



Subdivision

Town of Stratham, NH Subdivision Application

Map# 19 Lot# 68

Project Name: Proposed Sullivan Subdivision

Location: 8 Whittaker Drive

Project Description: The proposed 5-lot subdivision with a road from Whittaker to Hillcrest Drive.

01-RA Res/Agri

Zone: _____ Total Number of Lots: 5

Applicant:

Name: Robin Sullivan Phone: _____

Company: _____ Fax: _____

Address: 8 Whittaker Drive, Stratham, NH 03885

Owner:

Name: Same Phone: _____

Company: _____ Fax: _____

Address: _____

Agent:

Contact Name: Jonathan S. Ring, P.E. Phone: 603-772-4746

Company: Jones & Beach Engineers, Inc. Fax: 603-772-0227

Address: 85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885

Email Address: jring@jonesandbeach.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: Jonathan S. Ring Date: March 28, 2018
Jonathan S. Ring, P.E.

Fees:

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

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 = \$ 302.00 (\$8.00 X 19 Abutters = \$152.00)

*Additional fees may be charged to cover inspection and review cost. Total Fees = \$302.00

For Office Use Only

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

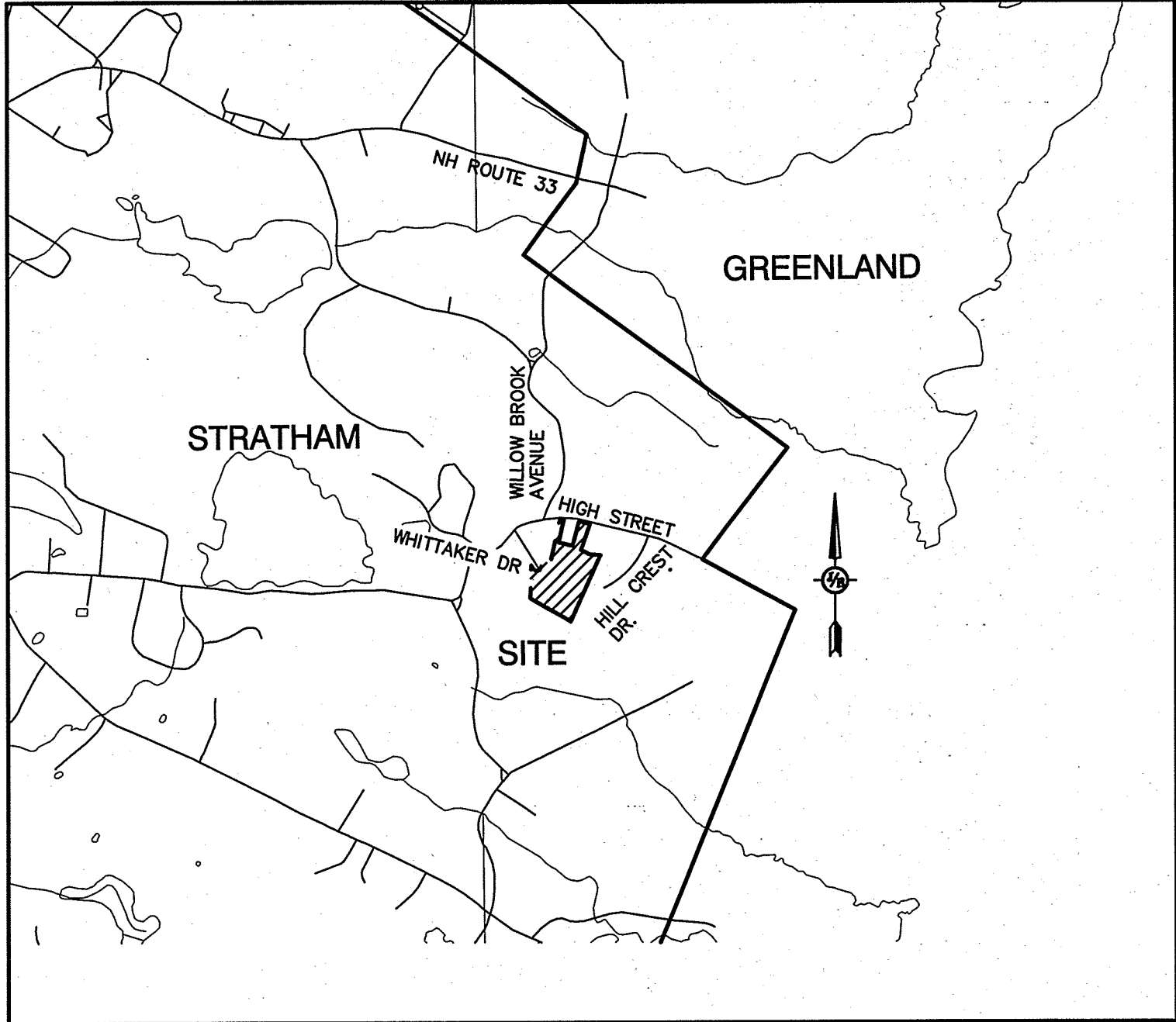
Abutters List Received: _____ Plans & Check List Received: _____

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

SULLIVAN SUBDIVISION PLAN
TAX MAP 19 AND LOT 68
8 WHITTAKER DRIVE, STRATHAM, NH 03885

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
---	---	PROPERTY LINES
---	---	SETBACK LINES
---	---	CENTERLINE
---	---	FRESHWATER WETLANDS LINE
---	---	TREE LINE
---	---	STONEWALL
---	---	BARBED WIRE
---	---	FENCE
---	---	STOCKADE FENCE
---	---	SOIL BOUNDARY
---	---	FLOOD PLAIN LINE
---	---	EASEMENT
---	---	MAJOR CONTOUR
---	---	MINOR CONTOUR
---	---	EDGE OF PAVEMENT
---	---	SILT FENCE
---	---	DRAINAGE LINE
---	---	OVERHEAD ELECTRIC
---	---	UNDERGROUND ELECTRIC
---	---	GUARDRAIL
---	---	IRON PIPE/IRON ROD
---	---	DRILL HOLE
---	---	IRON ROD/DRILL HOLE
---	---	STONE/GRANITE BOUND
---	---	SPOT GRADE
---	---	PAVEMENT SPOT GRADE
---	---	CURB SPOT GRADE
---	---	BENCHMARK (TBM)
---	---	DOUBLE POST SIGN
---	---	SINGLE POST SIGN
---	---	WELL
---	---	TEST PIT
---	---	FAILED TEST PIT
---	---	MONITORING WELL
---	---	PERC TEST
---	---	PHOTO LOCATION
---	---	TREES AND BUSHES
---	---	UTILITY POLE
---	---	LIGHT POLES
---	---	DRAIN MANHOLE
---	---	SINGLE GRATE CATCH BASIN
---	---	DOUBLE GRATE CATCH BASIN
---	---	TRANSFORMER
---	---	CULVERT W/WINGWALLS
---	---	CULVERT W/FLARED END SECTION
---	---	CULVERT W/STRAIGHT HEADWALL
---	---	STONE CHECK DAM
---	---	DRAINAGE FLOW DIRECTION
---	---	4K SEPTIC AREA
---	---	VEGETATED FILTER STRIP
---	---	RIPRAP
---	---	FRESHWATER WETLANDS
---	---	STABILIZED CONSTRUCTION ENTRANCE
---	---	CONCRETE
---	---	GRAVEL
---	---	SNOW STORAGE



LOCUS MAP
SCALE 1" = 2000'

SHEET INDEX

CS	COVER SHEET
A1	SUBDIVISION PLAN
C1	EXISTING CONDITIONS PLAN
C2	GRADING AND DRAINAGE PLAN
P1	PLAN AND PROFILE
D1-D2	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS

CIVIL ENGINEER/WETLANDS

JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JONATHAN RING, PE.
EMAIL: JRING@JONESANDBEACH.COM

OWNER OF RECORD

ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885

SOIL CONSULTANT

GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DRIVE, UNIT H
EXETER, NH 03833-7507
(603) 778-0644
CONTACT: JIM GOVE

SURVEYOR

JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801
(603) 436-3557
CONTACT: JAMES VERRA
EMAIL: JAMESV@JVASURVEYORS.COM

ELECTRIC

UNITIL
6 LIBERTY LANE WEST
HAMPTON, NH 03842
(800) 852-7276

TELEPHONE

CONSOLIDATED COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV

COMCAST COMMUNICATION CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

PROJECT PARCEL
TOWN OF STRATHAM, NH
MAP 19, LOT 68

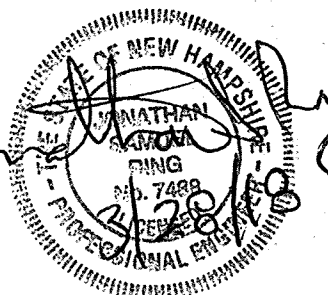
APPLICANT/OWNER
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885
BK 4199 PG 2969

TOTAL LOT AREA
14.99 ACRES

APPROVED - STRATHAM, NH
PLANNING BOARD

DATE:

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN
PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE).
ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE
AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



8	3/28/18	REVISED ROAD LAYOUT	PLB
7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 Stratham, NH 03885 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: COVER SHEET
Project: SULLIVAN SUBDIVISION
8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record: ROBIN D B SULLIVAN REVOC TRUST
8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.
CS
SHEET 1 OF 8
JBE PROJECT NO. 13070.1

\\land\Projects\3\13070-STRATHAM-112-HIGH STREET-SULLIVAN.dwg 3/28/2018 9:07:18 AM EDT

SULLIVAN SUBDIVISION, 8 WHITTAKER DRIVE, STRATHAM, NH
SHE # 13070.1 REVISION 3/28/18

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ADDITIONAL ABUTTERS NOT SHOWN

19/62
KENT & ELIZABETH ANSON
1 HILLCREST DR.
STRATHAM, NH 03885
5604/2025 (03/27/15)

19/78 (CL. HIGH ST)
PEAR TREE ASSOCIATION
7 BARTLETT RD
STRATHAM, NH 03885

15/44 (125 UNION RD)
TOWN OF STRATHAM
10 BUNKER HILL AVE
STRATHAM, NH 03885
2838/1716 (05/25/90)

19/71
MORRISSETTE-LONGWELL
REVOCABLE TRUST
SCOTT LONGWELL &
ROBIN MORRISSETTE TRUSTEES
1 WHITTAKER DR.
STRATHAM, NH 03885
5760/1328 (10/07/16)

19/74
RUSS REVOCABLE TRUST
BRADLEY & LYNN RUSS
TRUSTEES
2 WHITTAKER DR.
STRATHAM, NH 03885
3354/2460 (12/28/98)

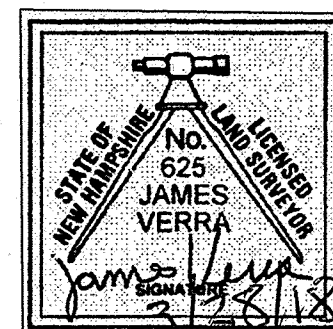
BOUNDARY LINE TABLE	
LINE BEARING	DISTANCE
L1 N 59°07'21" W	129.78
L2 N 60°57'17" W	29.77
L3 N 59°32'42" W	45.60
L4 N 62°25'46" W	62.58
L5 N 60°57'42" W	66.30
L6 N 60°07'37" W	101.91
L7 N 58°22'06" W	192.46
L8 N 01°49'26" E	436.94
L9 S 27°33'01" E	43.93
L10 S 89°28'03" E	143.54
L11 N 12°21'12" E	611.45
L12 S 82°39'41" E	50.12
L13 S 12°21'17" W	324.04
L14 S 77°46'53" E	181.06
L15 N 14°41'22" E	333.05
L16 S 77°28'18" E	150.97
L17 S 18°37'14" W	2.00
L18 S 18°37'14" W	364.78
L19 S 83°09'29" E	128.61
L20 S 86°04'20" E	143.87
L21 S 24°10'28" W	53.26
L22 S 24°03'44" W	925.79
L23 N 71°51'25" W	34.42 (TYP)
L24 S 89°26'20" E	112.45
L25 N 12°31'28" E	51.19

BOUNDARY CURVE TABLE					
CURVE ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	
C1 154.36	80.00	147°24'03"	N 78°45'26" E	115.18	
C2 156.06	80.00	153°31'52"	N 21°42'31" W	54.04	

REFERENCE PLANS:

- MINOR SUBDIVISION OF LAND, HIGH STREET, STRATHAM, NEW HAMPSHIRE, FOR TERRA REALTY TRUST, DATED 3/1/1995, REVISED 2/29/1996, RCRD PLAN # D-24555.
- SUBDIVISION OF LAND FOR V.E.T. DEVELOPMENT, STRATHAM, NH DATED 8/3/1987, REVISED 10/16/1987, RCRD PLAN # D-17330.
- FINAL SUBDIVISION PLAN, HILLCREST DRIVE SUBDIVISION, STRATHAM, NH DATED 11/25/1986, REVISED 12/3/1986, RCRD PLAN # D-15868.
- PEAR TREE, STARHAM, NEW HAMPSHIRE, SUBDIVISION PLAN DATED 6/6/1989, REVISED. 7/28/1989, RCRD PLAN # D-19852.

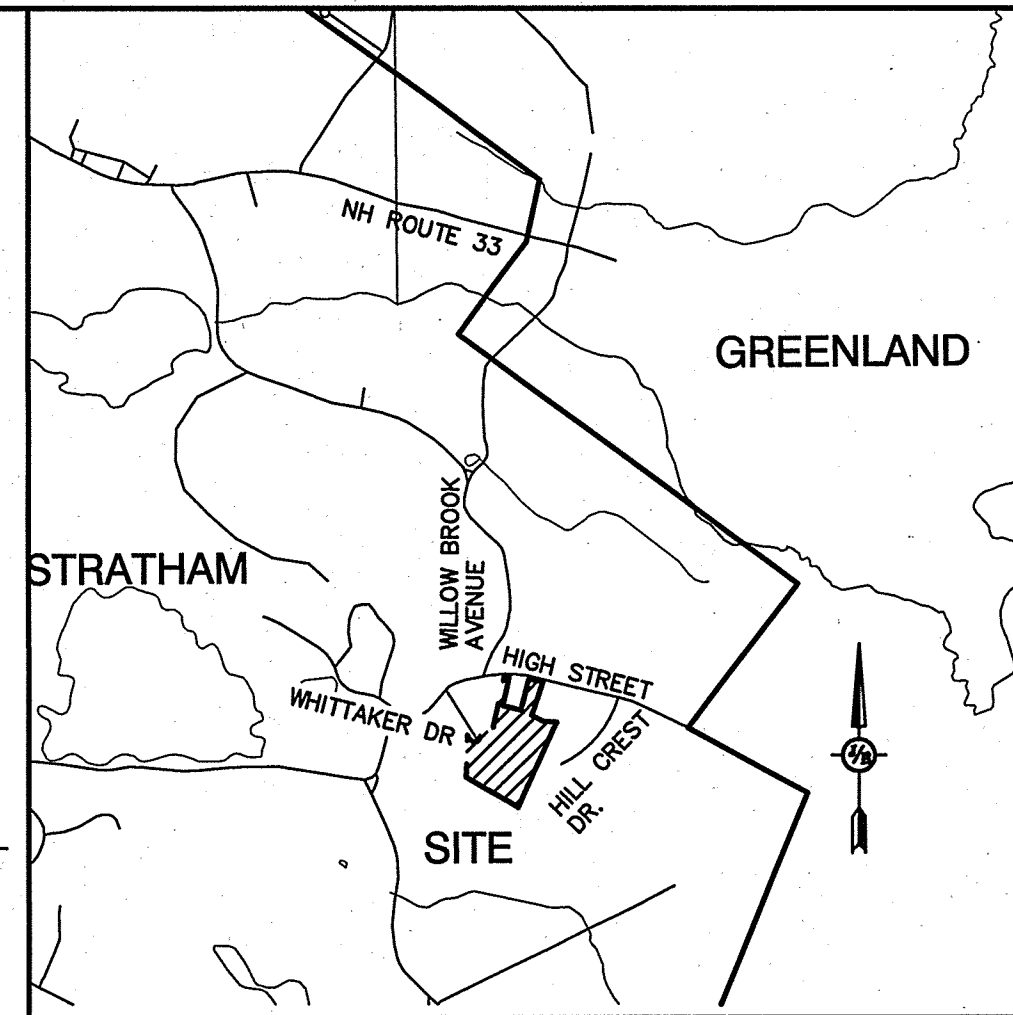
WILLOW BROOK AVENUE



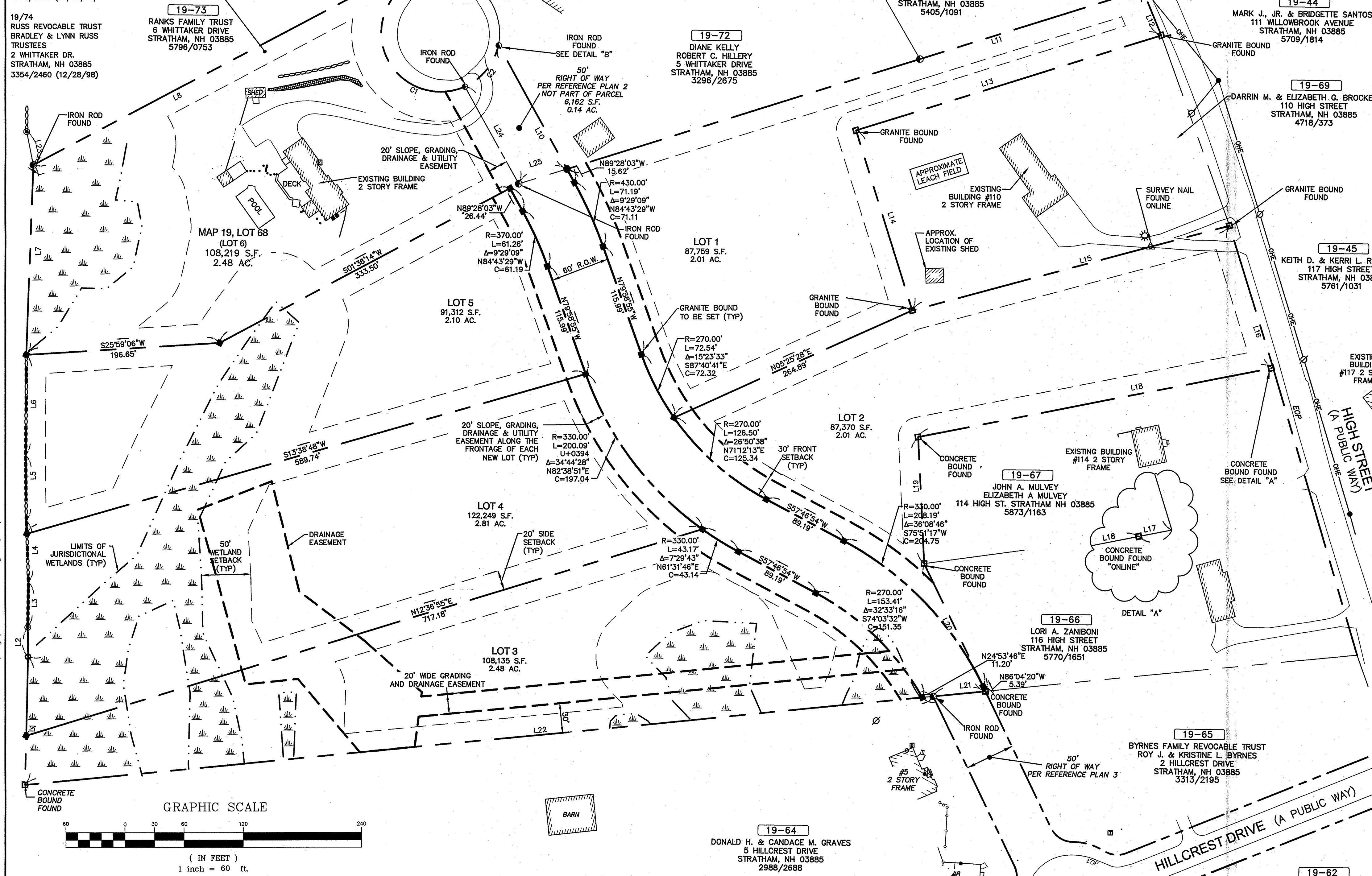
JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801-7876
PROJECT NUMBER: 20391-B

SUBDIVISION NOTES:

- THE INTENT OF THIS PLAN IS TO SUBDIVIDE MAP 19, LOT 68 INTO FIVE (5) SINGLE FAMILY RESIDENTIAL LOTS WITH ONSITE WATER, SEPTIC, PLUS EXISTING HOUSE. COMPLETE EIGHT (8) SHEET PLAN SET IS ON FILE AT THE PLANNING BOARD OFFICE.
- ZONING DISTRICT: RESIDENTIAL AGRICULTURAL
LOT AREA MINIMUM = 2 ACRE
LOT FRONTAGE MINIMUM = 200'
BUILDING SETBACKS (MINIMUM):
FRONT SETBACK = 30'
SIDE SETBACK = 20'
REAR SETBACK = 20'
WETLAND SETBACK = 50'
MAX BUILDING HEIGHT = 35'
- WITH APPROVAL OF THIS PLAN BY THE PLANNING BOARD, THE FOLLOWING WAIVERS ARE GRANTED FROM THE "SUBDIVISION REGULATIONS":
A) SECTION 2.3.6.a. FEES ADMINISTRATIVE COSTS LOT FILING
B) SECTION 3.3.2 & 3.3.3 - PLAN SCALE TO ALLOW 1" = 60'.
C) SECTION 4.5.1.f. SIDE SLOPES 3:1 AND 2:1.
D) SECTION ADDENDUM TABLE 1-ROAD WIDTH 22'.
E) SECTION ADDENDUM A TABLE 1, ROADWAY SLOPE 5% AND 7.5% ON CURVE.
F) SECTION ADDENDUM A, FIGURE A, TYPICAL ROAD SECTION TO ALLOW 2' SHOULDER.
- NHDES APPROVAL FOR SUBDIVISION PERMIT NO. . DATED . DATED
NHDES WETLAND BUREAU PERMIT NO. . DATED .
- THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., 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, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0265E, DATED MAY 17, 2005.
- ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
- ALL CONSTRUCTION WILL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
- GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY, AND AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED.
- THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH ENGINEERS, INC., DURING WINTER, 2016.
- LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
- UPON APPROVAL BY THE TOWN, THE PROPOSED ROAD WILL BE CONVEYED TO THE TOWN.
- ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.
- ALL LOTS ARE SUBJECT TO A 20' WIDE EASEMENT ALONG FRONTAGE FOR SLOPE, GRADING, DRAINAGE AND UTILITIES.
- ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF STRATHAM TAX RECORDS AND ARE SUBJECT TO CHANGE.
- RESEARCH WAS PERFORMED AT THE TOWN OF STRATHAM ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011)(EPOCH: 2010.0000), US SURVEY FOOT. VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: NHDOT 345-0070.
- ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
- EACH NEW HOME WILL INCLUDE A RESIDENTIAL SPRINKLER SYSTEM PER NFPA CHAPTER 13R.



LOCUS SCALE: 1"=2000'



APPROVED - STRATHAM, NH PLANNING BOARD	PROJECT PARCEL TOWN OF STRATHAM, NH MAP 19, LOT 68
	APPLICANT/OWNER ROBIN SULLIVAN 8 WHITTAKER DRIVE STRATHAM, NH 03885 BK 4199 PG 2969
	TOTAL LOT AREA 14.99 ACRES
DATE:	

Design: JSR	Draft: PLB	Date: 6/26/13
Checked: JSR	Scale: AS NOTED	Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.		

REV.	DATE	REVISION	BY
8	3/28/18	REVISED ROAD LAYOUT	PLB
7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. Stratham, NH 03885

Civil Engineering Services

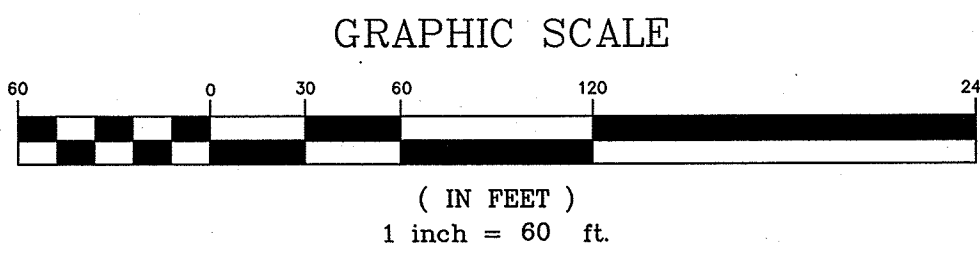
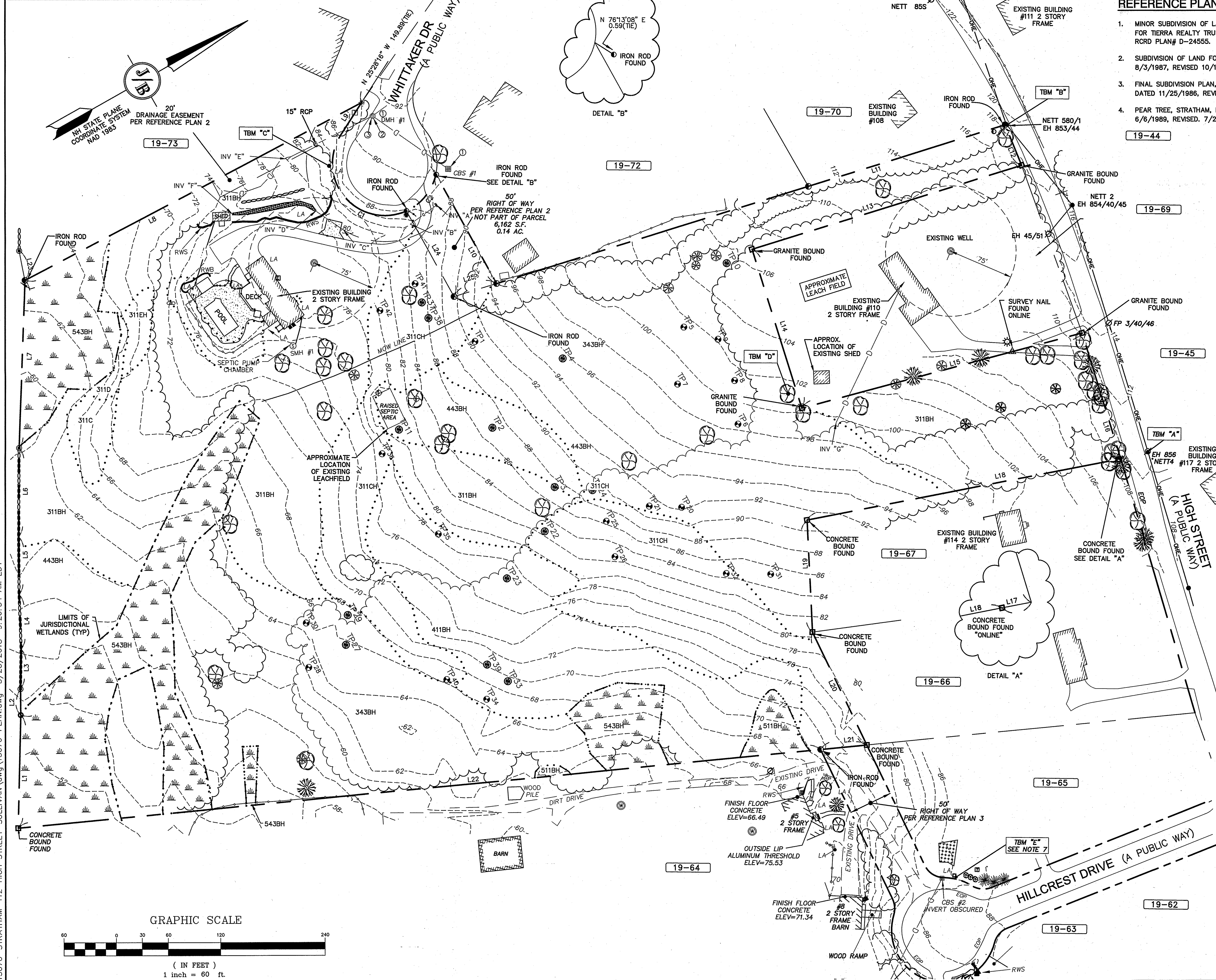
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SUBDIVISION PLAN MAP 19, LOT 68
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN D B SULLIVAN REVOC TRUST 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.

