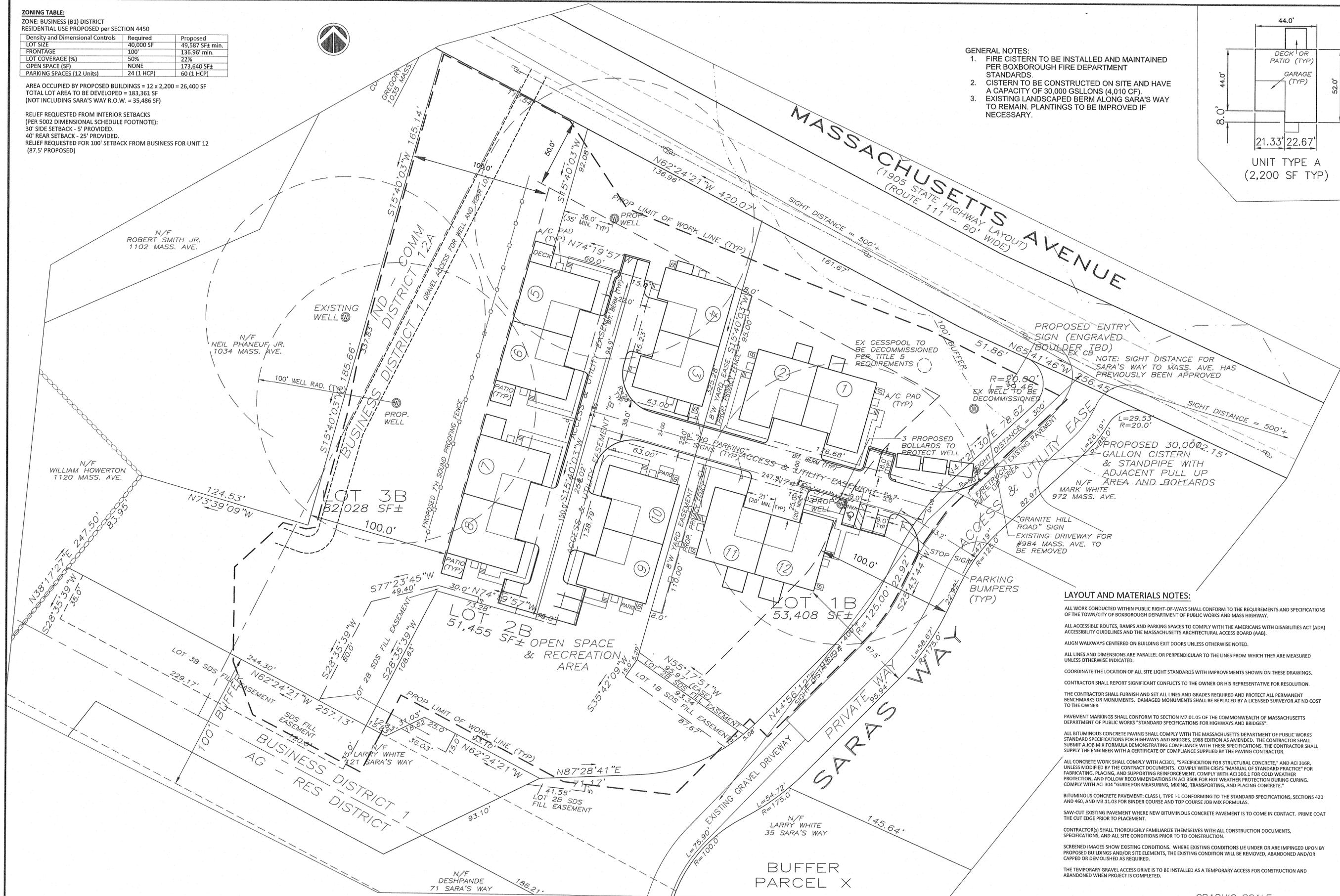


ZONING TABLE:
 ZONE: BUSINESS (B1) DISTRICT
 RESIDENTIAL USE PROPOSED per SECTION 4450

| Density and Dimensional Controls | Required | Proposed |
|----------------------------------|------------|------------------|
| LOT SIZE | 40,000 SF | 49,587 SF ± min. |
| FRONTAGE | 100' | 136.96' min. |
| LOT COVERAGE (%) | 50% | 22% |
| OPEN SPACE (SF) | NONE | 173,640 SF ± |
| PARKING SPACES (12 Units) | 24 (1 HCP) | 60 (1 HCP) |

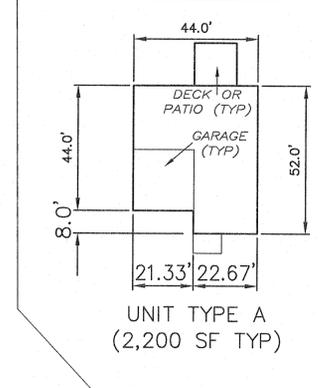
AREA OCCUPIED BY PROPOSED BUILDINGS = 12 x 2,200 = 26,400 SF
 TOTAL LOT AREA TO BE DEVELOPED = 183,361 SF
 (NOT INCLUDING SARA'S WAY R.O.W. = 35,486 SF)

RELIEF REQUESTED FROM INTERIOR SETBACKS (PER 5002 DIMENSIONAL SCHEDULE FOOTNOTE):
 30' SIDE SETBACK - 5' PROVIDED.
 40' REAR SETBACK - 25' PROVIDED.
 RELIEF REQUESTED FOR 100' SETBACK FROM BUSINESS FOR UNIT 12 (87.5' PROPOSED)



GENERAL NOTES:

1. FIRE CISTERN TO BE INSTALLED AND MAINTAINED PER BOXBOROUGH FIRE DEPARTMENT STANDARDS
2. CISTERN TO BE CONSTRUCTED ON SITE AND HAVE A CAPACITY OF 30,000 GALLONS (4,010 CF).
3. EXISTING LANDSCAPED BERM ALONG SARA'S WAY TO REMAIN. PLANTINGS TO BE IMPROVED IF NECESSARY.



LAYOUT AND MATERIALS NOTES:

ALL WORK CONDUCTED WITHIN PUBLIC RIGHT-OF-WAYS SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN/CITY OF BOXBOROUGH DEPARTMENT OF PUBLIC WORKS AND MASS HIGHWAY.

ALL ACCESSIBLE ROUTES, RAMPS AND PARKING SPACES TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES AND THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB).

ALIGN WALKWAYS CENTERED ON BUILDING EXIT DOORS UNLESS OTHERWISE NOTED.

ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.

COORDINATE THE LOCATION OF ALL SITE LIGHT STANDARDS WITH IMPROVEMENTS SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL REPORT SIGNIFICANT CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE FOR RESOLUTION.

THE CONTRACTOR SHALL FURNISH AND SET ALL LINES AND GRADES REQUIRED AND PROTECT ALL PERMANENT BENCHMARKS OR MONUMENTS. DAMAGED MONUMENTS SHALL BE REPLACED BY A LICENSED SURVEYOR AT NO COST TO THE OWNER.

PAVEMENT MARKINGS SHALL CONFORM TO SECTION M7.01.05 OF THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES".

ALL BITUMINOUS CONCRETE PAVING SHALL COMPLY WITH THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988 EDITION AS AMENDED. THE CONTRACTOR SHALL SUBMIT A JOB MIX FORMULA DEMONSTRATING COMPLIANCE WITH THESE SPECIFICATIONS. THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A CERTIFICATE OF COMPLIANCE SUPPLIED BY THE PAVING CONTRACTOR.

ALL CONCRETE WORK SHALL COMPLY WITH AC308, "SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 318R, UNLESS MODIFIED BY THE CONTRACT DOCUMENTS. COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING, PLACING, AND SUPPORTING REINFORCEMENT. COMPLY WITH ACI 306.1 FOR COLD WEATHER PROTECTION, AND FOLLOW RECOMMENDATIONS IN ACI 308R FOR HOT WEATHER PROTECTION DURING CURING. COMPLY WITH ACI 304 "GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE."

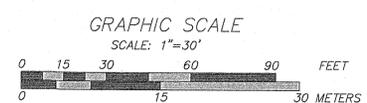
BITUMINOUS CONCRETE PAVEMENT: CLASS I, TYPE I-1 CONFORMING TO THE STANDARD SPECIFICATIONS, SECTIONS 420 AND 460, AND M3.11.03 FOR BINDER COURSE AND TOP COURSE JOB MIX FORMULAS.

SAW-CUT EXISTING PAVEMENT WHERE NEW BITUMINOUS CONCRETE PAVEMENT IS TO COME IN CONTACT. PRIME COAT THE CUT EDGE PRIOR TO PLACEMENT.

CONTRACTOR(S) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND ALL SITE CONDITIONS PRIOR TO TO CONSTRUCTION.

SCREENED IMAGES SHOW EXISTING CONDITIONS. WHERE EXISTING CONDITIONS LIE UNDER OR ARE IMPINGED UPON BY PROPOSED BUILDINGS AND/OR SITE ELEMENTS, THE EXISTING CONDITION WILL BE REMOVED, ABANDONED AND/OR CAPPED OR DEMOLISHED AS REQUIRED.

THE TEMPORARY GRAVEL ACCESS DRIVE IS TO BE INSTALLED AS A TEMPORARY ACCESS FOR CONSTRUCTION AND ABANDONED WHEN PROJECT IS COMPLETED.



PREPARED BY
MASHOBA ENGINEERING ASSOCIATES
 6 BEAVER BROOK ROAD
 LITTLETON, MA 01460
 978-501-3007

CIVIL ENGINEERING CONSULTANTS

Revisions

| Number | Description | Date | Initial |
|--------|-------------------------------------|------|---------|
| 1 | Town Comments - 5/27/18 | - | DG/JF |
| 2 | Town/Peer Review Comments - 7/23/18 | - | DG/JF |
| 3 | Town/Peer Review Comments - 2/12/19 | - | DG/JF |
| 4 | Town/Peer Review Comments - 3/1/19 | - | DG/JF |
| 5 | Town/Peer Review Comments - 4/15/19 | - | DG/JF |

984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 GRANITE HILL DEVELOPMENT

LAYOUT & MATERIALS PLAN

Scale: 1"=30'
 Drawn By / Approved By:
 DG / JFF
 File Name: GRANITE_HILL_SITE3
 Date: MARCH 26, 2018
 Issued For: SITE PLAN REVIEW

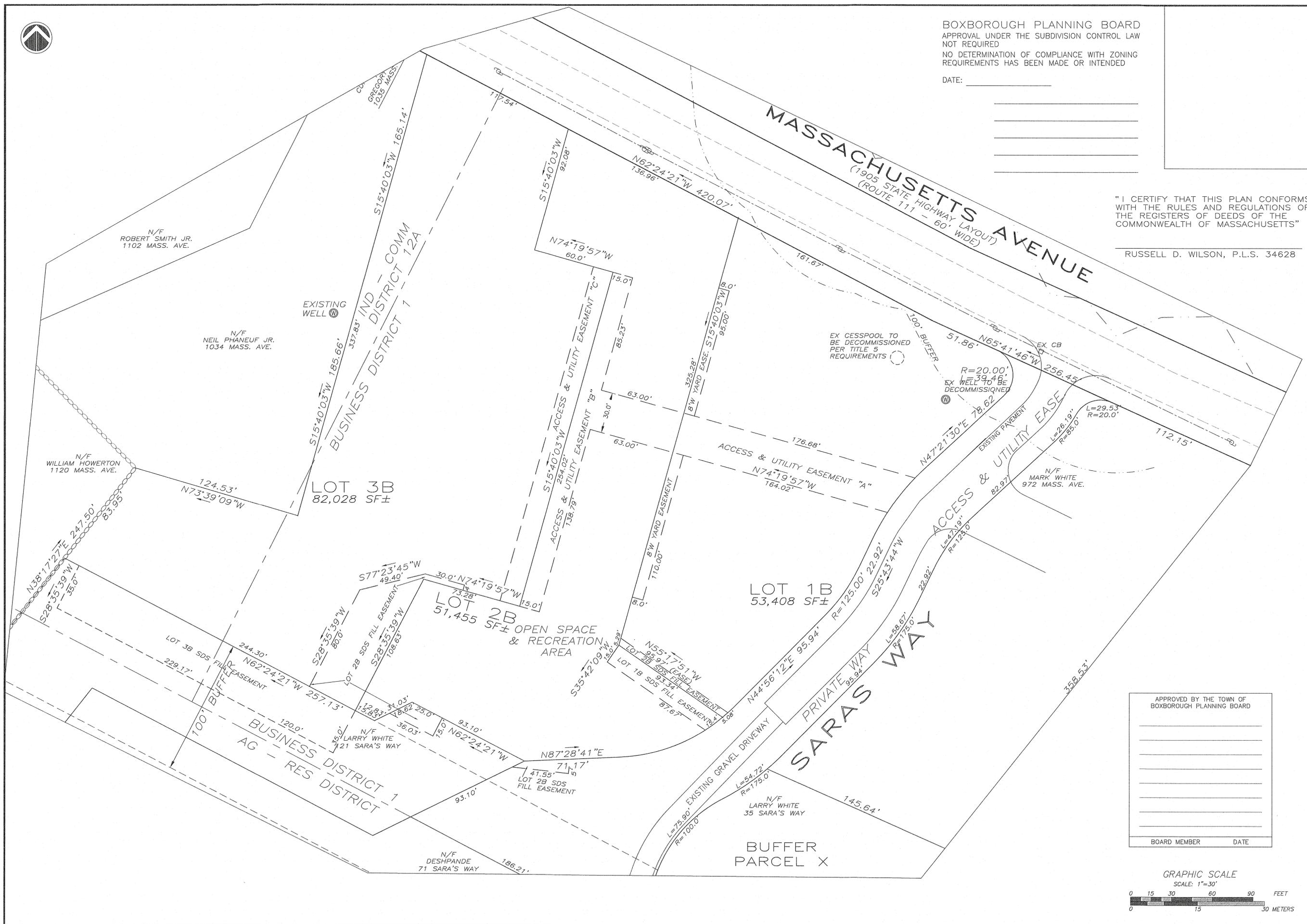


BOXBOROUGH PLANNING BOARD
 APPROVAL UNDER THE SUBDIVISION CONTROL LAW
 NO DETERMINATION OF COMPLIANCE WITH ZONING
 REQUIREMENTS HAS BEEN MADE OR INTENDED

DATE: _____

"I CERTIFY THAT THIS PLAN CONFORMS
 WITH THE RULES AND REGULATIONS OF
 THE REGISTERS OF DEEDS OF THE
 COMMONWEALTH OF MASSACHUSETTS"

RUSSELL D. WILSON, P.L.S. 34628



PREPARED BY
 NASTOBA ENGINEERING ASSOCIATES
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 978-501-3007
 CIVIL ENGINEERING CONSULTANTS

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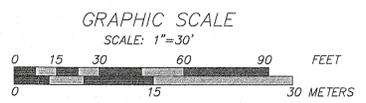
984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
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 Drawing No.
C-3

APPROVED BY THE TOWN OF
 BOXBOROUGH PLANNING BOARD

BOARD MEMBER DATE



GRADING, DRAINAGE AND UTILITY NOTES:

AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ADJUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS. PITCH EVENLY BETWEEN SPOT GRADES. GRADE ALL AREAS TO DRAIN.

THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTIATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER AND ARCHITECT FOR RESOLUTION.

ALL UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED. RISE ELEVATIONS OF DRAINAGE STRUCTURES AND MANHOLES ARE APPROXIMATE.

PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS OTHERWISE SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION WORK.

CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES AND PLANTING BEDS.

INSTALL ALL UTILITIES (INCLUDING CONCRETE MECHANICAL PADS) PER UTILITY COMPANY AND LOCAL DPW STANDARDS.

ALL WORK TO BE DONE WITHIN PUBLIC RIGHT-OF-WAYS SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE TOWN OR CITY AND MASSACHUSETTS HIGHWAY DEPARTMENT.

THE CONTRACTOR SHALL PRESERVE FROM DAMAGE ALL VEGETATION DESIGNATED TO REMAIN AS SHOWN ON THE DRAWINGS, FLAGGED IN THE FIELD OR AS DIRECTED BY THE LANDSCAPE ARCHITECT. THE LIMIT OF CLEARING SHALL BE IN ACCORDANCE WITH LIMIT OF WORK AS SHOWN ON THE DRAWINGS, UNLESS OTHERWISE SPECIFIED. NO TREES SHALL BE CUT, REMOVED, DESTROYED OR TRIMMED OUTSIDE THE LIMIT OF WORK WITHOUT APPROVAL OF THE OWNER AND THE BODENBOROUGH PLANNING BOARD.

CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO OWNER.

EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.

THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE.

THE CONTRACTOR SHALL SCHEDULE HIS WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PONDING. SPECIFICALLY ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.

PROVIDE UNDERGROUND ELECTRIC CONDUIT FOR SITE LIGHTS AS APPROPRIATE.

CONTRACTOR TO VERIFY UTILITY STUB LOCATIONS AND ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.

ENSURE ALL EXISTING (TO REMAIN) AND PROPOSED MANHOLE COVERS PROPERLY IDENTIFY UTILITY SERVED.

ALL ON-SITE DRAIN LINES SHALL BE SMOOTH WALLED HDPE PIPE UNLESS OTHERWISE NOTED. ALL DRAIN LINES LOCATED WITHIN, OR CONNECTING TO DRAIN LINES LOCATED WITHIN THE COMMERCIAL BOULEVARD RIGHT-OF-WAY SHALL BE REINFORCED CONCRETE PIPE.

ALL SLOPES WITH SURFACE GRADES STEEPER THAN 3:1 SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS.

UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE AND ASSUMED. BEFORE COMMENCING SITE WORK IN ANY AREA, CONTACT "DIG SAFE" AT 1-888-344-7233 TO ACCURATELY LOCATE UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE DONE UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED IN ADVANCE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.

ALL SITE WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS AND SHALL COMPLY WITH APPLICABLE CODES AND REGULATIONS, AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THE PROJECT. THE CONTRACTOR SHALL MAKE ALL NOTIFICATIONS REQUIRED FOR INSPECTIONS AND TESTING ASSOCIATED WITH SWPPP.

A SWPPP SHALL BE PREPARED AND A NOI FILED THROUGH THE EPA WEBSITE PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND CONSTRUCTION SHALL COMPLY WITH ALL DPW REQUIREMENTS FOR PAVING, PAVEMENT CUTTING, EXCAVATION, UTILITY CONNECTIONS, BACKFILLING, AND PAVING.

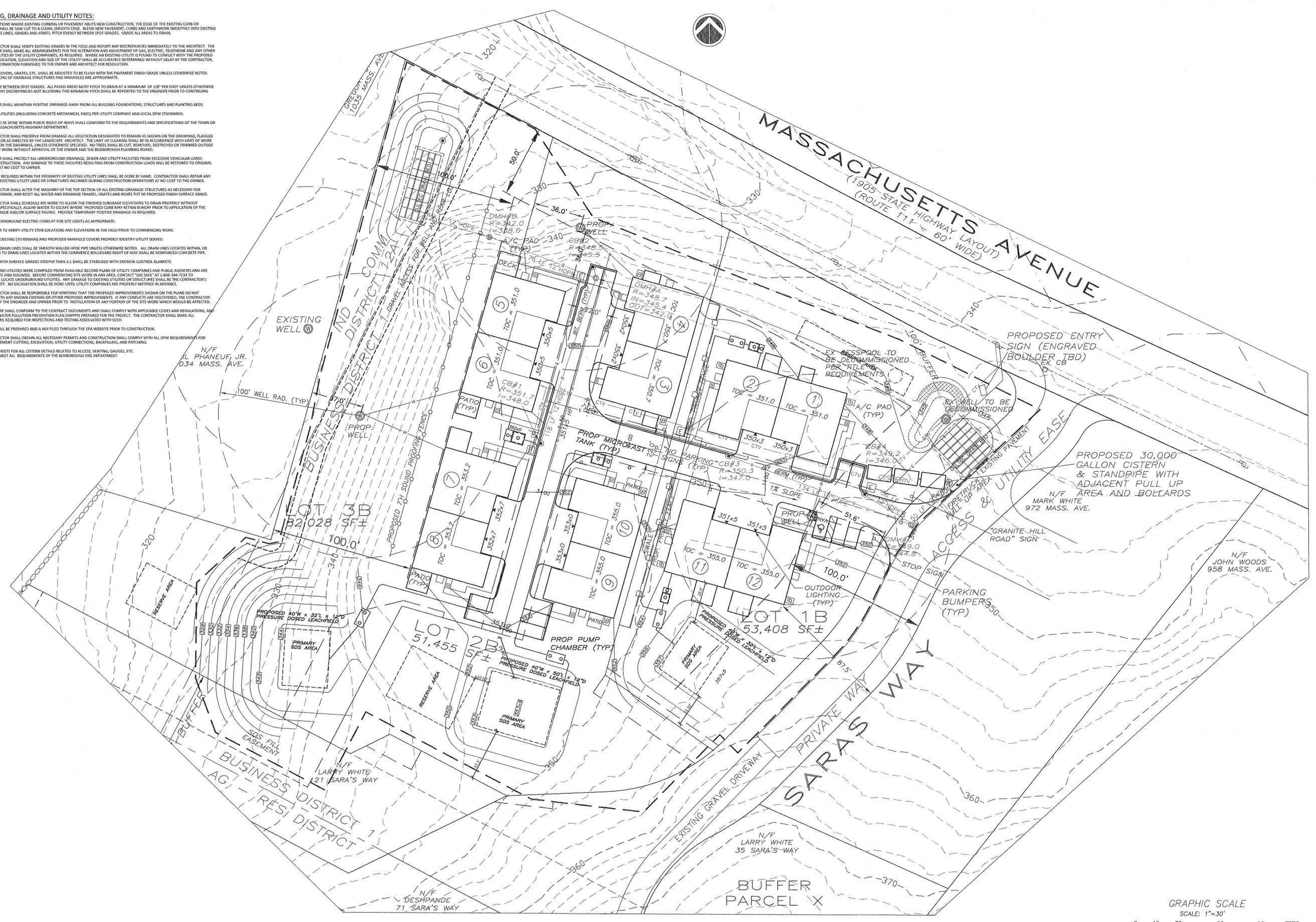
SEE DETAIL SHEETS FOR ALL COSTEN DETAILS RELATED TO ACCESS, VENTING, GAUGES, ETC. COSTEN TO MEET ALL REQUIREMENTS OF THE BOXBOROUGH FIRE DEPARTMENT.

N/F AL PHANEUF, JR.
034 MASS. AVE.

N/F JOHN WOODS
958 MASS. AVE.

N/F LARRY WHITE
21 SARA'S WAY

N/F DESHPANDE
71 SARA'S WAY



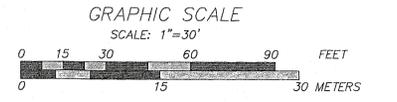
PREPARED BY
NASHOBA ENGINEERING ASSOCIATES
 6 BRAVER BROOK ROAD
 LITTLETON, MA 01460
 978-501-3007
 CIVIL ENGINEERING CONSULTANTS

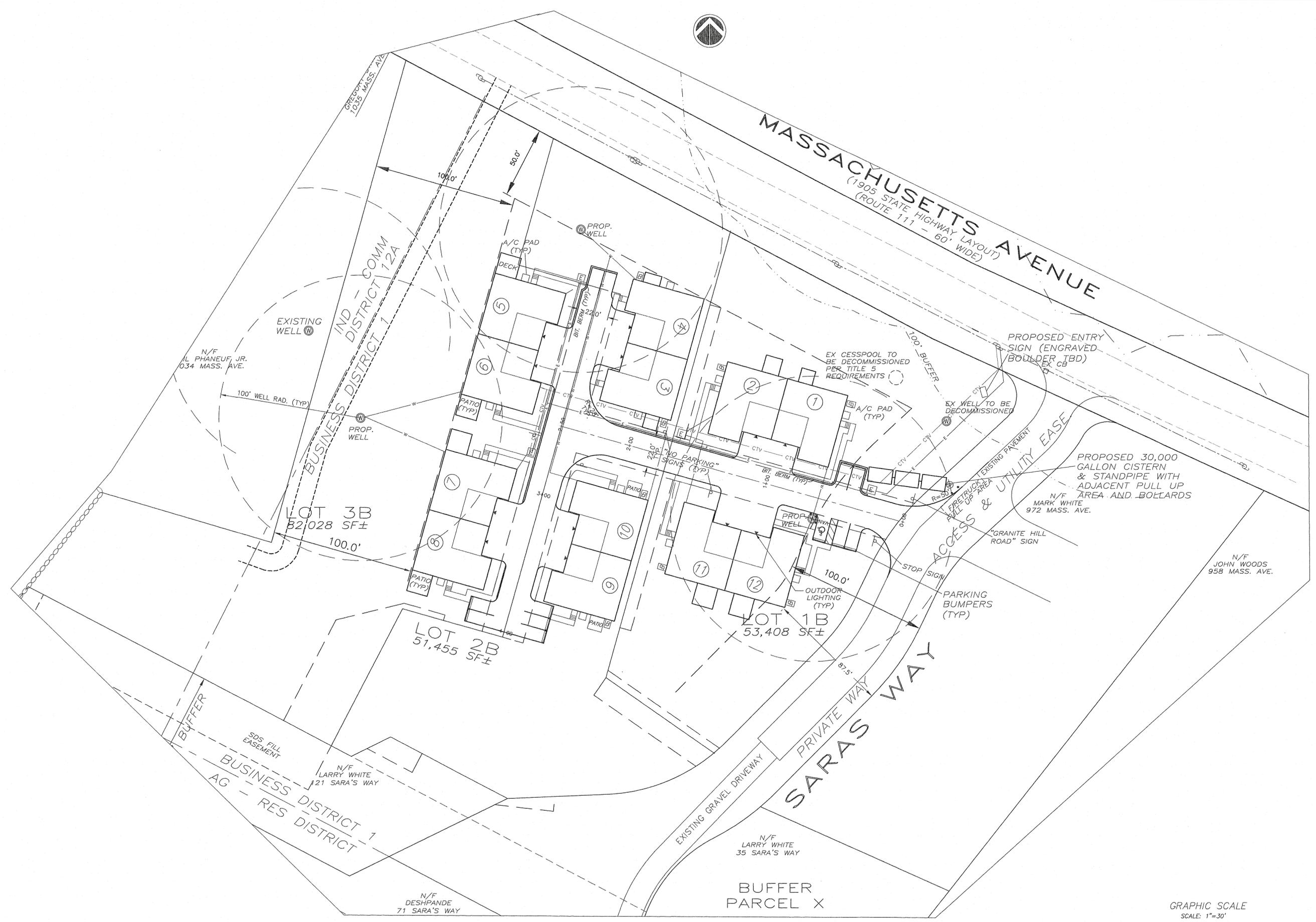
| Revision | Description | Date | By | Check |
|----------|---------------------------|---------|-------|-------|
| 1 | Town Comments | 5/07/18 | DC/JF | |
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| 4 | Town/Peer Review Comments | 3/7/19 | DC/JF | |
| 5 | Town/Peer Review Comments | 4/15/19 | DC/JF | |

984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 Project
GRANITE HILL DEVELOPMENT
 GRANITE HILL SITE 3
 Sheet

Scale:
 1" = 30'
 Drawn By / Approved By:
 DG / JFF
 File Name:
 GRANITE_HILL_SITE3
 Date:
 MARCH 26, 2018
 Issued For:
 SITE PLAN REVIEW

Project No.
 Drawing No.
C-4





PREPARED BY
NASHOBA ENGINEERING ASSOCIATES
 6 BEAVER BROOK ROAD
 LITTLETON, MA 01460
 978-501-3007

CIVIL ENGINEERING CONSULTANTS

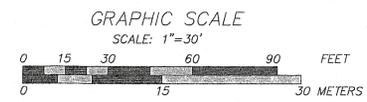
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| 4 | Town/Peer Review Comments - 3/17/19 | 3/17/19 | DG/JFF |
| 5 | Town/Peer Review Comments - 4/15/19 | 4/15/19 | DG/JFF |

984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 Project
 GRANITE HILL DEVELOPMENT

UTILITIES PLAN

Scale:
 1" = 30'
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 GRANITE_HILL_SITE3
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 MARCH 26, 2018
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Project No.
 Drawing No.
C-5



GRADING, DRAINAGE AND UTILITY NOTES:

AT ALL LOCATIONS WHERE EXISTING CURBS OR PAVEMENT ADJUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. NEW PAVEMENT, CURBS AND FORTHWORK SMOOTHLY INTO EXISTING PAVEMENT MATCHING LINES, GRADES AND JOINTS. PITCH EVENLY BETWEEN SPOT GRADES. GRADE ALL AREAS TO DRAIN.

THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER AND ARCHITECT FOR RESOLUTION.

ALL UTILITY COVERS, GRATES, ETC. SHALL BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED. RIM ELEVATIONS OF DRAINAGE STRUCTURES AND MANHOLES ARE APPROXIMATE.

PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/2" PER FOOT UNLESS OTHERWISE SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.

CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS, STRUCTURES AND PLANTING BEDS.

INSTALL ALL UTILITIES (INCLUDING CONCRETE MECHANICAL PADS) PER UTILITY COMPANY AND LOCAL DPW STANDARDS.

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A SWPPP SHALL BE PREPARED AND A NOI FILED THROUGH THE EPA WEBSITE PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND CONSTRUCTION SHALL COMPLY WITH ALL DPW REQUIREMENTS FOR PAVING, PAVEMENT CUTTING, EXCAVATION, UTILITY CONNECTIONS, BACKFILLING, AND PATCHING.

N/F L. PHANEUF, JR. 034 MASS. AVE.

