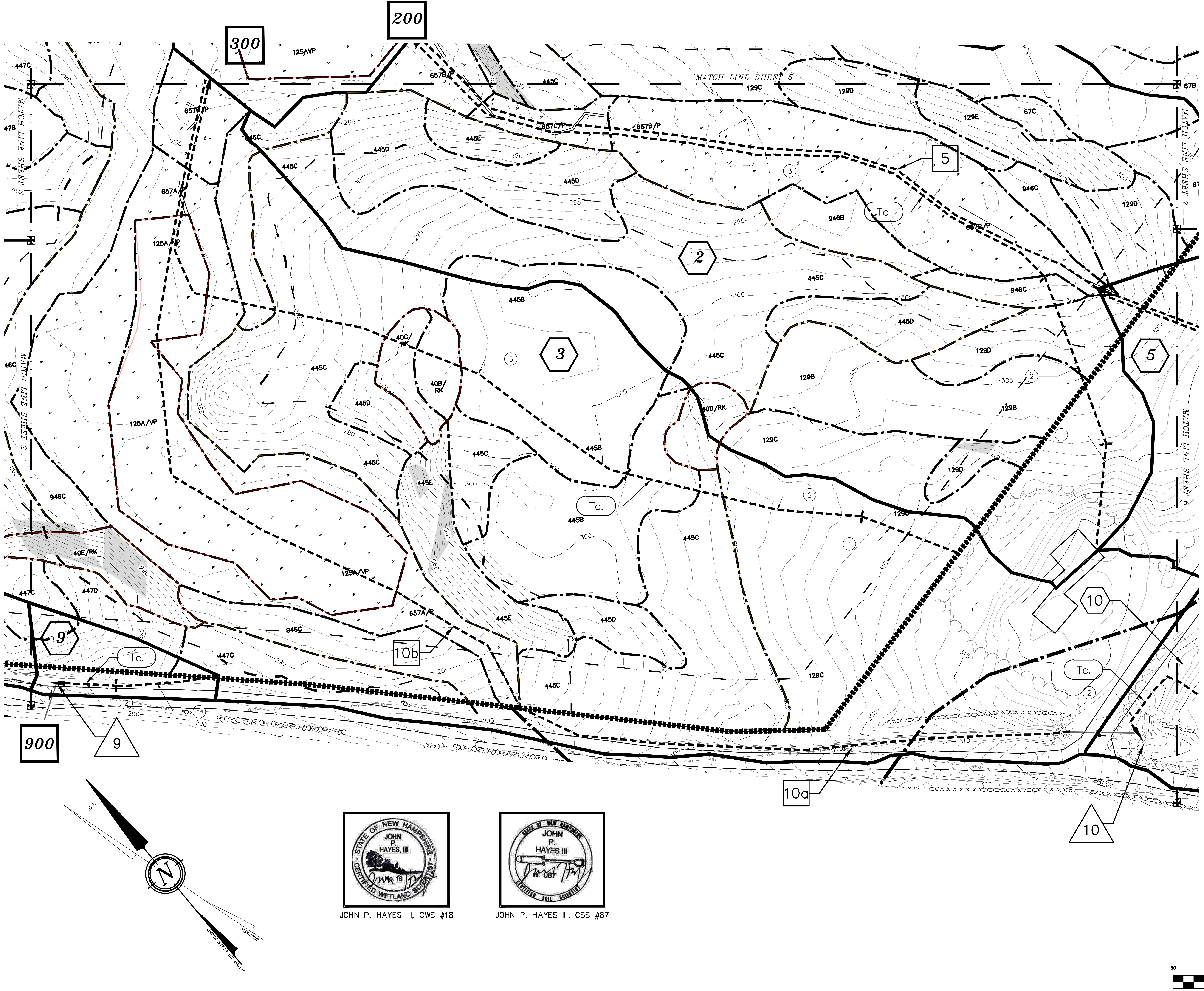
SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243



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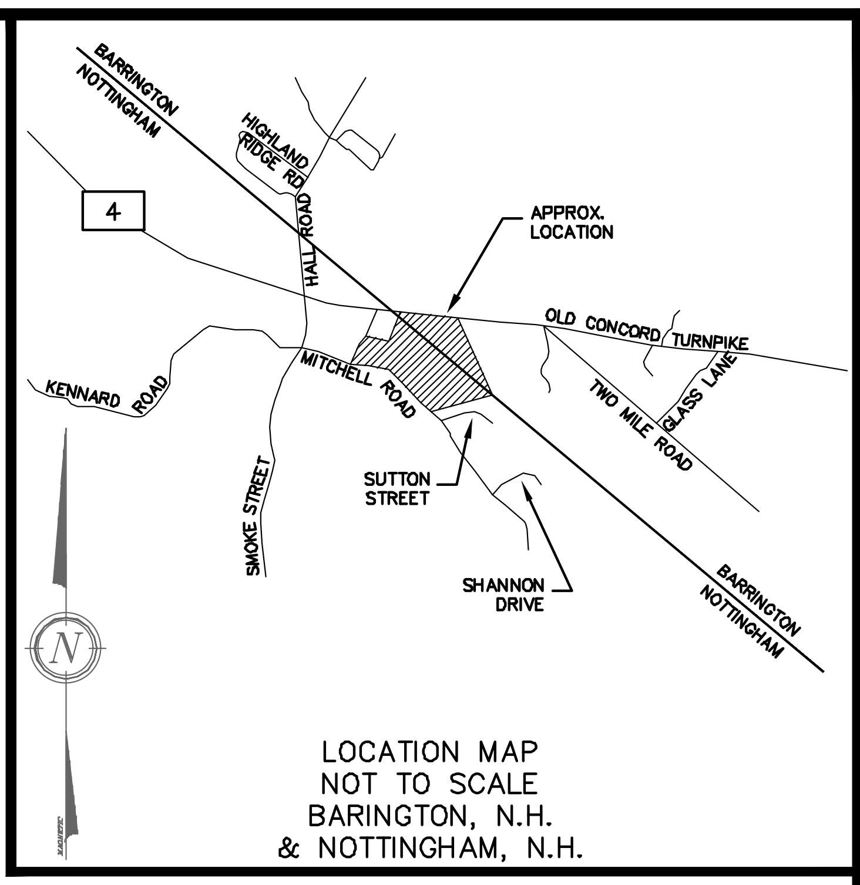

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LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
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6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.:
NOTTINGHAM FEMA COMMUNITY# 330137,
MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178,
MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP

LEGEND:

— — — — —	ABUTTERS PROPERTY LINE
— — 299 — —	EXISTING CONTOUR MINOR
—— 300 ——	EXISTING CONTOUR MAJOR
— · — · —	WETLAND LINE
———	PROPERTY LINE
——— — ———	SITE SPECIFIC SOIL LINE (ON-SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
——— — — ———	NRCS SOIL LINE (OFF-SITE)
HfB/42B	NRCS SOIL LABEL
■ ■ ■ ■ ■	LIMIT OF SITE SPECIFIC SOIL SURVEY
━━━━━	LIMIT OF WATERSHED
◄ — — — —	TIME OF CONCENTRATION PATH
◄ — — — —	REACH PATH
⊠— · · — · · —⊠	MATCH LINE

SYMBOLS LEGEND:

⬡ # ⬡ #	SUBCATCHMENT AREA SYMBOL
□ # □ #	FLOW REACH SYMBOL
△ # △ #	POND DEVICE SYMBOL
Tc. (#)	TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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W-1 EXISTING WATERSHED OVERVIEW
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SSSM SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON LOAMY SAND	B
42C	CANTON LOAMY SAND	B
42D	CANTON LOAMY SAND	B
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69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
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657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
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40B	CHATFIELD–HOLLIS COMPLEX	D
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MpA	GREENWOOD ORGANIC SOIL	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+
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Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
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JOHN P. HAYES III, CWS #18

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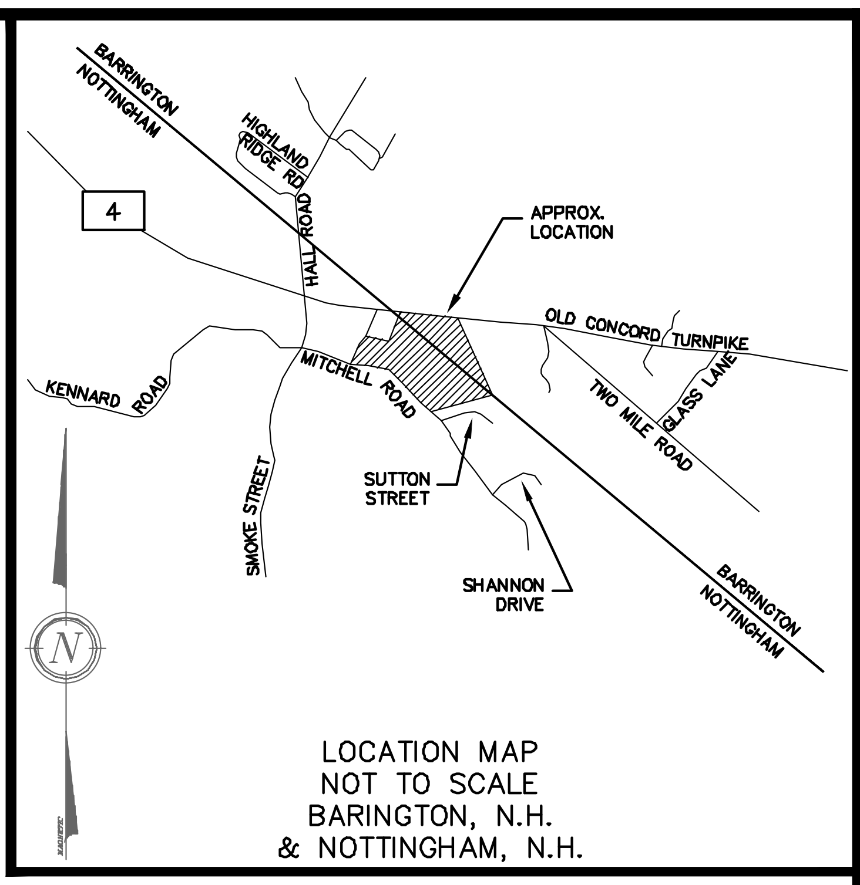

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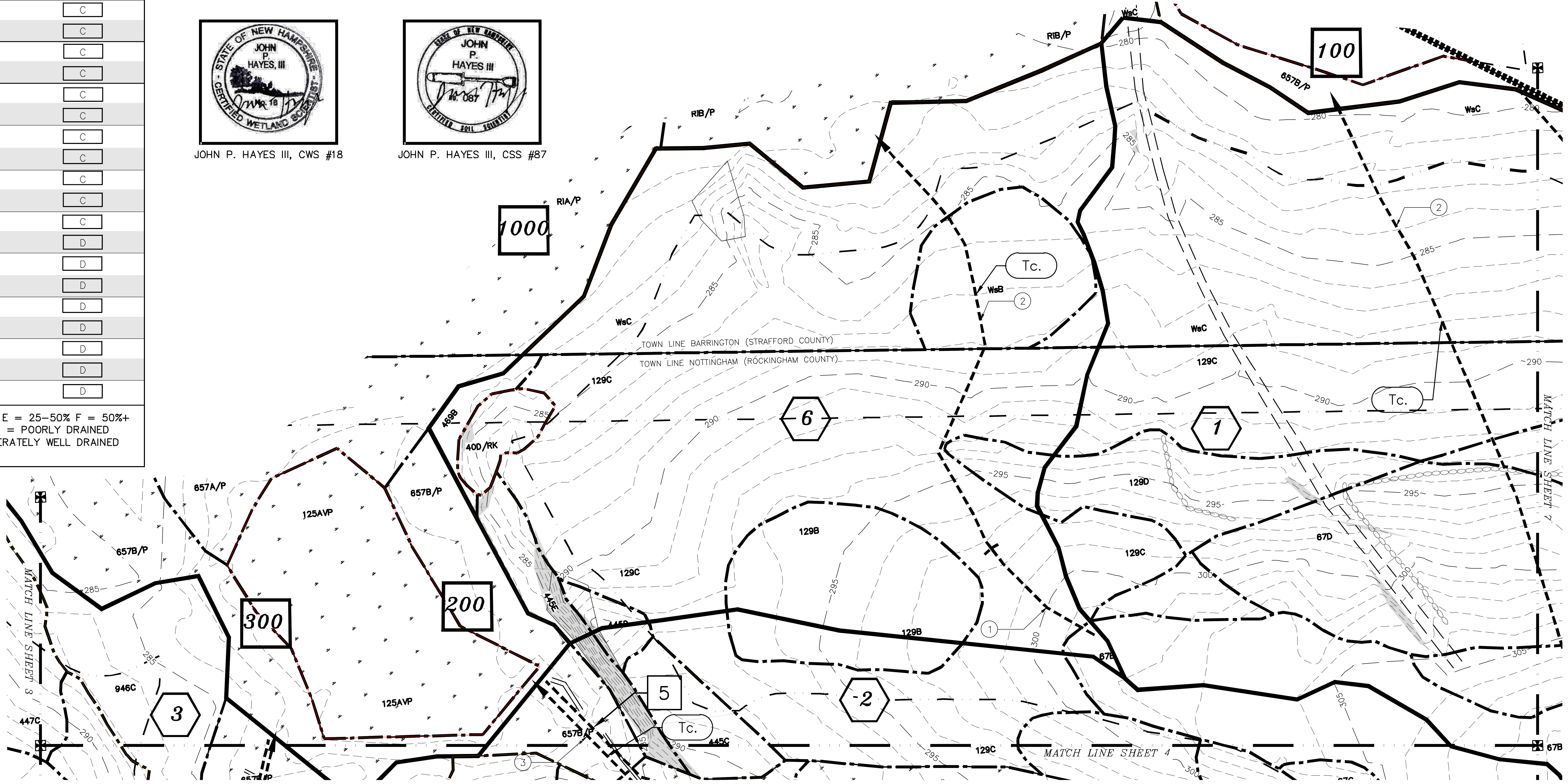

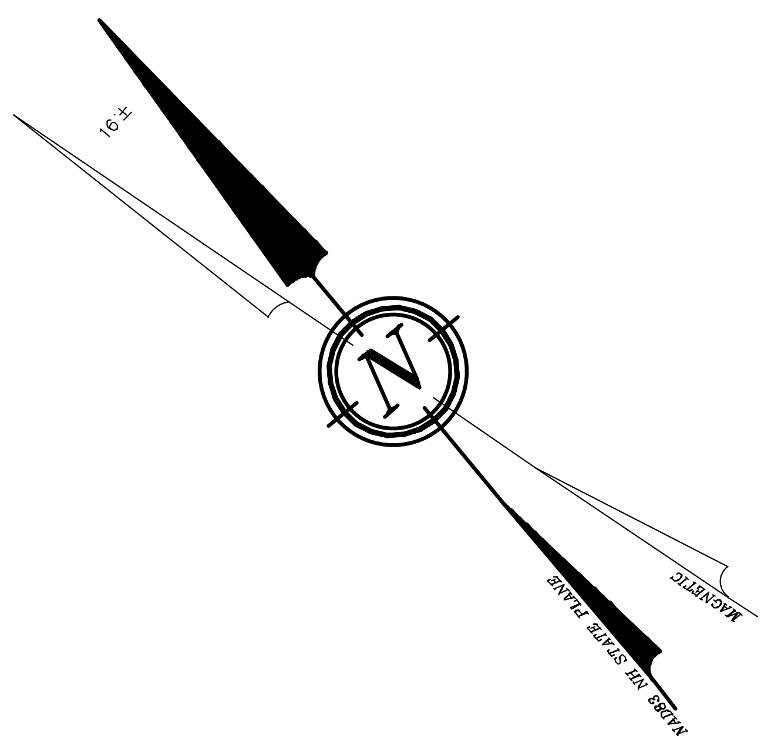

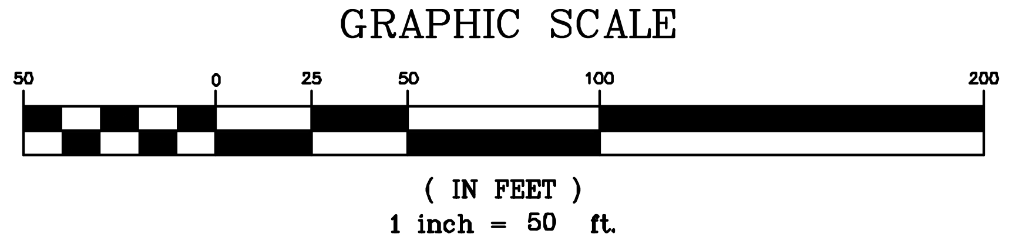

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SHEET 5 OF 14

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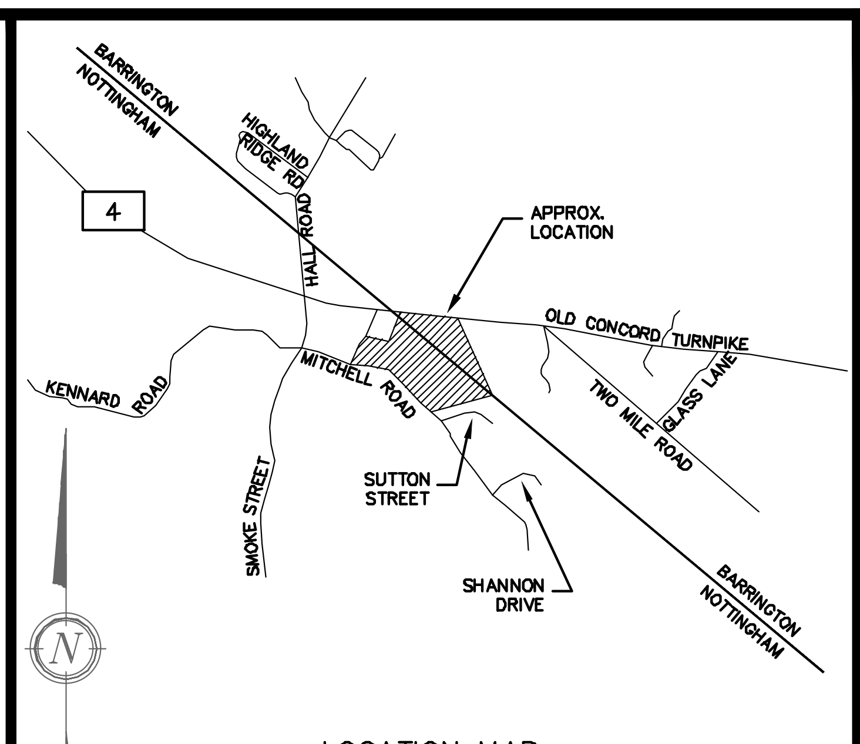

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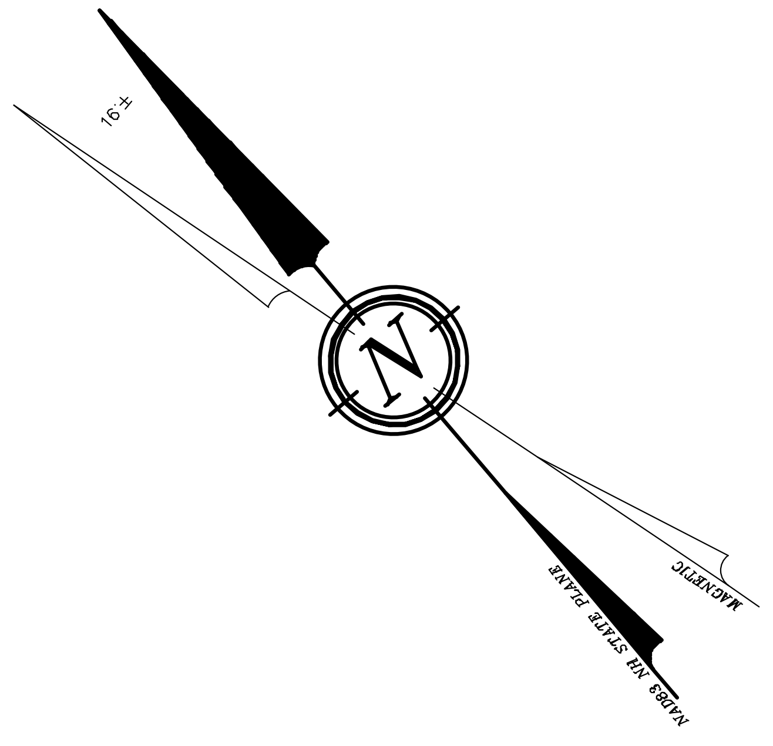

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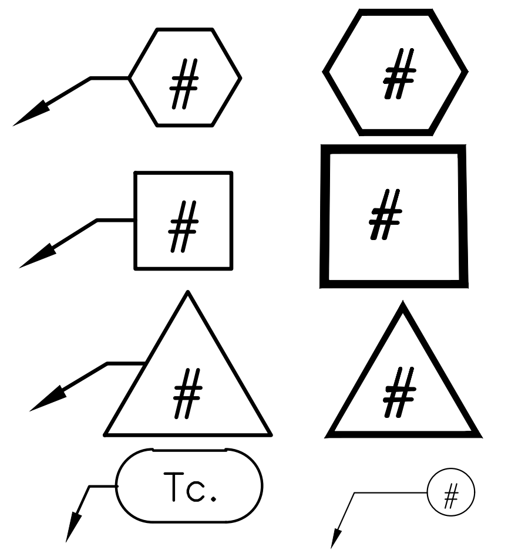

SUBCATCHMENT AREA SYMBOL
FLOW REACH SYMBOL
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GRAPHIC SCALE

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JOHN P. HAYES III, CWS #18

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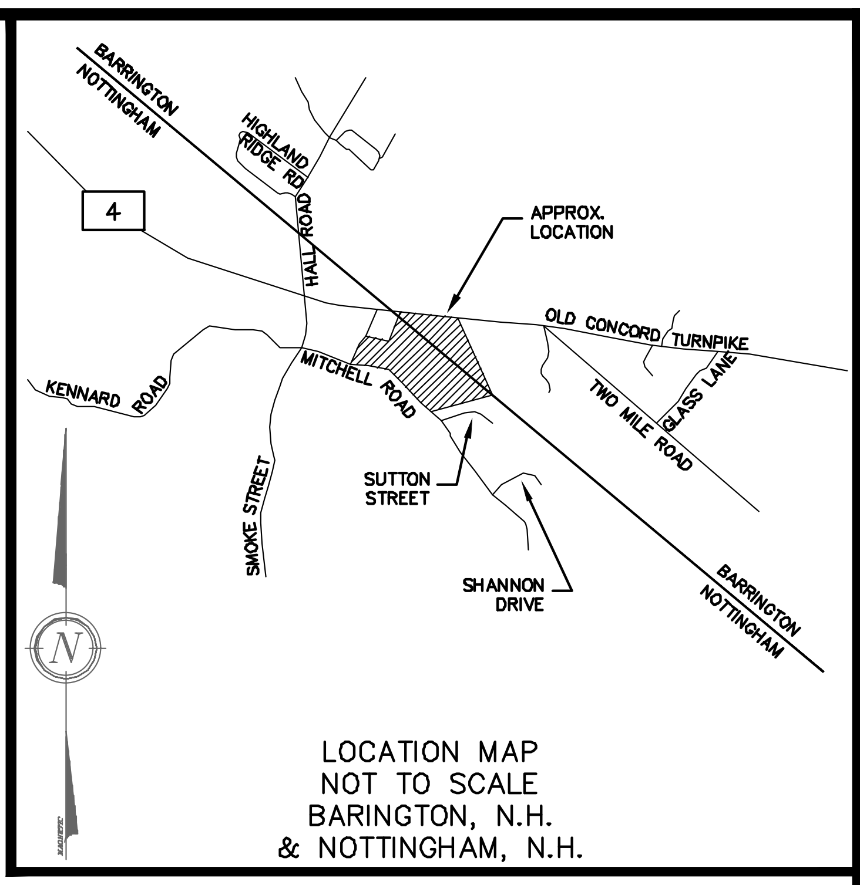

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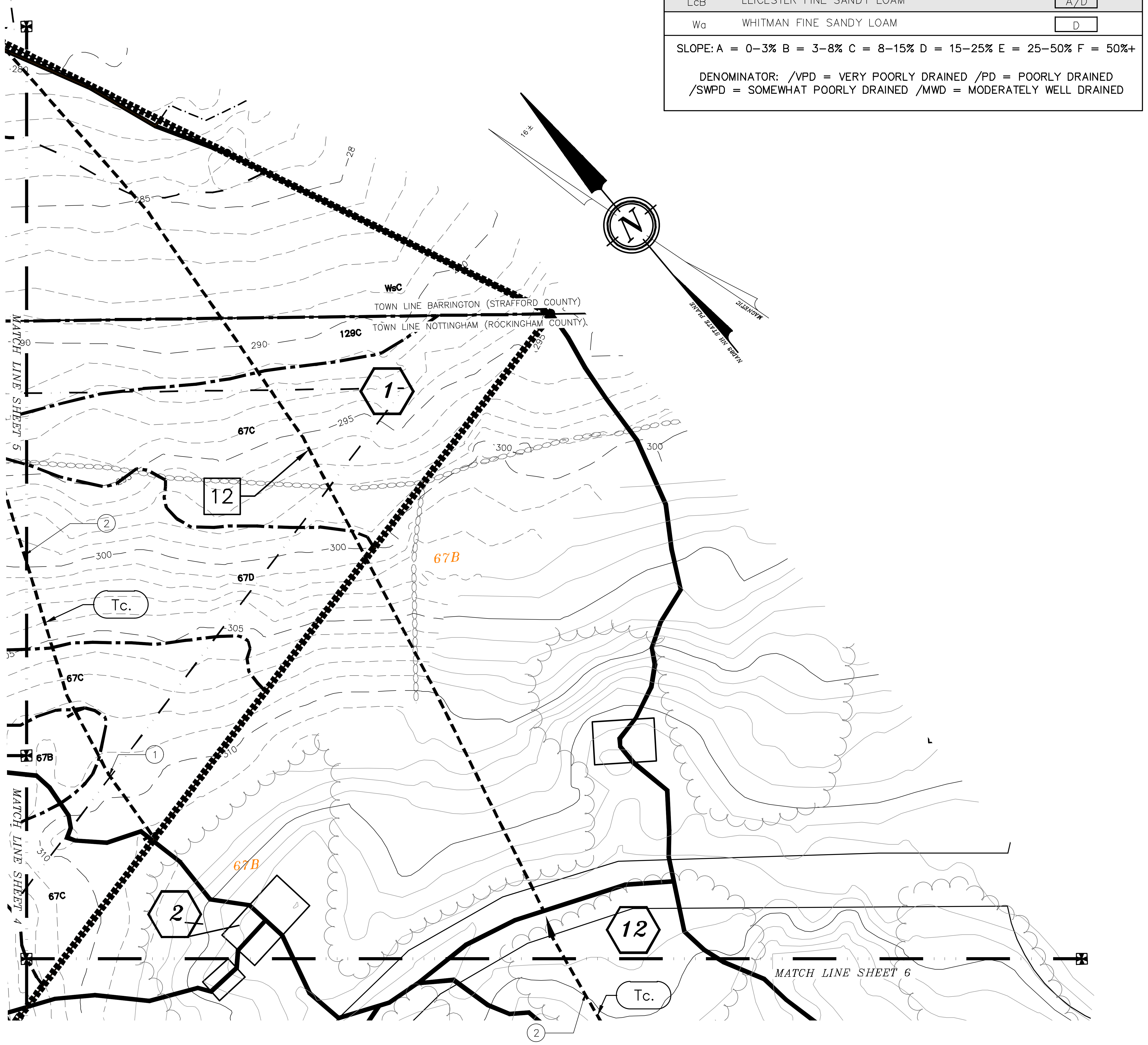

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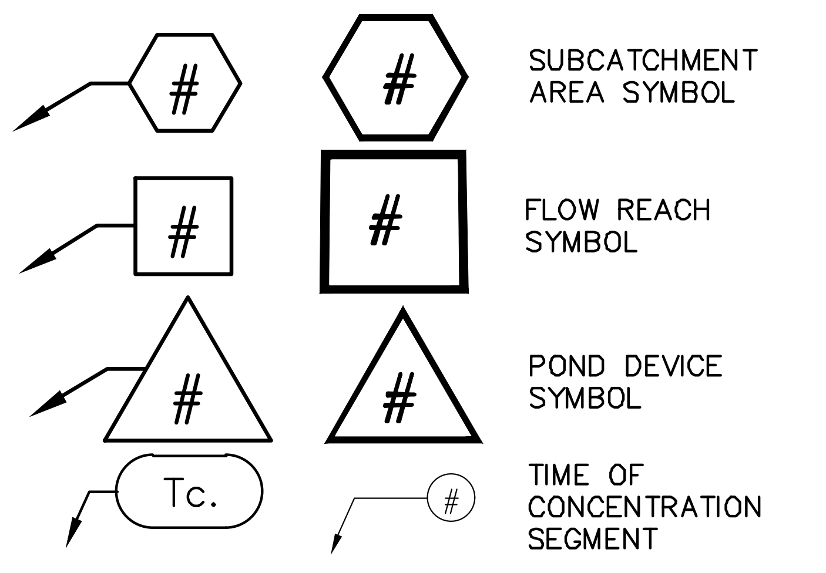

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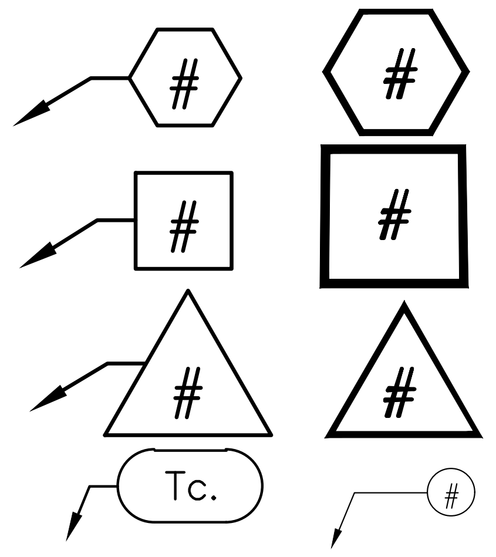
NOTTINGHAM FEMA COMMUNITY# 330137, MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178, MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

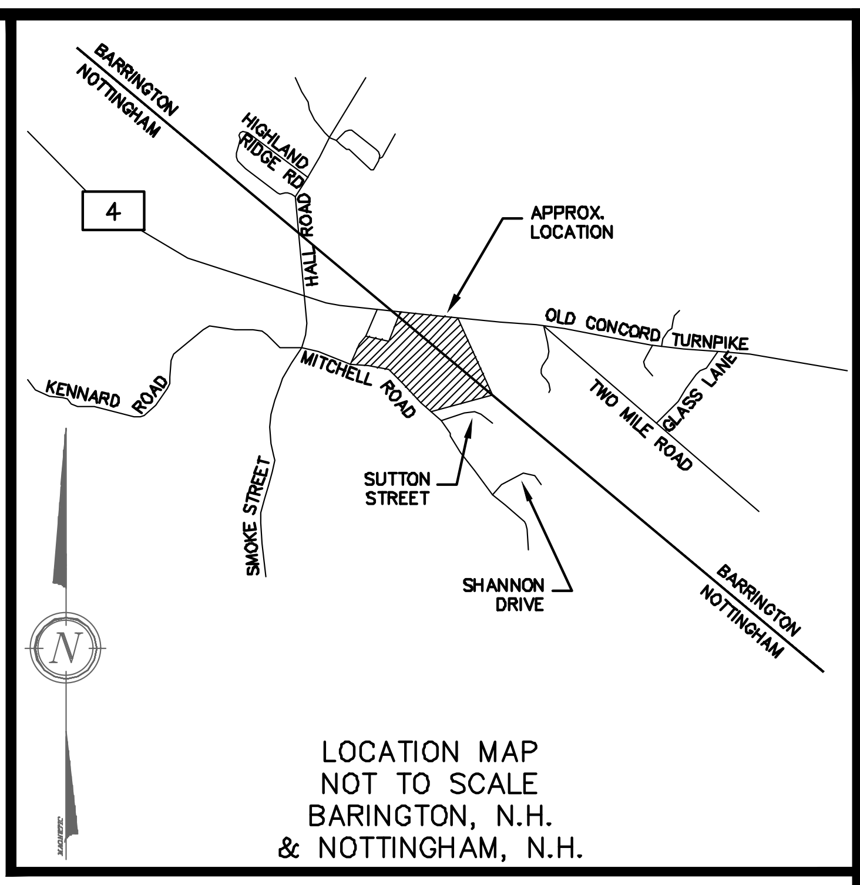
10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

SYMBOLS LEGEND:

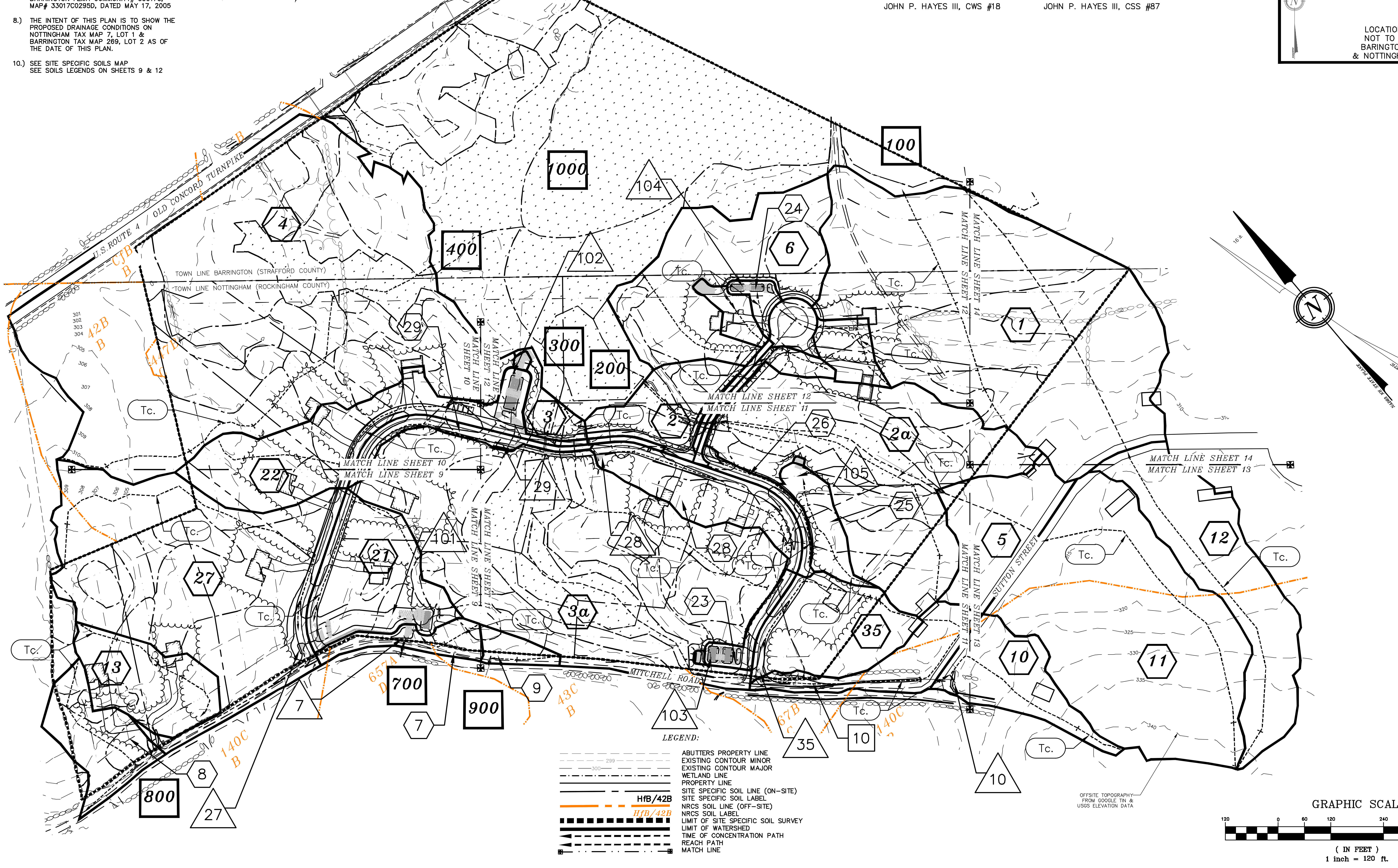


JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87



LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.



LEGEND:

ABUTTERS PROPERTY LINE
EXISTING CONTOUR MINOR
EXISTING CONTOUR MAJOR
WETLAND LINE
PROPERTY LINE
SITE SPECIFIC SOIL LINE (ON-SITE)
HfB/42B SITE SPECIFIC SOIL LABEL
NRCS SOIL LINE (OFF-SITE)
HfB/42B NRCS SOIL LABEL
LIMIT OF SITE SPECIFIC SOIL SURVEY
LIMIT OF WATERSHED
TIME OF CONCENTRATION PATH
REACH PATH
MATCH LINE

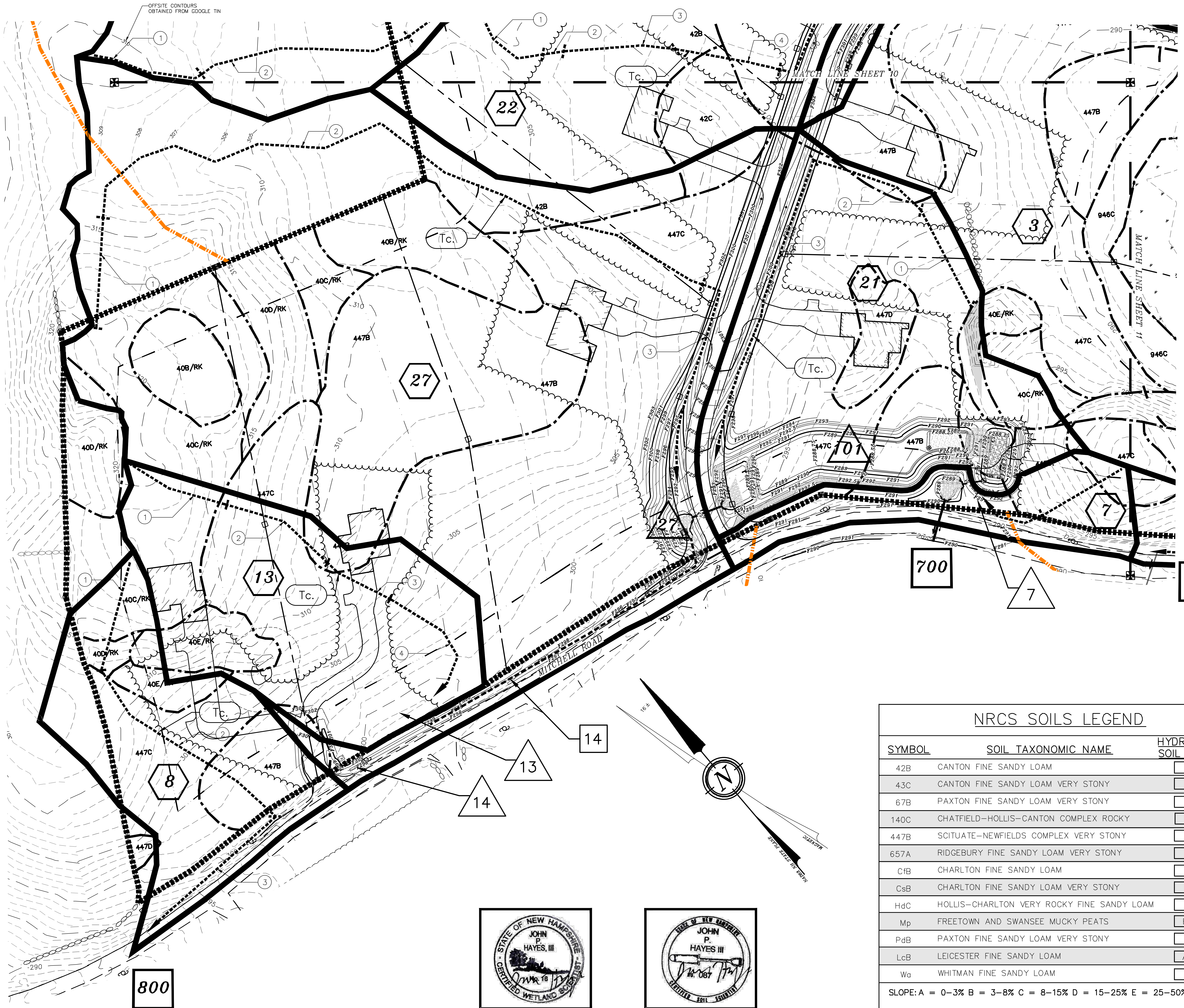
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT
REVISION	DATE	DESCRIPTION

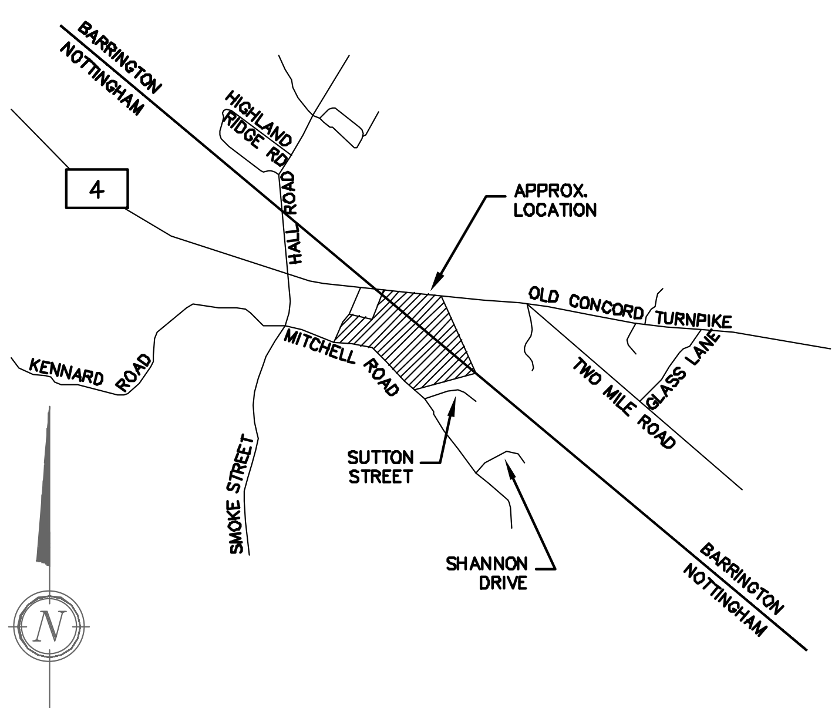
W-2 PROPOSED WATERSHED OVERVIEW
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 120 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243





LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

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S.C.R.D. BOOK 4490, PAGE 869

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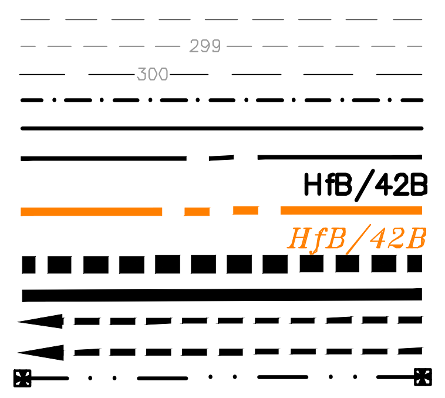
MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178,
MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

LEGEND:



ABUTTERS PROPERTY LINE
EXISTING CONTOUR MINOR
EXISTING CONTOUR MAJOR
WETLAND LINE
PROPERTY LINE
SITE SPECIFIC SOIL LINE (ON-SITE)
SITE SPECIFIC SOIL LABEL
NRCS SOIL LINE (OFF-SITE)
NRCS SOIL LABEL
LIMIT OF SITE SPECIFIC SOIL SURVEY
LIMIT OF WATERSHED
TIME OF CONCENTRATION PATH
REACH PATH
MATCH LINE

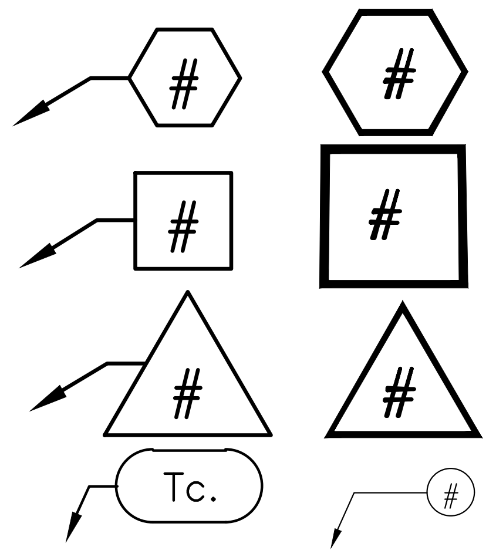
NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON FINE SANDY LOAM	B
43C	CANTON FINE SANDY LOAM VERY STONY	B
67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD—HOLLIS—CANTON COMPLEX ROCKY	B
447B	SCITUATE—NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS—CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
LcB	LEICESTER FINE SANDY LOAM	A/D
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

SYMBOLS LEGEND:



SUBCATCHMENT AREA SYMBOL

FLOW REACH SYMBOL

POND DEVICE SYMBOL

TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

JOHN P. HAYES III
CWS No. 18

JOHN P. HAYES, III, CWS #18

JOHN P. HAYES III
No. 087

JOHN P. HAYES III, CSS #87

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
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W–2 PROPOSED WATERSHED WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

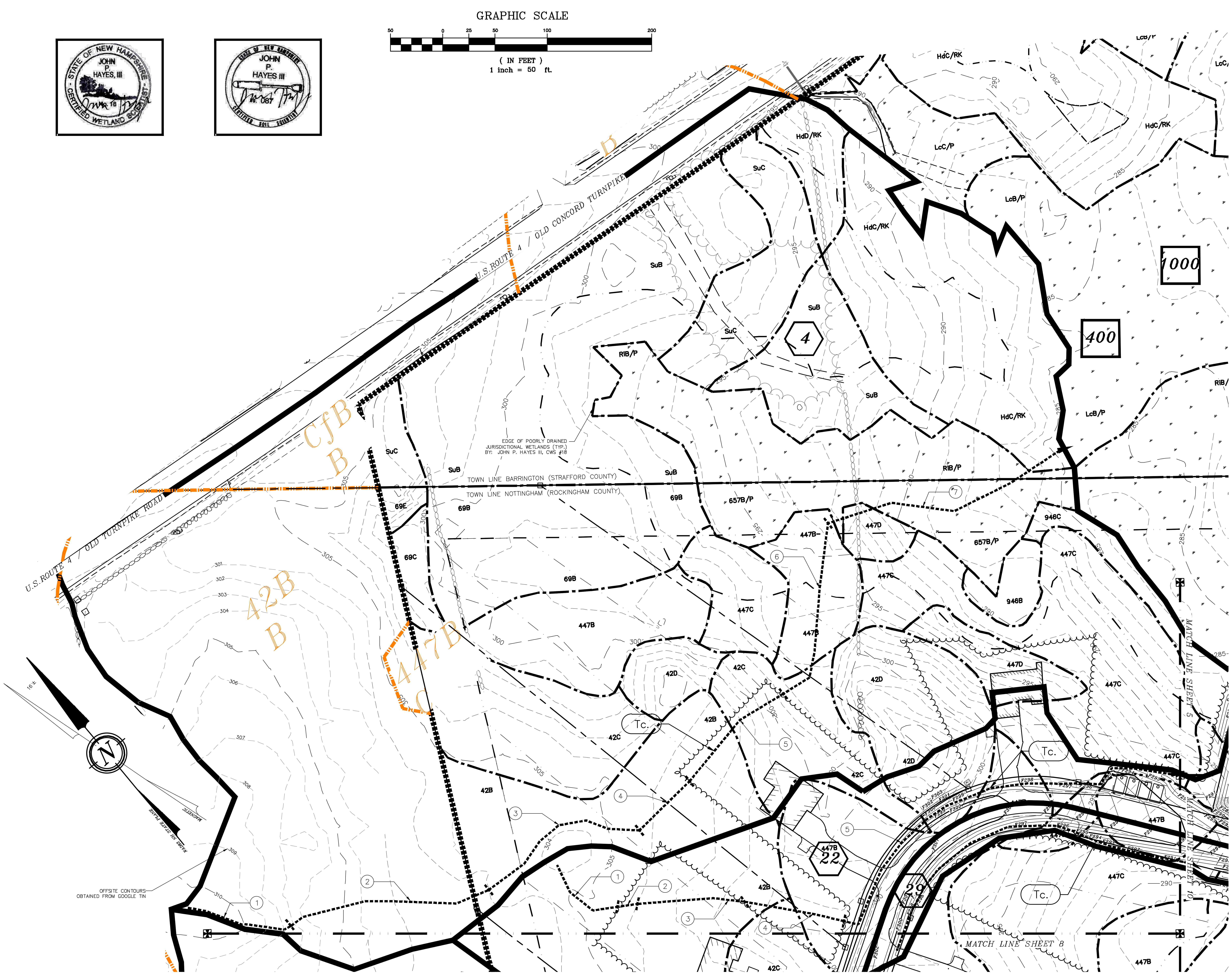
SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

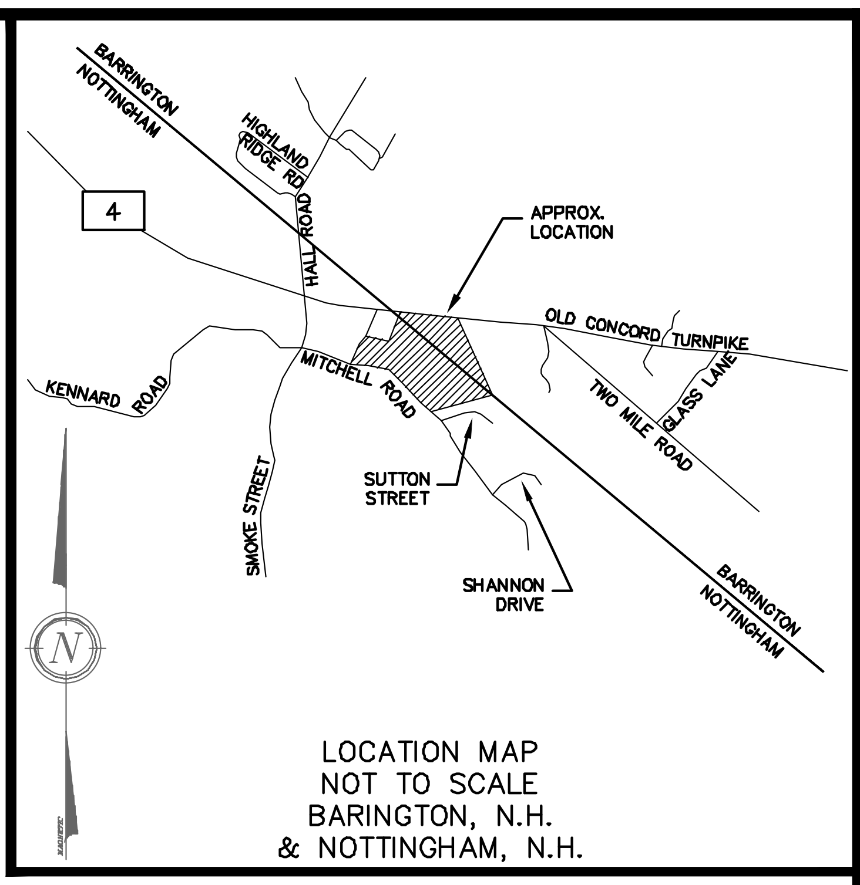
KENNETH A. BERRY
No. 14245

SHEET 9 OF 14

JOHN P. HAYES, III
No. 18

JOHN P. HAYES III
No. 087





LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

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LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

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8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

LEGEND:

— — — — —	ABUTTERS PROPERTY LINE
— — 299 — —	EXISTING CONTOUR MINOR
—— 300 ——	EXISTING CONTOUR MAJOR
—·—·—·—	WETLAND LINE
————	PROPERTY LINE
——— – ———	SITE SPECIFIC SOIL LINE (ON–SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
——— – – ———	NRCS SOIL LINE (OFF–SITE)
HfB/42B	NRCS SOIL LABEL
■ ■ ■ ■ ■	LIMIT OF SITE SPECIFIC SOIL SURVEY
━━━━	LIMIT OF WATERSHED
◀ – – – –	TIME OF CONCENTRATION PATH
◀ — — — —	REACH PATH
⊠— · · — · · —⊠	MATCH LINE

SYMBOLS LEGEND:

⬡ #	⬡ #	SUBCATCHMENT AREA SYMBOL
□ #	□ #	FLOW REACH SYMBOL
△ #	△ #	POND DEVICE SYMBOL
Tc.	(#)	TIME OF CONCENTRATION SEGMENT

REVISION	DATE	DESCRIPTION
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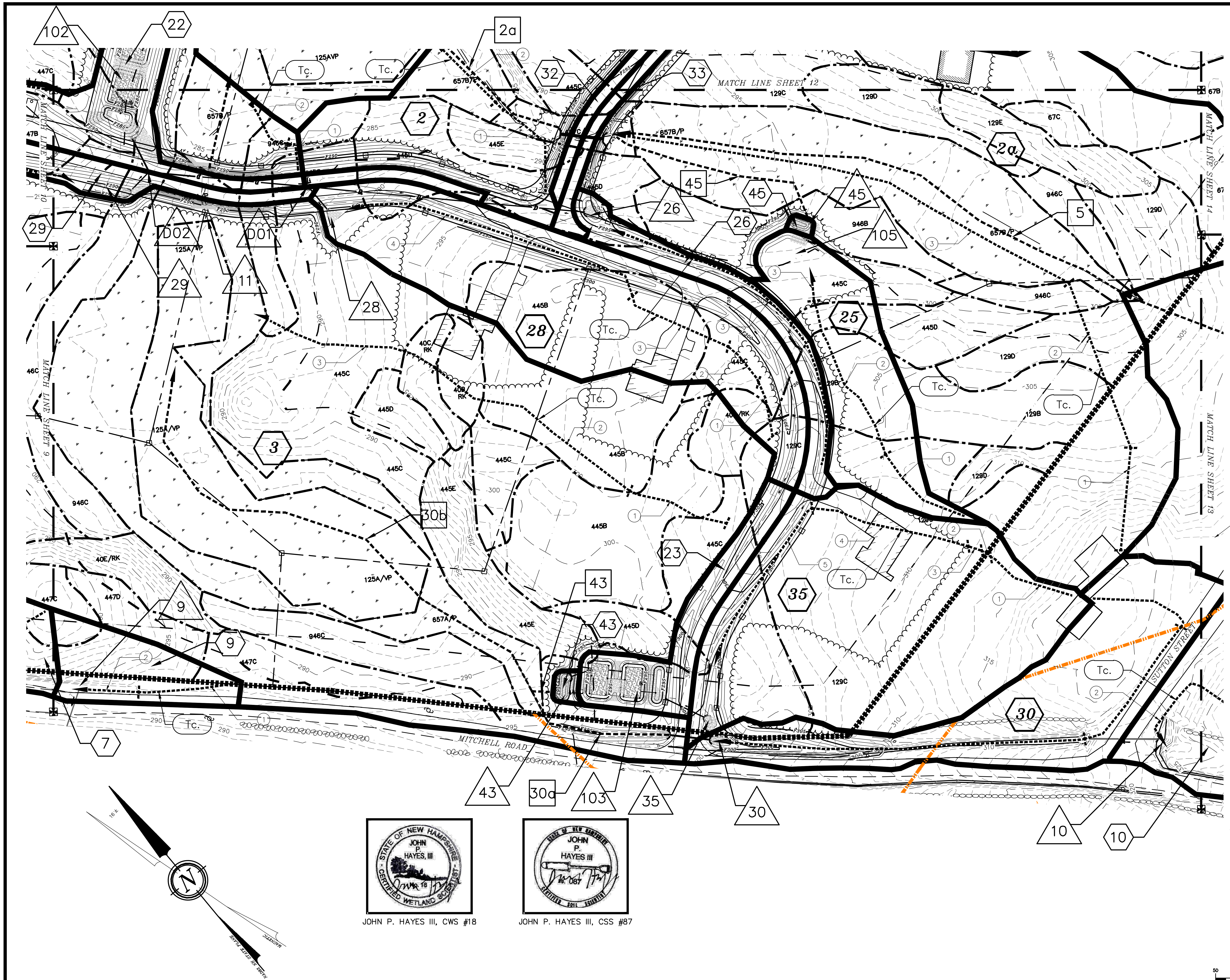
W–2 PROPOSED WATERSHED NORTH

LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

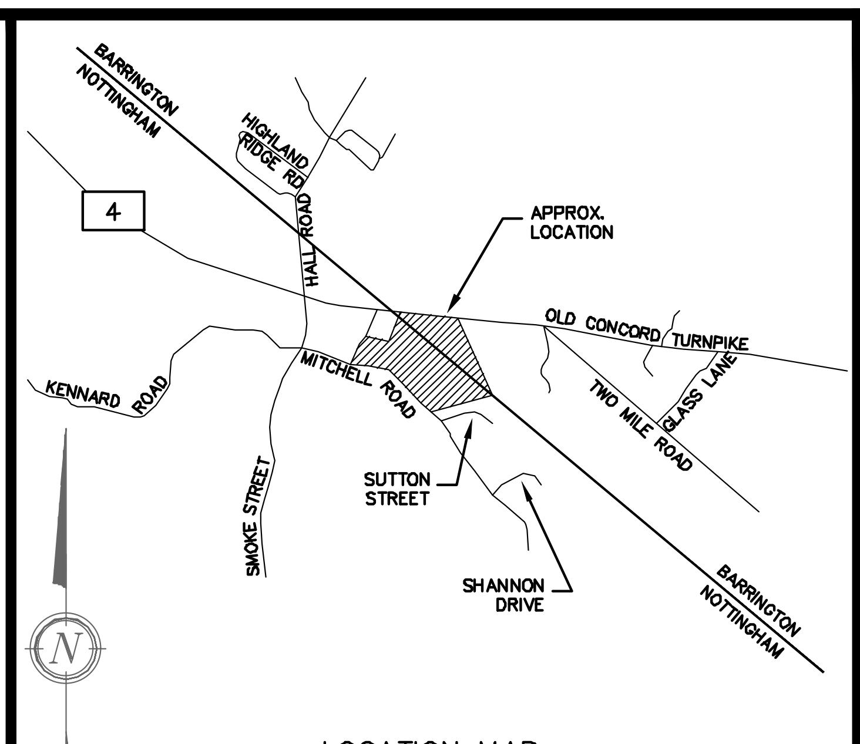
SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY
No. 14243



JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87



LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

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324 ROUTE 108
MADBURY, NH 03823

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OFFSITE CONTOURS
OBTAINED FROM GOOGLE TIN

LEGEND:

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EXISTING CONTOUR MINOR
EXISTING CONTOUR MAJOR
WETLAND LINE
PROPERTY LINE
SITE SPECIFIC SOIL LINE (ON-SITE)
HfB/42B SITE SPECIFIC SOIL LABEL
NRCS SOIL LINE (OFF-SITE)
HfB/42B NRCS SOIL LABEL
LIMIT OF SITE SPECIFIC SOIL SURVEY
LIMIT OF WATERSHED
TIME OF CONCENTRATION PATH
REACH PATH
MATCH LINE

SYMBOLS LEGEND:

SUBCATCHMENT AREA SYMBOL
FLOW REACH SYMBOL
POND DEVICE SYMBOL
Tc. TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

REVISION	DATE	DESCRIPTION
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W-2 PROPOSED WATERSHED SOUTHWEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SHEET 11 OF 14

SSSM SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON LOAMY SAND	B
42C	CANTON LOAMY SAND	B
42D	CANTON LOAMY SAND	B
69B–SuB	SUTTON LOAMY SOIL	B
69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
HdE	HOLLIS–CANTON COMPLEX	D
445B	NEWFIELDS LOAMY SOIL	B
445C	NEWFIELDS LOAMY SOIL	B
445D	NEWFIELDS LOAMY SOIL	B
445E	NEWFIELDS LOAMY SOIL	B
447B	SCITUATE–NEWFIELDS COMPLEX	B
447C	SCITUATE–NEWFIELDS COMPLEX	B
447D	SCITUATE–NEWFIELDS COMPLEX	B
67B	PAXTON LODGMENT TILL	C
67C	PAXTON LODGMENT TILL	C
67D	PAXTON LODGMENT TILL	C
129B–WsB	WOODBRIDGE LOAMY SOIL	C
129C–WsC	WOODBRIDGE LOAMY SOIL	C
129D	WOODBRIDGE LOAMY SOIL	C
129E	WOODBRIDGE LOAMY SOIL	C
LcB	LEICESTER LOAMY TILL	C
LcC	LEICESTER LOAMY TILL	C
657A–RiA	RIDGEBURY LODGMENT TILL	C
657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
657C–946C–RiC	RIDGEBURY LODGMENT TILL	C
40B	CHATFIELD–HOLLIS COMPLEX	D
40C	CHATFIELD–HOLLIS COMPLEX	D
40D	CHATFIELD–HOLLIS COMPLEX	D
40E	CHATFIELD–HOLLIS COMPLEX	D
49B	WHITMAN LODGMENT TILL	D
125A	SCARBORO STONY SOIL	D
125B	SCARBORO STONY SOIL	D
MpA	GREENWOOD ORGANIC SOIL	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
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/Rk = ROCKY

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
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67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD–HOLLIS–CANTON COMPLEX ROCKY	B
447B	SCITUATE–NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS–CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
LcB	LEICESTER FINE SANDY LOAM	A/D
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

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JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

NOTES:

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324 ROUTE 108
MADBURY, NH 03823

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BARRINGTON TAX MAP 269, LOT 2

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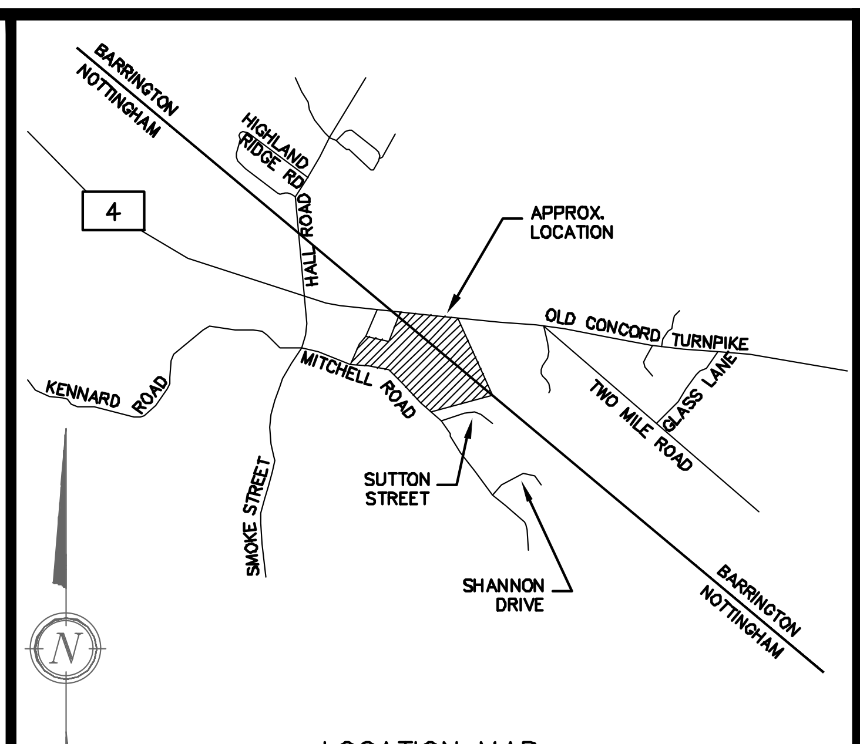
10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

LEGEND:

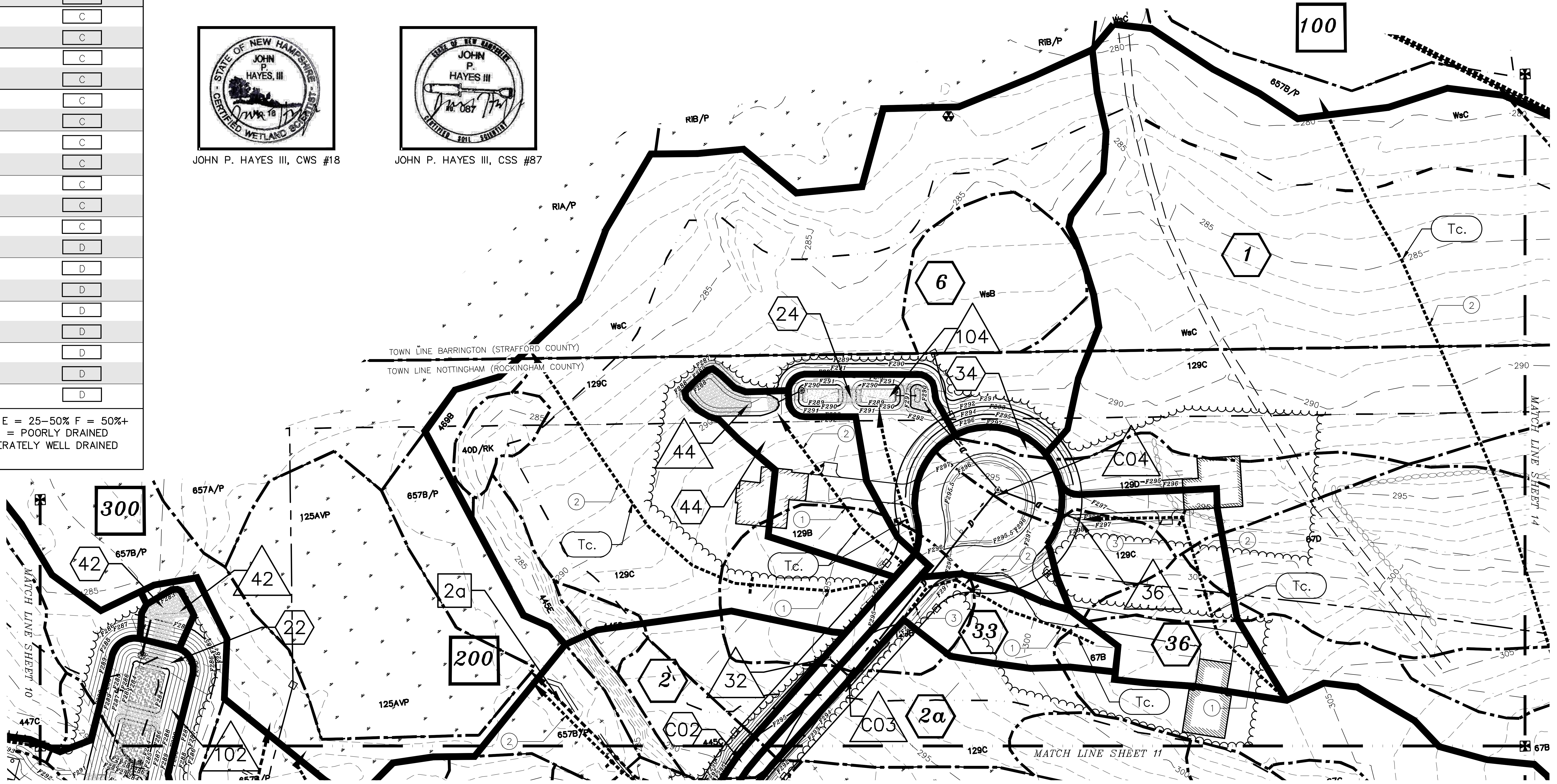
- ABUTTERS PROPERTY LINE
- 299 EXISTING CONTOUR MINOR
- 300 EXISTING CONTOUR MAJOR
- WETLAND LINE
- PROPERTY LINE
- SITE SPECIFIC SOIL LINE (ON–SITE)
- HfB/42B SITE SPECIFIC SOIL LABEL
- NRCS SOIL LINE (OFF–SITE)
- *HfB/42B* NRCS SOIL LABEL
- LIMIT OF SITE SPECIFIC SOIL SURVEY
- LIMIT OF WATERSHED
- TIME OF CONCENTRATION PATH
- REACH PATH
- MATCH LINE

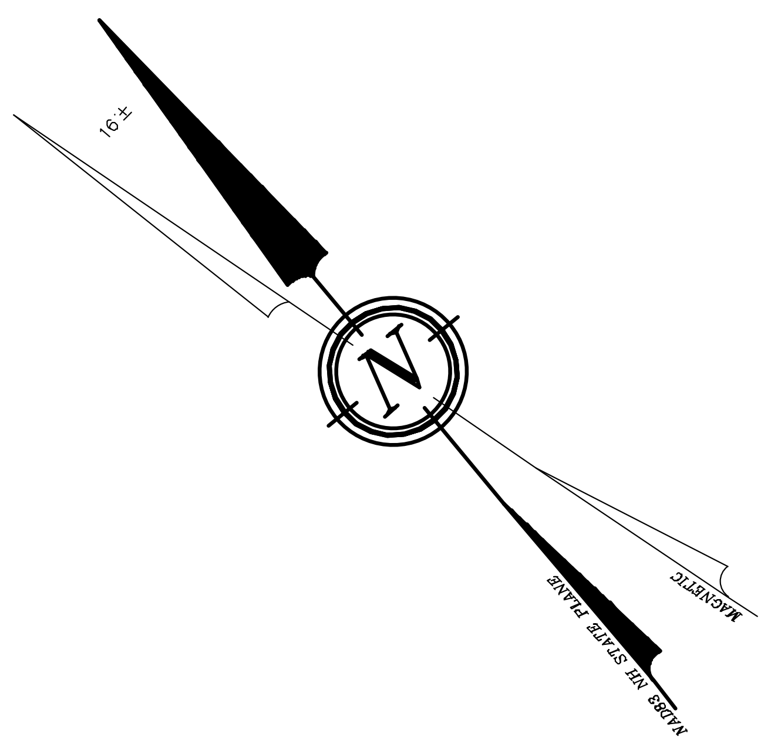
SYMBOLS LEGEND:

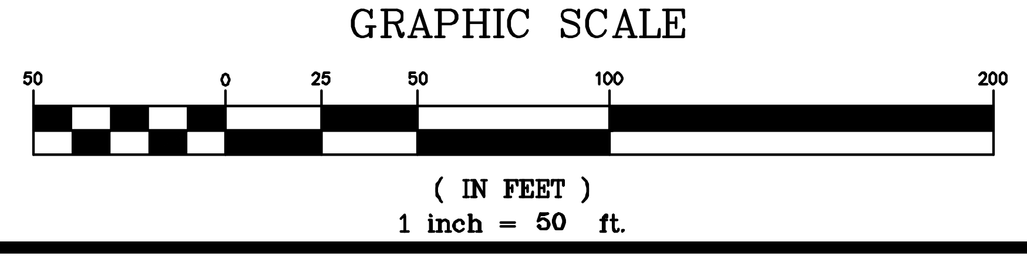
- ⬡ # ⬡ # SUBCATCHMENT AREA SYMBOL
- ☐ # ☐ # FLOW REACH SYMBOL
- △ # △ # POND DEVICE SYMBOL
- Tc. (#) TIME OF CONCENTRATION SEGMENT



LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.







REVISION	DATE	DESCRIPTION
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#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

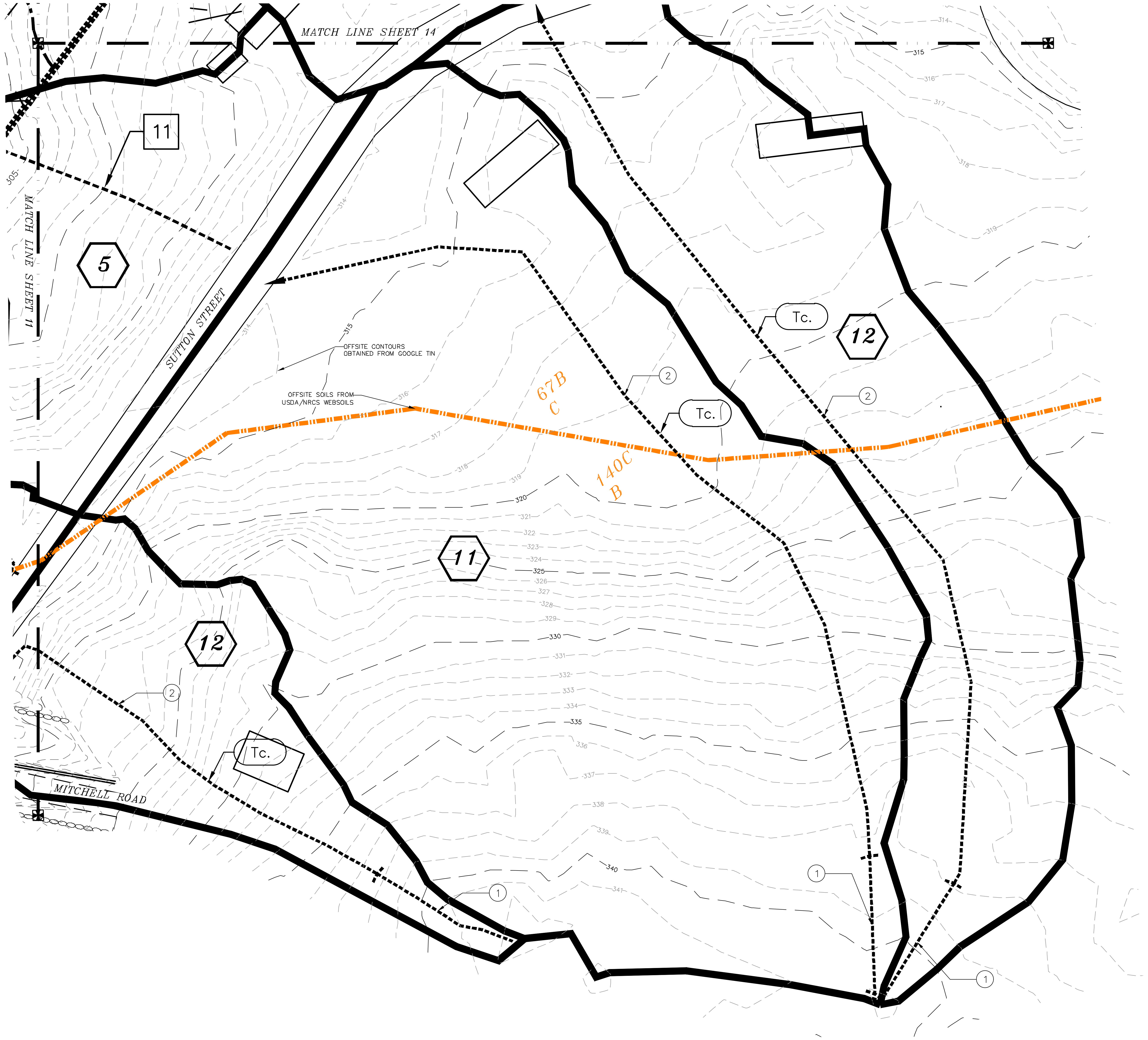
W–2 PROPOSED WATERSHED NORTHEAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

SHEET 12 OF 14



JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

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69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
HdE	HOLLIS–CANTON COMPLEX	D
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445C	NEWFIELDS LOAMY SOIL	B
445D	NEWFIELDS LOAMY SOIL	B
445E	NEWFIELDS LOAMY SOIL	B
447B	SCITUATE–NEWFIELDS COMPLEX	B
447C	SCITUATE–NEWFIELDS COMPLEX	B
447D	SCITUATE–NEWFIELDS COMPLEX	B
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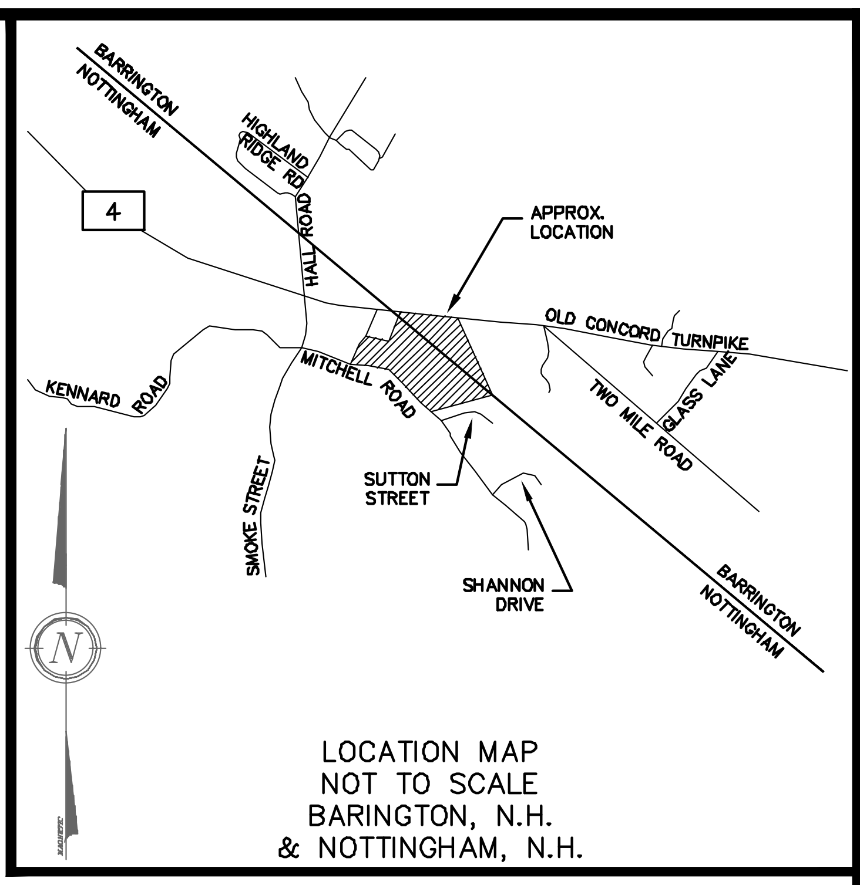
67C	PAXTON LODGMENT TILL	C
67D	PAXTON LODGMENT TILL	C
129B–WsB	WOODBRIDGE LOAMY SOIL	C
129C–WsC	WOODBRIDGE LOAMY SOIL	C
129D	WOODBRIDGE LOAMY SOIL	C
129E	WOODBRIDGE LOAMY SOIL	C
LcB	LEICESTER LOAMY TILL	C
LcC	LEICESTER LOAMY TILL	C
657A–RiA	RIDGEBURY LODGMENT TILL	C
657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
657C–946C–RiC	RIDGEBURY LODGMENT TILL	C
40B	CHATFIELD–HOLLIS COMPLEX	D
40C	CHATFIELD–HOLLIS COMPLEX	D
40D	CHATFIELD–HOLLIS COMPLEX	D
40E	CHATFIELD–HOLLIS COMPLEX	D
49B	WHITMAN LODGMENT TILL	D
125A	SCARBORO STONY SOIL	D
125B	SCARBORO STONY SOIL	D
MpA	GREENWOOD ORGANIC SOIL	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED
/Rk = ROCKY



LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

6.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE & BELIEF, THIS PARCEL DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF.:
NOTTINGHAM FEMA COMMUNITY# 330137,
MAP# 33015C0120E, DATED: MAY 17, 2005
BARRINGTON FEMA COMMUNITY# 330178,
MAP# 33017C0295D, DATED MAY 17, 2005

8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

LEGEND:

— — — — —	ABUTTERS PROPERTY LINE
— — — 299 — — —	EXISTING CONTOUR MINOR
—— 300 ——	EXISTING CONTOUR MAJOR
—·—·—·—	WETLAND LINE
———	PROPERTY LINE
——— — ———	SITE SPECIFIC SOIL LINE (ON–SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
——— — — ———	NRCS SOIL LINE (OFF–SITE)
HfB/42B	NRCS SOIL LABEL
■■■■■■■■	LIMIT OF SITE SPECIFIC SOIL SURVEY
━━━━━━	LIMIT OF WATERSHED
◀ — — — — —	TIME OF CONCENTRATION PATH
◀ — — — — —	REACH PATH
⊠— · · — · · —⊠	MATCH LINE

SYMBOLS LEGEND:

SUBCATCHMENT AREA SYMBOL
FLOW REACH SYMBOL
POND DEVICE SYMBOL
TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

REVISION	DATE	DESCRIPTION
#4	5–5–21	REVISED PER PLANING BOARD COMMENTS
#3	11–2–20	REVISED PER WETLANDS RFMI
#2	5–21–20	REVISED PER AoT APPLICATION
#1	4–29–20	REVISED PER NOTTINGHAM STAFF COMMENT

W–2 PROPOSED WATERSHED SOUTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY

JOHN P. HAYES, III

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III No. 087

JOHN P. HAYES III, CSS #87

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON FINE SANDY LOAM	B
43C	CANTON FINE SANDY LOAM VERY STONY	B
67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD–HOLLIS–CANTON COMPLEX ROCKY	B
447B	SCITUATE–NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS–CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
LcB	LEICESTER FINE SANDY LOAM	A/D
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

SSSM SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON LOAMY SAND	B
42C	CANTON LOAMY SAND	B
42D	CANTON LOAMY SAND	B
69B–SuB	SUTTON LOAMY SOIL	B
69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
HdE	HOLLIS–CANTON COMPLEX	D
445B	NEWFIELDS LOAMY SOIL	B
445C	NEWFIELDS LOAMY SOIL	B
445D	NEWFIELDS LOAMY SOIL	B
445E	NEWFIELDS LOAMY SOIL	B
447B	SCITUATE–NEWFIELDS COMPLEX	B
447C	SCITUATE–NEWFIELDS COMPLEX	B
447D	SCITUATE–NEWFIELDS COMPLEX	B
67B	PAXTON LODGMENT TILL	C
67C	PAXTON LODGMENT TILL	C
67D	PAXTON LODGMENT TILL	C
129B–WsB	WOODBRIDGE LOAMY SOIL	C
129C–WsC	WOODBRIDGE LOAMY SOIL	C
129D	WOODBRIDGE LOAMY SOIL	C
129E	WOODBRIDGE LOAMY SOIL	C
LcB	LEICESTER LOAMY TILL	C
LcC	LEICESTER LOAMY TILL	C
657A–RiA	RIDGEBURY LODGMENT TILL	C
657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
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40B	CHATFIELD–HOLLIS COMPLEX	D
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40D	CHATFIELD–HOLLIS COMPLEX	D
40E	CHATFIELD–HOLLIS COMPLEX	D
49B	WHITMAN LODGMENT TILL	D
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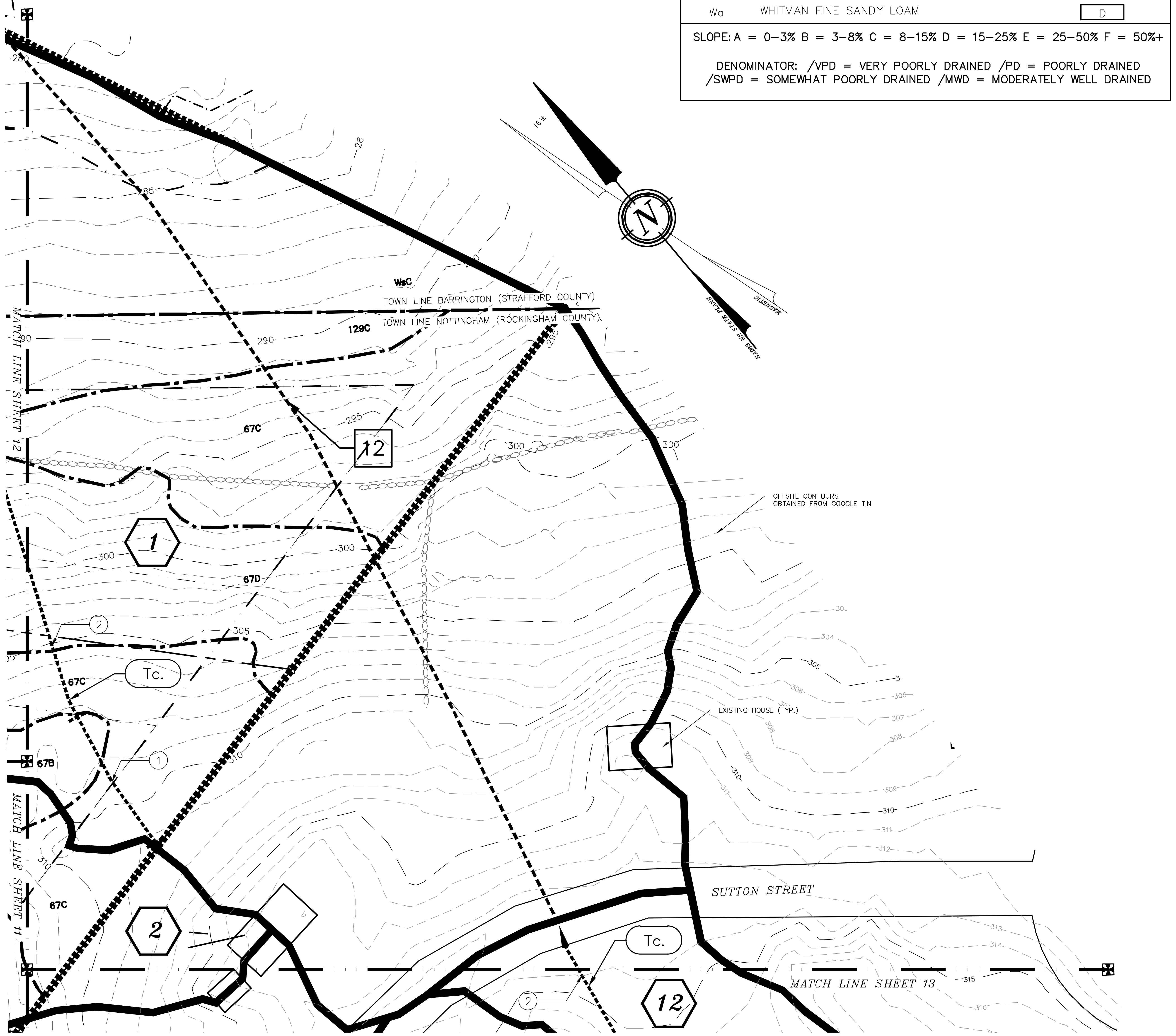

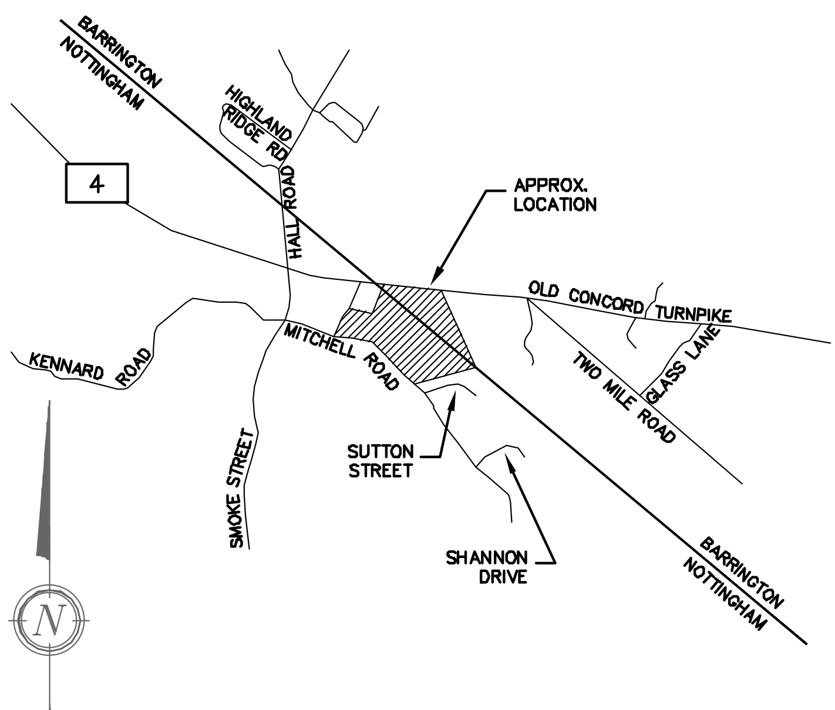

LOCATION MAP
NOT TO SCALE
BARINGTON, N.H.
& NOTTINGHAM, N.H.

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

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NOTTINGHAM FEMA COMMUNITY# 330137,
MAP# 33015C0120E, DATED: MAY 17, 2005
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8.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED DRAINAGE CONDITIONS ON NOTTINGHAM TAX MAP 7, LOT 1 & BARRINGTON TAX MAP 269, LOT 2 AS OF THE DATE OF THIS PLAN.

10.) SEE SITE SPECIFIC SOILS MAP
SEE SOILS LEGENDS ON SHEETS 9 & 12

LEGEND:

— — — — —	ABUTTERS PROPERTY LINE
— — 299 — —	EXISTING CONTOUR MINOR
—— 300 ——	EXISTING CONTOUR MAJOR
—·—·—·—	WETLAND LINE
———	PROPERTY LINE
——— — ———	SITE SPECIFIC SOIL LINE (ON–SITE)
HfB/42B	SITE SPECIFIC SOIL LABEL
——— — — ———	NRCS SOIL LINE (OFF–SITE)
HfB/42B	NRCS SOIL LABEL
■ ■ ■ ■ ■ ■	LIMIT OF SITE SPECIFIC SOIL SURVEY
━━━━━	LIMIT OF WATERSHED
◄ — — — —	TIME OF CONCENTRATION PATH
◄ — — — —	REACH PATH
⊠— · · — · · —⊠	MATCH LINE

SYMBOLS LEGEND:

⬡ #	⬡ #	SUBCATCHMENT AREA SYMBOL
□ #	□ #	FLOW REACH SYMBOL
△ #	△ #	POND DEVICE SYMBOL
Tc.	○ #	TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

REVISION	DATE	DESCRIPTION
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W–2 PROPOSED WATERSHED EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

NOTES:

1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

5.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

6.) UPON FINAL COMPLETION AND 85% STABILIZATION, THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS. SEDIMENT CONTROL PRACTICES REMOVED AND DISPOSED OF PROPERLY, AND ANNUAL MAINTENANCE PREFORMED ON ALL DRAINAGE PRACTICES.

7.) EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24-HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP 4.1.1 AND INSPECTION REPORTS SUBMITTED TO THE TOWN OF NOTTINGHAM, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED. SEE ALSO TOWN OF NOTTINGHAM ADDITIONAL INSPECTION REQUIREMENTS BELOW.

8.) SILT FENCE MAY BE SUBSTITUTED WITH FILTREXX SILT SOXX OR EROSION CONTROL MIX BERM. SILT FENCE IS NOT A SUBSTITUTE FOR FILTREXX SILT SOXX OR APPROVED EQUAL.

9.) PER EPA CGP Z.1.2.2 (INSTALL PERIMETER CONTROL), "YOU MUST INSTALL SEDIMENT CONTROLS ALONG THOSE PERIMETER AREAS OF YOUR SITE THAT WILL RECEIVE STORMWATER FROM EARTH DISTURBING ACTIVITIES." AS A RESULT OF SWPPP INSPECTIONS, THE CONTRACTOR MAY HAVE TO EXPAND PERIMETER CONTROLS TO MEET THIS REQUIREMENT. THE E&SC PLAN IS INITIAL GUIDANCE AS TO THE ANTICIPATED REQUIREMENTS AND IT THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT STORMWATER VIOLATION DO NOT OCCUR.

10.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PROPOSED ROADS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO MITCHELL ROAD.

11.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

12.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV-A 1000.

13.) CONTRACTOR IT TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51-57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

14.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV-WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

15.) CATCH BASIN HOODS WILL BE INSTALLED AS SOON AS THE BASIN IS PUT ON LINE. RIM IS TO BE RAISED WITH FINAL GRADE SO THAT STORMWATER RUNOFF CAN DRAIN PROPERLY THROUGHOUT CONSTRUCTION.

16.) MULCH BERM MAY BE USED AS A SUBSTITUTE FOR SILT SOXX AS PERIMETER CONTROL.

17.) CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING EROSION AND SEDIMENT CONTROL MEASURES DURING RESIDENTIAL LOT CONSTRUCTION AND ALL EROSION AND SEDIMENT CONTROL MEASURES FOR RESIDENTIAL CONSTRUCTION SHALL REMAIN IN PLACE UNTIL THE LOT IS STABILIZED.

18.) ROADSIDE CHECK DAMS SHOULD BE CLEANED AND REPAIRED AS NEEDED.

19.) PERIMETER CONTROL FOR PONDS IS TO BE INSTALLED AS SOON AS THE PONDS ARE CONSTRUCTED AND ARE INTENDED TO REMAIN IN PLACE UNTIL THE UPHILL AREAS ARE STABILIZED.

20.) CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING CONSTRUCTION ENTRANCES.

21.) SEE CONSTRUCTION PHASING PLAN FOR LIMIT OF ALLOWED DISTURBANCE, TREE CLEARING, GRUBBING, AND STUMPING WITHIN EACH PHASE.

SOILS & DEWATERING:

SEE SITE SPECIFIC SOILS MAP (SSSM)
SEE WEBSOIL USDA-NRCS
ERODIBILITY FACTOR – K, CPESC MANUAL, ENVIROCERT INTERNATIONAL INC. &
ROCKINGHAM COUNTTY SOIL SURVEY, ROCKWEB SOIL ATTRIBUTES.

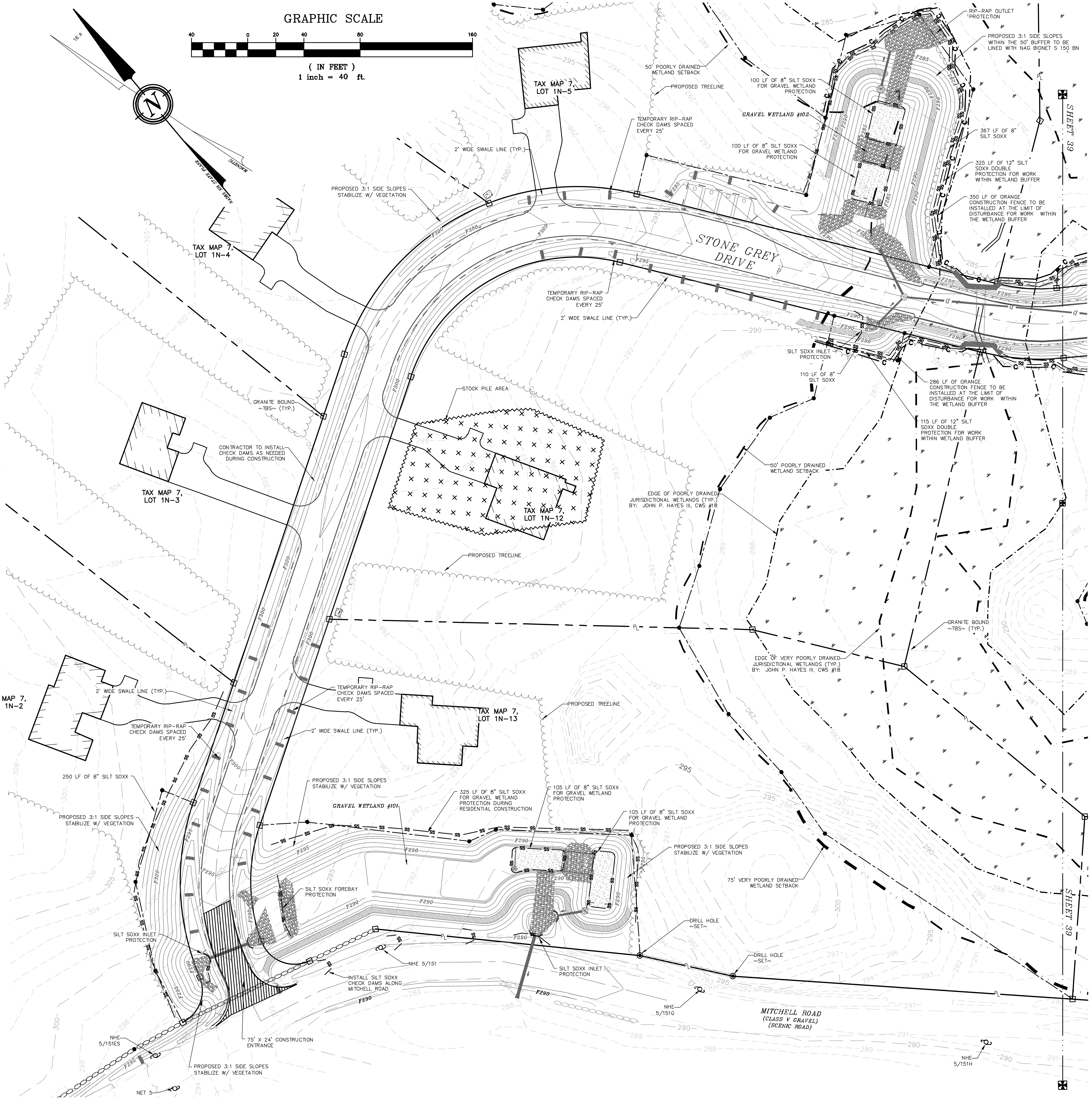
CONTRACTOR TO BE AWARE OF THE SOIL PROFILES AND ENSURE THAT PROPER EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE TAKEN AT ALL TIMES. ANY DEWATERING REQUIREMENTS IN NEW HAMPSHIRE REQUIRE SPECIAL PROVISIONS IN ACCORDANCE WITH THE "CLARIFICATION OF SECTION 9.1.2 (STATE OF NEW HAMPSHIRE CONDITIONS) AND OTHER NH SPECIFIC INFORMATION FOR THE U.S. EPA 2012 NPDES CONSTRUCTION GENERAL PERMIT (CGP)" DATED MAY 3, 2012 INCLUDED IN THE SWPPP.

COVER MANAGEMENT DURING CONSTRUCTION FOR EXPOSED SOIL WILL INCLUDE HAY / STRAW APPLIED AT A RATE OF 2.0 TONS PER ACRE, TEMPORARY SEEDING OF ANNUAL RYE GRASS, AND PERMANENT SEEDING AT THE EARLIES OPPORTUNITY. SEE ADDITIONAL REQUIREMENT FOR STABILIZATION ON THE EROSION AND SEDIMENT CONTROL DETAIL SHEETS, E-101 AND E-102.

THE CONSTRUCTION SCHEDULE WILL BE MANAGED SO THAT ALL STORMWATER STRUCTURES WILL BE BUILT AND STABILIZED PRIOR TO RECEIVING SURFACE WATER RUNOFF. CONTRACTOR TO BE RESPONSIBLE FOR ALL DIVERSIONS DURING CONSTRUCTION AND FOR INTERIM SEDIMENT AND EROSION CONTROL MEASURES.

LEGEND:

Ⓡ	RAIN GARDEN BIO-MEDIA PROTECTION
Ⓟ	PERIMETER CONTROL
Ⓒ	RESIDENTIAL/ROADWAY CONSTRUCTION
◎	IRON PIPE (FND)
●	IRON BOUND (FND)
○	REBAR (FND)
	UTILITY POLE
◐	GUY WIRE
—— · · —— SF ——	SILT FENCE
—— SS —— SS —— SS ——	FILTREXX SILTSOXX
	TREE LINE
	STOCK PILE



REVISION	DATE	DESCRIPTION
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#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EROSION AND SEDIMENT CONTROL PLAN WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863
SCALE : 1 IN. EQUALS 40 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243

SHEET 36 OF 54

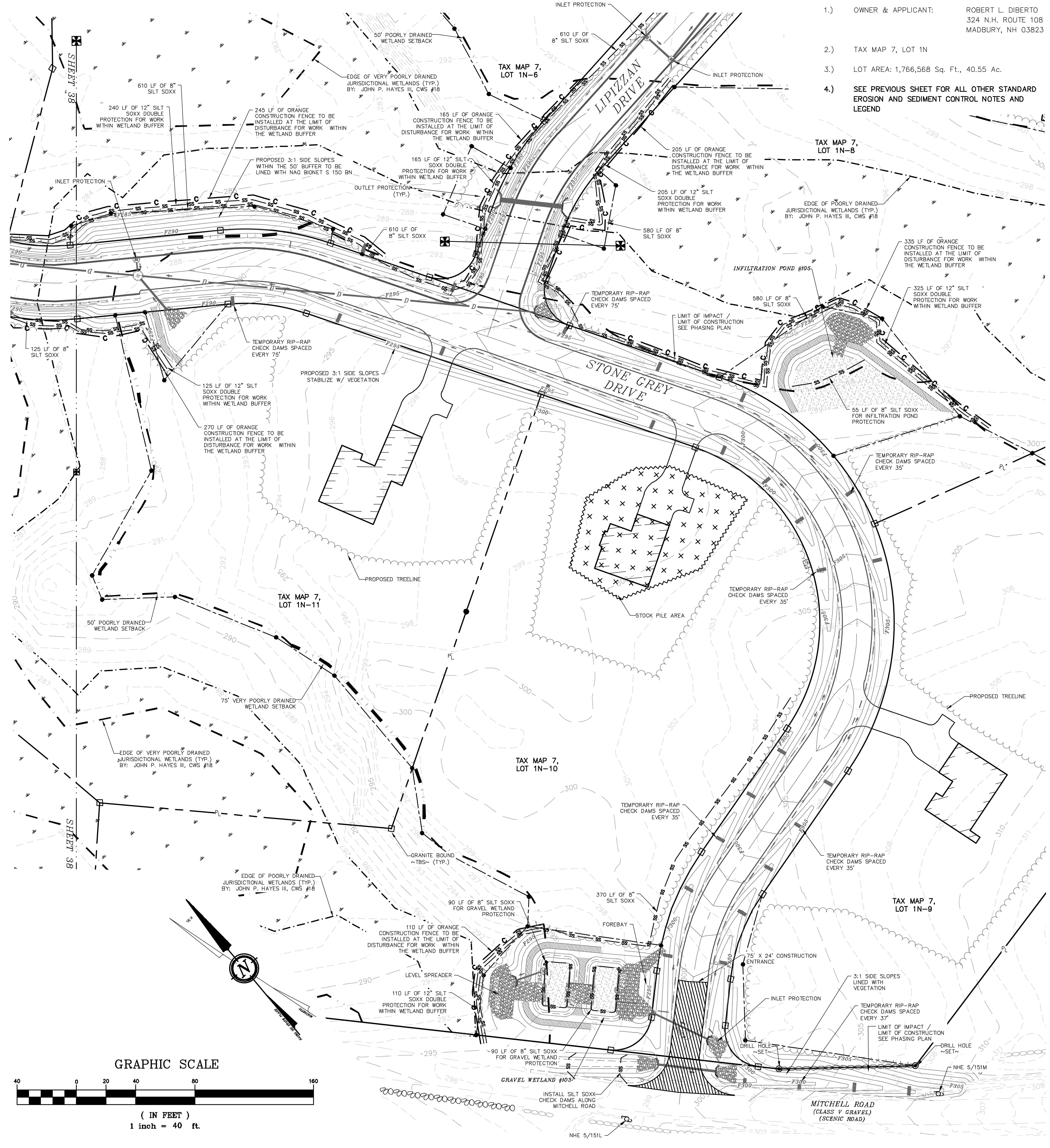
NOTES:

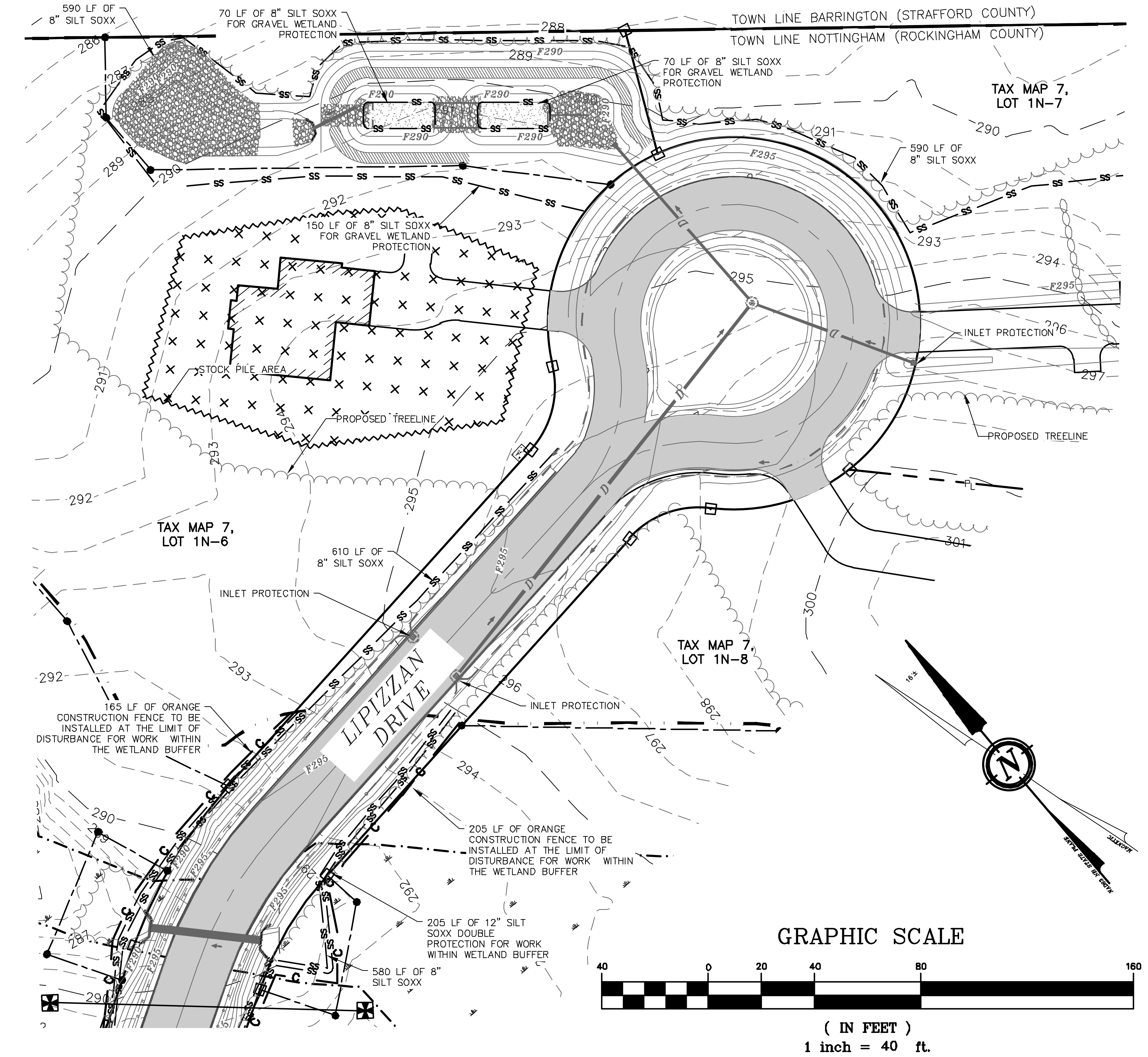
1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

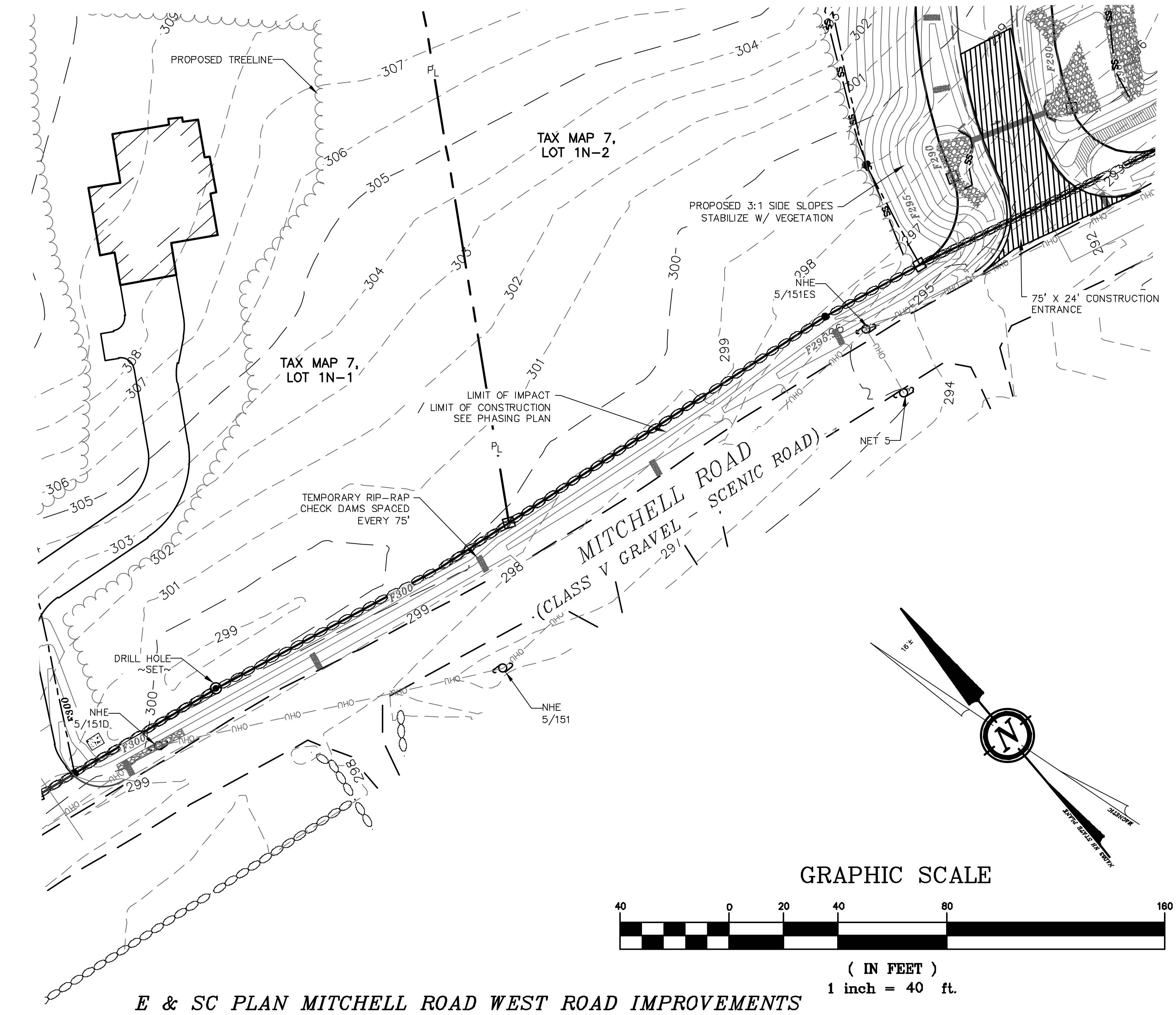
3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) SEE PREVIOUS SHEET FOR ALL OTHER STANDARD EROSION AND SEDIMENT CONTROL NOTES AND LEGEND





E & SC PLAN LIPIZZAN DRIVE



E & SC PLAN MITCHELL ROAD WEST ROAD IMPROVEMENTS

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
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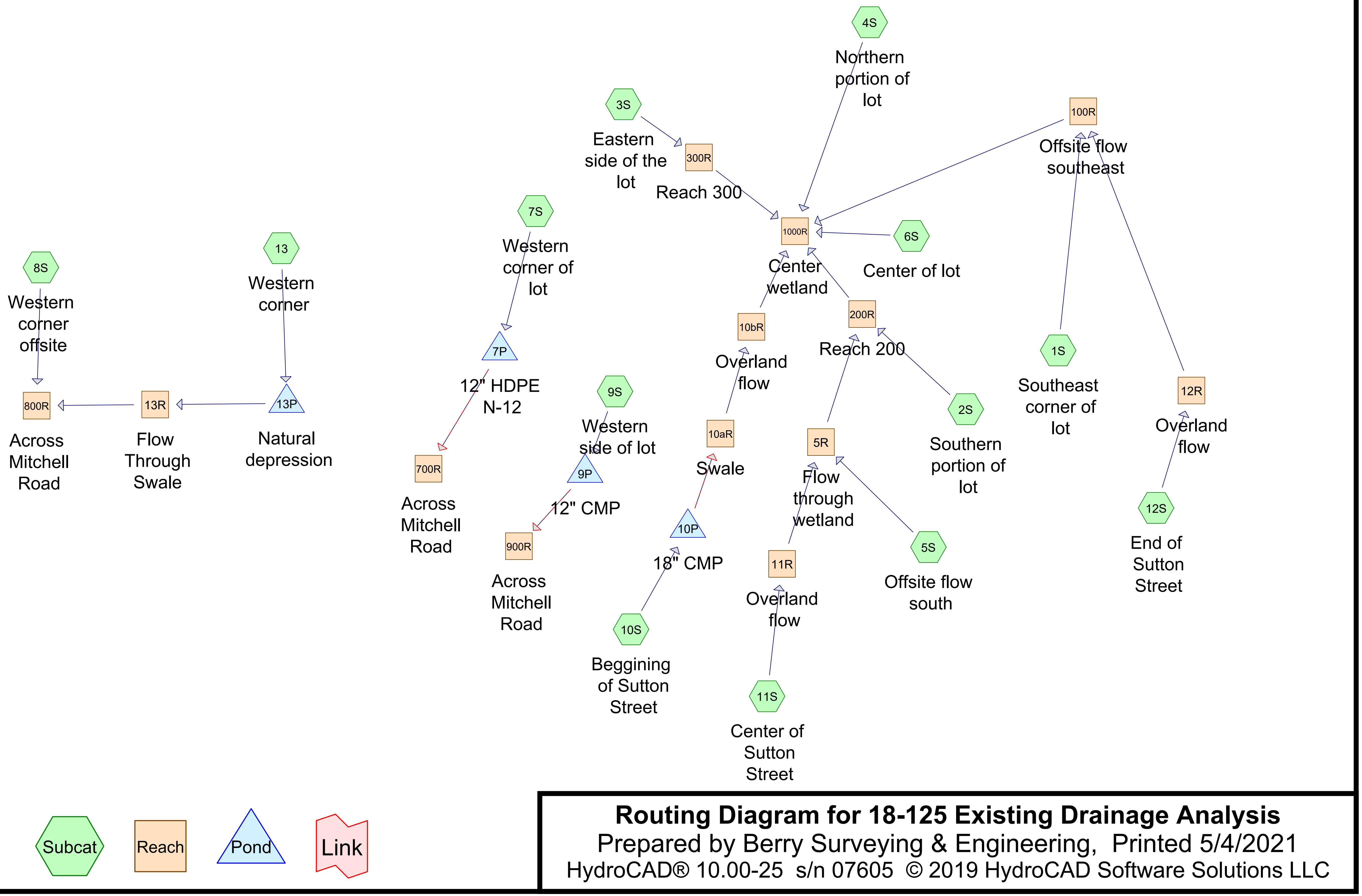
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

EROSION AND SEDIMENT CONTROL PLAN EAST, & MITCHELL RD
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

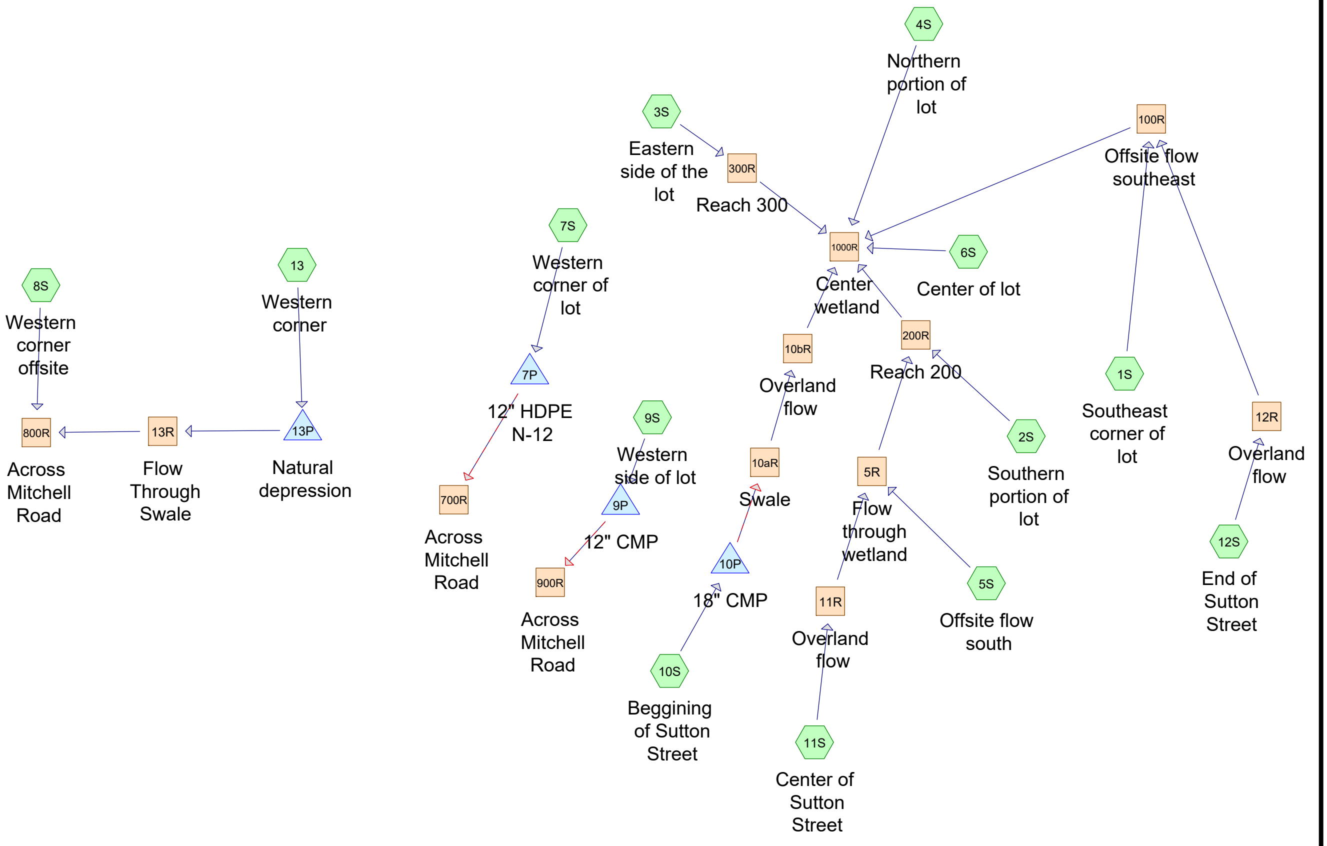
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

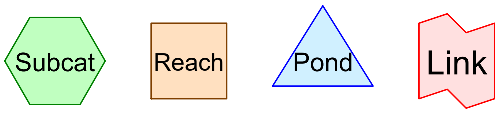
SCALE : 1 IN. EQUALS 40 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY No. 14243



Routing Diagram for 18-125 Existing Drainage Analysis
Prepared by Berry Surveying & Engineering, Printed 5/4/2021
HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC





Routing Diagram for 18-125 Existing Drainage Analysis
Prepared by Berry Surveying & Engineering, Printed 5/4/2021
HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.782	61	>75% Grass cover, Good, HSG B (3S, 4S, 7S, 8S, 10S, 11S)
2.088	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 5S, 11S, 12S)
0.070	80	>75% Grass cover, Good, HSG D (7S)
0.945	98	Unconnected pavement, HSG B (3S, 4S, 7S, 8S, 9S, 10S)
0.597	98	Unconnected pavement, HSG C (1S, 3S, 5S, 10S, 11S, 12S)
0.051	98	Unconnected pavement, HSG D (7S)
0.029	98	Unconnected roofs, HSG B (10S)
0.160	98	Unconnected roofs, HSG C (2S, 3S, 5S, 11S, 12S)
31.712	55	Woods, Good, HSG B (2S, 3S, 4S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13)
23.641	70	Woods, Good, HSG C (1S, 2S, 3S, 4S, 5S, 6S, 11S, 12S)
4.378	77	Woods, Good, HSG D (2S, 3S, 4S, 6S, 7S, 8S, 13)
65.452	**64**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
34.467	HSG B	2S, 3S, 4S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13
26.487	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 10S, 11S, 12S
4.498	HSG D	2S, 3S, 4S, 6S, 7S, 8S, 13
0.000	Other	
65.452		**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
0.000	1.782	2.088	0.070	0.000	3.940	>75% Grass cover, Good	1S, 2S, 3S, 4S, 5S, 7S, 8S, 10S, 11S, 12S
0.000	0.945	0.597	0.051	0.000	1.593	Unconnected pavement	1S, 3S, 4S, 5S, 7S, 8S, 9S, 10S, 11S, 12S
0.000	0.029	0.160	0.000	0.000	0.189	Unconnected roofs	2S, 3S, 5S, 10S, 11S, 12S
0.000	31.712	23.641	4.378	0.000	59.730	Woods, Good	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13
0.000	**34.467**	**26.487**	**4.498**	**0.000**	**65.452**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	7P	288.37	287.52	41.0	0.0207	0.012	12.0	0.0	0.0
2	9P	289.35	287.43	41.2	0.0466	0.018	12.0	0.0	0.0
3	10P	315.93	313.70	71.0	0.0314	0.018	18.0	0.0	0.0

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

Subcatchment1S: Southeast corner of lot  Runoff Area=364,927 sf   1.57% Impervious   Runoff Depth>2.67"
                                      Flow Length=580'   Tc=24.2 min   UI Adjusted CN=70   Runoff=16.22 cfs  1.866 af

Subcatchment2S: Southern portion of lot  Runoff Area=321,729 sf   0.56% Impervious   Runoff Depth>2.31"
                                                 Flow Length=782'   Tc=33.7 min   CN=66   Runoff=10.54 cfs  1.422 af

Subcatchment3S: Eastern side of the lot  Runoff Area=558,932 sf   2.00% Impervious   Runoff Depth>2.06"
                                               Flow Length=1,010'   Tc=25.4 min   CN=63   Runoff=18.16 cfs  2.202 af

Subcatchment4S: Northern portion of lot  Runoff Area=510,097 sf   3.89% Impervious   Runoff Depth>1.80"
                                    Flow Length=1,177'   Tc=38.7 min   UI Adjusted CN=60   Runoff=11.74 cfs  1.761 af

Subcatchment5S: Offsite flow south        Runoff Area=57,986 sf   11.78% Impervious   Runoff Depth>2.96"
                                       Flow Length=234'   Tc=13.6 min   UI Adjusted CN=73   Runoff=3.60 cfs  0.328 af

Subcatchment6S: Center of lot             Runoff Area=153,462 sf   0.00% Impervious   Runoff Depth>2.67"
                                                  Flow Length=444'   Tc=21.9 min   CN=70   Runoff=7.12 cfs  0.785 af

Subcatchment7S: Western corner of lot     Runoff Area=376,623 sf   1.56% Impervious   Runoff Depth>1.72"
                                                Flow Length=1,202'   Tc=41.1 min   CN=59   Runoff=7.95 cfs  1.242 af

Subcatchment8S: Western corner offsite     Runoff Area=56,136 sf   5.44% Impervious   Runoff Depth>2.06"
                                       Flow Length=471'   Tc=17.5 min   UI Adjusted CN=63   Runoff=2.13 cfs  0.222 af

Subcatchment9S: Western side of lot       Runoff Area=10,480 sf   14.92% Impervious   Runoff Depth>1.66"
                                        Flow Length=158'   Tc=9.5 min   UI Adjusted CN=58   Runoff=0.38 cfs  0.033 af