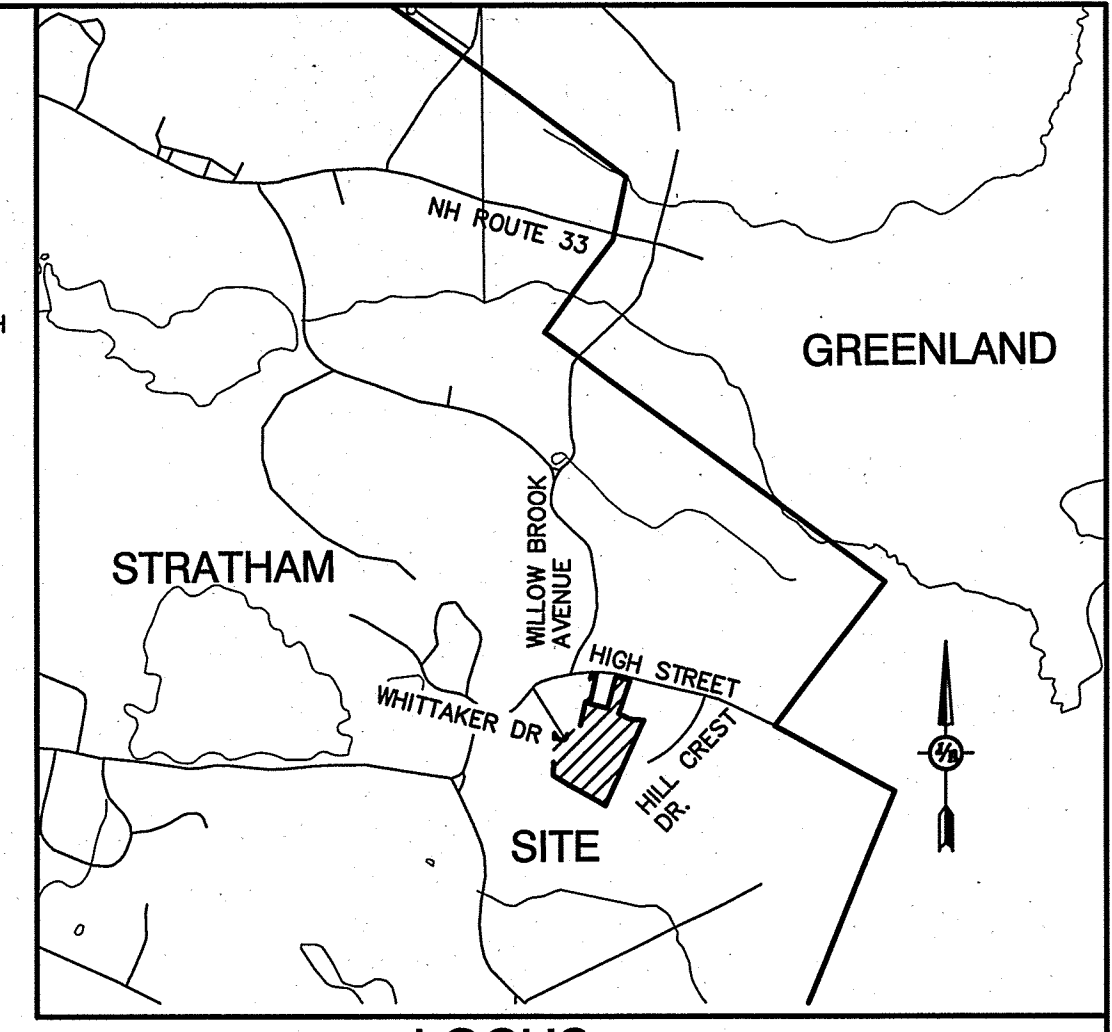
A1

SHEET 2 OF 8
JBE PROJECT NO. 13070.1



REFERENCE PLANS:

1. MINOR SUBDIVISION OF LAND, HIGH STREET, STRATHAM, NEW HAMPSHIRE, FOR TERRA REALTY TRUST, DATED 3/1/1995, REVISED 2/29/1996, RCRD PLAN# D-24555.
2. SUBDIVISION OF LAND FOR V.E.T. DEVELOPMENT, STRATHAM, NH DATED 8/3/1987, REVISED 10/16/1987, RCRD PLAN # D-17330.
3. FINAL SUBDIVISION PLAN, HILLCREST DRIVE SUBDIVISION, STRATHAM, NH DATED 11/25/1986, REVISED 12/3/1986, RCRD PLAN # D-15888.
4. PEAR TREE, STRATHAM, NEW HAMPSHIRE, SUBDIVISION PLAN DATED 6/6/1989, REVISED. 7/28/1989, RCRD PLAN # D-19852.



EXISTING CONDITIONS NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE 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 STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).
2. HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011)(EPOCH:2010.0000), US SURVEY FOOT. VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: NHDOT 345-0070.
3. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0265E, DATED MAY 17, 2005.
4. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH ENGINEERS, INC., DURING WINTER, 2016, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
 - a. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
 - b. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
 - c. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
 - d. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
5. HIGH INTENSITY SOIL MAPPING WAS PERFORMED BY LUKE HURLEY OF GOVE ENVIRONMENTAL SERVICES DURING FEBRUARY, 2017, TO THE STANDARDS OF HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE. STANDARDS (2002): SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND.
6. TEST PITS PERFORMED BY CHRISTOPHER ALBERT AND GIFFORD COLBURN, JONES & BEACH ENGINEERS, INC. ON 7/17/13, 4/20/16, 12/14/16 AND 12/27/16, WITNESSED BY MICHAEL CUOMO, ROCKINGHAM COUNTY CONSERVATION DISTRICT, INSPECTOR.
7. TBM "A": LARGE SPIKE SET IN UTILITY POLE 1.0' ABOVE GROUND ELEVATION= 111.44
TBM "B": LARGE SPIKE SET IN UTILITY POLE 1.0' ABOVE GROUND ELEVATION= 120.50
TBM "C": SURVEY NAIL SET 1.0' ABOVE GROUND IN BASE OF 18" OAK ELEVATION= 85.08
TBM "D": SURVEY NAIL SET 1.0' ABOVE GROUND IN 10" CHERRY ELEVATION= 102.37
8. WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.

EXISTING RIM AND INVERT DATA

- CB #1 RIM = 87.65
(1) INV (12"RCP)=84.4±
- SMH #1 RIM = 59.68
SEPTIC COVER
- DMH #1 RIM = 91.35
(1) INV (12"RCP)=88.36
(2) INV (12"RCP)=83.53
(3) INV (15"RCP)=83.53
- ("A") INV (15"CMF)=86.32
("B") INV (12"HDPE)=84.09
("C") INV (12"HDPE)=78.76
("D") INV (12"HDPE)=78.65
("E") INV (15"RCP@ES)=80.01
("F") INV (12"PCV)=74.68±
("G") INV (4" PVC)=98.24
("H") INV (12"RCP)=76.79
("I") INV (12" CMF)=77.08

BOUNDARY CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING
C1	154.36	60.00	147°24'03"	N 78°45'26" E 115.18
C2	156.06	60.00	153°31'52"	N 21°42'31" W 154.04

BOUNDARY LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 59°07'21" W	129.78
L2	N 60°57'17" W	23.17
L3	N 59°32'42" W	45.60
L4	N 62°25'46" W	62.58
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L17	S 18°37'14" W	2.00
L18	S 18°37'14" W	364.78
L19	S 63°09'28" E	128.61
L20	S 86°04'20" E	143.87
L21	S 24°10'28" W	53.26
L22	S 24°03'44" W	925.79
L23	N 71°31'25" W	34.42 (TIE)
L24	S 89°28'20" E	112.45
L25	N 12°31'28" E	91.19

SOIL LEGEND	
HSS	SSSM
311	313 DEERFIELD HSG B
343	38 ELDRIDGE HSG C
443	943 ELDRIDGE VARIANT HSG C
511	546/P WALPOLE
543	656 RIDGEBURY HSG C

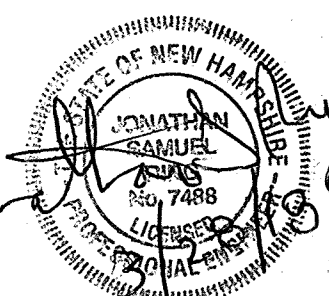
PROJECT PARCEL
TOWN OF STRATHAM, NH
MAP 19, LOT 68

APPLICANT/OWNER
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885
BK 4199 PG 2969

TOTAL LOT AREA
14.99 ACRES

JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801-7876
PROJECT NUMBER: 20391-B

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg
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REV.	DATE	REVISION	BY
8	3/28/18	REVISED ROAD LAYOUT	PLB
7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
REV.	DATE	REVISION	BY

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

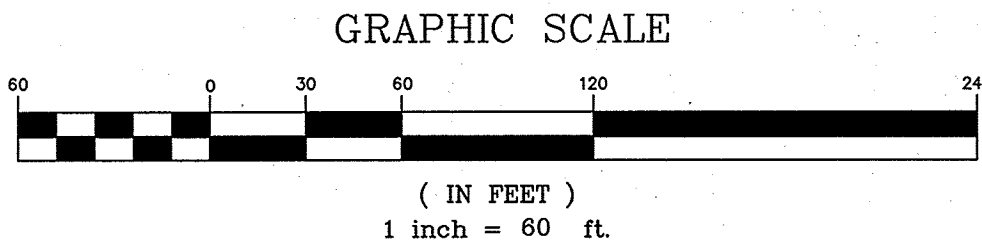
Plan Name: **EXISTING CONDITIONS PLAN**
Project: **SULLIVAN SUBDIVISION**
8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record: **ROBIN D B SULLIVAN REVOC TRUST**
8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.
C1
SHEET 3 OF 8
JBE PROJECT NO. 13070.1



GRADING AND DRAINAGE NOTES:

- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
- ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
- SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
- ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
- ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
- IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
- ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
- LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
- NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
- ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
- SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
- MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.25" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
- THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
- CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
- IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
- SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
- SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON SHEET D2. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.
- EACH NEW HOME WILL INCLUDE A RESIDENTIAL SPRINKLER SYSTEM PER NFPA CHAPTER 13R.



PROJECT PARCEL
TOWN OF STRATHAM, NH
MAP 19, LOT 68

APPLICANT/OWNER
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885
BK 4199 PG 2969

TOTAL LOT AREA
14.99 ACRES

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg

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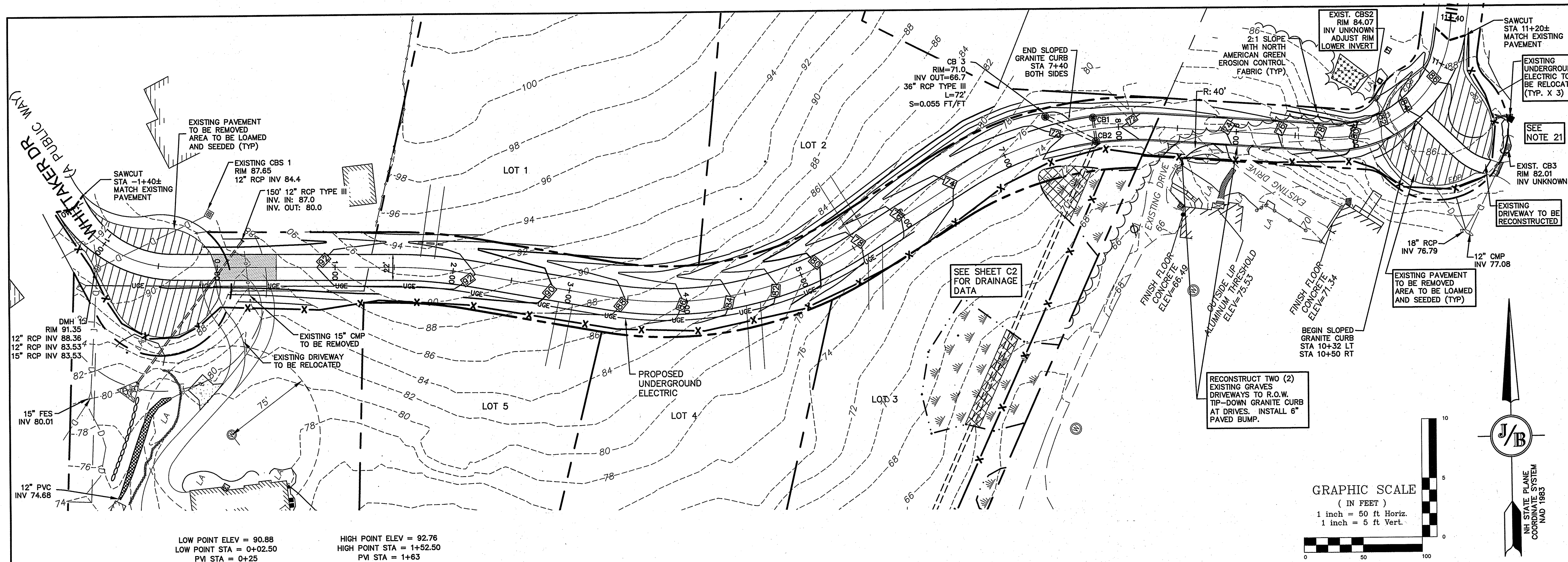
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7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.
Designed and Produced in NH
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING AND DRAINAGE PLAN
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN D B SULLIVAN REVOC TRUST 8 WHITTAKER DRIVE, STRATHAM, NH 03885

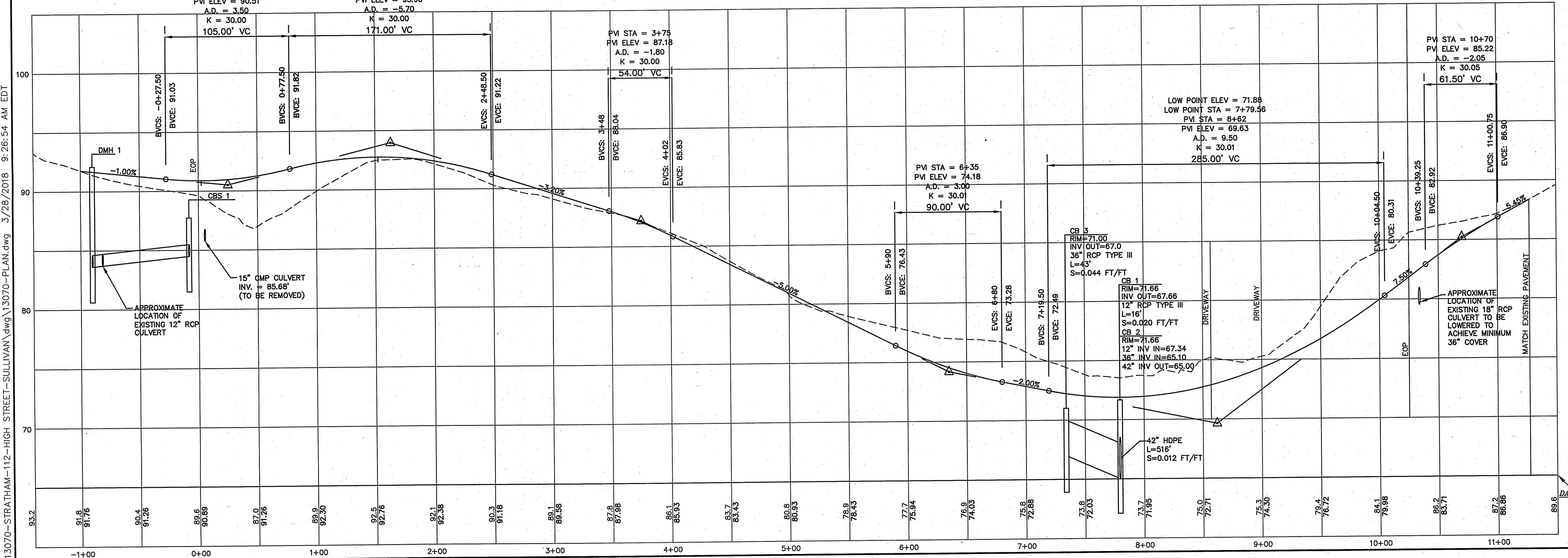
DRAWING No.
C2
SHEET 4 OF 8
JBE PROJECT NO. 13070.1

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LOW POINT ELEV = 90.88
LOW POINT STA = 0+02.50
PVI STA = 0+25
PVI ELEV = 90.51
A.D. = 3.50
K = 30.00
105.00' VC

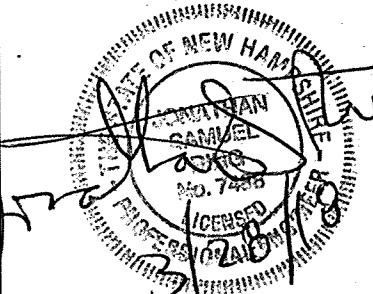
HIGH POINT ELEV = 92.76
HIGH POINT STA = 1+52.50
PVI STA = 1+63
PVI ELEV = 93.96
A.D. = -5.70
K = 30.00
171.00' VC



NOTES:

- THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT [HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM](http://cfpub1.epa.gov/npdes/stormwater/noi/noisearch.cfm). AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
 - FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
 - ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
- ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
- DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
- CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV AND TELEPHONE PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
- THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. 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 SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSISTENCE 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.
- SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
- ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
- FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
- CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- 6" PERFORATED ADS UNDER DRAIN PLACEMENT TO BE DETERMINED BY THE ENGINEER DURING TIME OF SUBGRADE INSPECTION. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER OR PUBLIC WORKS DEPARTMENT. CONTRACTOR TO INCLUDE 1000 LF IN BID PRICE.
- ALL DRIVEWAYS TO BE CONSTRUCTED MAXIMUM 10% SLOPE. SEE DETAIL SHEET. ALL DRIVEWAYS TO HAVE CULVERTS, UNLESS APPROVED BY THE TOWN ROAD AGENT.
- DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT 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 WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS.
- ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
- DETENTION POND REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOVED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BORROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
- THE DETENTION PONDS IS TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3%, AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
- COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
- NO IRRIGATION PIPES OR SPRINKLER HEADS SHALL BE LOCATED WITHIN TOWN RIGHT OF WAY.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON SHEET D2. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.
- EACH NEW HOME WILL INCLUDE A RESIDENTIAL SPRINKLER SYSTEM PER NFPA CHAPTER 13R.
- HILLCREST DRIVE EXISTING DRAINAGE AND UNDERGROUND UTILITIES TO BE RELOCATED AND ADJUSTED SATISFACTORY TO STRATHAM DPW AND UTILITY COMPANIES.

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
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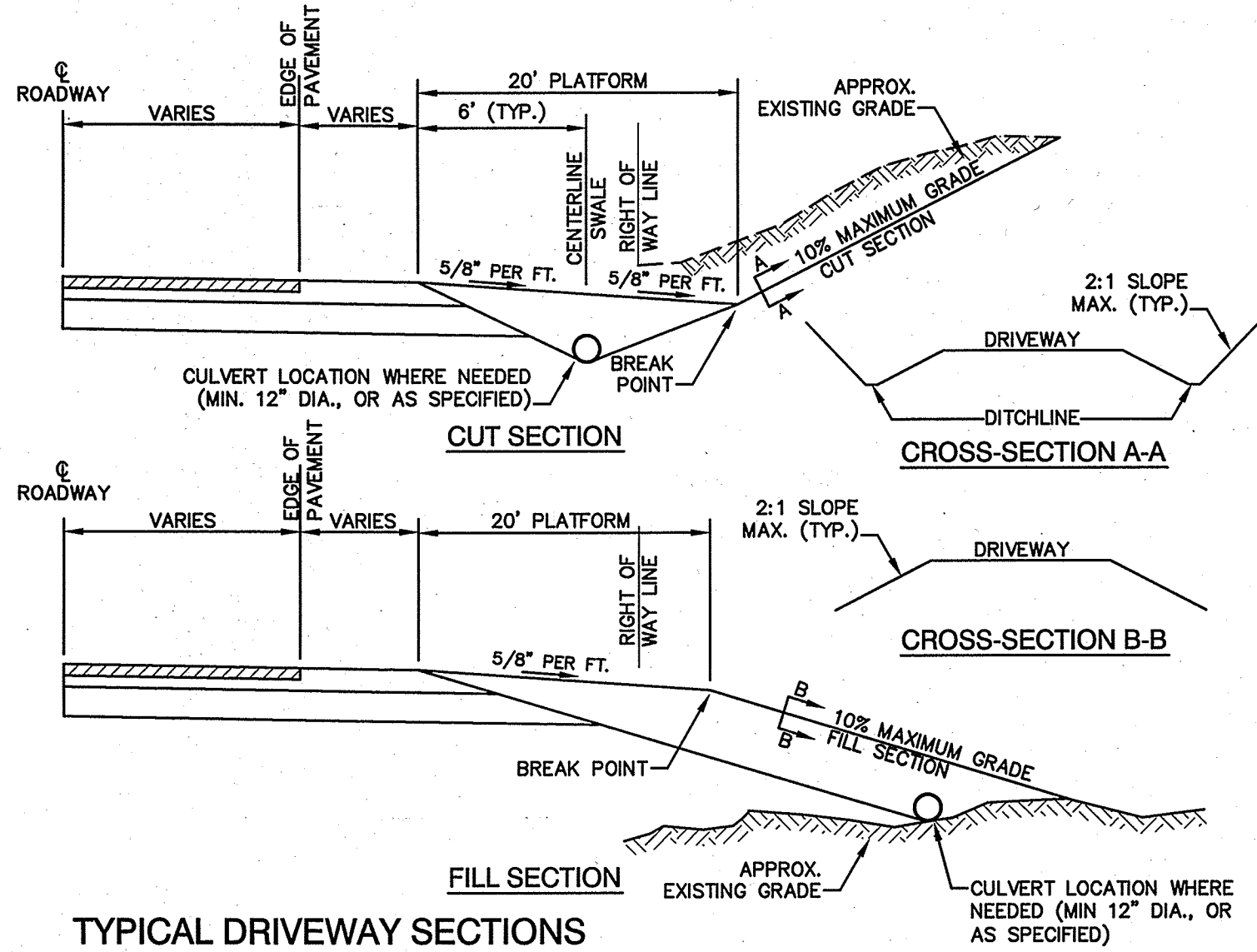
REV.	DATE	REVISION	BY
8	3/28/18	REVISED ROAD LAYOUT	PLB
7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
REV.	DATE	REVISION	BY

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Designed and Produced in NH
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN D B SULLIVAN REVOC TRUST 8 WHITTAKER DRIVE, STRATHAM, NH 03885

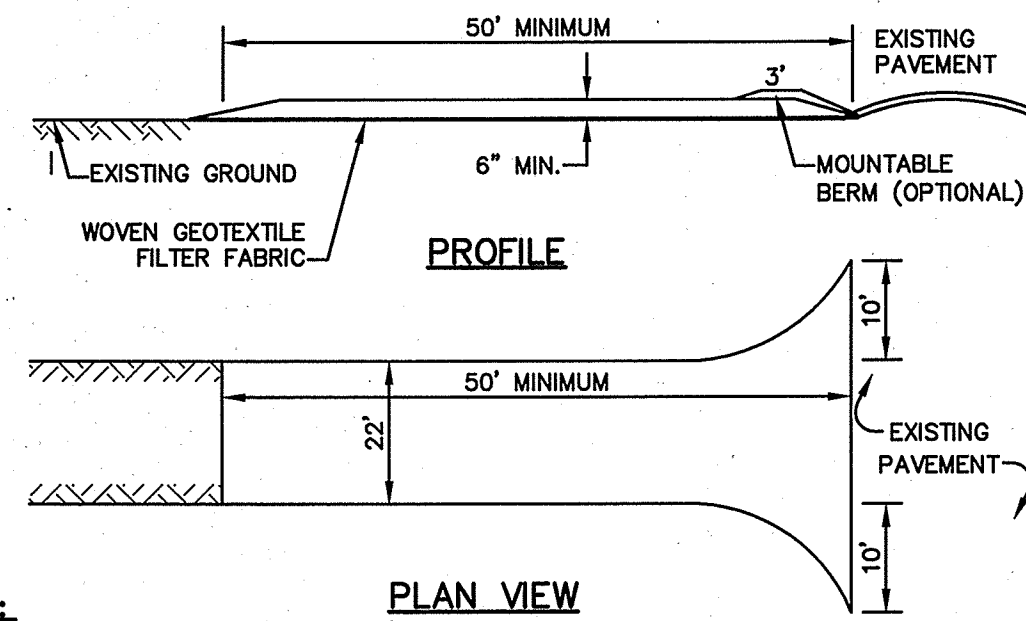
DRAWING No.
P1
SHEET 5 OF 8
JBE PROJECT NO. 13070.1

