



Subdivision

Town of Stratham, NH Subdivision Application

Map# 10 Lot# 76

Project Name: Taylor Court (existing name is 15-17 Union Condos)

Location: 15 Union Road

Project Description: 3 lot subdivision each resulting lot to be a condominium duplex

Zone: Residential Total Number of Lots: 3

Applicant:

Name: Brock Ehlers, Nina & Mark J. Merida Phone: 603-606-4795

Company: _____ Fax: _____

Address: 163 Deer St. Portsmouth NH 03801 & 17 Union Rd. Stratham, NH 03885

Owner:

Name: Brock Ehlers, Nina & Mark J. Merida Phone: 603-606-4795

Company: _____ Fax: _____

Address: 163 Deer St. Portsmouth NH 03801 & 17 Union Rd. Stratham, NH 03885

Agent:

Contact Name: Christian O. Smith P.E. Phone: 603-583-4860

Company: Beals Associates, PLLC. Fax: 603-583-4863

Address: 70 Portsmouth Ave. 3rd Floor Stratham, NH 03885

Email Address: csmith@bealsassociates.com

By signing this application, you are agreeing to all rules and regulations of the Town of Stratham, and are agreeing to allow agents of the Town of Stratham to conduct inspections, during normal town business hours, of your property, to ensure compliance with all Stratham Zoning and Subdivision regulations while your application is under consideration and during any construction phases after approval is granted.

The Signor shall be the owner or the signor shall provide a notarized letter signed by all the property owners giving the signor permission to represent the owner in presentation of this application.

Signed: [Signature] Date: 3/27/18

Fees:

Major Subdivision: Base Application Fee \$250.00* for the first lot plus \$100.00 per additional proposed lot or unit.

Minor Subdivision: Base Application Fee of \$150.00 for the first lot, plus \$100.00 for each lot or unit thereafter;

Notification Fee: \$ 150.00 plus Abutters Notices X \$8.00 per abutter = \$ 112 .00

*Additional fees may be charged to cover inspection and review cost.

Total - 612.00

For Office Use Only

Date Application Received: _____ Total Fees Collected with Application: \$ _____

Abutters List Received: _____ Plans & Check List Received: _____

Notice Date: _____ PB Application Acceptance Date: _____ PB Hearing Date: _____



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**Town of Stratham, NH
Subdivision Application**

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Signed: [Signature] Date: 3-28-18

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The Signor shall be the owner or the signor shall provide a notarized letter signed by all the property owners giving the signor permission to represent the owner in presentation of this application.

Signed: *Mark J. Merida* Date: 3/28/18

Fees:

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Notice Date: _____ PB Application Acceptance Date: _____ PB Hearing Date: _____

PROPOSED SUBDIVISION
15 UNION ROAD
STRATHAM, NH

LAND SURVEYOR:

DAVID W. VINCENT, LLS
LAND SURVEYING SERVICES
PO BOX 1622
DOVER, NH 03821
1-603-664-5786

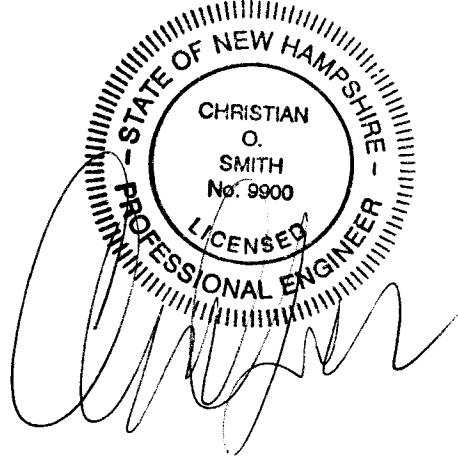
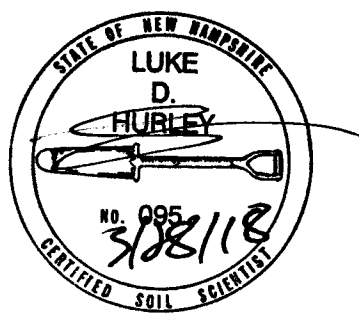
WETLAND / SOIL CONSULTANT:

GOVE ENVIRONMENTAL SERVICES INC.
8 CONTINENTAL DRIVE,
BLDG 2 UNIT H
EXETER, NH 03833
1-603-778-0644

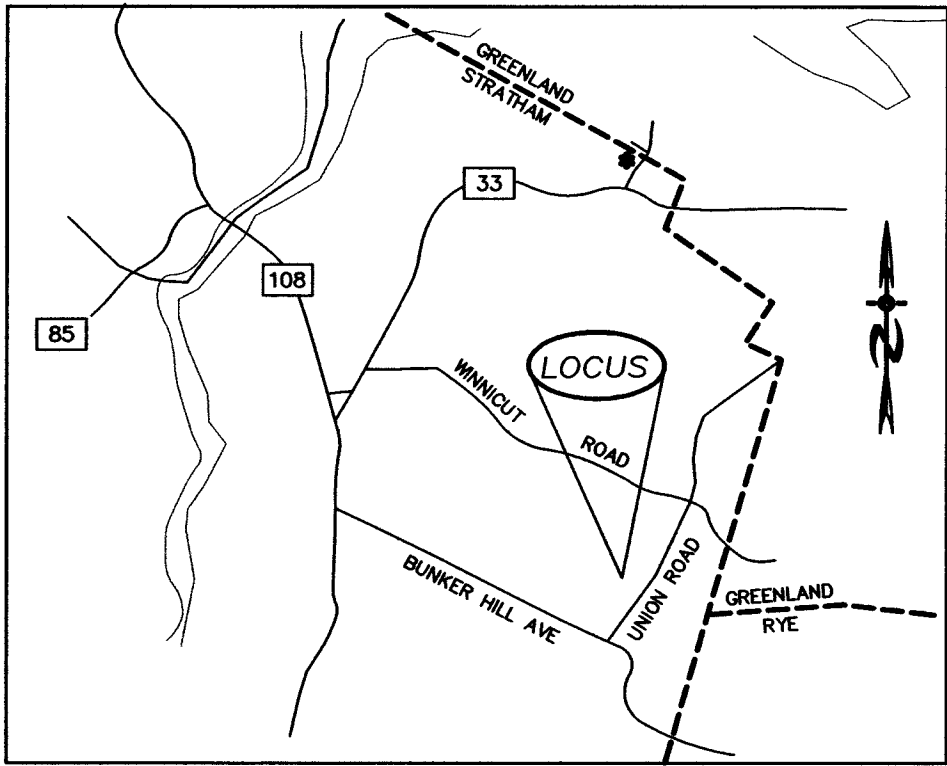
CIVIL ENGINEERS:

BEALS · ASSOCIATES *PLLC*

70 PORTSMOUTH AVE,
STRATHAM, NEW HAMPSHIRE
PHN. 603-583-4860, FAX. 603-583-4863



LOCATION MAP



STRATHAM N.H.

PLAN SET LEGEND

5/8" REBAR	●	EXIST. CONTOUR	---
DRILL HOLE	○	PROP. CONTOUR	---
CONC. BOUND	□	BUILDING SETBACK LINES	---
UTILITY POLE	⊙	WETLAND LINES	---
DRAIN MANHOLE	⊕	SOIL LINES	---
EXISTING CATCH BASIN	□	ABUT. PROPERTY LINES	---
PROPOSED CATCH BASIN	⊕	EXIST. PROPERTY LINES	---
STONE WALL	---	PRO. PROPERTY LINES	---
TREE LINE	---		

RECORD OWNER/APPLICANT:

BROCK EHLERS
15 UNION ROAD
STRATHAM N.H. 03885

INDEX

TITLE SHEET	—
EXISTING CONDITIONS	1
SUBDIVISION PLAN	2
SUBDIVISION SITE PLAN	3
DRIVEWAY ACCESS PLAN	4
PLAN & PROFILE	5
GENERAL DETAILS	6
EROSION & SEDIMENT CONTROL DETAILS	7

REVISIONS:	DATE:

Legend:

- C1 See Curve Table
- L1 See Length Table
- N/F Now or Formerly
- RCRD Rockingham County Registry of Deeds
- Utility Pole
- Granite Bound Found
- Granite Bound to be Set
- Drill Hole Found
- Culvert
- Poorly Drained Soils
- Very Poorly Drained Soils
- No-Cut Do Not Disturb Buffer
- Building Setback
- Stone Wall

ZONING REQUIREMENTS

- | | |
|---------------------------------------|---------------------------------|
| ZONE | RESIDENTIAL/AGRICULTURAL |
| LOT AREA MIN. | 2 AC. (3 AC. DUPLEX) |
| LOT FRONTAGE | 150 FT. (200 FT. DUPLEX) |
| FRONT YARD | 30 FT. |
| SIDE & REAR YARD | 20 FT. |
| MAX. BUILDING HEIGHT | 35 FT. |
| MAX. BUILDING COVER/LOT | 20% |
| MIN. OPEN SPACE/LOT | 60% |
| WETLANDS - POORLY DRAINED | |
| WETLAND SETBACK | 50 FT. |
| NO-CUT BUFFER | 25 FT. |
| WETLANDS - VERY POORLY DRAINED | |
| WETLAND SETBACK | 100 FT. |
| NO-CUT BUFFER | 50 FT. |
| VERNAL POOLS | |
| NO-CUT BUFFER | 100 FT. |

Notes:

- 1.) The purpose of this plan is to subdivide the subject property into three residential lots. Each lot to be served by individual septic systems and on-site wells.
- 2.) Field Procedure: Nikon (NPL-322) Electronic Total Station Instrument & Carlson Plus Data Collector, Adjusted Closed Traverse Performed December 2017, Least Squares Balance.
- 3.) Error of Closure Better Than 1:41,000, Urban Survey Standards.
- 4.) Parcel is shown as Lot 76 on the Town of Stratham Assessor's Map 10.
- 5.) The subject parcel is not located in a Flood Hazard Zone as shown on FIRM 33015C0245E. Effective date May 17, 2005.
- 6.) Owners of Record: Brock Ehlers
15 Union Road
Stratham, NH 03885
RCRD Bk 5538, Pg 14
Nina D. & Mark J. Merida
17 Union Road
Stratham, NH 03885
RCRD Bk 5796, Pg 2941
a.) Parcel is subject to Declaration of Condominium for 15-17 Condominium as described in RCRD Bk 3758, Pg. 2845.
- 7.) This plan does not show any unrecorded or unwritten easements which may exist. A reasonable and diligent attempt has been made to observe any apparent, visible uses of the land; however this does not constitute that no such easements exist.
- 8.) The plan is based upon New Hampshire state plane NAD 83 coordinates and NAVD88 vertical datum.
- 9.) Total Lot Area - 12.063± Acres.
- 10.) The wetland areas shown hereon were field delineated by Gove Environmental Services, Inc., of 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- 11.) The location of all underground utilities shown are approximate and are based upon visual observations during the field survey. The surveyor/engineer does not warranty nor guarantee the location of all utilities depicted or not depicted. The contractor or design engineer, prior to the commencement of any construction, shall verify the location of all utilities and contact DIGSAFE at 1-888-344-7233 or dial 811.

Map 10 / Lot 138
N/F Kevin J. Sr. &
Deborah A. Gray

Map 10 / Lot 139
N/F Robert A. &
Michelle A. Cartwright

Map 10 / Lot 140
N/F Thomas &
Kathleen Stranger

EXISTING CONDITIONS PLAN
OF PROPERTY IN THE NAME OF
BROCK EHLERS AND
NINA D. & MARK J. MERIDA
SHOWN AS
TAX MAP 10 / LOT 76
LOCATED AT
15-17 Union Road
COUNTY OF ROCKINGHAM
STRATHAM, NH

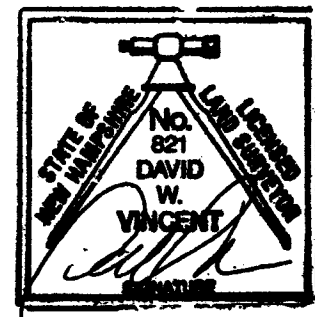
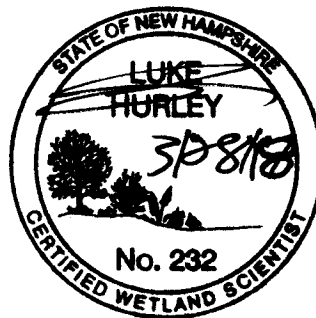
FEET 50 0 25 50 100 200
METERS 0 5 10 20 40 60
SCALE: 1"= 50' DATE: MARCH 27, 2018

DAVID W. VINCENT, LLS
LAND SURVEYING SERVICES
PO BOX 1622
DOVER, NH 03821
TEL: (603) 664-5786
www.landsurveyingservices.net

4			
3			
2			
1			
NO.	DATE	DESCRIPTION	BY

WETLAND SCIENTIST CERTIFICATION

1. US Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-09-19 (Oct 2009).
2. Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 7.0. United States Department of Agriculture (2010).
3. North American Digital Flora: National Wetland Plant List, Version 2.2.1 (2009).
4. Classification of Wetlands and Deepwater Habitats of the United States. USFWS Manual FWS/OBS-79/31 (1979).



David W. Vincent, LLS No. 821

27 Mar. 2018

Date

Map 10 / Lot 75
N/F William R. &
Amy E. Edwards



Curve Table:

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	230.00'	73.85'	18°23'52"	N67°42'54"W	73.54'
C2	170.00'	104.80'	35°19'10"	S61°21'21"E	103.14'
C3	120.00'	117.11'	55°54'59"	S15°44'16"E	112.52'
C4	180.00'	173.12'	55°06'18"	S15°19'55"E	166.52'
C5	25.00'	44.52'	102°01'53"	S86°05'59"W	38.87'
C6	120.00'	115.41'	55°06'18"	N15°19'55"W	111.01'
C7	180.00'	175.67'	55°54'59"	N15°44'16"W	168.78'
C8	230.00'	59.49'	14°49'12"	N51°06'22"W	59.33'

Length Table:

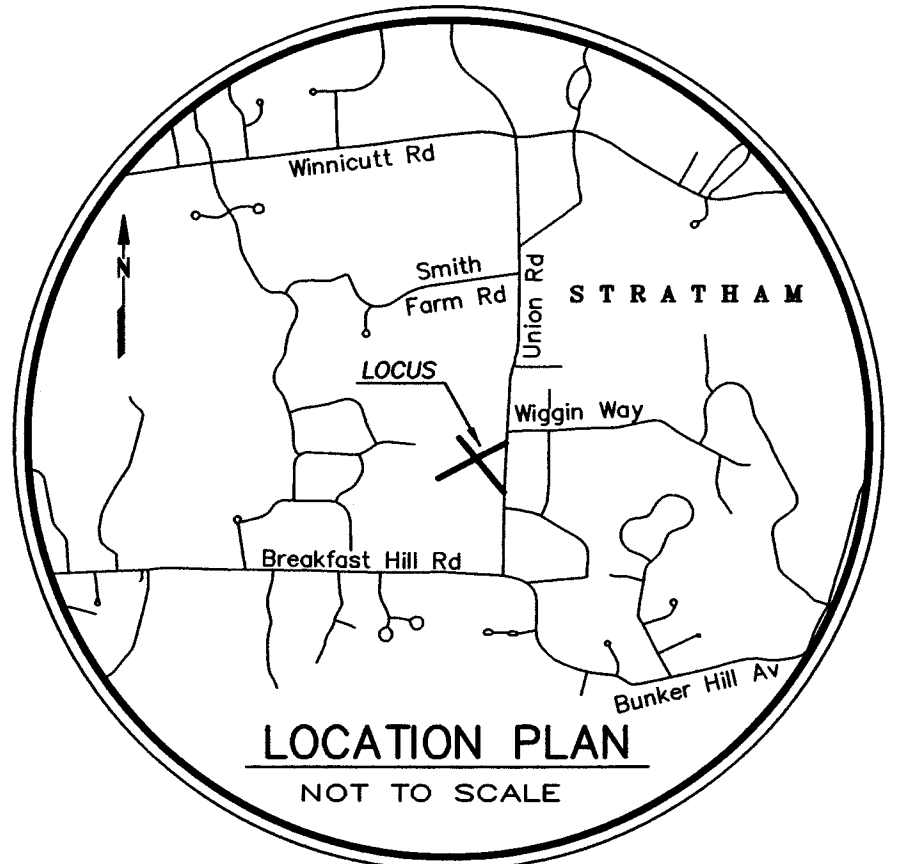
LINE	BEARING	DISTANCE
L1	S60°35'44"E	67.02'
L2	S54°15'32"E	63.24'
L3	S28°31'09"W	66.23'
L4	S13°05'10"W	60.00'
L5	S76°54'50"E	60.00'
L6	S13°05'10"W	60.00'
L7	S76°54'50"E	60.00'
L8	N13°05'10"E	59.89'
L9	S43°41'45"E	71.45'
L10	S12°13'14"W	37.68'
L11	N34°05'38"E	68.09'
L12	N42°53'05"W	59.16'
L13	N12°13'14"E	37.68'
L14	N43°41'45"W	71.45'

ZONING REQUIREMENTS

ZONE	RESIDENTIAL/AGRICULTURAL
LOT AREA MIN.	2 AC. (3 AC. DUPLEX)
LOT FRONTAGE	150 FT. (200 FT. DUPLEX)
FRONT YARD	30 FT.
SIDE & REAR YARD	20 FT.
MAX. BUILDING HEIGHT	35 FT.
MAX. BUILDING COVER/LOT	20%
MIN. OPEN SPACE/LOT	60%
WETLANDS - POORLY DRAINED	
WETLAND SETBACK	50 FT.
NO-CUT BUFFER	25 FT.
WETLANDS - VERY POORLY DRAINED	
WETLAND SETBACK	100 FT.
NO-CUT BUFFER	50 FT.
VERNAL POOLS	
NO-CUT BUFFER	100 FT.

References:

- "Phase II Subdivision Plan for Estate of Robert T. Wiggin, Stratham, NH," dated June 1993, rev. 7/22/1993, prepared by Walter J. Zwearcan, RCRD Plan No. D-22360.
- "15-17 Union Road Condominium, Stratham, NH," dated 3/8/02, rev. 4/5/02, prepared by Jones & Beach Engineering, Inc., RCRD Plan No. D-29759.
- "Sprucewood Subdivision Phase II for Bunker Hill Realty Trust, Stratham, NH," dated June 18, 2001, prepared by Doucet Survey Inc., RCRD Plan No. D-13384.



Notes:

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- Total Lot Area - 12.063± Acres.
- The wetland areas shown hereon were field delineated by Gove Environmental Services, Inc., off 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- NHDES Subdivision Approval No. Pending.

**SUBDIVISION PLAN
OF PROPERTY IN THE NAME OF
BROCK EHLERS AND
NINA D. & MARK J. MERIDA
SHOWN AS
TAX MAP 10 / LOT 76
LOCATED AT
15-17 Union Road
COUNTY OF ROCKINGHAM
STRATHAM, NH**

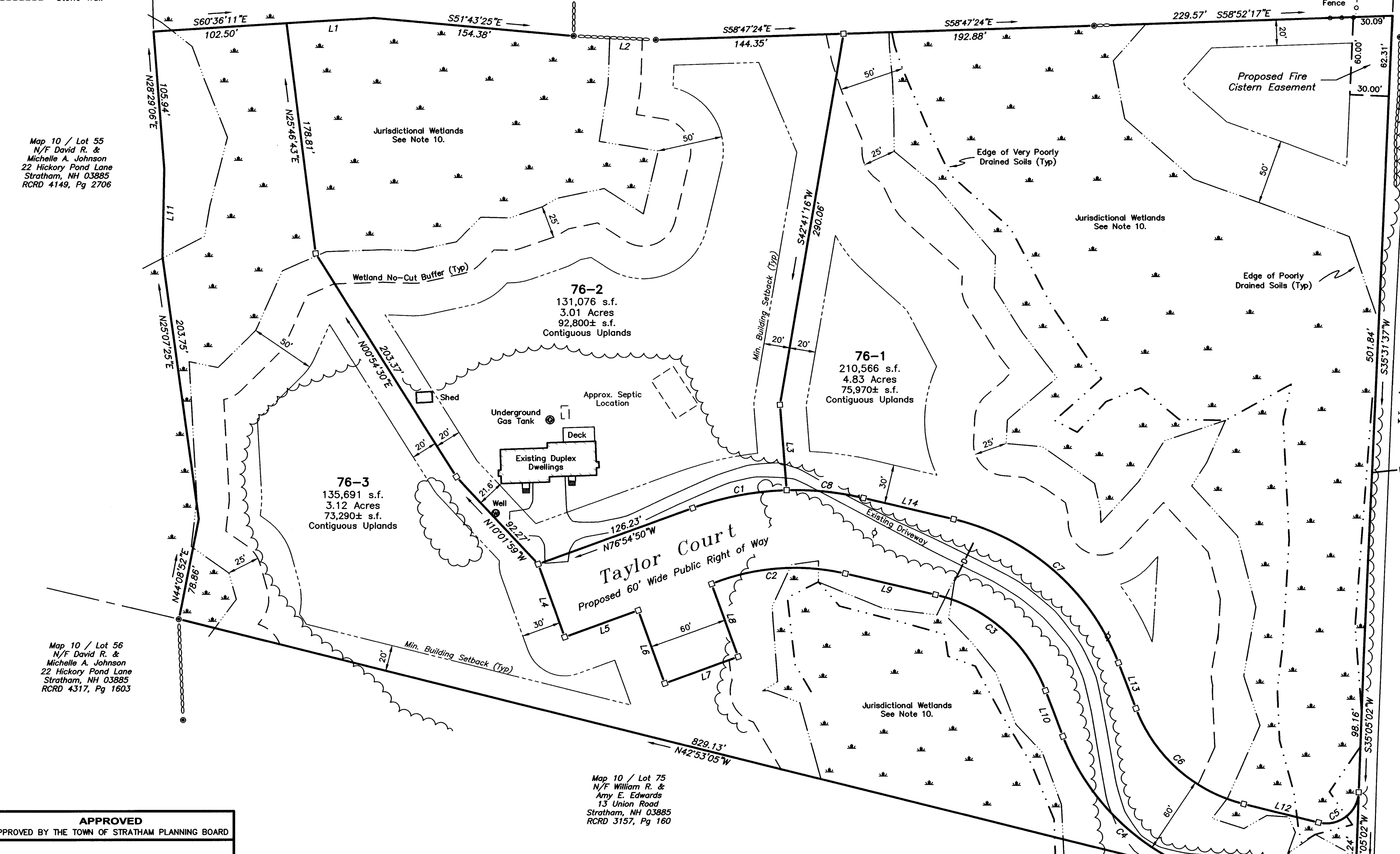
FEET 0 25 50 100 200
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NO.	DATE	DESCRIPTION	BY
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3			
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1			

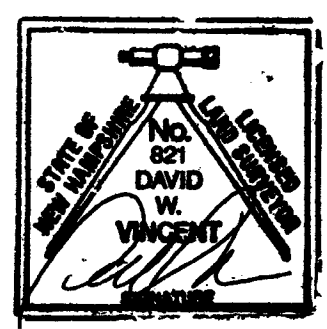
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- L1 See Length Table
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- RCRD Rockingham County Registry of Deeds
- Utility Pole
- Granite Bound Found
- Granite Bound to be Set
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- Stone Wall



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David W. Vincent, LLS No. 821

27 Mar. 2018

Date

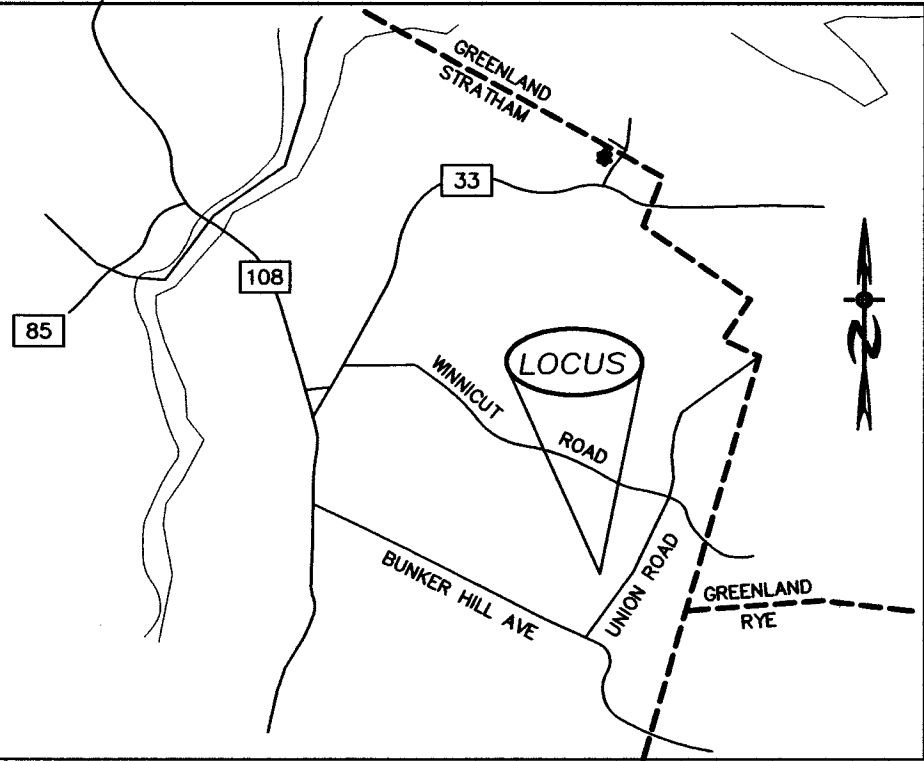
APPROVED
APPROVED BY THE TOWN OF STRATHAM PLANNING BOARD

DATE _____

CHAIRMAN: _____

The subdivision regulations of the Town of Stratham, New Hampshire, are part of this plan and approval of this plan is contingent upon completion of said requirements of said subdivision regulations, excepting only any waivers, variances or modifications made in writing by the Board and attached hereto.

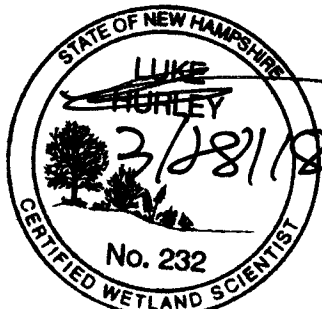
DWG NAME: 037sub FB: 47/6-16



LOCATION MAP
STRATHAM N.H.

LEGEND

	UTILITY POLE		PROP. WELL W/ 75' PROTECTIVE RAD.
	TEST PIT W/ NO.		SEPTIC SETBACK LINE
	STONE WALL		ABUTTING PROPERTY LINE
	TREE LINE		EXISTING PROPERTY LINE
	EXISTING CONTOUR - 10'		PROPOSED PROPERTY LINE
	EXISTING CONTOUR - 2'		5000 SF SEPTIC RESERVE AREA
	WETLAND BOUNDARY		
	SOILS BOUNDARY LINE		
	BUILDING SETBACK LINE		



KEY TO SOIL TYPES

HIGH INTENSITY SOIL SURVEYS UTILIZE A FIVE-PART CLASSIFICATION TO IDENTIFY SOIL TYPES. SYMBOLS A-E READ FROM LEFT TO RIGHT IN THE CLASSIFICATION.

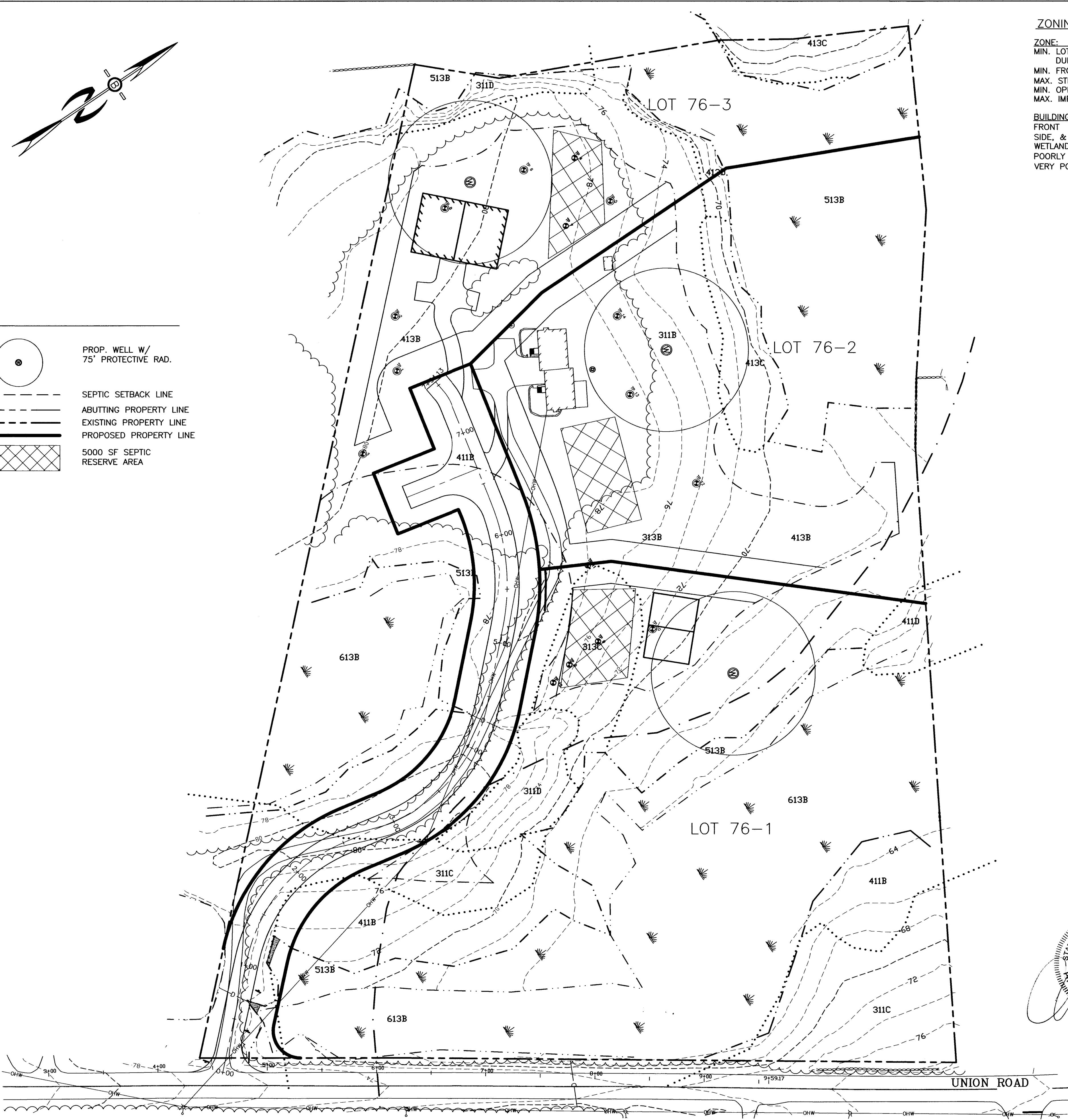
SYMBOL A : DRAINAGE CLASS
1- EXCESSIVELY DRAINED
2- WELL DRAINED
3- MODERATELY WELL DRAINED
4- SOMEWHAT POORLY DRAINED
5- POORLY DRAINED
6- VERY POORLY DRAINED

SYMBOL B: PARENT MATERIAL
1- GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES)
2- GLACIAL TILL
3- VERY FINE SAND AND SILT DEPOSITS
4- LOAMY/SANDY OVER SILT/CLAY DEPOSITS
5- SILT AND CLAY DEPOSITS
6- EXCAVATED, REGRADED, OR FILLED
7- ALLUVIAL DEPOSITS
8- ORGANIC MATERIALS - FRESHWATER
9- ORGANIC MATERIALS - TIDAL MARSH

SYMBOL C: RESTRICTIVE FEATURES
1- NONE
2- BOULDERY
3- MINERAL RESTRICTIVE LAYER WITHIN 40 INCHES OF SOIL SURFACE
4- BEDROCK PRESENT WITHIN 20 INCHES OF SOIL SURFACE
5- SUBJECT TO FLOODING (FLOODPLAIN)
6- DOES NOT MEET FILL STANDARDS (SEE PUBLICATION)
7- BEDROCK PRESENT 20-40 INCHES BELOW SOIL SURFACE
8- BEDROCK DEPTH VARIABLE (GENERALLY WITHIN 40 INCHES OF SOIL SURFACE)

SYMBOL D: SLOPE CLASS
B- 0% TO 8%
C- 8% TO 15%
D- 15% TO 25%
E- 15% TO 25%
F- 35%+

SYMBOL E: HIGH INTENSITY SOIL MAP IDENTIFIER
H- MAP MEETS HIGH INTENSITY SOIL MAPPING STANDARDS
P- MAP IS FOR PRELIMINARY PLANNING ONLY AND DOES NOT MEET STANDARDS



ZONING REQUIREMENTS

ZONE: RESIDENTIAL
MIN. LOT SIZE = 2 ACRES
DUPLX = 3 ACRES
MIN. FRONTAGE = 200'
MAX. STRUCTURE HEIGHT = 35'
MIN. OPEN SPACE = 80%
MAX. IMPERVIOUS COVER = 20%

BUILDING SETBACKS:

FRONT 30'
SIDE, & REAR 20'
WETLANDS: 50'
POORLY 50'
VERY POORLY 100'

PREPARED FOR:

BROCK EHLERS
15 UNION ROAD
STRATHAM N.H. 03885

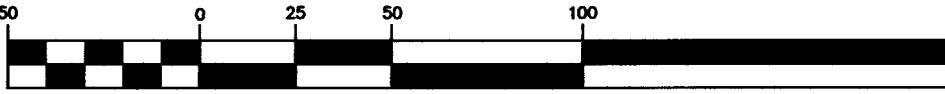
BEALS ASSOCIATES PLLC

70 PORTSMOUTH AVE, STRATHAM, N.H. 03885
PHONE: 603-583-4860, FAX: 603-583-4863

NOTES

- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE.
- THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
- ALL ROAD AND DRAINAGE WORK TO CONFORM TO TOWN OF STRATHAM STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- ALL PROPOSED SIGNS SHALL CONFORM TO THE TOWN OF STRATHAM ZONING REGULATIONS.

