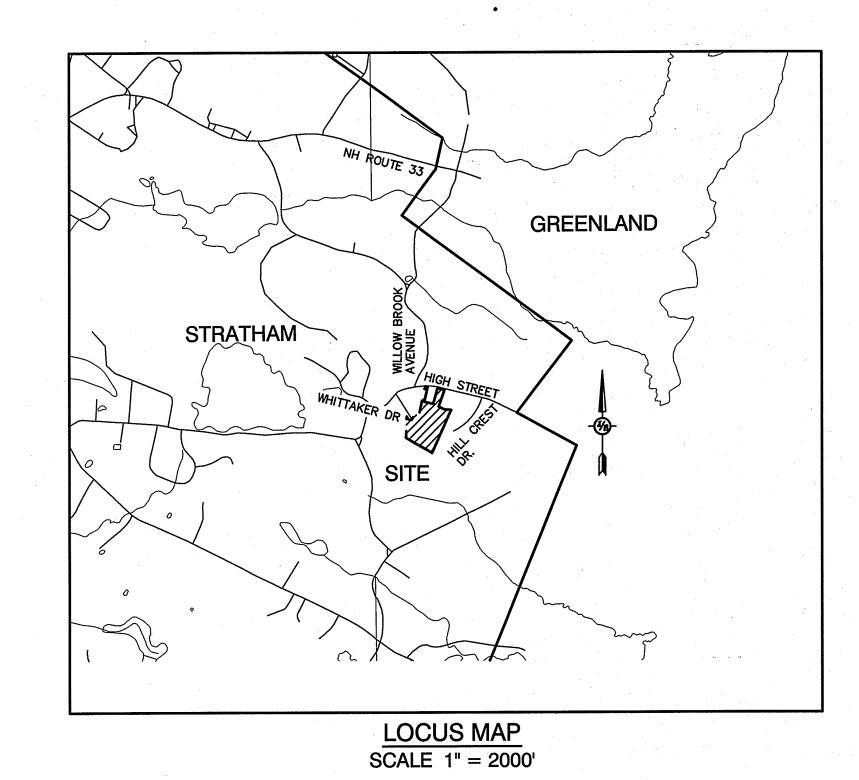
GENERAL LEGEND RON PIPE/IRON ROD DRILL HOLE IRON ROD/DRILL HOLE STONE/GRANITE BOUND 100x0 SPOT GRADE PAVEMENT SPOT GRADE CURB SPOT GRADE DOUBLE POST SIGN SINGLE POST SIGN FAILED TEST PIT MONITORING WELL PERC TEST PHOTO LOCATION TREES AND BUSHES UTILITY POLE LIGHT POLES DRAIN MANHOLE SINGLE GRATE CATCH BASIN DOUBLE GRATE CATCH BASIN CULVERT W/FLARED END SECTION CULVERT W/STRAIGHT HEADWALL STONE CHECK DAM DRAINAGE FLOW DIRECTION 4K SEPTIC AREA VEGETATED FILTER STRIP RIPRAP र्गीक र्गीक र्गीक FRESHWATER WETLANDS STABILIZED CONSTRUCTION ENTRANCE CONCRETE GRAVEL SNOW STORAGE

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



SHEET INDEX

COVER SHEET

SUBDIVISION PLAN

EXISTING CONDITIONS PLAN

GRADING AND DRAINAGE PLAN

PLAN AND PROFILE

DETAIL SHEETS

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

SOIL CONSULTANT

STRATHAM, NH 03885

GOVE ENVIRONMENTAL SERVICES, INC. 8 CONTINENTIAL 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

PLB

LAZ

PLB

LAZ

BY

TELEPHONE

FAIRPOINT 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)

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	6	2/14/18	REVISED PER TOWN COMMENTS
	5	12/20/17	REVISED PER PLANNING BOARD
	4	11/16/17	REVISED PER PLANNING BOARD
A THE PARTY OF THE	3	10/5/17	REVISED PER PLANNING BOARD
Out.	2	8/16/17	REVISED PER PLANNING BOARD
A PARTY	REV.	DATE	REVISION

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

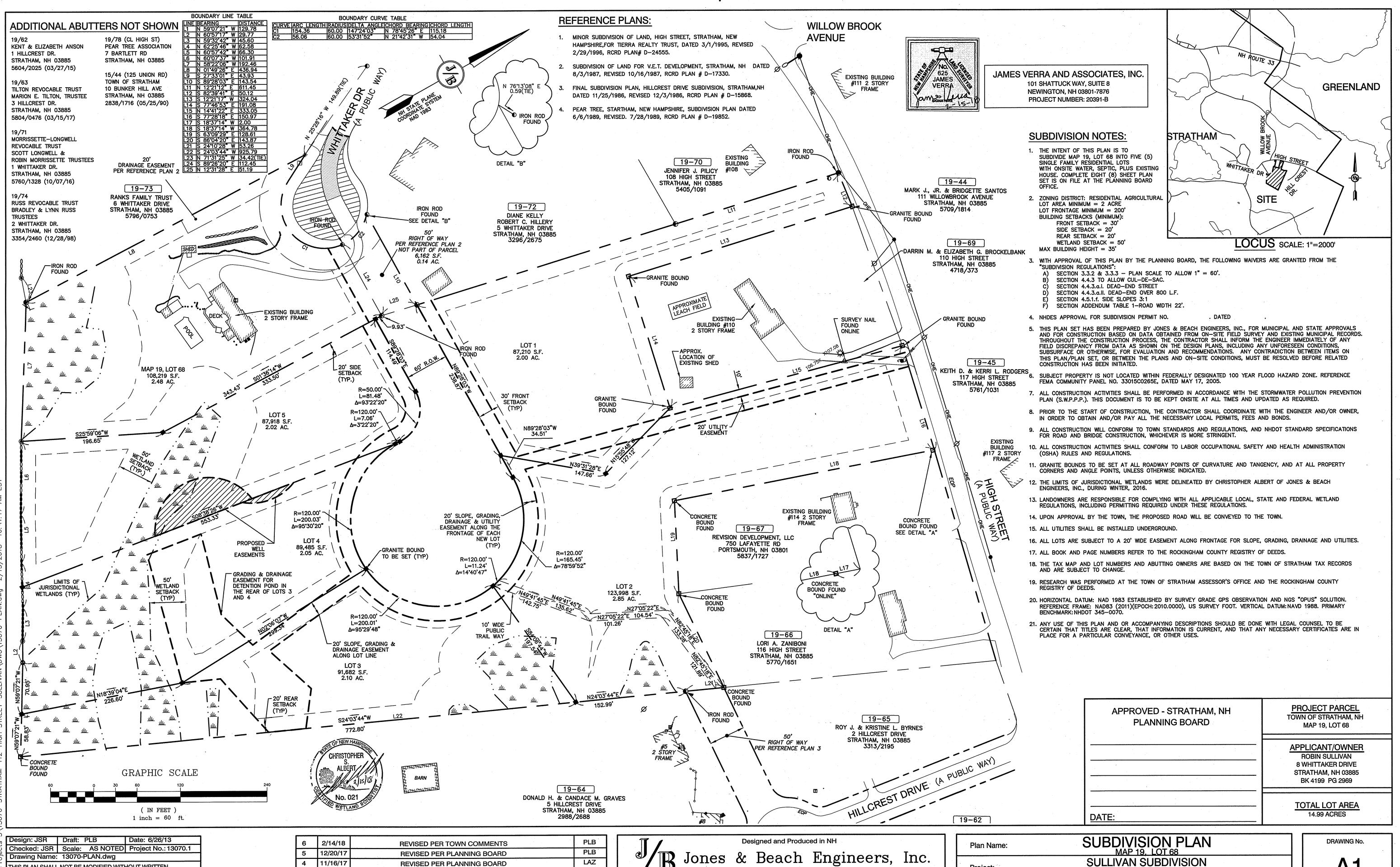
85 Portsmouth Ave. Civil Engineering Services 603-772-4746 FAX: 603-772-0227 PO Box 219 E-MAIL: JBE@JONESANDBEACH.COM Stratham, NH 03885