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TYPICAL DRIVEWAY SECTIONS

NOT TO SCALE

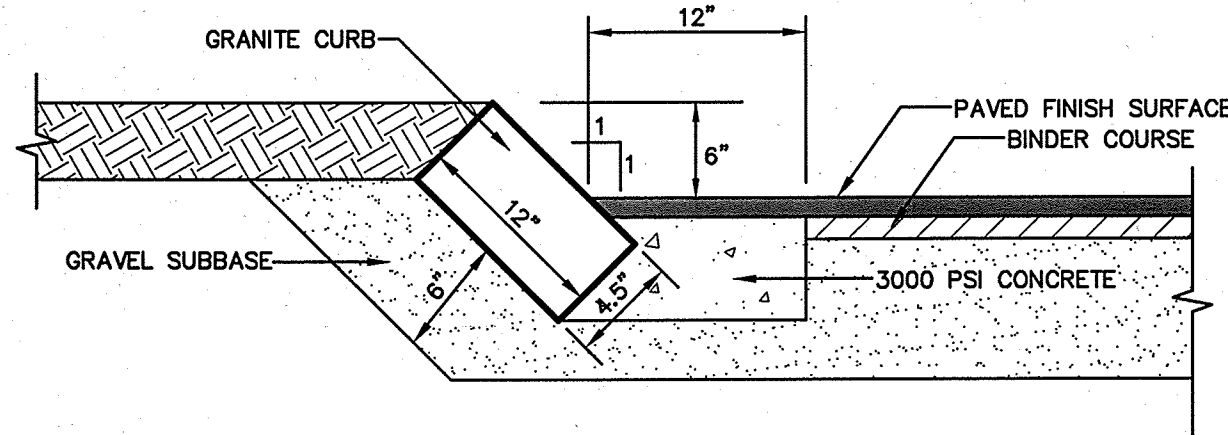


NOTES:

1. STONE FOR 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. 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, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL 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 STONE 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 THE PUBLIC RIGHT-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 THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

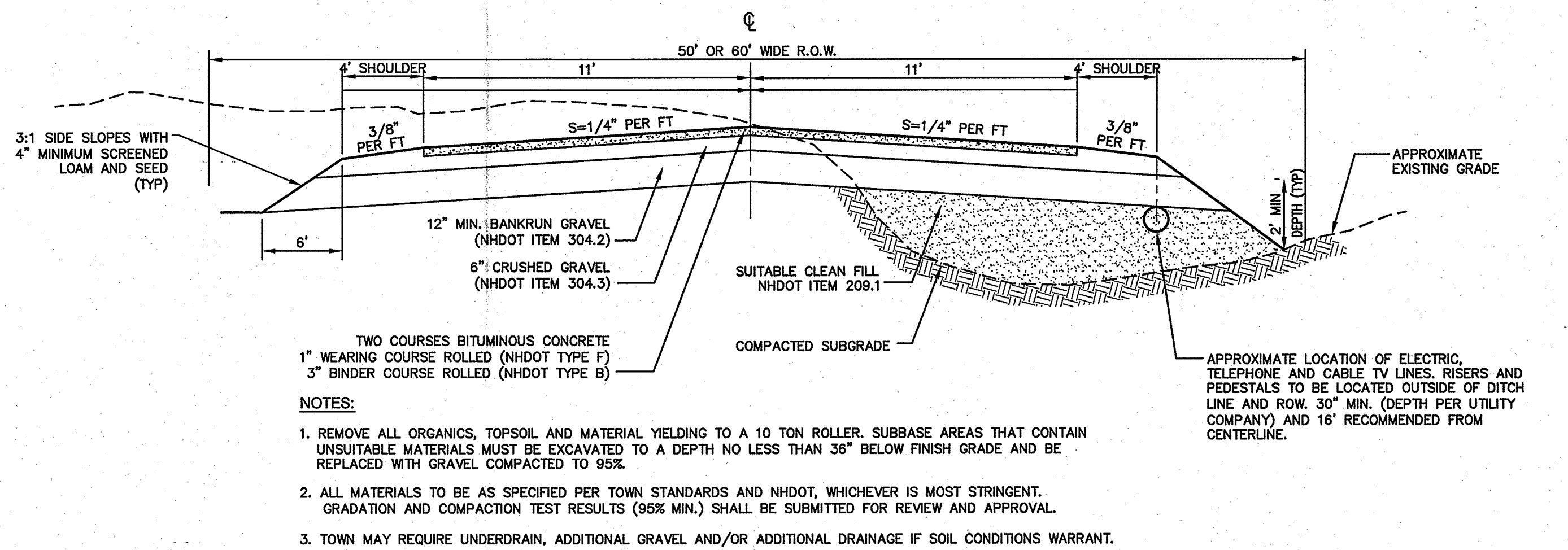


NOTES:

1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

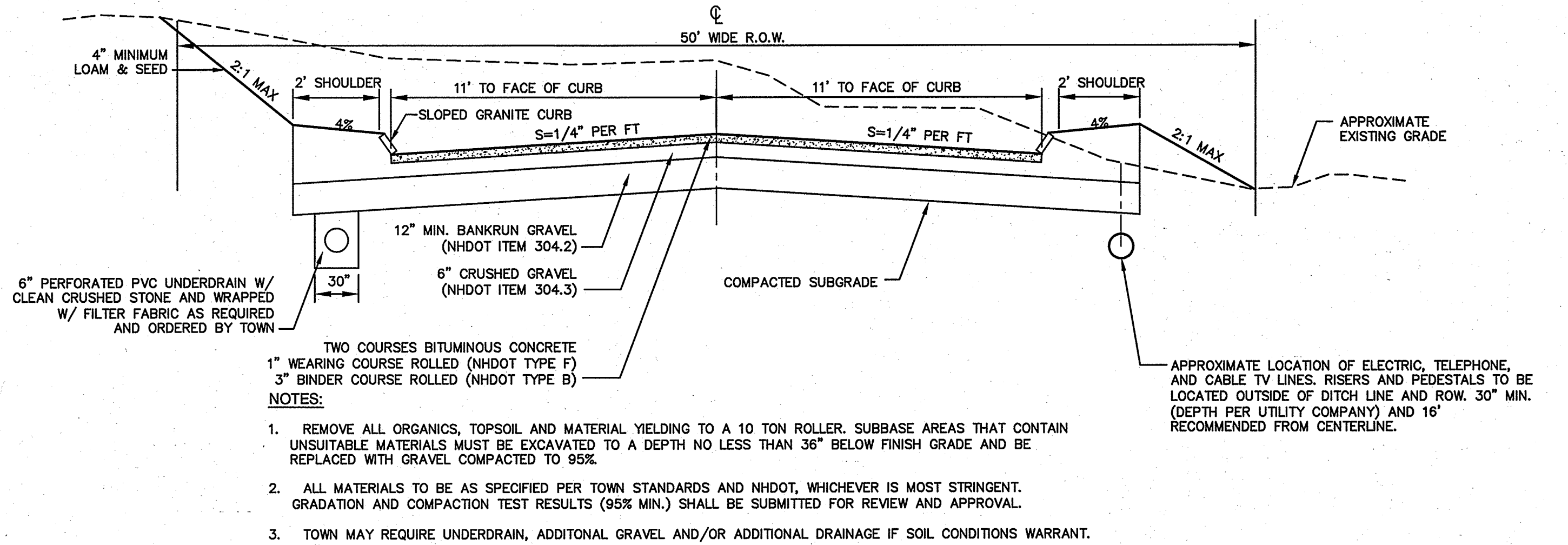
SLOPED GRANITE CURB

NOT TO SCALE



TYPICAL ROADWAY SECTION

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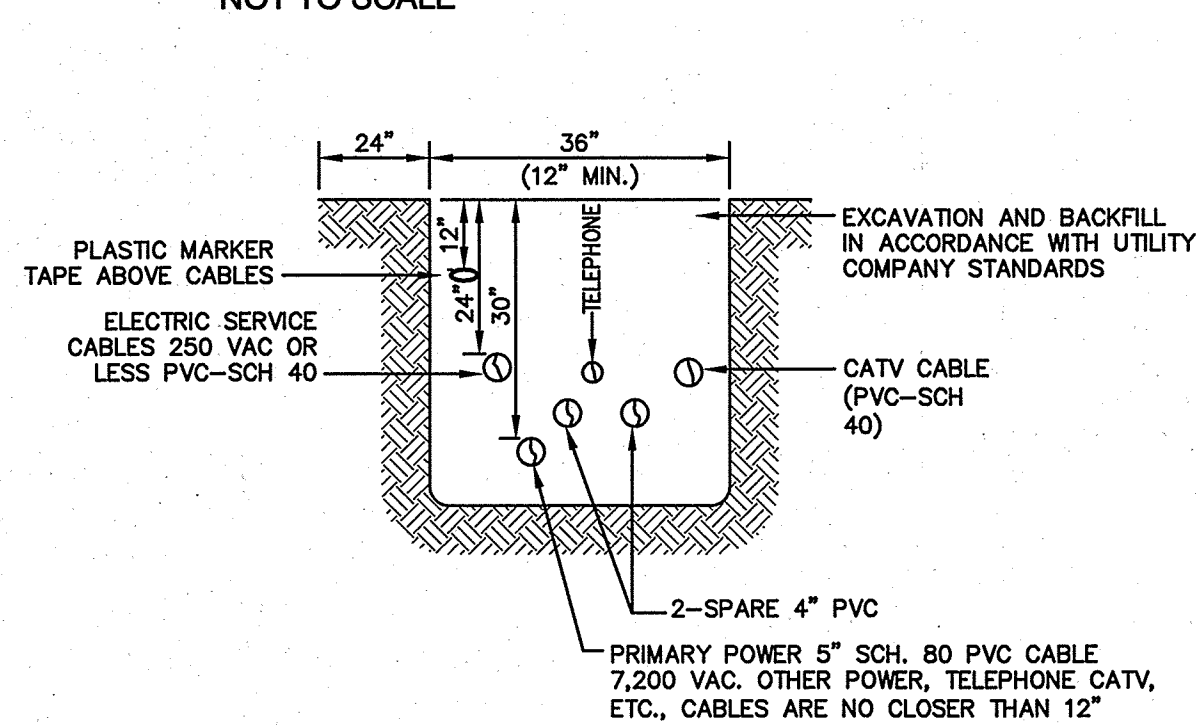


TYPICAL ROADWAY SECTION W/CURBING

STA 7+40 TO STA 10+32 LT

STA 7+40 TO STA 10+50 RT

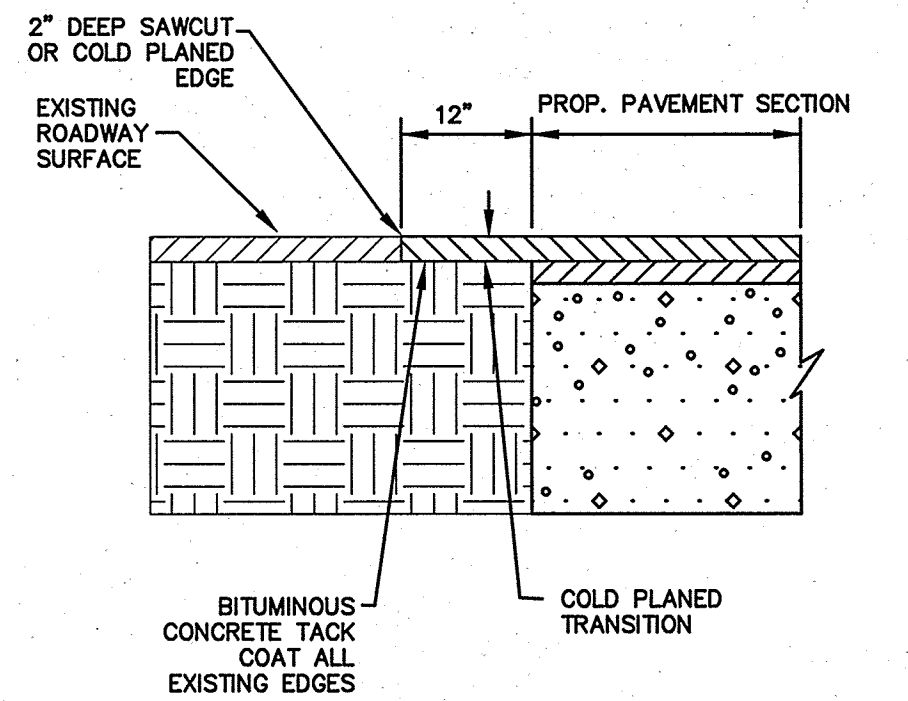
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NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

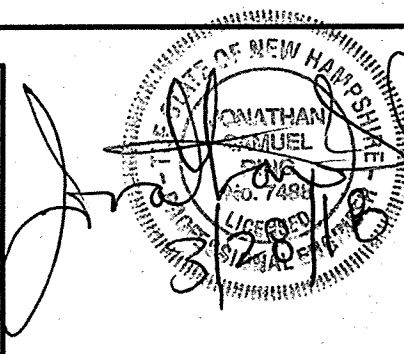
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PAVEMENT TRANSITION

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Drawing Name: 13070-PLAN.dwg		
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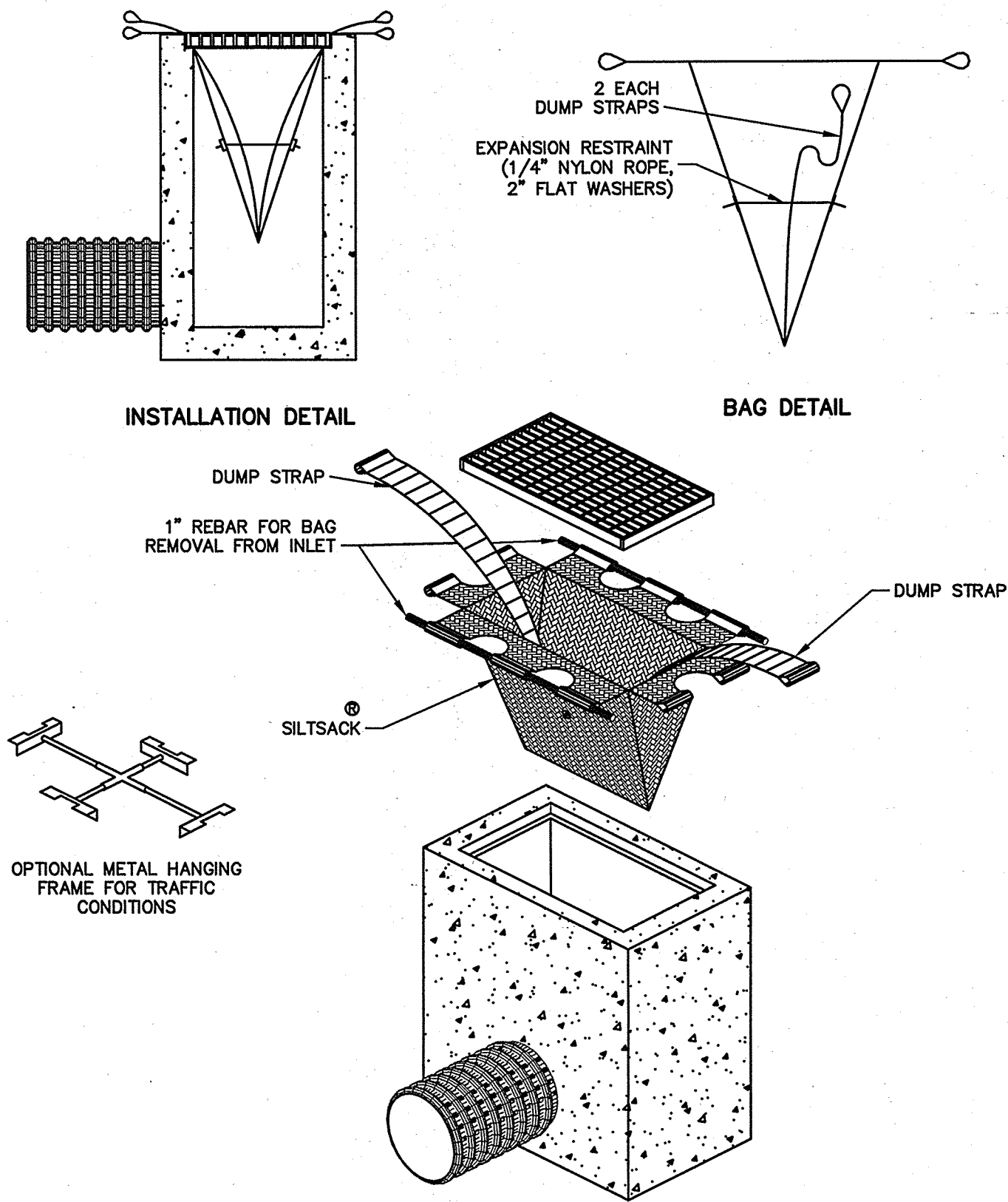
REV.	DATE	REVISION	BY
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7	6/21/18	PLANNING BOARD MEETING	PLB
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5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ

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Stratham, NH 03885

Designed and Produced in NH
Civil Engineering Services
603-772-4746
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E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN D B SULLIVAN REVOC TRUST 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.	D1
SHEET 6 OF 8	JBE PROJECT NO. 13070.1

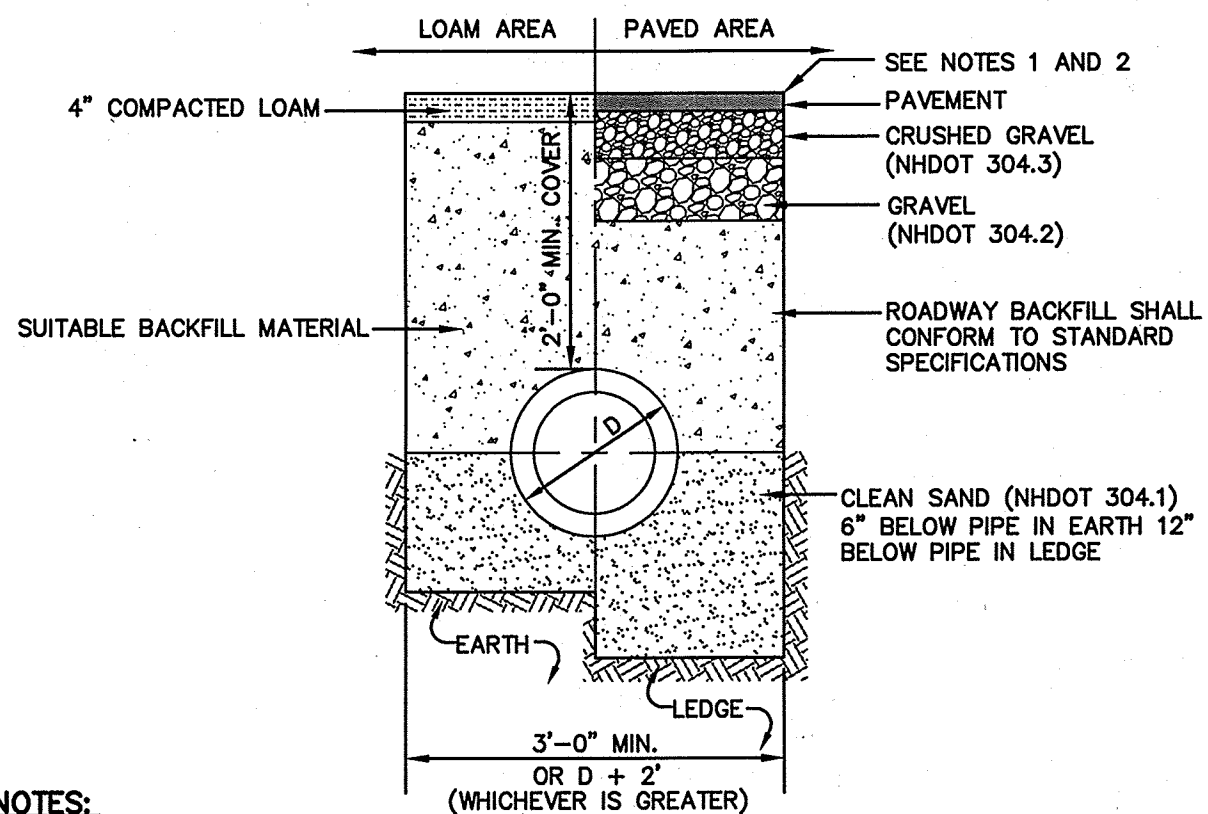


NOTES:

1. TO INSTALL SILTSACK IN THE CATCH BASIN, REMOVE THE GRATE AND PLACE THE SACK IN THE OPENING. HOLD APPROXIMATELY SIX INCHES OF THE SACK OUTSIDE THE FRAME. THIS IS THE AREA OF THE LIFTING STRAPS. REPLACE THE GRATE TO HOLD THE SACK IN PLACE.
2. WHEN THE RESTRAINT CORD IS NO LONGER VISIBLE, SILTSACK IS FULL AND SHOULD BE EMPTIED.
3. TO REMOVE SILTSACK, TAKE TWO PIECES OF 1" DIAMETER REBAR AND PLACE THROUGH THE LIFTING LOOPS ON EACH SIDE OF THE SACK TO FACILITATE THE LIFTING OF SILTSACK.
4. TO EMPTY SILTSACK, PLACE UNIT WHERE THE CONTENTS WILL BE COLLECTED. PLACE THE REBAR THROUGH THE LIFT STRAPS (CONNECTED TO THE BOTTOM OF THE SACK) AND LIFT. THIS WILL LIFT SILTSACK FROM THE BOTTOM AND EMPTY THE CONTENTS. CLEAN OUT AND RINSE. RETURN SILTSACK TO ITS ORIGINAL SHAPE AND PLACE BACK IN THE BASIN.
5. SILTSACK IS REUSABLE. ONCE THE CONSTRUCTION CYCLE IS COMPLETE, REMOVE SILTSACK FROM THE BASIN AND CLEAN. SILTSACK SHOULD BE STORED OUT OF SUNLIGHT UNTIL NEXT USE.