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.

APPROVAL BLOCK

APPROVED TOWN OF STRATHAM PLANNING BOARD

CHAIRPERSON

DATE

REVISIONS:

DATE:

SUBDIVISION SITE PLAN

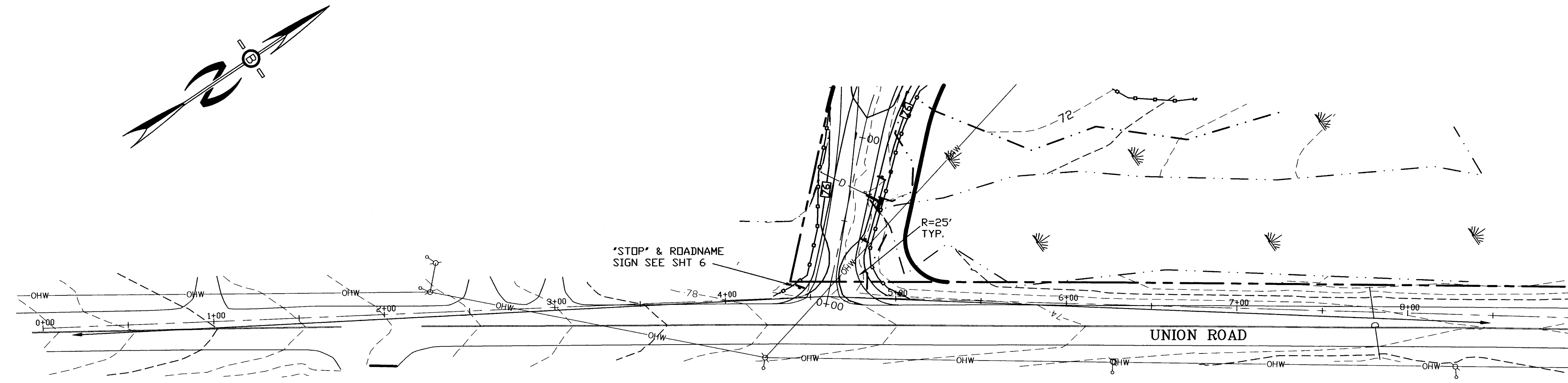
PLAN FOR:
RESIDENTIAL DEVELOPMENT
UNION ROAD
STRATHAM, NH

DATE: MARCH 2018

SCALE: 1"=50'

PROJ. NO: NH-1060

SHEET NO. 3 OF 07



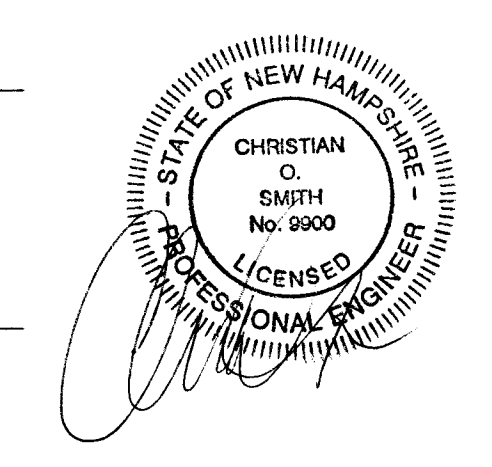
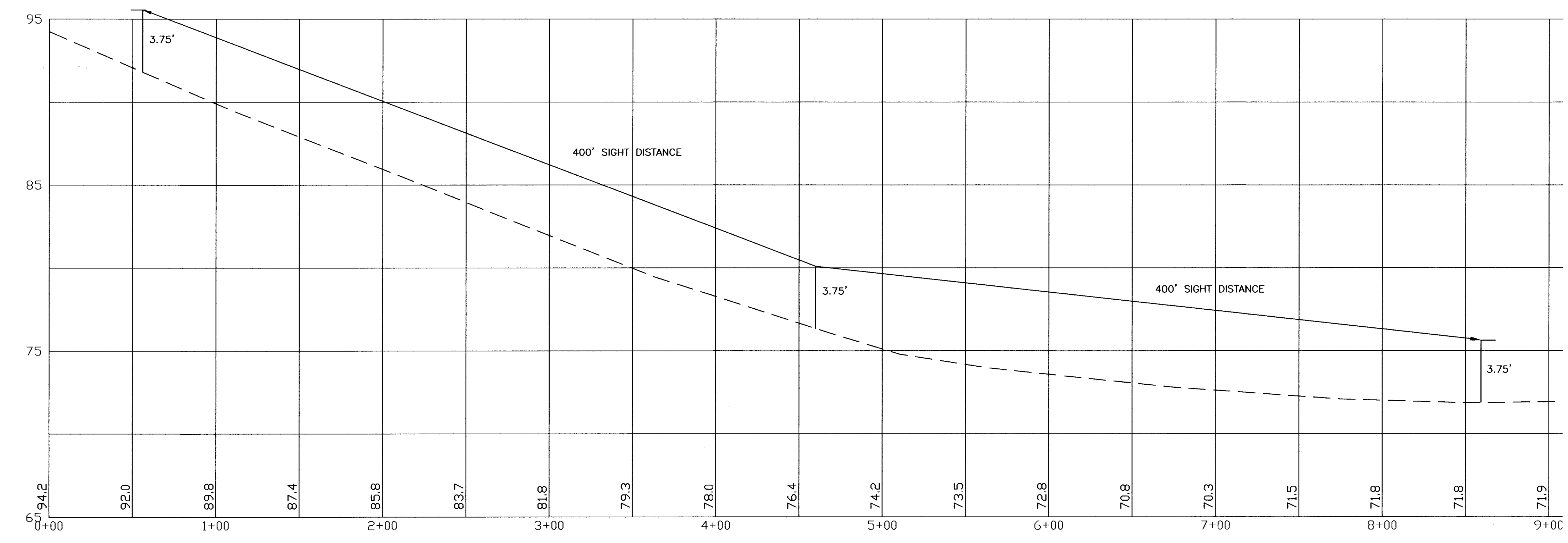
PREPARED FOR:

BROCK EHLERS
15 UNION ROAD
STRATHAM N.H. 03885

BEALS ASSOCIATES PLLC

70 PORTSMOUTH AVE, STRATHAM, N.H. 03885
PHONE: 603-583-4860, FAX: 603-583-4863

- NOTES
1. ALL ELECTRICAL, TELEPHONE, CABLE TELEVISION AND ALARM LINES TO BE UNDERGROUND. THE SIZE AND LOCATION IS TO BE DETERMINED BY APPROPRIATE UTILITY COMPANY.
 2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.
 3. ALL CONSTRUCTION METHODS AND MATERIALS WILL CONFORM TO N.H.D.O.T. STANDARDS AND REGULATIONS.
 4. ALL DRAINAGE STRUCTURE AND SWALES WILL BE BUILT AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
 5. SEE DETAIL SHEETS FOR STANDARD CONSTRUCTION NOTES AND DETAILS.



PROFILE SCALES:
HORIZONTAL: 1"=40' VERTICAL: 1"=4'

PROFILE SCALES:
HORIZONTAL: 1"=40' VERTICAL: 1"=4'

REVISIONS:		DATE:	
HIGHWAY ACCESS PLAN-H1			
PLAN FOR: RESIDENTIAL DEVELOPMENT UNION ROAD STRATHAM, NH			
DATE: MARCH 2018		SCALE: 1"=40'	
PROJ. NO: NH-1060		SHEET NO. 4 OF 7	

PREPARED FOR:

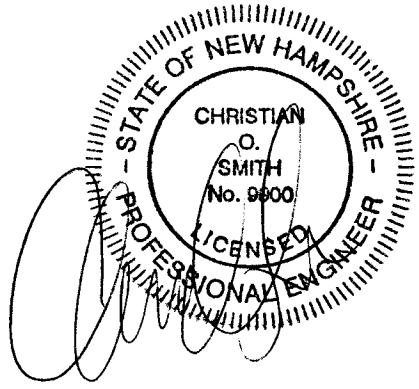
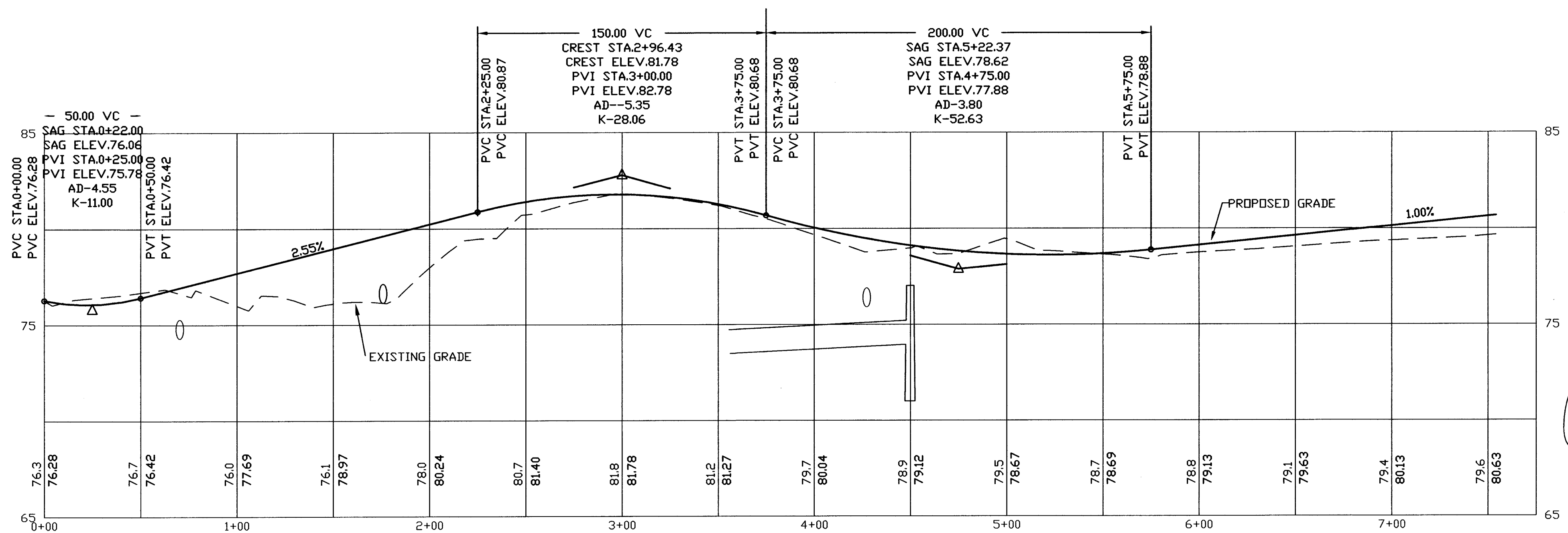
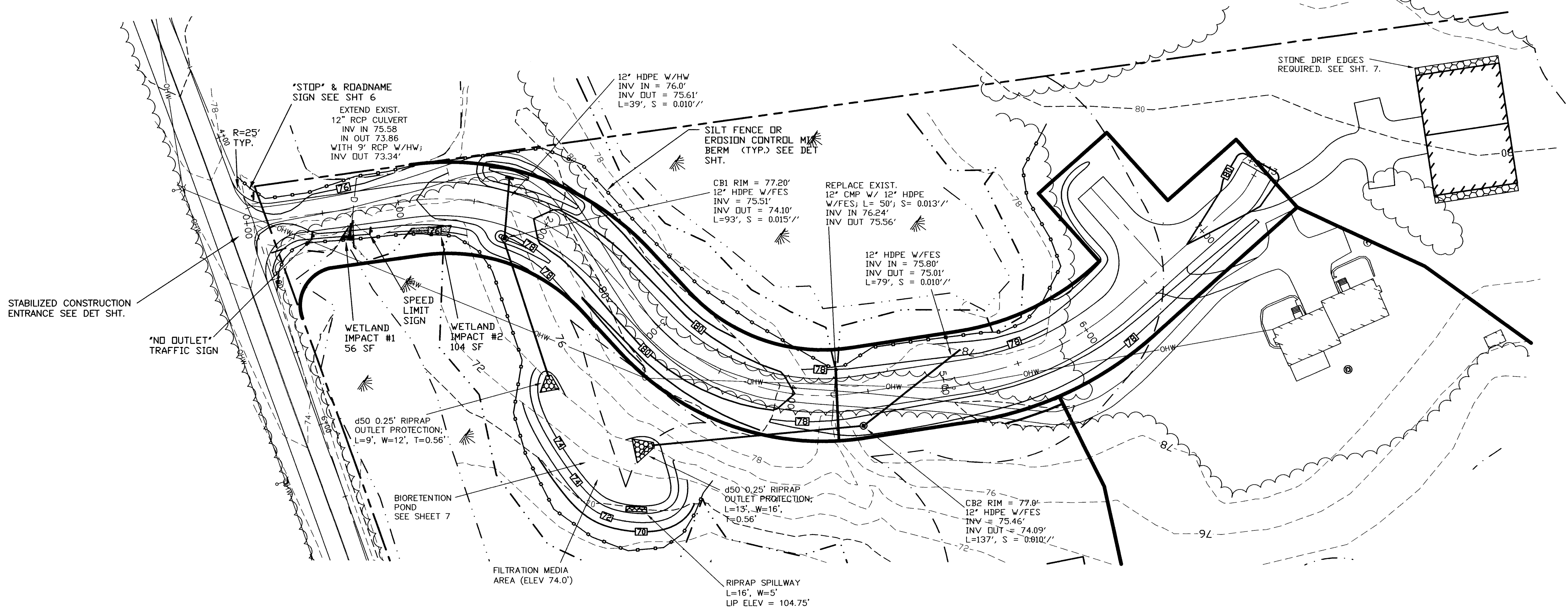
BROCK EHLERS
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NOTES

1. ALL ELECTRICAL, TELEPHONE, CABLE TELEVISION AND ALARM LINES TO BE UNDERGROUND. THE SIZE AND LOCATION IS TO BE DETERMINED BY APPROPRIATE UTILITY COMPANY.
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR. ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.
3. ALL CONSTRUCTION METHODS AND MATERIALS WILL CONFORM TO THE TOWN STANDARD SPECIFICATIONS AND TO N.H.D.T. STANDARDS AND REGULATIONS.
4. ALL DRAINAGE STRUCTURE AND SWALES WILL BE BUILT AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
5. SEE DETAIL SHEETS FOR STANDARD CONSTRUCTION NOTES AND DETAILS.
6. ALL CROSS CULVERTS & DRIVEWAY CULVERTS TO BE MIN. 12" ADS N-12.
7. NATURAL DEVELOPED AREA BUFFERS ARE TO REMAIN WOODED.
8. STORMWATER PONDS, INFILTRATION BASINS AND SWALES MUST BE INSTALLED BEFORE ROUGH GRADING THE SITE.
9. STORMWATER PONDS, INFILTRATION BASINS AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
10. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 HOURS OR LESS.
11. ROADWAYS AND PARKING AREAS MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.



PROFILE SCALES:
HORIZONTAL: 1"=40' VERTICAL: 1"=4'

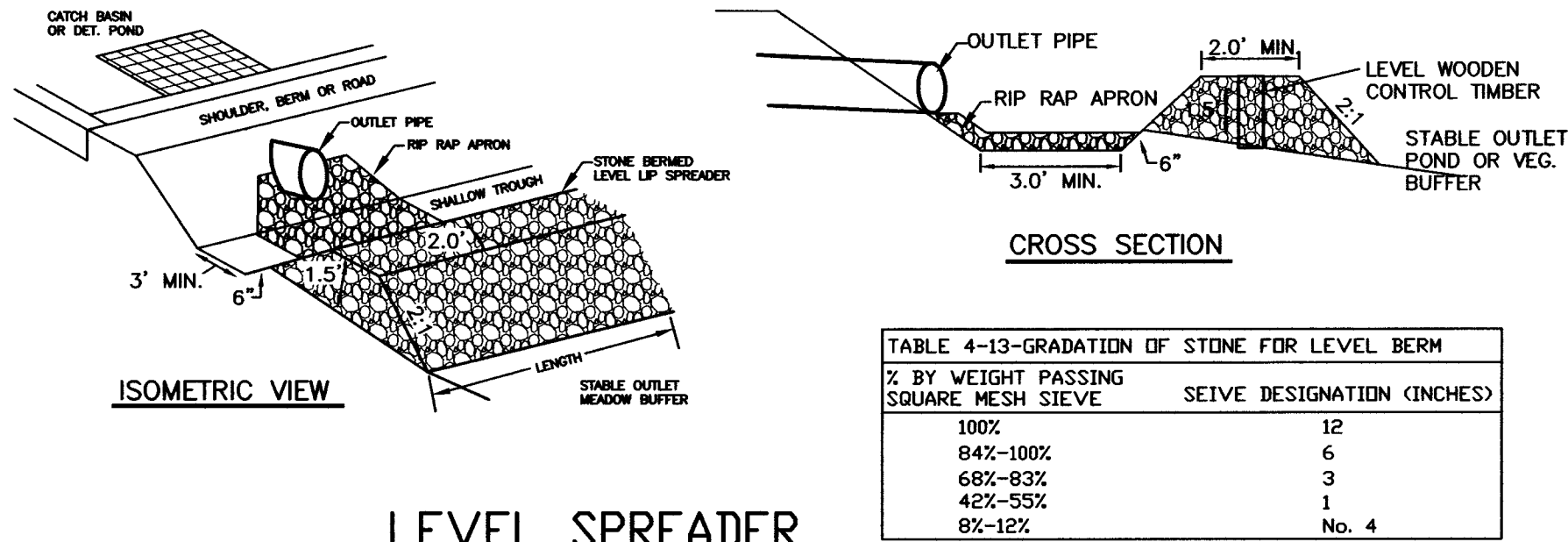
REVISIONS:	DATE:

PLAN AND PROFILE

PLAN FOR:
RESIDENTIAL DEVELOPMENT
UNION ROAD
STRATHAM, NH

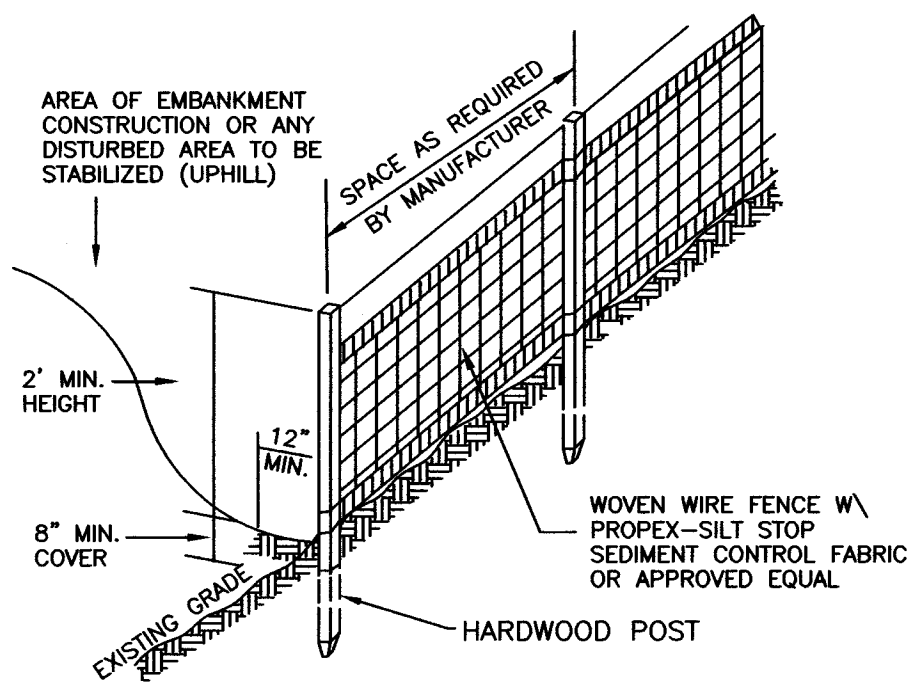
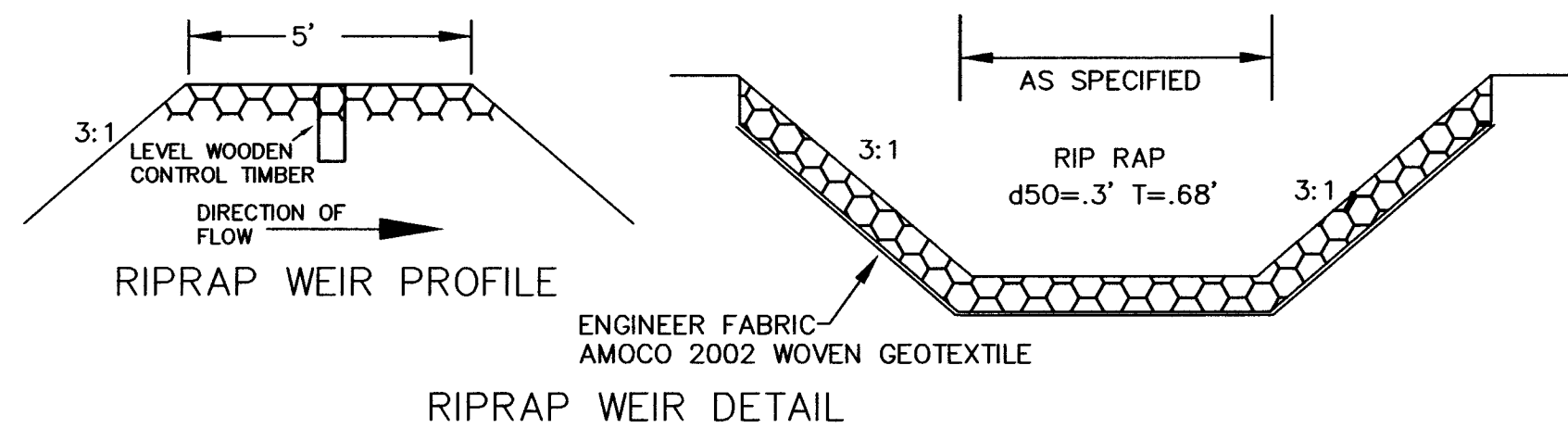
DATE: MARCH 2018	SCALE: 1" = 50'
PROJ. NO: NH-1060	SHEET NO. 5 OF 7

STONE BERM LEVEL SPREADER



LEVEL SPREADER

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.

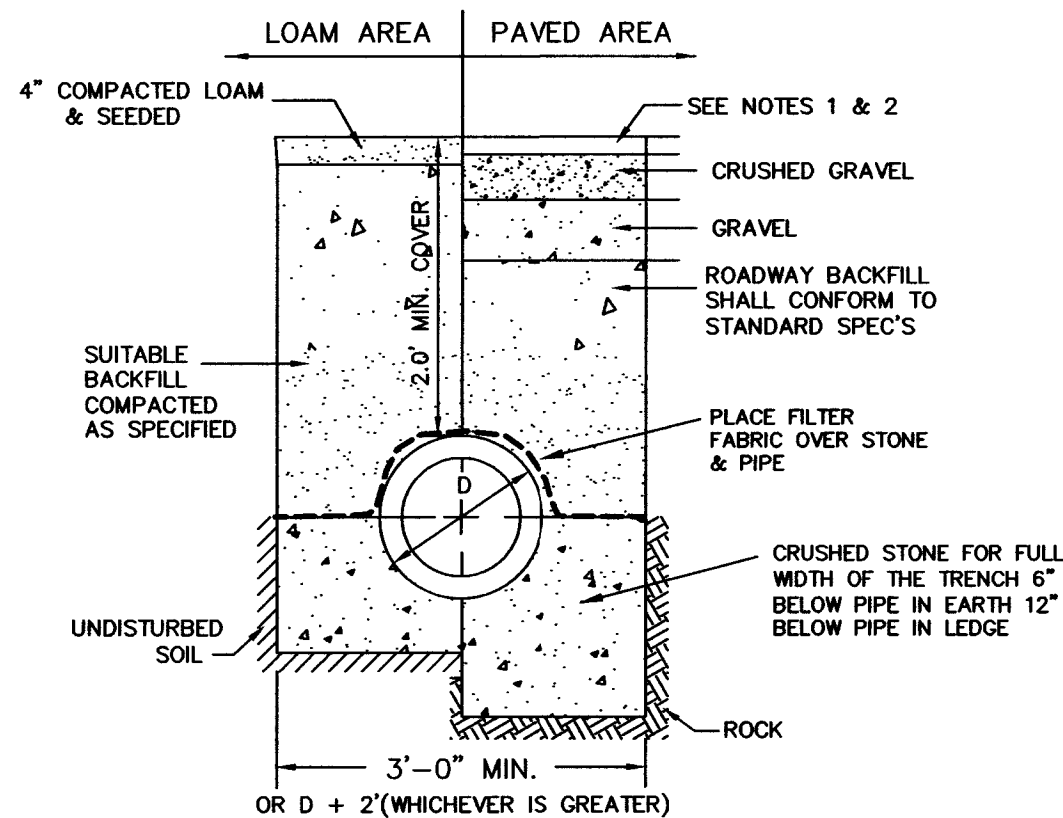


CONSTRUCTION SPECIFICATIONS

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". 2. THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
3. 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.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED

MAINTENANCE

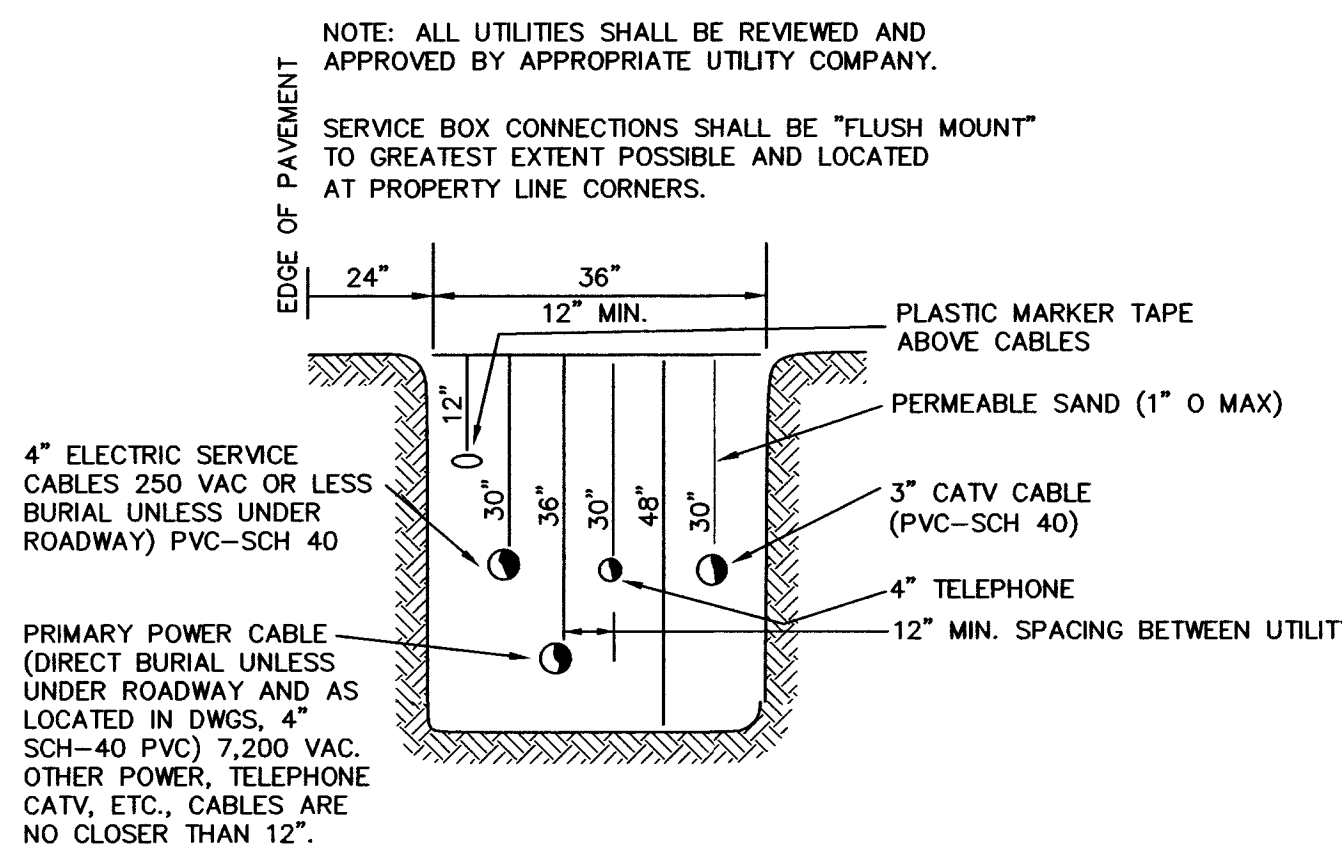
1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED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



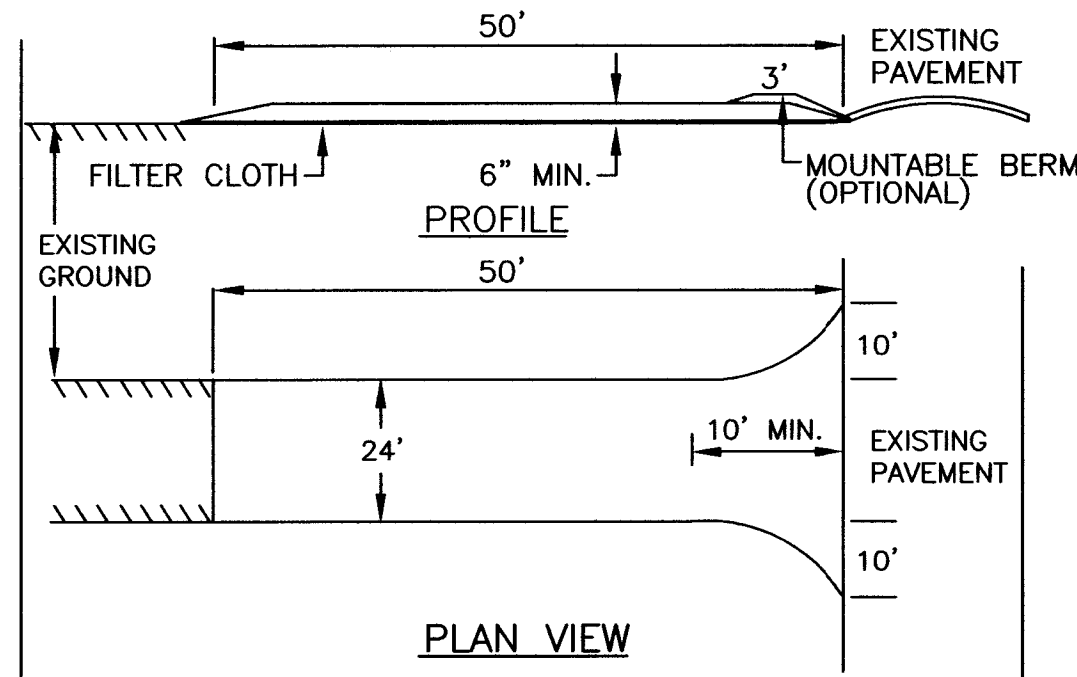
NOTE:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPEC'S.

TYPICAL DRAINAGE TRENCH DETAIL

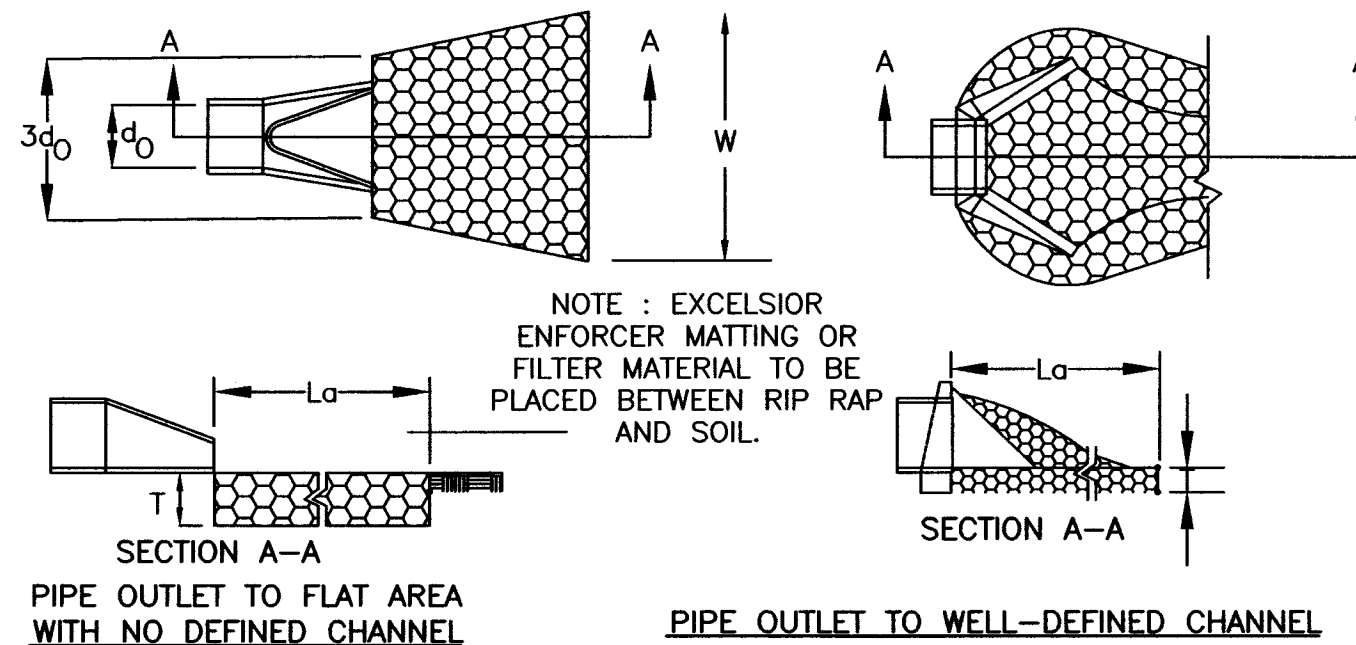


UTILITY TRENCH DETAIL



STABILIZED CONSTRUCTION ENTRANCE

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
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 THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION 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.