100' WELL RAD. (TYP)

PROPOSED ENTRY SIGN (ENGRAVED BOULDER 1BD)

PROPOSED 30,000 GALLON CISTERN & STANDPIPE WITH ADJACENT PULL UP AREA AND BOLLARDS

N/F MARK WHITE 972 MASS. AVE.

"GRANITE HILL ROAD" SIGN

N/F JOHN WOODS 958 MASS. AVE.

PROPOSED 40'W x 32'L x 12"D PRESSURE DOSED LEACHFIELD

PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

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PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

PROPOSED 40'W x 30'L x 12"D PRESSURE DOSED LEACHFIELD

NOTE: DRIP LINE TRENCH SHALL BE INSTALLED ON ALL 12 UNITS.

DRIP LINE TRENCH DETAIL

NOT TO SCALE

SECTION E-E

12" MIN
6" MIN
6" DEEP, 1/2" CRUSHED STONE
12" DEEP, 1 1/2" CRUSHED STONE
NONWOVEN GEOTEXTILE FABRIC
2" DEEP, 40 MIL P.I. BARRIER



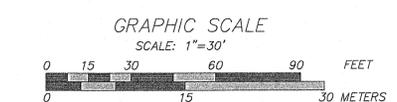
MASSACHUSETTS AVENUE
(1905 STATE HIGHWAY LAYOUT)
(ROUTE 111 - 60' WIDE)

BUSINESS DISTRICT COMM
BUSINESS DISTRICT COMM

BUSINESS DISTRICT
RESI DISTRICT

SARA'S WAY
PRIVATE WAY

BUFFER PARCEL X



PREPARED BY
NASHOBA ENGINEERING ASSOCIATES
6 BEAVER BROOK ROAD
LITTLETON, MA 01460
978-501-3007
CIVIL ENGINEERING CONSULTANTS

| Revision Number | Description | Date | Initials |
|-----------------|----------------------------|---------|----------|
| 1 | Town/Peer Review Comments | 5/07/18 | DG/JFF |
| 2 | Town/Peer Review Comments | 7/23/18 | DG/JFF |
| 3 | Town/Peer Review Comments | 2/12/19 | DG/JFF |
| 4 | Town/Peer Review Comments | 3/17/19 | DG/JFF |
| 5 | Fire Alarm Reconfiguration | 3/19/19 | DG/JFF |
| 6 | Town/Peer Review Comments | 4/15/19 | DG/JFF |

984 MASSACHUSETTS AVENUE
BOZBOROUGH, MA 01719
Project
GRANITE HILL DEVELOPMENT
Sheet
DRAINAGE & SEPTIC SYSTEMS PLAN

Scale: 1"=30'
Drawn By / Approved By:
DG / JFF
File Name: GRANITE_HILL_SITE3
Date: MARCH 26, 2018
Issued For: SITE PLAN REVIEW

Project No.
Drawing No. **C-6**

LANDSCAPE NOTES

ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.

ANY PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. PROPOSED SUBSTITUTIONS WILL ONLY BE CONSIDERED IF SUBMITTED WITH ENUMERATED REASONS WHY SUBSTITUTIONS ARE PROPOSED.

TOPSOIL STRIPPED FROM THE SITE AND PROPERLY STOCKPILED PRIOR TO APPLICATION MAY, UPON APPROVAL OF THE LANDSCAPE ARCHITECT, BE USED FOR PREPARATION OF LAWNS AND PLANTING BEDS. IT SHOULD BE FREE OF LARGE (ONE (1) INCH OR GREATER) COBBLES, ROOTS, OLD SOD, TRASH, WOOD OR OTHER CONTAMINANTS AND BE OF A FRIABLE CONSISTENCY AND SUITABLE FOR PLANT GROWTH.

VERIFY LOCATIONS OF ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE.

PROVIDE TREES, SHRUBS, AND GROUNDCOVERS AS SHOWN AND SPECIFIED. THE WORK INCLUDES: SOIL PREPARATION, INSTALLATION OF TREES, SHRUBS AND GROUNDCOVERS, PLANTING MIXES, MULCH AND PLANTING ACCESSORIES, WARRANTY, WATERING AND MAINTENANCE DURING CONSTRUCTION AND WARRANTY PERIODS.

PRIOR TO PLANTING, PLANTS MAY BE INSPECTED BY OWNER OR HIS REPRESENTATIVE. THEY SHALL RESERVE THE RIGHT TO REFUSE ACCEPTANCE OF PLANTS UPON DELIVERY BASED ON PLANT VIGOR/CONDITION, UNAUTHORIZED SUBSTITUTIONS, AND/OR NONCONFORMANCE WITH THE PLANTING PLANS AND SPECIFICATIONS. SUCH APPROVAL SHALL NOT AFFECT THE RIGHT OF INSPECTION AND REJECTION DURING THE PROGRESS OF THE PROJECT.

THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST FINAL GRADES IN THE FIELD TO SAVE EXISTING VEGETATION.

PLANT QUANTITIES NOTED IN THE PLANT SCHEDULE ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL PLANT MATERIALS NOTED ON THE PLANTING PLAN.

NO PLANT SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.

REPAIR AND REESTABLISH GRADES IN SETTLED, ERODED AND RUTTED AREAS TO THE SPECIFIED GRADE AND TOLERANCES PRIOR TO PLANTING OR LOAM AND SEEDING OPERATIONS.

GALLED AND BURLAPED PLANTS MAY BE PLANTED IN THE SPRING FROM APRIL 1ST UNTIL JUNE 15TH AND IN THE FALL FROM AUGUST 15TH TO NOVEMBER 1ST.

PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.

ALL PLANTING BEDS TO BE FILLED WITH AT LEAST 24" DEEP PLANTING SOIL AND CROWNED ABOVE ADJACENT LAWN OR IMPROVED AREAS. ALL PLANTING BEDS TO BE MULCHED WITH AGED HARDWOOD BARK MULCH TO A DEPTH OF THREE (3) INCHES.

PROVIDE FIVE (5) FOOT DIAMETER MULCH CIRCLE AROUND ALL INDIVIDUAL TREE PLANTINGS AND CONTINUOUS MULCH BED AROUND SHRUB PLANTINGS. DO NOT EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.

PLANT MATERIALS DEPICTED IN ROWS SHALL CONTAIN MATCHING PLANT SPECIMENS SPACED EQUALLY ALONG INDICATED AREA.

PLANT MATERIALS SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS THEY BORE TO GRADE IN THE NURSERY.

CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.

ALL PLANT MATERIALS AND LAWN AREAS TO BE MAINTAINED BY LANDSCAPE CONTRACTOR UNTIL FINAL WRITTEN ACCEPTANCE PROVIDED TO CONTRACTOR BY OWNER OR HIS REPRESENTATIVE.

REPLACE, IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, ALL PLANTS THAT ARE DEAD OR, AS DETERMINED BY THE OWNER OR HIS REPRESENTATIVE ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION AND HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES OR OTHER CAUSES DUE TO THE CONTRACTOR'S NEGLIGENCE. THE COST OF SUCH REPLACEMENT(S) IS AT THE CONTRACTOR'S EXPENSE.

ALL PLANT MATERIALS TO REMAIN ALIVE AND BE IN HEALTHY, VIGOROUS CONDITION AND SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL WRITTEN ACCEPTANCE FROM THE OWNER OR HIS REPRESENTATIVE.

ALL PLANT MATERIALS ARE INTENDED TO BE DROUGHT TOLERANT ONCE ESTABLISHED. NO IRRIGATION SYSTEM IS PROPOSED.

THE LANDSCAPE CONTRACTOR SHALL FURNISH TOPSOIL. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TYPE. IT SHALL BE FREE OF WEED SEEDS. TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS AND OTHER FOREIGN MATTER. TOPSOIL SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.

REUSE EXISTING TOPSOIL ENCOUNTERED ON-SITE AND AMEND TO PARAMETERS LISTED BELOW. IF ADDITIONAL TOPSOIL IS NEEDED PROVIDE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMY CHARACTER (FOR PLANTING MIX), WITHOUT ADMIXTURE OF SUBSOIL MATERIAL, OBTAINED FROM A WELL-DRAINED SITE, REASONABLY FREE OF CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS AND OTHER FOREIGN MATERIALS, WITH ACIDITY RANGE OF BETWEEN PH 6.0 AND 6.8. TOPSOIL SHALL NOT BE DELIVERED OR WORKED IN A MUDDY OR FROZEN CONDITION.

PLANTING MIX SHALL BE THE SPECIFIED MATERIALS IN THE FOLLOWING PROPORTIONS: 3 PARTS TOPSOIL, 1 PART PEAT MOSS, 1 PART SAND, WITH 5 POUNDS OF SUPERPHOSPHATE CUBIC YARD OF MIXTURE (ONLY IF PLANTS ARE INSTALLED IN SPRING), AMEND AS NECESSARY. ALL AMENDMENTS SHALL BE THOROUGHLY INCORPORATED INTO MIXTURE TO ASSURE UNIFORM DISTRIBUTION.

PLANTING MIX SHALL BE SPREAD TO A MINIMUM DEPTH OF SIX (6) INCHES AFTER SETTLING ON ALL DISTURBED AREAS.

TURFGRASS LAWN AREAS AND PLANTING BED SUBGRADE AREAS UPON COMPLETION OF FINAL GRADING. SEEDING OPERATION OR SPREADING OF TURFGRASS SOD TO BE COMPLETED IMMEDIATELY FOLLOWING THE APPLICATION OF THE PLANTING MIX OVER THE SUBGRADE. SCARIFY SUBGRADE TO A DEPTH OF 2" BEFORE PLACING TOPSOIL.

LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED ON PLAN. LOAM WITH TOPSOIL SPREAD TO A MINIMUM DEPTH OF (6) INCHES.

PERENNIALS, BULBS AND ANNUALS ARE TO BE PLANTED IN A WELL PREPARED BED WHICH SHALL INCLUDE PEAT AND SLOW RELEASE FERTILIZER. BEDS SHALL BE SKIMMED WITH ONE AND ONE-HALF (1-1/2) INCH TO TWO (2) INCH MULCH (INCLUDING GROUNDCOVERS).

THE LANDSCAPE CONTRACTOR IS TO CLEAN AND REMOVE ANY DEBRIS FROM THE SITE CAUSED BY THEIR WORK.

LOAM AND SOIL TO BE TESTED PER 330 CMR 31.0 TO ENSURE SOIL HAS APPROPRIATE NUTRIENTS AND pH FOR PROPOSED LANDSCAPING.

EVERGREEN TREES ARE TO BE MAINTAINED BY THEIR APPROPRIATE ASSOCIATIONS TO ENSURE THE REMAIN STABLE AFTER PLANTING. THIS WILL INCLUDE LIMITING THEIR HEIGHT TO LIMIT THE CHANCES OF BEING BLOWN OVER/UPROOTED IN SEVERE CONDITIONS.

THE PLANT SCHEDULE AS SHOWN IS INTENDED TO PROVIDED SHADE AND SCREEN AS APPROPRIATE. CONTRACTOR SHALL COORDINATE WITH CONSULTING LANDSCAPE ARCHITECT AND TOWN REPRESENTATIVE FOR FINAL TREE PLACEMENT, ESPECIALLY IN SENSITIVE AREAS. PRIOR TO INSTALLATION, SPECIES AND TREES/SHRUBS ALTERNATIVES SHOULD BE AGREED TO AS APPROPRIATE TO SATISFY ALL REQUIREMENTS OF THE SITE (AESTHETICS, STABILITY, GROUND CONDITIONS, SCREENING, ETC.)