SILTSACK INLET SEDIMENT CONTROL DEVICE TYPE A - WITHOUT CURB DEFLECTOR

NOT TO SCALE

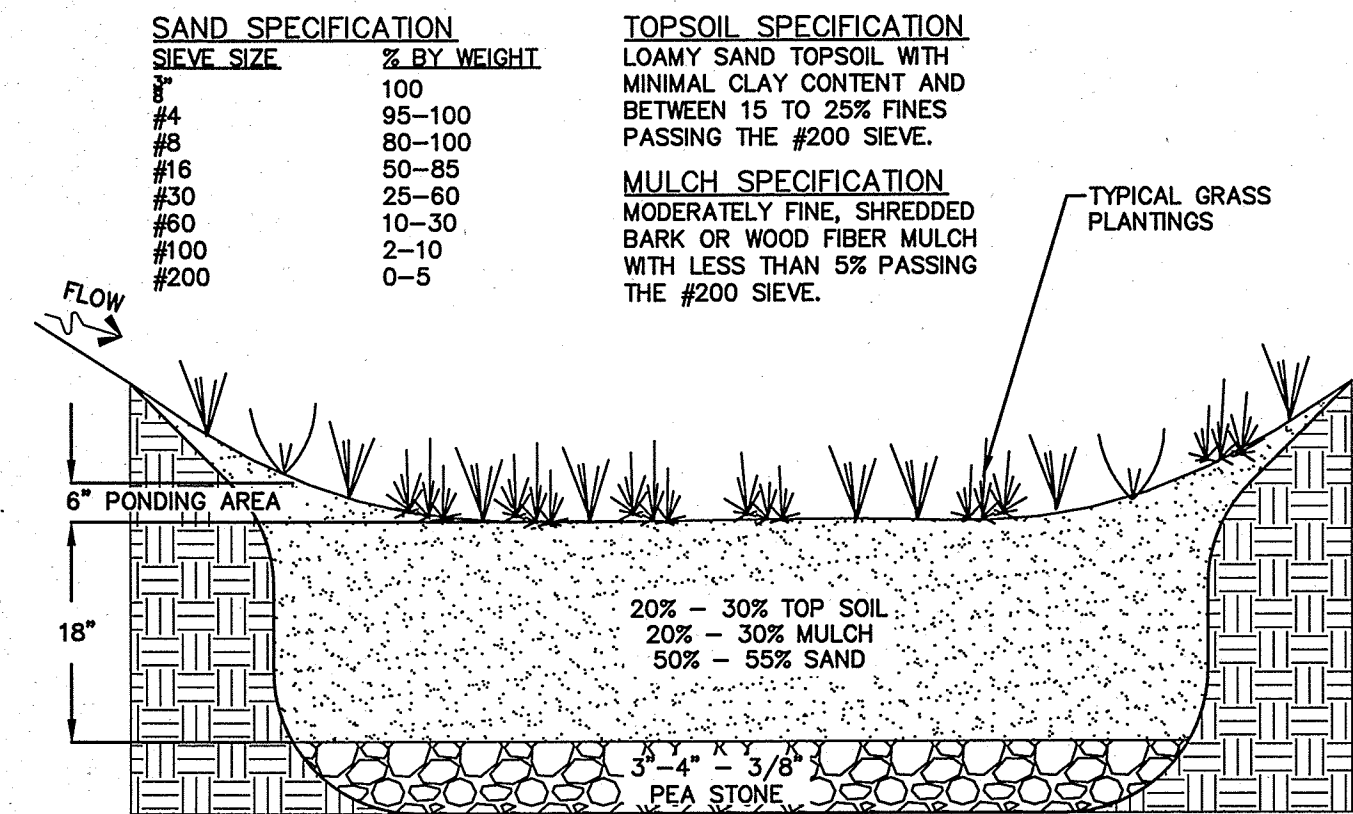


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE



DESIGN CONSIDERATIONS

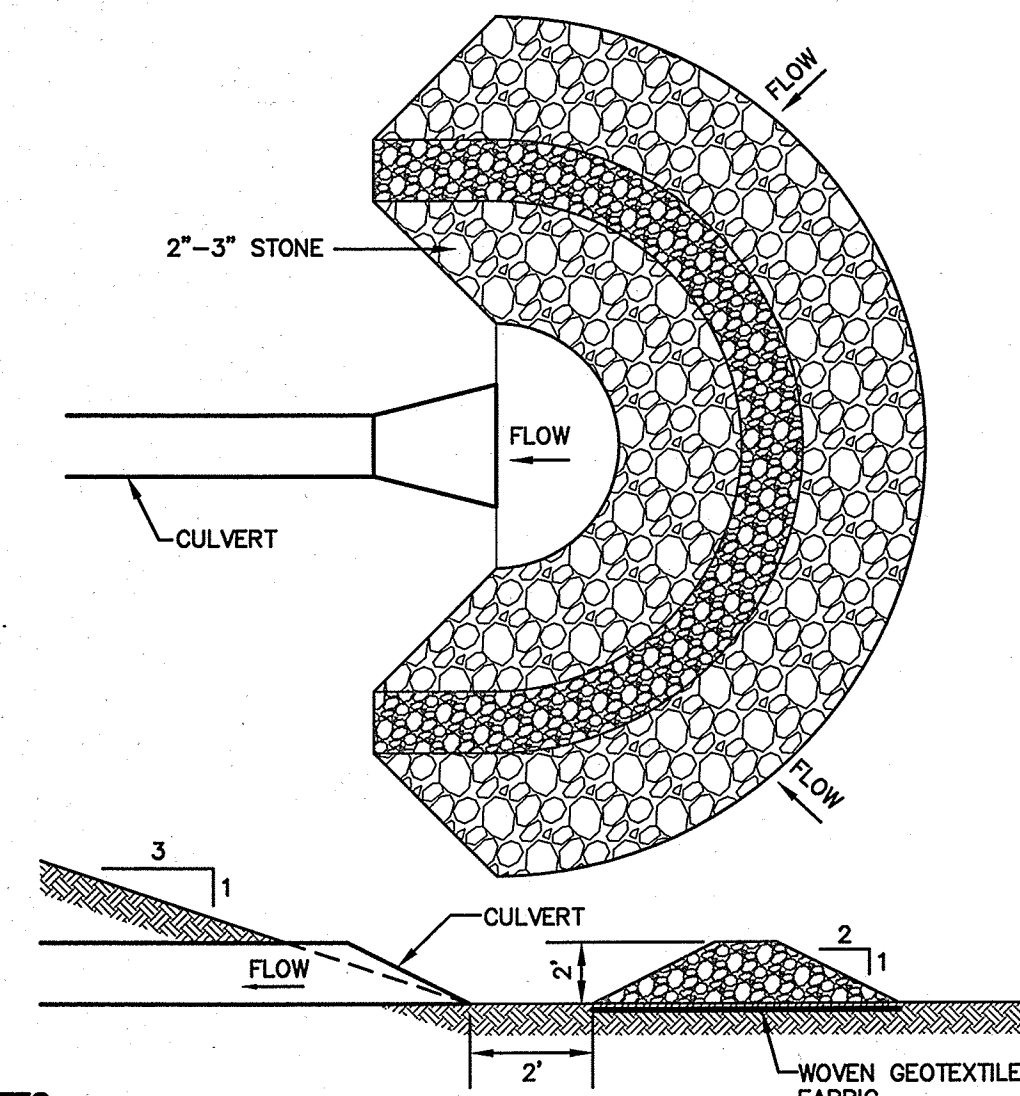
1. DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
4. PLANT LAYOUT WITHIN INDIVIDUAL RAIN GARDENS MAY VARY BETWEEN HOMES HOWEVER ALL RAIN GARDENS ARE TO BE PLANTED FROM EDGE TO EDGE WITH A 1' MAXIMUM SPACING BETWEEN PERENNIALS. LEAVE ENOUGH ROOM BETWEEN SHRUBS FOR FULL GROW-OUT OF EACH SPECIES USED.

MAINTENANCE REQUIREMENTS:

1. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

RAIN GARDEN (with open side and bottom) - HOUSE LOTS

NOT TO SCALE



NOTES:

1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
2. INLET PROTECTION MEASURES SHALL BE INSTALLED AT THE OPENINGS OF ALL EXISTING AND PROPOSED CULVERTS LOCATED BELOW (DOWNSTREAM) FROM AND WITHIN 100' OF THE PROJECT SITE.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
4. STRUCTURES SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH VEGETATION AND THE CHANNEL SHALL BE SMOOTHED AND REVEGETATED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM

NOT TO SCALE

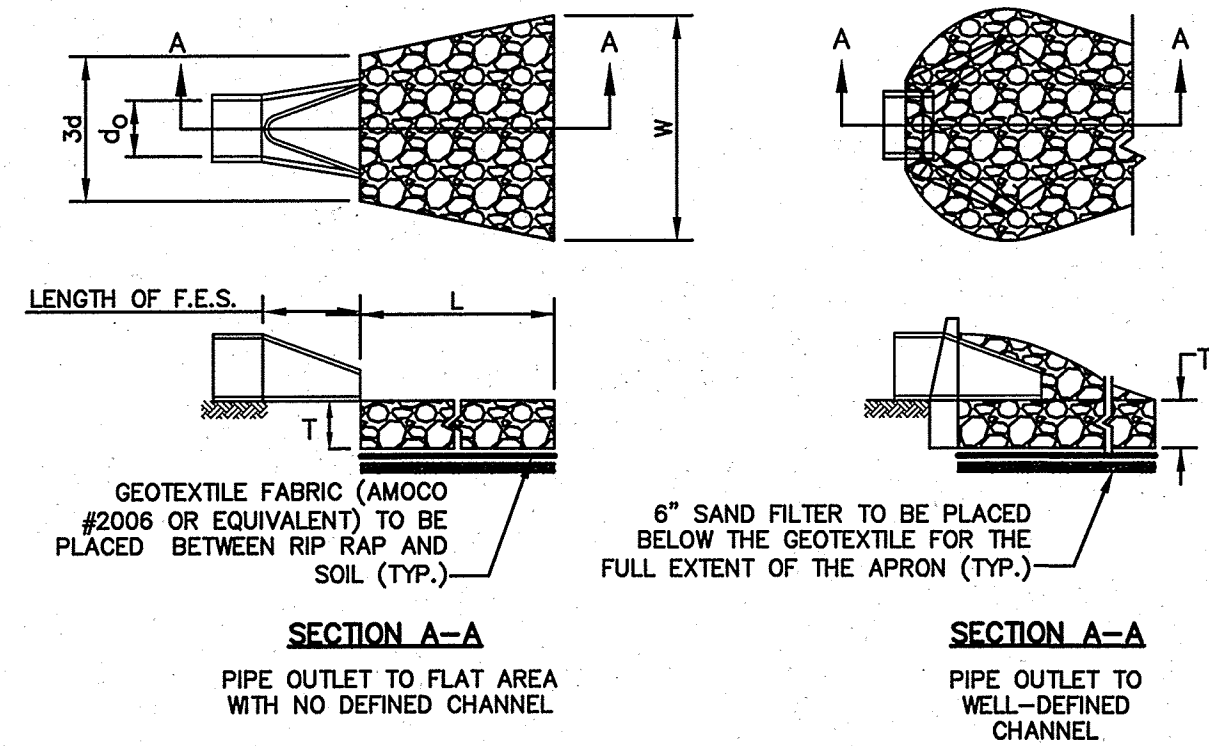


TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES

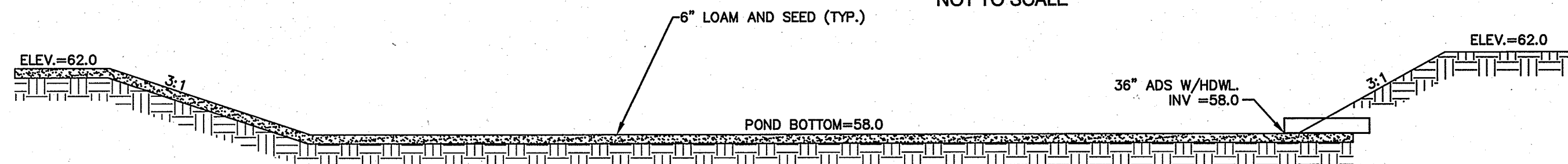
THICKNESS OF RIP RAP = 1.0 FEET			
d50 SIZE=	0.25	FEET	3 INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES)		
	FROM	TO	
100%	5	6	
85%	4	5	
50%	3	5	
15%	1	2	

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE 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. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: 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.

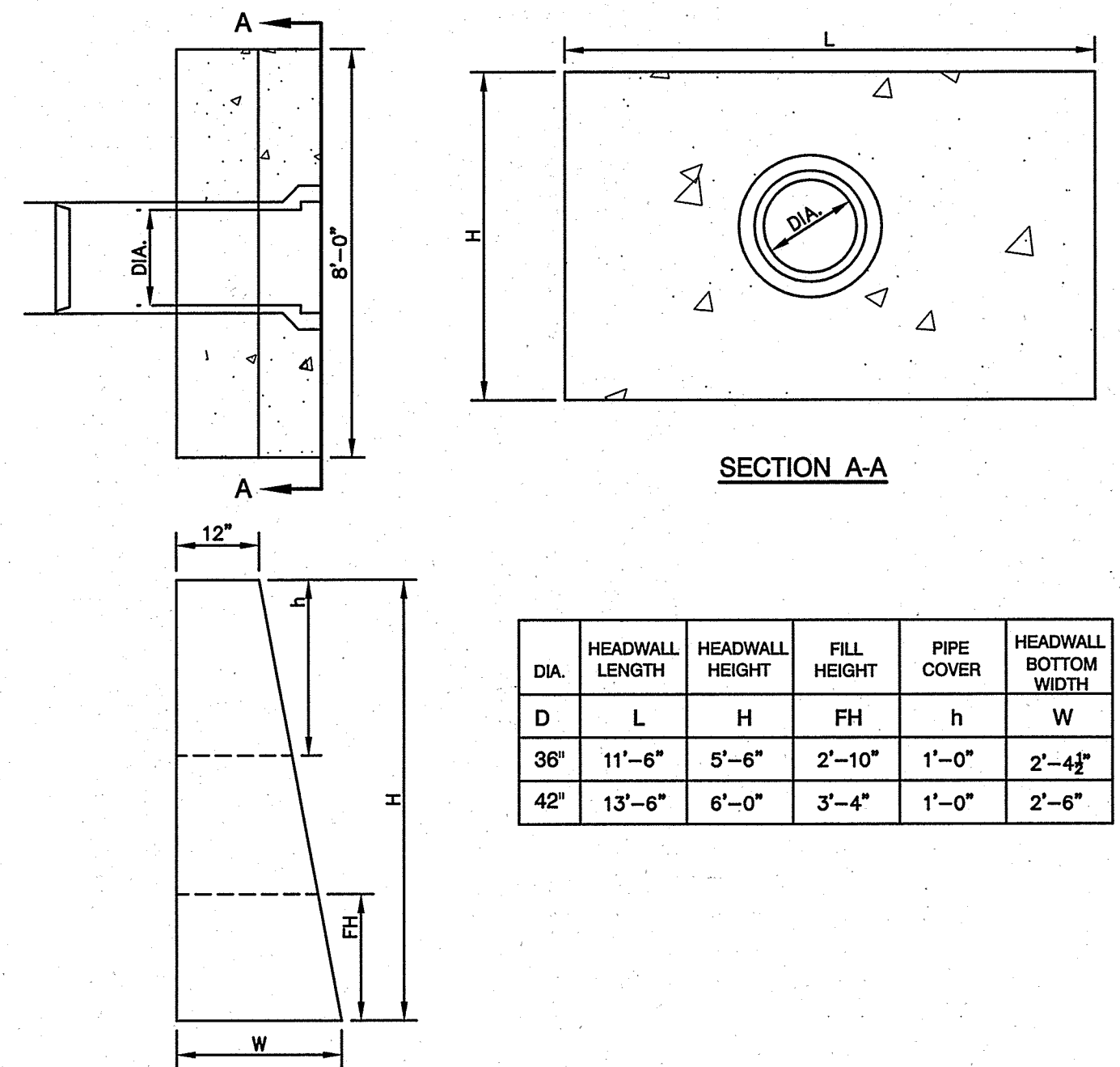
RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE



DETENTION POND SYSTEM SECTION

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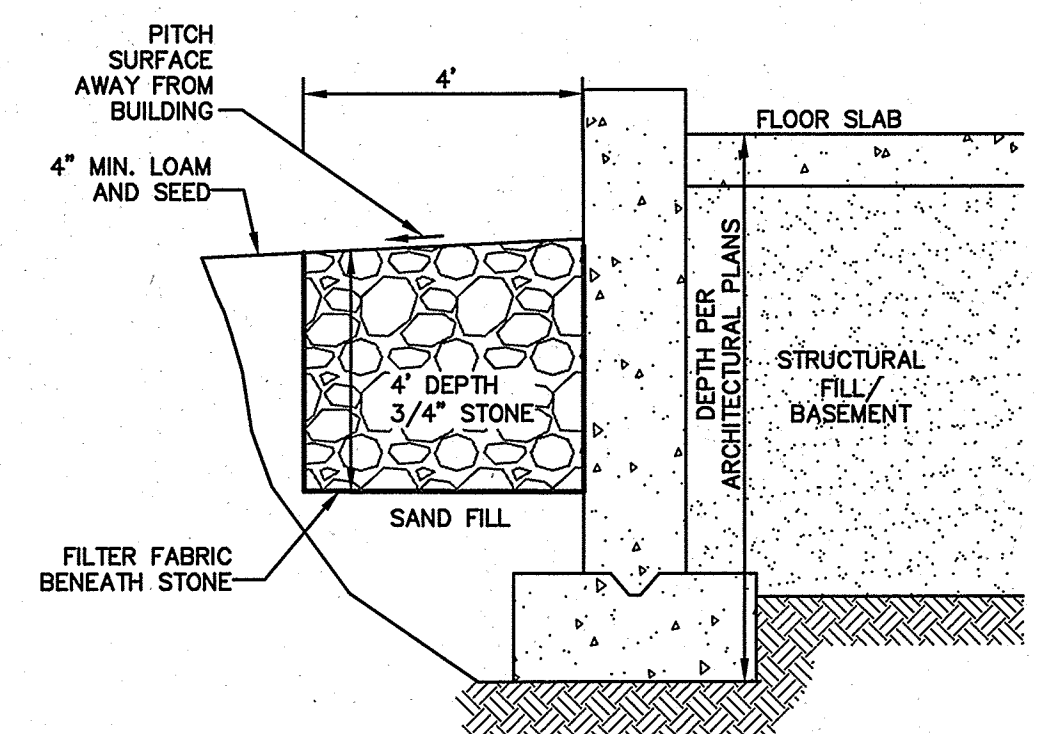
LONGITUDINAL SECTION

NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVIDED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE

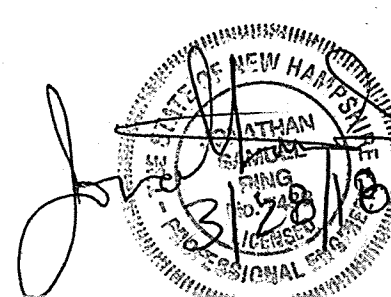


NOTES:

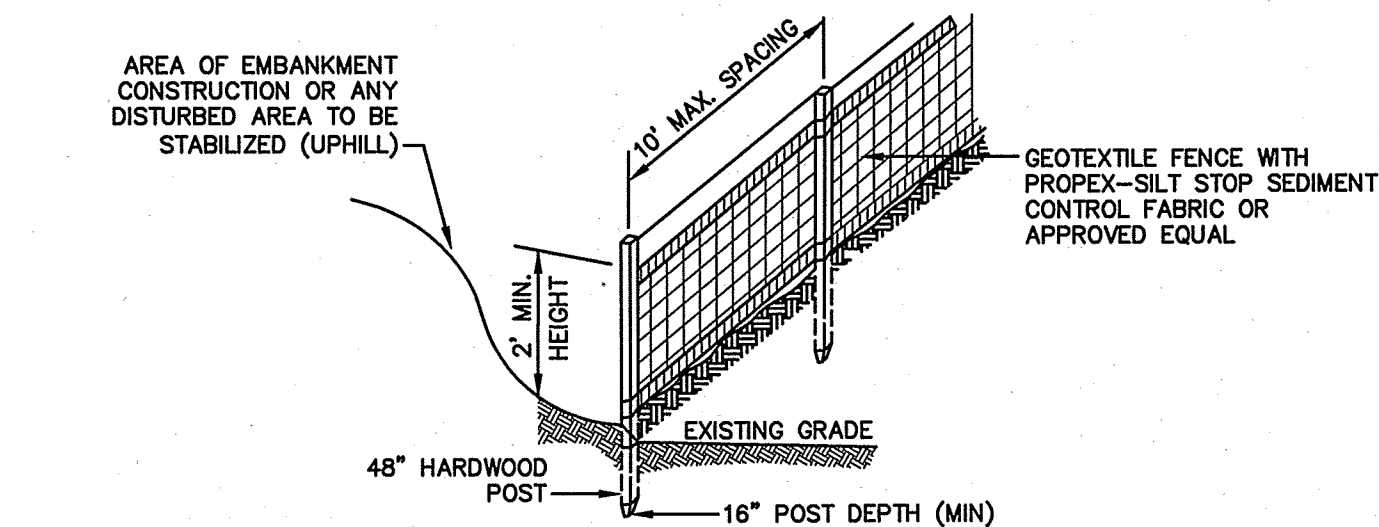
1. EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE THIS DETAIL. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

STONE DRIP EDGE DETAIL - HOUSE LOTS

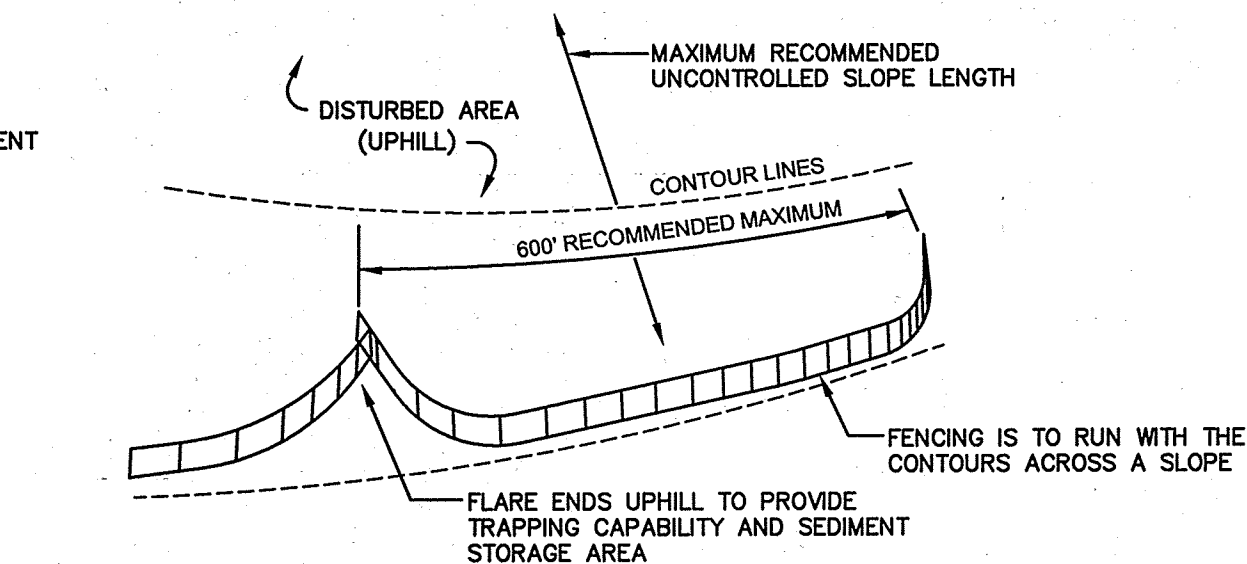
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REV.	DATE	REVISION	BY
8	3/28/18	REVISED ROAD LAYOUT	PLB
7	3/21/18	PLANNING BOARD MEETING	PLB
6	2/14/18	REVISED PER TOWN COMMENTS	PLB
5	12/20/17	REVISED ROAD LAYOUT	LAZ
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
REV.	DATE	REVISION	BY

**CONSTRUCTION SPECIFICATIONS:**

1. WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
2. THE FENCE POSTS SHALL BE A MINIMUM OF 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 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
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 REVEGETATED.

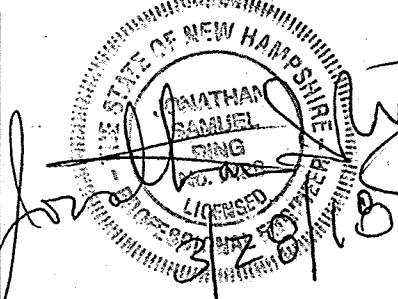
MAINTENANCE:

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE 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.

SILT FENCE

NOT TO SCALE

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SEEDING SPECIFICATIONS

1. **GRADING AND SHAPING**
 - A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
 - B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. **SEEDBED PREPARATION**
 - A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
 - B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. **ESTABLISHING A STAND**
 - A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES 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.)
 - B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
 - C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOL AND PLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
 - D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. **MULCH**
 - A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
 - B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. **MAINTENANCE TO ESTABLISH A STAND**
 - A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
 - B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
 - C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/
GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.					
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.					
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.					

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE CREEPING RED FESCUE RED TOP TOTAL	20	0.45
	20	0.45
	2	0.05
	42	0.95
B. TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR FLAT PEA TOTAL	15	0.35
	10	0.25
	15	0.35
	40 OR 55	0.95 OR 1.35
C. TALL FESCUE CREEPING RED FESCUE BIRDS FOOT TREFOL TOTAL	20	0.45
	20	0.45
	8	0.20
	48	1.10
D. TALL FESCUE FLAT PEA TOTAL	20	0.45
	50	1.20
E. CREEPING RED FESCUE 1/ KENTUCKY BLUEGRASS 1/ TOTAL	50	1.15
	100	2.30
F. TALL FESCUE 1	150	3.60

*

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES**TEMPORARY EROSION CONTROL NOTES**

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOADED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.25" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
8. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
9. AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
11. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
12. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION. AT LEAST A TEMPORARY CULVERT OR ROADBED TO BE IN PLACE PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS.
9. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
12. STORMWATER FLOWS ARE NOT TO BE DIRECTED TO TREATMENT PRACTICES UNTIL ALL CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
13. 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 ADJUTING WATERS AND/OR PROPERTY.
14. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
15. PAVE ALL ROADWAYS WITH INITIAL 'BASE COURSE'.
16. PERFORM ALL REMAINING SITE CONSTRUCTION (I.e. BUILDING, UTILITY CONNECTIONS, ETC.).
17. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (I.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
18. FINISH PAVING ALL ROADWAYS WITH 'FINISH' COURSE.
19. ALL ROADWAYS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOADED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
21. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
22. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
23. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
24. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
25. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY QUARTER-INCH OF RAINFALL.
26. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.

Plan Name: **EROSION AND SEDIMENT CONTROL DETAILS**Project: **SULLIVAN SUBDIVISION
8 WHITTAKER DRIVE, STRATHAM, NH 03885**Owner of Record: **ROBIN D B SULLIVAN REVOC TRUST
8 WHITTAKER DRIVE, STRATHAM, NH 03885**

DRAWING No.

E1SHEET 8 OF 8
JBE PROJECT NO. 13070.1



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:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 2.3.6.a. Fees Administrative Costs lot filing of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated March 28, 2018 for the property tax map(s) 19 and lot(s) 68 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:

The Application Fee for subdivision of this property was paid many months ago, and a waiver is respectfully requested from the requirement to pay said fee a second time, due to reconfiguration of the roadway design.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



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SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 3.3.2 & 3.3.3 Plan Scale 1" = 60' of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated March 28, 2018 for the property tax map(s) 19 and lot(s) 68 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:

We respectfully request a waiver of plan scale to allow 1" = 60' scale to read the entire plan on one sheet without match lines.

Signed:

Jonathan S. Ring
Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



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:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 4.5.1.f. Side Slopes 3:1 and 2:1 of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated March 28, 2018 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

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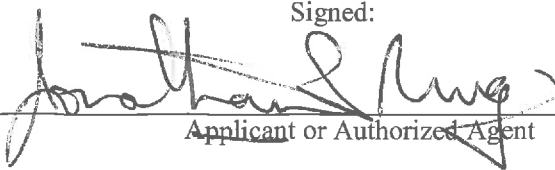
Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

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:

A waiver is respectfully requested to allow side slopes at 3:1 and 2:1 to reduce affect on the lots and existing abutter parcels due to the sloping terrain, and narrow 50 foot wide existing Right-of-Ways through which this road must be located.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



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:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Addendum A, Table 1. Roadway Pavement Width of 24' of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated March 28, 2018 for the property tax map(s) 19 and lot(s) 68 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.

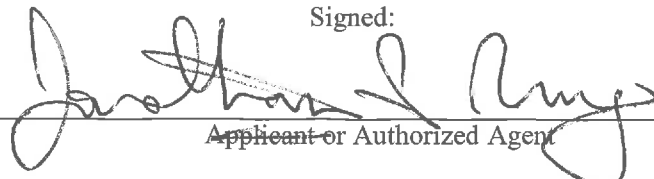
Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

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:

We respectfully request a waiver from the 24' roadway width. In lieu of a 24' wide roadway, we propose a 22' wide roadway due to the limited number of lots that will access through the proposed roadway. Therefore, limited traffic will utilize the proposed roadway.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



TOWN OF STRATHAM
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SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Addendum A, Figure A, Typical Road Section of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated March 28, 2018 for the property tax map(s) 19 and lot(s) 68 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:

The road connection to Hillcrest Drive passes through a narrow 50-foot wide Right-of-Way, with relatively steep terrain, and a two-foot wide grassed shoulder is used behind the granite curb to fit within the ROW. A waiver is

respectfully requested.

Signed: Jonathan S. Ring
Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



Town of Stratham Subdivision Checklist

TOWN OF STRATHAM

Name of Applicant: Robin Sullivan

Date: March 28, 2018

Map #: 19

Lot # 68

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.
 - Pending 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'.
 - X 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.
- 4. Other exhibits, if applicable:
 - X 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.).