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 IN THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OF RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION. 3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. STONE FOR RIPRAP SHALL BE ANGULAR OR SUBANGULAR. THE STONES SHOULD BE SHAPED SO THAT THE LEAST DIMENSION OF THE STONE FRAGMENT SHALL BE NOT LESS THAN ONE-THIRD OF THE GREATEST DIMENSION OF THE FRAGMENT.
6. FLAT ROCKS SHALL NOT USED FOR RIP RAP. VOIDS IN THE ROCK RIPRAP SHOULD BE FILLED WITH SPALLS AND SMALLER ROCKS.

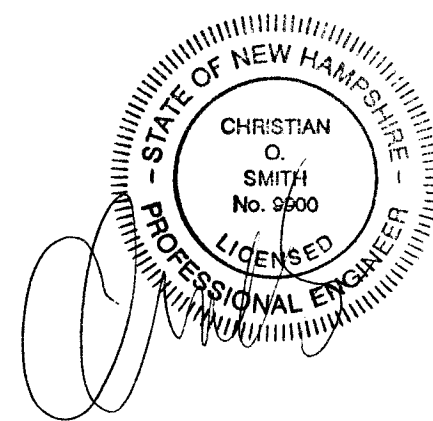
MAINTENANCE

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

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
THICKNESS OF RIP RAP = 0.50 FEET			
Ø50 SIZE=	0.50 FEET	6 INCHES	
% OF WEIGHT SMALLER THAN THE GIVEN Ø50 SIZE	SIZE OF STONE (INCHES) FROM		
100%	9	12	
85%	8	11	
50%	6	9	
15%	2	3	

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES			
THICKNESS OF RIP RAP = 1.125 FEET			
Ø50 SIZE=	0.50 FEET	6 INCHES	
% OF WEIGHT SMALLER THAN THE GIVEN Ø50 SIZE	SIZE OF STONE (INCHES) FROM		
100%	9	12	
85%	8	11	
50%	6	9	
15%	2	3	

TRAFFIC CONTROL SCHEDULE						
SIGN NUMBER	SIGN	SIZE OF SIGN WIDTH HEIGHT	DESCRIPTION	MOUNT TYPE	MOUNT HEIGHT	REMARKS
R1-1	STOP	30" 30"	WHITE ON RED	CHANNEL	7'-0"	REFLECTORIZED SIGN
R2-1	SPEED LIMIT 25	18" 24"	BLACK ON WHITE	CHANNEL	7'-0"	REFLECTORIZED SIGN
W14-2	NO OUTLET	24" 24"	BLACK ON YELLOW	CHANNEL	7'-0"	REFLECTORIZED SIGN



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CONSTRUCTION DETAILS		
PLAN FOR: RESIDENTIAL DEVELOPMENT UNION ROAD STRATHAM, NH		
DATE: MARCH 2018	SCALE: AS-NOTED	
PROJ. NO: NH-1060	SHEET NO. 6 OF 7	

PREPARED FOR:

BROCK EHLERS
15 UNION ROAD
STRATHAM N.H. 03885

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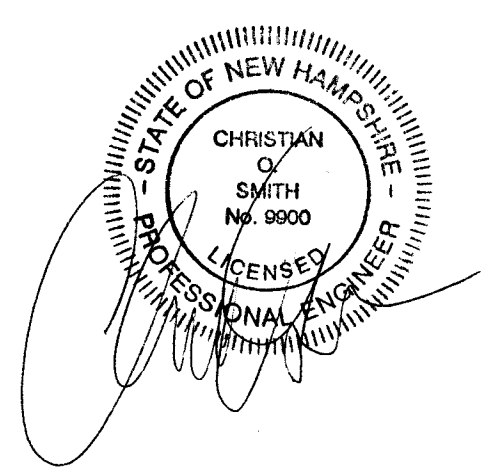
70 PORTSMOUTH AVE, STRATHAM, N.H. 03885
PHONE: 603-583-4860, FAX. 603-583-4863

CONSTRUCTION SEQUENCE

- CUT AND REMOVE TREES IN CONSTRUCTION AREAS AS REQUIRED OR DIRECTED.
- CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED. EROSION, SEDIMENT AND DETENTION CONTROL FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY EARTH MOVING OPERATION AND PRIOR TO DIRECTING RUNOFF TO THEM.
- CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE AND DISPOSED OF PER STATE AND LOCAL REGULATIONS.
- EXCAVATE AND STOCKPILE TOPSOIL /LOAM. ALL AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
- CONSTRUCT TEMPORARY CULVERTS AS REQUIRED OR DIRECTED.
- CONSTRUCT THE ROADWAY AND ITS ASSOCIATED DRAINAGE STRUCTURES. ALL ROADWAYS, AND CUT/FILL SLOPES SHALL BE STABILIZED AND/OR LOAMED AND SEEDED WITHIN 72-HOURS OF ACHIEVING FINISH GRADE AS APPLICABLE.
- INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
- BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED.
- DAILY OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE CHECK DAMS, DITCHES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS OR PROPERTY.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION
- COMPLETE PERMANENT SEEDING AND LANDSCAPING
- REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND REVEGETATE ALL DISTURBED AREAS.
- ALL SWALES AND DRAINAGE STRUCTURES WILL BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
- FINISH PAVING ALL ROADWAYS.
- LOT DISTURBANCE OTHER THAN THAT SHOWN ON THE APPROVED PLANS SHALL NOT COMMENCE UNTIL THE ROADWAY HAS THE CRUSHED STONE COURSE TO DESIGN ELEVATION/REQUIRED COMPACTION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

SEEDING SPECIFICATIONS

- GRADING AND SHAPING
 - 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.
- SEEDBED PREPARATION
 - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
 - 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 SEEDBED 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.
- ESTABLISHING A STAND
 - 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 100 LBS PER 1,000 SQ. FT..
NITROGEN(N), 50 LBS PER ACRE OR 1. 1 LBS PER 1,000 SQ.FT.
PHOSPHATE(P2O5), 100 LBS PER ACRE OR 2. 2 LBS PER 1,000 SQ.FT.
POTASH(K2O), 100 LBS PER ACRE OR 2. 2 LBS PER 1,000 SQ.FT.
(NOTE: THIS IS THE EQUIVALENT OF 500 LBS PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS PER ACRE OF 5-10-10.)
 - 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.
 - REFER TO TABLE(G-E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H-E1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWN VETCH, BIRDS FOOT TREFOIL, AND FLAT PEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
 - 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.
- MULCH
 - HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
 - 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 90 LBS PER 1000 SQ. FT.
- MAINTENANCE TO ESTABLISH A STAND
 - PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
 - 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.
 - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.



REVISIONS: DATE:

CONSTRUCTION DETAILS

PLAN FOR:
RESIDENTIAL DEVELOPMENT
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STRATHAM, NH

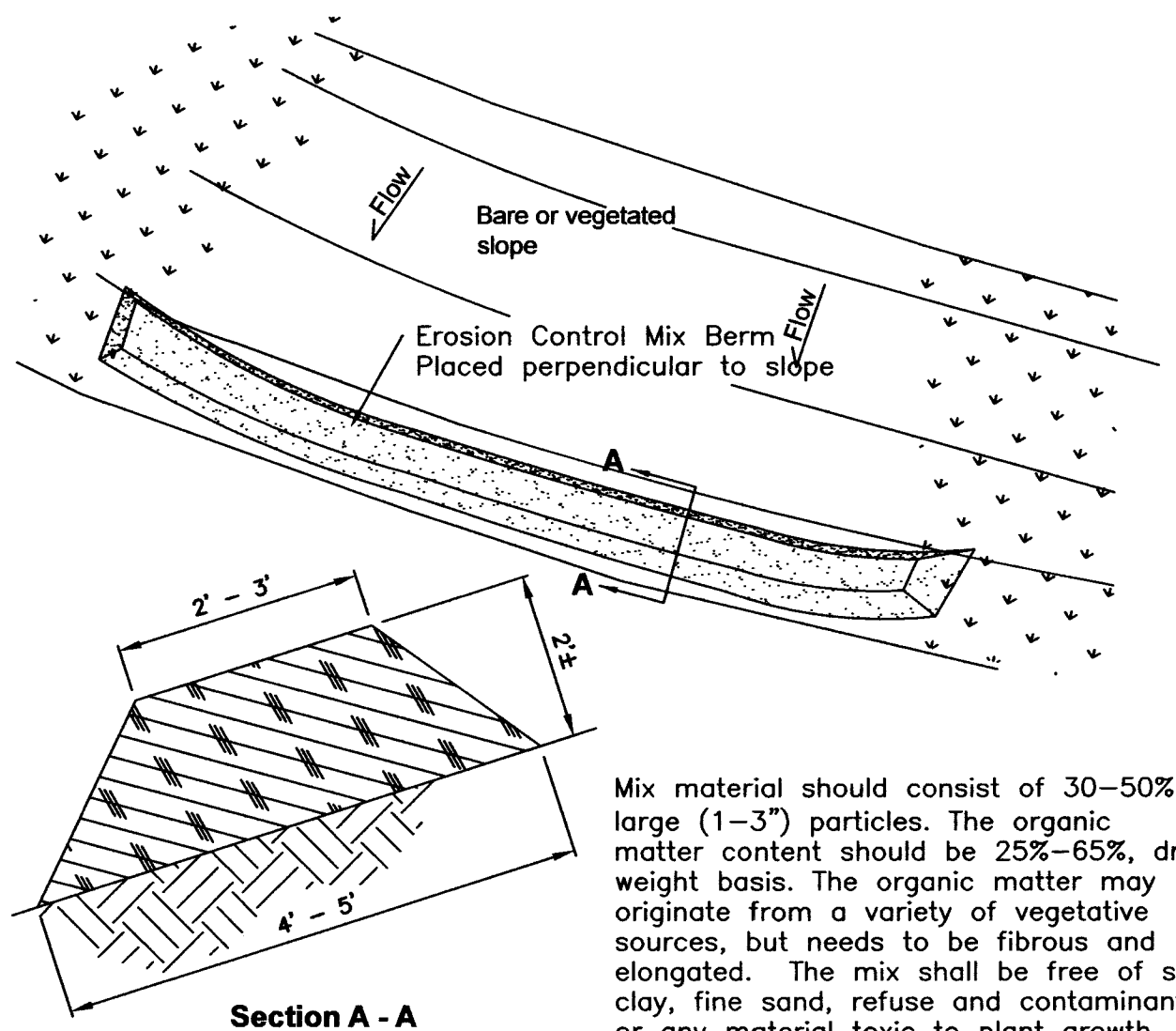
DATE: MARCH 2018 SCALE: AS-NOTED
PROJ. NO: NH-1060 SHEET NO. 7 OF 7

TEMPORARY EROSION CONTROL MEASURES

- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT NO MORE THAN 5 ACRES OF LAND SHALL BE EXPOSED BEFORE DISTURBED AREAS ARE STABILIZED*. LIMIT THE LENGTH OF EXPOSURE OF USTABILIZED SOIL TO 45-DAYS OR LESS.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER 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 POUNDS OF SEED PER 1000 SQUARE FEET OF AREA (48 POUNDS PER ACRE) SEE SEED SPECIFICATIONS THIS SHEET.
- SILT FENCES AND OTHER EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT GREATER THAN 0.5" DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
- 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.
- AREAS MUST BE SEEDED AND MULCHED WITHIN 3 DAYS OF FINAL GRADING, PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.
- * AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED.
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS RIPRAP HAS BEEN INSTALLED.
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

CONSTRUCTION SPECIFICATIONS

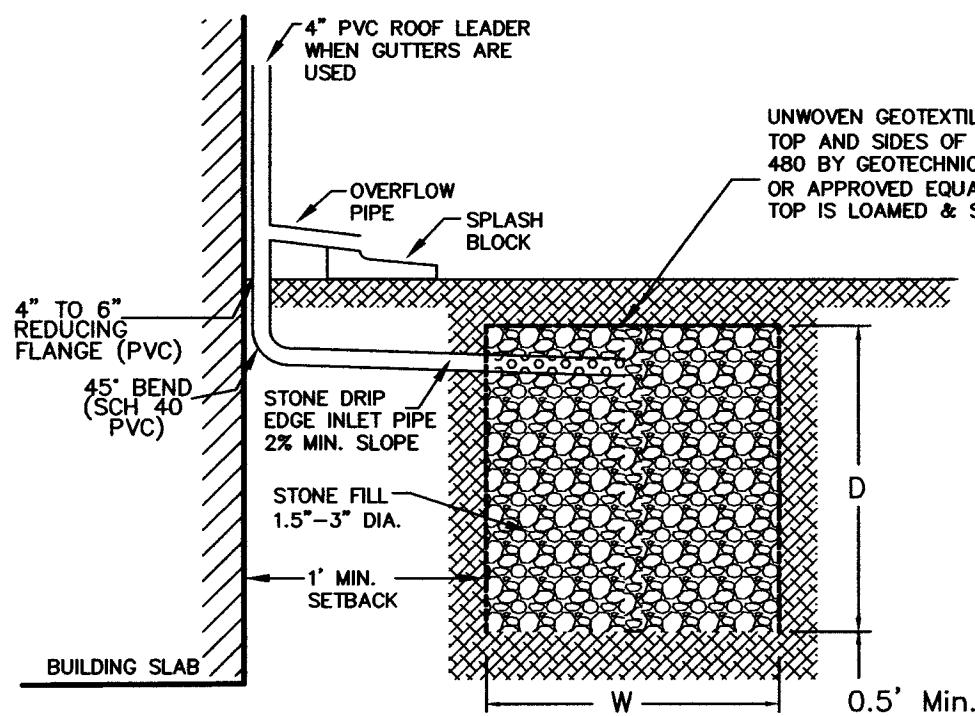
- STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
- CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
- WHEN TIMBER STRUCTURES ARE USED, THE TIMBER SHALL EXTEND AT LEAST 18" INTO THE SOIL.
- STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
- SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
- STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.
- THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
- THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF . RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES
- IN THE EVENT THAT GREATER THAN ONE ACRE OF CONTIGUOUS DISTURBANCE OCCURS, THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FOURTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT <http://cfpub.epa.gov/npdes/stormwater/noi/noisearch.cfm>. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".



Section A - A

Mix material should consist of 30-50% large (1-3") particles. The organic matter content should be 25%-65%, dry weight basis. The organic matter may originate from a variety of vegetative sources, but needs to be fibrous and elongated. The mix shall be free of silt, clay, fine sand, refuse and contaminants or any material toxic to plant growth. Erosion Control Mix berms are effective filters for overland flow conditions and should not be used to filter concentrated flow such as that found in drainage ditches, streams, etc.

Erosion Control Mix Berm



STONE DRIP EDGE SECTION
NOT TO SCALE

NOTE
NEW BUILDINGS SHALL HAVE STONE TRENCHES FOR ROOF RUNOFF MITIGATION (SEE DETAIL THIS SHEET). TRENCHES SHALL BE 5" IN WIDTH AND EXTEND THE ENTIRE LENGTH OF THE ROOF EAVES (BOTH SIDES) AS REQUIRED.

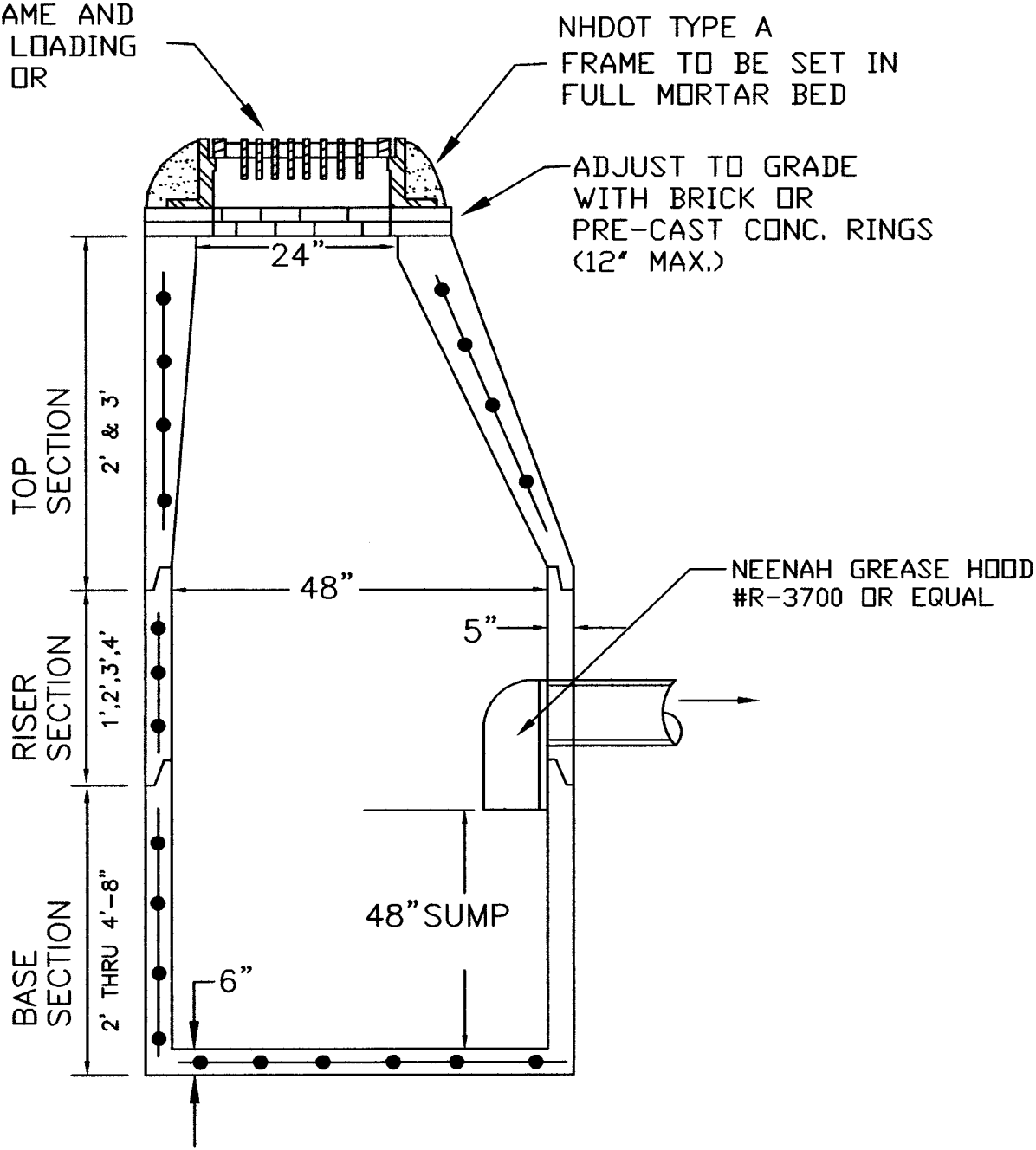
Stone Drip Edge Maintenance:

The drip edges will be inspected within the first three months after construction; thereafter the drip edges will be inspected 2 times per year to ensure that they are draining within 72 hours of a rain event equivalent to 2.5" or more.

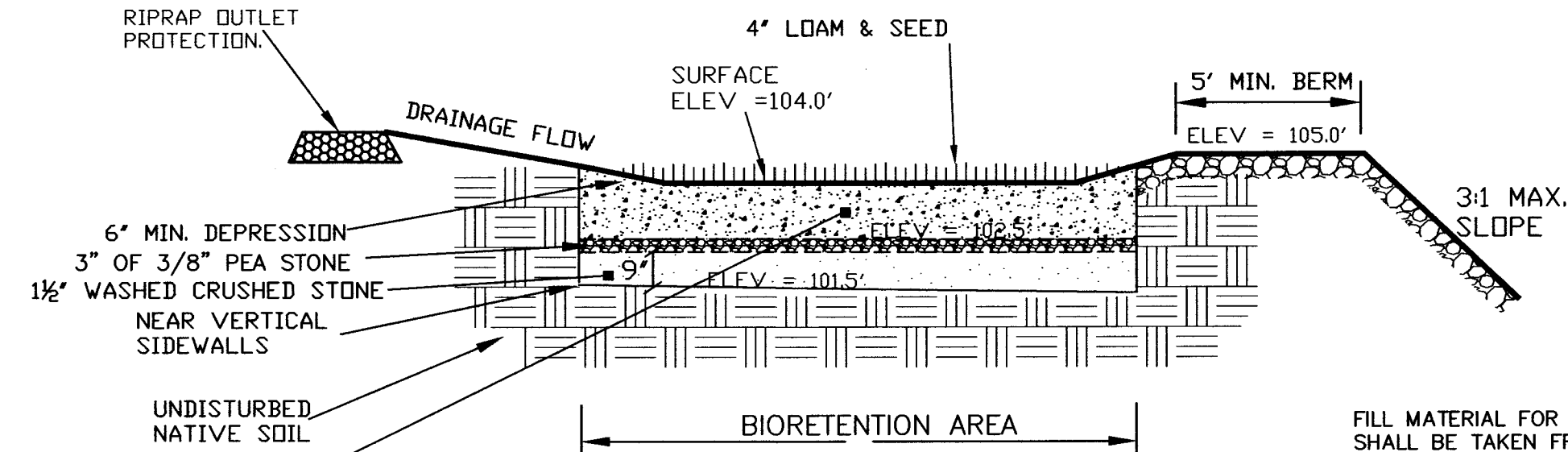
Remove and dispose of sediments or debris as needed

Total rehabilitation of a drip edge should be conducted to maintain storage capacity within 2/3 of the design volume and 72-hour exfiltration rate limit. Trench walls should be excavated to expose clean soil upon failure, and the soil scarified prior to replacement of clean stone.

DUCTILE IRON FRAME AND GRATE WITH H2O LOADING NEENEH R#3570A OR EQUAL



PRECAST CATCH BASIN
NOT TO SCALE



18" FILTER MEDIA; MIXTURE 20% COMPOST/FINELY SHREDDED BARK OR WOOD MULCH W/<5% PASSING THE #200 SIEVE, 30% LOAMY TOPSOIL, 50% SANDY SOIL (SAND PORTION SHALL BE ASTM C33 FINE AGREGATE)

NOTES: 1. SCARIFY SIDES AND BOTTOM OF BIORETENTION AREA TO FACILITATE NATURAL INFILTRATION RATES.

BIORETENTION AREA PROFILE DETAIL
NOT TO SCALE

FILL MATERIAL FOR EMBANKMENT SHALL BE TAKEN FROM APPROVED BORROW AREAS. IT SHALL BE CLEAN MINERAL SOIL FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES. IT SHALL CONTAIN NO ROCKS OR LUMPS OVER (6) INCHES IN DIMENSION, AND NOT MORE THAN FIFTEEN PERCENT (15%) OF THE ROCKS OR LUMPS SHALL BE GREATER THAN 2 1/2 INCHES OR LESS AND BE COMPACTED TO AT LEAST 90% OF ASTM D-1557. FILL MATERIAL SHALL MEET NHDOT ITEM 304.2: 6" PASSING 100%, #4 SIEVE 70-100%, #200 SIEVE 0-12%.

Legend:

- C1 See Curve Table
L1 See Length Table
N/F Now or Formerly
RCRD Rockingham County Registry of Deeds
Ø Utility Pole
■ Granite Bound Found
□ Granite Bound to be Set
● Drill Hole Found
—D— Culvert
--- Poorly Drained Soils
- - - Very Poorly Drained Soils
- - - No-Cut Do Not Disturb Buffer
- - - Building Setback
----- Stone Wall

Length Table:

LINE	BEARING	DISTANCE
L1	S43°41'45"E	45.60'
L2	S43°41'45"E	25.86'
L3	S12°13'14"W	37.69'
L4	S42°53'05"E	59.16'
L5	S46°00'18"E	55.85'
L6	N43°59'42"E	213.61'
L7	N46°00'18"W	70.00'
L8	S43°59'42"W	215.13'

Curve Table:

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	230.00'	24.46'	6°05'32"	S46°44'31"E	24.44'
C2	180.00'	175.67'	55°54'59"	S15°44'16"E	168.78'
C3	120.00'	115.41'	55°06'18"	S15°19'55"E	111.01'
C4	25.00'	44.52'	102°01'53"	N86°05'59"E	38.87'
C5	230.00'	35.04'	8°43'41"	S54°09'07"E	35.00'

Area Table:

LCA	Sq. Feet	Acres
1	11,044	0.25
2	14,971	0.34

WETLAND SCIENTIST CERTIFICATION

- US Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Technical Report ERDC/EL TR-09-19 (Oct 2009).
- Field Indicators of Hydric Soils in the United States, A Guide for Identifying and Delineating Hydric Soils, Version 7.0. United States Department of Agriculture (2010).
- North American Digital Flora: National Wetland Plant List, Version 2.2.1 (2009).
- Classification of Wetlands and Deepwater Habitats of the United States. USFW Manual FWS/OBS-79/31 (1979).

ZONING REQUIREMENTS

ZONE	RESIDENTIAL/AGRICULTURAL
LOT AREA MIN.	2 Ac. (3 AC. DUPLEX)
LOT FRONTAGE	150 FT. (200 FT. DUPLEX)
FRONT YARD	30 FT.
SIDE & REAR YARD	20 FT.
MAX. BUILDING HEIGHT	35 FT.
MAX. BUILDING COVER/LOT	20%
MIN. OPEN SPACE/LOT	60%
WETLANDS - POORLY DRAINED	
WETLAND SETBACK	50 FT.
NO-CUT BUFFER	25 FT.
WETLANDS - VERY POORLY DRAINED	
WETLAND SETBACK	100 FT.
NO-CUT BUFFER	50 FT.
VERNAL POOLS	
NO-CUT BUFFER	100 FT.

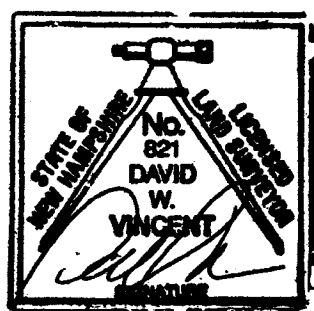
APPROVED

APPROVED BY THE TOWN OF STRATHAM PLANNING BOARD

DATE

CHAIRMAN:

The subdivision regulations of the Town of Stratham, New Hampshire, are part of this plat and approval of this plat is contingent upon completion of said requirements of said subdivision regulations, excepting only any waivers, variances or modifications made in writing by the Board and attached hereto.



David W. Vincent, LLS No. 821

27 Mar. 2018

Date

Map 10 / Lot 55
N/F Town of Stratham
10 Bunker Hill Avenue
Stratham, NH 03885
RCRD 1265, Pg 410

Map 10 / Lot 76-2
N/F Brock Ehlers &
Nina D. & Mark J. Merida
15 Union Road
Stratham, NH 03885
RCRD 5338, Pg 14
RCRD 5796, Pg 2941

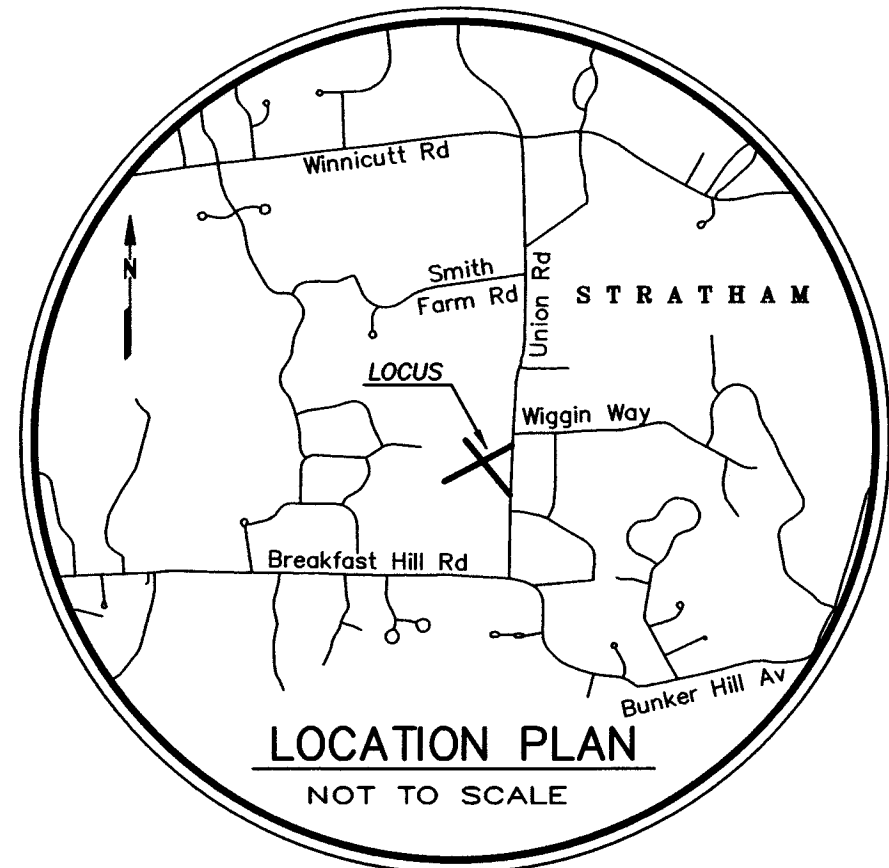
Map 10 / Lot 76-3
N/F Brock Ehlers &
Nina D. & Mark J. Merida
15 Union Road
Stratham, NH 03885
RCRD 5538, Pg 14
RCRD 5796, Pg 2941

Map 10 / Lot 55
N/F David R. &
Michelle A. Johnson
22 Hickory Pond Lane
Stratham, NH 03885
RCRD 4149, Pg 2706

Map 10 / Lot 140
N/F Thomas &
Kathleen Stranger
1 Strawberry Lane
Stratham, NH 03885

Reference:

"Subdivision Plan Prepared for Brock Ehlers and Nina D. & Mark J. Merida, Stratham, NH," dated March 27, 2018, rev. xx/xx/2018, prepared by prepared by this office.



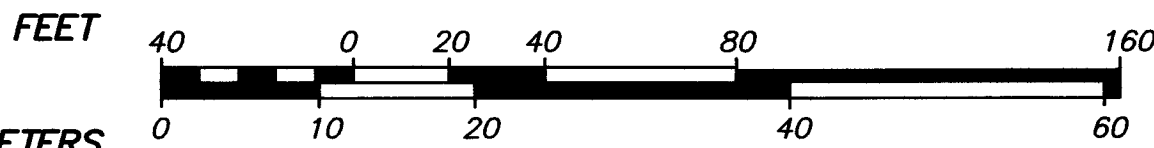
Notes:

- The purpose of this plan is to depict the proposed improvements of Units 1 and 2 located on the subject parcel for condominium conversion utilizing boundary information as depicted on the plan reference.
- Field Procedure: Nikon (NPL-322) Electronic Total Station Instrument & Carlson Plus Data Collector, Adjusted Closed Traverse Performed December 2017, Least Squares Balance.
- Error of Closure Better Than 1:41,000, Urban Survey Standards.
- Parcel is shown as Lot 76-1 on the Town of Stratham Assessor's Map 10.
- The subject parcel is not located in a Flood Hazard Zone as shown on FIRM 3301500245E. Effective date May 17, 2005.
- Owners of Record: Brock Ehlers
15 Union Road
Stratham, NH 03885
RCRD Bk 5538, Pg 14

Nina D. & Mark J. Merida
17 Union Road
Stratham, NH 03885
RCRD Bk 5796, Pg 2941
- This plan does not show any unrecorded or unwritten easements which may exist. A reasonable and diligent attempt has been made to observe any apparent, visible uses of the land; however this does not constitute that no such easements exist.
- The plan is based upon New Hampshire state plane NAD 83 coordinates.
- Total Lot Area - 4.83± Acres.
- The wetland areas shown hereon were field delineated by Gove Environmental Services, Inc., of 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- The location of all underground utilities shown are approximate as per the plan references. David W. Vincent, LLS does not warranty nor guarantee the location of all utilities depicted or not depicted. Prior to any construction or excavation the owner shall verify the location of all utilities and contact DIGSAFE at 1-888-344-7233 or dial 811.
- NHDES Subdivision Approval No. Pending.
- NHDES Individual Sewage Disposal System Approval No. Pending.