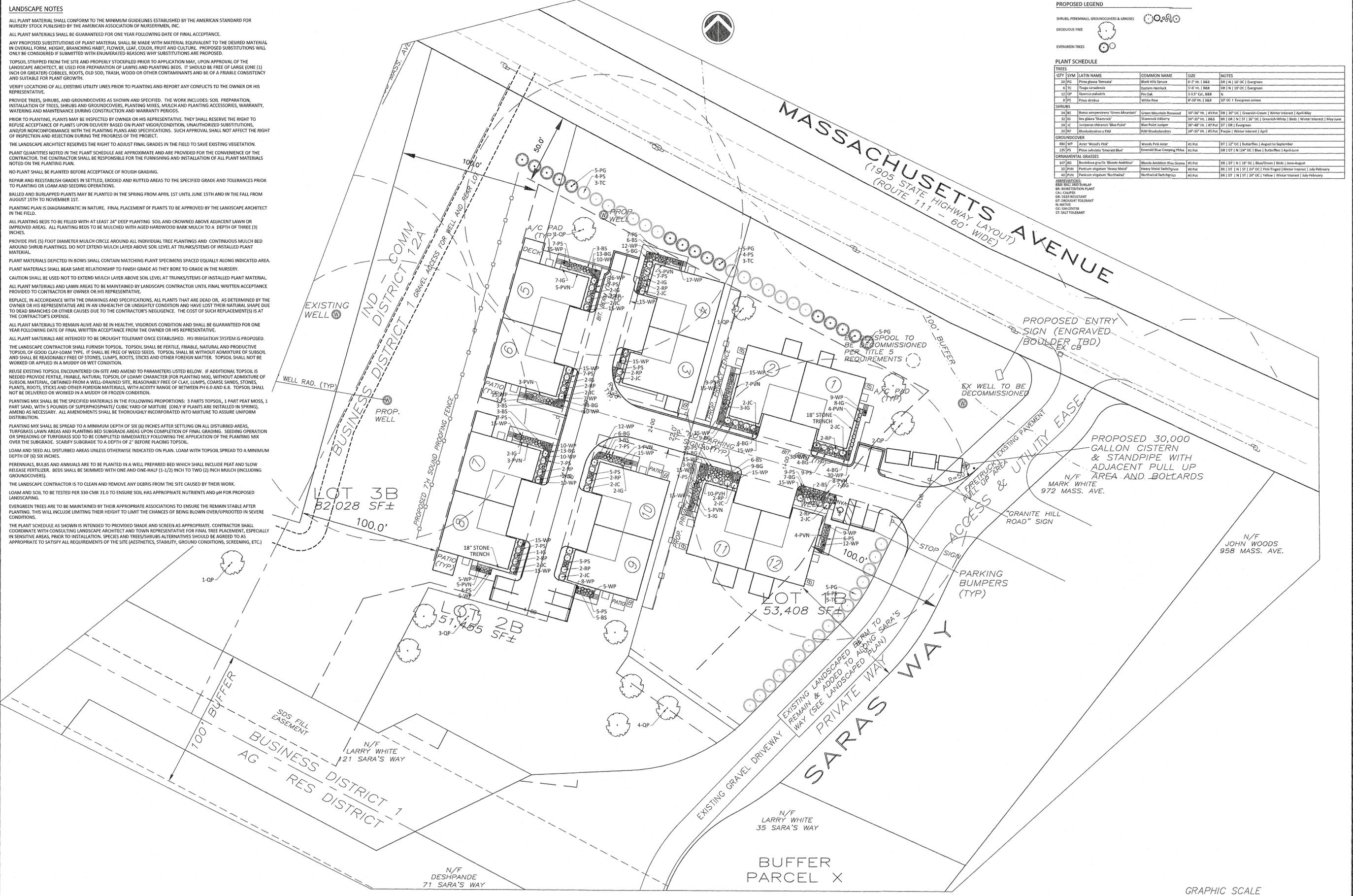
PROPOSED LEGEND



PLANT SCHEDULE

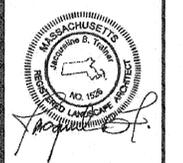
| QTY | SYM | LATIN NAME | COMMON NAME | SIZE | NOTES |
|---------------------------|-----|--|-----------------------------|----------------------|--|
| 20 | PS | <i>Pinus glauca 'benata'</i> | Black Hills Spruce | 6'-7" Ht. B&B | DR N 10' OC Evergreen |
| 4 | TC | <i>Tsuga canadensis</i> | Eastern Hemlock | 5'-6" Ht. B&B | DR N 10' OC Evergreen |
| 12 | QP | <i>Quercus palustris</i> | Pin Oak | 3-3.5" Cal. B&B | N |
| 8 | PS | <i>Pinus strobus</i> | White Pine | 6'-10" Ht. B&B | 10' OC Evergreen screen |
| SHRUBS | | | | | |
| 34 | BS | <i>Buxus sempervirens 'Green Mountain'</i> | Green Mountain Boxwood | 20"-30" Ht. #3 Pot | DR 10' OC Greenish-Cream Winter Interest April-May |
| 14 | IG | <i>Ilex glabra 'Shamrock'</i> | Shamrock Holly | 24"-30" Ht. B&B | DR DR N ST 10' OC Greenish-White Beds Winter Interest May-June |
| 24 | JC | <i>Juniperus chinensis 'Blue Point'</i> | Blue Point Juniper | 30"-40" Ht. #7 Pot | DT DR Evergreen |
| 20 | MP | <i>Pyram. Knochholzerii</i> | Pyram. Knochholzerii | 24"-30" Ht. #5 Pot | Purple Winter Interest April |
| GROUNDCOVERS | | | | | |
| 400 | WP | <i>Aster 'Wood's Pink'</i> | Woods Pink Aster | #1 Pot | DT 12" OC Butterflies August to September |
| 115 | PS | <i>Prinos subulata 'Emerald Blue'</i> | Emerald Blue Creeping Phlox | #1 Pot | DR DT N 24" OC Blue Butterflies April-June |
| ORNAMENTAL GRASSES | | | | | |
| 107 | BS | <i>Bouteloua gracilis 'Blue and Gold'</i> | Blonde Ambition Blue Grass | #1 Pot | DR DT N 18" OC Blue/Green Beds June-August |
| 12 | PH | <i>Panicum virgatum 'Heavy Metal'</i> | Heavy Metal Switchgrass | #2 Pot | DR DT N ST 24" OC Pink/Fragrant Winter Interest July-February |
| 40 | PVN | <i>Panicum virgatum 'Northwind'</i> | Northwind Switchgrass | #3 Pot | DR DT N ST 24" OC Yellow Winter Interest July-February |

ABBREVIATIONS:
 BS: B&B WITH BURLAP
 DR: DIRECTIONAL PLANT
 DT: CALIBER
 DT: DEER RESISTANT
 DT: DROUGHT TOLERANT
 N: NATIVE
 OC: OPEN CENTER
 ST: SALT TOLERANT



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CIVIL ENGINEERING CONSULTANTS



REVISIONS

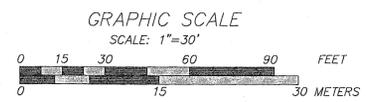
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| 1 | Town Comments - 5/07/18 | 05/07/18 |
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| 5 | Town/Peer Review Comments - 4/15/19 | 06/22/19 |

384 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 GRANITE HILL DEVELOPMENT

LANDSCAPING PLAN

Scale: 1"=30'
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EROSION CONTROL & STABILIZATION PROGRAM:

THE CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND APPLY FOR A CONSTRUCTION GENERAL PERMIT (CGP) NOTICE OF INTENT (NOI) AS REQUIRED THROUGH THE E.P.A. WEBSITE ON-LINE SYSTEM AT LEAST TWO WEEKS PRIOR TO THE START OF CONSTRUCTION.

THE CONTRACTOR SHALL IMPLEMENT THE SWPPP FOR THE PROJECT INCLUDING INSTALLATION AND MAINTENANCE OF ALL CONTROL MEASURES OUTLINED IN THE SWPPP INCLUDING EROSION CONTROL BARRIERS, ANTI-TRACKING PADS AND OTHER EROSION AND SEDIMENTATION CONTROLS, STORMWATER MANAGEMENT CONTROLS, SOLID WASTE CONTROLS AND SPILL PREVENTION CONTROLS.

THE LOCATION OF EROSION CONTROL BARRIERS AND SEDIMENTATION AND POLLUTION CONTROL SYSTEMS SHOWN ON DRAWINGS ARE INTENDED TO BE MINIMUM REQUIREMENTS AND A GUIDE FOR THE PLACEMENT OF THESE BARRIERS. OTHER MEASURES MAY BE WARRANTED BASED UPON EXPERIENCE AT THE SITE. WHEN NO SEDIMENTATION CONTROL SYSTEM IS SHOWN ON THE DRAWING, THE CONTRACTOR SHALL BE REQUIRED TO ESTABLISH A SYSTEM TO PREVENT SILTATION OR POLLUTION OF ADJACENT PROPERTY, WETLANDS OR BUFFER ZONES. THE SYSTEMS SHOWN SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PLACING ADDITIONAL BARRIERS OR REPLACING BARRIERS AS REQUIRED BY SITE CONDITIONS. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT AND ADDITIONS TO THESE SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE. MORE SILTATION CONTROL FACILITIES MAY BE REQUIRED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS NEW CONDITIONS THAT MAY BE CREATED.

PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ON THE SITE, THE OWNER SHALL DESIGNATE AN EROSION CONTROL INSPECTOR TO SERVE DURING THE CONSTRUCTION PROCESS WITH RESPONSIBILITIES IN ACCORDANCE WITH THE SWPPP.

ALL SLOPES WITH SURFACE GRADES STEEPER THAN 3:1 SHALL BE STABILIZED WITH JUTE MATTING.

REQUIRED SEDIMENTATION CONTROL FACILITIES MUST BE CONSTRUCTED, CLEARLY VISIBLE, AND IN OPERATION PRIOR TO REMOVAL OF STUMPS AND/OR OTHER CONSTRUCTION. UNLESS OTHERWISE NOTED, SUCH FACILITIES SHALL REPRESENT THE LIMIT OF WORK. NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME DURING THE CONSTRUCTION PERIOD.

TEMPORARY DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS AND ANY DENUDED SURFACE WHICH WILL BE EXPOSED FOR A PERIOD OF ONE MONTH OR MORE SHALL BE CONSIDERED CRITICAL STABILIZATION AREAS. THESE AREAS SHALL BE MULCHED WITH STRAW. MULCH SHALL BE SPREAD UNIFORMLY IN A CONTINUOUS BLANKET OF SUFFICIENT THICKNESS TO COMPLETELY HIDE THE SOIL FROM VIEW.

SEDIMENT CONTROL MEASURES SHALL BE PROVIDED WITHIN ALL EXISTING AND PROPOSED DRAINAGE STRUCTURES AS DETAILED ON THE DRAWINGS.

HAYBALE CHECK DAMS ARE TO BE PROVIDED ON TWO HUNDRED (200) FOOT SPACINGS WITHIN ALL DRAINAGE SWALES AND DITCHES AND AT UPSTREAM SIDES OF ALL DRAINAGE INLETS.

HAYBALES, SILT FENCE OR OTHER SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL SILTATION CONTROLS. THE CONTRACTOR SHALL NOT REMOVE ANY SILTATION CONTROLS UNTIL AUTHORIZED (IN WRITING) BY THE ENGINEER.

THE CONTRACTOR SHALL HAVE, AT THE START OF SOIL DISTURBANCE AN ADEQUATE RESERVE OF SILT FENCE AND HAY BALES IN GOOD CONDITION, AND SUFFICIENT STAKES FOR STAKING THESE BALES.

DENUDED SLOPES SHALL NOT BE LEFT EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASONS.

ALL DISTURBED SLOPES EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15 SHALL BE SEED OR PROTECTED BY THAT DATE.

WETLANDS ARE TO REMAIN UNDISTURBED. NO ENCROACHMENT PERMITTED.

LOAMING AND SEEDING OR MULCHING OF NON-PAVEMENT AREAS SHALL TAKE PLACE AS SOON AS PRACTICABLE.

ALL STOCKPILE AREAS SHALL BE LOCATED WITHIN LIMIT OF WORK AND STABILIZED TO PREVENT EROSION.

STABILIZED CONSTRUCTION ACCESS PADS SHALL BE INSTALLED AT ALL CONSTRUCTION DRIVEWAYS ONTO COMMERCE BOULEVARD AND CLAY STREET TO PREVENT THE TRACKING OF SEDIMENT OFF-SITE.

ANY SEDIMENTATION OR EROSION DAMAGE CAUSED AS A RESULT OF THIS PROJECT TO ANY WETLAND RESOURCE AREAS OR IDENTIFIED WETLAND BUFFER ZONES BEYOND THE LIMIT OF WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND RESTORE AT NO COST TO THE OWNER. IF SEDIMENT REACHES THESE AREAS, THE OWNER SHALL BE CONTACTED IMMEDIATELY BY THE CONTRACTOR. A PLAN FOR ABATEMENT OF THE PROBLEM AND RESTORATION SHALL BE PREPARED BY THE CONTRACTOR AS SOON AS POSSIBLE.

EROSION CONTROL BARRIER SHALL BE INSTALLED AS INDICATED ON THE PLANS AND AS REQUESTED BY THE ENGINEER TO ADDRESS FIELD CONDITIONS.

USE MEANS NECESSARY TO PREVENT DUST FROM BECOMING A NUISANCE TO THE PUBLIC, TO NEIGHBORS, AND TO OTHER WORK BEING PERFORMED ON OR NEAR THE SITE.

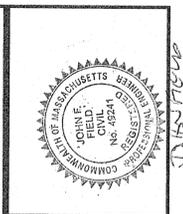
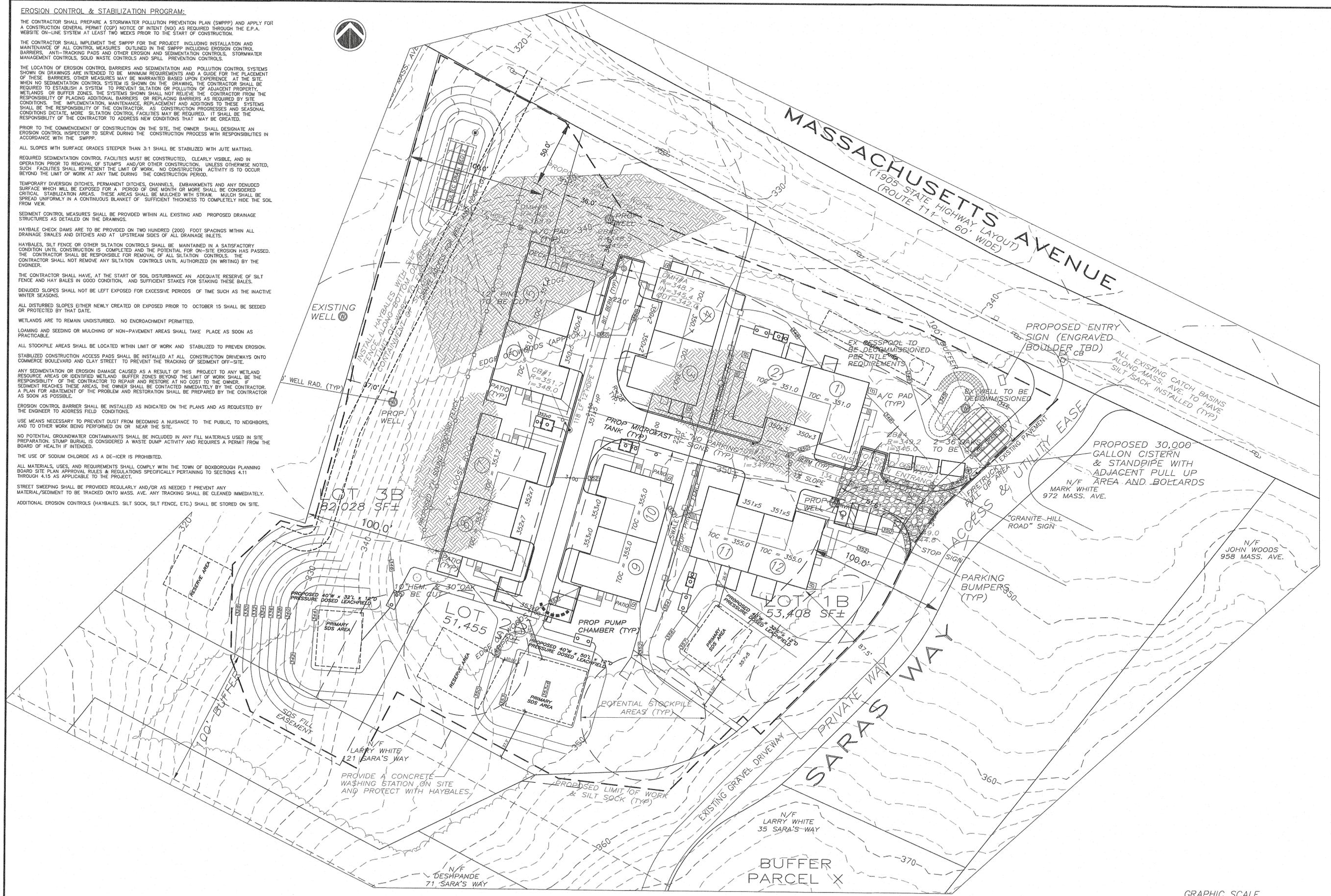
NO POTENTIAL GROUNDWATER CONTAMINANTS SHALL BE INCLUDED IN ANY FILL MATERIALS USED IN SITE PREPARATION. STUMP BURIAL IS CONSIDERED A WASTE PUMP ACTIVITY AND REQUIRES A PERMIT FROM THE BOARD OF HEALTH IF INTENDED.

THE USE OF SODIUM CHLORIDE AS A DE-ICER IS PROHIBITED.

ALL MATERIALS, USES, AND REQUIREMENTS SHALL COMPLY WITH THE TOWN OF BOXBOROUGH PLANNING BOARD SITE PLAN APPROVAL RULES & REGULATIONS SPECIFICALLY PERTAINING TO SECTIONS 4.11 THROUGH 4.15 AS APPLICABLE TO THE PROJECT.

STREET SWEEPING SHALL BE PROVIDED REGULARLY AND/OR AS NEEDED TO PREVENT ANY MATERIAL/SEDIMENT TO BE TRACKED ONTO MASS. AVE. ANY TRACKING SHALL BE CLEANED IMMEDIATELY.