- Pending b. Performance Bond.
- X c. Erosion and sedimentation control plan.
- d. Potential Planning Board requirements:
- X 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, Existing house on property.

DESCRIPTION: _____

LOCATION: 8 Whittaker Drive

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

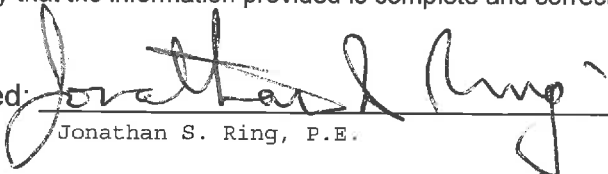
IS ANY VARIANCE FROM "LAND SUBDIVISION CONTROL REGULATIONS" REQUESTED?

No variance from Land Subdivision Control Regulations is requested.

IF SO HAS LETTER BEEN SUBMITTED STATING REASONS FOR VARIANCE REQUEST?

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: 
Jonathan S. Ring, P.E.

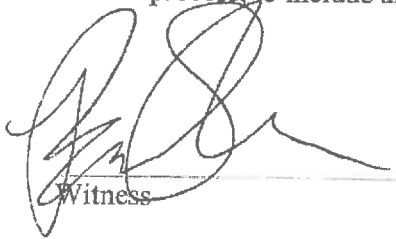
Date: March 28, 2018

Letter of Authorization

Robin DB Sullivan

I, ~~Brian Sullivan~~, 8 Whittaker Drive, Stratham, NH 03885, owner of property located in Stratham, NH, known as Tax Map 19, Lot 68, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, to act on my behalf concerning the previously mentioned property. The parcel is located on 8 Whittaker Drive in Stratham, NH.

I hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.


Witness

Robin DB Sullivan
~~Brian Sullivan~~
Robin DB Sullivan

3-17-2016
Date

**TEST PITS
FOR
8 WHITTAKER DRIVE
STRATHAM, NEW HAMPSHIRE
July 17, 2013
JBE Project No. 13070**

Performed by: Christopher Albert, Jones & Beach Engineers, Inc., SSD #1085
Witnessed by: Michael Cuomo, Rockingham County Conservation District

Test Pit #1

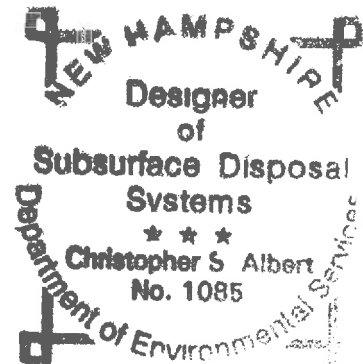
		grass mat
0"- 9"	10YR 4/4	dark yellowish brown fine sandy loam granular, friable
9"-44"	2.5Y 5/6	light olive brown fine sandy loam firm

SHWT = 21"
Roots to 9"
Firm at 21"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #2

		grass mat
0"- 8"	10YR 4/4	dark yellowish brown fine sandy loam granular, friable
8"-36"	2.5Y 5/6	light olive brown fine sandy loam firm

SHWT = 14"
Roots to 8"
Firm at 14"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch



Test Pit #3

		grass mat
0"- 8"	10YR 3/3	dark brown fine sandy loam granular, friable
8"-32"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 14"
Roots to 8"
Firm at 14"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #4

		grass mat
0"-12"	10YR 3/3	dark brown fine sandy loam granular, friable
12"-32"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 16"
Roots to 12"
Firm at 16"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch



Test Pit #5

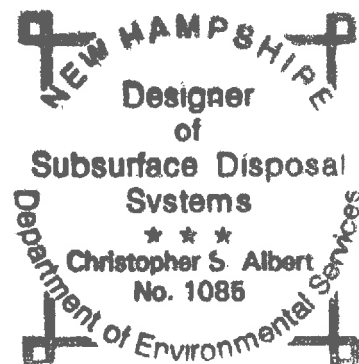
		grass mat
0"- 9"	10YR 3/6	dark yellowish brown fine sandy loam granular, friable
9"-18"	10YR 5/6	yellowish brown fine sandy loam granular, friable
18"-30"	2.5Y 6/4	light yellowish brown fine sandy loam firm

SHWT = 18"
Roots to 9"
Firm at 18"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #6

		grass mat
0"- 9"	10YR 3/6	dark yellowish brown fine sandy loam granular, friable
9"-21"	10YR 5/8	yellowish brown loamy sand loose, with stones granular, friable
21"-72"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 25"
Roots to 9"
Firm at 25"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch



Test Pit #7

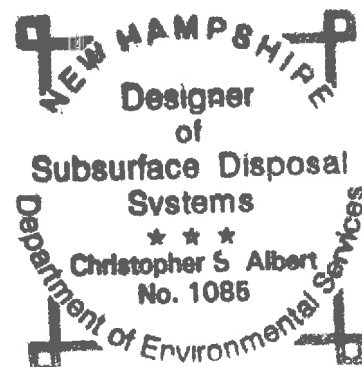
		grass mat
0"- 9"	10YR 3/6	dark yellowish brown fine sandy loam granular, friable
9"-22"	2.5Y 5/4	light olive brown fine sandy loam granular, friable
22"-30"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 22"
Roots to 9"
Firm at 22"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #8

		grass mat
0"-10"	10YR 3/6	dark yellowish brown fine sandy loam granular, friable
10"-22"	2.5Y 5/4	light olive brown fine sandy loam granular, friable
22"-30"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 22"
Roots to 10"
Firm at 22"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch



Test Pit #9

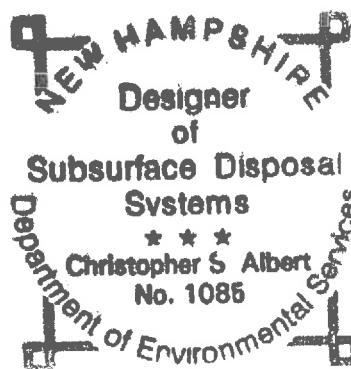
		grass mat
0"- 9"	10YR 3/6	dark yellowish brown fine sandy loam granular, friable
9"-20"	2.5Y 6/6	olive yellow fine sandy loam granular, friable
20"-60"	2.5Y 5/4	light olive brown fine sandy loam firm

SHWT = 20"
Roots to 9"
Firm at 20"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch

Test Pit #10

		grass mat
0"-12"	10YR 4/4	dark yellowish brown fine sandy loam granular, friable
12"-14"	2.5Y 6/6	olive yellow fine sandy loam granular, friable
14"-24"	2.5Y 5/4	light olive brown fine sandy loam firm

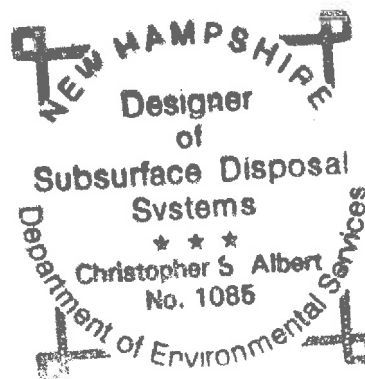
SHWT = 14"
Roots to 12"
Firm at 14"
No H₂O observed
No Refusal observed
Perc Rate = 10 min/inch



Test Pit #11

		grass mat
0"- 8"	10YR 4/4	dark yellowish brown fine sandy loam
8"-24"	2.5Y 3/2	very dark grayish brown silt loam firm

SHWT = 8"
Roots to 8"
Firm at 8"
H₂O observed at 24"
No Refusal observed
Perc Rate = 12 min/inch



**TEST PITS
FOR
8 WHITAKER DRIVE
STRATHAM, NEW HAMPSHIRE
APRIL 20, 2016
JBE Project No. 13070.1**

Performed by: Gifford Colburn, Jones & Beach Engineers, Inc., SSD #1839
Witnessed by: Michael Cuomo, Rockingham County Conservation District

Test Pit #20

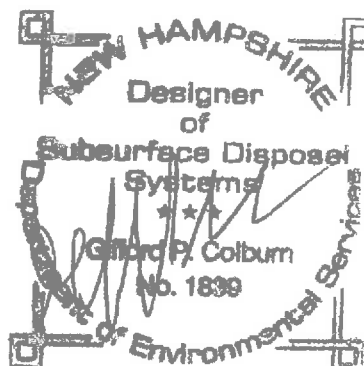
0"- 10"		topsoil
10"-22"	10YR 5/4	yellowish brown fine sandy loam granular, friable
22"-58"	2.5Y 6/3	light yellowish brown sandy loam

SHWT = 22"
Roots to 36"
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #21

0"- 10"		topsoil
10"-30"	10YR 5/4	yellowish brown fine sandy loam granular, friable
18"-30"	2.5Y 3/1	very dark gray fine sandy loam granular, friable
30"-60"	2.5Y 6/3	light yellowish brown sandy loam stoney

SHWT = 30"
Roots to 30"
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #22 - FAILED

0"- 12"

topsoil

12"-60"

2.5Y 6/3

light yellowish brown
redox

SHWT = 12"

Roots to 12"

H₂O @ 58"

No Refusal observed

Test Pit #23- FAILED

0"-12"

topsoil

12"-40"

2.5Y 6/3

light yellowish brown
redox

SHWT = 12"

Roots to 12"

H₂O @ 20"

No Refusal observed

Test Pit #24 - FAILED

SHWT = 13"

Depth @ 36"

No Roots observed

No H₂O observed

No Refusal observed

Perc Rate = min/inch

Test Pit #25

0"-8"

topsoil

8"-18"

10YR 5/4

yellowish brown
fine sandy loam

18"-54"

2.5Y 6/3

light yellowish brown
sandy loam

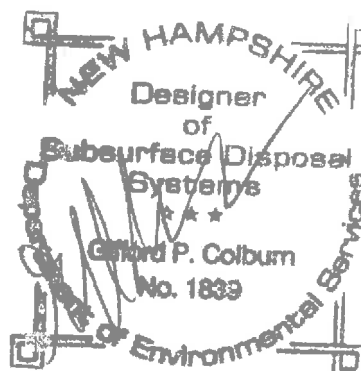
SHWT = 18"

Roots to 18"

No H₂O observed

No Refusal observed

Perc Rate = 8 min/inch



Test Pit #26

0"-8"

topsoil

8"-28"

10YR 5/4

yellowish brown
fine sandy loam

28"-52"

2.5Y 6/3

light yellowish brown
sandy loam
with redox

SHWT = 28"

Roots to 18"

No H₂O observed

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #27- FAILED

0"-13"

topsoil

48"

bottom

SHWT = 13"

Roots to 13"

No H₂O observed

No Refusal observed

Test Pit #28

0"-12"

topsoil

12"-20"

10YR 5/4

yellowish brown
fine sandy loam

20"-48"

2.5Y 5/1

gray
clay
firm redox

SHWT = 20"

Roots to 12"

No H₂O observed

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #29- FAILED

0"-15"

topsoil

15"-36"

2.5Y 6/3

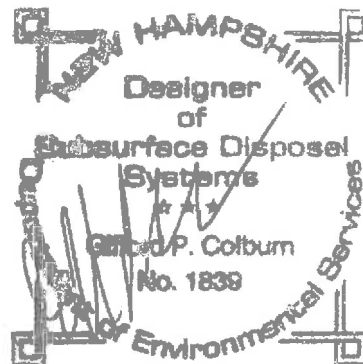
light yellowish brown
redox firm

SHWT = 15"

Roots to 15"

No H₂O observed

No Refusal observed



Test Pit #30

0"-8"

topsoil

8"-19"

10YR 5/4

yellowish brown
fine sandy loam

19"-48"

2.5Y 5/1

gray
silt loam
firm

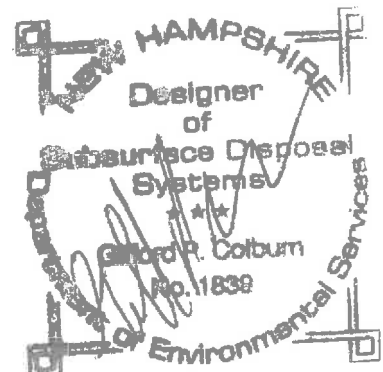
SHWT = 19"

Roots to 19"

No H₂O observed

No Refusal observed

Perc Rate = 8 min/inch



**TEST PITS
FOR
112 HIGH STREET
STRATHAM, NEW HAMPSHIRE
DECEMBER 14, 2016
JBE Project No. 13070.1**

Performed by: Gifford Colburn, Jones & Beach Engineers, Inc., SSD #1839
Witnessed by: Michael Cuomo, Rockingham County Conservation District

Test Pit #31

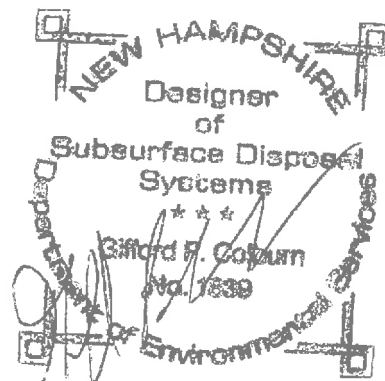
0"- 10"		topsoil/ forest mat
10"-22"	10YR 5/3	brown sandy loam granular, friable
22"-55"	2.5Y 5/2	grayish brown sandy loam with redox

SHWT = 22"
Roots to 10"
H₂O @ 22"
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #32

0"- 10"		topsoil
10"-22"	10YR 5/3	brown sandy loam granular, friable
22"-52"	2.5Y 5/2	grayish brown sandy loam with redox

SHWT = 22"
Roots to 10"
H₂O @ 22"
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #33- Failed

0"- 12"	10YR 4/2	dark grayish brown sandy loam
---------	----------	----------------------------------

12"-57"	2.5Y 5/1	gray silt loam
---------	----------	-------------------

SHWT = 12"
Roots to 12"
H₂O @ 22"
No Refusal observed
Perc Rate = 8 min/inch

Test Pit #34

0"- 10"		topsoil
---------	--	---------

10"-24"	10YR 5/3	brown sandy loam granular, friable
---------	----------	--

24"-55"	10YR 4/3	brown loamy sand gravelly
---------	----------	---------------------------------

SHWT = 24"
Roots to 24"
H₂O @ 50"
No Refusal observed
Perc Rate = 8 min/inch

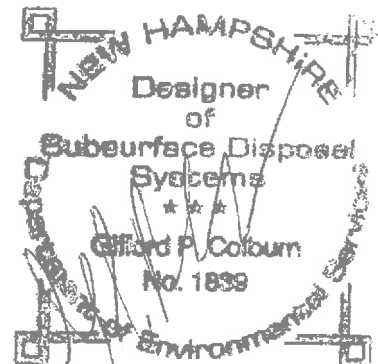
Test Pit #35

0"- 8"		topsoil
--------	--	---------

8"-20"	10YR 4/3	brown sandy loam granular, friable
--------	----------	--

20"-48"	10YR 5/3	brown loamy sand gravelly
---------	----------	---------------------------------

SHWT = 20"
Roots to 10"
H₂O @ 30"
No Refusal observed
Perc Rate = 8 min/inch



Test Pit #36

0" - 6"

topsoil

6" - 30"

10YR 4/3

brown
sandy loam
granular, friable

30" - 55"

10YR 5/3

brown
loamy sand

SHWT = 30"

Roots to 30"

H₂O @ 50"

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #37- Failed

0" - 14"

topsoil

14" - 54"

loamy clay

SHWT = 14"

Roots to 14"

H₂O @ 24"

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #38

0" - 10"

topsoil

10" - 15"

10YR 4/3

brown
sandy loam
granular, friable

15" - 48"

2.5Y 5/2

grayish brown
loamy sand
gravelly

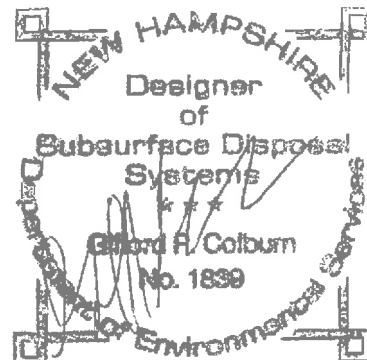
SHWT = 15"

No Roots observed

H₂O @ 30"

No Refusal observed

Perc Rate = 8 min/inch



**TEST PITS
FOR
112 HIGH STREET
STRATHAM, NEW HAMPSHIRE
DECEMBER 27, 2016
JBE Project No. 13070.1**

Performed by: Gifford Colburn, Jones & Beach Engineers, Inc., SSD #1839

Witnessed by: Michael Cuomo, Rockingham County Conservation District

Test Pit #39- FAILED

0"- 4" topsoil

SHWT = 11"

Test Pit #40

0"- 8" topsoil

8"-24"	10YR 4/6	dark yellowish brown loamy sand granular, friable
--------	----------	---

24"-60"	10YR 5/2	grayish brown fine sandy loam firm with redox
---------	----------	--

SHWT = 24"

Roots to 18"

H₂O @ 36"

No Refusal observed

Perc Rate = 8 min/inch

Test Pit #41

0"- 10" topsoil

10"-22"	10YR 4/4	dark yellowish brown sandy loam
---------	----------	------------------------------------

22"-60"	10YR 5/4	yellowish brown silt clay with redox
---------	----------	--

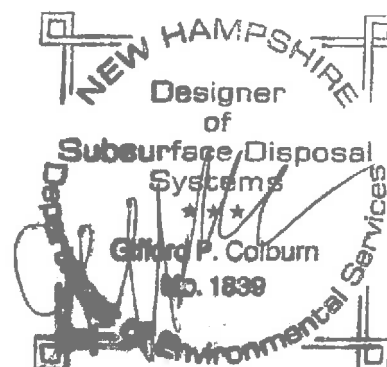
SHWT = 22"

Roots to 18"

No H₂O observed

No Refusal observed

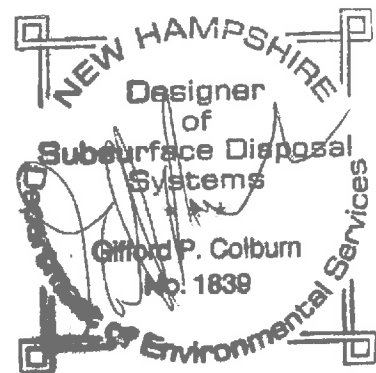
Perc Rate = 8 min/inch



Test Pit #42

0"- 10"		topsoil
10"-22"	10YR 6/4	light yellowish brown sandy loam granular, friable
22"-34"	10YR 4/3	brown silt loam
34"-40"	10YR 4/6	dark yellowish brown loamy sand
40"-60"	10YR 4/3	brown silt loam

SHWT = 22"
Roots to 10"
No H₂O observed
No Refusal observed
Perc Rate = 8 min/inch



J/B		TOWN LOT SIZE BY SOIL CLASSIFICATION			J/B
Sullivan Subdivision Robin Sullivan 8 WHITTAKER DRIVE Stratham, NH 03885 JBE PROJECT NO. 13070.1			JONES & BEACH ENGINEERS INC. 85 PORTSMOUTH AVENUE P.O. BOX 219 STRATHAM, NH 03885 REVISED 3/27/2018 (PLB)		
SOIL TYPE	HISS SOIL GROUP	SLOPE CATEGORY	TOWN REGULATION	SOIL AREA	WEIGHTED LOADING FACTOR
LOT 1					
343BH	3	B	54,500	87,462	1.60
443BH	4	B	77,000	272	0.00
311CH	3	C	60,500	25	0.00
TOTAL				87,759	1.60
SOIL TYPE	HISS SOIL GROUP	SLOPE CATEGORY	TOWN REGULATION	SOIL AREA	WEIGHTED LOADING FACTOR
LOT 2					
311BH	3	B	54,500	37,665	0.69
311CH	3	C	60,500	11,249	0.19
343BH	3	B	54,500	38,456	0.71
TOTAL				87,370	1.58
SOIL TYPE	HISS SOIL GROUP	SLOPE CATEGORY	TOWN REGULATION	SOIL AREA	WEIGHTED LOADING FACTOR
LOT 3					
311CH	3	C	60,500	5,814	0.10
343BH	3	B	54,500	49,383	0.91
411BH	4	B	77,000	29,185	0.38
511BH	5	B	106,000	3,613	0.03
543BH	5	B	106,000	20,140	0.19
TOTAL				108,135	1.61

SOIL TYPE	HISS SOIL GROUP	SLOPE CATEGORY	TOWN REGULATION	SOIL AREA	WEIGHTED LOADING FACTOR
LOT 4					
311CH	3	C	60,500	13,494	0.22
311BH	3	B	54,500	15,330	0.28
343BH	3	B	54,500	38,041	0.70
411BH	4	B	77,000	23,898	0.31
443BH	4	B	77,000	10,103	0.13
543BH	5	B	106,000	21,383	0.20
TOTAL				122,249	1.85
SOIL TYPE	HISS SOIL GROUP	SLOPE CATEGORY	TOWN REGULATION	SOIL AREA	WEIGHTED LOADING FACTOR
LOT 5					
311BH	3	B	54,500	47,504	0.87
311CH	3	C	60,500	15,902	0.26
343BH	3	B	54,500	2,757	0.05
411BH	4	B	77,000	951	0.01
443BH	4	B	77,000	15,017	0.20
543BH	5	B	106,000	9,181	0.09
TOTAL				91,312	1.48

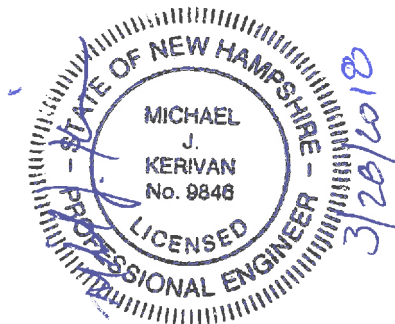
JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

DRAINAGE ANALYSIS SEDIMENT AND EROSION CONTROL PLAN

Prepared for:

**Sullivan Subdivision
Tax Map 19, Lot 68
High Street
Stratham, NH 03885**



**June 29, 2017
Revised August 16, 2017
Revised October 5, 2017
Revised December 20, 2017
Revised March 28, 2018
JBE Project No. 13070**

TABLE OF CONTENTS

Executive Summary

USGS Quadrangle

1.0	Rainfall Characteristics	Page 1
2.0	Existing Conditions Analysis	Page 2
3.0	Proposed Conditions Analysis	Pages 3-4
4.0	Conclusion	Page 5

Appendix I Existing Conditions Analysis

- 2 Year - 24 Hour Summary
- 10 Year - 24 Hour Summary
- 25 Year - 24 Hour Complete
- 50 Year - 24 Hour Summary
- 100 Year - 24 Hour Complete

Appendix II Proposed Conditions Analysis

- 2 Year - 24 Hour Summary
- 10 Year - 24 Hour Summary
- 25 Year - 24 Hour Complete
- 50 Year - 24 Hour Summary
- 100 Year - 24 Hour Complete

Appendix III Charts, Graphs, and Calculations

Enclosed:	Sheet W1	Existing Conditions Watershed Plan
	Sheet W2	Proposed Conditions Watershed Plan

EXECUTIVE SUMMARY

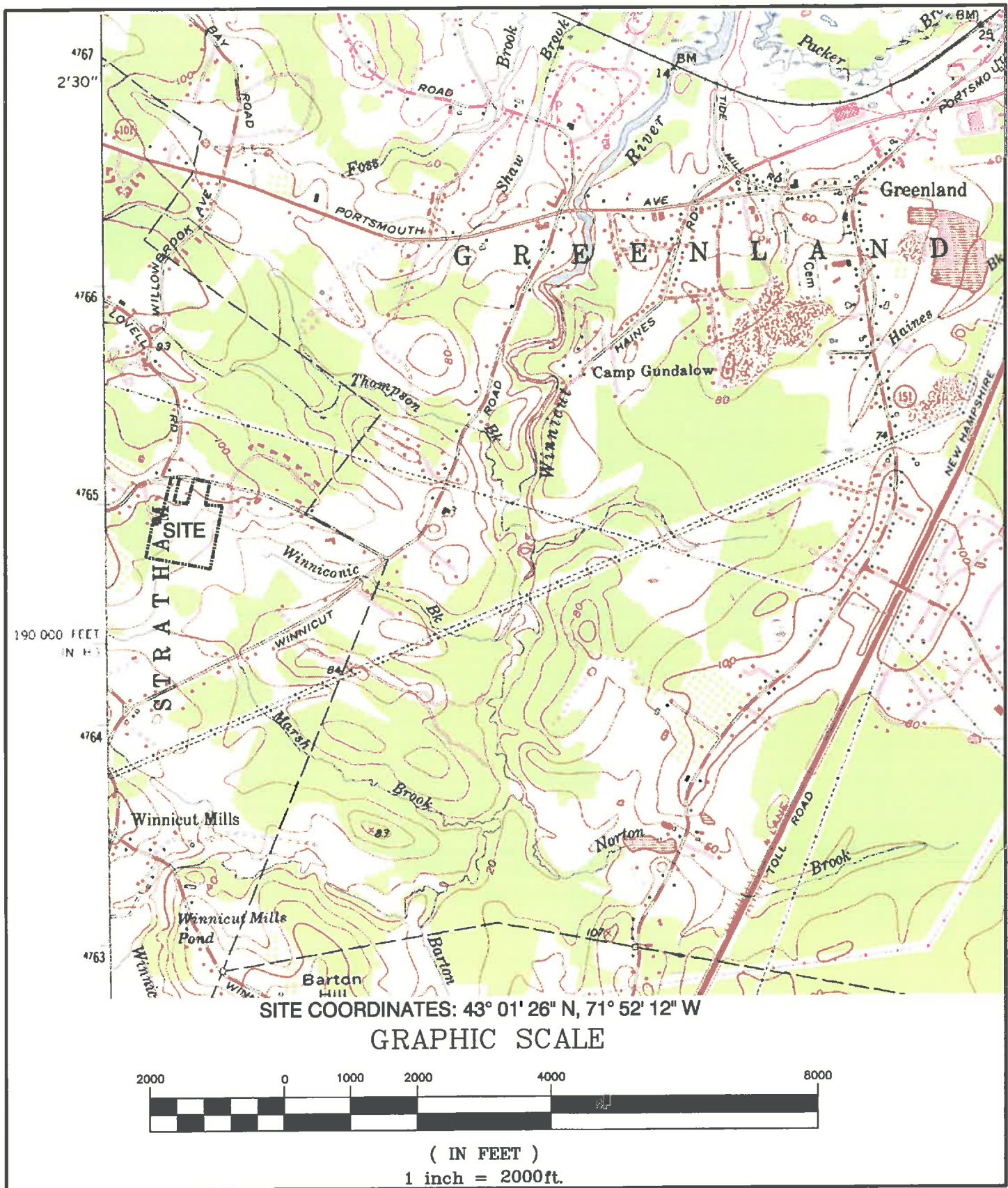
Robin Sullivan proposes to construct a 5-lot subdivision on a ± 14.99 -acre parcel of land located on the south side of High Street in Stratham, NH. A drainage analysis of the entire site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff 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 data for the 2 Year – 24 Hour (3.71"), 10 Year – 24 Hour (5.65"), 25 Year – 24 Hour (7.18"), 50 Year – 24 Hour (8.60") and 100 Year – 24 Hour (10.32") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This rainfall data has been taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center, and the values have been increased by 15% due to the project being within the Coastal/Great Bay Region. A summary of the existing and proposed conditions peak rates of runoff is as follows:

COMPONENT	ANALYSIS	PEAK RATE OF RUNOFF (CUBIC FEET/SECOND)				
		2 Year	10 Year	25 Year	50 Year	100 Year
Easterly Property Line	Existing	15.04	38.33	59.09	79.38	104.7
	Proposed	12.51	34.39	53.09	70.13	88.88
Analysis Point #3	Existing	1.46	3.07	4.43	5.72	7.29
	Proposed	1.49	3.14	4.54	5.85	7.47

The project site is located in the Rural Residential Zone. The subject parcel consists primarily of woodland and grass. The site is primarily undeveloped with the exception of an existing house in the western corner adjacent to Whittaker Drive. The existing topography is such that the existing conditions site analysis requires three (3) subcatchments. The site and contributing off-site runoff drains to two wetlands, one located in the southeast corner (Analysis Point #1) and one located on the eastern property line approximately 450' northeast of the southeast corner wetland (Analysis Point #2). The northwest portion of the watershed drains to a driveway culvert at the end of Whittaker Drive (Analysis Point #3).