CONDOMINIUM SITE PLAN

PREPARED FOR
TAYLOR COURT 76-1 CONDOMINIUM
OF PROPERTY IN THE NAME OF
BROCK EHLERS AND
NINA D. & MARK J. MERIDA
SHOWN AS
TAX MAP 10 / LOT 76-1
LOCATED AT
TAYLOR COURT
COUNTY OF ROCKINGHAM
STRATHAM, NH



SCALE: 1" = 40' DATE: MARCH 27, 2018

DAVID W. VINCENT, LLS
LAND SURVEYING SERVICES
PO BOX 1622
DOVER, NH 03821
TEL: (603) 664-5786
www.landsurveyingservices.net

NO.	DATE	DESCRIPTION	BY
4			
3			
2			
1			

Legend:

- C1 See Curve Table
L1 See Length Table
N/F Now or Formerly
RCRD Rockingham County Registry of Deeds
Utility Pole
Granite Bound Found
Granite Bound to be Set
Drill Hole Found
Culvert
Poorly Drained Soils
Very Poorly Drained Soils
No-Cut Do Not Disturb Buffer
Building Setback
Stone Wall

Length Table:

LINE	BEARING	DISTANCE
L1	N29°01'01"E	89.94'
L2	S58°51'21"E	71.55'
L3	S29°01'01"W	68.02'
L4	S29°34'41"W	30.42'
L5	S28°43'34"W	58.68'
L6	N76°54'50"W	13.91'
L7	S58°51'21"E	70.05'
L8	S29°01'01"W	132.54'
L9	N76°54'50"W	72.80'

Curve Table:

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	230.00'	73.85'	18°23'52"	N67°42'54"W	73.34'

Area Table:

LCA	Sq. Feet	Acres
1	9,338	0.21
2	10,081	0.23

ZONING REQUIREMENTS

ZONE	RESIDENTIAL/AGRICULTURAL
LOT AREA MIN.	2 AC. (3 AC. DUPLEX)
LOT FRONTAGE	150 FT. (200 FT. DUPLEX)
FRONT YARD	30 FT.
SIDE & REAR YARD	20 FT.
MAX. BUILDING HEIGHT	35 FT.
MAX. BUILDING COVER/LOT	20%
MIN. OPEN SPACE/LOT	60%
WETLANDS - POORLY DRAINED	
WETLAND SETBACK	50 FT.
NO-CUT BUFFER	25 FT.
WETLANDS - VERY POORLY DRAINED	
WETLAND SETBACK	100 FT.
NO-CUT BUFFER	50 FT.
VERNAL POOLS	
NO-CUT BUFFER	100 FT.

APPROVED
APPROVED BY THE TOWN OF STRATHAM PLANNING BOARD.

DATE

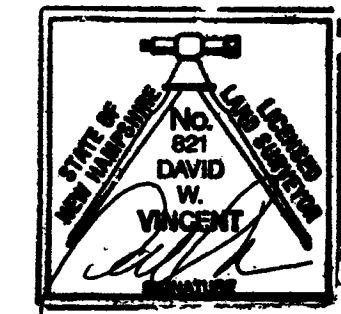
CHAIRMAN:

The subdivision regulations of the Town of Stratham, New Hampshire, are part of this plan and approval of this plan is contingent upon completion of said requirements of said subdivision regulations, excepting only any waivers, variances or modifications made in writing by the Board and attached hereto.

This plan is a condominium instrument under RSA Chapter 356-B and is not a subdivision of land.

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.

- I certify: A.) That this site plan depicts the location and dimensions of the improvements shown hereon, specifically units 1 and 2.
- B.) That said units 1 and 2 are substantially complete; and
- C.) That this plan is accurate and complies with the provisions of RSA 356-B:20(i) for site plans.



David W. Vincent, LLS No. 821

Date

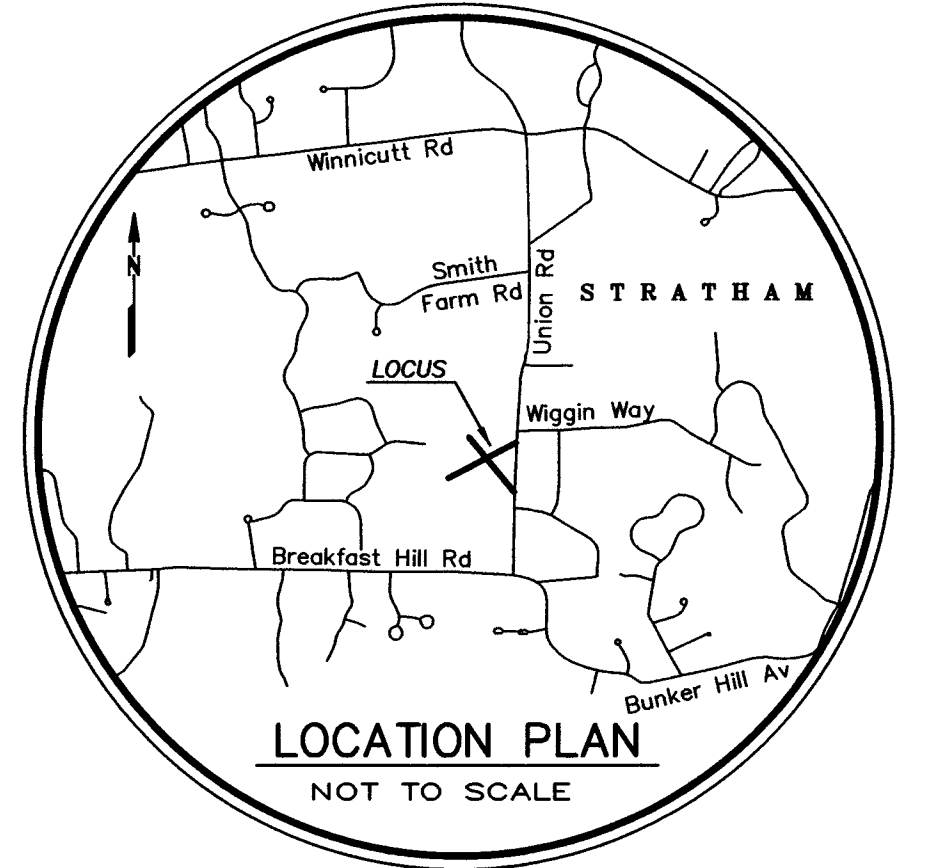
27 Mar. 2018

WETLAND SCIENTIST CERTIFICATION

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- North American Digital Flora: National Wetland Plant List, Version 2.2.1 (2009).
- Classification of Wetlands and Deepwater Habitats of the United States. USFWS Manual FWS/OBS-79/31 (1979).

Reference:

"Subdivision Plan Prepared for Brock Ehlers and Nina D. & Mark J. Merida, Stratham, NH," dated March 27, 2018, rev. xx/xx/2018, prepared by prepared by this office.



Notes:

- The purpose of this plan is to depict the proposed improvements of Units 1 and 2 located on the subject parcel for condominium conversion utilizing boundary information as depicted on the plan reference.
- Field Procedure: Nikon (NPL-322) Electronic Total Station Instrument & Carlson Plus Data Collector, Adjusted Closed Traverse Performed December 2017, Least Squares Balance.
- Error of Closure Better Than 1:41,000, Urban Survey Standards.
- Parcel is shown as Lot 76-2 on the Town of Stratham Assessor's Map 10.
- The subject parcel is not located in a Flood Hazard Zone as shown on FIRM 3301500245E. Effective date May 17, 2005.
- Owners of Record: Brock Ehlers
15 Union Road
Stratham, NH 03885
RCRD Bk 5538, Pg 14
Nina D. & Mark J. Merida
17 Union Road
Stratham, NH 03885
RCRD Bk 5796, Pg 2941
- This plan does not show any unrecorded or unwritten easements which may exist. A reasonable and diligent attempt has been made to observe any apparent, visible uses of the land; however this does not constitute that no such easements exist.
- The plan is based upon New Hampshire state plane NAD 83 coordinates.
- Total Lot Area - 3.01± Acres.
- The wetland areas shown hereon were field delineated by Gove Environmental Services, Inc., of 8 Continental Drive, Building #2, Unit H, Exeter, NH, see wetland scientist certification.
- The location of all underground utilities shown are approximate as per the plan references. David W. Vincent, LLS does not warrant nor guarantee the location of all utilities depicted or not depicted. Prior to any construction or excavation the owner shall verify the location of all utilities and contact DIGSAFE at 1-888-344-7233 or dial 811.
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Map 10 / Lot 76-1
N/F Brock Ehlers &
Nina D. & Mark J. Merida
15 Union Road
Stratham, NH 03885
RCRD 5538, Pg 14
RCRD 5796, Pg 2941

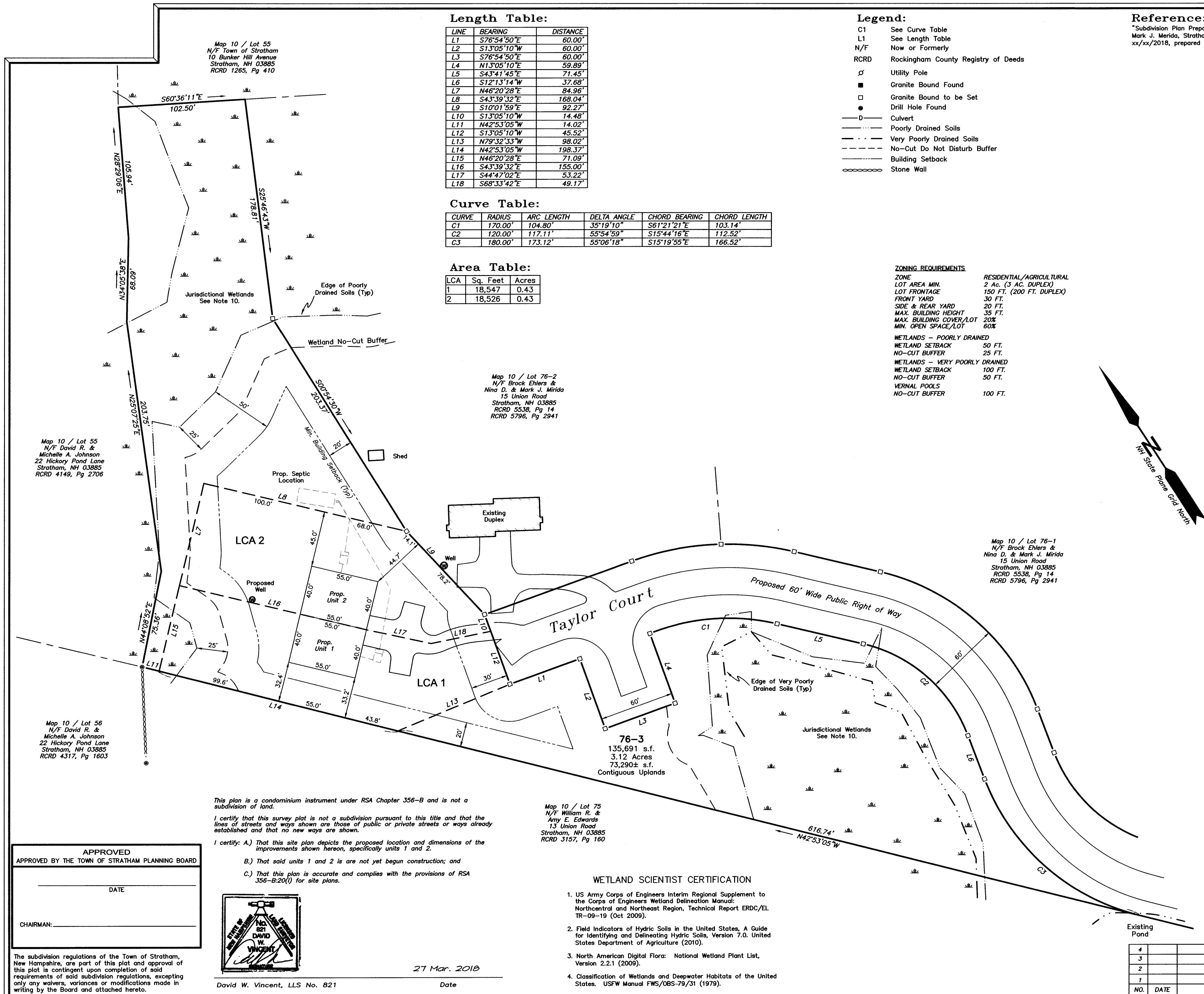
Map 10 / Lot 76-3
N/F Brock Ehlers &
Nina D. & Mark J. Merida
15 Union Road
Stratham, NH 03885
RCRD 5538, Pg 14
RCRD 5796, Pg 2941

CONDOMINIUM SITE PLAN
PREPARED FOR
TAYLOR COURT 76-2 CONDOMINIUM
OF PROPERTY IN THE NAME OF
BROCK EHLERS AND
NINA D. & MARK J. MERIDA
SHOWN AS
TAX MAP 10 / LOT 76-2
LOCATED AT
TAYLOR COURT
COUNTY OF ROCKINGHAM
STRATHAM, NH

FEET 40 0 20 40 80 160
METERS 0 10 20 40 60
SCALE: 1"= 40' DATE: MARCH 27, 2018

DAVID W. VINCENT, LLS
LAND SURVEYING SERVICES
PO BOX 1622
DOVER, NH 03821
TEL: (603) 664-5786
www.landsurveyingservices.net

NO.	DATE	DESCRIPTION	BY
1			
2			
3			
4			



CONDOMINIUM SITE PLAN
PREPARED FOR
TAYLOR COURT 76-3 CONDOMINIUM
OF PROPERTY IN THE NAME OF
BROCK EHLERS AND
NINA D. & MARK J. MERIDA
SHOWN AS
TAX MAP 10 / LOT 76-3
LOCATED AT
TAYLOR COURT
COUNTY OF ROCKINGHAM
STRATHAM, NH

FEET 40 0 20 40 80 160
METERS 0 10 20 40 60
SCALE: 1" = 40' DATE: MARCH 27, 2018

DAVID W. VINCENT, LLS
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PO BOX 1622
DOVER, NH 03821
TEL: (603) 664-5786
www.landsurveyingservices.net

NO.	DATE	DESCRIPTION	BY
4			
3			
2			
1			



TOWN OF STRATHAM
10 Bunker Hill Avenue · Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

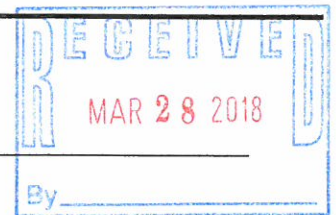
SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:

15-17 Union Road Condominium Subdivision

Street Address:

15 Union Road



I Christian Smith of Beals Associates hereby request that the Planning Board waive the requirements of item(s) Addendum A, Table 1 Road Width of the Subdivision/Site Plan Checklist in reference to a plan presented by Beals Associates PLLC (name of surveyor and engineer) dated March, 2018 for the property tax map(s) 10 and lot(s) 76 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR** the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly **carry out the spirit and intent of the regulations:**

Based on the size of the Subdivision, environmental considerations, and an effort to reduce impervious surface we request the road width be reduced to 22' where 24' is required.

Signed:

Christian O. Smith, PE

Applicant or Authorized Agent

Planning Board Action:

Waiver Granted

Waiver Not Granted



Town of Stratham Subdivision Checklist

TOWN OF STRATHAM

Name of Applicant: 15-17 Union Rd. Condominium

Date: 4-3-18

Map #: 10 Lot # 76

Subdivision Application - Information Checklist

A subdivision application shall contain the following information, where applicable, to be considered complete. However, this checklist is intended only as a guide; the Planning Board may require additional information as deemed necessary. All plans shall conform to the applicable requirements of the Zoning Ordinance, Building Regulations, Subdivision and Site Plan Review Regulations and other state, local, and federal requirements. (All data/information sources should be referenced.)

X – Information Provided

O – Information Not Provided

W – Waiver Requested

I. Preliminary Consultation

- ☐ A. Base map drawn to scale.
- ☐ 1. General description of existing conditions on the site.
- ☐ 2. Any facilities or utilities.
- ☐ 3. Dimensions and sizes of the proposed lots (minimum sizes determined by soil type.)
- ☐ 4. Topographic map showing the proposed layout of streets, lots, etc.

II. Formal Application

- ☒ A. Completed "Application for Subdivision Approval".
- ☒ B. Names and addresses of all abutters.
- ☒ C. Administrative fees (payable to the Town of Stratham).
- ☒ D. High intensity soils information with lot size calculations and cover letter from a soil scientist.
- ☒ E. Data on test pits and percolation tests:
 - ☒ Location of test pits.
 - ☒ Percolation test date and rate
 - ☒ Certification of test witness
 - ☒ Outline of the area reserved for leach fields
- ☒ F. Six complete sets of plans stamped by a N.H. registered land surveyor; roadway, drainage, and utility plans stamped by a professional N.H. engineer. All plans to contain:
 - ☒ Names, addresses, and telephone numbers of : the owner, applicant, agent and/or engineer, architect and/or land surveyor.
 - ☒ Name of the project.
 - ☒ Location of the site.

Town of Stratham Subdivision Checklist

- X Names and addresses of all abutters (including those across the street or stream.)
- X Date, North arrow, and scale.
- X Tax Map reference.
- X G. Additional submission requirements:
 - X Nine 11 X 17 copies of proposed plan.
 - O One copy of the plan in a digital format referenced to NH State Plane feet, NAD 83, in a format compatible with the town's ESRI ArcView GIS system.
 - X Three copies of any engineering or impact reports.
 - X Three sets of printed labels for abutter mailing.
- X 1. Design and Sketch Plan (Scale not more than 100' to 1").
 - X a. Vicinity sketch with surrounding streets.
 - X b. Natural features including watercourses, waterbodies, etc.
 - X c. Existing contours at intervals not exceeding two feet; referred to sea-level datum.
 - X d. Bearings and distances of surveyed property lines.
 - X e. Abutting street lines.
 - X f. Description of existing catch basins, culverts, etc.
 - X g. Description of all utilities.
- X 2. Subdivision Plan (Scale not more than 50' to 1").
 - X a. Location, dimensions, and bearings of boundary lines.
 - X b. Location and width of streets, easements, right-of-ways, and setback lines.
 - X c. Locations, dimensions and areas of lots, and the location and setback dimensions of existing structures within 100'.
 - N/A d. All property to be set aside for park or playground use.
 - X e. Indication of the use of lots.
 - X f. Consecutively numbered or letter lots.
 - X g. Explanation of any easements or reservations.
- X 3. Construction Plan (See Section 4.5, "Construction Standards").
 - X a. Profiles showing existing and proposed elevations along center lines of all roads.
 - X b. Plans and cross-sections of street showing facilities (e.g. signs, drainage, etc.) and utilities (e.g. water, electricity, etc.).
 - X c. Location, size, elevation of existing facilities or utilities.
 - X d. Topographic contours.
 - X e. Site-grading plan.
- X 4. Other exhibits, if applicable:
 - O a. State and local permits (e.g. state septic systems [RSA 149-E:3], site specific

**Town of Stratham
Subdivision Checklist**

[RSA 149:8-a], driveway access [RSA 236:13], dredge and fill [RSA 483-A], etc.).

- ☐ b. Performance Bond.
- ☒ c. Erosion and sedimentation control plan.
- ☒ d. Potential Planning Board requirements:
 - ☒ Stormwater runoff calculations and engineer's certification.
 - ☐ Calculations on type and quantity of sanitary waste.
 - ☐ Traffic impact analysis.
 - ☐ Protective covenants.
 - ☐ Deeds conveying streets or right-of-ways.
 - ☐ Natural/Environmental Recourses Inventory
 - ☐ Environmental/Forestry Impact Report

ARE THERE ANY STRUCTURES ON THE PROPERTY AT PRESENT? YES

DESCRIPTION: DUPLEX DWELLING IN CODNOMINIUM OWNERSHIP

LOCATION: 15-17 UNION RD.

DOES OWNER OF RECORD OWN OR HAVE INTEREST IN A PARTNERSHIP OR CORPORATION OWNING ABUTTING PROPERTY? NO

IS ANY VARIANCE FROM "LAND SUBDIVISION CONTROL REGULATIONS" REQUESTED?
YES

IF SO HAS LETTER BEEN SUBMITTED STATING REASONS FOR VARIANCE REQUEST?
YES, SEE WAIVER REQUEST FORM REGARDING REDUCED PAVEMENT WIDTH

Note: For more complete information, it is strongly recommended that the applicant read Stratham's "Subdivision and Site Plan Review Regulations" (2004), as well as the Town's Zoning Ordinance (2004) and Building Ordinance. (2002).

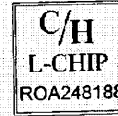
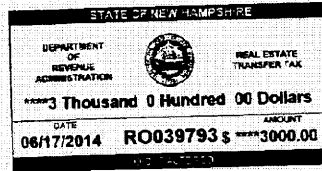
I certify that the information provided is complete and correct to the best of my knowledge.

Signed:  Date: 4-3-18

Return to
Brock Ehlers

MAIL TO

15 Union Road
Stratham, NH 03885



WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS: that We, **Christopher C. Hussey and Tracey Wilder f/k/a Tracy A. Hussey**, both single, of 15 Union Road, Stratham, New Hampshire 03885, **FOR CONSIDERATION PAID** grant to **Brock Ehlers**, Single, of 8 6th Street, Hampton, New Hampshire 03842, with **WARRANTY COVENANTS** the following described premises:

A certain Condominium Unit at 15-17 Union Road Condominium, Union Road, Stratham, County of Rockingham and State of New Hampshire, more particularly bounded and described as follows:

Unit 1 (to be known as 15 Union Road) of the 15-17 Union Road Condominium ("Condominium") as described and identified in the Declaration of Condominium for 15-17 Union Road Condominium dated April 16, 2002 and recorded in the Rockingham County Registry of Deeds in Book 3758, Page 2845 and as shown on a certain site plan entitled, "15-17 Union Road Condominium, Tax Map 4, Lot 23-11, Stratham, NH for Timothy J. Rieser, 1 Butterfield Lane #6, Stratham, NH 03885" by Jones & Beach Engineers, Inc. recorded in the Rockingham County Registry of Deeds as Plan D-29759, Sheet 1. See floor plans recorded in the Rockingham County Registry of Deeds as Plan D-29759, Sheet 2.

Together with an undivided interest in the Common Area appurtenant to said Unit 1 as defined and described in said Declaration as said Declaration may be amended pursuant to its terms and as per Plan D-29759.

Subject to Declaration of Condominium for 15-17 Union Road Condominium dated April 16, 2002 and recorded in the Rockingham County Registry of Deeds in Book 3758, Page 2845, and as they may in the future be amended.

Subject to any other easements, covenants, conditions and restrictions of record.

021334

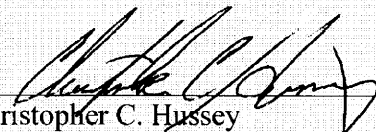
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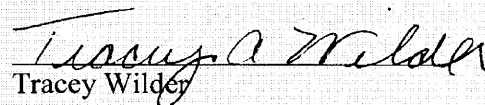
ROCKINGHAM COUNTY
REGISTRY OF DEEDS

Meaning and intending to describe and convey the same premises conveyed to Grantors by deed from Timothy J. Rieser dated May 23, 2002 and recorded in Rockingham County Registry of Deeds at Book 3774, Page 1539.

We, the grantors hereby release all rights of homestead in the above described premises.

Executed this 16 day of June, 2014.


Christopher C. Hussey



Tracey Wilder

State of New Hampshire
County of Rockingham

June 16, 2014

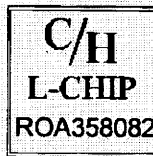
Then personally appeared the above-named Christopher C. Hussey and Tracey Wilder, known to me or satisfactorily proven to be the persons whose names are subscribed to the foregoing instrument and acknowledged that they executed same freely and intelligently, before me.




Notary Public/Justice of the Peace
Commission expiration:

MAIL TO

Return to:
 Nina D. Merida
 17 Union Road
 Stratham, NH 03885



QUITCLAIM DEED

KNOW ALL PERSONS BY THESE PRESENTS that **NINA D. MERIDA f/k/a NINA D. MARTIN**, married, having an address of 17 Union Road, Stratham, Rockingham County, New Hampshire (03885), for consideration paid, grants to **NINA D. MERIDA and MARK JAMES MERIDA**, having an address having an address of 17 Union Road, Stratham, Rockingham County, New Hampshire (03885), as joint tenants with rights of survivorship, with Quitclaim Covenants:

A certain condominium unit at 15-17 Union Road Condominium, Union Road, Stratham, County of Rockingham, New Hampshire, more particularly bounded and described as follows:

Unit 2 (to be known as 17 Union Road) of the 15-17 Union Road Condominium ("Condominium") as described and identified in the Declaration of Condominium for 15-17 Union Road Condominium dated April 16, 2002 and recorded in the Rockingham County Registry of Deeds in Book 3758, Page 2845, and as shown on a certain site plan entitled, "15-17 Union Road Condominium, Tax Map 4, Lot 23-11, Stratham, NH for Timothy J. Rieser, 1 Butterfield Lane #6, Stratham, NH 03885," by Jones & Beach Engineers, Inc., recorded in the Rockingham County Registry of Deeds as Plan D-29759, Sheet 1. See floor plans recorded in the Rockingham County Registry of Deeds as Plan D-29759, Sheet 2.

TOGETHER WITH an undivided interest in the Common Area appurtenant to said Unit 2 as defined and described in said Declaration as said Declaration may be amended pursuant to its terms and as per Plan D-29759.

SUBJECT TO Declaration of Condominium for 15-17 Union Road Condominium dated April 16, 2002 and recorded in the Rockingham County Registry of Deeds in Book 3758, Page 2845, and as it may in the future be amended.

MEANING AND INTENDING to describe and convey the same premises conveyed to Nina D. Martin n/k/a Nina D. Merida by deed of Timothy J. Rieser dated May 24, 2002 and recorded at the Rockingham County Registry of Deeds at Book 3778, Page 1775.

The grantor herein specifically reserves all her rights of homestead.

005955

2017 FEB -8 AM 11:32

ROCKINGHAM COUNTY
REGISTRY OF DEEDS

This is a non-contractual transfer subject to NH RSA 78-B:2 IX and no transfer taxes are due.

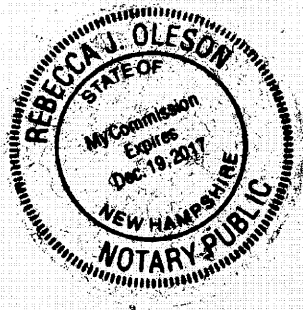
This Quitclaim Deed has been prepared from information supplied by the Grantor herein and the preparer has not conducted a title examination.

EXECUTED on this 29th day of January, 2017.

Nina Merida
Nina D. Merida f/k/a Nina D. Martin

**STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM**

Before me this 29th day of January, 2017, personally appeared the above-named Nina D. Merida, f/k/a Nina D. Martin, and acknowledged the foregoing instrument to be her voluntary act and deed.

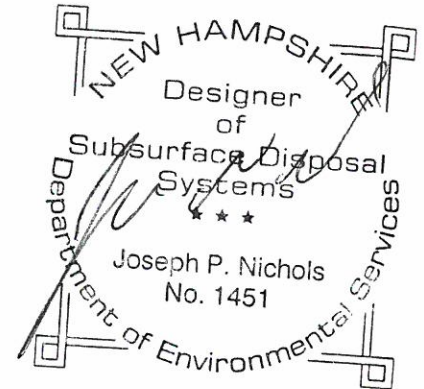


[Signature]
Notary Public/Justice of the Peace
My Comm. Expires: _____

Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 1

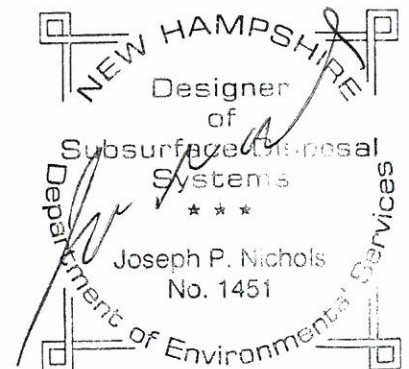
0" - 15"	10YR 4/3	Brown, (Fill) Fine Sandy Loam, Granular, Friable
15" - 20"	2.5Y 5/1	Black, (Fill) Fine Sandy Loam, Granular, Friable
20" - 55"	2.5Y 4/3	Olive Brown, Gravelly, Loamy Sand Massive, Firm, w/ Redox



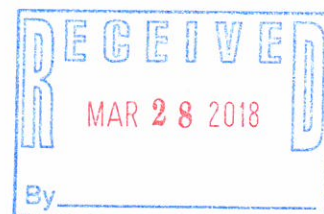
ESHWT = 20 Inches
Observed Ground Water @ 55 Inches
Restrictive - @ 20 Inches
Refusal – None
Note: Fails town requirements of natural material to SHWT depth

Test Pit # 2

0" - 12"	10YR 4/3	Brown, Fine Sandy Loam, Granular, Friable
12" - 22"	2.5Y 5/2	Grayish Brown, Fine Sandy Loam, Blocky, Firm w/ Redox
22" - 51"	2.5Y 5/3	Light Olive Brown, Gravelly, Loamy Sand Massive, Friable, w/ Redox



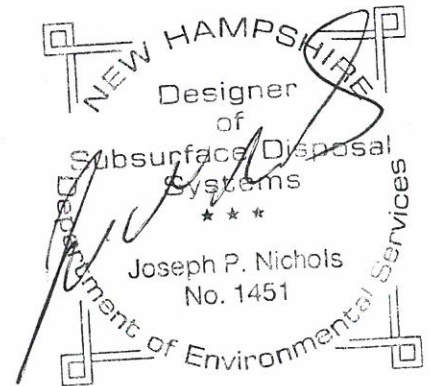
ESHWT = 12 Inches
Observed Ground Water - None
Restrictive - @ 12 Inches
Refusal – None
Note: Failed town min. SHWT depth



Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 3

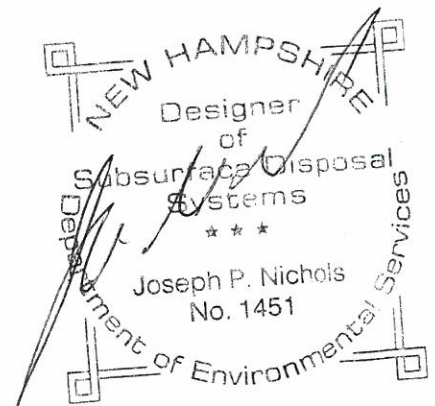
0" - 10"	10YR 4/3	Brown, Fine Sandy Loam, Granular, Friable
10" - 22"	2.5Y 4/3	Olive Brown, Fine Sandy Loam, Granular, Friable w/ Redox
22" - 36"	2.5Y 4/1	Dark Gray, Fine Sandy Loam, Granular, Friable w/ Redox



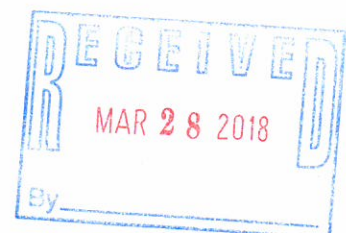
ESHW = 10 Inches
Observed Ground Water @ 20 Inches
Restrictive - None
Refusal - None
Note: Failed town min. SHWT depth

Test Pit # 4

0" - 12"	10YR 5/3	Brown, Fine Sandy Loam, Granular, Friable
12" - 26"	2.5Y 5/3	Light Olive Brown, Medium to Coarse Gravelly Sand, Massive, Friable
26" - 50"	2.5Y 5/3	Light Olive Brown, Medium to Coarse Gravelly Sand, Massive, Friable w/ Redox



ESHW = 26 Inches
Observed Ground Water - None
Restrictive - None
Refusal - None
Note: Passed
Perc Rate 4 Min/Inch @ 18"



Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017.
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 5

0" - 4"	10YR 3/3	Dark Brown, (Fill) Fine Sandy Loam, Granular, Friable
4" - 17"	10YR 4/3	Brown, (Fill) Fine Sandy Loam, Granular, Friable
17" - 50"	2.5Y 5/3	Dark Gray, Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox

ESHWT = 17 Inches

Observed Ground Water - None

Restrictive - None

Refusal - None

Note: Fails town requirements of natural material to SHWT depth

Test Pit # 6

0" - 12"	10YR 5/3	Brown, (Fill) Fine Sandy Loam, Granular, Friable
12" - 54"	2.5Y 5/2	Grayish Brown, Medium to Coarse Gravelly Sand, Single Grain, Loose w/ Redox

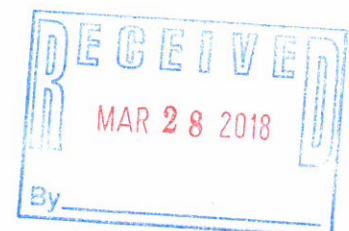
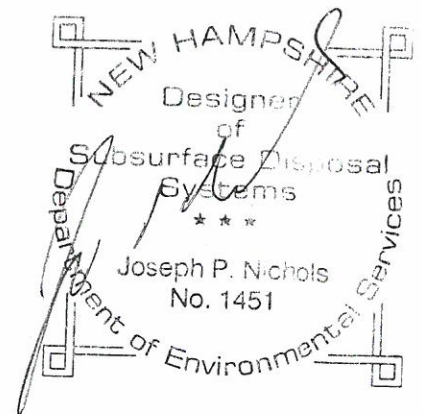
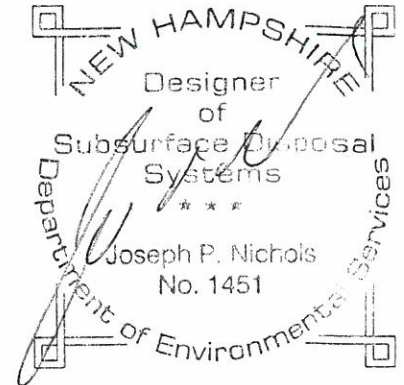
ESHWT = 12 Inches

Observed Ground Water - None

Restrictive - None

Refusal - None

Note: Fails town requirements of natural material to SHWT depth



Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 7

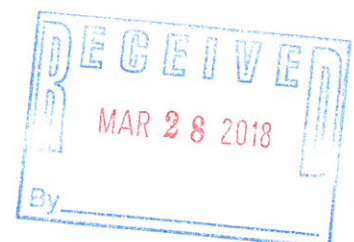
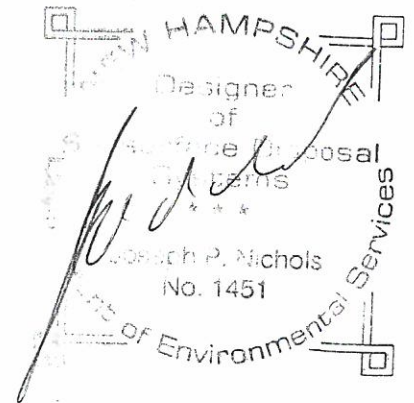
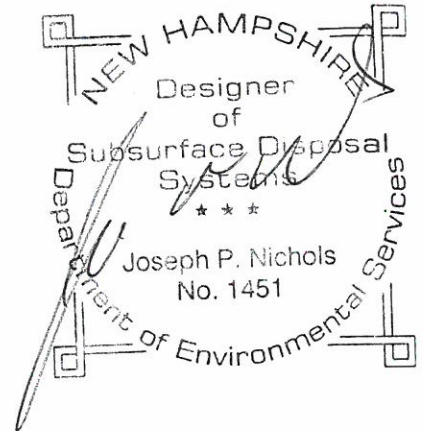
0" - 5"	10YR 3/3	Dark Brown, Fine Sandy Loam, Granular, Friable
5" - 19"	10YR 5/3	Brown, Fine Sandy Loam, Granular, Friable
19" – 54"	2.5Y 4/3	Olive Brown, Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox

ESHWT = 19 Inches
Observed Ground Water - None
Restrictive - None
Refusal – None
Note: Passed
Perc Rate 14 Min/Inch @ 18"

Test Pit # 8

0" - 8"	10YR 3/3	Dark Brown, Fine Sandy Loam, Granular, Friable
8" – 53"	2.5Y 5/3	Grayish Brown, Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox

ESHWT = 8 Inches
Observed Ground Water - None
Restrictive - None
Refusal – None
Note: Failed town min. SHWT depth

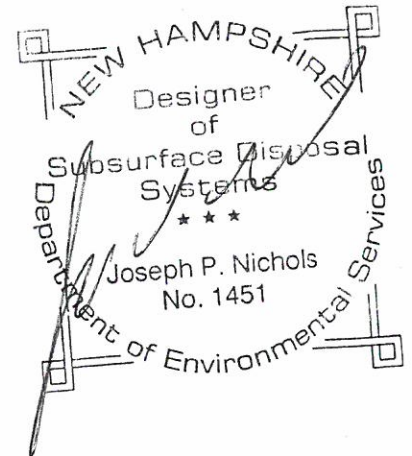


Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 9

0" - 4"	10YR 3/2	Very Dark Grayish Brown, Fine Sandy Loam, Granular, Friable
4" - 18"	10YR 4/6	Brown, Fine Sandy Loam, Granular, Friable
18" - 50"	2.5Y 5/3	Dark Gray, Gravelly, Fine Sandy Loam, Granular, Firm w/ Redox

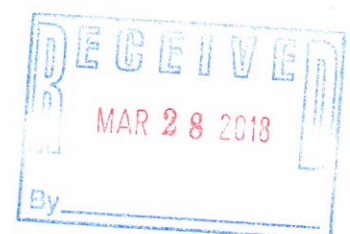
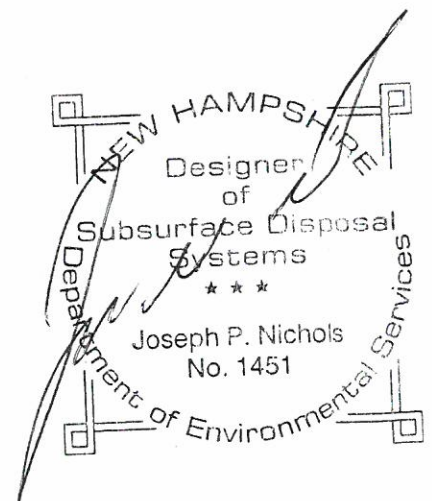
ESHWT = 18 Inches
Observed Ground Water - None
Restrictive - @ 18 Inches
Refusal - None
Note: Passed
Perc Rate 12 Min/Inch @ 18"



Test Pit # 10

0" - 6"	10YR 3/2	Very Dark Grayish Brown, Fine Sandy Loam, Granular, Friable
6" - 14"	10YR 4/6	Brown, Fine Sandy Loam, Granular, Friable
14" - 23"	2.5Y 5/2	Grayish Brown, Fine Loamy Sand, Massive, Friable w/ Redox
23" - 36"	2.5Y 5/2	Grayish Brown, Fine Loamy Sand, Massive, Friable w/ Redox

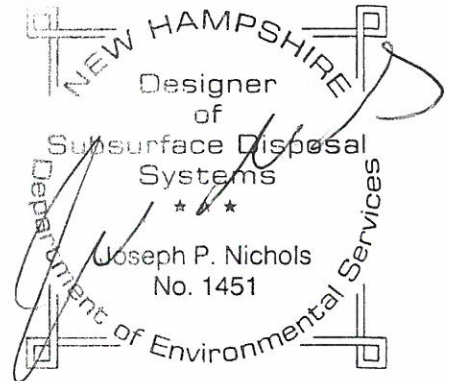
ESHWT = 14 Inches
Observed Ground Water - None
Restrictive - @ 23 Inches
Refusal - None
Note: Failed town min. SHWT depth



Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 11

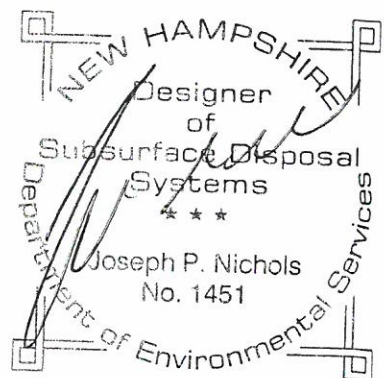
0" - 4"	10YR 3/2	Very Dark Grayish Brown, Fine Sandy Loam, Granular, Friable
4" - 32"	10YR 4/6	Brown, Fine Sandy Loam, Granular, Friable
32" – 56"	2.5Y 5/3	Dark Gray, Gravelly, Fine Loamy Sand, Massive, Firm w/ Redox



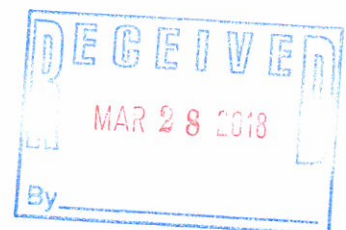
ESHW = 32 Inches
Observed Ground Water - None
Restrictive - @ 32 Inches
Refusal - None
Note: Passed
Perc Rate 12 Min/Inch @ 18"

Test Pit # 12

0" - 2"	10YR 3/2	Very Dark Grayish Brown, Fine Sandy Loam, Granular, Friable
2" - 14"	10YR 4/6	Brown, Fine Sandy Loam, Granular, Friable
14" – 18"	2.5Y 5/3	Light Olive Brown, Fine Sandy Loam, Granular, Friable w/ Redox
18" – 40"	2.5Y 5/2	Grayish Brown, Fine Sandy Loam, Blocky, Firm w/ Redox



ESHW = 14 Inches
Observed Ground Water - None
Restrictive - @ 18 Inches
Refusal - None
Note: Failed town min. SHWT depth



Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 13

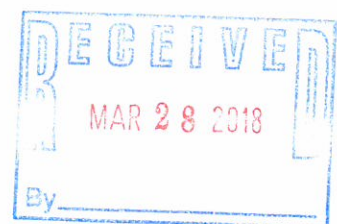
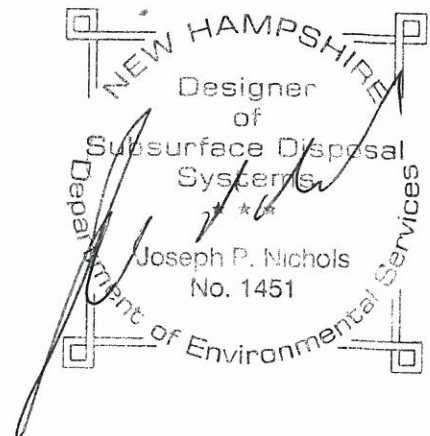
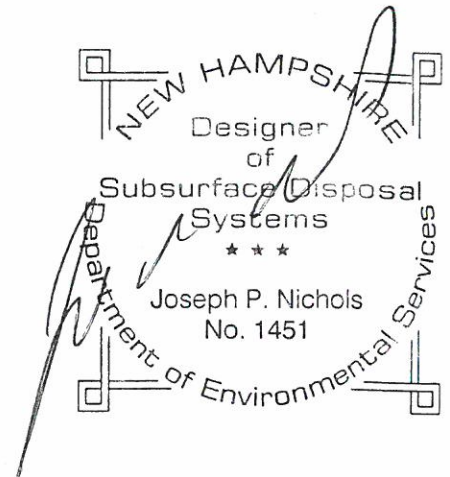
0" - 7"	10YR 3/3	Dark Brown, Fine Sandy Loam, Granular, Friable
7" - 16"	10YR 5/4	Yellowish Brown, Gravelly Fine Sandy Loam, Granular, Friable
16" - 48"	10YR 4/3	Brown, Gravelly, Fine Sandy Loam, Granular, Firm w/ Redox

ESHWT = 16 Inches
Observed Ground Water - None
Restrictive - None
Refusal - None
Note: Failed town min. SHWT depth

Test Pit # 14

0" - 5"	10YR 3/3	Dark Brown, (Fill) Fine Sandy Loam, Granular, Friable
5" - 20"	10YR 4/3	Brown, (Fill) Gravelly, Fine Sandy Loam, Granular, Friable
20" - 34"	2.5Y 4/3	Olive Brown, (Fill) Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox
34" - 48"	2.5Y 4/4	Olive Brown, Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox

ESHWT = 20 Inches
Observed Ground Water - None
Restrictive - None
Refusal - None
Note: Failed town min. SHWT depth

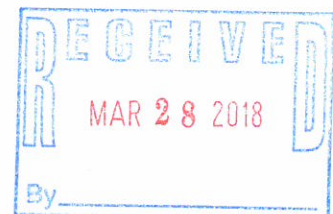
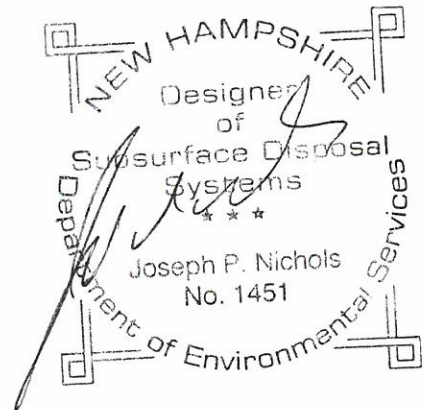


Test Pits – NH-1060 – Stratham, NH – Dated 11/1/2017
Conducted by Joseph P. Nichols - Beals Associates, PLLC - #1451
Witnessed by Mike Cuomo Rockingham County Conservation

Test Pit # 15

0" - 4"	10YR 3/2	Very Dark Grayish Brown, Fine Sandy Loam, Granular, Friable
4" - 22"	10YR 4/6	Brown, Fine Sandy Loam, Granular, Friable
22" - 32"	2.5Y 4/3	Olive Brown, Gravelly, Fine Sandy Loam, Granular, Friable w/ Redox
32" - 55"	2.5Y 5/3	Olive Brown, Fine Loamy Sand, Massive, Firm w/ Redox

ESHWT = 22 Inches
Observed Ground Water - None
Restrictive - @ 32 Inches
Refusal - None
Note: Passed
Perc Rate 12 Min/Inch @ 20"



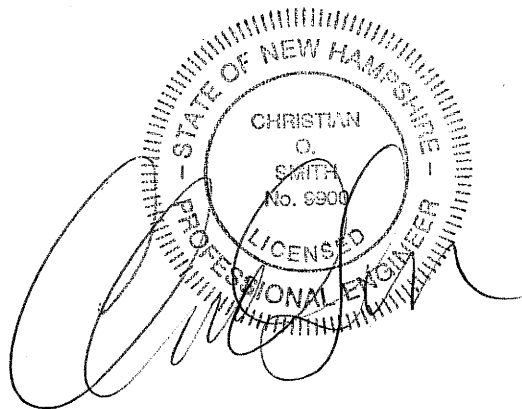
**DRAINAGE ANALYSIS
&
SEDIMENT AND EROSION
CONTROL PLAN**

Prepared for:
BROCK EHLERS
UNION ROAD SUBDIVISION

Prepared by:

BEALS ASSOCIATES, *PLLC*
70 PORTSMOUTH AVENUE
STRATHAM, NH 03885

Project Number:
NH-1060
Union Road
Stratham, New Hampshire
March 19, 2018



DESIGN METHOD OBJECTIVES

15-17 Union Road Condominium proposes a 3-lot subdivision development (each of the new lots are proposed to be 2-unit condex's) on approximately 12-acres of land located on Union Road, Stratham, NH. A drainage analysis of the proposed development was conducted for the purpose of estimating the peak rate of stormwater run-off and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using Cornell University NRCC Extreme Precipitation Tables data for the 2Yr, 25Yr and 100Yr – 24 Hr storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. The purpose of this analysis is to estimate the peak rates of run-off from the site for swale adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions.

ANALYSIS COMPONENT PEAK RATE of DISCHARGE (CFS)

	2 YR		25 YR		100 YR	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Reach #400	0.04	0.04	0.40	0.04	0.83	0.83
Reach #300	2.06	1.99	10.03	9.67	18.76	18.65
Reach #200	3.96	3.94	16.44	15.62	29.65	27.89

The existing property is located on a parcel consisting of woods, and 1 duplex residential house with a shed. The existing topography is such that the site analysis is divided into four subcatchments. Subcatchment #2 flows offsite and into a wetland complex to the North adjacent to Union Road, and subcatchment #3 flows to a large wetland complex to the NW, subcatchment #4 flows to the west into the same wetland system and subcatchment #3.

The proposed additional 3 Lot development includes 750' +/- of proposed public roadway ending with a modified "T" turnout that intersects Union Road. This road provides the required frontage for the residential lots. The proposed layout will divide the parcel into eleven different subcatchments. The peak rate of run-off from the proposed development is slightly decreased from that of the existing conditions. The Stormwater volume under the 2-YR storm event is also slightly decreased from that of the existing condition. The addition of roadside swales, culverts, deep sump catch basins, stone drip edges and a bioretention pond direct the BMP treated run off overland to the analysis points. All roadway runoff receives treatment through a bioretention pond to discharge overland. Best Management Practices per the NH Stormwater Manual have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction will be permanently stabilized within 60 days of groundbreaking. Abutting property owners will suffer no adverse impact resulting from this development.

Table of Contents

Design Method Objectives

1.0	Rainfall Characteristics	Page 1
2.0	Existing Conditions Analysis	Page 1
3.0	Proposed Subdivision Analysis	Pages 1-2
4.0	Sediment & Erosion Control, BMP's	Pages 2-5
5.0	Conclusion	Page 5

Appendix I - Existing Conditions Analysis

Summary 2 YR - 24 HR rainfall = 3.23"

Complete 25 YR - 24 HR rainfall = 6.24"

Summary 100 YR – 24 HR rainfall = 8.97"

Sheet W-1 Existing Conditions Watershed Plan

Appendix II - Proposed Conditions Analysis

Summary 2 YR - 24 HR rainfall = 3.23"

Complete 25 YR - 24 HR rainfall = 6.24"

Pond only Summary 50 YR – 24 HR rainfall = 7.48"

Summary 100 YR – 24 HR rainfall = 8.97"

Sheet W-2 Proposed Conditions Watershed Plan

Appendix III - Charts, Graphs, and Calculations

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as proposed conditions, or post-construction analysis of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the 2Yr, 25Yr and 100Yr – 24 Hr storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment using Cornell University NRCC Extreme Precipitation Tables data. The purpose of this analysis is to estimate the peak rates of run-off from the site for swale adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions.

ANALYSIS

COMPONENT PEAK RATE of DISCHARGE (CFS)

	2 YR		25 YR		100 YR	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Reach #400	0.04	0.04	0.40	0.04	0.83	0.83
Reach #300	2.06	1.99	10.03	9.67	18.76	18.65
Reach #200	3.96	3.94	16.44	15.62	29.65	27.89

2.0 EXISTING CONDITIONS

Reference: Sheet W-1, Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plan

The existing property is located on a parcel consisting of woods, and 1 duplex residential house with a shed. The existing topography is such that the site analysis is divided into four subcatchments. Subcatchment #2 flows offsite and into a wetland complex to the North adjacent to Union Road, and subcatchment #3 flows to a large wetland complex to the NW, subcatchment #4 flows to the west into the same wetland system and subcatchment #3.

Classified by HISS Mapping, the land within the drainage analysis is composed of slopes ranging from 3% to 15%, and soils categorized into the Hydrologic Soil Groups (HSG) B, C & D.

3.0 PROPOSED CONDITIONS

Reference: W-Sheets Proposed Conditions Watershed Plan (Enclosed)
C Sheets Proposed Conditions Plan

The proposed additional 3 Lot development includes 750'+/- of proposed public roadway ending with a modified "T" turnout that intersects Union Road. This road provides the required frontage for the residential lots. The proposed layout will divide the parcel into eleven different subcatchments. The peak rate of run-off from the proposed development is slightly decreased from that of the existing conditions. The Stormwater volume under the 2-YR storm event is also slightly decreased from that of the existing condition. The addition of roadside swales, culverts, deep sump catch basins, stone drip edges and a bioretention pond direct the BMP treated run off

overland to the analysis points. All roadway runoff receives treatment through a bioretention pond to discharge overland. Best Management Practices per the NH Stormwater Manual have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction will be permanently stabilized within 60 days of groundbreaking. Abutting property owners will suffer no adverse impact resulting from this development. In an effort to prevent the sedimentation of adjacent wetlands or abutting property, the roadway will be constructed with roadside swales that terminate to culverts and catch basins, then to the bioretention pond which under all analyzed storm events recharges completely into the groundwater matrix. During construction, appropriate BMP's will be applied so as to negate the potential for sediment-laden run-off to discharge into wetlands or their protected buffers prior to the final stabilization of the proposed grading. The structures outlined in this proposal provide for adequate BMP treatment of stormwater run-off for sediment control.

4.0 SEDIMENT & EROSION CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

The proposed site development is protected from erosion and the roadways and abutting properties are protected from sediment by the use of Best Management Practices as outlined in the NH Stormwater Manual. Any area disturbed by construction will be permanently re-stabilized within 60 days and abutting properties and wetlands 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.

4.1 Silt Fence / Construction Fence

The plan set demonstrates the location of silt fence or erosion control berm for sediment control. In areas where the limits of construction need to be emphasized to operators, construction fence for added visibility will be installed. Erosion and Sediment Control Details have the specifications for installation and maintenance of the silt fence. Orange construction fence will be VISI Perimeter Fence by Conwed Plastic Fencing, or equal. The four-foot fencing to be installed using six-foot posts at least two feet in the ground with spacing of six to eight feet.

4.2 Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below 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.

4.3 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 as follows:

Mixture	Pounds	Pounds per
---------	--------	------------

	per Acre	1,000 Sq. Ft.
Tall Fescue	20	0.45
<u>Creeping Red Fescue</u>	<u>28</u>	<u>0.65</u>
Total	48	1.10

4.4 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 between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick.

4.5 Stone Level Spreaders

Level spreaders enable any run-off directed towards them to be spread evenly into sheet flow prior to discharge into wetlands or treatment by a filter strip, thus allowing for better filter strip efficiency and a lesser potential for erosion.

4.6 Developed Area Buffer/Filter Strip

Filter strips are areas of land with natural or planted vegetation designed to receive sheet run-off from upgradient development. These natural areas, preferably wooded, are effective in removing sediment and sediment-laden pollutants from such run-off, although their effectiveness is severely diminished when forced to deal with concentrated flow and must therefore be equipped with a level-spreading device. Filter strips should not have a slope exceeding fifteen percent and have a minimum length of seventy-five feet.

4.7 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.

4.8 Construction Sequence

1. Construct and/or install temporary and permanent sediment erosion and detention control facilities (silt fence, erosion control berm, construction entrance, 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.
2. Clear, cut, grub, and dispose of debris in approved facilities.

3. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading. Loam stockpiles should be protected by erosion control berm or similar
4. Construct the roadway and its associated drainage structures.
5. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required, or directed.
6. Daily, or as required, construct temporary berms, drainage ditches, check dams, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.
7. Inspect and maintain all erosion and sediment control measures during construction every two weeks and after every storm event with 0.25" or more rain.
9. Complete permanent seeding and landscaping.
9. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.
10. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.
11. Finish graveling all roadways/parking.

4.9 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, erosion control berms 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 revegetated.

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.

4.11 Inspection and Maintenance Schedule

Fencing will be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass. Sediment build-up in swales and level spreaders will be removed if it is deeper than six inches.

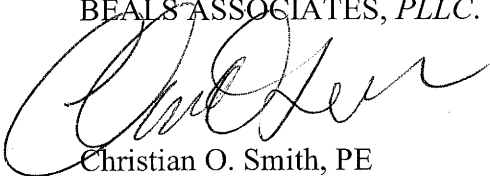
5.0 CONCLUSION

This proposed development off Union Road, Stratham, NH will have no adverse effect on the abutting property owners by way of storm water run-off or siltation. The post-construction peak rate of run-off and volume for the site have been decreased from that of the existing conditions and roadway run-off will receive treatment by both constructed and natural methods. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of culverts, deep sump catch basins and a bioretention pond. The Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and these applications will be enforced throughout the construction process.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this project due to the area of disturbance being less than 100,000 square feet.

Respectfully Submitted,

BEALS ASSOCIATES, PLLC.



Christian O. Smith, PE
Principal

APPENDIX I

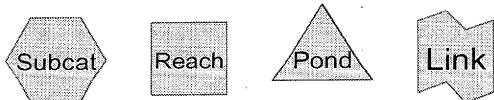
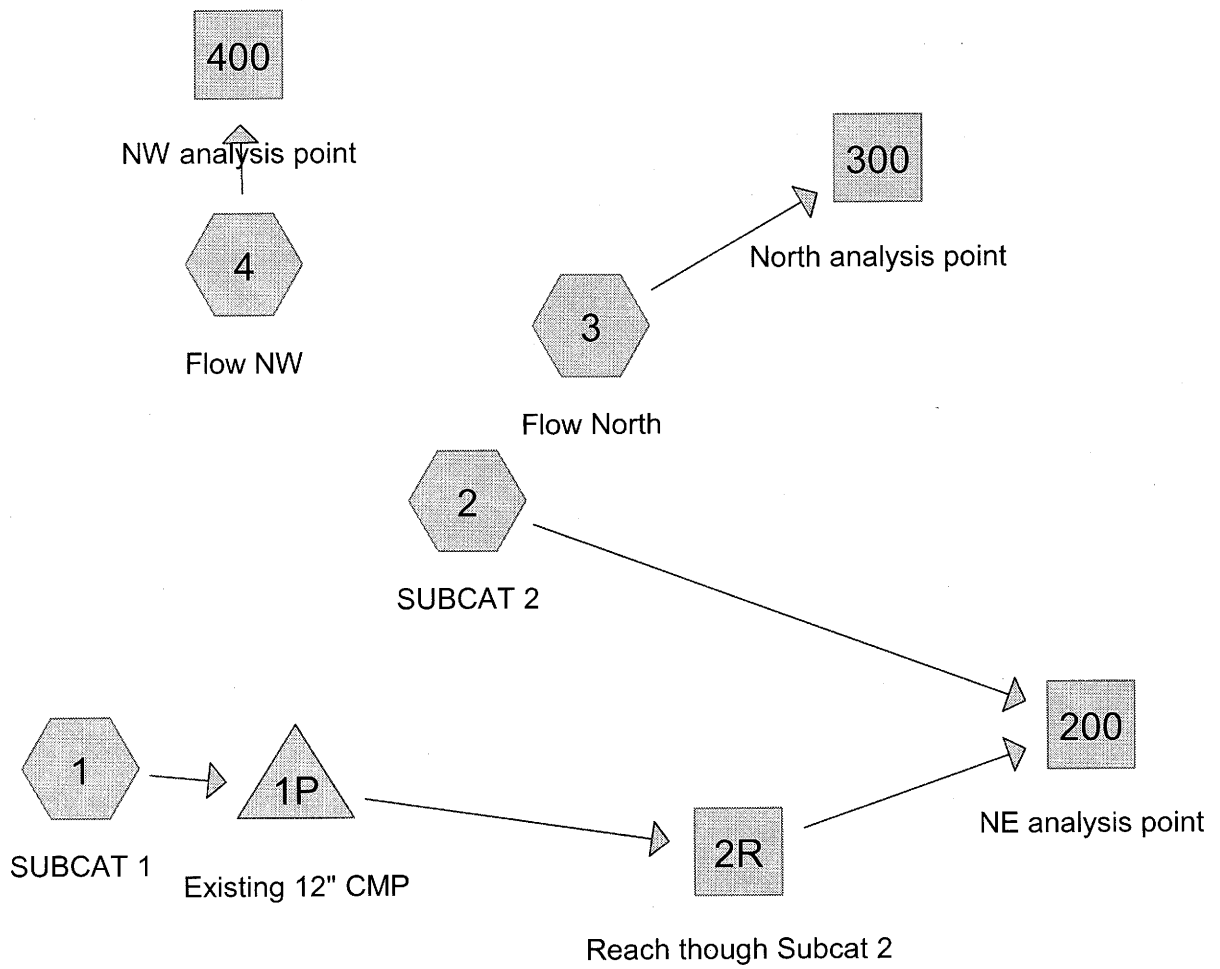
Existing Conditions Drainage Analysis

Summary 2 YR - 24 HR rainfall = 3.23"

Complete 25 YR - 24 HR rainfall = 6.24"

Summary 100 YR - 24 HR rainfall = 8.97"

Sheet W-1 Existing Conditions Watershed Plan



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.731	61	>75% Grass cover, Good, HSG B (1, 2, 3)
0.113	74	>75% Grass cover, Good, HSG C (1, 3)
0.237	98	Paved parking, HSG B (1, 2, 3)
0.391	89	Paved roads w/open ditches, 50% imp, HSG B (2)
0.056	98	Roofs, HSG B (3)
3.183	55	Woods, Good, HSG B (1, 2, 3, 4)
4.496	70	Woods, Good, HSG C (1, 2, 3, 4)
2.256	77	Woods, Good, HSG D (1, 2)
12.463	67	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.598	HSG B	1, 2, 3, 4
4.608	HSG C	1, 2, 3, 4
2.256	HSG D	1, 2
0.000	Other	
12.463		TOTAL AREA

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Type III 24-hr 2-Year Rainfall=3.23"

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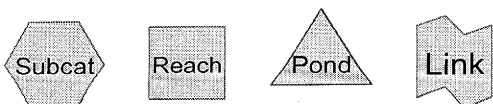
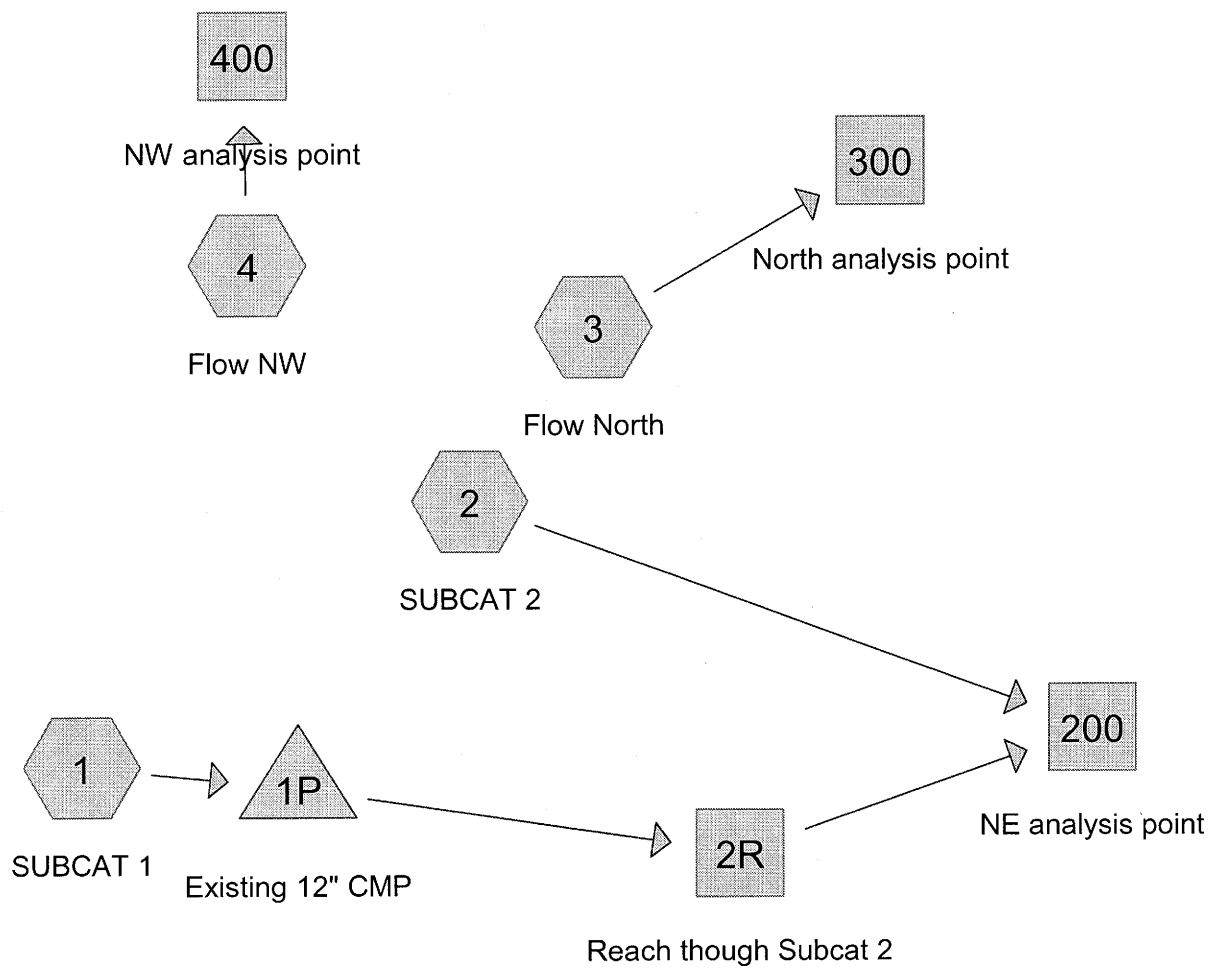
Page 4

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4

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 1: SUBCAT 1Runoff Area=84,347 sf 2.90% Impervious Runoff Depth=0.66"
Flow Length=257' Tc=14.5 min CN=66 Runoff=0.92 cfs 0.106 af**Subcatchment 2: SUBCAT 2**Runoff Area=280,692 sf 5.27% Impervious Runoff Depth=0.80"
Flow Length=383' Tc=15.0 min CN=69 Runoff=3.96 cfs 0.428 af**Subcatchment 3: Flow North**Runoff Area=170,961 sf 2.36% Impervious Runoff Depth=0.66"
Flow Length=326' Tc=11.0 min CN=66 Runoff=2.06 cfs 0.215 af**Subcatchment 4: Flow NW**Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.04 cfs 0.005 af**Reach 2R: Reach though Subcat 2**Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.100 L=171.0' S=0.0654 '/' Capacity=105.85 cfs Outflow=0.00 cfs 0.000 af**Reach 200: NE analysis point**Inflow=3.96 cfs 0.428 af
Outflow=3.96 cfs 0.428 af**Reach 300: North analysis point**Inflow=2.06 cfs 0.215 af
Outflow=2.06 cfs 0.215 af**Reach 400: NW analysis point**Inflow=0.04 cfs 0.005 af
Outflow=0.04 cfs 0.005 af**Pond 1P: Existing 12" CMP**Peak Elev=76.19' Storage=4,627 cf Inflow=0.92 cfs 0.106 af
12.0" Round Culvert n=0.025 L=32.0' S=0.0134 '/' Outflow=0.00 cfs 0.000 af**Total Runoff Area = 12.463 ac Runoff Volume = 0.754 af Average Runoff Depth = 0.73"**
96.08% Pervious = 11.974 ac 3.92% Impervious = 0.489 ac



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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4

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 1: SUBCAT 1Runoff Area=84,347 sf 2.90% Impervious Runoff Depth=2.62"
Flow Length=257' Tc=14.5 min CN=66 Runoff=4.47 cfs 0.423 af**Subcatchment 2: SUBCAT 2**Runoff Area=280,692 sf 5.27% Impervious Runoff Depth=2.90"
Flow Length=383' Tc=15.0 min CN=69 Runoff=16.44 cfs 1.558 af**Subcatchment 3: Flow North**Runoff Area=170,961 sf 2.36% Impervious Runoff Depth=2.62"
Flow Length=326' Tc=11.0 min CN=66 Runoff=10.03 cfs 0.857 af**Subcatchment 4: Flow NW**Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=1.99"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.40 cfs 0.026 af**Reach 2R: Reach though Subcat 2**Avg. Flow Depth=0.08' Max Vel=0.54 fps Inflow=0.19 cfs 0.239 af
n=0.100 L=171.0' S=0.0654 '/ Capacity=105.85 cfs Outflow=0.19 cfs 0.239 af**Reach 200: NE analysis point**Inflow=16.44 cfs 1.797 af
Outflow=16.44 cfs 1.797 af**Reach 300: North analysis point**Inflow=10.03 cfs 0.857 af
Outflow=10.03 cfs 0.857 af**Reach 400: NW analysis point**Inflow=0.40 cfs 0.026 af
Outflow=0.40 cfs 0.026 af**Pond 1P: Existing 12" CMP**Peak Elev=76.51' Storage=13,077 cf Inflow=4.47 cfs 0.423 af
12.0" Round Culvert n=0.025 L=32.0' S=0.0134 '/ Outflow=0.19 cfs 0.239 af**Total Runoff Area = 12.463 ac Runoff Volume = 2.864 af Average Runoff Depth = 2.76"**
96.08% Pervious = 11.974 ac 3.92% Impervious = 0.489 ac

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Summary for Subcatchment 1: SUBCAT 1