Subcatchment10S: Beggining of Sutton      Runoff Area=49,132 sf   17.32% Impervious   Runoff Depth>1.90"
                                       Flow Length=470'   Tc=20.2 min   UI Adjusted CN=61   Runoff=1.59 cfs  0.178 af

Subcatchment11S: Center of Sutton Street Runoff Area=235,702 sf   3.68% Impervious   Runoff Depth>1.81"
                                       Flow Length=798'   Tc=31.3 min   UI Adjusted CN=60   Runoff=6.01 cfs  0.816 af

Subcatchment12S: End of Sutton Street     Runoff Area=107,877 sf   4.26% Impervious   Runoff Depth>2.22"
                                       Flow Length=841'   Tc=33.9 min   UI Adjusted CN=65   Runoff=3.38 cfs  0.459 af

Subcatchment13: Western corner             Runoff Area=48,023 sf   0.00% Impervious   Runoff Depth>1.73"
                                                  Flow Length=414'   Tc=20.6 min   CN=59   Runoff=1.38 cfs  0.159 af

Reach 5R: Flow through wetland          Avg. Flow Depth=0.38'   Max Vel=1.16 fps   Inflow=7.82 cfs  1.142 af
                                   n=0.080   L=731.0'   S=0.0239 '/'   Capacity=58.42 cfs   Outflow=7.29 cfs  1.131 af

Reach 10aR: Swale                       Avg. Flow Depth=0.19'   Max Vel=3.83 fps   Inflow=1.59 cfs  0.176 af
                                  n=0.022   L=542.0'   S=0.0363 '/'   Capacity=106.07 cfs   Outflow=1.57 cfs  0.176 af

Reach 10bR: Overland flow               Avg. Flow Depth=0.23'   Max Vel=0.58 fps   Inflow=1.57 cfs  0.176 af
                                   n=0.080   L=808.0'   S=0.0124 '/'   Capacity=26.21 cfs   Outflow=1.05 cfs  0.172 af
```

Reach 11R: Overland flow Avg. Flow Depth=0.28' Max Vel=1.50 fps Inflow=6.01 cfs 0.816 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=93.36 cfs Outflow=5.98 cfs 0.814 af

Reach 12R: Overland flow Avg. Flow Depth=0.23' Max Vel=1.18 fps Inflow=3.38 cfs 0.459 af
n=0.080 L=704.0' S=0.0483 '/' Capacity=16.34 cfs Outflow=3.13 cfs 0.455 af

Reach 13R: Flow Through Swale Avg. Flow Depth=0.25' Max Vel=2.22 fps Inflow=1.41 cfs 0.114 af
n=0.024 L=233.0' S=0.0107 '/' Capacity=67.75 cfs Outflow=1.31 cfs 0.114 af

Reach 100R: Offsite flow southeast Inflow=18.20 cfs 2.321 af
Outflow=18.20 cfs 2.321 af

Reach 200R: Reach 200 Inflow=17.73 cfs 2.554 af
Outflow=17.73 cfs 2.554 af

Reach 300R: Reach 300 Inflow=18.16 cfs 2.202 af
Outflow=18.16 cfs 2.202 af

Reach 700R: Across Mitchell Road Inflow=6.71 cfs 1.240 af
Outflow=6.71 cfs 1.240 af

Reach 800R: Across Mitchell Road Inflow=2.92 cfs 0.336 af
Outflow=2.92 cfs 0.336 af

Reach 900R: Across Mitchell Road Inflow=0.36 cfs 0.033 af
Outflow=0.36 cfs 0.033 af

Reach 1000R: Center wetland Inflow=70.03 cfs 9.795 af
Outflow=70.03 cfs 9.795 af

Pond 7P: 12" HDPE N-12 Peak Elev=290.75' Storage=5,457 cf Inflow=7.95 cfs 1.242 af
Primary=5.19 cfs 1.220 af Secondary=1.52 cfs 0.020 af Outflow=6.71 cfs 1.240 af

Pond 9P: 12" CMP Peak Elev=289.68' Storage=71 cf Inflow=0.38 cfs 0.033 af
Primary=0.36 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af

Pond 10P: 18" CMP Peak Elev=316.50' Storage=139 cf Inflow=1.59 cfs 0.178 af
Primary=1.59 cfs 0.176 af Secondary=0.00 cfs 0.000 af Outflow=1.59 cfs 0.176 af

Pond 13P: Natural depression Peak Elev=300.05' Storage=1,360 cf Inflow=1.38 cfs 0.159 af
Discarded=0.02 cfs 0.017 af Primary=1.41 cfs 0.114 af Outflow=1.42 cfs 0.131 af

Total Runoff Area = 65.452 ac Runoff Volume = 11.474 af Average Runoff Depth = 2.10"
97.28% Pervious = 63.670 ac 2.72% Impervious = 1.783 ac

Summary for Subcatchment 1S: Southeast corner of lot

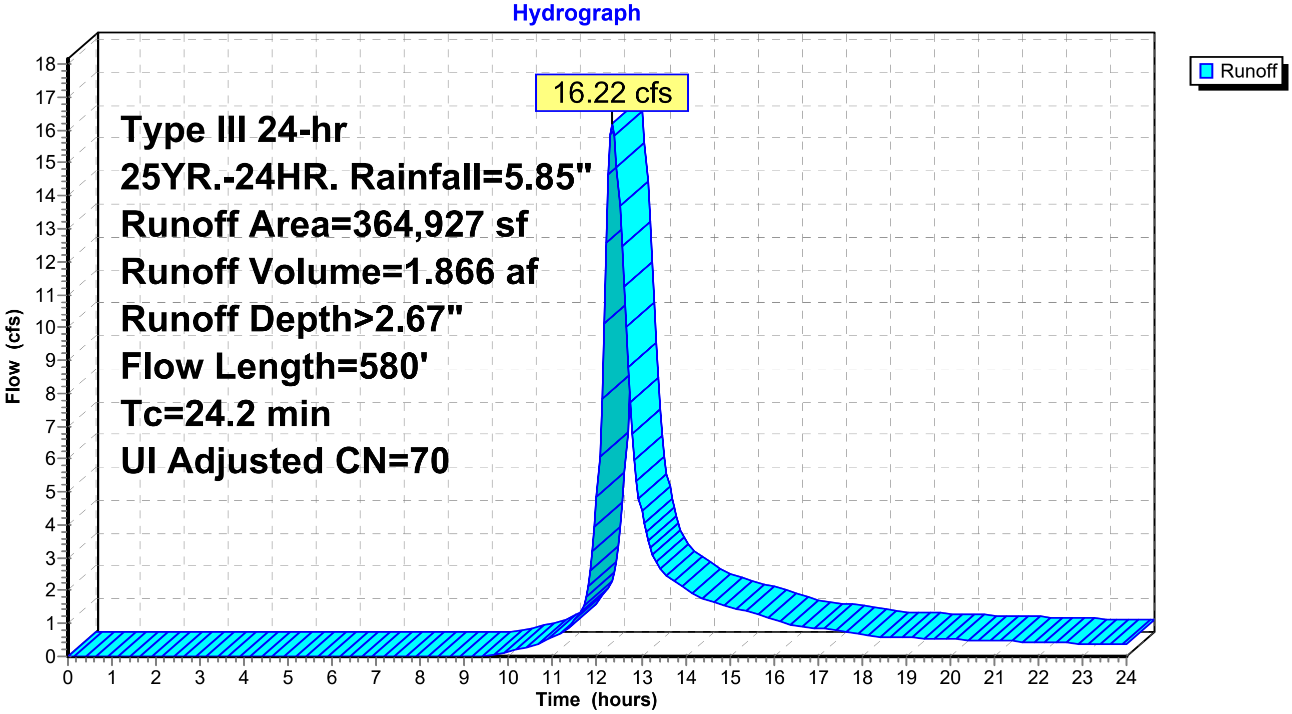
Runoff = 16.22 cfs @ 12.35 hrs, Volume= 1.866 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,532	98		Unconnected pavement, HSG C
4,201	98		Unconnected pavement, HSG C
22,426	74		>75% Grass cover, Good, HSG C
336,768	70		Woods, Good, HSG C
364,927	71	70	Weighted Average, UI Adjusted
359,194			98.43% Pervious Area
5,733			1.57% Impervious Area
5,733			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0350	0.09		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
6.6	480	0.0580	1.20		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
24.2	580	Total			

Subcatchment 1S: Southeast corner of lot



Summary for Subcatchment 2S: Southern portion of lot

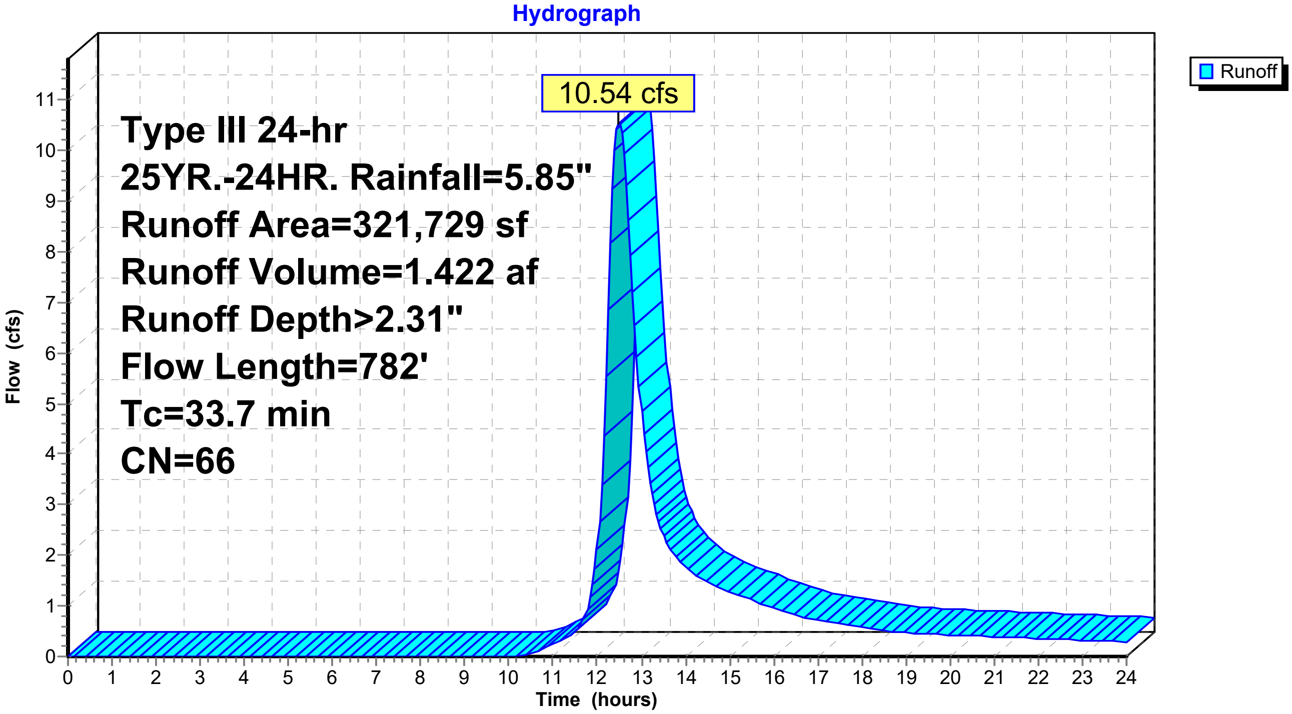
Runoff = 10.54 cfs @ 12.49 hrs, Volume= 1.422 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
95,733	55	Woods, Good, HSG B
1,813	98	Unconnected roofs, HSG C
12,154	74	>75% Grass cover, Good, HSG C
210,137	70	Woods, Good, HSG C
1,892	77	Woods, Good, HSG D
321,729	66	Weighted Average
319,916		99.44% Pervious Area
1,813		0.56% Impervious Area
1,813		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.1	100	0.0250	0.08		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
13.6	682	0.0280	0.84		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
33.7	782	Total			

Subcatchment 2S: Southern portion of lot



Summary for Subcatchment 3S: Eastern side of the lot

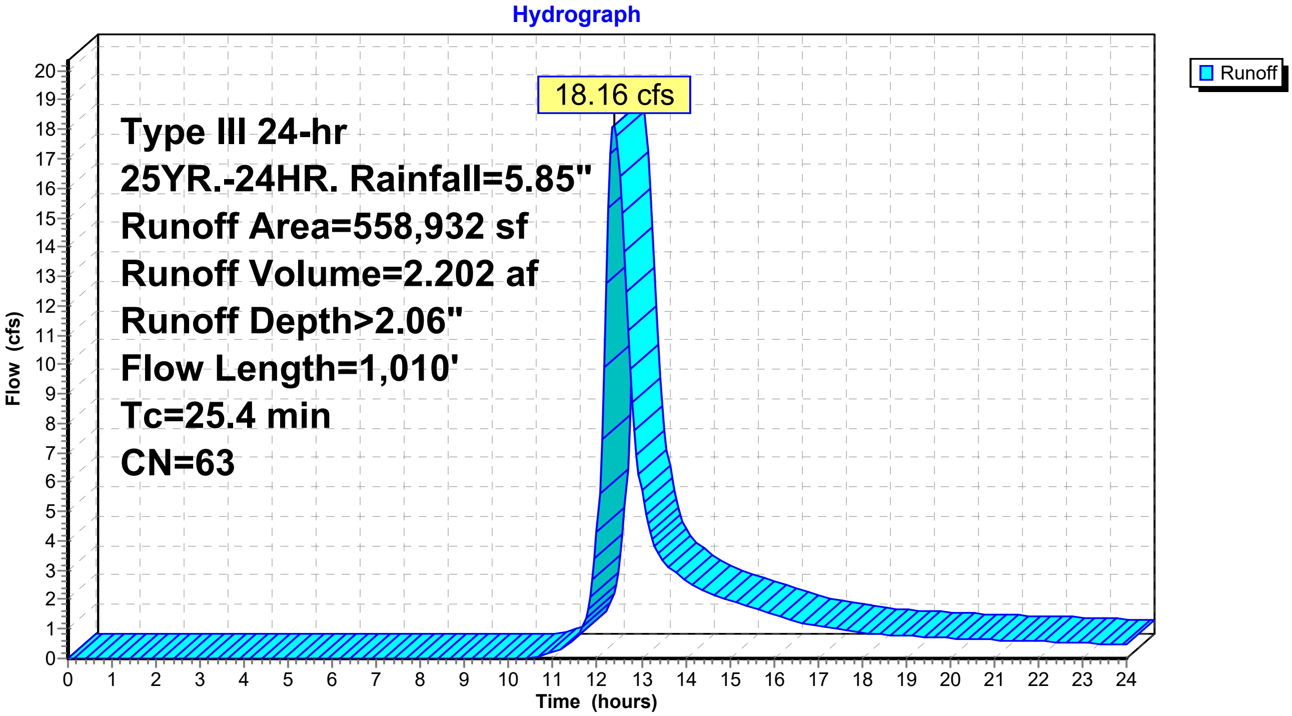
Runoff = 18.16 cfs @ 12.38 hrs, Volume= 2.202 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
6,091	98	Unconnected pavement, HSG B
6,410	61	>75% Grass cover, Good, HSG B
305,957	55	Woods, Good, HSG B
1,490	98	Unconnected roofs, HSG C
3,601	98	Unconnected pavement, HSG C
16,085	74	>75% Grass cover, Good, HSG C
158,123	70	Woods, Good, HSG C
61,175	77	Woods, Good, HSG D
558,932	63	Weighted Average
547,750		98.00% Pervious Area
11,182		2.00% Impervious Area
11,182		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0400	0.22		**Sheet Flow, Sheet flow** Grass: Short n= 0.150 P2= 3.06"
3.5	232	0.0250	1.11		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
14.3	678	0.0250	0.79		**Shallow Concentrated Flow, Segment 3** Woodland Kv= 5.0 fps
25.4	1,010	Total			

Subcatchment 3S: Eastern side of the lot



Summary for Subcatchment 4S: Northern portion of lot

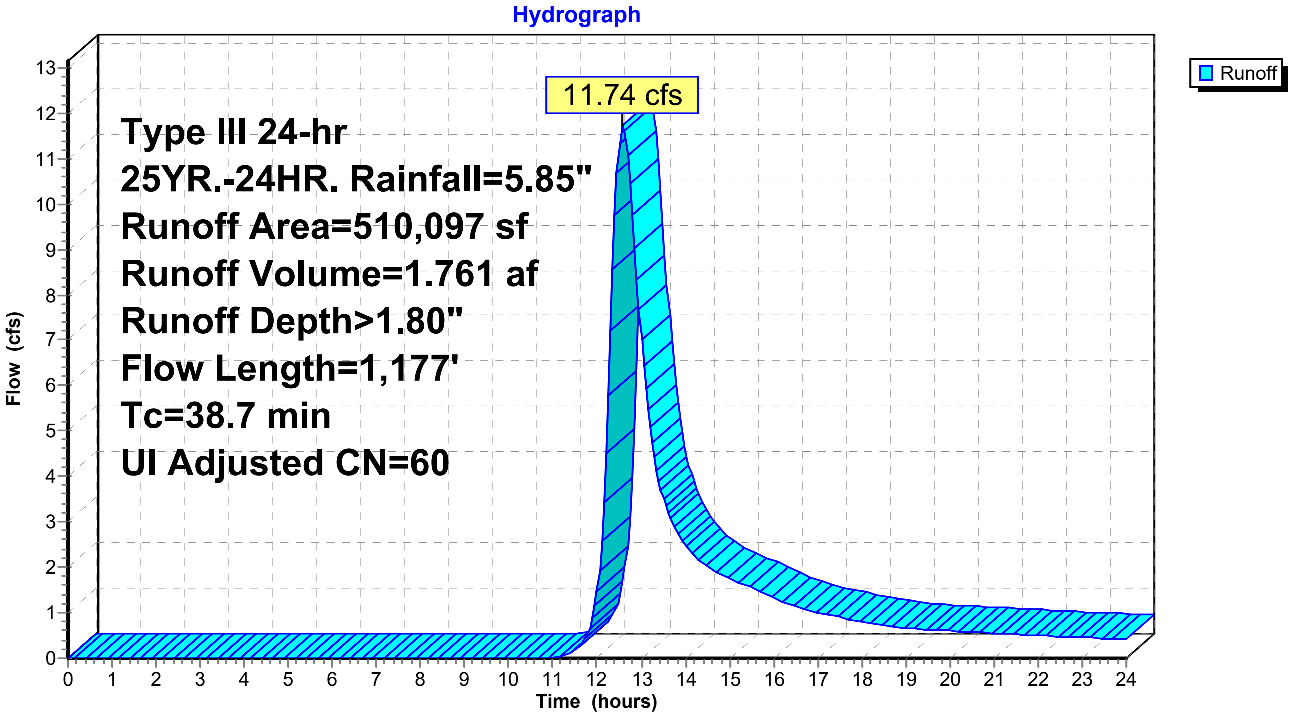
Runoff = 11.74 cfs @ 12.59 hrs, Volume= 1.761 af, Depth> 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
19,825	98		Unconnected pavement, HSG B
32,328	61		>75% Grass cover, Good, HSG B
362,224	55		Woods, Good, HSG B
48,278	70		Woods, Good, HSG C
47,442	77		Woods, Good, HSG D
510,097	61	60	Weighted Average, UI Adjusted
490,272			96.11% Pervious Area
19,825			3.89% Impervious Area
19,825			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0350	0.09		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
4.2	197	0.0250	0.79		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
8.0	415	0.0300	0.87		**Shallow Concentrated Flow, Segment 3** Woodland Kv= 5.0 fps
4.6	225	0.0270	0.82		**Shallow Concentrated Flow, Segment 4** Woodland Kv= 5.0 fps
4.3	240	0.0350	0.94		**Shallow Concentrated Flow, Segment 5** Woodland Kv= 5.0 fps
38.7	1,177	Total			

Subcatchment 4S: Northern portion of lot



Summary for Subcatchment 5S: Offsite flow south

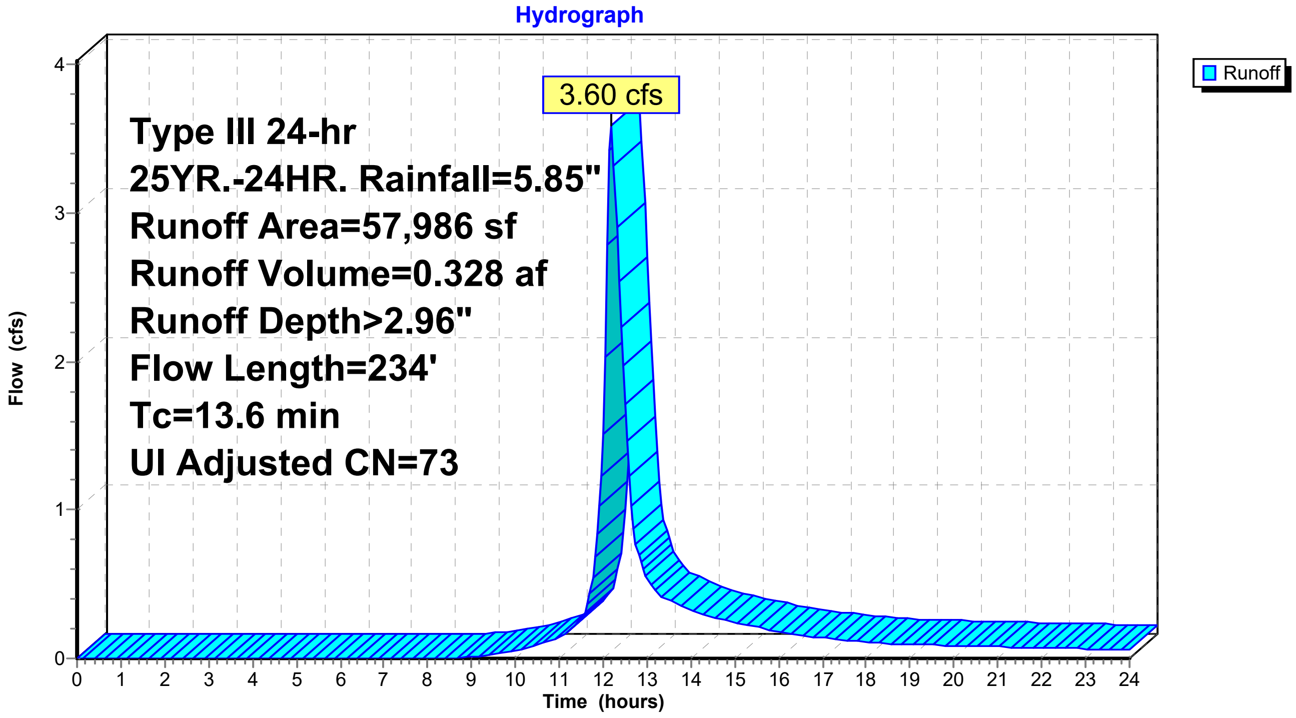
Runoff = 3.60 cfs @ 12.19 hrs, Volume= 0.328 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
643	98		Unconnected roofs, HSG C
6,189	98		Unconnected pavement, HSG C
13,925	74		>75% Grass cover, Good, HSG C
37,229	70		Woods, Good, HSG C
57,986	74	73	Weighted Average, UI Adjusted
51,154			88.22% Pervious Area
6,832			11.78% Impervious Area
6,832			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0900	0.14		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
1.6	134	0.0740	1.36		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
13.6	234	Total			

Subcatchment 5S: Offsite flow south



Summary for Subcatchment 6S: Center of lot

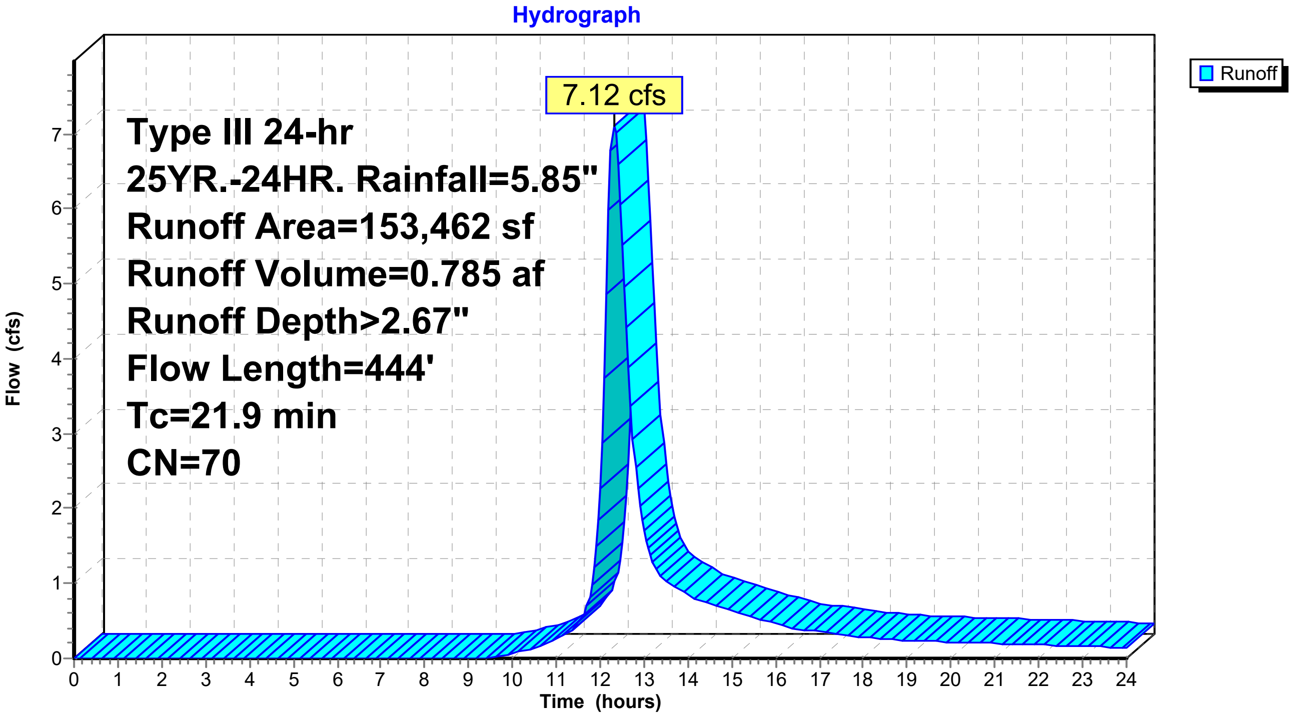
Runoff = 7.12 cfs @ 12.31 hrs, Volume= 0.785 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,978	55	Woods, Good, HSG B
145,273	70	Woods, Good, HSG C
3,211	77	Woods, Good, HSG D
153,462	70	Weighted Average
153,462		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0400	0.10		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
5.3	344	0.0460	1.07		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
21.9	444	Total			

Subcatchment 6S: Center of lot



Summary for Subcatchment 7S: Western corner of lot

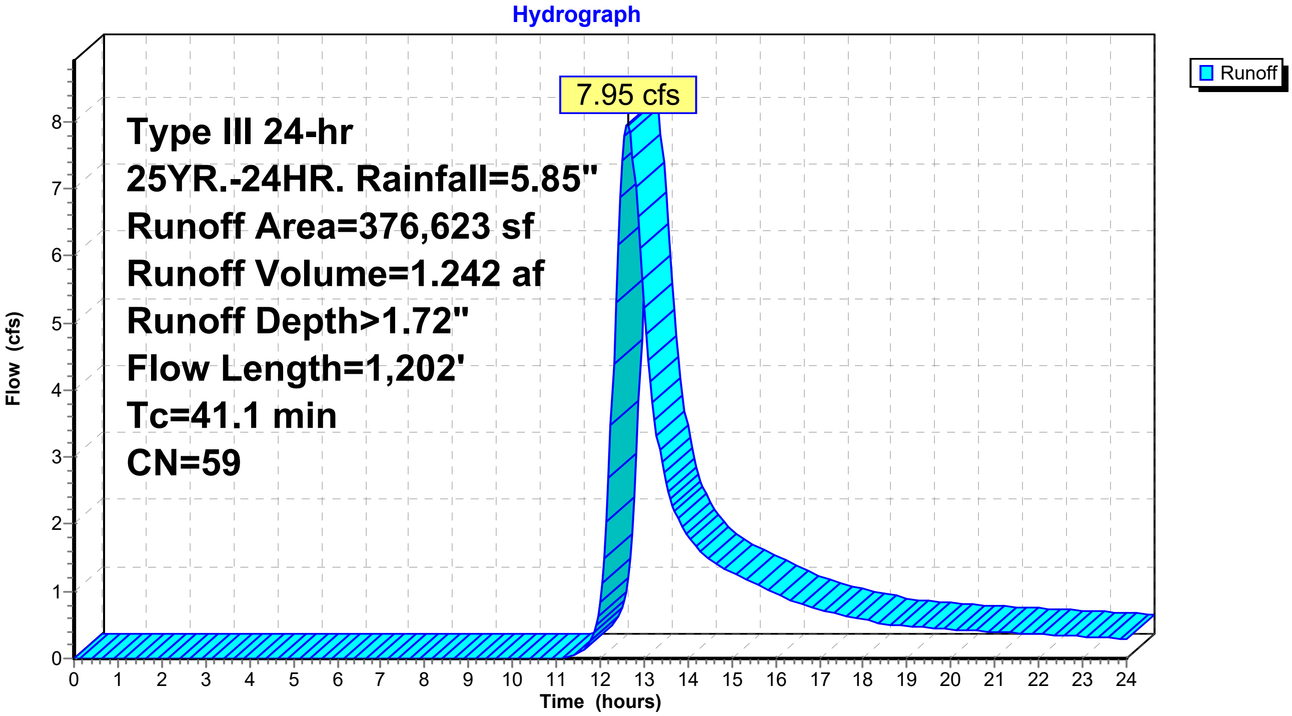
Runoff = 7.95 cfs @ 12.62 hrs, Volume= 1.242 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
3,660	98	Unconnected pavement, HSG B
6,289	61	>75% Grass cover, Good, HSG B
307,209	55	Woods, Good, HSG B
2,214	98	Unconnected pavement, HSG D
3,035	80	>75% Grass cover, Good, HSG D
54,216	77	Woods, Good, HSG D
376,623	59	Weighted Average
370,749		98.44% Pervious Area
5,874		1.56% Impervious Area
5,874		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0500	0.11		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
2.2	162	0.0600	1.22		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
5.7	178	0.0110	0.52		**Shallow Concentrated Flow, Segment 3** Woodland Kv= 5.0 fps
18.0	762	0.0200	0.71		**Shallow Concentrated Flow, Segment 4** Woodland Kv= 5.0 fps
41.1	1,202	Total			

Subcatchment 7S: Western corner of lot



Summary for Subcatchment 8S: Western corner offsite

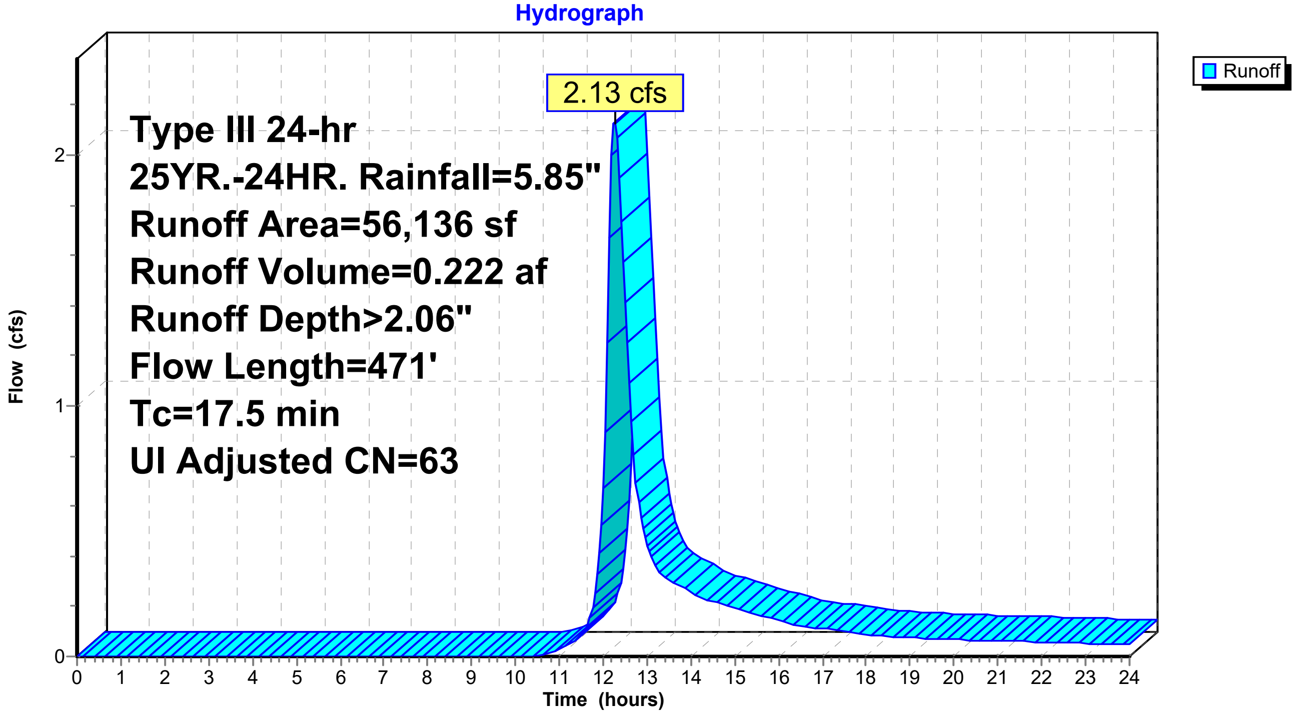
Runoff = 2.13 cfs @ 12.26 hrs, Volume= 0.222 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
3,052	98		Unconnected pavement, HSG B
6,706	61		>75% Grass cover, Good, HSG B
31,353	55		Woods, Good, HSG B
15,025	77		Woods, Good, HSG D
56,136	64	63	Weighted Average, UI Adjusted
53,084			94.56% Pervious Area
3,052			5.44% Impervious Area
3,052			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0800	0.13		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
3.2	212	0.0500	1.12		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
1.7	159	0.0500	1.57		**Shallow Concentrated Flow, Segment 3** Short Grass Pasture Kv= 7.0 fps
17.5	471	Total			

Subcatchment 8S: Western corner offsite



Summary for Subcatchment 9S: Western side of lot

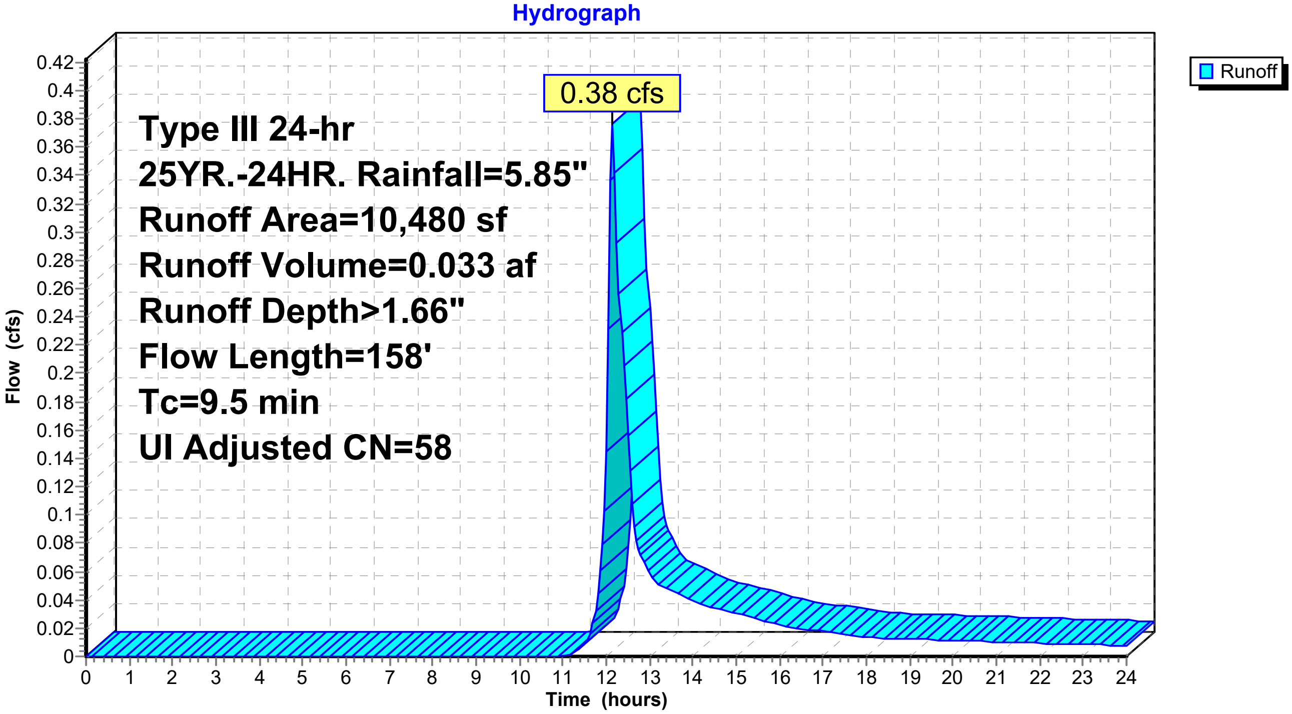
Runoff = 0.38 cfs @ 12.15 hrs, Volume= 0.033 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,564	98		Unconnected pavement, HSG B
8,916	55		Woods, Good, HSG B
10,480	61	58	Weighted Average, UI Adjusted
8,916			85.08% Pervious Area
1,564			14.92% Impervious Area
1,564			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0300	0.20		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
1.0	58	0.0340	0.92		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
9.5	158	Total			

Subcatchment 9S: Western side of lot



Summary for Subcatchment 10S: Beggining of Sutton Street

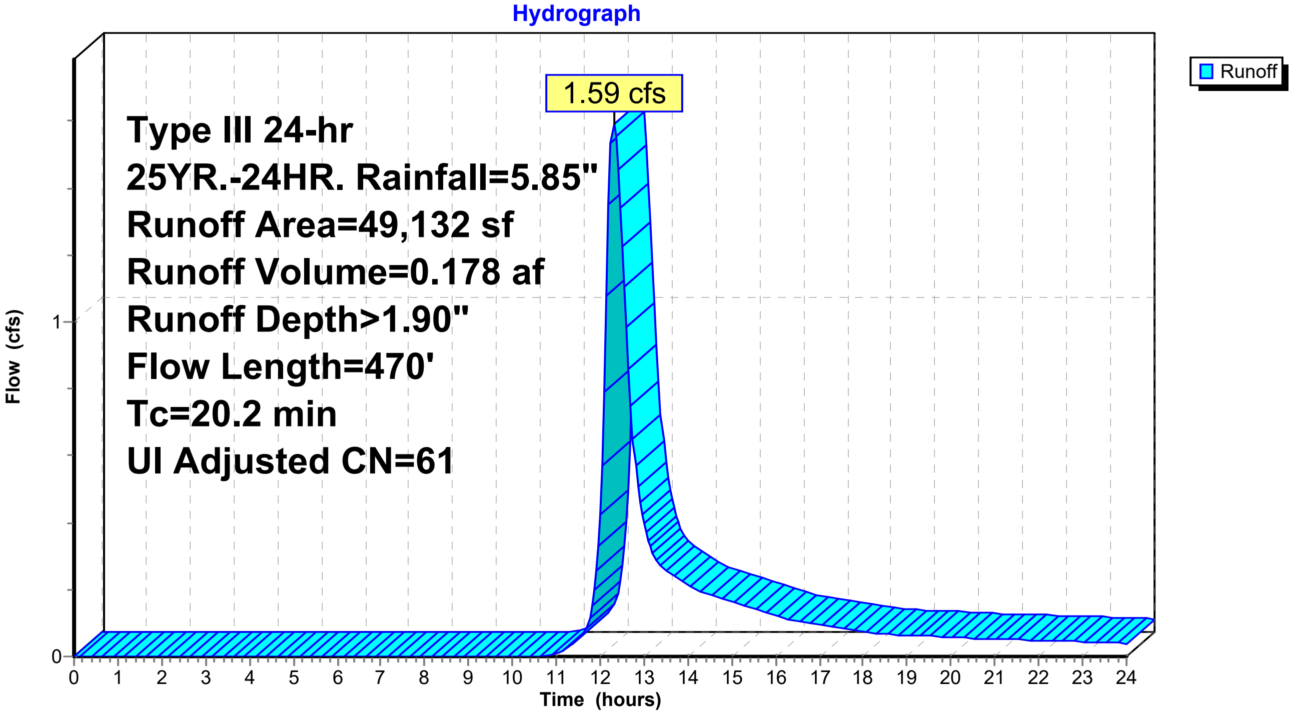
Runoff = 1.59 cfs @ 12.31 hrs, Volume= 0.178 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,270	98		Unconnected roofs, HSG B
6,968	98		Unconnected pavement, HSG B
16,627	61		>75% Grass cover, Good, HSG B
23,994	55		Woods, Good, HSG B
273	98		Unconnected pavement, HSG C
49,132	64	61	Weighted Average, UI Adjusted
40,621			82.68% Pervious Area
8,511			17.32% Impervious Area
8,511			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0500	0.11		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
5.0	370	0.0600	1.22		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
20.2	470	Total			

Subcatchment 10S: Beggining of Sutton Street



Summary for Subcatchment 11S: Center of Sutton Street

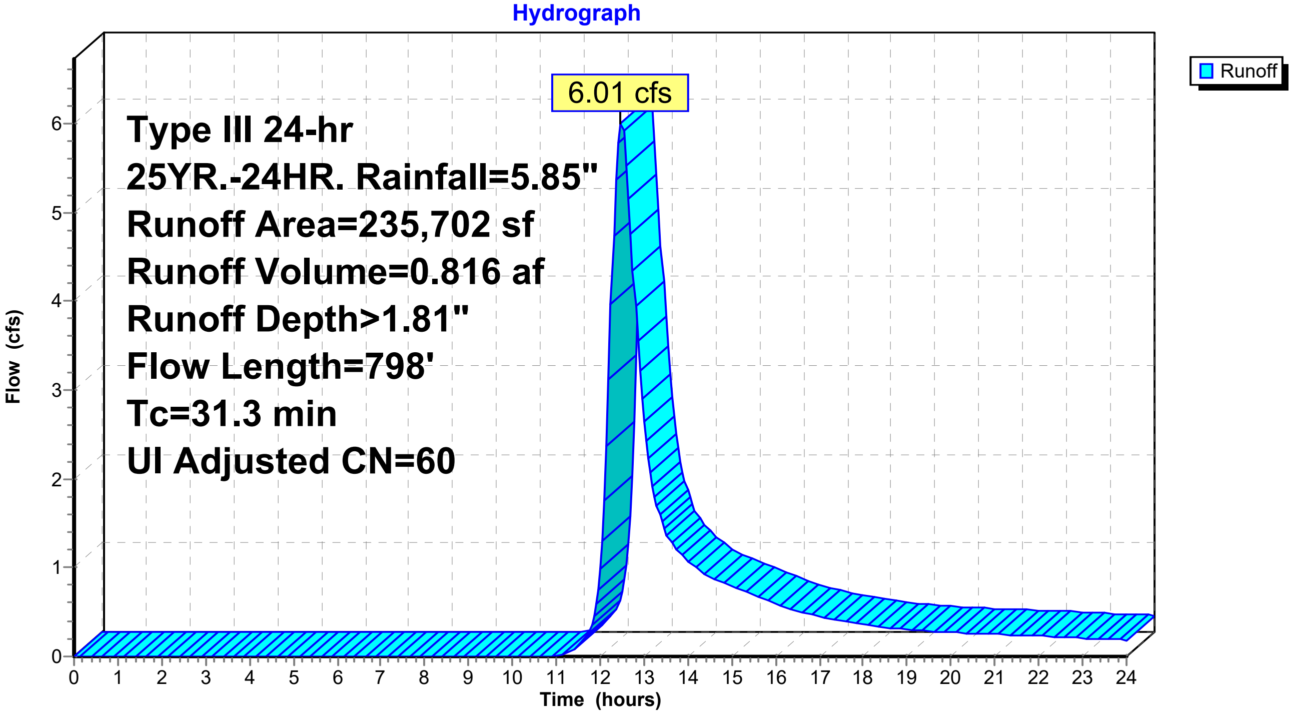
Runoff = 6.01 cfs @ 12.48 hrs, Volume= 0.816 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
9,244	61		>75% Grass cover, Good, HSG B
155,601	55		Woods, Good, HSG B
1,641	98		Unconnected roofs, HSG C
7,028	98		Unconnected pavement, HSG C
8,513	74		>75% Grass cover, Good, HSG C
53,675	70		Woods, Good, HSG C
235,702	61	60	Weighted Average, UI Adjusted
227,033			96.32% Pervious Area
8,669			3.68% Impervious Area
8,669			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0300	0.09		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
12.6	698	0.0340	0.92		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
31.3	798	Total			

Subcatchment 11S: Center of Sutton Street



Summary for Subcatchment 12S: End of Sutton Street

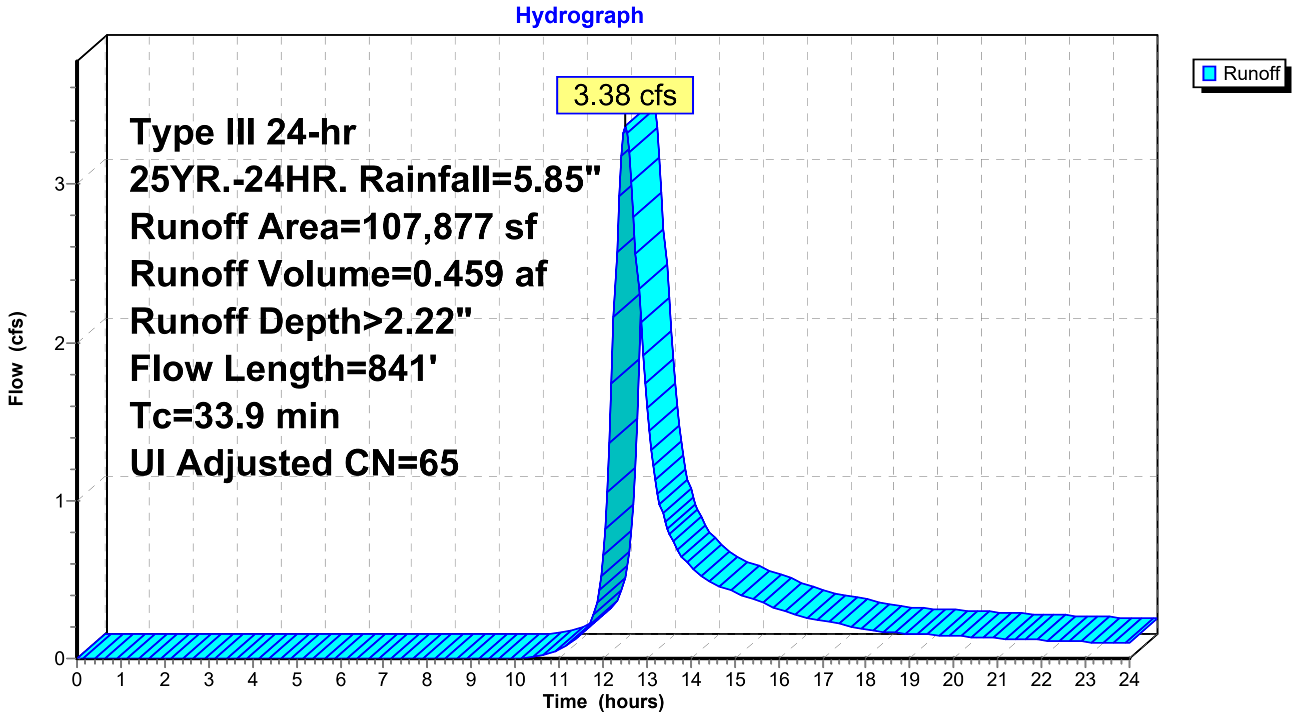
Runoff = 3.38 cfs @ 12.50 hrs, Volume= 0.459 af, Depth> 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
45,109	55		Woods, Good, HSG B
1,397	98		Unconnected roofs, HSG C
3,195	98		Unconnected pavement, HSG C
17,865	74		>75% Grass cover, Good, HSG C
40,311	70		Woods, Good, HSG C
107,877	66	65	Weighted Average, UI Adjusted
103,285			95.74% Pervious Area
4,592			4.26% Impervious Area
4,592			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.1	100	0.0250	0.08		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
13.8	741	0.0320	0.89		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
33.9	841	Total			

Subcatchment 12S: End of Sutton Street



Summary for Subcatchment 13: Western corner

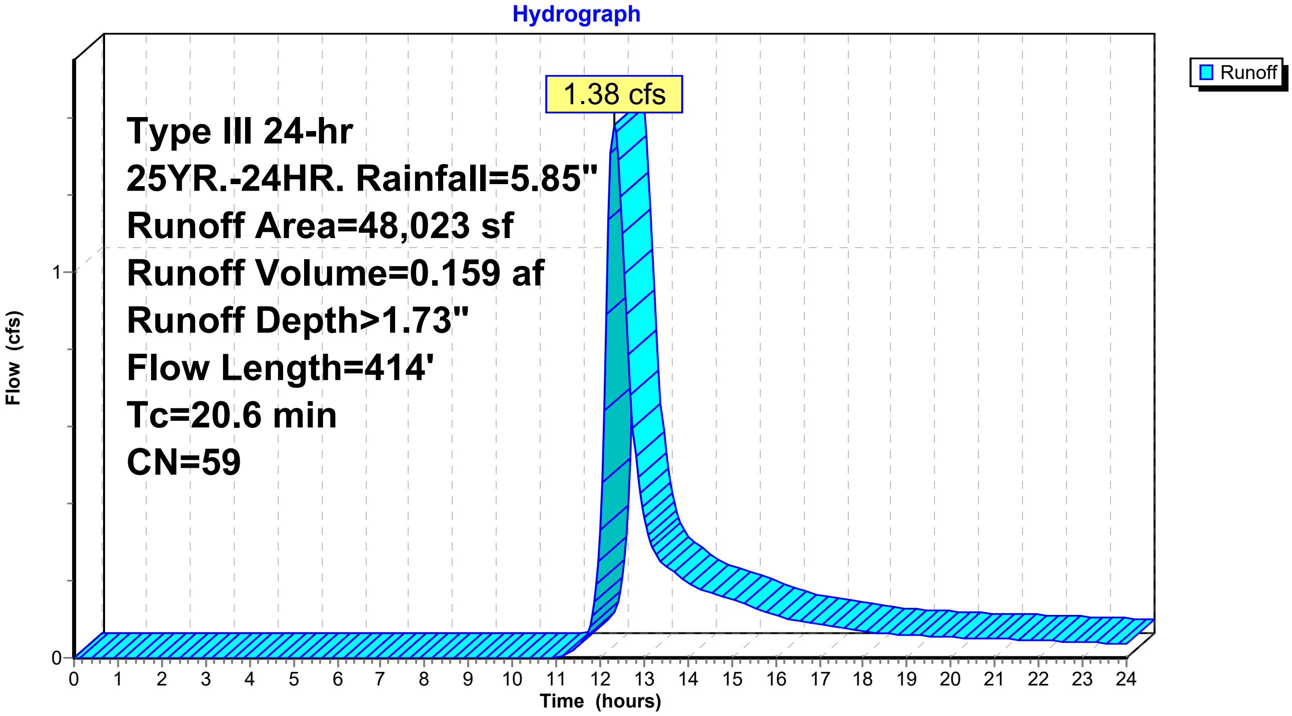
Runoff = 1.38 cfs @ 12.32 hrs, Volume= 0.159 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
40,282	55	Woods, Good, HSG B
7,741	77	Woods, Good, HSG D
48,023	59	Weighted Average
48,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	100	0.0450	0.10		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
4.7	314	0.0500	1.12		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
20.6	414	Total			

Subcatchment 13: Western corner



Summary for Reach 5R: Flow through wetland

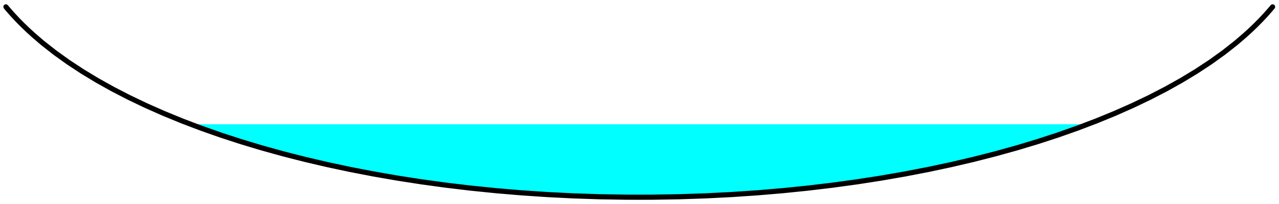
[62] Hint: Exceeded Reach 11R OUTLET depth by 0.11' @ 12.75 hrs

```
Inflow Area =       6.742 ac,   5.28% Impervious,  Inflow Depth >   2.03"    for  25YR.-24HR. event
Inflow       =      7.82 cfs @   12.44 hrs,  Volume=           1.142 af
Outflow      =      7.29 cfs @   12.56 hrs,  Volume=           1.131 af,  Atten= 7%,  Lag= 7.2 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.16 fps, Min. Travel Time= 10.5 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 24.0 min

Peak Storage= 4,612 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 58.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 731.0' Slope= 0.0239 '/'
Inlet Invert= 300.00', Outlet Invert= 282.50'



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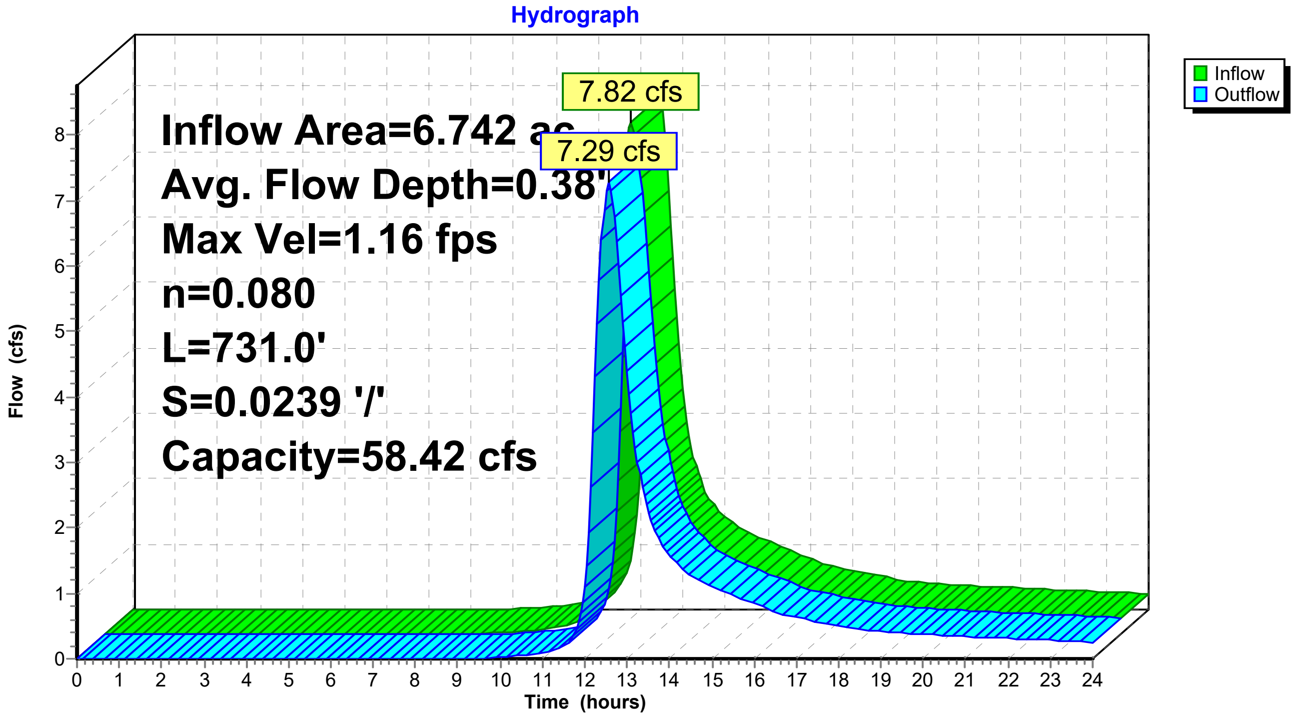
Reach 5R: Flow through wetland



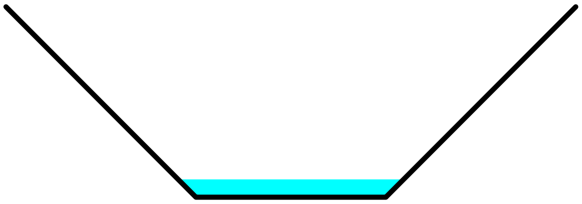
Summary for Reach 10aR: Swale

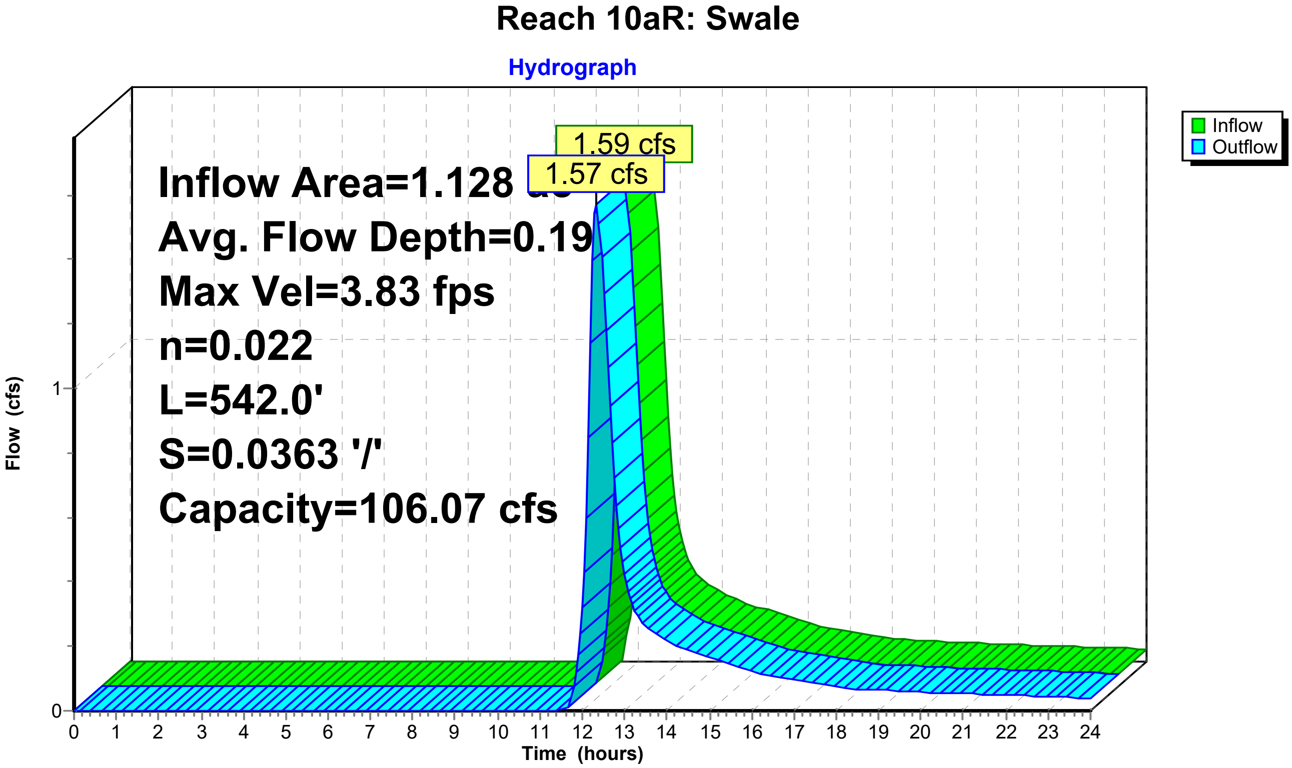
Inflow Area = 1.128 ac, 17.32% Impervious, Inflow Depth > 1.88" for 25YR.-24HR. event
Inflow = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af
Outflow = 1.57 cfs @ 12.34 hrs, Volume= 0.176 af, Atten= 1%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.83 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 1.49 fps, Avg. Travel Time= 6.1 min

Peak Storage= 223 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 2.00' Flow Area= 8.0 sf, Capacity= 106.07 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 6.00'
Length= 542.0' Slope= 0.0363 '/'
Inlet Invert= 313.70', Outlet Invert= 294.00'





Summary for Reach 10bR: Overland flow

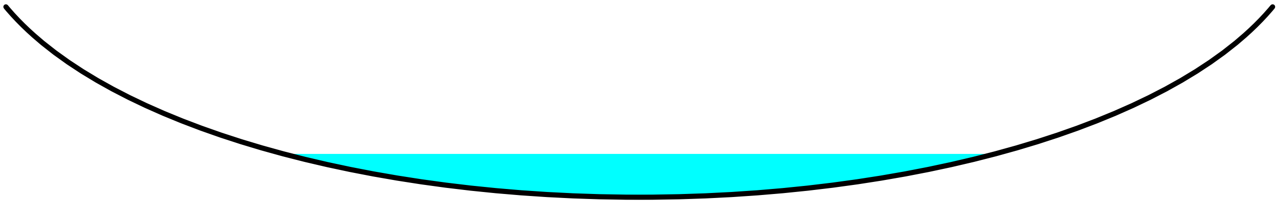
[62] Hint: Exceeded Reach 10aR OUTLET depth by 0.11' @ 12.90 hrs

Inflow Area =	1.128 ac,	17.32% Impervious,	Inflow Depth > 1.87"	for 25YR.-24HR. event	
Inflow =	1.57 cfs @	12.34 hrs,	Volume=	0.176 af	
Outflow =	1.05 cfs @	12.61 hrs,	Volume=	0.172 af,	Atten= 34%, Lag= 16.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.58 fps, Min. Travel Time= 23.0 min
Avg. Velocity = 0.30 fps, Avg. Travel Time= 45.1 min

Peak Storage= 1,446 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 16.7 sf, Capacity= 26.21 cfs

25.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 808.0' Slope= 0.0124 '/'
Inlet Invert= 294.00', Outlet Invert= 284.00'



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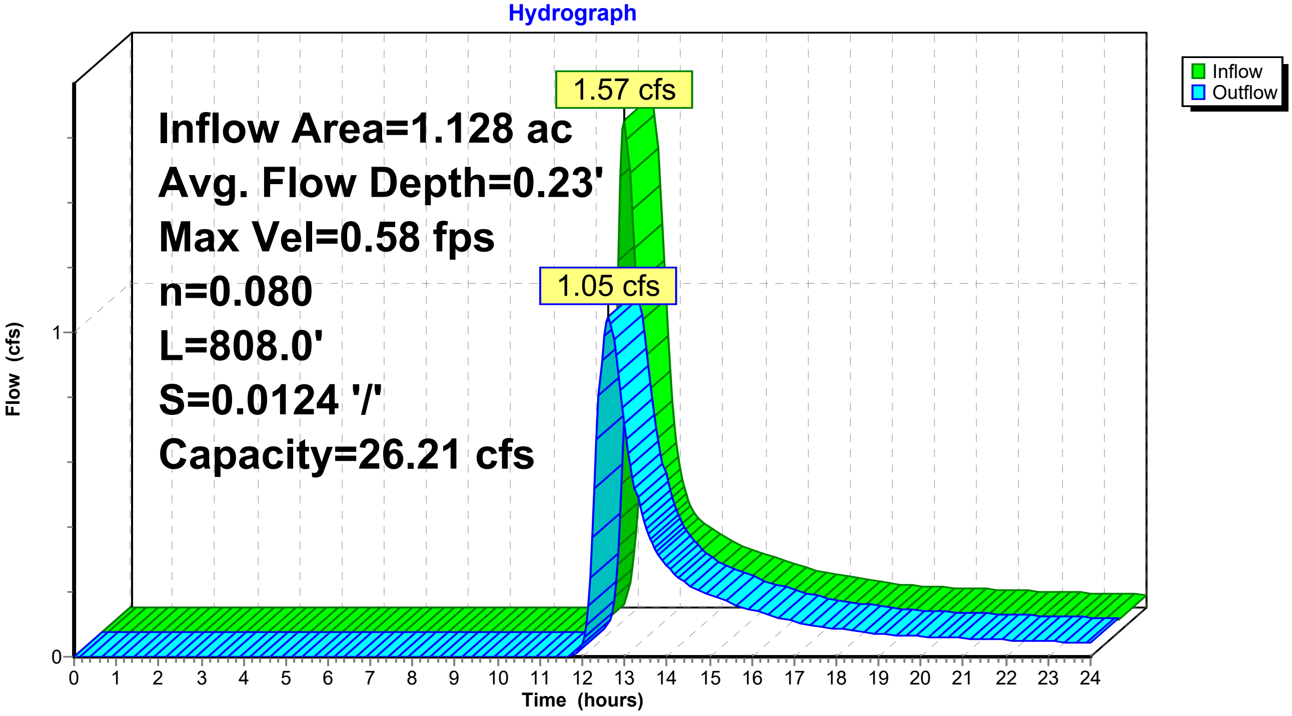
Reach 10bR: Overland flow



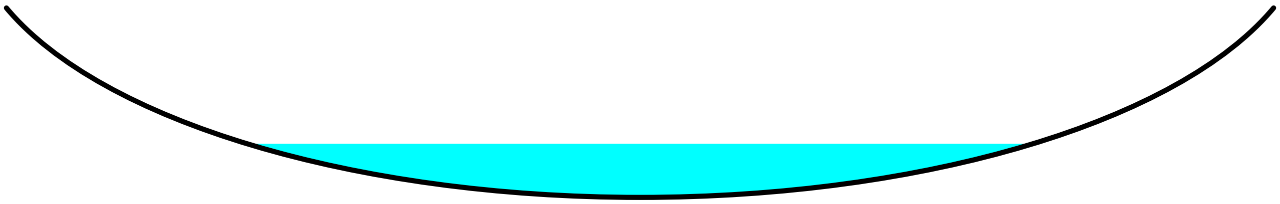
Summary for Reach 11R: Overland flow

Inflow Area = 5.411 ac, 3.68% Impervious, Inflow Depth > 1.81" for 25YR.-24HR. event
Inflow = 6.01 cfs @ 12.48 hrs, Volume= 0.816 af
Outflow = 5.98 cfs @ 12.51 hrs, Volume= 0.814 af, Atten= 1%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.50 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 5.5 min

Peak Storage= 910 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 93.36 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 229.0' Slope= 0.0611 '/'
Inlet Invert= 314.00', Outlet Invert= 300.00'



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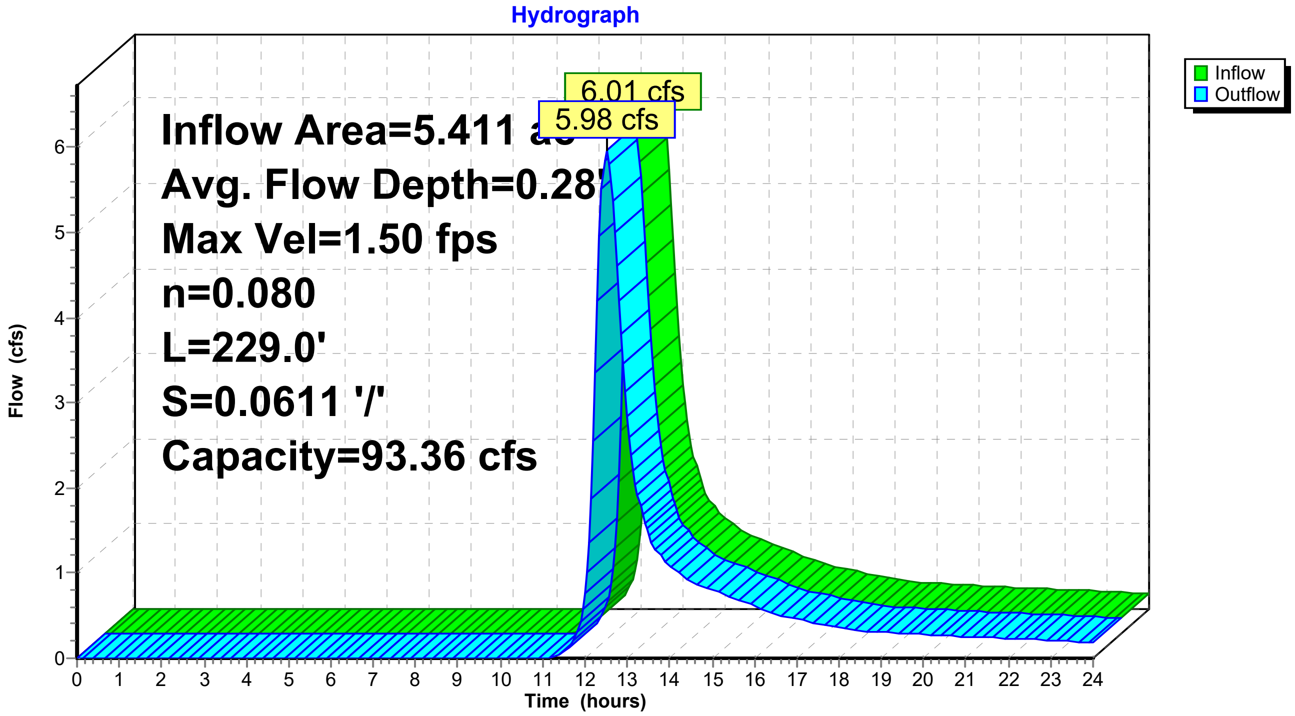
Reach 11R: Overland flow



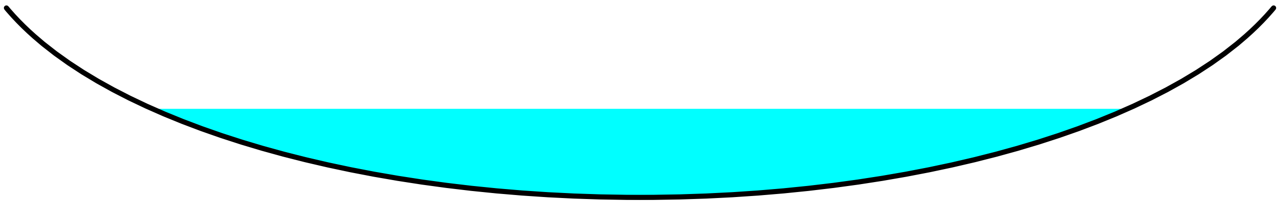
Summary for Reach 12R: Overland flow

Inflow Area = 2.477 ac, 4.26% Impervious, Inflow Depth > 2.22" for 25YR.-24HR. event
Inflow = 3.38 cfs @ 12.50 hrs, Volume= 0.459 af
Outflow = 3.13 cfs @ 12.62 hrs, Volume= 0.455 af, Atten= 7%, Lag= 7.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.18 fps, Min. Travel Time= 10.0 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 21.9 min

Peak Storage= 1,867 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 16.34 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 704.0' Slope= 0.0483 '/'
Inlet Invert= 313.50', Outlet Invert= 279.50'



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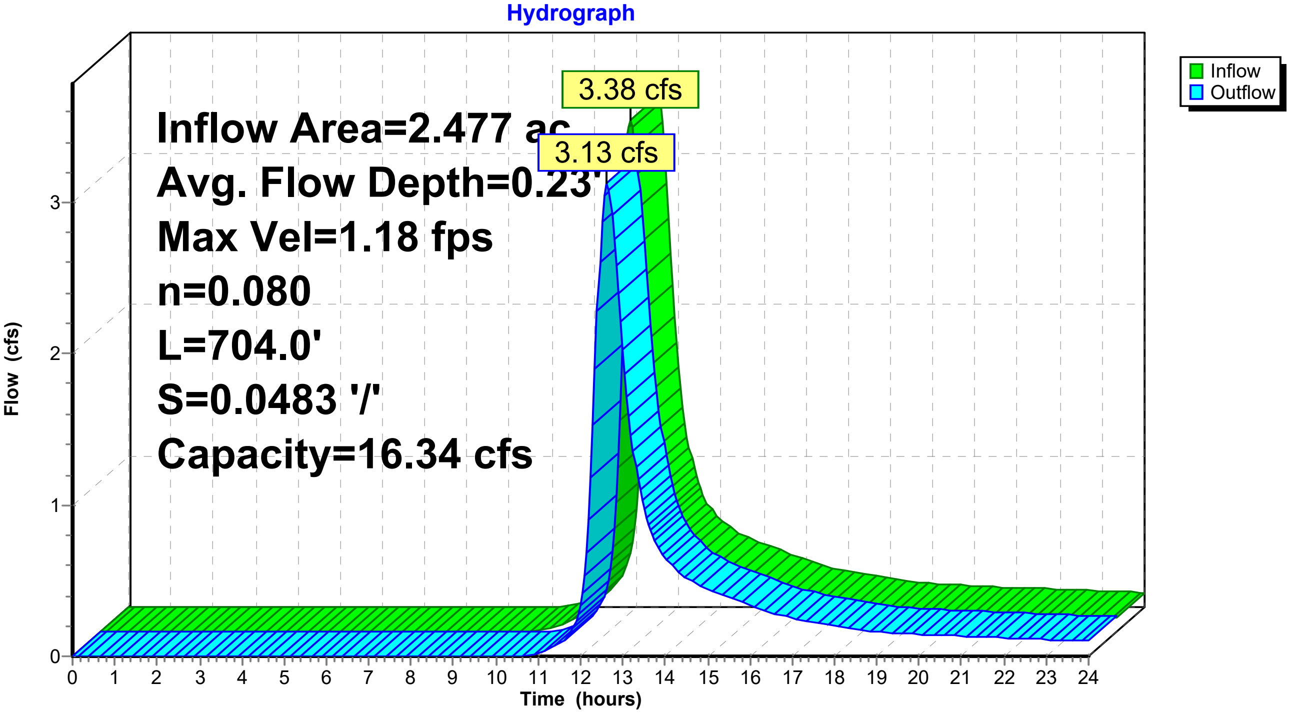


Reach 12R: Overland flow

Summary for Reach 13R: Flow Through Swale

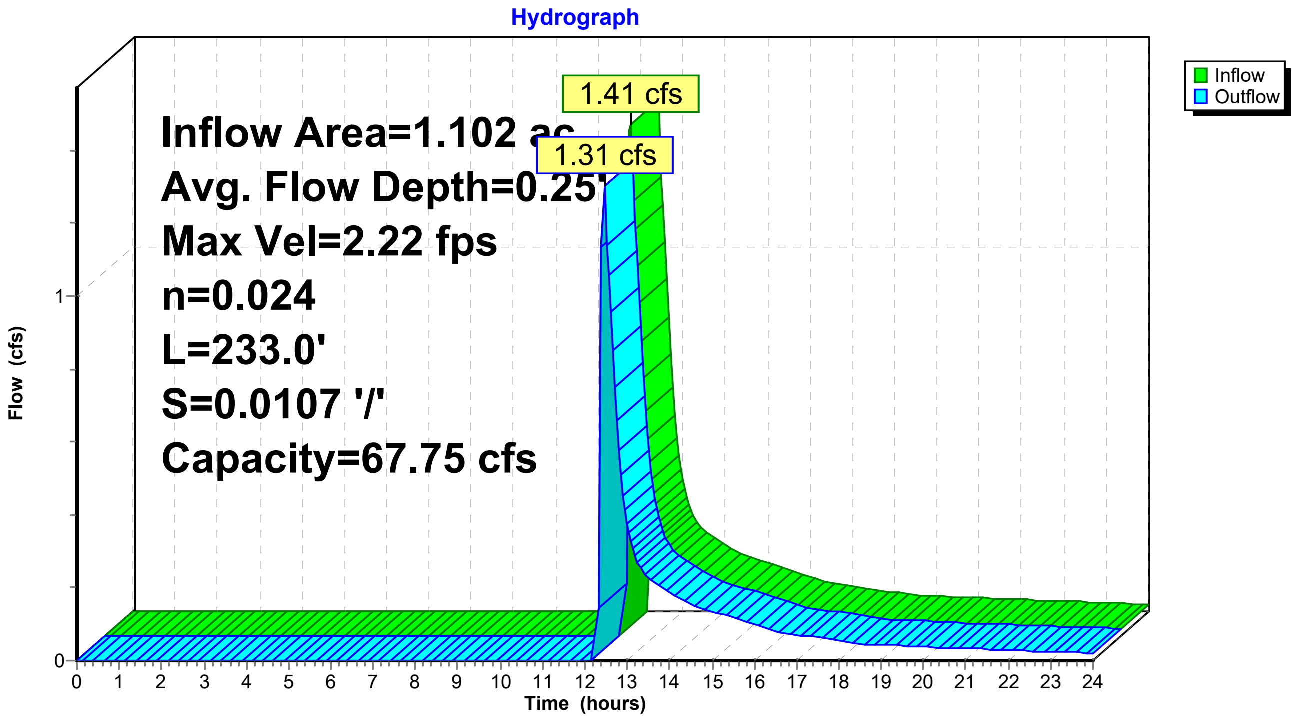
Inflow Area =	1.102 ac,	0.00% Impervious, Inflow Depth >	1.24"	for 25YR.-24HR. event
Inflow =	1.41 cfs @	12.41 hrs, Volume=	0.114 af	
Outflow =	1.31 cfs @	12.45 hrs, Volume=	0.114 af, Atten= 7%, Lag= 2.3 min	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.22 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.82 fps, Avg. Travel Time= 4.7 min

Peak Storage= 137 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 67.75 cfs

2.00' x 2.00' deep channel, n= 0.024
Side Slope Z-value= 1.5 '/' Top Width= 8.00'
Length= 233.0' Slope= 0.0107 '/'
Inlet Invert= 297.50', Outlet Invert= 295.00'

Reach 13R: Flow Through Swale



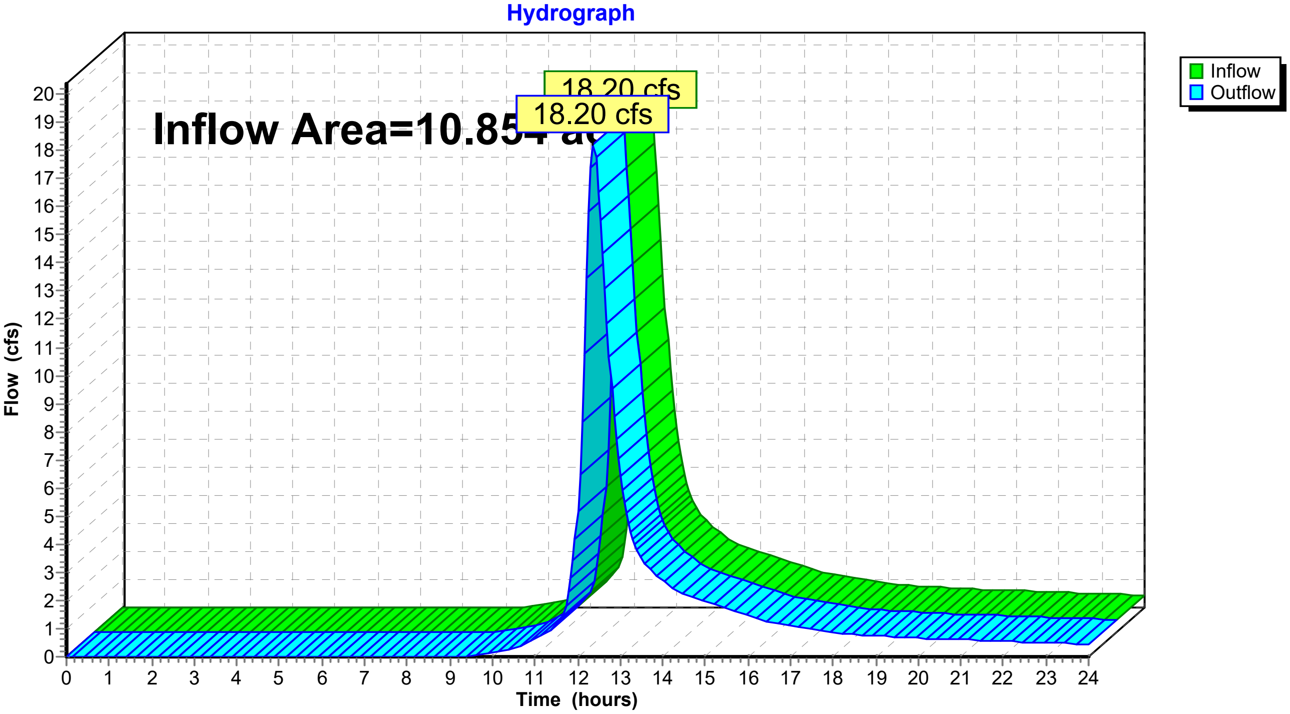
Summary for Reach 100R: Offsite flow southeast

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =       10.854 ac,    2.18% Impervious,  Inflow Depth >   2.57"    for  25YR.-24HR. event
Inflow      =      18.20 cfs @   12.37 hrs,  Volume=            2.321 af
Outflow     =      18.20 cfs @   12.37 hrs,  Volume=            2.321 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Offsite flow southeast



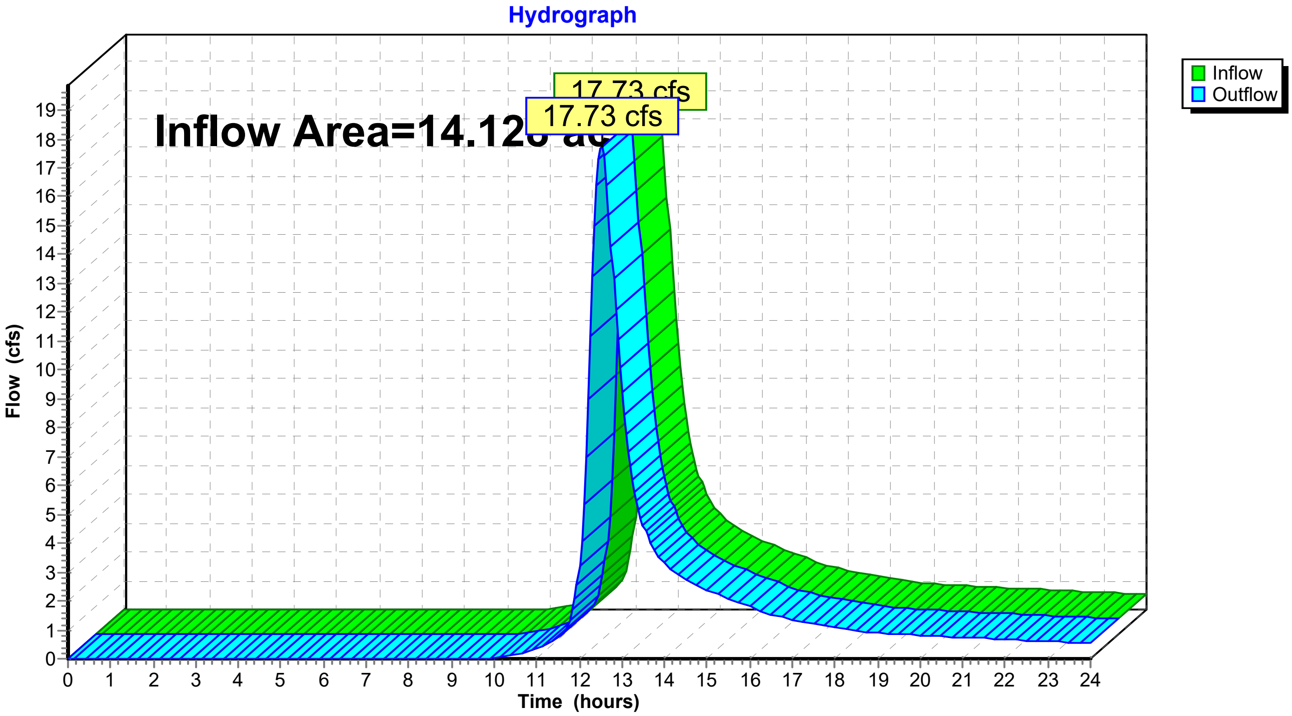
Summary for Reach 200R: Reach 200

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =       14.128 ac,   2.81% Impervious,  Inflow Depth >   2.17"    for  25YR.-24HR. event
Inflow      =       17.73 cfs @   12.52 hrs,  Volume=          2.554 af
Outflow     =       17.73 cfs @   12.52 hrs,  Volume=          2.554 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Reach 200



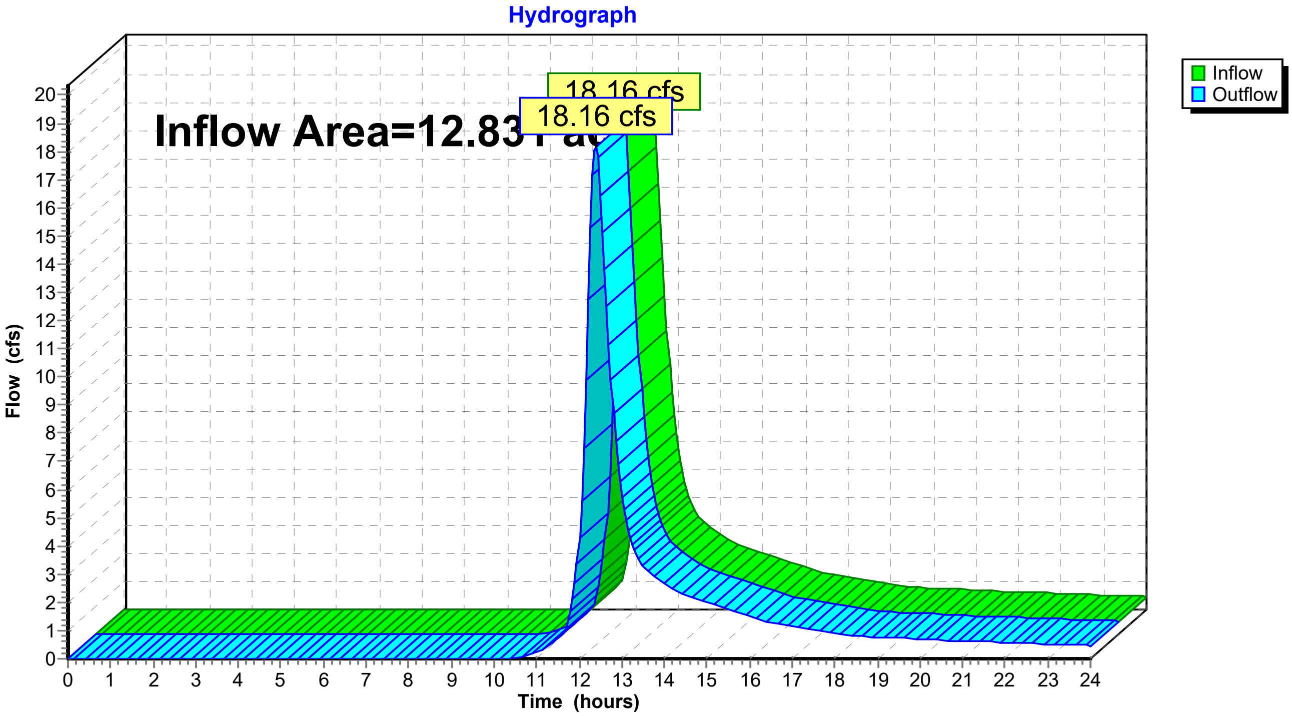
Summary for Reach 300R: Reach 300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.831 ac, 2.00% Impervious, Inflow Depth > 2.06" for 25YR.-24HR. event
Inflow = 18.16 cfs @ 12.38 hrs, Volume= 2.202 af
Outflow = 18.16 cfs @ 12.38 hrs, Volume= 2.202 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 300R: Reach 300



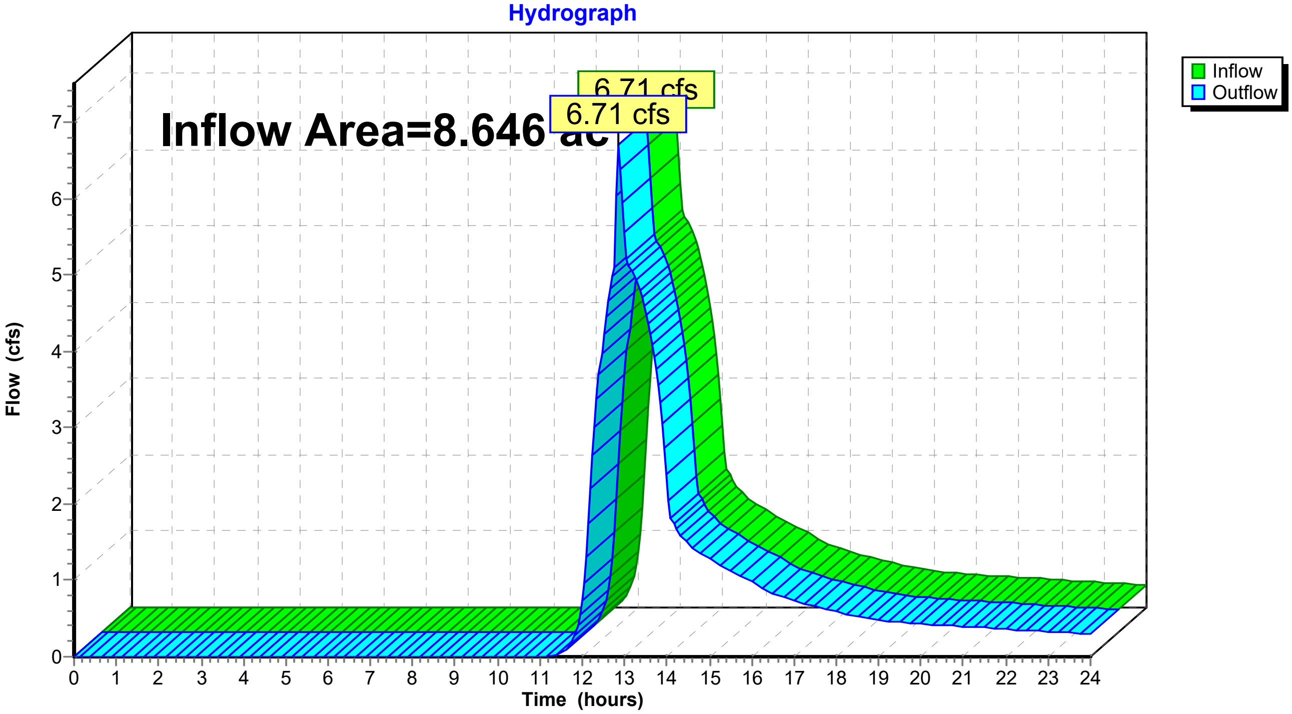
Summary for Reach 700R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	8.646 ac,	1.56% Impervious, Inflow Depth > 1.72"	for 25YR.-24HR. event	
Inflow =	6.71 cfs @	12.86 hrs, Volume=	1.240 af	
Outflow =	6.71 cfs @	12.86 hrs, Volume=	1.240 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 700R: Across Mitchell Road



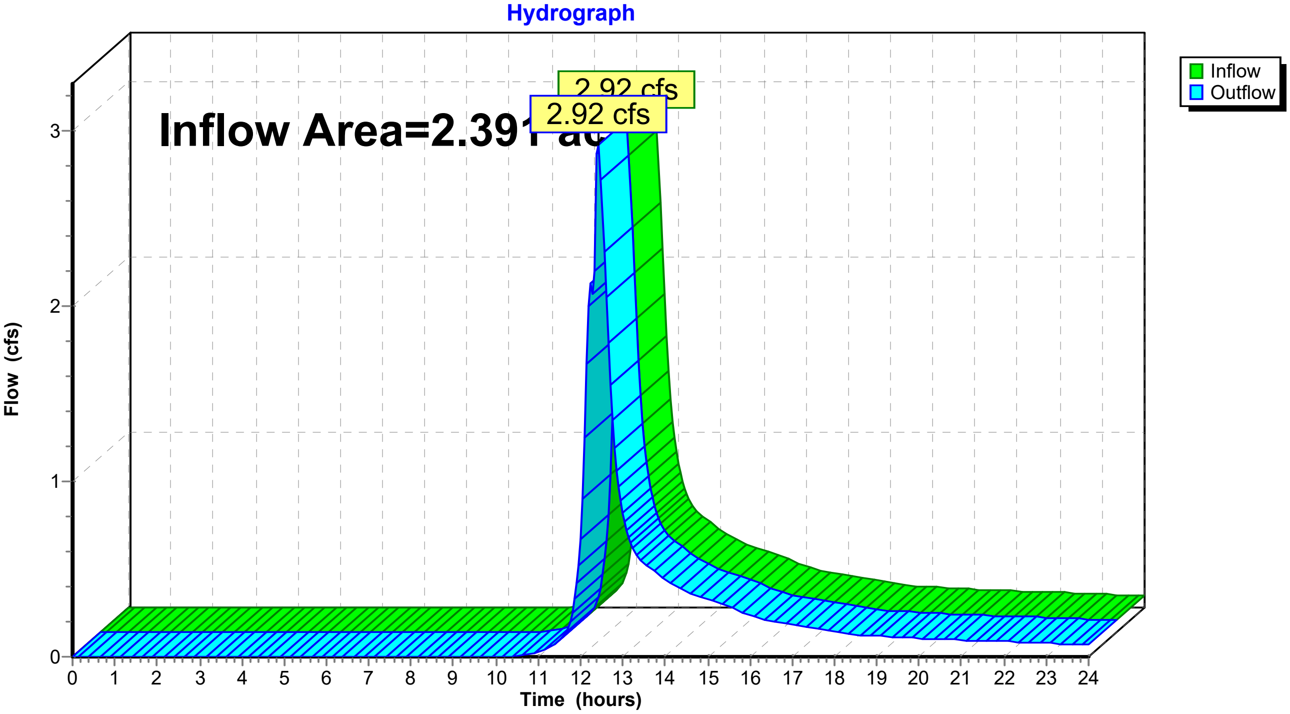
Summary for Reach 800R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =       2.391 ac,    2.93% Impervious,  Inflow Depth >   1.68"    for  25YR.-24HR. event
Inflow      =       2.92 cfs @   12.43 hrs,  Volume=          0.336 af
Outflow     =       2.92 cfs @   12.43 hrs,  Volume=          0.336 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 800R: Across Mitchell Road



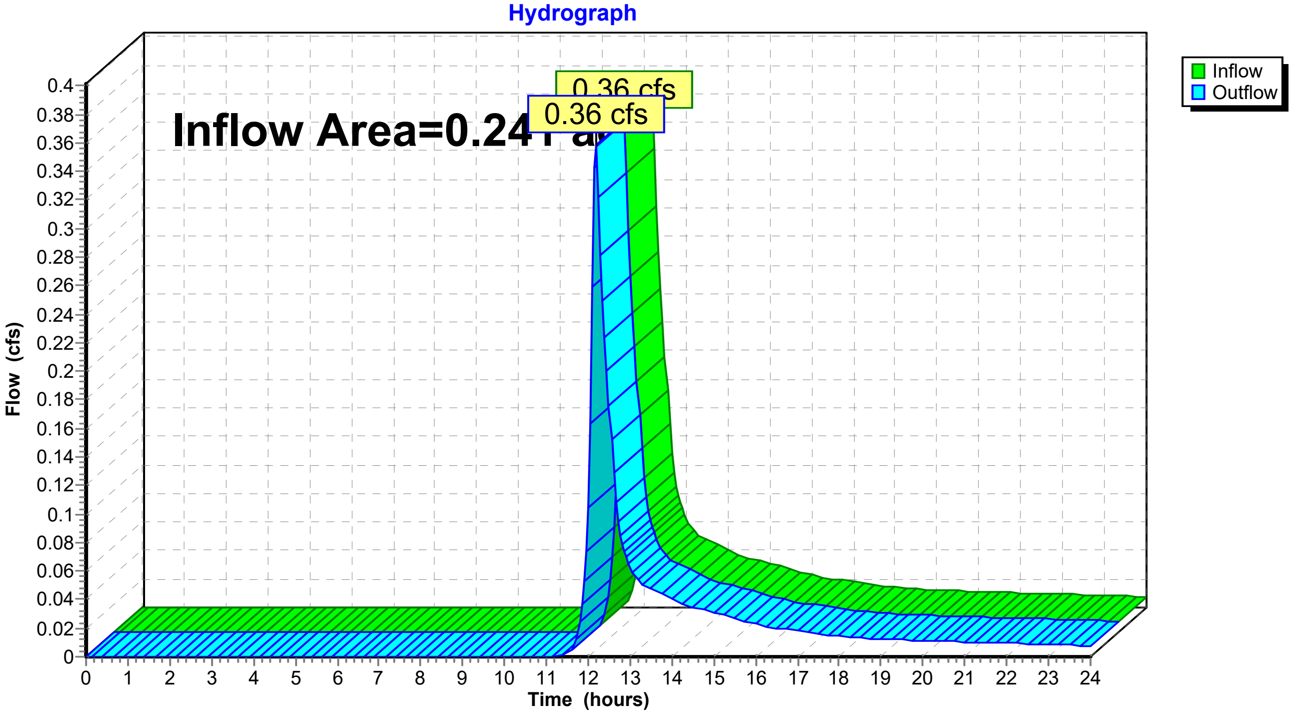
Summary for Reach 900R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =        0.241 ac,  14.92% Impervious,  Inflow Depth >   1.65"    for  25YR.-24HR. event
Inflow      =       0.36 cfs @   12.19 hrs,  Volume=            0.033 af
Outflow     =       0.36 cfs @   12.19 hrs,  Volume=            0.033 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 900R: Across Mitchell Road

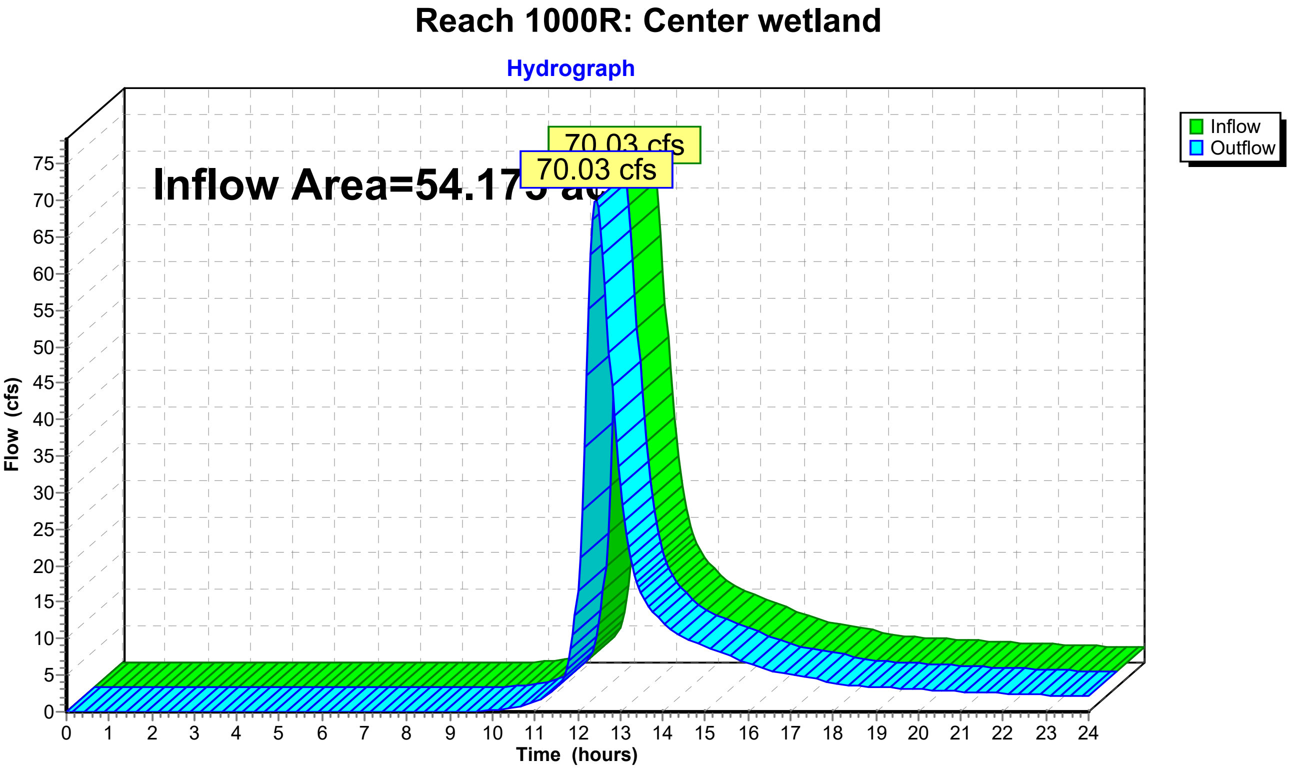


Summary for Reach 1000R: Center wetland

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	54.175 ac,	2.85% Impervious, Inflow Depth > 2.17"	for 25YR.-24HR. event
Inflow =	70.03 cfs @	12.43 hrs, Volume=	9.795 af
Outflow =	70.03 cfs @	12.43 hrs, Volume=	9.795 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



Summary for Pond 7P: 12" HDPE N-12

[58] Hint: Peaked 0.25' above defined flood level

```
Inflow Area =        8.646 ac,   1.56% Impervious,  Inflow Depth >   1.72"    for  25YR.-24HR. event
Inflow      =        7.95 cfs @   12.62 hrs,  Volume=          1.242 af
Outflow     =        6.71 cfs @   12.86 hrs,  Volume=          1.240 af,  Atten= 16%,  Lag= 14.0 min
Primary     =        5.19 cfs @   12.86 hrs,  Volume=          1.220 af
Secondary =          1.52 cfs @   12.86 hrs,  Volume=          0.020 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.75' @ 12.86 hrs Surf.Area= 5,837 sf Storage= 5,457 cf
Flood Elev= 290.50' Surf.Area= 5,074 sf Storage= 4,074 cf

Plug-Flow detention time= 7.6 min calculated for 1.240 af (100% of inflow)
Center-of-Mass det. time= 6.8 min (900.0 - 893.2)

Volume	Invert	Avail.Storage	Storage Description
#1	288.37'	10,737 cf	**Open water storage (Irregular)**Listed below (Recalc)

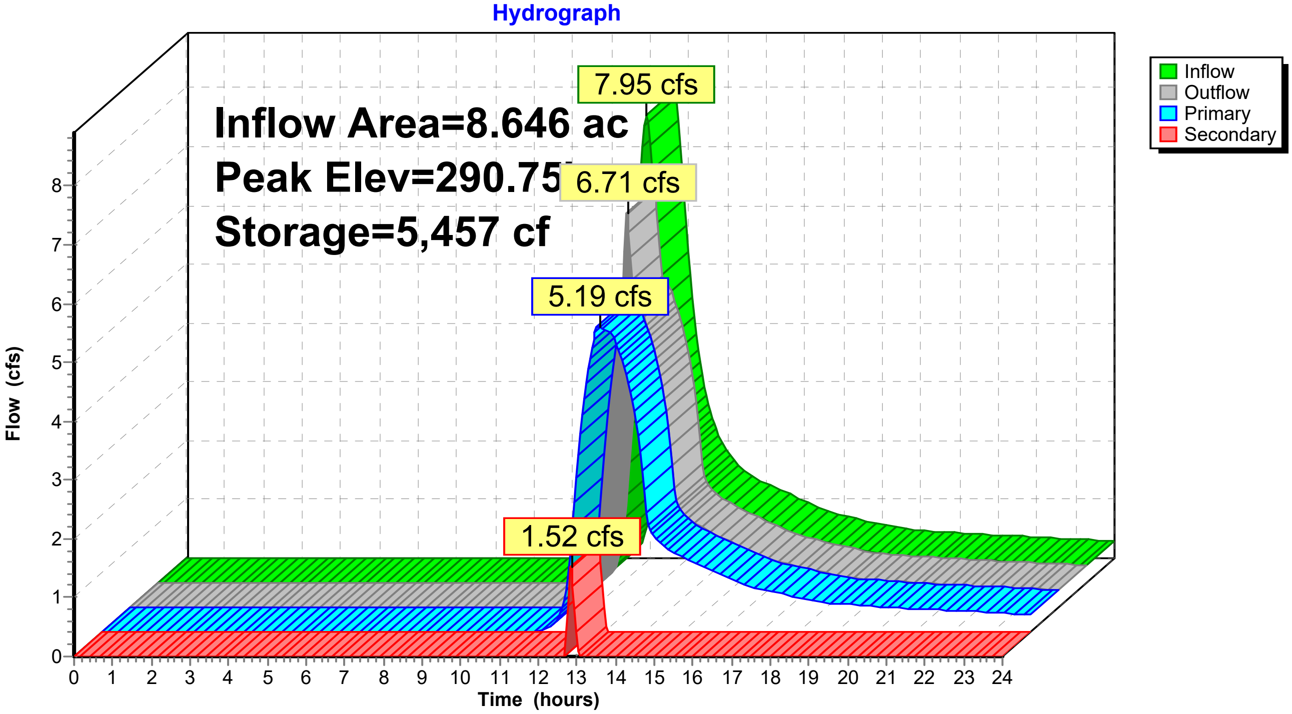
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.37	299	295.0	0	0	299
289.00	299	295.0	188	188	485
290.00	3,727	475.0	1,694	1,882	11,521
291.50	8,390	415.0	8,854	10,737	15,823

Device	Routing	Invert	Outlet Devices
#1	Primary	288.37'	**12.0" Round 12" HDPE N-12** L= 41.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 288.37' / 287.52' S= 0.0207 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Secondary	290.71'	**62.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=5.19 cfs @ 12.86 hrs HW=290.75' TW=0.00' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 5.19 cfs @ 6.61 fps)

Secondary OutFlow Max=1.45 cfs @ 12.86 hrs HW=290.75' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 1.45 cfs @ 0.55 fps)

Pond 7P: 12" HDPE N-12



Summary for Pond 9P: 12" CMP

Inflow Area = 0.241 ac, 14.92% Impervious, Inflow Depth > 1.66" for 25YR.-24HR. event
Inflow = 0.38 cfs @ 12.15 hrs, Volume= 0.033 af
Outflow = 0.36 cfs @ 12.19 hrs, Volume= 0.033 af, Atten= 5%, Lag= 2.3 min
Primary = 0.36 cfs @ 12.19 hrs, Volume= 0.033 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 289.68' @ 12.19 hrs Surf.Area= 225 sf Storage= 71 cf
Flood Elev= 291.00' Surf.Area= 300 sf Storage= 421 cf

Plug-Flow detention time= 8.8 min calculated for 0.033 af (99% of inflow)
Center-of-Mass det. time= 5.1 min (877.1 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	289.35'	721 cf	**Open water storage (Irregular)**Listed below (Recalc)

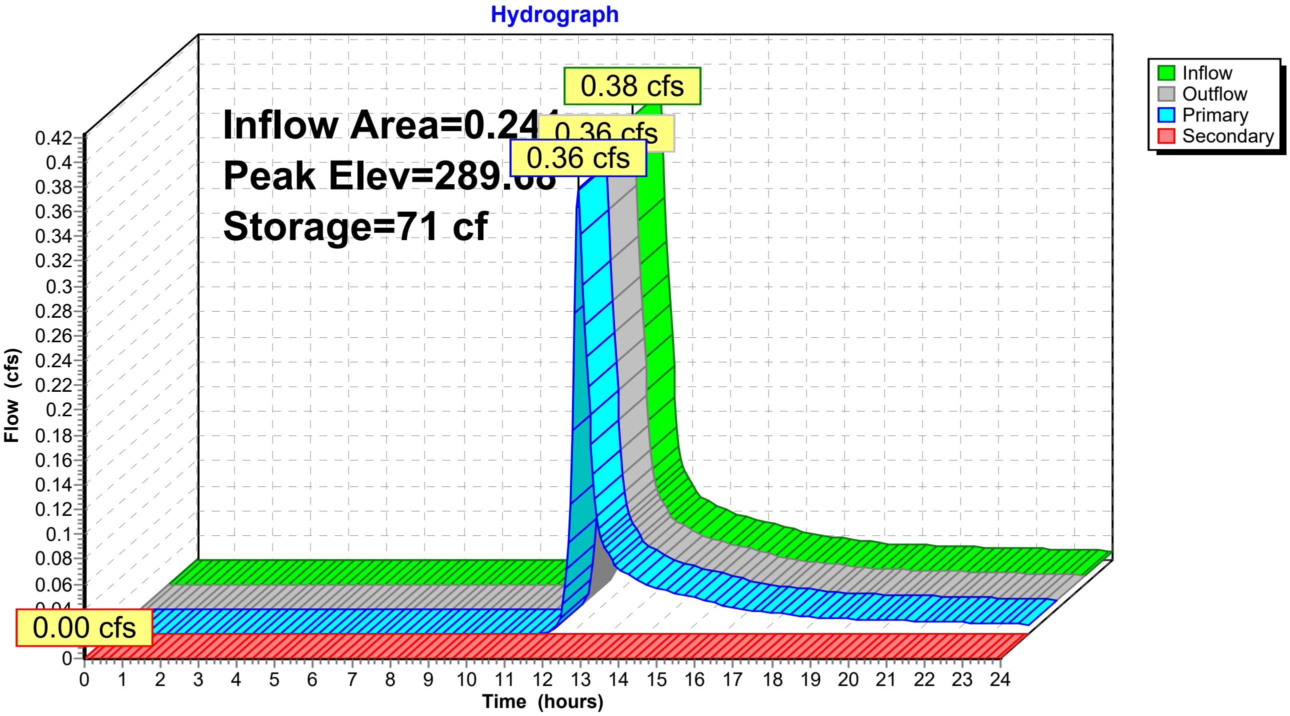
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.35	200	100.0	0	0	200
290.00	250	120.0	146	146	557
291.00	300	130.0	275	421	792
292.00	300	130.0	300	721	922

Device	Routing	Invert	Outlet Devices
#1	Primary	289.35'	**12.0" Round 12" CMP** L= 41.2' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 289.35' / 287.43' S= 0.0466 '/' Cc= 0.900 n= 0.018 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Secondary	291.00'	**50.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.35 cfs @ 12.19 hrs HW=289.68' TW=0.00' (Dynamic Tailwater)
└─**1=12" CMP** (Inlet Controls 0.35 cfs @ 1.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=289.35' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: 12" CMP



Summary for Pond 10P: 18" CMP

Inflow Area = 1.128 ac, 17.32% Impervious, Inflow Depth > 1.90" for 25YR.-24HR. event
Inflow = 1.59 cfs @ 12.31 hrs, Volume= 0.178 af
Outflow = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.4 min
Primary = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 316.50' @ 12.31 hrs Surf.Area= 118 sf Storage= 139 cf
Flood Elev= 319.30' Surf.Area= 775 sf Storage= 1,218 cf

Plug-Flow detention time= 8.9 min calculated for 0.176 af (99% of inflow)
Center-of-Mass det. time= 2.8 min (874.8 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	315.00'	1,761 cf	**Open water storage (Irregular)**Listed below (Recalc)

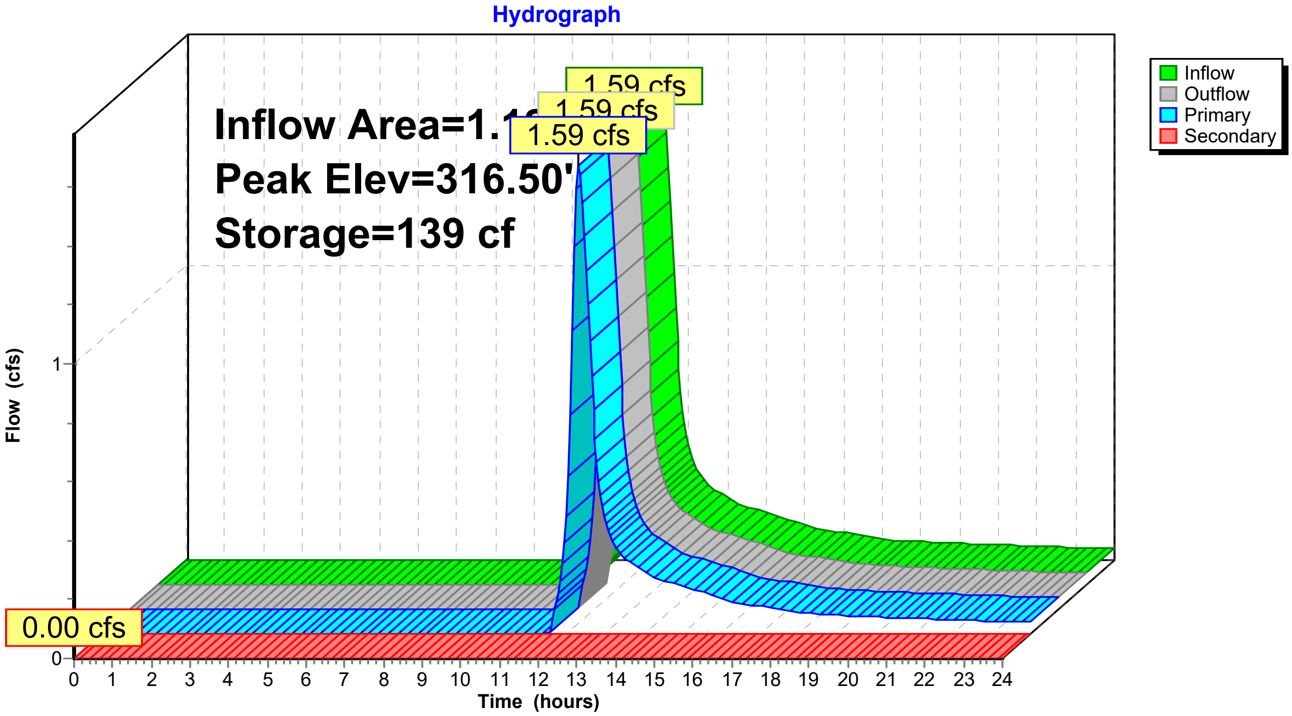
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
315.00	70	35.0	0	0	70
316.00	100	50.0	85	85	180
317.00	138	63.0	118	203	310
318.00	348	101.3	235	438	817
319.00	775	112.0	547	986	1,028
320.00	775	112.0	775	1,761	1,140

Device	Routing	Invert	Outlet Devices
#1	Primary	315.93'	**18.0" Round 18" CMP** L= 71.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 315.93' / 313.70' S= 0.0314 '/' Cc= 0.900 n= 0.018 Corrugated PE, corrugated interior, Flow Area= 1.77 sf
#2	Secondary	319.30'	**10.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.58 cfs @ 12.31 hrs HW=316.50' TW=313.89' (Dynamic Tailwater)
↑—**1=18" CMP** (Inlet Controls 1.58 cfs @ 2.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=315.00' TW=313.70' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 10P: 18" CMP



Summary for Pond 13P: Natural depression

[58] Hint: Peaked 0.05' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.102 ac, 0.00% Impervious, Inflow Depth > 1.73" for 25YR.-24HR. event
Inflow = 1.38 cfs @ 12.32 hrs, Volume= 0.159 af
Outflow = 1.42 cfs @ 12.41 hrs, Volume= 0.131 af, Atten= 0%, Lag= 5.8 min
Discarded = 0.02 cfs @ 12.35 hrs, Volume= 0.017 af
Primary = 1.41 cfs @ 12.41 hrs, Volume= 0.114 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 300.05' @ 12.41 hrs Surf.Area= 2,398 sf Storage= 1,360 cf
Flood Elev= 300.00' Surf.Area= 2,398 sf Storage= 1,236 cf

Plug-Flow detention time= 108.1 min calculated for 0.131 af (82% of inflow)
Center-of-Mass det. time= 34.4 min (912.0 - 877.6)

Volume	Invert	Avail.Storage	Storage Description
#1	298.75'	3,634 cf	**Open water storage (Irregular)**Listed below (Recalc)

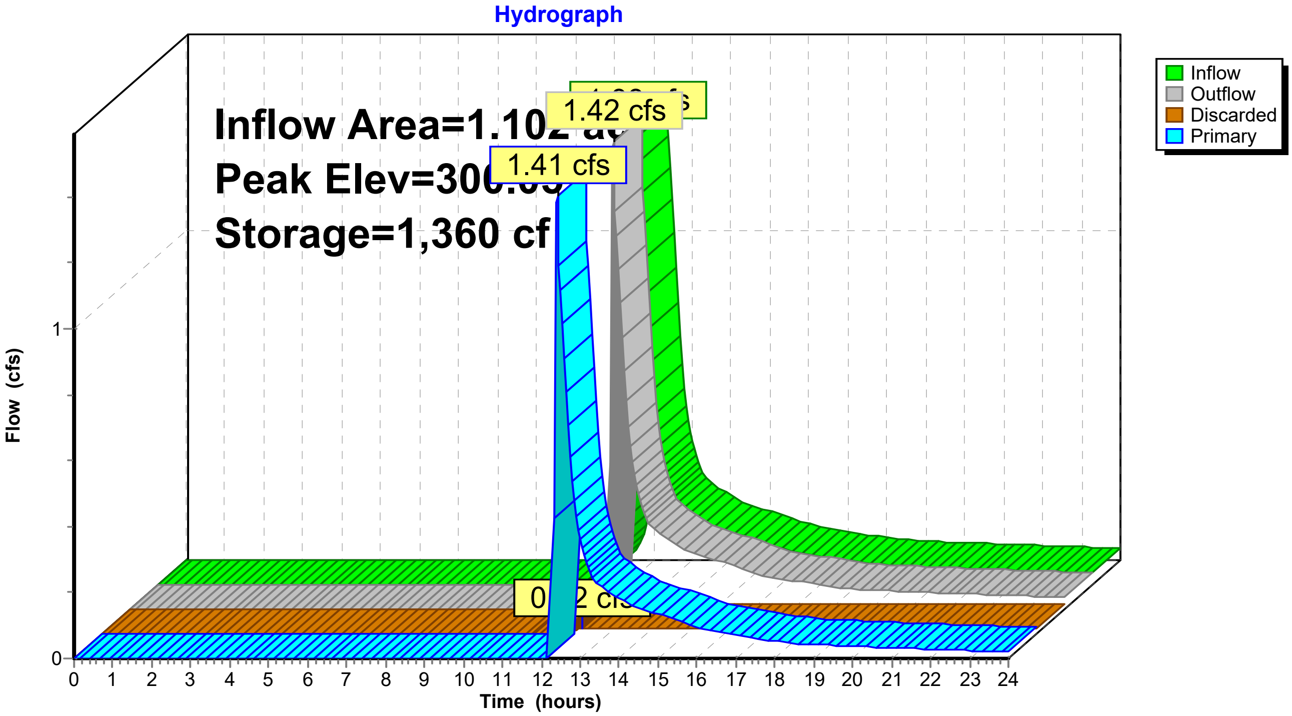
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
298.75	172	119.5	0	0	172
299.00	295	126.0	58	58	303
300.00	2,398	242.3	1,178	1,236	3,716
301.00	2,398	242.3	2,398	3,634	3,958

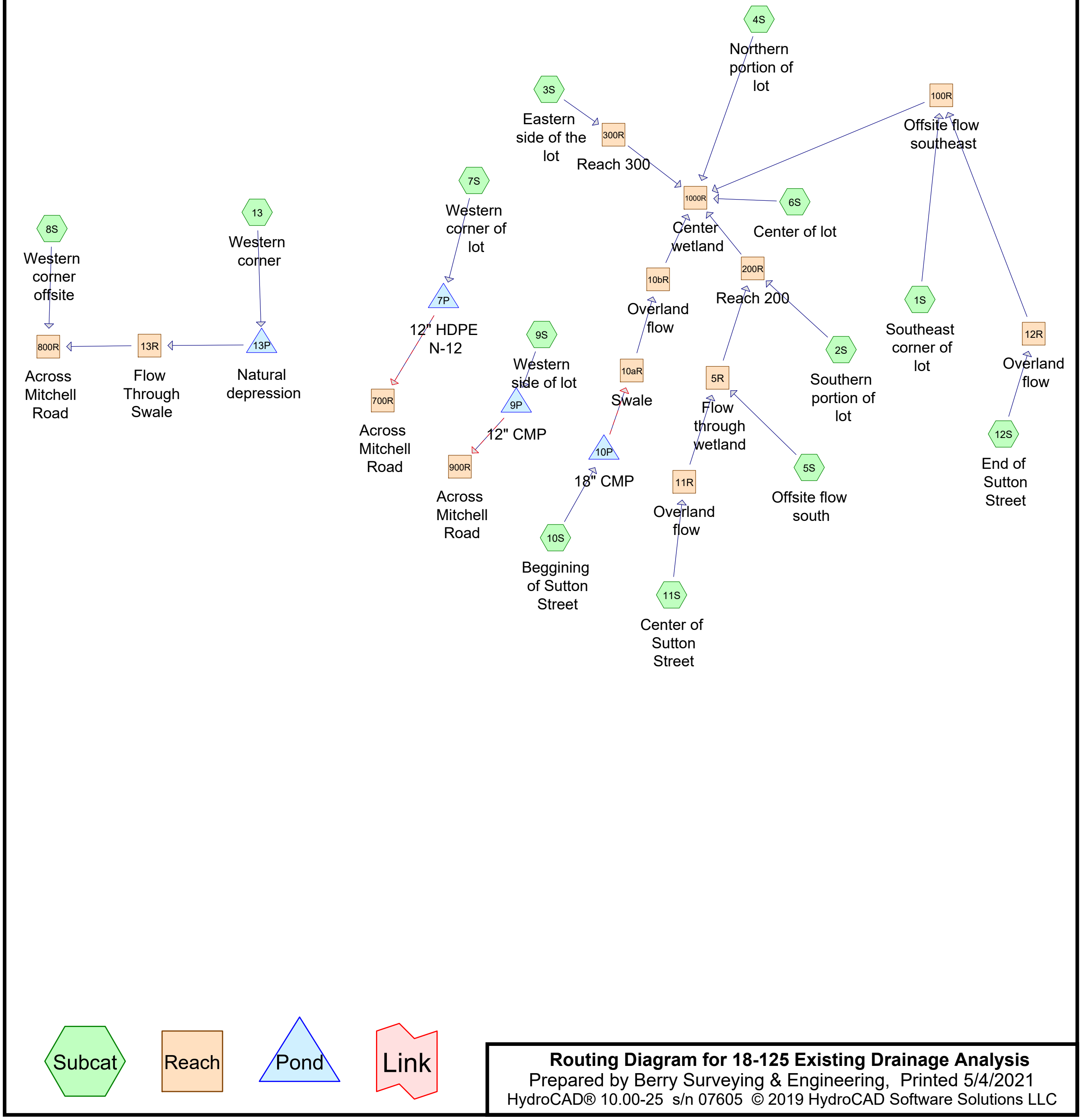
Device	Routing	Invert	Outlet Devices
#1	Primary	300.00'	**50.0' long x 4.0' breadth Natural berm** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	298.75'	**0.300 in/hr Assumed Infiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 12.35 hrs HW=300.04' (Free Discharge)
↳**2=Assumed Infiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.34 cfs @ 12.41 hrs HW=300.05' TW=297.73' (Dynamic Tailwater)
↳**1=Natural berm** (Weir Controls 1.34 cfs @ 0.53 fps)

Pond 13P: Natural depression





Routing Diagram for 18-125 Existing Drainage Analysis
Prepared by Berry Surveying & Engineering, Printed 5/4/2021
HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC

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

Subcatchment 1S: Southeast corner of lot Runoff Area=364,927 sf 1.57% Impervious Runoff Depth>0.74"
Flow Length=580' Tc=24.2 min UI Adjusted CN=70 Runoff=3.99 cfs 0.518 af

Subcatchment 2S: Southern portion of lot Runoff Area=321,729 sf 0.56% Impervious Runoff Depth>0.57"
Flow Length=782' Tc=33.7 min CN=66 Runoff=2.12 cfs 0.349 af

Subcatchment 3S: Eastern side of the lot Runoff Area=558,932 sf 2.00% Impervious Runoff Depth>0.45"
Flow Length=1,010' Tc=25.4 min CN=63 Runoff=2.95 cfs 0.485 af

Subcatchment 4S: Northern portion of lot Runoff Area=510,097 sf 3.89% Impervious Runoff Depth>0.35"
Flow Length=1,177' Tc=38.7 min UI Adjusted CN=60 Runoff=1.50 cfs 0.341 af

Subcatchment 5S: Offsite flow south Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>0.89"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=1.00 cfs 0.099 af

Subcatchment 6S: Center of lot Runoff Area=153,462 sf 0.00% Impervious Runoff Depth>0.74"
Flow Length=444' Tc=21.9 min CN=70 Runoff=1.75 cfs 0.218 af

Subcatchment 7S: Western corner of lot Runoff Area=376,623 sf 1.56% Impervious Runoff Depth>0.32"
Flow Length=1,202' Tc=41.1 min CN=59 Runoff=0.92 cfs 0.229 af

Subcatchment 8S: Western corner offsite Runoff Area=56,136 sf 5.44% Impervious Runoff Depth>0.46"
Flow Length=471' Tc=17.5 min UI Adjusted CN=63 Runoff=0.33 cfs 0.049 af

Subcatchment 9S: Western side of lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>0.29"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.03 cfs 0.006 af

Subcatchment 10S: Beggining of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>0.39"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=0.21 cfs 0.036 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>0.35"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=0.76 cfs 0.158 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>0.53"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=0.64 cfs 0.109 af

Subcatchment 13: Western corner Runoff Area=48,023 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=414' Tc=20.6 min CN=59 Runoff=0.15 cfs 0.029 af

Reach 5R: Flow through wetland Avg. Flow Depth=0.15' Max Vel=0.63 fps Inflow=1.15 cfs 0.256 af
n=0.080 L=731.0' S=0.0239 '/' Capacity=58.42 cfs Outflow=1.00 cfs 0.251 af

Reach 10aR: Swale Avg. Flow Depth=0.05' Max Vel=1.81 fps Inflow=0.21 cfs 0.034 af
n=0.022 L=542.0' S=0.0363 '/' Capacity=106.07 cfs Outflow=0.20 cfs 0.034 af

Reach 10bR: Overland flow Avg. Flow Depth=0.07' Max Vel=0.27 fps Inflow=0.20 cfs 0.034 af
n=0.080 L=808.0' S=0.0124 '/' Capacity=26.21 cfs Outflow=0.08 cfs 0.033 af

Reach 11R: Overland flow Avg. Flow Depth=0.11' Max Vel=0.79 fps Inflow=0.76 cfs 0.158 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=93.36 cfs Outflow=0.75 cfs 0.157 af

Reach 12R: Overland flow Avg. Flow Depth=0.10' Max Vel=0.68 fps Inflow=0.64 cfs 0.109 af
n=0.080 L=704.0' S=0.0483 '/' Capacity=16.34 cfs Outflow=0.52 cfs 0.107 af

Reach 13R: Flow Through Swale Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.024 L=233.0' S=0.0107 '/' Capacity=67.75 cfs Outflow=0.00 cfs 0.000 af

Reach 100R: Offsite flow southeast Inflow=4.15 cfs 0.625 af
Outflow=4.15 cfs 0.625 af

Reach 200R: Reach 200 Inflow=3.05 cfs 0.601 af
Outflow=3.05 cfs 0.601 af

Reach 300R: Reach 300 Inflow=2.95 cfs 0.485 af
Outflow=2.95 cfs 0.485 af

Reach 700R: Across Mitchell Road Inflow=0.92 cfs 0.228 af
Outflow=0.92 cfs 0.228 af

Reach 800R: Across Mitchell Road Inflow=0.33 cfs 0.049 af
Outflow=0.33 cfs 0.049 af

Reach 900R: Across Mitchell Road Inflow=0.03 cfs 0.006 af
Outflow=0.03 cfs 0.006 af

Reach 1000R: Center wetland Inflow=12.41 cfs 2.303 af
Outflow=12.41 cfs 2.303 af

Pond 7P: 12" HDPE N-12 Peak Elev=288.86' Storage=147 cf Inflow=0.92 cfs 0.229 af
Primary=0.92 cfs 0.228 af Secondary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.228 af

Pond 9P: 12" CMP Peak Elev=289.44' Storage=18 cf Inflow=0.03 cfs 0.006 af
Primary=0.03 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.006 af

Pond 10P: 18" CMP Peak Elev=316.13' Storage=98 cf Inflow=0.21 cfs 0.036 af
Primary=0.21 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.034 af

Pond 13P: Natural depression Peak Elev=299.80' Storage=817 cf Inflow=0.15 cfs 0.029 af
Discarded=0.01 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.011 af

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

Subcatchment 1S: Southeast corner of lot Runoff Area=364,927 sf 1.57% Impervious Runoff Depth>1.75"
Flow Length=580' Tc=24.2 min UI Adjusted CN=70 Runoff=10.40 cfs 1.221 af

Subcatchment 2S: Southern portion of lot Runoff Area=321,729 sf 0.56% Impervious Runoff Depth>1.46"
Flow Length=782' Tc=33.7 min CN=66 Runoff=6.44 cfs 0.899 af

Subcatchment 3S: Eastern side of the lot Runoff Area=558,932 sf 2.00% Impervious Runoff Depth>1.26"
Flow Length=1,010' Tc=25.4 min CN=63 Runoff=10.58 cfs 1.353 af

Subcatchment 4S: Northern portion of lot Runoff Area=510,097 sf 3.89% Impervious Runoff Depth>1.07"
Flow Length=1,177' Tc=38.7 min UI Adjusted CN=60 Runoff=6.48 cfs 1.046 af

Subcatchment 5S: Offsite flow south Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>1.98"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=2.38 cfs 0.220 af

Subcatchment 6S: Center of lot Runoff Area=153,462 sf 0.00% Impervious Runoff Depth>1.75"
Flow Length=444' Tc=21.9 min CN=70 Runoff=4.56 cfs 0.514 af

Subcatchment 7S: Western corner of lot Runoff Area=376,623 sf 1.56% Impervious Runoff Depth>1.01"
Flow Length=1,202' Tc=41.1 min CN=59 Runoff=4.29 cfs 0.729 af

Subcatchment 8S: Western corner offsite Runoff Area=56,136 sf 5.44% Impervious Runoff Depth>1.27"
Flow Length=471' Tc=17.5 min UI Adjusted CN=63 Runoff=1.24 cfs 0.136 af

Subcatchment 9S: Western side of lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>0.96"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.20 cfs 0.019 af

Subcatchment 10S: Beggining of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>1.14"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=0.89 cfs 0.107 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>1.07"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=3.31 cfs 0.485 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>1.39"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=2.03 cfs 0.288 af

Subcatchment 13: Western corner Runoff Area=48,023 sf 0.00% Impervious Runoff Depth>1.02"
Flow Length=414' Tc=20.6 min CN=59 Runoff=0.74 cfs 0.094 af

Reach 5R: Flow through wetland Avg. Flow Depth=0.29' Max Vel=0.96 fps Inflow=4.46 cfs 0.703 af
n=0.080 L=731.0' S=0.0239 '/' Capacity=58.42 cfs Outflow=4.05 cfs 0.695 af

Reach 10aR: Swale Avg. Flow Depth=0.13' Max Vel=3.12 fps Inflow=0.89 cfs 0.105 af
n=0.022 L=542.0' S=0.0363 '/' Capacity=106.07 cfs Outflow=0.88 cfs 0.105 af

Reach 10bR: Overland flow Avg. Flow Depth=0.16' Max Vel=0.47 fps Inflow=0.88 cfs 0.105 af
n=0.080 L=808.0' S=0.0124 '/' Capacity=26.21 cfs Outflow=0.51 cfs 0.102 af

Reach 11R: Overland flow Avg. Flow Depth=0.21' Max Vel=1.25 fps Inflow=3.31 cfs 0.485 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=93.36 cfs Outflow=3.29 cfs 0.483 af

Reach 12R: Overland flow Avg. Flow Depth=0.18' Max Vel=1.00 fps Inflow=2.03 cfs 0.288 af
n=0.080 L=704.0' S=0.0483 '/' Capacity=16.34 cfs Outflow=1.83 cfs 0.284 af

Reach 13R: Flow Through Swale Avg. Flow Depth=0.12' Max Vel=1.41 fps Inflow=0.42 cfs 0.049 af
n=0.024 L=233.0' S=0.0107 '/' Capacity=67.75 cfs Outflow=0.37 cfs 0.049 af

Reach 100R: Offsite flow southeast Inflow=11.39 cfs 1.506 af
Outflow=11.39 cfs 1.506 af

Reach 200R: Reach 200 Inflow=10.37 cfs 1.594 af
Outflow=10.37 cfs 1.594 af

Reach 300R: Reach 300 Inflow=10.58 cfs 1.353 af
Outflow=10.58 cfs 1.353 af

Reach 700R: Across Mitchell Road Inflow=3.73 cfs 0.727 af
Outflow=3.73 cfs 0.727 af

Reach 800R: Across Mitchell Road Inflow=1.24 cfs 0.185 af
Outflow=1.24 cfs 0.185 af

Reach 900R: Across Mitchell Road Inflow=0.18 cfs 0.019 af
Outflow=0.18 cfs 0.019 af

Reach 1000R: Center wetland Inflow=41.22 cfs 6.115 af
Outflow=41.22 cfs 6.115 af

Pond 7P: 12" HDPE N-12 Peak Elev=289.84' Storage=1,363 cf Inflow=4.29 cfs 0.729 af
Primary=3.73 cfs 0.727 af Secondary=0.00 cfs 0.000 af Outflow=3.73 cfs 0.727 af

Pond 9P: 12" CMP Peak Elev=289.58' Storage=49 cf Inflow=0.20 cfs 0.019 af
Primary=0.18 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.019 af

Pond 10P: 18" CMP Peak Elev=316.35' Storage=122 cf Inflow=0.89 cfs 0.107 af
Primary=0.89 cfs 0.105 af Secondary=0.00 cfs 0.000 af Outflow=0.89 cfs 0.105 af

Pond 13P: Natural depression Peak Elev=300.02' Storage=1,292 cf Inflow=0.74 cfs 0.094 af
Discarded=0.02 cfs 0.016 af Primary=0.42 cfs 0.049 af Outflow=0.43 cfs 0.065 af

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

Subcatchment 1S: Southeast corner of lot Runoff Area=364,927 sf 1.57% Impervious Runoff Depth>2.67"
Flow Length=580' Tc=24.2 min UI Adjusted CN=70 Runoff=16.22 cfs 1.866 af

Subcatchment 2S: Southern portion of lot Runoff Area=321,729 sf 0.56% Impervious Runoff Depth>2.31"
Flow Length=782' Tc=33.7 min CN=66 Runoff=10.54 cfs 1.422 af

Subcatchment 3S: Eastern side of the lot Runoff Area=558,932 sf 2.00% Impervious Runoff Depth>2.06"
Flow Length=1,010' Tc=25.4 min CN=63 Runoff=18.16 cfs 2.202 af

Subcatchment 4S: Northern portion of lot Runoff Area=510,097 sf 3.89% Impervious Runoff Depth>1.80"
Flow Length=1,177' Tc=38.7 min UI Adjusted CN=60 Runoff=11.74 cfs 1.761 af

Subcatchment 5S: Offsite flow south Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>2.96"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=3.60 cfs 0.328 af

Subcatchment 6S: Center of lot Runoff Area=153,462 sf 0.00% Impervious Runoff Depth>2.67"
Flow Length=444' Tc=21.9 min CN=70 Runoff=7.12 cfs 0.785 af

Subcatchment 7S: Western corner of lot Runoff Area=376,623 sf 1.56% Impervious Runoff Depth>1.72"
Flow Length=1,202' Tc=41.1 min CN=59 Runoff=7.95 cfs 1.242 af

Subcatchment 8S: Western corner offsite Runoff Area=56,136 sf 5.44% Impervious Runoff Depth>2.06"
Flow Length=471' Tc=17.5 min UI Adjusted CN=63 Runoff=2.13 cfs 0.222 af

Subcatchment 9S: Western side of lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>1.66"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.38 cfs 0.033 af

Subcatchment 10S: Beggining of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>1.90"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=1.59 cfs 0.178 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>1.81"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=6.01 cfs 0.816 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>2.22"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=3.38 cfs 0.459 af

Subcatchment 13: Western corner Runoff Area=48,023 sf 0.00% Impervious Runoff Depth>1.73"
Flow Length=414' Tc=20.6 min CN=59 Runoff=1.38 cfs 0.159 af

Reach 5R: Flow through wetland Avg. Flow Depth=0.38' Max Vel=1.16 fps Inflow=7.82 cfs 1.142 af
n=0.080 L=731.0' S=0.0239 '/' Capacity=58.42 cfs Outflow=7.29 cfs 1.131 af

Reach 10aR: Swale Avg. Flow Depth=0.19' Max Vel=3.83 fps Inflow=1.59 cfs 0.176 af
n=0.022 L=542.0' S=0.0363 '/' Capacity=106.07 cfs Outflow=1.57 cfs 0.176 af

Reach 10bR: Overland flow Avg. Flow Depth=0.23' Max Vel=0.58 fps Inflow=1.57 cfs 0.176 af
n=0.080 L=808.0' S=0.0124 '/' Capacity=26.21 cfs Outflow=1.05 cfs 0.172 af

Reach 11R: Overland flow Avg. Flow Depth=0.28' Max Vel=1.50 fps Inflow=6.01 cfs 0.816 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=93.36 cfs Outflow=5.98 cfs 0.814 af

Reach 12R: Overland flow Avg. Flow Depth=0.23' Max Vel=1.18 fps Inflow=3.38 cfs 0.459 af
n=0.080 L=704.0' S=0.0483 '/' Capacity=16.34 cfs Outflow=3.13 cfs 0.455 af

Reach 13R: Flow Through Swale Avg. Flow Depth=0.25' Max Vel=2.22 fps Inflow=1.41 cfs 0.114 af
n=0.024 L=233.0' S=0.0107 '/' Capacity=67.75 cfs Outflow=1.31 cfs 0.114 af

Reach 100R: Offsite flow southeast Inflow=18.20 cfs 2.321 af
Outflow=18.20 cfs 2.321 af

Reach 200R: Reach 200 Inflow=17.73 cfs 2.554 af
Outflow=17.73 cfs 2.554 af

Reach 300R: Reach 300 Inflow=18.16 cfs 2.202 af
Outflow=18.16 cfs 2.202 af

Reach 700R: Across Mitchell Road Inflow=6.71 cfs 1.240 af
Outflow=6.71 cfs 1.240 af

Reach 800R: Across Mitchell Road Inflow=2.92 cfs 0.336 af
Outflow=2.92 cfs 0.336 af

Reach 900R: Across Mitchell Road Inflow=0.36 cfs 0.033 af
Outflow=0.36 cfs 0.033 af

Reach 1000R: Center wetland Inflow=70.03 cfs 9.795 af
Outflow=70.03 cfs 9.795 af

Pond 7P: 12" HDPE N-12 Peak Elev=290.75' Storage=5,457 cf Inflow=7.95 cfs 1.242 af
Primary=5.19 cfs 1.220 af Secondary=1.52 cfs 0.020 af Outflow=6.71 cfs 1.240 af

Pond 9P: 12" CMP Peak Elev=289.68' Storage=71 cf Inflow=0.38 cfs 0.033 af
Primary=0.36 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af

Pond 10P: 18" CMP Peak Elev=316.50' Storage=139 cf Inflow=1.59 cfs 0.178 af
Primary=1.59 cfs 0.176 af Secondary=0.00 cfs 0.000 af Outflow=1.59 cfs 0.176 af

Pond 13P: Natural depression Peak Elev=300.05' Storage=1,360 cf Inflow=1.38 cfs 0.159 af
Discarded=0.02 cfs 0.017 af Primary=1.41 cfs 0.114 af Outflow=1.42 cfs 0.131 af

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

Subcatchment 1S: Southeast corner of lot Runoff Area=364,927 sf 1.57% Impervious Runoff Depth>3.60"
Flow Length=580' Tc=24.2 min UI Adjusted CN=70 Runoff=22.01 cfs 2.514 af

Subcatchment 2S: Southern portion of lot Runoff Area=321,729 sf 0.56% Impervious Runoff Depth>3.18"
Flow Length=782' Tc=33.7 min CN=66 Runoff=14.71 cfs 1.957 af

Subcatchment 3S: Eastern side of the lot Runoff Area=558,932 sf 2.00% Impervious Runoff Depth>2.88"
Flow Length=1,010' Tc=25.4 min CN=63 Runoff=26.02 cfs 3.084 af

Subcatchment 4S: Northern portion of lot Runoff Area=510,097 sf 3.89% Impervious Runoff Depth>2.58"
Flow Length=1,177' Tc=38.7 min UI Adjusted CN=60 Runoff=17.28 cfs 2.516 af

Subcatchment 5S: Offsite flow south Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>3.93"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=4.79 cfs 0.435 af

Subcatchment 6S: Center of lot Runoff Area=153,462 sf 0.00% Impervious Runoff Depth>3.60"
Flow Length=444' Tc=21.9 min CN=70 Runoff=9.66 cfs 1.058 af

Subcatchment 7S: Western corner of lot Runoff Area=376,623 sf 1.56% Impervious Runoff Depth>2.48"
Flow Length=1,202' Tc=41.1 min CN=59 Runoff=11.84 cfs 1.787 af

Subcatchment 8S: Western corner offsite Runoff Area=56,136 sf 5.44% Impervious Runoff Depth>2.89"
Flow Length=471' Tc=17.5 min UI Adjusted CN=63 Runoff=3.05 cfs 0.310 af

Subcatchment 9S: Western side of lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>2.40"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.57 cfs 0.048 af

Subcatchment 10S: Beggining of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>2.69"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=2.32 cfs 0.253 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>2.58"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=8.84 cfs 1.165 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>3.08"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=4.75 cfs 0.635 af

Subcatchment 13: Western corner Runoff Area=48,023 sf 0.00% Impervious Runoff Depth>2.49"
Flow Length=414' Tc=20.6 min CN=59 Runoff=2.06 cfs 0.229 af

Reach 5R: Flow through wetland Avg. Flow Depth=0.46' Max Vel=1.30 fps Inflow=11.30 cfs 1.598 af
n=0.080 L=731.0' S=0.0239 '/' Capacity=58.42 cfs Outflow=10.68 cfs 1.586 af

Reach 10aR: Swale Avg. Flow Depth=0.24' Max Vel=4.36 fps Inflow=2.32 cfs 0.251 af
n=0.022 L=542.0' S=0.0363 '/' Capacity=106.07 cfs Outflow=2.30 cfs 0.250 af

Reach 10bR: Overland flow Avg. Flow Depth=0.28' Max Vel=0.67 fps Inflow=2.30 cfs 0.250 af
n=0.080 L=808.0' S=0.0124 '/' Capacity=26.21 cfs Outflow=1.64 cfs 0.246 af