The proposed site development consists of the aforementioned 5-lot subdivision, featuring single-family dwellings. The construction of approximately 1,127 feet of roadway, driveways, and homes, in addition to site grading, divides the existing drainage basins into 12 subcatchments. The runoff from these subcatchments has increased from that of the existing conditions due to the addition of the impervious buildings and paving. The runoff from the roadway will be directed via site grading and swales to a detention pond. Stormwater from the houses and driveways will be directed to drip edges. As shown in the above table, the proposed peak rates of stormwater runoff will be reduced from that of existing conditions for all analyzed storm events, with the exception of Analysis Point #3. An increase of under 3% occurs at Analysis Point #3, however this increase will be mitigated downstream by the removal of pavement from the Whittaker Drive (1,303 s.f. of pavement is proposed versus 5,722 s.f. of pavement being removed).

In addition, the potential for increased erosion and sedimentation is handled by way of erosion control blankets, vegetated treatment, and riprap inlet and outlet protection aprons. All land disturbed during construction will be stabilized within thirty days of groundbreaking, and existing wetlands and abutting property owners will suffer minimal adversity resultant of this development.



Designed and Produced in NH
Jones & Beach Engineers, Inc.
 Civil Engineering Services

85 Portsmouth Ave.
 PO Box 219
 Stratham, NH 03885

603-772-4746
 FAX: 603-772-0227
 E-Mail: JBE@jonesandbeach.com

Drawing Name: **NAME OF PLAN**

Project: **PROJECT NAME**

Owner of Record: **NAME
 ADDRESS, TOWN, STATE**

DRAWING No.

C1

SHEET 1 OF 6

JBE PROJECT
 No. —

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, 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 data for the 2 Year – 24 Hour (3.71"), 10 Year – 24 Hour (6.65"), 25 Year – 24 Hour (7.18"), 50 Year – 24 Hour (8.60") and 100 Year – 24 Hour (10.32") storm events. The rainfall amounts were derived using the 'Extreme Precipitation in New York and New England' values and adjusting them up by 15% due to the project being in the coastal zone.

As the table in the Executive Summary demonstrates, the proposed peak rates of runoff will be reduced from the existing conditions of the site, thereby minimizing any potential for a negative impact on abutting properties or infrastructure by allowing for better control of peak rates of stormwater runoff.

2.0 EXISTING CONDITIONS ANALYSIS

The subject parcel consists primarily of woodland and grass. The site is primarily undeveloped with the exception of an existing house in the western corner adjacent to Whittaker Drive. The topography of the site varies from flat to steep throughout the site, with few slopes exceeding 15%.

Classified through the use of Natural Resources Conservation Service's Web Soil Survey, the land of the site is composed of a variety of soil types. The in-situ soils are categorized into Hydrologic Soil Groups (HSG) B and C (see appendix for soil types and HSG designations).

The site and contributing off-site runoff drains to two wetlands, one located in the southeast corner (Analysis Point #1) and one located on the eastern property line approximately 450' northeast of the southeast corner wetland (Analysis Point #2).

3.0 PROPOSED CONDITIONS ANALYSIS

The proposed site development consists of the aforementioned 5-lot subdivision, featuring single-family dwellings. The construction of approximately 1,127 feet of roadway, driveways, and homes, in addition to site grading, divides the existing drainage basins into 12 subcatchments. The runoff from these subcatchments has increased from that of the existing conditions due to the addition of the impervious buildings and paving.

The runoff from the roadway will be directed via site grading and swales to a detention pond. Stormwater from the houses and driveways will be directed to drip edges. As shown in the above table, the proposed peak rates of stormwater runoff will be reduced from that of existing conditions for all analyzed storm events, with the exception of Analysis Point #3. An increase of under 3% occurs at Analysis Point #3, however this increase will be mitigated downstream by the removal of pavement from the Whittaker Drive (1,303 s.f. of pavement is proposed versus 5,722 s.f. of pavement being removed).

4.0 CONCLUSION

This proposed site development located south of High Street in Stratham, NH will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation. The post-construction peak rates of runoff for the site will be equal to or lower than the existing conditions for all analyzed storm events. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, jute matting, vegetated swales, detention ponds, and riprap outlet protection aprons.

A site specific, terrain alteration permit (RSA 485:A-17) is not required for this site plan due to the area of disturbance being less than 100,000 square-feet.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

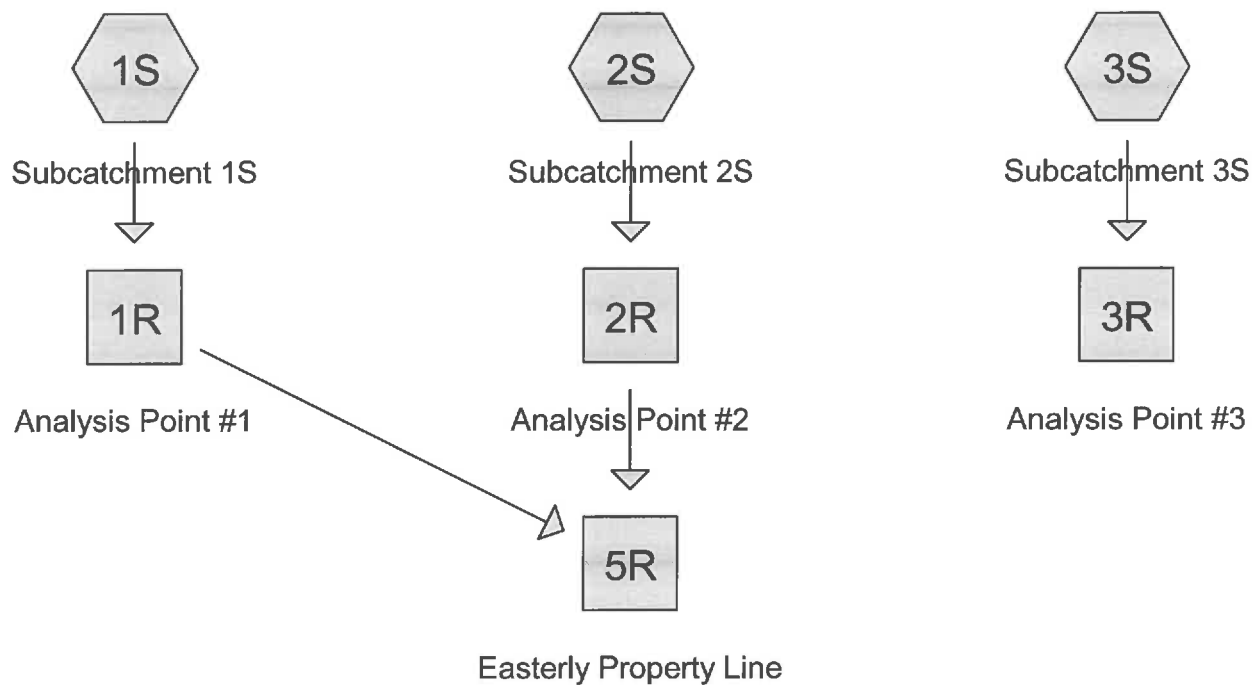


Michael Kerivan, P.E.
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Summary 10 YEAR
Complete 25 YEAR
Summary 50 YEAR
Complete 100 YEAR



13070_EX CONDITION-COASTAL_Hillcrest

Prepared by Microsoft

Printed 3/28/2018

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.347	61	>75% Grass cover, Good, HSG B (1S, 2S)
5.237	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S)
0.032	85	Gravel roads, HSG B (2S)
0.042	89	Gravel roads, HSG C (2S)
0.179	98	Paved roads w/curbs & sewers, HSG B (2S)
0.222	98	Paved roads w/curbs & sewers, HSG C (1S, 2S)
0.318	98	Roofs, HSG B (1S, 2S)
0.163	98	Roofs, HSG C (1S, 2S, 3S)
2.790	55	Woods, Good, HSG B (1S, 2S)
5.858	70	Woods, Good, HSG C (1S, 2S)
20.188	68	TOTAL AREA

13070_EX CONDITION-COASTAL_Hillcrest

Prepared by Microsoft

Printed 3/28/2018

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
8.666	HSG B	1S, 2S
11.522	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
20.188		TOTAL AREA

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>1.02"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=6.93 cfs 0.733 af

Subcatchment 2S: Subcatchment 2S Runoff Area=458,669 sf 5.17% Impervious Runoff Depth>0.97"
Flow Length=904' Tc=14.1 min CN=67 Runoff=8.22 cfs 0.848 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>1.45"
Flow Length=660' Tc=11.0 min CN=75 Runoff=1.46 cfs 0.126 af

Reach 1R: Analysis Point #1 Inflow=6.93 cfs 0.733 af
Outflow=6.93 cfs 0.733 af

Reach 2R: Analysis Point #2 Inflow=8.22 cfs 0.848 af
Outflow=8.22 cfs 0.848 af

Reach 3R: Analysis Point #3 Inflow=1.46 cfs 0.126 af
Outflow=1.46 cfs 0.126 af

Reach 5R: Easterly Property Line Inflow=15.04 cfs 1.582 af
Outflow=15.04 cfs 1.582 af

Total Runoff Area = 20.188 ac Runoff Volume = 1.708 af Average Runoff Depth = 1.02"
95.63% Pervious = 19.306 ac 4.37% Impervious = 0.882 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>2.35"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=17.32 cfs 1.685 af

Subcatchment 2S: Subcatchment 2S Runoff Area=458,669 sf 5.17% Impervious Runoff Depth>2.26"
Flow Length=904' Tc=14.1 min CN=67 Runoff=21.08 cfs 1.985 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>2.98"
Flow Length=660' Tc=11.0 min CN=75 Runoff=3.07 cfs 0.259 af

Reach 1R: Analysis Point #1 Inflow=17.32 cfs 1.685 af
Outflow=17.32 cfs 1.685 af

Reach 2R: Analysis Point #2 Inflow=21.08 cfs 1.985 af
Outflow=21.08 cfs 1.985 af

Reach 3R: Analysis Point #3 Inflow=3.07 cfs 0.259 af
Outflow=3.07 cfs 0.259 af

Reach 5R: Easterly Property Line Inflow=38.33 cfs 3.670 af
Outflow=38.33 cfs 3.670 af

Total Runoff Area = 20.188 ac Runoff Volume = 3.929 af Average Runoff Depth = 2.34"
95.63% Pervious = 19.306 ac 4.37% Impervious = 0.882 ac

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

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>3.55"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=26.57 cfs 2.545 af

Subcatchment 2S: Subcatchment 2S Runoff Area=458,669 sf 5.17% Impervious Runoff Depth>3.44"
Flow Length=904' Tc=14.1 min CN=67 Runoff=32.63 cfs 3.020 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>4.30"
Flow Length=660' Tc=11.0 min CN=75 Runoff=4.43 cfs 0.374 af

Reach 1R: Analysis Point #1 Inflow=26.57 cfs 2.545 af
Outflow=26.57 cfs 2.545 af

Reach 2R: Analysis Point #2 Inflow=32.63 cfs 3.020 af
Outflow=32.63 cfs 3.020 af

Reach 3R: Analysis Point #3 Inflow=4.43 cfs 0.374 af
Outflow=4.43 cfs 0.374 af

Reach 5R: Easterly Property Line Inflow=59.09 cfs 5.565 af
Outflow=59.09 cfs 5.565 af

Total Runoff Area = 20.188 ac Runoff Volume = 5.939 af Average Runoff Depth = 3.53"
95.63% Pervious = 19.306 ac 4.37% Impervious = 0.882 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
2,206	98	Roofs, HSG C
7,767	98	Paved roads w/curbs & sewers, HSG C
96,134	61	>75% Grass cover, Good, HSG B
98,463	74	>75% Grass cover, Good, HSG C
33,890	55	Woods, Good, HSG B
133,362	70	Woods, Good, HSG C
375,235	68	Weighted Average
361,849		96.43% Pervious Area
13,386		3.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
10.4	1,025	0.0550	1.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
15.6	1,470	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 32.63 cfs @ 12.20 hrs, Volume= 3.020 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

13070_EX CONDITION-COASTAL_Hillcrest

Type III 24-hr 25-YR STORM Rainfall=7.18"

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Page 8

Area (sf)	CN	Description
10,444	98	Roofs, HSG B
3,571	98	Roofs, HSG C
7,801	98	Paved roads w/curbs & sewers, HSG B
1,907	98	Paved roads w/curbs & sewers, HSG C
1,386	85	Gravel roads, HSG B
1,844	89	Gravel roads, HSG C
136,791	61	>75% Grass cover, Good, HSG B
85,495	74	>75% Grass cover, Good, HSG C
87,622	55	Woods, Good, HSG B
121,808	70	Woods, Good, HSG C
458,669	67	Weighted Average
434,946		94.83% Pervious Area
23,723		5.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.3	37	0.0400	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
1.4	120	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	125	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.2	184	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
4.9	425	0.0850	1.46		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	904	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
44,179	74	>75% Grass cover, Good, HSG C
45,492	75	Weighted Average
44,179		97.11% Pervious Area
1,313		2.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.614 ac, 3.57% Impervious, Inflow Depth > 3.55" for 25-YR STORM event
 Inflow = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af
 Outflow = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.530 ac, 5.17% Impervious, Inflow Depth > 3.44" for 25-YR STORM event
 Inflow = 32.63 cfs @ 12.20 hrs, Volume= 3.020 af
 Outflow = 32.63 cfs @ 12.20 hrs, Volume= 3.020 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.044 ac, 2.89% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
 Inflow = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af
 Outflow = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: Easterly Property Line

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 19.144 ac, 4.45% Impervious, Inflow Depth > 3.49" for 25-YR STORM event
 Inflow = 59.09 cfs @ 12.21 hrs, Volume= 5.565 af
 Outflow = 59.09 cfs @ 12.21 hrs, Volume= 5.565 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>4.73"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=35.59 cfs 3.396 af

Subcatchment 2S: Subcatchment 2S Runoff Area=458,669 sf 5.17% Impervious Runoff Depth>4.61"
Flow Length=904' Tc=14.1 min CN=67 Runoff=43.94 cfs 4.047 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>5.58"
Flow Length=660' Tc=11.0 min CN=75 Runoff=5.72 cfs 0.485 af

Reach 1R: Analysis Point #1 Inflow=35.59 cfs 3.396 af
Outflow=35.59 cfs 3.396 af

Reach 2R: Analysis Point #2 Inflow=43.94 cfs 4.047 af
Outflow=43.94 cfs 4.047 af

Reach 3R: Analysis Point #3 Inflow=5.72 cfs 0.485 af
Outflow=5.72 cfs 0.485 af

Reach 5R: Easterly Property Line Inflow=79.38 cfs 7.442 af
Outflow=79.38 cfs 7.442 af

Total Runoff Area = 20.188 ac Runoff Volume = 7.928 af Average Runoff Depth = 4.71"
95.63% Pervious = 19.306 ac 4.37% Impervious = 0.882 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 1S: Subcatchment 1SRunoff Area=375,235 sf 3.57% Impervious Runoff Depth>6.23"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=46.83 cfs 4.471 af**Subcatchment 2S: Subcatchment 2S**Runoff Area=458,669 sf 5.17% Impervious Runoff Depth>6.10"
Flow Length=904' Tc=14.1 min CN=67 Runoff=58.07 cfs 5.349 af**Subcatchment 3S: Subcatchment 3S**Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>7.16"
Flow Length=660' Tc=11.0 min CN=75 Runoff=7.29 cfs 0.623 af**Reach 1R: Analysis Point #1**Inflow=46.83 cfs 4.471 af
Outflow=46.83 cfs 4.471 af**Reach 2R: Analysis Point #2**Inflow=58.07 cfs 5.349 af
Outflow=58.07 cfs 5.349 af**Reach 3R: Analysis Point #3**Inflow=7.29 cfs 0.623 af
Outflow=7.29 cfs 0.623 af**Reach 5R: Easterly Property Line**Inflow=104.70 cfs 9.820 af
Outflow=104.70 cfs 9.820 af**Total Runoff Area = 20.188 ac Runoff Volume = 10.443 af Average Runoff Depth = 6.21"**
95.63% Pervious = 19.306 ac 4.37% Impervious = 0.882 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
2,206	98	Roofs, HSG C
7,767	98	Paved roads w/curbs & sewers, HSG C
96,134	61	>75% Grass cover, Good, HSG B
98,463	74	>75% Grass cover, Good, HSG C
33,890	55	Woods, Good, HSG B
133,362	70	Woods, Good, HSG C
375,235	68	Weighted Average
361,849		96.43% Pervious Area
13,386		3.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
10.4	1,025	0.0550	1.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
15.6	1,470	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 58.07 cfs @ 12.20 hrs, Volume= 5.349 af, Depth> 6.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

13070_EX CONDITION-COASTAL_Hillcrest

Type III 24-hr 100-YR STORM Rainfall=10.32"

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Page 14

Area (sf)	CN	Description
10,444	98	Roofs, HSG B
3,571	98	Roofs, HSG C
7,801	98	Paved roads w/curbs & sewers, HSG B
1,907	98	Paved roads w/curbs & sewers, HSG C
1,386	85	Gravel roads, HSG B
1,844	89	Gravel roads, HSG C
136,791	61	>75% Grass cover, Good, HSG B
85,495	74	>75% Grass cover, Good, HSG C
87,622	55	Woods, Good, HSG B
121,808	70	Woods, Good, HSG C
458,669	67	Weighted Average
434,946		94.83% Pervious Area
23,723		5.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.3	37	0.0400	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
1.4	120	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	125	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.2	184	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
4.9	425	0.0850	1.46		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	904	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
44,179	74	>75% Grass cover, Good, HSG C
45,492	75	Weighted Average
44,179		97.11% Pervious Area
1,313		2.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.614 ac, 3.57% Impervious, Inflow Depth > 6.23" for 100-YR STORM event
 Inflow = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af
 Outflow = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.530 ac, 5.17% Impervious, Inflow Depth > 6.10" for 100-YR STORM event
 Inflow = 58.07 cfs @ 12.20 hrs, Volume= 5.349 af
 Outflow = 58.07 cfs @ 12.20 hrs, Volume= 5.349 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.044 ac, 2.89% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
 Inflow = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af
 Outflow = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: Easterly Property Line

[40] Hint: Not Described (Outflow=Inflow)

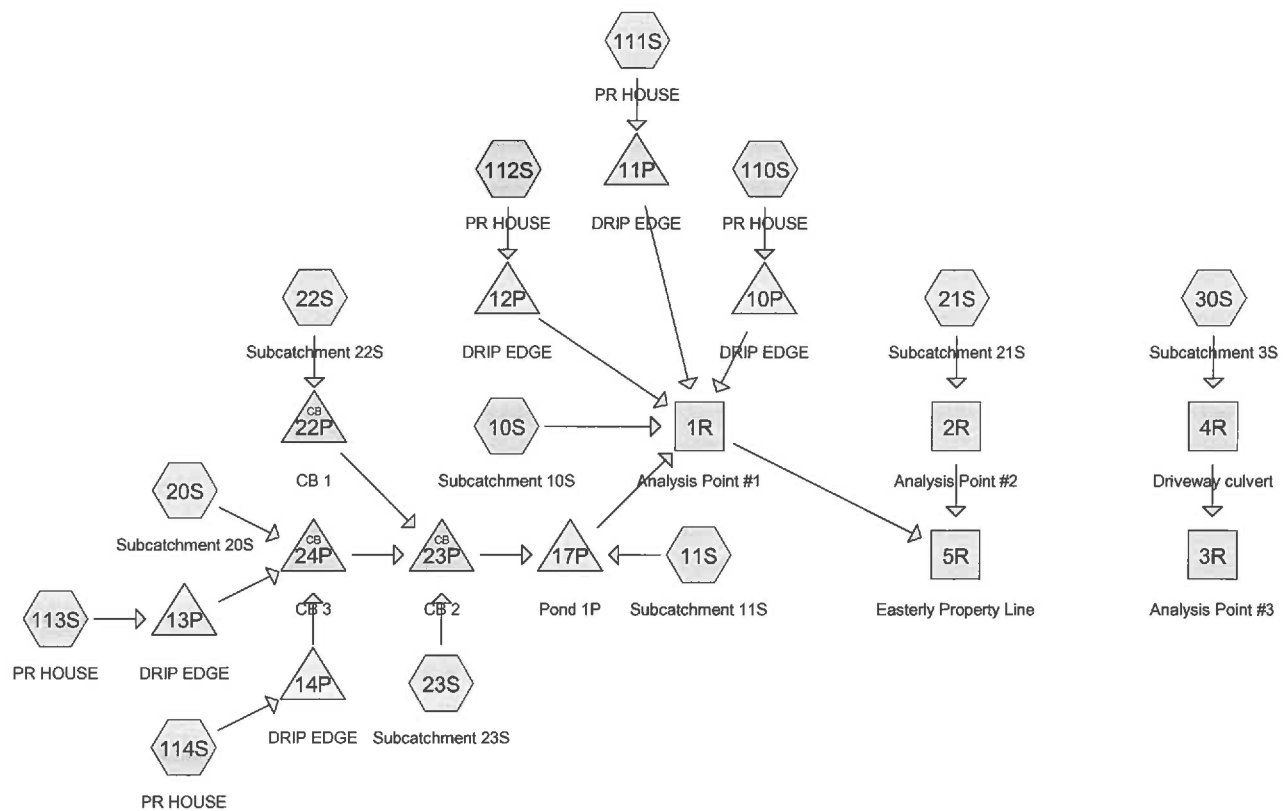
Inflow Area = 19.144 ac, 4.45% Impervious, Inflow Depth > 6.16" for 100-YR STORM event
 Inflow = 104.70 cfs @ 12.20 hrs, Volume= 9.820 af
 Outflow = 104.70 cfs @ 12.20 hrs, Volume= 9.820 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Summary 10 YEAR
Complete 25 YEAR
Summary 50 YEAR
Complete 100 YEAR



Routing Diagram for 13070_PR CONDITION-COASTAL_Hillcrest
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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.441	61	>75% Grass cover, Good, HSG B (10S, 11S, 20S, 21S)
6.933	74	>75% Grass cover, Good, HSG C (10S, 11S, 20S, 21S, 30S)
0.009	85	Gravel roads, HSG B (21S)
0.042	89	Gravel roads, HSG C (21S)
0.223	98	Paved parking, HSG B (22S, 23S, 110S, 111S, 113S)
0.023	98	Paved parking, HSG C (112S, 114S)
0.213	98	Paved roads w/curbs & sewers, HSG B (10S, 11S, 20S, 21S)
0.165	98	Paved roads w/curbs & sewers, HSG C (10S, 11S, 20S, 21S, 30S)
0.572	98	Roofs, HSG B (10S, 20S, 110S, 111S, 113S)
0.145	98	Roofs, HSG C (30S, 112S, 114S)
1.283	55	Woods, Good, HSG B (10S, 20S)
4.214	70	Woods, Good, HSG C (10S, 20S, 21S)
20.263	69	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
8.741	HSG B	10S, 11S, 20S, 21S, 22S, 23S, 110S, 111S, 113S
11.522	HSG C	10S, 11S, 20S, 21S, 30S, 112S, 114S
0.000	HSG D	
0.000	Other	
20.263		TOTAL AREA

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 10S: Subcatchment 10S	Runoff Area=206,300 sf 3.03% Impervious Runoff Depth>0.91" Flow Length=850' Tc=9.0 min CN=66 Runoff=3.97 cfs 0.361 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=104,739 sf 1.92% Impervious Runoff Depth>1.32" Flow Length=500' Tc=9.7 min CN=73 Runoff=3.13 cfs 0.265 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=426,829 sf 4.86% Impervious Runoff Depth>0.97" Flow Length=785' Tc=11.1 min CN=67 Runoff=8.33 cfs 0.790 af
Subcatchment 21S: Subcatchment 21S	Runoff Area=75,033 sf 4.75% Impervious Runoff Depth>1.38" Tc=10.0 min CN=74 Runoff=2.35 cfs 0.199 af
Subcatchment 22S: Subcatchment 22S	Runoff Area=3,388 sf 100.00% Impervious Runoff Depth>3.47" Tc=6.0 min CN=98 Runoff=0.27 cfs 0.023 af
Subcatchment 23S: Subcatchment 23S	Runoff Area=4,817 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.46 cfs 0.032 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>1.45" Flow Length=660' Tc=11.0 min CN=75 Runoff=1.49 cfs 0.129 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Reach 1R: Analysis Point #1	Inflow=10.81 cfs 1.442 af Outflow=10.81 cfs 1.442 af
Reach 2R: Analysis Point #2	Inflow=2.35 cfs 0.199 af Outflow=2.35 cfs 0.199 af
Reach 3R: Analysis Point #3	Inflow=1.49 cfs 0.129 af Outflow=1.49 cfs 0.129 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.26' Max Vel=8.18 fps Inflow=1.49 cfs 0.129 af 15.0" Round Pipe n=0.013 L=45.0' S=0.0620 ' Capacity=16.08 cfs Outflow=1.49 cfs 0.129 af