ADDITIONAL EROSION CONTROLS (HAYBALES, SILT SOCK, SILT FENCE, ETC) SHALL BE STORED ON SITE.



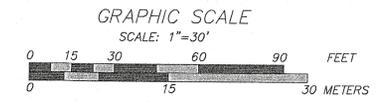
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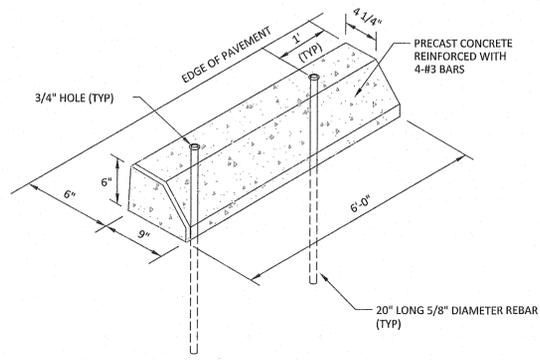
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| 5 | Concrete Retention Structure | 3/15/19 - DG/JF |
| 6 | Town/Peer Review Comments | 4/15/19 - DG/JF |

984 MASSACHUSETTS AVENUE
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 GRANITE HILL DEVELOPMENT
EROSION CONTROL PLAN

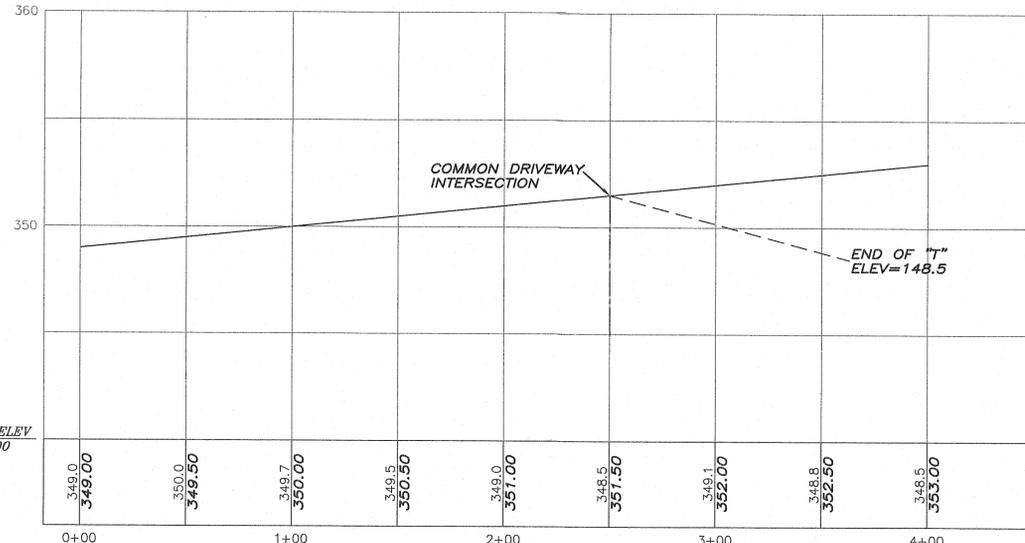
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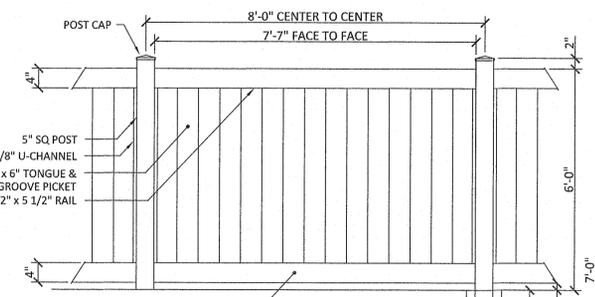




PRECAST CONCRETE WHEEL STOP
(NOT TO SCALE)

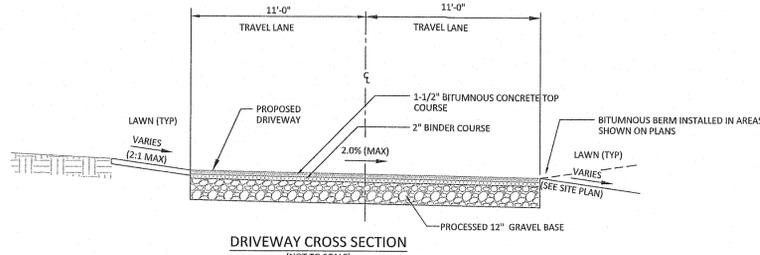


COMMON DRIVEWAY PROFILE

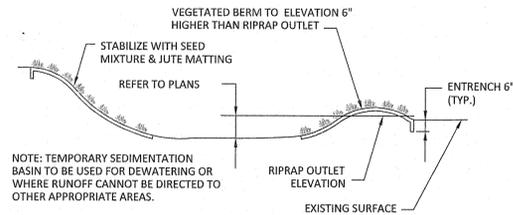


VINYL PRIVACY FENCE
(NOT TO SCALE)

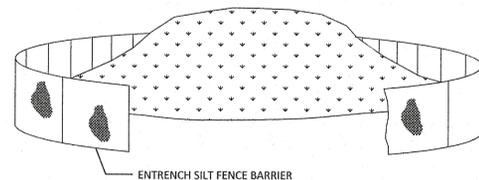
IF NECESSARY, FENCING CONTRACTOR SHALL USE APPROPRIATE METHODS TO DRILL/ANCHOR FENCE POST FOOTINGS TO A PROPER DEPTH INTO ROCK/LEDGE TO ENSURE STABILITY AND RESIST WIND LOAD.



DRIVEWAY CROSS SECTION
(NOT TO SCALE)

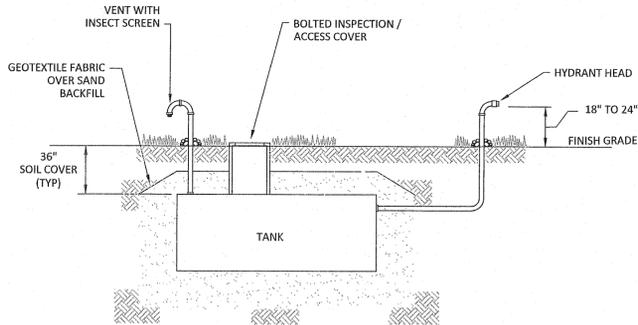


TEMPORARY SEDIMENTATION BASIN
(NOT TO SCALE)



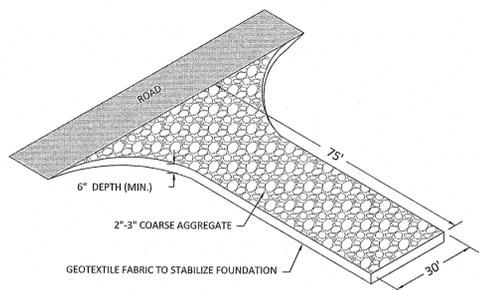
NOTES:
LOCATE STOCKPILE IN A DRY AND STABLE AREA OUTSIDE OF 100' WETLAND BUFFER ZONE.
STABILIZE STOCKPILE WITH ANNUAL RYEGRASS, MULCH OR EROSION CONTROL BLANKETS.

SOIL STOCKPILE
(NOT TO SCALE)

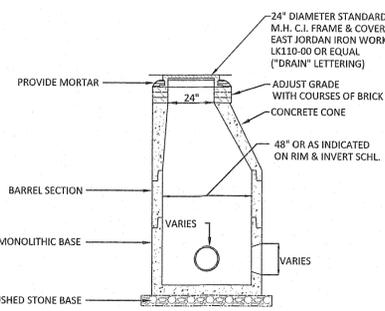


NOTES:
1) CISTERN TO BE INSTALLED AND BACKFILLED PER MANUFACTURERS SPECIFICATIONS.
2) FIRE CHIEF TO SPECIFY MANUFACTURER AND ANY ACCESSORIES TO MEET TOWN REQUIREMENTS.

FIRE CISTERN
(NOT TO SCALE)

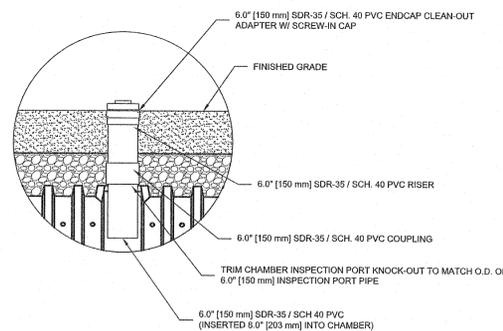


CONSTRUCTION ENTRANCE/EXIT PAD
(NOT TO SCALE)

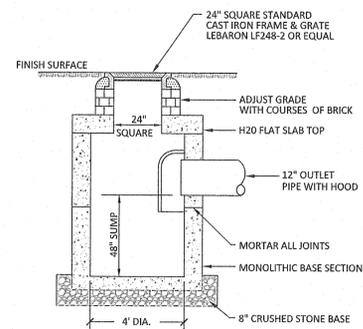


NOTES:
1. MANHOLE DESIGN TO LATEST ASTM C478.
2. REINFORCING STEEL CONFORMS TO LATEST ASTM A 185.
3. CONCRETE COMPRESSIVE STRENGTH - 4,000 PSI @ 28 DAYS.
4. ONE POUR MONOLITHIC BASE.
5. STEPS - STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTICS (P52-PP5L M.A. INDUSTRIES, INC.) CONFORMS TO LATEST ASTM C478 PARA-12.
6. BITUMASTIC BUTYL RUBBER FOR JOINTS CONFORM TO LATEST ASTM C443 AND FED SS-5-201A SPEC.

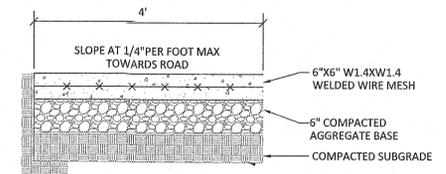
PRECAST CONCRETE DRAIN MANHOLE
(NOT TO SCALE)



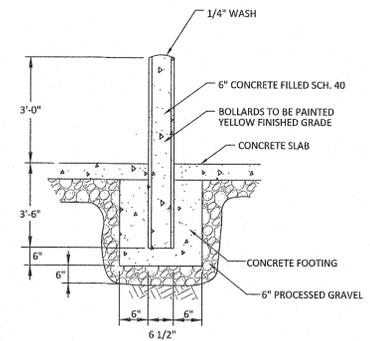
CULTEC INSPECTION PORT
(NOT TO SCALE)



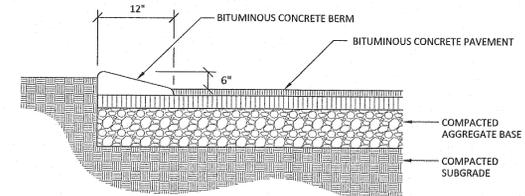
PRECAST CONCRETE CATCH BASIN W/ TRAP
(NOT TO SCALE)



CEMENT CONCRETE WALKWAY
(NOT TO SCALE)



STEEL & CONCRETE BOLLARD
(NOT TO SCALE)



BITUMINOUS CONCRETE BERM
(NOT TO SCALE)

SEE DRAINAGE PLAN FOR CULTREC DETAILS



PREPARED BY
NASHOBA ENGINEERING ASSOCIATES
6 BEAVER BROOK ROAD
LITTLETON, MA 01460
978-501-3007
CIVIL ENGINEERING CONSULTANTS

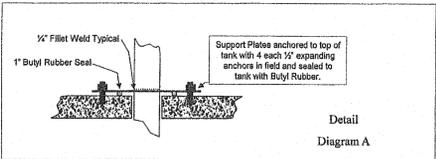
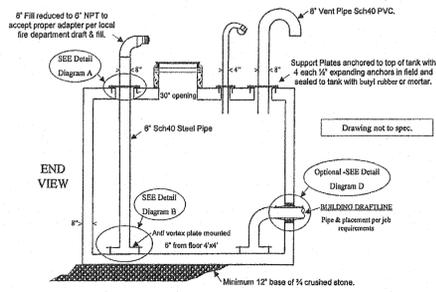
| Revision Number | Description | Date | Initial |
|-----------------|---------------------------|---------|---------|
| 1 | Town Comments | 5/07/18 | DG/JFF |
| 2 | Town/Peer Review Comments | 7/23/18 | DG/JFF |
| 3 | Town/Peer Review Comments | 2/12/19 | DG/JFF |
| 4 | Town/Peer Review Comments | 3/1/19 | DG/JFF |
| 5 | Town/Peer Review Comments | 4/15/19 | DG/JFF |

984 MASSACHUSETTS AVENUE
BOXBOROUGH, MA 01719
Project: GRANITE HILL DEVELOPMENT
Sheet: **DETAIL SHEET**

Scale: N.T.S.
Drawn By / Approved By: DG / JFF
File Name: GRANITE_HILL_SITE3
Date: MARCH 26, 2018
Issued For: SITE PLAN REVIEW

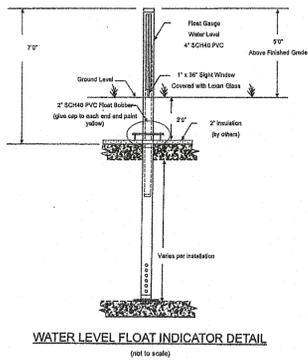
Project No.
Drawing No. **C-9**

William N. Lamarre Concrete Products, Inc.
Fire Cistern – Piping Detail
 Plumbing – NOT TO SCALE

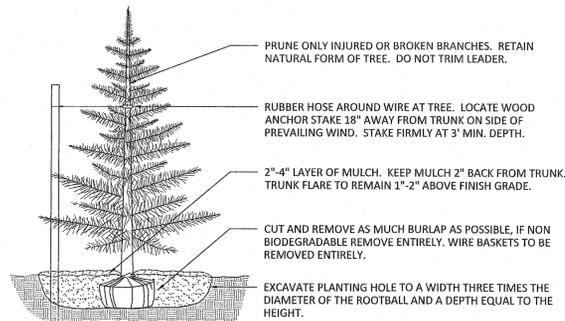


P.O. Box 4333, 87 Adams Hill Rd., Greenfield, NH 03608
 603-878-1340 MA 800-937-3420 NH 800-878-0514 Fax: 603-878-3449

Gauge for Fire Cistern (Optional)

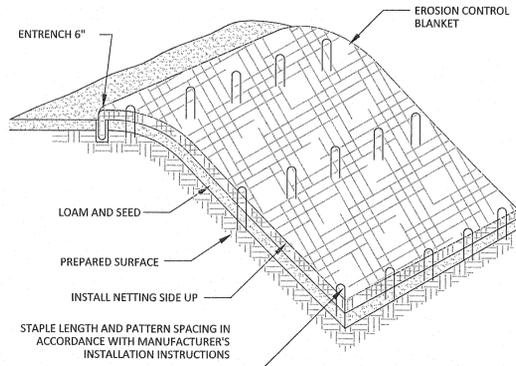


WATER LEVEL FLOAT INDICATOR DETAIL
 (NOT TO SCALE)

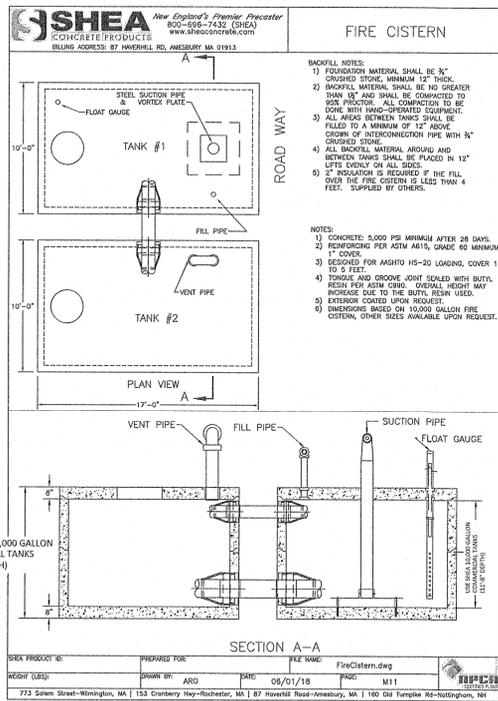


- NOTES:**
- BACKFILL PLANTING HOLE WITH EXISTING SOIL AMENDED AS NECESSARY.
 - BACKFILL HALF THE SOIL AND WATER TO SETTLE OUT AIR POCKETS, COMPLETE BACKFILLING AND REPEAT WATERING.
 - IF ROOTS ARE CIRCLING THE ROOTBALL EXTERIOR, CUT ROOTS VERTICALLY IN SEVERAL PLACES PRIOR TO PLANTING.
 - ONLY STAKE TREES SITUATED ON WINDY SITES OR EXPOSED TO SUBSTANTIAL PEDESTRIAN TRAFFIC.