```
Reach 11R: Overland flow           Avg. Flow Depth=0.34'   Max Vel=1.69 fps   Inflow=8.84 cfs  1.165 af
                       n=0.080   L=229.0'   S=0.0611 '/'   Capacity=93.36 cfs   Outflow=8.81 cfs  1.163 af

Reach 12R: Overland flow           Avg. Flow Depth=0.27'   Max Vel=1.32 fps   Inflow=4.75 cfs  0.635 af
                       n=0.080   L=704.0'   S=0.0483 '/'   Capacity=16.34 cfs   Outflow=4.46 cfs  0.631 af

Reach 13R: Flow Through Swale      Avg. Flow Depth=0.34'   Max Vel=2.61 fps   Inflow=2.09 cfs  0.184 af
                       n=0.024   L=233.0'   S=0.0107 '/'   Capacity=67.75 cfs   Outflow=2.24 cfs  0.183 af

Reach 100R: Offsite flow southeast                                            Inflow=25.01 cfs  3.144 af
                                                                             Outflow=25.01 cfs  3.144 af

Reach 200R: Reach 200                                                         Inflow=25.30 cfs  3.543 af
                                                                             Outflow=25.30 cfs  3.543 af

Reach 300R: Reach 300                                                         Inflow=26.02 cfs  3.084 af
                                                                             Outflow=26.02 cfs  3.084 af

Reach 700R: Across Mitchell Road                                              Inflow=12.12 cfs  1.784 af
                                                                             Outflow=12.12 cfs  1.784 af

Reach 800R: Across Mitchell Road                                               Inflow=5.13 cfs  0.494 af
                                                                              Outflow=5.13 cfs  0.494 af

Reach 900R: Across Mitchell Road                                               Inflow=0.55 cfs  0.048 af
                                                                              Outflow=0.55 cfs  0.048 af

Reach 1000R: Center wetland                                                  Inflow=99.80 cfs  13.591 af
                                                                            Outflow=99.80 cfs  13.591 af

Pond 7P: 12" HDPE N-12                 Peak Elev=290.83'  Storage=5,892 cf   Inflow=11.84 cfs  1.787 af
                 Primary=5.29 cfs  1.558 af   Secondary=6.83 cfs  0.226 af   Outflow=12.12 cfs  1.784 af

Pond 9P: 12" CMP                          Peak Elev=289.77'  Storage=91 cf   Inflow=0.57 cfs  0.048 af
                  Primary=0.55 cfs  0.048 af   Secondary=0.00 cfs  0.000 af   Outflow=0.55 cfs  0.048 af

Pond 10P: 18" CMP                        Peak Elev=316.63'  Storage=155 cf   Inflow=2.32 cfs  0.253 af
                  Primary=2.32 cfs  0.251 af   Secondary=0.00 cfs  0.000 af   Outflow=2.32 cfs  0.251 af

Pond 13P: Natural depression         Peak Elev=300.07'  Storage=1,398 cf   Inflow=2.06 cfs  0.229 af
                    Discarded=0.02 cfs  0.017 af   Primary=2.09 cfs  0.184 af   Outflow=2.11 cfs  0.200 af
```

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

Subcatchment1S: Southeast corner of lot  Runoff Area=364,927 sf  1.57% Impervious  Runoff Depth>4.76"
                           Flow Length=580'  Tc=24.2 min  UI Adjusted CN=70  Runoff=29.16 cfs  3.324 af

Subcatchment2S: Southern portion of lot  Runoff Area=321,729 sf  0.56% Impervious  Runoff Depth>4.28"
                                         Flow Length=782'  Tc=33.7 min  CN=66  Runoff=19.94 cfs  2.636 af

Subcatchment3S: Eastern side of the lot  Runoff Area=558,932 sf  2.00% Impervious  Runoff Depth>3.94"
                                       Flow Length=1,010'  Tc=25.4 min  CN=63  Runoff=35.99 cfs  4.213 af

Subcatchment4S: Northern portion of lot  Runoff Area=510,097 sf  3.89% Impervious  Runoff Depth>3.58"
                         Flow Length=1,177'  Tc=38.7 min  UI Adjusted CN=60  Runoff=24.43 cfs  3.494 af

Subcatchment5S: Offsite flow south       Runoff Area=57,986 sf  11.78% Impervious  Runoff Depth>5.13"
                            Flow Length=234'  Tc=13.6 min  UI Adjusted CN=73  Runoff=6.24 cfs  0.569 af

Subcatchment6S: Center of lot            Runoff Area=153,462 sf  0.00% Impervious  Runoff Depth>4.76"
                                         Flow Length=444'  Tc=21.9 min  CN=70  Runoff=12.80 cfs  1.399 af

Subcatchment7S: Western corner of lot    Runoff Area=376,623 sf  1.56% Impervious  Runoff Depth>3.46"
                                       Flow Length=1,202'  Tc=41.1 min  CN=59  Runoff=16.88 cfs  2.496 af

Subcatchment8S: Western corner offsite    Runoff Area=56,136 sf  5.44% Impervious  Runoff Depth>3.95"
                            Flow Length=471'  Tc=17.5 min  UI Adjusted CN=63  Runoff=4.22 cfs  0.424 af

Subcatchment9S: Western side of lot      Runoff Area=10,480 sf  14.92% Impervious  Runoff Depth>3.38"
                             Flow Length=158'  Tc=9.5 min  UI Adjusted CN=58  Runoff=0.82 cfs  0.068 af

Subcatchment10S: Beggining of Sutton     Runoff Area=49,132 sf  17.32% Impervious  Runoff Depth>3.71"
                            Flow Length=470'  Tc=20.2 min  UI Adjusted CN=61  Runoff=3.26 cfs  0.349 af

Subcatchment11S: Center of Sutton StreetRunoff Area=235,702 sf  3.68% Impervious  Runoff Depth>3.59"
                           Flow Length=798'  Tc=31.3 min  UI Adjusted CN=60  Runoff=12.50 cfs  1.618 af

Subcatchment12S: End of Sutton Street    Runoff Area=107,877 sf  4.26% Impervious  Runoff Depth>4.17"
                            Flow Length=841'  Tc=33.9 min  UI Adjusted CN=65  Runoff=6.48 cfs  0.860 af

Subcatchment13: Western corner            Runoff Area=48,023 sf  0.00% Impervious  Runoff Depth>3.48"
                                          Flow Length=414'  Tc=20.6 min  CN=59  Runoff=2.94 cfs  0.320 af

Reach 5R: Flow through wetland        Avg. Flow Depth=0.53'  Max Vel=1.44 fps  Inflow=15.75 cfs  2.184 af
                          n=0.080  L=731.0'  S=0.0239 '/'  Capacity=58.42 cfs  Outflow=15.03 cfs  2.169 af

Reach 10aR: Swale                       Avg. Flow Depth=0.29'  Max Vel=4.90 fps  Inflow=3.26 cfs  0.347 af
                          n=0.022  L=542.0'  S=0.0363 '/'  Capacity=106.07 cfs  Outflow=3.25 cfs  0.346 af

Reach 10bR: Overland flow               Avg. Flow Depth=0.33'  Max Vel=0.76 fps  Inflow=3.25 cfs  0.346 af
                           n=0.080  L=808.0'  S=0.0124 '/'  Capacity=26.21 cfs  Outflow=2.42 cfs  0.341 af
```

Reach 11R: Overland flow Avg. Flow Depth=0.39' Max Vel=1.88 fps Inflow=12.50 cfs 1.618 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=93.36 cfs Outflow=12.46 cfs 1.615 af

Reach 12R: Overland flow Avg. Flow Depth=0.32' Max Vel=1.45 fps Inflow=6.48 cfs 0.860 af
n=0.080 L=704.0' S=0.0483 '/' Capacity=16.34 cfs Outflow=6.15 cfs 0.854 af

Reach 13R: Flow Through Swale Avg. Flow Depth=0.39' Max Vel=2.86 fps Inflow=2.93 cfs 0.274 af
n=0.024 L=233.0' S=0.0107 '/' Capacity=67.75 cfs Outflow=2.91 cfs 0.273 af

Reach 100R: Offsite flow southeast Inflow=33.48 cfs 4.178 af
Outflow=33.48 cfs 4.178 af

Reach 200R: Reach 200 Inflow=34.89 cfs 4.805 af
Outflow=34.89 cfs 4.805 af

Reach 300R: Reach 300 Inflow=35.99 cfs 4.213 af
Outflow=35.99 cfs 4.213 af

Reach 700R: Across Mitchell Road Inflow=16.86 cfs 2.493 af
Outflow=16.86 cfs 2.493 af

Reach 800R: Across Mitchell Road Inflow=6.95 cfs 0.697 af
Outflow=6.95 cfs 0.697 af

Reach 900R: Across Mitchell Road Inflow=0.80 cfs 0.067 af
Outflow=0.80 cfs 0.067 af

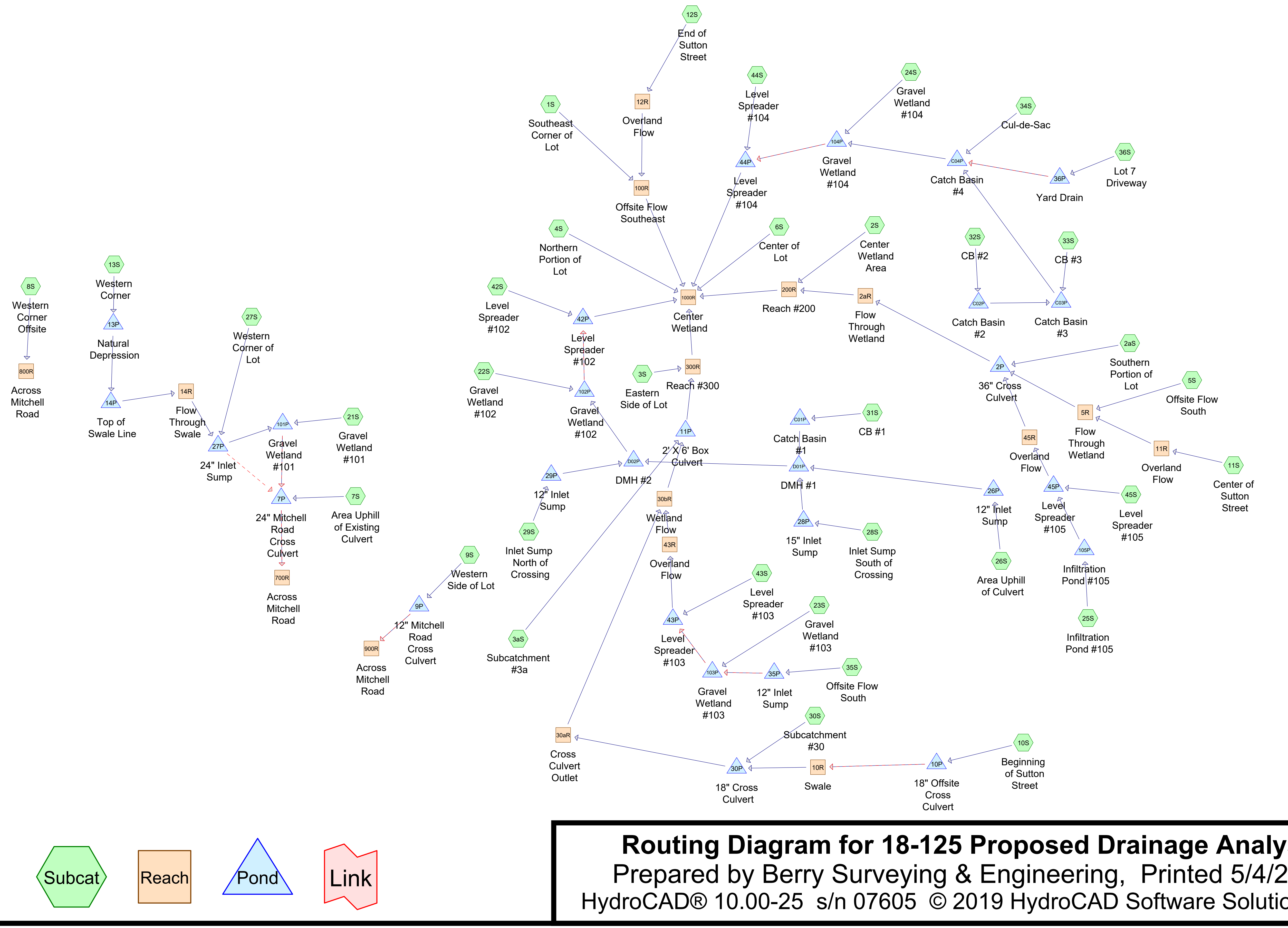
Reach 1000R: Center wetland Inflow=137.42 cfs 18.430 af
Outflow=137.42 cfs 18.430 af

Pond 7P: 12" HDPE N-12 Peak Elev=290.88' Storage=6,208 cf Inflow=16.88 cfs 2.496 af
Primary=5.36 cfs 1.934 af Secondary=11.50 cfs 0.559 af Outflow=16.86 cfs 2.493 af

Pond 9P: 12" CMP Peak Elev=289.87' Storage=114 cf Inflow=0.82 cfs 0.068 af
Primary=0.80 cfs 0.067 af Secondary=0.00 cfs 0.000 af Outflow=0.80 cfs 0.067 af

Pond 10P: 18" CMP Peak Elev=316.78' Storage=174 cf Inflow=3.26 cfs 0.349 af
Primary=3.26 cfs 0.347 af Secondary=0.00 cfs 0.000 af Outflow=3.26 cfs 0.347 af

Pond 13P: Natural depression Peak Elev=300.08' Storage=1,438 cf Inflow=2.94 cfs 0.320 af
Discarded=0.02 cfs 0.017 af Primary=2.93 cfs 0.274 af Outflow=2.94 cfs 0.291 af



Routing Diagram for 18-125 Proposed Drainage Analysis

Prepared by Berry Surveying & Engineering, Printed 5/4/2021
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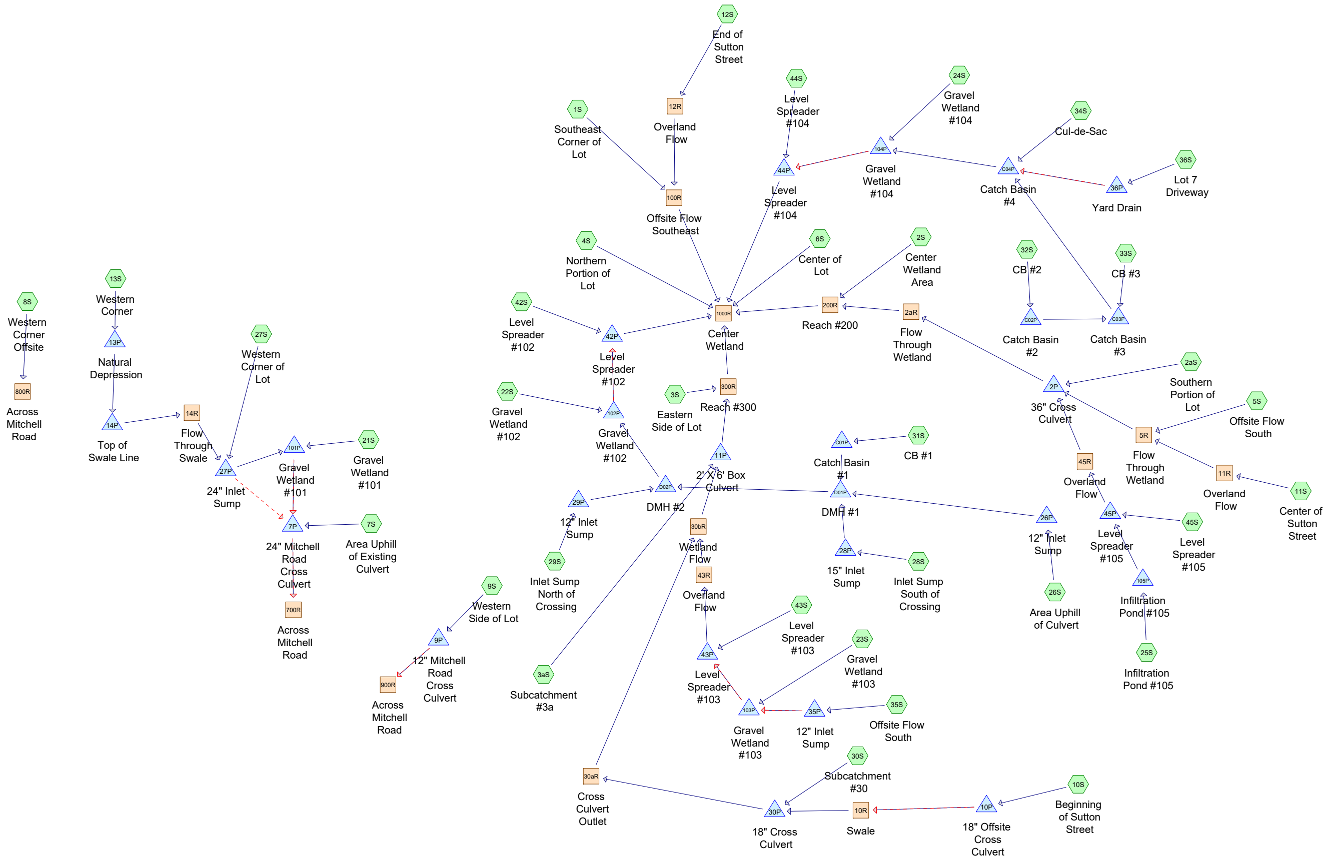

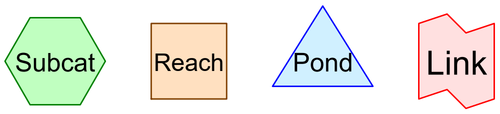

Routing Diagram for 18-125 Proposed Drainage Analysis
Prepared by Berry Surveying & Engineering, Printed 5/4/2021
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.355	61	>75% Grass cover, Good, HSG B (2aS, 2S, 3aS, 3S, 4S, 7S, 8S, 10S, 11S, 13S, 21S, 22S, 23S, 25S, 26S, 27S, 28S, 29S, 30S, 35S, 43S, 45S)
4.938	74	>75% Grass cover, Good, HSG C (1S, 2aS, 2S, 3aS, 3S, 4S, 5S, 6S, 11S, 12S, 22S, 23S, 24S, 25S, 26S, 28S, 29S, 30S, 32S, 33S, 34S, 35S, 36S, 42S, 44S, 45S)
0.292	80	>75% Grass cover, Good, HSG D (3aS, 7S, 8S, 13S, 21S, 27S)
0.753	98	Paved parking, HSG B (7S, 8S, 13S, 21S, 22S, 23S, 26S, 31S, 32S, 33S, 35S)
0.459	98	Paved parking, HSG C (22S, 23S, 24S, 26S, 32S, 33S, 34S, 35S, 44S)
1.023	98	Unconnected pavement, HSG B (2S, 3aS, 8S, 9S, 10S, 27S, 28S, 29S, 30S)
0.725	98	Unconnected pavement, HSG C (1S, 3aS, 5S, 10S, 11S, 12S, 28S, 29S, 30S, 36S)
0.051	98	Unconnected pavement, HSG D (7S)
0.532	98	Unconnected roofs, HSG B (3aS, 4S, 10S, 13S, 21S, 22S, 27S, 28S)
0.314	98	Unconnected roofs, HSG C (1S, 2aS, 5S, 6S, 11S, 12S, 30S, 35S, 36S, 44S)
0.071	98	Unconnected roofs, HSG D (3aS, 8S, 13S)
23.804	55	Woods, Good, HSG B (2aS, 2S, 3aS, 4S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 21S, 22S, 23S, 25S, 27S, 28S, 29S, 30S, 35S)
20.051	70	Woods, Good, HSG C (1S, 2aS, 2S, 3aS, 3S, 4S, 5S, 6S, 11S, 12S, 25S, 26S, 30S, 33S, 34S, 35S, 36S)
4.085	77	Woods, Good, HSG D (3aS, 4S, 6S, 8S, 13S, 21S, 27S, 28S)
65.452	**66**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
34.467	HSG B	2aS, 2S, 3aS, 3S, 4S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 21S, 22S, 23S, 25S, 26S, 27S, 28S, 29S, 30S, 31S, 32S, 33S, 35S, 43S, 45S
26.487	HSG C	1S, 2aS, 2S, 3aS, 3S, 4S, 5S, 6S, 10S, 11S, 12S, 22S, 23S, 24S, 25S, 26S, 28S, 29S, 30S, 32S, 33S, 34S, 35S, 36S, 42S, 44S, 45S
4.498	HSG D	3aS, 4S, 6S, 7S, 8S, 13S, 21S, 27S, 28S
0.000	Other	
65.452		**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
0.000	8.355	4.938	0.292	0.000	13.584	>75% Grass cover, Good	1S, 2aS, 2S, 3aS, 3S, 4S, 5S, 6S, 7S, 8S, 10S, 11S, 12S, 13S, 21S, 22S, 23S, 24S, 25S, 26S, 27S, 28S, 29S, 30S, 32S, 33S, 34S, 35S, 36S, 42S, 43S, 44S, 45S
0.000	0.753	0.459	0.000	0.000	1.213	Paved parking	7S, 8S, 13S, 21S, 22S, 23S, 24S, 26S, 31S, 32S, 33S, 34S, 35S, 44S
0.000	1.023	0.725	0.051	0.000	1.798	Unconnected pavement	1S, 2S, 3aS, 5S, 7S, 8S, 9S, 10S, 11S, 12S, 27S,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.532	0.314	0.071	0.000	0.917	Unconnected roofs	1S, 2aS, 3aS, 4S, 5S, 6S, 8S, 10S, 11S, 12S, 13S, 21S, 22S, 27S, 28S, 30S, 35S, 36S, 44S
0.000	23.804	20.051	4.085	0.000	47.939	Woods, Good	1S, 2aS, 2S, 3aS, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 21S, 22S, 23S, 25S, 26S, 27S, 28S, 29S, 30S, 33S, 34S, 35S, 36S
0.000	**34.467**	**26.487**	**4.498**	**0.000**	**65.452**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	2P	289.50	288.25	60.0	0.0208	0.018	36.0	0.0	6.0
2	7P	287.50	287.25	43.5	0.0057	0.012	24.0	0.0	0.0
3	9P	289.35	287.43	41.2	0.0466	0.018	12.0	0.0	0.0
4	10P	315.93	313.70	71.0	0.0314	0.018	18.0	0.0	0.0
5	11P	285.75	285.25	45.0	0.0111	0.024	72.0	24.0	0.0
6	26P	292.75	289.75	266.2	0.0113	0.012	12.0	0.0	0.0
7	27P	289.25	289.00	30.0	0.0083	0.012	24.0	0.0	0.0
8	28P	290.00	289.65	25.0	0.0140	0.012	15.0	0.0	0.0
9	29P	289.50	289.00	20.0	0.0250	0.012	12.0	0.0	0.0
10	30P	296.00	295.50	40.0	0.0125	0.012	18.0	0.0	0.0
11	35P	296.75	296.00	40.0	0.0187	0.012	12.0	0.0	0.0
12	36P	292.50	291.50	62.0	0.0161	0.012	12.0	0.0	0.0
13	101P	287.92	287.75	18.0	0.0094	0.012	18.0	0.0	0.0
14	102P	283.67	283.37	30.0	0.0100	0.012	18.0	0.0	0.0
15	103P	293.67	293.53	17.5	0.0080	0.012	12.0	0.0	0.0
16	104P	288.67	288.50	18.0	0.0094	0.012	12.0	0.0	0.0
17	C01P	290.36	290.08	6.0	0.0467	0.012	12.0	0.0	0.0
18	C02P	291.40	291.25	18.0	0.0083	0.012	12.0	0.0	0.0
19	C03P	291.15	290.25	175.0	0.0051	0.012	12.0	0.0	0.0
20	C04P	290.15	289.75	75.0	0.0053	0.012	12.0	0.0	0.0
21	D01P	289.50	288.75	150.0	0.0050	0.012	15.0	0.0	0.0
22	D02P	288.50	288.00	33.0	0.0152	0.012	18.0	0.0	0.0

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

Subcatchment 1S: Southeast Corner of Lot Runoff Area=345,633 sf   1.83% Impervious   Runoff Depth>2.76"
                                   Flow Length=580'   Tc=24.2 min   CN=71   Runoff=15.93 cfs  1.828 af

Subcatchment 2aS: Southern Portion of    Runoff Area=201,407 sf   0.77% Impervious   Runoff Depth>2.57"
                                    Flow Length=738'   Tc=37.0 min   CN=69   Runoff=7.11 cfs  0.992 af

Subcatchment 2S: Center Wetland Area      Runoff Area=39,496 sf   3.15% Impervious   Runoff Depth>2.15"
                                    Flow Length=192'   Tc=15.0 min   CN=64   Runoff=1.67 cfs  0.162 af

Subcatchment 3aS: Subcatchment #3a       Runoff Area=337,487 sf   3.22% Impervious   Runoff Depth>2.14"
                      Flow Length=498'   Tc=25.6 min   UI Adjusted CN=64   Runoff=11.44 cfs  1.384 af

Subcatchment 3S: Eastern Side of Lot      Runoff Area=14,322 sf   0.00% Impervious   Runoff Depth>2.77"
                                     Flow Length=93'   Tc=15.7 min   CN=71   Runoff=0.79 cfs  0.076 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf   0.47% Impervious   Runoff Depth>1.73"
                                 Flow Length=1,077'   Tc=35.9 min   CN=59   Runoff=11.91 cfs  1.739 af

Subcatchment 5S: Offsite Flow South      Runoff Area=57,986 sf   11.78% Impervious   Runoff Depth>2.96"
                       Flow Length=234'   Tc=13.6 min   UI Adjusted CN=73   Runoff=3.60 cfs  0.328 af

Subcatchment 6S: Center of Lot           Runoff Area=116,994 sf   1.07% Impervious   Runoff Depth>2.67"
                                    Flow Length=336'   Tc=22.3 min   CN=70   Runoff=5.39 cfs  0.598 af

Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf   19.24% Impervious   Runoff Depth>2.32"
                       Flow Length=156'   Tc=11.3 min   UI Adjusted CN=66   Runoff=0.96 cfs  0.083 af

Subcatchment 8S: Western Corner Offsite  Runoff Area=41,698 sf   11.21% Impervious   Runoff Depth>2.15"
                       Flow Length=471'   Tc=17.5 min   UI Adjusted CN=64   Runoff=1.66 cfs  0.171 af

Subcatchment 9S: Western Side of Lot     Runoff Area=10,480 sf   14.92% Impervious   Runoff Depth>1.66"
                        Flow Length=158'   Tc=9.5 min   UI Adjusted CN=58   Runoff=0.38 cfs  0.033 af

Subcatchment 10S: Beginning of Sutton    Runoff Area=49,132 sf   17.32% Impervious   Runoff Depth>1.90"
                       Flow Length=470'   Tc=20.2 min   UI Adjusted CN=61   Runoff=1.59 cfs  0.178 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf   3.68% Impervious   Runoff Depth>1.81"
                       Flow Length=798'   Tc=31.3 min   UI Adjusted CN=60   Runoff=6.01 cfs  0.816 af

Subcatchment 12S: End of Sutton Street   Runoff Area=107,877 sf   4.26% Impervious   Runoff Depth>2.22"
                       Flow Length=841'   Tc=33.9 min   UI Adjusted CN=65   Runoff=3.38 cfs  0.459 af

Subcatchment 13S: Western Corner         Runoff Area=52,834 sf   10.17% Impervious   Runoff Depth>2.23"
                       Flow Length=406'   Tc=20.1 min   UI Adjusted CN=65   Runoff=2.07 cfs  0.226 af