Runoff = 4.47 cfs @ 12.20 hrs, Volume= 0.423 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
2,450	98	Paved parking, HSG B
23,157	55	Woods, Good, HSG B
23,545	61	>75% Grass cover, Good, HSG B
4,168	74	>75% Grass cover, Good, HSG C
7,260	70	Woods, Good, HSG C
23,767	77	Woods, Good, HSG D
84,347	66	Weighted Average
81,897		97.10% Pervious Area
2,450		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0300	0.08		Sheet Flow, Sheet
					Woods: Light underbrush n= 0.400 P2= 3.23"
3.8	174	0.0120	0.77		Shallow Concentrated Flow, SC to woods
					Short Grass Pasture Kv= 7.0 fps
0.3	33	0.0650	1.78		Shallow Concentrated Flow, SC to wetlands
					Short Grass Pasture Kv= 7.0 fps
14.5	257	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 16.44 cfs @ 12.21 hrs, Volume= 1.558 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
17,026	89	Paved roads w/open ditches, 50% imp, HSG B
6,287	98	Paved parking, HSG B
6,070	61	>75% Grass cover, Good, HSG B
80,597	55	Woods, Good, HSG B
96,190	70	Woods, Good, HSG C
74,522	77	Woods, Good, HSG D
280,692	69	Weighted Average
265,892		94.73% Pervious Area
14,800		5.27% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.24"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0120	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
1.3	76	0.0180	0.94		Shallow Concentrated Flow, SC to woods Short Grass Pasture Kv= 7.0 fps
3.7	257	0.0550	1.17		Shallow Concentrated Flow, SC to wetlands Woodland Kv= 5.0 fps
15.0	383	Total			

Summary for Subcatchment 3: Flow North

Runoff = 10.03 cfs @ 12.16 hrs, Volume= 0.857 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
1,580	98	Paved parking, HSG B
2,450	98	Roofs, HSG B
45,783	61	>75% Grass cover, Good, HSG B
745	74	>75% Grass cover, Good, HSG C
29,800	55	Woods, Good, HSG B
90,603	70	Woods, Good, HSG C
170,961	66	Weighted Average
166,931		97.64% Pervious Area
4,030		2.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0260	0.11		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
2.4	167	0.0270	1.15		Shallow Concentrated Flow, SC to woods Short Grass Pasture Kv= 7.0 fps
1.3	109	0.0730	1.35		Shallow Concentrated Flow, SC to wetlands Woodland Kv= 5.0 fps
11.0	326	Total			

Summary for Subcatchment 4: Flow NW

Runoff = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

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Type III 24-hr 25-Year Rainfall=6.24"

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Area (sf)	CN	Description
1,774	70	Woods, Good, HSG C
5,103	55	Woods, Good, HSG B
6,877	59	Weighted Average
6,877		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	50	0.0130	0.57		Shallow Concentrated Flow, Sheet
					Woodland Kv= 5.0 fps
0.7	75	0.1133	1.68		Shallow Concentrated Flow, SC to PL
					Woodland Kv= 5.0 fps
2.2	125	Total			

Summary for Reach 2R: Reach though Subcat 2

Inflow Area = 1.936 ac, 2.90% Impervious, Inflow Depth > 1.48" for 25-Year event
 Inflow = 0.19 cfs @ 17.11 hrs, Volume= 0.239 af
 Outflow = 0.19 cfs @ 17.17 hrs, Volume= 0.239 af, Atten= 0%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Max. Velocity= 0.54 fps, Min. Travel Time= 5.2 min

Avg. Velocity = 0.39 fps, Avg. Travel Time= 7.2 min

Peak Storage= 60 cf @ 17.17 hrs

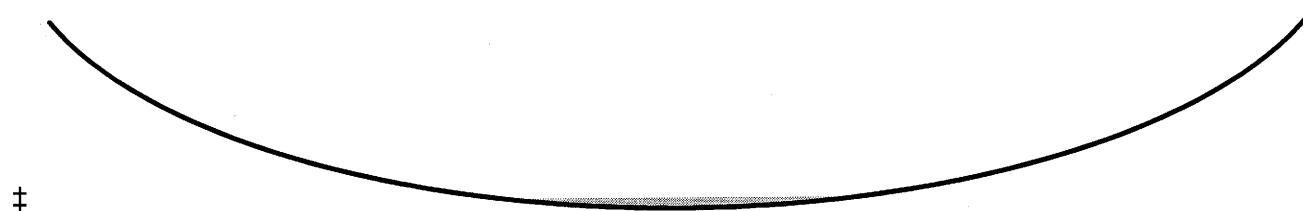
Average Depth at Peak Storage= 0.08'

Bank-Full Depth= 1.50' Flow Area= 28.0 sf, Capacity= 105.85 cfs

28.00' x 1.50' deep Parabolic Channel, n= 0.100 Heavy timber, flow below branches

Length= 171.0' Slope= 0.0654 '/'

Inlet Invert= 75.81', Outlet Invert= 64.63'

**Summary for Reach 200: NE analysis point**

Inflow Area = 8.380 ac, 4.73% Impervious, Inflow Depth > 2.57" for 25-Year event
 Inflow = 16.44 cfs @ 12.21 hrs, Volume= 1.797 af
 Outflow = 16.44 cfs @ 12.21 hrs, Volume= 1.797 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

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Type III 24-hr 25-Year Rainfall=6.24"

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Summary for Reach 300: North analysis point

Inflow Area = 3.925 ac, 2.36% Impervious, Inflow Depth = 2.62" for 25-Year event
 Inflow = 10.03 cfs @ 12.16 hrs, Volume= 0.857 af
 Outflow = 10.03 cfs @ 12.16 hrs, Volume= 0.857 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Summary for Reach 400: NW analysis point

Inflow Area = 0.158 ac, 0.00% Impervious, Inflow Depth = 1.99" for 25-Year event
 Inflow = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af
 Outflow = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Summary for Pond 1P: Existing 12" CMP

Inflow Area = 1.936 ac, 2.90% Impervious, Inflow Depth = 2.62" for 25-Year event
 Inflow = 4.47 cfs @ 12.20 hrs, Volume= 0.423 af
 Outflow = 0.19 cfs @ 17.11 hrs, Volume= 0.239 af, Atten= 96%, Lag= 294.3 min
 Primary = 0.19 cfs @ 17.11 hrs, Volume= 0.239 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Peak Elev= 76.51' @ 17.11 hrs Surf.Area= 27,473 sf Storage= 13,077 cf

Plug-Flow detention time= 680.5 min calculated for 0.239 af (57% of inflow)

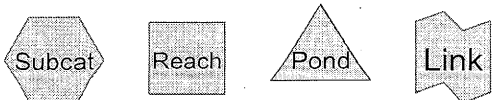
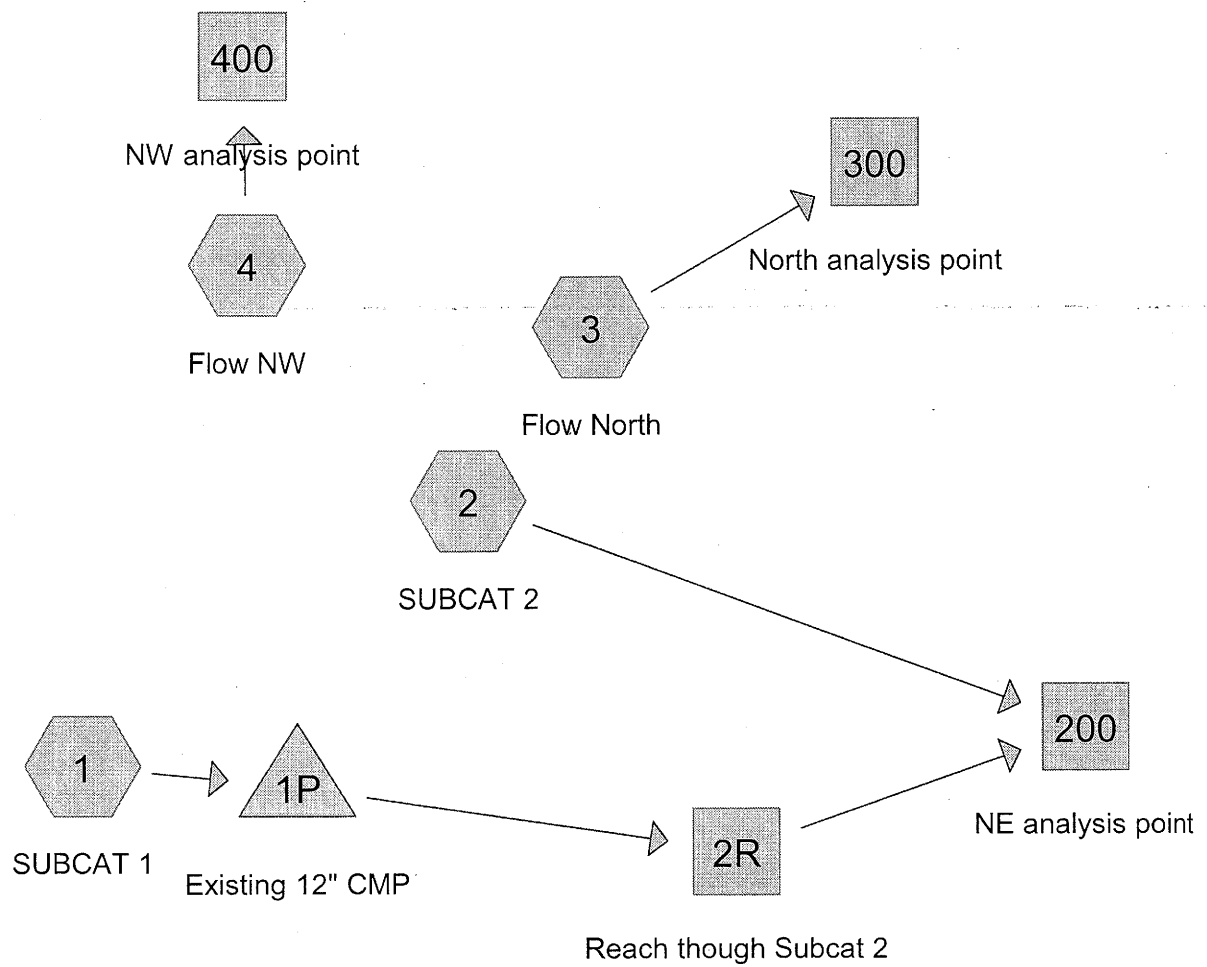
Center-of-Mass det. time= 562.5 min (1,416.0 - 853.5)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	62,749 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	23,767	0	0
77.00	31,027	27,397	27,397
78.00	39,676	35,352	62,749

Device	Routing	Invert	Outlet Devices
#1	Primary	76.24'	12.0" Round Culvert L= 32.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.24' / 75.81' S= 0.0134 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 17.11 hrs HW=76.51' TW=75.89' (Dynamic Tailwater)**1=Culvert** (Barrel Controls 0.19 cfs @ 1.67 fps)



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Type III 24-hr 100-Year Rainfall=8.97"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4

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 1: SUBCAT 1Runoff Area=84,347 sf 2.90% Impervious Runoff Depth=4.82"
Flow Length=257' Tc=14.5 min CN=66 Runoff=8.38 cfs 0.777 af**Subcatchment 2: SUBCAT 2**Runoff Area=280,692 sf 5.27% Impervious Runoff Depth=5.19"
Flow Length=383' Tc=15.0 min CN=69 Runoff=29.64 cfs 2.784 af**Subcatchment 3: Flow North**Runoff Area=170,961 sf 2.36% Impervious Runoff Depth=4.82"
Flow Length=326' Tc=11.0 min CN=66 Runoff=18.76 cfs 1.575 af**Subcatchment 4: Flow NW**Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=3.95"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.83 cfs 0.052 af**Reach 2R: Reach though Subcat 2**Avg. Flow Depth=0.14' Max Vel=0.80 fps Inflow=0.66 cfs 0.589 af
n=0.100 L=171.0' S=0.0654 '/ Capacity=105.85 cfs Outflow=0.66 cfs 0.589 af**Reach 200: NE analysis point**Inflow=29.65 cfs 3.373 af
Outflow=29.65 cfs 3.373 af**Reach 300: North analysis point**Inflow=18.76 cfs 1.575 af
Outflow=18.76 cfs 1.575 af**Reach 400: NW analysis point**Inflow=0.83 cfs 0.052 af
Outflow=0.83 cfs 0.052 af**Pond 1P: Existing 12" CMP**Peak Elev=76.76' Storage=20,147 cf Inflow=8.38 cfs 0.777 af
12.0" Round Culvert n=0.025 L=32.0' S=0.0134 '/ Outflow=0.66 cfs 0.589 af**Total Runoff Area = 12.463 ac Runoff Volume = 5.188 af Average Runoff Depth = 5.00"**
96.08% Pervious = 11.974 ac 3.92% Impervious = 0.489 ac

APPENDIX II

Proposed Conditions Drainage Analysis

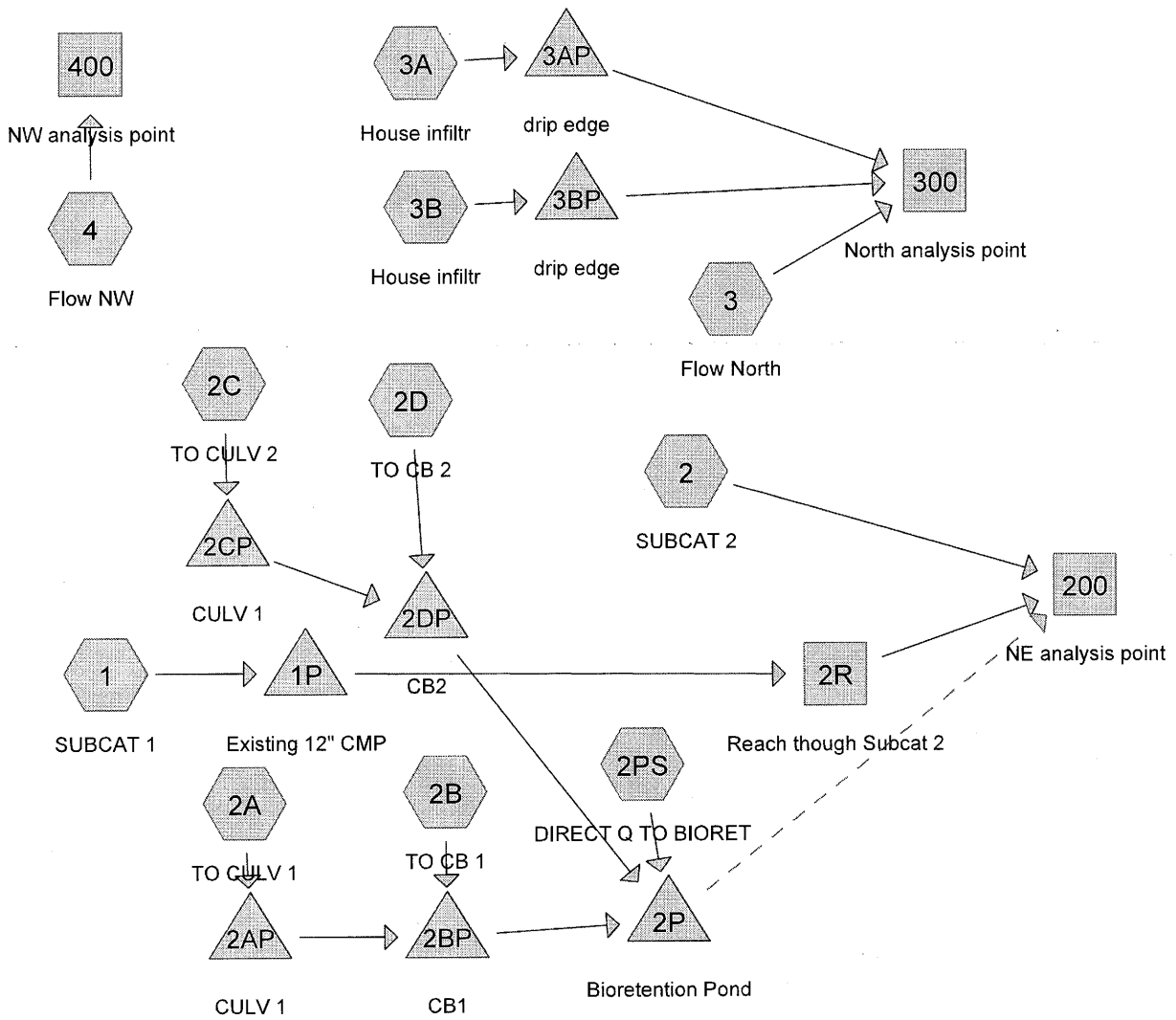
Summary 2 YR - 24 HR rainfall = 3.23"

Complete 25 YR - 24 HR rainfall = 6.24"

Pond only Summary 50 YR – 24 HR rainfall = 7.48"

Summary 100 YR – 24 HR rainfall = 8.97"

Sheet W-2 Proposed Conditions Watershed Plan



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.778	61	>75% Grass cover, Good, HSG B (1, 2A, 2B, 2C, 2D, 2PS, 3)
0.459	74	>75% Grass cover, Good, HSG C (1, 2, 2PS, 3)
0.244	98	Paved parking, HSG B (2B, 2D, 3)
0.067	98	Paved parking, HSG C (2)
0.475	89	Paved roads w/open ditches, 50% imp, HSG B (2)
0.169	98	Paved roads, HSG B (2A, 2C)
0.056	98	Roofs, HSG B (3)
0.058	98	Roofs, HSG C (2)
0.101	98	Unconnected roofs, HSG C (3A, 3B)
2.878	55	Woods, Good, HSG B (1, 2, 3, 4)
3.923	70	Woods, Good, HSG C (1, 2, 3, 4)
2.256	77	Woods, Good, HSG D (1, 2)
12.463	69	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.598	HSG B	1, 2, 2A, 2B, 2C, 2D, 2PS, 3, 4
4.608	HSG C	1, 2, 2PS, 3, 3A, 3B, 4
2.256	HSG D	1, 2
0.000	Other	
12.463		TOTAL AREA

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Type III 24-hr 2-Year Rainfall=3.23"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: SUBCAT 1Runoff Area=58,541 sf 0.00% Impervious Runoff Depth=0.75"
Flow Length=275' Tc=14.8 min CN=68 Runoff=0.76 cfs 0.084 af**Subcatchment2: SUBCAT 2**Runoff Area=258,442 sf 6.11% Impervious Runoff Depth=0.85"
Flow Length=389' Tc=15.1 min CN=70 Runoff=3.94 cfs 0.418 af**Subcatchment2A: TO CULV 1**Runoff Area=6,840 sf 32.16% Impervious Runoff Depth=1.00"
Flow Length=214' Slope=0.0100 '/' Tc=12.6 min CN=73 Runoff=0.14 cfs 0.013 af**Subcatchment2B: TO CB 1**Runoff Area=3,122 sf 56.37% Impervious Runoff Depth=1.56"
Flow Length=107' Slope=0.0100 '/' Tc=11.4 min CN=82 Runoff=0.11 cfs 0.009 af**Subcatchment2C: TO CULV 2**Runoff Area=11,561 sf 44.47% Impervious Runoff Depth=1.23"
Flow Length=187' Slope=0.0100 '/' Tc=12.3 min CN=77 Runoff=0.30 cfs 0.027 af**Subcatchment2D: TO CB 2**Runoff Area=18,338 sf 27.23% Impervious Runoff Depth=0.90"
Flow Length=319' Slope=0.0100 '/' Tc=13.8 min CN=71 Runoff=0.31 cfs 0.031 af**Subcatchment2PS: DIRECT Q TO BIORET**Runoff Area=8,201 sf 0.00% Impervious Runoff Depth=0.49"
Tc=6.0 min CN=62 Runoff=0.07 cfs 0.008 af**Subcatchment3: Flow North**Runoff Area=166,561 sf 3.79% Impervious Runoff Depth=0.66"
Flow Length=332' Tc=11.3 min CN=66 Runoff=1.99 cfs 0.210 af**Subcatchment3A: House infiltr**Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af**Subcatchment3B: House infiltr**Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af**Subcatchment4: Flow NW**Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=0.39"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.04 cfs 0.005 af**Reach 2R: Reach though Subcat 2**Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.100 L=171.0' S=0.0654 '/' Capacity=105.85 cfs Outflow=0.00 cfs 0.000 af**Reach 200: NE analysis point**Inflow=3.94 cfs 0.418 af
Outflow=3.94 cfs 0.418 af**Reach 300: North analysis point**Inflow=1.99 cfs 0.210 af
Outflow=1.99 cfs 0.210 af**Reach 400: NW analysis point**Inflow=0.04 cfs 0.005 af
Outflow=0.04 cfs 0.005 af**Pond 1P: Existing 12" CMP**Peak Elev=76.15' Storage=3,654 cf Inflow=0.76 cfs 0.084 af
12.0" Round Culvert n=0.025 L=50.0' S=0.0136 '/' Outflow=0.00 cfs 0.000 af

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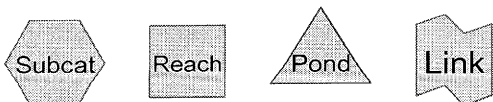
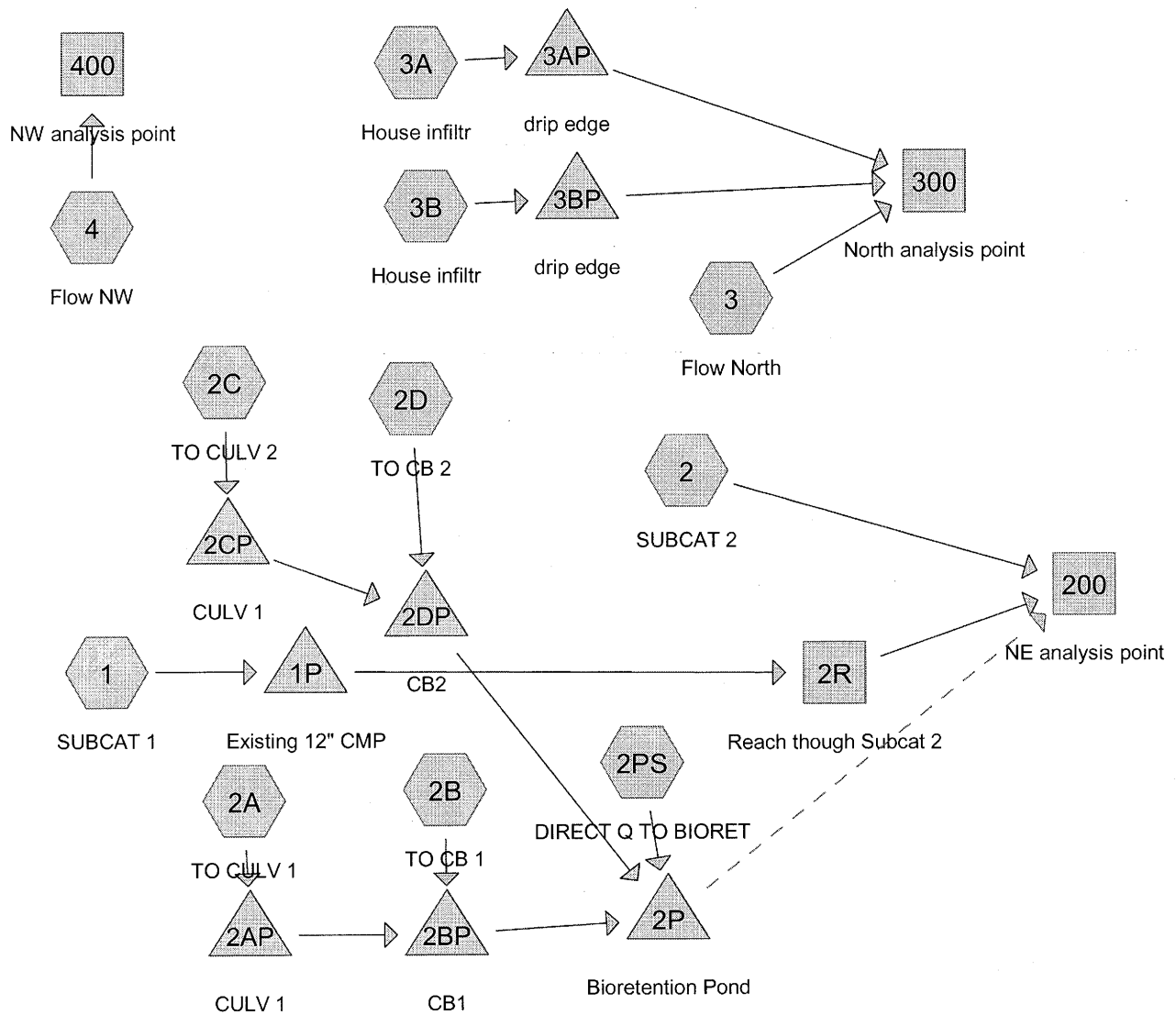
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Pond 2AP: CULV 1Peak Elev=77.23' Storage=315 cf Inflow=0.14 cfs 0.013 af
12.0" Round Culvert n=0.013 L=39.0' S=0.0100 ' /' Outflow=0.44 cfs 0.006 af**Pond 2BP: CB1**Peak Elev=77.25' Storage=2 cf Inflow=0.46 cfs 0.083 af
Outflow=0.24 cfs 0.084 af**Pond 2CP: CULV 1**Peak Elev=77.10' Storage=208 cf Inflow=0.30 cfs 0.027 af
12.0" Round Culvert n=0.013 L=79.0' S=0.0100 ' /' Outflow=0.27 cfs 0.023 af**Pond 2DP: CB2**Peak Elev=77.09' Storage=119 cf Inflow=0.59 cfs 0.055 af
Outflow=0.55 cfs 0.055 af**Pond 2P: Bioretention Pond**Peak Elev=72.05' Storage=807 cf Inflow=0.69 cfs 0.146 af
Discarded=0.17 cfs 0.146 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.146 af**Pond 3AP: drip edge**Peak Elev=77.65' Storage=182 cf Inflow=0.16 cfs 0.013 af
Discarded=0.02 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.013 af**Pond 3BP: drip edge**Peak Elev=77.65' Storage=182 cf Inflow=0.16 cfs 0.013 af
Discarded=0.02 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.013 af**Total Runoff Area = 12.463 ac Runoff Volume = 0.831 af Average Runoff Depth = 0.80"**
92.52% Pervious = 11.531 ac 7.48% Impervious = 0.932 ac



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Type III 24-hr 25-Year Rainfall=6.24"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4

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 1: SUBCAT 1Runoff Area=58,541 sf 0.00% Impervious Runoff Depth=2.81"
Flow Length=275' Tc=14.8 min CN=68 Runoff=3.32 cfs 0.314 af**Subcatchment 2: SUBCAT 2**Runoff Area=258,442 sf 6.11% Impervious Runoff Depth=3.00"
Flow Length=389' Tc=15.1 min CN=70 Runoff=15.62 cfs 1.482 af**Subcatchment 2A: TO CULV 1**Runoff Area=6,840 sf 32.16% Impervious Runoff Depth=3.29"
Flow Length=214' Slope=0.0100 '/' Tc=12.6 min CN=73 Runoff=0.49 cfs 0.043 af**Subcatchment 2B: TO CB 1**Runoff Area=3,122 sf 56.37% Impervious Runoff Depth=4.21"
Flow Length=107' Slope=0.0100 '/' Tc=11.4 min CN=82 Runoff=0.29 cfs 0.025 af**Subcatchment 2C: TO CULV 2**Runoff Area=11,561 sf 44.47% Impervious Runoff Depth=3.69"
Flow Length=187' Slope=0.0100 '/' Tc=12.3 min CN=77 Runoff=0.93 cfs 0.082 af**Subcatchment 2D: TO CB 2**Runoff Area=18,338 sf 27.23% Impervious Runoff Depth=3.09"
Flow Length=319' Slope=0.0100 '/' Tc=13.8 min CN=71 Runoff=1.19 cfs 0.109 af**Subcatchment 2PS: DIRECT Q TO BIORET**Runoff Area=8,201 sf 0.00% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=62 Runoff=0.48 cfs 0.035 af**Subcatchment 3: Flow North**Runoff Area=166,561 sf 3.79% Impervious Runoff Depth=2.62"
Flow Length=332' Tc=11.3 min CN=66 Runoff=9.67 cfs 0.835 af**Subcatchment 3A: House infiltr**Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=6.00"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.025 af**Subcatchment 3B: House infiltr**Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=6.00"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.025 af**Subcatchment 4: Flow NW**Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=1.99"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.40 cfs 0.026 af**Reach 2R: Reach through Subcat 2**Avg. Flow Depth=0.06' Max Vel=0.43 fps Inflow=0.09 cfs 0.130 af
n=0.100 L=171.0' S=0.0654 '/' Capacity=105.85 cfs Outflow=0.09 cfs 0.130 af**Reach 200: NE analysis point**Inflow=15.62 cfs 1.627 af
Outflow=15.62 cfs 1.627 af**Reach 300: North analysis point**Inflow=9.67 cfs 0.836 af
Outflow=9.67 cfs 0.836 af**Reach 400: NW analysis point**Inflow=0.40 cfs 0.026 af
Outflow=0.40 cfs 0.026 af**Pond 1P: Existing 12" CMP**Peak Elev=76.43' Storage=10,990 cf Inflow=3.32 cfs 0.314 af
12.0" Round Culvert n=0.025 L=50.0' S=0.0136 '/' Outflow=0.09 cfs 0.130 af

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Pond 2AP: CULV 1

Peak Elev=77.33' Storage=357 cf Inflow=0.49 cfs 0.043 af
12.0" Round Culvert n=0.013 L=39.0' S=0.0100 '/' Outflow=0.79 cfs 0.036 af

Pond 2BP: CB1

Peak Elev=77.31' Storage=5 cf Inflow=0.89 cfs 0.133 af
Outflow=0.77 cfs 0.134 af

Pond 2CP: CULV 1

Peak Elev=77.29' Storage=269 cf Inflow=0.93 cfs 0.082 af
12.0" Round Culvert n=0.013 L=79.0' S=0.0100 '/' Outflow=0.89 cfs 0.077 af

Pond 2DP: CB2

Peak Elev=77.21' Storage=309 cf Inflow=2.08 cfs 0.186 af
Outflow=2.02 cfs 0.186 af

Pond 2P: Bioretention Pond

Peak Elev=74.77' Storage=6,360 cf Inflow=3.06 cfs 0.355 af
Discarded=0.22 cfs 0.340 af Secondary=0.13 cfs 0.015 af Outflow=0.35 cfs 0.355 af

Pond 3AP: drip edge

Peak Elev=80.00' Storage=440 cf Inflow=0.31 cfs 0.025 af
Discarded=0.02 cfs 0.024 af Primary=0.04 cfs 0.001 af Outflow=0.06 cfs 0.025 af

Pond 3BP: drip edge

Peak Elev=80.00' Storage=440 cf Inflow=0.31 cfs 0.025 af
Discarded=0.02 cfs 0.024 af Primary=0.04 cfs 0.001 af Outflow=0.06 cfs 0.025 af

Total Runoff Area = 12.463 ac Runoff Volume = 3.001 af Average Runoff Depth = 2.89"
92.52% Pervious = 11.531 ac 7.48% Impervious = 0.932 ac

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Type III 24-hr 25-Year Rainfall=6.24"

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Summary for Subcatchment 1: SUBCAT 1

Runoff = 3.32 cfs @ 12.21 hrs, Volume= 0.314 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
18,229	55	Woods, Good, HSG B
5,117	61	>75% Grass cover, Good, HSG B
4,168	74	>75% Grass cover, Good, HSG C
7,260	70	Woods, Good, HSG C
23,767	77	Woods, Good, HSG D
58,541	68	Weighted Average
58,541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0300	0.08		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.23"
3.6	166	0.0120	0.77		Shallow Concentrated Flow, SC to woods Short Grass Pasture Kv= 7.0 fps
0.8	59	0.0540	1.16		Shallow Concentrated Flow, SC to wetlands Woodland Kv= 5.0 fps
14.8	275	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 15.62 cfs @ 12.21 hrs, Volume= 1.482 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
20,673	89	Paved roads w/open ditches, 50% imp, HSG B
2,934	98	Paved parking, HSG C
2,520	98	Roofs, HSG C
14,314	74	>75% Grass cover, Good, HSG C
72,216	55	Woods, Good, HSG B
71,263	70	Woods, Good, HSG C
74,522	77	Woods, Good, HSG D
258,442	70	Weighted Average
242,652		93.89% Pervious Area
15,791		6.11% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.0120	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
1.3	76	0.0180	0.94		Shallow Concentrated Flow, SC to woods Short Grass Pasture Kv= 7.0 fps
3.8	263	0.0530	1.15		Shallow Concentrated Flow, SC to wetlands Woodland Kv= 5.0 fps
15.1	389	Total			

Summary for Subcatchment 2A: TO CULV 1

Runoff = 0.49 cfs @ 12.17 hrs, Volume= 0.043 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
* 2,200	98	Paved roads, HSG B
4,640	61	>75% Grass cover, Good, HSG B
6,840	73	Weighted Average
4,640		67.84% Pervious Area
2,200		32.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
1.8	164	0.0100	1.50		Shallow Concentrated Flow, SC to CULV Grassed Waterway Kv= 15.0 fps
12.6	214	Total			

Summary for Subcatchment 2B: TO CB 1

Runoff = 0.29 cfs @ 12.15 hrs, Volume= 0.025 af, Depth= 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
1,760	98	Paved parking, HSG B
1,362	61	>75% Grass cover, Good, HSG B
3,122	82	Weighted Average
1,362		43.63% Pervious Area
1,760		56.37% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.24"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
0.6	57	0.0100	1.50		Shallow Concentrated Flow, SC to CB 1 Grassed Waterway Kv= 15.0 fps
11.4	107	Total			