SULLIVAN SUBDIVISION Project: 8 WHITTAKER DRIVE, STRATHAM, NH 03885 **ROBIN SULLIVAN** Owner of Record: 8 WHITTAKER DRIVE, STRATHAM, NH 03885

Plan Name:

COVER SHEET

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



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PLB 10/5/17 **REVISED PER PLANNING BOARD** LAZ 8/16/17 **REVISED PER PLANNING BOARD** REVISION BY DATE

85 Portsmouth Ave. Civil Engineering Services 603-772-4746 FAX: 603-772-0227 PO Box 219 E-MAIL: JBE@JONESANDBEACH.COM Stratham, NH 03885

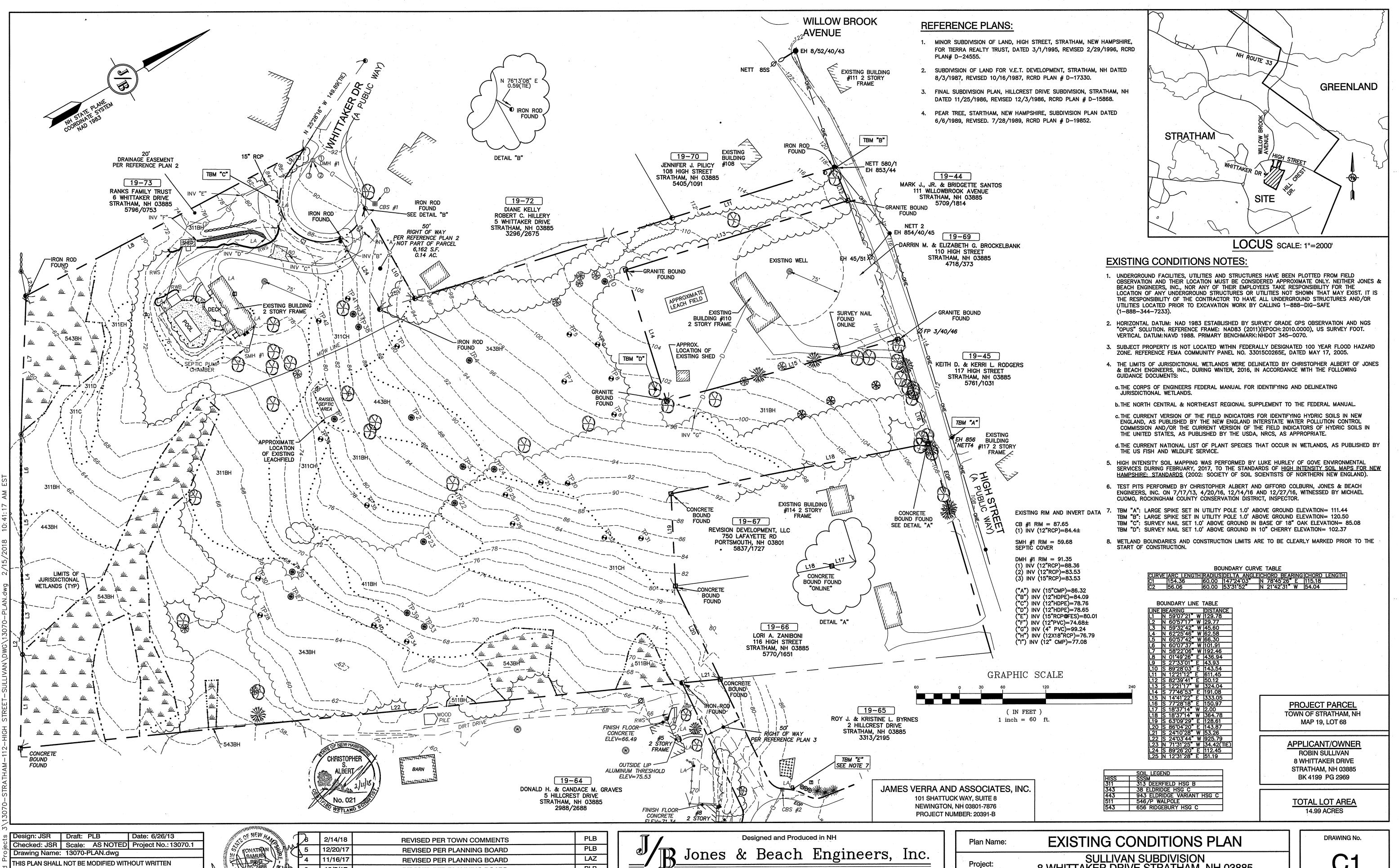
Project: 8 WHITTAKER DRIVE, STRATHAM, NH 03885

Owner of Record:

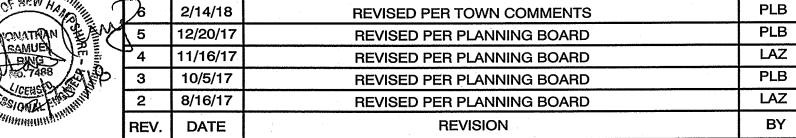
ROBIN SULLIVAN

8 WHITTAKER DRIVE, STRATHAM, NH 03885

SHEET 2 OF 8 JBE PROJECT NO. 13070.1



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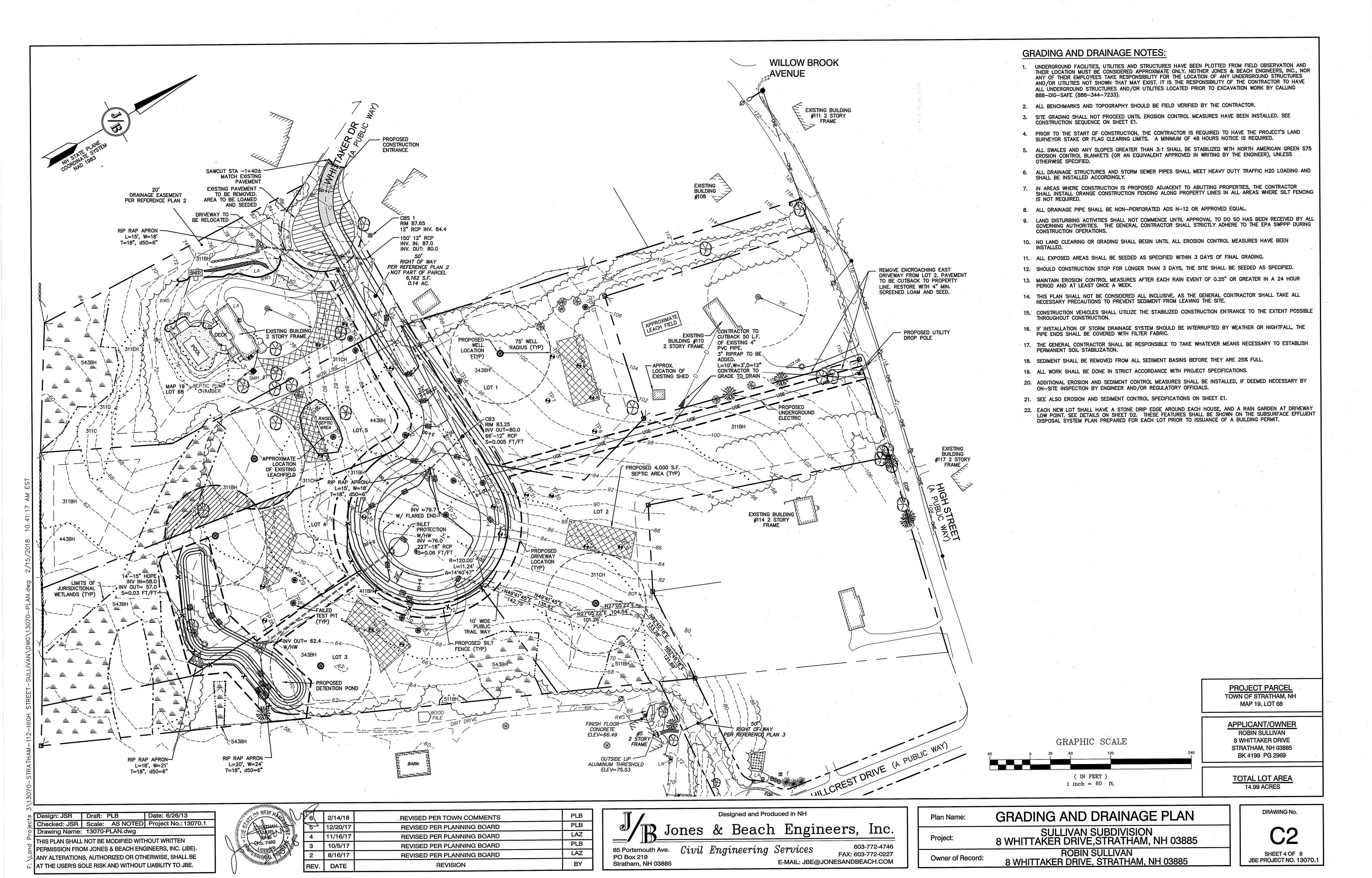
85 Portsmouth Ave. Civil Engineering Services FAX: 603-772-0227 PO Box 219 E-MAIL: JBE@JONESANDBEACH.COM Stratham, NH 03885