EVERGREEN TREE PLANTING
 (NOT TO SCALE)



SLOPE STABILIZATION
 (NOT TO SCALE)



USE SHEA 10,000 GALLON COMMERCIAL TANKS (11'-8" DEPTH)

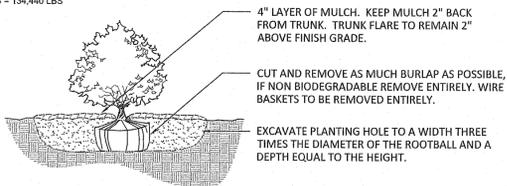
BUOYANCY CALCULATIONS:
 SHEA CISTERNS (10,000 GALLON TANK, MODEL 10X17-100)
 WT=79,840 LBS. L=17.0', W=10.0', H=11.67'
 SPECIFIC GRAVITY OF WATER = 1.0
 SOIL WT = 85 LBS (MIN)

ELEVATIONS:
 FINISH GRADE = 348.0
 EXISTING GRADE = 348.0
 WATER TABLE = 343.0
 BOTTOM OF TANK = 332.33
 TOP OF TANK = 344.0
 SOIL OVER TANK = 4.0'
 PORTION OF TANK BELOW WATER TABLE = 10.67'

BUOYANT FORCE = VOL. OF TANK BELOW WATER TABLE x 62.4 LBS/CF
 = 17.0' x 10.0' x 10.67' x 62.4 LBS/CF = 113,187 LBS

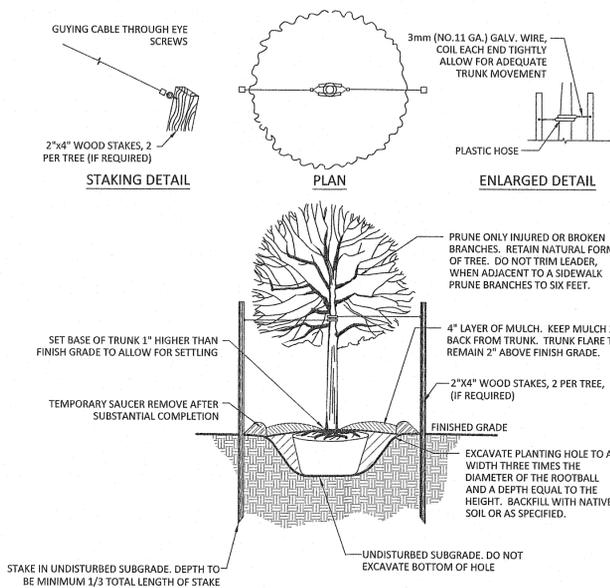
DOWNWARD FORCE = WT TANK + WT SOIL
 = 79,840 LBS + (17' x 10' x 4' x 85 LBS/CF)
 = 79,840 LBS + 57,800 LBS = 134,440 LBS

DOWNWARD FORCE (134,440 LBS) IS GREATER THAN BUOYANT FORCE (113,187 LBS), SO THE TANK WILL NOT FLOAT AFTER BACKFILL. DUE TO THE LOCATION OF THE WATER TABLE, THE INSTALLER MUST TAKE CARE TO ENSURE THAT ALL OPENINGS AND CONNECTIONS ARE WATER TIGHT. EXCAVATIONS MUST BE DEWATERED DURING INSTALLATION OR THE TANK MAY FLOAT. TANKS SHOULD BE WEIGHTED (FILLED WITH WATER) BEFORE BACKFILLING TO AVOID ANY FLOATING.



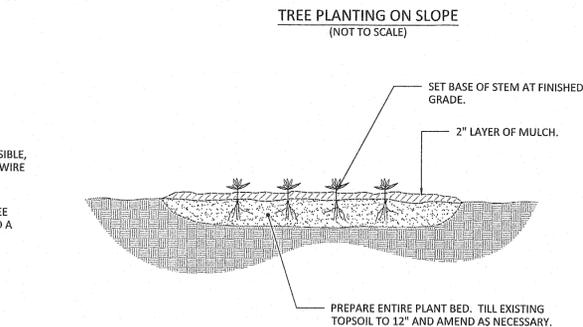
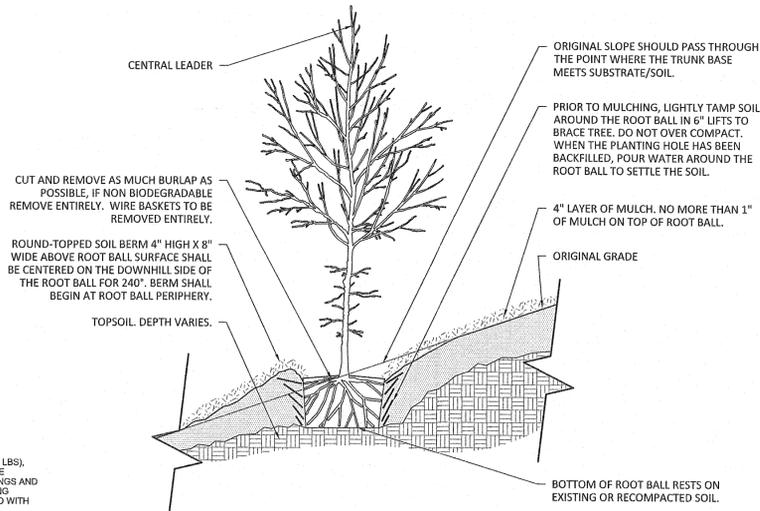
- NOTES:**
- BACKFILL PLANTING HOLE WITH EXISTING SOIL AMENDED AS NECESSARY.
 - BACKFILL HALF THE SOIL AND WATER TO SETTLE OUT AIR POCKETS, COMPLETE BACKFILLING AND REPEAT WATERING.
 - IF ROOTS ARE CIRCLING THE ROOTBALL EXTERIOR, CUT ROOTS VERTICALLY IN SEVERAL PLACES PRIOR TO PLANTING.

SHRUB PLANTING
 (NOT TO SCALE)



- NOTES:**
- DO NOT DAMAGE MAIN ROOTS OR ROOT BALL WHEN INSTALLING TREE STAKE.
 - REMOVE SAUCER AND STAKES TWO YEARS OR AS SPECIFIED AFTER INSTALLATION.
 - PROVIDE DRAINAGE FOR PLANTING PIT IF IN IMPERMEABLE SOIL.
 - BACKFILL HALF THE SOIL AND WATER TO SETTLE OUT AIR POCKETS, COMPLETE BACKFILLING AND REPEAT WATERING.
 - IF ROOTS ARE CIRCLING THE ROOTBALL EXTERIOR, CUT ROOTS VERTICALLY IN SEVERAL PLACES PRIOR TO PLANTING.

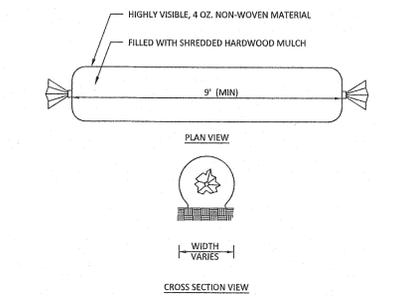
TREE PLANTING WITH STAKING
 (NOT TO SCALE)



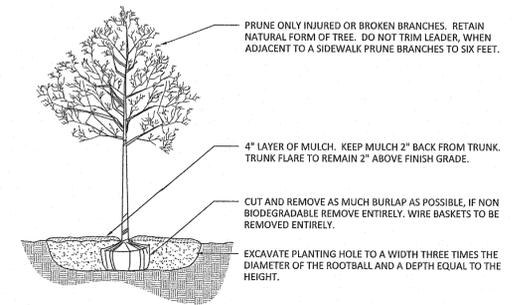
- NOTE:**
- SPACE PLANTS EQUALLY TO PROVIDE CONSISTANT COVER OVER INDICATED PLANTING BED.

GROUNDCOVER PLANTING
 (NOT TO SCALE)

| SLOPE | SLOPE LENGTH (FT) | SOCK DIAMETER (INCH) |
|-----------|-------------------|----------------------|
| <50:1 | 250 | 12 |
| 50:1-10:1 | 125 | 12 |
| 10:1-5:1 | 100 | 12 |
| 3:1-2:1 | 50 | 18 |
| >2:1 | 25 | 18 |

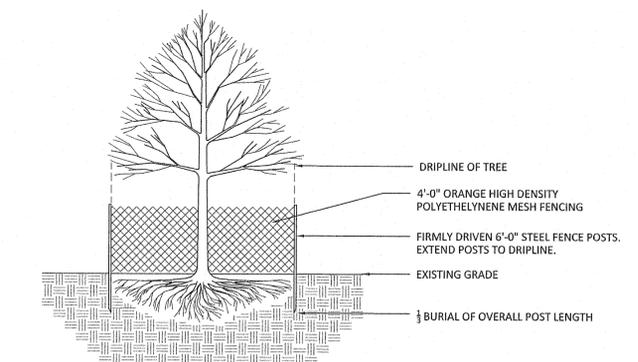
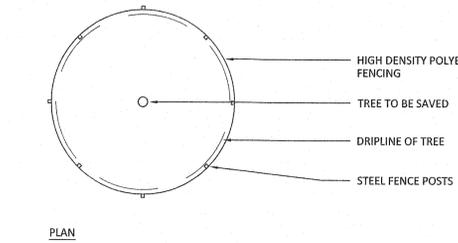


SILT SOCK (SS) - SEDIMENT CONTROL
 (NOT TO SCALE)



- NOTES:**
- BACKFILL PLANTING HOLE WITH EXISTING SOIL AMENDED AS NECESSARY.
 - BACKFILL HALF THE SOIL AND WATER TO SETTLE OUT AIR POCKETS, COMPLETE BACKFILLING AND REPEAT WATERING.
 - IF ROOTS ARE CIRCLING THE ROOTBALL EXTERIOR, CUT ROOTS VERTICALLY IN SEVERAL PLACES PRIOR TO PLANTING.
 - ONLY STAKE TREES SITUATED ON WINDY SITES OR EXPOSED TO SUBSTANTIAL PEDESTRIAN TRAFFIC.

DECIDUOUS TREE PLANTING
 (NOT TO SCALE)



TREE PROTECTION
 (NOT TO SCALE)



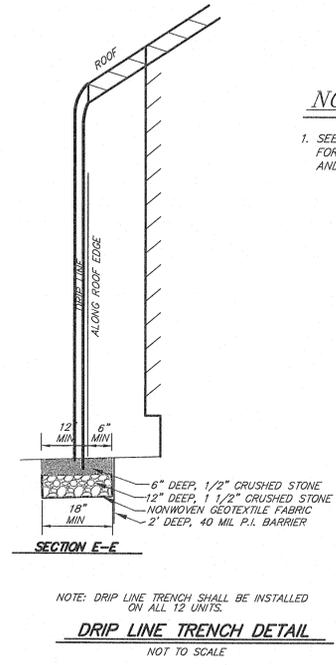
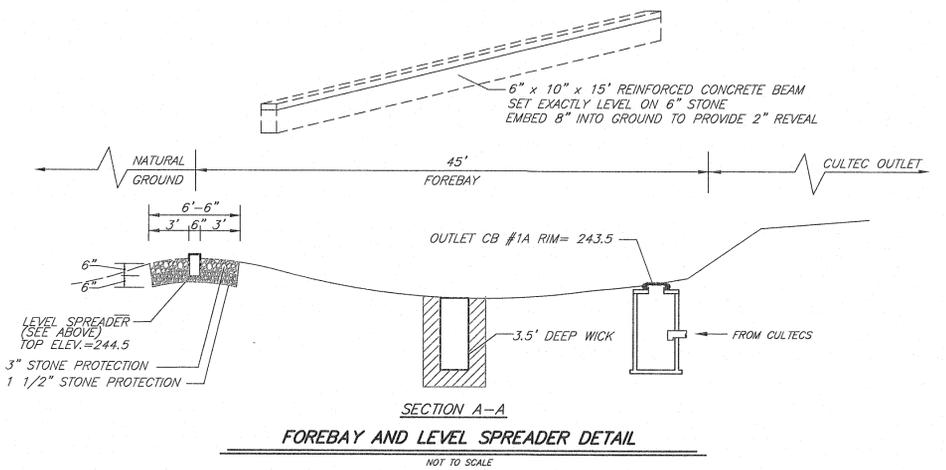
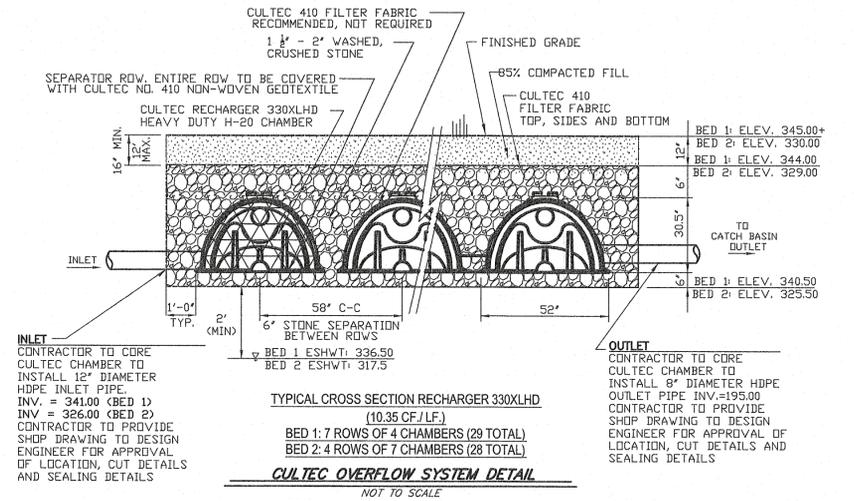
PREPARED BY
NASHOBA ENGINEERING ASSOCIATES
 6 BEAVER BROOK ROAD
 LITTLETON, MA 01460
 978-501-3007

CIVIL ENGINEERING CONSULTANTS

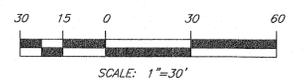
| Revision | Description | Date |
|----------|-------------|---------|
| 1 | Drawings | 5/20/18 |
| 2 | Drawings | 7/23/18 |
| 3 | Drawings | 2/12/19 |
| 4 | Drawings | 3/17/19 |
| 5 | Drawings | 3/15/19 |
| 6 | Drawings | 4/15/19 |

984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 Project
 GRANITE HILL DEVELOPMENT
 Sheet

Scale:
N.T.S.
 Drawn By / Approved By:
 DG / JFF
 File Name: GRANITE_HILL_SITE3
 Date: MARCH 26, 2018
 Issued For: SITE PLAN REVIEW



NOTES:
 1. SEE SITE PLANS BY NASHOBA ENGINEERING ASSOCIATES FOR NOTES, LEGENDS, ALL UTILITIES OTHER THAN DRAINAGE, AND ADDITIONAL INFORMATION.