Summary for Subcatchment 2C: TO CULV 2

Runoff = 0.93 cfs @ 12.17 hrs, Volume= 0.082 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
* 5,141	98	Paved roads, HSG B
6,420	61	>75% Grass cover, Good, HSG B
11,561	77	Weighted Average
6,420		55.53% Pervious Area
5,141		44.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
1.5	137	0.0100	1.50		Shallow Concentrated Flow, SC to CULV Grassed Waterway Kv= 15.0 fps
12.3	187	Total			

Summary for Subcatchment 2D: TO CB 2

Runoff = 1.19 cfs @ 12.19 hrs, Volume= 0.109 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
4,994	98	Paved parking, HSG B
13,344	61	>75% Grass cover, Good, HSG B
18,338	71	Weighted Average
13,344		72.77% Pervious Area
4,994		27.23% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.24"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
3.0	269	0.0100	1.50		Shallow Concentrated Flow, SC to CB 1 Grassed Waterway Kv= 15.0 fps
13.8	319	Total			

Summary for Subcatchment 2PS: DIRECT Q TO BIORET

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
7,448	61	>75% Grass cover, Good, HSG B
753	74	>75% Grass cover, Good, HSG C
8,201	62	Weighted Average
8,201		100.00% Pervious Area

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

Summary for Subcatchment 3: Flow North

Runoff = 9.67 cfs @ 12.16 hrs, Volume= 0.835 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
3,860	98	Paved parking, HSG B
2,450	98	Roofs, HSG B
39,103	61	>75% Grass cover, Good, HSG B
745	74	>75% Grass cover, Good, HSG C
29,800	55	Woods, Good, HSG B
90,603	70	Woods, Good, HSG C
166,561	66	Weighted Average
160,251		96.21% Pervious Area
6,310		3.79% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.24"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	50	0.0260	0.11		Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 3.23"
2.7	173	0.0240	1.08		Shallow Concentrated Flow, SC to woods Short Grass Pasture Kv= 7.0 fps
1.3	109	0.0730	1.35		Shallow Concentrated Flow, SC to wetlands Woodland Kv= 5.0 fps
11.3	332	Total			

Summary for Subcatchment 3A: House infiltr

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
2,200	98	Unconnected roofs, HSG C
2,200		100.00% Impervious Area
2,200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/2 Roof runoff

Summary for Subcatchment 3B: House infiltr

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

Area (sf)	CN	Description
2,200	98	Unconnected roofs, HSG C
2,200		100.00% Impervious Area
2,200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 1/2 Roof runoff

Summary for Subcatchment 4: Flow NW

Runoff = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.24"

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Area (sf)	CN	Description
1,774	70	Woods, Good, HSG C
5,103	55	Woods, Good, HSG B
6,877	59	Weighted Average
6,877		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	50	0.0130	0.57		Shallow Concentrated Flow, Sheet Woodland Kv= 5.0 fps
0.7	75	0.1133	1.68		Shallow Concentrated Flow, SC to PL Woodland Kv= 5.0 fps
2.2	125	Total			

Summary for Reach 2R: Reach though Subcat-2

Inflow Area = 1.344 ac, 0.00% Impervious, Inflow Depth > 1.16" for 25-Year event
 Inflow = 0.09 cfs @ 20.02 hrs, Volume= 0.130 af
 Outflow = 0.09 cfs @ 20.10 hrs, Volume= 0.130 af, Atten= 0%, Lag= 4.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Max. Velocity= 0.43 fps, Min. Travel Time= 6.7 min
 Avg. Velocity = 0.34 fps, Avg. Travel Time= 8.5 min

Peak Storage= 34 cf @ 20.10 hrs
 Average Depth at Peak Storage= 0.06'
 Bank-Full Depth= 1.50' Flow Area= 28.0 sf, Capacity= 105.85 cfs

28.00' x 1.50' deep Parabolic Channel, n= 0.100 Heavy timber, flow below branches
 Length= 171.0' Slope= 0.0654 '/'
 Inlet Invert= 75.81', Outlet Invert= 64.63'

**Summary for Reach 200: NE analysis point**

Inflow Area = 7.277 ac, 4.98% Impervious, Inflow Depth > 2.68" for 25-Year event
 Inflow = 15.62 cfs @ 12.21 hrs, Volume= 1.627 af
 Outflow = 15.62 cfs @ 12.21 hrs, Volume= 1.627 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

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Summary for Reach 300: North analysis point

Inflow Area = 3.925 ac, 6.26% Impervious, Inflow Depth = 2.56" for 25-Year event
 Inflow = 9.67 cfs @ 12.16 hrs, Volume= 0.836 af
 Outflow = 9.67 cfs @ 12.16 hrs, Volume= 0.836 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Summary for Reach 400: NW analysis point

Inflow Area = 0.158 ac, 0.00% Impervious, Inflow Depth = 1.99" for 25-Year event
 Inflow = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af
 Outflow = 0.40 cfs @ 12.04 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Summary for Pond 1P: Existing 12" CMP

Inflow Area = 1.344 ac, 0.00% Impervious, Inflow Depth = 2.81" for 25-Year event
 Inflow = 3.32 cfs @ 12.21 hrs, Volume= 0.314 af
 Outflow = 0.09 cfs @ 20.02 hrs, Volume= 0.130 af, Atten= 97%, Lag= 468.6 min
 Primary = 0.09 cfs @ 20.02 hrs, Volume= 0.130 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Peak Elev= 76.43' @ 20.02 hrs Surf.Area= 26,916 sf Storage= 10,990 cf

Plug-Flow detention time= 829.5 min calculated for 0.130 af (41% of inflow)

Center-of-Mass det. time= 702.9 min (1,552.0 - 849.1)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	62,749 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	23,767	0	0
77.00	31,027	27,397	27,397
78.00	39,676	35,352	62,749

Device	Routing	Invert	Outlet Devices
#1	Primary	76.24'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.24' / 75.56' S= 0.0136 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 20.02 hrs HW=76.43' TW=75.87' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.09 cfs @ 1.22 fps)

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Summary for Pond 2AP: CULV 1

Inflow Area = 0.157 ac, 32.16% Impervious, Inflow Depth = 3.29" for 25-Year event
 Inflow = 0.49 cfs @ 12.17 hrs, Volume= 0.043 af
 Outflow = 0.79 cfs @ 12.54 hrs, Volume= 0.036 af, Atten= 0%, Lag= 22.0 min
 Primary = 0.79 cfs @ 12.54 hrs, Volume= 0.107 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 77.33' @ 12.18 hrs Surf.Area= 451 sf Storage= 357 cf

Plug-Flow detention time= 100.2 min calculated for 0.036 af (84% of inflow)
 Center-of-Mass det. time= 31.6 min (867.1 - 835.5)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	1,675 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	86	0	0
78.00	636	722	722
79.00	1,269	953	1,675

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	12.0" Round Culvert L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.00' / 75.61' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.54 hrs HW=77.24' TW=77.29' (Dynamic Tailwater)
 ←**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 2BP: CB1

Inflow Area = 0.229 ac, 39.75% Impervious, Inflow Depth = 6.95" for 25-Year event
 Inflow = 0.89 cfs @ 12.54 hrs, Volume= 0.133 af
 Outflow = 0.77 cfs @ 12.19 hrs, Volume= 0.134 af, Atten= 13%, Lag= 0.0 min
 Primary = 0.77 cfs @ 12.19 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 77.31' @ 12.19 hrs Surf.Area= 54 sf Storage= 5 cf
 Flood Elev= 79.00' Surf.Area= 487 sf Storage= 440 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 1.2 min (988.1 - 986.9)

Volume	Invert	Avail.Storage	Storage Description
#1	77.20'	440 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.20	29	0	0
78.00	205	94	94
79.00	487	346	440

Device	Routing	Invert	Outlet Devices
#1	Primary	75.51'	12.0" Round Culvert L= 93.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 75.51' / 74.10' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	77.20'	19.0" x 19.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.77 cfs @ 12.19 hrs HW=77.31' TW=72.93' (Dynamic Tailwater)

↑1=Culvert (Passes 0.77 cfs of 3.81 cfs potential flow)

↑2=Orifice/Grate (Weir Controls 0.77 cfs @ 1.09 fps)

Summary for Pond 2CP: CULV 1

Inflow Area = 0.265 ac, 44.47% Impervious, Inflow Depth = 3.69" for 25-Year event
 Inflow = 0.93 cfs @ 12.17 hrs, Volume= 0.082 af
 Outflow = 0.89 cfs @ 12.20 hrs, Volume= 0.077 af, Atten= 5%, Lag= 1.6 min
 Primary = 0.89 cfs @ 12.20 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 77.29' @ 12.21 hrs Surf.Area= 333 sf Storage= 269 cf

Plug-Flow detention time= 42.6 min calculated for 0.077 af (95% of inflow)
 Center-of-Mass det. time= 14.6 min (840.4 - 825.8)

Volume	Invert	Avail.Storage	Storage Description
#1	75.80'	557 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.80	28	0	0
78.00	478	557	557

Device	Routing	Invert	Outlet Devices
#1	Primary	75.80'	12.0" Round Culvert L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.80' / 75.01' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.20 hrs HW=77.29' TW=77.21' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 0.89 cfs @ 1.13 fps)

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Summary for Pond 2DP: CB2

Inflow Area = 0.686 ac, 33.90% Impervious, Inflow Depth = 3.25" for 25-Year event
 Inflow = 2.08 cfs @ 12.19 hrs, Volume= 0.186 af
 Outflow = 2.02 cfs @ 12.23 hrs, Volume= 0.186 af, Atten= 3%, Lag= 2.1 min
 Primary = 2.02 cfs @ 12.23 hrs, Volume= 0.186 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Peak Elev= 77.21' @ 12.23 hrs Surf.Area= 1,667 sf Storage= 309 cf

Flood Elev= 79.00' Surf.Area= 3,236 sf Storage= 2,241 cf

Plug-Flow detention time= 4.6 min calculated for 0.186 af (100% of inflow)

Center-of-Mass det. time= 4.6 min (845.4 - 840.9)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	2,241 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	1,245	0	0
78.00	3,236	2,241	2,241

Device	Routing	Invert	Outlet Devices
#1	Primary	75.46'	12.0" Round Culvert L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 75.46' / 74.09' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	77.00'	19.0" x 19.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.02 cfs @ 12.23 hrs HW=77.21' TW=73.32' (Dynamic Tailwater)

1=Culvert (Passes 2.02 cfs of 3.73 cfs potential flow)

2=Orifice/Grate (Weir Controls 2.02 cfs @ 1.51 fps)

Summary for Pond 2P: Bioretention Pond

Inflow Area = 1.103 ac, 29.33% Impervious, Inflow Depth = 3.87" for 25-Year event
 Inflow = 3.06 cfs @ 12.21 hrs, Volume= 0.355 af
 Outflow = 0.35 cfs @ 13.95 hrs, Volume= 0.355 af, Atten= 89%, Lag= 104.8 min
 Discarded = 0.22 cfs @ 13.95 hrs, Volume= 0.340 af
 Secondary = 0.13 cfs @ 13.95 hrs, Volume= 0.015 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Peak Elev= 74.77' @ 13.95 hrs Surf.Area= 4,774 sf Storage= 6,360 cf

Flood Elev= 75.00' Surf.Area= 5,104 sf Storage= 7,482 cf

Plug-Flow detention time= 337.5 min calculated for 0.355 af (100% of inflow)

Center-of-Mass det. time= 337.5 min (1,237.7 - 900.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	71.50'	7,482 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.50	3,652	0.0	0	0
72.50	3,652	40.0	1,461	1,461
74.00	3,652	30.0	1,643	3,104
75.00	5,104	100.0	4,378	7,482

Device	Routing	Invert	Outlet Devices
#1	Discarded	71.50'	2.000 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Secondary	74.75'	16.0' 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			

Discarded OutFlow Max=0.22 cfs @ 13.95 hrs HW=74.77' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.22 cfs)**Secondary OutFlow** Max=0.13 cfs @ 13.95 hrs HW=74.77' TW=0.00' (Dynamic Tailwater)↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.35 fps)**Summary for Pond 3AP: drip edge**

Inflow Area = 0.051 ac, 100.00% Impervious, Inflow Depth = 6.00" for 25-Year event
 Inflow = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af
 Outflow = 0.06 cfs @ 12.60 hrs, Volume= 0.025 af, Atten= 81%, Lag= 31.0 min
 Discarded = 0.02 cfs @ 10.68 hrs, Volume= 0.024 af
 Primary = 0.04 cfs @ 12.60 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Peak Elev= 80.00' @ 12.60 hrs Surf.Area= 275 sf Storage= 440 cf

Plug-Flow detention time= 213.0 min calculated for 0.025 af (100% of inflow)

Center-of-Mass det. time= 213.0 min (957.6 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	440 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	275	0.0	0	0
78.00	275	40.0	220	220
80.00	275	40.0	220	440

Device	Routing	Invert	Outlet Devices
#1	Discarded	76.00'	2.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	80.00'	55.0' long Sharp-Crested Rectangular Weir 1 End Contraction(s)

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0.5' Crest Height

Discarded OutFlow Max=0.02 cfs @ 10.68 hrs HW=76.04' (Free Discharge)↳ **1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.04 cfs @ 12.60 hrs HW=80.00' TW=0.00' (Dynamic Tailwater)↳ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.21 fps)**Summary for Pond 3BP: drip edge**

Inflow Area = 0.051 ac, 100.00% Impervious, Inflow Depth = 6.00" for 25-Year event
 Inflow = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af
 Outflow = 0.06 cfs @ 12.60 hrs, Volume= 0.025 af, Atten= 81%, Lag= 31.0 min
 Discarded = 0.02 cfs @ 10.68 hrs, Volume= 0.024 af
 Primary = 0.04 cfs @ 12.60 hrs, Volume= 0.001 af

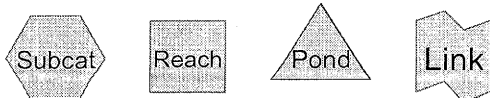
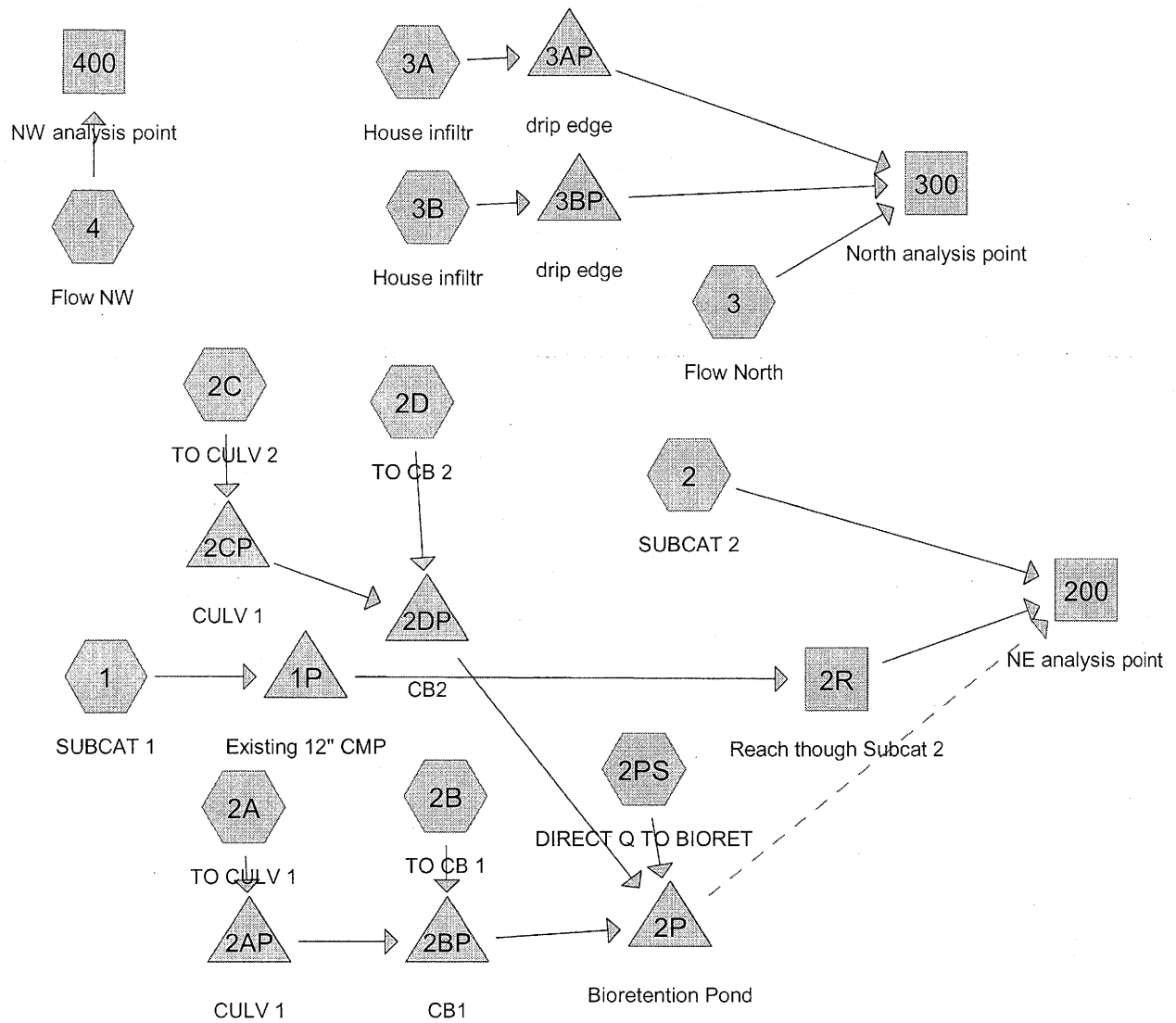
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 80.00' @ 12.60 hrs Surf.Area= 275 sf Storage= 440 cf

Plug-Flow detention time= 213.0 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 213.0 min (957.6 - 744.6)

Volume	Invert	Avail.Storage	Storage Description	
#1	76.00'	440 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	275	0.0	0	0
78.00	275	40.0	220	220
80.00	275	40.0	220	440

Device	Routing	Invert	Outlet Devices	
#1	Discarded	76.00'	2.500 in/hr Exfiltration over Surface area	Phase-In= 0.01'
#2	Primary	80.00'	55.0' long Sharp-Crested Rectangular Weir	1 End Contraction(s)
			0.5' Crest Height	

Discarded OutFlow Max=0.02 cfs @ 10.68 hrs HW=76.04' (Free Discharge)↳ **1=Exfiltration** (Exfiltration Controls 0.02 cfs)**Primary OutFlow** Max=0.04 cfs @ 12.60 hrs HW=80.00' TW=0.00' (Dynamic Tailwater)↳ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.21 fps)



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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: SUBCAT 1

Runoff Area=58,541 sf 0.00% Impervious Runoff Depth=5.06"
Flow Length=275' Tc=14.8 min CN=68 Runoff=6.06 cfs 0.567 af

Subcatchment2: SUBCAT 2

Runoff Area=258,442 sf 6.11% Impervious Runoff Depth=5.31"
Flow Length=389' Tc=15.1 min CN=70 Runoff=27.89 cfs 2.625 af

Subcatchment2A: TO CULV 1

Runoff Area=6,840 sf 32.16% Impervious Runoff Depth=5.68"
Flow Length=214' Slope=0.0100 '/' Tc=12.6 min CN=73 Runoff=0.84 cfs 0.074 af

Subcatchment2B: TO CB 1

Runoff Area=3,122 sf 56.37% Impervious Runoff Depth=6.79"
Flow Length=107' Slope=0.0100 '/' Tc=11.4 min CN=82 Runoff=0.46 cfs 0.041 af

Subcatchment2C: TO CULV 2

Runoff Area=11,561 sf 44.47% Impervious Runoff Depth=6.17"
Flow Length=187' Slope=0.0100 '/' Tc=12.3 min CN=77 Runoff=1.55 cfs 0.136 af

Subcatchment2D: TO CB 2

Runoff Area=18,338 sf 27.23% Impervious Runoff Depth=5.43"
Flow Length=319' Slope=0.0100 '/' Tc=13.8 min CN=71 Runoff=2.10 cfs 0.191 af

Subcatchment2PS: DIRECT Q TO BIORET

Runoff Area=8,201 sf 0.00% Impervious Runoff Depth=4.32"
Tc=6.0 min CN=62 Runoff=0.95 cfs 0.068 af

Subcatchment3: Flow North

Runoff Area=166,561 sf 3.79% Impervious Runoff Depth=4.82"
Flow Length=332' Tc=11.3 min CN=66 Runoff=18.10 cfs 1.534 af

Subcatchment3A: House infiltr

Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=8.73"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.037 af

Subcatchment3B: House infiltr

Runoff Area=2,200 sf 100.00% Impervious Runoff Depth=8.73"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.037 af

Subcatchment4: Flow NW

Runoff Area=6,877 sf 0.00% Impervious Runoff Depth=3.95"
Flow Length=125' Tc=2.2 min CN=59 Runoff=0.83 cfs 0.052 af

Reach 2R: Reach though Subcat 2

Avg. Flow Depth=0.11' Max Vel=0.66 fps Inflow=0.36 cfs 0.376 af
n=0.100 L=171.0' S=0.0654 '/' Capacity=105.85 cfs Outflow=0.36 cfs 0.376 af

Reach 200: NE analysis point

Inflow=27.89 cfs 3.195 af
Outflow=27.89 cfs 3.195 af

Reach 300: North analysis point

Inflow=18.65 cfs 1.552 af
Outflow=18.65 cfs 1.552 af

Reach 400: NW analysis point

Inflow=0.83 cfs 0.052 af
Outflow=0.83 cfs 0.052 af

Pond 1P: Existing 12" CMP

Peak Elev=76.62' Storage=16,227 cf Inflow=6.06 cfs 0.567 af
12.0" Round Culvert n=0.025 L=50.0' S=0.0136 '/' Outflow=0.36 cfs 0.376 af

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Pond 2AP: CULV 1Peak Elev=77.40' Storage=392 cf Inflow=0.84 cfs 0.074 af
12.0" Round Culvert n=0.013 L=39.0' S=0.0100 ' /' Outflow=0.83 cfs 0.067 af**Pond 2BP: CB1**Peak Elev=77.36' Storage=7 cf Inflow=1.28 cfs 0.186 af
Outflow=1.28 cfs 0.188 af**Pond 2CP: CULV 1**Peak Elev=77.52' Storage=349 cf Inflow=1.55 cfs 0.136 af
12.0" Round Culvert n=0.013 L=79.0' S=0.0100 ' /' Outflow=1.46 cfs 0.132 af**Pond 2DP: CB2**Peak Elev=77.30' Storage=470 cf Inflow=3.55 cfs 0.323 af
Outflow=3.46 cfs 0.323 af**Pond 2P: Bioretention Pond**Peak Elev=74.94' Storage=7,196 cf Inflow=5.26 cfs 0.578 af
Discarded=0.23 cfs 0.384 af Secondary=3.19 cfs 0.195 af Outflow=3.42 cfs 0.578 af**Pond 3AP: drip edge**Peak Elev=80.02' Storage=440 cf Inflow=0.45 cfs 0.037 af
Discarded=0.02 cfs 0.028 af Primary=0.67 cfs 0.009 af Outflow=0.69 cfs 0.037 af**Pond 3BP: drip edge**Peak Elev=80.02' Storage=440 cf Inflow=0.45 cfs 0.037 af
Discarded=0.02 cfs 0.028 af Primary=0.67 cfs 0.009 af Outflow=0.69 cfs 0.037 af**Total Runoff Area = 12.463 ac Runoff Volume = 5.361 af Average Runoff Depth = 5.16"**
92.52% Pervious = 11.531 ac 7.48% Impervious = 0.932 ac

APPENDIX III

Charts, Graphs, and Calculations

RIP RAP CALCULATIONS								
Residential Development								
Harbor Street Limited Partnership								
Stratham, NH								
Beals Associates, PLLC								
70 Portsmouth Avenue								
Stratham, NH								
Rip Rap equations were obtained from the <i>NH Stormwater Manual</i>								
Rip Rap was sized for the 25 year storm event (6.24").								
TAILWATER < HALF THE Do								
$La = (1.8 \times Q) / Do^{3/2} + (7 \times Do)$ $Q = \text{Peak Flow \& Do is Diameter of Pipe}$ $W = La + 3Do$ or defined channel width $d50 = (0.02 \times Q^{4/3}) / (Tw \times Do)$ $Tw = \text{Tailwater Depth}$ $T = \text{Largest stone size of } d50 \times 1.5$ $T = \text{Thickness of Apron}$ $d50 = \text{Median Stone Size (0.25' Min.)}$								
Culvert or Catch Basin (Sta. No.)	Tail Water (Feet) Tw	Dischg. (C.F.S.) Q	Dia. of Pipe Do	Length of Rip Rap La (feet)	Width of Rip Rap W (feet)	Calculated Rip Rap (0.25 Min)	Actual Rip Rap (Feet)	Thickness of Apron (Feet)
12" HDPE (Pond #2BP)	0.34	1.28	1.00	9.3	12.3	0.08	0.25	0.56
12" HDPE (Pond #2DP)	0.53	3.46	1.00	13.2	16.2	0.20	0.25	0.56
Table 7-24 -- Recommended Rip Rap Gradation Ranges								
d50 Size =	0.25	Feet	3	Inches	0.5	Feet	6	Inches
% of Weight Smaller Than the Given d50 Size	Size of Stone (Inches)				Size of Stone (Inches)			
		From		To		From		To
100%		5		6		9		12
85%		4		5		8		11
50%		3		5		6		9
15%		1		2		2		3

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.879 degrees West
Latitude	43.023 degrees North
Elevation	Unknown/Unavailable
Date/Time	Tue, 08 Sep 2015 10:30:58 -0400

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	0.66	0.82	1.04	1yr	0.71	0.99	1.22	1.57	2.04	2.68	2.93	1yr	2.37	2.82	3.23	3.94	4.57	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.50	3.23	3.58	2yr	2.86	3.44	3.95	4.70	5.35	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.61	5yr	1.08	1.46	1.89	2.44	3.16	4.10	4.60	5yr	3.63	4.42	5.06	5.97	6.75	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.90	3.77	4.91	5.56	10yr	4.34	5.35	6.11	7.17	8.05	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.34	25yr	1.53	2.14	2.78	3.64	4.77	6.24	7.15	25yr	5.52	6.88	7.84	9.12	10.17	25yr
50yr	0.53	0.86	1.10	1.54	2.07	2.76	50yr	1.79	2.52	3.29	4.34	5.71	7.48	8.66	50yr	6.62	8.33	9.47	10.95	12.14	50yr
100yr	0.59	0.96	1.24	1.77	2.41	3.26	100yr	2.08	2.97	3.91	5.18	6.83	8.97	10.48	100yr	7.94	10.08	11.44	13.16	14.50	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.83	200yr	2.43	3.51	4.62	6.16	8.16	10.76	12.69	200yr	9.52	12.20	13.82	15.82	17.33	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.77	500yr	2.99	4.37	5.78	7.75	10.33	13.69	16.34	500yr	12.12	15.71	17.76	20.18	21.95	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	0.89	1yr	0.63	0.87	0.92	1.30	1.61	2.21	2.61	1yr	1.96	2.51	2.89	3.21	3.92	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.19	2yr	0.87	1.16	1.37	1.82	2.34	3.08	3.50	2yr	2.73	3.36	3.86	4.59	5.09	2yr
5yr	0.35	0.54	0.68	0.93	1.18	1.41	5yr	1.02	1.38	1.62	2.13	2.74	3.84	4.29	5yr	3.40	4.12	4.76	5.63	6.35	5yr
10yr	0.39	0.60	0.74	1.04	1.34	1.61	10yr	1.16	1.58	1.82	2.41	3.08	4.45	5.01	10yr	3.94	4.82	5.58	6.56	7.35	10yr
25yr	0.45	0.68	0.85	1.21	1.59	1.92	25yr	1.37	1.88	2.11	2.78	3.58	4.76	6.13	25yr	4.21	5.90	6.88	8.03	8.92	25yr
50yr	0.49	0.75	0.94	1.35	1.81	2.20	50yr	1.57	2.15	2.36	3.11	4.00	5.37	7.14	50yr	4.75	6.86	8.06	9.36	10.33	50yr
100yr	0.55	0.84	1.05	1.52	2.08	2.52	100yr	1.79	2.46	2.64	3.47	4.45	6.04	8.30	100yr	5.34	7.99	9.47	10.92	11.93	100yr
200yr	0.62	0.93	1.18	1.71	2.38	2.88	200yr	2.05	2.82	2.95	3.85	4.94	6.77	9.67	200yr	5.99	9.30	11.13	12.74	13.82	200yr
500yr	0.72	1.08	1.39	2.01	2.87	3.46	500yr	2.47	3.39	3.43	4.42	5.69	7.87	11.82	500yr	6.96	11.36	13.80	15.63	16.73	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	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.20	3.01	3.11	1yr	2.67	2.99	3.61	4.36	5.08	1yr
2yr	0.33	0.51	0.63	0.86	1.06	1.26	2yr	0.91	1.24	1.48	1.95	2.50	3.45	3.68	2yr	3.05	3.53	4.05	4.83	5.67	2yr
5yr	0.40	0.62	0.76	1.05	1.33	1.61	5yr	1.15	1.58	1.87	2.51	3.21	4.35	4.90	5yr	3.85	4.71	5.38	6.33	7.12	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.96	10yr	1.39	1.92	2.26	3.06	3.87	5.37	6.11	10yr	4.76	5.87	6.68	7.79	8.70	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.55	25yr	1.76	2.49	2.92	4.00	5.00	7.83	8.17	25yr	6.93	7.86	8.87	10.28	11.35	25yr
50yr	0.67	1.01	1.26	1.82	2.44	3.09	50yr	2.11	3.03	3.55	4.89	6.10	9.81	10.20	50yr	8.68	9.80	11.01	12.66	13.89	50yr
100yr	0.78	1.18	1.48	2.14	2.93	3.76	100yr	2.53	3.67	4.31	6.00	7.44	12.28	12.73	100yr	10.86	12.24	13.65	15.63	17.00	100yr
200yr	0.91	1.37	1.74	2.52	3.51	4.58	200yr	3.03	4.48	5.25	7.37	9.06	15.41	15.90	200yr	13.64	15.29	16.94	19.27	20.84	200yr
500yr	1.13	1.67	2.15	3.13	4.45	5.93	500yr	3.84	5.79	6.80	9.69	11.80	20.84	21.34	500yr	18.44	20.52	22.51	25.46	27.29	500yr

TABLE 6-5

HYDROLOGIC SOIL GROUPS FOR DETERMINING
RUNOFF IN NEW HAMPSHIRE
HIS SOIL TYPES

The hydrologic grouping of soils is based upon infiltration rates as they affect runoff. The four groups are described as follows:

Group A -- Soils having high infiltration rates even when thoroughly wetted. These consist chiefly of deep, well to excessively drained sands or gravel. These soils have a high rate of water transmission and would result in low runoff potential.

111BH	121BH	161BH	211BH
111CH	121CH	161CH	211CH
111DH	121DH	161DH	211DH
111EH	121EH	161EH	211EH
112BH	122BH	175BH	212BH
112CH	122CH	175CH	212CH
112DH	122DH	175DH	212DH
112EH	122EH	175EH	212EH

Group B -- Soils having moderate infiltration rates when thoroughly wetted. These consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

221BH	261CH	321CH	361DH
221CH	261DH	321DH	361EH
221DH	261EH	321EH	375*H
221EH	275*H	322BH	411BH
222BH	311BH	322CH	411CH
222CH	311CH	322DH	411DH
222DH	311DH	322EH	412BH
222EH	311EH	331BH	412CH
231BH	312BH	331CH	511BH
231CH	312CH	331DH	511CH
231DH	312DH	331EH	511DH
231EH	312EH	361BH	512BH
261BH	321BH	361CH	512CH

Group C -- Soils having slow infiltration rates when thoroughly wetted. These consist chiefly of (1) soils with a layer that impedes the downward movement of water, or (2) soils with moderately fine to fine texture or (3) soils with moderately high water tables. These soils have a slow rate of water transmission.