Subcatchment 21S: Gravel Wetland #101    Runoff Area=73,137 sf   10.99% Impervious   Runoff Depth>2.15"
                       Flow Length=494'   Tc=22.5 min   UI Adjusted CN=64   Runoff=2.62 cfs  0.300 af
```

Subcatchment 22S: Gravel Wetland #102 Runoff Area=101,895 sf 16.59% Impervious Runoff Depth>2.23"
Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=3.36 cfs 0.434 af

Subcatchment 23S: Gravel Wetland #103 Runoff Area=11,315 sf 24.27% Impervious Runoff Depth>2.78"
Tc=6.0 min CN=71 Runoff=0.83 cfs 0.060 af

Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>3.25"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=0.61 cfs 0.046 af

Subcatchment 25S: Infiltration Pond #105 Runoff Area=21,621 sf 0.00% Impervious Runoff Depth>2.41"
Flow Length=290' Tc=19.6 min CN=67 Runoff=0.93 cfs 0.100 af

Subcatchment 26S: Area Uphill of Culvert Runoff Area=9,885 sf 39.88% Impervious Runoff Depth>3.44"
Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=0.90 cfs 0.065 af

Subcatchment 27S: Western Corner of Lot Runoff Area=241,310 sf 6.42% Impervious Runoff Depth>1.97"
Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=6.85 cfs 0.911 af

Subcatchment 28S: Inlet Sump South of Runoff Area=51,121 sf 23.51% Impervious Runoff Depth>2.23"
Flow Length=507' Tc=21.9 min UI Adjusted CN=65 Runoff=1.94 cfs 0.218 af

Subcatchment 29S: Inlet Sump North of Runoff Area=16,466 sf 43.16% Impervious Runoff Depth>3.35"
Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=1.45 cfs 0.105 af

Subcatchment 30S: Subcatchment #30 Runoff Area=37,405 sf 18.75% Impervious Runoff Depth>2.50"
Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=1.91 cfs 0.179 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>5.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 32S: CB #2 Runoff Area=3,810 sf 97.51% Impervious Runoff Depth>5.49"
Tc=6.0 min CN=97 Runoff=0.49 cfs 0.040 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>4.05"
Flow Length=224' Tc=9.8 min CN=84 Runoff=1.08 cfs 0.090 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>4.48"
Tc=6.0 min CN=88 Runoff=1.29 cfs 0.097 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>2.86"
Flow Length=445' Tc=11.8 min CN=72 Runoff=4.01 cfs 0.348 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>3.24"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=1.09 cfs 0.110 af

Subcatchment 42S: Level Spreader #102 Runoff Area=1,252 sf 0.00% Impervious Runoff Depth>3.06"
Tc=6.0 min CN=74 Runoff=0.10 cfs 0.007 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=61 Runoff=0.03 cfs 0.002 af

Subcatchment 44S: Level Spreader #104 Runoff Area=10,945 sf 18.11% Impervious Runoff Depth>3.34"
Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=0.91 cfs 0.070 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=72 Runoff=0.03 cfs 0.002 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.46' Max Vel=1.69 fps Inflow=14.57 cfs 2.172 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=14.55 cfs 2.169 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.40' Max Vel=1.09 fps Inflow=7.80 cfs 1.142 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=7.47 cfs 1.134 af

Reach 10R: Swale Avg. Flow Depth=0.17' Max Vel=4.12 fps Inflow=1.59 cfs 0.176 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=1.58 cfs 0.176 af

Reach 11R: Overland Flow Avg. Flow Depth=0.26' Max Vel=1.41 fps Inflow=6.01 cfs 0.816 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=5.97 cfs 0.814 af

Reach 12R: Overland Flow Avg. Flow Depth=0.23' Max Vel=1.18 fps Inflow=3.38 cfs 0.459 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=3.13 cfs 0.455 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.24' Max Vel=3.33 fps Inflow=2.12 cfs 0.180 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=2.07 cfs 0.180 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.36' Max Vel=2.27 fps Inflow=3.27 cfs 0.355 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=3.27 cfs 0.354 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.25' Max Vel=0.67 fps Inflow=6.68 cfs 0.670 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=4.80 cfs 0.662 af

Reach 43R: Overland Flow Avg. Flow Depth=0.13' Max Vel=1.37 fps Inflow=3.94 cfs 0.315 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=3.59 cfs 0.315 af

Reach 45R: Overland Flow Avg. Flow Depth=0.13' Max Vel=0.72 fps Inflow=0.66 cfs 0.048 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=0.33 cfs 0.047 af

Reach 100R: Offsite Flow Southeast Inflow=17.90 cfs 2.283 af
Outflow=17.90 cfs 2.283 af

Reach 200R: Reach #200 Inflow=15.35 cfs 2.331 af
Outflow=15.35 cfs 2.331 af

Reach 300R: Reach #300 Inflow=15.51 cfs 2.119 af
Outflow=15.51 cfs 2.119 af

Reach 700R: Across Mitchell Road Inflow=1.72 cfs 0.702 af
Outflow=1.72 cfs 0.702 af

Reach 800R: Across Mitchell Road Inflow=1.66 cfs 0.171 af
Outflow=1.66 cfs 0.171 af

Reach 900R: Across Mitchell Road Inflow=0.36 cfs 0.033 af
Outflow=0.36 cfs 0.033 af

Reach 1000R: Center Wetland Inflow=65.76 cfs 9.800 af

Outflow=65.76 cfs 9.800 af

Pond 2P: 36" Cross Culvert Peak Elev=291.39' Storage=589 cf Inflow=14.58 cfs 2.173 af

36.0" Round Culvert w/ 6.0" inside fill n=0.018 L=60.0' S=0.0208 '/' Outflow=14.57 cfs 2.172 af

Pond 7P: 24" Mitchell Road Cross Culvert Peak Elev=288.10' Storage=136 cf Inflow=1.72 cfs 0.703 af

24.0" Round Culvert n=0.012 L=43.5' S=0.0057 '/' Outflow=1.72 cfs 0.702 af

Pond 9P: 12" Mitchell Road Cross Culvert Peak Elev=289.68' Storage=71 cf Inflow=0.38 cfs 0.033 af

Primary=0.36 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af

Pond 10P: 18" Offsite Cross Culvert Peak Elev=316.50' Storage=139 cf Inflow=1.59 cfs 0.178 af

Primary=1.59 cfs 0.176 af Secondary=0.00 cfs 0.000 af Outflow=1.59 cfs 0.176 af

Pond 11P: 2' X 6' Box Culvert Peak Elev=286.61' Storage=2,667 cf Inflow=15.95 cfs 2.046 af

72.0" x 24.0" Box Culvert n=0.024 L=45.0' S=0.0111 '/' Outflow=15.08 cfs 2.043 af

Pond 13P: Natural Depression Peak Elev=300.07' Storage=1,397 cf Inflow=2.07 cfs 0.226 af

Discarded=0.02 cfs 0.017 af Primary=2.08 cfs 0.180 af Outflow=2.09 cfs 0.197 af

Pond 14P: Top of Swale Line Peak Elev=298.55' Storage=214 cf Inflow=2.08 cfs 0.180 af

Outflow=2.12 cfs 0.180 af

Pond 26P: 12" Inlet Sump Peak Elev=293.23' Storage=86 cf Inflow=0.90 cfs 0.065 af

12.0" Round Culvert n=0.012 L=266.2' S=0.0113 '/' Outflow=0.88 cfs 0.065 af

Pond 27P: 24" Inlet Sump Peak Elev=292.02' Storage=1,238 cf Inflow=8.70 cfs 1.090 af

Primary=8.70 cfs 1.064 af Secondary=0.00 cfs 0.000 af Outflow=8.70 cfs 1.064 af

Pond 28P: 15" Inlet Sump Peak Elev=290.74' Storage=398 cf Inflow=1.94 cfs 0.218 af

15.0" Round Culvert n=0.012 L=25.0' S=0.0140 '/' Outflow=1.87 cfs 0.218 af

Pond 29P: 12" Inlet Sump Peak Elev=290.12' Storage=193 cf Inflow=1.45 cfs 0.105 af

12.0" Round Culvert n=0.012 L=20.0' S=0.0250 '/' Outflow=1.36 cfs 0.105 af

Pond 30P: 18" Cross Culvert Peak Elev=296.85' Storage=15 cf Inflow=3.27 cfs 0.355 af

18.0" Round Culvert n=0.012 L=40.0' S=0.0125 '/' Outflow=3.27 cfs 0.355 af

Pond 35P: 12" Inlet Sump Peak Elev=298.31' Storage=166 cf Inflow=4.01 cfs 0.348 af

Primary=3.89 cfs 0.348 af Secondary=0.00 cfs 0.000 af Outflow=3.89 cfs 0.348 af

Pond 36P: Yard Drain Peak Elev=295.94' Storage=31 cf Inflow=1.09 cfs 0.110 af

Primary=1.09 cfs 0.109 af Secondary=0.00 cfs 0.000 af Outflow=1.09 cfs 0.109 af

Pond 42P: Level Spreader #102 Peak Elev=284.07' Storage=411 cf Inflow=0.98 cfs 0.387 af

Outflow=0.98 cfs 0.378 af

Pond 43P: Level Spreader #103 Peak Elev=295.17' Storage=397 cf Inflow=3.59 cfs 0.323 af

Outflow=3.94 cfs 0.315 af

Pond 44P: Level Spreader #104 Peak Elev=290.15' Storage=2,446 cf Inflow=4.71 cfs 0.402 af

Outflow=5.27 cfs 0.351 af

Pond 45P: Level Spreader #105 Peak Elev=298.13' Storage=247 cf Inflow=0.43 cfs 0.053 af
Outflow=0.66 cfs 0.048 af

Pond 101P: Gravel Wetland #101 Peak Elev=292.01' Storage=33,527 cf Inflow=11.08 cfs 1.364 af
Primary=1.62 cfs 0.619 af Secondary=0.02 cfs 0.001 af Outflow=1.64 cfs 0.620 af

Pond 102P: Gravel Wetland #102 Peak Elev=289.39' Storage=21,070 cf Inflow=6.14 cfs 0.845 af
Primary=0.97 cfs 0.380 af Secondary=0.00 cfs 0.000 af Outflow=0.97 cfs 0.380 af

Pond 103P: Gravel Wetland #103 Peak Elev=296.53' Storage=5,496 cf Inflow=4.43 cfs 0.408 af
Primary=3.48 cfs 0.320 af Secondary=0.10 cfs 0.001 af Outflow=3.58 cfs 0.321 af

Pond 104P: Gravel Wetland #104 Peak Elev=291.46' Storage=3,586 cf Inflow=4.07 cfs 0.382 af
Primary=3.89 cfs 0.332 af Secondary=0.00 cfs 0.000 af Outflow=3.89 cfs 0.332 af

Pond 105P: Infiltration Pond #105 Peak Elev=298.61' Storage=1,710 cf Inflow=0.93 cfs 0.100 af
Discarded=0.02 cfs 0.014 af Primary=0.42 cfs 0.051 af Outflow=0.44 cfs 0.065 af

Pond C01P: Catch Basin #1 Peak Elev=290.62' Storage=3 cf Inflow=0.28 cfs 0.024 af
12.0" Round Culvert n=0.012 L=6.0' S=0.0467 '/' Outflow=0.29 cfs 0.024 af

Pond C02P: Catch Basin #2 Peak Elev=292.72' Storage=17 cf Inflow=0.49 cfs 0.040 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.48 cfs 0.040 af

Pond C03P: Catch Basin #3 Peak Elev=292.72' Storage=20 cf Inflow=1.51 cfs 0.130 af
12.0" Round Culvert n=0.012 L=175.0' S=0.0051 '/' Outflow=1.48 cfs 0.130 af

Pond C04P: Catch Basin #4 Peak Elev=292.40' Storage=28 cf Inflow=3.47 cfs 0.336 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=3.46 cfs 0.336 af

Pond D01P: DMH #1 Peak Elev=290.34' Storage=24 cf Inflow=2.33 cfs 0.306 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=2.33 cfs 0.306 af

Pond D02P: DMH #2 Peak Elev=289.40' Storage=11 cf Inflow=3.27 cfs 0.411 af
18.0" Round Culvert n=0.012 L=33.0' S=0.0152 '/' Outflow=3.27 cfs 0.411 af

Total Runoff Area = 65.452 ac Runoff Volume = 12.281 af Average Runoff Depth = 2.25"
94.00% Pervious = 61.524 ac 6.00% Impervious = 3.928 ac

Summary for Subcatchment 1S: Southeast Corner of Lot

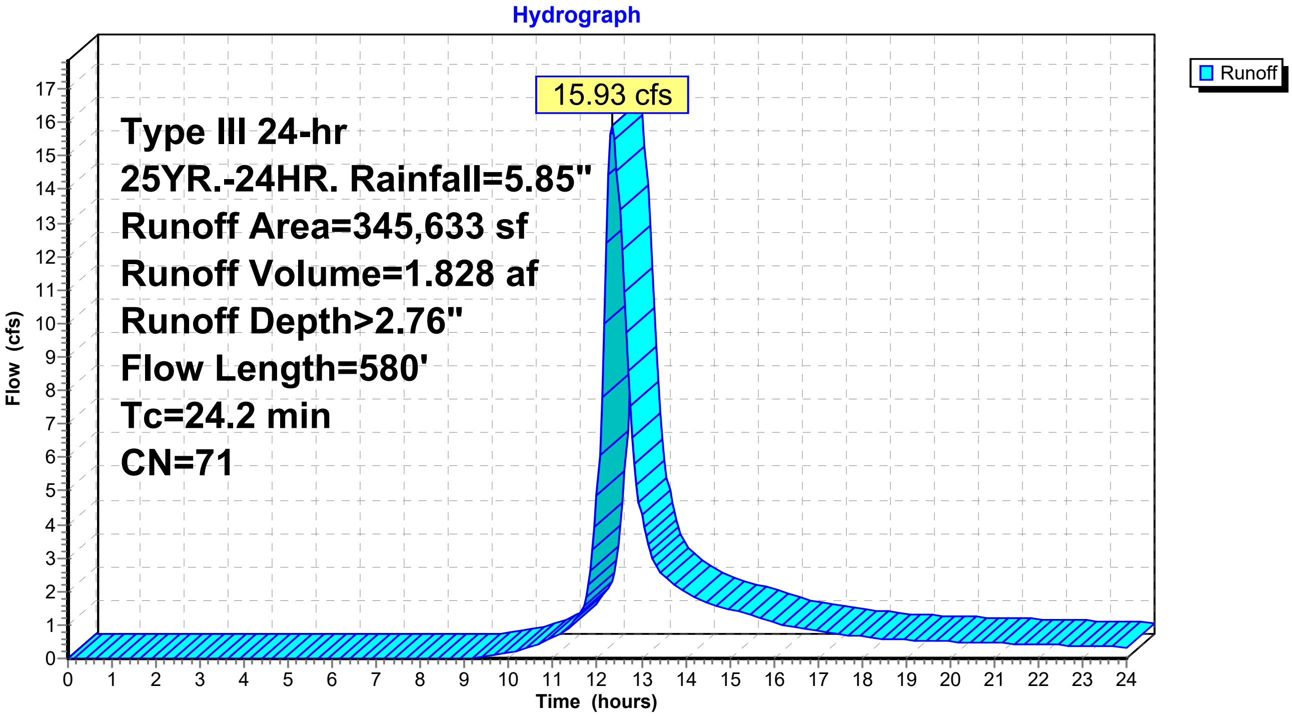
Runoff = 15.93 cfs @ 12.35 hrs, Volume= 1.828 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
2,125	98	Unconnected roofs, HSG C
36,083	74	>75% Grass cover, Good, HSG C
4,201	98	Unconnected pavement, HSG C
303,224	70	Woods, Good, HSG C
345,633	71	Weighted Average
339,307		98.17% Pervious Area
6,326		1.83% Impervious Area
6,326		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0350	0.09		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
6.6	480	0.0580	1.20		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
24.2	580	Total			

Subcatchment 1S: Southeast Corner of Lot



Summary for Subcatchment 2aS: Southern Portion of Lot

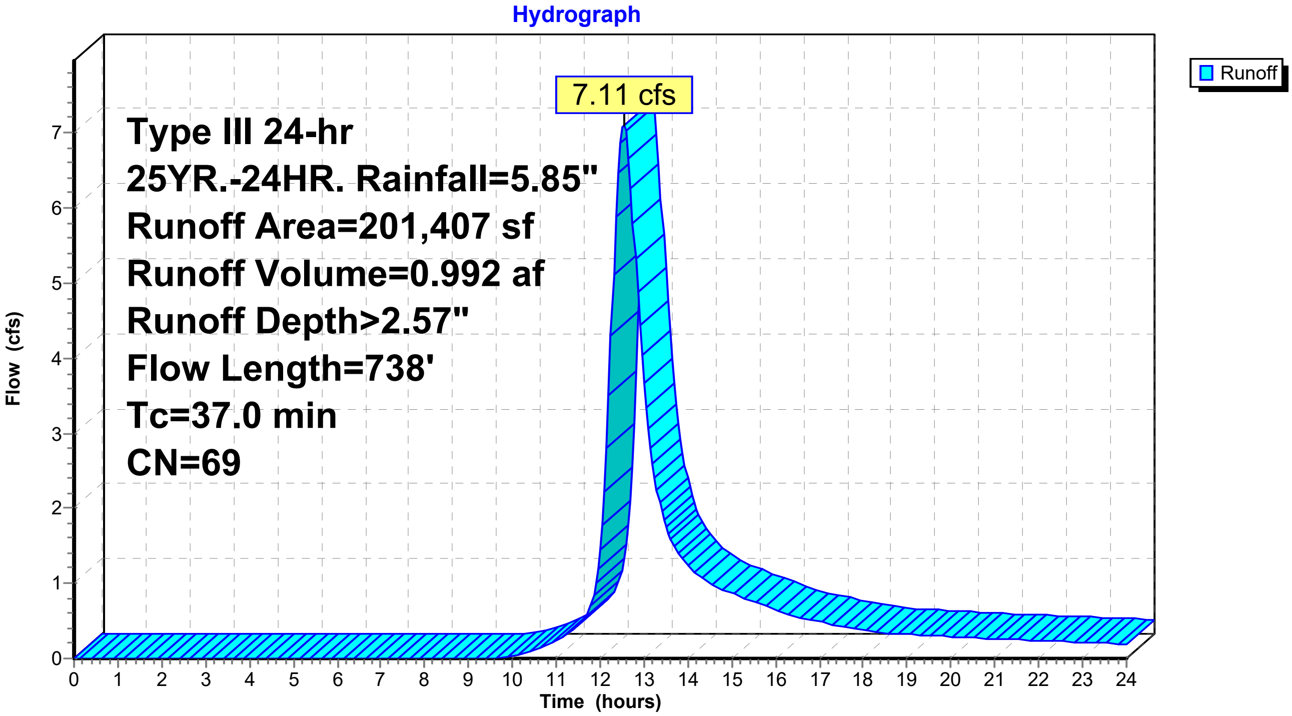
Runoff = 7.11 cfs @ 12.53 hrs, Volume= 0.992 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
3,168	61	>75% Grass cover, Good, HSG B
17,568	55	Woods, Good, HSG B
1,543	98	Unconnected roofs, HSG C
21,755	74	>75% Grass cover, Good, HSG C
157,373	70	Woods, Good, HSG C
201,407	69	Weighted Average
199,864		99.23% Pervious Area
1,543		0.77% Impervious Area
1,543		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.1	100	0.0250	0.08		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
2.6	171	0.0498	1.12		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
14.3	467	0.0118	0.54		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
37.0	738	Total			

Subcatchment 2aS: Southern Portion of Lot



Summary for Subcatchment 2S: Center Wetland Area

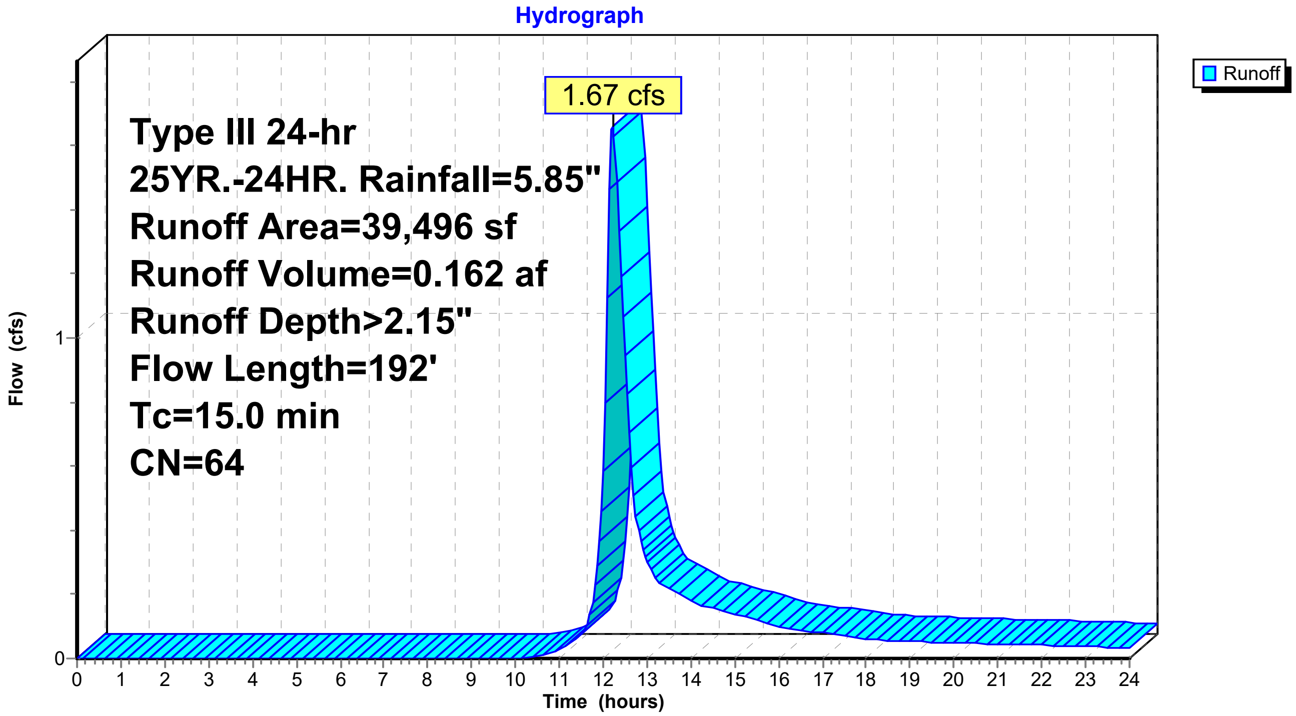
Runoff = 1.67 cfs @ 12.22 hrs, Volume= 0.162 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,264	61	>75% Grass cover, Good, HSG B
1,243	98	Unconnected pavement, HSG B
15,932	55	Woods, Good, HSG B
2,167	74	>75% Grass cover, Good, HSG C
15,890	70	Woods, Good, HSG C
39,496	64	Weighted Average
38,253		96.85% Pervious Area
1,243		3.15% Impervious Area
1,243		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0750	0.13		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
2.1	92	0.0220	0.74		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
15.0	192	Total			

Subcatchment 2S: Center Wetland Area



Summary for Subcatchment 3aS: Subcatchment #3a

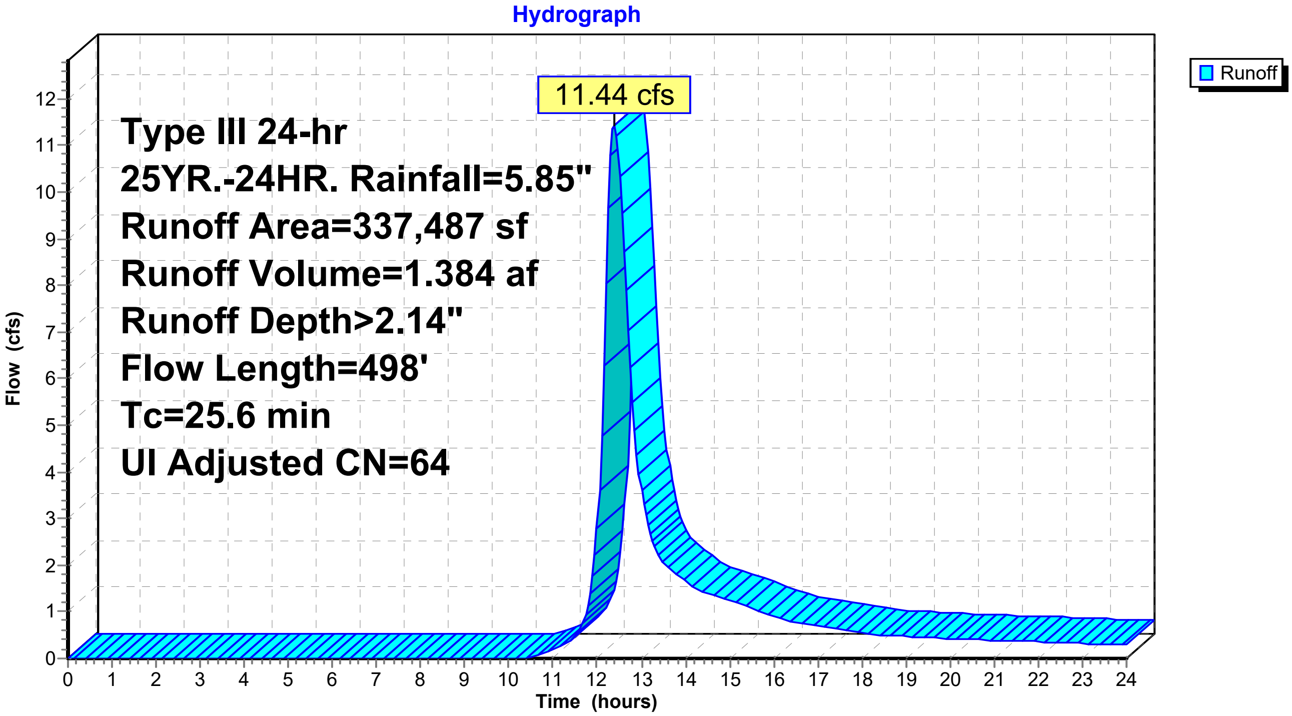
Runoff = 11.44 cfs @ 12.38 hrs, Volume= 1.384 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
4,399	98		Unconnected roofs, HSG B
46,204	61		>75% Grass cover, Good, HSG B
4,228	98		Unconnected pavement, HSG B
144,311	55		Woods, Good, HSG B
7,168	74		>75% Grass cover, Good, HSG C
1,626	98		Unconnected pavement, HSG C
67,895	70		Woods, Good, HSG C
601	98		Unconnected roofs, HSG D
6,103	80		>75% Grass cover, Good, HSG D
54,952	77		Woods, Good, HSG D
337,487	65	64	Weighted Average, UI Adjusted
326,633			96.78% Pervious Area
10,854			3.22% Impervious Area
10,854			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0350	0.09		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
5.6	229	0.0186	0.68		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
2.4	169	0.0531	1.15		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
25.6	498	Total			

Subcatchment 3aS: Subcatchment #3a



Summary for Subcatchment 3S: Eastern Side of Lot

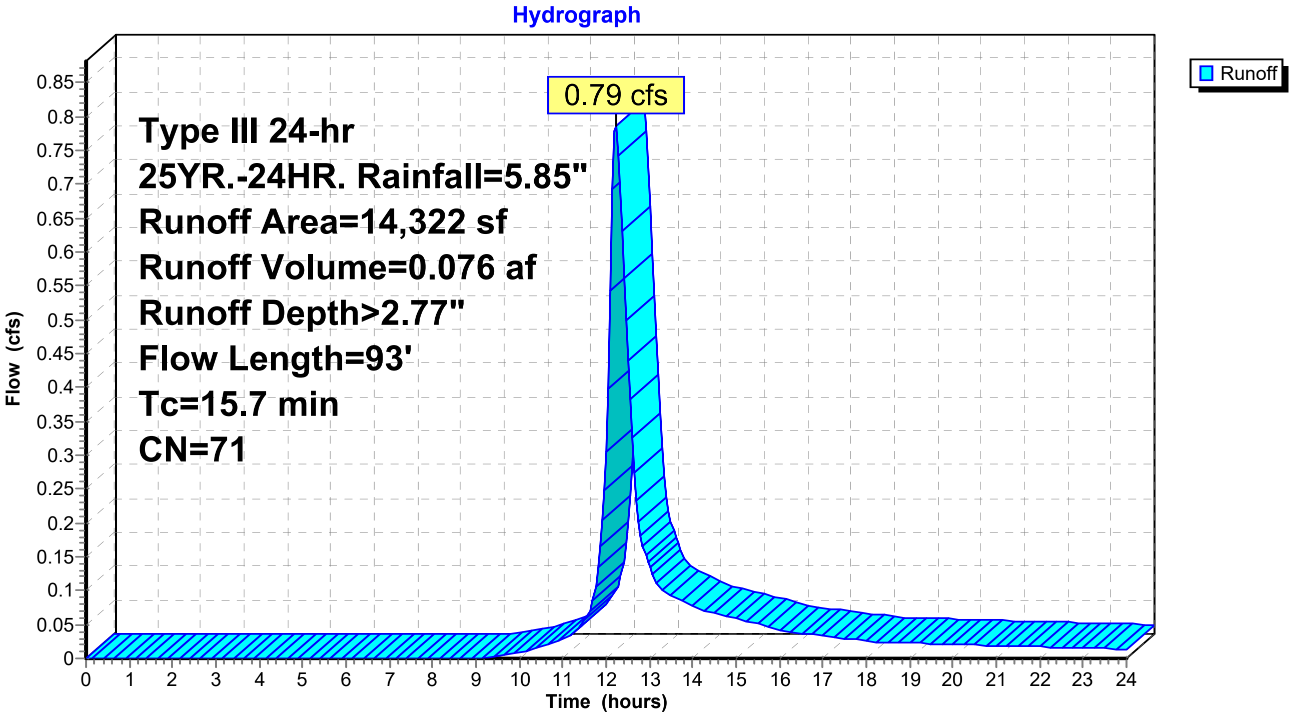
Runoff = 0.79 cfs @ 12.22 hrs, Volume= 0.076 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
545	61	>75% Grass cover, Good, HSG B
4,772	74	>75% Grass cover, Good, HSG C
9,005	70	Woods, Good, HSG C
14,322	71	Weighted Average
14,322		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	33	0.2669	0.17		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
12.5	60	0.0292	0.08		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.06"
15.7	93	Total			

Subcatchment 3S: Eastern Side of Lot



Summary for Subcatchment 4S: Northern Portion of Lot

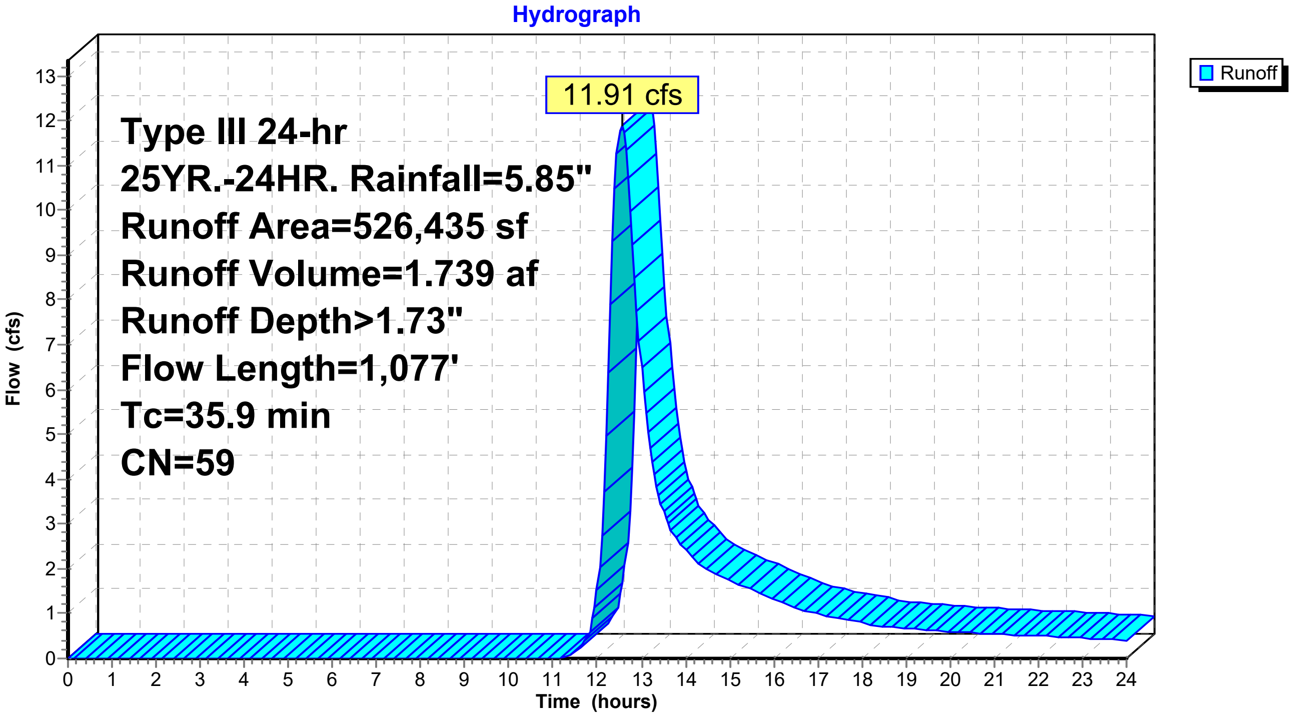
Runoff = 11.91 cfs @ 12.55 hrs, Volume= 1.739 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
2,500	98	Unconnected roofs, HSG B
45,081	61	>75% Grass cover, Good, HSG B
376,409	55	Woods, Good, HSG B
1,213	74	>75% Grass cover, Good, HSG C
53,790	70	Woods, Good, HSG C
47,442	77	Woods, Good, HSG D
526,435	59	Weighted Average
523,935		99.53% Pervious Area
2,500		0.47% Impervious Area
2,500		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	100	0.0350	0.09		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
3.9	197	0.0280	0.84		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
4.2	171	0.0180	0.67		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
2.2	67	0.0100	0.50		**Shallow Concentrated Flow, Segment #4** Woodland Kv= 5.0 fps
1.1	124	0.0680	1.83		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
3.0	178	0.0380	0.97		**Shallow Concentrated Flow, Segment #6** Woodland Kv= 5.0 fps
3.9	240	0.0420	1.02		**Shallow Concentrated Flow, Segment #7** Woodland Kv= 5.0 fps
35.9	1,077	Total			

Subcatchment 4S: Northern Portion of Lot



Summary for Subcatchment 5S: Offsite Flow South

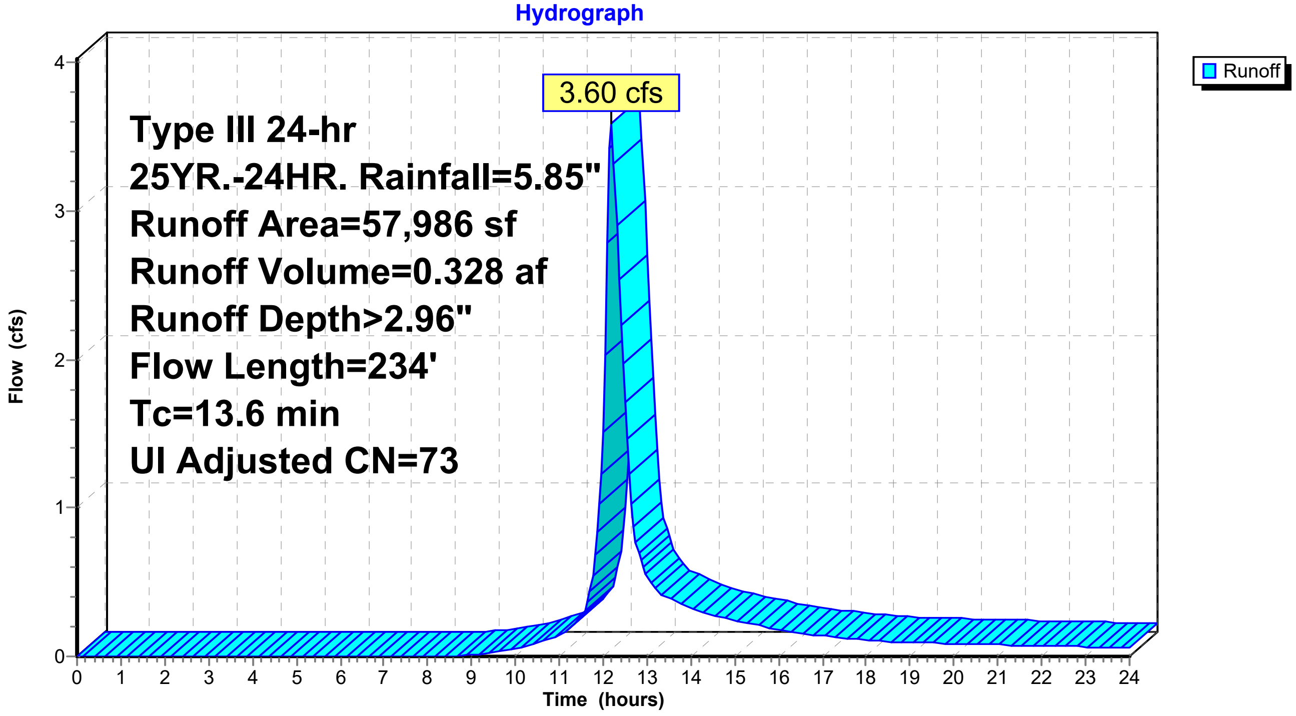
Runoff = 3.60 cfs @ 12.19 hrs, Volume= 0.328 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
643	98		Unconnected roofs, HSG C
13,925	74		>75% Grass cover, Good, HSG C
6,189	98		Unconnected pavement, HSG C
37,229	70		Woods, Good, HSG C
57,986	74	73	Weighted Average, UI Adjusted
51,154			88.22% Pervious Area
6,832			11.78% Impervious Area
6,832			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0900	0.14		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
1.6	134	0.0740	1.36		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
13.6	234	Total			

Subcatchment 5S: Offsite Flow South



Summary for Subcatchment 6S: Center of Lot

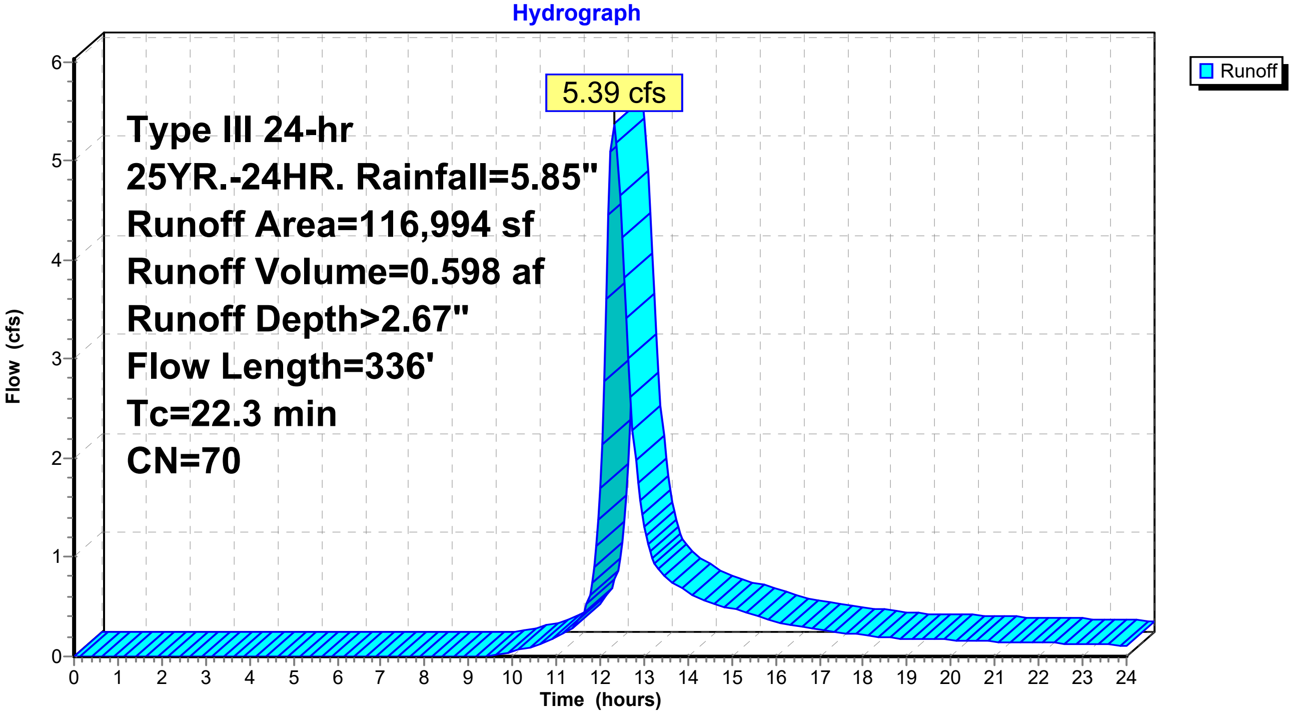
Runoff = 5.39 cfs @ 12.32 hrs, Volume= 0.598 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,883	55	Woods, Good, HSG B
1,250	98	Unconnected roofs, HSG C
13,409	74	>75% Grass cover, Good, HSG C
94,241	70	Woods, Good, HSG C
3,211	77	Woods, Good, HSG D
116,994	70	Weighted Average
115,744		98.93% Pervious Area
1,250		1.07% Impervious Area
1,250		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0300	0.09		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
3.6	236	0.0470	1.08		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
22.3	336	Total			

Subcatchment 6S: Center of Lot



Summary for Subcatchment 7S: Area Uphill of Existing Culvert

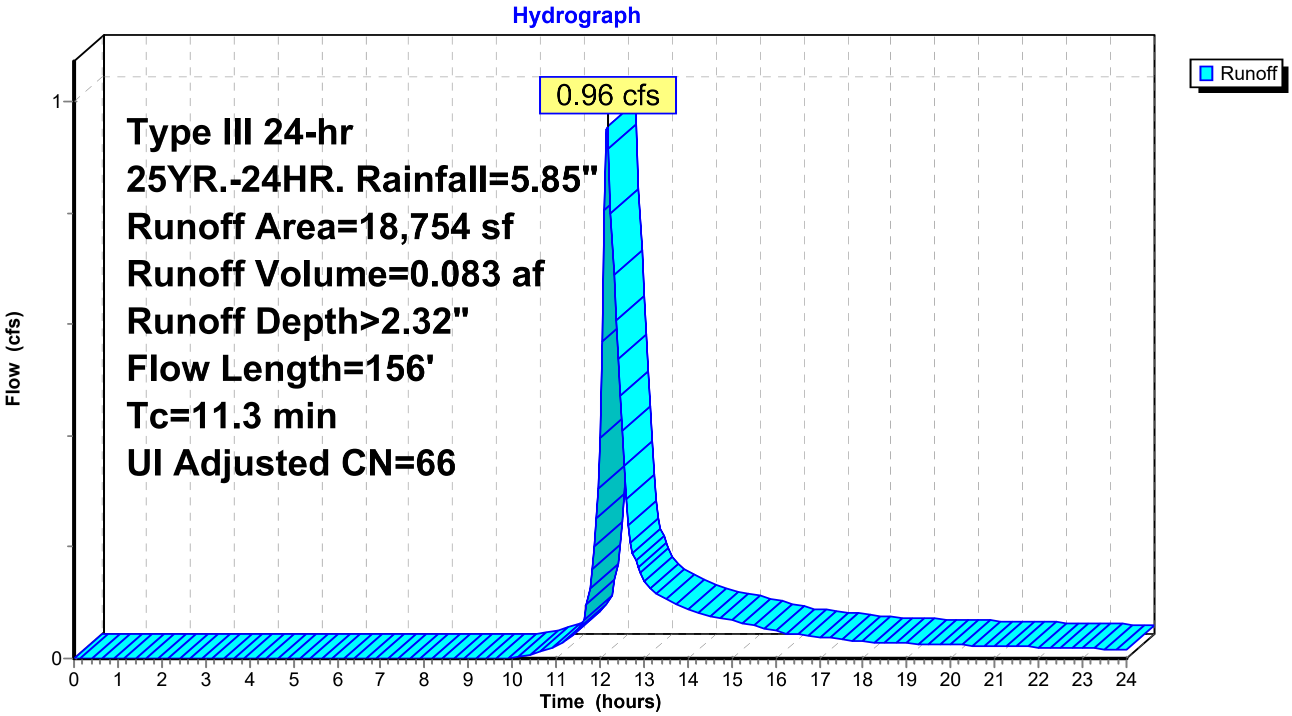
Runoff = 0.96 cfs @ 12.17 hrs, Volume= 0.083 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
4,065	61		>75% Grass cover, Good, HSG B
1,392	98		Paved parking, HSG B
8,048	55		Woods, Good, HSG B
3,032	80		>75% Grass cover, Good, HSG D
2,217	98		Unconnected pavement, HSG D
18,754	69	66	Weighted Average, UI Adjusted
15,145			80.76% Pervious Area
3,609			19.24% Impervious Area
2,217			61.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1200	0.16		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
0.6	56	0.0537	1.62		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
11.3	156	Total			

Subcatchment 7S: Area Uphill of Existing Culvert



Summary for Subcatchment 8S: Western Corner Offsite

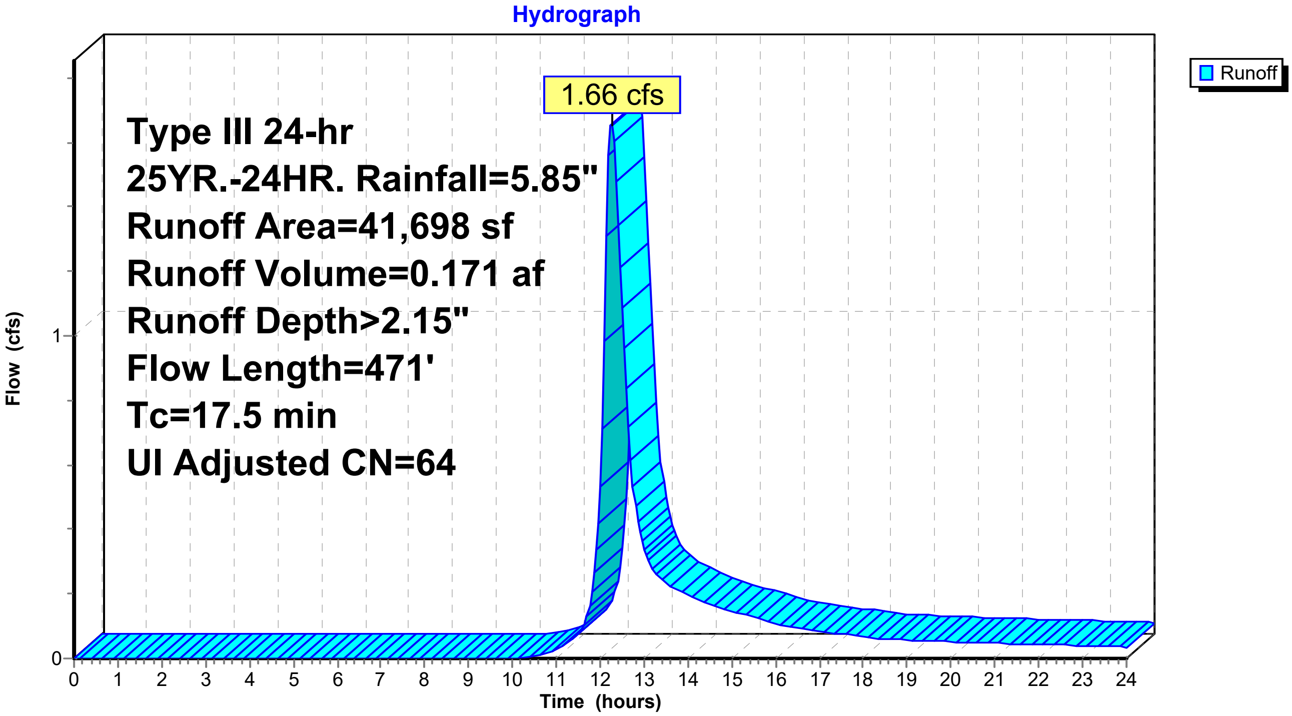
Runoff = 1.66 cfs @ 12.26 hrs, Volume= 0.171 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,784	98		Unconnected pavement, HSG B
1,642	98		Paved parking, HSG B
9,893	61		>75% Grass cover, Good, HSG B
19,636	55		Woods, Good, HSG B
1,250	98		Unconnected roofs, HSG D
509	80		>75% Grass cover, Good, HSG D
6,984	77		Woods, Good, HSG D
41,698	65	64	Weighted Average, UI Adjusted
37,022			88.79% Pervious Area
4,676			11.21% Impervious Area
3,034			64.88% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0800	0.13		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
3.2	212	0.0500	1.12		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
1.7	159	0.0500	1.57		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
17.5	471	Total			

Subcatchment 8S: Western Corner Offsite



Summary for Subcatchment 9S: Western Side of Lot

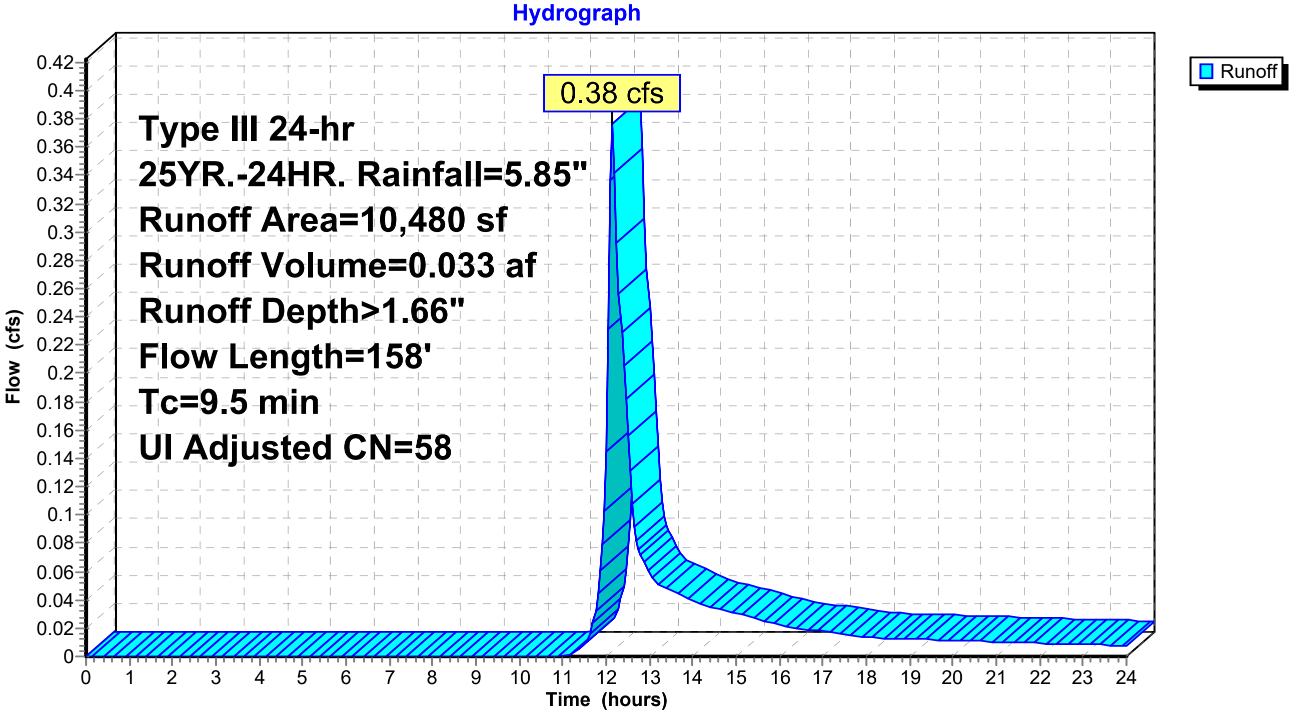
Runoff = 0.38 cfs @ 12.15 hrs, Volume= 0.033 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,564	98		Unconnected pavement, HSG B
8,916	55		Woods, Good, HSG B
10,480	61	58	Weighted Average, UI Adjusted
8,916			85.08% Pervious Area
1,564			14.92% Impervious Area
1,564			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0300	0.20		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
1.0	58	0.0340	0.92		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
9.5	158	Total			

Subcatchment 9S: Western Side of Lot



Summary for Subcatchment 10S: Beginning of Sutton Street

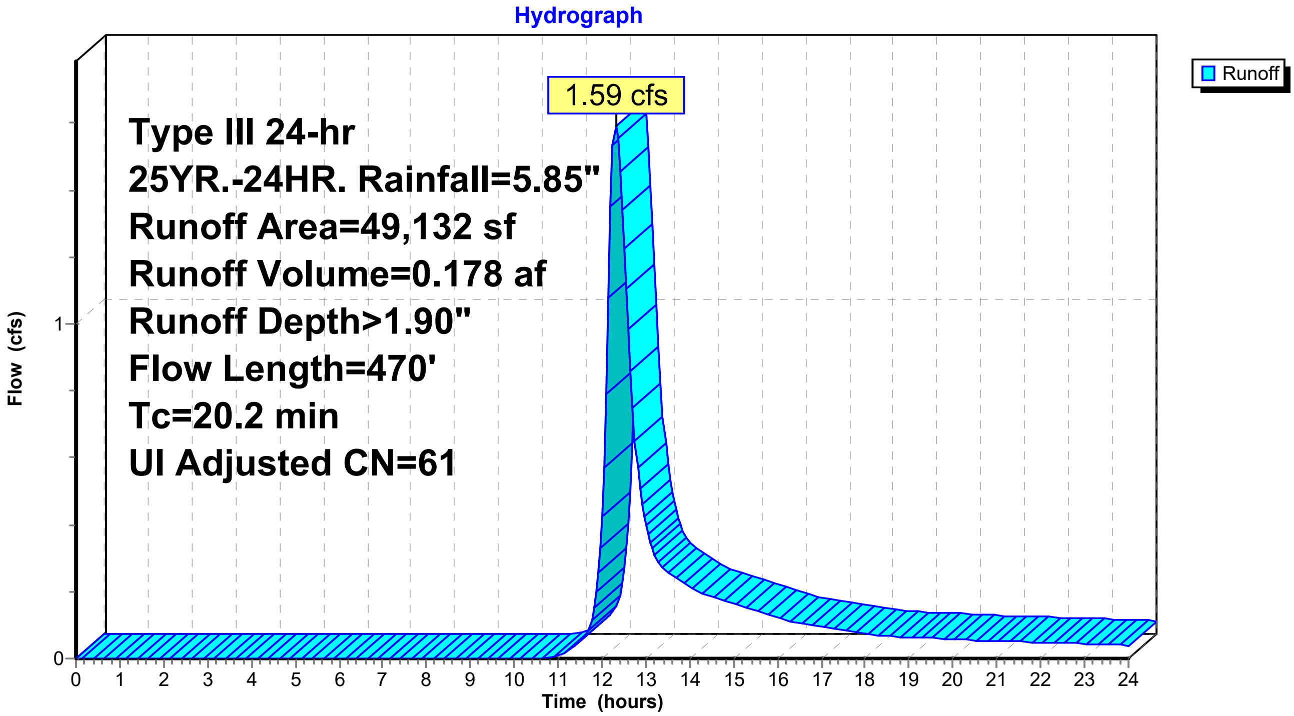
Runoff = 1.59 cfs @ 12.31 hrs, Volume= 0.178 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,270	98		Unconnected roofs, HSG B
16,627	61		>75% Grass cover, Good, HSG B
6,968	98		Unconnected pavement, HSG B
23,994	55		Woods, Good, HSG B
273	98		Unconnected pavement, HSG C
49,132	64	61	Weighted Average, UI Adjusted
40,621			82.68% Pervious Area
8,511			17.32% Impervious Area
8,511			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0500	0.11		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
5.0	370	0.0600	1.22		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
20.2	470	Total			

Subcatchment 10S: Beginning of Sutton Street



Summary for Subcatchment 11S: Center of Sutton Street

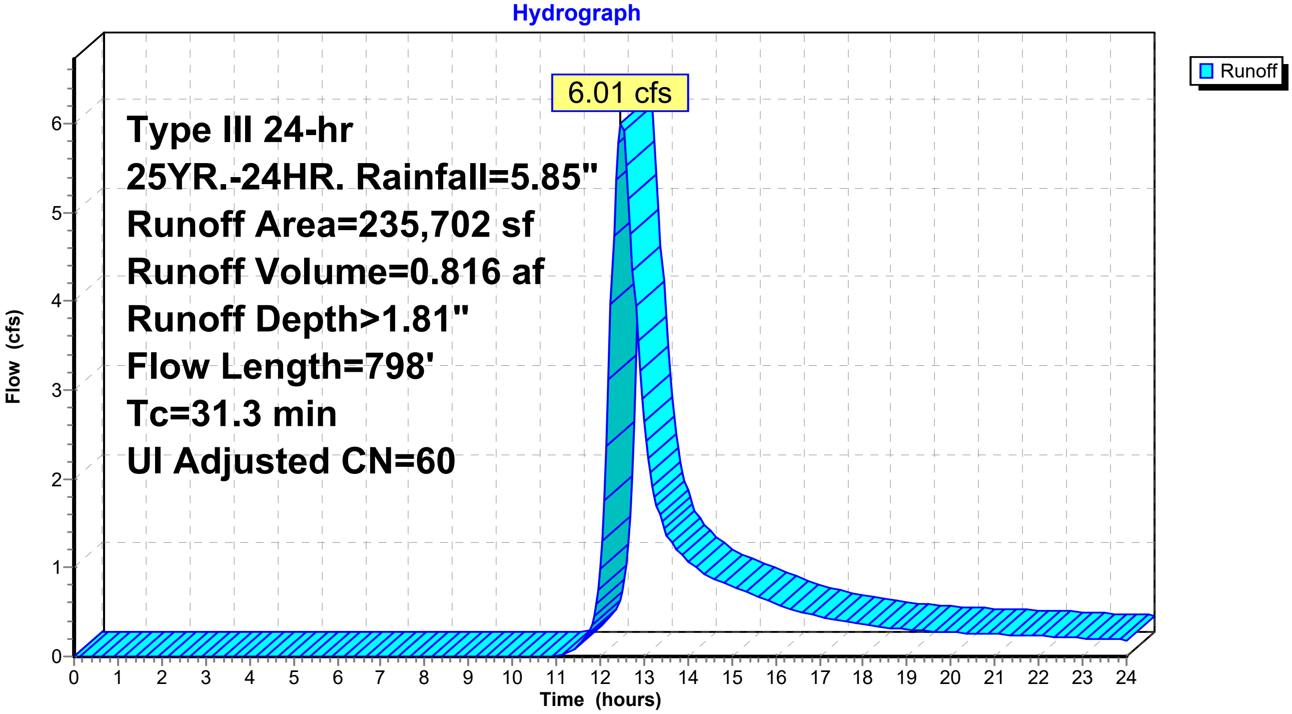
Runoff = 6.01 cfs @ 12.48 hrs, Volume= 0.816 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
9,244	61		>75% Grass cover, Good, HSG B
155,601	55		Woods, Good, HSG B
1,641	98		Unconnected roofs, HSG C
8,513	74		>75% Grass cover, Good, HSG C
7,028	98		Unconnected pavement, HSG C
53,675	70		Woods, Good, HSG C
235,702	61	60	Weighted Average, UI Adjusted
227,033			96.32% Pervious Area
8,669			3.68% Impervious Area
8,669			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	100	0.0300	0.09		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
12.6	698	0.0340	0.92		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
31.3	798	Total			

Subcatchment 11S: Center of Sutton Street



Summary for Subcatchment 12S: End of Sutton Street

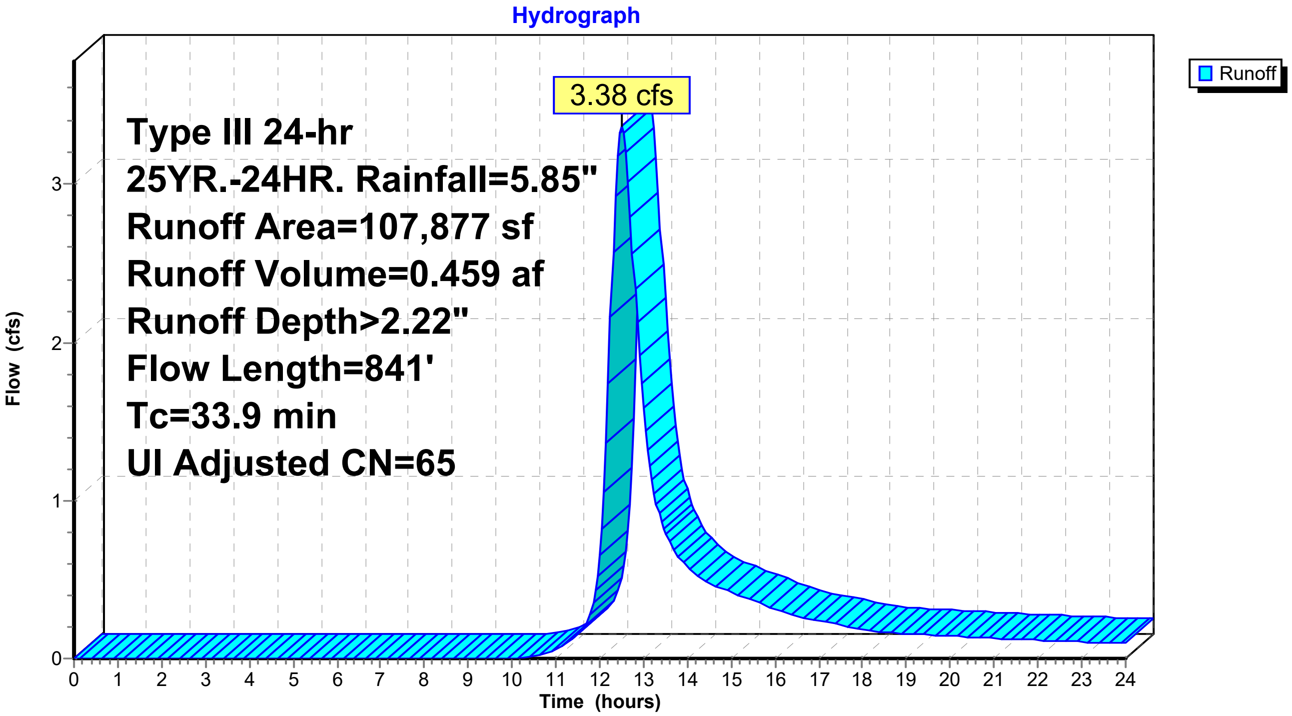
Runoff = 3.38 cfs @ 12.50 hrs, Volume= 0.459 af, Depth> 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
45,109	55		Woods, Good, HSG B
1,397	98		Unconnected roofs, HSG C
17,865	74		>75% Grass cover, Good, HSG C
3,195	98		Unconnected pavement, HSG C
40,311	70		Woods, Good, HSG C
107,877	66	65	Weighted Average, UI Adjusted
103,285			95.74% Pervious Area
4,592			4.26% Impervious Area
4,592			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.1	100	0.0250	0.08		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
13.8	741	0.0320	0.89		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
33.9	841	Total			

Subcatchment 12S: End of Sutton Street



Summary for Subcatchment 13S: Western Corner

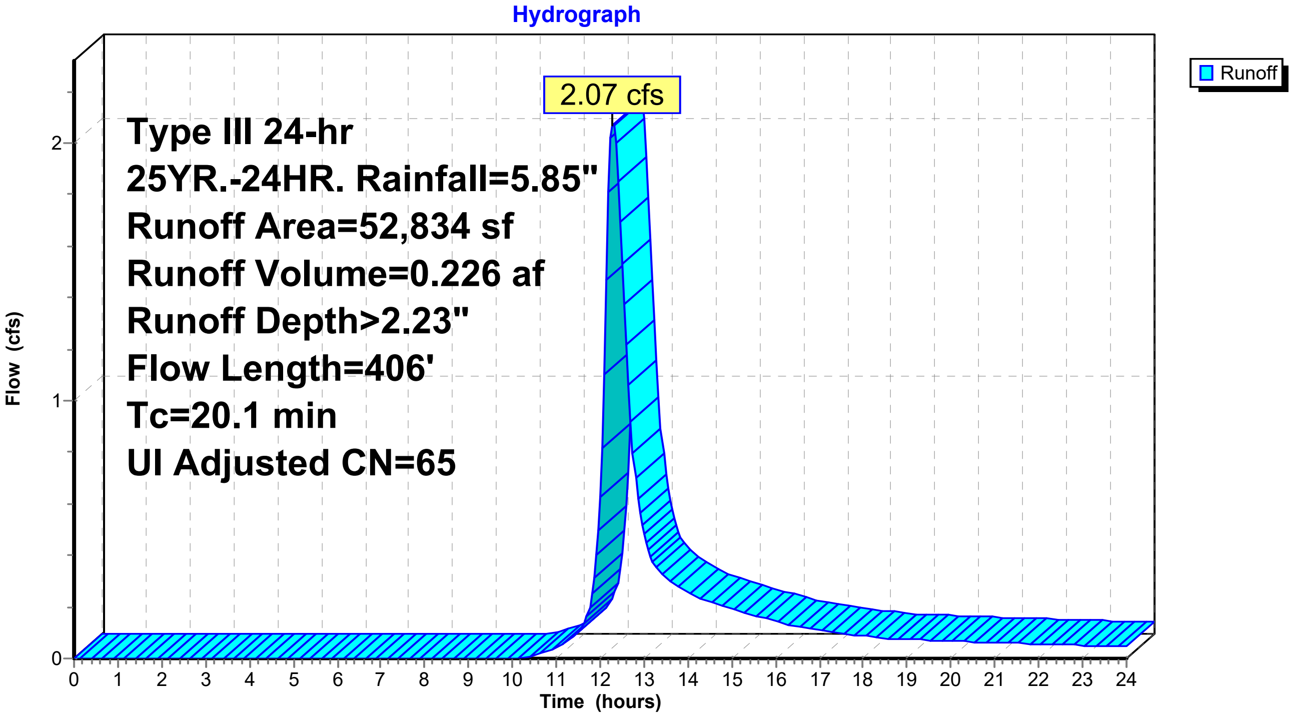
Runoff = 2.07 cfs @ 12.30 hrs, Volume= 0.226 af, Depth> 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,250	98		Unconnected roofs, HSG B
12,445	61		>75% Grass cover, Good, HSG B
2,875	98		Paved parking, HSG B
22,108	55		Woods, Good, HSG B
1,250	98		Unconnected roofs, HSG D
1,697	80		>75% Grass cover, Good, HSG D
11,209	77		Woods, Good, HSG D
52,834	66	65	Weighted Average, UI Adjusted
47,459			89.83% Pervious Area
5,375			10.17% Impervious Area
2,500			46.51% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	100	0.0450	0.10		**Sheet Flow, Sheet flow** Woods: Light underbrush n= 0.400 P2= 3.06"
1.5	112	0.0630	1.25		**Shallow Concentrated Flow, Segment 2** Woodland Kv= 5.0 fps
0.7	67	0.0500	1.57		**Shallow Concentrated Flow, Segment 3** Short Grass Pasture Kv= 7.0 fps
2.0	127	0.0450	1.06		**Shallow Concentrated Flow, Segment 4** Woodland Kv= 5.0 fps
20.1	406	Total			

Subcatchment 13S: Western Corner



Summary for Subcatchment 21S: Gravel Wetland #101

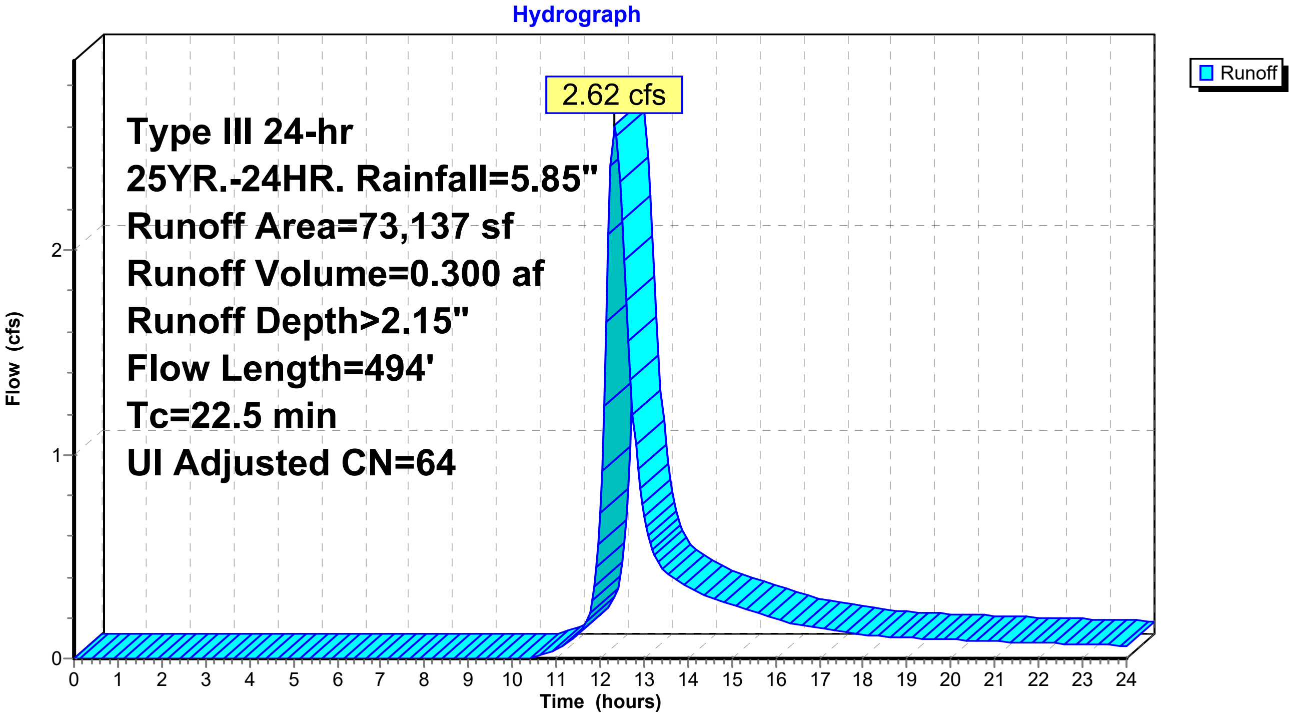
Runoff = 2.62 cfs @ 12.33 hrs, Volume= 0.300 af, Depth> 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
2,500	98		Unconnected roofs, HSG B
45,104	61		>75% Grass cover, Good, HSG B
5,541	98		Paved parking, HSG B
14,935	55		Woods, Good, HSG B
142	80		>75% Grass cover, Good, HSG D
4,915	77		Woods, Good, HSG D
73,137	65	64	Weighted Average, UI Adjusted
65,096			89.01% Pervious Area
8,041			10.99% Impervious Area
2,500			31.09% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0400	0.10		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
1.6	111	0.0271	1.15		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
4.3	283	0.0247	1.10		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
22.5	494	Total			

Subcatchment 21S: Gravel Wetland #101



Summary for Subcatchment 22S: Gravel Wetland #102

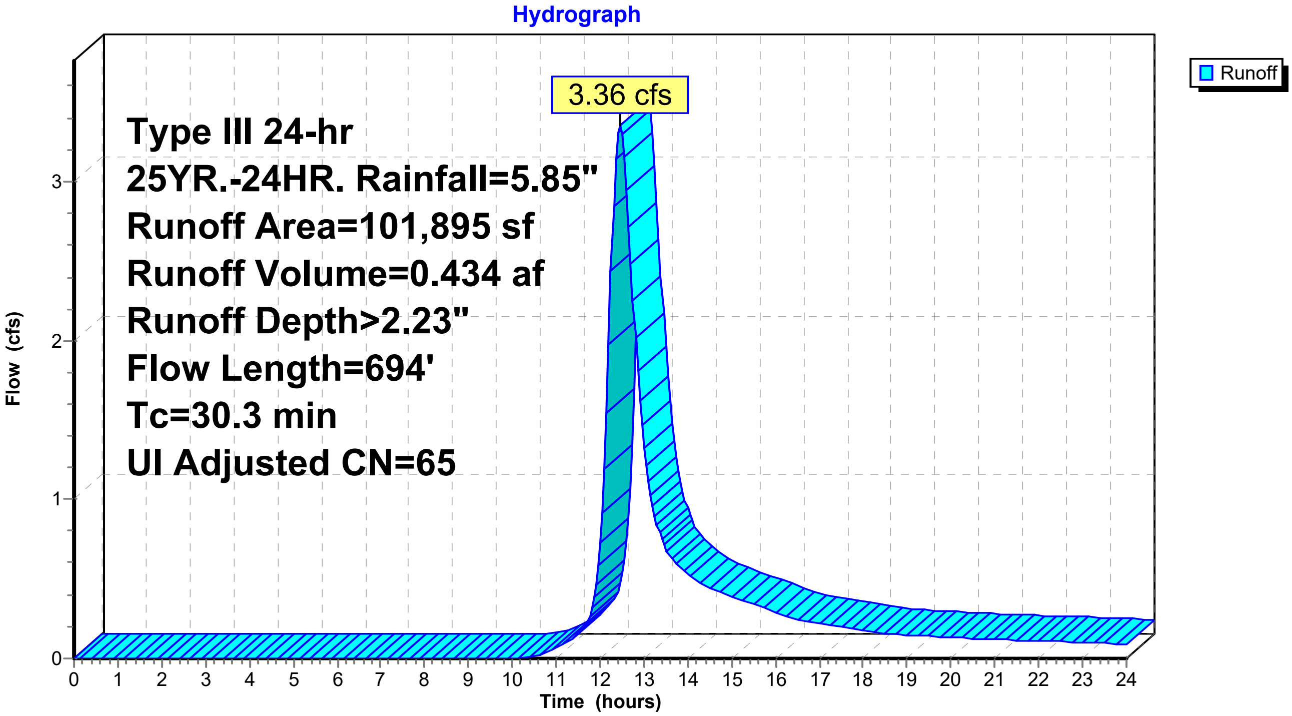
Runoff = 3.36 cfs @ 12.45 hrs, Volume= 0.434 af, Depth> 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
5,000	98		Unconnected roofs, HSG B
47,385	61		>75% Grass cover, Good, HSG B
10,244	98		Paved parking, HSG B
31,435	55		Woods, Good, HSG B
6,171	74		>75% Grass cover, Good, HSG C
1,660	98		Paved parking, HSG C
101,895	66	65	Weighted Average, UI Adjusted
84,991			83.41% Pervious Area
16,904			16.59% Impervious Area
5,000			29.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	80	0.0248	0.08		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
2.5	20	0.0256	0.13		**Sheet Flow, Segment #2** Grass: Short n= 0.150 P2= 3.06"
1.7	103	0.0219	1.04		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
3.2	97	0.0103	0.51		**Shallow Concentrated Flow, Segment #4** Woodland Kv= 5.0 fps
6.0	394	0.0241	1.09		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
30.3	694	Total			

Subcatchment 22S: Gravel Wetland #102



Summary for Subcatchment 23S: Gravel Wetland #103

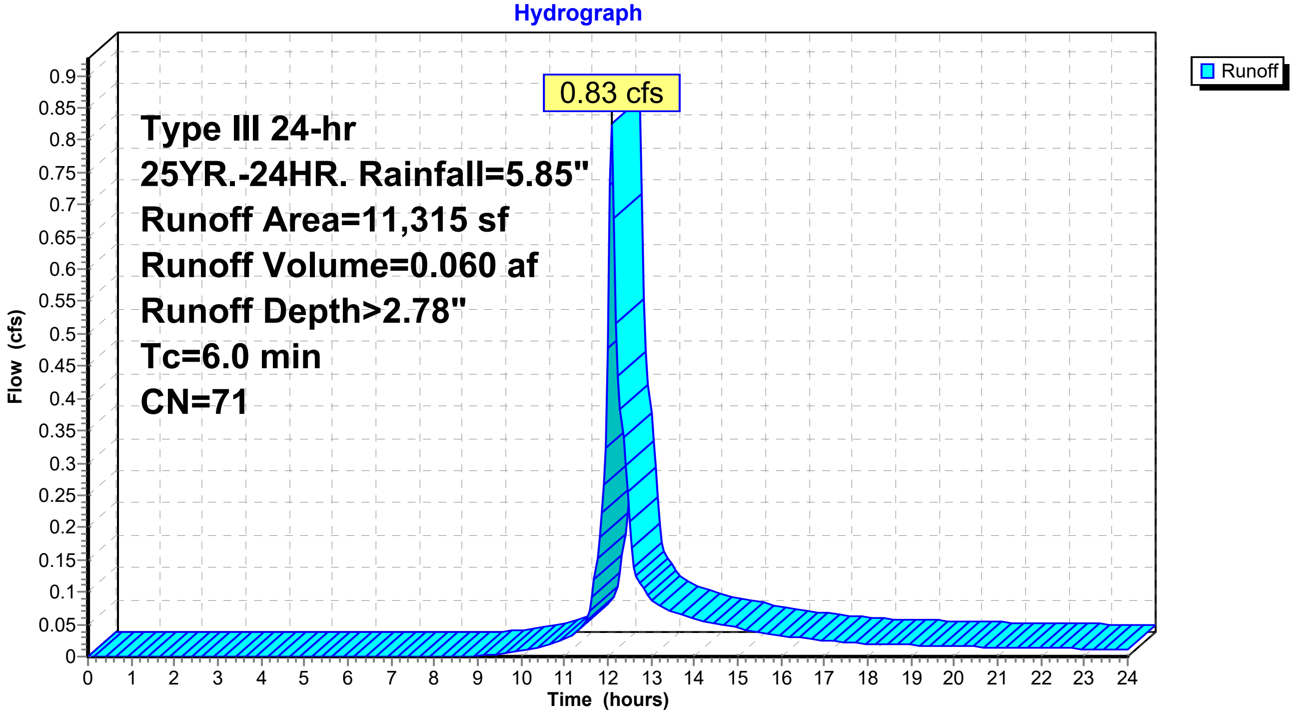
Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
7,836	61	>75% Grass cover, Good, HSG B
1,865	98	Paved parking, HSG B
131	55	Woods, Good, HSG B
602	74	>75% Grass cover, Good, HSG C
881	98	Paved parking, HSG C
11,315	71	Weighted Average
8,569		75.73% Pervious Area
2,746		24.27% Impervious Area

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

Subcatchment 23S: Gravel Wetland #103



Summary for Subcatchment 24S: Gravel Wetland #104

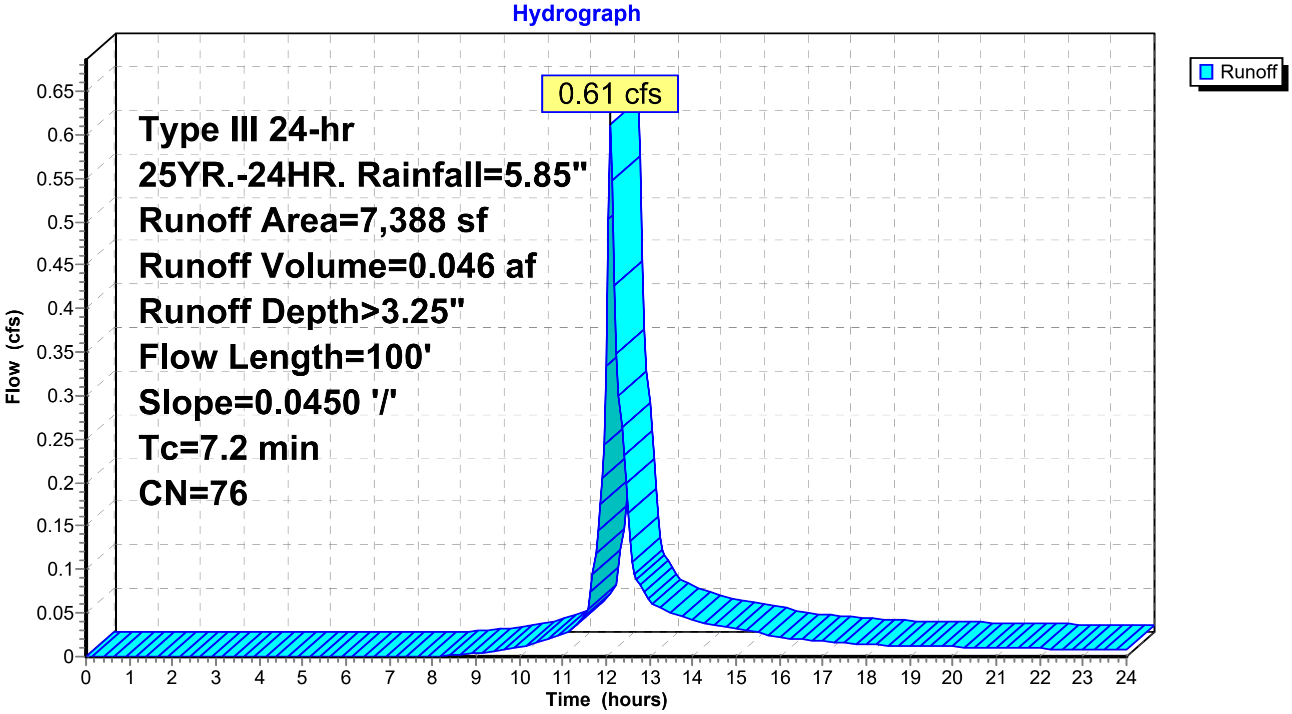
Runoff = 0.61 cfs @ 12.11 hrs, Volume= 0.046 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
6,853	74	>75% Grass cover, Good, HSG C
535	98	Paved parking, HSG C
7,388	76	Weighted Average
6,853		92.76% Pervious Area
535		7.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	100	0.0450	0.23		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"

Subcatchment 24S: Gravel Wetland #104



Summary for Subcatchment 25S: Infiltration Pond #105

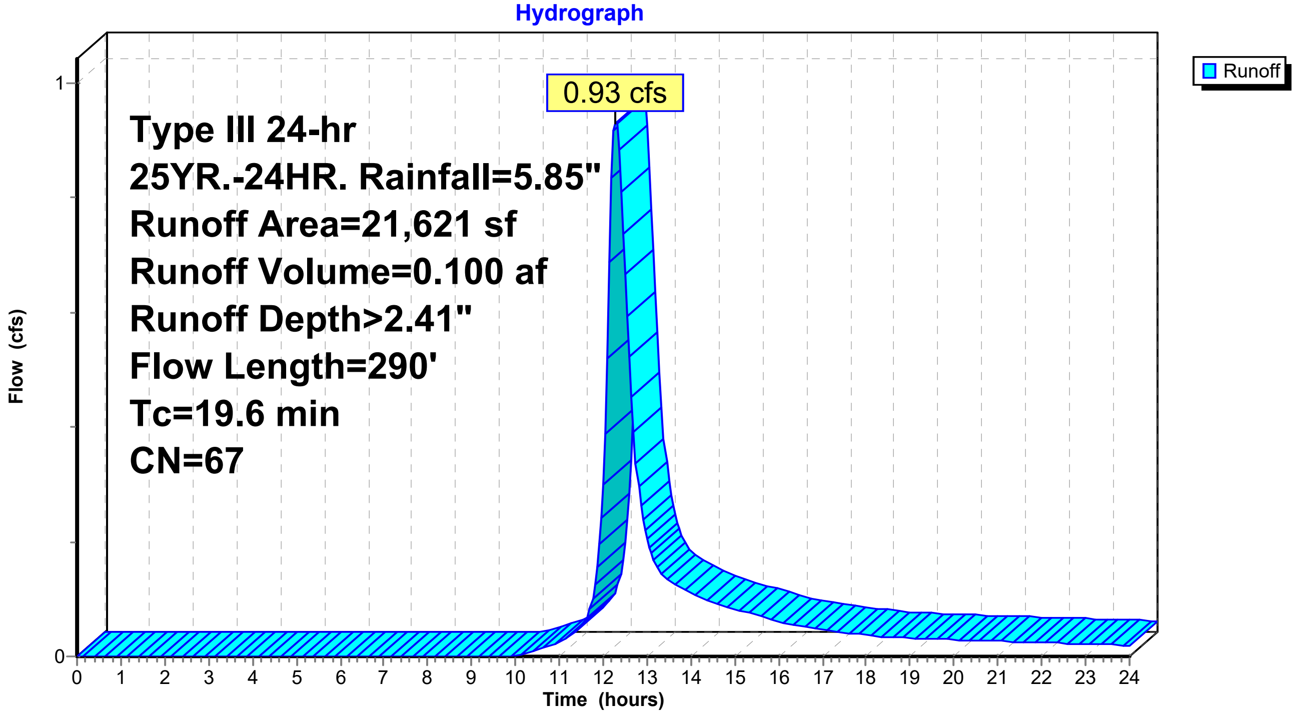
Runoff = 0.93 cfs @ 12.28 hrs, Volume= 0.100 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
5,597	61	>75% Grass cover, Good, HSG B
2,187	55	Woods, Good, HSG B
2,438	74	>75% Grass cover, Good, HSG C
11,399	70	Woods, Good, HSG C
21,621	67	Weighted Average
21,621		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0400	0.10		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
2.8	167	0.0404	1.00		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
0.2	23	0.0536	1.62		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
19.6	290	Total			

Subcatchment 25S: Infiltration Pond #105



Summary for Subcatchment 26S: Area Uphill of Culvert

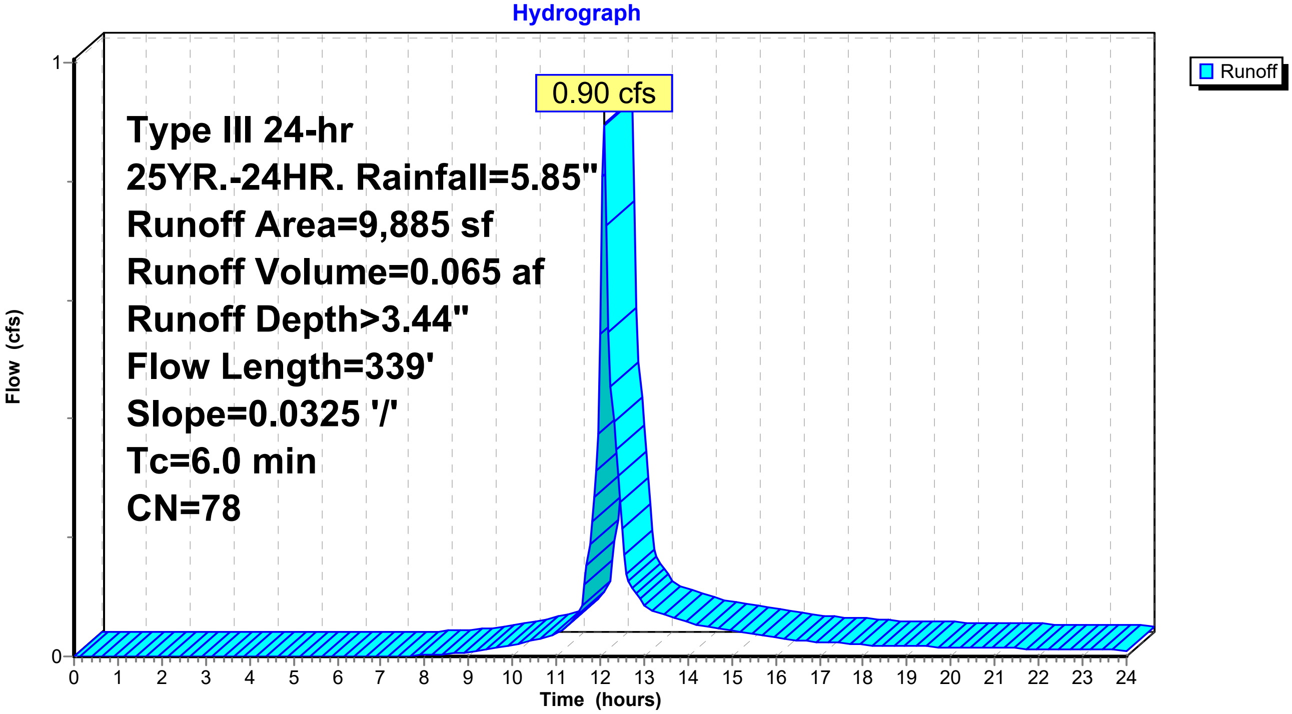
Runoff = 0.90 cfs @ 12.09 hrs, Volume= 0.065 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,050	61	>75% Grass cover, Good, HSG B
2,483	98	Paved parking, HSG B
1,873	74	>75% Grass cover, Good, HSG C
1,459	98	Paved parking, HSG C
20	70	Woods, Good, HSG C
9,885	78	Weighted Average
5,943		60.12% Pervious Area
3,942		39.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	339	0.0325	1.26		**Shallow Concentrated Flow, Segment #1** Short Grass Pasture Kv= 7.0 fps
4.5	339	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 26S: Area Uphill of Culvert



Summary for Subcatchment 27S: Western Corner of Lot

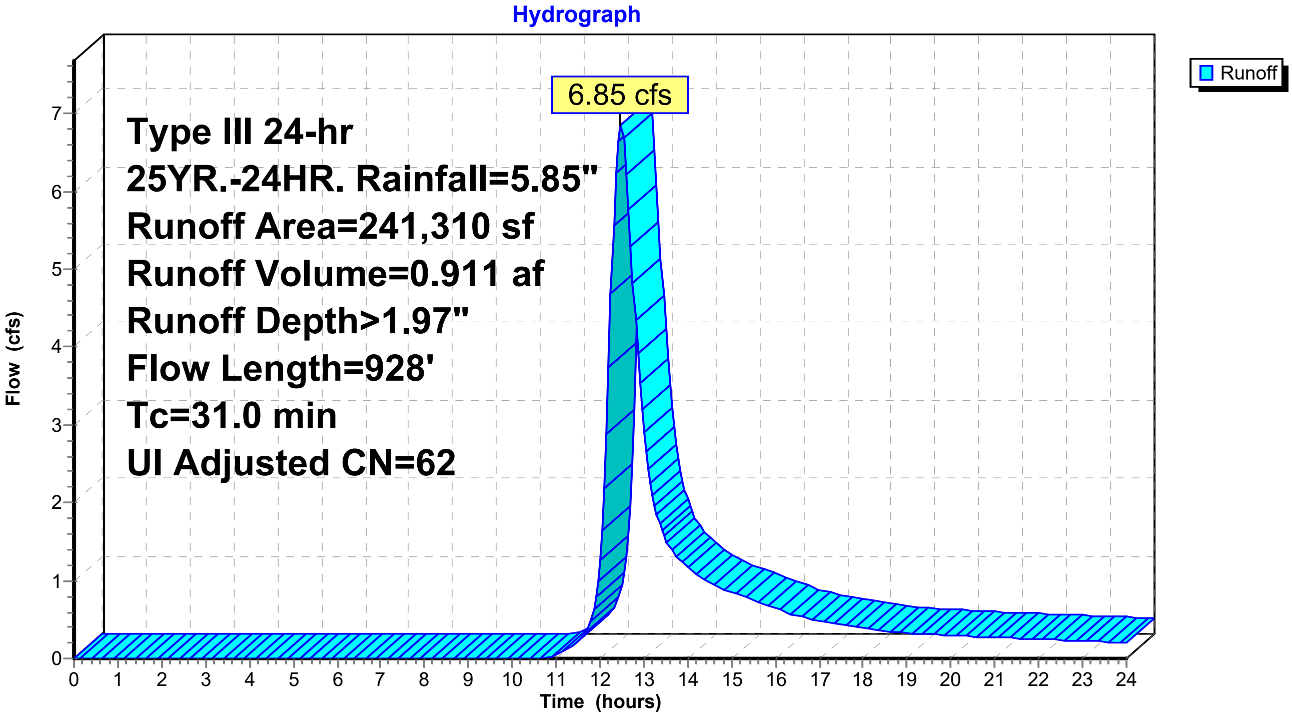
Runoff = 6.85 cfs @ 12.47 hrs, Volume= 0.911 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
3,750	98		Unconnected roofs, HSG B
51,433	61		>75% Grass cover, Good, HSG B
11,745	98		Unconnected pavement, HSG B
125,224	55		Woods, Good, HSG B
1,226	80		>75% Grass cover, Good, HSG D
47,932	77		Woods, Good, HSG D
241,310	64	62	Weighted Average, UI Adjusted
225,815			93.58% Pervious Area
15,495			6.42% Impervious Area
15,495			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.2	100	0.0600	0.12		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
14.8	636	0.0204	0.71		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
2.0	192	0.0546	1.64		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
31.0	928	Total			

Subcatchment 27S: Western Corner of Lot



Summary for Subcatchment 28S: Inlet Sump South of Crossing

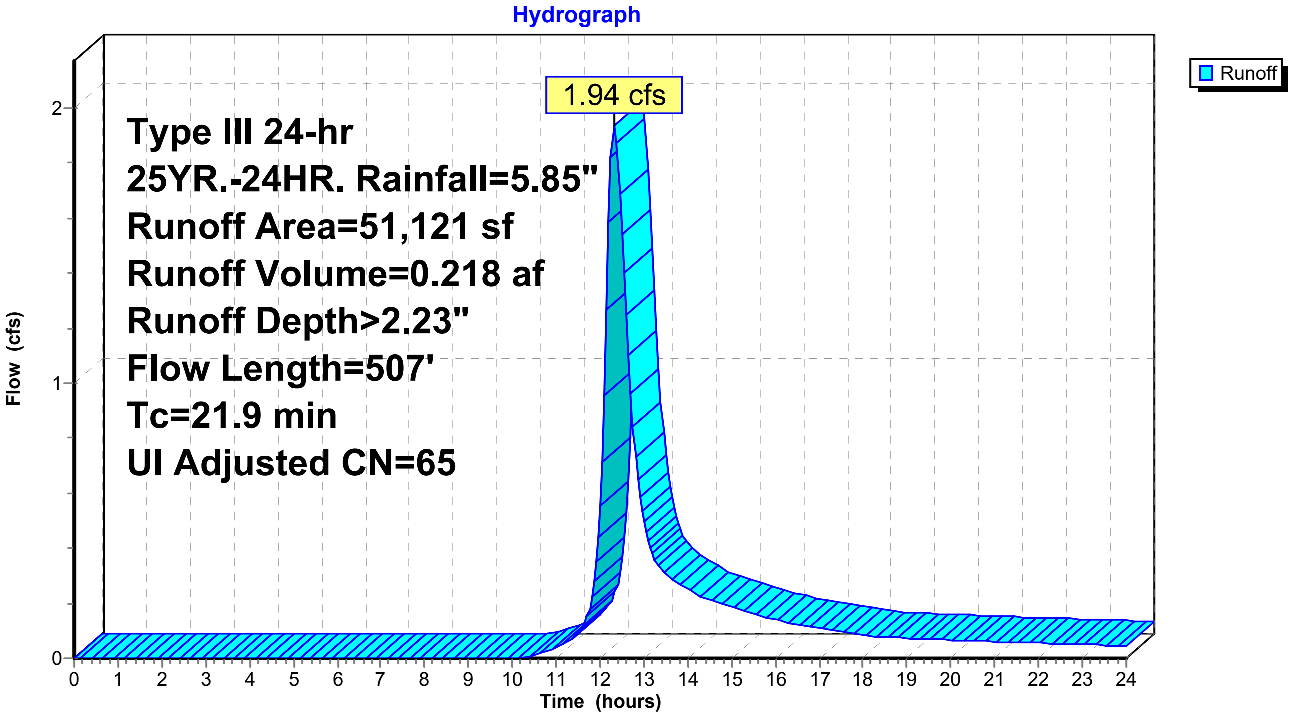
Runoff = 1.94 cfs @ 12.32 hrs, Volume= 0.218 af, Depth> 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
2,500	98		Unconnected roofs, HSG B
29,062	61		>75% Grass cover, Good, HSG B
8,184	98		Unconnected pavement, HSG B
6,752	55		Woods, Good, HSG B
2,007	74		>75% Grass cover, Good, HSG C
1,335	98		Unconnected pavement, HSG C
1,281	77		Woods, Good, HSG D
51,121	70	65	Weighted Average, UI Adjusted
39,102			76.49% Pervious Area
12,019			23.51% Impervious Area
12,019			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	54	0.0737	0.25		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
10.4	46	0.0273	0.07		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.06"
3.8	109	0.0092	0.48		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
4.1	298	0.0302	1.22		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
21.9	507	Total			

Subcatchment 28S: Inlet Sump South of Crossing



Summary for Subcatchment 29S: Inlet Sump North of Crossing

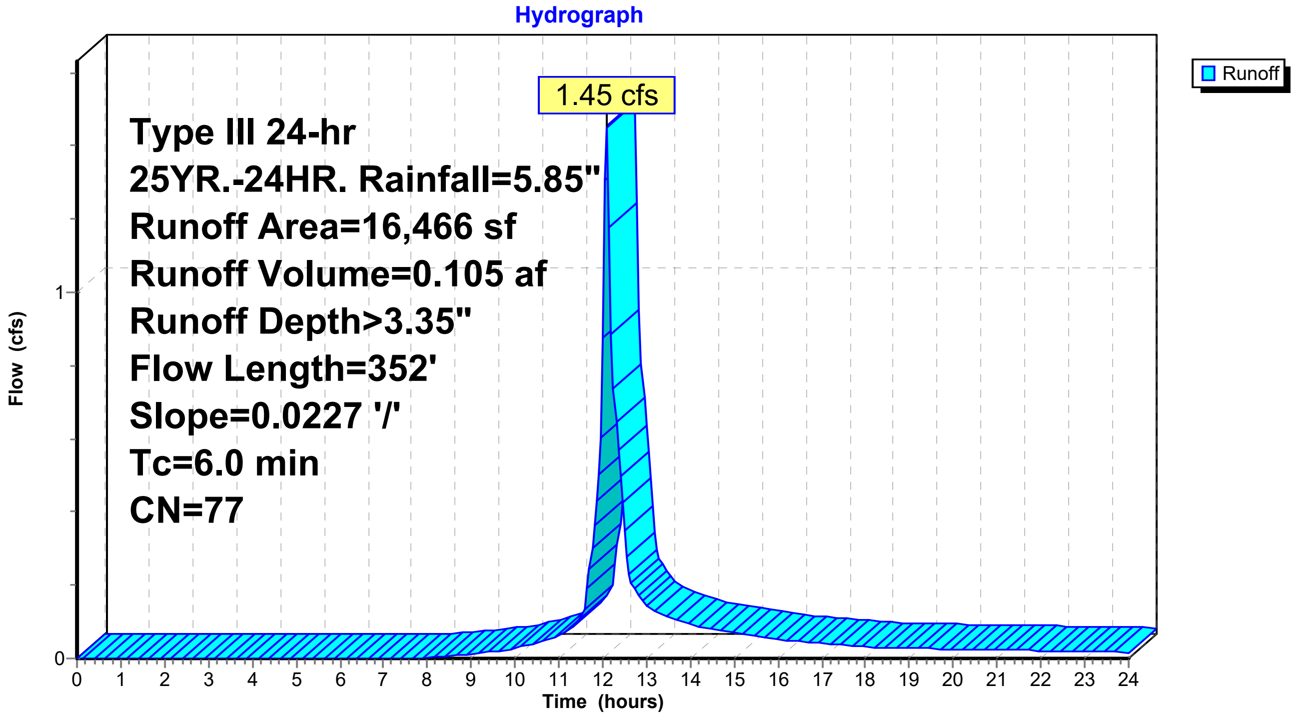
Runoff = 1.45 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
8,807	61	>75% Grass cover, Good, HSG B
5,386	98	Unconnected pavement, HSG B
39	55	Woods, Good, HSG B
514	74	>75% Grass cover, Good, HSG C
1,720	98	Unconnected pavement, HSG C
16,466	77	Weighted Average
9,360		56.84% Pervious Area
7,106		43.16% Impervious Area
7,106		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	352	0.0227	1.05		**Shallow Concentrated Flow, segment #1** Short Grass Pasture Kv= 7.0 fps
5.6	352	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 29S: Inlet Sump North of Crossing



Summary for Subcatchment 30S: Subcatchment #30

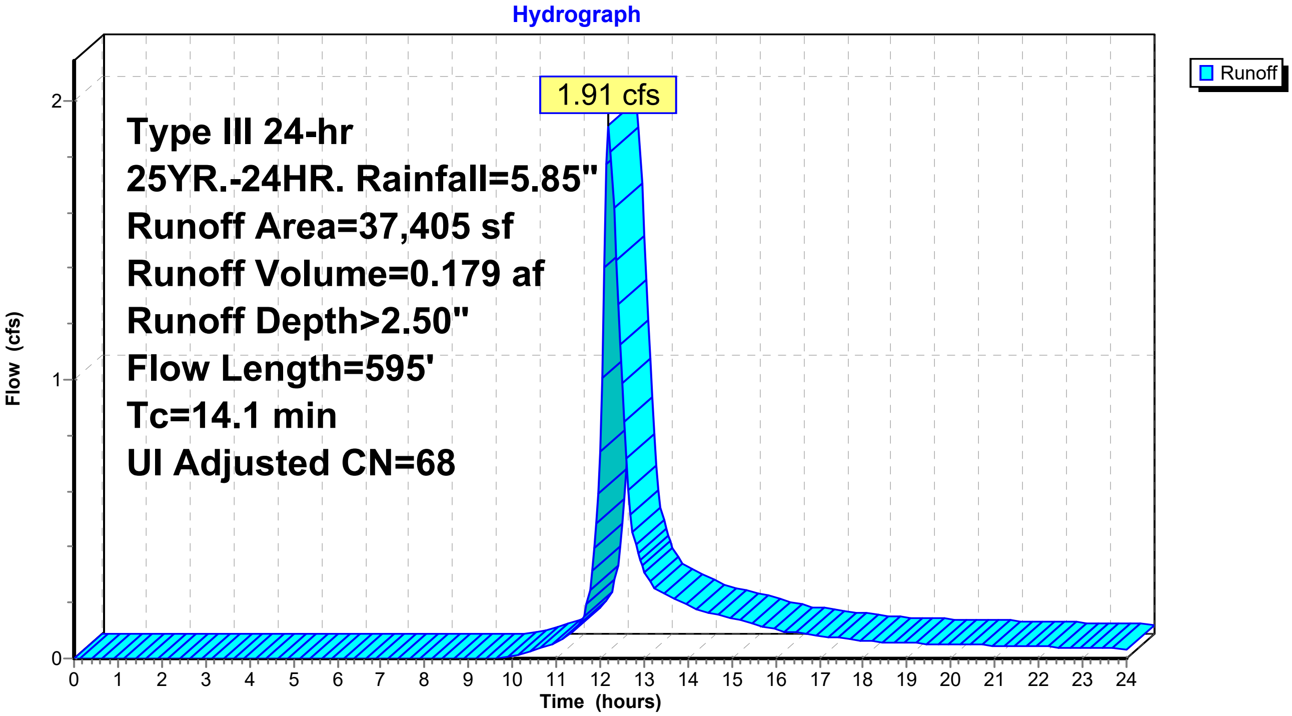
Runoff = 1.91 cfs @ 12.20 hrs, Volume= 0.179 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
7,927	61		>75% Grass cover, Good, HSG B
3,456	98		Unconnected pavement, HSG B
8,316	55		Woods, Good, HSG B
968	98		Unconnected roofs, HSG C
12,892	74		>75% Grass cover, Good, HSG C
2,589	98		Unconnected pavement, HSG C
1,257	70		Woods, Good, HSG C
37,405	71	68	Weighted Average, UI Adjusted
30,392			81.25% Pervious Area
7,013			18.75% Impervious Area
7,013			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0350	0.21		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
2.1	147	0.0273	1.16		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
4.0	348	0.0431	1.45		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
14.1	595	Total			

Subcatchment 30S: Subcatchment #30



Summary for Subcatchment 31S: CB #1

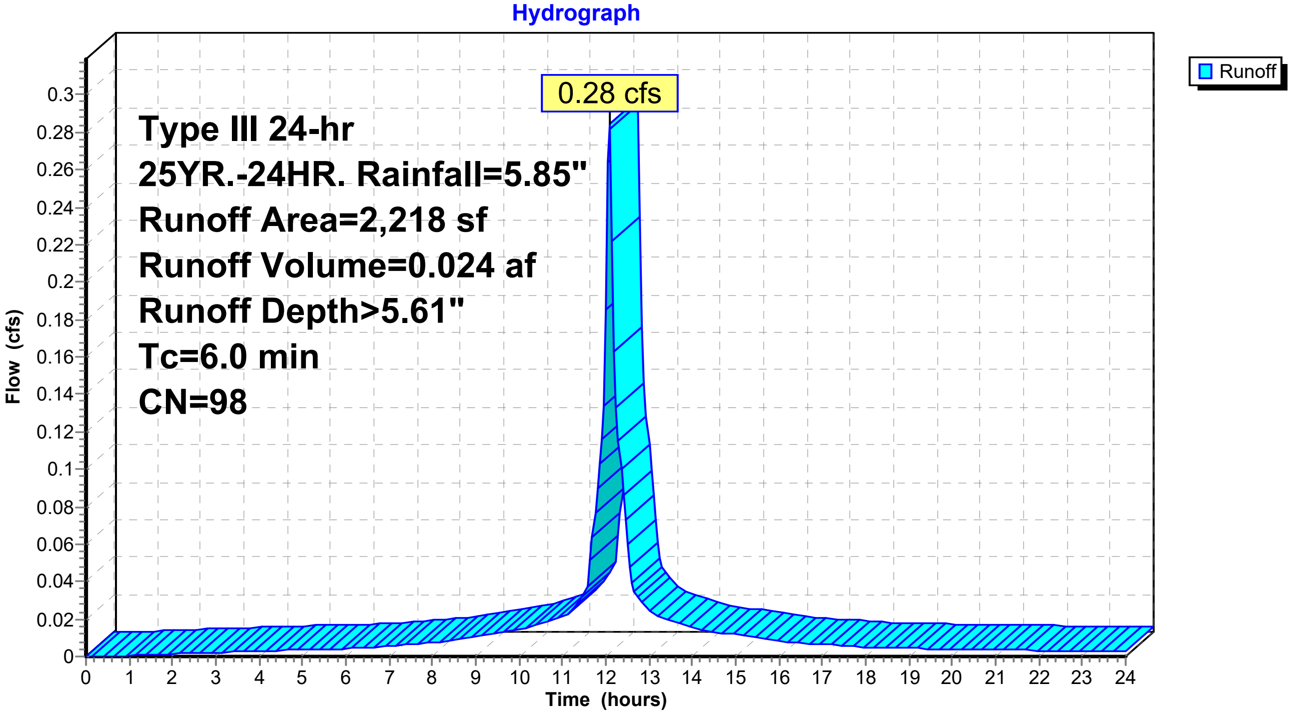
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
2,218	98	Paved parking, HSG B
2,218		100.00% Impervious Area

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

Subcatchment 31S: CB #1



Summary for Subcatchment 32S: CB #2

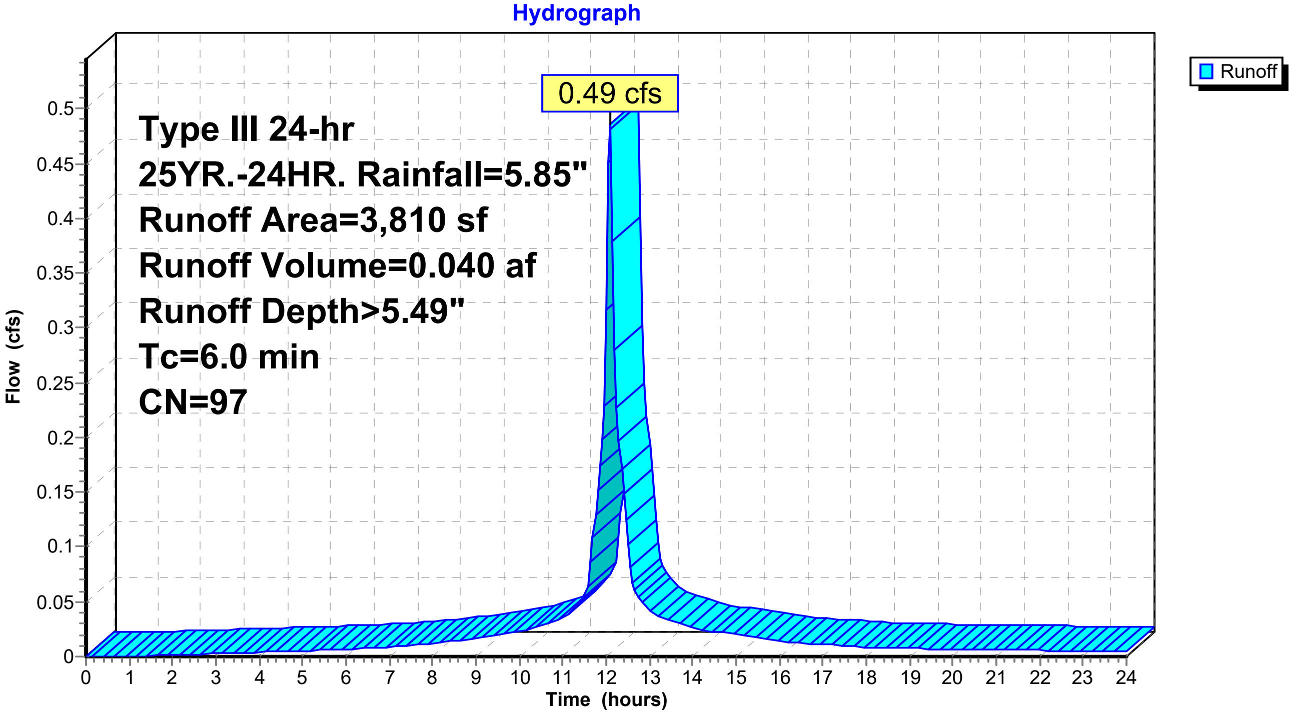
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 5.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
1,071	98	Paved parking, HSG B
95	74	>75% Grass cover, Good, HSG C
2,644	98	Paved parking, HSG C
3,810	97	Weighted Average
95		2.49% Pervious Area
3,715		97.51% Impervious Area

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

Subcatchment 32S: CB #2



Summary for Subcatchment 33S: CB #3

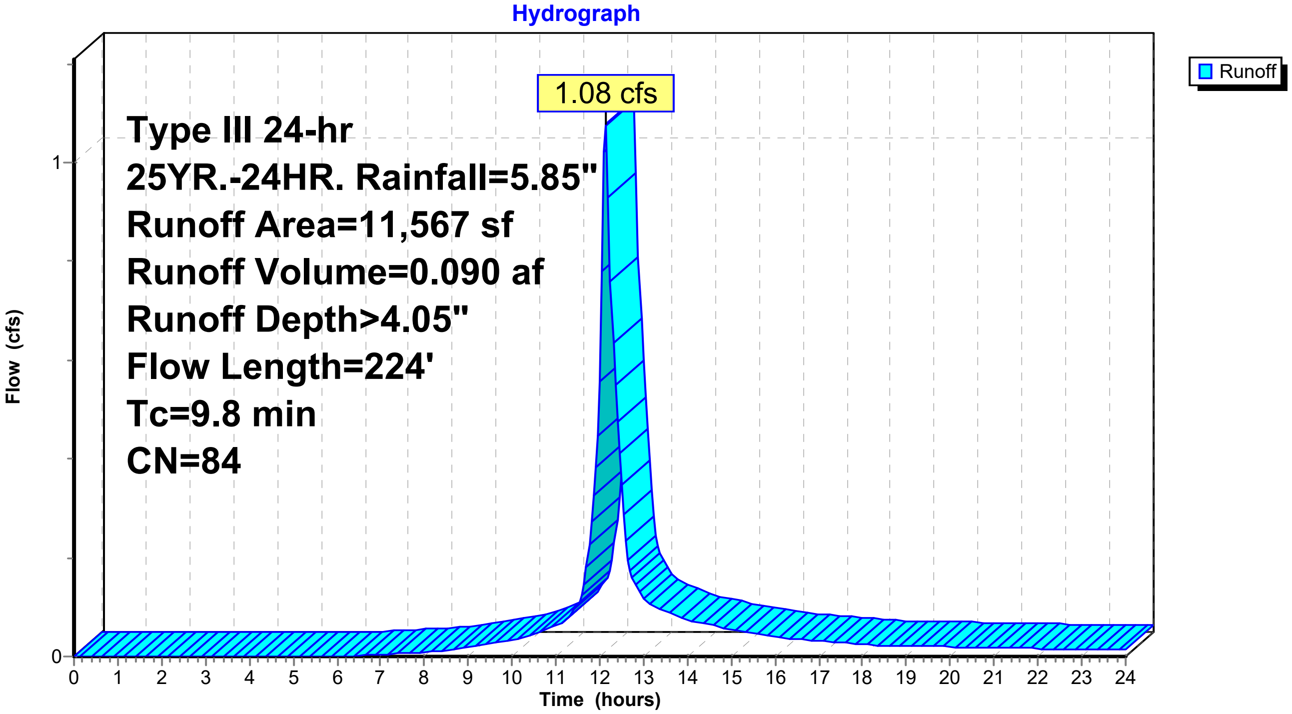
Runoff = 1.08 cfs @ 12.14 hrs, Volume= 0.090 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
1,635	98	Paved parking, HSG B
5,087	74	>75% Grass cover, Good, HSG C
3,301	98	Paved parking, HSG C
1,544	70	Woods, Good, HSG C
11,567	84	Weighted Average
6,631		57.33% Pervious Area
4,936		42.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	100	0.0350	0.21		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
0.1	14	0.0358	3.84		**Shallow Concentrated Flow, Segment #2** Paved Kv= 20.3 fps
1.7	110	0.0227	1.05		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
9.8	224	Total			

Subcatchment 33S: CB #3



Summary for Subcatchment 34S: Cul-de-Sac

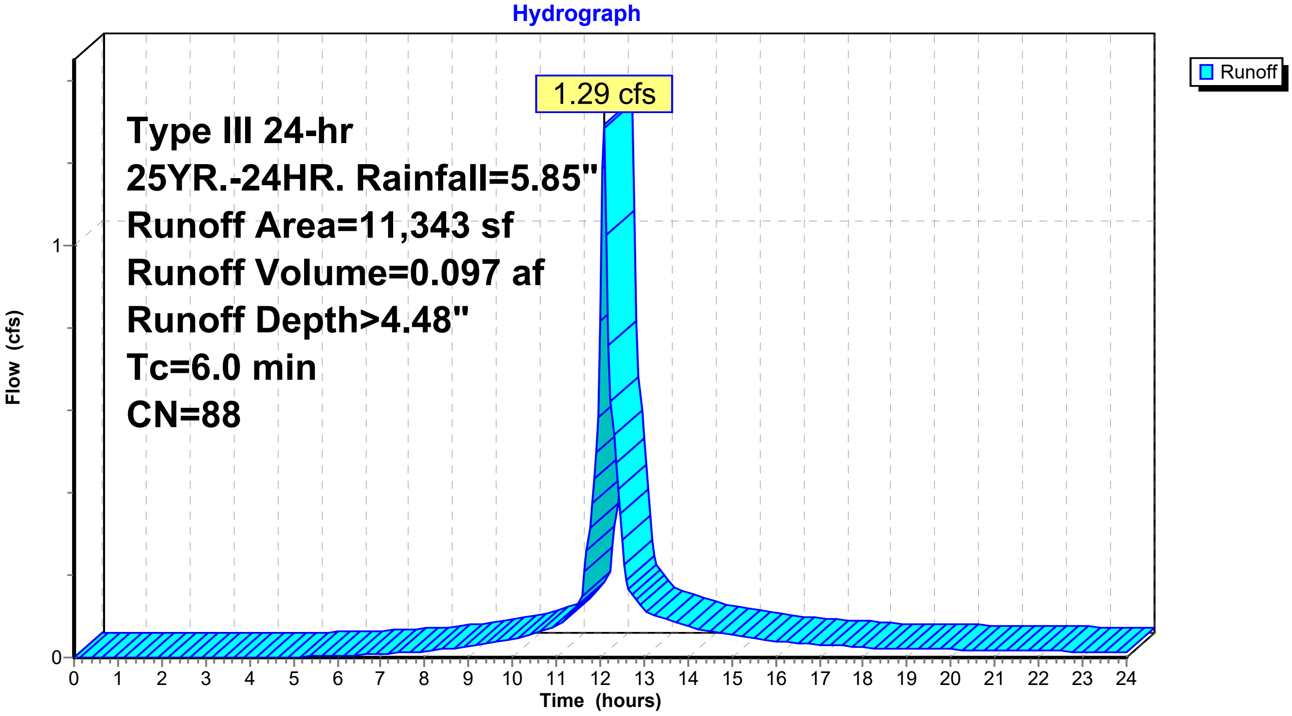
Runoff = 1.29 cfs @ 12.09 hrs, Volume= 0.097 af, Depth> 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,802	74	>75% Grass cover, Good, HSG C
6,474	98	Paved parking, HSG C
67	70	Woods, Good, HSG C
11,343	88	Weighted Average
4,869		42.93% Pervious Area
6,474		57.07% Impervious Area

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

Subcatchment 34S: Cul-de-Sac



Summary for Subcatchment 35S: Offsite Flow South

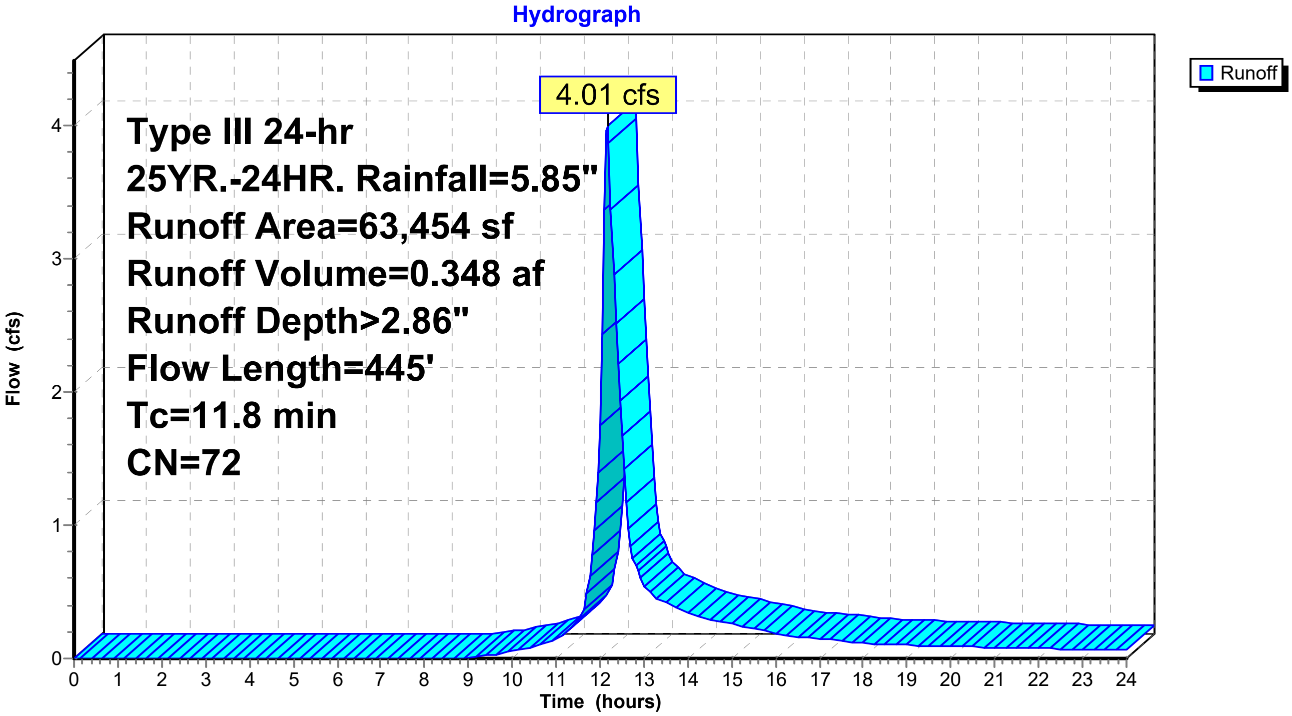
Runoff = 4.01 cfs @ 12.17 hrs, Volume= 0.348 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
4,507	61	>75% Grass cover, Good, HSG B
1,850	98	Paved parking, HSG B
5,365	55	Woods, Good, HSG B
1,532	98	Unconnected roofs, HSG C
27,550	74	>75% Grass cover, Good, HSG C
2,317	98	Paved parking, HSG C
20,333	70	Woods, Good, HSG C
63,454	72	Weighted Average
57,755		91.02% Pervious Area
5,699		8.98% Impervious Area
1,532		26.88% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	89	0.0727	0.27		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.06"
2.3	11	0.0708	0.08		**Sheet Flow, Segment #2** Woods: Light underbrush n= 0.400 P2= 3.06"
0.2	14	0.0545	1.17		**Shallow Concentrated Flow, Segment #3** Woodland Kv= 5.0 fps
2.0	157	0.0367	1.34		**Shallow Concentrated Flow, Segment #4** Short Grass Pasture Kv= 7.0 fps
1.9	174	0.0459	1.50		**Shallow Concentrated Flow, Segment #5** Short Grass Pasture Kv= 7.0 fps
11.8	445	Total			

Subcatchment 35S: Offsite Flow South



Summary for Subcatchment 36S: Lot 7 Driveway

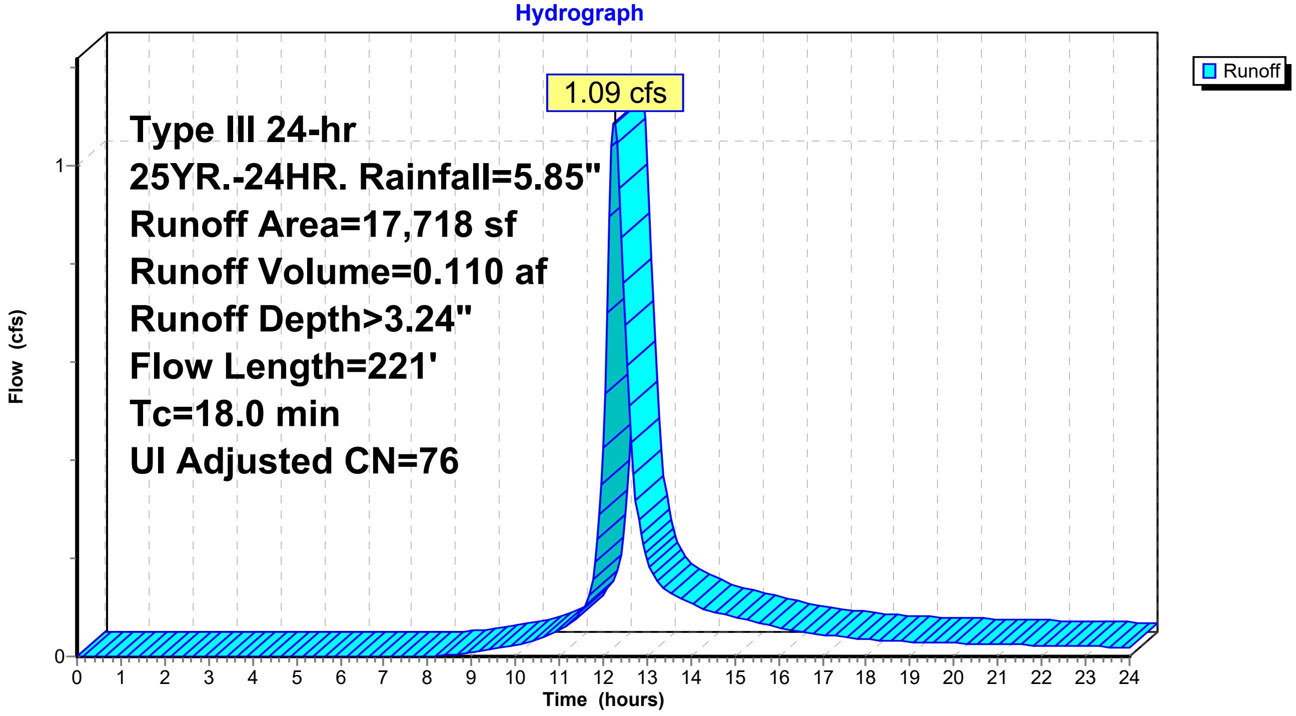
Runoff = 1.09 cfs @ 12.25 hrs, Volume= 0.110 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,332	98		Unconnected roofs, HSG C
6,814	74		>75% Grass cover, Good, HSG C
3,410	98		Unconnected pavement, HSG C
6,162	70		Woods, Good, HSG C
17,718	79	76	Weighted Average, UI Adjusted
12,976			73.24% Pervious Area
4,742			26.76% Impervious Area
4,742			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0400	0.10		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.06"
0.6	60	0.1200	1.73		**Shallow Concentrated Flow, Segment #2** Woodland Kv= 5.0 fps
0.8	61	0.0370	1.35		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
18.0	221	Total			

Subcatchment 36S: Lot 7 Driveway



Summary for Subcatchment 42S: Level Spreader #102

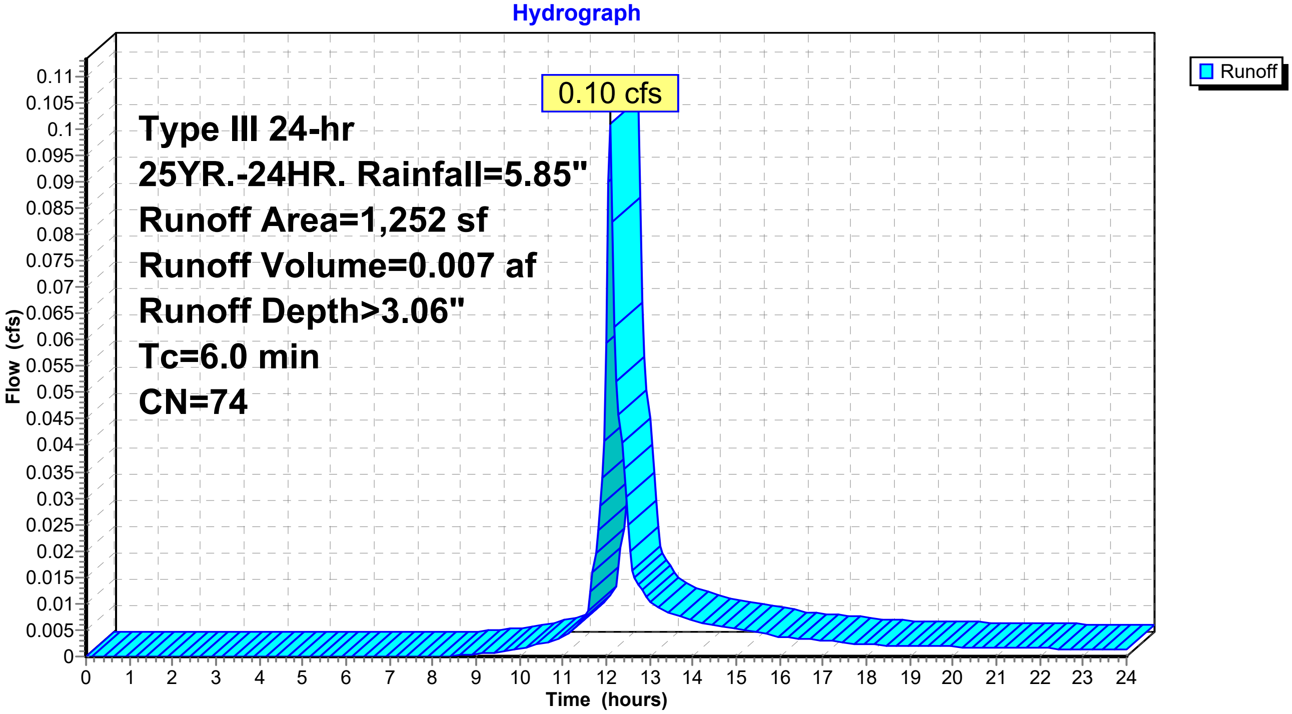
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 3.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
1,252	74	>75% Grass cover, Good, HSG C
1,252		100.00% Pervious Area

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

Subcatchment 42S: Level Spreader #102



Summary for Subcatchment 43S: Level Spreader #103

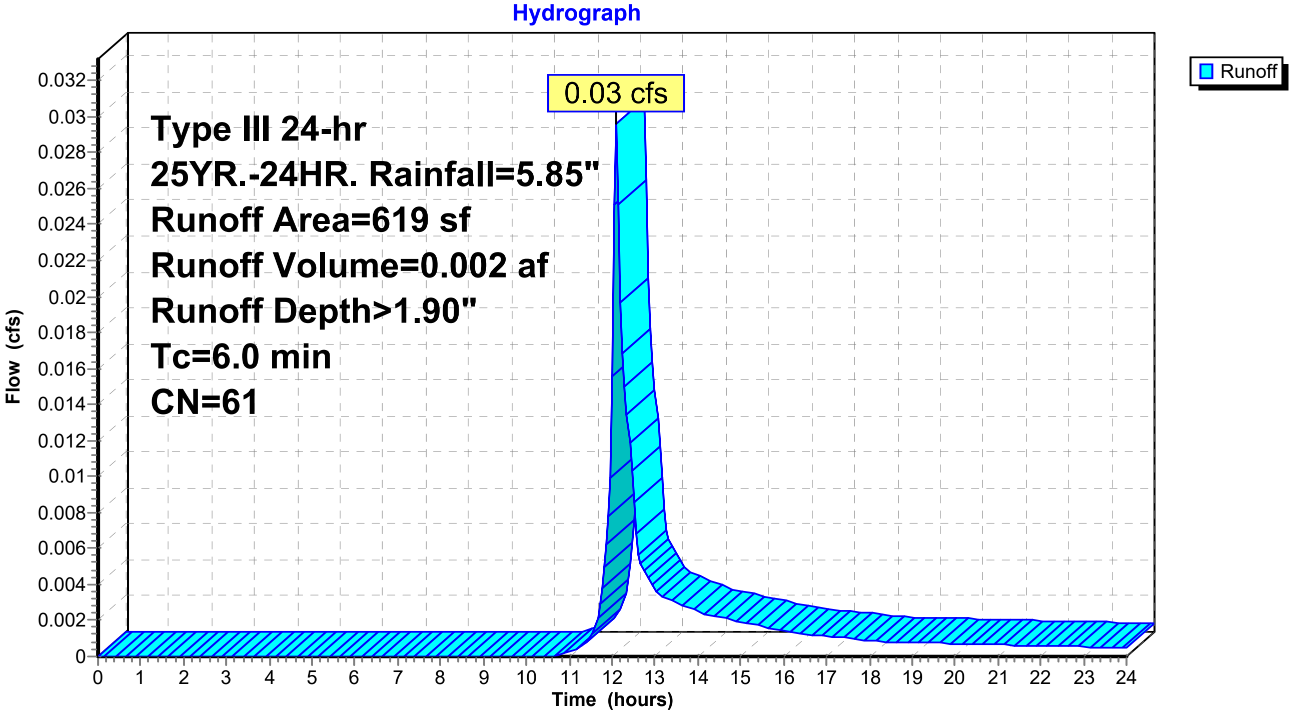
Runoff = 0.03 cfs @ 12.10 hrs, Volume= 0.002 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
619	61	>75% Grass cover, Good, HSG B
619		100.00% Pervious Area

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

Subcatchment 43S: Level Spreader #103



Summary for Subcatchment 44S: Level Spreader #104

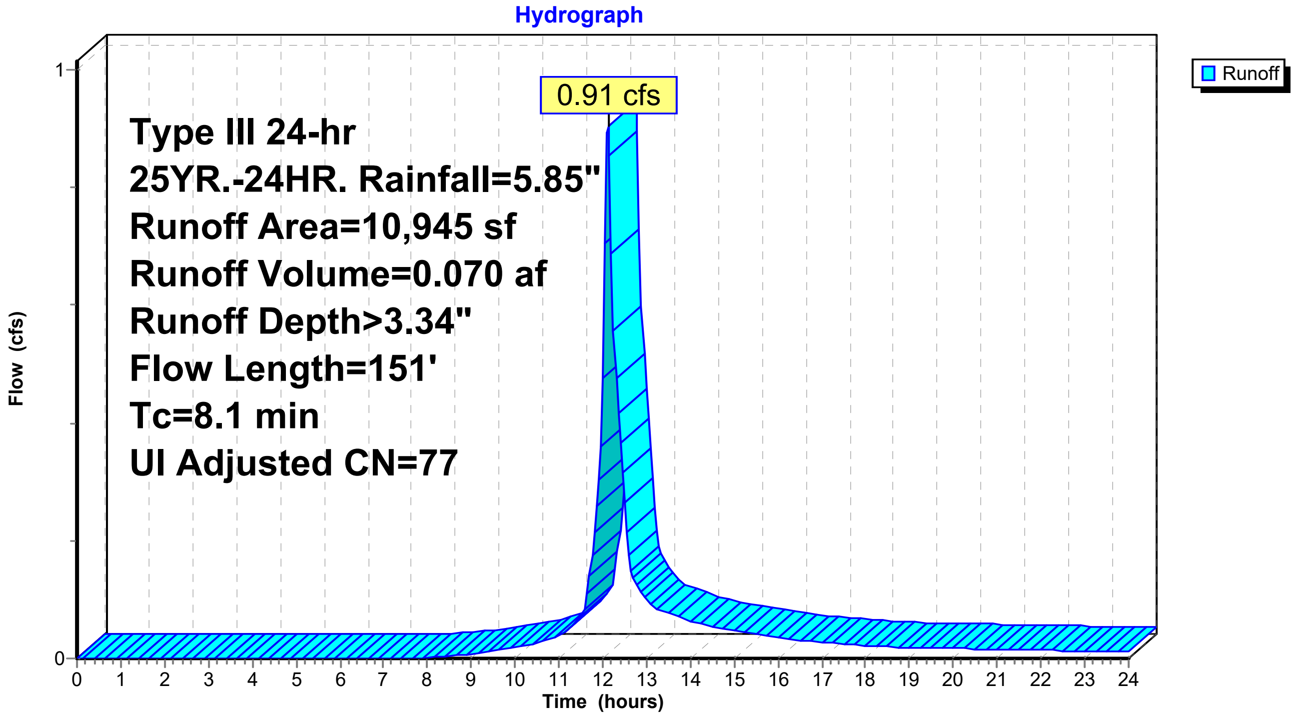
Runoff = 0.91 cfs @ 12.12 hrs, Volume= 0.070 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Adj	Description
1,250	98		Unconnected roofs, HSG C
8,963	74		>75% Grass cover, Good, HSG C
732	98		Paved parking, HSG C
10,945	78	77	Weighted Average, UI Adjusted
8,963			81.89% Pervious Area
1,982			18.11% Impervious Area
1,250			63.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.0400	0.22		**Sheet Flow, Sheet flow** Grass: Short n= 0.150 P2= 3.06"
0.5	51	0.0590	1.70		**Shallow Concentrated Flow, Segment 2** Short Grass Pasture Kv= 7.0 fps
8.1	151	Total			

Subcatchment 44S: Level Spreader #104



Summary for Subcatchment 45S: Level Spreader #105

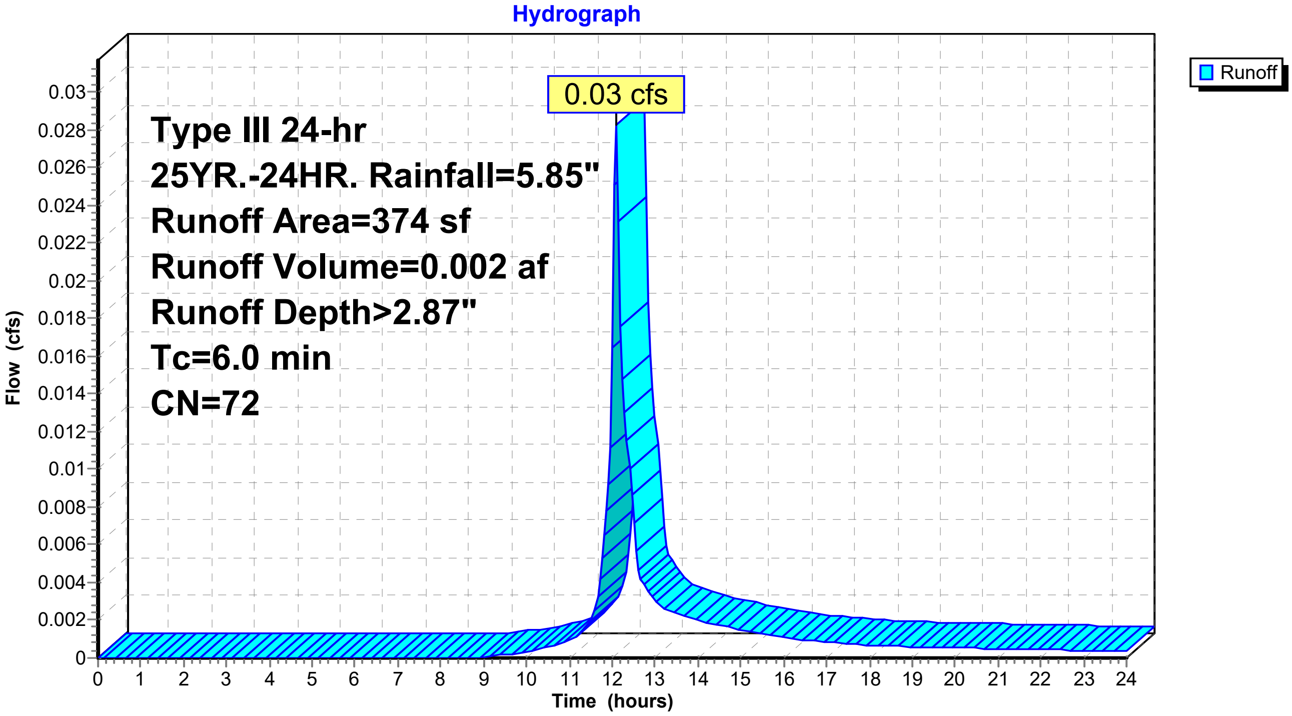
Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25YR.-24HR. Rainfall=5.85"

Area (sf)	CN	Description
66	61	>75% Grass cover, Good, HSG B
308	74	>75% Grass cover, Good, HSG C
374	72	Weighted Average
374		100.00% Pervious Area

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

Subcatchment 45S: Level Spreader #105



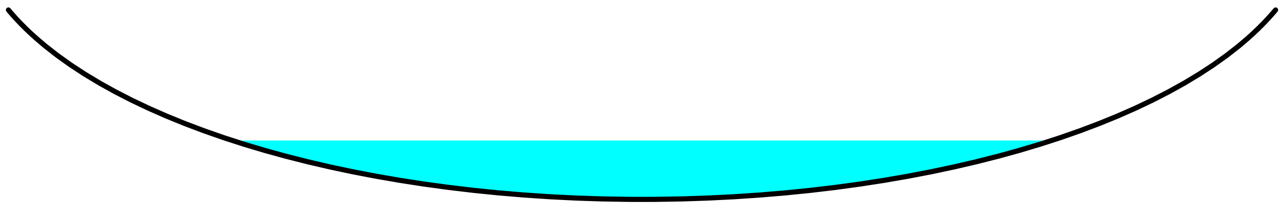
Summary for Reach 2aR: Flow Through Wetland

Inflow Area = 11.871 ac, 3.30% Impervious, Inflow Depth > 2.20" for 25YR.-24HR. event
Inflow = 14.57 cfs @ 12.55 hrs, Volume= 2.172 af
Outflow = 14.55 cfs @ 12.57 hrs, Volume= 2.169 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.69 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 3.1 min

Peak Storage= 1,253 cf @ 12.57 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.50' Flow Area= 50.0 sf, Capacity= 184.34 cfs

50.00' x 1.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 145.5' Slope= 0.0395 '/'
Inlet Invert= 288.25', Outlet Invert= 282.50'



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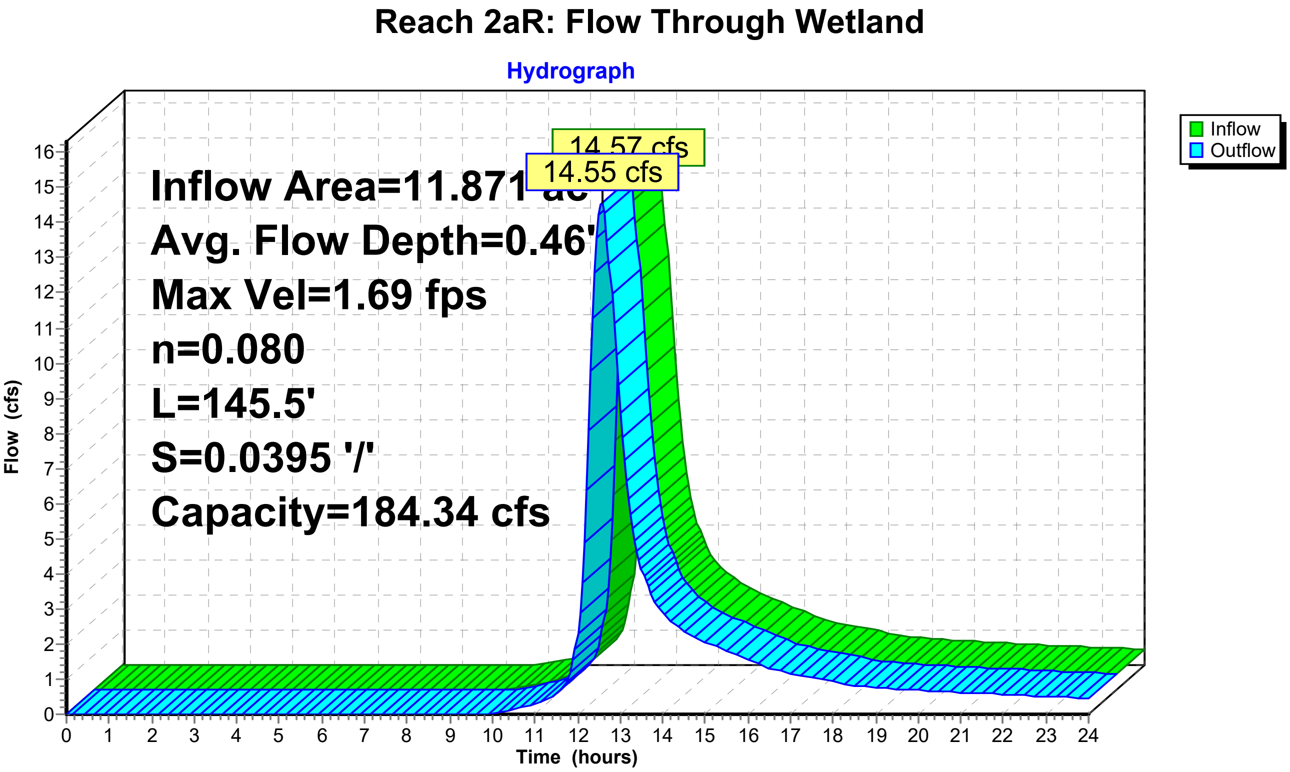


Summary for Reach 5R: Flow Through Wetland

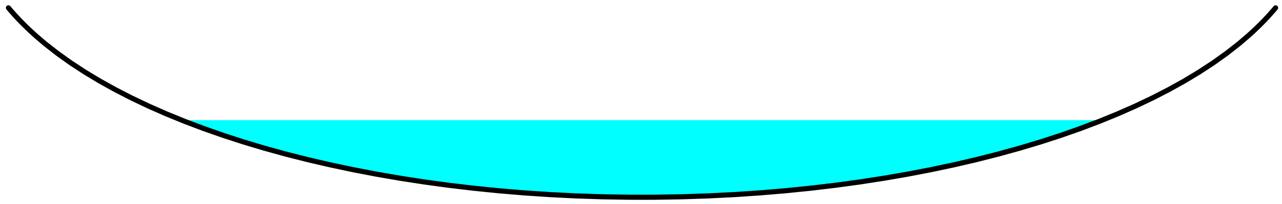
[62] Hint: Exceeded Reach 11R OUTLET depth by 0.15' @ 12.60 hrs

Inflow Area = 6.742 ac, 5.28% Impervious, Inflow Depth > 2.03" for 25YR.-24HR. event
Inflow = 7.80 cfs @ 12.44 hrs, Volume= 1.142 af
Outflow = 7.47 cfs @ 12.54 hrs, Volume= 1.134 af, Atten= 4%, Lag= 5.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.09 fps, Min. Travel Time= 8.2 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 18.8 min

Peak Storage= 3,669 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 52.95 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 534.0' Slope= 0.0197 '/'
Inlet Invert= 300.00', Outlet Invert= 289.50'



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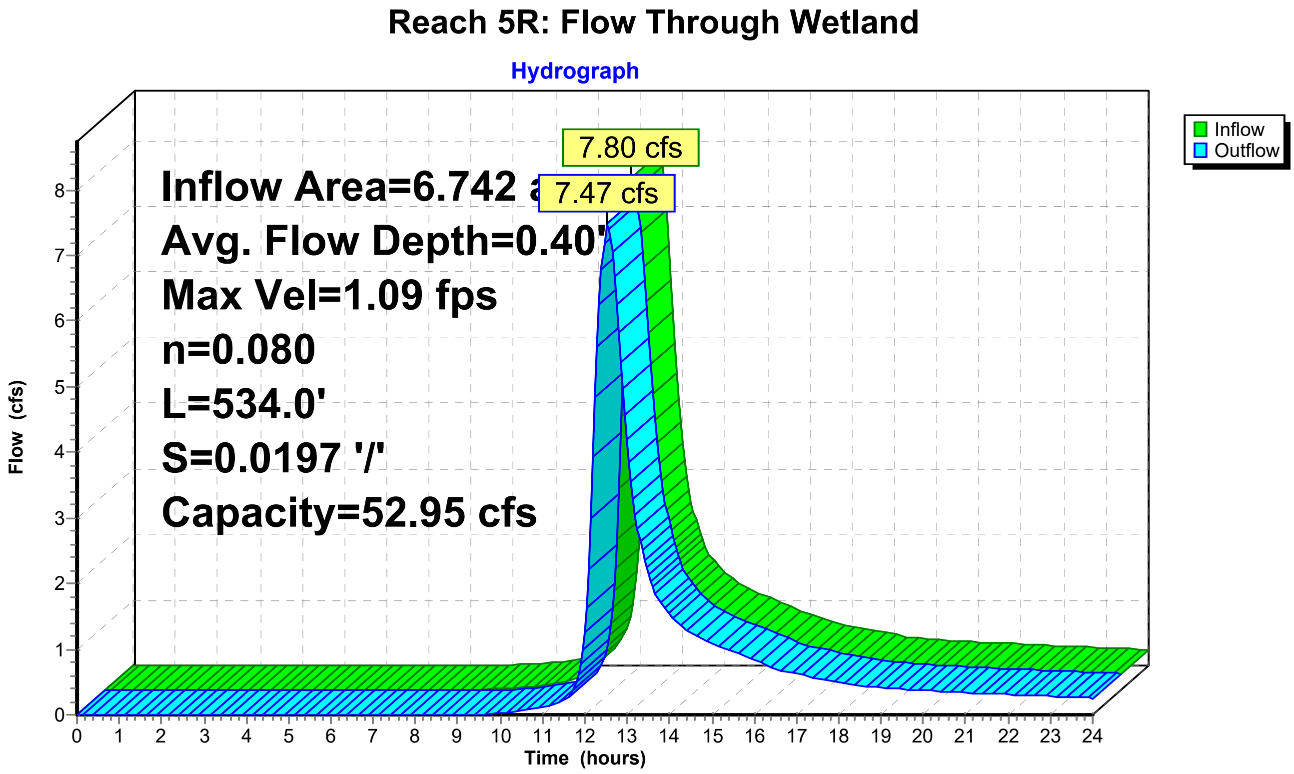


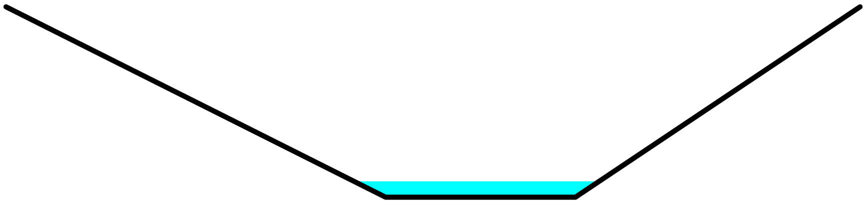
Summary for Reach 10R: Swale

Inflow Area = 1.128 ac, 17.32% Impervious, Inflow Depth > 1.88" for 25YR.-24HR. event
Inflow = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af
Outflow = 1.58 cfs @ 12.33 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.9 min

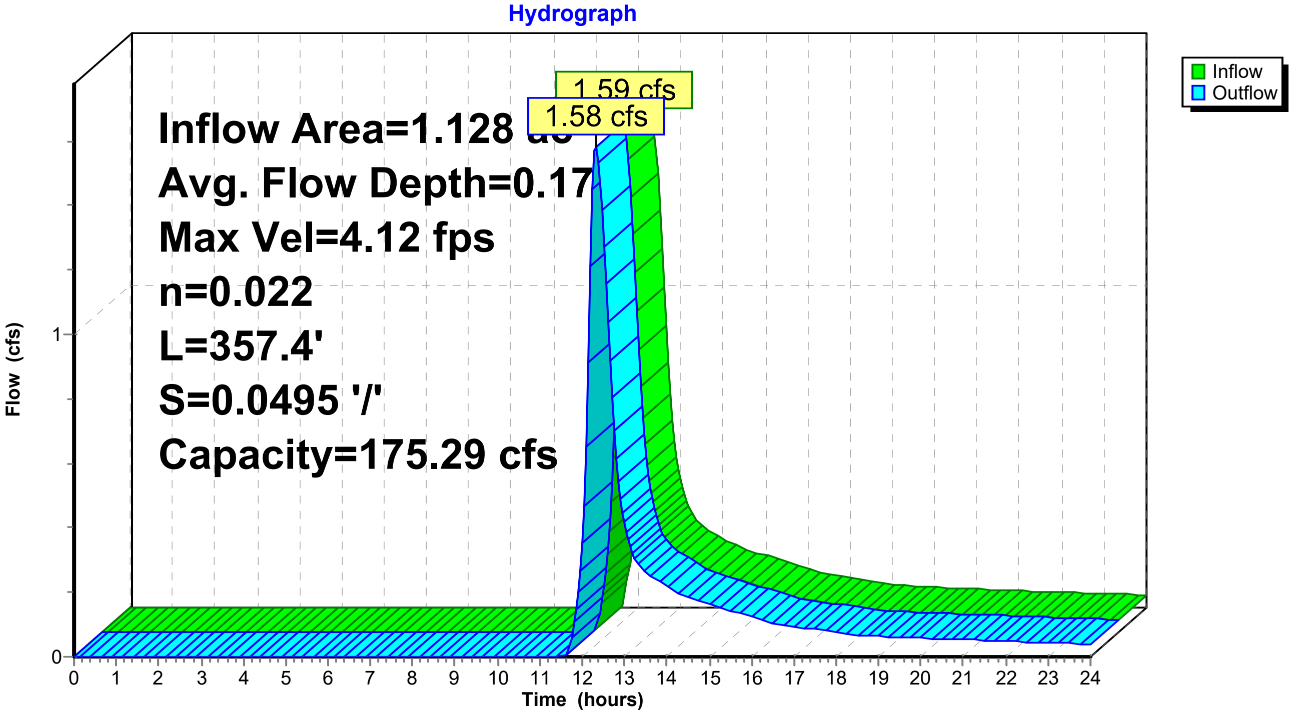
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 3.7 min

Peak Storage= 137 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 2.00' Flow Area= 11.0 sf, Capacity= 175.29 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 1.5 '/' Top Width= 9.00'
Length= 357.4' Slope= 0.0495 '/'
Inlet Invert= 313.70', Outlet Invert= 296.00'



Reach 10R: Swale



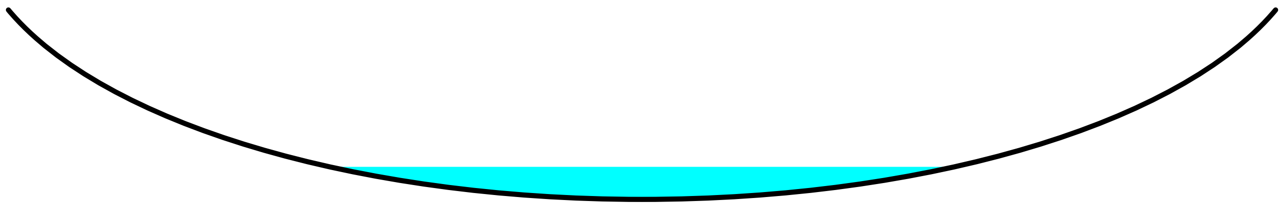
Summary for Reach 11R: Overland Flow

Inflow Area =	5.411 ac,	3.68% Impervious,	Inflow Depth > 1.81"	for 25YR.-24HR. event	
Inflow =	6.01 cfs @	12.48 hrs,	Volume=	0.816 af	
Outflow =	5.97 cfs @	12.51 hrs,	Volume=	0.814 af,	Atten= 1%, Lag= 1.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.41 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.65 fps, Avg. Travel Time= 5.8 min

Peak Storage= 968 cf @ 12.51 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.50' Flow Area= 60.0 sf, Capacity= 275.26 cfs

60.00' x 1.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 229.0' Slope= 0.0611 '/'
Inlet Invert= 314.00', Outlet Invert= 300.00'



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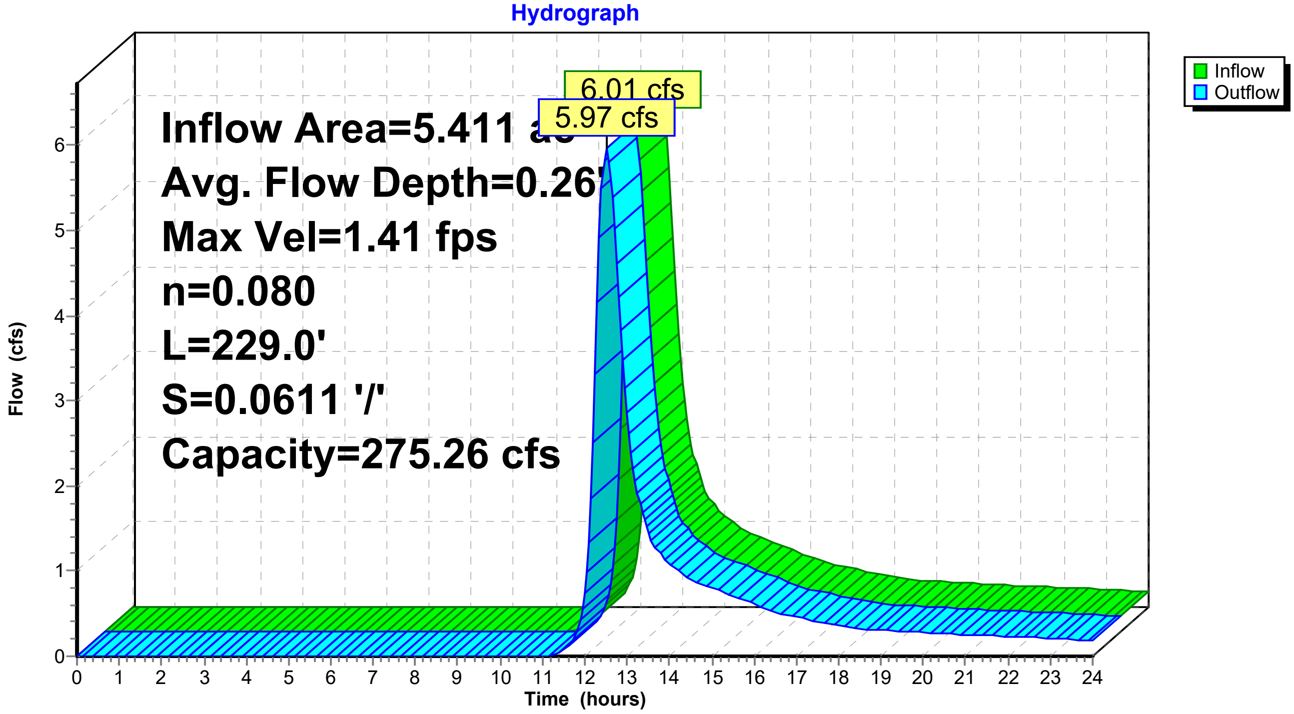
Reach 11R: Overland Flow



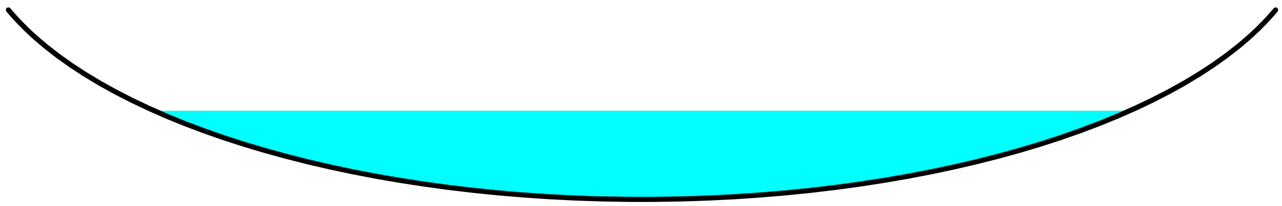
Summary for Reach 12R: Overland Flow

```
Inflow Area =          2.477 ac,   4.26% Impervious,  Inflow Depth >   2.22"    for  25YR.-24HR. event
Inflow        =        3.38 cfs @   12.50 hrs,  Volume=              0.459 af
Outflow      =        3.13 cfs @   12.62 hrs,  Volume=              0.455 af,  Atten= 7%,  Lag= 7.4 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.18 fps, Min. Travel Time= 9.9 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 21.9 min

Peak Storage= 1,865 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 8.3 sf, Capacity= 16.35 cfs

25.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 703.6' Slope= 0.0483 '/'
Inlet Invert= 313.50', Outlet Invert= 279.50'



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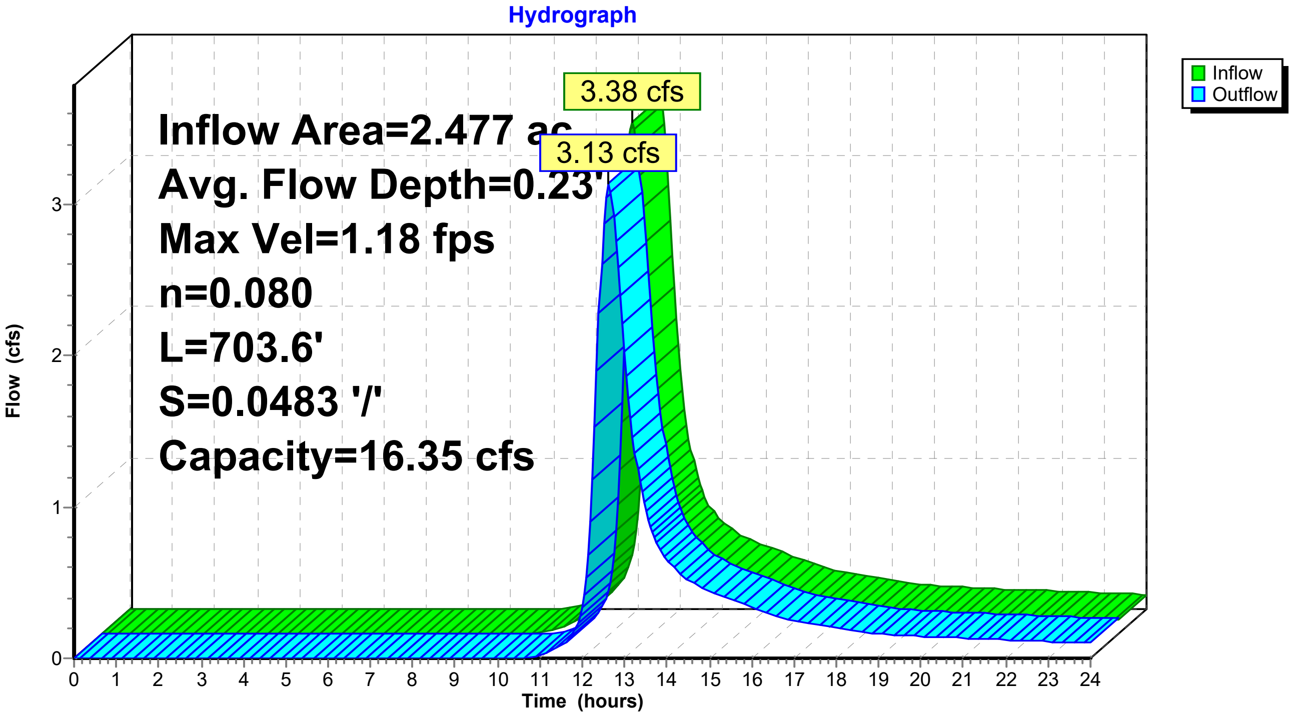
Reach 12R: Overland Flow



Summary for Reach 14R: Flow Through Swale

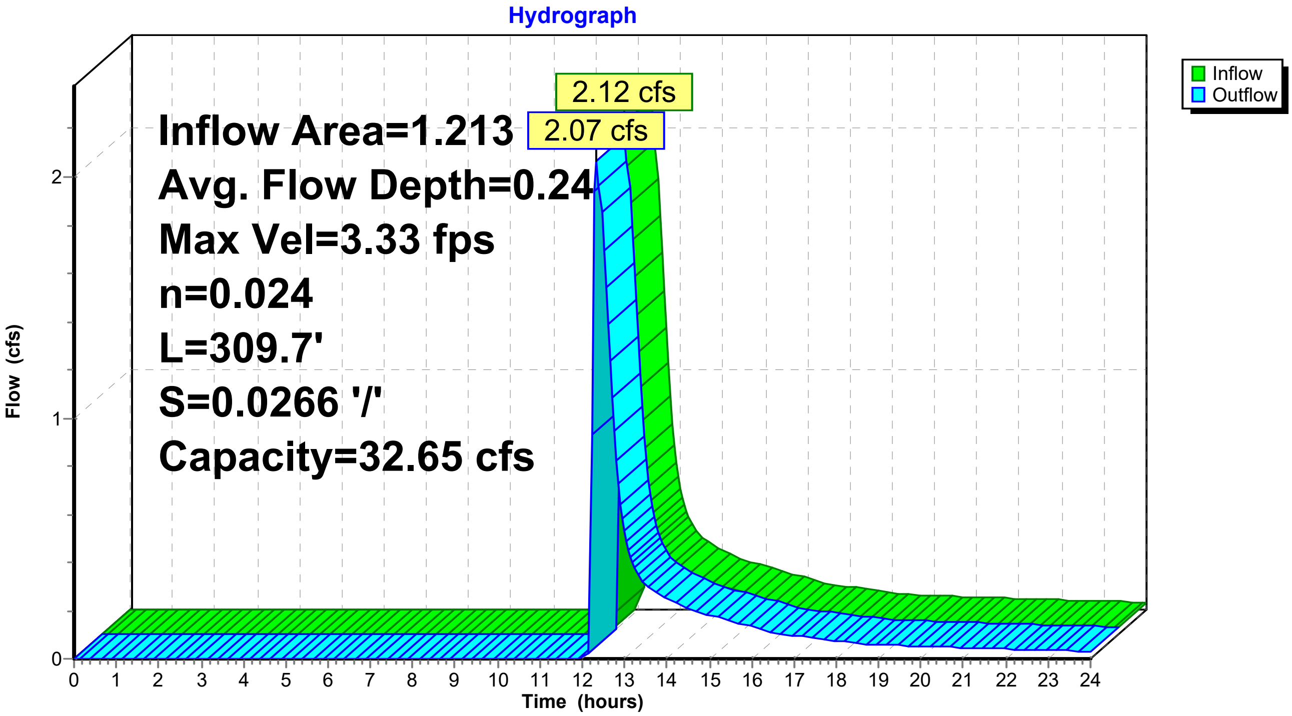
Inflow Area = 1.213 ac, 10.17% Impervious, Inflow Depth > 1.78" for 25YR.-24HR. event
Inflow = 2.12 cfs @ 12.32 hrs, Volume= 0.180 af
Outflow = 2.07 cfs @ 12.35 hrs, Volume= 0.180 af, Atten= 3%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.33 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.22 fps, Avg. Travel Time= 4.2 min

Peak Storage= 192 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00' Flow Area= 4.5 sf, Capacity= 32.65 cfs

2.00' x 1.00' deep channel, n= 0.024
Side Slope Z-value= 3.0 2.0 '/' Top Width= 7.00'
Length= 309.7' Slope= 0.0266 '/'
Inlet Invert= 297.50', Outlet Invert= 289.25'

Reach 14R: Flow Through Swale



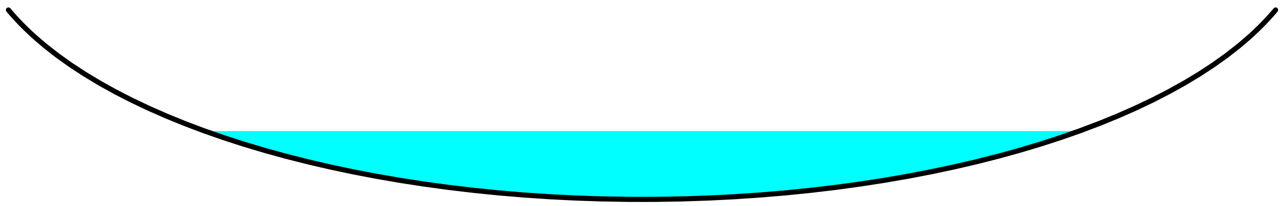
Summary for Reach 30aR: Cross Culvert Outlet

Inflow Area = 1.987 ac, 17.94% Impervious, Inflow Depth > 2.14" for 25YR.-24HR. event
Inflow = 3.27 cfs @ 12.26 hrs, Volume= 0.355 af
Outflow = 3.27 cfs @ 12.27 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.27 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 2.7 min

Peak Storage= 219 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 6.7 sf, Capacity= 29.74 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 152.9' Slope= 0.0196 '/'
Inlet Invert= 295.50', Outlet Invert= 292.50'



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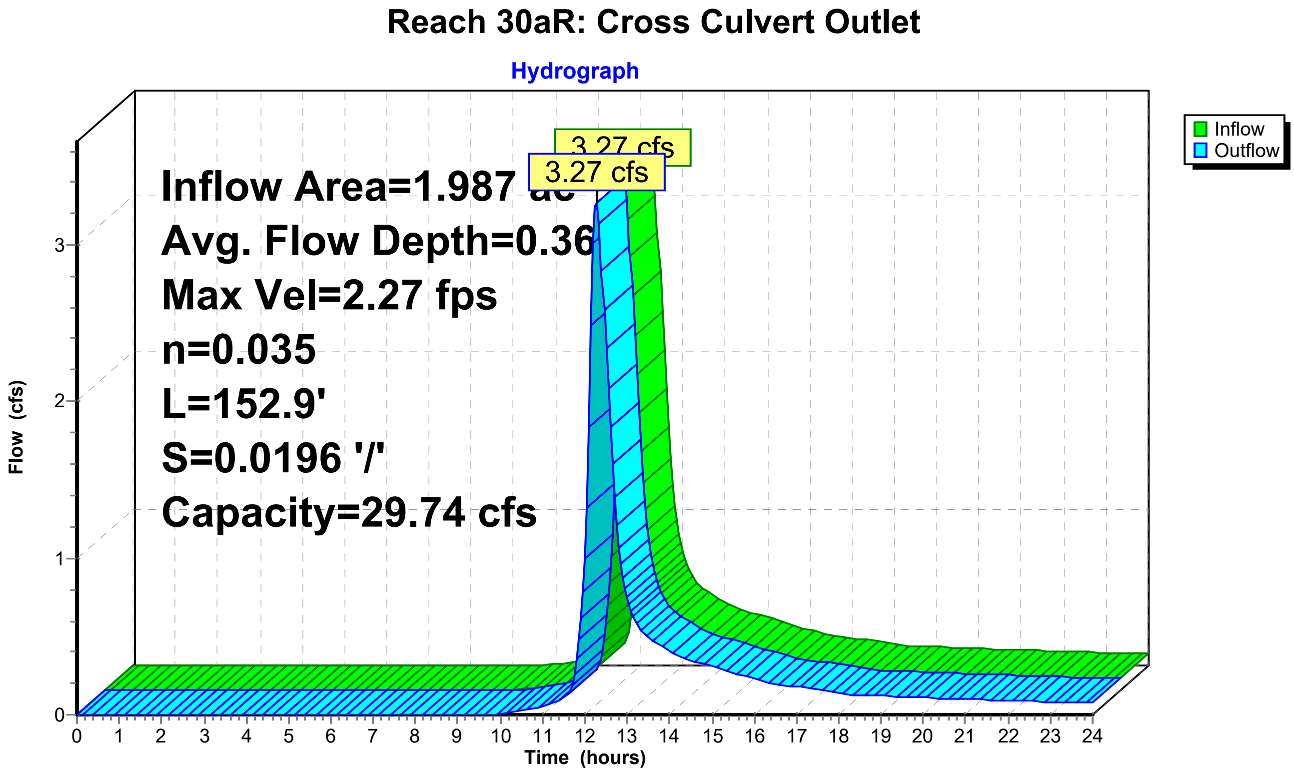


Summary for Reach 30bR: Wetland Flow

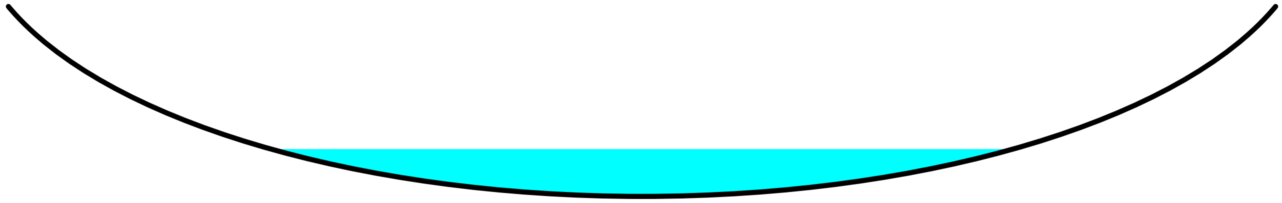
[61] Hint: Exceeded Reach 30aR outlet invert by 0.25' @ 12.50 hrs
[62] Hint: Exceeded Reach 43R OUTLET depth by 0.15' @ 12.65 hrs

Inflow Area = 3.717 ac, 14.80% Impervious, Inflow Depth > 2.16" for 25YR.-24HR. event
Inflow = 6.68 cfs @ 12.34 hrs, Volume= 0.670 af
Outflow = 4.80 cfs @ 12.49 hrs, Volume= 0.662 af, Atten= 28%, Lag= 8.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.67 fps, Min. Travel Time= 12.8 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 29.2 min

Peak Storage= 3,696 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 58.0 sf, Capacity= 97.71 cfs

87.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 513.1' Slope= 0.0141 '/'
Inlet Invert= 292.50', Outlet Invert= 285.25'



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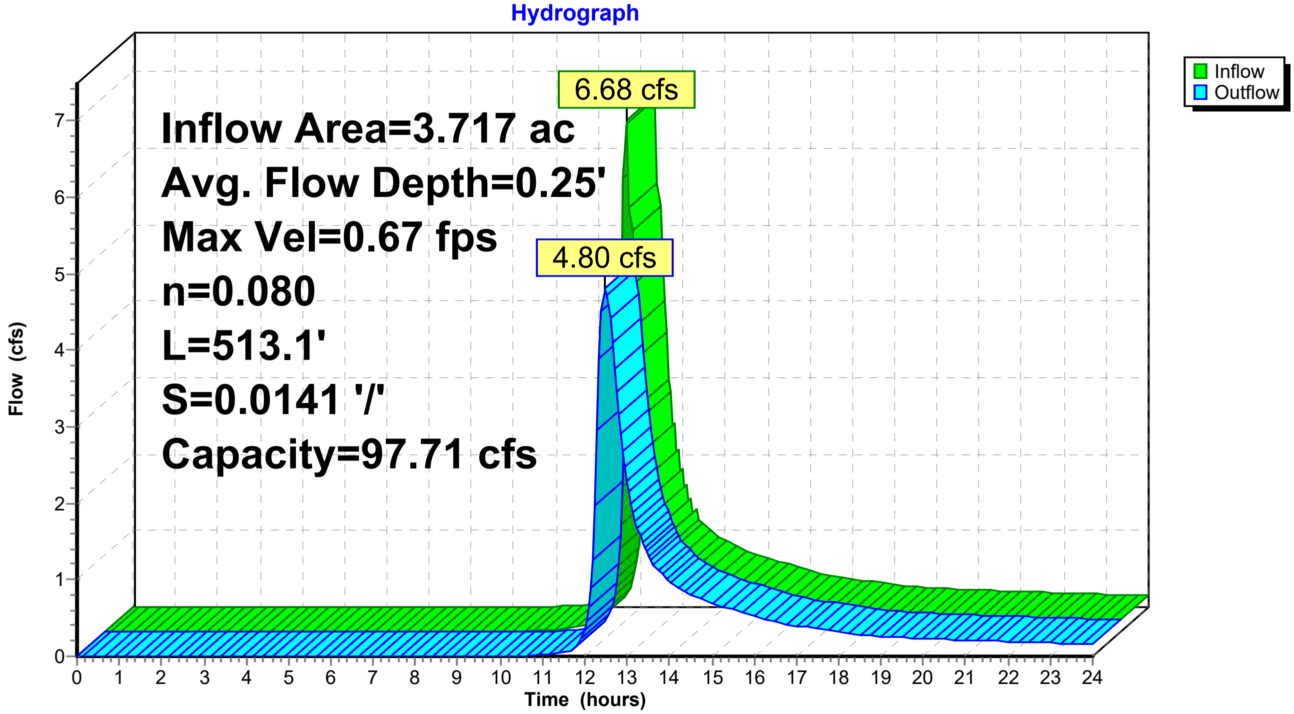
Reach 30bR: Wetland Flow



Summary for Reach 43R: Overland Flow

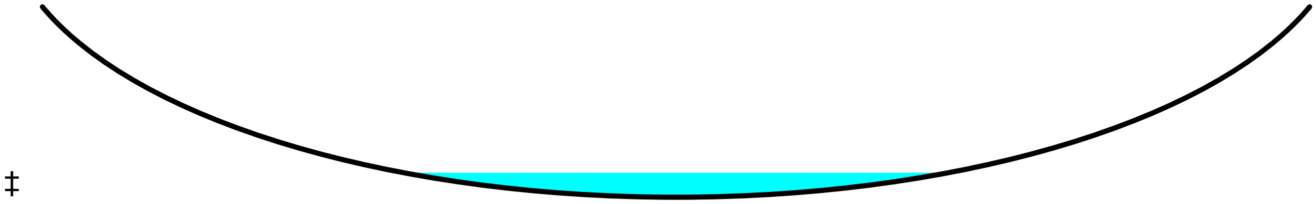
[80] Warning: Exceeded Pond 43P by 0.01' @ 12.20 hrs (0.16 cfs 0.001 af)

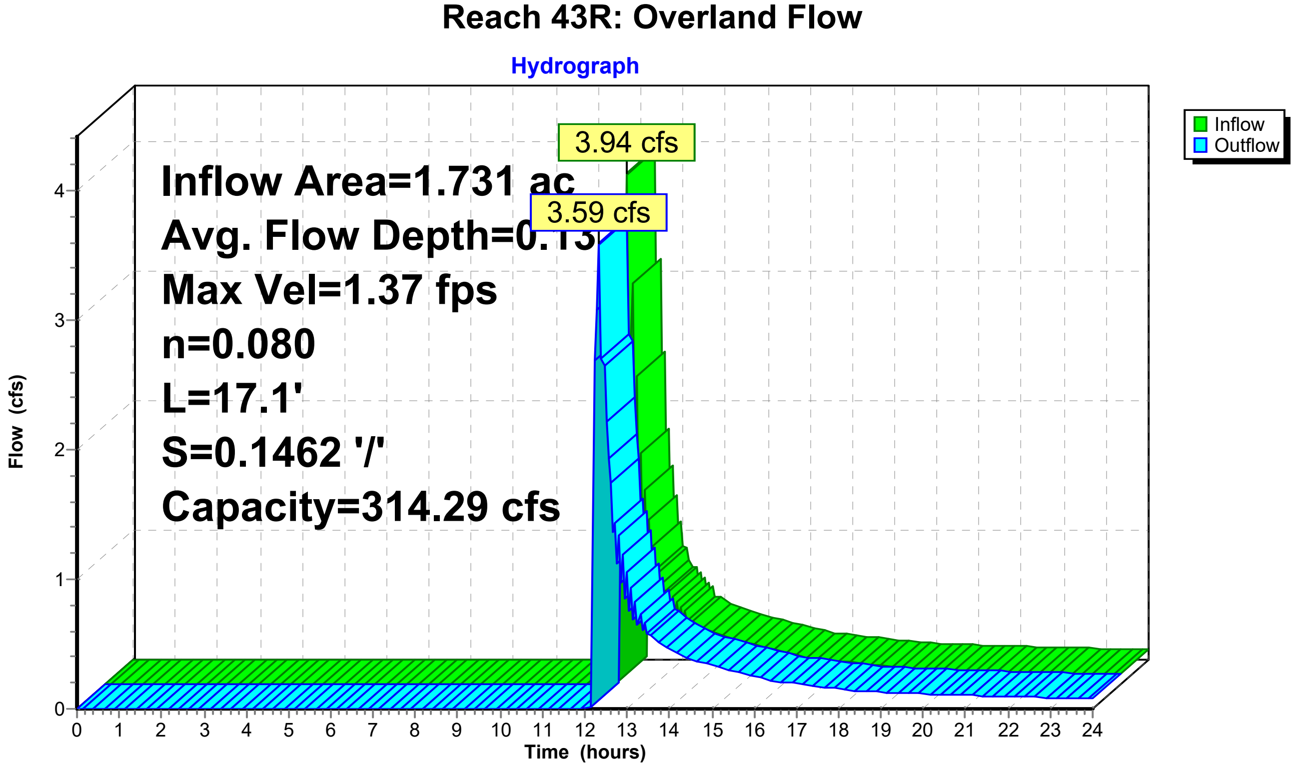
Inflow Area = 1.731 ac, 11.20% Impervious, Inflow Depth > 2.19" for 25YR.-24HR. event
Inflow = 3.94 cfs @ 12.35 hrs, Volume= 0.315 af
Outflow = 3.59 cfs @ 12.34 hrs, Volume= 0.315 af, Atten= 9%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.37 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 0.5 min

Peak Storage= 45 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.00' Flow Area= 58.0 sf, Capacity= 314.29 cfs

87.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 17.1' Slope= 0.1462 '/'
Inlet Invert= 295.00', Outlet Invert= 292.50'





Summary for Reach 45R: Overland Flow

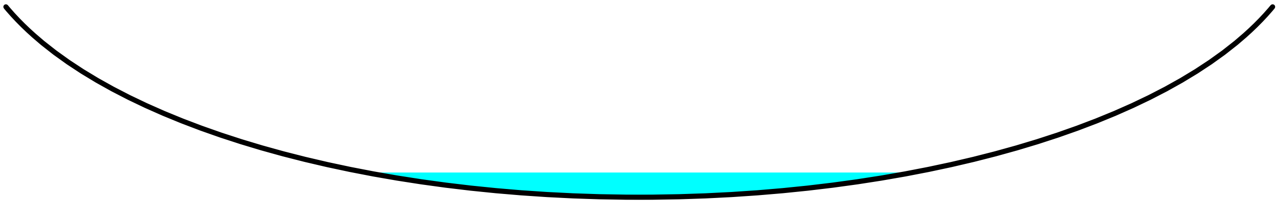
[80] Warning: Exceeded Pond 45P by 0.03' @ 12.70 hrs (1.06 cfs 0.027 af)

```
Inflow Area =      0.505 ac,   0.00% Impervious,  Inflow Depth >   1.13"   for  25YR.-24HR. event
Inflow      =      0.66 cfs @   12.70 hrs,  Volume=           0.048 af
Outflow     =      0.33 cfs @   12.85 hrs,  Volume=           0.047 af,  Atten= 50%,  Lag= 9.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.72 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 9.8 min

Peak Storage= 98 cf @ 12.85 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.00' Flow Area= 10.0 sf, Capacity= 28.05 cfs

15.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 213.7' Slope= 0.0398 '/'
Inlet Invert= 298.00', Outlet Invert= 289.50'



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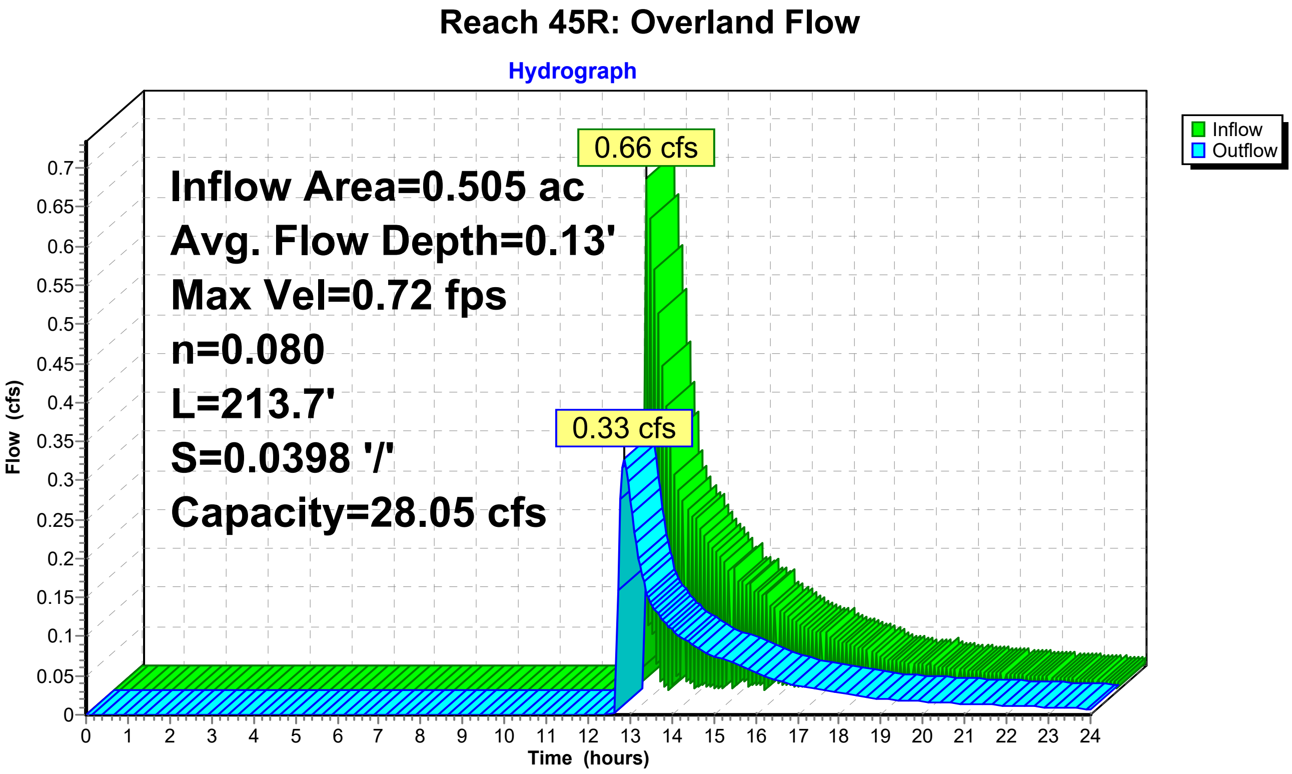


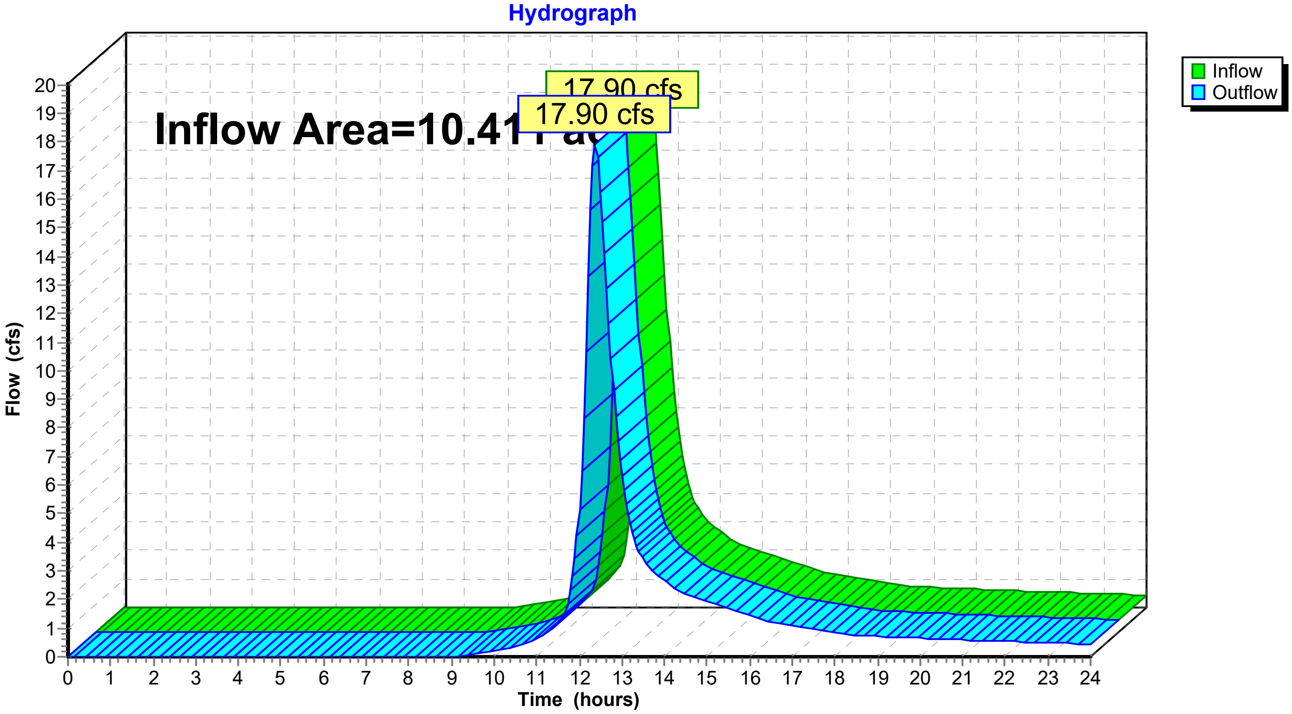
Summary for Reach 100R: Offsite Flow Southeast

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.411 ac, 2.41% Impervious, Inflow Depth > 2.63" for 25YR.-24HR. event
Inflow = 17.90 cfs @ 12.37 hrs, Volume= 2.283 af
Outflow = 17.90 cfs @ 12.37 hrs, Volume= 2.283 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Offsite Flow Southeast



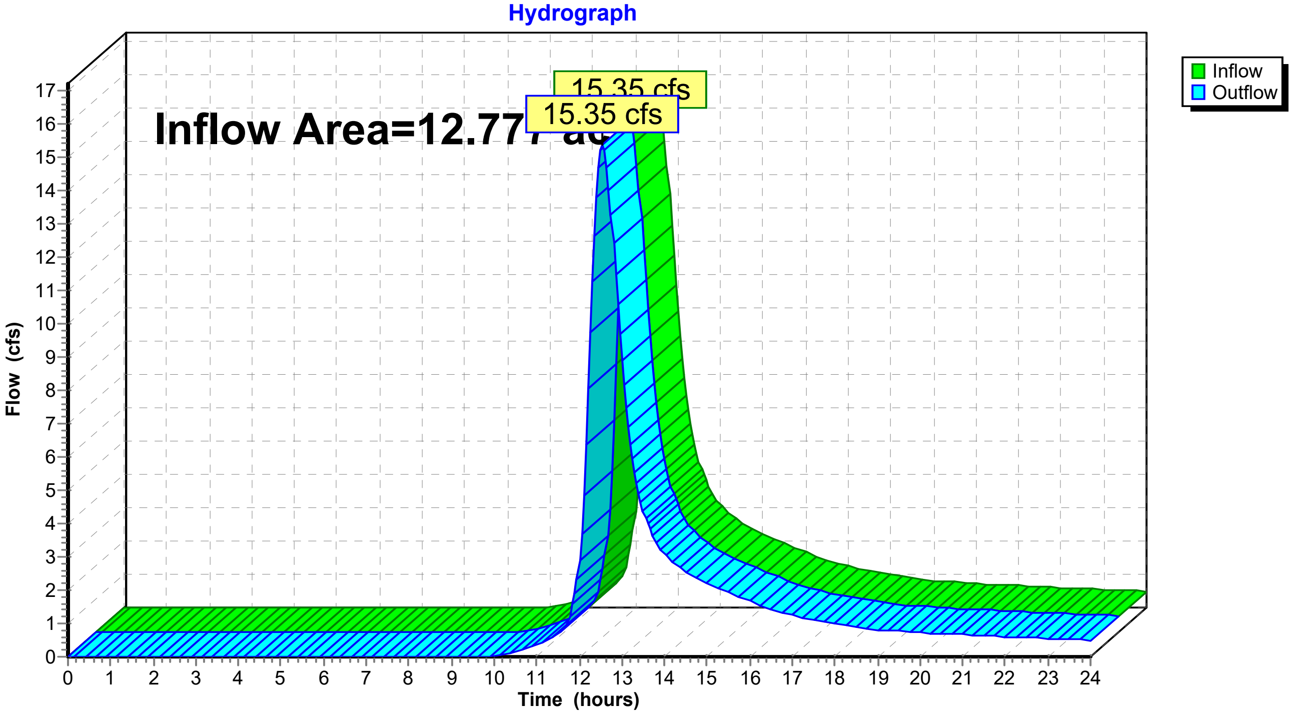
Summary for Reach 200R: Reach #200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 12.777 ac, 3.29% Impervious, Inflow Depth > 2.19" for 25YR.-24HR. event
Inflow = 15.35 cfs @ 12.55 hrs, Volume= 2.331 af
Outflow = 15.35 cfs @ 12.55 hrs, Volume= 2.331 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Reach #200



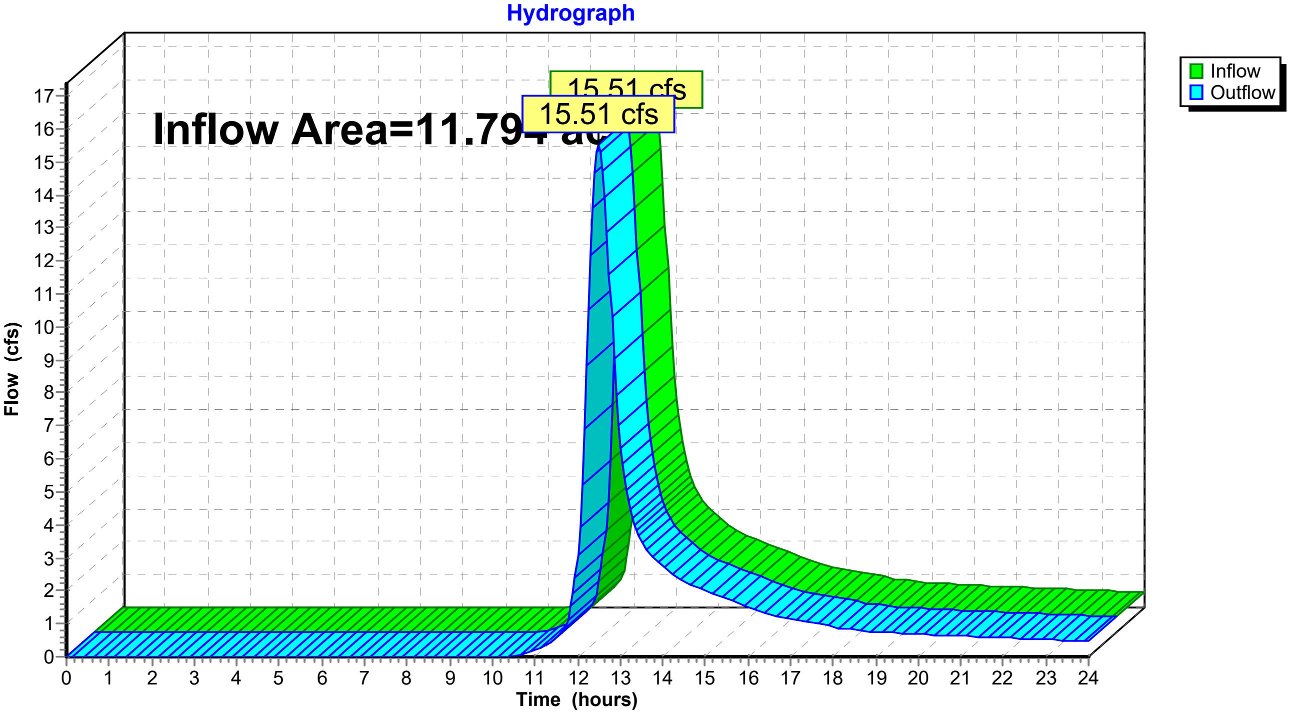
Summary for Reach 300R: Reach #300

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =       11.794 ac,    6.78% Impervious,  Inflow Depth >   2.16"    for  25YR.-24HR. event
Inflow      =       15.51 cfs @   12.50 hrs,  Volume=            2.119 af
Outflow     =       15.51 cfs @   12.50 hrs,  Volume=            2.119 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 300R: Reach #300

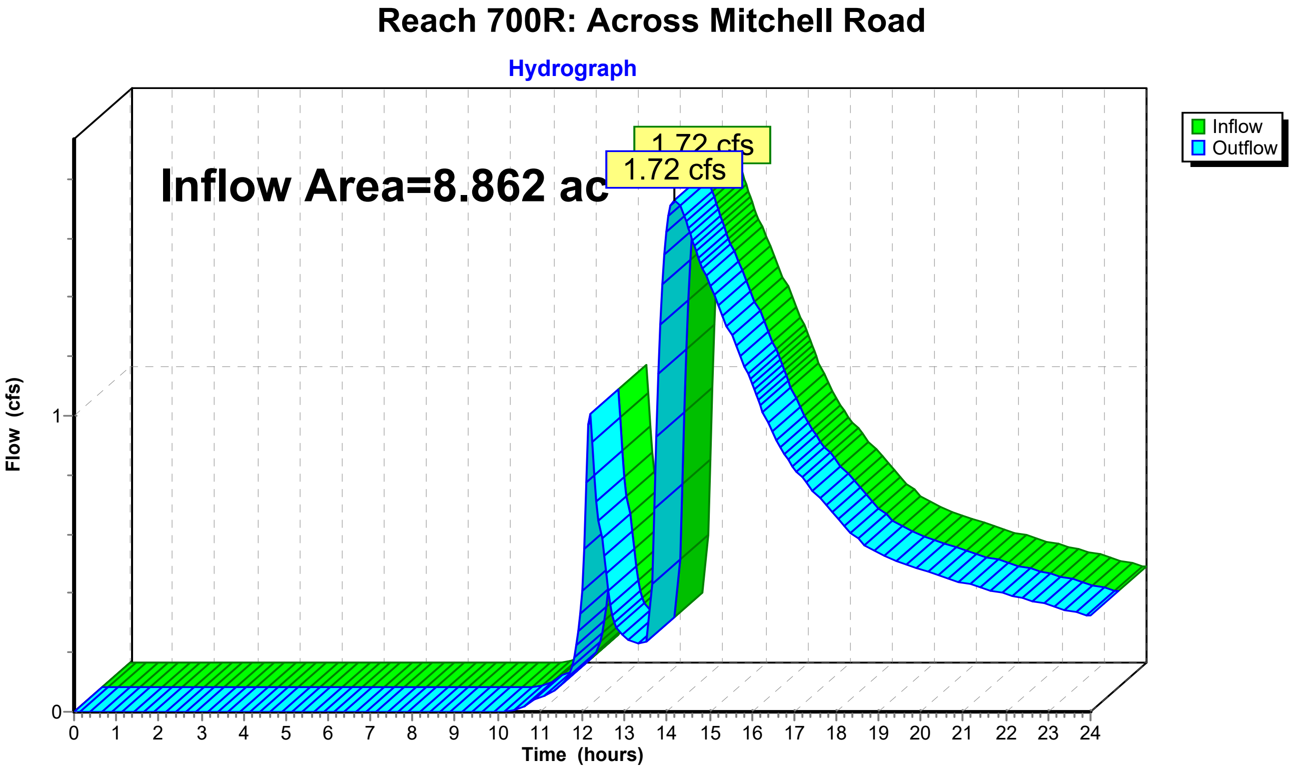


Summary for Reach 700R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.862 ac, 8.42% Impervious, Inflow Depth > 0.95" for 25YR.-24HR. event
Inflow = 1.72 cfs @ 14.20 hrs, Volume= 0.702 af
Outflow = 1.72 cfs @ 14.20 hrs, Volume= 0.702 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs



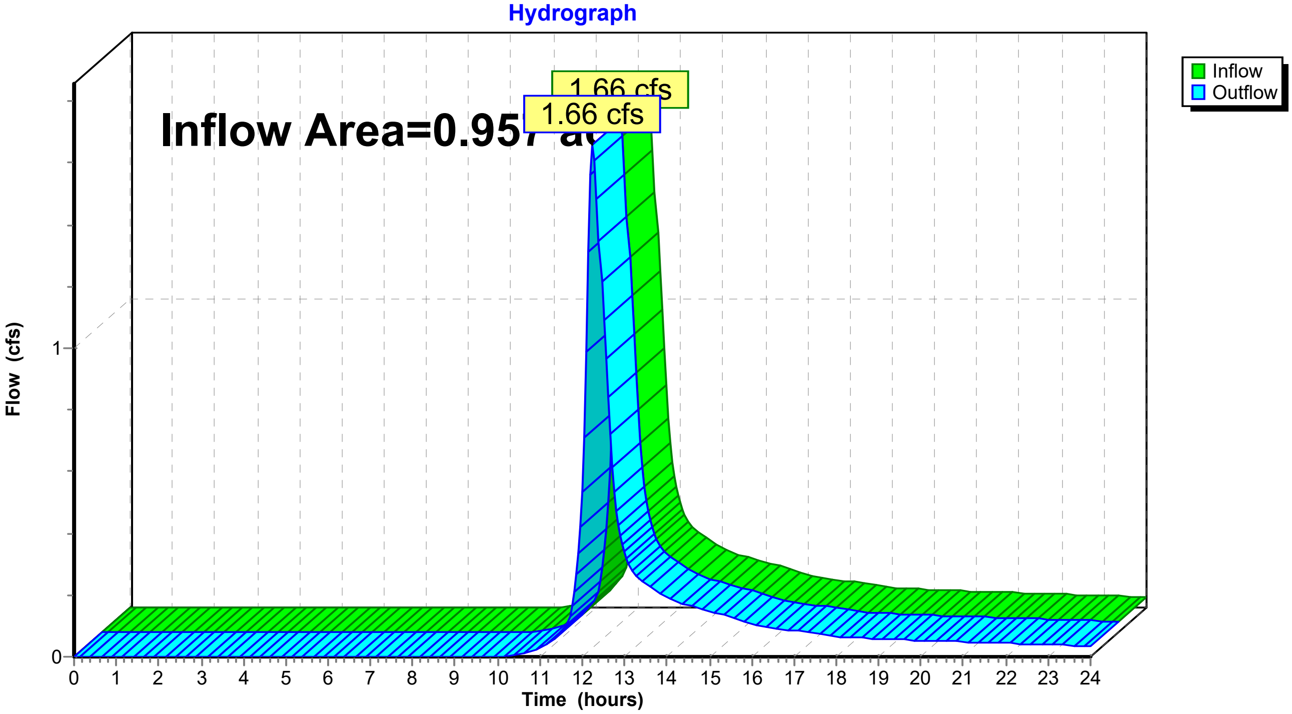
Summary for Reach 800R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.957 ac, 11.21% Impervious, Inflow Depth > 2.15" for 25YR.-24HR. event
Inflow = 1.66 cfs @ 12.26 hrs, Volume= 0.171 af
Outflow = 1.66 cfs @ 12.26 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 800R: Across Mitchell Road



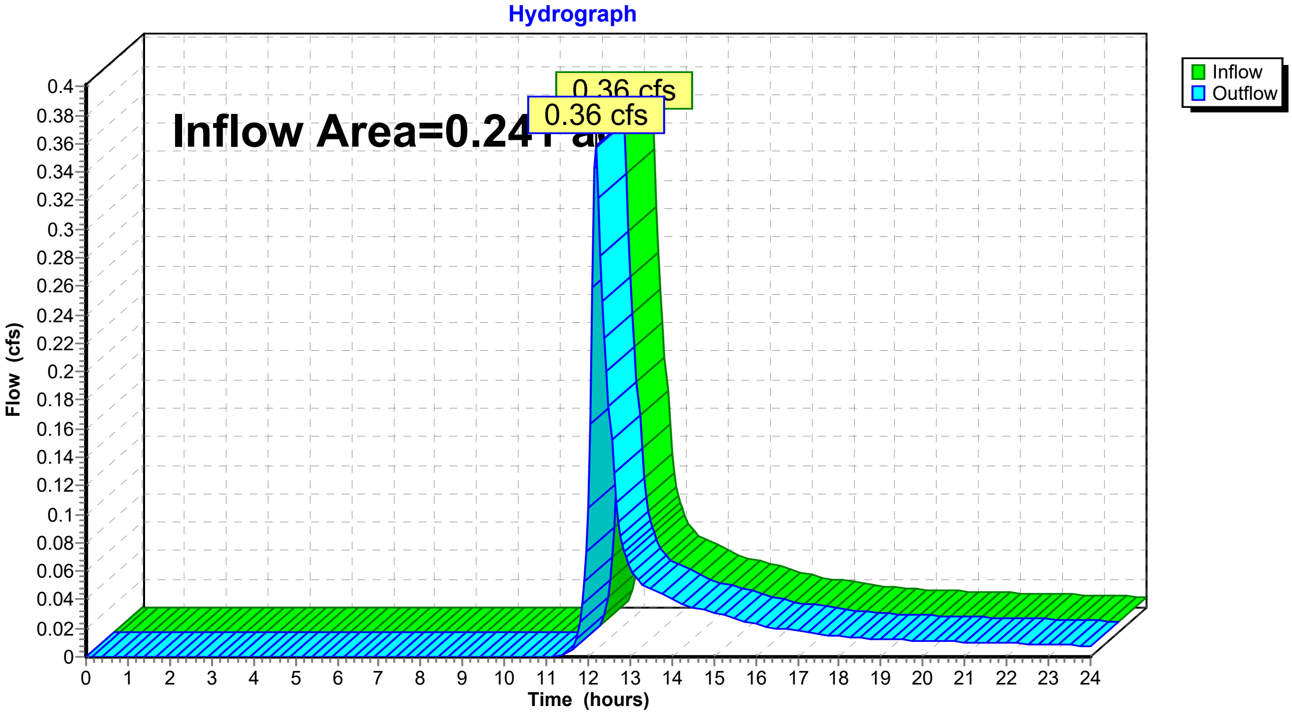
Summary for Reach 900R: Across Mitchell Road

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.241 ac, 14.92% Impervious, Inflow Depth > 1.65" for 25YR.-24HR. event
Inflow = 0.36 cfs @ 12.19 hrs, Volume= 0.033 af
Outflow = 0.36 cfs @ 12.19 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 900R: Across Mitchell Road



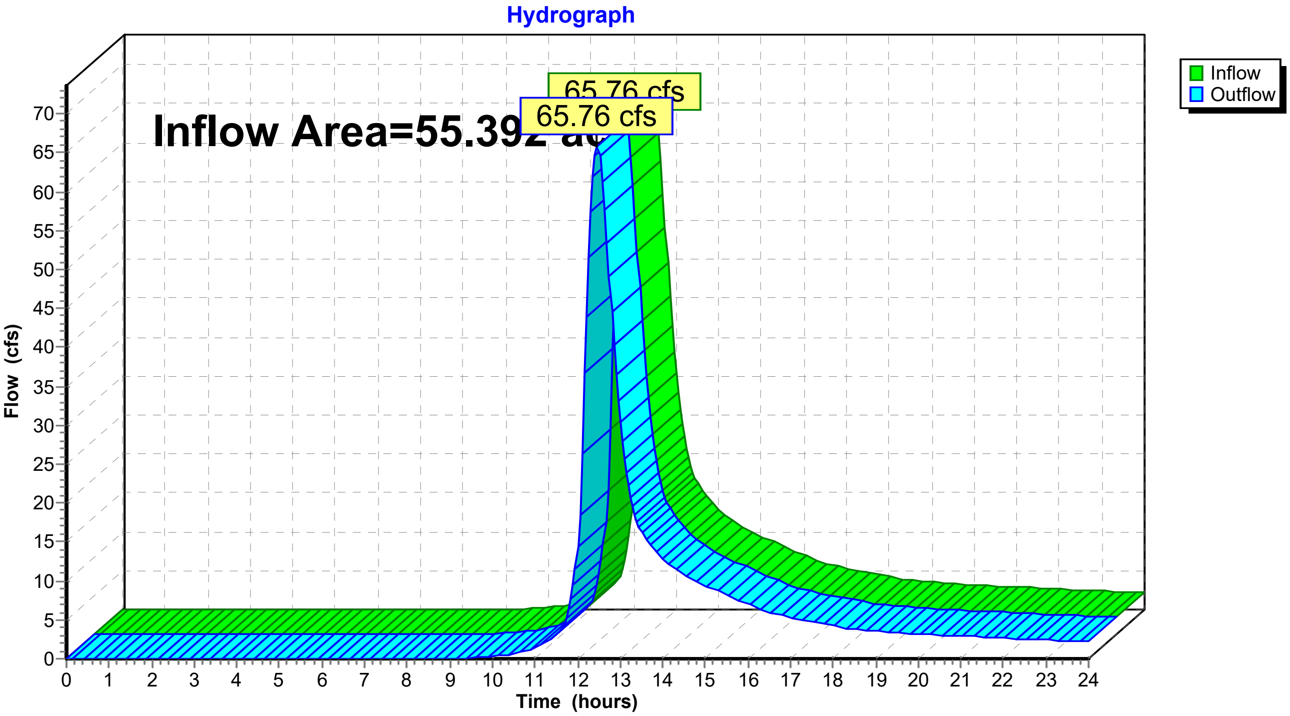
Summary for Reach 1000R: Center Wetland

[40] Hint: Not Described (Outflow=Inflow)