Reach 5R: Easterly Property Line

Inflow=12.51 cfs 1.641 af
Outflow=12.51 cfs 1.641 af

Pond 10P: DRIP EDGE

Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond 11P: DRIP EDGE

Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond 12P: DRIP EDGE

Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond 13P: DRIP EDGE

Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond 14P: DRIP EDGE

Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond 17P: Pond 1P

Peak Elev=59.08' Storage=7,699 cf Inflow=11.76 cfs 1.109 af
36.0" Round Culvert n=0.013 L=14.0' S=0.0714 '/' Outflow=8.14 cfs 1.081 af

Pond 22P: CB 1

Peak Elev=67.89' Inflow=0.27 cfs 0.023 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0200 '/' Outflow=0.27 cfs 0.023 af

Pond 23P: CB 2

Peak Elev=66.21' Inflow=8.68 cfs 0.845 af
42.0" Round Culvert n=0.013 L=516.0' S=0.0116 '/' Outflow=8.68 cfs 0.845 af

Pond 24P: CB 3

Peak Elev=67.97' Inflow=8.33 cfs 0.790 af
36.0" Round Culvert n=0.011 L=43.0' S=0.0442 '/' Outflow=8.33 cfs 0.790 af

Total Runoff Area = 20.263 ac Runoff Volume = 1.898 af Average Runoff Depth = 1.12"
93.38% Pervious = 18.923 ac 6.62% Impervious = 1.341 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 10S: Subcatchment 10S	Runoff Area=206,300 sf 3.03% Impervious Runoff Depth>2.18" Flow Length=850' Tc=9.0 min CN=66 Runoff=10.47 cfs 0.860 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=104,739 sf 1.92% Impervious Runoff Depth>2.80" Flow Length=500' Tc=9.7 min CN=73 Runoff=6.85 cfs 0.560 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=426,829 sf 4.86% Impervious Runoff Depth>2.26" Flow Length=785' Tc=11.1 min CN=67 Runoff=21.36 cfs 1.849 af
Subcatchment 21S: Subcatchment 21S	Runoff Area=75,033 sf 4.75% Impervious Runoff Depth>2.89" Tc=10.0 min CN=74 Runoff=5.04 cfs 0.415 af
Subcatchment 22S: Subcatchment 22S	Runoff Area=3,388 sf 100.00% Impervious Runoff Depth>5.41" Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af
Subcatchment 23S: Subcatchment 23S	Runoff Area=4,817 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.70 cfs 0.050 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>2.98" Flow Length=660' Tc=11.0 min CN=75 Runoff=3.14 cfs 0.265 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Reach 1R: Analysis Point #1	Inflow=30.07 cfs 3.316 af Outflow=30.07 cfs 3.316 af
Reach 2R: Analysis Point #2	Inflow=5.04 cfs 0.415 af Outflow=5.04 cfs 0.415 af
Reach 3R: Analysis Point #3	Inflow=3.14 cfs 0.265 af Outflow=3.14 cfs 0.265 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.37' Max Vel=10.16 fps Inflow=3.14 cfs 0.265 af 15.0" Round Pipe n=0.013 L=45.0' S=0.0620 ' Capacity=16.08 cfs Outflow=3.14 cfs 0.265 af

Reach 5R: Easterly Property LineInflow=34.39 cfs 3.730 af
Outflow=34.39 cfs 3.730 af**Pond 10P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 11P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 12P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 13P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 14P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 17P: Pond 1P**Peak Elev=59.91' Storage=14,546 cf Inflow=28.71 cfs 2.494 af
36.0" Round Culvert n=0.013 L=14.0' S=0.0714 '/' Outflow=22.31 cfs 2.455 af**Pond 22P: CB 1**Peak Elev=67.95' Inflow=0.42 cfs 0.035 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0200 '/' Outflow=0.42 cfs 0.035 af**Pond 23P: CB 2**Peak Elev=67.02' Inflow=21.93 cfs 1.934 af
42.0" Round Culvert n=0.013 L=516.0' S=0.0116 '/' Outflow=21.93 cfs 1.934 af**Pond 24P: CB 3**Peak Elev=68.63' Inflow=21.36 cfs 1.849 af
36.0" Round Culvert n=0.011 L=43.0' S=0.0442 '/' Outflow=21.36 cfs 1.849 af**Total Runoff Area = 20.263 ac Runoff Volume = 4.189 af Average Runoff Depth = 2.48"**
93.38% Pervious = 18.923 ac 6.62% Impervious = 1.341 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 10S: Subcatchment 10S	Runoff Area=206,300 sf 3.03% Impervious Runoff Depth>3.34" Flow Length=850' Tc=9.0 min CN=66 Runoff=16.34 cfs 1.319 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=104,739 sf 1.92% Impervious Runoff Depth>4.08" Flow Length=500' Tc=9.7 min CN=73 Runoff=10.03 cfs 0.818 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=426,829 sf 4.86% Impervious Runoff Depth>3.44" Flow Length=785' Tc=11.1 min CN=67 Runoff=33.07 cfs 2.812 af
Subcatchment 21S: Subcatchment 21S	Runoff Area=75,033 sf 4.75% Impervious Runoff Depth>4.19" Tc=10.0 min CN=74 Runoff=7.32 cfs 0.602 af
Subcatchment 22S: Subcatchment 22S	Runoff Area=3,388 sf 100.00% Impervious Runoff Depth>6.94" Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af
Subcatchment 23S: Subcatchment 23S	Runoff Area=4,817 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.89 cfs 0.064 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>4.30" Flow Length=660' Tc=11.0 min CN=75 Runoff=4.53 cfs 0.383 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94" Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af
Reach 1R: Analysis Point #1	Inflow=46.61 cfs 5.052 af Outflow=46.61 cfs 5.052 af
Reach 2R: Analysis Point #2	Inflow=7.32 cfs 0.602 af Outflow=7.32 cfs 0.602 af
Reach 3R: Analysis Point #3	Inflow=4.54 cfs 0.383 af Outflow=4.54 cfs 0.383 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.45' Max Vel=11.26 fps Inflow=4.53 cfs 0.383 af 15.0" Round Pipe n=0.013 L=45.0' S=0.0620 ' /' Capacity=16.08 cfs Outflow=4.54 cfs 0.383 af

Reach 5R: Easterly Property Line

Inflow=53.09 cfs 5.654 af
 Outflow=53.09 cfs 5.654 af

Pond 10P: DRIP EDGE

Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
 Outflow=0.03 cfs 0.008 af

Pond 11P: DRIP EDGE

Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
 Outflow=0.03 cfs 0.008 af

Pond 12P: DRIP EDGE

Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
 Outflow=0.03 cfs 0.008 af

Pond 13P: DRIP EDGE

Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
 Outflow=0.03 cfs 0.008 af

Pond 14P: DRIP EDGE

Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
 Outflow=0.03 cfs 0.008 af

Pond 17P: Pond 1P

Peak Elev=60.52' Storage=20,171 cf Inflow=43.73 cfs 3.755 af
 36.0" Round Culvert n=0.013 L=14.0' S=0.0714 ' Outflow=34.21 cfs 3.710 af

Pond 22P: CB 1

Peak Elev=67.99' Inflow=0.54 cfs 0.045 af
 12.0" Round Culvert n=0.012 L=16.0' S=0.0200 ' Outflow=0.54 cfs 0.045 af

Pond 23P: CB 2

Peak Elev=67.63' Inflow=33.79 cfs 2.937 af
 42.0" Round Culvert n=0.013 L=516.0' S=0.0116 ' Outflow=33.79 cfs 2.937 af

Pond 24P: CB 3

Peak Elev=69.13' Inflow=33.07 cfs 2.828 af
 36.0" Round Culvert n=0.011 L=43.0' S=0.0442 ' Outflow=33.07 cfs 2.828 af

Total Runoff Area = 20.263 ac Runoff Volume = 6.242 af Average Runoff Depth = 3.70"
93.38% Pervious = 18.923 ac 6.62% Impervious = 1.341 ac

Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 16.34 cfs @ 12.13 hrs, Volume= 1.319 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
1,413	98	Paved roads w/curbs & sewers, HSG B
1,433	98	Paved roads w/curbs & sewers, HSG C
81,666	61	>75% Grass cover, Good, HSG B
13,309	74	>75% Grass cover, Good, HSG C
22,924	55	Woods, Good, HSG B
82,142	70	Woods, Good, HSG C
206,300	66	Weighted Average
200,041		96.97% Pervious Area
6,259		3.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
3.8	405	0.0650	1.78		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.0	850	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 10.03 cfs @ 12.14 hrs, Volume= 0.818 af, Depth> 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
1,055	98	Paved roads w/curbs & sewers, HSG B
955	98	Paved roads w/curbs & sewers, HSG C
13,832	61	>75% Grass cover, Good, HSG B
88,897	74	>75% Grass cover, Good, HSG C
104,739	73	Weighted Average
102,729		98.08% Pervious Area
2,010		1.92% Impervious Area

13070_PR CONDITION-COASTAL_Hillcrest

Type III 24-hr 25-YR STORM Rainfall=7.18"

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Page 11

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.7	40	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
4.8	450	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
9.7	500	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 33.07 cfs @ 12.16 hrs, Volume= 2.812 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
13,988	98	Roofs, HSG B
3,902	98	Paved roads w/curbs & sewers, HSG B
2,851	98	Paved roads w/curbs & sewers, HSG C
173,752	61	>75% Grass cover, Good, HSG B
98,479	74	>75% Grass cover, Good, HSG C
32,978	55	Woods, Good, HSG B
100,879	70	Woods, Good, HSG C
426,829	67	Weighted Average
406,088		95.14% Pervious Area
20,741		4.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.1	38	0.0500	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
7.8	735	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.1	785	Total			

Summary for Subcatchment 21S: Subcatchment 21S

Runoff = 7.32 cfs @ 12.14 hrs, Volume= 0.602 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,895	98	Paved roads w/curbs & sewers, HSG B
667	98	Paved roads w/curbs & sewers, HSG C
393	85	Gravel roads, HSG B
1,844	89	Gravel roads, HSG C
11,339	61	>75% Grass cover, Good, HSG B
57,361	74	>75% Grass cover, Good, HSG C
534	70	Woods, Good, HSG C
75,033	74	Weighted Average
71,471		95.25% Pervious Area
3,562		4.75% Impervious Area

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

Summary for Subcatchment 22S: Subcatchment 22S

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
3,388	98	Paved parking, HSG B
3,388		100.00% Impervious Area

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

Summary for Subcatchment 23S: Subcatchment 23S

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.89 cfs @ 12.00 hrs, Volume= 0.064 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
4,817	98	Paved parking, HSG B
4,817		100.00% Impervious Area

Summary for Subcatchment 30S: Subcatchment 3S

Runoff = 4.53 cfs @ 12.16 hrs, Volume= 0.383 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
1,303	98	Paved roads w/curbs & sewers, HSG C
1,313	98	Roofs, HSG C
43,948	74	>75% Grass cover, Good, HSG C
46,564	75	Weighted Average
43,948		94.38% Pervious Area
2,616		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Subcatchment 110S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 111S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 112S: PR HOUSE

[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.05$ hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 113S: PR HOUSE

[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.05$ hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 114S: PR HOUSE

[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, $dt=0.05$ hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 17.472 ac, 6.86% Impervious, Inflow Depth > 3.47" for 25-YR STORM event
 Inflow = 46.61 cfs @ 12.21 hrs, Volume= 5.052 af
 Outflow = 46.61 cfs @ 12.21 hrs, Volume= 5.052 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.723 ac, 4.75% Impervious, Inflow Depth > 4.19" for 25-YR STORM event
 Inflow = 7.32 cfs @ 12.14 hrs, Volume= 0.602 af
 Outflow = 7.32 cfs @ 12.14 hrs, Volume= 0.602 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
 Inflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af
 Outflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Driveway culvert

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
 Inflow = 4.53 cfs @ 12.16 hrs, Volume= 0.383 af
 Outflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 11.26 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 4.17 fps, Avg. Travel Time= 0.2 min

Peak Storage= 18 cf @ 12.16 hrs

Average Depth at Peak Storage= 0.45'

Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 16.08 cfs

15.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 45.0' Slope= 0.0620 1'

Inlet Invert= 86.32', Outlet Invert= 83.53'



Summary for Reach 5R: Easterly Property Line

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 19.194 ac, 6.67% Impervious, Inflow Depth > 3.53" for 25-YR STORM event

Inflow = 53.09 cfs @ 12.19 hrs, Volume= 5.654 af

Outflow = 53.09 cfs @ 12.19 hrs, Volume= 5.654 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event

Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af

Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min

Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)

Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 11P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)
 Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 12P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)
 Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices											
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir											
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00	
				2.50	3.00									
			Coef. (English)	2.69	2.72	2.75	2.85	2.98	3.08	3.20	3.28	3.31		
				3.30	3.31	3.32								

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 13P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)
 Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=67.55' (Dynamic Tailwater)

←1=**Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 14P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)
 Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00

Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31
3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=67.55' (Dynamic Tailwater)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 17P: Pond 1P

Inflow Area = 12.529 ac, 6.77% Impervious, Inflow Depth > 3.60" for 25-YR STORM event
Inflow = 43.73 cfs @ 12.15 hrs, Volume= 3.755 af
Outflow = 34.21 cfs @ 12.26 hrs, Volume= 3.710 af, Atten= 22%, Lag= 6.2 min
Primary = 34.21 cfs @ 12.26 hrs, Volume= 3.710 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 60.52' @ 12.26 hrs Surf.Area= 9,627 sf Storage= 20,171 cf

Plug-Flow detention time= 20.7 min calculated for 3.702 af (99% of inflow)
Center-of-Mass det. time= 13.9 min (848.4 - 834.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	58.00'	35,938 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.00	6,473	610.1	0	0	6,473
60.00	8,958	635.2	15,364	15,364	9,255
62.00	11,676	665.7	20,574	35,938	12,670

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	36.0" Round Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 57.00' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=34.07 cfs @ 12.26 hrs HW=60.51' TW=0.00' (Dynamic Tailwater)

↑1=**Culvert** (Inlet Controls 34.07 cfs @ 5.39 fps)

Summary for Pond 22P: CB 1

Inflow Area = 0.078 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 67.99' @ 12.09 hrs
Flood Elev= 71.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.66'	12.0" Round Culvert L= 16.0' RCP, groove end projecting, Ke= 0.200

Inlet / Outlet Invert= 67.66' / 67.34' S= 0.0200 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.09 hrs HW=67.99' TW=67.31' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.52 cfs @ 3.51 fps)

Summary for Pond 23P: CB 2

Inflow Area = 10.125 ac, 7.92% Impervious, Inflow Depth > 3.48" for 25-YR STORM event
Inflow = 33.79 cfs @ 12.16 hrs, Volume= 2.937 af
Outflow = 33.79 cfs @ 12.16 hrs, Volume= 2.937 af, Atten= 0%, Lag= 0.0 min
Primary = 33.79 cfs @ 12.16 hrs, Volume= 2.937 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 67.63' @ 12.16 hrs

Flood Elev= 71.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	42.0" Round Culvert L= 516.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 59.00' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 9.62 sf

Primary OutFlow Max=33.36 cfs @ 12.16 hrs HW=67.61' TW=60.26' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 33.36 cfs @ 4.34 fps)

Summary for Pond 24P: CB 3

Inflow Area = 9.936 ac, 6.18% Impervious, Inflow Depth > 3.42" for 25-YR STORM event
Inflow = 33.07 cfs @ 12.16 hrs, Volume= 2.828 af
Outflow = 33.07 cfs @ 12.16 hrs, Volume= 2.828 af, Atten= 0%, Lag= 0.0 min
Primary = 33.07 cfs @ 12.16 hrs, Volume= 2.828 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 69.13' @ 12.17 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	36.0" Round Culvert L= 43.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 67.00' / 65.10' S= 0.0442 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=31.42 cfs @ 12.16 hrs HW=69.11' TW=67.60' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 31.42 cfs @ 8.29 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

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

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

Subcatchment 10S: Subcatchment 10S	Runoff Area=206,300 sf 3.03% Impervious Runoff Depth>4.50" Flow Length=850' Tc=9.0 min CN=66 Runoff=22.12 cfs 1.775 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=104,739 sf 1.92% Impervious Runoff Depth>5.34" Flow Length=500' Tc=9.7 min CN=73 Runoff=13.07 cfs 1.069 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=426,829 sf 4.86% Impervious Runoff Depth>4.61" Flow Length=785' Tc=11.1 min CN=67 Runoff=44.52 cfs 3.768 af
Subcatchment 21S: Subcatchment 21S	Runoff Area=75,033 sf 4.75% Impervious Runoff Depth>5.46" Tc=10.0 min CN=74 Runoff=9.49 cfs 0.783 af
Subcatchment 22S: Subcatchment 22S	Runoff Area=3,388 sf 100.00% Impervious Runoff Depth>8.35" Tc=6.0 min CN=98 Runoff=0.64 cfs 0.054 af
Subcatchment 23S: Subcatchment 23S	Runoff Area=4,817 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=1.07 cfs 0.077 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>5.58" Flow Length=660' Tc=11.0 min CN=75 Runoff=5.85 cfs 0.497 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Reach 1R: Analysis Point #1	Inflow=60.44 cfs 6.773 af Outflow=60.44 cfs 6.773 af
Reach 2R: Analysis Point #2	Inflow=9.49 cfs 0.783 af Outflow=9.49 cfs 0.783 af
Reach 3R: Analysis Point #3	Inflow=5.85 cfs 0.497 af Outflow=5.85 cfs 0.497 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.52' Max Vel=12.07 fps Inflow=5.85 cfs 0.497 af 15.0" Round Pipe n=0.013 L=45.0' S=0.0620 ' Capacity=16.08 cfs Outflow=5.85 cfs 0.497 af

Reach 5R: Easterly Property Line

Inflow=70.13 cfs 7.556 af
Outflow=70.13 cfs 7.556 af

Pond 10P: DRIP EDGE

Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af

Pond 11P: DRIP EDGE

Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af

Pond 12P: DRIP EDGE

Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af

Pond 13P: DRIP EDGE

Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af

Pond 14P: DRIP EDGE

Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af

Pond 17P: Pond 1P

Peak Elev=61.14' Storage=26,428 cf Inflow=58.34 cfs 5.001 af
36.0" Round Culvert n=0.013 L=14.0' S=0.0714 '/' Outflow=43.60 cfs 4.950 af

Pond 22P: CB 1

Peak Elev=68.29' Inflow=0.64 cfs 0.054 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0200 '/' Outflow=0.64 cfs 0.054 af

Pond 23P: CB 2

Peak Elev=68.27' Inflow=45.40 cfs 3.932 af
42.0" Round Culvert n=0.013 L=516.0' S=0.0116 '/' Outflow=45.40 cfs 3.932 af

Pond 24P: CB 3

Peak Elev=69.72' Inflow=44.52 cfs 3.800 af
36.0" Round Culvert n=0.011 L=43.0' S=0.0442 '/' Outflow=44.52 cfs 3.800 af

Total Runoff Area = 20.263 ac Runoff Volume = 8.264 af Average Runoff Depth = 4.89"
93.38% Pervious = 18.923 ac 6.62% Impervious = 1.341 ac

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

Subcatchment 10S: Subcatchment 10S	Runoff Area=206,300 sf 3.03% Impervious Runoff Depth>5.97" Flow Length=850' Tc=9.0 min CN=66 Runoff=29.35 cfs 2.355 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=104,739 sf 1.92% Impervious Runoff Depth>6.90" Flow Length=500' Tc=9.7 min CN=73 Runoff=16.79 cfs 1.383 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=426,829 sf 4.86% Impervious Runoff Depth>6.10" Flow Length=785' Tc=11.1 min CN=67 Runoff=58.82 cfs 4.980 af
Subcatchment 21S: Subcatchment 21S	Runoff Area=75,033 sf 4.75% Impervious Runoff Depth>7.03" Tc=10.0 min CN=74 Runoff=12.14 cfs 1.010 af
Subcatchment 22S: Subcatchment 22S	Runoff Area=3,388 sf 100.00% Impervious Runoff Depth>10.07" Tc=6.0 min CN=98 Runoff=0.77 cfs 0.065 af
Subcatchment 23S: Subcatchment 23S	Runoff Area=4,817 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=1.28 cfs 0.093 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>7.16" Flow Length=660' Tc=11.0 min CN=75 Runoff=7.46 cfs 0.638 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Reach 1R: Analysis Point #1	Inflow=76.96 cfs 8.949 af Outflow=76.96 cfs 8.949 af
Reach 2R: Analysis Point #2	Inflow=12.14 cfs 1.010 af Outflow=12.14 cfs 1.010 af
Reach 3R: Analysis Point #3	Inflow=7.47 cfs 0.638 af Outflow=7.47 cfs 0.638 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.60' Max Vel=12.86 fps Inflow=7.46 cfs 0.638 af 15.0" Round Pipe n=0.013 L=45.0' S=0.0620 '/' Capacity=16.08 cfs Outflow=7.47 cfs 0.638 af

Reach 5R: Easterly Property Line

Inflow=88.88 cfs 9.958 af
 Outflow=88.88 cfs 9.958 af

Pond 10P: DRIP EDGE

Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
 Outflow=0.51 cfs 0.026 af

Pond 11P: DRIP EDGE

Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
 Outflow=0.51 cfs 0.026 af

Pond 12P: DRIP EDGE

Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
 Outflow=0.51 cfs 0.026 af

Pond 13P: DRIP EDGE

Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
 Outflow=0.51 cfs 0.026 af

Pond 14P: DRIP EDGE

Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
 Outflow=0.51 cfs 0.026 af

Pond 17P: Pond 1P

Peak Elev=62.00' Storage=35,938 cf Inflow=76.93 cfs 6.573 af
 36.0" Round Culvert n=0.013 L=14.0' S=0.0714 ' Outflow=53.83 cfs 6.516 af

Pond 22P: CB 1

Peak Elev=69.47' Inflow=0.77 cfs 0.065 af
 12.0" Round Culvert n=0.012 L=16.0' S=0.0200 ' Outflow=0.77 cfs 0.065 af

Pond 23P: CB 2

Peak Elev=69.47' Inflow=60.29 cfs 5.190 af
 42.0" Round Culvert n=0.013 L=516.0' S=0.0116 ' Outflow=60.29 cfs 5.190 af

Pond 24P: CB 3

Peak Elev=71.20' Inflow=59.22 cfs 5.032 af
 36.0" Round Culvert n=0.011 L=43.0' S=0.0442 ' Outflow=59.22 cfs 5.032 af

Total Runoff Area = 20.263 ac Runoff Volume = 10.813 af Average Runoff Depth = 6.40"
 93.38% Pervious = 18.923 ac 6.62% Impervious = 1.341 ac

Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 29.35 cfs @ 12.13 hrs, Volume= 2.355 af, Depth> 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
1,413	98	Paved roads w/curbs & sewers, HSG B
1,433	98	Paved roads w/curbs & sewers, HSG C
81,666	61	>75% Grass cover, Good, HSG B
13,309	74	>75% Grass cover, Good, HSG C
22,924	55	Woods, Good, HSG B
82,142	70	Woods, Good, HSG C
206,300	66	Weighted Average
200,041		96.97% Pervious Area
6,259		3.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
3.8	405	0.0650	1.78		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.0	850	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 16.79 cfs @ 12.14 hrs, Volume= 1.383 af, Depth> 6.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
1,055	98	Paved roads w/curbs & sewers, HSG B
955	98	Paved roads w/curbs & sewers, HSG C
13,832	61	>75% Grass cover, Good, HSG B
88,897	74	>75% Grass cover, Good, HSG C
104,739	73	Weighted Average
102,729		98.08% Pervious Area
2,010		1.92% Impervious Area

13070_PR CONDITION-COASTAL_Hillcrest

Type III 24-hr 100-YR STORM Rainfall=10.32"

Prepared by Microsoft

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Page 27

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.7	40	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
4.8	450	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
9.7	500	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 58.82 cfs @ 12.16 hrs, Volume= 4.980 af, Depth> 6.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
13,988	98	Roofs, HSG B
3,902	98	Paved roads w/curbs & sewers, HSG B
2,851	98	Paved roads w/curbs & sewers, HSG C
173,752	61	>75% Grass cover, Good, HSG B
98,479	74	>75% Grass cover, Good, HSG C
32,978	55	Woods, Good, HSG B
100,879	70	Woods, Good, HSG C
426,829	67	Weighted Average
406,088		95.14% Pervious Area
20,741		4.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.1	38	0.0500	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
7.8	735	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.1	785	Total			

Summary for Subcatchment 21S: Subcatchment 21S

Runoff = 12.14 cfs @ 12.14 hrs, Volume= 1.010 af, Depth> 7.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

13070_PR CONDITION-COASTAL_Hillcrest

Type III 24-hr 100-YR STORM Rainfall=10.32"

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Page 28

Area (sf)	CN	Description
2,895	98	Paved roads w/curbs & sewers, HSG B
667	98	Paved roads w/curbs & sewers, HSG C
393	85	Gravel roads, HSG B
1,844	89	Gravel roads, HSG C
11,339	61	>75% Grass cover, Good, HSG B
57,361	74	>75% Grass cover, Good, HSG C
534	70	Woods, Good, HSG C
75,033	74	Weighted Average
71,471		95.25% Pervious Area
3,562		4.75% Impervious Area

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

Summary for Subcatchment 22S: Subcatchment 22S

Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.065 af, Depth>10.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
3,388	98	Paved parking, HSG B
3,388		100.00% Impervious Area

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

Summary for Subcatchment 23S: Subcatchment 23S

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.28 cfs @ 12.00 hrs, Volume= 0.093 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
4,817	98	Paved parking, HSG B
4,817		100.00% Impervious Area