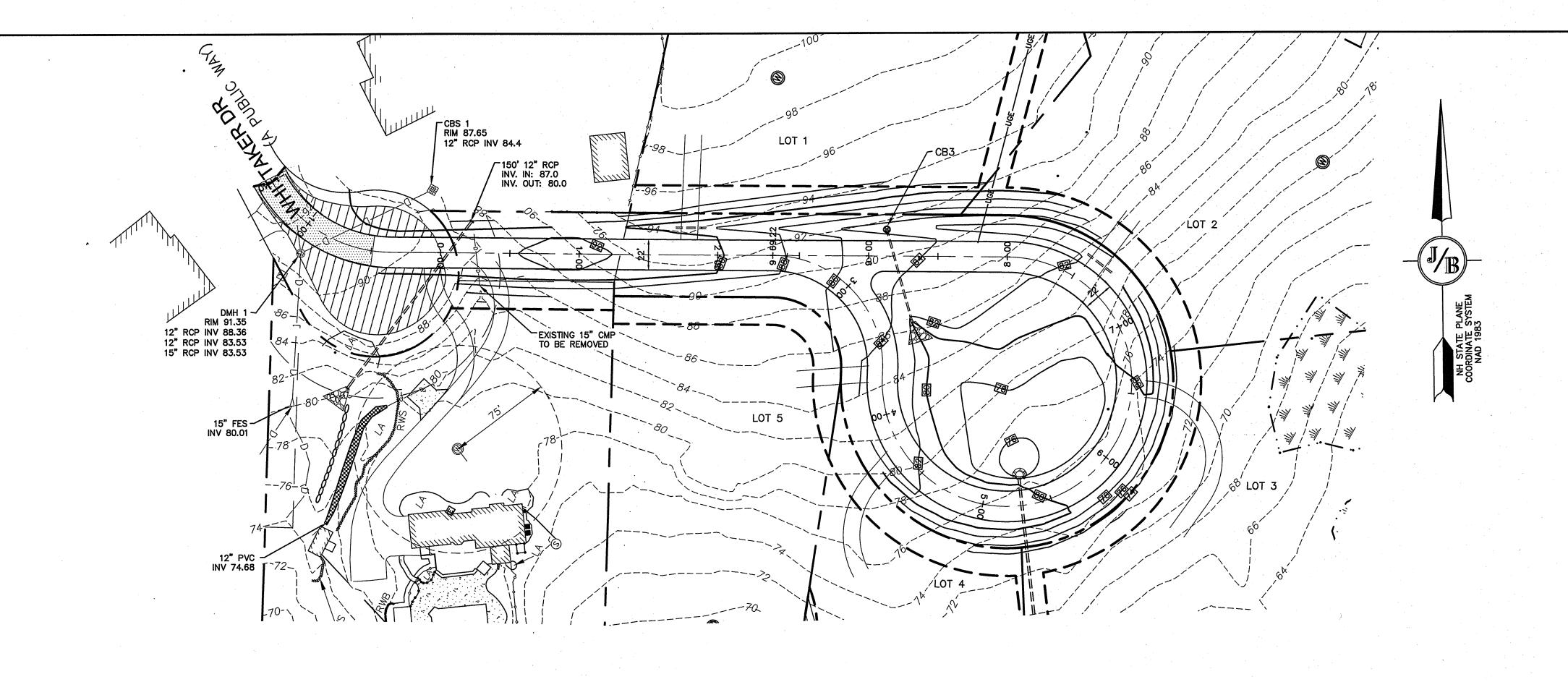
SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885 **ROBIN SULLIVAN**

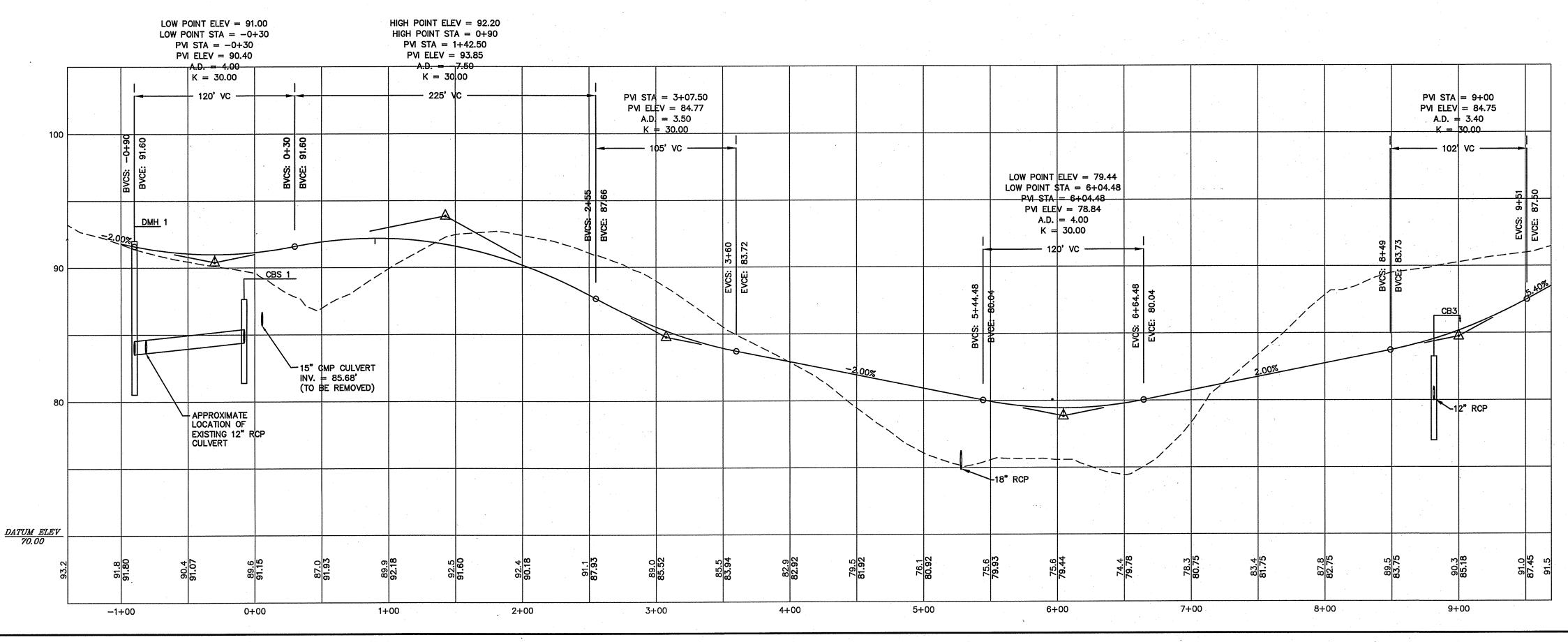
8 WHITTAKER DRIVE, STRATHAM, NH 03885

Owner of Record:

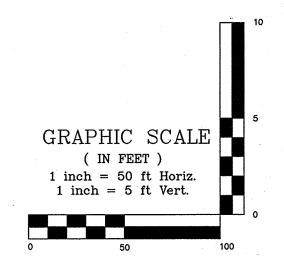
SHEET 3 OF 8 JBE PROJECT NO. 13070.1







- 1. 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. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NO! 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:
 - A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
 - B. 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).
- 2. 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.
- 3. AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
- 4. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
- 5. 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.
- 6. 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, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- 7. 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
- 8. ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
- 9. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
- 10. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY
- 11. 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
- 12. ALL DRIVEWAYS TO BE CONSTRUCTED MAXIMUM 10% SLOPE. SEE DETAIL SHEET. ALL DRIVEWAYS TO HAVE CULVERTS UNLESS APPROVED BY THE TOWN ROAD AGENT.
- 13. 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.
- 14. ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
- 15. DETENTION PONDS 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 MOWED 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.
- 16. THE DETENTION PONDS ARE 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.
- 17. 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.
- 18. NO IRRIGATION PIPES OR SPRINKLER HEADS SHALL BE LOCATED WITHIN TOWN RIGHT OF WAY.
- 19. 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.



ts.	Design: JSR	Draft:	PLB	Date: 6/26/13
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<u> </u>	THIS PLAN SHALL	NOT BE	MODIFIED WITH	HOUT WRITTEN BINEERS, INC. (JBE).
ŭ	PERMISSION FRO	M JONES	S & BEACH ENG	BINEERS, INC. (JBE).

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PING A		10/5/17	REVISED PER PLANNING BOARD	PLB
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85 Portsmouth Ave. Civil Engineering Services 603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM Stratham, NH 03885

PLAN AND PROFILE Plan Name:

SULLIVAN SUBDIVISION Project: 8 WHITTAKER DRIVE, STRATHAM, NH 03885

ROBIN SULLIVAN Owner of Record: 8 WHITTAKER DRIVE, STRATHAM, NH 03885 DRAWING No.

P₁ SHEET 5 OF 8 JBE PROJECT NO. 13070.1

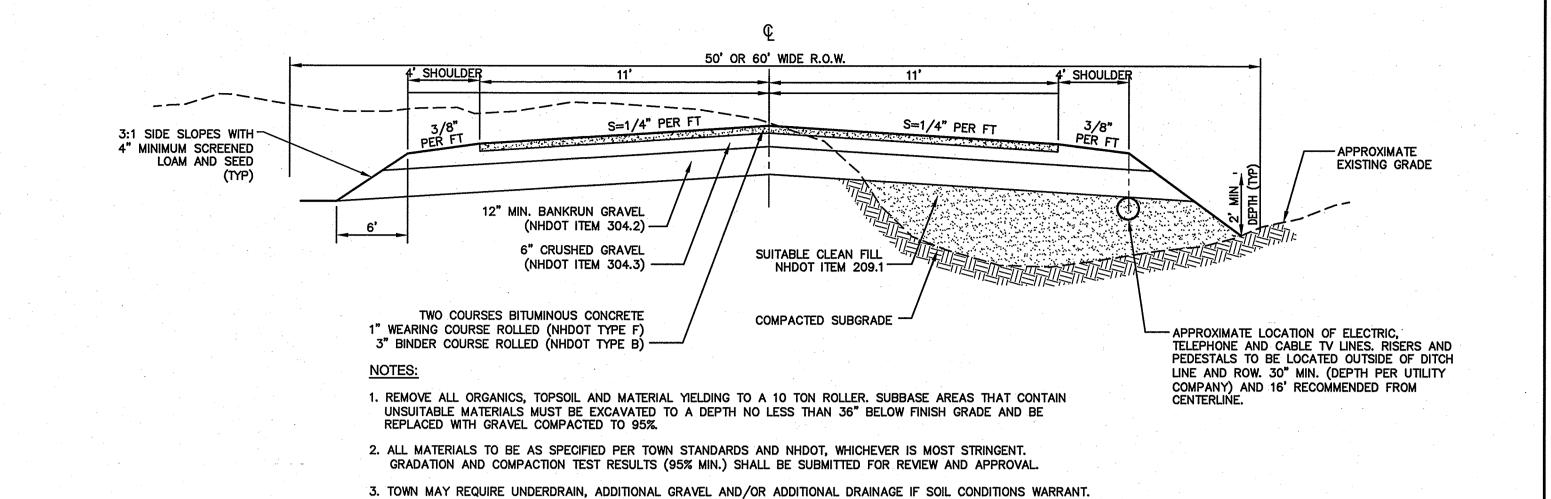
PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE 7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS 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

STABILIZED CONSTRUCTION ENTRANCE

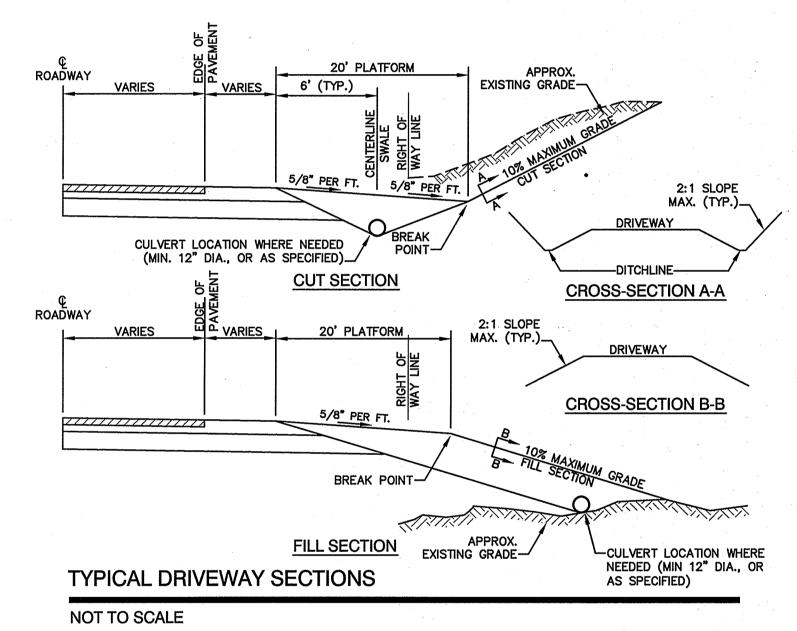
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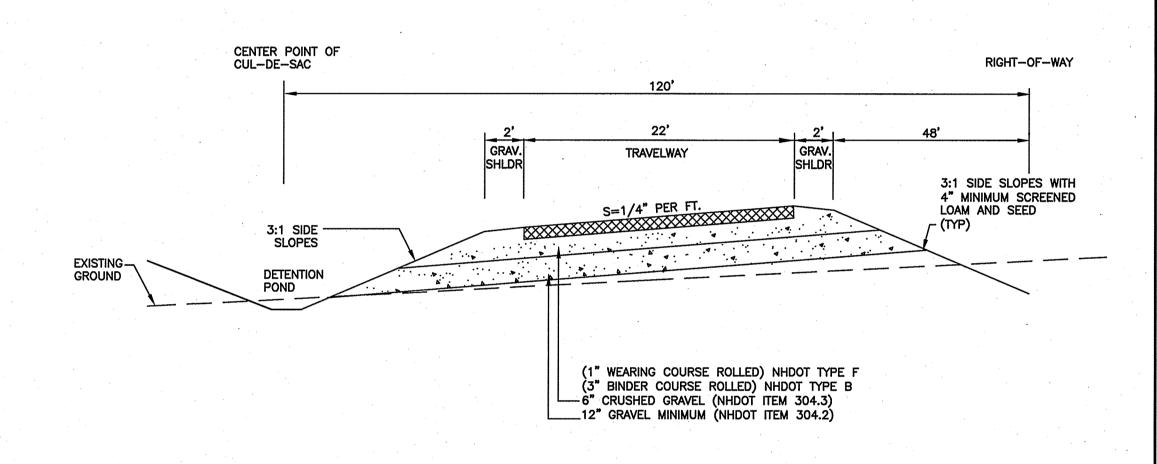
REMOVED PROMPTLY.