APPROVAL: BOXBOROUGH PLANNING BOARD

| | |
|--------|--|
| REV. 6 | |
| REV. 5 | |
| REV. 4 | |
| REV. 3 | |
| REV. 2 | |
| REV. 1 | |

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Meisner Brem Corp.

STORMWATER & DRAINAGE PLAN
GRANITE HILL

984 MASSACHUSETTS AVE
 BOXBOROUGH, MASSACHUSETTS 01719

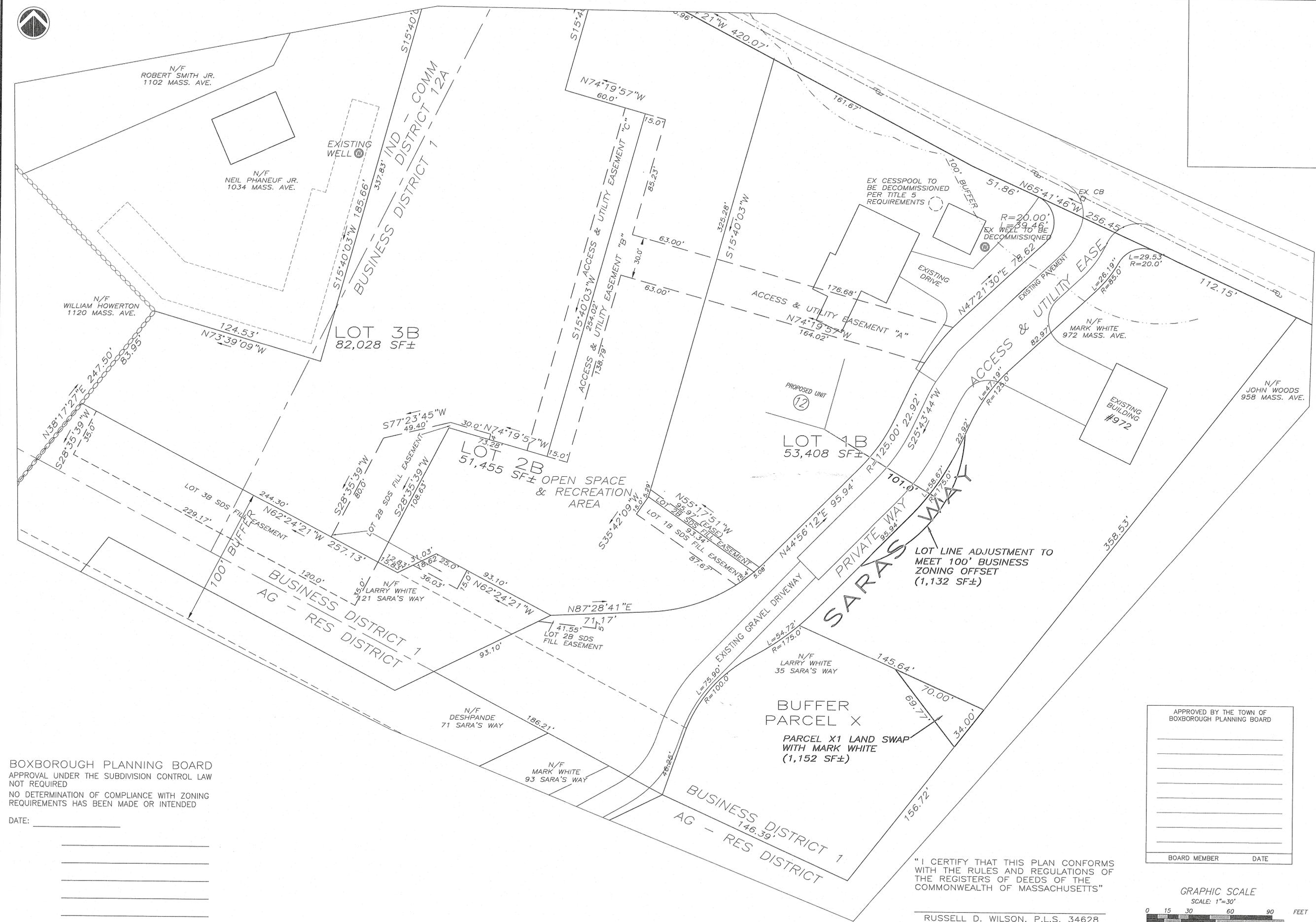
PREPARED FOR:
 LARRY WHITE
 121 SARA'S WAY
 BOXBOROUGH, MA 01719

FEBRUARY 14, 2019

MEISNER BREM CORPORATION
 142 LITTLETON ROAD, STE. 16, WESTFORD, MA 01886 • (978) 692-1313
 202 MAIN STREET, SALEM, NH 03079 • (603) 893-3301

DRAFTED BY: LJA/PDM SURVEYED BY OTHERS
 APPROVED BY: JAB JOB NUMBER: 2745
 ACAD FILE: 2745-Granite Hill MBC

1 OF 1



BOXBOROUGH PLANNING BOARD
 APPROVAL UNDER THE SUBDIVISION CONTROL LAW
 NOT REQUIRED
 NO DETERMINATION OF COMPLIANCE WITH ZONING
 REQUIREMENTS HAS BEEN MADE OR INTENDED

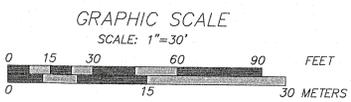
DATE: _____

APPROVED BY THE TOWN OF
 BOXBOROUGH PLANNING BOARD

BOARD MEMBER DATE

"I CERTIFY THAT THIS PLAN CONFORMS
 WITH THE RULES AND REGULATIONS OF
 THE REGISTERS OF DEEDS OF THE
 COMMONWEALTH OF MASSACHUSETTS"

RUSSELL D. WILSON, P.L.S. 34628



PREPARED BY
 NASHOBA ENGINEERING ASSOCIATES
 6 BEAVER BROOK ROAD
 LITTLETON, MA 01460
 978-501-3007
 CIVIL ENGINEERING CONSULTANTS

| Revision Number | Description | Date | Initial |
|-----------------|---------------------------|---------|---------|
| 1 | Town Comments | 5/07/18 | DG/JFF |
| 2 | Town/Peer Review Comments | 7/23/18 | DG/JFF |
| 3 | Town/Peer Review Comments | 9/12/19 | DG/JFF |
| 4 | Town/Peer Review Comments | 3/1/19 | DG/JFF |
| 5 | Optional ANR Plan | 4/1/18 | DG/JFF |

984 MASSACHUSETTS AVENUE
 BOXBOROUGH, MA 01719
 Project: GRANITE HILL DEVELOPMENT
 Sheet

Scale: 1"=30'
 Drawn By / Approved By:
 DG / JFF
 File Name: GRANITE_HILL_SITE3
 Date: MARCH 26, 2018
 Issued For: SITE PLAN REVIEW

Project No.
 Drawing No. **C-3B**

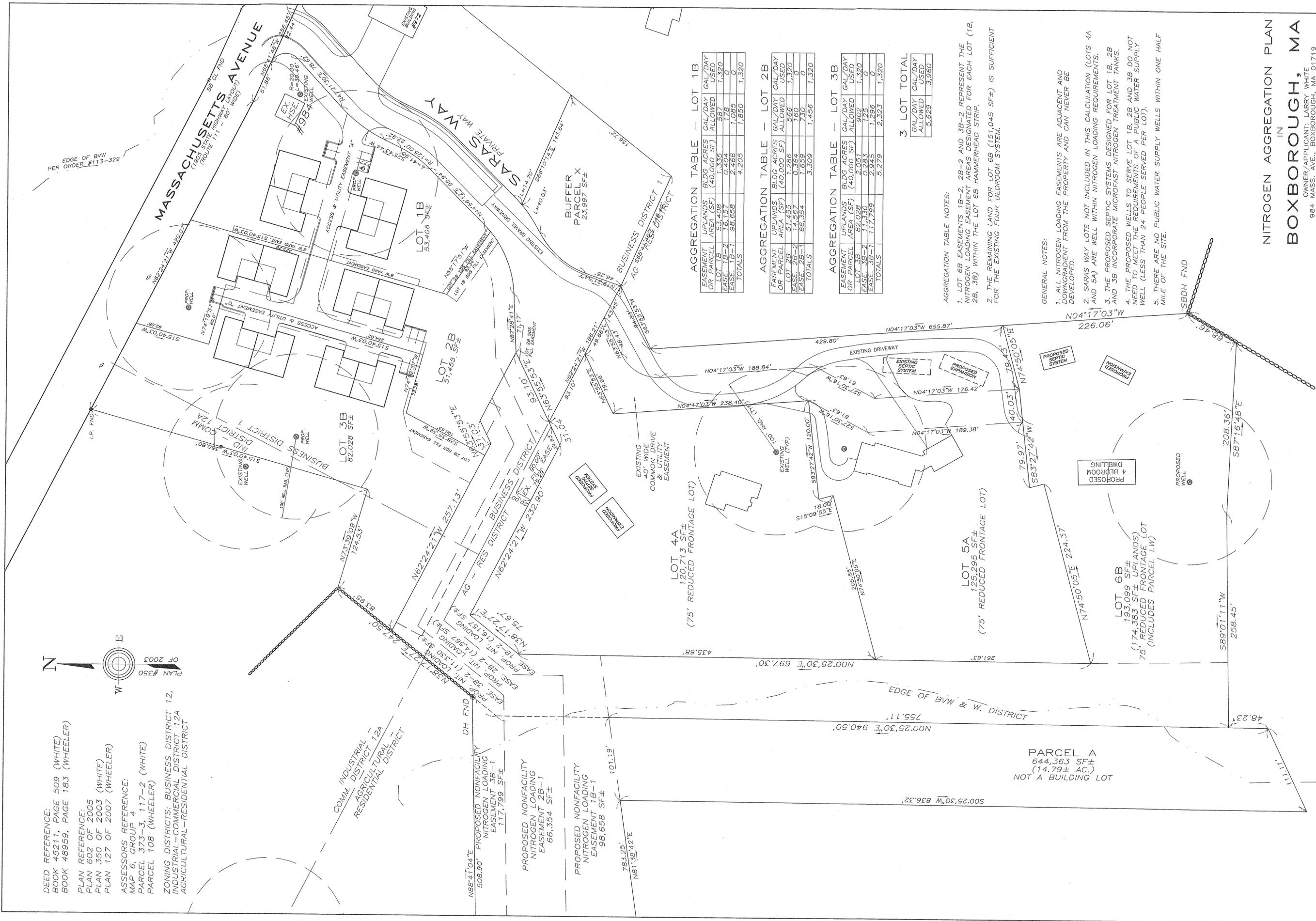
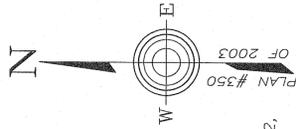
OPTIONAL ANR PLAN

DEED REFERENCE:
 BOOK 45211, PAGE 509 (WHITE)
 BOOK 48959, PAGE 183 (WHEELER)

PLAN REFERENCE:
 PLAN 602 OF 2005
 PLAN 350 OF 2003
 PLAN 127 OF 2007 (WHEELER)

ASSESSORS REFERENCE:
 MAP 6 GROUP 4
 PARCEL 373-3, 117-2 (WHITE)
 PARCEL 108 (WHEELER)

ZONING DISTRICTS: BUSINESS DISTRICT 12,
 INDUSTRIAL-COMMERCIAL DISTRICT 12A
 AGRICULTURAL-RESIDENTIAL DISTRICT



AGGREGATION TABLE - LOT 1B

| EASEMENT OR PARCEL AREA (SF) | BLDG ACRES | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|------------|-----------------|--------------|
| EASE 1B-2 | 1.335 | 997 | 1,320 |
| EASE 1B-1 | 2.466 | 1,085 | 0 |
| TOTALS | 4.205 | 1,850 | 1,320 |

AGGREGATION TABLE - LOT 2B

| EASEMENT OR PARCEL AREA (SF) | BLDG ACRES | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|------------|-----------------|--------------|
| EASE 2B-2 | 1.266 | 966 | 1,320 |
| EASE 2B-1 | 6.6384 | 1,850 | 0 |
| TOTALS | 3.309 | 1,456 | 1,320 |

AGGREGATION TABLE - LOT 3B

| EASEMENT OR PARCEL AREA (SF) | BLDG ACRES | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|------------|-----------------|--------------|
| EASE 3B-2 | 11.330 | 996 | 1,320 |
| EASE 3B-1 | 117.799 | 1,296 | 0 |
| TOTALS | 5.279 | 2,323 | 1,320 |

3 LOT TOTAL

| GAL/DAY ALLOWED | GAL/DAY USED |
|-----------------|--------------|
| 5,829 | 3,960 |

AGGREGATION TABLE NOTES:

- LOT 6B EASEMENTS 1B-2, 2B-2 AND 3B-2 REPRESENT THE NITROGEN LOADING EASEMENT AREAS DESIGNATED FOR EACH LOT (1B, 2B, 3B) WITHIN THE LOT 6B HAMMERHEAD STRIP.
- THE REMAINING LAND FOR LOT 6B (151,045 SF±) IS SUFFICIENT FOR THE EXISTING FOUR BEDROOM SYSTEM.

