

**SITE IMPROVEMENT PLANS
FOR A PROPOSED 10-LOT CONSERVATION SUBDIVISION**

THE CONSERVANCY AT WINSOR

**ORCHARD AVENUE & DEER RUN TRAIL
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268**

ZONING DISTRICT: RESIDENCE R-40

APPROVALS:

JOHNSTON PLANNING BOARD - MAJOR SUBDIVISION MASTER PLAN (SEPTEMBER 22, 2020)

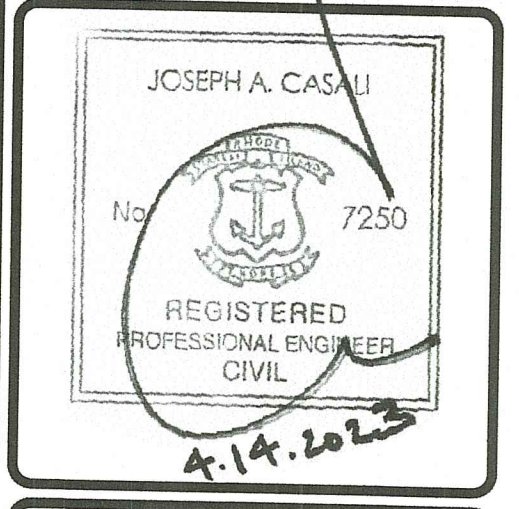
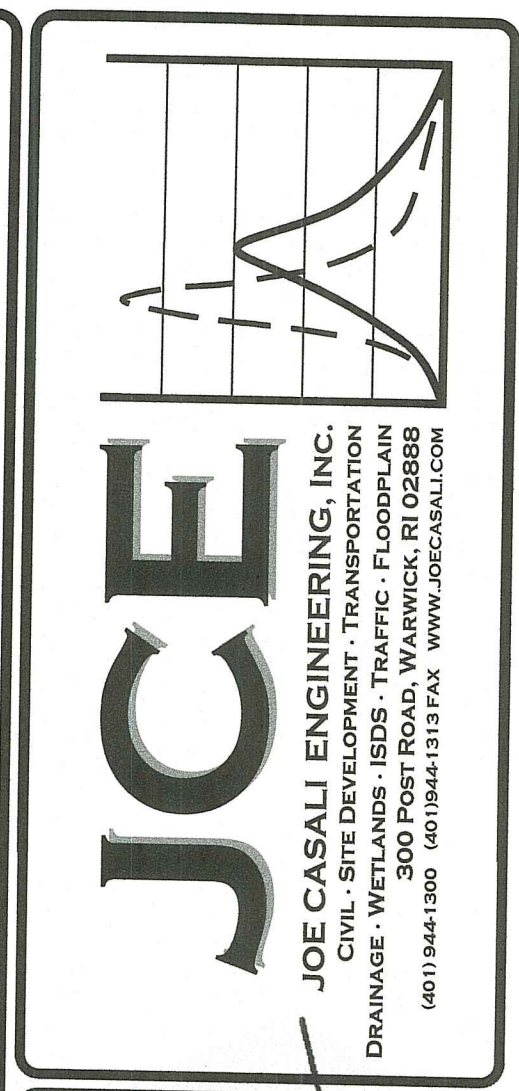
JOHNSTON PLANNING BOARD - PRELIMINARY PLAN APPROVAL (APRIL 5, 2022)

FILINGS:

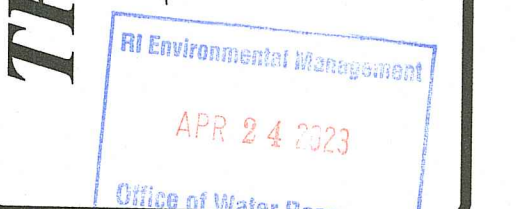
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT - PRELIMINARY DETERMINATION APPLICATION NO. 22-0145; WQC# 22-064; RIPDES# RIR102347

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT - SUBDIVISION SITE SUITABILITY CERTIFICATION

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS
SPECIFIED IN THE LETTER OF APPROVAL
DATED: JUN 06 2023 FILE #: 22-0145
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Nancy L. Freeman



**THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268**



REVISIONS:

NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/2023	RIDEM RTC

DESIGNED BY:	WMLJR
DRAWN BY:	SEP/SD
CHECKED BY:	JAC
DATE:	MARCH 2022
PROJECT NO.:	20-03

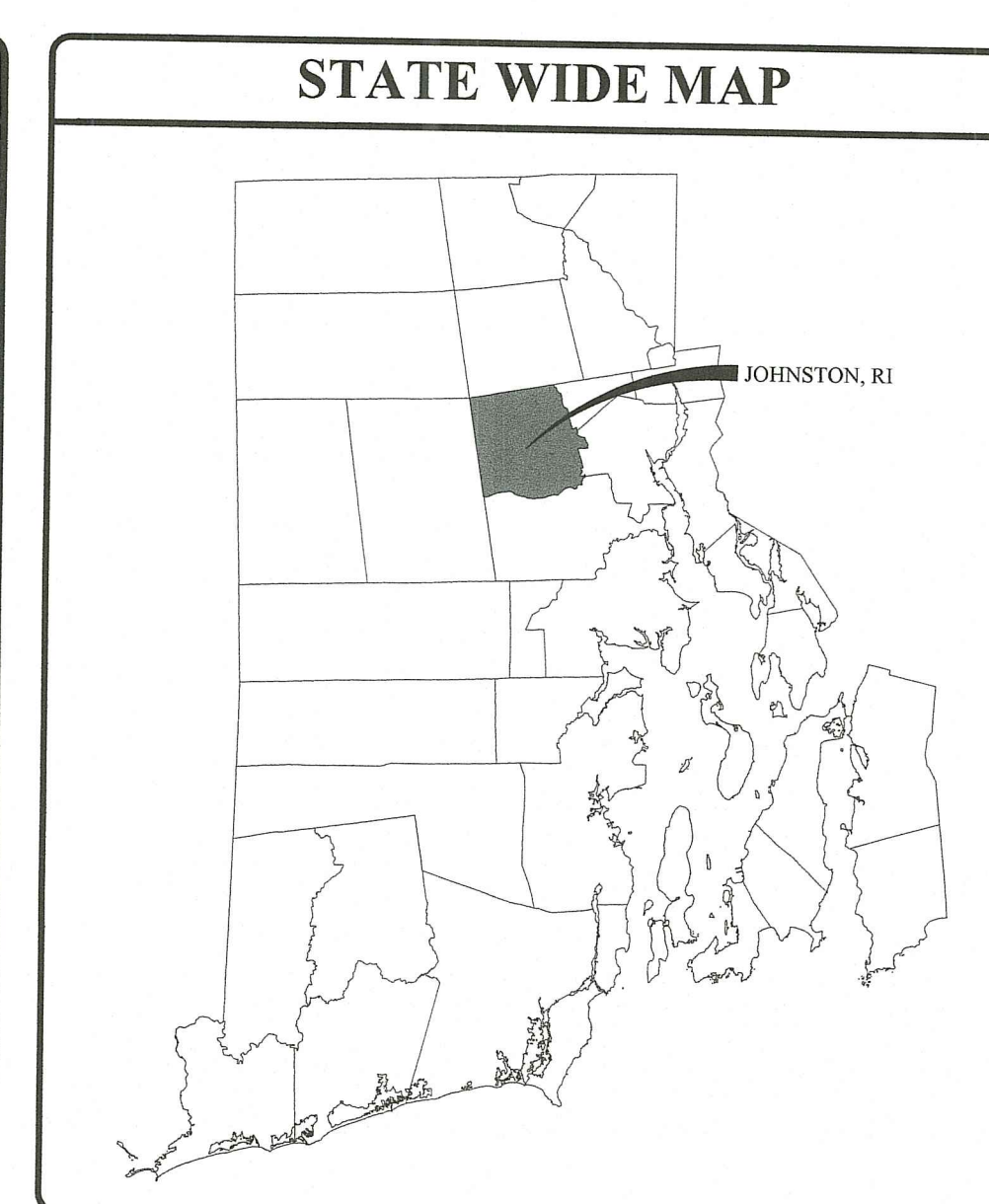
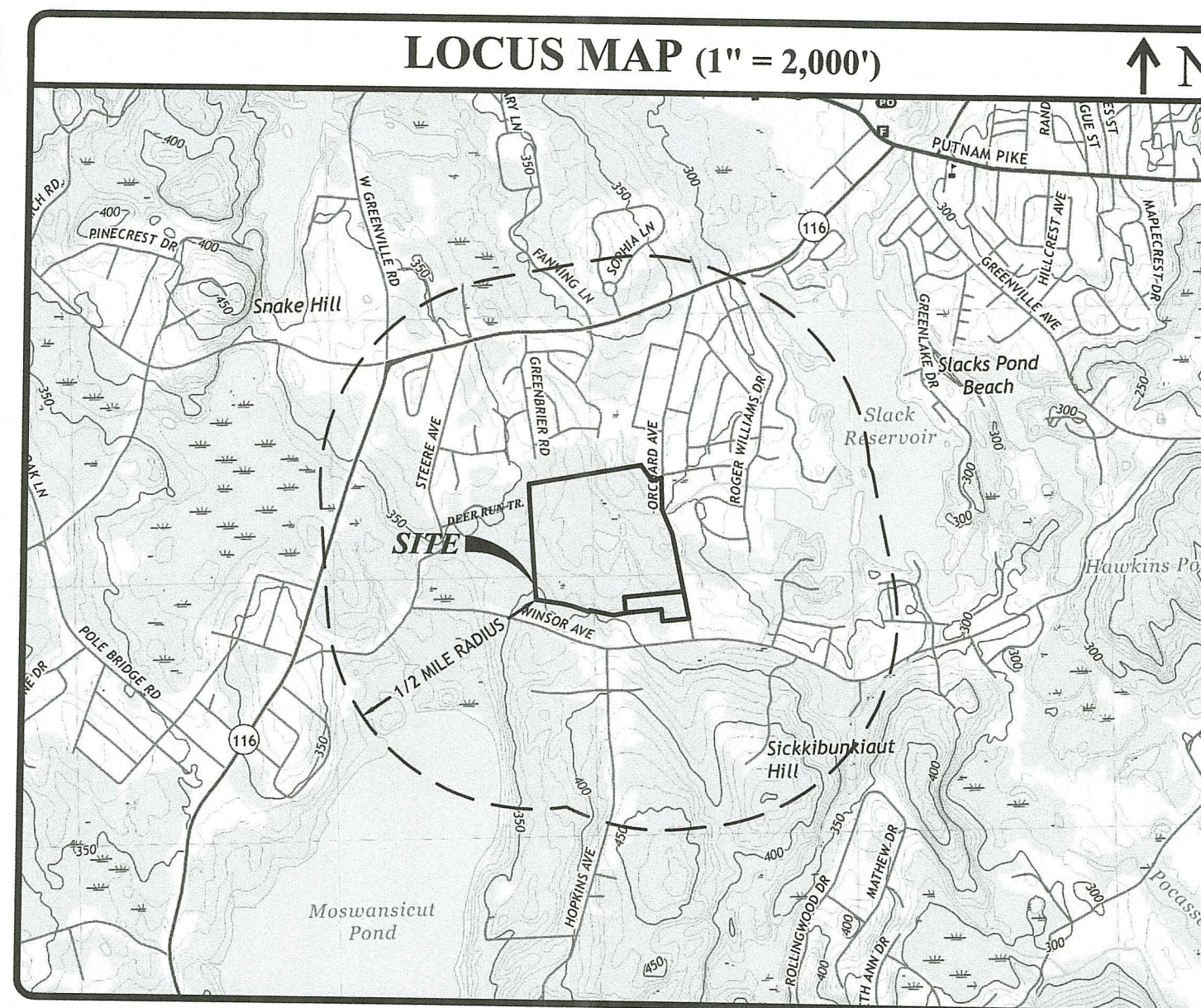
PRELIMINARY, NOT FOR CONSTRUCTION