TYPICAL ROADWAY SECTION

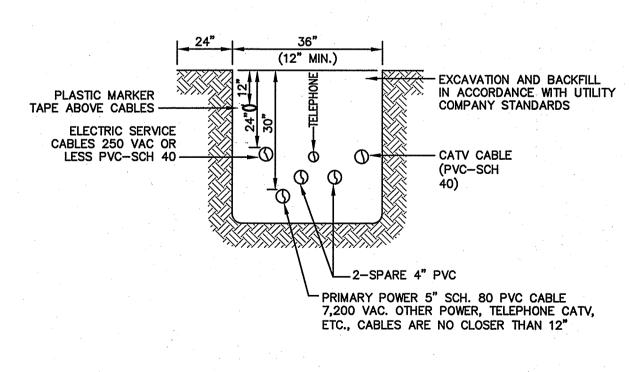
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TYPICAL CUL-DE-SAC CROSS SECTION

NOT TO SCALE



E-MAIL: JBE@JONESANDBEACH.COM

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

UTILITY TRENCH

NOT TO SCALE

Stratham, NH 03885

- COLD PLANED TRANSITION BITUMINOUS -CONCRETE TACK
COAT ALL

PROP. PAVEMENT SECTION

FULL DEPTH PAVEMENT TRANSITION

EXISTING EDGES

2" DEEP SAWCUT-OR COLD PLANED

EXISTING

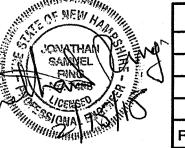
ROADWAY -

SURFACE

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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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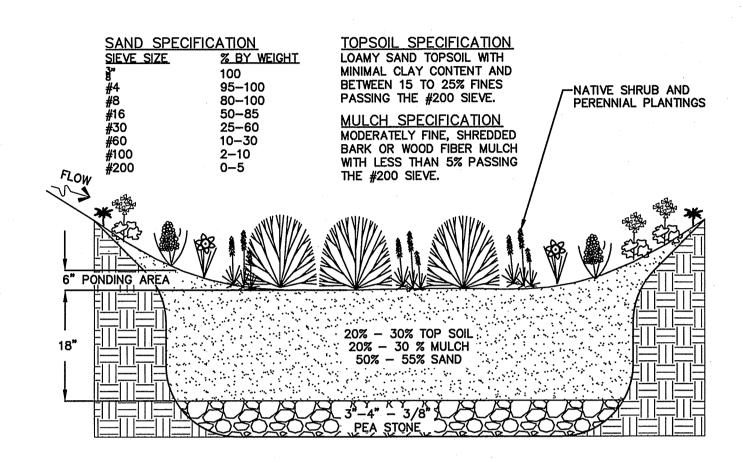
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7	3	10/5/17	REVISED PER PLANNING BOARD	PLB
	2	8/16/17	REVISED PER PLANNING BOARD	LAZ
-	REV.	DATE	REVISION	BY

Designed and Produced in NH Civil Engineering Services 603-772-4746 85 Portsmouth Ave. FAX: 603-772-0227 PO Box 219

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

DRAWING No. SHEET 6 OF 8 JBE PROJECT NO. 13070.1 DECIDUOUS SHRUBS:

VIBURNUM DENTATUM ARROWOOD VIBURNUM ALNUS INCANA SPECKLED ALDER CORNUS STOLONIFERA REDOSIER DOGWOOD VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY LLEX VERTICILLATA WINTERBERRY



DESIGN CONSIDERATIONS

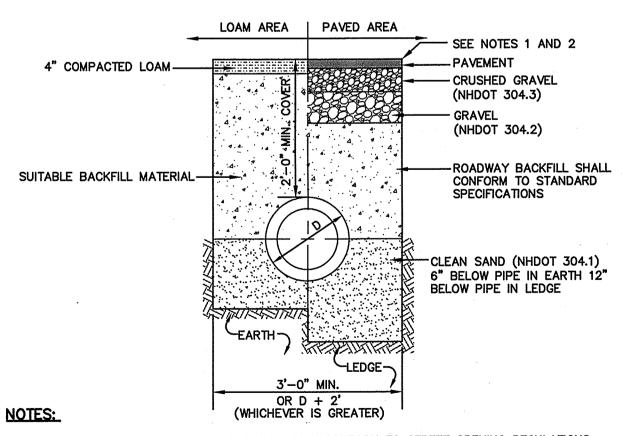
- DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
- 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:

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

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

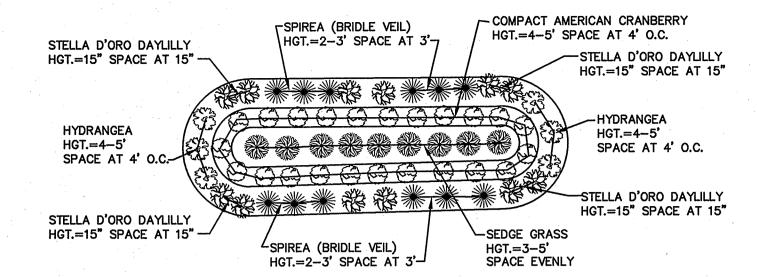
NOT TO SCALE



- 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 .

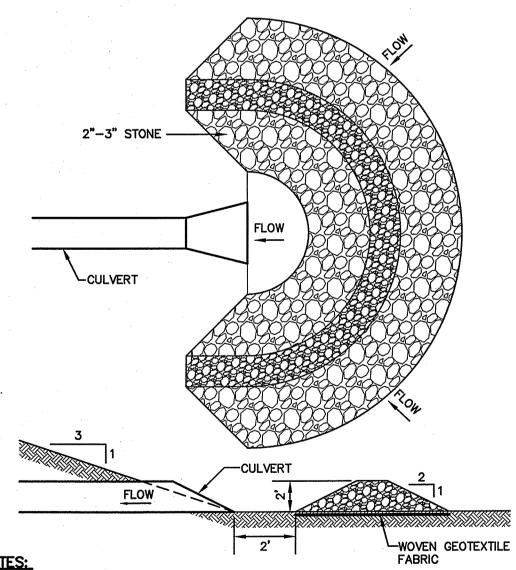


ELEVATIONS VARY BY LOT. CONTRACTOR TO PLACE RAIN GARDENS ON EACH RESIDENTIAL LOT AND PLANT AS SHOWN ABOVE, SHAPE AND DIMENSIONS MAY VARY DEPENDING ON SITE CONDITIONS.

- 2. RAIN GARDENS TO BE 75' MINIMUM FROM SEPTIC SYSTEMS.
- DRIVEWAY RUNOFF SHALL BE DIRECTED INTO PROPOSED RAIN GARDENS TO EXTENT
- 4. BOTTOM OF RAIN GARDEN TO BE A MINIMUM 1,000 S.F. SHAPE AND DIMENSIONS MAY VARY DUE TO SITE CONDITIONS.
- VEGETATION WITHIN EACH RAIN GARDEN MUST BE STABILIZED WITH GROWTH PRIOR TO DIRECTING RUNOFF INTO THE RAIN GARDEN.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON THIS SHEET. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

TYPICAL RAIN GARDEN PLANTINGS - HOUSE LOTS

NOT TO SCALE

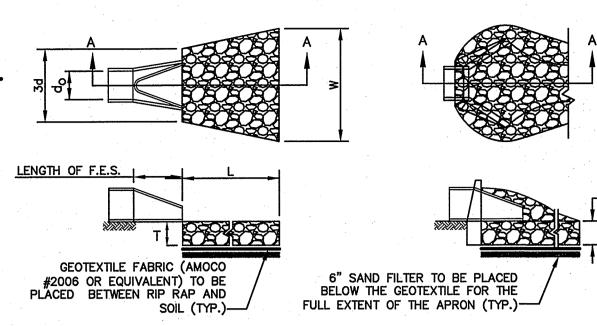


- 1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
- 2. INLET PROTECTION MEASURES SHALL BE INSTALLED AT THE OPENINGS OF ALL EXISTING AND PROPOSED CULVERTS LOCATED BELOW (DOWNSTREAM) FROM AND WITHIN 100' OF THE
- 3. SEDIMENT SHALL BE REMOVED 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