Summary for Subcatchment 30S: Subcatchment 3S

Runoff = 7.46 cfs @ 12.15 hrs, Volume= 0.638 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
1,303	98	Paved roads w/curbs & sewers, HSG C
1,313	98	Roofs, HSG C
43,948	74	>75% Grass cover, Good, HSG C
46,564	75	Weighted Average
43,948		94.38% Pervious Area
2,616		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Subcatchment 110S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 111S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 112S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 113S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 114S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 17.472 ac, 6.86% Impervious, Inflow Depth > 6.15" for 100-YR STORM event
 Inflow = 76.96 cfs @ 12.18 hrs, Volume= 8.949 af
 Outflow = 76.96 cfs @ 12.18 hrs, Volume= 8.949 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.723 ac, 4.75% Impervious, Inflow Depth > 7.03" for 100-YR STORM event
 Inflow = 12.14 cfs @ 12.14 hrs, Volume= 1.010 af
 Outflow = 12.14 cfs @ 12.14 hrs, Volume= 1.010 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
 Inflow = 7.47 cfs @ 12.15 hrs, Volume= 0.638 af
 Outflow = 7.47 cfs @ 12.15 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Driveway culvert

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
 Inflow = 7.46 cfs @ 12.15 hrs, Volume= 0.638 af
 Outflow = 7.47 cfs @ 12.15 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 12.86 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 4.67 fps, Avg. Travel Time= 0.2 min

Peak Storage= 26 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.60'

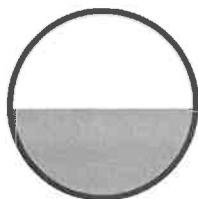
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 16.08 cfs

15.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 45.0' Slope= 0.0620 '/'

Inlet Invert= 86.32', Outlet Invert= 83.53'



Summary for Reach 5R: Easterly Property Line

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 19.194 ac, 6.67% Impervious, Inflow Depth > 6.23" for 100-YR STORM event

Inflow = 88.88 cfs @ 12.17 hrs, Volume= 9.958 af

Outflow = 88.88 cfs @ 12.17 hrs, Volume= 9.958 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 10P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event

Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af

Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min

Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 11P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 12P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)
 Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 13P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)
 Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

13070_PR CONDITION-COASTAL_Hillcrest

Type III 24-hr 100-YR STORM Rainfall=10.32"

Prepared by Microsoft

Printed 3/28/2018

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Page 35

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=70.16' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 14P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)
Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00

Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31
3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=70.16' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 17P: Pond 1P

Inflow Area = 12.529 ac, 6.77% Impervious, Inflow Depth > 6.30" for 100-YR STORM event
Inflow = 76.93 cfs @ 12.15 hrs, Volume= 6.573 af
Outflow = 53.83 cfs @ 12.28 hrs, Volume= 6.516 af, Atten= 30%, Lag= 7.9 min
Primary = 53.83 cfs @ 12.28 hrs, Volume= 6.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 62.00' @ 12.28 hrs Surf.Area= 11,676 sf Storage= 35,938 cf

Plug-Flow detention time= 17.4 min calculated for 6.516 af (99% of inflow)
Center-of-Mass det. time= 12.3 min (831.3 - 819.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	58.00'	35,938 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
58.00	6,473	610.1	0	0	6,473
60.00	8,958	635.2	15,364	15,364	9,255
62.00	11,676	665.7	20,574	35,938	12,670

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	36.0" Round Culvert L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 57.00' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=53.68 cfs @ 12.28 hrs HW=61.99' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 53.68 cfs @ 7.59 fps)

Summary for Pond 22P: CB 1

Inflow Area = 0.078 ac, 100.00% Impervious, Inflow Depth > 10.07" for 100-YR STORM event
Inflow = 0.77 cfs @ 12.09 hrs, Volume= 0.065 af
Outflow = 0.77 cfs @ 12.09 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.09 hrs, Volume= 0.065 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.47' @ 12.20 hrs
Flood Elev= 71.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.66'	12.0" Round Culvert L= 16.0' RCP, groove end projecting, Ke= 0.200

Inlet / Outlet Invert= 67.66' / 67.34' S= 0.0200 '/' Cc= 0.900
n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=68.14' TW=68.68' (Dynamic Tailwater)

↑1=Culvert (Controls 0.00 cfs)

Summary for Pond 23P: CB 2

[80] Warning: Exceeded Pond 22P by 0.79' @ 12.10 hrs (4.01 cfs 0.030 af)

Inflow Area = 10.125 ac, 7.92% Impervious, Inflow Depth > 6.15" for 100-YR STORM event
Inflow = 60.29 cfs @ 12.16 hrs, Volume= 5.190 af
Outflow = 60.29 cfs @ 12.16 hrs, Volume= 5.190 af, Atten= 0%, Lag= 0.0 min
Primary = 60.29 cfs @ 12.16 hrs, Volume= 5.190 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 69.47' @ 12.15 hrs

Flood Elev= 71.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	42.0" Round Culvert L= 516.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 59.00' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 9.62 sf

Primary OutFlow Max=59.85 cfs @ 12.16 hrs HW=69.43' TW=61.42' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 59.85 cfs @ 6.22 fps)

Summary for Pond 24P: CB 3

[58] Hint: Peaked 0.20' above defined flood level

Inflow Area = 9.936 ac, 6.18% Impervious, Inflow Depth > 6.08" for 100-YR STORM event
Inflow = 59.22 cfs @ 12.16 hrs, Volume= 5.032 af
Outflow = 59.22 cfs @ 12.16 hrs, Volume= 5.032 af, Atten= 0%, Lag= 0.0 min
Primary = 59.22 cfs @ 12.16 hrs, Volume= 5.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 71.20' @ 12.19 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.00'	36.0" Round Culvert L= 43.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 67.00' / 65.10' S= 0.0442 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf

Primary OutFlow Max=52.20 cfs @ 12.16 hrs HW=70.93' TW=69.42' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 52.20 cfs @ 7.38 fps)

APPENDIX III

Charts, Graphs, and Calculations

Select Product ?

Extreme Precipitation Tables - HTML ?

Extreme Precipitation Tables - Text/CSV ?

Partial Duration Series - by Point ?

Partial Duration Series - by Station ?

Distribution Curves - Graphical ?

Distribution Curves - Text/TBL ?

Intensity Frequency Duration Graphs ?

Precipitation Frequency Duration Graphs ?

GTS Data Files ?

Regional/State Maps ?

Select Location ? Double-click the map to place a marker, or enter address or latitude/longitude.

Locate by Address ?

Locate by Lat/Lon ?

°N °W

Locate by State/County ?

Select Options ?

Smoothing ?

Delivery ?

http://precip.eas.cornell.edu/page_data.php

6/27/2017

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	70.870 degrees West
Latitude	43.024 degrees North
Elevation	0 feet
Date/Time	Tue, 27 Jun 2017 15:12:58 -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	2.38	2.82	3.23	3.95	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	3.59	2yr	2.86	3.45	3.96	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	4.61	5yr	3.63	4.43	5.07	5.98	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	5.57	10yr	4.35	5.36	6.12	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	3.65	4.77	6.24	7.16	25yr	5.52	6.89	7.85	9.13	10.17	25yr
50yr	0.54	0.86	1.10	1.54	2.07	2.76	50yr	1.79	2.52	3.29	4.34	5.71	7.48	8.67	50yr	6.62	8.33	9.49	10.96	12.14	50yr
100yr	0.59	0.96	1.24	1.77	2.42	3.26	100yr	2.08	2.97	3.91	5.19	6.83	8.97	10.49	100yr	7.94	10.09	11.46	13.16	14.50	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.84	200yr	2.44	3.51	4.63	6.17	8.16	10.77	12.70	200yr	9.53	12.21	13.85	15.82	17.33	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.77	500yr	3.00	4.38	5.78	7.76	10.33	13.70	16.35	500yr	12.12	15.72	17.81	20.18	21.94	500yr

+15%

3.71

5.65

7.18

8.60

10.32

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	1.62	2.22	2.62	1yr	1.96	2.52	2.89	3.20	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	3.37	3.86	4.59	5.10	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	3.85	4.29	5yr	3.41	4.13	4.77	5.64	6.36	5yr
10yr	0.39	0.60	0.74	1.04	1.34	1.61	10yr	1.16	1.58	1.82	2.40	3.08	4.45	5.01	10yr	3.94	4.82	5.59	6.57	7.36	10yr
25yr	0.45	0.68	0.85	1.21	1.59	1.92	25yr	1.37	1.88	2.11	2.78	3.57	4.76	5.14	25yr	4.21	5.90	6.90	8.06	8.94	25yr
50yr	0.49	0.75	0.94	1.35	1.81	2.20	50yr	1.56	2.15	2.36	3.11	3.99	5.38	5.75	50yr	4.76	6.87	8.10	9.41	10.35	50yr
100yr	0.55	0.84	1.05	1.52	2.08	2.52	100yr	1.80	2.46	2.64	3.46	4.44	6.05	6.32	100yr	5.35	8.00	9.53	10.99	11.97	100yr
200yr	0.62	0.93	1.18	1.71	2.38	2.88	200yr	2.05	2.81	2.95	3.84	4.92	6.78	6.99	200yr	6.00	9.32	11.22	12.84	13.88	200yr
500yr	0.72	1.08	1.39	2.01	2.87	3.46	500yr	2.47	3.38	3.44	4.40	5.67	7.88	7.88	500yr	6.98	11.40	13.94	15.80	16.82	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	3.02	3.11	1yr	2.67	2.99	3.62	4.37	5.09	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	3.54	4.06	4.83	5.68	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	4.36	4.91	5yr	3.86	4.72	5.38	6.33	7.13	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.92	2.26	3.07	3.88	5.37	6.11	10yr	4.76	5.88	6.68	7.79	8.69	10yr
25yr	0.57	0.87	1.08	1.55	2.04	2.55	25yr	1.76	2.49	2.92	4.01	5.02	7.84	8.17	25yr	6.94	7.86	8.86	10.26	11.34	25yr
50yr	0.67	1.01	1.26	1.81	2.44	3.10	50yr	2.11	3.03	3.55	4.90	6.12	9.82	10.19	50yr	8.69	9.80	10.99	12.62	13.86	50yr
100yr	0.78	1.18	1.48	2.14	2.93	3.76	100yr	2.53	3.68	4.31	6.02	7.47	12.30	12.71	100yr	10.89	12.22	13.61	15.55	16.96	100yr
200yr	0.91	1.37	1.74	2.52	3.51	4.59	200yr	3.03	4.49	5.25	7.39	9.11	15.44	15.87	200yr	13.67	15.26	16.87	19.15	20.77	200yr
500yr	1.12	1.67	2.15	3.13	4.45	5.94	500yr	3.84	5.81	6.80	9.73	11.88	20.88	21.28	500yr	18.48	20.46	22.39	25.24	27.16	500yr

Michael Kerivan

From: Jonathan Ring
Sent: Monday, February 06, 2017 10:54 AM
To: Katelyn Joyal
Cc: Lynn Zebrowski; Paige Libbey; Patrick Bogle
Subject: JBE 13070.1: Sullivan HISS, High Street, Stratham
Attachments: Scanned image_copier@sbmweb.com_20170131_114946_0000f12e81b0.pdf

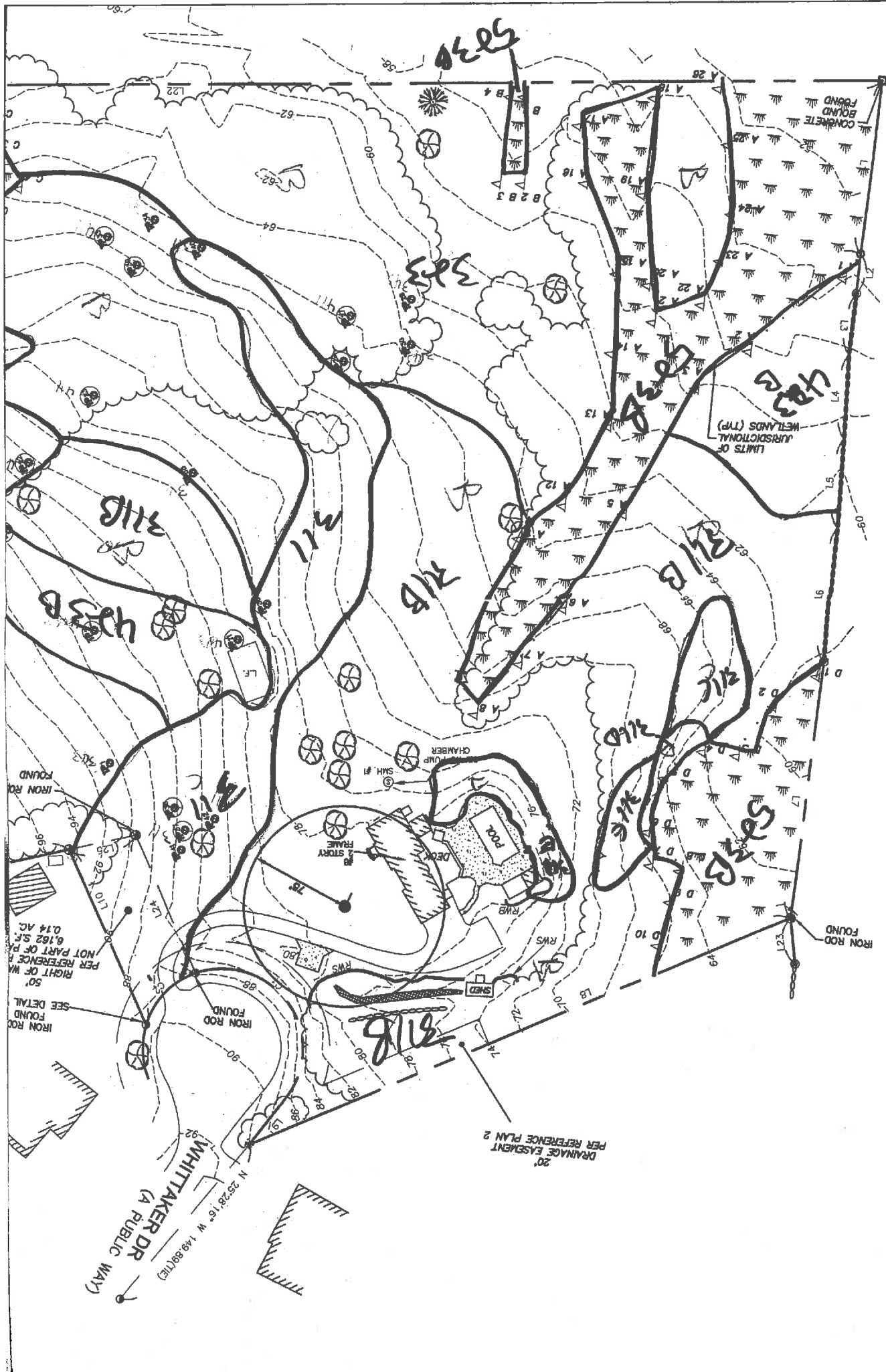
Kate - p/f/s/t. Jon

-----Original Message-----

From: Luke Hurley [mailto:lhurley@gesinc.biz]
Sent: Tuesday, January 31, 2017 11:07 AM
To: Jonathan Ring
Subject: RE: Sullivan HISS

Here is the soil map. Please note when you mark it up to change the 323 to 343:

HISS	SSSM
311	313 Deerfield HSG B
343	38 Eldridge HSG C
443	943 Eldridge Variant HSG C
523	656 Ridgebury HSG C



RIP RAP CALCULATIONS
Sullivan Property - Rural Residential Zone
High Street
Stratham, NH

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
5-Oct-17

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire*.
Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$$L_a = (1.8 \times Q) / D_o^{3/2} + (7 \times D_o)$$

$$W = L_a + (3 \times D_o) \text{ or defined channel width}$$

$$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_o)$$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T _w	Discharge (C.F.S.) Q	Diameter of Pipe D _o	Length of Rip Rap L _a (feet)	Width of Rip Rap W (feet)	d ₅₀ -Median Stone Rip Rap d50 (feet)
18" ADS (Pond #1P)	0.88	33.78	3	32.7	42	0.83
15" ADS (Pond #15P)	0.67	6.68	1.25	17.4	21	0.30
15" ADS (Driveway culvert)	0.45	4.54	1.25	14.6	18	0.27

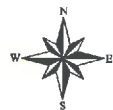
TAILWATER > HALF THE D_o

$$L_a = (3.0 \times Q) / D_o^{3/2} + (7 \times D_o)$$

$$W = (0.4 \times L_a) + (3 \times D_o) \text{ or defined channel width}$$

$$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_o)$$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T _w	Discharge (C.F.S.) Q	Diameter of Pipe D _o	Length of Rip Rap L _a (feet)	Width of Rip Rap W (feet)	d ₅₀ -Median Stone Rip Rap d50 (feet)
15" ADS (Pond #15P)	0.67	6.68	1.25	23.1	13	0.30



March 26, 2018

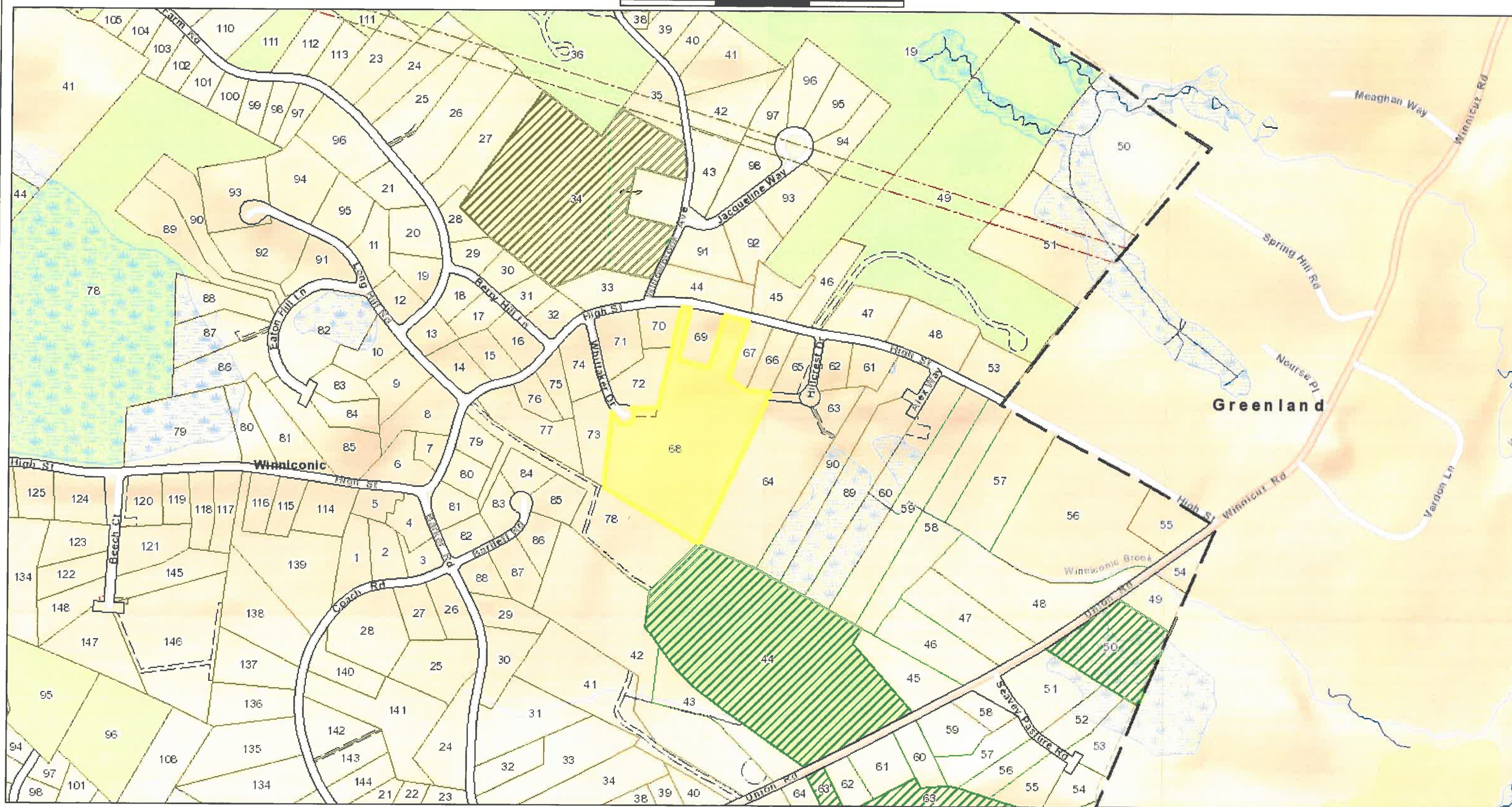
Stratham, NH

1 inch = 537 Feet

0 537 1075 1613

CAI Technologies
Precision Mapping Geospatial Solutions

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

**ABUTTERS LIST
112 HIGH STREET
STRATHAM, NH
JBE PROJECT No. 13070.1
NOVEMBER 16, 2016
REVISED APRIL 17, 2017
REVISED JUNE 27, 2017
REVISED MARCH 28, 2018**

OWNER OF RECORD/APPLICANT:

TAX MAP 19/ LOT 68
ROBIN D B SULLIVAN REVOC TRUST
ROBIN D B SULLIVAN TRUSTEE
8 WHITTAKER DR
STRATHAM, NH 03885
BK 4199 / PG 2969 (11/26/03)

ABUTTERS:

15/44 (125 UNION RD)
TOWN OF STRATHAM
10 BUNKER HILL AVE
STRATHAM, NH 03885
2838/1716 (05/25/90)

19/44
MARK J. & BRIDGETTE SANTOS JR.
111 WILLOWBROOK AVE
STRATHAM, NH 03885
5709/1814 (04/28/16)

19/45
KEITH D. & KERRI L. RODGERS
117 HIGH ST
STRATHAM, NH 03885
5761/1031 (10/11/16)

19/62
KENT & ELIZABETH ANSON
1 HILLCREST DR.
STRATHAM, NH 03885
5604/2025 (03/27/15)

19/63

TILTON REVOCABLE TRUST
MARION E. TILTON, TRUSTEE
3 HILLCREST DR.
STRATHAM, NH 03885
5804/0476 (03/15/17)

19/64

DONALD H. & CANDACE M. GRAVES
5 HILLCREST DR
STRATHAM, NH 03885
2988/2688 (06/15/93)

19/65

BYRNES FAMILY REVOCABLE TRUST
ROY J. & KRISTINE L. BYRNES
2 HILLCREST DR
STRATHAM, NH 03885
5880/1137 (12/18/17)

19/66

LORI A. ZANIBONI
116 HIGH ST.
STRATHAM, NH 03885
5770/1651 (11/07/16)

19/67

JOHN A. MULVEY
ELIZABETH A. MULVEY
114 HIGH ST
STRATHAM, NH 03885
5873/1163 (11/21/17)

19/69

DARRIN M. & ELIZABETH G. BROCKELBANK
110 HIGH ST
STRATHAM, NH 03885
4718/0373 (10/10/06)

19/70

JENNIFER J. PILICY
108 HIGH ST
STRATHAM, NH 03885
5405/1091 (02/01/13)

19/71

MORRISSETTE-LONGWELL REVOCABLE TRUST
SCOTT LONGWELL & ROBIN MORRISSETTE TRUSTEES
1 WHITTAKER DR.
STRATHAM, NH 03885
5760/1328 (10/07/16)

19/72

DIANE KELLY
ROBERT C. HILLERY
5 WHITTAKER DR
STRATHAM, NH 03885
3296/2675 (05/29/98)

19/73

RANKS FAMILY TRUST
SCOTT RANKS
CARLA MARRAN-RANKS
6 WHITTAKER DR.
STRATHAM, NH 03885
5796/0753 (02/06/17)

19/74

RUSS REVOCABLE TRUST
BRADLEY & LYNN RUSS TRUSTEES
2 WHITTAKER DR.
STRATHAM, NH 03885
3354/2460 (12/28/98)

19/78 (CL HIGH ST)

PEAR TREE ASSOCIATION
7 BARTLETT RD
STRATHAM, NH 03885

ENGINEERS/SURVEYORS:

JONES & BEACH ENGINEERS, INC.
ATTN: JONATHAN S. RING, PE
PO BOX 219
STRATHAM, NH 03885

LICENSED LAND SURVEYOR:

JAMES VERRA & ASSOCIATES, INC.
ATTN: JAMES VERRA
101 SHATTUCK WAY
SUITE 8
NEWINGTON, NH 03801-7876

ROBIN D B SULLIVAN REVOC TRUST
ROBIN D B SULLIVAN TRUSTEE
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STRATHAM, NH 03885

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JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

LETTER OF TRANSMITTAL

Date:	3/28/18	JBE Project No:	13070.1
Company:	Stratham Planning Board	RE:	Sullivan Subdivision – Through Road
Attn:	Tavis Austin, Planner		8 Whittaker Drive
	10 Bunker Hill Avenue Stratham, NH 03885		Stratham, NH Tax Map 19, Lot 68

Delivery Type: Delivery

We are sending you ☒ Attached ☐ Under separate cover via the following:

<u>COPIES</u>	<u>DOC. DATE</u>	<u>NO.</u>	<u>DESCRIPTION</u>
1		1	Check made payable to the "Town of Stratham" in the amount of \$302.00 for Legal Notice fees
1	3/28/18	2	Town of Stratham Application with Cover Letter
1	3/28/18	3	Town of Stratham Subdivision Checklist
1	3/28/18	4	Town of Stratham Subdivision Waiver Request Forms (6)
1	3/17/16	5	Letter of Authorization from Owner
1	3/28/18	6	Abutters List with 3 Sets of Mailing Labels
1	7/17/13, 4/20/16, 12/14/16 and 12/27/16	7	Test Pit Logs (as Previously Submitted)
1	3/28/18	8	Tax Map
3	3/28/18	9	Drainage Analysis / Stormwater Management Report
9	3/28/18	10	Reduced-Size (11"x17") Plan Sets
6	3/28/18	11	Full-Size Plan Sets
1	3/28/18	12	Town Lot-Size by Soil Type Calculations

THESE ARE TRANSMITTED as checked below:

☒ For approval

☒ For your use

☒ As requested

☒ For review/comment

COMMENTS:

Tavis,

The enclosed materials are provided to the Board for Planning Board Meeting, which we understand would be on April 18, 2018. Please call me with any questions you may have. Thank you very much for your time.