GENERAL NOTES:

- ALL NITROGEN LOADING EASEMENTS ARE ADJACENT AND DOWNGRADIENT FROM THE PROPERTY AND CAN NEVER BE DEVELOPED.
- SARAS WAY LOTS NOT INCLUDED IN THIS CALCULATION (LOTS 4A AND 5A) ARE WELL WITHIN NITROGEN LOADING REQUIREMENTS.
- THE PROPOSED SEPTIC SYSTEMS DESIGNED FOR LOT 1B, 2B AND 3B INCORPORATE MICROFAST NITROGEN TREATMENT TANKS.
- THE PROPOSED WELLS TO SERVE LOT 1B, 2B AND 3B DO NOT NEED TO MEET THE REQUIREMENTS OF A PUBLIC WATER SUPPLY WELL (LESS THAN 24 PEOPLE SERVED PER LOT).
- THERE ARE NO PUBLIC WATER SUPPLY WELLS WITHIN ONE HALF MILE OF THE SITE.

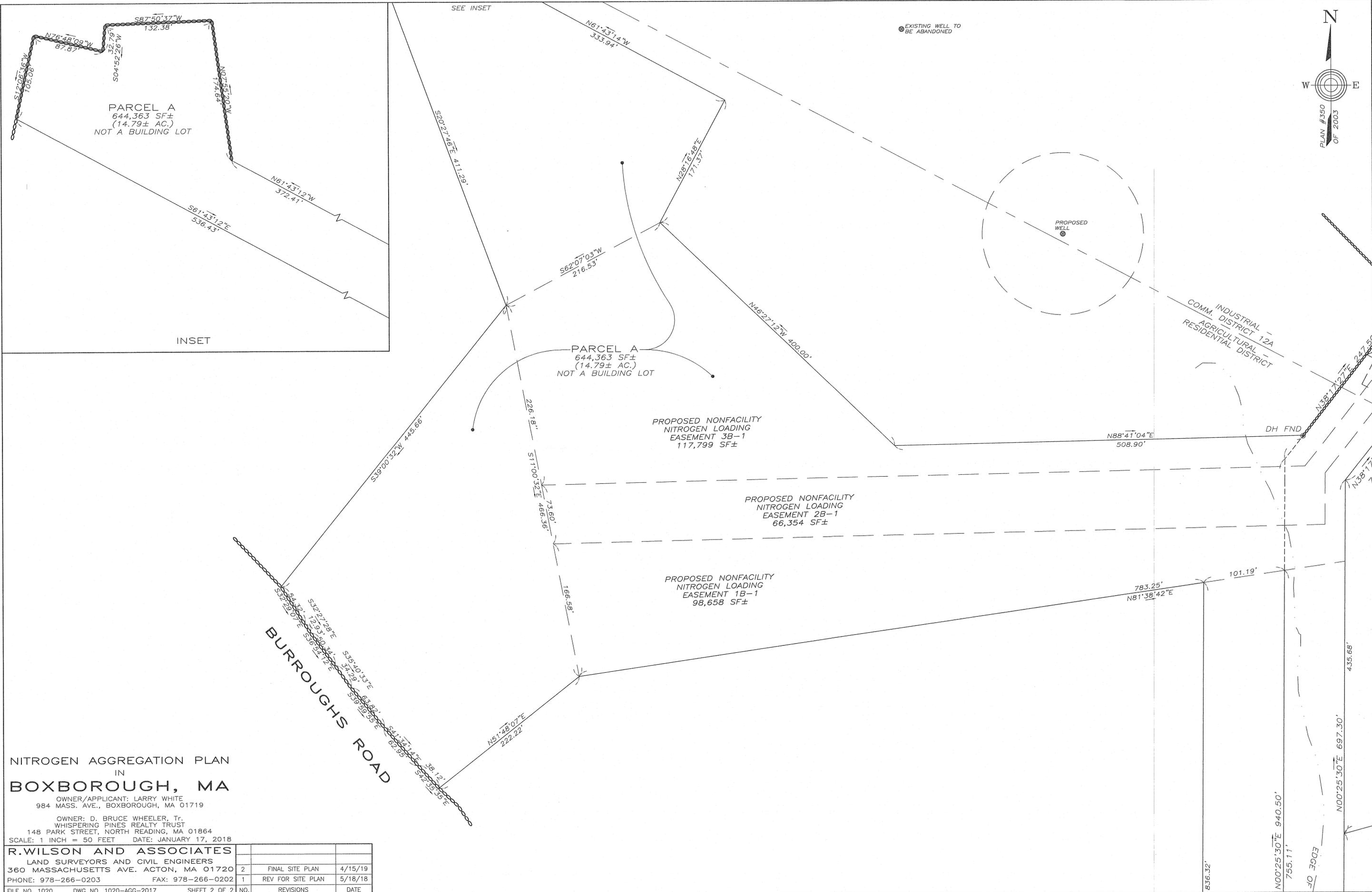
NITROGEN AGGREGATION PLAN
 IN
BOXBOROUGH, MA

OWNER/APPLICANT: LARRY WHITE
 984 MASS. AVE., BOXBOROUGH, MA 01719

OWNER: D BRUCE WHEELER, TRUSTEE
 WHISPERING PINES REALTY, LLC
 148 PARK STREET, NORTH READING, MA 01864
 SCALE: 1 INCH = 50 FEET DATE: JANUARY 17, 2018

R. WILSON AND ASSOCIATES
 LAND SURVEYORS AND CIVIL ENGINEERS
 360 MASSACHUSETTS AVE. ACTON, MA 01720
 PHONE: 978-266-0203 FAX: 978-266-0202

| NO. | REVISIONS | DATE |
|-----|-------------------|---------|
| 2 | FINAL SITE PLAN | 4/15/19 |
| 1 | REV FOR SITE PLAN | 5/18/18 |



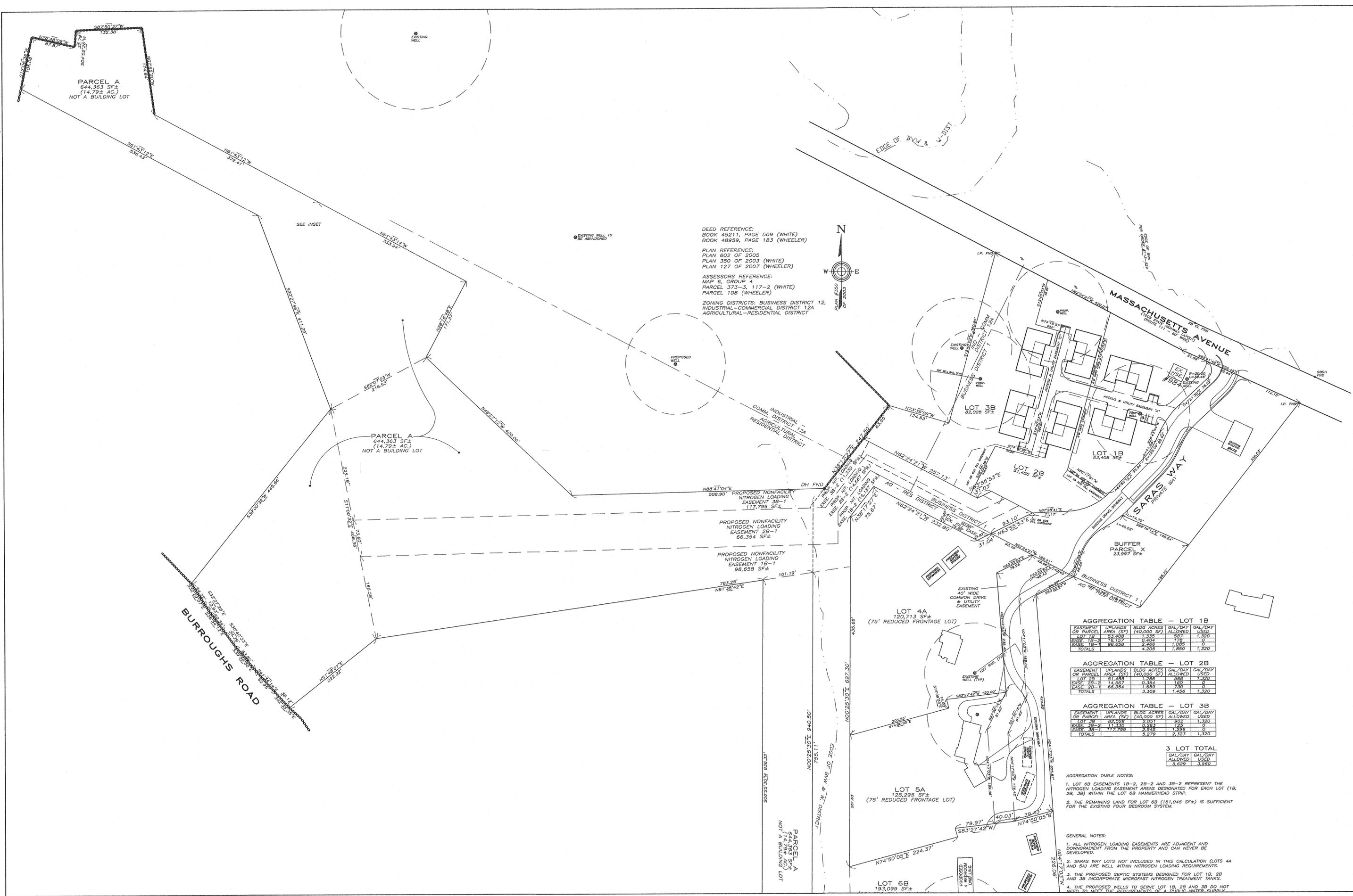
NITROGEN AGGREGATION PLAN
IN
BOXBOROUGH, MA

OWNER/APPLICANT: LARRY WHITE
984 MASS. AVE., BOXBOROUGH, MA 01719

OWNER: D. BRUCE WHEELER, Tr.
WHISPERING PINES REALTY TRUST
148 PARK STREET, NORTH READING, MA 01864

SCALE: 1 INCH = 50 FEET DATE: JANUARY 17, 2018

| | | | |
|--|-----------------------|--------------|-----------------------------|
| R. WILSON AND ASSOCIATES | | | |
| LAND SURVEYORS AND CIVIL ENGINEERS | | | |
| 360 MASSACHUSETTS AVE. ACTON, MA 01720 | | | |
| PHONE: 978-266-0203 FAX: 978-266-0202 | | | |
| FILE NO. 1020 | DWG NO. 1020-AGG-2017 | SHEET 2 OF 2 | NO. |
| | | | REVISIONS |
| | | | DATE |
| | | | 2 FINAL SITE PLAN 4/15/19 |
| | | | 1 REV FOR SITE PLAN 5/18/18 |



PARCEL A
644,363 SF±
(14.79± AC.)
NOT A BUILDING LOT

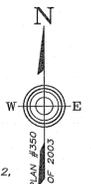
PARCEL A
644,363 SF±
(14.79± AC.)
NOT A BUILDING LOT

DEED REFERENCE:
BOOK 45211, PAGE 509 (WHITE)
BOOK 48959, PAGE 183 (WHEELER)

PLAN REFERENCE:
PLAN 602 OF 2005
PLAN 350 OF 2003 (WHITE)
PLAN 127 OF 2007 (WHEELER)

ASSESSORS REFERENCE:
MAP 6, GROUP 4
PARCEL 373-3, 117-2 (WHITE)
PARCEL 10B (WHEELER)

ZONING DISTRICTS: BUSINESS DISTRICT 12,
INDUSTRIAL-COMMERCIAL DISTRICT 12A
AGRICULTURAL-RESIDENTIAL DISTRICT



AGGREGATION TABLE -- LOT 1B

| EASEMENT OR PARCEL AREA (SF) | UPLANDS (40,000 SF) | BLDG ACRES (40,000 SF) | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|---------------------|------------------------|-----------------|--------------|
| LOT 1B | 53,408 | 1,335 | 587 | 1,320 |
| EASE 1B-2 | 19,152 | 0,364 | 178 | 0 |
| EASE 1B-1 | 88,658 | 2,456 | 1,085 | 0 |
| TOTALS | 4,205 | 1,850 | 1,320 | |

AGGREGATION TABLE -- LOT 2B

| EASEMENT OR PARCEL AREA (SF) | UPLANDS (40,000 SF) | BLDG ACRES (40,000 SF) | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|---------------------|------------------------|-----------------|--------------|
| LOT 2B | 51,455 | 1,335 | 587 | 1,320 |
| EASE 2B-2 | 14,587 | 0,364 | 180 | 0 |
| EASE 2B-1 | 66,354 | 1,859 | 750 | 0 |
| TOTALS | 3,309 | 1,456 | 1,320 | |

AGGREGATION TABLE -- LOT 3B

| EASEMENT OR PARCEL AREA (SF) | UPLANDS (40,000 SF) | BLDG ACRES (40,000 SF) | GAL/DAY ALLOWED | GAL/DAY USED |
|------------------------------|---------------------|------------------------|-----------------|--------------|
| LOT 3B | 82,028 | 2,051 | 902 | 1,320 |
| EASE 3B-2 | 11,330 | 0,283 | 125 | 0 |
| EASE 3B-1 | 112,229 | 2,925 | 1,092 | 0 |
| TOTALS | 5,279 | 2,323 | 1,320 | |

3 LOT TOTAL

| GAL/DAY ALLOWED | GAL/DAY USED |
|-----------------|--------------|
| 5,829 | 3,880 |

AGGREGATION TABLE NOTES:
1. LOT 6B EASEMENTS 1B-2, 2B-2 AND 3B-2 REPRESENT THE NITROGEN LOADING EASEMENT AREAS DESIGNATED FOR EACH LOT (1B, 2B, 3B) WITHIN THE LOT 6B HAMMERHEAD STRIP.
2. THE REMAINING LAND FOR LOT 6B (151,045 SF±) IS SUFFICIENT FOR THE EXISTING FOUR BEDROOM SYSTEM.

GENERAL NOTES:
1. ALL NITROGEN LOADING EASEMENTS ARE ADJACENT AND DOWNGRADIENT FROM THE PROPERTY AND CAN NEVER BE DEVELOPED.
2. SARAS WAY LOTS NOT INCLUDED IN THIS CALCULATION (LOTS 4A AND 5A) ARE WELL WITHIN NITROGEN LOADING REQUIREMENTS.
3. THE PROPOSED SEPTIC SYSTEMS DESIGNED FOR LOT 1B, 2B AND 3B INCORPORATE MICROFAST NITROGEN TREATMENT TANKS.
4. THE PROPOSED WELLS TO SERVE LOT 1B, 2B AND 3B DO NOT NEED TO MEET THE REQUIREMENTS OF A PUBLIC WATER SUPPLY.

BURROUGHS ROAD

MASSACHUSETTS AVENUE
(1948 STATE PLANNING BOARD (ROUTE 11) RD WOOD)

SARAS WAY
PRIVATE WAY

LOT 3B
82,028 SF±

LOT 1B
53,408 SF±

LOT 2B
51,455 SF±

LOT 4A
120,713 SF±
(75' REDUCED FRONTAGE LOT)

LOT 5A
125,295 SF±
(75' REDUCED FRONTAGE LOT)

LOT 6B
193,099 SF±

PARCEL A
644,363 SF±
(14.79± AC.)
NOT A BUILDING LOT