PLB 2/14/18 **REVISED PER TOWN COMMENTS** 12/20/17 **REVISED PER PLANNING BOARD** 11/16/17 REVISED PER PLANNING BOARD 10/5/17 REVISED PER PLANNING BOARD 8/16/17 REVISED PER PLANNING BOARD DATE **REVISION** BY



SECTION A-A

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

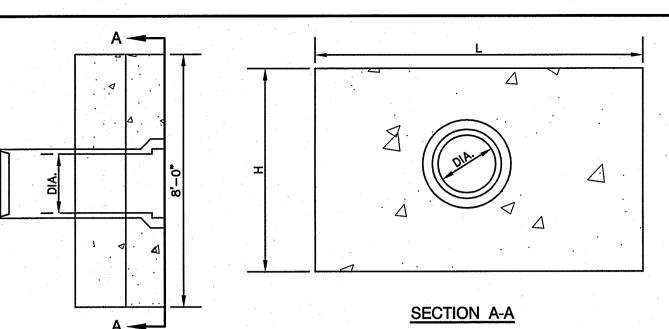
SECTION A-A PIPE OUTLET TO WELL-DEFINED

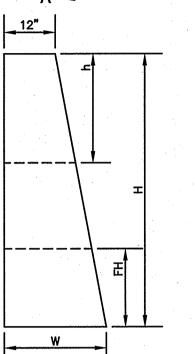
			•		
TABLE 7-24	RECOMMI	ENDED F	RIP RAP G	RADATION	RANGES
HICKNESS OF RIP	RAP = 1.	O FEET			
150 SIZE=	0.5	FEET	6 INC	HES	
6 OF WEIGHT SMAL			SIZE OF S	STONE (INCHE	ES) To
100%			9		12
85%			8		11
50%			6		9
15%			2		3

- 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 ROCK RIP. 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
- 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
- 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





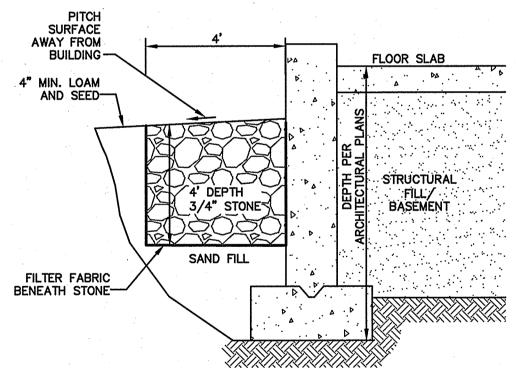
 DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	Н	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"
,					,

<u>LONGITUDINAL SECTION</u>

- ALL DIMENSIONS GIVEN IN FEET & INCHES.
- PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL 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 PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

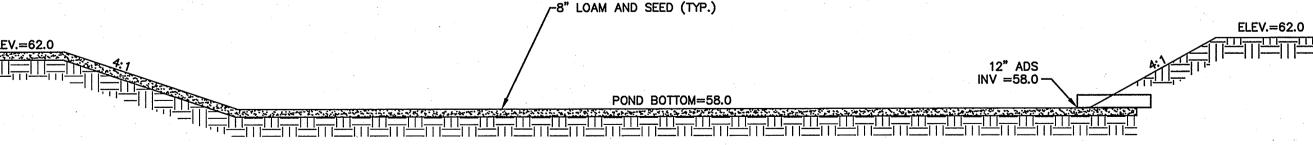
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1. EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE THIS DETAIL. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING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

STONE DRIP EDGE DETAIL - HOUSE LOTS

NOT TO SCALE



DETENTION POND SYSTEM SECTION

Designed and Produced in NH

Jones & Beach Engineers, Inc.

603-772-4746

FAX: 603-772-0227

E-MAIL: JBE@JONESANDBEACH.COM

NOT TO SCALE

85 Portsmouth Ave. Civil Engineering Services

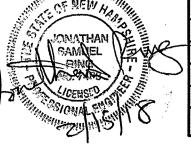
PO Box 219

Stratham, NH 03885

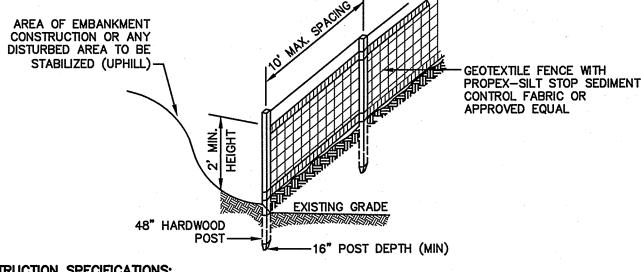
DETAIL SHEET Plan Name: SULLIVAN SUBDIVISION Project: 8 WHITTAKER DRIVE, STRATHAM, NH 03885 **ROBIN SULLIVAN** Owner of Record: 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No. D2 SHEET 7 OF 8 JBE PROJECT NO. 13070.1

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.



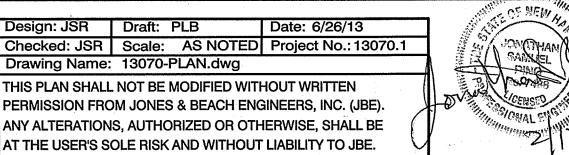
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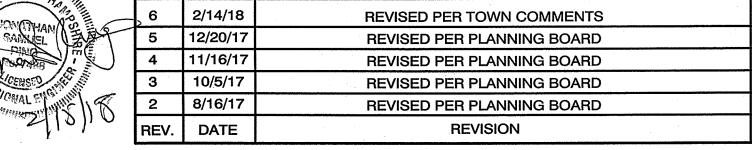


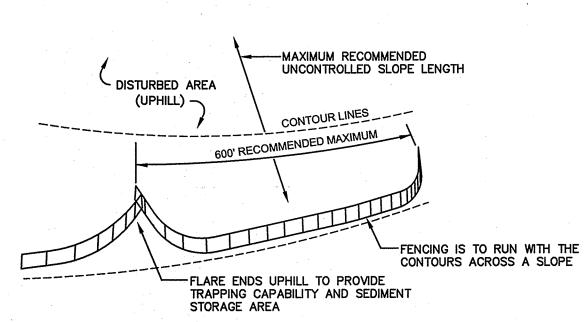
- . WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND
- 2. THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
- 3. 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.
- 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.

SILT FENCE

NOT TO SCALE







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.

PLB

LAZ

BY

PO Box 219

Stratham, NH 03885

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 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 5 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

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(P205), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.

POTASH(K20), 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, TREFOIL AND FLATPEA) 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

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.

OR FROM AUGUST 10th TO SEPTEMBER 1st.

- 5. MAINTENANCE TO ESTABLISH A STAND
- 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.

TEMP	ORA	NRY	ERC	OISC	N (CO	N	ΓRC)L	NO.	TE	(

- 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 LOAMED 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).
- SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A 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. 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.
 - 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
 - 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.
 - 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
 - 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.
 - 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.
- A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED 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.

MODERATELY MIXTURE 1/ DROUGHTY DRAINED DRAINED DRAINED STEEP CUTS AND GOOD FILLS, BORROW GOOD EXCELLENT GOOD AND DISPOSAL POOR AREAS FAIR **EXCELLENT EXCELLENT** POOR WATERWAYS, EMERGENCY GOOD EXCELLENT **EXCELLENT** FAIR SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER. FAIR LIGHTLY USED PARKING LOTS, ODD AREAS, GOOD EXCELLENT EXCELLENT UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES EXCELLENT PLAY AREAS AND EXCELLENT EXCELLENT ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW. 27 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

	OLLDIN	a doide	
	MIXTURE_	POUNDS PER ACRE	POUNDS PER 1.000 Sq. Ft
•	A. TALL FESCUE CREEPING RED FESCUE RED TOP TOTAL	20 20 2 42	0.45 0.45 <u>0.05</u> 0.95
	B. TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR	15 10 15	0.35 0.25 0.35
	FLAT PEA TOTAL	30 40 OR 55	0.75 0.95 OR 1.35
*	C. TALL FESCUE CREEPING RED FESCUE BIRDS FOOT TREFOIL TOTAL	20 20 <u>8</u> 48	0.45 0.45 <u>0.20</u> 1.10
	D. TALL FESCUE FLAT PEA TOTAL	20 30 50	0.45 <u>0.75</u> 1.20
	E. CREEPING RED FESCUE 1/ KENTUCKY BLUEGRASS 1/ TOTAL	50 50 100	1.15 1.15 2.30
	F. TALL FESCUE 1	150	3.60
	1/FOR HEAVY USE ATHLETIC FIELDS NEW HAMPSHIRE COOPERATIVE EXTENCURRENT VARIETIES AND SEEDING RA	NSION TURF SPE	

SEEDING RATES

CONSTRUCTION SEQUENCE

- 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,
- 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.
- 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 ABUTTING 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/LOAMED 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.