```
Inflow Area =      55.392 ac,    5.49% Impervious,  Inflow Depth >   2.12"    for  25YR.-24HR. event
Inflow       =      65.76 cfs @   12.46 hrs,  Volume=            9.800 af
Outflow      =      65.76 cfs @   12.46 hrs,  Volume=            9.800 af,  Atten= 0%,  Lag= 0.0 min
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 1000R: Center Wetland



Summary for Pond 2P: 36" Cross Culvert

[62] Hint: Exceeded Reach 5R OUTLET depth by 1.49' @ 12.55 hrs
[62] Hint: Exceeded Reach 45R OUTLET depth by 1.89' @ 12.55 hrs

```
Inflow Area =       11.871 ac,   3.30% Impervious,  Inflow Depth >   2.20"    for  25YR.-24HR. event
Inflow      =       14.58 cfs @   12.54 hrs,  Volume=          2.173 af
Outflow     =       14.57 cfs @   12.55 hrs,  Volume=          2.172 af,  Atten= 0%,  Lag= 0.8 min
Primary     =       14.57 cfs @   12.55 hrs,  Volume=          2.172 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 291.39' @ 12.55 hrs   Surf.Area= 846 sf   Storage= 589 cf
Flood Elev= 295.00'   Surf.Area= 23,452 sf   Storage= 36,851 cf

Plug-Flow detention time= 0.9 min calculated for 2.167 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (875.7 - 875.1)

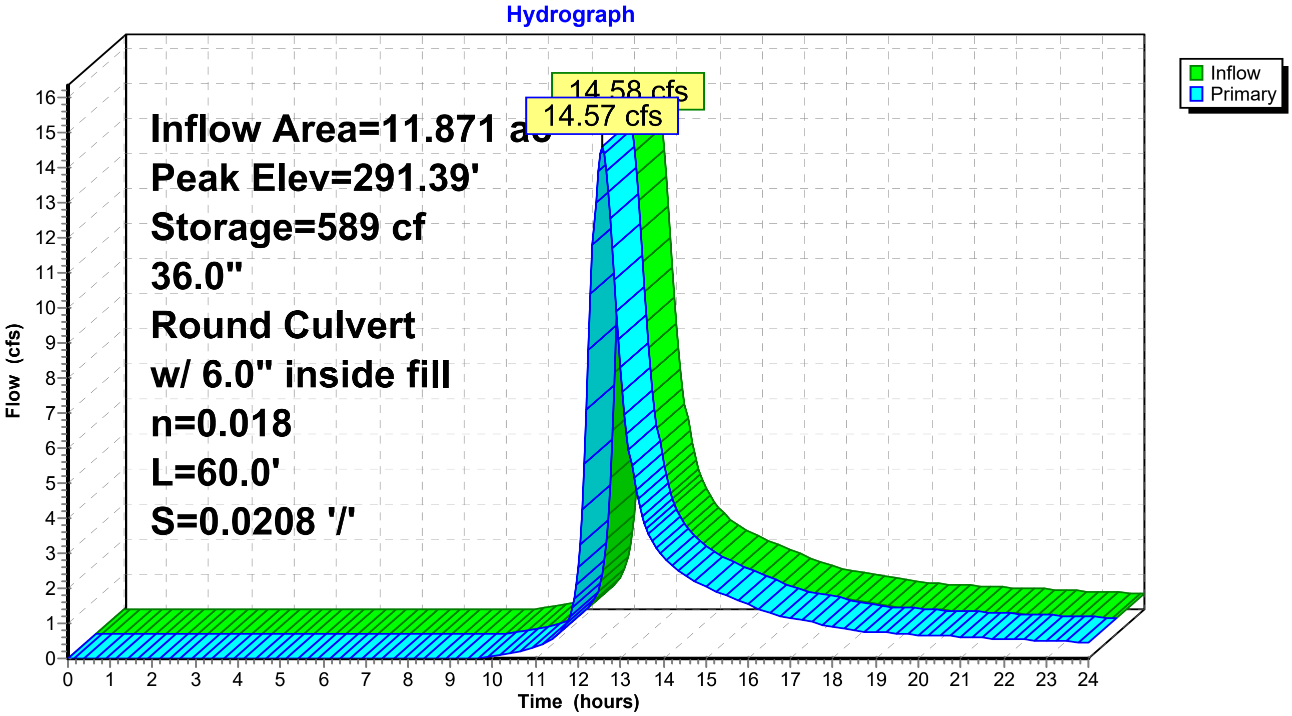
Volume	Invert	Avail.Storage	Storage Description
#1	289.50'	36,851 cf	**Open water storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.50	30	10.0	0	0	30
291.00	502	106.0	327	327	920
292.00	1,556	212.4	981	1,308	3,621
293.00	9,062	422.3	4,791	6,099	14,227
294.00	14,777	556.2	11,804	17,903	24,665
295.00	23,452	612.5	18,948	36,851	29,934

Device	Routing	Invert	Outlet Devices
#1	Primary	290.00'	**36.0" Round 36" RCP w/ 6.0" inside fill** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 289.50' / 288.25' S= 0.0208 '/' Cc= 0.900 n= 0.018, Flow Area= 6.29 sf

Primary OutFlow Max=14.57 cfs @ 12.55 hrs HW=291.39' TW=288.71' (Dynamic Tailwater)
↑—**1=36" RCP** (Inlet Controls 14.57 cfs @ 3.71 fps)

Pond 2P: 36" Cross Culvert



Summary for Pond 7P: 24" Mitchell Road Cross Culvert

Inflow Area = 8.862 ac, 8.42% Impervious, Inflow Depth > 0.95" for 25YR.-24HR. event
Inflow = 1.72 cfs @ 14.18 hrs, Volume= 0.703 af
Outflow = 1.72 cfs @ 14.20 hrs, Volume= 0.702 af, Atten= 0%, Lag= 0.9 min
Primary = 1.72 cfs @ 14.20 hrs, Volume= 0.702 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 288.10' @ 14.20 hrs Surf.Area= 271 sf Storage= 136 cf
Flood Elev= 291.00' Surf.Area= 2,792 sf Storage= 2,495 cf

Plug-Flow detention time= 1.9 min calculated for 0.702 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (1,010.9 - 1,009.8)

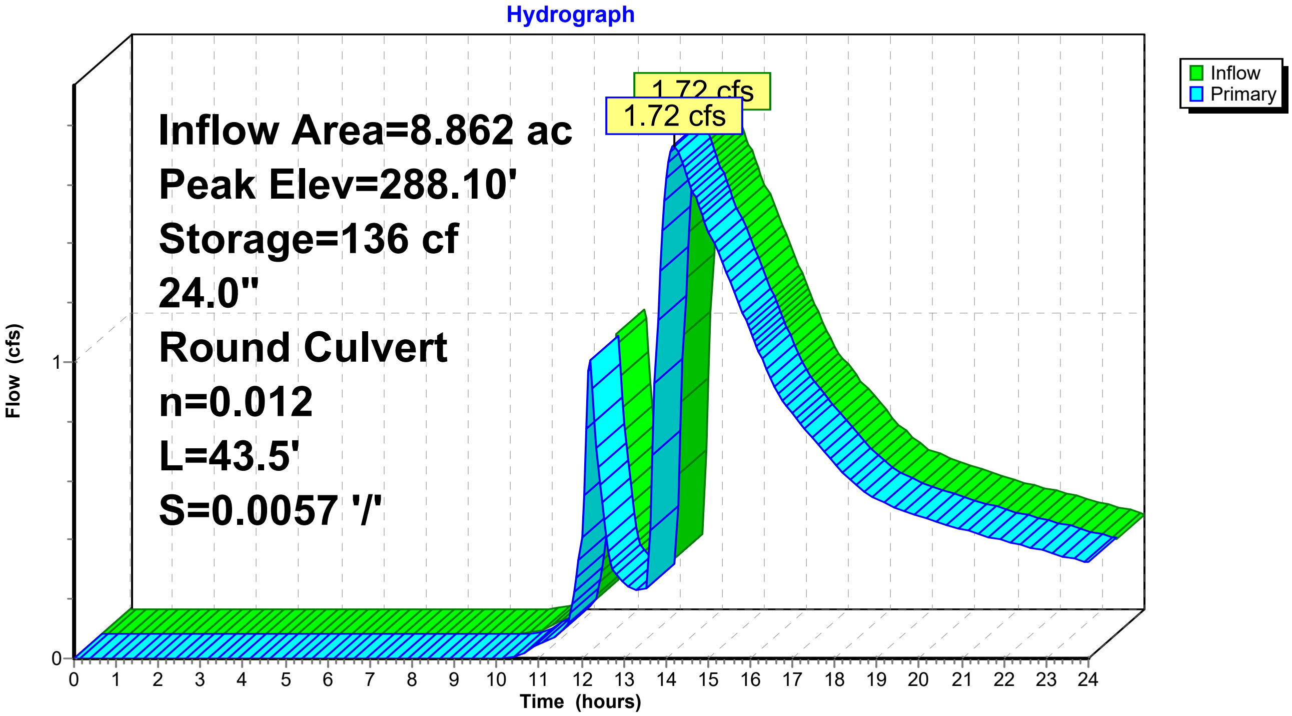
Volume	Invert	Avail.Storage	Storage Description
#1	287.50'	2,495 cf	**Open water storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
287.50	184	59.5	0	0	184
288.00	259	64.5	110	110	242
289.00	403	74.1	328	439	369
290.00	597	89.4	497	935	584
291.00	2,792	543.0	1,560	2,495	23,414

Device	Routing	Invert	Outlet Devices
#1	Primary	287.50'	**24.0" Round 24" HDPE N-12** L= 43.5' Ke= 0.300 Inlet / Outlet Invert= 287.50' / 287.25' S= 0.0057 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.72 cfs @ 14.20 hrs HW=288.10' TW=0.00' (Dynamic Tailwater)
↑—**1=24" HDPE N-12** (Barrel Controls 1.72 cfs @ 3.29 fps)

Pond 7P: 24" Mitchell Road Cross Culvert



Summary for Pond 9P: 12" Mitchell Road Cross Culvert

```
Inflow Area =      0.241 ac,  14.92% Impervious,  Inflow Depth >   1.66"    for  25YR.-24HR. event
Inflow      =      0.38 cfs @   12.15 hrs,  Volume=          0.033 af
Outflow     =      0.36 cfs @   12.19 hrs,  Volume=          0.033 af,  Atten= 5%,  Lag= 2.3 min
Primary     =      0.36 cfs @   12.19 hrs,  Volume=          0.033 af
Secondary =        0.00 cfs @    0.00 hrs,  Volume=          0.000 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 289.68' @ 12.19 hrs Surf.Area= 225 sf Storage= 71 cf
Flood Elev= 291.00' Surf.Area= 300 sf Storage= 421 cf

Plug-Flow detention time= 8.8 min calculated for 0.033 af (99% of inflow)
Center-of-Mass det. time= 5.1 min (877.1 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	289.35'	721 cf	**Open water storage (Irregular)**Listed below (Recalc)

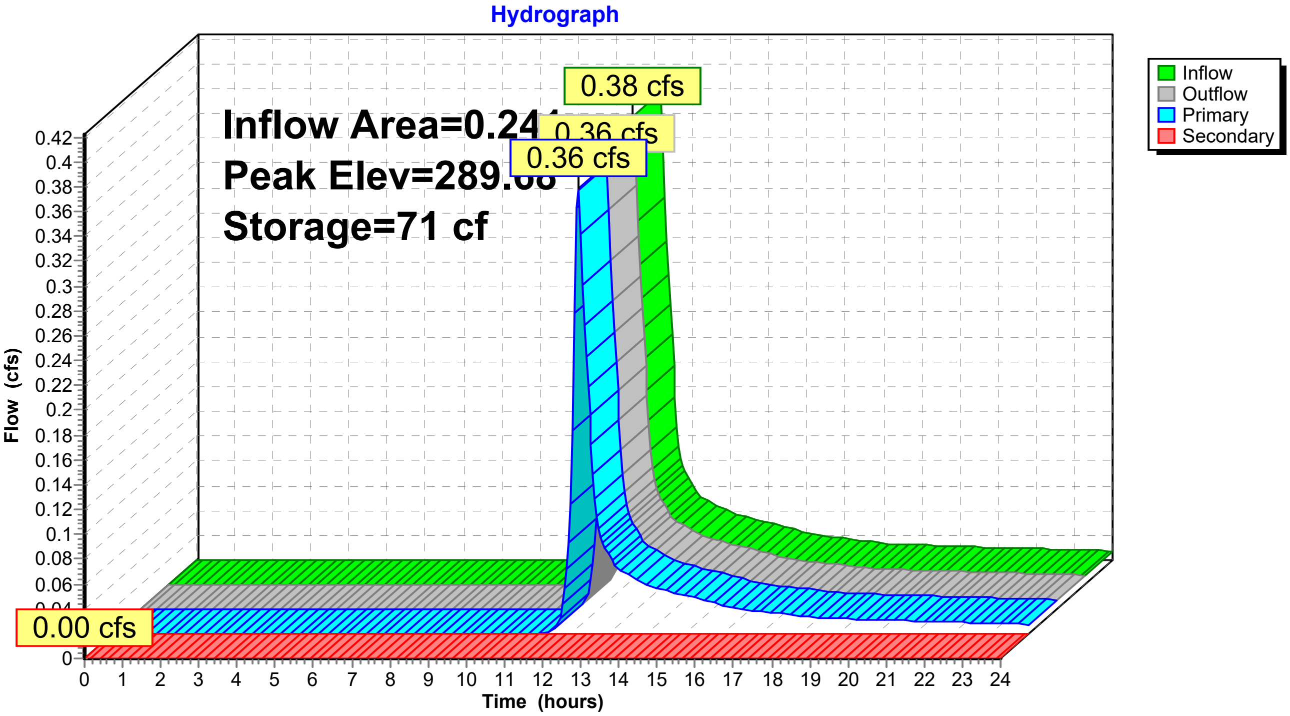
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.35	200	100.0	0	0	200
290.00	250	120.0	146	146	557
291.00	300	130.0	275	421	792
292.00	300	130.0	300	721	922

Device	Routing	Invert	Outlet Devices
#1	Primary	289.35'	**12.0" Round 12" CMP** L= 41.2' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 289.35' / 287.43' S= 0.0466 '/' Cc= 0.900 n= 0.018 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Secondary	291.00'	**50.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.35 cfs @ 12.19 hrs HW=289.68' TW=0.00' (Dynamic Tailwater)
↑—**1=12" CMP** (Inlet Controls 0.35 cfs @ 1.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=289.35' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: 12" Mitchell Road Cross Culvert



Summary for Pond 10P: 18" Offsite Cross Culvert

Inflow Area = 1.128 ac, 17.32% Impervious, Inflow Depth > 1.90" for 25YR.-24HR. event
Inflow = 1.59 cfs @ 12.31 hrs, Volume= 0.178 af
Outflow = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.4 min
Primary = 1.59 cfs @ 12.31 hrs, Volume= 0.176 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 316.50' @ 12.31 hrs Surf.Area= 118 sf Storage= 139 cf
Flood Elev= 319.30' Surf.Area= 775 sf Storage= 1,218 cf

Plug-Flow detention time= 8.9 min calculated for 0.176 af (99% of inflow)
Center-of-Mass det. time= 2.8 min (874.8 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	315.00'	1,761 cf	**Open water storage (Irregular)**Listed below (Recalc)

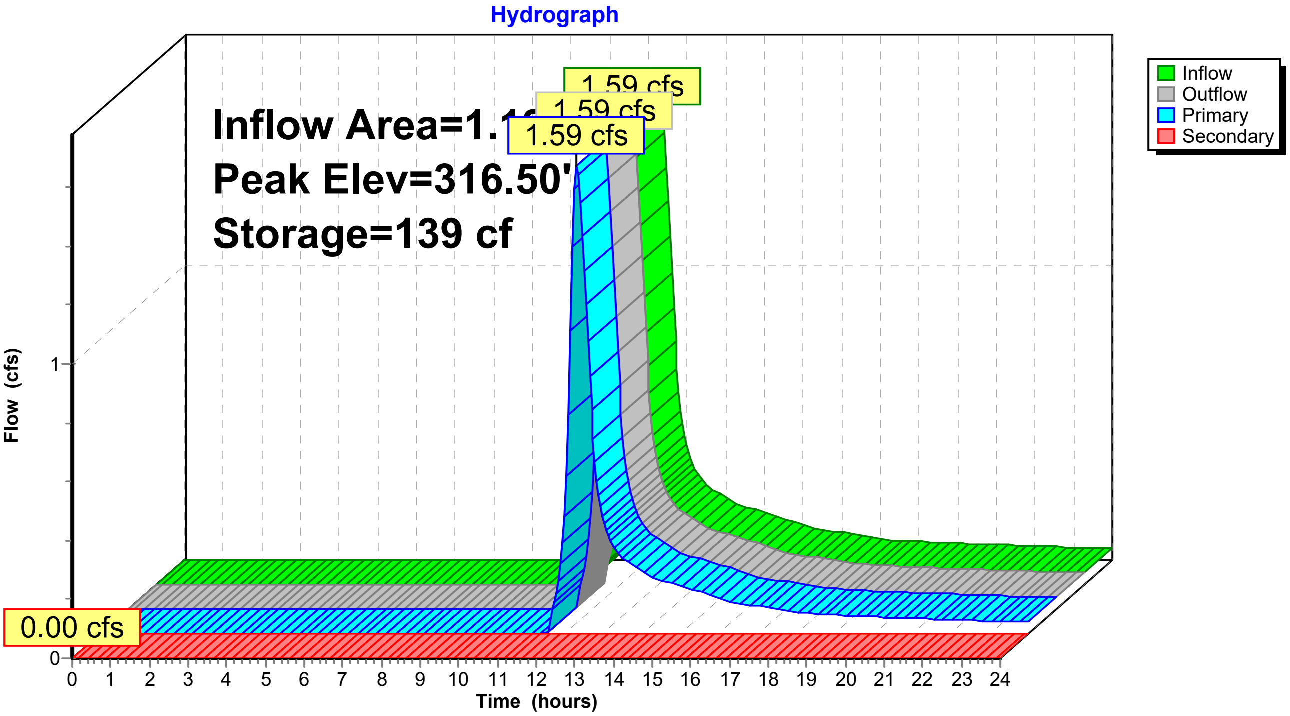
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
315.00	70	35.0	0	0	70
316.00	100	50.0	85	85	180
317.00	138	63.0	118	203	310
318.00	348	101.3	235	438	817
319.00	775	112.0	547	986	1,028
320.00	775	112.0	775	1,761	1,140

Device	Routing	Invert	Outlet Devices
#1	Primary	315.93'	**18.0" Round 18" CMP** L= 71.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 315.93' / 313.70' S= 0.0314 '/' Cc= 0.900 n= 0.018 Corrugated PE, corrugated interior, Flow Area= 1.77 sf
#2	Secondary	319.30'	**10.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.58 cfs @ 12.31 hrs HW=316.50' TW=313.87' (Dynamic Tailwater)
↑—**1=18" CMP** (Inlet Controls 1.58 cfs @ 2.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=315.00' TW=313.70' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 10P: 18" Offsite Cross Culvert



Summary for Pond 11P: 2' X 6' Box Culvert

[62] Hint: Exceeded Reach 30bR OUTLET depth by 1.11' @ 12.50 hrs

Inflow Area = 11.465 ac, 6.97% Impervious, Inflow Depth > 2.14" for 25YR.-24HR. event
Inflow = 15.95 cfs @ 12.42 hrs, Volume= 2.046 af
Outflow = 15.08 cfs @ 12.51 hrs, Volume= 2.043 af, Atten= 5%, Lag= 5.3 min
Primary = 15.08 cfs @ 12.51 hrs, Volume= 2.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 286.61' @ 12.51 hrs Surf.Area= 9,580 sf Storage= 2,667 cf
Flood Elev= 289.00' Surf.Area= 118,587 sf Storage= 170,511 cf

Plug-Flow detention time= 2.5 min calculated for 2.039 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (878.7 - 876.8)

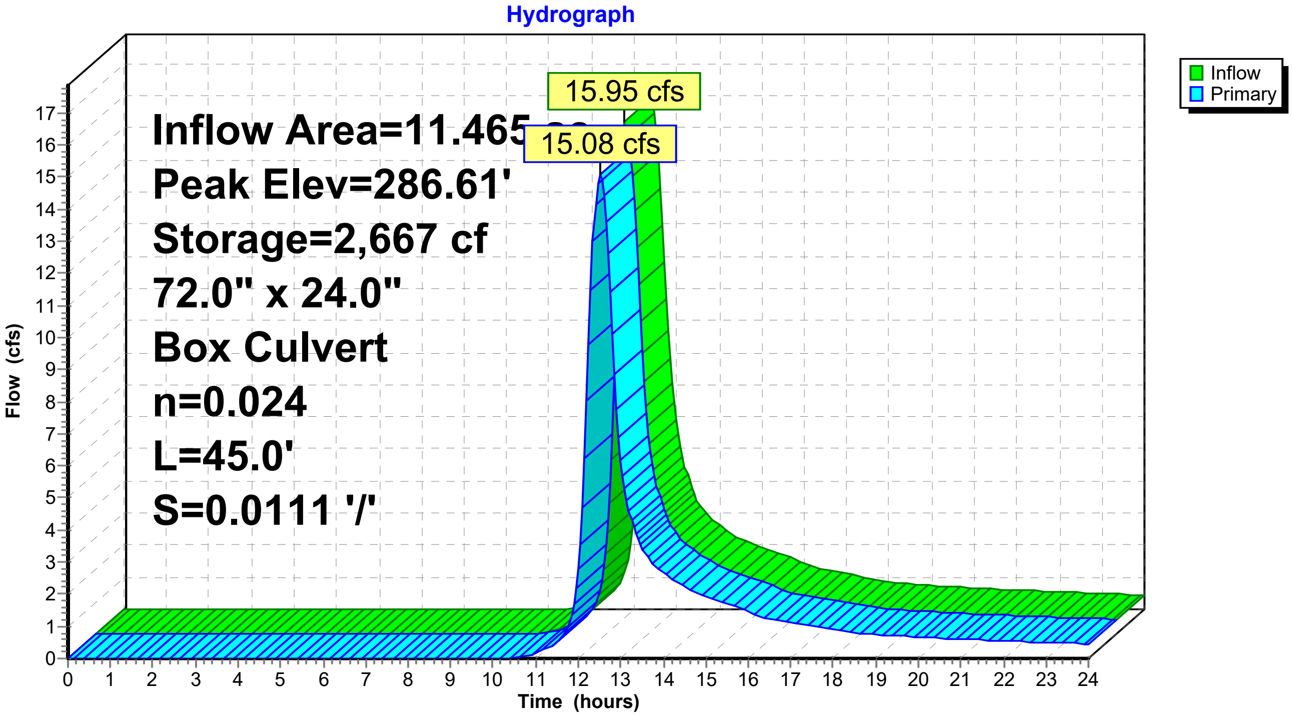
Volume	Invert	Avail.Storage	Storage Description
#1	285.75'	170,511 cf	**Open water storage in wetland (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
285.75	1,000	75.0	0	0	1,000
286.25	2,000	150.0	736	736	2,344
287.00	23,881	674.0	8,198	8,934	36,705
288.00	94,464	1,579.0	55,280	64,214	198,965
289.00	118,587	1,753.0	106,297	170,511	245,131

Device	Routing	Invert	Outlet Devices
#1	Primary	285.75'	**72.0" W x 24.0" H Box Box culvert** L= 45.0' Ke= 0.300 Inlet / Outlet Invert= 285.75' / 285.25' S= 0.0111 '/' Cc= 0.900 n= 0.024, Flow Area= 12.00 sf

Primary OutFlow Max=15.06 cfs @ 12.51 hrs HW=286.61' TW=0.00' (Dynamic Tailwater)
↑—**1=Box culvert** (Barrel Controls 15.06 cfs @ 3.88 fps)

Pond 11P: 2' X 6' Box Culvert



Summary for Pond 13P: Natural Depression

[58] Hint: Peaked 0.07' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.213 ac, 10.17% Impervious, Inflow Depth > 2.23" for 25YR.-24HR. event
Inflow = 2.07 cfs @ 12.30 hrs, Volume= 0.226 af
Outflow = 2.09 cfs @ 12.25 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.02 cfs @ 12.20 hrs, Volume= 0.017 af
Primary = 2.08 cfs @ 12.25 hrs, Volume= 0.180 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 300.07' @ 12.25 hrs Surf.Area= 2,398 sf Storage= 1,397 cf
Flood Elev= 300.00' Surf.Area= 2,398 sf Storage= 1,236 cf

Plug-Flow detention time= 79.9 min calculated for 0.197 af (87% of inflow)
Center-of-Mass det. time= 23.2 min (885.1 - 861.9)

Volume	Invert	Avail.Storage	Storage Description
#1	298.75'	3,634 cf	**Open water storage (Irregular)**Listed below (Recalc)

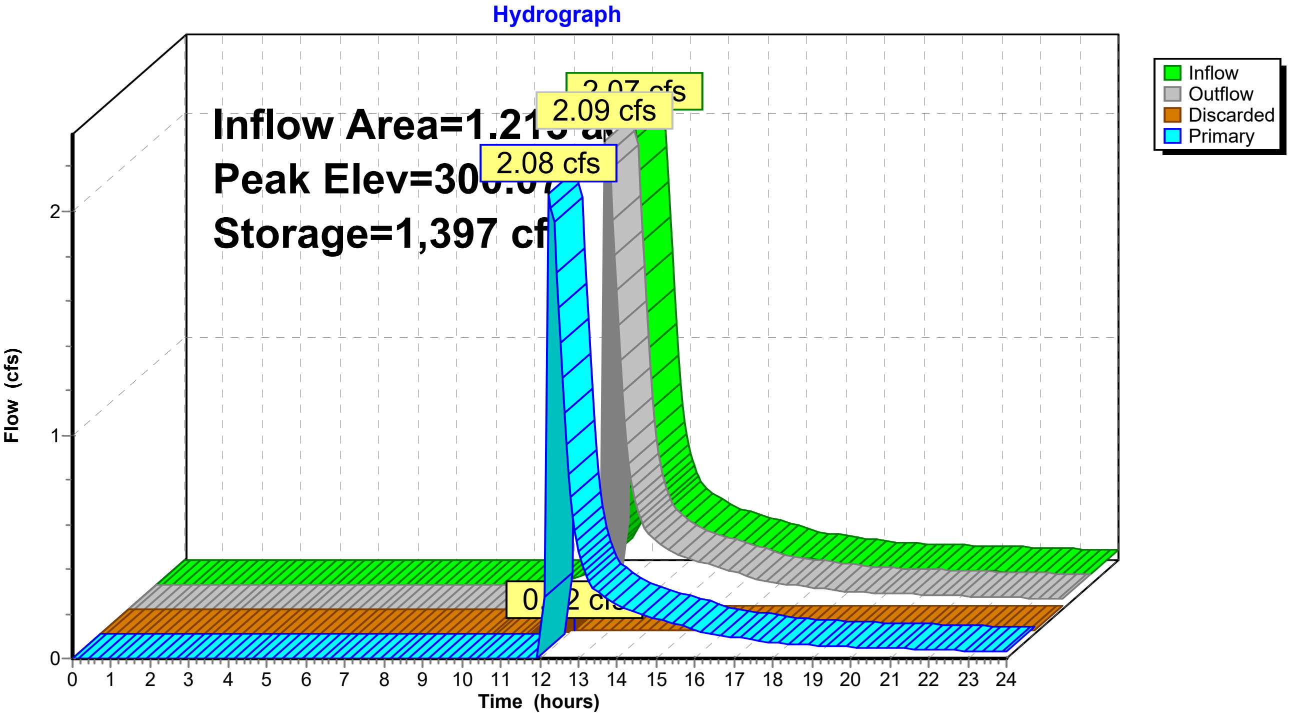
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
298.75	172	119.5	0	0	172
299.00	295	126.0	58	58	303
300.00	2,398	242.3	1,178	1,236	3,716
301.00	2,398	242.3	2,398	3,634	3,958

Device	Routing	Invert	Outlet Devices
#1	Primary	300.00'	**50.0' long x 4.0' breadth Natural berm** 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
#2	Discarded	298.75'	**0.300 in/hr Assumed Infiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 12.20 hrs HW=300.04' (Free Discharge)
↑—**2=Assumed Infiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.08 cfs @ 12.25 hrs HW=300.07' TW=298.45' (Dynamic Tailwater)
↑—**1=Natural berm** (Weir Controls 2.08 cfs @ 0.62 fps)

Pond 13P: Natural Depression



Summary for Pond 14P: Top of Swale Line

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.213 ac, 10.17% Impervious, Inflow Depth > 1.78" for 25YR.-24HR. event
Inflow = 2.08 cfs @ 12.25 hrs, Volume= 0.180 af
Outflow = 2.12 cfs @ 12.32 hrs, Volume= 0.180 af, Atten= 0%, Lag= 4.1 min
Primary = 2.12 cfs @ 12.32 hrs, Volume= 0.180 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.55' @ 12.32 hrs Surf.Area= 429 sf Storage= 214 cf
Flood Elev= 299.00' Surf.Area= 500 sf Storage= 423 cf

Plug-Flow detention time= 3.0 min calculated for 0.180 af (100% of inflow)
Center-of-Mass det. time= 2.2 min (869.8 - 867.6)

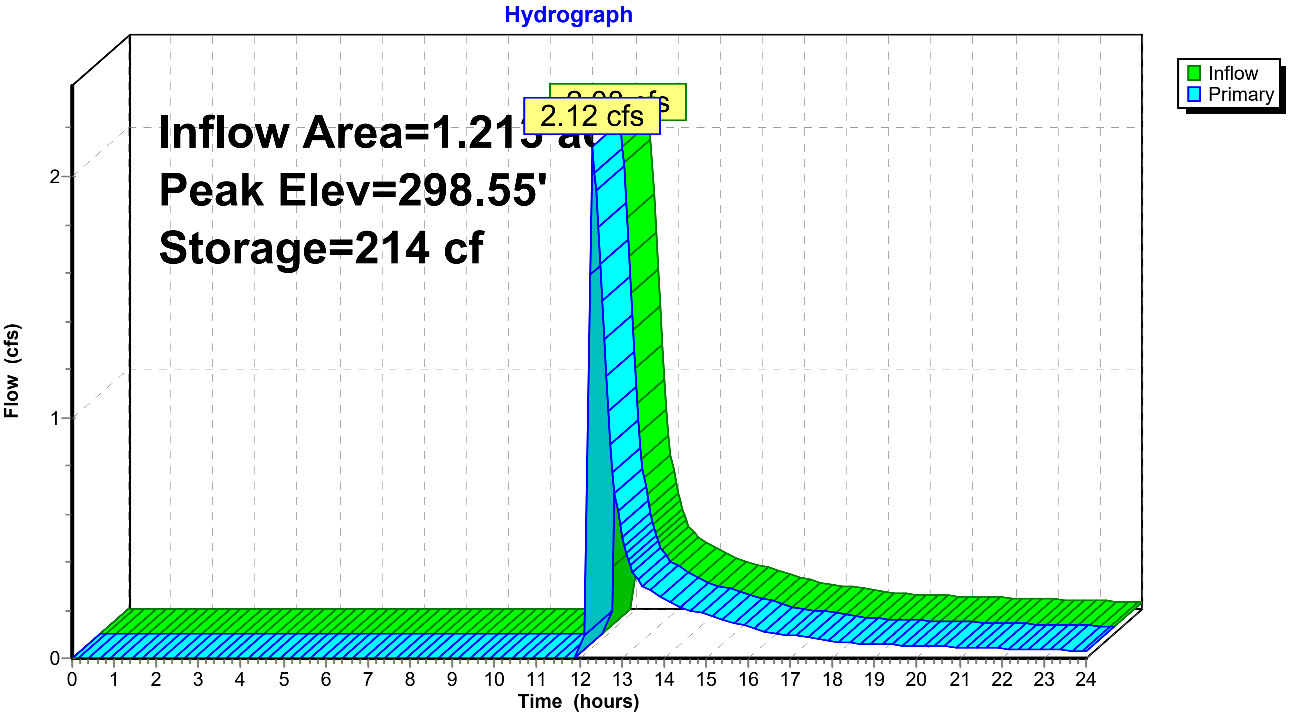
Volume	Invert	Avail.Storage	Storage Description
#1	298.00'	423 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
298.00	350	130.0	0	0	350
299.00	500	150.0	423	423	817

Device	Routing	Invert	Outlet Devices
#1	Primary	298.00'	**2.0' long x 2.0' breadth Swale Flow** 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.06 cfs @ 12.32 hrs HW=298.54' TW=297.73' (Dynamic Tailwater)
↑—**1=Swale Flow** (Weir Controls 2.06 cfs @ 1.91 fps)

Pond 14P: Top of Swale Line



Summary for Pond 26P: 12" Inlet Sump

Inflow Area = 0.227 ac, 39.88% Impervious, Inflow Depth > 3.44" for 25YR.-24HR. event
Inflow = 0.90 cfs @ 12.09 hrs, Volume= 0.065 af
Outflow = 0.88 cfs @ 12.11 hrs, Volume= 0.065 af, Atten= 2%, Lag= 1.1 min
Primary = 0.88 cfs @ 12.11 hrs, Volume= 0.065 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 293.23' @ 12.11 hrs Surf.Area= 210 sf Storage= 86 cf
Flood Elev= 294.00' Surf.Area= 332 sf Storage= 292 cf

Plug-Flow detention time= 4.6 min calculated for 0.065 af (100% of inflow)
Center-of-Mass det. time= 3.0 min (822.7 - 819.7)

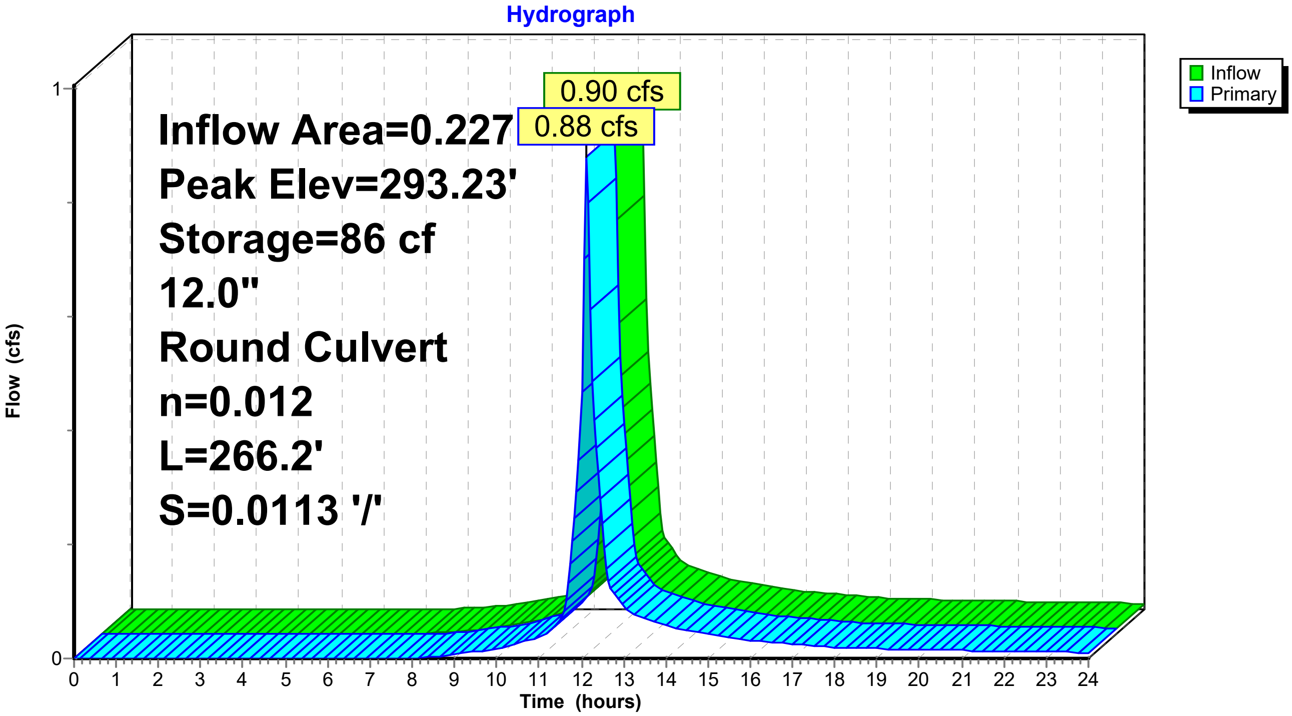
Volume	Invert	Avail.Storage	Storage Description
#1	292.75'	292 cf	**Open Water Storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
292.75	148	49.0	0	0	148
293.00	179	52.8	41	41	181
294.00	332	68.6	252	292	346

Device	Routing	Invert	Outlet Devices
#1	Primary	292.75'	**12.0" Round 12" HDPE N-12** L= 266.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 292.75' / 289.75' S= 0.0113 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.11 hrs HW=293.22' TW=290.24' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 0.86 cfs @ 2.34 fps)

Pond 26P: 12" Inlet Sump



Summary for Pond 27P: 24" Inlet Sump

[62] Hint: Exceeded Reach 14R OUTLET depth by 2.70' @ 14.30 hrs

Inflow Area = 6.753 ac, 7.10% Impervious, Inflow Depth > 1.94" for 25YR.-24HR. event
Inflow = 8.70 cfs @ 12.44 hrs, Volume= 1.090 af
Outflow = 8.70 cfs @ 12.44 hrs, Volume= 1.064 af, Atten= 0%, Lag= 0.2 min
Primary = 8.70 cfs @ 12.44 hrs, Volume= 1.064 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.02' @ 14.21 hrs Surf.Area= 1,063 sf Storage= 1,238 cf
Flood Elev= 292.50' Surf.Area= 1,313 sf Storage= 1,843 cf

Plug-Flow detention time= 16.1 min calculated for 1.062 af (97% of inflow)
Center-of-Mass det. time= 3.2 min (880.0 - 876.8)

Volume	Invert	Avail.Storage	Storage Description
#1	289.25'	1,843 cf	**Open Water Storage (Irregular)**Listed below (Recalc)

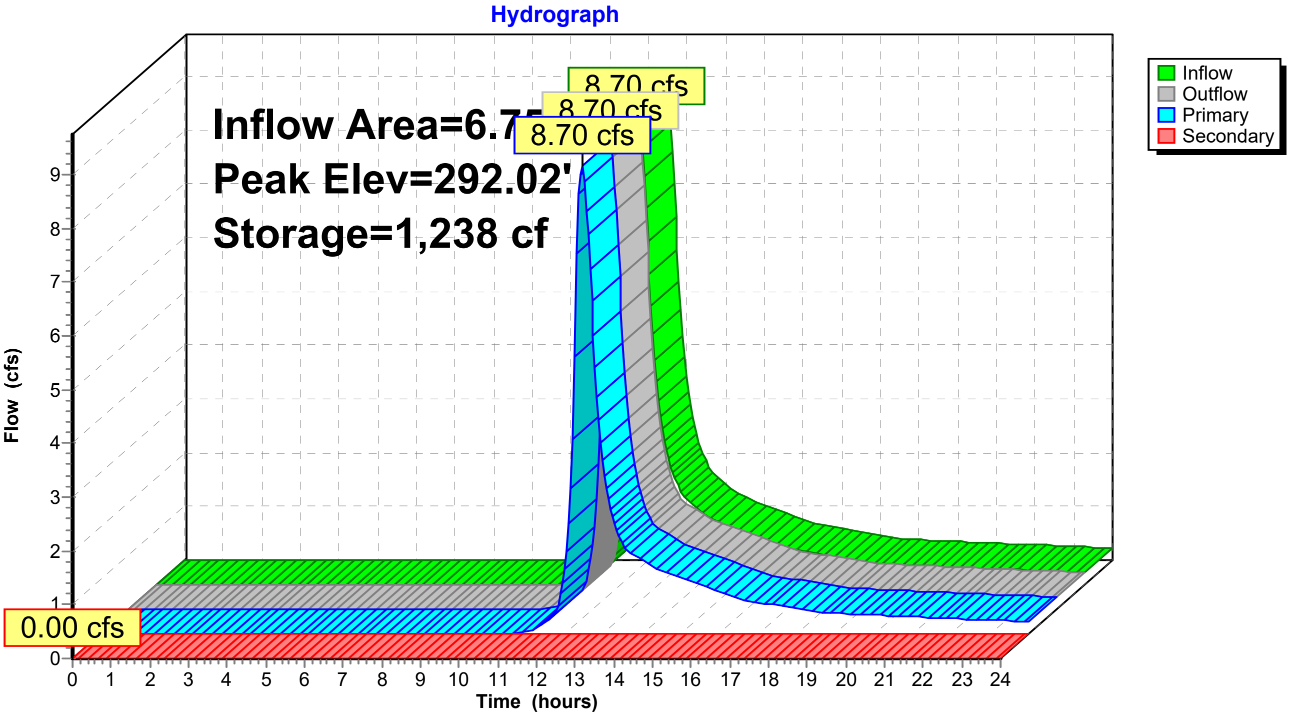
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.25	141	52.5	0	0	141
290.00	262	66.5	149	149	281
291.00	443	81.4	349	497	471
292.00	1,045	210.1	723	1,220	3,460
292.25	1,313	222.3	294	1,514	3,883
292.50	1,313	222.3	328	1,843	3,939

Device	Routing	Invert	Outlet Devices
#1	Primary	289.25'	**24.0" Round 24" RCP** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 289.25' / 289.00' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Secondary	292.25'	**20.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=8.38 cfs @ 12.44 hrs HW=290.75' TW=290.17' (Dynamic Tailwater)
↑—**1=24" RCP** (Outlet Controls 8.38 cfs @ 4.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=289.25' TW=287.50' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 27P: 24" Inlet Sump



Summary for Pond 28P: 15" Inlet Sump

Inflow Area = 1.174 ac, 23.51% Impervious, Inflow Depth > 2.23" for 25YR.-24HR. event
Inflow = 1.94 cfs @ 12.32 hrs, Volume= 0.218 af
Outflow = 1.87 cfs @ 12.38 hrs, Volume= 0.218 af, Atten= 4%, Lag= 3.4 min
Primary = 1.87 cfs @ 12.38 hrs, Volume= 0.218 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.74' @ 12.38 hrs Surf.Area= 865 sf Storage= 398 cf
Flood Elev= 291.50' Surf.Area= 1,779 sf Storage= 1,386 cf

Plug-Flow detention time= 5.2 min calculated for 0.217 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (866.9 - 863.3)

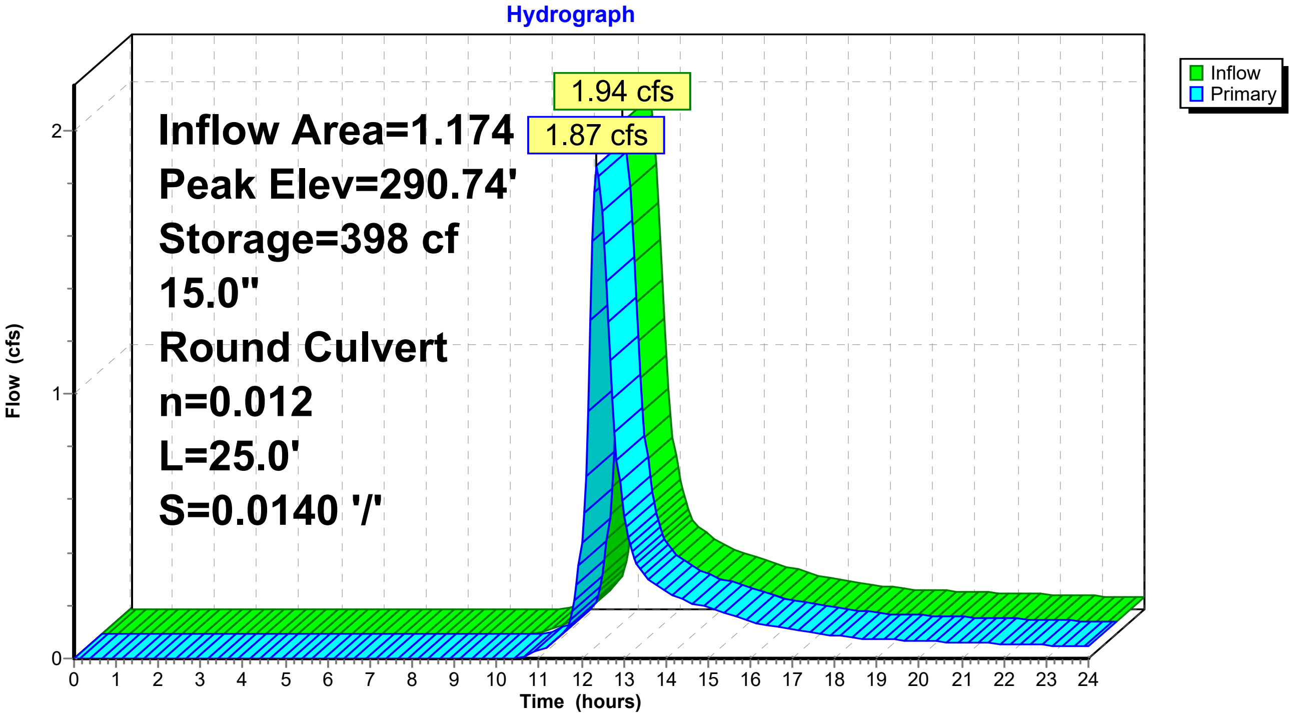
Volume	Invert	Avail.Storage	Storage Description
#1	290.00'	1,386 cf	**Ponding Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
290.00	265	101.2	0	0	265
291.00	1,155	173.7	658	658	1,857
291.50	1,779	202.1	728	1,386	2,711

Device	Routing	Invert	Outlet Devices
#1	Primary	290.00'	**15.0" Round 15" HDPE N-12** L= 25.0' Ke= 0.500 Inlet / Outlet Invert= 290.00' / 289.65' S= 0.0140 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.38 hrs HW=290.74' TW=290.34' (Dynamic Tailwater)
↰**1=15" HDPE N-12** (Outlet Controls 1.87 cfs @ 3.55 fps)

Pond 28P: 15" Inlet Sump



Summary for Pond 29P: 12" Inlet Sump

Inflow Area = 0.378 ac, 43.16% Impervious, Inflow Depth > 3.35" for 25YR.-24HR. event
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 0.105 af
Outflow = 1.36 cfs @ 12.12 hrs, Volume= 0.105 af, Atten= 6%, Lag= 1.8 min
Primary = 1.36 cfs @ 12.12 hrs, Volume= 0.105 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.12' @ 12.12 hrs Surf.Area= 450 sf Storage= 193 cf
Flood Elev= 290.50' Surf.Area= 665 sf Storage= 405 cf

Plug-Flow detention time= 5.2 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (825.7 - 822.2)

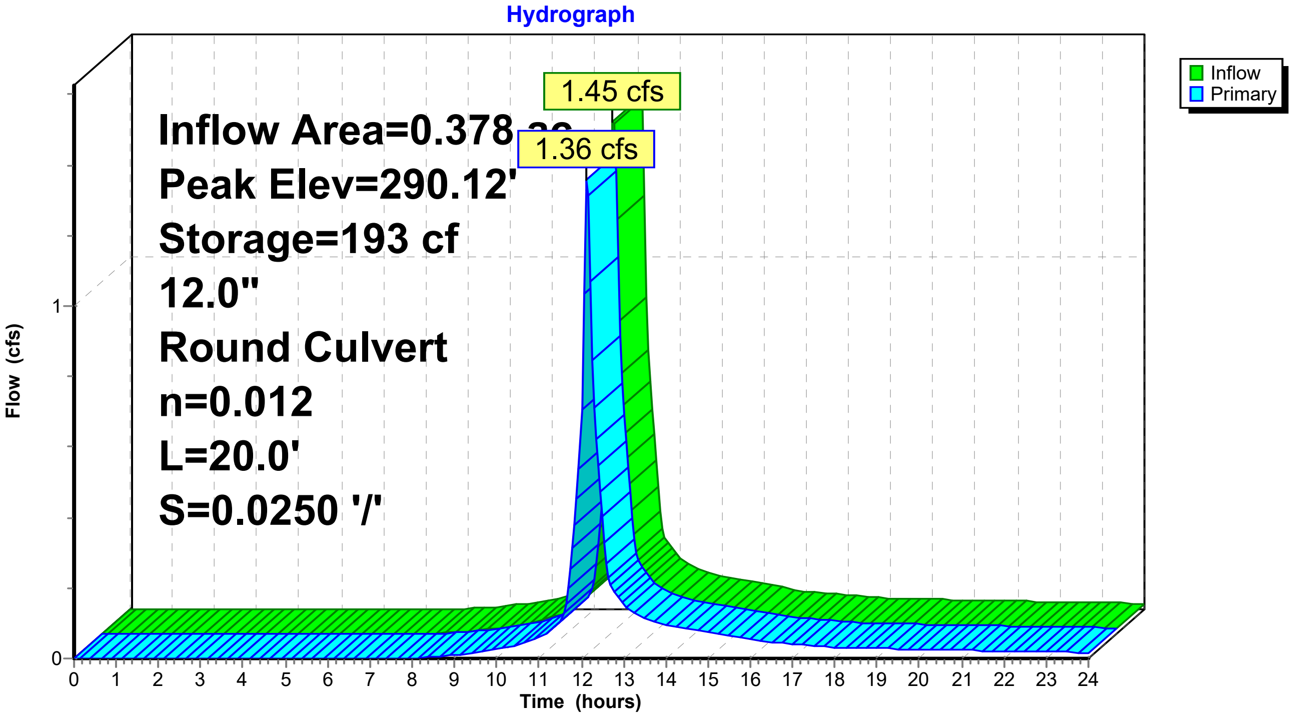
Volume	Invert	Avail.Storage	Storage Description
#1	289.50'	405 cf	**Ponding Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.50	193	75.5	0	0	193
290.00	392	95.6	143	143	470
290.50	665	133.6	261	405	1,165

Device	Routing	Invert	Outlet Devices
#1	Primary	289.50'	**12.0" Round 12" HDPE N-12** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 289.50' / 289.00' S= 0.0250 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.32 cfs @ 12.12 hrs HW=290.11' TW=289.35' (Dynamic Tailwater)
↑**1=12" HDPE N-12** (Inlet Controls 1.32 cfs @ 2.65 fps)

Pond 29P: 12" Inlet Sump



Summary for Pond 30P: 18" Cross Culvert

[62] Hint: Exceeded Reach 10R OUTLET depth by 0.69' @ 12.25 hrs

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Inflow Area =      1.987 ac,  17.94% Impervious,  Inflow Depth >   2.14"    for  25YR.-24HR. event
Inflow      =      3.27 cfs @   12.26 hrs,  Volume=          0.355 af
Outflow     =      3.27 cfs @   12.26 hrs,  Volume=          0.355 af,  Atten= 0%,  Lag= 0.1 min
Primary     =      3.27 cfs @   12.26 hrs,  Volume=          0.355 af
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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 296.85' @ 12.26 hrs Surf.Area= 35 sf Storage= 15 cf
Flood Elev= 299.00' Surf.Area= 252 sf Storage= 284 cf

Plug-Flow detention time= 0.1 min calculated for 0.355 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (863.3 - 863.2)

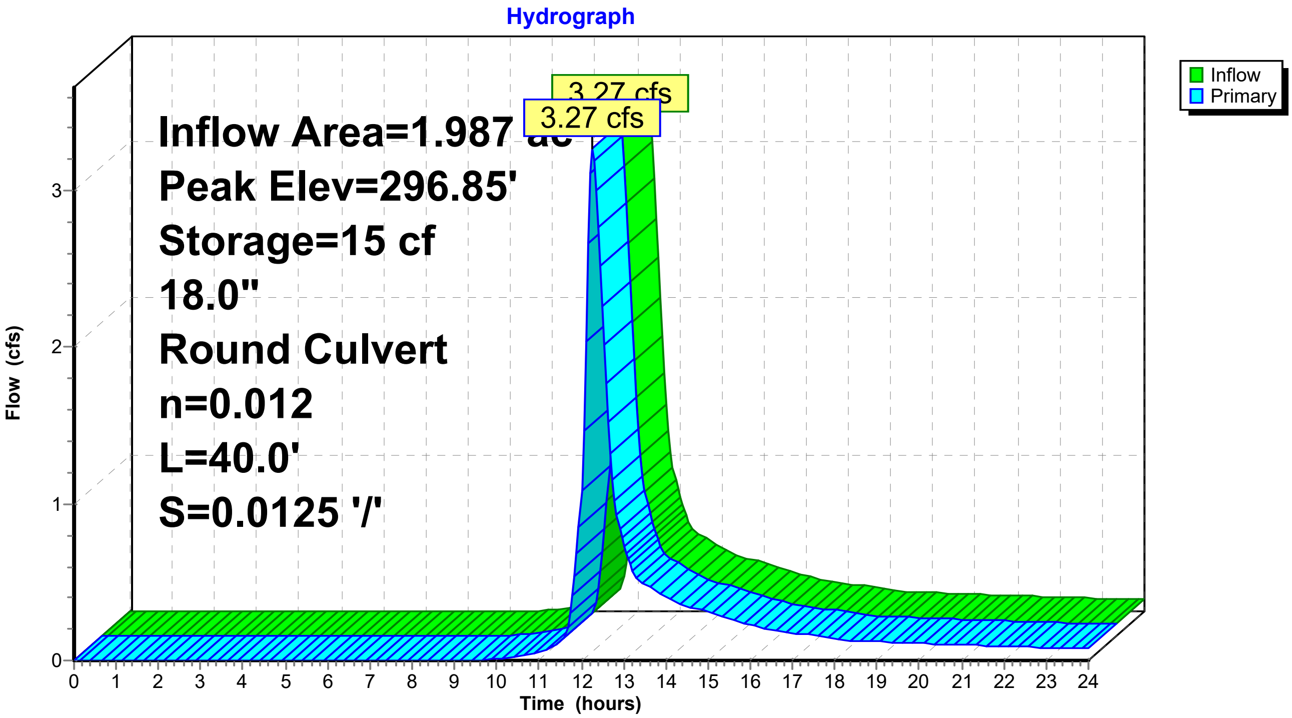
Volume	Invert	Avail.Storage	Storage Description
#1	296.00'	284 cf	**Ponding Area (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
296.00	5	6.5	0	0	5
297.00	43	31.5	21	21	83
298.00	123	47.4	80	100	190
299.00	252	68.3	184	284	391

Device	Routing	Invert	Outlet Devices
#1	Primary	296.00'	**18.0" Round 18" HDPE N-12** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 296.00' / 295.50' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.26 cfs @ 12.26 hrs HW=296.85' TW=295.86' (Dynamic Tailwater)
↑—**1=18" HDPE N-12** (Inlet Controls 3.26 cfs @ 3.14 fps)

Pond 30P: 18" Cross Culvert



Summary for Pond 35P: 12" Inlet Sump

Inflow Area = 1.457 ac, 8.98% Impervious, Inflow Depth > 2.86" for 25YR.-24HR. event
Inflow = 4.01 cfs @ 12.17 hrs, Volume= 0.348 af
Outflow = 3.89 cfs @ 12.20 hrs, Volume= 0.348 af, Atten= 3%, Lag= 1.8 min
Primary = 3.89 cfs @ 12.20 hrs, Volume= 0.348 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.31' @ 12.20 hrs Surf.Area= 243 sf Storage= 166 cf
Flood Elev= 299.75' Surf.Area= 766 sf Storage= 930 cf

Plug-Flow detention time= 0.6 min calculated for 0.347 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (839.2 - 838.8)

Volume	Invert	Avail.Storage	Storage Description
#1	296.75'	1,122 cf	**Open Water Storage (Irregular)**Listed below (Recalc)

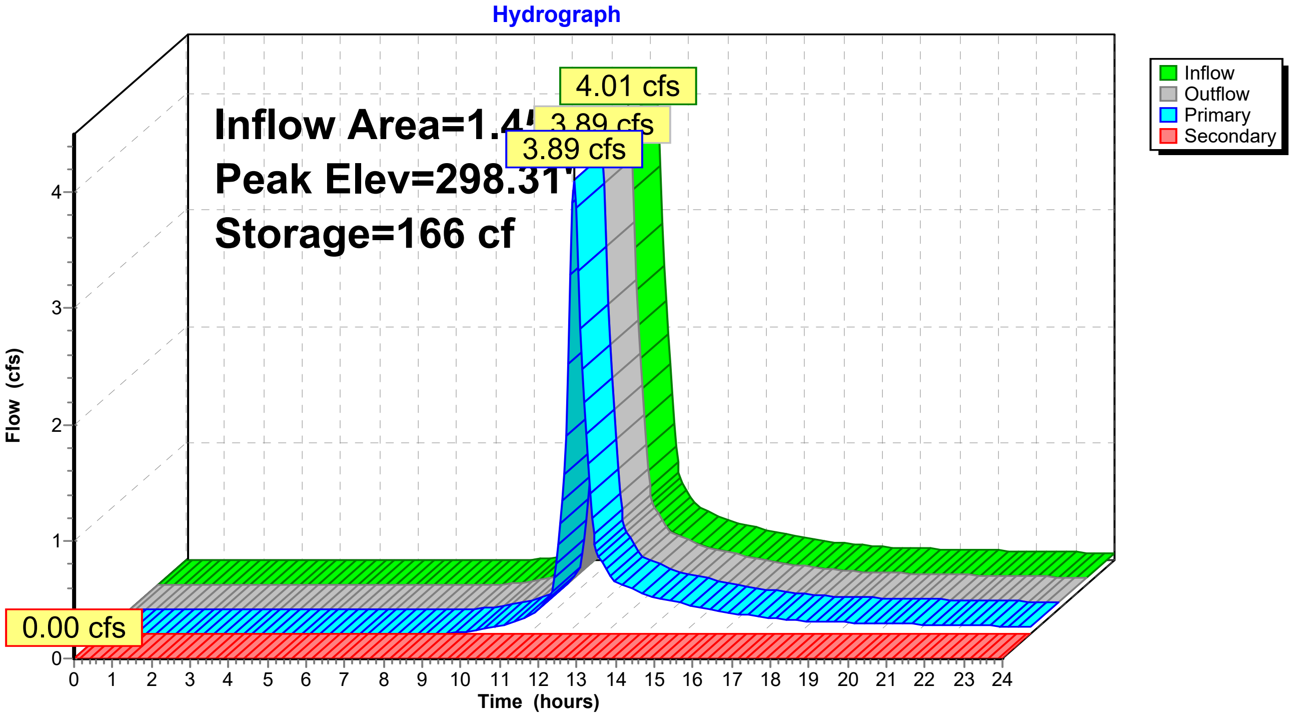
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
296.75	31	21.8	0	0	31
297.00	47	25.5	10	10	46
298.00	156	57.4	96	106	261
299.00	510	140.8	316	422	1,580
299.50	766	167.0	317	739	2,226
300.00	766	167.0	383	1,122	2,310

Device	Routing	Invert	Outlet Devices
#1	Primary	296.75'	**12.0" Round 12" HDPE N-12** L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 296.75' / 296.00' S= 0.0187 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	299.50'	**38.0' long x 10.0' breadth Roadway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.88 cfs @ 12.20 hrs HW=298.30' TW=296.31' (Dynamic Tailwater)
└─**1=12" HDPE N-12** (Inlet Controls 3.88 cfs @ 4.94 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=296.75' TW=293.67' (Dynamic Tailwater)
└─**2=Roadway** (Controls 0.00 cfs)

Pond 35P: 12" Inlet Sump



Summary for Pond 36P: Yard Drain

```
Inflow Area =        0.407 ac, 26.76% Impervious, Inflow Depth >   3.24"   for 25YR.-24HR. event
Inflow      =       1.09 cfs @  12.25 hrs, Volume=          0.110 af
Outflow     =       1.09 cfs @  12.25 hrs, Volume=          0.109 af, Atten= 0%, Lag= 0.2 min
Primary     =       1.09 cfs @  12.25 hrs, Volume=          0.109 af
Secondary =         0.00 cfs @   0.00 hrs, Volume=          0.000 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 295.94' @ 12.25 hrs Surf.Area= 92 sf Storage= 31 cf
Flood Elev= 297.00' Surf.Area= 667 sf Storage= 378 cf

Plug-Flow detention time= 3.3 min calculated for 0.109 af (99% of inflow)
Center-of-Mass det. time= 1.3 min (835.5 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	295.50'	711 cf	**Open water storage (Irregular)**Listed below (Recalc)

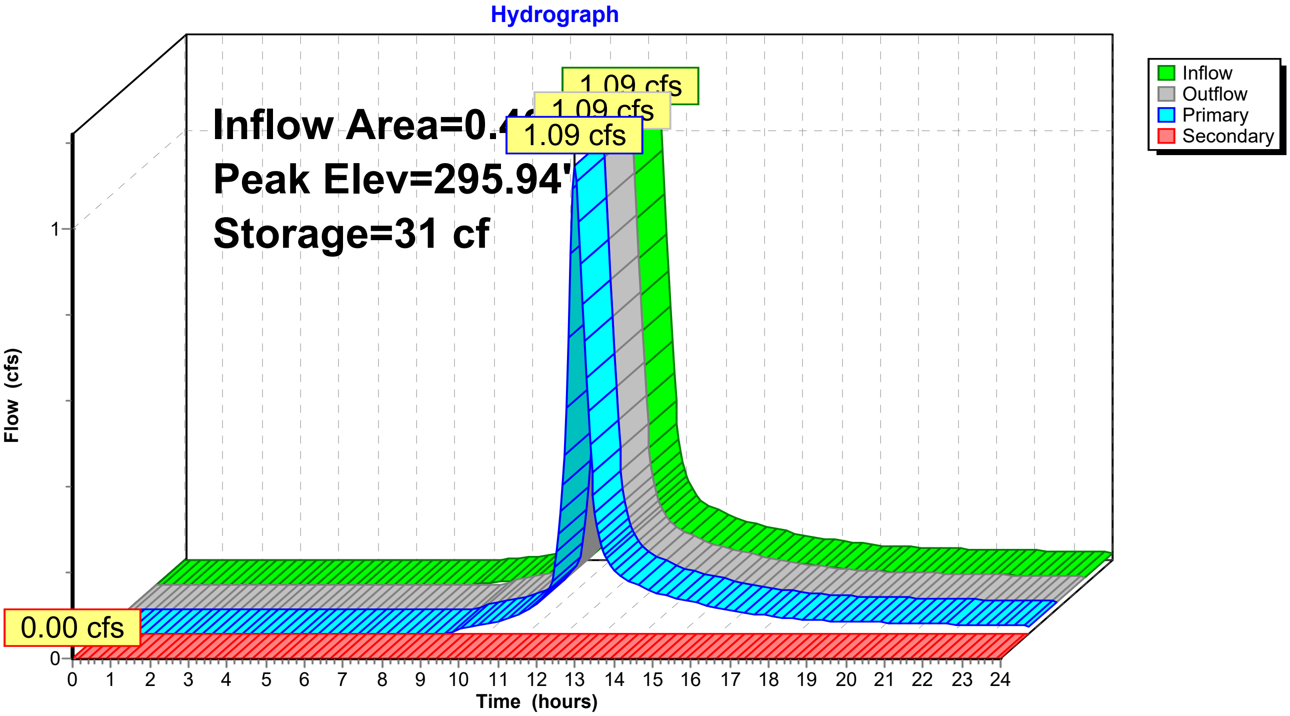
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
295.50	50	50.0	0	0	50
296.00	99	70.7	37	37	251
297.00	667	185.0	341	378	2,580
297.50	667	185.0	334	711	2,673

Device	Routing	Invert	Outlet Devices
#1	Primary	292.50'	**12.0" Round 12" HDPE N-12** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 292.50' / 291.50' S= 0.0161 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	295.75'	**12.0" x 12.0" Horiz. Yard drain** C= 0.600 Limited to weir flow at low heads
#3	Secondary	297.00'	**10.0' long x 2.0' breadth Flow over road** 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.08 cfs @ 12.25 hrs HW=295.94' TW=292.11' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Passes 1.08 cfs of 5.12 cfs potential flow)
  ↑—**2=Yard drain** (Weir Controls 1.08 cfs @ 1.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=295.50' TW=290.15' (Dynamic Tailwater)
↑—**3=Flow over road** (Controls 0.00 cfs)

Pond 36P: Yard Drain



Summary for Pond 42P: Level Spreader #102

Inflow Area = 4.197 ac, 23.07% Impervious, Inflow Depth > 1.11" for 25YR.-24HR. event
Inflow = 0.98 cfs @ 13.97 hrs, Volume= 0.387 af
Outflow = 0.98 cfs @ 13.98 hrs, Volume= 0.378 af, Atten= 0%, Lag= 0.4 min
Primary = 0.98 cfs @ 13.98 hrs, Volume= 0.378 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 284.07' @ 13.98 hrs Surf.Area= 506 sf Storage= 411 cf
Flood Elev= 284.50' Surf.Area= 506 sf Storage= 630 cf

Plug-Flow detention time= 20.6 min calculated for 0.378 af (98% of inflow)
Center-of-Mass det. time= 11.2 min (1,012.5 - 1,001.2)

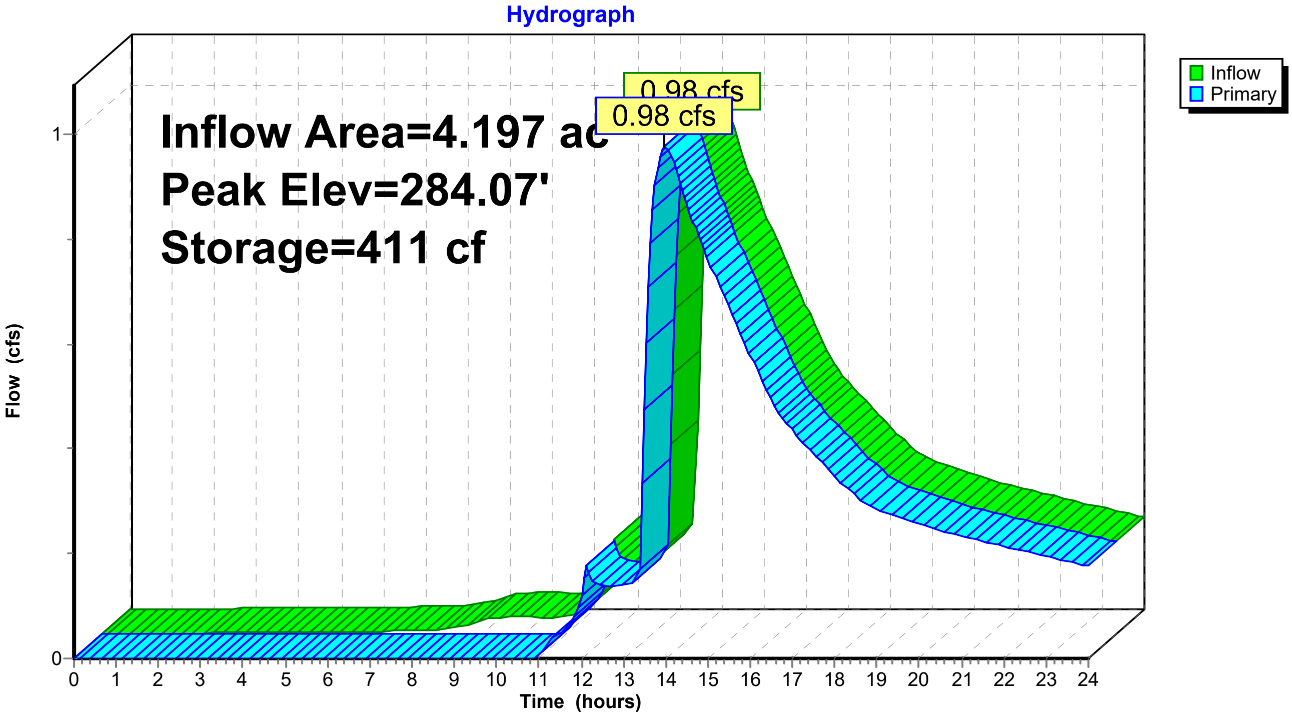
Volume	Invert	Avail.Storage	Storage Description
#1	283.00'	630 cf	**Open Water Storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
283.00	262	71.0	0	0	262
284.00	506	90.0	377	377	518
284.50	506	90.0	253	630	563

Device	Routing	Invert	Outlet Devices
#1	Primary	284.00'	**22.0' long x 2.0' breadth Level Lip** 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.97 cfs @ 13.98 hrs HW=284.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Level Lip** (Weir Controls 0.97 cfs @ 0.66 fps)

Pond 42P: Level Spreader #102



Summary for Pond 43P: Level Spreader #103

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 1.731 ac, 11.20% Impervious, Inflow Depth > 2.24" for 25YR.-24HR. event
Inflow = 3.59 cfs @ 12.32 hrs, Volume= 0.323 af
Outflow = 3.94 cfs @ 12.35 hrs, Volume= 0.315 af, Atten= 0%, Lag= 1.8 min
Primary = 3.94 cfs @ 12.35 hrs, Volume= 0.315 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 295.17' @ 12.35 hrs Surf.Area= 285 sf Storage= 397 cf
Flood Elev= 295.50' Surf.Area= 285 sf Storage= 490 cf

Plug-Flow detention time= 18.5 min calculated for 0.315 af (97% of inflow)
Center-of-Mass det. time= 5.4 min (895.6 - 890.2)

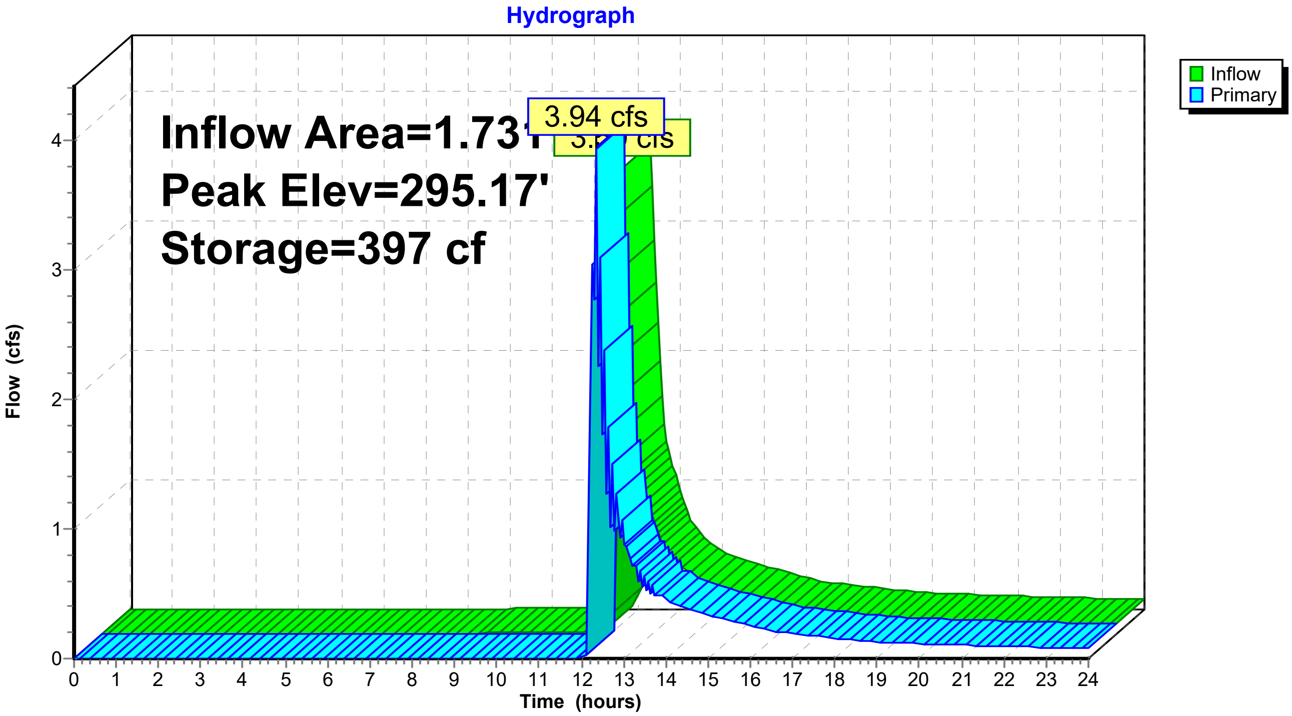
Volume	Invert	Avail.Storage	Storage Description
#1	293.00'	633 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
293.00	76	47.0	0	0	76
294.00	173	56.0	121	121	166
295.00	285	69.0	227	348	310
296.00	285	69.0	285	633	379

Device	Routing	Invert	Outlet Devices
#1	Primary	295.00'	**30.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.60 cfs @ 12.35 hrs HW=295.17' TW=295.13' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 3.60 cfs @ 0.71 fps)

Pond 43P: Level Spreader #103



Summary for Pond 44P: Level Spreader #104

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

```
Inflow Area =       1.441 ac,  35.66% Impervious,  Inflow Depth >   3.35"    for  25YR.-24HR. event
Inflow      =      4.71 cfs @   12.16 hrs,  Volume=         0.402 af
Outflow     =      5.27 cfs @   12.16 hrs,  Volume=         0.351 af,  Atten= 0%,  Lag= 0.1 min
Primary     =      5.27 cfs @   12.16 hrs,  Volume=         0.351 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.15' @ 12.16 hrs Surf.Area= 1,684 sf Storage= 2,446 cf
Flood Elev= 290.50' Surf.Area= 1,684 sf Storage= 3,031 cf

Plug-Flow detention time= 80.2 min calculated for 0.351 af (87% of inflow)
Center-of-Mass det. time= 24.4 min (864.9 - 840.5)

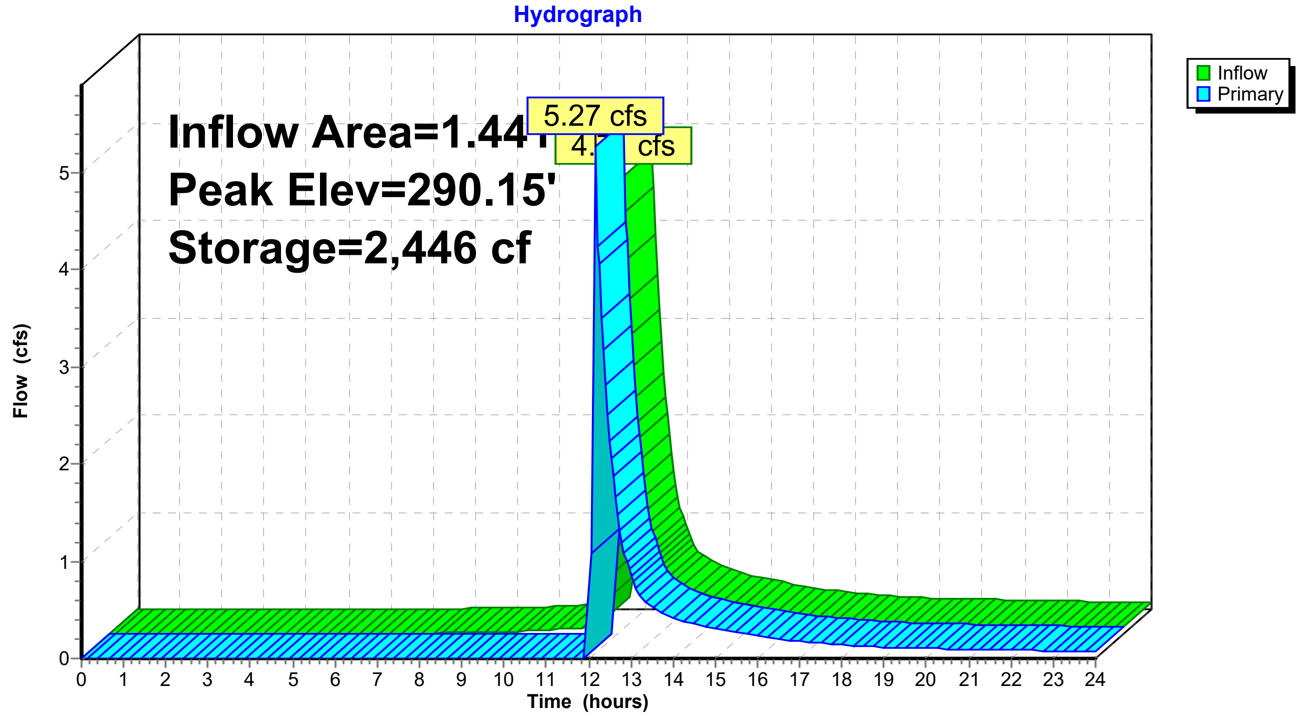
Volume	Invert	Avail.Storage	Storage Description
#1	288.00'	3,873 cf	**Open Water Storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.00	455	102.4	0	0	455
289.00	1,154	194.7	778	778	2,642
290.00	1,684	206.2	1,411	2,189	3,060
291.00	1,684	206.2	1,684	3,873	3,267

Device	Routing	Invert	Outlet Devices
#1	Primary	290.00'	**35.0' long x 2.0' breadth Level Lip** 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=4.88 cfs @ 12.16 hrs HW=290.14' TW=0.00' (Dynamic Tailwater)
↑—**1=Level Lip** (Weir Controls 4.88 cfs @ 0.97 fps)

Pond 44P: Level Spreader #104



Summary for Pond 45P: Level Spreader #105

```
[58] Hint: Peaked 0.13' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=109)

Inflow Area =      0.505 ac,   0.00% Impervious,  Inflow Depth >   1.26"   for  25YR.-24HR. event
Inflow      =      0.43 cfs @   12.67 hrs,  Volume=         0.053 af
Outflow     =      0.66 cfs @   12.70 hrs,  Volume=         0.048 af,  Atten= 0%,  Lag= 1.9 min
Primary     =      0.66 cfs @   12.70 hrs,  Volume=         0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.13' @ 12.90 hrs   Surf.Area= 203 sf   Storage= 247 cf
Flood Elev= 298.00'   Surf.Area= 203 sf   Storage= 221 cf

Plug-Flow detention time= 58.0 min calculated for 0.048 af (90% of inflow)
Center-of-Mass det. time= 17.6 min ( 911.2 - 893.5 )
```

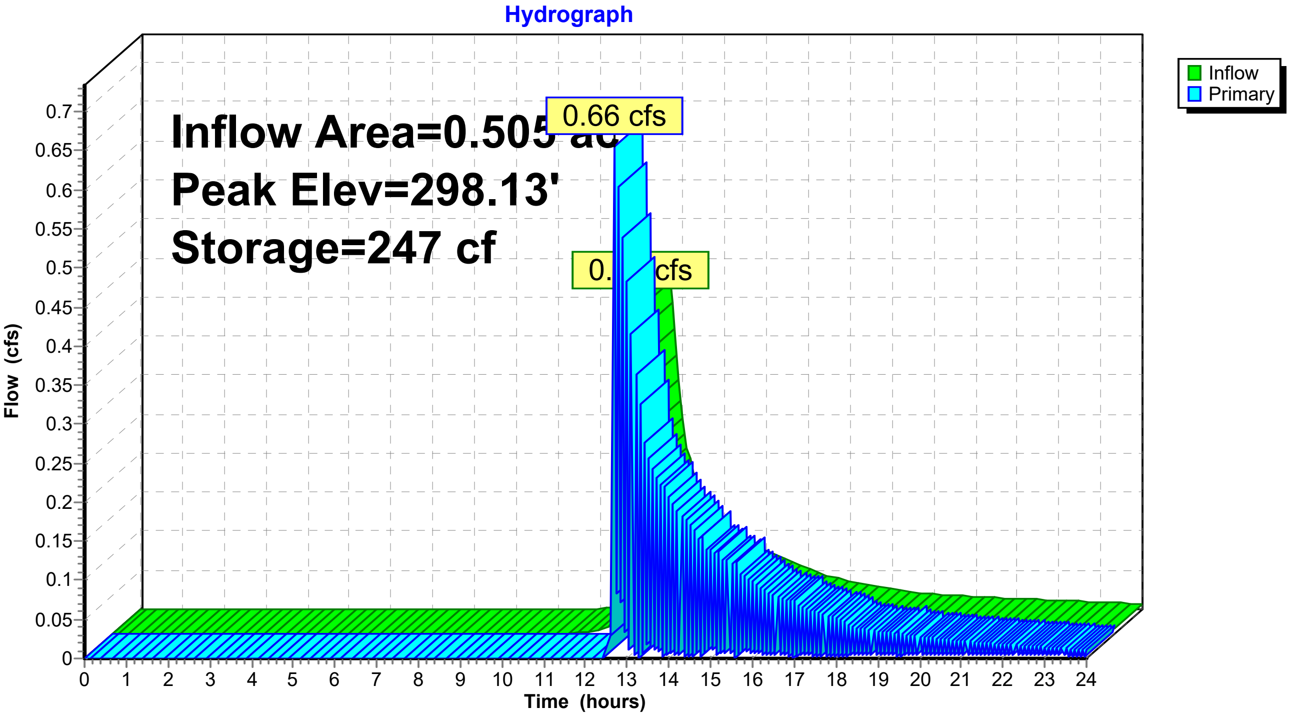
Volume	Invert	Avail.Storage	Storage Description
#1	296.00'	424 cf	**Open water storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
296.00	36	29.0	0	0	36
297.00	107	41.6	68	68	115
298.00	203	54.5	152	221	225
299.00	203	54.5	203	424	279

Device	Routing	Invert	Outlet Devices
#1	Primary	298.00'	**20.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 12.70 hrs HW=298.06' TW=298.09' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 45P: Level Spreader #105



Summary for Pond 101P: Gravel Wetland #101

[80] Warning: Exceeded Pond 27P by 0.02' @ 13.25 hrs (1.93 cfs 0.130 af)

```
Inflow Area =       8.432 ac,   7.87% Impervious,  Inflow Depth >   1.94"    for  25YR.-24HR. event
Inflow      =      11.08 cfs @   12.42 hrs,  Volume=           1.364 af
Outflow     =       1.64 cfs @   14.19 hrs,  Volume=           0.620 af,  Atten= 85%,  Lag= 106.1 min
Primary     =       1.62 cfs @   14.19 hrs,  Volume=           0.619 af
Secondary =         0.02 cfs @   14.19 hrs,  Volume=           0.001 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.01' @ 14.19 hrs Surf.Area= 24,866 sf Storage= 33,527 cf
Flood Elev= 292.50' Surf.Area= 25,945 sf Storage= 40,458 cf

Plug-Flow detention time= 284.0 min calculated for 0.620 af (45% of inflow)
Center-of-Mass det. time= 154.0 min (1,030.9 - 877.0)

Volume	Invert	Avail.Storage	Storage Description
#1	289.00'	1,860 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	288.25'	15,911 cf	**Bay 1 (Irregular)** Listed below (Recalc)
#3	288.25'	3,013 cf	**Bay 2 (Irregular)** Listed below (Recalc)
#4	291.00'	19,623 cf	**Open Water Storage (Irregular)** Listed below (Recalc)
#5	287.92'	50 cf	**4.00'D x 3.98'H Outlet Structure**
		40,458 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	625	107.8	0	0	625
290.00	924	123.6	770	770	938
291.00	1,266	142.2	1,091	1,860	1,353

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.25	574	102.6	0	0	574
288.50	1,981	224.4	302	302	3,744
288.75	3,643	336.1	693	994	8,726
289.00	5,525	452.0	1,138	2,132	15,996
290.00	6,889	471.6	6,194	8,327	17,508
291.00	8,302	490.0	7,585	15,911	18,996

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.25	592	104.5	0	0	592
289.00	844	118.9	536	536	861
290.00	1,229	137.4	1,030	1,566	1,260
291.00	1,677	157.2	1,447	3,013	1,747

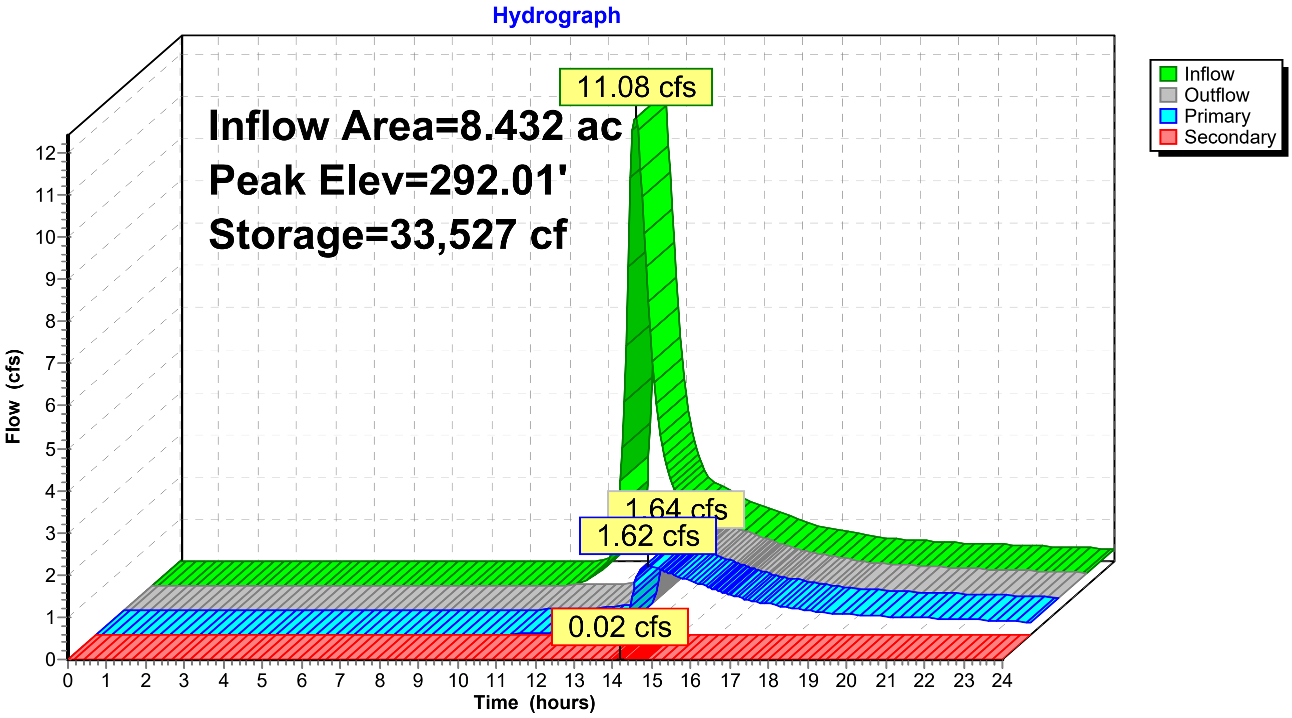
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
291.00	11,554	668.0	0	0	11,554
292.00	13,587	686.7	12,557	12,557	13,681
292.50	14,687	706.9	7,067	19,623	15,948

Device	Routing	Invert	Outlet Devices
#1	Primary	287.92'	**18.0" Round 18" HDPE N-12** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 287.92' / 287.75' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	287.92'	**1.5" Vert. 1.5" Orifice** C= 0.600
#3	Device 1	291.90'	**48.0" Horiz. 48" Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	292.00'	**10.0' long x 7.0' breadth E-Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.62 cfs @ 14.19 hrs HW=292.01' TW=288.10' (Dynamic Tailwater)
└─**1=18" HDPE N-12** (Passes 1.62 cfs of 15.55 cfs potential flow)
  ├─**2=1.5" Orifice** (Orifice Controls 0.12 cfs @ 9.53 fps)
  └─**3=48" Grate** (Weir Controls 1.50 cfs @ 1.08 fps)

Secondary OutFlow Max=0.02 cfs @ 14.19 hrs HW=292.01' TW=288.10' (Dynamic Tailwater)
└─**4=E-Spillway** (Weir Controls 0.02 cfs @ 0.24 fps)

Pond 101P: Gravel Wetland #101



Summary for Pond 102P: Gravel Wetland #102

[80] Warning: Exceeded Pond D02P by 0.01' @ 13.40 hrs (0.30 cfs 0.005 af)

Inflow Area = 4.169 ac, 23.23% Impervious, Inflow Depth > 2.43" for 25YR.-24HR. event
Inflow = 6.14 cfs @ 12.39 hrs, Volume= 0.845 af
Outflow = 0.97 cfs @ 13.97 hrs, Volume= 0.380 af, Atten= 84%, Lag= 95.2 min
Primary = 0.97 cfs @ 13.97 hrs, Volume= 0.380 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 289.39' @ 13.97 hrs Surf.Area= 9,703 sf Storage= 21,070 cf
Flood Elev= 290.00' Surf.Area= 10,532 sf Storage= 25,316 cf

Plug-Flow detention time= 274.7 min calculated for 0.380 af (45% of inflow)
Center-of-Mass det. time= 147.9 min (1,004.6 - 856.6)

Volume	Invert	Avail.Storage	Storage Description
#1	284.00'	699 cf	**Forebay (Irregular)**Listed below (Recalc)
#2	284.00'	1,848 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	284.00'	1,848 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	286.00'	20,852 cf	**Open Water Storage (Irregular)**Listed below (Recalc)
#5	283.67'	70 cf	**4.00'D x 5.58'H Outlet Structure**
		25,316 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	162	55.5	0	0	162
285.00	342	74.7	246	246	371
286.00	572	93.5	452	699	637

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	615	98.3	0	0	615
285.00	916	116.8	761	761	949
286.00	1,268	135.0	1,087	1,848	1,335

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	615	98.3	0	0	615
285.00	916	116.8	761	761	949
286.00	1,268	135.0	1,087	1,848	1,335

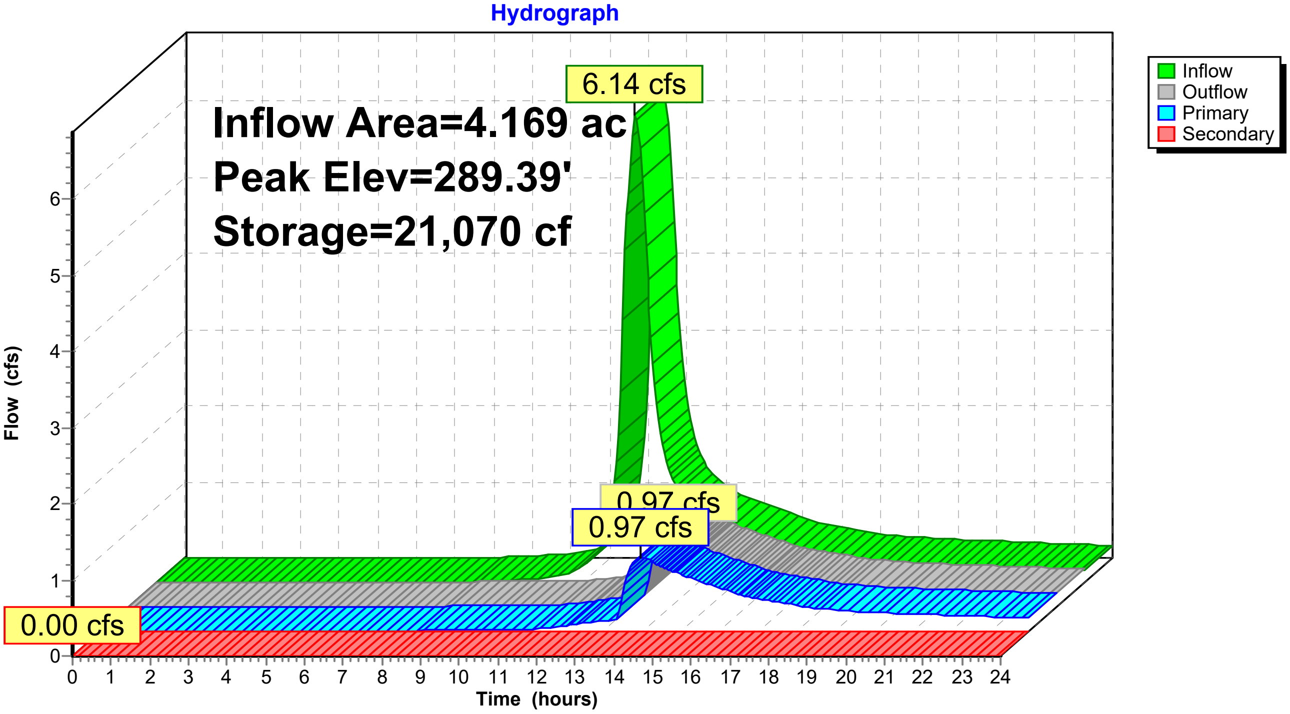
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
286.00	3,432	264.0	0	0	3,432
287.00	4,255	282.8	3,836	3,836	4,295
288.00	5,134	302.0	4,688	8,524	5,235
289.00	6,073	321.7	5,597	14,121	6,261
290.00	7,411	365.1	6,731	20,852	8,658

Device	Routing	Invert	Outlet Devices
#1	Primary	283.67'	**18.0" Round 18" HDPE N-12** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 283.67' / 283.37' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	283.67'	**1.5" Vert. 1.5" Orifice** C= 0.600
#3	Device 1	289.25'	**18.0" Horiz. 18" Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	289.50'	**10.0' long x 7.0' breadth E-Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=0.97 cfs @ 13.97 hrs HW=289.39' TW=284.07' (Dynamic Tailwater)
└─**1=18" HDPE N-12** (Passes 0.97 cfs of 18.97 cfs potential flow)
  ├─**2=1.5" Orifice** (Orifice Controls 0.14 cfs @ 11.11 fps)
  └─**3=18" Grate** (Weir Controls 0.83 cfs @ 1.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=283.67' TW=283.00' (Dynamic Tailwater)
└─**4=E-Spillway** (Controls 0.00 cfs)

Pond 102P: Gravel Wetland #102



Summary for Pond 103P: Gravel Wetland #103

```
Inflow Area =       1.716 ac, 11.29% Impervious, Inflow Depth >  2.85"   for 25YR.-24HR. event
Inflow      =      4.43 cfs @  12.18 hrs, Volume=          0.408 af
Outflow     =      3.58 cfs @  12.32 hrs, Volume=          0.321 af, Atten= 19%, Lag= 8.2 min
Primary     =      3.48 cfs @  12.32 hrs, Volume=          0.320 af
Secondary =        0.10 cfs @  12.31 hrs, Volume=          0.001 af
```

```
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 296.53' @ 12.32 hrs   Surf.Area= 5,801 sf   Storage= 5,496 cf
Flood Elev= 297.00'   Surf.Area= 6,643 sf   Storage= 7,202 cf
```

```
Plug-Flow detention time= 131.6 min calculated for 0.320 af (79% of inflow)
Center-of-Mass det. time= 51.6 min ( 890.4 - 838.8 )
```

Volume	Invert	Avail.Storage	Storage Description
#1	294.00'	694 cf	**Forebay (Irregular)**Listed below (Recalc)
#2	294.00'	1,096 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	294.00'	1,096 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	295.50'	4,285 cf	**Open Storage (Irregular)**Listed below (Recalc)
#5	293.67'	32 cf	**4.00'D x 2.58'H Vertical Cone/Cylinder**
		7,202 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	119	64.7	0	0	119
295.00	341	83.5	220	220	353
296.00	620	102.4	474	694	647

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	506	90.6	0	0	506
295.00	806	109.4	650	650	821
295.50	978	118.8	445	1,096	1,001

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	506	90.6	0	0	506
295.00	806	109.4	650	650	821
295.50	978	118.8	445	1,096	1,001

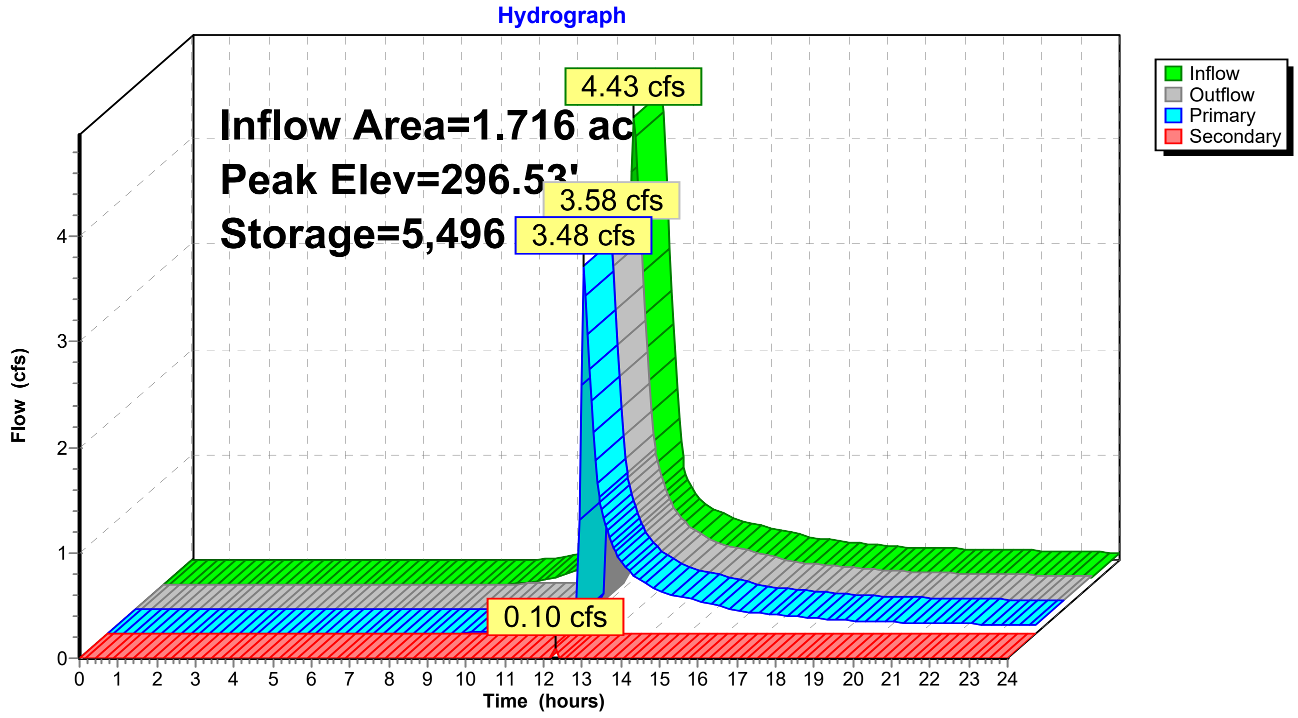
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
295.50	2,036	225.8	0	0	2,036
296.00	2,382	235.2	1,103	1,103	2,400
297.00	4,054	251.3	3,181	4,285	3,069

Device	Routing	Invert	Outlet Devices
#1	Primary	293.67'	**12.0" Round 12" HDPE N-12** L= 17.5' Ke= 0.500 Inlet / Outlet Invert= 293.67' / 293.53' S= 0.0080 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	293.67'	**0.9" Vert. 0.9" Orifice** C= 0.600
#3	Device 1	296.40'	**48.0" Horiz. 48" Structure** C= 0.600 Limited to weir flow at low heads
#4	Secondary	296.50'	**10.0' long x 7.0' breadth E-Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#5	Device 1	295.85'	**12.0" W x 6.0" H Vert. 6" X 12" Box Orifice** C= 0.600

Primary OutFlow Max=3.34 cfs @ 12.32 hrs HW=296.52' TW=295.15' (Dynamic Tailwater)
- **1=12" HDPE N-12** (Passes 3.34 cfs of 4.42 cfs potential flow)
  - **2=0.9" Orifice** (Orifice Controls 0.02 cfs @ 5.63 fps)
  - **3=48" Structure** (Weir Controls 1.77 cfs @ 1.15 fps)
  - **5=6" X 12" Box Orifice** (Orifice Controls 1.54 cfs @ 3.08 fps)

Secondary OutFlow Max=0.09 cfs @ 12.31 hrs HW=296.52' TW=295.15' (Dynamic Tailwater)
- **4=E-Spillway** (Weir Controls 0.09 cfs @ 0.37 fps)

Pond 103P: Gravel Wetland #103



Summary for Pond 104P: Gravel Wetland #104

```
Inflow Area =        1.190 ac, 39.37% Impervious, Inflow Depth >  3.85"   for  25YR.-24HR. event
Inflow      =       4.07 cfs @  12.11 hrs, Volume=          0.382 af
Outflow     =       3.89 cfs @  12.17 hrs, Volume=          0.332 af, Atten= 5%, Lag= 3.2 min
Primary     =       3.89 cfs @  12.17 hrs, Volume=          0.332 af
Secondary =         0.00 cfs @   0.00 hrs, Volume=          0.000 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 291.46' @ 12.17 hrs Surf.Area= 4,559 sf Storage= 3,586 cf
Flood Elev= 292.00' Surf.Area= 4,972 sf Storage= 5,055 cf

Plug-Flow detention time= 94.5 min calculated for 0.332 af (87% of inflow)
Center-of-Mass det. time= 35.9 min (844.1 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1	289.00'	396 cf	**Sediment Forebay (Irregular)**Listed below (Recalc)
#2	289.00'	1,028 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	289.00'	1,028 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	291.00'	2,570 cf	**Open Water Storage (Irregular)**Listed below (Recalc)
#5	288.67'	32 cf	**4.00'D x 2.58'H Outlet Structure**
		5,055 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	37	24.7	0	0	37
290.00	193	58.5	105	105	265
291.00	401	80.0	291	396	511

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	266	70.6	0	0	266
290.00	506	89.5	380	380	520
291.00	803	108.3	649	1,028	832

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	266	70.6	0	0	266
290.00	506	89.5	380	380	520
291.00	803	108.3	649	1,028	832

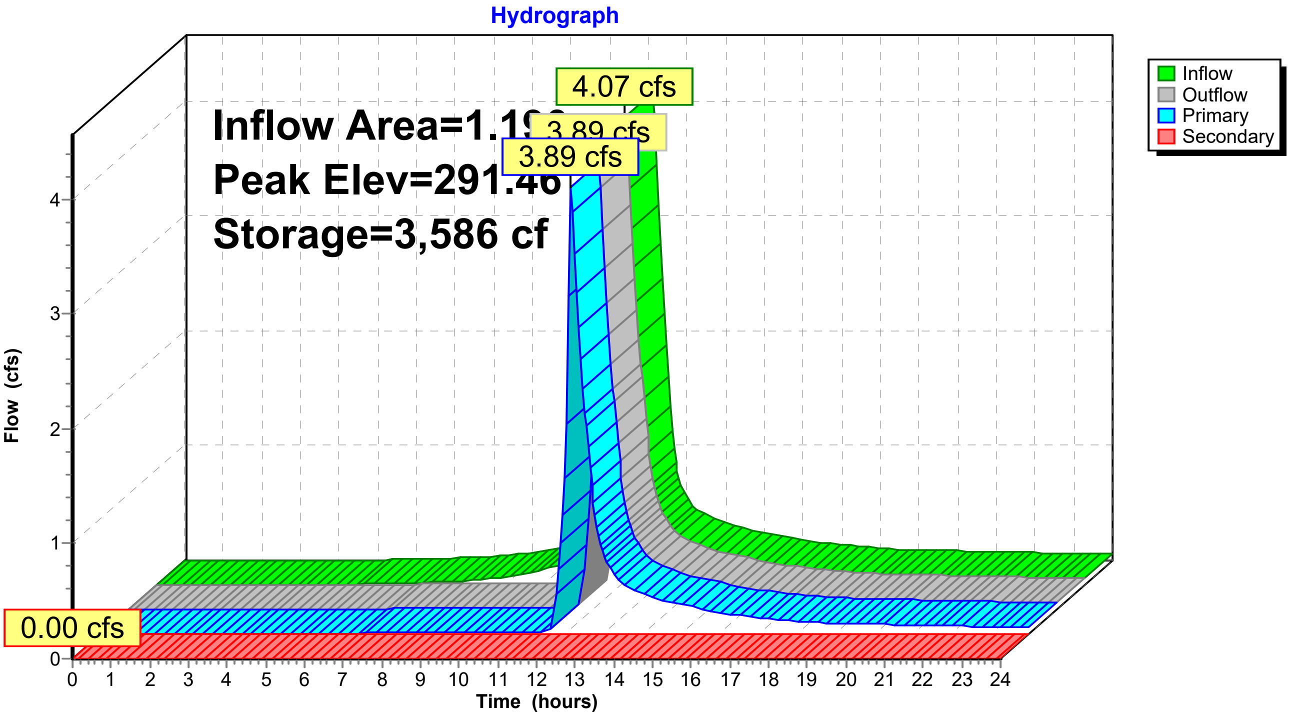
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
291.00	2,207	238.6	0	0	2,207
292.00	2,952	257.5	2,570	2,570	2,993

Device	Routing	Invert	Outlet Devices
#1	Primary	288.67'	**12.0" Round 12" HDPE N-12** L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 288.67' / 288.50' S= 0.0094 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	288.67'	**0.7" Vert. 0.75" Gooseneck** C= 0.600
#3	Device 1	291.35'	**48.0" Horiz. 48" Structure** C= 0.600 Limited to weir flow at low heads
#4	Secondary	291.50'	**5.0' long x 7.0' breadth E-Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#5	Device 1	290.80'	**18.0" W x 6.0" H Vert. 6" X 12" Box Orifice** C= 0.600

Primary OutFlow Max=3.77 cfs @ 12.17 hrs HW=291.46' TW=290.14' (Dynamic Tailwater)
1=12" HDPE N-12 (Passes 3.77 cfs of 4.34 cfs potential flow)
  2=0.75" Gooseneck (Orifice Controls 0.01 cfs @ 5.52 fps)
  3=48" Structure (Weir Controls 1.48 cfs @ 1.08 fps)
  5=6" X 12" Box Orifice (Orifice Controls 2.27 cfs @ 3.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=288.67' TW=288.00' (Dynamic Tailwater)
4=E-Spillway (Controls 0.00 cfs)

Pond 104P: Gravel Wetland #104



Summary for Pond 105P: Infiltration Pond #105

```
Inflow Area =      0.496 ac,   0.00% Impervious,  Inflow Depth >   2.41"    for  25YR.-24HR. event
Inflow      =     0.93 cfs @  12.28 hrs,  Volume=        0.100 af
Outflow     =     0.44 cfs @  12.67 hrs,  Volume=        0.065 af,  Atten= 53%,  Lag= 23.1 min
Discarded   =     0.02 cfs @  12.67 hrs,  Volume=        0.014 af
Primary     =     0.42 cfs @  12.67 hrs,  Volume=        0.051 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.61' @ 12.67 hrs Surf.Area= 2,172 sf Storage= 1,710 cf
Flood Elev= 299.00' Surf.Area= 2,942 sf Storage= 2,710 cf

Plug-Flow detention time= 182.1 min calculated for 0.065 af (65% of inflow)
Center-of-Mass det. time= 77.0 min (933.7 - 856.7)

Volume	Invert	Avail.Storage	Storage Description
#1	297.00'	2,710 cf	**Open water storage (Irregular)**Listed below (Recalc)

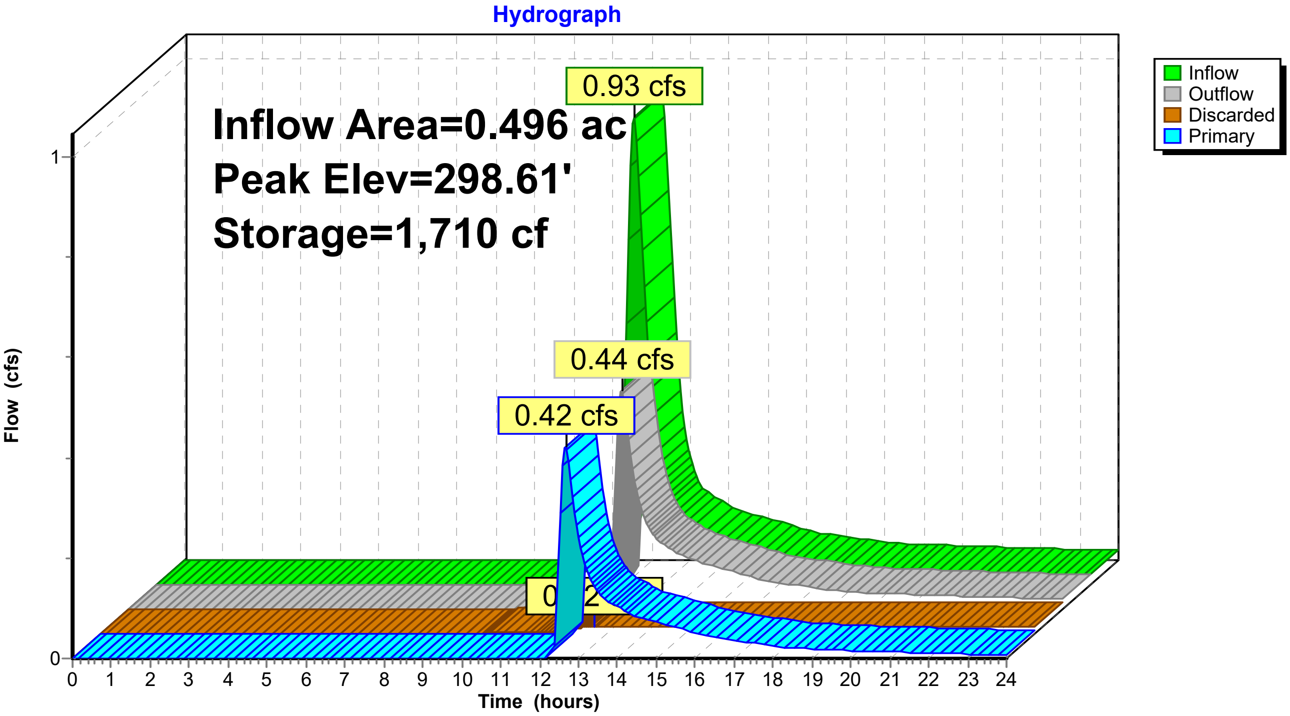
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
297.00	288	84.9	0	0	288
298.00	1,211	148.0	697	697	1,463
299.00	2,942	255.0	2,014	2,710	4,901

Device	Routing	Invert	Outlet Devices
#1	Primary	298.50'	**5.0' long x 7.0' breadth 5' Emergency Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#2	Discarded	297.00'	**0.300 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 12.67 hrs HW=298.61' (Free Discharge)
└—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.42 cfs @ 12.67 hrs HW=298.61' TW=298.03' (Dynamic Tailwater)
└—**1=5' Emergency Spillway** (Weir Controls 0.42 cfs @ 0.78 fps)

Pond 105P: Infiltration Pond #105



Summary for Pond C01P: Catch Basin #1

```
Inflow Area =       0.051 ac,100.00% Impervious,  Inflow Depth >   5.61"    for  25YR.-24HR. event
Inflow      =      0.28 cfs @   12.09 hrs,  Volume=           0.024 af
Outflow     =      0.29 cfs @   12.09 hrs,  Volume=           0.024 af,  Atten= 0%,  Lag= 0.1 min
Primary     =      0.29 cfs @   12.09 hrs,  Volume=           0.024 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.62' @ 12.09 hrs Surf.Area= 13 sf Storage= 3 cf
Flood Elev= 293.61' Surf.Area= 13 sf Storage= 41 cf

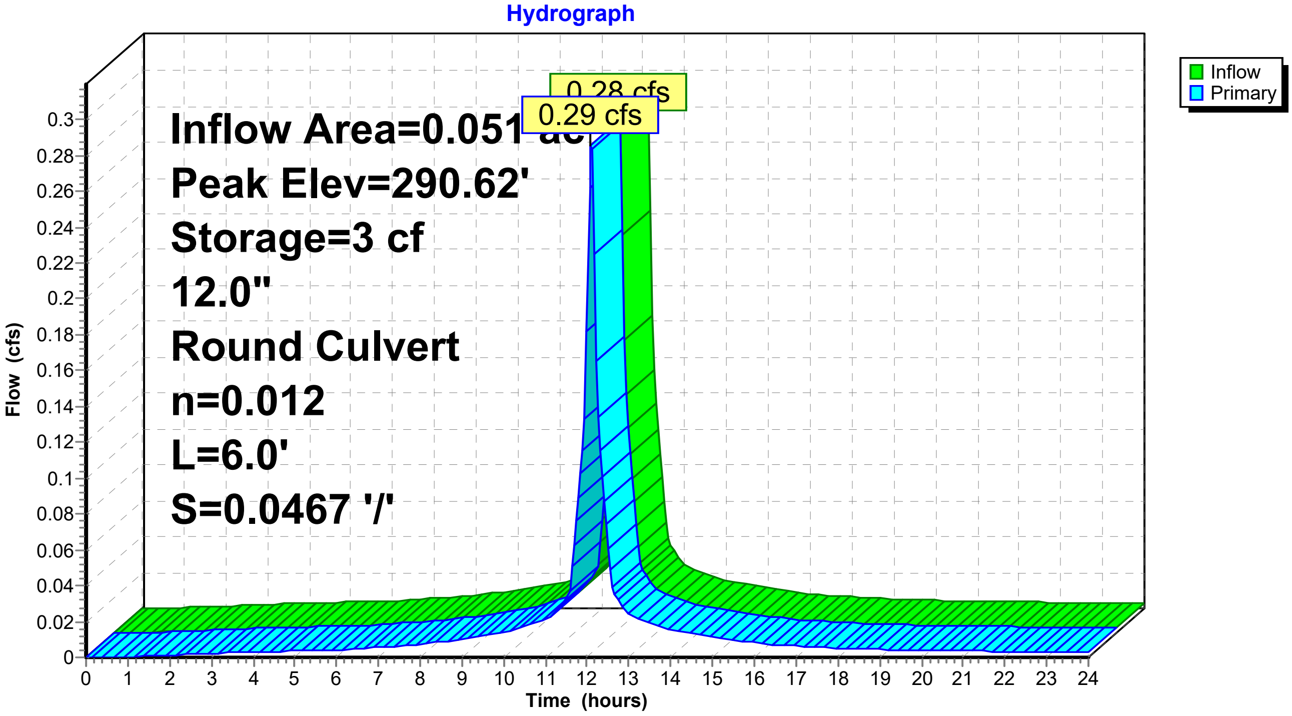
Plug-Flow detention time= 0.7 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (745.6 - 745.1)

Volume	Invert	Avail.Storage	Storage Description
#1	290.36'	41 cf	**4.00'D x 3.25'H 4' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	290.36'	**12.0" Round 12" HDPE N-12** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 290.36' / 290.08' S= 0.0467 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.09 hrs HW=290.62' TW=290.22' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 0.28 cfs @ 1.73 fps)

Pond C01P: Catch Basin #1



Summary for Pond C02P: Catch Basin #2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area = 0.087 ac, 97.51% Impervious, Inflow Depth > 5.49" for 25YR.-24HR. event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.040 af
Outflow = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af, Atten= 2%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.72' @ 12.22 hrs Surf.Area= 13 sf Storage= 17 cf
Flood Elev= 294.85' Surf.Area= 590 sf Storage= 83 cf

Plug-Flow detention time= 0.8 min calculated for 0.040 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (752.8 - 752.2)