COVER SHEET

SHEET 1 OF 14

PROJECT TEAM

OWNER/ APPLICANT:	CAVANAGH FAMILY LIMITED PARTNERSHIP C/O MARK CAVANAGH 211 GEORGE ALLEN ROAD CHEPACHET, RI 02814	LAND SURVEYOR:	NATIONAL LAND SURVEYORS DEVELOPERS, INC. 42 HAMLET AVENUE WOONSOCKET, RI 02895 PHONE: 401-769-7779
CIVIL ENGINEER:	JOE CASALI ENGINEERING, INC. 300 POST ROAD WARWICK, RI 02888 PHONE: 401-944-1300 FAX: 401-944-1313 JOECASALI.COM	WETLAND BIOLOGIST:	NATURAL RESOURCE SERVICES 180 TINKHAM LANE PO BOX 311 HARRISVILLE, RI 02830 PHONE: (401) 568-7490



INDEX OF DRAWINGS	
SHEET NO.	SHEET DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	EXISTING CONDITIONS PLAN
4	SITE PREPARATION PLAN
5	OVERALL SITE PLAN
6	SITE & UTILITY PLAN I: ROAD FRONT LOTS
7	SITE & UTILITY PLAN II: PRIVATE ROAD LOTS
8	SITE & UTILITY PLAN III: RESIDENTIAL COMPOUND
9	GRADING AND DRAINAGE PLAN I: ROAD FRONT LOTS
10	GRADING AND DRAINAGE PLAN II: PRIVATE ROAD
11	GRADING AND DRAINAGE PLAN III: COMPOUND
12	DRAINAGE DETAILS I
13	DRAINAGE DETAILS II
14	OWTS TYPICAL DETAILS

Q:\20-03-Mark Cavanagh\ACAD\Orchard Ave [DEM RTC R2].dwg Apr. 24, 2023 12:13pm

GENERAL NOTES:

- 1. CLASS 1 LIMITED CONTENT BOUNDARY SURVEY COMPLETED BY NATIONAL SURVEYORS-DEVELOPERS INC., 42 HAMLET AVENUE, WOODSOCKET, RI IN APRIL 2021.
2. THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION.
3. THE SITE LIES IN ZONE X (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD), AS SHOWN ON THE FIRM MAPS FOR THE TOWN OF JOHNSTON, COMMUNITY PANELS NO. 44007C0277G AND 44007C0281G, EFFECTIVE MARCH 2, 2009.
4. WETLANDS WERE DELINEATED IN MARCH 2020 BY NATIONAL RESOURCE SERVICES, INC., P.O. BOX 311 HARRISVILLE, RI 02830.
5. SEVERAL INTERMITTENT STREAMS EXIST WITHIN THE SUBJECT PROPERTY. THESE STREAMS POSSESS A 100-YEAR FLOODPLAIN LINE AND ELEVATION THAT IS NOT PRESENTLY DEFINED ON THE LATEST FEMA MAPPING.
6. THE PROPOSED DEVELOPMENT IS LOCATED WITHIN THE WOONASQUATUCKET RIVER WATERSHED. THERE ARE NO EXTRAORDINARY OR UNUSUAL FEATURES ON THE SUBJECT SITE.
7. SOILS ON THE SITE CONSIST OF CANTON AND CHARLTON FINE SANDY LOAMS, 3-8% SLOPES (CdB), ENFIELD SILT LOAM, 3-8% SLOPES (Efb), HINCKLEY LOAMY SAND, 8-15% SLOPES (Hc), RAYPOL SILT LOAM (Rc), RIDGEBURY, LEICESTER, AND WHITMAN SOILS, 0-8% SLOPES (Rf), SCARBORO MUCKY FINE SANDY LOAM, 0-3% SLOPES (Sb), SCIO SILT LOAM, 0-3% SLOPES (Sca), UDORHENTHS-URBAN LAND COMPLEX (Ud), WALPOLE SANDY LOAM, 0-3% SLOPES (Wa) AND WATER (W).
8. A HISTORICAL CEMETERY (#JN002) KNOWN AS "NOAH MATHEWSON LOT" EXISTS WITHIN THE SUBJECT PARCEL (AP 59, LOT 8). A RIGHT OF WAY PROVIDING ACCESS TO THE CEMETERY BEGINS ON 139 WINDSOR AVENUE (AP 59, LOT 240) AND CONTINUES THROUGH THE SUBJECT PARCELS (AP 59, LOTS 8 & 268).
9. TELEPHONE AND ELECTRIC SERVICES ARE AVAILABLE FROM WITHIN DEER RUN ROAD AND ORCHARD AVENUE. GAS IS AVAILABLE WITHIN DEER RUN TRAIL. SEWER AND WATER IS NOT CURRENTLY AVAILABLE TO THE PROPOSED DEVELOPMENT.
10. THERE ARE NO FORESEEABLE SIGNIFICANT IMPACTS FOR THIS PROJECT ON THE COMMUNITY, TOWN SERVICES, OR THE ENVIRONMENT.