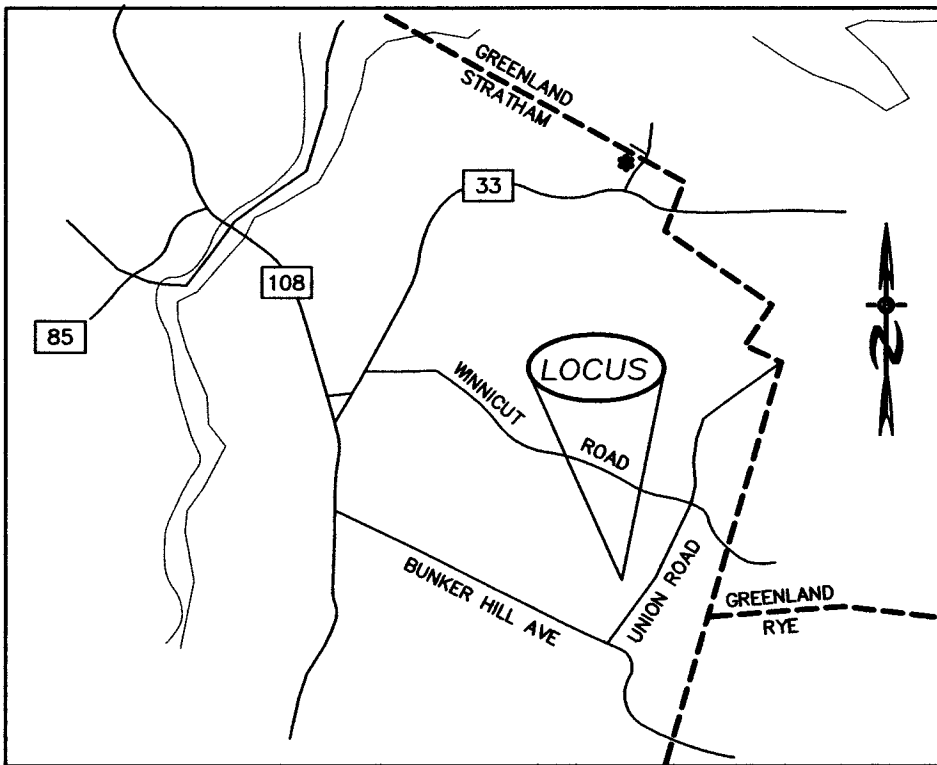
11XBH	243CH	32XCH	36XDH	46XCH
11XCH	243DH	32XDH	36XEH	513BH
11XDH	243EH	32XEH	413BH	513CH
11XEH	24XBH	333BH	413CH	51XBH
12XBH	24XCH	333CH	41XBH	51XCH
12XCH	24XDH	333DH	41XCH	521BH
12XDH	24XEH	333EH	421BH	521CH
12XEH	251BH	33XBH	421CH	521DH
16XBH	251CH	33XCH	421DH	522BH
16XCH	251DH	33XDH	422BH	522CH
16CDH	251EH	33XEH	422CH	522DH
16XEH	253BH	341BH	422DH	523BH
213BH	253CH	341CH	423BH	523CH
213CH	253DH	341DH	423CH	523DH
213DH	253EH	341EH	423DH	52XBH
213EH	25XBH	343BH	42XBH	52XCH
21XBH	25XCH	343CH	42XCH	52XDH
21XCH	25XDH	343DH	42XDH	531BH
21XDH	25XEH	343EH	431BH	531CH
21XEH	263BH	34XBH	431CH	533BH
223BH	263CH	34XCH	433BH	533CH
223CH	263DH	34XDH	433CH	53XBH
223DH	263EH	34XEH	43XBH	53XCH
223EH	26XBH	351BH	43XCH	541BH
22XBH	26XCH	351CH	441BH	541CH
22XCH	26XDH	351DH	441CH	543BH
22XDH	26XEH	351EH	443BH	543CH
22XEH	312BH	353BH	443CH	54XBH
233BH	313CH	353CH	44XBH	54XCH
233CH	313DH	353DH	44XCH	551BH
233DH	313EH	353EH	451BH	552CH
233EH	31XBH	35XBH	451CH	553BH
23XBH	31XCH	35XCH	453BH	553CH
23XCH	31XDH	35XDH	453CH	55XBH
23XDH	31XEH	35XEH	45XBH	55XCH
23XEH	323BH	363BH	461BH	561BH
241BH	323CH	363CH	461CH	561CH
241CH	323DH	363DH	461CH	563BH
241DH	323EH	363EH	463BH	563CH
241EH	325BH	36XBH	463CH	56XBH
243BH	32XBH	36XCH	46XBH	56XCH

Group D -- Soils having very slow infiltration rates when thoroughly wetted. These consist chiefly of very poorly drained mineral soils or organic soils. These soils have a very slow rate of water transmission.

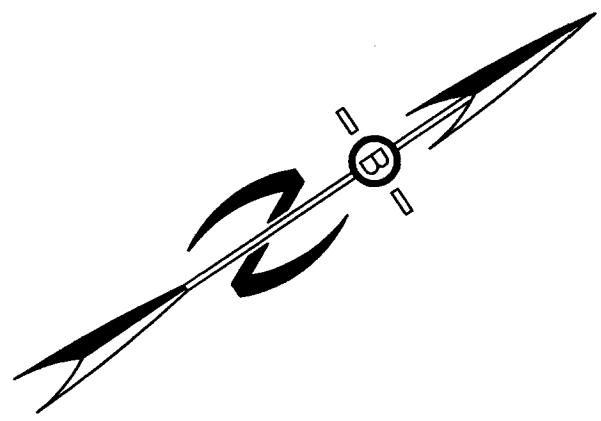
6***H

* means any slope or any number

For hydrologic groups of soil types identified but not found on the above lists, please contact the Ad Hoc Committee through the Rockingham County Conservation District.



LOCATION MAP
STRATHAM N.H.



PLAN SET LEGEND

5/8" REBAR	●	EXIST. CONTOUR	---
DRILL HOLE	⊙	PROP. CONTOUR	---
CONC. BOUND	⊙	BUILDING SETBACK LINES	---
UTILITY POLE	⊙	WETLAND LINES	---
DRAIN MANHOLE	⊙	SOIL LINES	---
EXISTING CATCH BASIN	⊙	ABUT. PROPERTY LINES	---
PROPOSED CATCH BASIN	⊙	EXIST. PROPERTY LINES	---
STONE WALL	---	PRO. PROPERTY LINES	---
TREE LINE	---		

KEY TO SOIL TYPES

HIGH INTENSITY SOIL SURVEYS UTILIZE A FIVE-PART CLASSIFICATION TO IDENTIFY SOIL TYPES. SYMBOLS A-E READ FROM LEFT TO RIGHT IN THE CLASSIFICATION.

SYMBOL A : DRAINAGE CLASS

- 1- EXCESSIVELY DRAINED
- 2- WELL DRAINED
- 3- MODERATELY WELL DRAINED
- 4- SOMEWHAT POORLY DRAINED
- 5- POORLY DRAINED
- 6- VERY POORLY DRAINED

SYMBOL B : PARENT MATERIAL

- 1- GLACIOFLUVIAL DEPOSITS (OUTWASH/TERRACES)
- 2- GLACIAL TILL
- 3- VERY FINE SAND AND SILT DEPOSITS
- 4- LOAMY/SANDY OVER SILT/CLAY DEPOSITS
- 5- SILT AND CLAY DEPOSITS
- 6- EXCAVATED, REGRADED, OR FILLED
- 7- ALLUVIAL DEPOSITS
- 8- ORGANIC MATERIALS - FRESHWATER
- 9- ORGANIC MATERIALS - TIDAL MARSH

SYMBOL C : RESTRICTIVE FEATURES

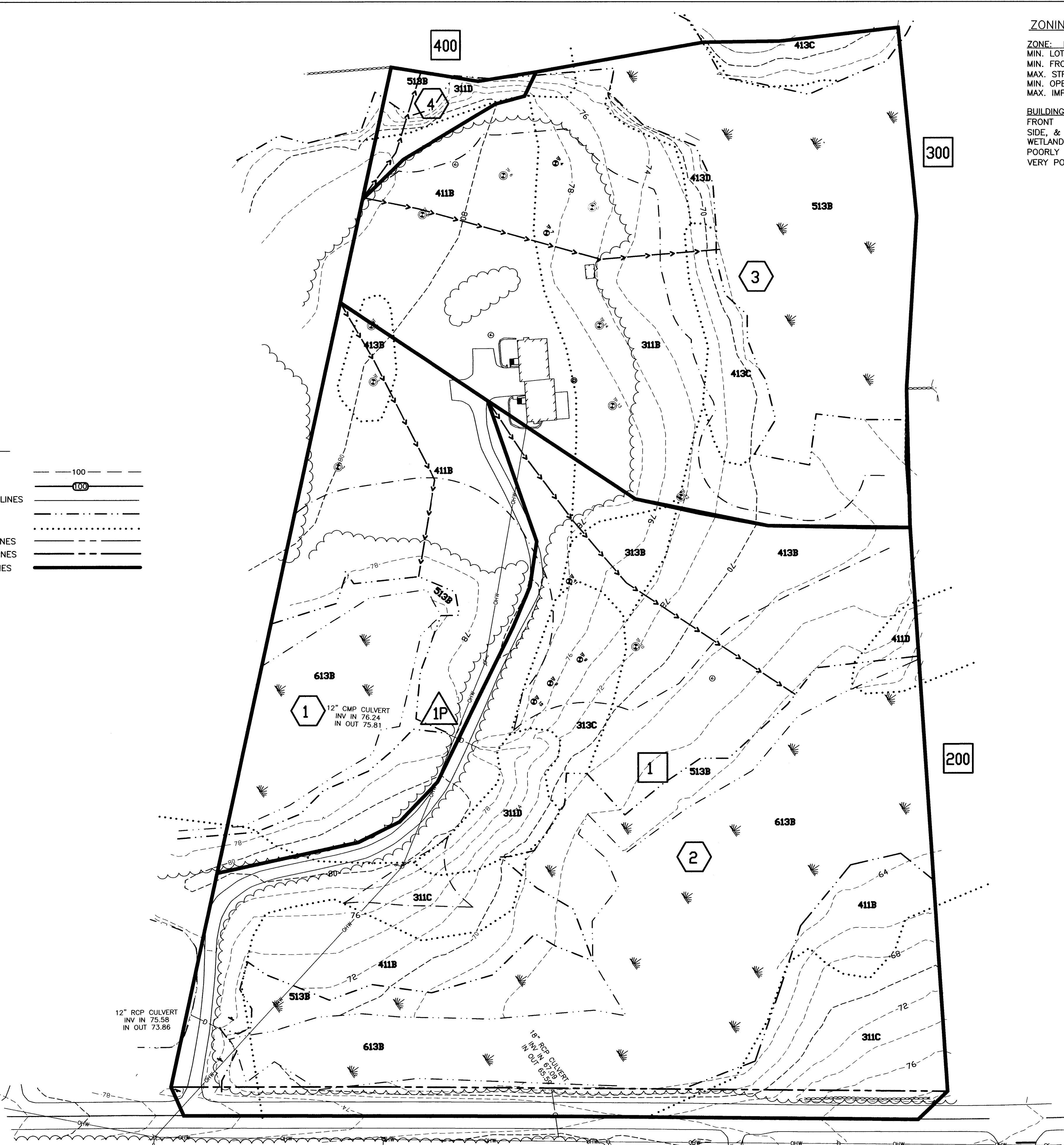
- 1- NONE
- 2- BOULDERY
- 3- MINERAL RESTRICTIVE LAYER WITHIN 40 INCHES OF SOIL SURFACE
- 4- BEDROCK PRESENT WITHIN 20 INCHES OF SOIL SURFACE
- 5- SUBJECT TO FLOODING (FLOODPLAIN)
- 6- DOES NOT MEET FILL STANDARDS (SEE PUBLICATION)
- 7- BEDROCK PRESENT 20-40 INCHES BELOW SOIL SURFACE
- 8- BEDROCK DEPTH VARIABLE (GENERALLY WITHIN 40 INCHES OF SOIL SURFACE)

SYMBOL D : SLOPE CLASS

- B- 0% TO 8%
- C- 8% TO 15%
- D- 15% TO 25%
- E- 15% TO 25%
- F- 35%+

SYMBOL E : HIGH INTENSITY SOIL MAP IDENTIFIER

- H- MAP MEETS HIGH INTENSITY SOIL MAPPING STANDARDS
- P- MAP IS FOR PRELIMINARY PLANNING ONLY AND DOES NOT MEET STANDARDS



ZONING REQUIREMENTS

ZONE: RESIDENTIAL
MIN. LOT SIZE = 2 ACRES
MIN. FRONTAGE = 200'
MAX. STRUCTURE HEIGHT = 35'
MIN. OPEN SPACE = 80%
MAX. IMPERVIOUS COVER = 20%

BUILDING SETBACKS:

FRONT 30'
SIDE, & REAR 20'
WETLANDS:
POORLY 50'
VERY POORLY 100'

PREPARED FOR:

BROCK EHLERS
15 UNION ROAD
STRATHAM N.H. 03885

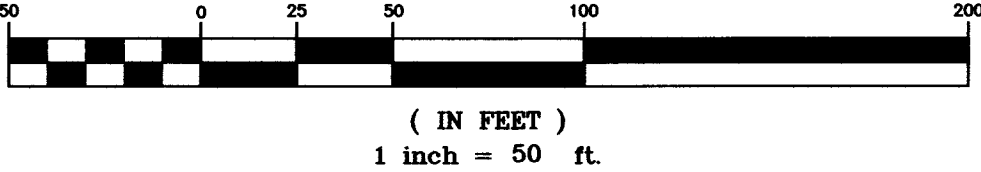
BEALS ASSOCIATES PLLC

70 PORTSMOUTH AVE, STRATHAM, N.H. 03885
PHONE: 603-583-4860, FAX: 603-583-4863

****THIS DRAWING IS FOR
DRAINAGE PURPOSES ONLY
WATERSHED KEY**

- 4 SUBCATCHMENT
- REACH
- 4 POND
- LIMIT OF SUBCATCHMENT
- FLOW PATH

GRAPHIC SCALE

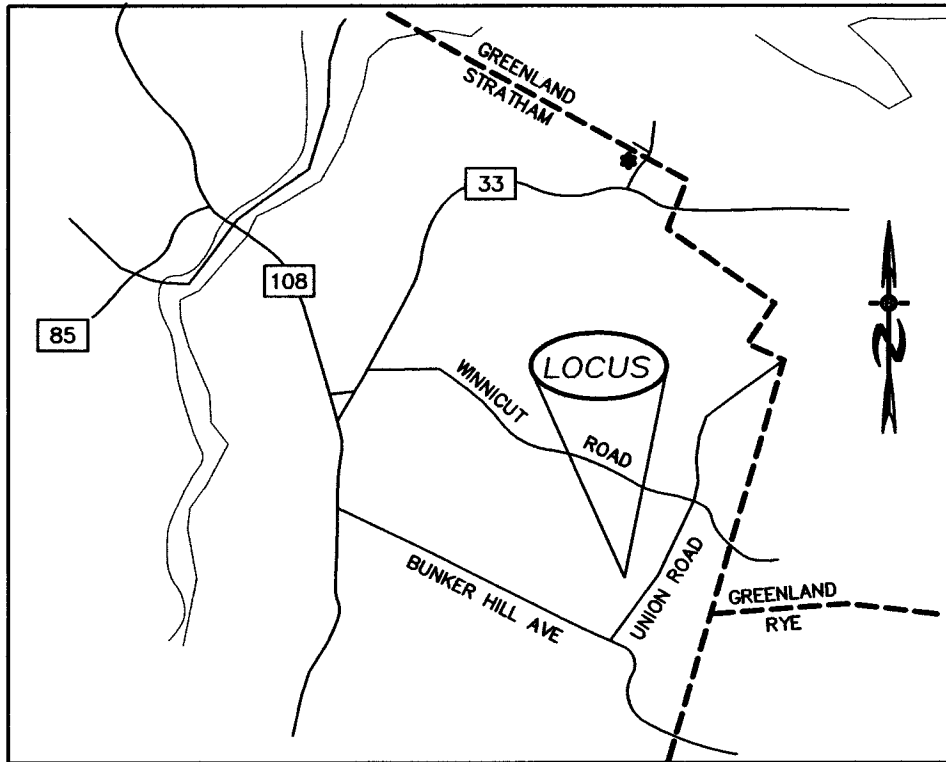


REVISIONS: DATE:

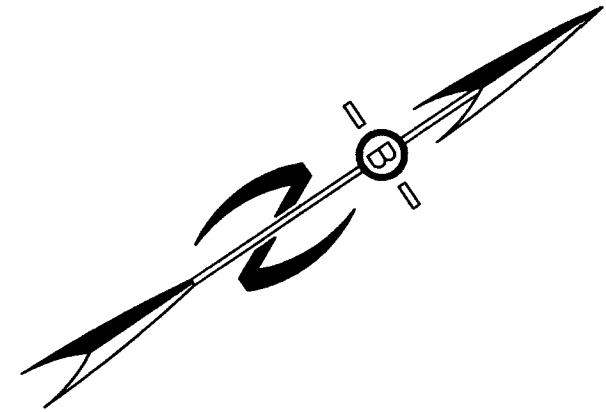
EXISTING WATERSHED PLAN - W1

PLAN FOR:
RESIDENTIAL DEVELOPMENT
UNION ROAD
STRATHAM, NH

DATE: MARCH 2018 SCALE: 1"=50'
PROJ. NO: NH-1060 SHEET NO. 1 OF 2



LOCATION MAP
STRATHAM N.H.



LEGEND

- UTILITY POLE
- TEST PIT W/ NO.
- STONE WALL
- TREE LINE
- EXISTING CONTOUR - 10'
- EXISTING CONTOUR - 2'
- WETLAND BOUNDARY
- SOILS BOUNDARY LINE
- BUILDING SETBACK LINE
- SEPTIC SETBACK LINE
- ABUTTING PROPERTY LINE
- EXISTING PROPERTY LINE
- DRAIN MANHOLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN

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- 7- ALLUVIAL DEPOSITS
- 8- ORGANIC MATERIALS - FRESHWATER
- 9- ORGANIC MATERIALS - TIDAL MARSH

SYMBOL C - RESTRICTIVE FEATURES

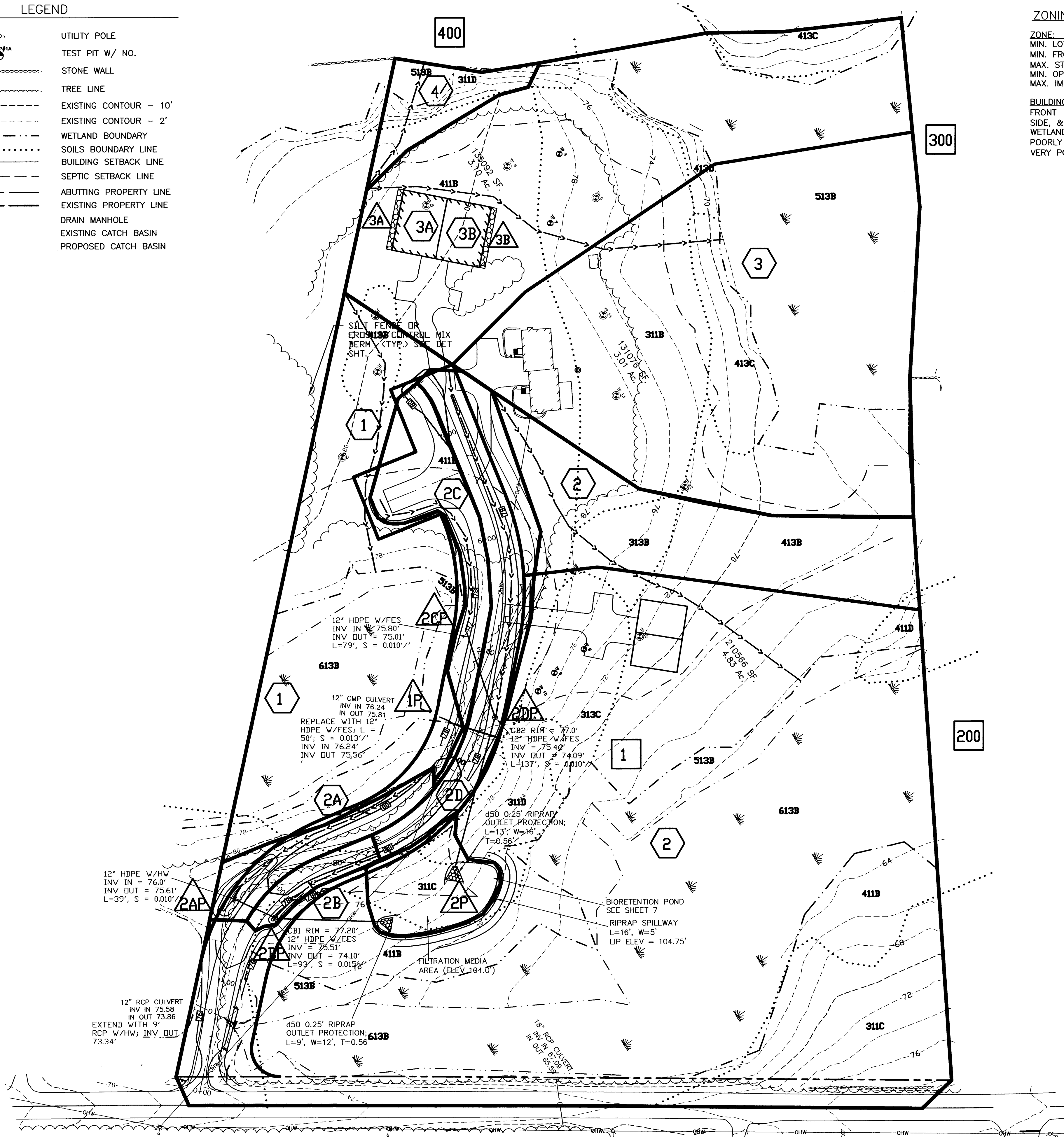
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- 4- BEDROCK PRESENT WITHIN 20 INCHES OF SOIL SURFACE
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ZONING REQUIREMENTS

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MIN. OPEN SPACE = 80%
MAX. IMPERVIOUS COVER = 20%

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FRONT 30'
SIDE, & REAR 20'
WETLANDS:
POORLY 50'
VERY POORLY 100'

PREPARED FOR:

BROCK EHLERS
15 UNION ROAD
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BEALS • ASSOCIATES PLLC

70 PORTSMOUTH AVE, STRATHAM, N.H. 03885
PHONE: 603-583-4860, FAX: 603-583-4863

****THIS DRAWING IS FOR
DRAINAGE PURPOSES ONLY
WATERSHED KEY**

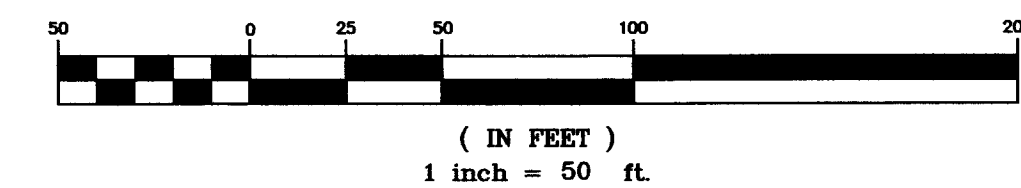
4 SUBCATCHMENT

4 REACH

4 POND

— LIMIT OF SUBCATCHMENT
— FLOW PATH

GRAPHIC SCALE



REVISIONS:

DATE:

PROPOSED WATERSHED PLAN - W2

PLAN FOR:
RESIDENTIAL DEVELOPMENT
UNION ROAD
STRATHAM, NH

DATE: MARCH 2018

SCALE: 1"=50'

PROJ. NO: NH-1060

SHEET NO. 2 OF 2

**Union Road
NH-1050**

**STORMWATER MANAGEMENT/BMP OPERATION & MAINTENANCE
PLAN**

Proper construction, inspections, maintenance and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality.

For the purpose of this Stormwater Management Program, a significant rainfall event is considered an event of three (3) inches in a 24-hour period or 0.5 inches in a one-hour period. During construction, inspections should be conducted every two weeks or after a 0.25" rainfall event in a 24-hour period per the EPA NPDES Phase II SWPPP, until the entire disturbed area is fully restabilized. Upon full stabilization of the project and filing of an NOI, inspections need only be conducted after a significant rainfall event as described above or as described in the maintenance guidelines below.

During construction activities 15-17 Union Road Condominium of 15 Union Road, Stratham, NH 03885 with a phone # of (603) 988-8649, or its heirs and/or assigns, shall be responsible for inspections and maintenance activities. Upon municipal acceptance of the public roadway, the Homeowners of lot 2 shall be responsible for ongoing inspection and maintenance of BMP drainage structures and treatment areas. The owner is responsible to ensure that any subsequent owner or owners association has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs, provided to the Town of Stratham Inspector with the Annual Report and available to NHDES upon request.

Documentation:

A maintenance log will be kept (i.e. report) summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task (see Stormwater Construction Site Inspection Report attached). If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated.

BMP Maintenance Guidelines

The following provides a list of recommendations and guidelines for managing the Stormwater facilities. The cited areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal

disposal of any accumulated sediments and debris. The numbered drainage features below correspond to the specific numbered drainage feature locations on the attached plan.

1. 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.

- (a) The minimum stone used shall be 3-inch crushed stone;
- (b) The minimum length of the pad shall be 75 feet, except that the minimum length may be reduced to 50 feet if a 3-inch to 6-inch high berm is installed at the entrance of the project site;
- (c) The pad shall extend the full width of the construction access road or 10 feet, whichever is greater;
- (d) The pad shall slope away from the existing roadway;
- (e) The pad shall be at least 6 inches thick;
- (f) A geotextile filter fabric shall be placed between the stone pad and the earth surface below the pad; and
- (g) The pad shall be maintained or replaced. A plan view and profile are shown on Sheet E1 - Sediment and Erosion Control Detail Plan.

1a. 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.

1b. TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES

Function – Temporary erosion and sediment control devices are utilized during construction period to divert, store and filter stormwater from non-stabilized surfaces. These devices include, but are not limited to: silt fences, hay bales, filters, sediment traps, stone check dams, mulch and erosion control blankets.

Maintenance – Temporary erosion and sediment control devices shall be inspected and maintained on a weekly basis and following a significant storm event (>0.5-inch rain event) throughout the construction period to ensure that they still have integrity and are not allowing sediment to pass. Sediment build-up in swales will be removed if it is deeper than six inches. Sediment is to be removed from sumps in the catch basin semi-annually. Refer to the Site Plan drawings for the maintenance of temporary erosion and sediment control devices.

2. Culverts:

Inspect culverts 2 times per year (preferably in spring and fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and to repair any erosion damage at the culvert's inlet and outlet.

3. Stormwater Detention / Retention Facilities:

Inspect all upstream pre-treatment measures for sediment and floatables accumulation. Remove and dispose of sediments or debris as needed.

Surface:

Inspect pond annually to ensure that it is working in its intended fashion and that it is free of trash and debris. Remove and properly dispose of any accumulated sediment or debris as needed. Inspect the embankments and spillways for settlement, slope erosion, and downstream swamping. Mow the embankment and/or vegetated spillway to control woody vegetation. Inspect Outlet Control Structures to ensure they are good working order and that the orifice and trash racks are unobstructed from trash and debris. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

4. Pretreatment Structures

Inspect all upstream pre-treatment measures (fore bays, etc.) for sediment and floatables accumulation. Remove and dispose of sediments or debris as needed. Inspect structure on a semiannual basis by using inspection port and/or access structure. Remove sediment as needed when average depths reach 1".

5. Drainage Swales/Stormwater Conveyances

Drainage swales will be stabilized with vegetation for long term cover as outlined below, and on Sheet E-1 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.

Maintenance

- Inspect annually for erosion, sediment accumulation, vegetation loss and presence of invasive species.
- Perform periodic mowing; frequency depends on location and type of grass. Do not cut shorter than Water Quality Flow depth (maximum 4 inches)
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas, remove invasive species and dead vegetation, and reseed With applicable grass mix as warranted by inspection.

6. Riprap Weir – Maintenance

- Inspect at least once annually for accumulation of sediment and debris and for signs of erosion within approach channel, spreader channel or down-slope of the spreader.
- Remove debris whenever observed during inspection.
- Remove sediment when accumulation exceeds 25% of spreader channel depth.

- Mow as required by landscaping design. At a minimum, mow annually to control woody vegetation within the spreader.
- Snow should not be stored within or down-slope of the level spreader or its approach channel.
- Repair any erosion and re-grade or replace stone berm material, as warranted by inspection.
- Reconstruct the spreader if down-slope channelization indicates that the spreader is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

11. Vegetated Areas:

Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

12. Roadways and Paved Surfaces: Clear accumulations of winter sand along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

13. Invasive Species:

In the event that invasive species are noticed growing in any of the stormwater management practices, the invasive vegetation shall be removed completely to include root matter and disposed of properly. Prior to disposal, the vegetation shall be placed on and completely cover with a plastic tarp for a period of two – three weeks until plants are completely dead. If necessary or to expedite the process, spray only the invasive vegetation and roots with a systemic nonselective herbicide after placement on the tarp (to prevent chemical migration) and then cover as described above.

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 Stormwater System Operation and Maintenance Plan & Inspection and Maintenance Manual, copies of past logs and check lists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the Town of Stratham DPW upon request.

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Breslin Farm Subdivision
Lane
Stratham, NH

BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pavement Sweeping	Two 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. See attached deicing data form to be completed as required.
Closed Drainage System:			

Bioretention pond	Twice Annually After every 2.5" of rain or greater.	Mow embankments and remove woody vegetation, sediment and erosion evaluation.	Remove any debris from outlets, remove accumulated sediment; repair embankments, inlet/outlet structures if required.
Drainage Swales	2 times per year	Check for sediment and debris accumulation buildup.	Remove sediment & debris when required.
Riprap Outlet Protection/Level Spreaders	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.
Annual Report	1 time per year	Submit Annual Report to Town of Stratham Inspector upon request	

Inspection Notes:

**Union Road
Stratham, NH**

[illegible]

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

Location:

Inspector:

Date:

Time:

Site Conditions:

Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Initial Inspection After Planting and Mulching		
Plants are stable, roots not exposed	S U	
Surface is at design level, typically 4" below overpass	S U	
Overflow bypass / inlet (if available) is functional	S U	
2. Debris Cleanup (2 times a year minimum, Spring & Fall)		
Litter, leaves, and dead vegetation removed from the system	S U	
Prune perennial vegetation	S U	
3. Standing Water (1 time a year, After large storm events)		
No evidence of standing water after 72 hours	S U	
4. Short Circuiting & Erosion (1 times a year, After large storm events)		
No evidence of animal burrows or other holes	S U	
No evidence of erosion	S U	
5. Drought Conditions (As needed)		
Water plants as needed	S U	
Dead or dying plants	S U	
6. Overflow Bypass / Inlet Inspection (1 times a year, After large storm events)		
No evidence of blockage or accumulated leaves	S U	
Good condition, no need for repair	S U	
7. Vegetation Coverage (once a year)		
50 % coverage established throughout system by first year	S U	
Robust coverage by year 2 or later	S U	
8. Mulch Depth (if applicable)(once every 2 years)		
Mulch at original design depth after tilling or replacement	S U	
9. Vegetation Health (once every 3 years)		
Dead or decaying plants removed from the system	S U	
10. Tree Pruning (once every 3 years)		
Prune dead, diseased, or crossing branches	S U	
Corrective Action Needed		Due Date
1.		
2.		
3.		

**ABUTTERS LIST
FOR
NH- 1060 BROCK EHLERS / NINA & MARK MERIDA- STRATHAM, NH
DATE MARCH 7, 2018**

SUBJECT PARCEL

TAX MAP/LOT

10-076-001

10-076-002

OWNER OF RECORD

BROCK EHLERS
15 UNION RD.
STRATHAM, NH 03885

NINA & MARK JAMES MERIDA
17 UNION RD.
STRATHAM, NH 03885

ABUTTERS

TAX MAP/LOT

10-054

10-055

10-056

10-074

10-075

10-077

10-120

OWNER OF RECORD

MCSWEENEY, TIMOTHY J.
MCSWEENEY, KATHRYN A.
21 HICKORY POND LANE
STRATHAM, NH 03885

JOHNSON, DAVID R.
JOHNSON, MICHELLE A.
21 HICKORY POND LANE
STRATHAM, NH 03885

JOHNSON, DAVID R.
JOHNSON, MICHELLE A.
22 HICKORY POND LANE
STRATHAM, NH 03885

SULLIVAN, MARK S.
SULLIVAN, LOREE
11 UNION RD.
STRATHAM, NH 03885

EDWARDS, WILLIAM R.
EDWARDS, AMY
13 UNION RD.
STRATHAM, NH 03885

TOWN OF STRATHAM
10 BUNKER HILL AVE.
STRATHAM, NH 03885

ROLLING MEADOW PET CEMETERY
P.O. BOX 196
STRATHAM, NH 03885

**ABUTTERS LIST
FOR
NH- 1060 BROCK EHLERS / NINA & MARK MERIDA– STRATHAM, NH
DATE MARCH 7, 2018**

10-138

GRAY, SR. KEVIN J.
GRAY, DEBORAH A.
2 WIGGIN WAY
STRATHAM, NH 03885

10-139

CARTWRIGHT, ROBERT ALLEN
CARTWRIGHT, MICHELE A.
18 UNION RD.
STRATHAM, NH 03885

10-140

STRANGER, THOMAS
STRANGER, KATHLEEN
1 STRAWBERRY LANE
STRATHAM, NH 03885

PROFESSIONALS

ENGINEERING FIRM

BEALS ASSOCIATES, PLLC.
70 PORTSMOUTH AVE. 3RD FLOOR
STRATHAM, NH 03885

SOIL SCIENTIST

GOVE ENVIRONMENTAL
8 CONTINENTAL DR. BLDG. 2 UNIT H
EXETER, NH 03833

SURVEYOR

VINCENT LAND SERVICES
MR. DAVID VINCENT
P.O. BOX 1622
DOVER, NH 03821-1622

BEALS · ASSOCIATES PLLC

70 Portsmouth Avenue
3rd Floor Suite #2
Stratham, N.H. 03885
Phone: (603)-583-4860
Fax: (603)-583-4863

TRANSMITTAL

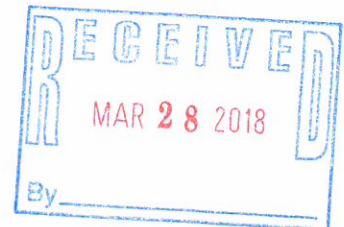
Attn. Tavis Austin, Planner
Town of Stratham
10 Bunker Hill Road
Stratham, NH 03885

Date: March 28, 2018
Project: NH-1060
Location: 15 Union Rd.
Stratham, NH
Via: Hand Delivery

We are sending you the following items:

- 1 - Completed Subdivision Application**
- 2 - Checks for required fees**
- 1 - Letter of Authorization**
- 1 - Copy of Abutters list**
- 3 - Copies of Abutters labels for mailings**
- 1 - Copy 15 Union Rd. Locus Deed**
- 1 - Copy 17 Union Rd. Locus Deed**
- 1 - Copy of Waiver request**
- 1 - Copy of Test Pits**
- 1 - Copy of Stormwater Mgmt. Inspection & Maintenance Plan**
- 3 - Copies of Drainage analysis**
- 6 - Copies of Full Size Plans**
- 9 - Copies of 11x17 reduced size plan**
- 6 - Copies of Condo Site Plan**
- 9 - Copies of 11x17 Condo Site Plan**

Comments



Transmitted by: Christian O. Smith P.E.