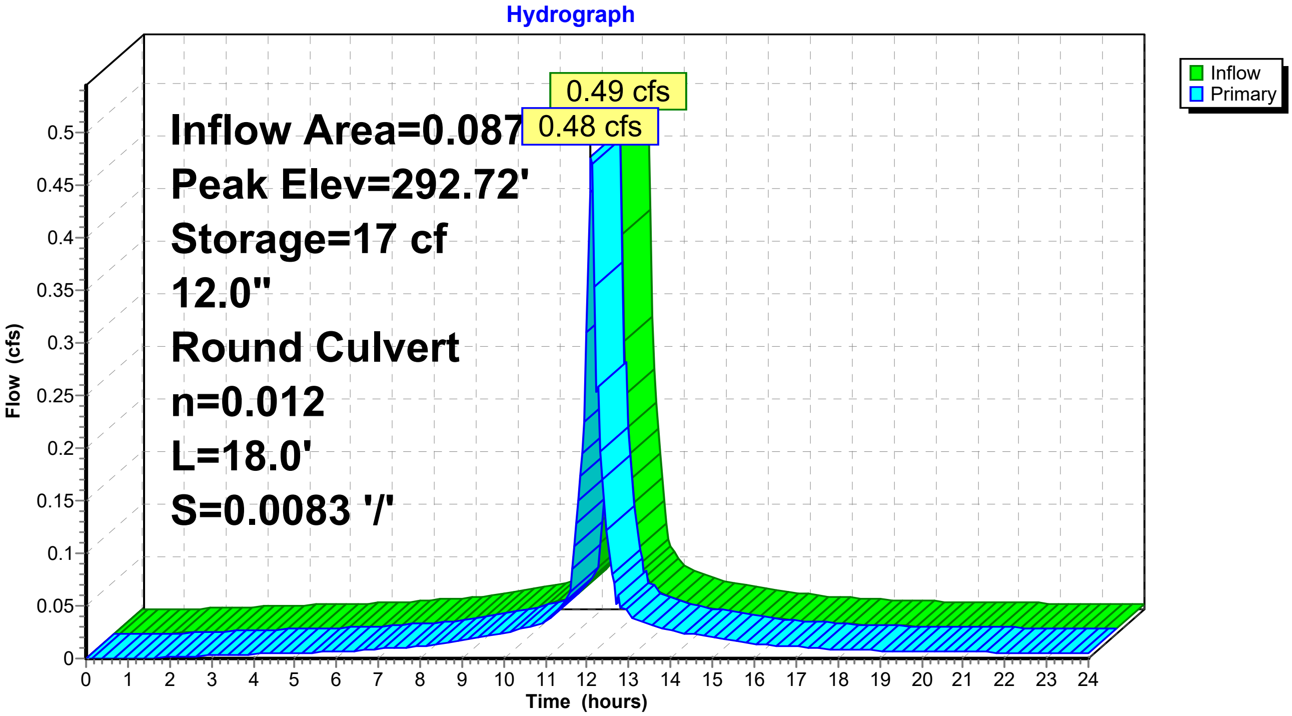
Volume	Invert	Avail.Storage	Storage Description
#1	291.40'	41 cf	**4.00'D x 3.25'H 4' Structure**
#2	294.65'	42 cf	**Ponding Area (Irregular)**Listed below (Recalc)
		83 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.65	4	4.0	0	0	4
294.85	577	126.5	42	42	1,276

Device	Routing	Invert	Outlet Devices
#1	Primary	291.40'	**12.0" Round 12" HDPE N-12** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 291.40' / 291.25' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=292.01' TW=292.21' (Dynamic Tailwater)
↰**1=12" HDPE N-12** (Controls 0.00 cfs)

Pond C02P: Catch Basin #2



Summary for Pond C03P: Catch Basin #3

[80] Warning: Exceeded Pond C02P by 0.36' @ 12.15 hrs (1.79 cfs 0.016 af)

```
Inflow Area =        0.353 ac,  56.26% Impervious,  Inflow Depth >   4.41"    for  25YR.-24HR. event
Inflow      =        1.51 cfs @   12.12 hrs,  Volume=           0.130 af
Outflow     =        1.48 cfs @   12.12 hrs,  Volume=           0.130 af,  Atten= 2%,  Lag= 0.0 min
Primary     =        1.48 cfs @   12.12 hrs,  Volume=           0.130 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.72' @ 12.17 hrs Surf.Area= 13 sf Storage= 20 cf
Flood Elev= 294.85' Surf.Area= 590 sf Storage= 86 cf

Plug-Flow detention time= 0.4 min calculated for 0.130 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (790.6 - 790.3)

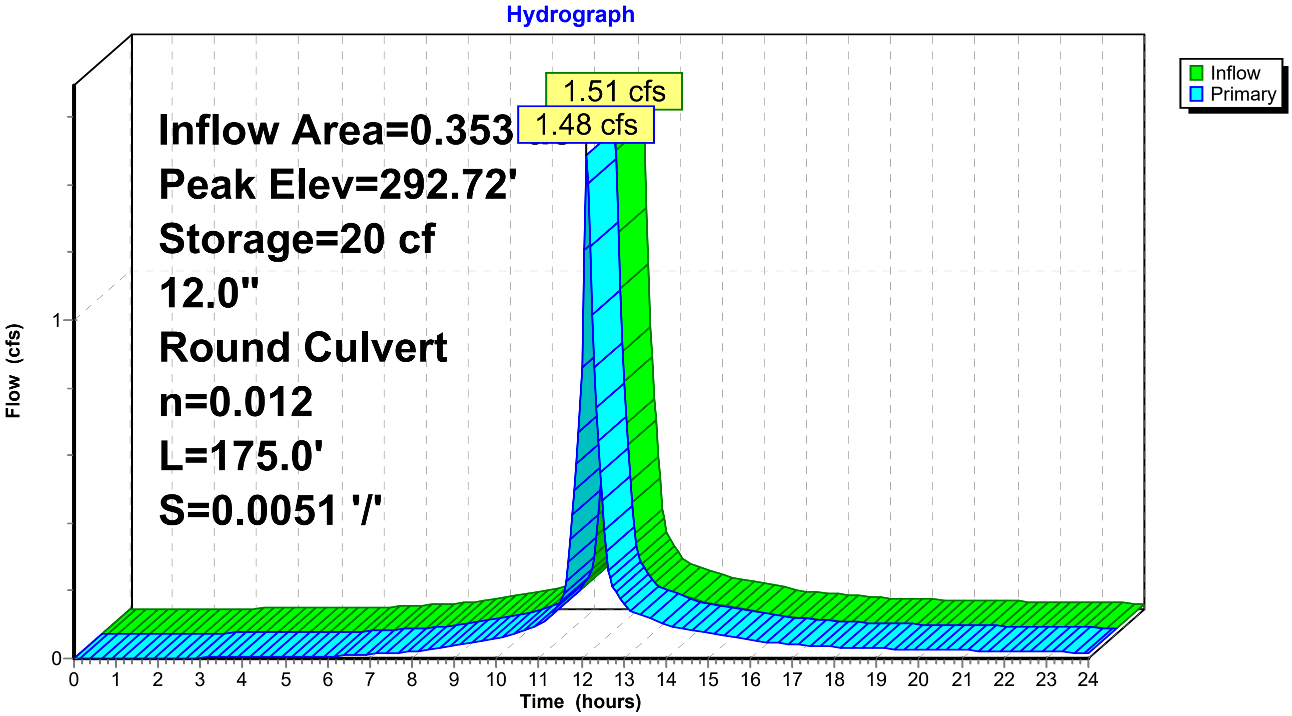
Volume	Invert	Avail.Storage	Storage Description
#1	291.15'	44 cf	**4.00'D x 3.50'H 4' Structure**
#2	294.65'	42 cf	**Ponding Area (Irregular)**Listed below (Recalc)
		86 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.65	4	4.0	0	0	4
294.85	577	126.5	42	42	1,276

Device	Routing	Invert	Outlet Devices
#1	Primary	291.15'	**12.0" Round 12" HDPE N-12** L= 175.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 291.15' / 290.25' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.12 hrs HW=292.42' TW=292.37' (Dynamic Tailwater)
↳**1=12" HDPE N-12** (Outlet Controls 0.60 cfs @ 0.77 fps)

Pond C03P: Catch Basin #3



Summary for Pond C04P: Catch Basin #4

[80] Warning: Exceeded Pond C03P by 0.05' @ 12.10 hrs (0.55 cfs 0.002 af)

```
Inflow Area =        1.020 ac,  44.71% Impervious,  Inflow Depth >   3.96"    for  25YR.-24HR. event
Inflow      =       3.47 cfs @   12.11 hrs,  Volume=           0.336 af
Outflow     =       3.46 cfs @   12.12 hrs,  Volume=           0.336 af,  Atten= 0%,  Lag= 0.1 min
Primary     =       3.46 cfs @   12.12 hrs,  Volume=           0.336 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.40' @ 12.14 hrs Surf.Area= 13 sf Storage= 28 cf
Flood Elev= 296.00' Surf.Area= 3,129 sf Storage= 1,551 cf

Plug-Flow detention time= 0.6 min calculated for 0.336 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (805.8 - 805.6)

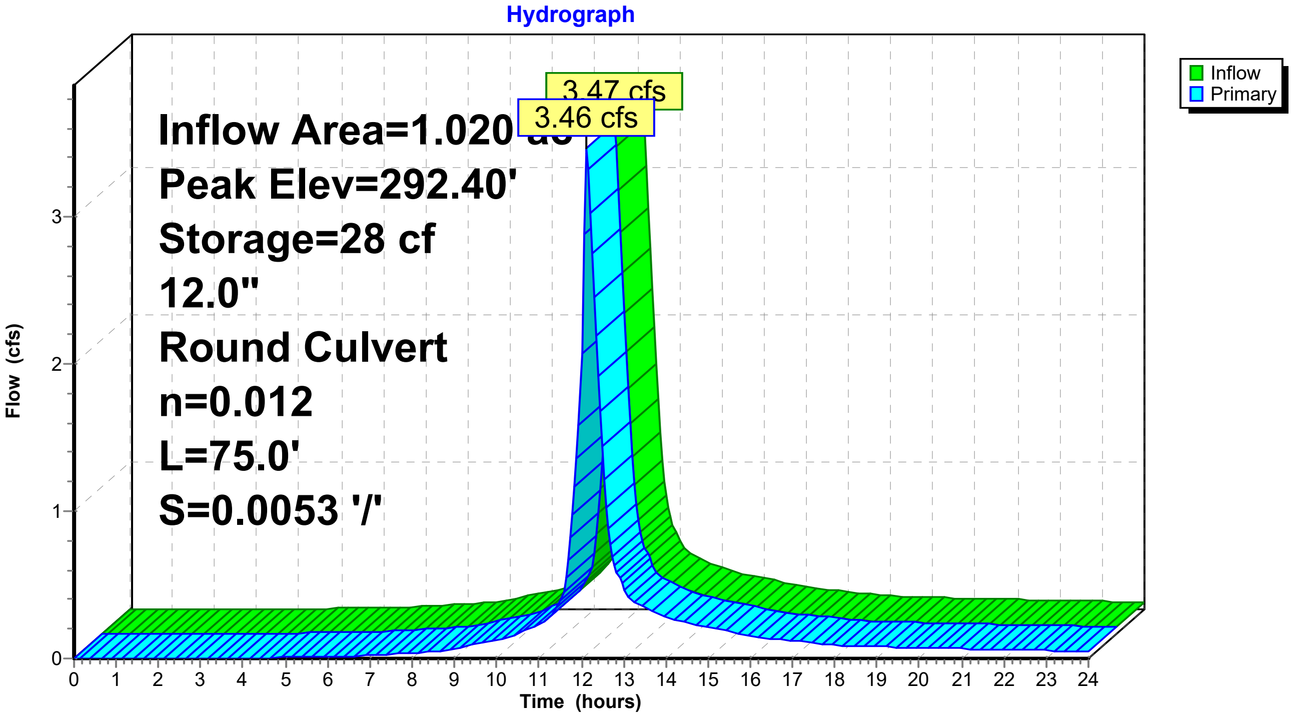
Volume	Invert	Avail.Storage	Storage Description
#1	290.15'	67 cf	**4.00'D x 5.35'H 4' Structure**
#2	295.50'	1,484 cf	**Open Water Storage (Irregular)**Listed below (Recalc)
		1,551 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
295.50	2,821	192.3	0	0	2,821
296.00	3,116	201.8	1,484	1,484	3,135

Device	Routing	Invert	Outlet Devices
#1	Primary	290.15'	**12.0" Round 12" HDPE N-12** L= 75.0' Ke= 0.500 Inlet / Outlet Invert= 290.15' / 289.75' S= 0.0053 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.26 cfs @ 12.12 hrs HW=292.37' TW=291.43' (Dynamic Tailwater)
└─**1=12" HDPE N-12** (Outlet Controls 3.26 cfs @ 4.15 fps)

Pond C04P: Catch Basin #4



Summary for Pond D01P: DMH #1

```
Inflow Area =       1.451 ac, 28.75% Impervious, Inflow Depth >  2.53"   for 25YR.-24HR. event
Inflow      =      2.33 cfs @  12.34 hrs, Volume=          0.306 af
Outflow     =      2.33 cfs @  12.34 hrs, Volume=          0.306 af, Atten= 0%, Lag= 0.1 min
Primary     =      2.33 cfs @  12.34 hrs, Volume=          0.306 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 290.34' @ 12.34 hrs Surf.Area= 28 sf Storage= 24 cf
Flood Elev= 293.85' Surf.Area= 28 sf Storage= 123 cf

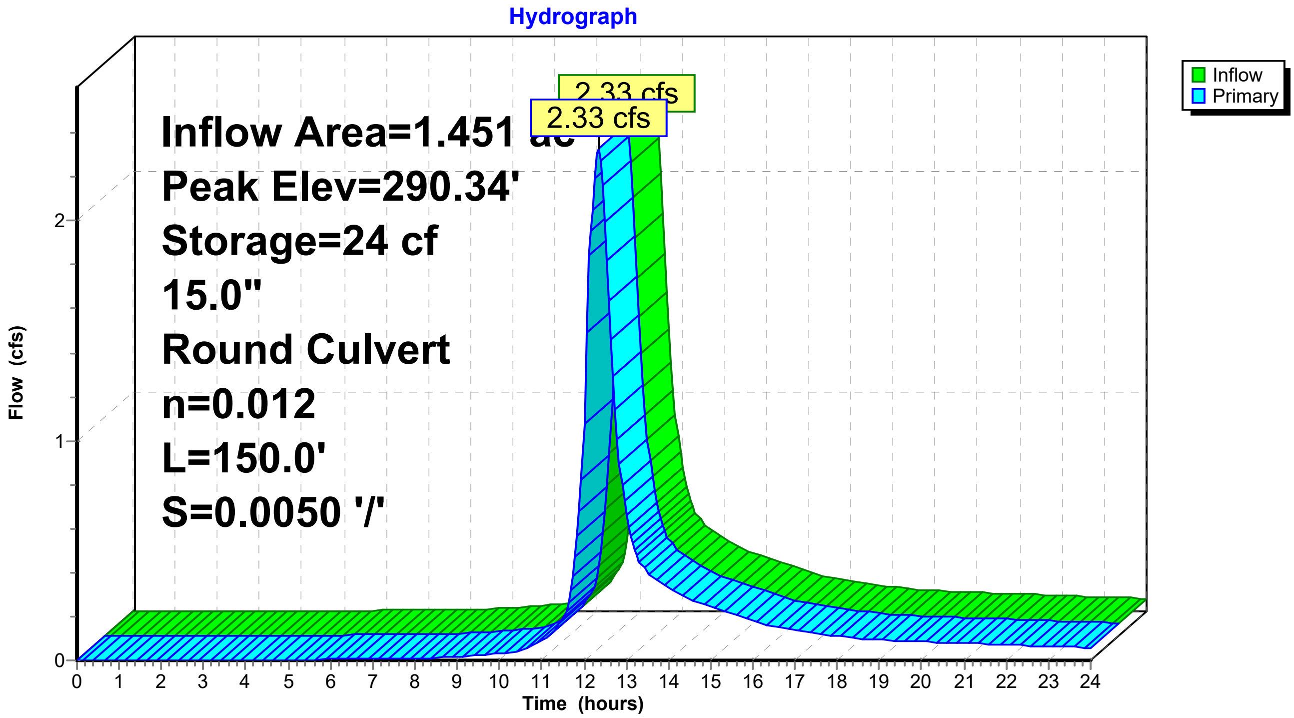
Plug-Flow detention time= 0.5 min calculated for 0.306 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (848.4 - 848.1)

Volume	Invert	Avail.Storage	Storage Description
#1	289.50'	123 cf	**6.00'D x 4.35'H 6' Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	289.50'	**15.0" Round 15" HDPE N-12** L= 150.0' Ke= 0.500 Inlet / Outlet Invert= 289.50' / 288.75' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.32 cfs @ 12.34 hrs HW=290.34' TW=289.31' (Dynamic Tailwater)
↑—**1=15" HDPE N-12** (Barrel Controls 2.32 cfs @ 3.73 fps)

Pond D01P: DMH #1



Summary for Pond D02P: DMH #2

Inflow Area = 1.829 ac, 31.73% Impervious, Inflow Depth > 2.70" for 25YR.-24HR. event
Inflow = 3.27 cfs @ 12.14 hrs, Volume= 0.411 af
Outflow = 3.27 cfs @ 12.15 hrs, Volume= 0.411 af, Atten= 0%, Lag= 0.0 min
Primary = 3.27 cfs @ 12.15 hrs, Volume= 0.411 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 289.40' @ 13.99 hrs Surf.Area= 13 sf Storage= 11 cf
Flood Elev= 293.15' Surf.Area= 13 sf Storage= 58 cf

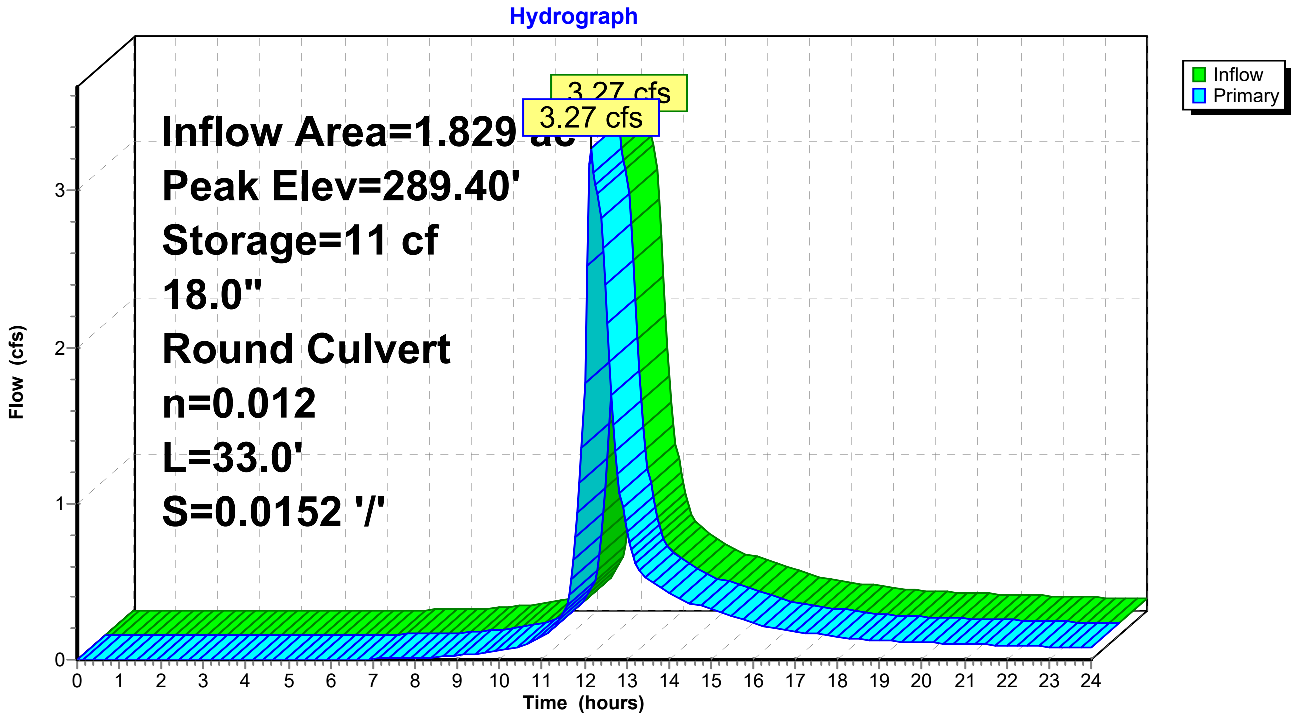
Plug-Flow detention time= 0.4 min calculated for 0.411 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (842.7 - 842.6)

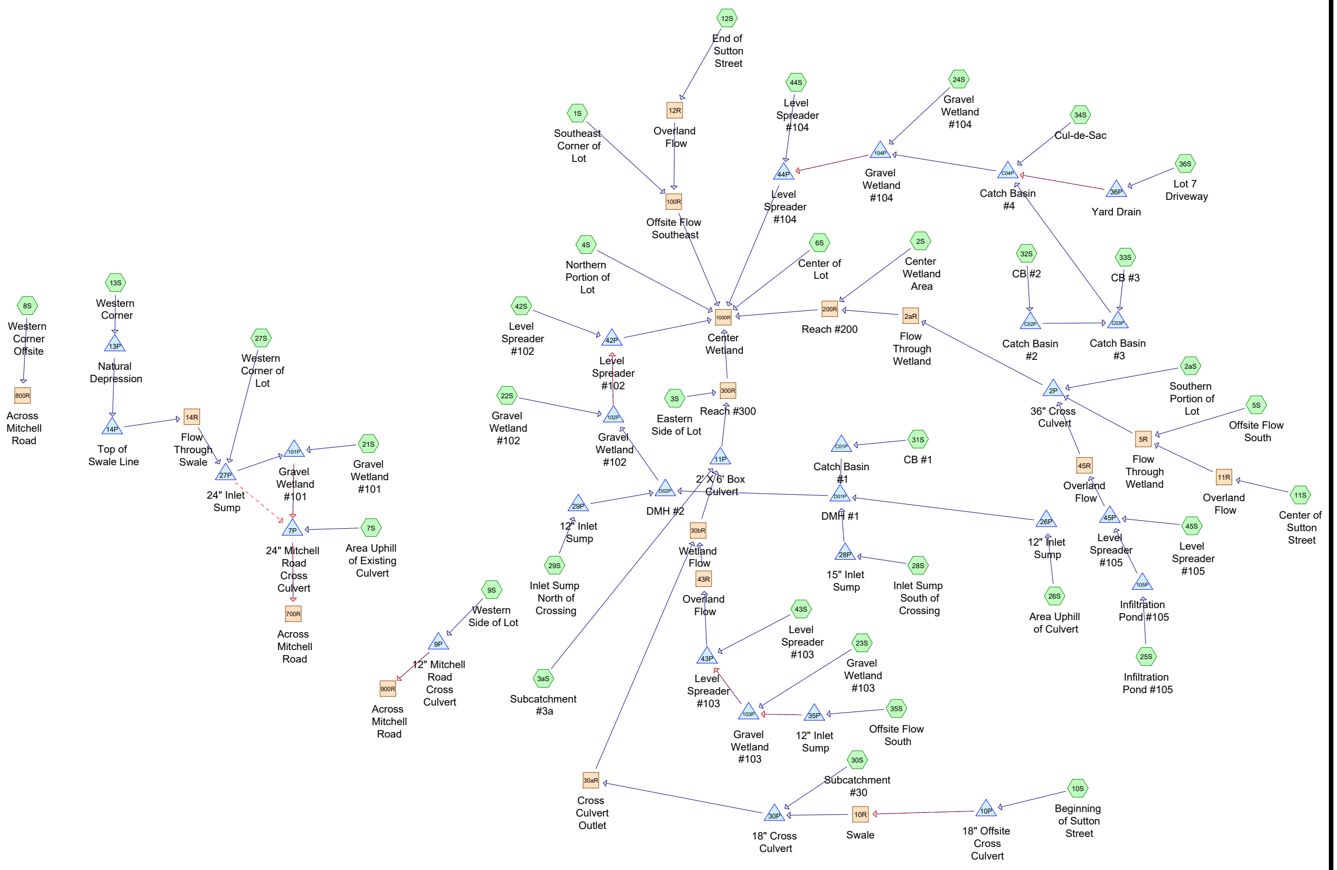
Volume	Invert	Avail.Storage	Storage Description
#1	288.50'	58 cf	**4.00'D x 4.65'H 4' Structure**

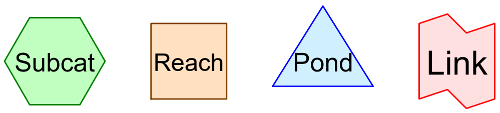
Device	Routing	Invert	Outlet Devices
#1	Primary	288.50'	**18.0" Round 18" HDPE N-12** L= 33.0' Ke= 0.500 Inlet / Outlet Invert= 288.50' / 288.00' S= 0.0152 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.26 cfs @ 12.15 hrs HW=289.35' TW=286.05' (Dynamic Tailwater)
↰**1=18" HDPE N-12** (Inlet Controls 3.26 cfs @ 3.14 fps)

Pond D02P: DMH #2







Routing Diagram for 18-125 Proposed Drainage Analysis
Prepared by Berry Surveying & Engineering, Printed 5/4/2021
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Southeast Corner of Lot Runoff Area=345,633 sf 1.83% Impervious Runoff Depth>0.79"
Flow Length=580' Tc=24.2 min CN=71 Runoff=4.10 cfs 0.522 af

Subcatchment 2aS: Southern Portion of Runoff Area=201,407 sf 0.77% Impervious Runoff Depth>0.69"
Flow Length=738' Tc=37.0 min CN=69 Runoff=1.68 cfs 0.267 af

Subcatchment 2S: Center Wetland Area Runoff Area=39,496 sf 3.15% Impervious Runoff Depth>0.49"
Flow Length=192' Tc=15.0 min CN=64 Runoff=0.28 cfs 0.037 af

Subcatchment 3aS: Subcatchment #3a Runoff Area=337,487 sf 3.22% Impervious Runoff Depth>0.49"
Flow Length=498' Tc=25.6 min UI Adjusted CN=64 Runoff=2.01 cfs 0.317 af

Subcatchment 3S: Eastern Side of Lot Runoff Area=14,322 sf 0.00% Impervious Runoff Depth>0.79"
Flow Length=93' Tc=15.7 min CN=71 Runoff=0.20 cfs 0.022 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf 0.47% Impervious Runoff Depth>0.32"
Flow Length=1,077' Tc=35.9 min CN=59 Runoff=1.37 cfs 0.321 af

Subcatchment 5S: Offsite Flow South Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>0.89"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=1.00 cfs 0.099 af

Subcatchment 6S: Center of Lot Runoff Area=116,994 sf 1.07% Impervious Runoff Depth>0.74"
Flow Length=336' Tc=22.3 min CN=70 Runoff=1.32 cfs 0.166 af

Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf 19.24% Impervious Runoff Depth>0.57"
Flow Length=156' Tc=11.3 min UI Adjusted CN=66 Runoff=0.18 cfs 0.021 af

Subcatchment 8S: Western Corner Offsite Runoff Area=41,698 sf 11.21% Impervious Runoff Depth>0.49"
Flow Length=471' Tc=17.5 min UI Adjusted CN=64 Runoff=0.28 cfs 0.039 af

Subcatchment 9S: Western Side of Lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>0.29"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.03 cfs 0.006 af

Subcatchment 10S: Beginning of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>0.39"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=0.21 cfs 0.036 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>0.35"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=0.76 cfs 0.158 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>0.53"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=0.64 cfs 0.109 af

Subcatchment 13S: Western Corner Runoff Area=52,834 sf 10.17% Impervious Runoff Depth>0.53"
Flow Length=406' Tc=20.1 min UI Adjusted CN=65 Runoff=0.38 cfs 0.054 af

Subcatchment 21S: Gravel Wetland #101 Runoff Area=73,137 sf 10.99% Impervious Runoff Depth>0.49"
Flow Length=494' Tc=22.5 min UI Adjusted CN=64 Runoff=0.45 cfs 0.069 af

Subcatchment 22S: Gravel Wetland #102 Runoff Area=101,895 sf 16.59% Impervious Runoff Depth>0.53"
Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=0.63 cfs 0.103 af

Subcatchment 23S: Gravel Wetland #103 Runoff Area=11,315 sf 24.27% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=71 Runoff=0.21 cfs 0.017 af

Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>1.05"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=0.19 cfs 0.015 af

Subcatchment 25S: Infiltration Pond #105 Runoff Area=21,621 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=290' Tc=19.6 min CN=67 Runoff=0.20 cfs 0.025 af

Subcatchment 26S: Area Uphill of Culvert Runoff Area=9,885 sf 39.88% Impervious Runoff Depth>1.17"
Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=0.30 cfs 0.022 af

Subcatchment 27S: Western Corner of Lot Runoff Area=241,310 sf 6.42% Impervious Runoff Depth>0.42"
Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=1.04 cfs 0.193 af

Subcatchment 28S: Inlet Sump South of Runoff Area=51,121 sf 23.51% Impervious Runoff Depth>0.53"
Flow Length=507' Tc=21.9 min UI Adjusted CN=65 Runoff=0.36 cfs 0.052 af

Subcatchment 29S: Inlet Sump North of Runoff Area=16,466 sf 43.16% Impervious Runoff Depth>1.11"
Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=0.47 cfs 0.035 af

Subcatchment 30S: Subcatchment #30 Runoff Area=37,405 sf 18.75% Impervious Runoff Depth>0.66"
Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=0.42 cfs 0.047 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>2.83"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment 32S: CB #2 Runoff Area=3,810 sf 97.51% Impervious Runoff Depth>2.72"
Tc=6.0 min CN=97 Runoff=0.25 cfs 0.020 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>1.56"
Flow Length=224' Tc=9.8 min CN=84 Runoff=0.42 cfs 0.035 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>1.87"
Tc=6.0 min CN=88 Runoff=0.56 cfs 0.041 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>0.84"
Flow Length=445' Tc=11.8 min CN=72 Runoff=1.06 cfs 0.102 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>1.05"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=0.34 cfs 0.036 af

Subcatchment 42S: Level Spreader #102 Runoff Area=1,252 sf 0.00% Impervious Runoff Depth>0.95"
Tc=6.0 min CN=74 Runoff=0.03 cfs 0.002 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>0.39"
Tc=6.0 min CN=61 Runoff=0.00 cfs 0.000 af

Subcatchment 44S: Level Spreader #104 Runoff Area=10,945 sf 18.11% Impervious Runoff Depth>1.11"
Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=0.29 cfs 0.023 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>0.84"
Tc=6.0 min CN=72 Runoff=0.01 cfs 0.001 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.21' Max Vel=1.00 fps Inflow=2.69 cfs 0.519 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=2.69 cfs 0.518 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.16' Max Vel=0.59 fps Inflow=1.14 cfs 0.256 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=1.04 cfs 0.252 af

Reach 10R: Swale Avg. Flow Depth=0.05' Max Vel=2.01 fps Inflow=0.21 cfs 0.034 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=0.21 cfs 0.034 af

Reach 11R: Overland Flow Avg. Flow Depth=0.10' Max Vel=0.75 fps Inflow=0.76 cfs 0.158 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=0.74 cfs 0.157 af

Reach 12R: Overland Flow Avg. Flow Depth=0.10' Max Vel=0.68 fps Inflow=0.64 cfs 0.109 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=0.52 cfs 0.107 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.02' Max Vel=0.85 fps Inflow=0.04 cfs 0.010 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=0.04 cfs 0.010 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.15' Max Vel=1.28 fps Inflow=0.51 cfs 0.081 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=0.51 cfs 0.081 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.07' Max Vel=0.29 fps Inflow=0.51 cfs 0.109 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=0.32 cfs 0.105 af

Reach 43R: Overland Flow Avg. Flow Depth=0.02' Max Vel=0.42 fps Inflow=0.11 cfs 0.028 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=0.07 cfs 0.028 af

Reach 45R: Overland Flow Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=0.00 cfs 0.000 af

Reach 100R: Offsite Flow Southeast Inflow=4.25 cfs 0.629 af
Outflow=4.25 cfs 0.629 af

Reach 200R: Reach #200 Inflow=2.83 cfs 0.555 af
Outflow=2.83 cfs 0.555 af

Reach 300R: Reach #300 Inflow=2.35 cfs 0.442 af
Outflow=2.35 cfs 0.442 af

Reach 700R: Across Mitchell Road Inflow=0.21 cfs 0.092 af
Outflow=0.21 cfs 0.092 af

Reach 800R: Across Mitchell Road Inflow=0.28 cfs 0.039 af
Outflow=0.28 cfs 0.039 af

Reach 900R: Across Mitchell Road Inflow=0.03 cfs 0.006 af
Outflow=0.03 cfs 0.006 af

Reach 1000R: Center Wetland Inflow=11.19 cfs 2.268 af
Outflow=11.19 cfs 2.268 af

Pond 2P: 36" Cross Culvert Peak Elev=290.48' Storage=129 cf Inflow=2.70 cfs 0.520 af
36.0" Round Culvert w/ 6.0" inside fill n=0.018 L=60.0' S=0.0208 '/' Outflow=2.69 cfs 0.519 af

Pond 7P: 24" Mitchell Road Cross Culvert Peak Elev=287.71' Storage=41 cf Inflow=0.22 cfs 0.093 af
24.0" Round Culvert n=0.012 L=43.5' S=0.0057 '/' Outflow=0.21 cfs 0.092 af

Pond 9P: 12" Mitchell Road Cross Culvert Peak Elev=289.44' Storage=18 cf Inflow=0.03 cfs 0.006 af
Primary=0.03 cfs 0.006 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.006 af

Pond 10P: 18" Offsite Cross Culvert Peak Elev=316.13' Storage=98 cf Inflow=0.21 cfs 0.036 af
Primary=0.21 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.034 af

Pond 11P: 2' X 6' Box Culvert Peak Elev=286.00' Storage=301 cf Inflow=2.23 cfs 0.422 af
72.0" x 24.0" Box Culvert n=0.024 L=45.0' S=0.0111 '/' Outflow=2.22 cfs 0.421 af

Pond 13P: Natural Depression Peak Elev=300.01' Storage=1,248 cf Inflow=0.38 cfs 0.054 af
Discarded=0.02 cfs 0.016 af Primary=0.04 cfs 0.010 af Outflow=0.06 cfs 0.025 af

Pond 14P: Top of Swale Line Peak Elev=298.04' Storage=15 cf Inflow=0.04 cfs 0.010 af
Outflow=0.04 cfs 0.010 af

Pond 26P: 12" Inlet Sump Peak Elev=293.01' Storage=43 cf Inflow=0.30 cfs 0.022 af
12.0" Round Culvert n=0.012 L=266.2' S=0.0113 '/' Outflow=0.29 cfs 0.022 af

Pond 27P: 24" Inlet Sump Peak Elev=289.76' Storage=91 cf Inflow=1.04 cfs 0.202 af
Primary=1.04 cfs 0.200 af Secondary=0.00 cfs 0.000 af Outflow=1.04 cfs 0.200 af

Pond 28P: 15" Inlet Sump Peak Elev=290.27' Storage=96 cf Inflow=0.36 cfs 0.052 af
15.0" Round Culvert n=0.012 L=25.0' S=0.0140 '/' Outflow=0.35 cfs 0.051 af

Pond 29P: 12" Inlet Sump Peak Elev=289.83' Storage=82 cf Inflow=0.47 cfs 0.035 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0250 '/' Outflow=0.43 cfs 0.035 af

Pond 30P: 18" Cross Culvert Peak Elev=296.31' Storage=3 cf Inflow=0.51 cfs 0.081 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0125 '/' Outflow=0.51 cfs 0.081 af

Pond 35P: 12" Inlet Sump Peak Elev=297.28' Storage=26 cf Inflow=1.06 cfs 0.102 af
Primary=1.06 cfs 0.102 af Secondary=0.00 cfs 0.000 af Outflow=1.06 cfs 0.102 af

Pond 36P: Yard Drain Peak Elev=295.84' Storage=22 cf Inflow=0.34 cfs 0.036 af
Primary=0.34 cfs 0.035 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.035 af

Pond 42P: Level Spreader #102 Peak Elev=284.01' Storage=384 cf Inflow=0.09 cfs 0.094 af
Outflow=0.09 cfs 0.085 af

Pond 43P: Level Spreader #103 Peak Elev=295.02' Storage=354 cf Inflow=0.06 cfs 0.036 af
Outflow=0.11 cfs 0.028 af

Pond 44P: Level Spreader #104 Peak Elev=290.02' Storage=2,221 cf Inflow=0.69 cfs 0.119 af
Outflow=0.24 cfs 0.069 af

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Pond 45P: Level Spreader #105                 Peak Elev=296.51'  Storage=26 cf   Inflow=0.01 cfs  0.001 af
                                                                                 Outflow=0.00 cfs  0.000 af

Pond 101P: Gravel Wetland #101             Peak Elev=289.76'  Storage=8,570 cf   Inflow=1.44 cfs  0.269 af
                    Primary=0.08 cfs  0.072 af   Secondary=0.00 cfs  0.000 af   Outflow=0.08 cfs  0.072 af

Pond 102P: Gravel Wetland #102             Peak Elev=286.44'  Storage=6,021 cf   Inflow=1.29 cfs  0.223 af
                    Primary=0.09 cfs  0.092 af   Secondary=0.00 cfs  0.000 af   Outflow=0.09 cfs  0.092 af

Pond 103P: Gravel Wetland #103             Peak Elev=295.90'  Storage=3,718 cf   Inflow=1.22 cfs  0.119 af
                    Primary=0.05 cfs  0.036 af   Secondary=0.00 cfs  0.000 af   Outflow=0.05 cfs  0.036 af

Pond 104P: Gravel Wetland #104             Peak Elev=291.04'  Storage=2,576 cf   Inflow=1.58 cfs  0.145 af
                    Primary=0.59 cfs  0.096 af   Secondary=0.00 cfs  0.000 af   Outflow=0.59 cfs  0.096 af

Pond 105P: Infiltration Pond #105            Peak Elev=298.05'  Storage=758 cf   Inflow=0.20 cfs  0.025 af
                   Discarded=0.01 cfs  0.008 af   Primary=0.00 cfs  0.000 af   Outflow=0.01 cfs  0.008 af

Pond C01P: Catch Basin #1                       Peak Elev=290.55'  Storage=2 cf   Inflow=0.15 cfs  0.012 af
                         12.0"  Round Culvert  n=0.012  L=6.0'  S=0.0467 '/'   Outflow=0.15 cfs  0.012 af

Pond C02P: Catch Basin #2                       Peak Elev=291.71'  Storage=4 cf   Inflow=0.25 cfs  0.020 af
                        12.0"  Round Culvert  n=0.012  L=18.0'  S=0.0083 '/'   Outflow=0.25 cfs  0.020 af

Pond C03P: Catch Basin #3                       Peak Elev=291.63'  Storage=6 cf   Inflow=0.65 cfs  0.054 af
                       12.0"  Round Culvert  n=0.012  L=175.0'  S=0.0051 '/'   Outflow=0.65 cfs  0.054 af

Pond C04P: Catch Basin #4                      Peak Elev=291.08'  Storage=12 cf   Inflow=1.39 cfs  0.130 af
                        12.0"  Round Culvert  n=0.012  L=75.0'  S=0.0053 '/'   Outflow=1.39 cfs  0.130 af

Pond D01P: DMH #1                              Peak Elev=289.87'  Storage=10 cf   Inflow=0.51 cfs  0.085 af
                       15.0"  Round Culvert  n=0.012  L=150.0'  S=0.0050 '/'   Outflow=0.51 cfs  0.085 af

Pond D02P: DMH #2                               Peak Elev=288.92'  Storage=5 cf   Inflow=0.88 cfs  0.120 af
                        18.0"  Round Culvert  n=0.012  L=33.0'  S=0.0152 '/'   Outflow=0.88 cfs  0.120 af
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Subcatchment 2aS: Southern Portion of Runoff Area=201,407 sf 0.77% Impervious Runoff Depth>1.67"
Flow Length=738' Tc=37.0 min CN=69 Runoff=4.51 cfs 0.644 af

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Flow Length=192' Tc=15.0 min CN=64 Runoff=0.98 cfs 0.101 af

Subcatchment 3aS: Subcatchment #3a Runoff Area=337,487 sf 3.22% Impervious Runoff Depth>1.33"
Flow Length=498' Tc=25.6 min UI Adjusted CN=64 Runoff=6.78 cfs 0.859 af

Subcatchment 3S: Eastern Side of Lot Runoff Area=14,322 sf 0.00% Impervious Runoff Depth>1.83"
Flow Length=93' Tc=15.7 min CN=71 Runoff=0.51 cfs 0.050 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf 0.47% Impervious Runoff Depth>1.01"
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Subcatchment 5S: Offsite Flow South Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>1.98"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=2.38 cfs 0.220 af

Subcatchment 6S: Center of Lot Runoff Area=116,994 sf 1.07% Impervious Runoff Depth>1.75"
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Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf 19.24% Impervious Runoff Depth>1.47"
Flow Length=156' Tc=11.3 min UI Adjusted CN=66 Runoff=0.58 cfs 0.053 af

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Flow Length=471' Tc=17.5 min UI Adjusted CN=64 Runoff=0.98 cfs 0.106 af

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Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.20 cfs 0.019 af

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Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=3.31 cfs 0.485 af

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Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=2.03 cfs 0.288 af

Subcatchment 13S: Western Corner Runoff Area=52,834 sf 10.17% Impervious Runoff Depth>1.40"
Flow Length=406' Tc=20.1 min UI Adjusted CN=65 Runoff=1.24 cfs 0.141 af

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Flow Length=494' Tc=22.5 min UI Adjusted CN=64 Runoff=1.55 cfs 0.186 af

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Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=2.02 cfs 0.272 af

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Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>2.22"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=0.42 cfs 0.031 af

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Flow Length=290' Tc=19.6 min CN=67 Runoff=0.58 cfs 0.064 af

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Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=0.62 cfs 0.045 af

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Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=3.93 cfs 0.553 af

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Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=1.00 cfs 0.073 af

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Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=1.20 cfs 0.115 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>4.38"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

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Tc=6.0 min CN=97 Runoff=0.38 cfs 0.031 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>2.92"
Flow Length=224' Tc=9.8 min CN=84 Runoff=0.79 cfs 0.065 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>3.31"
Tc=6.0 min CN=88 Runoff=0.97 cfs 0.072 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>1.90"
Flow Length=445' Tc=11.8 min CN=72 Runoff=2.63 cfs 0.231 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>2.22"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=0.74 cfs 0.075 af

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Tc=6.0 min CN=74 Runoff=0.07 cfs 0.005 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>1.15"
Tc=6.0 min CN=61 Runoff=0.02 cfs 0.001 af

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Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=0.62 cfs 0.048 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>1.91"
Tc=6.0 min CN=72 Runoff=0.02 cfs 0.001 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.37' Max Vel=1.44 fps Inflow=8.68 cfs 1.351 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=8.66 cfs 1.349 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.31' Max Vel=0.91 fps Inflow=4.45 cfs 0.703 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=4.18 cfs 0.697 af

Reach 10R: Swale Avg. Flow Depth=0.12' Max Vel=3.37 fps Inflow=0.89 cfs 0.105 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=0.89 cfs 0.105 af

Reach 11R: Overland Flow Avg. Flow Depth=0.19' Max Vel=1.18 fps Inflow=3.31 cfs 0.485 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=3.28 cfs 0.483 af

Reach 12R: Overland Flow Avg. Flow Depth=0.18' Max Vel=1.00 fps Inflow=2.03 cfs 0.288 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=1.83 cfs 0.284 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.17' Max Vel=2.71 fps Inflow=1.18 cfs 0.096 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=1.10 cfs 0.096 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.28' Max Vel=1.93 fps Inflow=1.92 cfs 0.220 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=1.91 cfs 0.220 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.16' Max Vel=0.50 fps Inflow=2.50 cfs 0.398 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=1.88 cfs 0.392 af

Reach 43R: Overland Flow Avg. Flow Depth=0.07' Max Vel=0.94 fps Inflow=1.12 cfs 0.179 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=1.06 cfs 0.179 af

Reach 45R: Overland Flow Avg. Flow Depth=0.05' Max Vel=0.39 fps Inflow=0.07 cfs 0.012 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=0.05 cfs 0.012 af

Reach 100R: Offsite Flow Southeast Inflow=11.31 cfs 1.490 af
Outflow=11.31 cfs 1.490 af

Reach 200R: Reach #200 Inflow=9.14 cfs 1.450 af
Outflow=9.14 cfs 1.450 af

Reach 300R: Reach #300 Inflow=8.30 cfs 1.299 af
Outflow=8.30 cfs 1.299 af

Reach 700R: Across Mitchell Road Inflow=0.62 cfs 0.160 af
Outflow=0.62 cfs 0.160 af

Reach 800R: Across Mitchell Road Inflow=0.98 cfs 0.106 af
Outflow=0.98 cfs 0.106 af

Reach 900R: Across Mitchell Road Inflow=0.18 cfs 0.019 af
Outflow=0.18 cfs 0.019 af

Reach 1000R: Center Wetland Inflow=38.71 cfs 6.001 af
Outflow=38.71 cfs 6.001 af

Pond 2P: 36" Cross Culvert Peak Elev=291.00' Storage=329 cf Inflow=8.69 cfs 1.352 af
36.0" Round Culvert w/ 6.0" inside fill n=0.018 L=60.0' S=0.0208 '/' Outflow=8.68 cfs 1.351 af

Pond 7P: 24" Mitchell Road Cross Culvert Peak Elev=287.85' Storage=73 cf Inflow=0.63 cfs 0.160 af
24.0" Round Culvert n=0.012 L=43.5' S=0.0057 '/' Outflow=0.62 cfs 0.160 af

Pond 9P: 12" Mitchell Road Cross Culvert Peak Elev=289.58' Storage=49 cf Inflow=0.20 cfs 0.019 af
Primary=0.18 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.019 af

Pond 10P: 18" Offsite Cross Culvert Peak Elev=316.35' Storage=122 cf Inflow=0.89 cfs 0.107 af
Primary=0.89 cfs 0.105 af Secondary=0.00 cfs 0.000 af Outflow=0.89 cfs 0.105 af

Pond 11P: 2' X 6' Box Culvert Peak Elev=286.31' Storage=887 cf Inflow=8.03 cfs 1.251 af
72.0" x 24.0" Box Culvert n=0.024 L=45.0' S=0.0111 '/' Outflow=7.97 cfs 1.249 af

Pond 13P: Natural Depression Peak Elev=300.05' Storage=1,356 cf Inflow=1.24 cfs 0.141 af
Discarded=0.02 cfs 0.017 af Primary=1.31 cfs 0.096 af Outflow=1.33 cfs 0.113 af

Pond 14P: Top of Swale Line Peak Elev=298.37' Storage=140 cf Inflow=1.31 cfs 0.096 af
Outflow=1.18 cfs 0.096 af

Pond 26P: 12" Inlet Sump Peak Elev=293.14' Storage=68 cf Inflow=0.62 cfs 0.045 af
12.0" Round Culvert n=0.012 L=266.2' S=0.0113 '/' Outflow=0.61 cfs 0.045 af

Pond 27P: 24" Inlet Sump Peak Elev=291.80' Storage=1,023 cf Inflow=5.02 cfs 0.649 af
Primary=5.04 cfs 0.626 af Secondary=0.00 cfs 0.000 af Outflow=5.04 cfs 0.626 af

Pond 28P: 15" Inlet Sump Peak Elev=290.53' Storage=240 cf Inflow=1.16 cfs 0.137 af
15.0" Round Culvert n=0.012 L=25.0' S=0.0140 '/' Outflow=1.13 cfs 0.136 af

Pond 29P: 12" Inlet Sump Peak Elev=290.00' Storage=143 cf Inflow=1.00 cfs 0.073 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0250 '/' Outflow=0.94 cfs 0.072 af

Pond 30P: 18" Cross Culvert Peak Elev=296.63' Storage=9 cf Inflow=1.92 cfs 0.220 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0125 '/' Outflow=1.92 cfs 0.220 af

Pond 35P: 12" Inlet Sump Peak Elev=297.71' Storage=67 cf Inflow=2.63 cfs 0.231 af
Primary=2.60 cfs 0.231 af Secondary=0.00 cfs 0.000 af Outflow=2.60 cfs 0.231 af

Pond 36P: Yard Drain Peak Elev=295.90' Storage=27 cf Inflow=0.74 cfs 0.075 af
Primary=0.74 cfs 0.075 af Secondary=0.00 cfs 0.000 af Outflow=0.74 cfs 0.075 af

Pond 42P: Level Spreader #102 Peak Elev=284.02' Storage=386 cf Inflow=0.13 cfs 0.137 af
Outflow=0.13 cfs 0.128 af

Pond 43P: Level Spreader #103 Peak Elev=295.08' Storage=371 cf Inflow=0.96 cfs 0.187 af
Outflow=1.12 cfs 0.179 af

Pond 44P: Level Spreader #104 Peak Elev=290.11' Storage=2,375 cf Inflow=2.57 cfs 0.272 af
Outflow=3.21 cfs 0.222 af

Pond 45P: Level Spreader #105 Peak Elev=298.05' Storage=231 cf Inflow=0.06 cfs 0.017 af
Outflow=0.07 cfs 0.012 af

Pond 101P: Gravel Wetland #101 Peak Elev=291.80' Storage=30,686 cf Inflow=6.34 cfs 0.812 af
Primary=0.12 cfs 0.108 af Secondary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.108 af

Pond 102P: Gravel Wetland #102 Peak Elev=288.90' Storage=17,971 cf Inflow=3.79 cfs 0.544 af
Primary=0.13 cfs 0.132 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.132 af

Pond 103P: Gravel Wetland #103 Peak Elev=296.29' Storage=4,774 cf Inflow=3.00 cfs 0.271 af
Primary=0.96 cfs 0.185 af Secondary=0.00 cfs 0.000 af Outflow=0.96 cfs 0.185 af

Pond 104P: Gravel Wetland #104 Peak Elev=291.38' Storage=3,365 cf Inflow=2.95 cfs 0.273 af
Primary=2.19 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=2.19 cfs 0.224 af

Pond 105P: Infiltration Pond #105 Peak Elev=298.53' Storage=1,545 cf Inflow=0.58 cfs 0.064 af
Discarded=0.01 cfs 0.014 af Primary=0.06 cfs 0.016 af Outflow=0.07 cfs 0.029 af

Pond C01P: Catch Basin #1 Peak Elev=290.59' Storage=3 cf Inflow=0.22 cfs 0.019 af
12.0" Round Culvert n=0.012 L=6.0' S=0.0467 '/' Outflow=0.22 cfs 0.019 af

Pond C02P: Catch Basin #2 Peak Elev=292.01' Storage=8 cf Inflow=0.38 cfs 0.031 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.38 cfs 0.031 af

Pond C03P: Catch Basin #3 Peak Elev=292.00' Storage=11 cf Inflow=1.13 cfs 0.096 af
12.0" Round Culvert n=0.012 L=175.0' S=0.0051 '/' Outflow=1.12 cfs 0.096 af

Pond C04P: Catch Basin #4 Peak Elev=291.71' Storage=20 cf Inflow=2.55 cfs 0.242 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=2.53 cfs 0.242 af

Pond D01P: DMH #1 Peak Elev=290.15' Storage=18 cf Inflow=1.46 cfs 0.200 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=1.46 cfs 0.200 af

Pond D02P: DMH #2 Peak Elev=289.17' Storage=8 cf Inflow=2.16 cfs 0.272 af
18.0" Round Culvert n=0.012 L=33.0' S=0.0152 '/' Outflow=2.16 cfs 0.272 af

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

Subcatchment 1S: Southeast Corner of Lot Runoff Area=345,633 sf 1.83% Impervious Runoff Depth>2.76"
Flow Length=580' Tc=24.2 min CN=71 Runoff=15.93 cfs 1.828 af

Subcatchment 2aS: Southern Portion of Runoff Area=201,407 sf 0.77% Impervious Runoff Depth>2.57"
Flow Length=738' Tc=37.0 min CN=69 Runoff=7.11 cfs 0.992 af

Subcatchment 2S: Center Wetland Area Runoff Area=39,496 sf 3.15% Impervious Runoff Depth>2.15"
Flow Length=192' Tc=15.0 min CN=64 Runoff=1.67 cfs 0.162 af

Subcatchment 3aS: Subcatchment #3a Runoff Area=337,487 sf 3.22% Impervious Runoff Depth>2.14"
Flow Length=498' Tc=25.6 min UI Adjusted CN=64 Runoff=11.44 cfs 1.384 af

Subcatchment 3S: Eastern Side of Lot Runoff Area=14,322 sf 0.00% Impervious Runoff Depth>2.77"
Flow Length=93' Tc=15.7 min CN=71 Runoff=0.79 cfs 0.076 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf 0.47% Impervious Runoff Depth>1.73"
Flow Length=1,077' Tc=35.9 min CN=59 Runoff=11.91 cfs 1.739 af

Subcatchment 5S: Offsite Flow South Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>2.96"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=3.60 cfs 0.328 af

Subcatchment 6S: Center of Lot Runoff Area=116,994 sf 1.07% Impervious Runoff Depth>2.67"
Flow Length=336' Tc=22.3 min CN=70 Runoff=5.39 cfs 0.598 af

Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf 19.24% Impervious Runoff Depth>2.32"
Flow Length=156' Tc=11.3 min UI Adjusted CN=66 Runoff=0.96 cfs 0.083 af

Subcatchment 8S: Western Corner Offsite Runoff Area=41,698 sf 11.21% Impervious Runoff Depth>2.15"
Flow Length=471' Tc=17.5 min UI Adjusted CN=64 Runoff=1.66 cfs 0.171 af

Subcatchment 9S: Western Side of Lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>1.66"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.38 cfs 0.033 af

Subcatchment 10S: Beginning of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>1.90"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=1.59 cfs 0.178 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>1.81"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=6.01 cfs 0.816 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>2.22"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=3.38 cfs 0.459 af

Subcatchment 13S: Western Corner Runoff Area=52,834 sf 10.17% Impervious Runoff Depth>2.23"
Flow Length=406' Tc=20.1 min UI Adjusted CN=65 Runoff=2.07 cfs 0.226 af

Subcatchment 21S: Gravel Wetland #101 Runoff Area=73,137 sf 10.99% Impervious Runoff Depth>2.15"
Flow Length=494' Tc=22.5 min UI Adjusted CN=64 Runoff=2.62 cfs 0.300 af

Subcatchment 22S: Gravel Wetland #102 Runoff Area=101,895 sf 16.59% Impervious Runoff Depth>2.23"
Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=3.36 cfs 0.434 af

Subcatchment 23S: Gravel Wetland #103 Runoff Area=11,315 sf 24.27% Impervious Runoff Depth>2.78"
Tc=6.0 min CN=71 Runoff=0.83 cfs 0.060 af

Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>3.25"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=0.61 cfs 0.046 af

Subcatchment 25S: Infiltration Pond #105 Runoff Area=21,621 sf 0.00% Impervious Runoff Depth>2.41"
Flow Length=290' Tc=19.6 min CN=67 Runoff=0.93 cfs 0.100 af

Subcatchment 26S: Area Uphill of Culvert Runoff Area=9,885 sf 39.88% Impervious Runoff Depth>3.44"
Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=0.90 cfs 0.065 af

Subcatchment 27S: Western Corner of Lot Runoff Area=241,310 sf 6.42% Impervious Runoff Depth>1.97"
Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=6.85 cfs 0.911 af

Subcatchment 28S: Inlet Sump South of Runoff Area=51,121 sf 23.51% Impervious Runoff Depth>2.23"
Flow Length=507' Tc=21.9 min UI Adjusted CN=65 Runoff=1.94 cfs 0.218 af

Subcatchment 29S: Inlet Sump North of Runoff Area=16,466 sf 43.16% Impervious Runoff Depth>3.35"
Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=1.45 cfs 0.105 af

Subcatchment 30S: Subcatchment #30 Runoff Area=37,405 sf 18.75% Impervious Runoff Depth>2.50"
Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=1.91 cfs 0.179 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>5.61"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment 32S: CB #2 Runoff Area=3,810 sf 97.51% Impervious Runoff Depth>5.49"
Tc=6.0 min CN=97 Runoff=0.49 cfs 0.040 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>4.05"
Flow Length=224' Tc=9.8 min CN=84 Runoff=1.08 cfs 0.090 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>4.48"
Tc=6.0 min CN=88 Runoff=1.29 cfs 0.097 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>2.86"
Flow Length=445' Tc=11.8 min CN=72 Runoff=4.01 cfs 0.348 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>3.24"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=1.09 cfs 0.110 af

Subcatchment 42S: Level Spreader #102 Runoff Area=1,252 sf 0.00% Impervious Runoff Depth>3.06"
Tc=6.0 min CN=74 Runoff=0.10 cfs 0.007 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>1.90"
Tc=6.0 min CN=61 Runoff=0.03 cfs 0.002 af

Subcatchment 44S: Level Spreader #104 Runoff Area=10,945 sf 18.11% Impervious Runoff Depth>3.34"
Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=0.91 cfs 0.070 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=72 Runoff=0.03 cfs 0.002 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.46' Max Vel=1.69 fps Inflow=14.57 cfs 2.172 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=14.55 cfs 2.169 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.40' Max Vel=1.09 fps Inflow=7.80 cfs 1.142 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=7.47 cfs 1.134 af

Reach 10R: Swale Avg. Flow Depth=0.17' Max Vel=4.12 fps Inflow=1.59 cfs 0.176 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=1.58 cfs 0.176 af

Reach 11R: Overland Flow Avg. Flow Depth=0.26' Max Vel=1.41 fps Inflow=6.01 cfs 0.816 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=5.97 cfs 0.814 af

Reach 12R: Overland Flow Avg. Flow Depth=0.23' Max Vel=1.18 fps Inflow=3.38 cfs 0.459 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=3.13 cfs 0.455 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.24' Max Vel=3.33 fps Inflow=2.12 cfs 0.180 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=2.07 cfs 0.180 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.36' Max Vel=2.27 fps Inflow=3.27 cfs 0.355 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=3.27 cfs 0.354 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.25' Max Vel=0.67 fps Inflow=6.68 cfs 0.670 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=4.80 cfs 0.662 af

Reach 43R: Overland Flow Avg. Flow Depth=0.13' Max Vel=1.37 fps Inflow=3.94 cfs 0.315 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=3.59 cfs 0.315 af

Reach 45R: Overland Flow Avg. Flow Depth=0.13' Max Vel=0.72 fps Inflow=0.66 cfs 0.048 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=0.33 cfs 0.047 af

Reach 100R: Offsite Flow Southeast Inflow=17.90 cfs 2.283 af
Outflow=17.90 cfs 2.283 af

Reach 200R: Reach #200 Inflow=15.35 cfs 2.331 af
Outflow=15.35 cfs 2.331 af

Reach 300R: Reach #300 Inflow=15.51 cfs 2.119 af
Outflow=15.51 cfs 2.119 af

Reach 700R: Across Mitchell Road Inflow=1.72 cfs 0.702 af
Outflow=1.72 cfs 0.702 af

Reach 800R: Across Mitchell Road Inflow=1.66 cfs 0.171 af
Outflow=1.66 cfs 0.171 af

Reach 900R: Across Mitchell Road Inflow=0.36 cfs 0.033 af
Outflow=0.36 cfs 0.033 af

Reach 1000R: Center Wetland Inflow=65.76 cfs 9.800 af
Outflow=65.76 cfs 9.800 af

Pond 2P: 36" Cross Culvert Peak Elev=291.39' Storage=589 cf Inflow=14.58 cfs 2.173 af
36.0" Round Culvert w/ 6.0" inside fill n=0.018 L=60.0' S=0.0208 '/' Outflow=14.57 cfs 2.172 af

Pond 7P: 24" Mitchell Road Cross Culvert Peak Elev=288.10' Storage=136 cf Inflow=1.72 cfs 0.703 af
24.0" Round Culvert n=0.012 L=43.5' S=0.0057 '/' Outflow=1.72 cfs 0.702 af

Pond 9P: 12" Mitchell Road Cross Culvert Peak Elev=289.68' Storage=71 cf Inflow=0.38 cfs 0.033 af
Primary=0.36 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.36 cfs 0.033 af

Pond 10P: 18" Offsite Cross Culvert Peak Elev=316.50' Storage=139 cf Inflow=1.59 cfs 0.178 af
Primary=1.59 cfs 0.176 af Secondary=0.00 cfs 0.000 af Outflow=1.59 cfs 0.176 af

Pond 11P: 2' X 6' Box Culvert Peak Elev=286.61' Storage=2,667 cf Inflow=15.95 cfs 2.046 af
72.0" x 24.0" Box Culvert n=0.024 L=45.0' S=0.0111 '/' Outflow=15.08 cfs 2.043 af

Pond 13P: Natural Depression Peak Elev=300.07' Storage=1,397 cf Inflow=2.07 cfs 0.226 af
Discarded=0.02 cfs 0.017 af Primary=2.08 cfs 0.180 af Outflow=2.09 cfs 0.197 af

Pond 14P: Top of Swale Line Peak Elev=298.55' Storage=214 cf Inflow=2.08 cfs 0.180 af
Outflow=2.12 cfs 0.180 af

Pond 26P: 12" Inlet Sump Peak Elev=293.23' Storage=86 cf Inflow=0.90 cfs 0.065 af
12.0" Round Culvert n=0.012 L=266.2' S=0.0113 '/' Outflow=0.88 cfs 0.065 af

Pond 27P: 24" Inlet Sump Peak Elev=292.02' Storage=1,238 cf Inflow=8.70 cfs 1.090 af
Primary=8.70 cfs 1.064 af Secondary=0.00 cfs 0.000 af Outflow=8.70 cfs 1.064 af

Pond 28P: 15" Inlet Sump Peak Elev=290.74' Storage=398 cf Inflow=1.94 cfs 0.218 af
15.0" Round Culvert n=0.012 L=25.0' S=0.0140 '/' Outflow=1.87 cfs 0.218 af

Pond 29P: 12" Inlet Sump Peak Elev=290.12' Storage=193 cf Inflow=1.45 cfs 0.105 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0250 '/' Outflow=1.36 cfs 0.105 af

Pond 30P: 18" Cross Culvert Peak Elev=296.85' Storage=15 cf Inflow=3.27 cfs 0.355 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0125 '/' Outflow=3.27 cfs 0.355 af

Pond 35P: 12" Inlet Sump Peak Elev=298.31' Storage=166 cf Inflow=4.01 cfs 0.348 af
Primary=3.89 cfs 0.348 af Secondary=0.00 cfs 0.000 af Outflow=3.89 cfs 0.348 af

Pond 36P: Yard Drain Peak Elev=295.94' Storage=31 cf Inflow=1.09 cfs 0.110 af
Primary=1.09 cfs 0.109 af Secondary=0.00 cfs 0.000 af Outflow=1.09 cfs 0.109 af

Pond 42P: Level Spreader #102 Peak Elev=284.07' Storage=411 cf Inflow=0.98 cfs 0.387 af
Outflow=0.98 cfs 0.378 af

Pond 43P: Level Spreader #103 Peak Elev=295.17' Storage=397 cf Inflow=3.59 cfs 0.323 af
Outflow=3.94 cfs 0.315 af

Pond 44P: Level Spreader #104 Peak Elev=290.15' Storage=2,446 cf Inflow=4.71 cfs 0.402 af
Outflow=5.27 cfs 0.351 af

Pond 45P: Level Spreader #105 Peak Elev=298.13' Storage=247 cf Inflow=0.43 cfs 0.053 af
Outflow=0.66 cfs 0.048 af

Pond 101P: Gravel Wetland #101 Peak Elev=292.01' Storage=33,527 cf Inflow=11.08 cfs 1.364 af
Primary=1.62 cfs 0.619 af Secondary=0.02 cfs 0.001 af Outflow=1.64 cfs 0.620 af

Pond 102P: Gravel Wetland #102 Peak Elev=289.39' Storage=21,070 cf Inflow=6.14 cfs 0.845 af
Primary=0.97 cfs 0.380 af Secondary=0.00 cfs 0.000 af Outflow=0.97 cfs 0.380 af

Pond 103P: Gravel Wetland #103 Peak Elev=296.53' Storage=5,496 cf Inflow=4.43 cfs 0.408 af
Primary=3.48 cfs 0.320 af Secondary=0.10 cfs 0.001 af Outflow=3.58 cfs 0.321 af

Pond 104P: Gravel Wetland #104 Peak Elev=291.46' Storage=3,586 cf Inflow=4.07 cfs 0.382 af
Primary=3.89 cfs 0.332 af Secondary=0.00 cfs 0.000 af Outflow=3.89 cfs 0.332 af

Pond 105P: Infiltration Pond #105 Peak Elev=298.61' Storage=1,710 cf Inflow=0.93 cfs 0.100 af
Discarded=0.02 cfs 0.014 af Primary=0.42 cfs 0.051 af Outflow=0.44 cfs 0.065 af

Pond C01P: Catch Basin #1 Peak Elev=290.62' Storage=3 cf Inflow=0.28 cfs 0.024 af
12.0" Round Culvert n=0.012 L=6.0' S=0.0467 '/' Outflow=0.29 cfs 0.024 af

Pond C02P: Catch Basin #2 Peak Elev=292.72' Storage=17 cf Inflow=0.49 cfs 0.040 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.48 cfs 0.040 af

Pond C03P: Catch Basin #3 Peak Elev=292.72' Storage=20 cf Inflow=1.51 cfs 0.130 af
12.0" Round Culvert n=0.012 L=175.0' S=0.0051 '/' Outflow=1.48 cfs 0.130 af

Pond C04P: Catch Basin #4 Peak Elev=292.40' Storage=28 cf Inflow=3.47 cfs 0.336 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=3.46 cfs 0.336 af

Pond D01P: DMH #1 Peak Elev=290.34' Storage=24 cf Inflow=2.33 cfs 0.306 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=2.33 cfs 0.306 af

Pond D02P: DMH #2 Peak Elev=289.40' Storage=11 cf Inflow=3.27 cfs 0.411 af
18.0" Round Culvert n=0.012 L=33.0' S=0.0152 '/' Outflow=3.27 cfs 0.411 af

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

Subcatchment 1S: Southeast Corner of Lot Runoff Area=345,633 sf 1.83% Impervious Runoff Depth>3.71"
Flow Length=580' Tc=24.2 min CN=71 Runoff=21.47 cfs 2.450 af

Subcatchment 2aS: Southern Portion of Runoff Area=201,407 sf 0.77% Impervious Runoff Depth>3.49"
Flow Length=738' Tc=37.0 min CN=69 Runoff=9.71 cfs 1.343 af

Subcatchment 2S: Center Wetland Area Runoff Area=39,496 sf 3.15% Impervious Runoff Depth>2.99"
Flow Length=192' Tc=15.0 min CN=64 Runoff=2.37 cfs 0.226 af

Subcatchment 3aS: Subcatchment #3a Runoff Area=337,487 sf 3.22% Impervious Runoff Depth>2.98"
Flow Length=498' Tc=25.6 min UI Adjusted CN=64 Runoff=16.25 cfs 1.927 af

Subcatchment 3S: Eastern Side of Lot Runoff Area=14,322 sf 0.00% Impervious Runoff Depth>3.71"
Flow Length=93' Tc=15.7 min CN=71 Runoff=1.06 cfs 0.102 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf 0.47% Impervious Runoff Depth>2.48"
Flow Length=1,077' Tc=35.9 min CN=59 Runoff=17.73 cfs 2.501 af

Subcatchment 5S: Offsite Flow South Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>3.93"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=4.79 cfs 0.435 af

Subcatchment 6S: Center of Lot Runoff Area=116,994 sf 1.07% Impervious Runoff Depth>3.60"
Flow Length=336' Tc=22.3 min CN=70 Runoff=7.31 cfs 0.806 af

Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf 19.24% Impervious Runoff Depth>3.20"
Flow Length=156' Tc=11.3 min UI Adjusted CN=66 Runoff=1.34 cfs 0.115 af

Subcatchment 8S: Western Corner Offsite Runoff Area=41,698 sf 11.21% Impervious Runoff Depth>2.99"
Flow Length=471' Tc=17.5 min UI Adjusted CN=64 Runoff=2.35 cfs 0.239 af

Subcatchment 9S: Western Side of Lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>2.40"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.57 cfs 0.048 af

Subcatchment 10S: Beginning of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>2.69"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=2.32 cfs 0.253 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>2.58"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=8.84 cfs 1.165 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>3.08"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=4.75 cfs 0.635 af

Subcatchment 13S: Western Corner Runoff Area=52,834 sf 10.17% Impervious Runoff Depth>3.09"
Flow Length=406' Tc=20.1 min UI Adjusted CN=65 Runoff=2.92 cfs 0.312 af

Subcatchment 21S: Gravel Wetland #101 Runoff Area=73,137 sf 10.99% Impervious Runoff Depth>2.99"
Flow Length=494' Tc=22.5 min UI Adjusted CN=64 Runoff=3.72 cfs 0.418 af

Subcatchment 22S: Gravel Wetland #102 Runoff Area=101,895 sf 16.59% Impervious Runoff Depth>3.08"
Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=4.72 cfs 0.601 af

Subcatchment 23S: Gravel Wetland #103 Runoff Area=11,315 sf 24.27% Impervious Runoff Depth>3.72"
Tc=6.0 min CN=71 Runoff=1.11 cfs 0.081 af

Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>4.25"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=0.80 cfs 0.060 af

Subcatchment 25S: Infiltration Pond #105 Runoff Area=21,621 sf 0.00% Impervious Runoff Depth>3.29"
Flow Length=290' Tc=19.6 min CN=67 Runoff=1.29 cfs 0.136 af

Subcatchment 26S: Area Uphill of Culvert Runoff Area=9,885 sf 39.88% Impervious Runoff Depth>4.47"
Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=1.16 cfs 0.085 af

Subcatchment 27S: Western Corner of Lot Runoff Area=241,310 sf 6.42% Impervious Runoff Depth>2.78"
Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=9.89 cfs 1.284 af

Subcatchment 28S: Inlet Sump South of Runoff Area=51,121 sf 23.51% Impervious Runoff Depth>3.09"
Flow Length=507' Tc=21.9 min UI Adjusted CN=65 Runoff=2.73 cfs 0.302 af

Subcatchment 29S: Inlet Sump North of Runoff Area=16,466 sf 43.16% Impervious Runoff Depth>4.36"
Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=1.89 cfs 0.137 af

Subcatchment 30S: Subcatchment #30 Runoff Area=37,405 sf 18.75% Impervious Runoff Depth>3.40"
Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=2.63 cfs 0.243 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>6.76"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.029 af

Subcatchment 32S: CB #2 Runoff Area=3,810 sf 97.51% Impervious Runoff Depth>6.64"
Tc=6.0 min CN=97 Runoff=0.58 cfs 0.048 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>5.13"
Flow Length=224' Tc=9.8 min CN=84 Runoff=1.36 cfs 0.114 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>5.59"
Tc=6.0 min CN=88 Runoff=1.60 cfs 0.121 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>3.82"
Flow Length=445' Tc=11.8 min CN=72 Runoff=5.37 cfs 0.464 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>4.24"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=1.42 cfs 0.144 af

Subcatchment 42S: Level Spreader #102 Runoff Area=1,252 sf 0.00% Impervious Runoff Depth>4.04"
Tc=6.0 min CN=74 Runoff=0.13 cfs 0.010 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=61 Runoff=0.04 cfs 0.003 af

Subcatchment 44S: Level Spreader #104 Runoff Area=10,945 sf 18.11% Impervious Runoff Depth>4.36"
Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=1.18 cfs 0.091 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>3.83"
Tc=6.0 min CN=72 Runoff=0.04 cfs 0.003 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.55' Max Vel=1.90 fps Inflow=21.33 cfs 3.014 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=21.31 cfs 3.011 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.48' Max Vel=1.22 fps Inflow=11.28 cfs 1.598 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=10.90 cfs 1.588 af

Reach 10R: Swale Avg. Flow Depth=0.21' Max Vel=4.68 fps Inflow=2.32 cfs 0.251 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=2.32 cfs 0.250 af

Reach 11R: Overland Flow Avg. Flow Depth=0.31' Max Vel=1.59 fps Inflow=8.84 cfs 1.165 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=8.80 cfs 1.163 af

Reach 12R: Overland Flow Avg. Flow Depth=0.27' Max Vel=1.32 fps Inflow=4.75 cfs 0.635 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=4.46 cfs 0.631 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.29' Max Vel=3.68 fps Inflow=2.89 cfs 0.266 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=2.87 cfs 0.265 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.42' Max Vel=2.54 fps Inflow=4.65 cfs 0.494 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=4.65 cfs 0.493 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.32' Max Vel=0.78 fps Inflow=10.03 cfs 0.945 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=8.06 cfs 0.936 af

Reach 43R: Overland Flow Avg. Flow Depth=0.15' Max Vel=1.55 fps Inflow=5.42 cfs 0.452 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=5.38 cfs 0.452 af

Reach 45R: Overland Flow Avg. Flow Depth=0.20' Max Vel=0.96 fps Inflow=1.41 cfs 0.084 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=0.83 cfs 0.084 af

Reach 100R: Offsite Flow Southeast Inflow=24.46 cfs 3.081 af
Outflow=24.46 cfs 3.081 af

Reach 200R: Reach #200 Inflow=22.40 cfs 3.237 af
Outflow=22.40 cfs 3.237 af

Reach 300R: Reach #300 Inflow=22.15 cfs 2.961 af
Outflow=22.15 cfs 2.961 af

Reach 700R: Across Mitchell Road Inflow=6.73 cfs 1.307 af
Outflow=6.73 cfs 1.307 af

Reach 800R: Across Mitchell Road Inflow=2.35 cfs 0.239 af
Outflow=2.35 cfs 0.239 af

Reach 900R: Across Mitchell Road Inflow=0.55 cfs 0.048 af
Outflow=0.55 cfs 0.048 af

Reach 1000R: Center Wetland Inflow=92.90 cfs 13.749 af
Outflow=92.90 cfs 13.749 af

Pond 2P: 36" Cross Culvert Peak Elev=291.79' Storage=1,004 cf Inflow=21.37 cfs 3.016 af
36.0" Round Culvert w/ 6.0" inside fill n=0.018 L=60.0' S=0.0208 '/' Outflow=21.33 cfs 3.014 af

Pond 7P: 24" Mitchell Road Cross Culvert Peak Elev=288.77' Storage=352 cf Inflow=6.77 cfs 1.308 af
24.0" Round Culvert n=0.012 L=43.5' S=0.0057 '/' Outflow=6.73 cfs 1.307 af

Pond 9P: 12" Mitchell Road Cross Culvert Peak Elev=289.77' Storage=91 cf Inflow=0.57 cfs 0.048 af
Primary=0.55 cfs 0.048 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.048 af

Pond 10P: 18" Offsite Cross Culvert Peak Elev=316.63' Storage=155 cf Inflow=2.32 cfs 0.253 af
Primary=2.32 cfs 0.251 af Secondary=0.00 cfs 0.000 af Outflow=2.32 cfs 0.251 af

Pond 11P: 2' X 6' Box Culvert Peak Elev=286.85' Storage=5,914 cf Inflow=24.21 cfs 2.862 af
72.0" x 24.0" Box Culvert n=0.024 L=45.0' S=0.0111 '/' Outflow=21.58 cfs 2.860 af

Pond 13P: Natural Depression Peak Elev=300.08' Storage=1,437 cf Inflow=2.92 cfs 0.312 af
Discarded=0.02 cfs 0.018 af Primary=2.90 cfs 0.266 af Outflow=2.92 cfs 0.284 af

Pond 14P: Top of Swale Line Peak Elev=298.67' Storage=269 cf Inflow=2.90 cfs 0.266 af
Outflow=2.89 cfs 0.266 af

Pond 26P: 12" Inlet Sump Peak Elev=293.31' Storage=102 cf Inflow=1.16 cfs 0.085 af
12.0" Round Culvert n=0.012 L=266.2' S=0.0113 '/' Outflow=1.14 cfs 0.084 af

Pond 27P: 24" Inlet Sump Peak Elev=292.27' Storage=1,540 cf Inflow=12.50 cfs 1.549 af
Primary=12.25 cfs 1.521 af Secondary=0.13 cfs 0.001 af Outflow=12.25 cfs 1.522 af

Pond 28P: 15" Inlet Sump Peak Elev=290.94' Storage=586 cf Inflow=2.73 cfs 0.302 af
15.0" Round Culvert n=0.012 L=25.0' S=0.0140 '/' Outflow=2.61 cfs 0.301 af

Pond 29P: 12" Inlet Sump Peak Elev=290.22' Storage=243 cf Inflow=1.89 cfs 0.137 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0250 '/' Outflow=1.76 cfs 0.137 af

Pond 30P: 18" Cross Culvert Peak Elev=297.07' Storage=24 cf Inflow=4.65 cfs 0.494 af
18.0" Round Culvert n=0.012 L=40.0' S=0.0125 '/' Outflow=4.65 cfs 0.494 af

Pond 35P: 12" Inlet Sump Peak Elev=298.95' Storage=395 cf Inflow=5.37 cfs 0.464 af
Primary=4.92 cfs 0.464 af Secondary=0.00 cfs 0.000 af Outflow=4.92 cfs 0.464 af

Pond 36P: Yard Drain Peak Elev=295.98' Storage=34 cf Inflow=1.42 cfs 0.144 af
Primary=1.42 cfs 0.143 af Secondary=0.00 cfs 0.000 af Outflow=1.42 cfs 0.143 af

Pond 42P: Level Spreader #102 Peak Elev=284.17' Storage=463 cf Inflow=3.91 cfs 0.694 af
Outflow=3.91 cfs 0.685 af

Pond 43P: Level Spreader #103 Peak Elev=295.22' Storage=409 cf Inflow=5.33 cfs 0.460 af
Outflow=5.42 cfs 0.452 af

Pond 44P: Level Spreader #104 Peak Elev=290.16' Storage=2,459 cf Inflow=5.62 cfs 0.528 af
Outflow=5.72 cfs 0.477 af

Pond 45P: Level Spreader #105 Peak Elev=298.20' Storage=262 cf Inflow=0.92 cfs 0.090 af
Outflow=1.41 cfs 0.084 af

Pond 101P: Gravel Wetland #101 Peak Elev=292.15' Storage=35,388 cf Inflow=15.81 cfs 1.939 af
Primary=5.10 cfs 1.115 af Secondary=1.33 cfs 0.077 af Outflow=6.43 cfs 1.193 af

Pond 102P: Gravel Wetland #102 Peak Elev=289.59' Storage=22,409 cf Inflow=8.50 cfs 1.152 af
Primary=3.22 cfs 0.668 af Secondary=0.67 cfs 0.017 af Outflow=3.89 cfs 0.685 af

Pond 103P: Gravel Wetland #103 Peak Elev=296.61' Storage=5,749 cf Inflow=5.58 cfs 0.544 af
Primary=4.54 cfs 0.443 af Secondary=0.83 cfs 0.014 af Outflow=5.31 cfs 0.457 af

Pond 104P: Gravel Wetland #104 Peak Elev=291.54' Storage=3,774 cf Inflow=5.10 cfs 0.487 af
Primary=4.44 cfs 0.436 af Secondary=0.09 cfs 0.001 af Outflow=4.53 cfs 0.436 af

Pond 105P: Infiltration Pond #105 Peak Elev=298.68' Storage=1,871 cf Inflow=1.29 cfs 0.136 af
Discarded=0.02 cfs 0.015 af Primary=0.91 cfs 0.087 af Outflow=0.93 cfs 0.102 af

Pond C01P: Catch Basin #1 Peak Elev=290.65' Storage=4 cf Inflow=0.34 cfs 0.029 af
12.0" Round Culvert n=0.012 L=6.0' S=0.0467 '/' Outflow=0.34 cfs 0.029 af

Pond C02P: Catch Basin #2 Peak Elev=293.57' Storage=27 cf Inflow=0.58 cfs 0.048 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.57 cfs 0.048 af

Pond C03P: Catch Basin #3 Peak Elev=293.56' Storage=30 cf Inflow=1.86 cfs 0.162 af
12.0" Round Culvert n=0.012 L=175.0' S=0.0051 '/' Outflow=1.79 cfs 0.162 af

Pond C04P: Catch Basin #4 Peak Elev=293.06' Storage=37 cf Inflow=4.31 cfs 0.427 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=4.31 cfs 0.426 af

Pond D01P: DMH #1 Peak Elev=290.53' Storage=29 cf Inflow=3.17 cfs 0.414 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=3.17 cfs 0.414 af

Pond D02P: DMH #2 Peak Elev=289.64' Storage=14 cf Inflow=4.35 cfs 0.551 af
18.0" Round Culvert n=0.012 L=33.0' S=0.0152 '/' Outflow=4.35 cfs 0.551 af

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

Subcatchment 1S: Southeast Corner of Lot Runoff Area=345,633 sf 1.83% Impervious Runoff Depth>4.88"
Flow Length=580' Tc=24.2 min CN=71 Runoff=28.30 cfs 3.227 af

Subcatchment 2aS: Southern Portion of Runoff Area=201,407 sf 0.77% Impervious Runoff Depth>4.63"
Flow Length=738' Tc=37.0 min CN=69 Runoff=12.93 cfs 1.784 af

Subcatchment 2S: Center Wetland Area Runoff Area=39,496 sf 3.15% Impervious Runoff Depth>4.07"
Flow Length=192' Tc=15.0 min CN=64 Runoff=3.25 cfs 0.307 af

Subcatchment 3aS: Subcatchment #3a Runoff Area=337,487 sf 3.22% Impervious Runoff Depth>4.06"
Flow Length=498' Tc=25.6 min UI Adjusted CN=64 Runoff=22.32 cfs 2.619 af

Subcatchment 3S: Eastern Side of Lot Runoff Area=14,322 sf 0.00% Impervious Runoff Depth>4.89"
Flow Length=93' Tc=15.7 min CN=71 Runoff=1.40 cfs 0.134 af

Subcatchment 4S: Northern Portion of Lot Runoff Area=526,435 sf 0.47% Impervious Runoff Depth>3.47"
Flow Length=1,077' Tc=35.9 min CN=59 Runoff=25.28 cfs 3.493 af

Subcatchment 5S: Offsite Flow South Runoff Area=57,986 sf 11.78% Impervious Runoff Depth>5.13"
Flow Length=234' Tc=13.6 min UI Adjusted CN=73 Runoff=6.24 cfs 0.569 af

Subcatchment 6S: Center of Lot Runoff Area=116,994 sf 1.07% Impervious Runoff Depth>4.76"
Flow Length=336' Tc=22.3 min CN=70 Runoff=9.69 cfs 1.066 af

Subcatchment 7S: Area Uphill of Existing Runoff Area=18,754 sf 19.24% Impervious Runoff Depth>4.30"
Flow Length=156' Tc=11.3 min UI Adjusted CN=66 Runoff=1.81 cfs 0.154 af

Subcatchment 8S: Western Corner Offsite Runoff Area=41,698 sf 11.21% Impervious Runoff Depth>4.06"
Flow Length=471' Tc=17.5 min UI Adjusted CN=64 Runoff=3.23 cfs 0.324 af

Subcatchment 9S: Western Side of Lot Runoff Area=10,480 sf 14.92% Impervious Runoff Depth>3.38"
Flow Length=158' Tc=9.5 min UI Adjusted CN=58 Runoff=0.82 cfs 0.068 af

Subcatchment 10S: Beginning of Sutton Runoff Area=49,132 sf 17.32% Impervious Runoff Depth>3.71"
Flow Length=470' Tc=20.2 min UI Adjusted CN=61 Runoff=3.26 cfs 0.349 af

Subcatchment 11S: Center of Sutton Street Runoff Area=235,702 sf 3.68% Impervious Runoff Depth>3.59"
Flow Length=798' Tc=31.3 min UI Adjusted CN=60 Runoff=12.50 cfs 1.618 af

Subcatchment 12S: End of Sutton Street Runoff Area=107,877 sf 4.26% Impervious Runoff Depth>4.17"
Flow Length=841' Tc=33.9 min UI Adjusted CN=65 Runoff=6.48 cfs 0.860 af

Subcatchment 13S: Western Corner Runoff Area=52,834 sf 10.17% Impervious Runoff Depth>4.18"
Flow Length=406' Tc=20.1 min UI Adjusted CN=65 Runoff=3.98 cfs 0.422 af

Subcatchment 21S: Gravel Wetland #101 Runoff Area=73,137 sf 10.99% Impervious Runoff Depth>4.06"
Flow Length=494' Tc=22.5 min UI Adjusted CN=64 Runoff=5.12 cfs 0.568 af

Subcatchment 22S: Gravel Wetland #102 Runoff Area=101,895 sf 16.59% Impervious Runoff Depth>4.17"
Flow Length=694' Tc=30.3 min UI Adjusted CN=65 Runoff=6.44 cfs 0.813 af

Subcatchment 23S: Gravel Wetland #103 Runoff Area=11,315 sf 24.27% Impervious Runoff Depth>4.90"
Tc=6.0 min CN=71 Runoff=1.46 cfs 0.106 af

Subcatchment 24S: Gravel Wetland #104 Runoff Area=7,388 sf 7.24% Impervious Runoff Depth>5.49"
Flow Length=100' Slope=0.0450 '/' Tc=7.2 min CN=76 Runoff=1.03 cfs 0.078 af

Subcatchment 25S: Infiltration Pond #105 Runoff Area=21,621 sf 0.00% Impervious Runoff Depth>4.41"
Flow Length=290' Tc=19.6 min CN=67 Runoff=1.75 cfs 0.183 af

Subcatchment 26S: Area Uphill of Culvert Runoff Area=9,885 sf 39.88% Impervious Runoff Depth>5.73"
Flow Length=339' Slope=0.0325 '/' Tc=6.0 min CN=78 Runoff=1.47 cfs 0.108 af

Subcatchment 27S: Western Corner of Lot Runoff Area=241,310 sf 6.42% Impervious Runoff Depth>3.82"
Flow Length=928' Tc=31.0 min UI Adjusted CN=62 Runoff=13.77 cfs 1.763 af

Subcatchment 28S: Inlet Sump South of Runoff Area=51,121 sf 23.51% Impervious Runoff Depth>4.18"
Flow Length=507' Tc=21.9 min UI Adjusted CN=65 Runoff=3.73 cfs 0.408 af

Subcatchment 29S: Inlet Sump North of Runoff Area=16,466 sf 43.16% Impervious Runoff Depth>5.61"
Flow Length=352' Slope=0.0227 '/' Tc=6.0 min CN=77 Runoff=2.41 cfs 0.177 af

Subcatchment 30S: Subcatchment #30 Runoff Area=37,405 sf 18.75% Impervious Runoff Depth>4.54"
Flow Length=595' Tc=14.1 min UI Adjusted CN=68 Runoff=3.52 cfs 0.325 af

Subcatchment 31S: CB #1 Runoff Area=2,218 sf 100.00% Impervious Runoff Depth>8.13"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment 32S: CB #2 Runoff Area=3,810 sf 97.51% Impervious Runoff Depth>8.01"
Tc=6.0 min CN=97 Runoff=0.70 cfs 0.058 af

Subcatchment 33S: CB #3 Runoff Area=11,567 sf 42.67% Impervious Runoff Depth>6.44"
Flow Length=224' Tc=9.8 min CN=84 Runoff=1.69 cfs 0.143 af

Subcatchment 34S: Cul-de-Sac Runoff Area=11,343 sf 57.07% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=88 Runoff=1.95 cfs 0.150 af

Subcatchment 35S: Offsite Flow South Runoff Area=63,454 sf 8.98% Impervious Runoff Depth>5.01"
Flow Length=445' Tc=11.8 min CN=72 Runoff=7.04 cfs 0.608 af

Subcatchment 36S: Lot 7 Driveway Runoff Area=17,718 sf 26.76% Impervious Runoff Depth>5.48"
Flow Length=221' Tc=18.0 min UI Adjusted CN=76 Runoff=1.83 cfs 0.186 af

Subcatchment 42S: Level Spreader #102 Runoff Area=1,252 sf 0.00% Impervious Runoff Depth>5.25"
Tc=6.0 min CN=74 Runoff=0.17 cfs 0.013 af

Subcatchment 43S: Level Spreader #103 Runoff Area=619 sf 0.00% Impervious Runoff Depth>3.73"
Tc=6.0 min CN=61 Runoff=0.06 cfs 0.004 af

Subcatchment 44S: Level Spreader #104 Runoff Area=10,945 sf 18.11% Impervious Runoff Depth>5.61"
Flow Length=151' Tc=8.1 min UI Adjusted CN=77 Runoff=1.51 cfs 0.117 af

Subcatchment 45S: Level Spreader #105 Runoff Area=374 sf 0.00% Impervious Runoff Depth>5.02"
Tc=6.0 min CN=72 Runoff=0.05 cfs 0.004 af

Reach 2aR: Flow Through Wetland Avg. Flow Depth=0.64' Max Vel=2.10 fps Inflow=29.38 cfs 4.085 af
n=0.080 L=145.5' S=0.0395 '/' Capacity=184.34 cfs Outflow=29.36 cfs 4.082 af

Reach 5R: Flow Through Wetland Avg. Flow Depth=0.56' Max Vel=1.36 fps Inflow=15.73 cfs 2.184 af
n=0.080 L=534.0' S=0.0197 '/' Capacity=52.95 cfs Outflow=15.29 cfs 2.172 af

Reach 10R: Swale Avg. Flow Depth=0.25' Max Vel=5.23 fps Inflow=3.26 cfs 0.347 af
n=0.022 L=357.4' S=0.0495 '/' Capacity=175.29 cfs Outflow=3.26 cfs 0.347 af

Reach 11R: Overland Flow Avg. Flow Depth=0.36' Max Vel=1.77 fps Inflow=12.50 cfs 1.618 af
n=0.080 L=229.0' S=0.0611 '/' Capacity=275.26 cfs Outflow=12.45 cfs 1.615 af

Reach 12R: Overland Flow Avg. Flow Depth=0.32' Max Vel=1.45 fps Inflow=6.48 cfs 0.860 af
n=0.080 L=703.6' S=0.0483 '/' Capacity=16.35 cfs Outflow=6.15 cfs 0.854 af

Reach 14R: Flow Through Swale Avg. Flow Depth=0.34' Max Vel=4.04 fps Inflow=3.96 cfs 0.375 af
n=0.024 L=309.7' S=0.0266 '/' Capacity=32.65 cfs Outflow=3.93 cfs 0.374 af

Reach 30aR: Cross Culvert Outlet Avg. Flow Depth=0.49' Max Vel=2.80 fps Inflow=6.40 cfs 0.671 af
n=0.035 L=152.9' S=0.0196 '/' Capacity=29.74 cfs Outflow=6.40 cfs 0.671 af

Reach 30bR: Wetland Flow Avg. Flow Depth=0.37' Max Vel=0.87 fps Inflow=13.24 cfs 1.292 af
n=0.080 L=513.1' S=0.0141 '/' Capacity=97.71 cfs Outflow=11.48 cfs 1.281 af

Reach 43R: Overland Flow Avg. Flow Depth=0.17' Max Vel=1.67 fps Inflow=7.07 cfs 0.622 af
n=0.080 L=17.1' S=0.1462 '/' Capacity=314.29 cfs Outflow=6.84 cfs 0.622 af

Reach 45R: Overland Flow Avg. Flow Depth=0.25' Max Vel=1.13 fps Inflow=1.95 cfs 0.131 af
n=0.080 L=213.7' S=0.0398 '/' Capacity=28.05 cfs Outflow=1.45 cfs 0.130 af

Reach 100R: Offsite Flow Southeast Inflow=32.61 cfs 4.081 af
Outflow=32.61 cfs 4.081 af

Reach 200R: Reach #200 Inflow=30.87 cfs 4.389 af
Outflow=30.87 cfs 4.389 af

Reach 300R: Reach #300 Inflow=29.20 cfs 4.031 af
Outflow=29.20 cfs 4.031 af

Reach 700R: Across Mitchell Road Inflow=16.64 cfs 2.082 af
Outflow=16.64 cfs 2.082 af

Reach 800R: Across Mitchell Road Inflow=3.23 cfs 0.324 af
Outflow=3.23 cfs 0.324 af

Reach 900R: Across Mitchell Road Inflow=0.80 cfs 0.067 af
Outflow=0.80 cfs 0.067 af

```
Reach 1000R: Center Wetland                                                   Inflow=132.09 cfs  18.764 af
                                                                             Outflow=132.09 cfs  18.764 af

Pond 2P: 36" Cross Culvert                  Peak Elev=292.23'  Storage=1,803 cf   Inflow=29.60 cfs  4.087 af
                 36.0"  Round Culvert  w/ 6.0" inside fill  n=0.018  L=60.0'  S=0.0208 '/'  Outflow=29.38 cfs  4.085 af

Pond 7P: 24" Mitchell Road Cross Culvert    Peak Elev=289.84'  Storage=844 cf   Inflow=16.73 cfs  2.084 af
                                   24.0"  Round Culvert  n=0.012  L=43.5'  S=0.0057 '/'  Outflow=16.64 cfs  2.082 af

Pond 9P: 12" Mitchell Road Cross Culvert      Peak Elev=289.87'  Storage=114 cf   Inflow=0.82 cfs  0.068 af
                        Primary=0.80 cfs  0.067 af   Secondary=0.00 cfs  0.000 af   Outflow=0.80 cfs  0.067 af

Pond 10P: 18" Offsite Cross Culvert           Peak Elev=316.78'  Storage=174 cf   Inflow=3.26 cfs  0.349 af
                        Primary=3.26 cfs  0.347 af   Secondary=0.00 cfs  0.000 af   Outflow=3.26 cfs  0.347 af

Pond 11P: 2' X 6' Box Culvert               Peak Elev=287.09'  Storage=11,294 cf   Inflow=33.77 cfs  3.900 af
                             72.0" x 24.0"  Box Culvert  n=0.024  L=45.0'  S=0.0111 '/'  Outflow=28.51 cfs  3.897 af

Pond 13P: Natural Depression                 Peak Elev=300.10'  Storage=1,484 cf   Inflow=3.98 cfs  0.422 af
                       Discarded=0.02 cfs  0.018 af   Primary=3.96 cfs  0.375 af   Outflow=3.98 cfs  0.394 af

Pond 14P: Top of Swale Line                    Peak Elev=298.83'  Storage=341 cf   Inflow=3.96 cfs  0.375 af
                                                                               Outflow=3.96 cfs  0.375 af

Pond 26P: 12" Inlet Sump                       Peak Elev=293.39'  Storage=121 cf   Inflow=1.47 cfs  0.108 af
                                 12.0"  Round Culvert  n=0.012  L=266.2'  S=0.0113 '/'  Outflow=1.45 cfs  0.108 af

Pond 27P: 24" Inlet Sump                     Peak Elev=292.50'  Storage=1,838 cf   Inflow=17.32 cfs  2.137 af
                     Primary=15.09 cfs  1.932 af   Secondary=5.83 cfs  0.179 af   Outflow=17.20 cfs  2.111 af

Pond 28P: 15" Inlet Sump                       Peak Elev=291.17'  Storage=877 cf   Inflow=3.73 cfs  0.408 af
                                  15.0"  Round Culvert  n=0.012  L=25.0'  S=0.0140 '/'  Outflow=3.51 cfs  0.408 af

Pond 29P: 12" Inlet Sump                       Peak Elev=290.35'  Storage=309 cf   Inflow=2.41 cfs  0.177 af
                                  12.0"  Round Culvert  n=0.012  L=20.0'  S=0.0250 '/'  Outflow=2.22 cfs  0.176 af

Pond 30P: 18" Cross Culvert                     Peak Elev=297.32'  Storage=38 cf   Inflow=6.40 cfs  0.671 af
                                  18.0"  Round Culvert  n=0.012  L=40.0'  S=0.0125 '/'  Outflow=6.40 cfs  0.671 af

Pond 35P: 12" Inlet Sump                       Peak Elev=299.56'  Storage=788 cf   Inflow=7.04 cfs  0.608 af
                        Primary=5.75 cfs  0.603 af   Secondary=0.71 cfs  0.005 af   Outflow=6.46 cfs  0.608 af

Pond 36P: Yard Drain                            Peak Elev=296.02'  Storage=39 cf   Inflow=1.83 cfs  0.186 af
                        Primary=1.83 cfs  0.185 af   Secondary=0.00 cfs  0.000 af   Outflow=1.83 cfs  0.185 af

Pond 42P: Level Spreader #102                  Peak Elev=284.30'  Storage=528 cf   Inflow=9.13 cfs  1.083 af
                                                                               Outflow=9.16 cfs  1.074 af

Pond 43P: Level Spreader #103                  Peak Elev=295.25'  Storage=419 cf   Inflow=6.90 cfs  0.630 af
                                                                               Outflow=7.07 cfs  0.622 af

Pond 44P: Level Spreader #104                Peak Elev=290.18'  Storage=2,490 cf   Inflow=6.76 cfs  0.681 af
                                                                               Outflow=6.74 cfs  0.630 af
```

Pond 45P: Level Spreader #105 Peak Elev=298.26' Storage=274 cf Inflow=1.52 cfs 0.136 af
Outflow=1.95 cfs 0.131 af

Pond 101P: Gravel Wetland #101 Peak Elev=292.23' Storage=36,615 cf Inflow=20.00 cfs 2.500 af
Primary=7.99 cfs 1.563 af Secondary=2.72 cfs 0.188 af Outflow=10.71 cfs 1.750 af

Pond 102P: Gravel Wetland #102 Peak Elev=289.76' Storage=23,601 cf Inflow=11.43 cfs 1.539 af
Primary=5.81 cfs 0.956 af Secondary=3.29 cfs 0.114 af Outflow=9.10 cfs 1.070 af

Pond 103P: Gravel Wetland #103 Peak Elev=296.71' Storage=6,097 cf Inflow=7.29 cfs 0.714 af
Primary=4.59 cfs 0.573 af Secondary=2.28 cfs 0.053 af Outflow=6.87 cfs 0.625 af

Pond 104P: Gravel Wetland #104 Peak Elev=291.68' Storage=4,141 cf Inflow=6.36 cfs 0.614 af
Primary=4.63 cfs 0.549 af Secondary=0.89 cfs 0.014 af Outflow=5.52 cfs 0.563 af

Pond 105P: Infiltration Pond #105 Peak Elev=298.75' Storage=2,035 cf Inflow=1.75 cfs 0.183 af
Discarded=0.02 cfs 0.015 af Primary=1.51 cfs 0.133 af Outflow=1.52 cfs 0.148 af

Pond C01P: Catch Basin #1 Peak Elev=290.76' Storage=5 cf Inflow=0.41 cfs 0.034 af
12.0" Round Culvert n=0.012 L=6.0' S=0.0467 '/' Outflow=0.41 cfs 0.034 af

Pond C02P: Catch Basin #2 Peak Elev=294.74' Storage=46 cf Inflow=0.70 cfs 0.058 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0083 '/' Outflow=0.65 cfs 0.058 af

Pond C03P: Catch Basin #3 Peak Elev=294.72' Storage=47 cf Inflow=2.25 cfs 0.201 af
12.0" Round Culvert n=0.012 L=175.0' S=0.0051 '/' Outflow=2.18 cfs 0.201 af

Pond C04P: Catch Basin #4 Peak Elev=293.98' Storage=48 cf Inflow=5.35 cfs 0.536 af
12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=5.34 cfs 0.536 af

Pond D01P: DMH #1 Peak Elev=290.75' Storage=35 cf Inflow=4.18 cfs 0.550 af
15.0" Round Culvert n=0.012 L=150.0' S=0.0050 '/' Outflow=4.18 cfs 0.550 af

Pond D02P: DMH #2 Peak Elev=289.93' Storage=18 cf Inflow=5.64 cfs 0.726 af
18.0" Round Culvert n=0.012 L=33.0' S=0.0152 '/' Outflow=5.64 cfs 0.726 af

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	71.051 degrees West
Latitude	43.153 degrees North
Elevation	0 feet
Date/Time	Thu, 07 Nov 2019 10:56:09 -0500

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	1.03	**1yr**	0.70	0.98	1.20	1.53	1.97	2.55	2.79	**1yr**	2.26	2.68	3.09	3.80	4.38	**1yr**
2yr	0.32	0.49	0.61	0.80	1.01	1.28	**2yr**	0.87	1.16	1.49	1.89	2.40	3.06	3.40	**2yr**	2.71	3.27	3.77	4.49	5.12	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.36	3.02	3.87	4.35	**5yr**	3.43	4.18	4.80	5.67	6.42	**5yr**
10yr	0.41	0.64	0.81	1.10	1.43	1.85	**10yr**	1.23	1.69	2.18	2.80	3.60	4.62	5.25	**10yr**	4.09	5.04	5.76	6.77	7.62	**10yr**
25yr	0.47	0.75	0.95	1.31	1.74	2.28	**25yr**	1.50	2.10	2.70	3.51	4.54	5.85	6.72	**25yr**	5.18	6.46	7.33	8.56	9.57	**25yr**
50yr	0.52	0.84	1.08	1.51	2.03	2.69	**50yr**	1.75	2.47	3.20	4.17	5.42	7.00	8.11	**50yr**	6.19	7.80	8.81	10.23	11.38	**50yr**
100yr	0.59	0.95	1.23	1.74	2.36	3.16	**100yr**	2.04	2.91	3.78	4.96	6.46	8.37	9.79	**100yr**	7.41	9.42	10.59	12.23	13.53	**100yr**
200yr	0.66	1.07	1.39	1.99	2.76	3.73	**200yr**	2.38	3.43	4.48	5.90	7.71	10.02	11.82	**200yr**	8.86	11.37	12.73	14.63	16.11	**200yr**
500yr	0.78	1.28	1.67	2.42	3.39	4.63	**500yr**	2.92	4.26	5.58	7.40	9.73	12.71	15.18	**500yr**	11.25	14.60	16.24	18.56	20.29	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.90	**1yr**	0.63	0.88	0.94	1.27	1.54	1.99	2.49	**1yr**	1.76	2.39	2.86	3.37	3.87	**1yr**
2yr	0.31	0.48	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.81	2.33	2.96	3.27	**2yr**	2.62	3.15	3.64	4.38	4.99	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.60	2.13	2.75	3.53	3.92	**5yr**	3.12	3.77	4.35	5.33	5.87	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.42	3.11	4.00	4.48	**10yr**	3.54	4.31	4.98	6.17	6.63	**10yr**
25yr	0.44	0.67	0.83	1.19	1.57	1.90	**25yr**	1.35	1.86	2.11	2.82	3.64	4.70	5.33	**25yr**	4.16	5.12	5.96	7.50	8.37	**25yr**
50yr	0.49	0.74	0.92	1.33	1.79	2.18	**50yr**	1.54	2.13	2.37	3.18	4.10	5.30	6.04	**50yr**	4.69	5.81	6.82	8.69	9.64	**50yr**
100yr	0.55	0.83	1.03	1.49	2.05	2.49	**100yr**	1.77	2.44	2.67	3.57	4.60	5.96	6.84	**100yr**	5.28	6.58	7.82	10.07	11.07	**100yr**
200yr	0.61	0.92	1.16	1.68	2.34	2.85	**200yr**	2.02	2.78	2.98	4.00	5.17	6.69	8.93	**200yr**	5.92	8.59	8.97	11.68	12.74	**200yr**
500yr	0.71	1.06	1.36	1.98	2.82	3.42	**500yr**	2.43	3.35	3.49	4.66	6.06	7.74	10.85	**500yr**	6.85	10.43	10.76	14.23	15.29	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.53	0.71	0.88	1.08	**1yr**	0.76	1.05	1.23	1.71	2.17	2.78	3.12	**1yr**	2.46	3.00	3.41	4.09	4.79	**1yr**
2yr	0.33	0.50	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.46	1.93	2.47	3.21	3.56	**2yr**	2.84	3.43	3.94	4.62	5.27	**2yr**
5yr	0.39	0.61	0.75	1.03	1.32	1.58	**5yr**	1.14	1.54	1.84	2.45	3.14	4.23	4.80	**5yr**	3.74	4.62	5.27	6.02	6.97	**5yr**
10yr	0.46	0.71	0.88	1.23	1.59	1.91	**10yr**	1.37	1.87	2.21	2.97	3.76	5.25	6.04	**10yr**	4.65	5.81	6.58	7.38	8.59	**10yr**
25yr	0.56	0.86	1.07	1.53	2.01	2.47	**25yr**	1.73	2.41	2.85	3.84	4.80	7.00	8.22	**25yr**	6.20	7.90	8.82	9.67	10.73	**25yr**
50yr	0.65	1.00	1.24	1.78	2.40	2.98	**50yr**	2.07	2.92	3.45	4.66	5.80	8.71	10.40	**50yr**	7.71	10.00	11.03	11.86	13.08	**50yr**
100yr	0.77	1.16	1.45	2.10	2.87	3.61	**100yr**	2.48	3.53	4.18	5.67	7.01	10.86	13.16	**100yr**	9.61	12.66	13.79	14.56	15.97	**100yr**
200yr	0.89	1.34	1.70	2.46	3.44	4.38	**200yr**	2.97	4.28	5.07	6.90	8.45	13.57	14.99	**200yr**	12.01	14.41	17.24	17.86	19.53	**200yr**
500yr	1.10	1.64	2.10	3.06	4.35	5.64	**500yr**	3.75	5.51	6.54	8.96	10.86	18.26	20.09	**500yr**	16.16	19.32	23.15	23.46	25.50	**500yr**

RIP RAP CALCULATIONS

18-125 DiBerto

Nottingham, NH

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH
4-May-21

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.* Rip Rap was sized for the 25 year storm event. (Some d50 sizes and T values have been modified)

TAILWATER < HALF THE Do

La = (1.8 x Q) / Do 3/2 + (7 x Do)   Q = Peak Flow & Do is Pipe Diameter
W = La + 3*Do or defined channel width
d50 = (0.02 x Q4/3) / (Tw x Do)   Tw = Tailwater Depth
T = Largest Stone Size x 1.5

Culvert or Catch Basin	Tailwater (Feet) Tw	Discharge (C.F.S.) Q	Diameter of Pipe Do	Length of Rip Rap La (feet)	Width of Rip Rap W (feet)	d50-Stone Rip Rap d50(ft.)	Actual Size	Thickness
18" HDPE (Pond #101P)	0.30	1.62	1.50	12.1	16.6	0.08	0.50	1.20
18" HDPE (Pond #102P)	0.30	0.97	1.50	11.5	16.0	0.04	0.50	1.20
24" HDPE (Pond #7P)	0.40	1.72	2.00	15.1	21.1	0.05	0.50	1.20
12" HDPE (Pond #103P)	0.20	3.48	1.00	13.3	16.3	0.53	0.67	2.00
12" HDPE (Pond #104P)	0.20	3.89	1.00	14.0	17.0	0.61	0.67	2.00
36" HDPE (Pond #2P)	0.60	14.57	3.00	26.0	35.0	0.40	0.50	1.20
12" HDPE (Pond #26P)	0.20	0.88	1.00	8.6	11.6	0.08	0.50	1.20
24" RCP (Pond #27P)	0.40	8.70	2.00	19.5	25.5	0.45	0.50	1.20
15" HDPE (Pond #28P)	0.25	1.87	1.25	11.2	14.9	0.15	0.50	1.20
12" HDPE (Pond #29P)	0.20	0.54	1.00	8.0	11.0	0.04	0.50	1.20
18" HDPE (Pond #D02P)	0.30	3.27	1.50	13.7	18.2	0.22	0.50	1.20
12" HDPE (Pond #C04P)	0.20	3.46	1.00	13.2	16.2	0.52	0.67	2.00
12" HDPE (Pond #35P)	0.20	3.89	1.00	14.0	17.0	0.61	0.67	2.00
18" HDPE (Pond #30P)	0.30	3.27	1.50	13.7	18.2	0.22	0.50	1.20

Please note that the designer chose to use the 25 Year Event for the dimensional calculations.

Table 7-24 -- Recommended Rip Rap Gradation Ranges

d50 Size =	0.67	Feet	8	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d50 Size		From		To
100%		12		16
85%		10		14
50%		8		12

Table 7-24 -- Recommended Rip Rap Gradation Ranges

d50 Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d50 Size		From		To
100%		9		12
85%		8		11
50%		6		9
50%		6		9
15%		2		3

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Groundwater Recharge Volume (GRV) Calculation

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
1.33	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
0.74	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
0.07	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.19	inches	Rd = weighted groundwater recharge depth	
0.4076	ac-in	GRV = AI * Rd	
1,480	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):

3,185 CF infiltrated by Infiltration Pond #10

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #101**

Enter the node name in the drainage analysis if applicable

8.43	ac	A = Area draining to the practice	
0.66	ac	A_I = Impervious area draining to the practice	
0.08	decimal	I = percent impervious area draining to the practice, in decimal form	
0.12	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.02	ac-in	WQV= 1" x Rv x A	
3,700	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
370	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
1,665	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
1,860	cf	V_{SED} = sediment forebay volume	← **≥ 10%WQV**
15,911	cf	V_{TB1} = volume of treatment bay 1 [1]	← **≥ 45%WQV**
3,013	cf	V_{TB2} = volume of treatment bay 2 [1]	← **≥ 45%WQV**
289.15	ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.06	cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	← **$<2Q_{avg}$**
34.26	hours	T_{ED} = drawdown time of extended detention = $2WQV/Q_{WQV}$	← **≥ 24-hrs**
3.00	:1	Pond side slopes	← **≥3:1**
288.50	ft	Elevation of SHWT	
286.50	ft	SHWT - 2 feet	
288.17	ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	← **≤ E_{SHWT} - 2 ft**
57', 56'	ft	Length of the flow path between the inlet and outlet in each cell	← **≥ 15 ft**
Trash Rack		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6")?	
292.15	ft	Peak elevation of the 50-year storm event (E_{50})	
292.50	ft	Berm elevation of the pond	
YES		E_{50} ≤ the berm elevation?	← **yes**

Qualified professional that developed the planting plan:

Name, Profession:

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Lowest Orifice is higher than SHWT - 2'

Scituate Ksat = 0.6 in/hr

System to be lined with 30mil HDPE liner

Summary for Pond 101P: Gravel Wetland #101

```
Inflow Area =      8.432 ac,   7.87% Impervious,  Inflow Depth >   2.76"    for  50YR.-24HR. event
Inflow      =     15.81 cfs @  12.39 hrs,  Volume=          1.939 af
Outflow     =      6.43 cfs @  12.94 hrs,  Volume=          1.193 af,  Atten= 59%,  Lag= 33.0 min
Primary     =      5.10 cfs @  12.94 hrs,  Volume=          1.115 af
Secondary =        1.33 cfs @  12.94 hrs,  Volume=          0.077 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 292.15' @ 12.94 hrs Surf.Area= 25,160 sf Storage= 35,388 cf
Flood Elev= 292.50' Surf.Area= 25,945 sf Storage= 40,458 cf

Plug-Flow detention time= 198.6 min calculated for 1.193 af (61% of inflow)
Center-of-Mass det. time= 88.4 min (955.1 - 866.7)

Volume	Invert	Avail.Storage	Storage Description
#1	289.00'	1,860 cf	**Forebay (Irregular)** Listed below (Recalc)
#2	288.25'	15,911 cf	**Bay 1 (Irregular)** Listed below (Recalc)
#3	288.25'	3,013 cf	**Bay 2 (Irregular)** Listed below (Recalc)
#4	291.00'	19,623 cf	**Open Water Storage (Irregular)** Listed below (Recalc)
#5	287.92'	50 cf	**4.00'D x 3.98'H Outlet Structure**
		40,458 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	625	107.8	0	0	625
290.00	924	123.6	770	770	938
291.00	1,266	142.2	1,091	1,860	1,353

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.25	574	102.6	0	0	574
288.50	1,981	224.4	302	302	3,744
288.75	3,643	336.1	693	994	8,726
289.00	5,525	452.0	1,138	2,132	15,996
290.00	6,889	471.6	6,194	8,327	17,508
291.00	8,302	490.0	7,585	15,911	18,996

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
288.25	592	104.5	0	0	592
289.00	844	118.9	536	536	861
290.00	1,229	137.4	1,030	1,566	1,260
291.00	1,677	157.2	1,447	3,013	1,747

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
291.00	11,554	668.0	0	0	11,554
292.00	13,587	686.7	12,557	12,557	13,681
292.50	14,687	706.9	7,067	19,623	15,948

```
Device  Routing       Invert  Outlet Devices
   #1   Primary      287.92'  18.0"  Round 18" HDPE N-12  L= 18.0'   Ke= 0.500
                              Inlet / Outlet Invert= 287.92' / 287.75'   S= 0.0094 '/'   Cc= 0.900
                              n= 0.012,  Flow Area= 1.77 sf
   #2   Device 1     287.92'  1.5" Vert. 1.5" Orifice   C= 0.600
   #3   Device 1     291.90'  48.0" Horiz. 48" Grate   C= 0.600   Limited to weir flow at low heads
   #4   Secondary    292.00'  10.0' long  x 7.0' breadth E-Spillway
                              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)  2.40  2.52  2.70  2.68  2.68  2.67  2.66  2.65  2.65
                              2.65  2.66  2.65  2.66  2.68  2.70  2.73  2.78
```

```
Primary OutFlow  Max=5.08 cfs @ 12.94 hrs  HW=292.14'  TW=288.77'   (Dynamic Tailwater)
└─1=18" HDPE N-12  (Passes 5.08 cfs of 15.63 cfs potential flow)
   ├─2=1.5" Orifice  (Orifice Controls 0.11 cfs @ 8.84 fps)
   └─3=48" Grate  (Weir Controls 4.98 cfs @ 1.62 fps)

Secondary OutFlow  Max=1.32 cfs @ 12.94 hrs  HW=292.14'  TW=288.77'   (Dynamic Tailwater)
└─4=E-Spillway  (Weir Controls 1.32 cfs @ 0.91 fps)
```

Stage-Area-Storage for Pond 101P: Gravel Wetland #101

Elevation (feet)	Storage (cubic-feet)
287.92	0
287.97	1
288.02	1
288.07	2
288.12	3
288.17	3
288.22	4
288.27	29
288.32	98
288.37	180
288.42	277
288.47	390
288.52	521
288.57	668
288.62	832
288.67	1,013
288.72	1,212
288.77	1,430
288.82	1,667
288.87	1,923
288.92	2,198
288.97	2,494
289.02	2,822
289.07	3,177
289.12	3,536
289.17	3,900
289.22	4,270
289.27	4,644
289.32	5,023
289.37	5,407
289.42	5,796
289.47	6,190
289.52	6,589
289.57	6,994
289.62	7,403
289.67	7,818
289.72	8,238
289.77	8,663
289.82	9,094
289.87	9,530
289.92	9,971
289.97	10,418
290.02	10,870
290.07	11,328
290.12	11,790
290.17	12,258
290.22	12,731
290.27	13,210
290.32	13,694
290.37	14,183
290.42	14,678
290.47	15,178
290.52	15,684
290.57	16,195
290.62	16,712
290.67	17,234
290.72	17,762
290.77	18,295
290.82	18,835
290.87	19,380
290.92	19,930
290.97	20,487
291.02	21,055
291.07	21,638
291.12	22,226
291.17	22,818
291.22	23,416
291.27	24,018
291.32	24,626
291.37	25,238
291.42	25,855
291.47	26,478
291.52	27,106
291.57	27,738
291.62	28,376
291.67	29,019
291.72	29,667
291.77	30,321
291.82	30,979
291.87	31,643
291.92	32,311
291.97	32,985
292.02	33,664
292.07	34,348
292.12	35,038
292.17	35,733
292.22	36,433
292.27	37,139
292.32	37,851
292.37	38,568
292.42	39,290
292.47	**40,019**

289.15 = 3,754

Stage-Discharge for Pond 101P: Gravel Wetland #101

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
287.92	0.00	0.00	0.00
287.97	0.00	0.00	0.00
288.02	0.01	0.01	0.00
288.07	0.02	0.02	0.00
288.12	0.02	0.02	0.00
288.17	0.03	0.03	0.00
288.22	0.03	0.03	0.00
288.27	0.03	0.03	0.00
288.32	0.03	0.03	0.00
288.37	0.04	0.04	0.00
288.42	0.04	0.04	0.00
288.47	0.04	0.04	0.00
288.52	0.04	0.04	0.00
288.57	0.05	0.05	0.00
288.62	0.05	0.05	0.00
288.67	0.05	0.05	0.00
288.72	0.05	0.05	0.00
288.77	0.05	0.05	0.00
288.82	0.05	0.05	0.00
288.87	0.06	0.06	0.00
288.92	0.06	0.06	0.00
288.97	0.06	0.06	0.00
289.02	0.06	0.06	0.00
289.07	0.06	0.06	0.00
289.12	0.06	0.06	0.00
289.17	0.06	0.06	0.00
289.22	0.07	0.07	0.00
289.27	0.07	0.07	0.00
289.32	0.07	0.07	0.00
289.37	0.07	0.07	0.00
289.42	0.07	0.07	0.00
289.47	0.07	0.07	0.00
289.52	0.07	0.07	0.00
289.57	0.07	0.07	0.00
289.62	0.08	0.08	0.00
289.67	0.08	0.08	0.00
289.72	0.08	0.08	0.00
289.77	0.08	0.08	0.00
289.82	0.08	0.08	0.00
289.87	0.08	0.08	0.00
289.92	0.08	0.08	0.00
289.97	0.08	0.08	0.00
290.02	0.08	0.08	0.00
290.07	0.09	0.09	0.00
290.12	0.09	0.09	0.00
290.17	0.09	0.09	0.00
290.22	0.09	0.09	0.00
290.27	0.09	0.09	0.00
290.32	0.09	0.09	0.00
290.37	0.09	0.09	0.00
290.42	0.09	0.09	0.00
290.47	0.09	0.09	0.00
290.52	0.09	0.09	0.00
290.57	0.10	0.10	0.00
290.62	0.10	0.10	0.00
290.67	0.10	0.10	0.00
290.72	0.10	0.10	0.00
290.77	0.10	0.10	0.00
290.82	0.10	0.10	0.00
290.87	0.10	0.10	0.00
290.92	0.10	0.10	0.00
290.97	0.10	0.10	0.00
291.02	0.10	0.10	0.00
291.07	0.10	0.10	0.00
291.12	0.10	0.10	0.00
291.17	0.11	0.11	0.00
291.22	0.11	0.11	0.00
291.27	0.11	0.11	0.00
291.32	0.11	0.11	0.00
291.37	0.11	0.11	0.00
291.42	0.11	0.11	0.00
291.47	0.11	0.11	0.00
291.52	0.11	0.11	0.00
291.57	0.11	0.11	0.00
291.62	0.11	0.11	0.00
291.67	0.11	0.11	0.00
291.72	0.11	0.11	0.00
291.77	0.11	0.11	0.00
291.82	0.12	0.12	0.00
291.87	0.12	0.12	0.00
291.92	0.23	0.23	0.00
291.97	0.88	0.88	0.00
292.02	1.89	1.83	0.07
292.07	3.44	3.00	0.44
292.12	5.36	4.36	1.00
292.17	7.57	5.89	1.68
292.22	10.05	7.56	2.49
292.27	12.80	9.37	3.43
292.32	15.78	11.31	4.47
292.37	19.00	13.36	5.63
292.42	22.44	15.53	6.91
292.47	**24.91**	**16.59**	**8.32**

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #102**

Enter the node name in the drainage analysis if applicable

4.17	ac	A = Area draining to the practice	
0.97	ac	A_I = Impervious area draining to the practice	
0.23	decimal	I = percent impervious area draining to the practice, in decimal form	
0.26	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.08	ac-in	WQV= 1" x Rv x A	
3,922	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
392	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
1,765	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
699	cf	V_{SED} = sediment forebay volume	← **$\geq$ 10%WQV**
1,848	cf	V_{TB1} = volume of treatment bay 1 [1]	← **$\geq$ 45%WQV**
1,848	cf	V_{TB2} = volume of treatment bay 2 [1]	← **$\geq$ 45%WQV**
285.85	ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.09	cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	← **$<2Q_{avg}$**
24.21	hours	T_{ED} = drawdown time of extended detention = $2WQV/Q_{WQV}$	← **$\geq$ 24-hrs**
3.00	:1	Pond side slopes	← **$\geq$3:1**
283.83	ft	Elevation of SHWT	
281.83	ft	SHWT - 2 feet	
284.17	ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	← **$\leq E_{SHWT}$ - 2 ft**
33', 23'	ft	Length of the flow path between the inlet and outlet in each cell	← **$\geq$ 15 ft**
Trash Rack		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of $\leq$6")?	
289.59	ft	Peak elevation of the 50-year storm event (E_{50})	
290.00	ft	Berm elevation of the pond	
YES		$E_{50} \leq$ the berm elevation?	← **yes**

Qualified professional that developed the planting plan:
Name, Profession:

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Lowest Orifice is higher than SHWT - 2'

Scituate Ksat = 0.6 in/hr

System to be lined with 30mil HDPE liner

Summary for Pond 102P: Gravel Wetland #102

```
Inflow Area =      4.169 ac, 23.23% Impervious, Inflow Depth >  3.32"   for 50YR.-24HR. event
Inflow      =     8.50 cfs @  12.38 hrs, Volume=         1.152 af
Outflow     =     3.89 cfs @  12.85 hrs, Volume=         0.685 af, Atten= 54%, Lag= 28.2 min
Primary     =     3.22 cfs @  12.85 hrs, Volume=         0.668 af
Secondary =       0.67 cfs @  12.85 hrs, Volume=         0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 289.59' @ 12.85 hrs   Surf.Area= 9,970 sf   Storage= 22,409 cf
Flood Elev= 290.00'   Surf.Area= 10,532 sf   Storage= 25,316 cf

Plug-Flow detention time= 202.2 min calculated for 0.683 af (59% of inflow)
Center-of-Mass det. time= 92.3 min ( 940.8 - 848.5 )
```

Volume	Invert	Avail.Storage	Storage Description
#1	284.00'	699 cf	**Forebay (Irregular)**Listed below (Recalc)
#2	284.00'	1,848 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	284.00'	1,848 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	286.00'	20,852 cf	**Open Water Storage (Irregular)**Listed below (Recalc)
#5	283.67'	70 cf	**4.00'D x 5.58'H Outlet Structure**
		25,316 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	162	55.5	0	0	162
285.00	342	74.7	246	246	371
286.00	572	93.5	452	699	637

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	615	98.3	0	0	615
285.00	916	116.8	761	761	949
286.00	1,268	135.0	1,087	1,848	1,335

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
284.00	615	98.3	0	0	615
285.00	916	116.8	761	761	949
286.00	1,268	135.0	1,087	1,848	1,335

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
286.00	3,432	264.0	0	0	3,432
287.00	4,255	282.8	3,836	3,836	4,295
288.00	5,134	302.0	4,688	8,524	5,235
289.00	6,073	321.7	5,597	14,121	6,261
290.00	7,411	365.1	6,731	20,852	8,658

```
Device  Routing       Invert  Outlet Devices
  #1    Primary      283.67'  18.0"  Round 18" HDPE N-12  L= 30.0'   Ke= 0.500
                              Inlet / Outlet Invert= 283.67' / 283.37'   S= 0.0100 '/'   Cc= 0.900
                              n= 0.012,  Flow Area= 1.77 sf
  #2    Device 1     283.67'  1.5" Vert. 1.5" Orifice   C= 0.600
  #3    Device 1     289.25'  18.0" Horiz. 18" Grate   C= 0.600   Limited to weir flow at low heads
  #4    Secondary    289.50'  10.0' long  x 7.0' breadth E-Spillway
                              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)  2.40  2.52  2.70  2.68  2.68  2.67  2.66  2.65  2.65
                              2.65  2.66  2.65  2.66  2.68  2.70  2.73  2.78

Primary OutFlow  Max=3.22 cfs @ 12.85 hrs  HW=289.59'  TW=284.17'   (Dynamic Tailwater)
└─1=18" HDPE N-12  (Passes 3.22 cfs of 19.35 cfs potential flow)
   ├─2=1.5" Orifice  (Orifice Controls 0.14 cfs @ 11.21 fps)
   └─3=18" Grate  (Weir Controls 3.08 cfs @ 1.91 fps)

Secondary OutFlow  Max=0.67 cfs @ 12.85 hrs  HW=289.59'  TW=284.17'   (Dynamic Tailwater)
└─4=E-Spillway  (Weir Controls 0.67 cfs @ 0.73 fps)
```

Stage-Area-Storage for Pond 102P: Gravel Wetland #102

Elevation (feet)	Storage (cubic-feet)
283.67	0
283.71	1
283.75	1
283.79	2
283.83	2
283.87	3
283.91	3
283.95	4
283.99	4
284.03	47
284.07	104
284.11	163
284.15	223
284.19	284
284.23	346
284.27	409
284.31	474
284.35	539
284.39	606
284.43	674
284.47	744
284.51	814
284.55	886
284.59	959
284.63	1,034
284.67	1,109
284.71	1,186
284.75	1,264
284.79	1,344
284.83	1,425
284.87	1,507
284.91	1,591
284.95	1,676
284.99	1,762
285.03	1,850
285.07	1,939
285.11	2,030
285.15	2,122
285.19	2,215
285.23	2,310
285.27	2,406
285.31	2,504
285.35	2,603
285.39	2,703
285.43	2,805
285.47	2,908
285.51	3,013
285.55	3,120
285.59	3,228
285.63	3,337
285.67	3,448
285.71	3,561
285.75	3,675
285.79	3,790
285.83	3,907
285.87	4,026
285.91	4,147
285.95	4,269
285.99	4,392
286.03	4,527
286.07	4,666
286.11	4,807
286.15	4,949
286.19	5,092
286.23	5,236
286.27	5,382
286.31	5,529
286.35	5,677
286.39	5,827
286.43	5,978
286.47	6,130
286.51	6,283
286.55	6,438
286.59	6,594
286.63	6,752
286.67	6,910
286.71	7,071
286.75	7,232
286.79	7,395
286.83	7,559
286.87	7,725
286.91	7,891
286.95	8,060
286.99	8,229
287.03	8,400
287.07	8,573
287.11	8,747
287.15	8,922
287.19	9,098
287.23	9,276
287.27	9,455
287.31	9,636
287.35	9,818
287.39	10,001
287.43	10,186
287.47	10,372
287.51	10,559
287.55	10,748
287.59	10,939
287.63	11,130
287.67	11,324
287.71	11,518
287.75	11,714
287.79	11,912
287.83	12,111
287.87	12,311
287.91	12,513
287.95	12,716
287.99	12,921
288.03	13,127
288.07	13,335
288.11	13,544
288.15	13,754
288.19	13,966
288.23	14,180
288.27	14,395
288.31	14,611
288.35	14,829
288.39	15,049
288.43	15,269
288.47	15,492
288.51	15,716
288.55	15,941
288.59	16,168
288.63	16,396
288.67	16,626
288.71	16,858
288.75	17,091
288.79	17,325
288.83	17,561
288.87	17,799
288.91	18,038
288.95	18,279
288.99	18,521
289.03	18,765
289.07	19,011
289.11	19,259
289.15	19,509
289.19	19,761
289.23	20,015
289.27	20,271
289.31	20,529
289.35	20,789
289.39	21,051
289.43	21,316
289.47	21,582
289.51	21,850
289.55	22,121
289.59	22,394
289.63	22,669
289.67	22,946
289.71	23,225
289.75	23,507
289.79	23,790
289.83	24,076
289.87	24,364
289.91	24,654
289.95	24,947
289.99	**25,242**

285.85 = 3,967

Stage-Discharge for Pond 102P: Gravel Wetland #102

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
283.67	0.00	0.00	0.00
283.77	0.01	0.01	0.00
283.87	0.02	0.02	0.00
283.97	0.03	0.03	0.00
284.07	0.03	0.03	0.00
284.17	0.04	0.04	0.00
284.27	0.04	0.04	0.00
284.37	0.05	0.05	0.00
284.47	0.05	0.05	0.00
284.57	0.05	0.05	0.00
284.67	0.06	0.06	0.00
284.77	0.06	0.06	0.00
284.87	0.06	0.06	0.00
284.97	0.07	0.07	0.00
285.07	0.07	0.07	0.00
285.17	0.07	0.07	0.00
285.27	0.07	0.07	0.00
285.37	0.08	0.08	0.00
285.47	0.08	0.08	0.00
285.57	0.08	0.08	0.00
285.67	0.08	0.08	0.00
285.77	0.08	0.08	0.00
285.87	0.09	0.09	0.00
285.97	0.09	0.09	0.00
286.07	0.09	0.09	0.00
286.17	0.09	0.09	0.00
286.27	0.09	0.09	0.00
286.37	0.10	0.10	0.00
286.47	0.10	0.10	0.00
286.57	0.10	0.10	0.00
286.67	0.10	0.10	0.00
286.77	0.10	0.10	0.00
286.87	0.10	0.10	0.00
286.97	0.11	0.11	0.00
287.07	0.11	0.11	0.00
287.17	0.11	0.11	0.00
287.27	0.11	0.11	0.00
287.37	0.11	0.11	0.00
287.47	0.11	0.11	0.00
287.57	0.12	0.12	0.00
287.67	0.12	0.12	0.00
287.77	0.12	0.12	0.00
287.87	0.12	0.12	0.00
287.97	0.12	0.12	0.00
288.07	0.12	0.12	0.00
288.17	0.12	0.12	0.00
288.27	0.13	0.13	0.00
288.37	0.13	0.13	0.00
288.47	0.13	0.13	0.00
288.57	0.13	0.13	0.00
288.67	0.13	0.13	0.00
288.77	0.13	0.13	0.00
288.87	0.13	0.13	0.00
288.97	0.14	0.14	0.00
289.07	0.14	0.14	0.00
289.17	0.14	0.14	0.00
289.27	0.18	0.18	0.00
289.37	0.78	0.78	0.00
289.47	1.73	1.73	0.00
289.57	3.38	2.93	0.44
289.67	6.02	4.34	1.68
289.77	9.35	5.92	3.43
289.87	12.48	6.85	5.63
289.97	**15.69**	**7.37**	**8.32**

285.85 = 0.09

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #103**

Enter the node name in the drainage analysis if applicable

1.72	ac	A = Area draining to the practice	
0.19	ac	A_I = Impervious area draining to the practice	
0.11	decimal	I = percent impervious area draining to the practice, in decimal form	
0.15	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.26	ac-in	WQV= 1” x Rv x A	
945	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	
95	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
425	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
694	cf	V_{SED} = sediment forebay volume	**← ≥ 10%WQV**
1,096	cf	V_{TB1} = volume of treatment bay 1 [1]	**← ≥ 45%WQV**
1,096	cf	V_{TB2} = volume of treatment bay 2 [1]	**← ≥ 45%WQV**
294.68	ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.02	cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	**← $<2Q_{avg}$**
26.26	hours	T_{ED} = drawdown time of extended detention = $2WQV/Q_{WQV}$	**← ≥ 24-hrs**
3.00	:1	Pond side slopes	**← ≥3:1**
294.16	ft	Elevation of SHWT	
292.16	ft	SHWT - 2 feet	
293.67	ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	**← ≤ E_{SHWT} - 2 ft**
18', 20'	ft	Length of the flow path between the inlet and outlet in each cell	**← ≥ 15 ft**
Trash Rack		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6”)?	
296.61	ft	Peak elevation of the 50-year storm event (E_{50})	
297.00	ft	Berm elevation of the pond	
YES		E_{50} ≤ the berm elevation?	**← yes**

Qualified professional that developed the planting plan:

Name, Profession:

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Lowest Orifice is higher than SHWT - 2'

Newfields Ksat = 0.6 in/hr

System to be lined with 30mil HDPE liner

Summary for Pond 103P: Gravel Wetland #103

```
Inflow Area =      1.716 ac, 11.29% Impervious, Inflow Depth >  3.80"   for 50YR.-24HR. event
Inflow      =      5.58 cfs @  12.19 hrs, Volume=        0.544 af
Outflow     =      5.31 cfs @  12.25 hrs, Volume=        0.457 af, Atten= 5%, Lag= 3.6 min
Primary     =      4.54 cfs @  12.20 hrs, Volume=        0.443 af
Secondary =        0.83 cfs @  12.27 hrs, Volume=        0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 296.61' @ 12.27 hrs  Surf.Area= 5,932 sf  Storage= 5,749 cf
Flood Elev= 297.00'  Surf.Area= 6,643 sf  Storage= 7,202 cf

Plug-Flow detention time= 107.9 min calculated for 0.457 af (84% of inflow)
Center-of-Mass det. time= 40.5 min ( 871.1 - 830.6 )
```

Volume	Invert	Avail.Storage	Storage Description
#1	294.00'	694 cf	**Forebay (Irregular)**Listed below (Recalc)
#2	294.00'	1,096 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	294.00'	1,096 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	295.50'	4,285 cf	**Open Storage (Irregular)**Listed below (Recalc)
#5	293.67'	32 cf	**4.00'D x 2.58'H Vertical Cone/Cylinder**
		7,202 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	119	64.7	0	0	119
295.00	341	83.5	220	220	353
296.00	620	102.4	474	694	647

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	506	90.6	0	0	506
295.00	806	109.4	650	650	821
295.50	978	118.8	445	1,096	1,001

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
294.00	506	90.6	0	0	506
295.00	806	109.4	650	650	821
295.50	978	118.8	445	1,096	1,001

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
295.50	2,036	225.8	0	0	2,036
296.00	2,382	235.2	1,103	1,103	2,400
297.00	4,054	251.3	3,181	4,285	3,069

```
Device   Routing       Invert   Outlet Devices
  #1     Primary      293.67'   12.0"  Round 12" HDPE N-12  L= 17.5'   Ke= 0.500
                                Inlet / Outlet Invert= 293.67' / 293.53'   S= 0.0080 '/'   Cc= 0.900
                                n= 0.012,  Flow Area= 0.79 sf
  #2     Device 1     293.67'   0.9" Vert. 0.9" Orifice   C= 0.600
  #3     Device 1     296.40'   48.0" Horiz. 48" Structure   C= 0.600
                                Limited to weir flow at low heads
  #4     Secondary    296.50'   10.0' long  x 7.0' breadth E-Spillway
                                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)  2.40  2.52  2.70  2.68  2.68  2.67  2.66  2.65  2.65
                                2.65  2.66  2.65  2.66  2.68  2.70  2.73  2.78
  #5     Device 1     295.85'   12.0" W x 6.0" H Vert. 6" X 12" Box Orifice  C= 0.600

Primary OutFlow  Max=4.46 cfs @ 12.20 hrs  HW=296.59'  TW=295.20'   (Dynamic Tailwater)
↑
└─1=12" HDPE N-12  (Inlet Controls 4.46 cfs @ 5.68 fps)
   ↑
   ├─2=0.9" Orifice  (Passes < 0.03 cfs potential flow)
   ├─3=48" Structure  (Passes < 3.47 cfs potential flow)
   └─5=6" X 12" Box Orifice  (Passes < 1.67 cfs potential flow)

Secondary OutFlow  Max=0.81 cfs @ 12.27 hrs  HW=296.60'  TW=295.21'   (Dynamic Tailwater)
↑
└─4=E-Spillway  (Weir Controls 0.81 cfs @ 0.78 fps)
```

Stage-Area-Storage for Pond 103P: Gravel Wetland #103

Elevation (feet)	Storage (cubic-feet)
293.67	0
293.72	1
293.77	1
293.82	2
293.87	3
293.92	3
293.97	4
294.02	27
294.07	86
294.12	146
294.17	209
294.22	273
294.27	339
294.32	407
294.37	477
294.42	549
294.47	623
294.52	699
294.57	777
294.62	857
294.67	939
294.72	1,024
294.77	1,110
294.82	1,199
294.87	1,290
294.92	1,383
294.97	1,479
295.02	1,577
295.07	1,677
295.12	1,780
295.17	1,885
295.22	1,992
295.27	2,102
295.32	2,213
295.37	2,328
295.42	2,445
295.47	2,564
295.52	2,687
295.57	2,815
295.62	2,946
295.67	3,078
295.72	3,214
295.77	3,352
295.82	3,492
295.87	3,635
295.92	3,780
295.97	3,928
296.02	4,066
296.07	4,189
296.12	4,316
296.17	4,446
296.22	4,580
296.27	4,718
296.32	4,860
296.37	5,005
296.42	5,155
296.47	5,308
296.52	5,466
296.57	5,628
296.62	5,794
296.67	5,965
296.72	6,140
296.77	6,319
296.82	6,503
296.87	6,691
296.92	6,884
296.97	**7,081**

294.68 = 956

Stage-Discharge for Pond 103P: Gravel Wetland #103

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
293.67	0.00	0.00	0.00
293.72	0.00	0.00	0.00
293.77	0.01	0.01	0.00
293.82	0.01	0.01	0.00
293.87	0.01	0.01	0.00
293.92	0.01	0.01	0.00
293.97	0.01	0.01	0.00
294.02	0.01	0.01	0.00
294.07	0.01	0.01	0.00
294.12	0.01	0.01	0.00
294.17	0.01	0.01	0.00
294.22	0.02	0.02	0.00
294.27	0.02	0.02	0.00
294.32	0.02	0.02	0.00
294.37	0.02	0.02	0.00
294.42	0.02	0.02	0.00
294.47	0.02	0.02	0.00
294.52	0.02	0.02	0.00
294.57	0.02	0.02	0.00
294.62	0.02	0.02	0.00
294.67	0.02	0.02	0.00
294.72	0.02	0.02	0.00
294.77	0.02	0.02	0.00
294.82	0.02	0.02	0.00
294.87	0.02	0.02	0.00
294.92	0.02	0.02	0.00
294.97	0.02	0.02	0.00
295.02	0.02	0.02	0.00
295.07	0.02	0.02	0.00
295.12	0.03	0.03	0.00
295.17	0.03	0.03	0.00
295.22	0.03	0.03	0.00
295.27	0.03	0.03	0.00
295.32	0.03	0.03	0.00
295.37	0.03	0.03	0.00
295.42	0.03	0.03	0.00
295.47	0.03	0.03	0.00
295.52	0.03	0.03	0.00
295.57	0.03	0.03	0.00
295.62	0.03	0.03	0.00
295.67	0.03	0.03	0.00
295.72	0.03	0.03	0.00
295.77	0.03	0.03	0.00
295.82	0.03	0.03	0.00
295.87	0.04	0.04	0.00
295.92	0.09	0.09	0.00
295.97	0.17	0.17	0.00
296.02	0.26	0.26	0.00
296.07	0.36	0.36	0.00
296.12	0.48	0.48	0.00
296.17	0.61	0.61	0.00
296.22	0.76	0.76	0.00
296.27	0.91	0.91	0.00
296.32	1.07	1.07	0.00
296.37	1.23	1.23	0.00
296.42	1.47	1.47	0.00
296.47	2.23	2.23	0.00
296.52	3.35	3.28	0.07
296.57	4.99	4.55	0.44
296.62	6.92	5.92	1.00
296.67	7.66	5.98	1.68
296.72	8.53	6.04	2.49
296.77	9.52	6.10	3.43
296.82	10.63	6.16	4.47
296.87	11.84	6.21	5.63
296.92	13.18	6.27	6.91
296.97	**14.65**	**6.33**	**8.32**

GRAVEL WETLAND DESIGN CRITERIA
(Env-Wq 1508.05)

Type/Node Name: **Gravel Wetland #104**

Enter the node name in the drainage analysis if applicable

1.20	ac	A = Area draining to the practice	
0.45	ac	A_I = Impervious area draining to the practice	
0.37	decimal	I = percent impervious area draining to the practice, in decimal form	
0.38	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.46	ac-in	WQV= 1” x Rv x A	
1,671	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	
167	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
752	cf	45% x WQV (check calc for gravel wetland treatment bay volume)	
396	cf	V_{SED} = sediment forebay volume	← **≥ 10%WQV**
1,028	cf	V_{TB1} = volume of treatment bay 1 [1]	← **≥ 45%WQV**
874	cf	V_{TB2} = volume of treatment bay 2 [1]	← **≥ 45%WQV**
290.56	ft	E_{WQV} = elevation of WQV (attach stage-storage table)	
0.02	cfs	Q_{WQV} = discharge at the E_{WQV} (attach stage-discharge table)	← **$<2Q_{avg}$**
46.42	hours	T_{ED} = drawdown time of extended detention = $2WQV/Q_{WQV}$	← **≥ 24-hrs**
3.00	:1	Pond side slopes	← **≥3:1**
288.66	ft	Elevation of SHWT	
286.66	ft	SHWT - 2 feet	
288.67	ft	Epp = Elevation of the permanent pool (elevation of lowest orifice)[2]	← **≤ E_{SHWT} - 2 ft**
15', 15'	ft	Length of the flow path between the inlet and outlet in each cell	← **≥ 15 ft**
Trash Rack		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of ≤6”)?	
291.54	ft	Peak elevation of the 50-year storm event (E_{50})	
292.00	ft	Berm elevation of the pond	
YES		E_{50} ≤ the berm elevation?	← **yes**

Qualified professional that developed the planting plan:

Name, Profession:

1. Volume stored above the wetland soil and below the high flow by-pass.
2. 4" to 8" below the wetland soil. If lowest orifice is higher than (SHWT - 2 feet), and saturated hydraulic conductivity (Ksat) is greater than 0.015 in/hr, the system must be lined.