8 WHITTAKER DRIVE, STRATHAM, NH 03885

Designed and Produced in NH Plan Name: EROSION AND SEDIMENT CONTROL DETAILS

Owner of Record:

85 Portsmouth Ave. Civil Engineering Services 603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885 **ROBIN SULLIVAN**

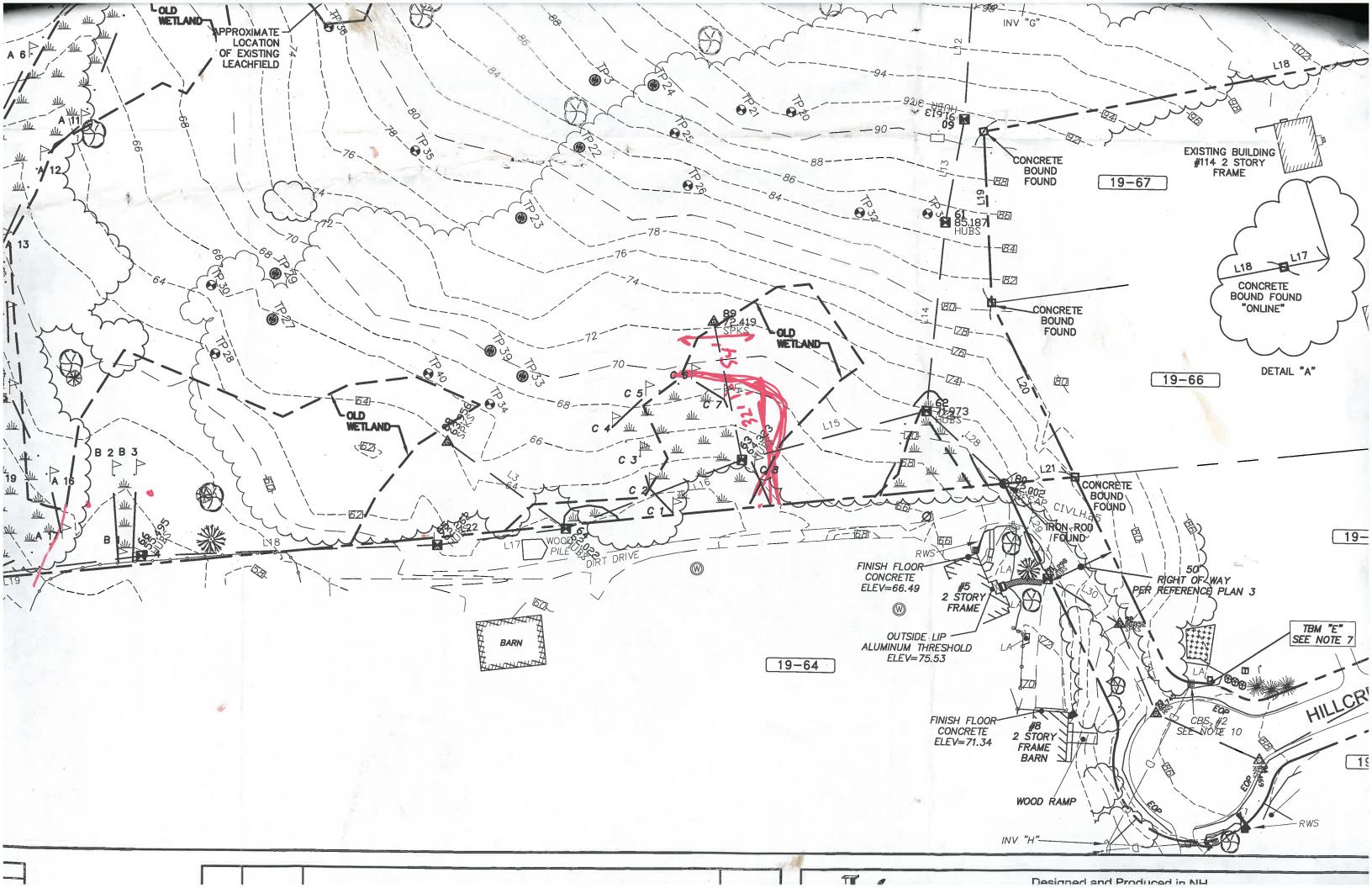
SHEET 8 OF 8

JBE PROJECT NO. 13070.⁻

DRAWING No.

EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.

CONSTRUCTION SPECIFICATIONS:





ROCKINGHAM COUNTY CONSERVATION DISTRICT

110 North Road, Brentwood, NH 03833-6614 Tel: 603-679-2790 ● Fax: 603-679-2860 www.rockinghamccd.org

29 January 2018

Tavis Austin, Town Planner Town of Stratham 10 Bunker Hill Avenue Stratham, NH 03885

RE: Sullivan Subdivision

Whittaker Drive Tax map/lot: 19/68 RCCD #ST19-68-L18

Dear Mr. Austin;

At the request of the Planning Board, RCCD staff conducted a review of the wetland delineation submitted as part of this subdivision application. The wetland/upland boundaries were flagged by Chris Albert, Certified Wetland Scientist, of Jones and Beach Engineers. On this date Mike Cuomo of RCCD, Mr. Albert, and Luke Hurley of Gove Environmental Services met at the site to conduct a field review. There was patchy, thin snow on the ground when this work was done.

A plan was previously submitted to the Planning Board dated 1 March 1995 prepared by Durgin, Verra, and Associates which showed wetland soils that were more extensive than shown on the Jones and Beach Engineers plan. Further, a project abutter submitted a letter from West Environmental raising concerns about the accuracy of the wetland delineation.

RCCD staff examined the areas where a discrepancy exists between the 1995 wetland soil boundaries and the current wetland delineation along the easterly property line. With one exception described below, the current wetland delineation prepared by Mr. Albert is accurate.

In one location, a replacement flag 'C7' was hung upslope and to the north of Mr. Albert's flag C7. (The new flag C7 is 32 feet from the old flag C7 and 54 feet from flag C6.)

Speculating on the causes for the significantly different opinions on the wetland boundaries, please note that the 1995 plan used poorly drained soil criteria which are now substantially different. In some locations the work on the 1995 plan was simply wrong.

This site also has extensive areas which are dominated by vegetation *more likely* to grow in wetlands than uplands, but here are growing on non-wetland soils. These areas look like wetlands at first glance, but do not meet the definition of a wetland upon close inspection. This is due in part to historical manipulation of the site by human activity.