Designer's Notes:

Lowest Orifice is higher than SHWT - 2'

Woodbridge Ksat = 0.6 in/hr

System to be lined with 30mil HDPE liner

Summary for Pond 104P: Gravel Wetland #104

```
Inflow Area =        1.190 ac, 39.37% Impervious, Inflow Depth >  4.91"   for 50YR.-24HR. event
Inflow      =      5.10 cfs @  12.12 hrs, Volume=          0.487 af
Outflow     =      4.53 cfs @  12.19 hrs, Volume=          0.436 af, Atten= 11%, Lag= 4.3 min
Primary     =      4.44 cfs @  12.20 hrs, Volume=          0.436 af
Secondary =        0.09 cfs @  12.19 hrs, Volume=          0.001 af
```

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 291.54' @ 12.19 hrs Surf.Area= 4,614 sf Storage= 3,774 cf
Flood Elev= 292.00' Surf.Area= 4,972 sf Storage= 5,055 cf

Plug-Flow detention time= 81.6 min calculated for 0.435 af (89% of inflow)
Center-of-Mass det. time= 32.6 min (834.8 - 802.2)

Volume	Invert	Avail.Storage	Storage Description
#1	289.00'	396 cf	**Sediment Forebay (Irregular)**Listed below (Recalc)
#2	289.00'	1,028 cf	**Bay 1 (Irregular)**Listed below (Recalc)
#3	289.00'	1,028 cf	**Bay 2 (Irregular)**Listed below (Recalc)
#4	291.00'	2,570 cf	**Open Water Storage (Irregular)**Listed below (Recalc)
#5	288.67'	32 cf	**4.00'D x 2.58'H Outlet Structure**
		5,055 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	37	24.7	0	0	37
290.00	193	58.5	105	105	265
291.00	401	80.0	291	396	511

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	266	70.6	0	0	266
290.00	506	89.5	380	380	520
291.00	803	108.3	649	1,028	832

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	266	70.6	0	0	266
290.00	506	89.5	380	380	520
291.00	803	108.3	649	1,028	832

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
291.00	2,207	238.6	0	0	2,207
292.00	2,952	257.5	2,570	2,570	2,993

```
Device  Routing        Invert  Outlet Devices
  #1    Primary       288.67'  12.0"  Round 12" HDPE N-12  L= 18.0'   Ke= 0.500
                               Inlet / Outlet Invert= 288.67' / 288.50'   S= 0.0094 '/'   Cc= 0.900
                               n= 0.012,  Flow Area= 0.79 sf
  #2    Device 1      288.67'  0.7" Vert. 0.75" Gooseneck   C= 0.600
  #3    Device 1      291.35'  48.0" Horiz. 48" Structure   C= 0.600
                               Limited to weir flow at low heads
  #4    Secondary     291.50'  5.0' long  x 7.0' breadth E-Spillway
                               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)  2.40  2.52  2.70  2.68  2.68  2.67  2.66  2.65  2.65
                               2.65  2.66  2.65  2.66  2.68  2.70  2.73  2.78
  #5    Device 1      290.80'  18.0" W x 6.0" H Vert. 6" X 12" Box Orifice   C= 0.600

Primary OutFlow  Max=4.45 cfs @ 12.20 hrs  HW=291.54'  TW=290.15'   (Dynamic Tailwater)
└─1=12" HDPE N-12  (Inlet Controls 4.45 cfs @ 5.66 fps)
    ├─2=0.75" Gooseneck  (Passes < 0.02 cfs potential flow)
    ├─3=48" Structure  (Passes < 3.32 cfs potential flow)
    └─5=6" X 12" Box Orifice  (Passes < 2.49 cfs potential flow)

Secondary OutFlow  Max=0.08 cfs @ 12.19 hrs  HW=291.54'  TW=290.16'   (Dynamic Tailwater)
└─4=E-Spillway  (Weir Controls 0.08 cfs @ 0.45 fps)
```

Stage-Area-Storage for Pond 104P: Gravel Wetland #104

Elevation (feet)	Storage (cubic-feet)
288.67	0
288.72	1
288.77	1
288.82	2
288.87	3
288.92	3
288.97	4
289.02	16
289.07	46
289.12	78
289.17	110
289.22	145
289.27	180
289.32	217
289.37	256
289.42	296
289.47	337
289.52	380
289.57	425
289.62	471
289.67	519
289.72	569
289.77	621
289.82	674
289.87	729
289.92	786
289.97	845
290.02	905
290.07	968
290.12	1,032
290.17	1,098
290.22	1,166
290.27	1,236
290.32	1,307
290.37	1,381
290.42	1,456
290.47	1,534
290.52	1,613
290.57	1,694
290.62	1,778
290.67	1,863
290.72	1,951
290.77	2,041
290.82	2,133
290.87	2,227
290.92	2,323
290.97	2,422
291.02	2,526
291.07	2,639
291.12	2,753
291.17	2,869
291.22	2,987
291.27	3,106
291.32	3,227
291.37	3,350
291.42	3,474
291.47	3,600
291.52	3,728
291.57	3,858
291.62	3,990
291.67	4,124
291.72	4,260
291.77	4,397
291.82	4,537
291.87	4,678
291.92	4,822
291.97	**4,967**

290.56 = 1,678

Stage-Discharge for Pond 104P: Gravel Wetland #104

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
288.67	0.00	0.00	0.00
288.72	0.00	0.00	0.00
288.77	0.00	0.00	0.00
288.82	0.00	0.00	0.00
288.87	0.01	0.01	0.00
288.92	0.01	0.01	0.00
288.97	0.01	0.01	0.00
289.02	0.01	0.01	0.00
289.07	0.01	0.01	0.00
289.12	0.01	0.01	0.00
289.17	0.01	0.01	0.00
289.22	0.01	0.01	0.00
289.27	0.01	0.01	0.00
289.32	0.01	0.01	0.00
289.37	0.01	0.01	0.00
289.42	0.01	0.01	0.00
289.47	0.01	0.01	0.00
289.52	0.01	0.01	0.00
289.57	0.01	0.01	0.00
289.62	0.01	0.01	0.00
289.67	0.01	0.01	0.00
289.72	0.01	0.01	0.00
289.77	0.01	0.01	0.00
289.82	0.01	0.01	0.00
289.87	0.01	0.01	0.00
289.92	0.01	0.01	0.00
289.97	0.01	0.01	0.00
290.02	0.01	0.01	0.00
290.07	0.02	0.02	0.00
290.12	0.02	0.02	0.00
290.17	0.02	0.02	0.00
290.22	0.02	0.02	0.00
290.27	0.02	0.02	0.00
290.32	0.02	0.02	0.00
290.37	0.02	0.02	0.00
290.42	0.02	0.02	0.00
290.47	0.02	0.02	0.00
290.52	0.02	0.02	0.00
290.57	0.02	0.02	0.00
290.62	0.02	0.02	0.00
290.67	0.02	0.02	0.00
290.72	0.02	0.02	0.00
290.77	0.02	0.02	0.00
290.82	0.03	0.03	0.00
290.87	0.11	0.11	0.00
290.92	0.22	0.22	0.00
290.97	0.36	0.36	0.00
291.02	0.52	0.52	0.00
291.07	0.70	0.70	0.00
291.12	0.89	0.89	0.00
291.17	1.10	1.10	0.00
291.22	1.33	1.33	0.00
291.27	1.57	1.57	0.00
291.32	1.81	1.81	0.00
291.37	2.12	2.12	0.00
291.42	2.93	2.93	0.00
291.47	4.03	4.03	0.00
291.52	5.38	5.35	0.03
291.57	6.08	5.86	0.22
291.62	6.42	5.92	0.50
291.67	6.82	5.98	0.84
291.72	7.28	6.04	1.24
291.77	7.81	6.10	1.71
291.82	8.39	6.16	2.24
291.87	9.03	6.21	2.82
291.92	9.73	6.27	3.45
291.97	**10.49**	**6.33**	**4.16**

NEW HAMPSHIRE
DEPARTMENT OF
Environmental Services

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #105**

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?	
0.50	ac	A = Area draining to the practice	
-	ac	A_I = Impervious area draining to the practice	
-	decimal	I = percent impervious area draining to the practice, in decimal form	
0.05	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.02	ac-in	WQV= 1" x Rv x A	
90	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
23	cf	25% x WQV (check calc for sediment forebay volume)	
N/A		Method of pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = sediment forebay volume, if used for pretreatment	← **≥ 25%WQV**
2,710	cf	V = volume[1] (attach a stage-storage table)	← **≥ WQV**
288	sf	A_{SA} = surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = design infiltration rate[2]	
12.5	hours	T_{DRAIN} = drain time = V / (A_{SA} * I_{DESIGN})	← ≤ 72-hrs
297.00	feet	E_{BTM} = elevation of the bottom of the basin	
296.00	feet	E_{SHWT} = elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
293.58	feet	E_{ROCK} = elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	D_{SHWT} = separation from SHWT	← ≥ *[3]
3.4	feet	D_{ROCK} = separation from bedrock	← ≥ *[3]
N/A	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	← ≥ 24"
N/A	ft	D_T = depth of trench, if trench proposed	← 4 - 10 ft
N/A	Yes/No	If a trench or underground system is proposed, observation well provided[4]	
N/A		If a trench is proposed, material in trench	
N/A		If a basin is proposed, basin floor material	
Yes	Yes/No	If a basin is proposed, the perimeter should be curvilinear, basin floor shall be flat.	
3.0	:1	If a basin is proposed, pond side slopes	← ≥3:1
298.53	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
298.68	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
299.00	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 105P: Infiltration Pond #105

Inflow Area = 0.496 ac, 0.00% Impervious, Inflow Depth > 1.54" for 10YR.-24HR. event
Inflow = 0.58 cfs @ 12.29 hrs, Volume= 0.064 af
Outflow = 0.07 cfs @ 14.07 hrs, Volume= 0.029 af, Atten= 87%, Lag= 106.4 min
Discarded = 0.01 cfs @ 14.07 hrs, Volume= 0.014 af
Primary = 0.06 cfs @ 14.07 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.53' @ 14.07 hrs Surf.Area= 2,033 sf Storage= 1,545 cf
Flood Elev= 299.00' Surf.Area= 2,942 sf Storage= 2,710 cf

Plug-Flow detention time= 283.2 min calculated for 0.029 af (46% of inflow)
Center-of-Mass det. time= 152.7 min (1,022.8 - 870.0)

Volume	Invert	Avail.Storage	Storage Description
#1	297.00'	2,710 cf	**Open water storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
297.00	288	84.9	0	0	288
298.00	1,211	148.0	697	697	1,463
299.00	2,942	255.0	2,014	2,710	4,901

Device	Routing	Invert	Outlet Devices
#1	Primary	298.50'	**5.0' long x 7.0' breadth 5' Emergency Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#2	Discarded	297.00'	**0.300 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 14.07 hrs HW=298.53' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.06 cfs @ 14.07 hrs HW=298.53' TW=297.45' (Dynamic Tailwater)
↑—**1=5' Emergency Spillway** (Weir Controls 0.06 cfs @ 0.41 fps)

Summary for Pond 105P: Infiltration Pond #105

Inflow Area = 0.496 ac, 0.00% Impervious, Inflow Depth > 3.29" for 50YR.-24HR. event
Inflow = 1.29 cfs @ 12.28 hrs, Volume= 0.136 af
Outflow = 0.93 cfs @ 12.49 hrs, Volume= 0.102 af, Atten= 28%, Lag= 12.9 min
Discarded = 0.02 cfs @ 12.49 hrs, Volume= 0.015 af
Primary = 0.91 cfs @ 12.49 hrs, Volume= 0.087 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 298.68' @ 12.49 hrs Surf.Area= 2,305 sf Storage= 1,871 cf
Flood Elev= 299.00' Surf.Area= 2,942 sf Storage= 2,710 cf

Plug-Flow detention time= 140.8 min calculated for 0.101 af (74% of inflow)
Center-of-Mass det. time= 52.8 min (900.5 - 847.6)

Volume	Invert	Avail.Storage	Storage Description
#1	297.00'	2,710 cf	**Open water storage (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
297.00	288	84.9	0	0	288
298.00	1,211	148.0	697	697	1,463
299.00	2,942	255.0	2,014	2,710	4,901

Device	Routing	Invert	Outlet Devices
#1	Primary	298.50'	**5.0' long x 7.0' breadth 5' Emergency Spillway** 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78
#2	Discarded	297.00'	**0.300 in/hr Exfiltration over Surface area**

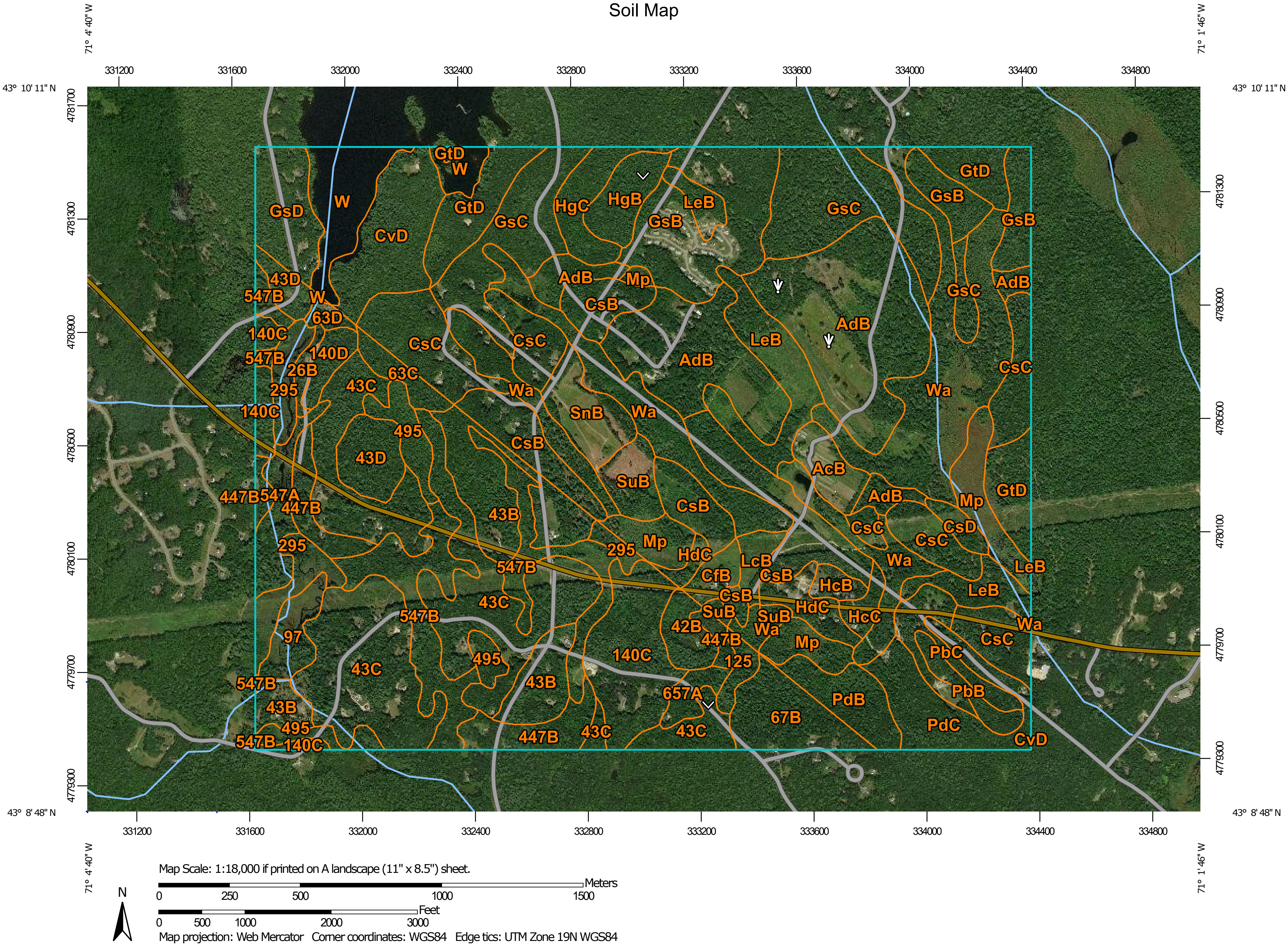
Discarded OutFlow Max=0.02 cfs @ 12.49 hrs HW=298.68' (Free Discharge)
└─**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.91 cfs @ 12.49 hrs HW=298.68' TW=298.13' (Dynamic Tailwater)
└─**1=5' Emergency Spillway** (Weir Controls 0.91 cfs @ 1.02 fps)

Stage-Area-Storage for Pond 105P: Infiltration Pond #105

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
297.00	288	0
297.02	300	6
297.04	313	12
297.06	325	18
297.08	338	25
297.10	352	32
297.12	365	39
297.14	379	47
297.16	393	54
297.18	407	62
297.20	422	71
297.22	437	79
297.24	452	88
297.26	467	97
297.28	482	107
297.30	498	116
297.32	514	127
297.34	530	137
297.36	547	148
297.38	564	159
297.40	581	170
297.42	598	182
297.44	616	194
297.46	634	207
297.48	652	220
297.50	670	233
297.52	689	246
297.54	707	260
297.56	727	275
297.58	746	289
297.60	766	305
297.62	785	320
297.64	805	336
297.66	826	352
297.68	846	369
297.70	867	386
297.72	888	404
297.74	910	422
297.76	932	440
297.78	953	459
297.80	976	478
297.82	998	498
297.84	1,021	518
297.86	1,044	539
297.88	1,067	560
297.90	1,090	582
297.92	1,114	604
297.94	1,138	626
297.96	1,162	649
297.98	1,186	673
298.00	1,211	697
298.02	1,238	721
298.04	1,266	746
298.06	1,294	772
298.08	1,322	798
298.10	1,350	825
298.12	1,379	852
298.14	1,408	880
298.16	1,437	908
298.18	1,467	937
298.20	1,497	967
298.22	1,527	997
298.24	1,558	1,028
298.26	1,588	1,059
298.28	1,619	1,091
298.30	1,651	1,124
298.32	1,683	1,157
298.34	1,715	1,191
298.36	1,747	1,226
298.38	1,780	1,261
298.40	1,813	1,297
298.42	1,846	1,334
298.44	1,880	1,371
298.46	1,913	1,409
298.48	1,948	1,448
298.50	1,982	1,487
298.52	2,017	1,527
298.54	2,052	1,568
298.56	2,087	1,609
298.58	2,123	1,651
298.60	2,159	1,694
298.62	2,195	1,737
298.64	2,232	1,782
298.66	2,269	1,827
298.68	2,306	1,872
298.70	2,343	1,919
298.72	2,381	1,966
298.74	2,419	2,014
298.76	2,458	2,063
298.78	2,496	2,112
298.80	2,535	2,163
298.82	2,575	2,214
298.84	2,614	2,266
298.86	2,654	2,318
298.88	2,694	2,372
298.90	2,735	2,426
298.92	2,776	2,481
298.94	2,817	2,537
298.96	2,858	2,594
298.98	2,900	2,652
299.00	**2,942**	**2,710**

Soil Map



71° 4' 40" W
71° 1' 46" W
43° 10' 11" N
43° 8' 48" N
331200
331600
332000
332400
332800
333200
333600
334000
334400
334800
4781700
4781300
4780900
4780500
4780100
4779700
4779300
GtD
W
GsD
CvD
GsC
HgC
HgB
LeB
GsB
GsC
GtD
GsB
43D
547B
63D
140C
140D
26B
295
43C
63C
CsC
AdB
Mp
CsB
LeB
AdB
GsC
AdB
CsC
Wa
SnB
Wa
495
43D
CsB
SuB
CsB
AcB
AdB
Mp
GtD
447B
547A
43B
CsC
CsD
CsC
Wa
LeB
547B
295
Mp
HdC
LcB
CfB
CsB
HcB
LeB
43C
547B
CsB
SuB
HdC
HcC
Wa
97
42B
SuB
Wa
447B
Mp
CsC
PbC
140C
125
43C
495
43B
657A
PbB
PdB
67B
PdC
CvD
547B
43B
495
547B
140C
447B
43C
43C
Map Scale: 1:18,000 if printed on A landscape (11" x 8.5") sheet.
Meters
0
250
500
1000
1500
Feet
0
500
1000
2000
3000
N
Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 19N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
26B	Windsor loamy sand, 3 to 8 percent slopes	3.2	0.2%
42B	Canton fine sandy loam, 3 to 8 percent slopes	9.4	0.7%
43B	Canton fine sandy loam, 0 to 8 percent slopes, very stony	53.8	3.7%
43C	Canton fine sandy loam, 8 to 15 percent slopes, very stony	149.6	10.3%
43D	Canton fine sandy loam, 15 to 25 percent slopes, very stony	20.4	1.4%
63C	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	7.5	0.5%
63D	Charlton fine sandy loam, 15 to 25 percent slopes, very stony	2.9	0.2%
67B	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	23.4	1.6%
97	Freetown and Natchaug mucky peats, ponded, 0 to 2 percent slopes	11.2	0.8%
125	Scarboro muck, very stony	4.9	0.3%
140C	Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky	46.7	3.2%
140D	Chatfield-Hollis-Canton complex, 15 to 35 percent slopes, rocky	6.7	0.5%
295	Freetown mucky peat, 0 to 2 percent slopes	23.6	1.6%
447B	Scituate-Newfields complex, 3 to 8 percent slopes, very stony	30.3	2.1%
495	Natchaug mucky peat, 0 to 2 percent slopes	19.1	1.3%
547A	Walpole very fine sandy loam, 0 to 3 percent slopes, very stony	14.5	1.0%
547B	Walpole very fine sandy loam, 3 to 8 percent slopes, very stony	56.0	3.9%
657A	Ridgebury fine sandy loam, 0 to 3 percent slopes, very stony	6.3	0.4%
W	Water	0.3	0.0%
Subtotals for Soil Survey Area		**489.7**	**33.7%**
Totals for Area of Interest		**1,451.1**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AcB	Acton fine sandy loam, 0 to 8 percent slopes	11.4	0.8%
AdB	Acton very stony fine sandy loam, 0 to 8 percent slopes	138.0	9.5%
CfB	Charlton fine sandy loam, 3 to 8 percent slopes	6.4	0.4%
CsB	Charlton fine sandy loam, 3 to 8 percent slopes, very stony	71.2	4.9%
CsC	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	76.9	5.3%
CsD	Charlton very stony fine sandy loam, 15 to 25 percent slopes	4.7	0.3%
CvD	Charlton extremely stony fine sandy loam, 8 to 25 percent slopes	34.3	2.4%
GsB	Gloucester very stony fine sandy loam, 3 to 8 percent slopes	68.2	4.7%
GsC	Gloucester very stony fine sandy loam, 8 to 15 percent slopes	82.0	5.6%
GsD	Gloucester very stony fine sandy loam, 15 to 25 percent slopes	21.8	1.5%
GtD	Gloucester extremely stony fine sandy loam, 8 to 25 percent slopes	42.2	2.9%
HcB	Hollis-Charlton fine sandy loams, 3 to 8 percent slopes	4.5	0.3%
HcC	Hollis-Charlton fine sandy loams, 8 to 15 percent slopes	5.0	0.3%
HdC	Hollis-Charlton very rocky fine sandy loams, 8 to 15 percent slopes	13.3	0.9%
HgB	Hollis-Gloucester very rocky fine sandy loams, 3 to 8 percent slopes	13.6	0.9%
HgC	Hollis-Gloucester very rocky fine sandy loams, 8 to 15 percent slopes	14.9	1.0%
LcB	Leicester fine sandy loam, 0 to 8 percent slopes	6.2	0.4%
LeB	Leicester very stony fine sandy loam, 3 to 8 percent slopes	43.6	3.0%
Mp	Freetown and Swansea mucky peats, 0 to 2 percent slopes	35.3	2.4%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	7.4	0.5%
PbC	Paxton fine sandy loam, 8 to 15 percent slopes	15.2	1.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PdB	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	16.7	1.2%
PdC	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	29.7	2.0%
SnB	Sutton fine sandy loam, 3 to 8 percent slopes	17.8	1.2%
SuB	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	14.7	1.0%
W	Water	28.6	2.0%
Wa	Whitman very stony fine sandy loam	137.8	9.5%
Subtotals for Soil Survey Area		**961.4**	**66.3%**
Totals for Area of Interest		**1,451.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

John P. Hayes III CSS, CWS,
7 Limestone Way
North Hampton, NH 03862
603-205-4396
johnphayes@comcast.net

1/8/20

Job # 19-014

Christopher Berry
Berry Surveying and Engineering
335 Second Crown Point Road
Barrington NH 03825

Site Specific Soil Survey 1/2/20 & 1/3/20
Map 7 Lot 1N Route 4 Nottingham & Map 13 Lot 35-1B
Mitchell Road Barrington, NH

Dear Chris,

This letter report presents the findings of a Site Specific Soil Survey conducted on the referenced property by John P. Hayes III, 0n January 2, and January 3, 2020. The soil survey was conducted in accordance with the New Hampshire Supplement of the Site-Specific Soil Mapping Standard For New Hampshire and Vermont, Version 5.0, December 2017, Special Publication # 3, published by the Society of Soil Scientist of Northern New England.

The portion of the property that is subject of the soil survey is located on the southwest side of Route 4, and northeast side of Mitchell road, in Barrington and Nottingham, NH. The parcel is approximately 60 acres in size. The plans used for these soil maps are a 50 scale plan, where 1 inch equals 50 feet, with two foot contours.

The purpose of the soil survey is to provide the client with soils information for urban and suburban or rural land planning. Soil characteristics on the property were evaluated through observation of numerous test holes and hand auger probes conducted throughout the property. Slope phases were determined with the use of the topography provided on the plan. The Site-specific Soil Map Units identified are taken from the New Hampshire State-Wide Numerical Soils Legend, Issue #10 January 2011, and are briefly described below. Official Series Descriptions (OSD) for each of these soil series are enclosed with this report. The soil map units comply with the Range In Characteristics described in the OSD. Dissimilar inclusions are noted above. Limits of the Site Specific mapping units are highlighted on the plan.

This property is located in both Rockingham and Strafford countys. Strafford county identifies the varioius soil series wirh letters instead of the statewide number designations. The statewide numbers of each of these, is provided in the report. Soils types on the soil map with the map unit denominator P and VP are poorly, and very poorly drained soils respectively. Portions of the soil map with the map unit and denominator Rk identify soils that are shallow to bedrock. The Rockingham and Strafford County Soil Surveys allow for two components, of the Ridgebury soil series. Poorly drained, somewhat poorly drained. The poorly drained component will be identified by using the denominator P.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
40B **Rk**	**Chatfield Hollis Complex**	The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. The hydrologic soil group is B. The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. Slope ranges from 3% to 8%.
40C **Rk**	**Chatfield Hollis Complex**	The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. The hydrologic soil group is B. The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. Slope ranges from 8% to 15%.
40D **Rk**	**Chatfield Hollis Complex**	The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. The hydrologic soil group is B. The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. Slope ranges from 15% to 25%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
40E **Rk**	**Chatfield Hollis Complex**	The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. The hydrologic soil group is B. The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. Slope ranges from 15% to 25%.
42B	**Canton**	The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 3% to 8%.
42C	**Canton**	The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 8% to 15%.
42D	**Canton**	The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 15% to 25%.
49B **VP**	**Whitman**	The Whitman series consists of very deep, very poorly drained soils formed in lodgment till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is D. Slope ranges from 3% to 8%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
67B	**Paxton (very stony)**	The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil and low or moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
67C	**Paxton (very stony)**	The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil and low or moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.
67D	**Paxton (very stony)**	The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity is moderately high or high in the surface layer and subsoil and low or moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 15% to 25%.
69B (SuB)	**Sutton (very stony)**	The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. They are nearly level to strongly sloping soils on hills, low ridges, and ground moraines, typically on footslopes, lower backslopes and in slight depressions. Saturated hydraulic conductivity is moderately high or high throughout. The hydrologic soil group is B. Slope ranges from 3% to 8%.
69C (SuC)	**Sutton (very stony)**	The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. They are nearly level to strongly sloping soils on hills, low ridges, and ground moraines, typically on footslopes, lower backslopes and in slight depressions. Saturated hydraulic conductivity is moderately high or high throughout. The hydrologic soil group is B. Slope ranges from 8% to 15%.
69D (SuD)	**Sutton (very stony)**	The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. They are nearly level to strongly sloping soils on hills, low ridges, and ground moraines, typically on footslopes, lower backslopes and in slight depressions. Saturated hydraulic conductivity is moderately high or high throughout. The hydrologic soil group is B. Slope ranges from 15% to 25%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
69E (SuE)	**Sutton (very stony)**	The Sutton series consists of very deep, moderately well drained loamy soils formed in melt-out till. They are nearly level to strongly sloping soils on hills, low ridges, and ground moraines, typically on footslopes, lower backslopes and in slight depressions. Saturated hydraulic conductivity is moderately high or high throughout. The hydrologic soil group is B. Slope ranges from 25% to 50%.
125A VP	**Scarboro (very stony)**	The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Saturated hydraulic conductivity is high or very high. The hydrologic soil group is D. Slope ranges from 0% to 3%.
125B VP	**Scarboro (very stony)**	The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions. Saturated hydraulic conductivity is high or very high. The hydrologic soil group is D. Slope ranges from 3% to 8%.
129B	**Woodbridge (very stony)**	The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
129C	**Woodbridge (very stony)**	The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.
129D	**Woodbridge (very stony)**	The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum. The hydrologic soil group is C. Slope ranges from 15% to 25%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
129E	**Woodbridge (very stony)**	The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum. The hydrologic soil group is C. Slope ranges from 25% to 50%.
185C **Rk** **HdC** **Rk**	**Hollis Canton Complex (very rocky)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 8% to 15%.
185D **Rk** **HdD** **Rk**	**Hollis Canton Complex (very rocky)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 15% to 25%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
185E Rk HdE Rk	**Hollis Canton Complex (very rocky)**	The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. The hydrologic soil group is D. The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. The hydrologic soil group is B. Slope ranges from 8% to 15%.
295A VP MpA VP	**Greenwood**	The Greenwood series consists of very deep ,very poorly drained soils formed in organic deposits more than 51 inches thick on outwash plains, till floored lake plains, or lake plains. These soils have moderate or moderately rapid permeability. The hydrologic soil group is D. Slope ranges from 0% to 3%.
445B	**Newfields (very stony)**	The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 3% to 8%.
445C	**Newfields (very stony)**	The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 8% to 15%.
445D	**Newfields (very stony)**	The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 15% to 25%.
445E	**Newfields (very stony)**	The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 25% to 50%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
447B	**Situate Newfields Complex (very stony)**	The Scituate series consists of moderately well drained soils formed in a loamy eolian influenced mantle of till underlain by sandy lodgement till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through moderately steep soils on glaciated uplands. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low or moderately high in the substratum. The hydrologic soil group is C. The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 3% to 8%.
47C	**Situate Newfields Complex (very stony)**	The Scituate series consists of moderately well drained soils formed in a loamy eolian influenced mantle of till underlain by sandy lodgement till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through moderately steep soils on glaciated uplands. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low or moderately high in the substratum. The hydrologic soil group is C. The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 8% to 15%.
447D	**Situate Newfields Complex (very stony)**	The Scituate series consists of moderately well drained soils formed in a loamy eolian influenced mantle of till underlain by sandy lodgement till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through moderately steep soils on glaciated uplands. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low or moderately high in the substratum. The hydrologic soil group is C. The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 15% to 25%.

MAP UNIT #	**SOIL TAXANOMIC NAME**	**DESCRIPTION**
447B	**Situate Newfields Complex (very stony)**	The Scituate series consists of moderately well drained soils formed in a loamy eolian influenced mantle of till underlain by sandy lodgement till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through moderately steep soils on glaciated uplands. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low or moderately high in the substratum. The hydrologic soil group is C. The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The hydrologic soil group is B. Slope ranges from 25% to 50%.
515B **P** **LeB** **P**	**Leicester**	The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
515C **P** **LeC** **P**	**Leicester**	The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.
657A **P**	**Ridgebury (poorly drained) (very stony)**	The Ridgebury series consists of very deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 0% to 3%.
657A **P**	**Ridgebury (poorly drained) (very stony)**	The Ridgebury series consists of very deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 0% to 3%.

MAP UNIT #	SOIL TAXANOMIC NAME	DESCRIPTION
657B **P**	**Ridgebury (poorly drained) (very stony)**	The Ridgebury series consists of very deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
657C **P**	**Ridgebury (poorly drained) (very stony)**	The Ridgebury series consists of very deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.
946B	**Ridgebury (somewhat poorly drained) (very stony)**	The Ridgebury series consists of very somewhat deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 3% to 8%.
946C	**Ridgebury (somewhat poorly drained) (very stony)**	The Ridgebury series consists of very somewhat deep, poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. The hydrologic soil group is C. Slope ranges from 8% to 15%.

Slope Phases

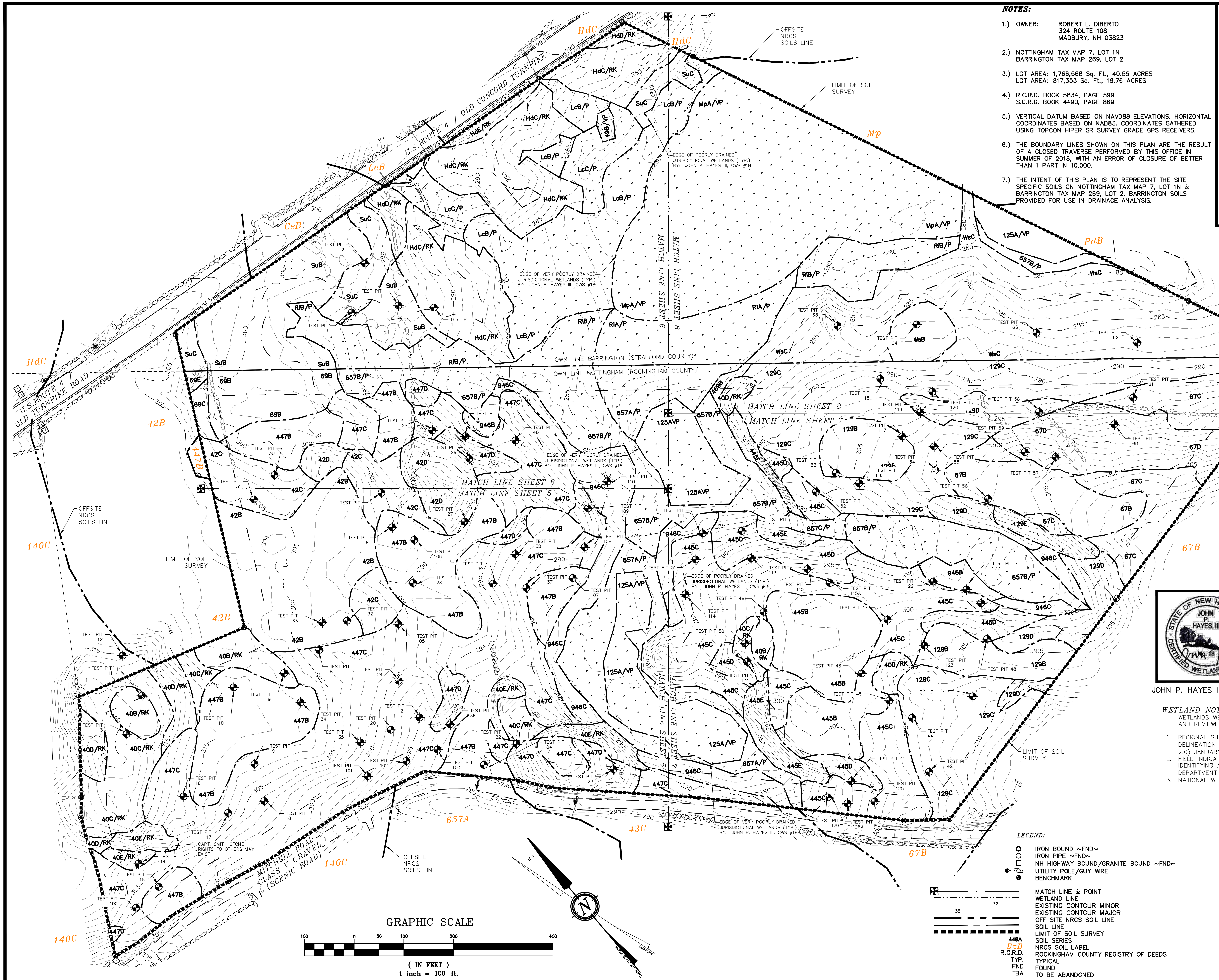
Alpha Slope Symbol	Range
A	0 – 3%
B	3 – 8%
C	8 – 15%
D	15 – 25%
E	25 – 50%
F	> 50%

I trust that this Soil Survey and report meet your current planning needs. Please do not hesitate to contact me if you have any questions.

Sincerely:

John P. Hayes III CSS, CWS

STATE OF NEW HAMPSHIRE
JOHN
P.
HAYES III
NO. 087
CERTIFIED SOIL SCIENTIST



NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

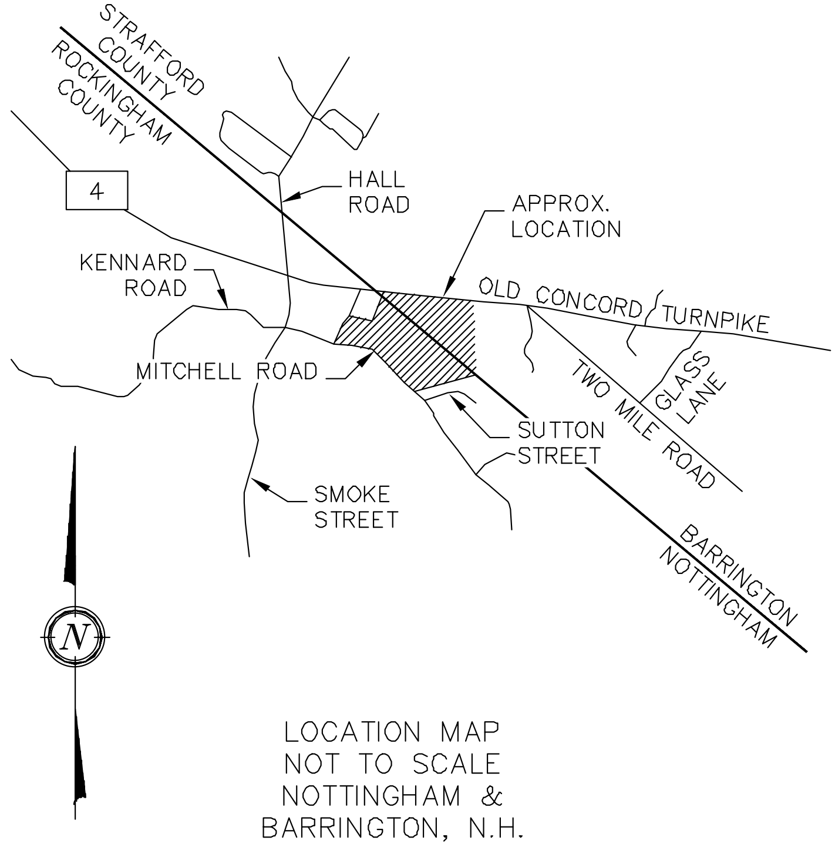
3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

5.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

6.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SUMMER OF 2018, WITH AN ERROR OF CLOSURE OF BETTER THAN 1 PART IN 10,000.

7.) THE INTENT OF THIS PLAN IS TO REPRESENT THE SITE SPECIFIC SOILS ON NOTTINGHAM TAX MAP 7, LOT 1N & BARRINGTON TAX MAP 269, LOT 2. BARRINGTON SOILS PROVIDED FOR USE IN DRAINAGE ANALYSIS.



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES CONTINUED:

8.) SEE SHEETS 9 & 10 FOR TEST HOLE DATA.

9.) SEE SHEET 6 FOR SITE SPECIFIC SOILS LEGEND AND SHEET 8 FOR NRCS SOILS LEGEND.

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

WETLAND NOTES:

WETLANDS WERE DELINEATED BY JOHN P. HAYES, IN SUMMER OF 2018 AND REVIEWED IN SPRING 2021, UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

LEGEND:

◎	IRON BOUND ~FND~
○	IRON PIPE ~FND~
⊡	NH HIGHWAY BOUND/GRANITE BOUND ~FND~
●- ⊸	UTILITY POLE/GUY WIRE
⬢	BENCHMARK
⊠ —— · · · ——	MATCH LINE & POINT
—·· —·· —··	WETLAND LINE
— — — 32 — —	EXISTING CONTOUR MINOR
—— 35 —— ——	EXISTING CONTOUR MAJOR
—— — — ——	OFF SITE NRCS SOIL LINE
—— – ——	SOIL LINE
■ ■ ■ ■ ■ ■	LIMIT OF SOIL SURVEY
448A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBA	TO BE ABANDONED

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

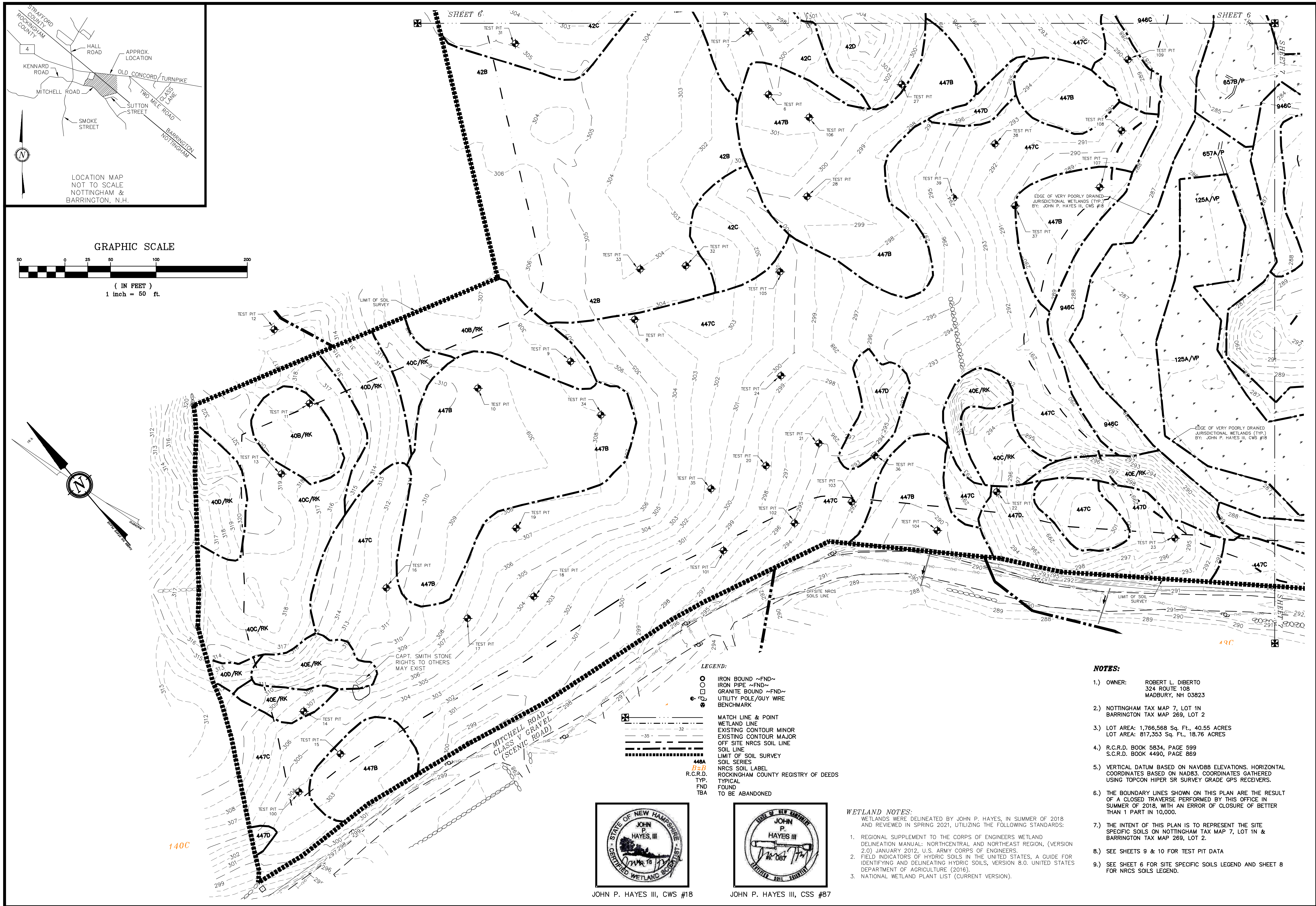
OVERVIEW SITE SPECIFIC SOILS MAP
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 100 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243

SHEET 4 OF 54



LEGEND:

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	UTILITY POLE/GUY WIRE
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JOHN P. HAYES III

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III

JOHN P. HAYES III, CSS #87

WETLAND NOTES:

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3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).

NOTES:

1.) OWNER: ROBERT L. DIBERTO
324 ROUTE 108
MADBURY, NH 03823

2.) NOTTINGHAM TAX MAP 7, LOT 1N
BARRINGTON TAX MAP 269, LOT 2

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 ACRES
LOT AREA: 817,353 Sq. Ft., 18.76 ACRES

4.) R.C.R.D. BOOK 5834, PAGE 599
S.C.R.D. BOOK 4490, PAGE 869

5.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HIPER SR SURVEY GRADE GPS RECEIVERS.

6.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN SUMMER OF 2018, WITH AN ERROR OF CLOSURE OF BETTER THAN 1 PART IN 10,000.

7.) THE INTENT OF THIS PLAN IS TO REPRESENT THE SITE SPECIFIC SOILS ON NOTTINGHAM TAX MAP 7, LOT 1N & BARRINGTON TAX MAP 269, LOT 2.

8.) SEE SHEETS 9 & 10 FOR TEST PIT DATA

9.) SEE SHEET 6 FOR SITE SPECIFIC SOILS LEGEND AND SHEET 8 FOR NRCS SOILS LEGEND.

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SITE SPECIFIC SOILS MAP WEST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
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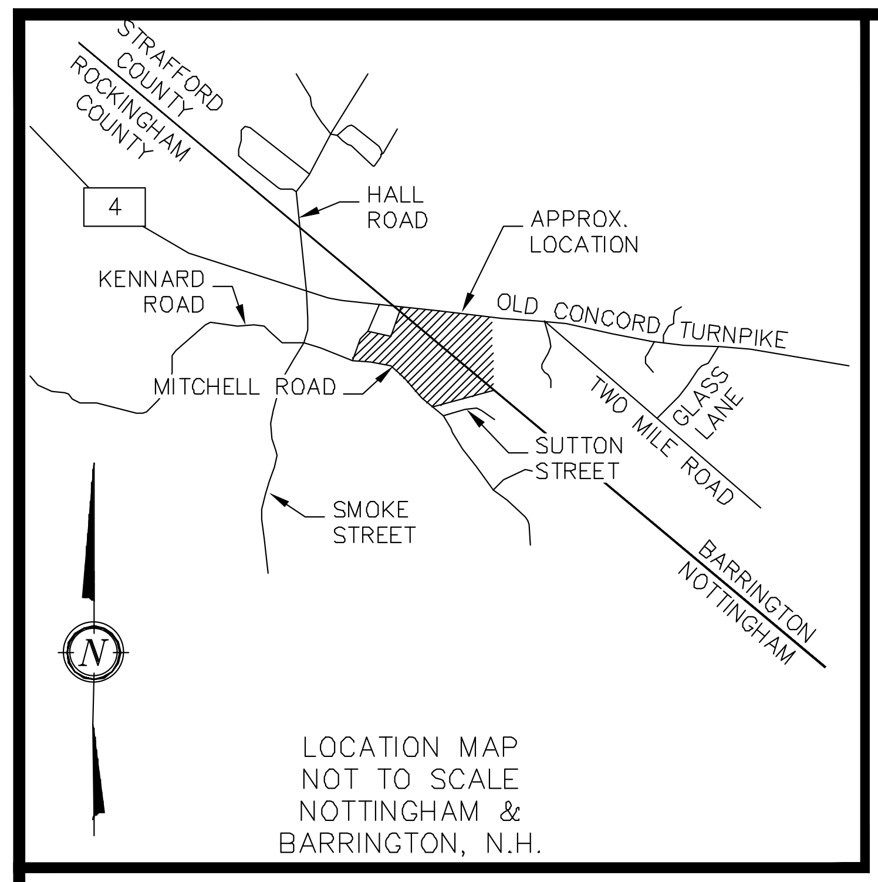
KENNETH A. BERRY No. 14243



LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES:

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MADBURY, NH 03823

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8.) SEE SHEETS 9 & 10 FOR TEST PIT DATA

9.) SEE SHEET 8 FOR NRCS SOILS LEGEND.

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III, CSS #87

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○	IRON PIPE ~FND~
⊡	GRANITE BOUND ~FND~
	UTILITY POLE/GUY WIRE
	BENCHMARK
	MATCH LINE & POINT
	WETLAND LINE
32	EXISTING CONTOUR MINOR
35	EXISTING CONTOUR MAJOR
	OFF SITE NRCS SOIL LINE
	SOIL LINE
	LIMIT OF SOIL SURVEY
448A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBA	TO BE ABANDONED

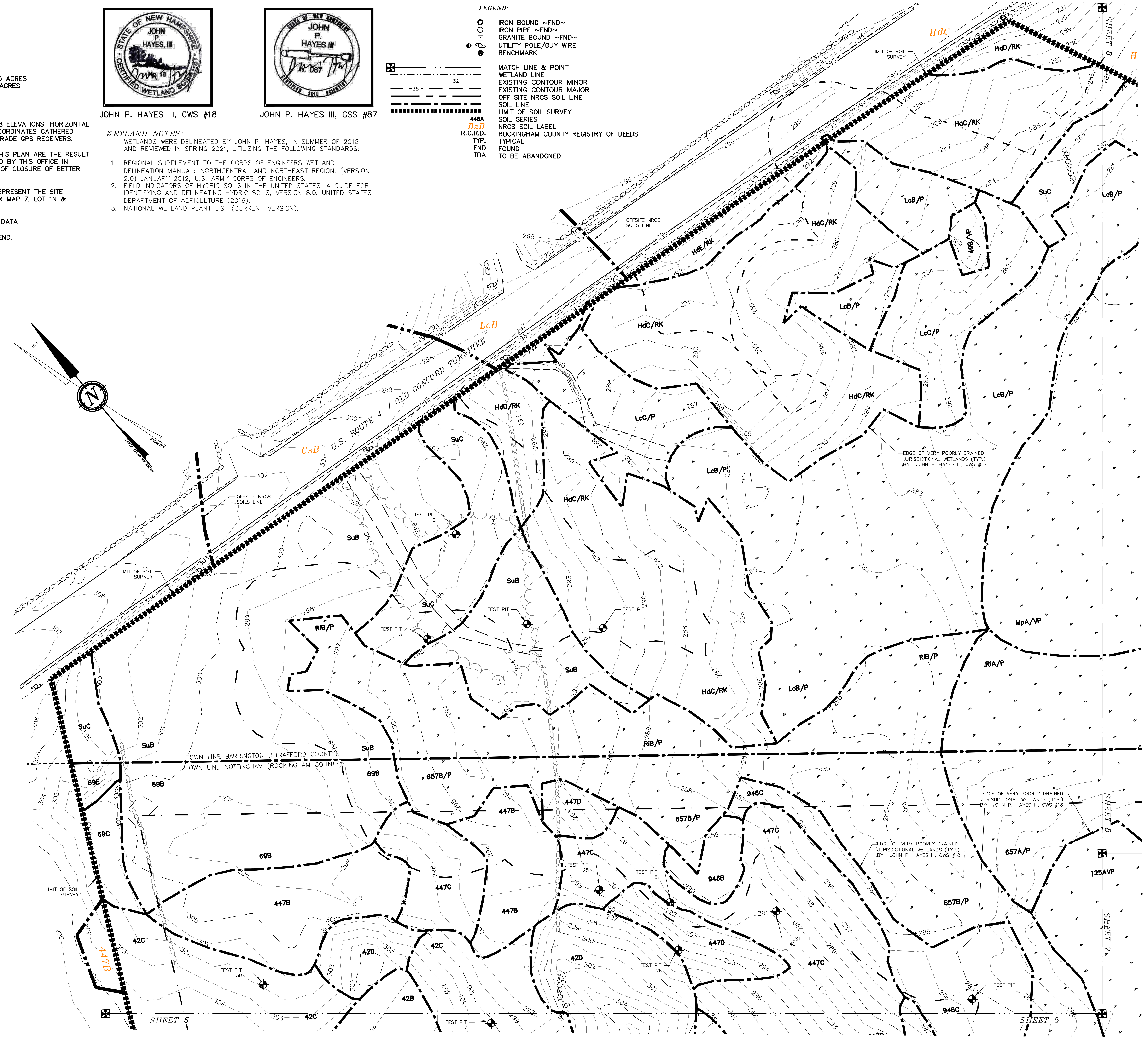
GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

SSSM SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON LOAMY SAND	B
42C	CANTON LOAMY SAND	B
42D	CANTON LOAMY SAND	B
69B–SuB	SUTTON LOAMY SOIL	B
69C–SuC	SUTTON LOAMY SOIL	B
69D–SuD	SUTTON LOAMY SOIL	B
69E–SuE	SUTTON LOAMY SOIL	B
HdC	HOLLIS–CANTON COMPLEX	D
HdD	HOLLIS–CANTON COMPLEX	D
HdE	HOLLIS–CANTON COMPLEX	D
445B	NEWFIELDS LOAMY SOIL	B
445C	NEWFIELDS LOAMY SOIL	B
445D	NEWFIELDS LOAMY SOIL	B
445E	NEWFIELDS LOAMY SOIL	B
447B	SCITUATE–NEWFIELDS COMPLEX	B
447C	SCITUATE–NEWFIELDS COMPLEX	B
447D	SCITUATE–NEWFIELDS COMPLEX	B
67B	PAXTON LODGMENT TILL	C
67C	PAXTON LODGMENT TILL	C
67D	PAXTON LODGMENT TILL	C
129B–WsB	WOODBRIDGE LOAMY SOIL	C
129C–WsC	WOODBRIDGE LOAMY SOIL	C
129D	WOODBRIDGE LOAMY SOIL	C
129E	WOODBRIDGE LOAMY SOIL	C
LcB	LEICESTER LOAMY TILL	C
LcC	LEICESTER LOAMY TILL	C
657A–RiA	RIDGEBURY LODGMENT TILL	C
657B–946B–RiB	RIDGEBURY LODGMENT TILL	C
657C–946C–RiC	RIDGEBURY LODGMENT TILL	C
40B	CHATFIELD–HOLLIS COMPLEX	D
40C	CHATFIELD–HOLLIS COMPLEX	D
40D	CHATFIELD–HOLLIS COMPLEX	D
40E	CHATFIELD–HOLLIS COMPLEX	D
49B	WHITMAN LODGMENT TILL	D
125A	SCARBORO STONY SOIL	D
125B	SCARBORO STONY SOIL	D
MpA	GREENWOOD ORGANIC SOIL	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+
DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED
/Rk = ROCKY



REVISED PER PLANING BOARD COMMENTS

REVISION	DATE	DESCRIPTION
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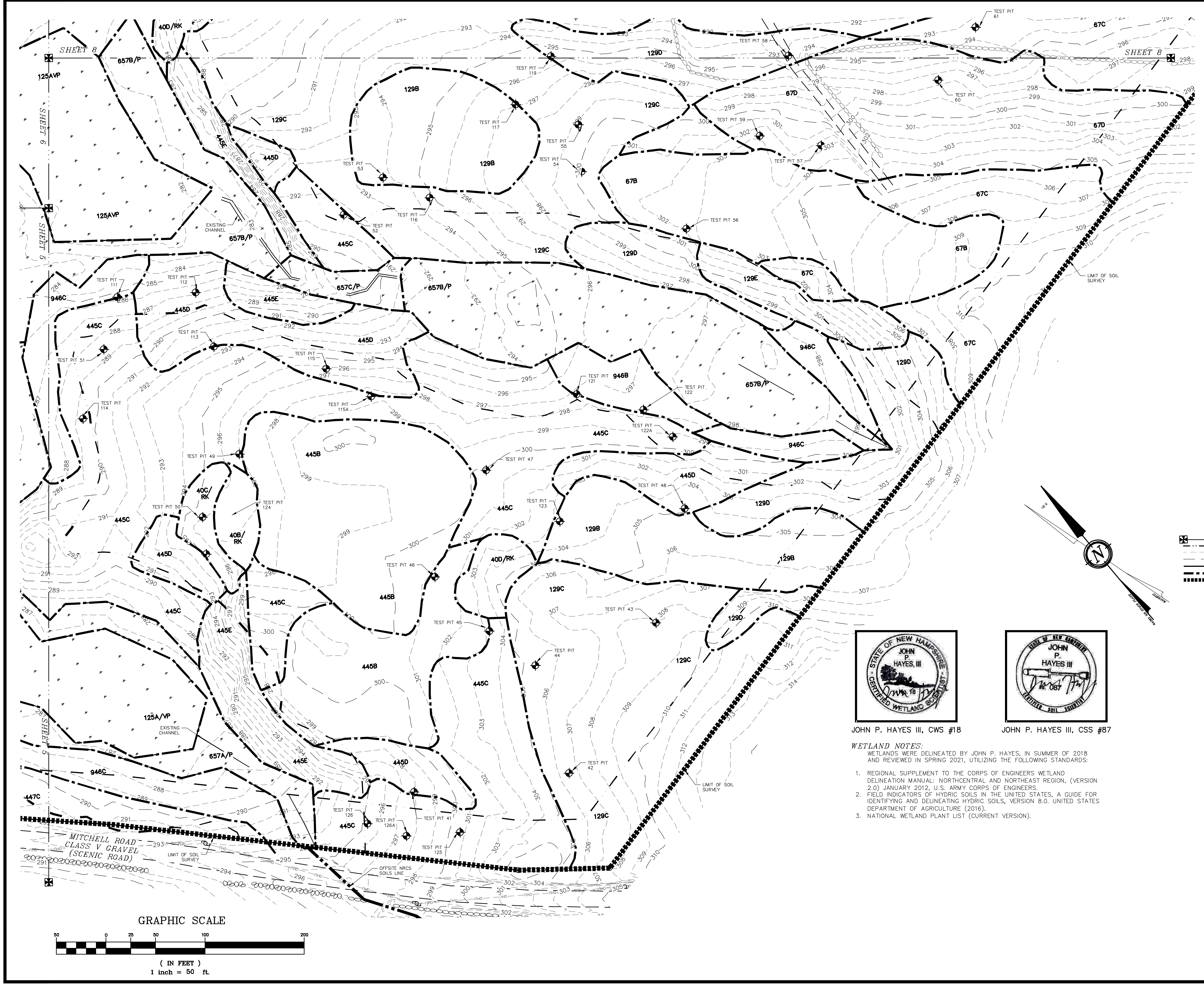
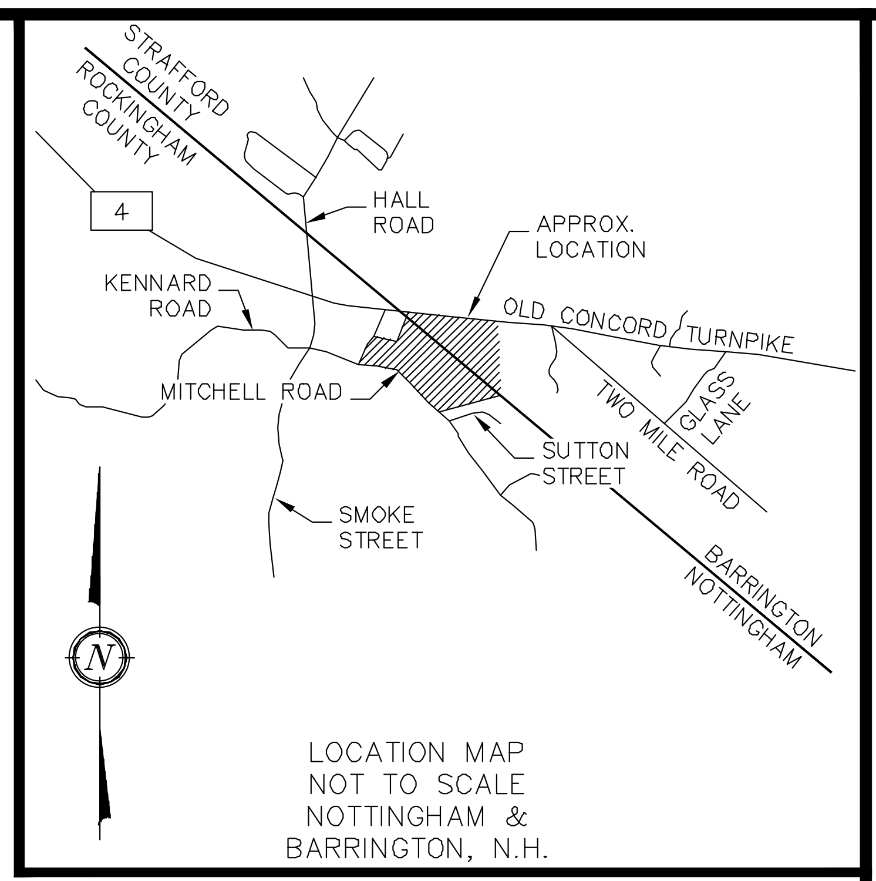
SITE SPECIFIC SOILS MAP NORTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863
SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

SHEET 6 OF 54





LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES:

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324 ROUTE 108
MADBURY, NH 03823

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LEGEND:

●	IRON BOUND ~FND~
○	IRON PIPE ~FND~
⊡	GRANITE BOUND ~FND~
◐-	UTILITY POLE/GUY WIRE
⊕	BENCHMARK
⊠———— · · · ————	MATCH LINE & POINT
—··—··—··—	WETLAND LINE
— — — —32— —	EXISTING CONTOUR MINOR
—— –35 - —— ——	EXISTING CONTOUR MAJOR
——— — — ———	OFF SITE NRCS SOIL LINE
▬ ▪ ▬ ▪ ▬	SOIL LINE
▪▪▪▪▪▪▪▪▪▪	LIMIT OF SOIL SURVEY
445A	SOIL SERIES
BzB	NRCS SOIL LABEL
R.C.R.D.	ROCKINGHAM COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND
TBA	TO BE ABANDONED

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JOHN P. HAYES III, CSS #87

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SITE SPECIFIC SOILS MAP SOUTH
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
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KENNETH A. BERRY
No. 14243

SHEET 7 OF 54

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
42B	CANTON FINE SANDY LOAM	B
43C	CANTON FINE SANDY LOAM VERY STONY	B
67B	PAXTON FINE SANDY LOAM VERY STONY	C
140C	CHATFIELD–HOLLIS–CANTON COMPLEX ROCKY	B
447B	SCITUATE–NEWFIELDS COMPLEX VERY STONY	C
657A	RIDGEBURY FINE SANDY LOAM VERY STONY	D
CfB	CHARLTON FINE SANDY LOAM	B
CsB	CHARLTON FINE SANDY LOAM VERY STONY	B
HdC	HOLLIS–CHARLTON VERY ROCKY FINE SANDY LOAM	D
Mp	FREETOWN AND SWANSEE MUCKY PEATS	B/D
PdB	PAXTON FINE SANDY LOAM VERY STONY	C
Wa	WHITMAN FINE SANDY LOAM	D

SLOPE: A = 0–3% B = 3–8% C = 8–15% D = 15–25% E = 25–50% F = 50%+

DENOMINATOR: /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED
/SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

JOHN P. HAYES III No. 18

JOHN P. HAYES III, CWS #18

JOHN P. HAYES III No. 087

JOHN P. HAYES III, CSS #87

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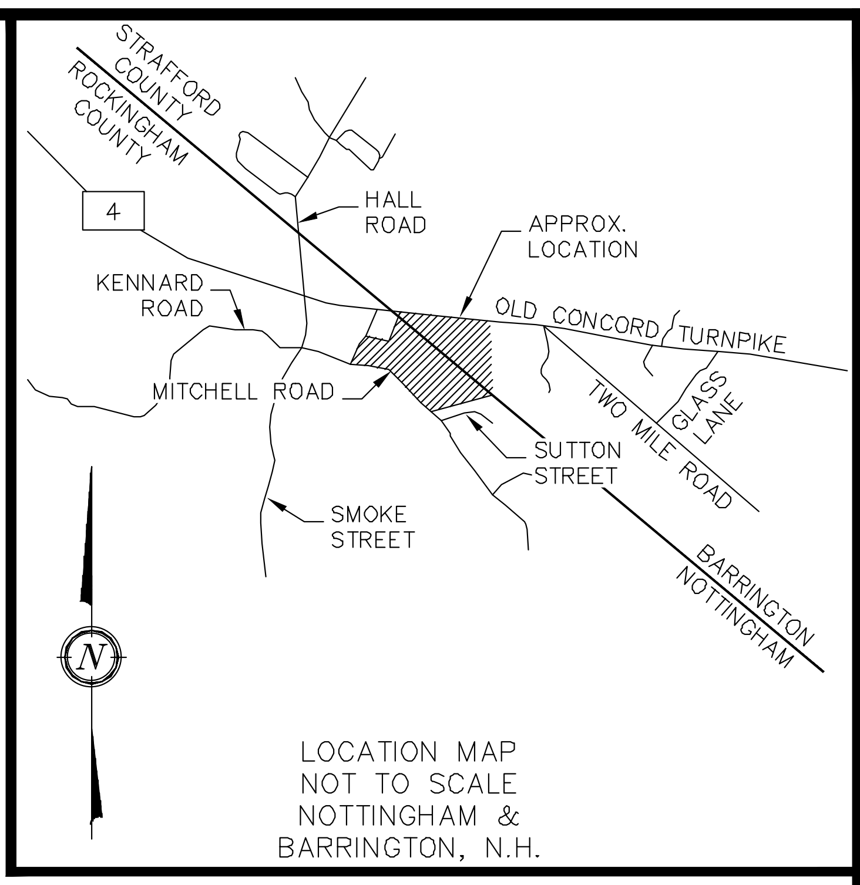

LOCATION MAP
NOT TO SCALE
NOTTINGHAM &
BARRINGTON, N.H.

NOTES:

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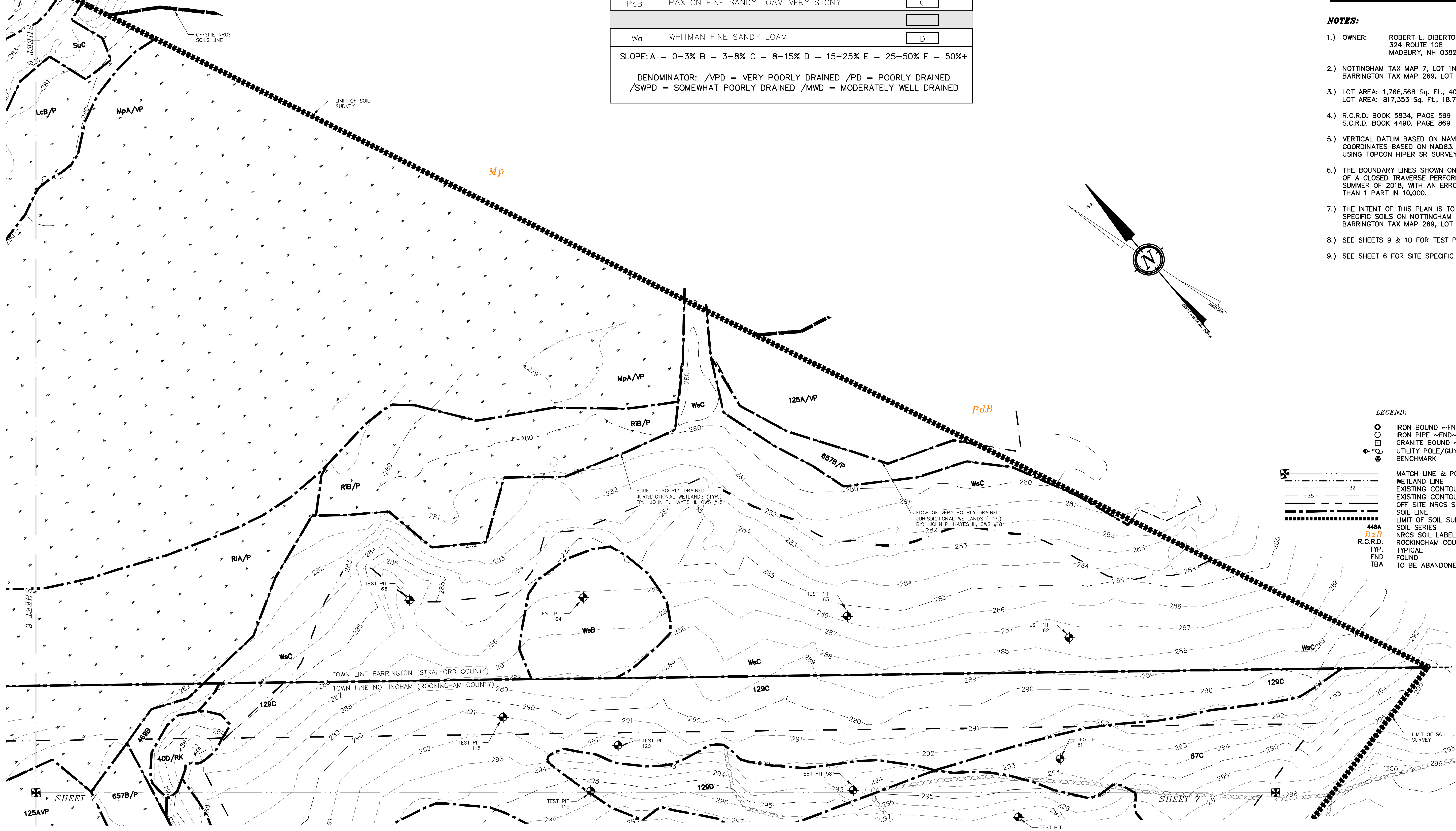

LEGEND:

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⊗	BENCHMARK
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SITE SPECIFIC SOILS MAP EAST
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 50 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 – 125

KENNETH A. BERRY No. 14243

TEST PIT #1
0-8 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #2
0-8 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-26" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
26-68" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 68
E.S.H.W.T. @ 26"
RESTRICTIVE LAYER @ 26"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #3
0-8 10YR 3/3 FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
14-18" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
18-38" 2.5Y 5/2 VERY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 38
E.S.H.W.T. @ 18"
RESTRICTIVE LAYER @ 18"
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED: N/A
P = 16 MIN./IN.

TEST PIT #4
TERMINATED @ 24
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 24"
GROUND WATER OBSERVED: N/A

TEST PIT #5
0-6 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
6-22 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-38" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 38
E.S.H.W.T. @ 30"
RESTRICTIVE LAYER @ 30"
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #6
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-55" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 55
E.S.H.W.T. @ 28
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #7
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-40" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
40-65" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 65"
E.S.H.W.T. @ 40"
RESTRICTIVE LAYER @ 40"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #8
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
36-62" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 62"
E.S.H.W.T. @ 36
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #9
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-26 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
26-33" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 33"
E.S.H.W.T. @ 33
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 33"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #10
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #11
TERMINATED @ 24"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 24"
GROUND WATER OBSERVED: N/A

TEST PIT #12
TERMINATED @ 18"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED: N/A

TEST PIT #13
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-28" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36"
E.S.H.W.T. @ 36
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #14
TERMINATED @ 26
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 26"
GROUND WATER OBSERVED: N/A

TEST PITS #15
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-64" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 64"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #16
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-28" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
36-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 36
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #17
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-20" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #18
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #19
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #20
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #21
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-32" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
32-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #22
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-24" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
24-30" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
30-60" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #23
0-6 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
6-22" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
22-28" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
28-62" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 60"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #24
0-8 10YR 3/2 FINE SANDY LOAM, GRANULAR, FRIABLE
8-20" 10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE
20-26" 2.5Y 5/4 FINE SANDY LOAM, GRANULAR, FRIABLE
26-42" 2.5Y 5/3 FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 42"
E.S.H.W.T. @ 26
RESTRICTIVE LAYER @ 26"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 12 MIN./IN.

TEST PIT #25
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-68" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 68
E.S.H.W.T. @ 24
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED @ 30"
P = 12 MIN./IN.

TEST PIT #26
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-36" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #27
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-12 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-36" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #28
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-22" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-58" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 58
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 58"
GROUND WATER OBSERVED @ 50"
P = 16 MIN./IN.

TEST PIT #29
TERMINATED @ 12
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 12"
GROUND WATER OBSERVED: N/A

TEST PIT #30
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-48" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
48-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70
E.S.H.W.T. @ 48
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #31
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
38-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #32
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-24 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-48" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
48-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 48
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 4 MIN./IN.

TEST PIT #33
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
38-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 38
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #34
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-62" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 62"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 62"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #35
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #36
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-44" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 44"
GROUND WATER OBSERVED @ 22"
P = 10 MIN./IN.

TEST PIT #37
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-21" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
21-38" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 38"
E.S.H.W.T. @ 21
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 38"
GROUND WATER OBSERVED @ 22"
P = 12 MIN./IN.

TEST PIT #38
TERMINATED @ 14
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 14"
GROUND WATER OBSERVED: N/A

TEST PIT #39
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20" 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 30"
E.S.H.W.T. @ 20
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 30"
GROUND WATER OBSERVED @ 22"
P = 16 MIN./IN.

TEST PIT #40
TERMINATED @ 20
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 20"
GROUND WATER OBSERVED: N/A

TEST PIT #41
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44"
E.S.H.W.T. @ 18
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 18"
GROUND WATER OBSERVED @ 18"
P = 16 MIN./IN.

TEST PIT #42
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 36"
P = 12 MIN./IN.

TEST PIT #43
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-52" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 52"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 52"
GROUND WATER OBSERVED @ 48"
P = 8 MIN./IN.

TEST PIT #44
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-32" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-72" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 72"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 46"
P = 8 MIN./IN.

TEST PIT #45
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-36" 10YR 5/4 YELLOWISH BROWN, GRAVELLY FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 36"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL @ 36"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #46
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-20 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-30" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
30-68" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 68"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #47
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #48
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-22 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-42" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 42"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 42"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #49
TERMINATED @ 12
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 12"
GROUND WATER OBSERVED: N/A

TEST PIT #50
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 7.5Y 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 28"
E.S.H.W.T.: N/A
RESTRICTIVE LAYER: N/A
REFUSAL: LEDGE @ 28"
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #51
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-12 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-70" 2.5Y 5/2 GRAYISH BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FRIABLE
TERMINATED @ 70"
E.S.H.W.T. @ 18
RESTRICTIVE LAYER: N/A
REFUSAL: N/A
GROUND WATER OBSERVED @ 40"
P = 16 MIN./IN.

TEST PIT #52
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
18-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 18
RESTRICTIVE LAYER @18"
REFUSAL: N/A
GROUND WATER OBSERVED @ 40"
P = 16 MIN./IN.

TEST PIT #53
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED @ 42"
P = 8 MIN./IN.

TEST PIT #54
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-70" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER: @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #55
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-30" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
30-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80"
E.S.H.W.T. @ 30
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #56
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-38" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
38-70" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 70"
E.S.H.W.T. @ 38
RESTRICTIVE LAYER @ 38"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #57
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-38" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
38-82" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 82
E.S.H.W.T. @ 38"
RESTRICTIVE LAYER @ 30"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #58
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-76" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 76
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #59
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-36" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
36-80" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 80
E.S.H.W.T. @ 36
RESTRICTIVE LAYER @ 36"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #60
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-34" 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
34-50" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50
E.S.H.W.T. @ 34
RESTRICTIVE LAYER @ 34"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 6 MIN./IN.

TEST PIT #61
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 24
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 10 MIN./IN.

TEST PIT #62
0-6 10YR 3/2 VERY DARK GREYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-18" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
18-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 18
RESTRICTIVE LAYER @ 18"
REFUSAL: N/A
GROUND WATER OBSERVED @ 28"
P = 12 MIN./IN.

TEST PIT #63
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 24
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED @ 36"
P = 12 MIN./IN.

TEST PIT #64
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
28-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 28
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

TEST PIT #65
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
32-50" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 50"
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A
P = 8 MIN./IN.

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

TEST PIT DATA
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : N/A
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

KENNETH A. BERRY
No. 14243

TEST PIT #100
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-22 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-32" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
32-52" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEAT. PRESENT, MASSIVE, FIRM
TERMINATED @ 52
E.S.H.W.T. @ 32
RESTRICTIVE LAYER @ 32"
REFUSAL: 52"
GROUND WATER OBSERVED: N/A

TEST PIT #101
0-7 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-19 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
19-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-42" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
42-66" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 66
E.S.H.W.T. @ 28
RESTRICTIVE LAYER @ 42"
REFUSAL: 66"
GROUND WATER OBSERVED: N/A

TEST PIT #102
0-7 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-19 10YR 4/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
19-28" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-40" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
40-66" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 65
E.S.H.W.T. @ 28
RESTRICTIVE LAYER @ 40"
REFUSAL: 65"
GROUND WATER OBSERVED: 60"

TEST PIT #103
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-29 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
TERMINATED @ 29
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 29"
GROUND WATER OBSERVED: N/A

TEST PIT #104
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-15 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
15-48" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 48
E.S.H.W.T. @ 15"
RESTRICTIVE LAYER @ N/A
REFUSAL: 48"
GROUND WATER OBSERVED: N/A

TEST PIT #105
0-7 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
7-18 10YR 4/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 10YR 4/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-72" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 72
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ 28"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #106
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-16 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-26 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
26-48" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 48
E.S.H.W.T. @ 26"
RESTRICTIVE LAYER @ 26"
REFUSAL: 48"
GROUND WATER OBSERVED: N/A

TEST PIT #107
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 60
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A

TEST PIT #108
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-24" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A

TEST PIT #109
0-6 10YR 3/3 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-28 7.5YR 5/6 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-36" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A.

TEST PIT #110
0-8 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
8-14 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-20 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60
E.S.H.W.T. @ 14"
RESTRICTIVE LAYER @ N/A
REFUSAL: 60"
GROUND WATER OBSERVED: N/A

TEST PIT #111
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-14 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-22 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-76" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER @ 22"
REFUSAL: N/A
GROUND WATER OBSERVED: 58"

TEST PIT #112
0-5 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
5-16 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-78" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ 16"
REFUSAL: N/A
GROUND WATER OBSERVED: 55"

TEST PIT #113
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-22 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
22-76" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 76
E.S.H.W.T. @ 22"
RESTRICTIVE LAYER @ 22"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #114
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-12 10YR 5/6 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
12-16 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-60" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ 16"
REFUSAL: N/A
GROUND WATER OBSERVED: 50"

TEST PIT #115
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-24 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-36" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 36
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: 36"
GROUND WATER OBSERVED: N/A

TEST PIT #115A
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-20 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
20-24 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
TERMINATED @ 24
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 24"
GROUND WATER OBSERVED: N/A

TEST PIT #116
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-64" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 64
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ 24"
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #117
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-24 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
24-60" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 60
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #118
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-80" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 80
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #119
0-6 10YR 3/3 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-80" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 80
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #120
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
28-78" 5Y 5/3 OLIVE, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 78
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #121
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-15 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
15-44" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 44
E.S.H.W.T. @ 15"
RESTRICTIVE LAYER @ N/A
REFUSAL: 44"
GROUND WATER OBSERVED: 24"

TEST PIT #122
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-58" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 58
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ N/A
REFUSAL: 58"
GROUND WATER OBSERVED: 20"

TEST PIT #122A
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-68" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 68
E.S.H.W.T. @ 16"
RESTRICTIVE LAYER @ N/A
REFUSAL: 68"
GROUND WATER OBSERVED: 22"

TEST PIT #123
0-6 10YR 3/2 DARK BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 10YR 5/6 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-21 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
21-64" 2.5Y 5/3 LIGHT OLIVE BROWN, GRAVELLY FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 64
E.S.H.W.T. @ 21"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #124
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-14 7.5YR 5/6 STRONG BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
14-24 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
24-45" 2.5Y 5/2 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 45
E.S.H.W.T. @ 24"
RESTRICTIVE LAYER @ N/A
REFUSAL: 45"
GROUND WATER OBSERVED: N/A

TEST PIT #124A
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-18 10YR 4/4 DARK YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-28 2.5Y 4/4 OLIVE BROWN, FINE SANDY LOAM, MASSIVE, FRIABLE
28-85" 2.5Y 5/3 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FIRM
TERMINATED @ 85
E.S.H.W.T. @ 28"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: 43"

TEST PIT #125
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-10 10YR 5/4 YELLOWISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
10-18 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
18-75" 2.5Y 5/2 GRAYISH BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 75
E.S.H.W.T. @ 18"
RESTRICTIVE LAYER @ N/A
REFUSAL: N/A
GROUND WATER OBSERVED: N/A

TEST PIT #126
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-13 7.5Y 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
13-22" 2.5Y 5/2 VERY DARK BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 22
E.S.H.W.T. @ 13"
RESTRICTIVE LAYER @ N/A
REFUSAL: 22"
GROUND WATER OBSERVED: N/A

TEST PIT #126A
0-6 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-16 7.5Y 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
16-26" 2.5Y 5/4 LIGHT OLIVE BROWN, FINE SANDY LOAM W/REDOXIMORPHIC
FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED @ 26
E.S.H.W.T. @ N/A
RESTRICTIVE LAYER @ N/A
REFUSAL: 26"
GROUND WATER OBSERVED: N/A

REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

TEST PIT DATA CONTINUED
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING
& ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : N/A
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
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www.BerrySurveying.Com

Inspection and Maintenance Manual

Stormwater System Management

Tax Map 7, Lot 1N
Mitchell Road
Nottingham, NH

Prepared for:

Robert L. Diberto
324 Route 108
Madbury NH 03823

Land of:
Robert L. Diberto
324 Route 108
Madbury NH 03823

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863

STATE OF NEW HAMPSHIRE - PROFESSIONAL ENGINEER
KENNETH A. BERRY
No. 14243
LICENSED

File Number
DB2018-125

March 16, 2020
May 5, 2021

Inspection and Maintenance Manual

Stormwater System Management

Table of Contents

Introduction

The Best Management Practices (BMP) described in this manual are specified in more detail within the plan set giving design details and specifications. The New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA) is included by reference to this manual. Additional details, construction specifications, and example drawings are provided within this reference. (http://des.nh.gov/organization/divisions/water/stormwater/)

The BMP's are covered below in the general order in which the storm water flows. Each BMP has a description and maintenance consideration listed. A Check List table is proved after the narrative to summarize the maintenance responsibilities and schedule. A Log Form is also provided for the owners use.

For details regarding the design of the Storm Water System see also Drainage Analysis & Sediment and Erosion, **March 16, 2020**, as revised. See also plan set completed for **Robert L. Diberto**, originally dated **March 16, 2020**, as revised.

Initially, the developer, Robert L Diberto, (603-781-4321 / E-Mail Address: stonegreyhouse@gmail.com) will be responsible for the Operation, Inspection, and Maintenance of the Stormwater Management System. A significant step in this responsibility is the Inspection and Maintenance of each component of the system. Ongoing, semi-annual, and annual inspection and maintenance requirement are documented below and must be taken seriously. Failure of any component of the system can result in surface water run-off ponding and/or freezing in the roadway and parking lots, leaving the developed site untreated, and/or causing violations to issued permits. The owner must maintain, and have available, plans of the Stormwater System in order properly inspect and maintain the system. (Reduced copies attached.) Until the drainage infrastructure is accepted by the municipality, Robert L. Diberto will conduct the inspections, complete the required maintenance, and will maintain the Inspection & Maintenance Check Lists and Logs, and will provide copies with the Annual Report to the Town of Nottingham Building Department / DPW and provided a copy to NHDES AoT by December 15th of each year.

The owner of Tax Map 7, Lot 1N, Robert L. Diberto, is proposing a residential subdivision consisting of 14 lots which will be supported by 2686 linear feet of new road construction. The stormwater will be managed by five subsurface gravel wetlands, four detention ponds, and an infiltration basin.

Surface water is routed through conveyance swales, catch basins, culverts, and drain manholes to sediment forebays or detention ponds to cross culverts, subsequently to forebays and subsurface gravel wetland treatment.

The following practices and drainage features will all require periodic inspections and maintenance based on this manual and drainage layout:

Roadside Conveyance Swales

Catch Basins & Drain Manholes

Subsurface Gravel Wetland #101 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #102 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #103 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #104 w/ Outlet Structure and Spillway

Infiltration Pond #105 w/ Spillway

Outlet Protection and Rip Rap Level Spreaders

Conveyance Swales

Description: "Swales are stabilized channels designed to convey runoff at non-erosive velocities." (NHDES SWM) A conveyance swale is intended to move surface water runoff from one point to another where as a treatment swale will slow the velocity to a point where sediment will settle out of the stormwater flow.

Project Intent: The swales are individually designed in the drainage analysis and specified on the design plans.

Maintenance Considerations: Grassed swales will be inspected twice annually, removing accumulated sediment and gross solids. Grass will be mowed periodically but to a depth of not less than 4 inches. Any damage to the vegetation will be repaired and woody vegetation and invasive vegetation will be removed. Street sweeping will help to prevent the premature filling and required maintenance of conveyance swales.

Catch Basins and Drain Manholes

Description: Catch Basins are used in select locations to collect runoff and route it to the forebay of a subsurface gravel wetland. Catch Basins will be designed without a sump and any sump required in the precasting process be filled with washed crushed stone and will include a vented hood. During construction the catch basins will be protected by inlet protection per the approved construction plans. The practice of street sweeping on a bi-annual basis will help reduce maintenance of these deep sumps.

Maintenance Considerations: Sediment must be removed from Catch Basins and Drain Manholes on a regular basis, at least twice a year and more often if culverts and hoods become blocked. Inspections should be conducted periodically. At a minimum they should be cleaned after snow-melt and after leaf-drop. Damaged outlet hoods must be replaced. It is recommended that a vacuum truck be utilized as contrasted to a clam-shell method to avoid damage to the hood. Hydrocarbons found to be floating in the basin should be removed by skimming, absorbent materials, or other method. Disposal of all material, sediment, and debris must be done in accordance with state and federal regulations. Culvert pipes will be inspected to ensure that surface water runoff is capable of leaving the structures.

Culvert Pipes, Flared End Sections / Headwalls

Description: Culvert pipes are placed to route surface water runoff from catch basins to drain manholes, and drain manholes to a discharge point conveying the runoff in such a manner that erosion does not take place. Culvert pipes are often terminated with flared end sections or headwalls.

Maintenance Considerations: The entrance and exit of the culvert pipe should be cleaned of any trash and sediment build-up. The culvert should be clear to let runoff pass through the culvert unobstructed. Flared end sections and headwalls should be inspected for erosion and destabilization, with repairs made as required.

Sediment Forebay

Description: A sediment forebay is designed to reduce the velocity of incoming surface water runoff allowing sediment to fall out of suspension initially pre-treating the runoff before it is sent to a treatment structure. This earthen basin will have vegetated side-slopes and a check dam to further reduce and pretreat the runoff. At the point of incoming runoff, the basin will be protected by rip rap outlet protection construction and the outgoing edge will be protected with rip rap. The check dam will be constructed from one side of the basin to the other and cause runoff to either go through or over. The volume of the forebay is generally 10% the volume of the Water Quality Volume (WQV) for gravel wetlands, and 25% for rain gardens. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-4 Pretreatment Practices 1, Sediment Forebays.

Maintenance Considerations: The basin and slopes will be periodically mowed, at least twice per year ensuring that woody material does not get an opportunity to grow. Sediment accumulated in the basin will be removed and properly disposed of when it reaches half the height of the check dam. Erosion or other damage to the basin will be repaired and revegetated. (See Outlet Protection)

Outlet Structures & Control Orifices

Description: Pre-cast concrete outlet structure are used throughout the site as as outlet control device with varying diameters and control scenarios. Outlet structures for Subsurface Gravel Wetlands will have a sump that is filled with washed crushed stone to accommodate the goose-neck outlet control configuration. Detention ponds will have minimum sumps, also filled with washed crushed stone. All outlet structures will have a dome trash rack that can be removed for maintenance.

Maintenance Considerations: Sediment must be removed from Outlet Structure on a regular basis, at least twice a year, especially constructed without a sump. Inspections should be conducted periodically. At a minimum they should be cleaned after snow-melt and after leaf-drop. Any orifice and related trash racks must be inspected and cleaned of any debris or material. The control orifice on the inside a control structure must also be inspected periodically to ensure that the under drain is working as intended allowing draw-down of the practice. The goose-neck outlet configuration is constructed of threaded material so that it can be disassembled in order to perform maintenance on the outlet manifold. **Failure to properly inspect and maintain control orifice within an outlet structure can cause the operation of the practice to fail.** Culvert pipes will be inspected to ensure that surface water runoff is capable of leaving the structures.

Infiltration Basins & Detention Ponds

Description: Infiltration Basins are constructed ponds that are intended to detain surface water runoff and during the detention to infiltrate runoff into the ground. Detention Ponds are also constructed ponds with the purpose of detaining runoff but not necessarily for infiltration purposes. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities of the existing soil. Construction specifications are included in the plan set and New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 3B, In-ground Infiltration Basin and 1A Micro-pool Extended Detention Pond.

Maintenance Considerations:
Infiltration Basins and Detention Ponds should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the infiltration system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the basin to determine measures required to restore the infiltration function. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation should be inspected to ensure healthy condition. Invasive species need to be removed along with dead or diseased vegetation.

Subsurface Gravel Wetland

Description: A Gravel Wetland (NHDES SWM 4-3 Treatment Practice 2D) or Subsurface Gravel Wetland consists of a forebay and multiple flow-through treatment cells. During smaller rain events, the surface water runoff is intended to pass from the forebay, into the gravel media through perforated pipes and structures where it passes through an anaerobic environment where the Water Quality Volume will have 24-72 hours of contact time. The forebay is required to contain 10% of the WQV and each of the two cell must contain 45% of the WQV. During larger storm events, the system works as a detention pond. The design of a Subsurface Gravel Wetland will be constructed in accordance with the most current version of the Design Specifications provided by the UNH Stormwater Center.

Maintenance Considerations: The outlet configuration of the anaerobic subsurface gravel consists of a small discharge orifice that is located in a threaded cap. This goose-neck feature is designed to be disassembled to allow cleaning. This outlet orifice is located within a concrete outlet structure that also contains a control stack used to control and detain runoff in the system. Although this is designed to be "clean water" after the filtering process, the outlet structure in general is going to require periodic maintenance to ensure that it is discharging runoff properly. If the Subsurface Gravel Wetland retains runoff on the surface for more than 72 hours the performance is not correct and maintenance is required.

Debris will need to be removed from the inlet and outlet structures as well as any buildup of sediment. The surface of the ponded area is intended to have wetland plants which may require periodic replanting, depending on the sediment loading. Sediment buildup in the forebay must be removed to maintain the minimum required volume. See also 9 and 10 of the attached UNHSC Subsurface Gravel Wetland Design Specifications 2009, and / or UNHSC Subsurface Gravel Wetland Design Specifications 2016 with Maintenance Guidelines and Checklist. See also Design and Maintenance of Subsurface Gravel Wetlands, February 4, 2015, UNHSC / NHDOT with included Checklist for Inspection of Gravel Wetland and Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device which is attached.

Outlet Protection, Spillways, and Level Spreaders

Description: Outlet Protection consists of a riprap apron or preformed scour hole that is designed to provide velocity reduction of the surface water run-off that is leaving a culvert. The design is dependent on the culvert size, soil conditions, velocity, and quantity of the run-off. There are to be no bend or curves at the intersection of the conduit and apron. Level spreaders are intended to provide a level lip where surface water runoff is allowed to continue downhill closer to sheet flow. The level lip is to be constructed as level as possible for the entire length. Emergency Spillways are rip rap reinforced outlets near the top of the berm that allow runoff to leave a practice during periods of very high flow. The outlet protection and spillways are generally terminated with rip rap level lip spreaders, the intent of which is to convert the runoff into sheet flow.

Maintenance Considerations: The riprap outlet protection will be inspected annually for damage, which must be corrected immediately. Any sediment buildup will be removed and disposed of correctly. Sediment and subsequent vegetation will build up in the Level Spreader. This material will be cleaned out along with any gross solids and disposed of properly. (See invasive species below) Any rip rap that has been displaced from the original construction will be repaired, especially recreating the level lip. On spillways the inspection will include looking for signs of erosion and berm deterioration. Any damage the infrastructure will be repaired immediately. The level lip spreader will be inspected for integrity of the rip rap lip and the ability of the practice to convert the runoff to sheet flow and not result in channelized flow.

Stabilization for Long Term Cover

Vegetated Stabilization – Original Planting

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet E-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will used to stabilize all 2:1 slopes and all land area disturbed within the wetland buffer. As the site is to be stabilized with erosion control mix as a mulch, the vegetation should be established with a high percentage of white clover for growth to be established.

Detention Pond:

The grass that is planted within a Detention Pond will be a mix designed for both inundation and dry conditions such as Ernst Seeds, Retention Basin Floor Mix ERNMX-126.

Subsurface Gravel Wetland:

The grass that is planted within a Subsurface Gravel Wetland will be a diverse mix of species to provide food and cover as well as erosion control in the seasonally flooded conditions such as Ernst Seeds Seasonally Flooded Wildlife Mix ERNMX-128.

Maintenance Considerations: Permanent seeded areas for long-term cover will be inspected on a periodic basis looking for signs of growth loss or erosion. Any areas found to be damaged will be repaired and replanted to reestablish the growth. The grass should be mowed at least twice per year and any dead material removed. Any woody growth that becomes established will need to be cut and removed.

Long-term maintenance of the land cover is critical and must be maintained at least 85% grass / vegetation coverage, must be inspected for concentrated flow, rills, and channels; and must be repaired as necessary to prevent erosion.

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

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.

Annual Report

Description: The owner is responsible to keep an **I & M Activity Log** that documents inspection, maintenance and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner (s) have copies of the Inspection & Maintenance Manual, Stormwater System Management, copies of past logs and check lists. This includes any owner association that might become involved with the property. The Annual Report will be prepared and submitted to the Town of Nottingham Building Department / DPW with copies of both logs and check lists no later than December 15th of each year and made provided to NHDES on that same date. Upon an ownership change, the Annual Report will include the Transfer of Ownership Responsibility Forms duplicated from the form found below.

The plans that accompanies this manual includes four sheets, "Drainage Operation, Inspection, & Maintenance Plan". The owners and municipality will also maintain a complete set of the approved original design plans.

Respectfully
BERRY SURVEYING & ENGINEERING

Kenneth A. Berry, PE, LLS
CPSWQ, CPESC, CESSWI
Principal, VP – Technical Operations

STORMWATER SYSTEM MANAGEMENT:
INSPECTION AND MAINTENANCE MANUAL

Inspection & Maintenance Manual Checklist

Robert L. Diberto
Mitchell Road
NOTTINGHAM, NH 03290

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Pavement Sweeping	Three Times Per Year	N/A	N/A
		Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas.	Parcel will be free of litter/trash.
		Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
		Invasive Species	Two times per year.	Inspect for Invasive Species	Remove and dispose invasive species.
		Closed Drainage System:			
		Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
		Deep Sump Catch Basins	2 times per year	Check for sediment accumulation & clogging.	Sediment accumulated to a depth of 2 feet.

		& Catch Basins			
☑	**Date**	**BMP / System**	**Minimum Inspection Frequency**	**Minimum Inspection Requirements**	**Maintenance / Cleanout Threshold**
		Subsurface Gravel Wetlands, Rain Gardens, Detention Ponds & Infiltration Ponds	2 times per year	Check for sediment and debris accumulation buildup.	Remove sediment & debris when required. Remove Invasive Species
		Subsurface Gravel Wetland (See also attached UNHSC Checklist)	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Remove dead & diseased vegetation along with all debris, take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		Infiltration Ponds	Annually	72-Hour drawdown time evaluation and vegetation evaluation.	Remove dead & diseased vegetation along with all debris, take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		Riprap Outlet Protection	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.

		Winter Maintenance	Ongoing	Remove snow as directed.	Ongoing
		Post Winter Maintenance	Annually	Remove excess sand, gross solids, and repair vegetation and plantings	Parcel will be free of excess sand, litter/trash. Vegetation per approved plans.
		Annual Report	1 time per year	Submit Annual Report to Nottingham Building Dept. / DPW, NHDES AoT, and kept on file by the owner.	Report to be submitted on or before December 15th each year. Copies submitted to NHDES by that date.

Inspection Check List: Page 3

See also Checklist for Inspection of Gravel Wetland by UNHSC, attached.

The following practices and drainage features will all require periodic inspections and maintenance based on this manual and drainage layout:

Roadside Conveyance Swales

Catch Basins & Drain Manholes

Subsurface Gravel Wetland #101 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #102 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #103 w/ Outlet Structure and Spillway

Subsurface Gravel Wetland #104 w/ Outlet Structure and Spillway

Infiltration Pond #105 w/ Spillway

Outlet Protection and Rip Rap Level Spreaders

Detention Pond #109 w/ Outlet Structure

Subsurface Gravel Wetland #110

STORMWATER SYSTEM MANAGEMENT:
INSPECTION AND MAINTENANCE MANUAL

Inspection & Maintenance Manual Log Form

Robert L. Diberto
Mitchell Road
NOTTINGHAM, NH 03290

BMP / System	Date Inspected	Inspector	Cleaning/Repair (List Items & Comments)	Repair Date	Performed By:

STORMWATER SYSTEM MANAGEMENT: INSPECTION AND MAINTENANCE MANUAL

Deicing Log Form

Robert L. Diberto
Mitchell Road
NOTTINGHAM, NH 03290

Date	Amount Applied	Performed By:	Date	Amount Applied	Performed By:

STORMWATER SYSTEM MANAGEMENT:
INSPECTION AND MAINTENANCE MANUAL

Owner	Responsibility
Name: Robert L Diberto Major Subdivision Address: 324 Route 108 MADBURY NH 03823 Telephone: 603-781-4321 E-Mail Address: stonegreyhouse@gmail.com	The owner is responsible for the conduct of all construction activities, and ultimate compliance with all the provisions of the Stormwater System Operation & Maintenance Plan and the implementation of the Inspection and Maintenance Manual.

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: ________________________________ Date: _____________________

Printed Name:

Representing: Robert L. Diberto
Mitchell Road
NOTTINGHAM, NH 03290

.

STANDARD CONSTRUCTION NOTES:

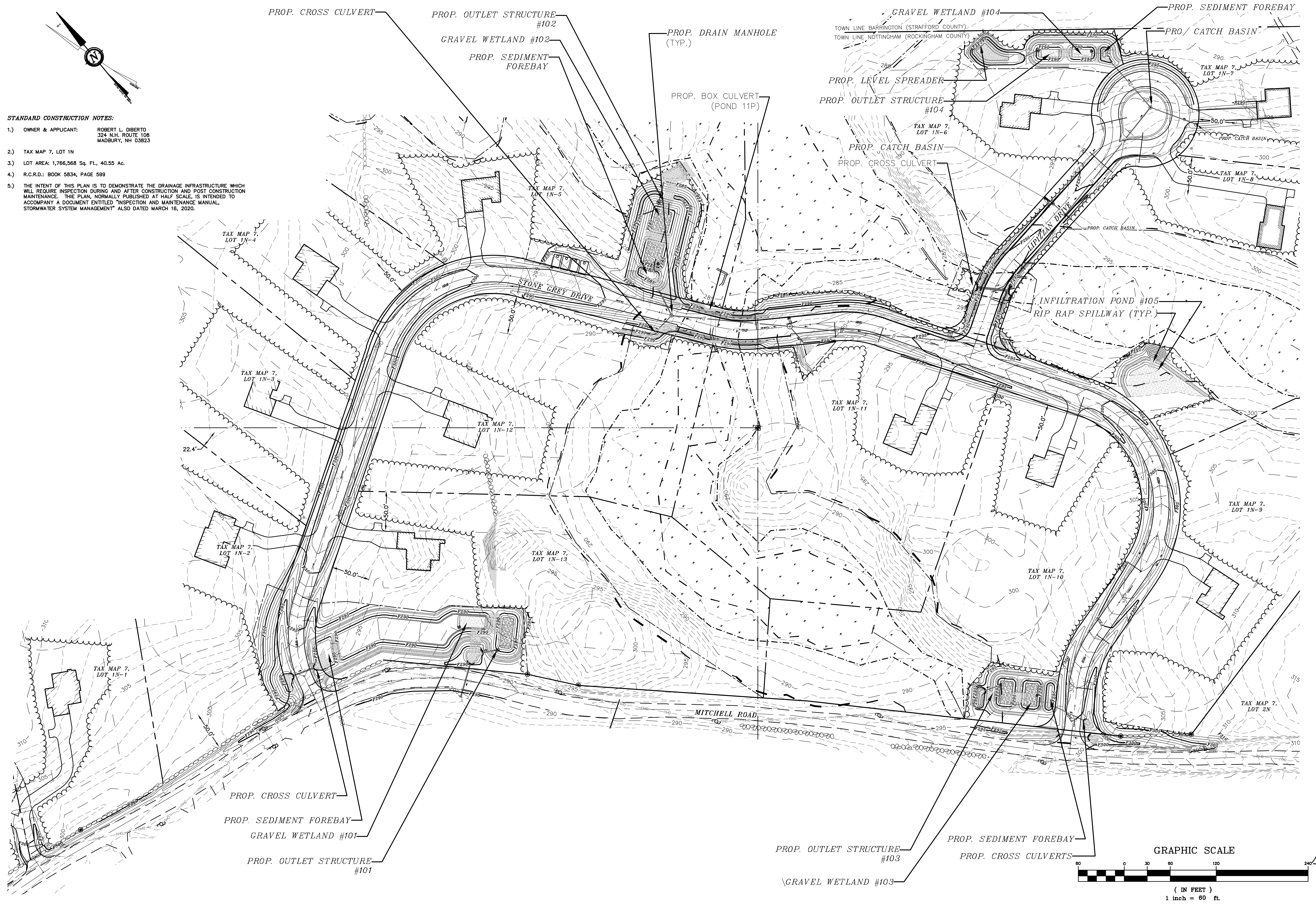
1.) OWNER & APPLICANT: ROBERT L. DIBERTO
324 N.H. ROUTE 108
MADBURY, NH 03823

2.) TAX MAP 7, LOT 1N

3.) LOT AREA: 1,766,568 Sq. Ft., 40.55 Ac.

4.) R.C.R.D.: BOOK 5834, PAGE 599

5.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE DRAINAGE INFRASTRUCTURE WHICH WILL REQUIRE INSPECTION DURING AND AFTER CONSTRUCTION AND POST CONSTRUCTION MAINTENANCE. THIE PLAN, NORMALLY PUBLISHED AT HALF SCALE, IS INTENDED TO ACCOMPANY A DOCUMENT ENTITLED "INSPECTION AND MAINTENANCE MANUAL, STORMWATER SYSTEM MANAGEMENT" ALSO DATED MARCH 16, 2020.



REVISION	DATE	DESCRIPTION
#4	5-5-21	REVISED PER PLANING BOARD COMMENTS
#3	11-2-20	REVISED PER WETLANDS RFMI
#2	5-21-20	REVISED PER AoT APPLICATION
#1	4-29-20	REVISED PER NOTTINGHAM STAFF COMMENT

INSPECTION & MAINTENANCE PLAN
LAND OF
ROBERT L. DIBERTO
MITCHELL ROAD
NOTTINGHAM, NH
TAX MAP 7, LOT 1N

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 60 FT.
DATE : MARCH 16, 2020
FILE NO. : DB 2018 - 125

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

Control of Invasive Plants

New Hampshire
Department of Agriculture,
Markets & Food
Douglas Cygan
603-271-3488
doug.cygan@agr.nh.gov

This guide lists garden plants and weeds which are already causing significant changes to natural areas in the Mid-Atlantic. **Measures for controlling each species are indicated by number, e.g., (3), in the text with a full explanation at the end of this article.** Click on the word Control: to jump to that section. Then click your "back" button to return to the text. Following each section suggested alternative plants are given. These alternatives are native plants, well adapted and needing little care, attractive to birds and butterflies, and an important part of the food web for our indigenous species.

INVASIVE TREES

NORWAY MAPLE (*Acer platanoides*) has large leaves similar to sugar maple. To easily confirm that the plant is Norway maple, break off a leaf and if it's truly Norway maple it will exude milky white sap. Fall foliage is yellow. (Exception: cultivars such as 'Crimson King,' which have red leaves in spring or summer, may have red autumn leaves.) The leaves turn color late, usually in late October after native trees have dropped their foliage. This tree suppresses growth of grass, garden plants, and forest understory beneath it, at least as far as the drip-line. Its wind-borne seeds can germinate and grow in deep shade. The presence of young Norway maples in our woodlands is increasing.
Control: (1); (7), (8), (9), or (10); (11) in mid-October to early November, before the leaves turn color.

TREE OF HEAVEN (*Ailanthus altissima*), is incredibly tough and can grow in the poorest conditions. It produces huge quantities of wind-borne seeds, grows rapidly, and secretes a toxin that kills other plants. Its long compound leaves, with 11-25 lance-shaped leaflets, smell like peanut butter or burnt coffee when crushed. Once established, this tree cannot be removed by mechanical means alone.
Control: (1) - seedlings only. Herbicide - use Garlon 3a (9) with no more than a 1" gap between cuts, or (10); plus (11) on re-growth. Or paint bottom 12" of bark with Garlon 4 Ultra (in February or March to protect surrounding plants). USE MAXIMUM STRENGTH SPECIFIED ON LABEL for all herbicide applications on Ailanthus. Glyphosate is not effective against Ailanthus.

INVASIVE SHRUBS

AUTUMN OLIVE (*Eleagnus umbellata*): Formerly recommended for erosion control and wildlife value, these have proved highly invasive and diminish the overall quality of wildlife habitat.
Control: (1) - up to 4" diameter trunks; (7) or (10) or bury stump. Do not mow.
MULTIFLORA ROSE (*Rosa multiflora*), formerly recommended for erosion control, hedges, and wildlife habitat, becomes a huge shrub that chokes out all other vegetation and is too dense for many species of birds to nest in, though a few favor it. In shade, it grows up trees like a vine. It is covered with white flowers in June. (Our native roses have fewer flowers, mostly pink.) Distinguish multiflora by its size, and by the presence of very hard, curved thorns, and a fringed edge to the leaf stalk.
Control: (1) - pull seedlings, dig out larger plants at least 6" from the crown and 6" down; (4) on extensive infestations; (10) or (11). It may remain green in winter, so herbicide may *applied when other plants are dormant. For foliar application, mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants.*

BUSH HONEYSUCKLES (*Lonicera spp.*), including Belle, Amur, Morrow's, and Tatarian honeysuckle. (In our region, assume that any honeysuckle is exotic unless it is a scarlet-flowered vine). Bush honeysuckles create denser shade than native shrubs, reducing plant diversity and eliminating nest sites for many forest interior species.
Control: (2) on ornamentals; (1); on shady sites only, brush cut in early spring and again in early fall (3); (4) during the growing season; (7); or (10) late in the growing season.