Sincerely,

Michael Cuomo

NH Certified Soil Scientist #6

Widraul Cerms

NH Certified Wetland Scientist #4

NH Designer #788

Copy to: Mark Morong, CEO

Leonard A. Lord District Manager

CIVILWORKS NEW ENGLAND

181 WATSON ROAD P.O. BOX 1166 DOVER, NH 03821-1166

PHONE: (603) 750.4266 FAX: (603) 749.7348

February 5, 2018

Stratham Planning Board 10 Bunker Hill Avenue Stratham, NH 03885

Attn: Tavis Austin, Town Planner

(via email): TAustin@strathamNH.gov

Re: Subdivision Plan Review – Sullivan

Tax Map 19, Lot No. 68

112 High Street, Stratham, NH

Our Reference No. 1768

Dear Mr. Austin:

At your request, we have reviewed revised subdivision plans of the proposed Sullivan subdivision submitted by Jones & Beach Engineers, Inc. (JBE) in support of their application for Planning Board approval under subdivision review. The titles of the submitted plan sheets are listed below and are dated as noted:

PLAN NO.	TITLE	DATE	REV.
CS	Cover Sheet	12-20-17	5
A1	Subdivision Plan	12-20-17	5
C1	Existing Conditions Plan	12-20-17	5
C2	Grading and Drainage Plan	12-20-17	5
P1	Plan and Profile	12-20-17	5
D1	Detail Sheet	12-20-17	5
D2	Detail Sheet	12-20-17	5
E1	Erosion and Sediment Control Details	12-20-17	5

All plan sheets have been prepared by JBE. Also submitted were:

- "DRAINAGE ANALYSIS SEDIMENT AND EROSION CONTROL PLAN", dated: June 29, 2017 and revised: December 20, 2017; as prepared by JBE.
- 2. Correspondence from JBE to the Stratham Planning Board dated: December 20, 2017.
- 3. "SITE PLAN REVIEW/SUBDIVISION WAIVER REQUEST FORMS" (5); dated: December 20, 2017.

The scope of our subdivision plan review includes:

- 1. Check for conformance with the Stratham Zoning Ordinance
- 2. Check for conformance with the Stratham Subdivision Regulations
- 3. Subdivision engineering and design review

This is a follow-up review of revised project plans relative to our October 16, 2017 report and correspondence regarding same.

ZONING ORDINANCE CONFORMANCE REVIEW:

All appears to be in order. As such, we have no comments to share at this time.

SUBDIVISION REGULATIONS CONFORMANCE REVIEW:

- 1. Section 3.3.2 states the scale of the "Subdivision Plan" should be no greater than 1"=50'. The submitted "subdivision plan" is at a scale of 1"=60'. A WAIVER from the Regulations has been requested by JBE.
- 2. The overall length of the proposed cul-de-sac is over 800'. The maximum length allowed in Section 4.4.3,a.,ii. Is 800'. A WAIVER from the Regulations has been requested to allow for this.
- 3. A WAIVER request has been submitted to allow for a 22' wide roadway (paved) width and a 20' wide cul-de-sac turnaround (paved) width where 24' is required.
- 4. A WAIVER request has been submitted to allow relief from the requirements of Section 4.4.3, 2.i. as same apply to the proposed dead-end street.
- 5. A WAIVER request has been submitted to allow 3:1 side slopes associated with the proposed roadway typical cross section.

SUBDIVISION ENGINEERING AND DESIGN REVIEW:

- 1. NHDES Subdivision Approval will be required for this subdivision proposal.
- 2. It would seem appropriate to call for the removal of the existing 15" culvert at STA 0+30.
- 3. The stormwater drainage design appears to be satisfactory. We have no concern at all with the negligible runoff increase at Analysis Point #3.
- 4. In general, we have no objections to the submitted WAIVER requests. The Town Road Agent should be consulted for his input on the WAIVER requests. Additionally, the Planning Board should give due consideration of the requests as same relate to municipal policy and history relative to these matters.
- 5. The proposed 5' wide "public trail way" seems rather narrow in terms of any future need relative to emergency response. A 10' wide "way" could easily accommodate a "Gator" or other similar off road vehicle operated by first responders.
- 6. There is no outlet protection called for at the 12" RCP (inv. 80.0) at STA 0-50 RT or at the 12" RCP (inv. 79.7) at STA 8+65 LT.

RECOMMENDATIONS:

The Board may wish to have the applicant address the comments contained herein prior to taking any action on the disposition of the plans.

Please feel free to contact me if there are any questions or comments regarding this subdivision review.

Very truly yours, CIVILWORKS, INC.

Paul J. Connolly, P.E., P.L.S.

Paul Cornolly/le

PJC/Ird

cc: Jonathan Ring, P.E. (JBE), via email: jring@Jonesandbeach.com



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

February 15, 2018

Town of Stratham Planning Board Attn. Tavis Austin, Town Planner 10 Bunker Hill Avenue Stratham, NH 03885

RE: Engineer Response Letter 3
Sullivan Subdivision
8 Whittaker Drive, Stratham, NH
JBE Project No. 13070.1

Dear Mr. Austin,

We are in receipt of the Rockingham County Conservation District Wetland Review Letter dated January 29, 2018. The one wetland flag (C7) relocation has been done on the plans (Lot 2).

We have also received the Civilworks Engineer Review Letter dated February 5, 2018. We offer the following response:

Subdivision Engineering and Design Review:

- 1. NHDES Subdivision Approval will be required for this subdivision proposal. **RESPONSE: Agreed.**
- 2. It would seem appropriate to call for the removal of the existing 15" culvert at STA 0+30. RESPONSE: The existing 15" CMP will be removed.
- 3. The stormwater drainage design appears to be satisfactory. We have no concern at all with the negligible runoff increase at Analysis Point #3.

 RESPONSE: Agreed.
- 4. In general, we have no objections to the submitted Waiver requests. The Town Road Agent should be consulted for his input on the Waiver requests. Additionally, the Planning Board should give due consideration of the requests as same relate to municipal policy and history to these matters.

RESPONSE: Agreed.

5. The proposed 5' wide "public trail way" seems rather narrow in terms of any future need relative to emergency response. A 10' wide "way" could easily accommodate a "Gator" or other similar off road vehicle operated by first responders.

RESPONSE: The "public trail way" has been increased to 10 foot wide.

6. There is no outlet protection called for at the 12" RCP (inv. 80.0) at STA 0-50 RT or at the 12" RCP (inv. 79.7) at STA 8+65 LT.

RESPONSE: Rip rap stone has been specified at the two locations referenced.

We look forward to a discussion of these items, and requested Waivers, at the Planning Board Public Hearing on March 7, 2018. Please let me know if you have any questions. Thank you very much for your time.

Very truly yours,

JONES & BEACH ENGINEERS, INC.

onathan S. Ring, P.E.

President

cc: Brian Sullivan (via email)

Kevin Baum, HPGR Lawyers (via email)

To Paul Connolly

Cc Tavis Austin; Denise Lemire; b.sull; Kevin Baum; Samantha Ziembicki

Paul, thank you very much for your email stating -- clean engineering review for these minor revisions. Cheers,

Jon Ring

From: Paul Connolly [mailto:pconnolly@civilworksne.com]

Sent: Sunday, February 18, 2018 7:33 PM

To: TAustin@strathamNH.gov

Cc: Jonathan Ring

Subject: Fwd: JBE 13070.1 - Stratham, 8 Whittaker Drive

Tavis,

I'm fine with the JBE responses and plan revisions. Please consider the short email as an indicator of our satisfaction with the final plan changes.

Paul C.

Sent from my iPhone

Begin forwarded message:

From: Stefanie Michaud < smichaud@jonesandbeach.com>

Date: February 15, 2018 at 2:32:54 PM EST

To: Robin rdbsullivan@comcast.net, Brian Sullivan bsull@comcast.net, Kevin Baum KBaum@hpgrlaw.com, "Tavis Austin (Taustin@strathamnh.gov)" Taustin@strathamnh.gov), Denise Lemire DLemire@strathamnh.gov), Denise Lemire D

"Pconnolly@civilworksne.com" < Pconnolly@civilworksne.com>, "Mike Cuomo (rccd@rockinghamccd.org)" < rccd@rockinghamccd.org>

Cc: Jonathan Ring < <u>iring@Jonesandbeach.com</u>>, Patrick Bogle < <u>pbogle@jonesandbeach.com</u>>

Subject: JBE 13070.1 - Stratham, 8 Whittaker Drive

Good Afternoon,

Please find attached the documents that we are submitting to the Planning Board today for the above referenced property. Please feel free to contact our office if you have any questions or concerns. Thank you.

Stefanie Michaud

Jones&Beach Engineers, Inc.

85 Portsmouth Avenue PO Box 219 Stratham, NH 03885 (603) 772-4746 (evt. #12)