BLUNT-LEAVED PRIVET (*Ligustrum* obtusifolium). *Control*: (1); (7) or (10); or trim off all flowers. Do not cut back or mow.

BURNING BUSH, WINGED EUONYMUS (*Euonymus alatus*), identified by wide, corky wings on the branches.
Control: (1); (7) or (10); or trim off all flowers.

JAPANESE BARBERRY (*Berberis thunbergii*), and all cultivars and varieties.
Control: (1); (7) or (10); or trim off all flowers.

INVASIVE WOODY VINES

All of these vines shade out the shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle. DO NOT PLANT NEXT TO OPEN SPACE.

JAPANESE HONEYSUCKLE (*Lonicera japonica*), including Hall's honeysuckle, has gold-and-white flowers with a heavenly scent and sweet nectar in June. This is probably the familiar honeysuckle of your childhood. It is a rampant grower that spirals around trees, often strangling them.
Control: (1); (3); (10); (11) in fall or early spring when native vegetation is dormant. Plan to re-treat repeatedly.

ORIENTAL BITTERSWEET (*Celastrus orbiculatus*) has almost completely displaced American bittersweet (*C. scandens*). The Asian plant has its flowers and bright orange seed capsules in clusters all along the stem, while the native species bears them only at the branch tips.
Control: (1); keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits; to eradicate use Garlon 3a (10).

JAPANESE KNOTWEED, MEXICAN BAMBOO (*Polygonum cuspidatum*) can grow in shade. The stems have knotty joints, reminiscent of bamboo. It grows 6-10' tall and has large pointed oval or triangular leaves.
Control: Cut at least 3 times each growing season and/or treat with Rodeo (10) or (11). In gardens, heavy mulch or dense shade may kill it.

INVASIVE HERBACEOUS PLANTS

GARLIC MUSTARD (*Alliaria petiolata*, *A. officinalis*), a white-flowered biennial with rough, scalloped leaves (kidney-, heart- or arrow-shaped), recognizable by the smell of garlic and taste of mustard when its leaves are crushed. (The odor fades by fall.)
Control: Pull before it flowers in spring (1), removing crown and roots. Tamp down soil afterwards. Once it has flowered, cut (2), being careful not to scatter seed, then bag and burn or send to the landfill. (11) may be appropriate in some settings.

JAPANESE STILT GRASS (*Microstegium vimineum*) can be identified by its lime-green color and a line of silvery hairs down the middle of the 2-3" long blade. It tolerates sun or dense shade and quickly invades areas left bare or disturbed by tilling or flooding. An annual grass, it builds up a large seed bank in the soil.

Control: Easily pulled in early to mid-summer (1) - be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to landfill. Mowing weekly or when it has just begun to flower may prevent it from setting seed (3). Use glyphosate (11) or herbicidal soap (less effective) on large infestations. Follow up with (5) in spring.

MILE-A-MINUTE VINE, DEVIL'S TAIL TEARTHUMB (*Polygonum perfoliatum*), a rapidly growing annual vine with triangular leaves, barbed stems, and turquoise berries in August which are spread by birds. It quickly covers and shades out herbaceous plants.
Control: same as for stilt grass.

SPOTTED KNAPWEED (*Centaurea maculosa*), a biennial with thistle-like flowers.
Control: Do NOT pull (1) unless the plant is young and the ground is very soft - the tap root will break off and produce several new plants. Wear sturdy gloves. (2); (6); (10) or (11).

CONTROL MEASURES

(1) 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.
(2) DEADHEAD to prevent spread of seeds of invasive plants. Cut off seeds or fruits before they ripen. Bag, and burn or send to a landfill.
(3) 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.
(4) CONTROLLED BURNING during the spring, repeated over several years, allows native vegetation to compete more effectively with the invasive species. This requires a permit. Spot treatment with glyphosate in late fall can be used to make this method more effective.
(5) Use a CORN-BASED PRE-EMERGENCE HERBICIDE on annual weeds. 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.
(6) In lawns, SPOT TREAT with BROAD-LEAF WEEDKILLER. 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.
(7) CUT DOWN the tree. Grind out the stump, or clip off re-growth.
(8) GIRDLE tree: cut through the bark and growing layer (cambium) all around the trunk, about 6" above the ground. Girdling is most effective in spring when the sap is rising, and from middle to late summer when the tree is sending down food to the roots. Clip off sucker sprouts.
(9) FRILL: Using a machete, hatchet or similar device, hack scars (several holes in larger trees) downward into the cambium layer, and squirt in glyphosate (or triclopyr if recommended in text above). Follow label directions for Injection and Frill Applications. This is most effective from middle to late summer. Clip off any sucker sprouts or treat with glyphosate.
(10) CUT STEM / CUT STUMP WITH GLYPHOSATE (or triclopyr if specified above). Follow label directions for Cut Stump Application. Clip off sucker sprouts or paint with glyphosate. See Note on Herbicides.
(11) FOLIAR SPRAY WITH GLYPHOSATE herbicide (see Note on Herbicides). Use a backpack or garden sprayer or mist blower, following label directions. Avoid overspray and/or dripping onto non-target plants, because glyphosate kills most plants except moss. If it rolls off waxy or grass-like foliage, use additional sticker-spreader. Deciduous trees, shrubs, and perennials move nutrients down to the roots in late summer. Glyphosate is particularly effective at this time and when plants have just gone out of flowering. Several invasive species retain their foliage after native plants have lost theirs, and resume growth earlier in spring than most natives. This allows you to treat them without harming the natives. However, the plant must be actively growing for the herbicide to work. Retreatments may be necessary the following year if suckering occurs or the plant hasn't been entirely killed.

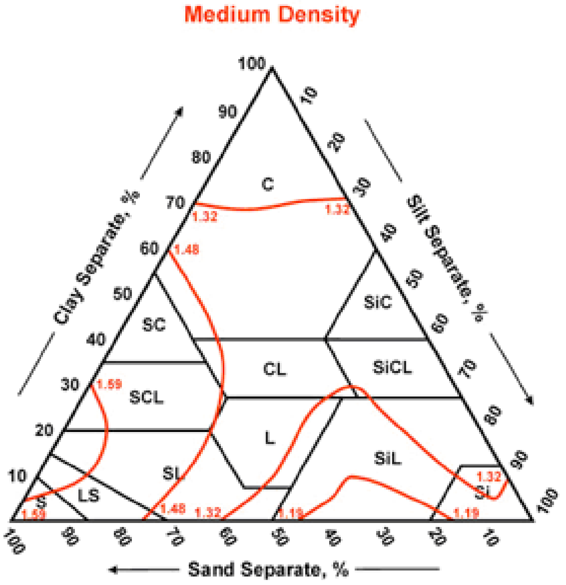
NOTE ON HERBICIDES: It is highly recommended that small populations try to be controlled using non-chemical methods wherever feasible. However, for large infestations, and for a few plants specified above, herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is the least environmentally damaging herbicide in most cases. Add food coloring for visibility, and a soap-based sticker such as Cide-Kick. Glyphosate is ineffective on some plants; for these, triclopyr (Garlon) may be indicated. When using herbicides, read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

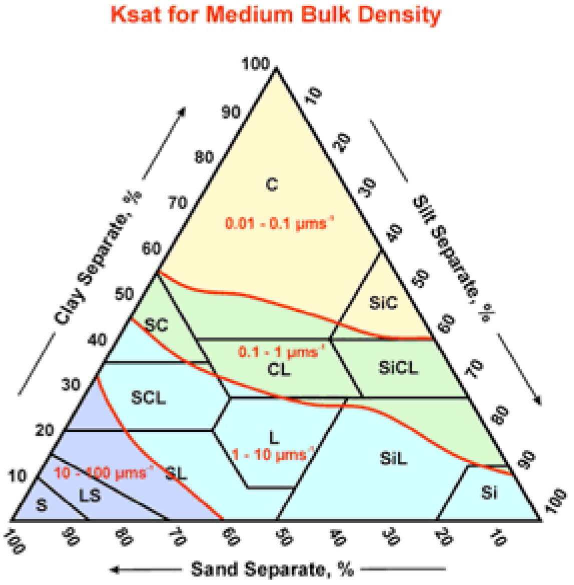
Pavement Temp. (°F) and Trend (↑ ↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only				Not recommended
	Frz. Rain	Apply chemical				Not recommended
30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
20 - 25 ↑	Snow or frz. Rain	Plow and Apply chemical				3.25 for frz. Rain
20 - 25 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↓	Snow or Frz. Rain	Plow and apply chemical				3.25 for frz. Rain
0 to 15 ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed
< 0	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed

Table 19. Application Rates for Deicing

These rates & table format are based on road application guidelines (Mn Snow & Ice Control Field Handbook, Manual 2005-1). Develop your own application rates by adjusting your current rates incrementally downward toward these guidelines. Where temperature categories overlap, select the rate most applicable to your situation.

K_{sat} VALUES
FOR
NEW HAMPSHIRE SOILS
(Including Hydrologic and DES Soil Lot Sizing Groups)





From: Guide for Estimating Ksat from Soil Properties (**Exhibit 618-9**). (http://soils.usda.gov/technical/handbook/contents/part618ex.html)

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K_{sat} VALUES
FOR
NEW HAMPSHIRE SOILS

ABOUT THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND

The Society of Soil Scientists of Northern New England (SSSNNE) is a non-profit professional organization of soil scientists, both in the private and public sectors, which is dedicated to the advancement of soil science. The Society fosters the profession of soil classification, mapping and interpretation, and encourages the dissemination of information concerning soil science. With the intent of contributing to the general human welfare, the Society seeks to educate the public on the wise use of soils and the associated natural resources.

INTRODUCTION

The publication "K_{sat} Values for New Hampshire Soils" is designed to assist soil scientists, engineers, and other professionals by assembling tables of existing data for all soil series currently on the state soil legend with regard to K_{sat} values and hydrologic groupings (Hyd.Grp.). The need for this information has become more important since the adoption by the New Hampshire Department of Environmental Services of the revised Alteration of Terrain rules for stormwater management. Additional information has been provided for each soil series with regard to landform, temperature regime (Temp.), soil textures, NHDES Soil Lot Size Groupings (Group), whether the soil is a Spodosol (Spodosol?) and other information which will be valuable to a variety of soil information users.

The data for each soil series has been sorted 3 ways for ease of searching:

Table A-Sorted by Numerical Legend
Table B-Sorted by Soil Series Name
Table C-Sorted by NHDES Soil Group for Establishing Lot Size

The report represents cumulative efforts by private soil scientists and NHDES staff with assistance from the USDA Natural Resource Conservation Service.

Comments or inquires on the information in this publication may be directed to the Board of Directors at the following address:

Society of Soil Scientists
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PO Box 76
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SATURATED HYDRAULIC CONDUCTIVITY (K_{SAT})

K_{sat} refers to the ease with which pores in a saturated soil transmit water. The estimates presented here are expressed in terms of inches per hour (NRCS official data presents K_{sat} in both micrometers per second and inches per hour). K_{sat} values are based on soil characteristics observed in the field, particularly structure, consistence, porosity, and texture. (USDA NRCS, Web Soil Survey)

Saturated flow occurs when the soil water pressure is positive; that is, when the soil matric potential is zero (satiated wet condition). In most soils this situation takes place when about 95 percent of the total pore space is filled with water. The remaining 5 percent is filled with entrapped air. Saturated hydraulic conductivity cannot be used to describe water movement under unsaturated conditions. (Soil Survey Manual, 1993)

It is commonly known that soil features (and thus data) for a certain soil series name may be slightly different from one county soil survey to the next and the range in characteristics (via the Typical Pedon) may be slightly different. For example – a Marlow soil (series) in Carroll County may have a higher sand content in its B horizon as opposed to a Marlow soil (series) in Coos County; resulting in a slightly different Ksat range for the B horizon.

The K_{sat} data for this publication was obtained from the USDA-NRCS Soil Data Mart using the Typical Pedon from the county that best reflected the soil and/or had the most acres of that soil. This data is presented in B and C horizons only as it is assumed that the topsoil (A or A_p horizon) will be removed in typical construction practices.

References:

Web Soil Survey. *Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/.*

Soil Data Mart. *http://soildatamart.nrcs.usda.gov/*.

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.*

HYDROLOGIC SOIL GROUPS

Hydrologic group is a group of soils having the same runoff potential under similar storm and cover conditions.

Hydrologic groups are used in equations that estimate runoff from rainfall. These estimates are needed for solving hydrologic problems that arise in planning stormwater management, watershed protection, and flood-prevention projects and for planning or designing structures for the use, control, and disposal of water.

Classifications assigned to soils were based on the use of rainfall-runoff data from small watersheds and infiltrometer plots. From these data, relationships between soil properties and hydrologic groups were established. Assignment of soils to hydrologic groups is based on the relationship between soil properties and hydrologic groups. Wetness characteristics, permeability after prolonged wetting, and depth to very slowly permeable layers are properties that assist in estimating hydrologic groups. Minimum annual steady ponded infiltration rate for a bare ground surface determines the hydrologic soil groups.

Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. (The influence of ground cover is treated independently, not in hydrologic soil groups.).

The soils in the United States are placed into four groups, A, B, C, and D, and three dual classes, *A/D, B/D,* and *C/D.* In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by soil properties. Definitions of the classes are as follows:

Group A- Saturated hydraulic conductivity is very high or in the upper half of high and internal free water occurrence is very deep. Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures. Some soils having loamy sand, sandy loam, loam or silt loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group A are as follows. The saturated hydraulic conductivity of all soil layers exceeds 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer are in group A if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 10 micrometers per second (1.42 inches per hour).

Group B- Saturated hydraulic conductivity is in the lower half of high or in the upper half of moderately high and free water occurrence is deep or very deep. Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group B are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] ranges from 10.0 micrometers per second (1.42 inches per hour) to 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer or water table are in group B if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 4.0 micrometers per second (0.57 inches per hour) but is less than 10.0 micrometers per second (1.42 inches per hour).

Group C- Saturated hydraulic conductivity is in the lower half of moderately high or in the upper half of moderately low and internal free water occurrence is deeper than shallow. Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay and less than 50 percent sand and have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group C are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] is between 1.0 micrometers per second (0.14 inches per hour) and 10.0 micrometers per second (1.42 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a restriction or water table are in group C if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 0.40 micrometers per second (0.06 inches per hour) but is less than 4.0 micrometers per second (0.57 inches per hour). .

Group D- Saturated hydraulic conductivity is below the upper half of moderately low, and/or internal free water occurrence is shallow or very shallow and transitory through permanent. Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 50 centimeters [20 inches] and all soils with a water table within 60 centimeters [24 inches] of the surface are in this group, although some may have a dual classification, as described in the next section, if they can be adequately drained. The limits on the physical diagnostic characteristics of group D are as follows. For soils with a water impermeable layer at a depth between 50 centimeters and 100 centimeters [20 and 40 inches], the saturated hydraulic conductivity in the least transmissive soil layer is less than or equal to 1.0 micrometers per second (0.14 inches per hour). For soils that are deeper than 100 centimeters [40 inches] to a restriction or water table, the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface is less than or equal to 0.40 micrometers per second (0.06 inches per hour).

Dual hydrologic soil groups-Certain wet soils are placed in group D based solely on the presence of a water table within 60 centimeters [24 inches] of the surface even though the saturated hydraulic conductivity may be favorable for water transmission. If these soils can be adequately drained, then they are assigned to dual hydrologic soil groups *(A/D, B/D,* and *C/D)* based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state.

References:

National Engineering Handbook, Natural Resource Conservation Service, U.S. Department of Agriculture.

Soil Data Mart. *http://soildatamart.nrcs.usda.gov/*.

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 18.*

TABLE A

NUMERICAL LEGEND

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Madawaska, aquentic	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravelly loamy sand in C
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Ricker	674	2.0	6.0	2.00	6.0	A	4	Organic over bedrock (up to 4" of mineral)	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep

■	no longer recognized
▨	organic materials

TABLE B

SOIL SERIES

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phylite	frigid	loamy	no	organic over silt
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
ladawaska, aquer	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	oamy over sandy, sandy-skeleta	yes	gravelly loamy sand in C
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Ricker	674	2.0	6.0	2.00	6.0	A	4	rganic over bedrock (up to 4" of minera	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393	▨	▨	6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150	▨	▨	▨	▨	D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195	■	■	■	■	D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597	▨	▨	0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995	▨	▨	0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

■	no longer recognized
▨	organic materials

TABLE C

NHDES SOIL GROUPINGS

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Adams	36	1	6.0	20.0	20.00	99.0	A	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Caesar	526	1	20.0	100.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	coarse sand	no	
Champlain	35	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	gravelly sand	no	
Colton	22	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Gloucester	11	1	6.0	20.0	6.00	20.0	A	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hermon	55	1	2.0	20.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hoosic	510	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Masardis	23	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Merrimac	10	1	2.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Quonset	310	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Redstone	665	1	2.0	6.0	6.00	20.0	A	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Success	154	1	2.0	6.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	cemented
Suncook	2	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Warwick	210	1	2.0	6.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Windsor	26	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	sandy	no	
Abenaki	501	2	0.6	2.0	6.00	99.0	B	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Agawam	24	2	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	2	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Bangor	572	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Berkshire	72	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bice	226	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	no	sandy loam
Canton	42	2	2.0	6.0	6.00	20.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Charlton	62	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Dutchess	366	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Fryeburg	208	2	0.6	2.0	2.00	6.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Groveton	27	2	0.6	2.0	0.60	6.0	B	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	2	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	2	0.6	2.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Houghtonville	795	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Lombard	259	2	0.6	6.0	2.00	20.0	C/D	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Monadnock	142	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	oamy over sandy, sandy-skeleta	yes	gravelly loamy sand in C
Occum	1	2	0.6	2.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Salmon	630	2	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Stetson	523	2	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Unadilla	30	2	0.6	2.0	2.00	20.0	B	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Chichester	442	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Acton	146	3	2.0	20.0	2.00	20.0	B	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Becket	56	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	3	0.6	2.0	0.06	2.0	B	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bernardston	330	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Boxford	32	3	0.1	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	silty clay loam

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Buckland	237	3	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Buxton	232	3	0.1	0.6	0.00	0.2	C	Silt and Clay Deposits	frigid	fine	no	silty clay
Canterbury	166	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Chatfield Var.	289	3	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Colonel	927	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Croghan	613	3	20.0	100.0	20.00	100.0	B	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	3	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	3	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Eldridge	38	3	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elmridge	238	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116	3					C	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Gilmanton	478	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Henniker	46	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hitchcock	130	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Howland	566	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Lanesboro	228	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Lovewell	307	3	0.6	2.0	0.60	2.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Machias	520	3	2.0	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Madawaska	28	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
ladawaska, aquer	48	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Melrose	37	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Metacomet	458	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	3	6.0	100.0	6.00	100.0	B	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39	3					C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Montauk	44	3	0.6	6.0	0.06	0.6	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Mundal	610	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Newfields	444	3	0.6	2.0	0.60	2.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	3	0.6	2.0	0.60	2.0	C	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	3	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Paxton	66	3	0.6	2.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Peru	78	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	
Pittstown	334	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	3	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Poocham	230	3	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Scio	531	3	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scituate	448	3	0.6	2.0	0.06	0.2	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Sheepscot	14	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Sudbury	118	3	2.0	6.0	2.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand
Suffield	536	3	0.6	2.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Surplus	669	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	3	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	
Telos	123	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Waumbeck	58	3	2.0	20.0	6.00	20.0	B	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Winooski	103	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Woodbridge	29	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Winooski	9	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Canaan	663	4	2.0	20.0	2.00	20.0	C	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Cardigan	357	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Chatfield	89	4	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Elliottsville	128	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Glebe	671	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Glover	NA	4	0.6	2.0	0.60	2	D	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Hogback	91	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	4	0.6	6.0	0.60	6.0	C/D	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Kearsarge	359	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Lyman	92	4	2.0	6.0	2.00	6.0	A/D	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Macomber	252	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Millsite	251	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monson	133	4	0.6	2.0	0.60	2.0	D	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Pennichuck	460	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Rawsonville	98	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Ricker	674	4	2.0	6.0	2.00	6.0	A	rganic over bedrock (up to 4" of minera	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Saddleback	673	4	0.6	2.0	0.60	2.0	C/D	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Shapleigh	136	4					C/D	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Thorndike	84	4	0.6	2.0	0.60	2.0	C/D	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Tunbridge	99	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Winnecook	88	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Woodstock	93	4	2.0	6.0	2.00	6.0	C/D	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Au Gres	516	5					B	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bemis	224	5	0.6	0.2	0.00	0.2	C	Firm, platy, loamy till	cryic	loamy	no	
Binghamville	534	5	0.2	2.0	0.06	0.2	D	Terraces and glacial lake plains	mesic	silty	no	
Brayton	240	5	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Cabot	589	5	0.6	2.0	0.06	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Charles	209	5	0.6	100.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	silty	no	
Cohas	505	5	0.6	2.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Grange	433	5	0.6	2.0	0.60	2.0	C	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Kinsman	614	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Leicester	514	5	0.6	6.0	0.60	20.0	C	Loose till, loamy textures	mesic	loamy	no	
Lim	3	5	0.6	2.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	5	0.6	2.0	0.60	2.0	C	Flood Plain (Bottom Land)	mesic	silty	no	
Lyme	246	5	0.6	6.0	0.60	6.0	C	Loose till, sandy textures	frigid	loamy	no	
Mashpee	315	5	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	yes	
Monarda	569	5	0.2	2.0	0.02	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Moosilauke	414	5	6.0	20.0	6.00	20.0	C	Loose till, sandy textures	frigid	sandy	no	
Naumburg	214	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Pemi	633	5	0.6	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	5	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314	5					B	Outwash and Stream Terraces	mesic	sandy	yes	
Raynham	533	5	0.2	2.0	0.06	0.2	C	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	5	0.6	2.0	6.00	100.0	D	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Ridgebury	656	5	0.6	6.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	5	0.2	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	frigid	loamy	no	

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Saugatuck	16	5	0.06	0.2	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	5	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	
Scitico	33	5	0.0	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	
Shaker	439	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Squamscott	538	5	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stissing	340	5	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Swanton	438	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Walpole	546	5	2.0	6.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Biddeford	234	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	organic over clay
Bucksport	895	6	░	░	░	░	D	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	6	0.2	6.0	0.02	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over silt
Catden	296	6	░	░	░	░	A/D	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Chocorua	395	6	░	░	6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Greenwood	295	6	▓	▓	▓	▓	A/D	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Ipswich	397	6	░	░	░	░	D	Tidal Flat	mesic	hemic/sapric	no	deep organic
Matunuck	797	6	░	░	20.00	100.0	D	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894	6	░	░	░	░	D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	6	0.6	2.0	0.60	2.0	D	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Natchaug	496	6	░	░	0.20	2.0	D	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Ossipee	495	6	░	░	0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497	6	░	░	20.00	100.0	D	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Peacham	549	6	0.6	2.0	0.00	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	organic over loam
Pondicherry	992	6	░	░	6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Saco	6	6	0.6	2.0	6.00	20.0	D	Flood Plain (Bottom Land)	mesic	silty	no	strata
Scarboro	115	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Searsport	15	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Timakwa	393	6	░	░	6.00	100.0	D	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Vassalboro	150	6	░	░	░	░	D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waskish	195	6	▓	▓	▓	▓	D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Westbrook	597	6	░	░	0.00	2.0	D	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	6	0.0	0.2	0.00	0.2	D	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Wonsqueak	995	6	░	░	0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam

▓ no longer recognized

░ organic materials

🟦 denotes break betweenSoil Group

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Design and Maintenance of Subsurface Gravel Wetlands

February 4, 2015

The University of New Hampshire Stormwater Center conducted a design and maintenance review of subsurface gravel wetland systems for the New Hampshire Department of Transportation. The UNHSC utilized various NHDOT site and construction plans, construction photo documentation, cost and material specification sheets, and the NHDOT subsurface gravel wetland (SGW) design specification dated December 20, 2013. The UNHSC also conducted inspections of subsurface gravel wetland systems that were designed and installed by the NHDOT or its contractors in order to determine maintenance needs. The UNHSC prepared this report as a resource for SGW designers and installers to assist in the design, cost and material specification, and maintenance requirements to ensure a properly functioning SGW system.

Table of Contents

1.0 Introduction

The UNHSC appreciates the opportunity to provide Design and Maintenance Review services for the New Hampshire Department of Transportation. We have completed our review and site visits of NHDOT SGW installations and offer the following summary.

Information Reviewed:

- Various Site Plans prepared by NHDOT and various assisting engineering firms
- Construction Management photos provided by NHDOT
- Costs and material specifications compiled by NHDOT
- NHDOT Subsurface Gravel Wetland Design, dated December 20, 2013

2.0 Background

The subsurface gravel wetland (SGW) stormwater management system has been around for almost 20 years. It approximates the look and function of a natural wetland, effectively removing sediments and other pollutants commonly found in runoff while enhancing the visual appeal of the landscape by adding buffers or greenscape to urban areas. The SGW specification used by NHDOT represents the original specification developed by the University of New Hampshire Stormwater Center (UNHSC) and documented in the UNHSC SGW Design Specifications published in June of 2009. These specifications reflect findings from five years of study of the SGW originally designed and evaluated at UNHSC. The SGW is a horizontal-flow filtration system and should not be confused with stormwater wetlands that function more like ponds. Instead, the SGW includes a dense root mat in a wetland soil that forms a cover over crushed stone. The subsurface crushed stone is the primary flow path for stormwater and is an anaerobic microbe-rich environment for improving water quality. Like other filtration systems, it demonstrates a tremendous capacity to reduce runoff peak flows and improve water quality.

3.0 Implementation

Subsurface gravel wetlands can be used in many regions, with the exception of those that are too arid to support a wetland system. SGW systems have demonstrated exceptional stormwater quality treatment, in particular for nutrients, for a range of land uses including linear transportation environments. It should be noted that as implementation has progressed and coupled with an additional five years of research at the UNHSC, additional findings and design modifications have arisen. The initial design of the UNHSC SGW was to handle runoff from a commuter parking area, best represented by a high density commercial use. In such applications SGW systems are space intensive; however for linear transportation environments some flexibility is expected. Recommendations and comments provided herein reflect additional learning and research findings gathered since the original publication of the UNHSC 2009 SGW specification.

1.) The purpose of the NHDOT underdrain systems is to intercept and provide drainage for seasonal high ground water levels where deemed to be within 0.5' of the wetland soil surface elevation. The rationale is not well defined and requires justification. For systems that are installed within proximity to seasonal high groundwater (SHGW) it is unclear how the benefits of the flushing basins justify overall costs (average cost savings: $1,069 per system). The SGW low flow orifice not only controls the stormwater flow through the system, by this hydraulic control will also ultimately control SHGW elevation in the vicinity of the SGW in the same manner. An SGW may have a portion of the system built below the SHGW. The original SGW at the UNHSC site in Durham, NH is a case in point. A caution is noted in that groundwater flows should not be significant compared to the stormwater flows. Significant groundwater inflows could prevent the formation of the anaerobic zone in the crushed stone.

2.) Overall system sizing for NHDOT systems appears to be based on the UNHSC 2009 SGW drainage design guidance with respect to overall length to width (L:W) ratio. In some locations L:W ratio dominates design orientation. UNHSC researchers recommend that this design criterion not be considered the most critical design element. The critical design element with respect to configuration is to size the system to treat the desired design rainfall depth from the contributing drainage area (1" Water Quality Volume). Linear systems are fine (higher L:W), provided the minimum WQV: Internal Storage Reservoir (ISR) capacity ratio is 4:1 or 25% (WQV:ISR) and the minimum flow path in the crushed stone in each cell is 15 feet.

3.) Most inspected forebays appear to function as wet basins rather than the more desirable dry basin. Dry forebays promote aerobic transformations of nitrogen which is an important first step prior to the anaerobic zone. It is recommended that if forebays cannot be economically installed to operate dry then concrete inlet structures such as off-line deep sump catch basins be used for pre-treatment as opposed to a forebay structure. A deep sump catch basin or other precast inlet structure may also be easier to maintain. A very important function of any SGW forebay is that it be aerobic in order to convert most forms of nitrogen to nitrate or nitrite.

4.) Most forebay outlets lack low flow conveyance which causes them to function as wet basins as opposed to dry basins. It is important that regardless of the configuration of the pretreatment structure that the SGW system forebay contain an outlet with an invert at the same level as the wetland surface to eliminate ponding behind the forebay berm such that obligate wetland plant colonization (cattails) and the potential for anaerobic conditions do not occur. Other options are to design the forebays to convey low flows that draw the fore bay water level down between storm events.

5.) Hydraulic inlets (leaching chambers) appear to be oversized. There are many hydraulic inlet design configurations that may be able to replace existing designs with better function and maintenance capacity and diminished costs. NHDOT SGW systems observed in this study, small and large, seem to use similar hydraulic inlet configurations with the same number of structures regardless of watershed area size or design treatment volume. UNHSC research indicates the hydraulic inlet configuration can be flexible provided it has a greater hydraulic capacity/efficiency than the primary outlet orifice control. Recent experience in UNHSC designs have used slotted hydraulic inlet pipes as a backup inlet with a primary inlet composed of woven geotextile laid on the subsurface pea stone and covered in 6”-8“ diameter stone around the outfall of the inlet pipe (see figures 1 and 2). This configuration protects the stone filter in the subsurface of the wetland system while also providing a more accessible and maintainable surface hydraulic inlet feature that will inevitably be easier and less costly to construct.

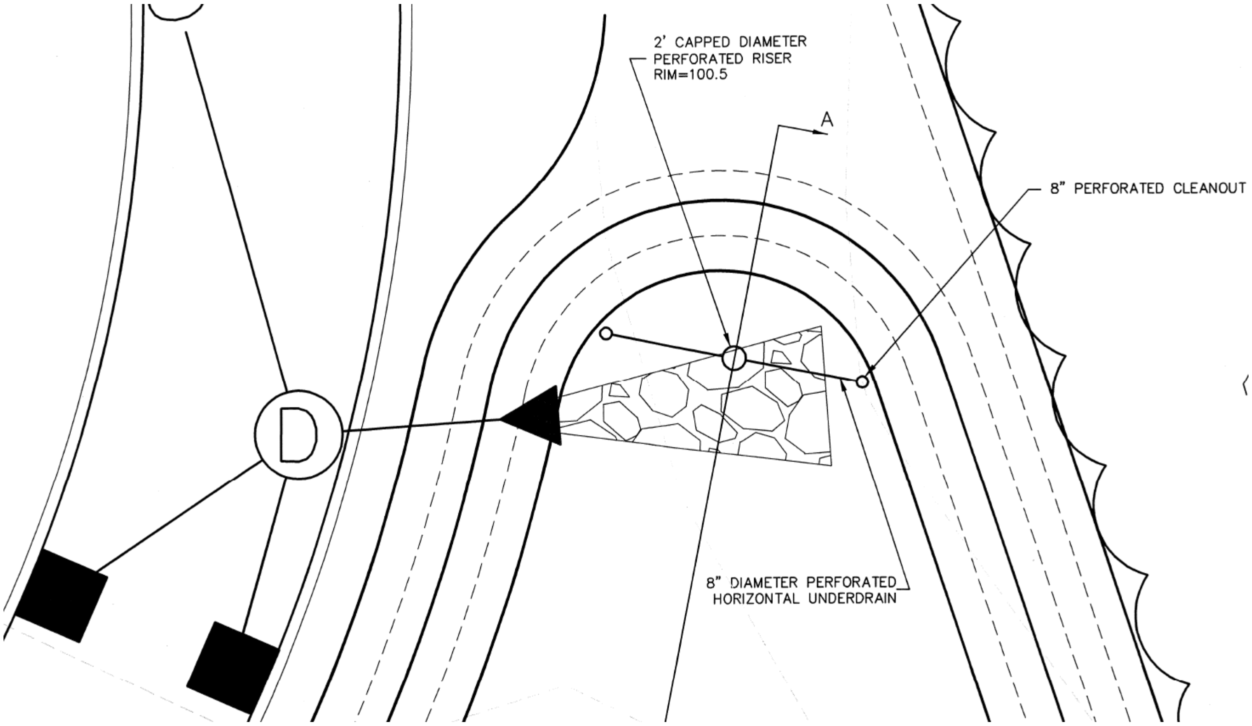

Figure 1: Typical plan view of multi-inlet configuration of a SGW system

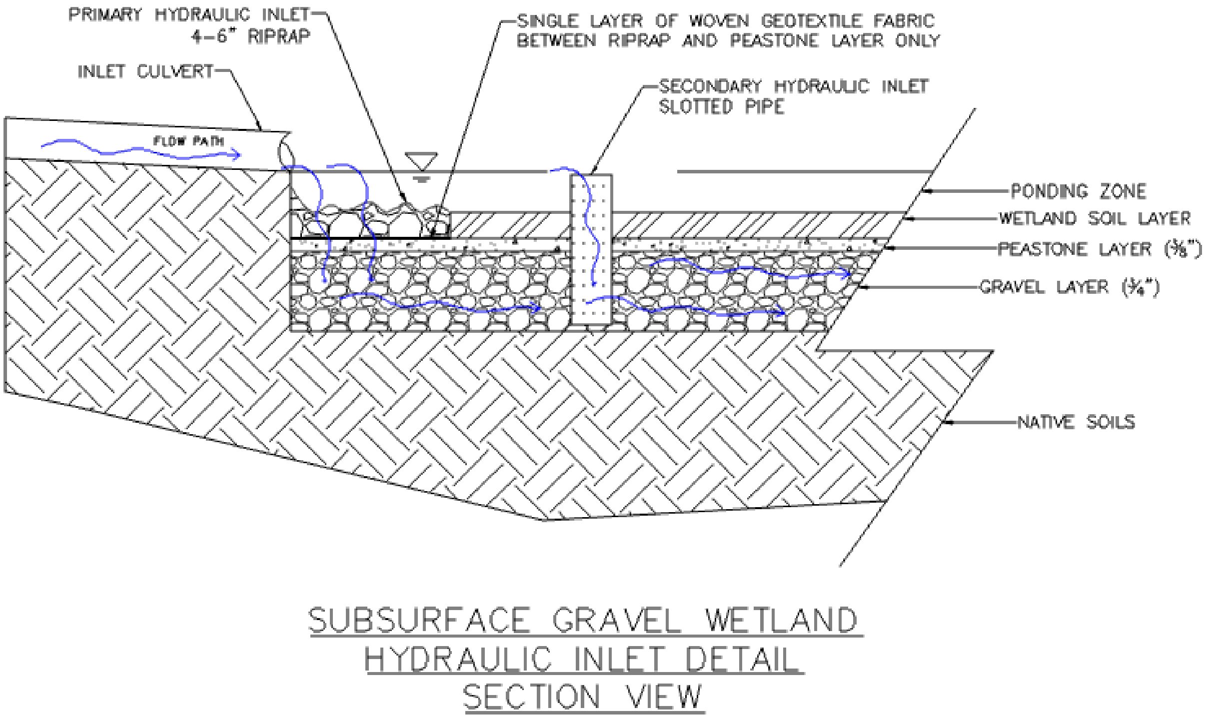

Figure 2: Typical profile view of multi-inlet configuration of a SGW system.

6.) Cleanout structures (leaching chambers) need not be as large since their primary function is for emergency access to the subsurface header pipe that directs flow either to the second wetland chamber or the outlet structure. Cleanout structures can be capped or be installed at the wetland surface grade with a manhole cover to ensure that the cleanouts are accessible, water tight, and does not short circuit system hydraulics.

7.) Some of the outlet control structures have slotted inlets (4” high by 12” wide) to allow for drainage of high flows. These slots need to be protected by covering them with 6-8” stone or some type of trash screen. This will prevent trash, leaves, or other debris from clogging the outlet orifice.

4.0 Costs

For this project NHDOT produced itemized costs associated with the bid prices for the materials and installation of thirteen SGW systems. In meetings with NHDOT personnel several items were determined to be irrelevant to this project and were thus eliminated from the spreadsheet. These items are itemized in the list below:

- 206.1 (Common Structure Excavation) and 206.2 (Rock Structure Excavation) were determined to be unique and not standard items and eliminated

- 209.1 (Granular Backfill) was determined to reflect typical stabilization for bedding material and were eliminated
- 593.331 (Geotextile, Stabilization, Class 3, Non-woven) was determined to be no longer used, and was replaced with Item 585.7 (Stone Fill, Class G) and thus eliminated
- 593.411 (Geotextile, Permeability Control, Class 1, Non-woven), 593.421 (Geotextile, Permeability Control, Class 2, Non-woven), 593.431 (Geotextile, Permeability Control, Class 3, Non-woven) were determined to be erosion control items and were eliminated
- 603.83206 (6" Plastic Pipe, Smooth Interior), 605.906 (6" Pipe Underdrain, Contractors' Option) were determined to be irrelevant to the SGW construction costs and were thus eliminated.

To compare costs, all original capital construction costs were converted to 2014 dollars using consumer price index inflation rates (USDOL, 2014). Average SGW materials and installation costs from the range of assessed projects (see attachment A for the raw costs) was $32,462 per impervious acre treated ($0.75/sf) with a maximum cost of $68,893 per impervious acre treated ($1.47/sf) and a minimum cost of $12,210 per impervious acre treated ($0.28/sf). As a comparison, for the SGW studied at the UNH field facility, costs were calculated at $28,079 per impervious acre treated ($0.64/sf). Cost details are illustrated in Table 1.

Table 1: Comparison of unit costs from all reviewed NHDOT SGW materials cost data and reference information documented by UNHSC. Note all costs are in 2014 dollars

Total Price Statistics	Contributing Impervious Area (A)	Construction Cost per Impervious Area ($/A)	Construction Cost per Impervious Area ($/sf)	UNHSC Costs ($/A)	UNHSC Costs ($/sf)
Minimum	1.90	$ 12,210	$ 0.28	-	-
Average	4.56	$ 32,462	$ 0.75	$28,079	$ 0.64
Maximum	8.40	$ 63,893	$ 1.47	-	-

Results of the cost assessment indicate room for potential savings with respect to design. In light of the detailed recommendations outlined in the Implementation section of this report, cost adjustments and justifications include:

Eliminate items 605.79 and 605.82251-24 (perimeter dewatering controls) for use if SHGW is within 0.5' of SGW surface. There is no data or clear rationale for any threat from SHGW in SGW systems. SHGW levels are often intermittent and would ultimately be controlled by the outlet orifice which is typically 0.5 to 0.67' below SGW surface. Therefore this item is redundant and further justification is necessary to validate the additional expense. Cost savings is estimated at 3.3% or $1,069 per system.

Reduce the number of item numbers 604.921 and 604.922 (alt: 604.193, 604.393, and 604.912) leaching chambers. Hydraulic inlet controls could be reduced if not eliminated in the future as linear routing through the system is adapted in future designs. Other hydraulic inlet controls such as suggested in the Implementation section of this report may be less expensive and offer greater maintainability. There is no clear rationale for these structures at the end of each wetland cell as their only function is to provide access to the perforated header pipe in the subsurface as a potential clean out. At the end of the wetland cell these can simply be solid risers capped at the wetland surface. At the upstream end of each wetland cell, hydraulic inlets should be reduced to two if not eliminated and replaced with alternative inlet structures. Hydraulic inlet capacity need only exceed that of the outlet orifice. Cost savings is estimated at 10% or $3,201 per system.

Items 647.1 (Humus) and 647.29 (Wetland Humus) incurred high variability with respect to cost and in some systems had some of the largest percent costs (>12%) than any additional line items. There is no specification for the wetland humus in the NHDOT SGW design guidelines dated December 20, 2013 and the wetland soil specification in the UNHSC 2009 guidance is weak without sufficient detail to allow for accurate and cost effective bidding. Subsequent to this report UNHSC has worked to develop a particle size distribution for use in specifying wetland humus in future SGW systems. The proposed PSD for wetland humus is provided in Table 2 and reflects a poorly drained soil with a d50 of 0.15 mm and is a clay or silt loam in the soil textural triangle. We feel that this will allow for more cost effective bidding of appropriate soil types with the potential to even employ appropriate onsite excavated materials into select humus mixes thereby further reducing costs. We believe with these additional specifications it is not unrealistic to assume a future price of $15/CY, which represents the 25% quartile cost of the original line item. Cost savings is estimated at 0.5% or $164 per system.

Table 2: Particle size distribution and testing tolerances for wetland humus for the subsurface gravel wetland system

US Standard Sieve Size in/mm	Percent Passing	Percent Passing Testing Tolerances
0.5/12.5	100	± 10.0
#10/2.00	90 - 75	± 5.0
#100/0.15	40-50	± 5.0
#200/0.75	25-50	± 5.0

Relative cost savings are summarized in table 3.

Table 3: Comparison of unit costs from all reviewed SGW materials cost data with projected cost savings from recommended itemized design modifications. Note all costs are amortized to reflect 2014 dollars.

Total Price Statistics	Contributing Impervious Area (A)	Construction Cost per Impervious Area ($/A)	Construction Cost per Impervious Area ($/sf)	UNHSC Costs ($/A)	UNHSC Costs ($/sf)
Minimum	1.90	$ 7,895	$ 0.18	-	-
Average	4.56	$ 27,320	$ 0.63	$28,079	$0.64
Maximum	8.40	$ 53,780	$ 1.23	-	-

5.0 Maintenance

Inspection and maintenance is a critical component of the long term function and effectiveness of any stormwater control measure. Overall the UNHSC inspections of the facilities proved that the SGW systems were largely functioning properly and were well designed and constructed. The UNHSC has produced operation and maintenance guidelines as well as an inspection checklist which have been provided in attachment A of this report. Inspection is critical to assess as built functionality in addition to identifying unique maintenance tasks that may be less general in nature and more site specific. Overall the inspections conducted and provided as an attachment to this report (attachment B) indicates that routine biannual inspection (annual as a minimum) should be initiated at these facilities as a standard of practice. Post construction inspections are critical just after newly constructed SGW system is placed online. While some long-term maintenance items are due to system aging and processing of polluted runoff, some operation issues are a result of construction and installation practices not fully aligned with design specifications. These items are often quickly identifiable. In our assessment of eight NHDOT SGW systems two main issues were identified associated with installation or construction. First numerous pre-treatment forebays in observed systems held ponding water. This impacts the overall chemical function and processing of dissolved inorganic nitrogen species as these ponded forebay areas often turn into anaerobic areas of obligate wetland plants. Second on one particular system (NHDOT # 14633F BMP 19) three to five inches of standing water was observed within the entire system. The final water elevation was being controlled by an outlet pipe invert that was installed above the overall wetland soil elevation. This has resulted in sparse vegetation and likely was not part of the original design.

Beyond construction and installation issues the primary maintenance need identified through these inspections is simple maintenance of the established wetland vegetation. Numerous facilities are in need of this type of maintenance which involves cutting the existing plants down to the base and removing it from the system to prevent breakdown and rerelease of nitrogen.

Attachment A: Raw Item Costs

P. Salo 12/3/2013

SUBSURFACE GRAVEL WETLANDS (13933C/ DB 920)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	16,603	$4.75	$78,864.25
Item 203.6 - Embankment-in-Place (CY)	245	$8.95	$2,192.75
Item 203. 52 - Impervious Material (CY)	500	$14.00	$7,000.00
Item 585.3- Stone Fill, Class C (CY)	83	$18.00	$1,494.00
Item 585.5 - Stone Fill, Class E (CY)	900	$18.00	$16,200.00
Item 585.7 - Stone Fill, Class G (CY)	120	$24.00	$2,880.00
Item 593.411 - Geotextile, Perm. Control, Cl. 1, Non-woven (SY)	215	$2.10	$451.50
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	283	$33.00	$9,339.00
Item 604.91X - Outlet Control Structure (U)	2	$5,800.00	$11,600.00
Item 604.193 - Special Catch Basin (3' Dia) (U)	8	$3,300.00	$26,400.00
Item 604.393 - Specia Drain Manhole 3'x 3' (U)	3	$2,600.00	$7,800.00
Item 605.508 - 8" Perf. Corr. Poly. Pipe Underdrain (LF)	592	$22.00	$13,024.00
Item 605.79 - Underdrain Flushing Basins (EA)	10	$660.00	$6,600.00
Item 605.906 - 6" Pipe Underdrain (Contractor's Option)	506	$16.00	$8,096.00
Item 646.3 - Turf Establishment w/ Mulch & Tackifiers (A)	0.48	$1,650.00	$792.00
Item 647.1 - Humus (CY)	1,900	$15.00	$28,500.00
Item 647.29 - Wetland Humus (CY)	330	$15.00	$4,950.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$225.00	$225.00
Total			**$226,408.50**

P. Salo 12/2/2013

SUBSURFACE GRAVEL WETLANDS (13455A/ GW)			
Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	5,776	$9.75	$56,316.00
Item 203.2 - Rock Excavation (CY)	2,241	$29.00	$64,989.00
Item 203.6 - Embankment-in-Place (CY)	317	$6.25	$1,981.25
Item 203. 53 - Low Permeability Fill (CY)	255	$8.80	$2,244.00
Item 520.1 - Concrete Class A (CY)	6	$375.00	$2,250.00
Item 585.3- Stone Fill, Class C (CY)	131	$34.50	$4,519.50
Item 585.5 - Stone Fill, Class E (CY)	370	$31.00	$11,470.00
Item 585.7 - Stone Fill, Class G (CY)	62	$34.25	$2,123.50
Item 593.421 - Geotextile, Perm. Control, Cl. 2, Non-woven (SY)	502	$2.00	$1,004.00
Item 603.80012 - 12" Plastic Pipe (LF)	31	$40.00	$1,240.00
Item 604.91X - Outlet Control Structure (U)	1	$4,850.00	$4,850.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$1,700.00	$10,200.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$1,850.00	$9,250.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	204	$19.50	$3,978.00
Item 647.1 - Humus (CY)	244	$14.00	$3,416.00
Item 647.29 - Wetland Humus (CY)	123	$16.00	$1,968.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$250.00	$250.00
Total			**$182,049.25**

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SUBSURFACE GRAVEL WETLANDS (10620L/ GW)

Item	Quantity	Bid Price	Total
Item 203. 52 - Impervious Material (CY)	1,919	$18.05	$34,637.95
Item 585.2 - Stone Fill, Class B (CY)	56	$19.15	$1,072.40
Item 585.3- Stone Fill, Class C (CY)	278	$40.25	$11,189.50
Item 585.5 - Stone Fill, Class E (CY)	46	$45.90	$2,111.40
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	200	$6.00	$1,200.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	50	$32.15	$1,607.50
Item 604.91X - Outlet Control Structure (U)	1	$2,045.00	$2,045.00
Item 604.921 - Leaching Chamber, Type 1 (U)	4	$3,080.00	$12,320.00
Item 604.922 - Leaching Chamber, Type 2 (U)	4	$2,950.00	$11,800.00
Item 605.512 - 12" Perf. Corr. Poly. Pipe Underdrain (LF)	187	$15.75	$2,945.25
Item 647.29 - Wetland Humus (CY)	93	$35.00	$3,255.00
Total			**$84,184.00**

There was no earthwork specifcally attributable to the gravel wetland. It is essentially constructed on top of the existing ground between the Rte. 16 NB slope work and the Exit 15 on ramp slope work.

SUBSURFACE GRAVEL WETLANDS (10418G/ GW)			
Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	5,978	$8.00	$47,824.00
Item 203.6 - Embankment-in-Place (CY)	8	$5.00	$40.00
Item 203. 52 - Impervious Material (CY)	1,415	$18.00	$25,470.00
Item 206.1 - Common Structure Excavation (CY)	1,225	$16.00	$19,600.00
Item 585.3- Stone Fill, Class C (CY)	21	$30.00	$630.00
Item 585.5 - Stone Fill, Class E (CY)	1,141	$30.00	$34,230.00
Item 593.331 - Geotextile, Stabilization, Cl. 3, Non-woven (SY)	1,711	$3.00	$5,133.00
Item 603.83206 - 6" Plastic Pipe (Smooth Interior) (LF)	55	$24.00	$1,320.00
Item 604.91X - Outlet Control Structure (U)	1	$2,400.00	$2,400.00
Item 604.921 - Leaching Chamber, Type 1 (U)	4	$3,000.00	$12,000.00
Item 604.922 - Leaching Chamber, Type 2 (U)	2	$3,000.00	$6,000.00
Item 605.906 - 6" Pipe Underdrain (Contractors Option) (LF)	602	$16.00	$9,632.00
Item 605.79 - Underdrain Flushing Basins (EA)	8	$600.00	$4,800.00
Item 647.29 - Wetland Humus (CY)	380	$25.00	$9,500.00
Total			**$178,579.00**

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SUBSURFACE GRAVEL WETLANDS (11238L/ BMP 1590)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	3,933	$4.00	$15,732.00
Item 203.6 - Embankment-in-Place (CY)	184	$2.00	$368.00
Item 203. 52 - Impervious Material (CY)	1,530	$15.00	$22,950.00
Item 206.2- Rock Structure Excavation (CY)	27	$30.00	$810.00
Item 520.1 - Concrete Class A (CY)	5	$500.00	$2,700.00
Item 585.3- Stone Fill, Class C (CY)	90	$30.00	$2,700.00
Item 585.5 - Stone Fill, Class E (CY)	182	$28.00	$5,096.00
Item 585.7 - Stone Fill, Class G (CY)	30	$40.00	$1,200.00
Item 593.411 - Geotextile, Perm. Control, Cl. 1, Non-woven (SY)	192	$2.25	$432.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	20	$32.00	$640.00
Item 604.91X - Outlet Control Structure (U)	1	$3,000.00	$3,000.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$1,250.00	$7,500.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$1,250.00	$6,250.00
Item 605.512 - 12" Perf. Corr. Poly. Pipe Underdrain (LF)	125	$25.00	$3,125.00
Item 646.31 - Turf Establishment w/ Mulch & Tackifiers (SY)	1,482	$0.35	$518.70
Item 647.1 - Humus (CY)	78	$20.00	$1,560.00
Item 647.29 - Wetland Humus (CY)	103	$35.00	$3,605.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$500.00	$500.00
Total			**$78,686.70**

SUBSURFACE GRAVEL WETLANDS (11238L/ BMP 922)

Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	3,822	$4.00	$15,288.00
Item 203.6 - Embankment-in-Place (CY)	467	$2.00	$934.00
Item 206.1 - Common Structure Excavation (CY)	5	$30.00	$150.00
Item 520.1 - Concrete Class A (CY)	4	$500.00	$2,000.00
Item 585.3- Stone Fill, Class C (CY)	22	$30.00	$660.00
Item 585.5 - Stone Fill, Class E (CY)	420	$28.00	$11,760.00
Item 585.7 - Stone Fill, Class G (CY)	69	$40.00	$2,760.00
Item 593.411 - Geotextile, Perm. Control, Cl. 1, Non-woven (SY)	96	$2.25	$216.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	41	$32.00	$1,312.00
Item 604.91X - Outlet Control Structure (U)	1	$3,000.00	$3,000.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$1,250.00	$7,500.00
Item 604.922 - Leaching Chamber, Type 2 (U)	6	$1,250.00	$7,500.00
Item 605.512 - 12" Perf. Corr. Poly. Pipe Underdrain (LF)	306	$25.00	$7,650.00
Item 605.79 - Underdrain Flushing Basins (EA)	2	$500.00	$1,000.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	565	$25.00	$14,125.00
Item 646.31 - Turf Establishment w/ Mulch & Tackifiers (SY)	3,262	$0.35	$1,141.70
Item 647.1 - Humus (CY)	89	$20.00	$1,780.00
Item 647.29 - Wetland Humus (CY)	304	$35.00	$10,640.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$500.00	$500.00
Total			**$89,916.70**

SUBSURFACE GRAVEL WETLANDS (14633F/ BMP 19)

Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	2,396	$4.00	$9,584.00
Item 203.6 - Embankment-in-Place (CY)	468	$3.15	$1,474.20
Item 203. 52 - Impervious Material (CY)	582	$15.00	$8,730.00
Item 520.1 - Concrete Class A (CY)	10	$180.00	$1,800.00
Item 585.3- Stone Fill, Class C (CY)	108	$26.00	$2,808.00
Item 585.5 - Stone Fill, Class E (CY)	267	$25.00	$6,675.00
Item 585.7 - Stone Fill, Class G (CY)	44	$35.00	$1,540.00
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	281	$3.00	$843.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	50	$21.00	$1,050.00
Item 604.91X - Outlet Control Structure (U)	1	$4,000.00	$4,000.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$980.00	$5,880.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$960.00	$4,800.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	192	$15.00	$2,880.00
Item 605.79 - Underdrain Flushing Basins (EA)	2	$300.00	$600.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	429	$20.00	$8,580.00
Item 647.1 - Humus (CY)	233	$20.00	$4,660.00
Item 647.29 - Wetland Humus (CY)	292	$12.50	$3,650.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$110.00	$110.00
Total			**$69,664.20**

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SUBSURFACE GRAVEL WETLANDS (14633E/ BMP 17)			
Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	7,638	$3.75	$28,642.50
Item 203.2 - Rock Excavation (CY)	1,923	$10.75	$20,672.25
Item 203.6 - Embankment-in-Place (CY)	4,211	$4.90	$20,633.90
Item 203. 52 - Impervious Material (CY)	1,746	$12.00	$20,952.00
Item 520.1 - Concrete Class A (CY)	23	$525.00	$12,075.00
Item 585.3- Stone Fill, Class C (CY)	194	$25.00	$4,850.00
Item 585.5 - Stone Fill, Class E (CY)	317	$30.00	$9,510.00
Item 585.7 - Stone Fill, Class G (CY)	52	$40.00	$2,080.00
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	580	$2.00	$1,160.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	38	$24.00	$912.00
Item 604.91X - Outlet Control Structure (U)	1	$2,900.00	$2,900.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$1,115.00	$6,690.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$1,070.00	$5,350.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	369	$10.50	$3,874.50
Item 605.79 - Underdrain Flushing Basins (EA)	6	$240.00	$1,440.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	718	$21.00	$15,078.00
Item 647.29 - Wetland Humus (CY)	289	$20.00	$5,780.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$500.00	$500.00
Total			**$163,100.15**

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SUBSURFACE GRAVEL WETLANDS (14633F/ BMP 16)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	3,498	$4.00	$13,992.00
Item 203.2 - Rock Excavation (CY)	3,532	$9.00	$31,788.00
Item 203.6 - Embankment-in-Place (CY)	25	$3.15	$78.75
Item 203. 52 - Impervious Material (CY)	3,435	$15.00	$51,525.00
Item 206.2- Rock Structure Excavation (CY)	39	$17.00	$663.00
Item 209.1 - Granular Backfill (CY)	7	$28.00	$196.00
Item 520.1 - Concrete Class A (CY)	7	$180.00	$1,260.00
Item 585.2 - Stone Fill, Class B (CY)	202	$20.00	$4,040.00
Item 585.3- Stone Fill, Class C (CY)	106	$26.00	$2,756.00
Item 585.5 - Stone Fill, Class E (CY)	667	$25.00	$16,675.00
Item 585.7 - Stone Fill, Class G (CY)	111	$35.00	$3,885.00
Item 593.411 - Geotextile, Perm. Control, Cl. 1, Non-woven (SY)	222	$3.00	$666.00
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	273	$3.00	$819.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	72	$21.00	$1,512.00
Item 604.91X - Outlet Control Structure (U)	2	$4,000.00	$8,000.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$980.00	$5,880.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$960.00	$4,800.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	360	$15.00	$5,400.00
Item 605.79 - Underdrain Flushing Basins (EA)	6	$300.00	$1,800.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	1,016	$20.00	$20,320.00
Item 647.1 - Humus (CY)	434	$20.00	$8,680.00
Item 647.29 - Wetland Humus (CY)	314	$12.50	$3,925.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$110.00	$110.00
Total			**$188,770.75**

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SUBSURFACE GRAVEL WETLANDS (14633E/ BMP 14)			
Item	**Quantity**	**Bid Price**	**Total**
Item 203.1 - Common Excavation (CY)	4,570	$3.75	$17,137.50
Item 203.2 - Rock Excavation (CY)	572	$10.75	$6,149.00
Item 203.6 - Embankment-in-Place (CY)	23	$4.90	$112.70
Item 203. 52 - Impervious Material (CY)	1,049	$12.00	$12,588.00
Item 520.1 - Concrete Class A (CY)	16	$525.00	$8,400.00
Item 585.3- Stone Fill, Class C (CY)	183	$25.00	$4,575.00
Item 585.5 - Stone Fill, Class E (CY)	210	$30.00	$6,300.00
Item 585.7 - Stone Fill, Class G (CY)	35	$40.00	$1,400.00
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	550	$2.00	$1,100.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	34	$24.00	$816.00
Item 604.91X - Outlet Control Structure (U)	1	$2,900.00	$2,900.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$1,115.00	$6,690.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$1,070.00	$5,350.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	296	$10.50	$3,108.00
Item 605.79 - Underdrain Flushing Basins (EA)	2	$240.00	$480.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	256	$21.00	$5,376.00
Item 647.29 - Wetland Humus (CY)	106	$20.00	$2,120.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$500.00	$500.00
Total			**$85,102.20**

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SUBSURFACE GRAVEL WETLANDS (14633F/ BMP 13)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	8,865	$4.00	$35,460.00
Item 203.2 - Rock Excavation (CY)	1,679	$9.00	$15,111.00
Item 203.6 - Embankment-in-Place (CY)	568	$3.15	$1,789.20
Item 203. 52 - Impervious Material (CY)	4,102	$15.00	$61,530.00
Item 206.2- Rock Structure Excavation (CY)	64	$17.00	$1,088.00
Item 209.1 - Granular Backfill (CY)	9	$28.00	$252.00
Item 520.1 - Concrete Class A (CY)	8	$180.00	$1,440.00
Item 585.3- Stone Fill, Class C (CY)	159	$26.00	$4,134.00
Item 585.5 - Stone Fill, Class E (CY)	922	$25.00	$23,050.00
Item 585.7 - Stone Fill, Class G (CY)	165	$35.00	$5,775.00
Item 593.431 - Geotextile, Perm. Control, Cl. 3, Non-woven (SY)	447	$3.00	$1,341.00
Item 603.83212 - 12" Plastic Pipe (Smooth Interior) (LF)	72	$21.00	$1,512.00
Item 604.91X - Outlet Control Structure (U)	2	$4,000.00	$8,000.00
Item 604.921 - Leaching Chamber, Type 1 (U)	6	$980.00	$5,880.00
Item 604.922 - Leaching Chamber, Type 2 (U)	5	$960.00	$4,800.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	384	$15.00	$5,760.00
Item 605.79 - Underdrain Flushing Basins (EA)	5	$300.00	$1,500.00
Item 605.82251 - 24" Agg. Und. Type 2 w/ 6" Perf. Corr. PE Pipe (LF)	994	$20.00	$19,880.00
Item 647.1 - Humus (CY)	640	$20.00	$12,800.00
Item 647.29 - Wetland Humus (CY)	467	$12.50	$5,837.50
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$110.00	$110.00
Total			**$217,049.70**

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SUBSURFACE GRAVEL WETLANDS (13742B/ GW #2)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	2,172	$5.00	$10,860.00
Item 203.6 - Embankment-in-Place (CY)	51	$5.00	$255.00
Item 203. 52 - Impervious Material (CY)	462	$14.00	$6,468.00
Item 585.3- Stone Fill, Class C (CY)	93	$27.00	$2,511.00
Item 585.5 - Stone Fill, Class E (CY)	82	$34.00	$2,788.00
Item 585.7 - Stone Fill, Class G (CY)	14	$51.00	$714.00
Item 593.421 - Geotextile, Perm. Control, Cl. 2, Non-woven (SY)	314	$2.50	$785.00
Item 603.80012 - 12" Plastic Pipe (LF)	36	$27.00	$972.00
Item 604.91X - Outlet Control Structure (U)	1	$4,000.00	$4,000.00
Item 604.921 - Leaching Chamber Type 1 (U)	6	$1,350.00	$8,100.00
Item 604.912 - Leaching Chamber Type 2 (U)	5	$1,350.00	$6,750.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	109	$15.50	$1,689.50
Item 646.3 - Turf Establishment w/ Mulch & Tackifiers (A)	0.50	$1,775.00	$887.50
Item 647.29 - Wetland Humus (CY)	256	$19.00	$4,864.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$170.00	$170.00
Total			**$51,814.00**

SUBSURFACE GRAVEL WETLANDS (13742B/ GW #1)

Item	Quantity	Bid Price	Total
Item 203.1 - Common Excavation (CY)	1,150	$5.00	$5,750.00
Item 203.6 - Embankment-in-Place (CY)	831	$5.00	$4,155.00
Item 203. 52 - Impervious Material (CY)	924	$14.00	$12,936.00
Item 585.3- Stone Fill, Class C (CY)	98	$27.00	$2,646.00
Item 585.5 - Stone Fill, Class E (CY)	178	$34.00	$6,052.00
Item 585.7 - Stone Fill, Class G (CY)	30	$51.00	$1,530.00
Item 593.421 - Geotextile, Perm. Control, Cl. 2, Non-woven (SY)	333	$2.50	$832.50
Item 603.80012 - 12" Plastic Pipe (LF)	28	$27.00	$756.00
Item 604.91X - Outlet Control Structure (U)	1	$4,000.00	$4,000.00
Item 604.921 - Leaching Chamber Type 1 (U)	6	$1,350.00	$8,100.00
Item 604.912 - Leaching Chamber Type 2 (U)	5	$1,350.00	$6,750.00
Item 605.506 - 6" Perf. Corr. Poly. Pipe Underdrain (LF)	188	$15.50	$2,914.00
Item 646.3 - Turf Establishment w/ Mulch & Tackifiers (A)	0.40	$1,775.00	$710.00
Item 647.1 - Humus (CY)	330	$18.00	$5,940.00
Item 647.29 - Wetland Humus (CY)	60	$19.00	$1,140.00
Item 670.01 - Sediment Sump Measuring Post (EA)	1	$170.00	$170.00
Total			**$64,381.50**

Attachment B: Subsurface Gravel Wetland Inspection and Maintenance Guidance

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

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CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location:
Inspector:
Date:
Time:
Site Conditions:
Date Since Last Rain Event:

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	**S** **U**	
Vegetation is established and thriving	**S** **U**	
No evidence of holes in the wetland soil causing short-circuiting	**S** **U**	
No evidence of erosion at inlet and outlet structures	**S** **U**	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	**S** **U**	
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	**S** **U**	
No evidence of erosion	**S** **U**	
3. Drought Conditions (As needed)		
Water plants as needed	**S** **U**	
Dead or dying plants	**S** **U**	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	**S** **U**	
Good condition, no need for repair	**S** **U**	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	**S** **U**	
Robust coverage by year 2 or later	**S** **U**	
6. Inlet and Outlet Controls		
Flow is unobstructed in openings (grates, orifices, etc)	**S** **U**	
Structures are operational with no evidence of deterioration	**S** **U**	
7. Vegetation removal (once every 3 years)		
Prune dead, diseased, or decaying plants	**S** **U**	

Corrective Action Needed	**Due Date**
1.	
2.	
3.	

10/25/2011, University of New Hampshire Stormwater Center

Attachment C: Results of Subsurface Gravel Wetland Inspections

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

10/25/2011, University of New Hampshire Stormwater Center

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 NB & SB Exit 5 Area DOT#: 14633F BMP 19 Inspector: Tim Puls
Date: 7/18/14 Time: 1:00PM Site Conditions: Poor
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	[✓ S] U	Constructed 2013-2014
Vegetation is established and thriving	[✓ S] U	
No evidence of holes in the wetland soil causing short-circuiting	[✓ S] U	
No evidence of erosion at inlet and outlet structures	[✓ S] U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	S [✓ U]	Standing water in fore bay & both cells, approx. 3-5”
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		Too much water. Plants are thin in areas where water has been pooling.
Water plants as needed	S [✓ U]	
Dead or dying plants	S [✓ U]	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		NA
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	S U	
6. Inlet and Outlet Controls:		
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		NA
Prune dead, diseased, or decaying plants	S U	

Corrective Action Needed	**Due Date**
1. Outlet pipe invert is above the wetland soil elevation which keeps the system flooded. Could bring the soil up another 6-8”.	ASAP
COMMENT: Area of system is smaller than other BMPs but has the same number of structures.	

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 NB, East side DOT#: 14633F BMP 18 Inspector: Tim Puls
Date: 7/18/14 Time: 1:45PM Site Conditions: Fair, Draining
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1^{st} Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	[✓ S] U	Constructed 2013-2014
Vegetation is established and thriving	[✓ S] U	
No evidence of holes in the wetland soil causing short-circuiting	[✓ S] U	
No evidence of erosion at inlet and outlet structures	[✓ S] U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	S [✓ U]	Standing water in fore bay & both cells, approx. 3-5”
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		Too much water. Plants are thin in areas where water has been pooling.
Water plants as needed	S [✓ U]	
Dead or dying plants	S [✓ U]	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	S [✓ U]	NA
Robust coverage by year 2 or later	S U	
6. Inlet and Outlet Controls:		A piece of trash was blocking outlet orifice. Blockage cleared and system began to drain.
Flow is unobstructed in openings (grates, orifices, etc)	S [✓ U]	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		
Prune dead, diseased, or decaying plants	S U	NA

Corrective Action Needed	**Due Date**
1. Outlet control structure has slotted inlets (4” x 12”) that are unprotected. Bring rip rap up over the inlet slots to keep trash out of structure.	ASAP
COMMENT: Area of system is smaller than other BMPs but has the same number of structures.	

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

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ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

10/25/2011, University of New Hampshire Stormwater Center

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 Exit 5 NB Off Ramp Area DOT#: 14633F
Inspector: Tim Puls
Date: 7/18/14
Time: 12:30AM
Site Conditions: Very Good
Date of Last Rain Event: 7/16/14
Two systems – BMP 13, BMP 16

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	[✓ S] U	New systems – BMP 13 approx. 1.5 years old and BMP 16 is approx. 6 months. GC is Severino Construction
Vegetation is established and thriving	[✓ S] U	
No evidence of holes in the wetland soil causing short-circuiting	[✓ S] U	
No evidence of erosion at inlet and outlet structures	[✓ S] U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	[✓ S] U	None
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls:		
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		
Prune dead, diseased, or decaying plants	[✓ S] U	

Corrective Action Needed	**Due Date**
COMMENT: Both BMPs drain to a central 48" line. Could reduce number of hydraulic inlets and cleanout structures.	

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

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ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	

POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

10/25/2011, University of New Hampshire Stormwater Center

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 Exit 5 NB On Ramp DOT#: 14633E BMP 17
Inspector: Tim Puls
Date: 7/18/14
Time: 1:30PM
Site Conditions: Good
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	S U	NA System constructed in 2008-2009
Vegetation is established and thriving	S U	
No evidence of holes in the wetland soil causing short-circuiting	S U	
No evidence of erosion at inlet and outlet structures	S U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	S [✓ U]	Fore bay has pooled water. Full of cattails.
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls:		
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		No maintenance has been done to date.
Prune dead, diseased, or decaying plants	S [✓ U]	

Corrective Action Needed	**Due Date**
1. Cut vegetation down to base and remove from system.	ASAP
COMMENT: Area of system is larger than other BMPs but has the same number of structures. 6 hydraulic inlets, 5 leach basins, 1 outlet	

Regular Inspection and Maintenance Guidance for Gravel Wetland Stormwater Management Device

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ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 Exit 5 SB On Ramp DOT#: 14633E BMP 14
Inspector: Tim Puls
Date: 7/18/14
Time: 1:20PM
Site Conditions: Good
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	S U	NA System constructed in 2008-2009
Vegetation is established and thriving	S U	
No evidence of holes in the wetland soil causing short-circuiting	S U	
No evidence of erosion at inlet and outlet structures	S U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	[✓ S] U	Fore bay is dry
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls:		
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		No maintenance has been done to date.
Prune dead, diseased, or decaying plants	S [✓ U]	

Corrective Action Needed	**Due Date**
1. Cut vegetation down to base and remove from system.	ASAP
COMMENT: Area of system is smaller than other BMPs but has the same number of structures. 6 hydraulic inlets, 5 leach basins, 1 outlet	

Regular Inspection and Maintenance Guidance for
Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	

POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 Exit 1 NB Off Ramp DOT#: 13933C
Inspector: Tim Puls
Date: 7/18/14
Time: 11:00AM
Site Conditions: Very Good
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	S U	NA – This system was constructed in 2007
Vegetation is established and thriving	S U	
No evidence of holes in the wetland soil causing short-circuiting	S U	
No evidence of erosion at inlet and outlet structures	S U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	[✓ S] U	None
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		Some trash has accumulated
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		Plants are in good condition. Treatment cells are densely vegetated.
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls:		Concrete outlet structure 8’ x 10’
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		No maintenance has been done to date.
Prune dead, diseased, or decaying plants	S [✓ U]	

Corrective Action Needed	**Due Date**
1. Maintain vegetation = cut down to base of plant and remove vegetation from system	
COMMENT: This is an extremely large system. RRoseen advised them to replace “E Stone” with 3/8” pea stone during construction.	

Regular Inspection and Maintenance Guidance for
Gravel Wetland Stormwater Management Device

Regular inspection and maintenance is critical to the effective operation of Gravel Wetland systems. It is the responsibility of the owner to maintain the Gravel Wetland in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, overly wet or dry (I.E., drought), regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	FREQUENCY
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	

POST-CONSTRUCTION ACTIVITY	FREQUENCY
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

10/25/2011, University of New Hampshire Stormwater Center

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: Rt. 16 NB Exit 5
Inspector: Jamie Houle, Tim Puls
Date: 6/20/14
Time: 10:00AM
Site Conditions: Good
Date of Last Rain Event: 6/13/14 (0.75")

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	S U	NA System constructed in 2010-2011
Vegetation is established and thriving	S U	
No evidence of holes in the wetland soil causing short-circuiting	S U	
No evidence of erosion at inlet and outlet structures	S U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	[✓ S] U	Fore bay has pooled water. Some cattails.
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		Wet fore bay w/ evidence of anaerobic conditions, i.e. standing water, cattails, and algae.
No evidence of sediment accumulation, trash, and debris.	S [✓ U]	
Good condition, no need for repair	S [✓ U]	
5. Vegetation Coverage		
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls:		Inlet is obstructed due to high elevation of fore bay control. Need low flow outlet from fore bay.
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		
Prune dead, diseased, or decaying plants	[✓ S] U	

Corrective Action Needed	**Due Date**
1. Fore bay needs to be drained. 2.2ft of standing water.	ASAP
COMMENT:	

10/25/2011, University of New Hampshire Stormwater Center

Regular Inspection and Maintenance Guidance for
Gravel Wetland Stormwater Management Device

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ACTIVITIES

Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system and vegetation care is important to system productivity and health. A gravel wetland is a subsurface horizontal filtration system and does not rely upon the surface soils for treatment. As such, surface infiltration rates are expected to be low and not a criterion for cleaning. Rather, stormwater access to subsurface treatment is by way of inlet standpipes. It is important to ensure these inlets are performing properly.

1ST YEAR POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
1. Check that plants have adequate water, are well established and healthy. **Remedy:** Water plants as necessary, remove or treat diseased vegetation as necessary and re-vegetate poorly established plants as necessary	After every major storm in the first few months, then biannually.
2. Check for erosion in the system and short circuiting (holes) in the surface wetland soils. **Remedy:** Soil piping, erosion, and holes should be filled, lightly compacted, and reseeded.	
POST-CONSTRUCTION ACTIVITY	**FREQUENCY**
3. Check inlets outlets and stand pipes for leaves and debris. **Remedy**: Rake in and around the system to clear it of debris. Also, clear the inlet, outlets and standpipes if obstructed.	Quarterly initially, biannually, frequency adjusted as needed after 3 inspections
4. Check for animal burrows and short circuiting in the system. **Remedy:** Soil erosion from short circuiting or animal boroughs should be repaired when they occur. The holes should be filled and lightly compacted	
5. Check that the depth of accumulated sediment in the sedimentation chamber is less than 12 inches or 10 percent of the pretreatment volume. **Remedy:** The sedimentation chamber, forebay, and treatment cells outlet devices should be cleaned when drawdown times exceed 36 hours. Remove material with rakes where possible rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.	
6. Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning. **Remedy:** Repair or replace any damaged structural parts, inlets and outlets.	Annually
7. Check for robust vegetation coverage throughout the system. **Remedy:** If at least 50 % vegetation coverage is not established after 2 years, reinforcement planting should be performed.	
8. Cut and remove vegetation from the Gravel Wetland System and forebay in order to maintain nitrogen removal performance. **Remedy:** The vegetation should be cut and removed from the system to prevent nitrogen from cycling back into the system.	Once every 3 years

CHECKLIST FOR INSPECTION OF GRAVEL WETLAND

Location: I93 Exit 2 Park & Ride. DOT#: 10418G
Inspector: Tim Puls
Date: 7/18/14
Time: 10:30AM
Site Conditions: Very Good
Date of Last Rain Event: 7/16/14

Inspection Items	**Satisfactory (S) or Unsatisfactory (U)**	**Comments/Corrective Action**
1st Year Post-Construction Monitoring (After every major storm for the first three months)		
Plants are stable, roots not exposed	S U	NA – This system was constructed in 2007
Vegetation is established and thriving	S U	
No evidence of holes in the wetland soil causing short-circuiting	S U	
No evidence of erosion at inlet and outlet structures	S U	
Post-Construction Routine Monitoring (at least every 6 months thereafter as per USEPA Good House-Keeping Requirements. Inspection frequency can be reduced to annual following 2 years of monitoring indicating the rate of sediment accumulation is less than cleaning criteria listed below.)		
1. Standing Water		
Gravel wetland surface is free of standing water or other evidence of clogging, such as discolored or accumulated sediments	[✓ S] U	Plunge pools around the 3 inlet locations
2. Short Circuiting & Erosion		
No evidence of animal burrows or other holes	[✓ S] U	
No evidence of erosion	[✓ S] U	
3. Drought Conditions (As needed)		
Water plants as needed	[✓ S] U	
Dead or dying plants	[✓ S] U	
4. Sedimentation Chamber or Forebay Inlet Inspection		Some trash has accumulated
No evidence of sediment accumulation, trash, and debris.	[✓ S] U	
Good condition, no need for repair	[✓ S] U	
5. Vegetation Coverage		Plants are in good condition. Forebay is >95% cattails. Treatment cells are densely vegetated.
50 % coverage established throughout system by first year	[✓ S] U	
Robust coverage by year 2 or later	[✓ S] U	
6. Inlet and Outlet Controls		
Flow is unobstructed in openings (grates, orifices, etc)	[✓ S] U	
Structures are operational with no evidence of deterioration	[✓ S] U	
7. Vegetation removal (once every 3 years)		No maintenance has been done to date.
Prune dead, diseased, or decaying plants	S [✓ U]	

Corrective Action Needed	**Due Date**
1. Maintain vegetation = cut down to base of plant and remove vegetation from system	
COMMENT: Perimeter ground water drainage is a 6” PUD in 2’x3’ stone trench. Flow is directed to inlets.	

Infiltration Feasibility Report

Tax Map 7, Lot 1N
Mitchell Road
Nottingham, NH

Prepared for:

Robert L. Diberto
324 Route 108
Madbury NH 03823

Land of:
Robert L. Diberto
324 Route 108
Madbury NH 03823

Prepared by:

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825

STATE OF NEW HAMPSHIRE
KENNETH
A.
BERRY
No. 14243
LICENSED
PROFESSIONAL ENGINEER

Project Number:
DB 2018-125

May 21, 2020
Revised: May 5, 2021

Table of Contents

1.0 Location of Practices:

The project proposes one location of infiltration for ground water recharge as well as channel flow protection purposes. The following is a list by Pond number designation in the HydroCAD report.

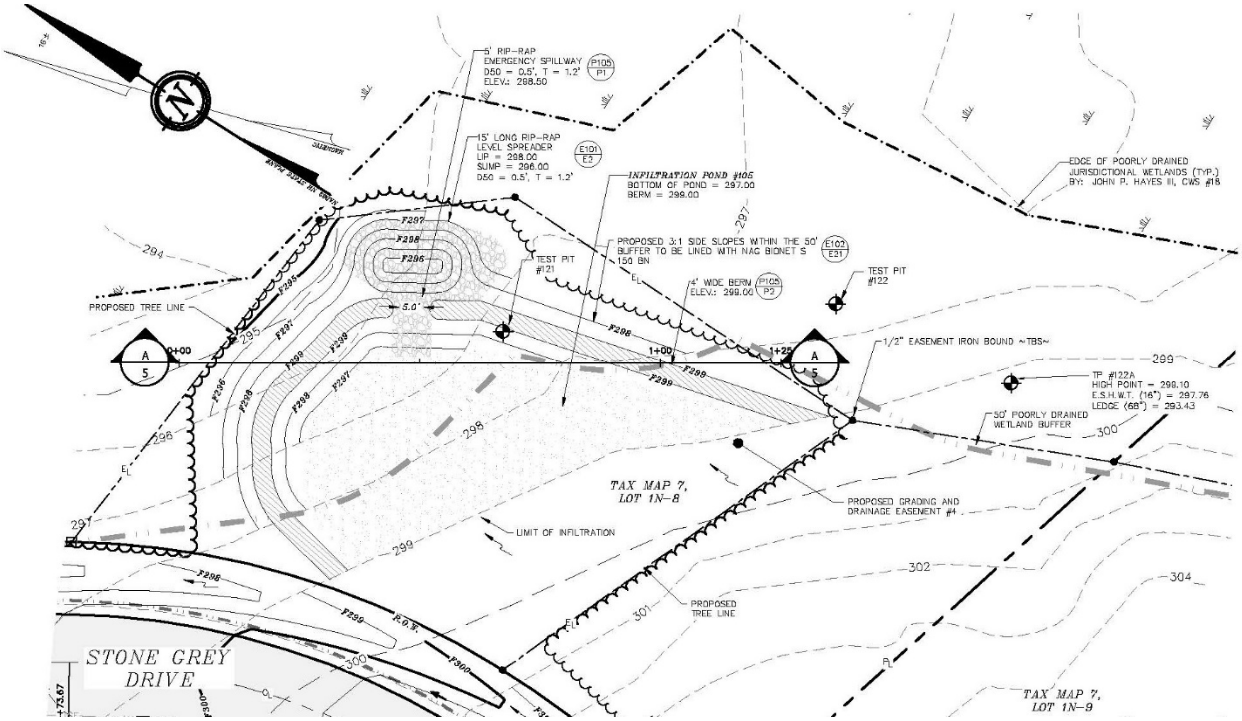
Infiltration Pond #105 (POND 105) – This is an Infiltration Pond located to the east of Stone Grey Drive 16+00 and to the west of the wetland that traverses through the property. It directly receives clean runoff from land area upslope and directly over the practice. It also receives treated runoff from Subsurface Gravel Wetland #113 through the outlet structure and level spreader. The emergency spillway is only active during the 100 year storm event.

2.0 Existing topography at the location of the practice

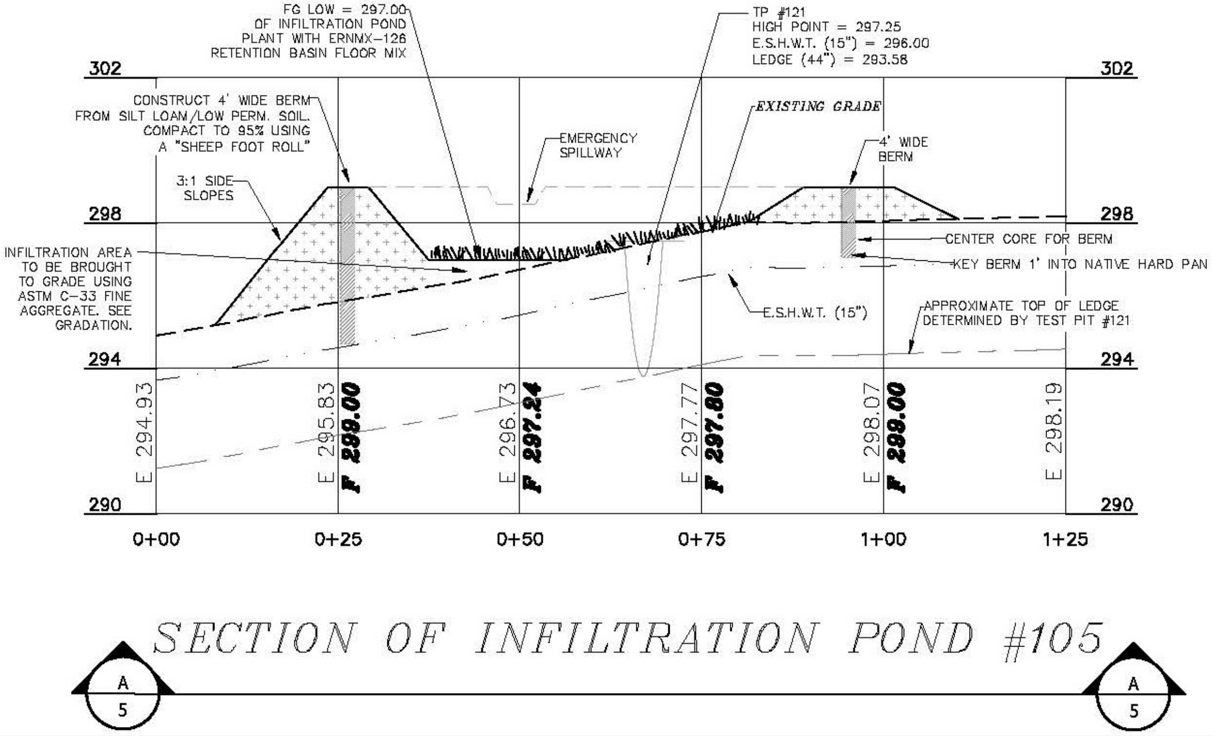
Infiltration Pond #105 (POND 105) – The existing topography within the area is at an approximate 5% slope. The area was woodlands and is comprised of a natural state soils.

3.0 Test Pit Locations

Infiltration Pond #102 (POND 102) – The practice has a surface area of 4,420 SF. The practice is located over test pits #121. See test pit profiles below. See test pit locations on Sheet P-105, Proposed Infiltration Pond #105 Detail Plan. These test holes were completed in the Spring of 2020. See Site Specific Soil Map Report by John P Hayes III. There is one soil in the vicinity of this practice, Newfields Loamy Soil. Newfields Loamy Soil, considered to be HSG C soil where the most restrictive published Ksat is 0.6 inches per hour. This practice was designed using 0.3 in. / hr. This practice was designed using 0.3 in. / hr.



Infiltration Pond #105 (POND 105) – (Reference Sheet P-105)



Section of Infiltration Pond #105

4.0 Seasonal high water table (SHWT) and bedrock elevations

Infiltration Pond #105 (Pond 105)

TP#121: Existing Surface Elevation of TP = 297.25’
SHWT = 15 – Inches 296.00’
Bedrock = 44 – Inches 293.58’
Ground Water = N/A
Deepest Elevation of TP = 293.58’

Inf. Pond #105 (Pond 105): Bottom of Pond Elevation: 297.00-299.00’
Bottom of Organic Loam: 296.75’-298.75’

See section on page #3. Contour of the proposed practice to follow the S.H.W.T. contour.

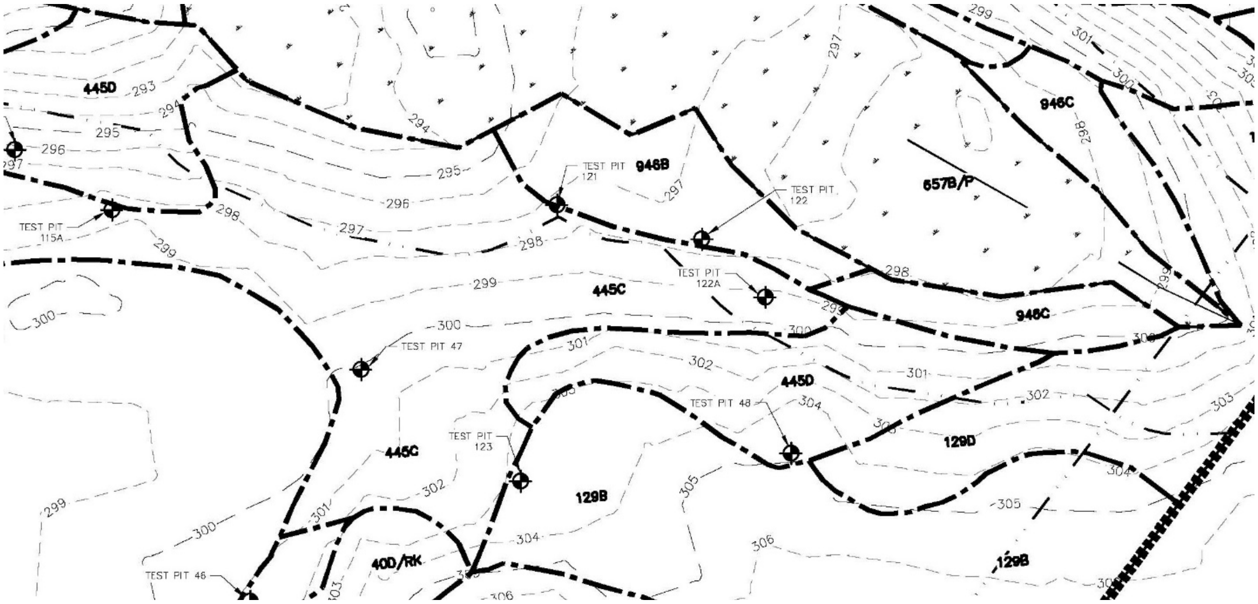
5.0 Profile descriptions

The following test pit data was collected on summer of 2018 and winter of 2019.

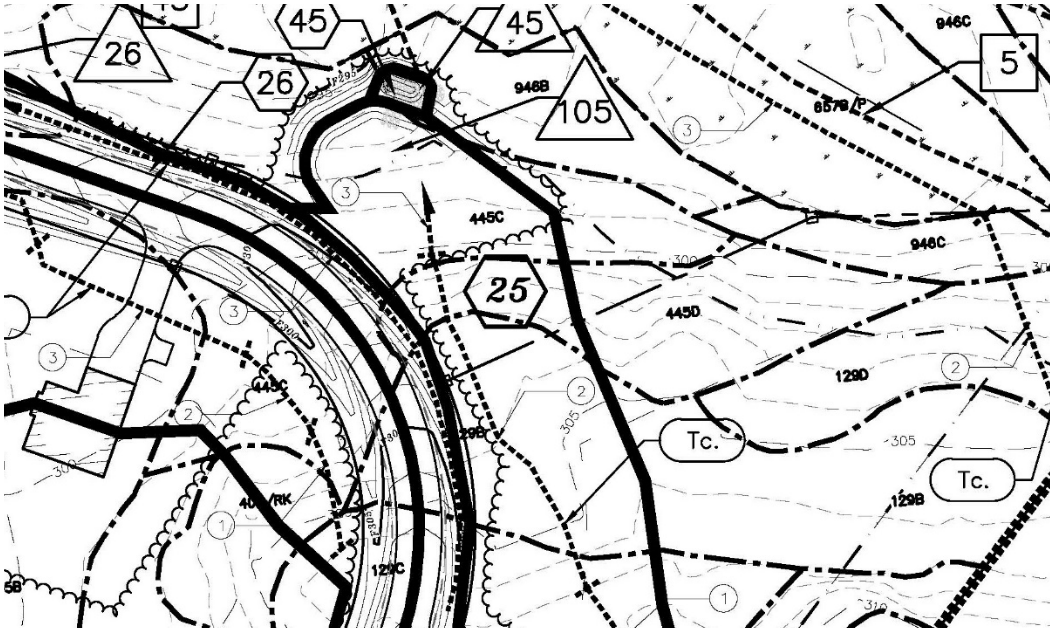
TEST PIT #121
0-6” 10YR 3/2 VERY DARK GRAYISH BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
6-15” 7.5YR 5/4 BROWN, FINE SANDY LOAM, GRANULAR, FRIABLE
15-44" 2.5Y 6/3 VERY DARK BROWN, FINE SANDY LOAM WITH REDOXIMORPHIC FEATURES PRESENT, MASSIVE, FRIABLE
TERMINATED: 44”
E.S.H.W.T.: 15”
RESTRICTIVE LAYER: N/A
REFUSAL: 44”
GROUND WATER OBSERVED: N/A

6.0 Soil plan in the area of the proposed practices

The two infiltration practices are located over Newfields Loamy Soil.



Infiltration Pond #105 (Pond 105)



Infiltration Pond #105 (Pond 105)

7.0 Summary of Infiltration Rate

Test holes were conducted during the spring of 2020. The Site Specific Soil Mapping documented that the soils in the area of the practices are Newfields Loamy Soil. (See Site Specific Soil Map Report prepared by John P Hayes, CWS, CSS, dated January 8, 2020. The most restrictive Ksat documented in the report is 0.6 inches per hour. The practices on site have been designed with an infiltration rate of 0.3 inches per hour based on this range with a 50% safety factor.

Amoozemeter testing was not conducted on site and the alternate method of using the USDA / NRCS published values was employed. Reference is made to K Sat Values for New Hampshire Soils (Including Hydrologic and DES Soil Lot Sizing Groups, sponsored by the Society of Soil Scientists of Norther New England, Publication #5 dated September 2009.

All of the surface water runoff received by Infiltration Pond #105 is considered clean and does not require pre-treatment or treatment before infiltration.

Respectfully submitted:

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, EIT
Project Engineer

Kenneth A. Berry, PE, LLS
CPSWQ, CPESC, CESSWI
Principal, VP – Technical Operations

Welcome to New Hampshire's Watershed Report Cards built from the 2016, 305(b)/303(d)

Each Watershed Report Card covers a single 12 digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2016 Consolidated Assessment and Listing Methodology (CALM) at https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2016/documents/r-wd-17-08.pdf

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at ftp://pubftp.nh.gov/DES/wmb/WaterQuality/SWQA/

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "**Data Access** Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit. (http://www2.des.state.nh.us/WaterShed_SWQA/SWQA_Map.aspx)

How are assessments coded in the report card?

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
*Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL^ Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL^ Needed	5-P	5-M or 5-T					

* "Category 1" only exists at the Assessment Unit Level.

^ TMDL stands for Total Maximum Daily Load studies (http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm)

November 30, 2017

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030707

HUC 12 NAME LITTLE RIVER

(Locator map on next page only applies to this HUC12)

Assessment Cycle 2016

Good		Full Support Good
Marginal		Full Support Marginal
Likely Good		Insufficient Information – Potentially Full Support
No Data		No Data
Likely Bad		Insufficient Information – Potentially Not Support
Poor		Not Support Marginal
Severe		Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHIMP600030707-01		TRIB TO MENDUMS POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-01		MENDUMS POND	5-P	2-G	2-G	4A-M
NHLAK600030707-01-02		MENDUMS POND - UNH REC AREA	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-02		NOTTINGHAM LAKE	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-03		ROUND POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-04		UNNAMED POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-05		CEDAR WATERS	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-06		LANGLEY POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-07		CYRUS POND	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-08		ROUND PONDS	3-ND	3-ND	3-ND	4A-M
NHLAK600030707-09		UNNAMED POND	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-01		PERKINS BROOK - THRU ROUND POND TO MENDUMS POND	5-P	3-ND	3-ND	4A-M
NHRIV600030707-02		HOWE BROOK	5-P	3-ND	3-ND	4A-M
NHRIV600030707-03		LITTLE RIVER	5-P	3-ND	3-ND	4A-M
NHRIV600030707-04		UNNAMED BROOK - THRU CYRUS & LANGLEY PONDS TO CEDAR WATERS	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-05		PEA PORRIDGE BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-07		LITTLE RIVER	5-M	4A-M	3-ND	4A-M
NHRIV600030707-08		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-09		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-10		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-11		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-12		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-13		MCDANIAL BROOK - TO MENDUMS POND	5-P	3-ND	3-ND	4A-M
NHRIV600030707-14		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-15		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-16		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-17		UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030707-18		WOOD ROAD BROOK	3-ND	3-ND	3-ND	4A-M

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030707

HUC 12 NAME LITTLE RIVER

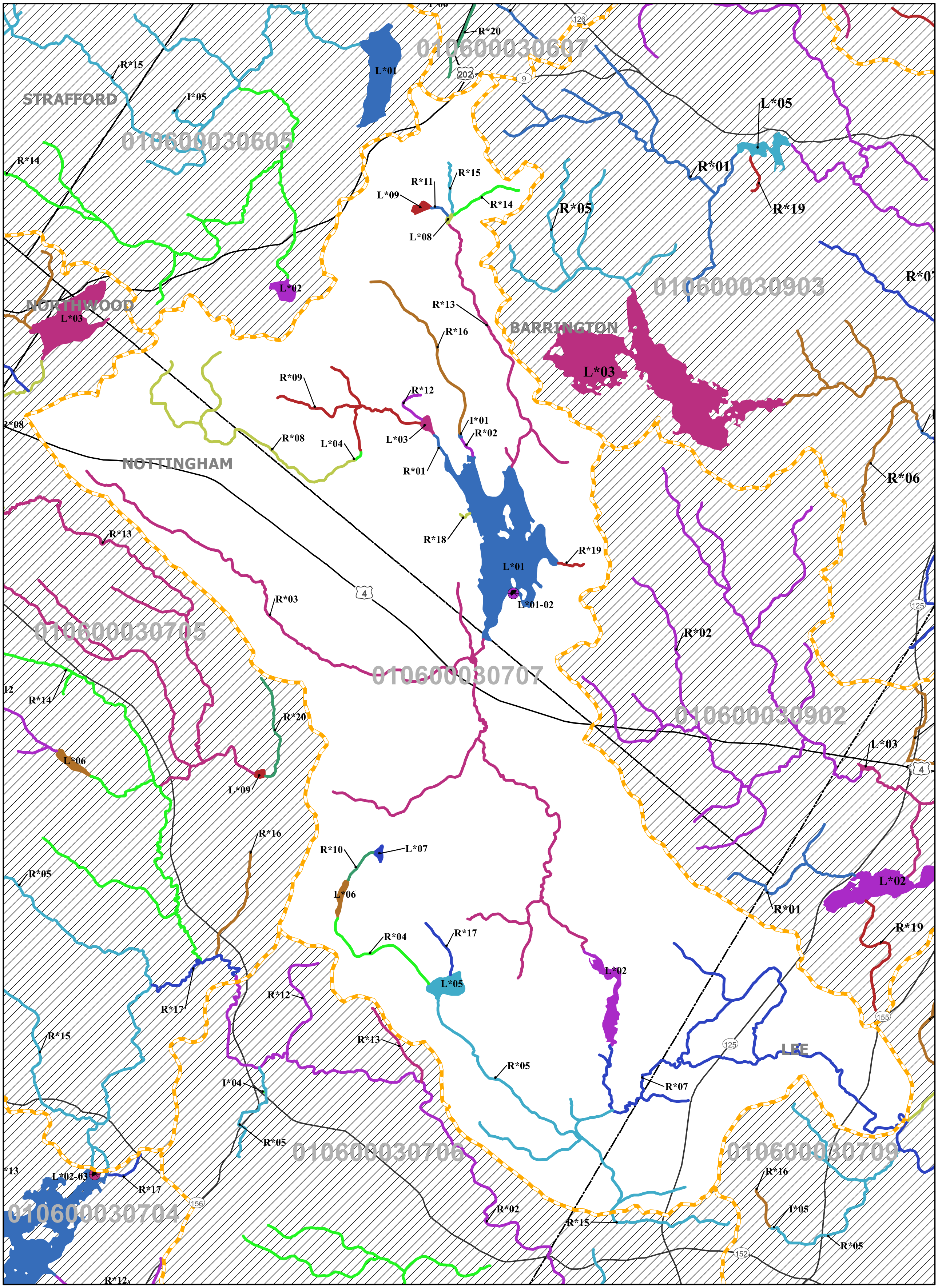
(Locator map on next page only applies to this HUC12)

Assessment Cycle 2016

Good	🟩	Full Support Good
Marginal	🟩	Full Support Marginal
Likely Good	🟦	Insufficient Information – Potentially Full Support
No Data	⬜	No Data
Likely Bad	🟨	Insufficient Information – Potentially Not Support
Poor	🟧	Not Support Marginal
Severe	🟥	Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHRIV600030707-19		POWERLINE BROOK	3-ND	3-ND	3-ND	4A-M

AUIDs For HUC12: 010600030707 - Little River



🟧 HUC12 Boundaries
Town Boundaries

Major Roads

Interstate Highway
US Highway
State Highway

Assessment Unit Coloring
AUs Ending with:

0 =	🟩
1 =	🟦
2 =	🟪
3 =	🟪
4 =	🟩
5 =	🟦
6 =	🟫
7 =	🟦
8 =	🟨
9 =	🟥

N
W E
S

Abbrv. Label	HUC 12
L* 03	010 700060201

AUID = NH L AK700060201 - 03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.4 0.8 1.2 1.6 Miles

Scale:1:42,900

S:\WD-Watershed\WQ_Planning\305b_303d\2016\AUIDs\HUC12Maps

Assessment Unit ID NHRIV600030707-03
Assessment Unit Name LITTLE RIVER
Primary Town NOTTINGHAM

Size 10.3150 MILES
Beach N
Assessment Unit Category*~ 5-P

Designated Use Description	*Desig. Use Category	Desig. Use Threat	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority	Source Name (Impairments only)
Aquatic Life	5-P		Benthic-Macroinvertebrate Bioassessments (Streams)	N			3-ND		
			CHLORIDE	N	2016	N/A	3-PAS		
			DISSOLVED OXYGEN SATURATION	N	2016	N/A	2-G		
			Fishes Bioassessments (Streams)	N			3-ND		
			OXYGEN, DISSOLVED	N	2016	2016	3-PNS		
			PHOSPHORUS (TOTAL)		2007	NLV	3-ND		
			TURBIDITY	N	2016	N/A	3-PAS		
			pH	N	2016	2016	5-P	LOW	Source Unknown
Drinking Water After Adequate Treatment	2-G								
Fish Consumption	4A-M		Mercury	N			4A-M		Atmospheric Deposition - Toxics
Primary Contact Recreation	3-ND		Escherichia coli	N			3-ND		
Secondary Contact Recreation	3-ND		Escherichia coli	N			3-ND		
Wildlife	3-ND								

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)

List of ORW and Impaired (4A and 5) Waters for CGP NOIs 5/10/12

(Outstanding Resource Waters and Impairments on the 2010 305(b)/303(d) that need, or have a completed, TMDL. File last update May 10, 2012.)

Assessment Unit ID	Assessment Unit Name	Impairment Name	Pollutant allocated in TMDL (if different than "Impairment Name")	CGP eNOI Equivalent (to Impairment Name)	TMDl Approval Date	TMDL Name	Outstanding Resource Water (ORW) (AUIDs not shown are non ORWs) {See http://www2.des.state.nh.us/gis/onestop/ if your AUID says "Review OneStop GIS ORW Layer"}
NHRIV600030704-07	MOUNTAIN BROOK - UNNAMED BROOKS	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030704-10	MOUNTAIN BROOK - BETWEEN MOUNTAIN POND AND PAWTACKAWAY LAKE	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030704-12	UNNAMED BROOK - TO PAWTUCKAWAY POND EAST SIDE	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030704-14	WHITE GROVE BROOK - TO PAWTUCKAWAY POND	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030705-13	NORTH RIVER	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030706-02	NORTH RIVER	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030706-02	NORTH RIVER	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030707-01	PERKINS BROOK - THRU ROUND POND TO MENDUMS POND	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030707-02	HOWE BROOK	Dissolved oxygen saturation		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030707-02	HOWE BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030707-03	LITTLE RIVER	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030707-07	LITTLE RIVER	Aluminum		METALS (OTHER THAN MERCURY)			Non-ORW
NHRIV600030707-07	LITTLE RIVER	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030707-07	LITTLE RIVER	Lead		METALS (OTHER THAN MERCURY)			Non-ORW
NHRIV600030707-07	LITTLE RIVER	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030707-13	MCDANIAL BROOK - TO MENDUMS POND	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW

DRAFT 2016 LIST OF THREATENED OR IMPAIRED WATERS THAT REQUIRE A TMDL

(i.e., Category 5 Impairments - this represtents the Section 303(d) List)

(Excluding Fish/Shellfish Consumption Advisories due to Mercury - see Note 3)

Notes:
1. See the Consolidated Assessment and Listing Methodology (CALM) for definitions and details regarding how this list was developed.
2. This list is sorted by Waterbody Type and then Assessment Unit ID.
3. By this note, all marine surface waters in New Hampshire are also included on this list due to statewide fish/shellfish consumption advisories issued because of mercury levels in fish/shellfish tissue. To keep the size of this list manageable, mercury impairment for fish/shellfish consumption are not shown below.
4. TMDL stands for Total Maximum Daily Load study. TMDL schedules are subject to change as funding and resources become available.
5. Waters presented on this list may also be threatened or impaired by other pollutants or nonpollutants that do not require a TMDL.

Assessment Unit ID	Water Name	Primary Town	Water Size	Size Unit	Use Desc	Impairment Name	DES Category	Threatened	TMDL Priority	Source Name
NHRIV600030704-10	Mountain Brook -Between Mountain Pond And Pawtackaway Lake	Nottingham	0.179	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030704-12	Unnamed Brook - To Pawtuckaway Pond	Nottingham	1.227	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030704-13	Unnamed Brook	Nottingham	0.422	Miles	Aquatic Life	pH	5-P		Low	Source Unknown
NHRIV600030704-14	Unnamed Brook	Nottingham	0.179	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030705-13	North River	Nottingham	8.109	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030706-02	North River	Nottingham	8.000	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030707-01	Unnamed Brooks - Thru Round Pond To Mendums Pond	Barrington	0.158	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030707-02	Howe Brook	Barrington	0.153	Miles	Aquatic Life	Dissolved oxygen saturation	5-M	N	Low	Source Unknown
						Oxygen, Dissolved	5-M	N	Low	Source Unknown
						pH	5-P	N	Low	Source Unknown
NHRIV600030707-03	Little River	Nottingham	10.315	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030707-07	Little River	Lee	7.225	Miles	Aquatic Life	Aluminum	5-M	N	Low	Source Unknown
						Lead	5-M	N	Low	Source Unknown
						pH	5-M	N	Low	Source Unknown
NHRIV600030707-13	Unnamed Brook	Barrington	2.606	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030708-02	Fresh River, Pws, Cls-A	Epping	10.024	Miles	Aquatic Life	Dissolved oxygen saturation	5-P	N	Low	Source Unknown
						Oxygen, Dissolved	5-P	N	Low	Source Unknown
						pH	5-M	N	Low	Source Unknown
NHRIV600030708-07	Piscassic River, Pws, Cls-A	Newmarket	7.385	Miles	Aquatic Life	Dissolved oxygen saturation	5-M	N	Low	Source Unknown
						Oxygen, Dissolved	5-P	N	Low	Source Unknown
						pH	5-P	N	Low	Source Unknown
NHRIV600030708-14	Unnamed Brook	Fremont	9.088	Miles	Aquatic Life	DISSOLVED OXYGEN SATURATION	5-P	N	Low	Source Unknown
						OXYGEN, DISSOLVED	5-P	N	Low	Source Unknown
						pH	5-M	N	Low	Source Unknown
NHRIV600030709-07	Lamprey River	Lee	6.354	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030709-08	Lamprey River	Lee	1.674	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030709-09	Lamprey River	Durham	1.164	Miles	Aquatic Life	pH	5-P	N	Low	Source Unknown
NHRIV600030709-13	Moonlight Brook, Newmarket	Newmarket	0.778	Miles	Aquatic Life	pH	5-M	N	Low	Source Unknown
NHRIV600030801-01	Fordway Brook	Raymond	3.401	Miles	Aquatic Life	PH	5-P	N	Low	Source Unknown
NHRIV600030801-05	Fordway Brook	Raymond	14.294	Miles	Aquatic Life	Benthic-Macroinvertebrate Bioassessments (Streams)	5-P		Low	Source Unknown

List of ORW and Impaired (4A and 5) Waters for CGP NOIs 5/10/12

(Outstanding Resource Waters and Impairments on the 2010 305(b)/303(d) that need, or have a completed, TMDL. File last update May 10, 2012.)

Assessment Unit ID	Assessment Unit Name	Impairment Name	Pollutant allocated in TMDL (if different than "Impairment Name")	CGP eNOI Equivalent (to Impairment Name)	TMDl Approval Date	TMDL Name	Outstanding Resource Water (ORW) (AUIDs not shown are non ORWs) {See http://www2.des.state.nh.us/gis/onestop/ if your AUID says "Review OneStop GIS ORW Layer"}
NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030901-02	WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK	Escherichia coli		PATHOGENS			Non-ORW
NHRIV600030901-02	WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030901-02	WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030901-03	HAINES BROOK	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030901-06	NORTON BROOK	Escherichia coli		PATHOGENS	29-Aug-11	58 NH BACTERIA IMPAIRED WATERS	Non-ORW
NHRIV600030901-06	NORTON BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030902-01	UNNAMED TRIBUTARY - TO WHEELWRIGHT POND	Dissolved oxygen saturation		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030902-01	UNNAMED TRIBUTARY - TO WHEELWRIGHT POND	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030902-01	UNNAMED TRIBUTARY - TO WHEELWRIGHT POND	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW
NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	Oxygen, Dissolved		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	pH		PH/ACIDITY/CAUSTIC CONDITIONS			Non-ORW
NHRIV600030902-03	OYSTER RIVER	Dissolved oxygen saturation		ORGANIC ENRICHMENT/OXYGEN DEPLETION			Non-ORW
NHRIV600030902-03	OYSTER RIVER	Escherichia coli		PATHOGENS	21-Sep-10	NEW HAMPSHIRE STATEWIDE BACTERIA	Non-ORW

Cycle	Assessment Unit ID (AUID)	Assessment Unit Name	Town(s) Primary Town is Listed First	Water Size	Size Unit	Designated Use Description	Parameter Name	NHDES Category	Threatened	TMDL Priority
2018	NHRIV600030805-02	EXETER RIVER	EXETER, BRENTWOOD	5.372	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030805-04	GREAT BROOK - BRICKYARD BROOK -	EAST KINGSTON, KENSINGTON	7.587	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030805-04	GREAT BROOK - BRICKYARD BROOK -	EAST KINGSTON, KENSINGTON	7.587	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030805-09	EXETER RIVER	EXETER	1.047	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030806-04	PARKMAN BROOK	STRATHAM, EXETER	5.477	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600030806-09	UNNAMED BROOK - TO SQUAMSCOTT	NEWFIELDS	1.412	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	N	LOW
2018	NHRIV600030806-09	UNNAMED BROOK - TO SQUAMSCOTT	NEWFIELDS	1.412	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	15.194	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments (Streams)	5-P	N	LOW
2018	NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	15.194	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	15.194	MILES	Aquatic Life Integrity	pH	5-M		LOW
2018	NHRIV600030901-01	WINNICUT RIVER - UNNAMED BROOK - CORNELIUS BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	15.194	MILES	Primary Contact Recreation	Escherichia coli	5-P	N	LOW
2018	NHRIV600030901-02	WINNICUT RIVER - BARTON BROOK - MARSH BROOK - THOMPSON BROOK	GREENLAND, NORTH HAMPTON, STRATHAM	12.729	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030901-05	PACKER BROOK	GREENLAND	1.756	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P		LOW
2018	NHRIV600030901-05	PACKER BROOK	GREENLAND	1.756	MILES	Aquatic Life Integrity	pH	5-M		LOW
2018	NHRIV600030901-06	NORTON BROOK	GREENLAND	0.883	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030901-06	NORTON BROOK	GREENLAND	0.883	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030901-07	WINNICUT RIVER - UNNAMED BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	8.462	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P		LOW
2018	NHRIV600030901-07	WINNICUT RIVER - UNNAMED BROOK	NORTH HAMPTON, HAMPTON, STRATHAM	8.462	MILES	Aquatic Life Integrity	pH	5-M		LOW
2018	NHRIV600030902-01	UNNAMED TRIBUTARY - TO	LEE, NOTTINGHAM	1.483	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-01	UNNAMED TRIBUTARY - TO	LEE, NOTTINGHAM	1.483	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	BARRINGTON, LEE,	11.406	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-02	OYSTER RIVER - CALDWELL BROOK	BARRINGTON, LEE,	11.406	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030902-03	OYSTER RIVER	MADBURY, BARRINGTON, LEE	8.537	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-03	OYSTER RIVER	MADBURY, BARRINGTON, LEE	8.537	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030902-04	OYSTER RIVER - CHELSEY BROOK	LEE, DURHAM, MADBURY	10.500	MILES	Aquatic Life Integrity	Aluminum	5-M	N	LOW
2018	NHRIV600030902-04	OYSTER RIVER - CHELSEY BROOK	LEE, DURHAM, MADBURY	10.500	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-04	OYSTER RIVER - CHELSEY BROOK	LEE, DURHAM, MADBURY	10.500	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030902-06	LONGMARSH BROOK - BEAUDETTE	DURHAM	1.675	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	N	LOW
2018	NHRIV600030902-06	LONGMARSH BROOK - BEAUDETTE	DURHAM	1.675	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030902-08	HAMEL BROOK - LONGMARSH BROOK	DURHAM	0.462	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-08	HAMEL BROOK - LONGMARSH BROOK	DURHAM	0.462	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030902-09	COLLEGE BROOK	DURHAM	1.892	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-M	N	LOW
2018	NHRIV600030902-09	COLLEGE BROOK	DURHAM	1.892	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600030902-10	RESERVOIR BROOK	DURHAM	1.343	MILES	Aquatic Life Integrity	Benthic-Macroinvertebrate Bioassessments	5-M	N	LOW
2018	NHRIV600030902-10	RESERVOIR BROOK	DURHAM	1.343	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600030902-10	RESERVOIR BROOK	DURHAM	1.343	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-10	RESERVOIR BROOK	DURHAM	1.343	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030902-11	LITTLEHOLE CREEK	DURHAM, MADBURY	3.781	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-P	N	LOW
2018	NHRIV600030902-13	JOHNSON CREEK - GERRISH BROOK	MADBURY, DOVER, DURHAM	5.846	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030902-14	HORSEHIDE BROOK	DURHAM	0.749	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	N	LOW
2018	NHRIV600030902-16	WENDYS BROOK	LEE	0.972	MILES	Aquatic Life Integrity	Chloride	5-M	N	LOW
2018	NHRIV600030902-16	WENDYS BROOK	LEE	0.972	MILES	Aquatic Life Integrity	pH	5-M	N	LOW
2018	NHRIV600030903-01	MADLA BROOK	BARRINGTON	4.902	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030903-02	MALLEGO BROOK	BARRINGTON, MADBURY	9.543	MILES	Aquatic Life Integrity	pH	5-P	N	LOW
2018	NHRIV600030903-06	BELLAMY RIVER - UNNAMED BROOK	BARRINGTON	3.387	MILES	Aquatic Life Integrity	Oxygen, Dissolved	5-M	N	LOW
2018	NHRIV600030903-06	BELLAMY RIVER - UNNAMED BROOK	BARRINGTON	3.387	MILES	Aquatic Life Integrity	pH	5-M	N	LOW

Welcome to New Hampshire's Watershed Report Cards built from the 2018, 305(b)/303(d)

Each Watershed Report Card covers a single 12 digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2018 Consolidated Assessment and Listing Methodology (CALM) at https://www.des.nh.gov/organization/divisions/water/wmb/swqa/2018/documents/r-wd-19-04.pdf.

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at ftp://pubftp.nh.gov/DES/wmb/WaterQuality/SWQA/2018/GIS

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit. (https://www.des.nh.gov/organization/divisions/water/wmb/swqa/assessment-viewers.htm)

How are assessments coded in the report card?

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL^ Needed	5-P	5-M or 5-T					

* TMDL stands for Total Maximum Daily Load studies (http://des.nh.gov/organization/divisions/water/wmb/tmdl/index.htm)

August 8, 2019

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030902

HUC 12 NAME OYSTER RIVER

(Locator map on next page only applies to this HUC12)

Assessment Cycle 2018

Good		Full Support Good
Marginal		Full Support Marginal
Likely Good		Insufficient Information – Potentially Full Support
No Data		No Data
Likely Bad		Insufficient Information – Potentially Not Support
Poor		Not Support Marginal
Severe		Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHEST600030902-01-03	E*01-03	OYSTER RIVER	5-P	4A-P	4A-M	5-M
NHIMP600030902-01	I*01	OYSTER RIVER - OYSTER RESERVOIR	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-02	I*02	LONGMARSH BROOK - LONSINGER DAM	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-03	I*03	HAMEL BROOK - FERNANDEZ POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-04	I*04	OYSTER RIVER - MILL POND DAM	5-P	5-M	2-G	4A-M
NHIMP600030902-05	I*05	DURHAM RESERVOIR - DURHAM RESERVOIR DAM	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-06	I*06	BEARDS CREEK	5-M	4A-M	4A-M	4A-M
NHIMP600030902-07	I*07	GERRISH BROOK - HOYT POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-08	I*08	JOHNSON CREEK - FARM POND	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-09	I*09	UNNAMED BROOK - REDDEN POND DAM	3-ND	3-ND	3-ND	4A-M
NHIMP600030902-10	I*10	UNNAMED BROOK - EJARQUE POND DAM	3-ND	3-ND	3-ND	4A-M
NHLAK600030902-02	L*02	WHEELWRIGHT POND	5-P	3-PAS	3-ND	4A-M
NHLAK600030902-03	L*03	UNNAMED POND	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-01	R*01	UNNAMED TRIBUTARY - TO WHEELWRIGHT POND	5-P	3-ND	3-ND	4A-M
NHRIV600030902-02	R*02	OYSTER RIVER - CALDWELL BROOK	5-P	4A-P	4A-P	4A-M
NHRIV600030902-03	R*03	OYSTER RIVER	5-P	4A-P	4A-P	4A-M
NHRIV600030902-04	R*04	OYSTER RIVER - CHELSEY BROOK	5-P	4A-P	4A-P	4A-M
NHRIV600030902-05	R*05	OYSTER RIVER - UNNAMED BROOK	3-ND	4A-P	3-ND	4A-M
NHRIV600030902-06	R*06	LONGMARSH BROOK - BEAUDETTE BROOK	5-M	4A-P	3-ND	4A-M
NHRIV600030902-07	R*07	HAMEL BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-08	R*08	HAMEL BROOK - LONGMARSH BROOK	5-P	4A-P	4A-P	4A-M
NHRIV600030902-09	R*09	COLLEGE BROOK	5-M	4A-P	4A-P	4A-M
NHRIV600030902-10	R*10	RESERVOIR BROOK	5-P	4A-P	4A-P	4A-M
NHRIV600030902-11	R*11	LITTLEHOLE CREEK	5-P	4A-P	4A-P	4A-M
NHRIV600030902-12	R*12	GERRISH BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-13	R*13	JOHNSON CREEK - GERRISH BROOK	5-M	4A-P	2-M	4A-M
NHRIV600030902-14	R*14	HORSEHIDE BROOK	5-M	3-ND	3-ND	4A-M
NHRIV600030902-15	R*15	CHASE BROOK	3-ND	3-ND	3-ND	4A-M

WATERSHED 305(b) ASSESSMENT SUMMARY REPORT:

HUC 12 010600030902

HUC 12 NAME OYSTER RIVER

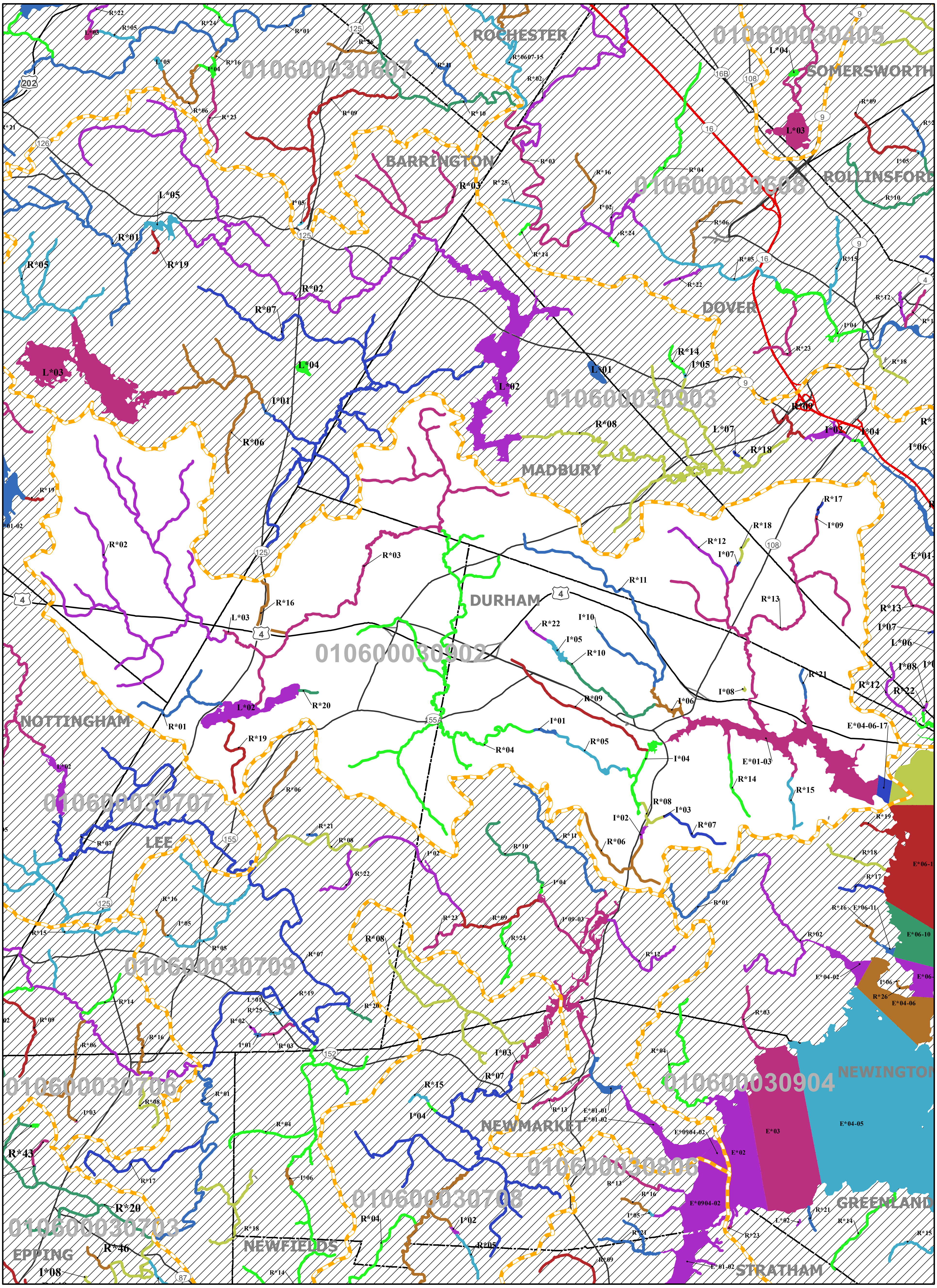
(Locator map on next page only applies to this HUC12)

Assessment Cycle 2018

Good	🟩	Full Support Good
Marginal	🟩	Full Support Marginal
Likely Good	🟦	Insufficient Information – Potentially Full Support
No Data	⬜	No Data
Likely Bad	🟨	Insufficient Information – Potentially Not Support
Poor	🟧	Not Support Marginal
Severe	🟥	Not Support Severe

ASSESSMENT UNIT ID	MAP LABEL	ASSESSMENT UNIT NAME	AQUATIC LIFE	SWIMMING	BOATING	FISH CONSUMP.
NHRIV600030902-16	R*16	WENDYS BROOK	5-M	4A-P	4A-P	4A-M
NHRIV600030902-17	R*17	JOHNSON CREEK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-18	R*18	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-19	R*19	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-20	R*20	UNNAMED BROOK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-21	R*21	BUNKER CREEK	3-ND	3-ND	3-ND	4A-M
NHRIV600030902-22	R*22	RESERVOIR BROOK	3-ND	3-ND	3-ND	4A-M

AUIDs For HUC12: 010600030902 - Oyster River



HUC12 Boundaries

Town Boundaries

Major Roads

Interstate Highway

US Highway

State Highway

Assessment Unit Coloring

AUs Ending with:

0 = 🟩
1 = 🟦
2 = 🟪
3 = 🟪
4 = 🟩
5 = 🟦
6 = 🟫
7 = 🟦
8 = 🟨
9 = 🟥

N

W E

S

Abbrv. Label

L * 03

HUC 12

010 700060201

AUID = NH L AK700060201 - 03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.65 1.3 1.95 2.6 Miles

Scale:1:65,130

S:\WD-Watershed\WQ_Planning\305b_303d\2018\AUIDs\HUC12Maps

Assessment Unit ID NHRIV600030902-02
Assessment Unit Name OYSTER RIVER - CALDWELL BROOK
Primary Town BARRINGTON

Size 11.4060 MILES
Beach N
Assessment Unit Category*~ 5-P

2018, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	*Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category*	TMDL Priority
Aquatic Life Integrity	5-P	AMMONIA (TOTAL)	N	2008	N/A	3-ND	
		Benthic-Macroinvertebrate Bioassessments (Streams)		2006	NA	3-ND	
		CHLORIDE	N	2017	N/A	3-PAS	
		DISSOLVED OXYGEN SATURATION	N	2017	2016	3-PNS	
		Fishes Bioassessments (Streams)		2006	NA	3-PAS	
		Oxygen, Dissolved	N	2017	2017	5-P	LOW
		TURBIDITY	N	2017	N/A	3-PAS	
		pH	N	2017	2017	5-P	LOW
Fish Consumption	4A-M	Mercury	N			4A-M	
Potential Drinking Water Supply	2-G	ESCHERICHIA COLI	N	2017	2017	3-PNS	
		SULFATES	N	2008	N/A	3-ND	
Primary Contact Recreation	4A-P	Escherichia coli	N	2017	2017	4A-P	
Secondary Contact Recreation	4A-P	Escherichia coli	N	2017	2016	4A-P	
Wildlife	3-ND						

Severe	Poor	Likely Bad	No Data	Likely Good	Marginal	Good
Not Supporting, Severe	Not Supporting, Marginal	Insufficient Information – Potentially Full Supporting	No Data	Insufficient Information – Potentially Full Supporting	Full Support, Marginal	Full Support, Good

*DES Categories; 2-G = Supports Parameter well above criteria, 2-M = Supports Parameter marginally above criteria, 2-OBS = Exceeds WQ criteria but natural therefore not a WQ exceedence, 3-ND = Insufficient Information/No data, 3-PAS= Insufficient Information/Potentially Attaining Standard, 3-PNS= Insufficient Information/Potentially Not Attaining Standard, (4A=Impaired/TMDL Completed, 4B=Impaired/Other Measure will rectify Impairment, 4C=Impaired/Non-Pollutant, 5=Impaired/TMDL needed) M=Marginal Impairment, P=Severe Impairment, T=Threatened (http://des.nh.gov/organization/divisions/water/wmb/swqa/index.htm)