SITE NOTES:

- 1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) OF ALL MATERIALS INDICATED ON THE PLANS.
2. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS, AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICAN WITH DISABILITIES ACT AND WITH ALL APPLICABLE STATE AND LOCAL LAWS AND REGULATIONS, WHICHEVER IS MORE STRINGENT.
3. STOCKPILES OF EARTH MATERIALS SHALL NOT BE LOCATED ADJACENT TO DRAINAGE STRUCTURES.
4. ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREAS WILL RECEIVE A MINIMUM OF 6" OF LOAM AND SEED.
5. THE LAYOUT SHOWN REPRESENTS A GRAPHICAL DESIGN, AND PRIOR TO THE CONSTRUCTION, THE CONTRACTOR SHALL ENGAGE A PROFESSIONAL LAND SURVEYOR (PLS) REGISTERED IN THE STATE OF RHODE ISLAND TO SET AND VERIFY ALL LINES AND GRADES.
6. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SURVEY LAYOUT SERVICES FOR THE WORK AND SHALL SUBMIT "AS-BUILT" DRAWINGS OF ALL WORK, WHICH SHALL BE STAMPED AND CERTIFIED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR.
7. ANY ITEM OF WORK NOT SPECIFICALLY INDICATED ON THE PLANS BUT IS REQUIRED FOR THE COMPLETE CONSTRUCTION OF THE PROJECT WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND INCLUDED IN THE CONTRACT BID PRICE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SITE CONDITIONS.
8. WHERE NECESSARY TO REMOVE CURBS, CATCH BASINS OR DRAINS TO COMPLETE WORK, THE CONTRACTOR SHALL REPLACE SUCH ITEMS TO THE SATISFACTION OF THE ENGINEER AND THE TOWN AT NO ADDITIONAL COST TO THE OWNER.
9. ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.
10. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION OR REPLACE TREES, SHRUBS, FENCES, SIGNS, GUARDRAILS, DRIVEWAYS, SIDEWALKS AND ANY OTHER OBJECT AFFECTED BY THIS OPERATION, UNLESS OTHERWISE NOTED ON THE SITE PLANS.
11. THE TOPS OF ALL VALVE BOXES AND CURB BOXES SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB, UNLESS OTHERWISE DIRECTED.
12. ROADWAYS SHALL BE LEFT PASSABLE AT ALL TIMES. CLOSURE OF ROADWAY IS NOT PERMITTED.
13. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES.
14. ALL LEDGE TO BE REMOVED BY MECHANICAL MEANS.
15. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN THE DRY. THE CONTRACTOR SHALL PROVIDE, OPERATE AND MAINTAIN ALL PUMPS, DRAINS, WET POINTS, SCREENS, OR OTHER FACILITIES NECESSARY TO CONTROL, COLLECT AND DISPOSE OF ALL SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK.
16. ALL SITE WORK, INCLUDING BUT NOT LIMITED TO, BITUMINOUS PAVEMENT, ROADWAY CONSTRUCTION, AGGREGATE MATERIALS, DRAINAGE STRUCTURES, CURBING, SIDEWALK, LANDSCAPING, SAW CUTTING, ETC. SHALL CONFORM TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, AMENDED DECEMBER 2010 (WITH LATEST ADDENDA) AND THE RIDOT STANDARD DETAILS, 1998 EDITION (WITH LATEST ADDENDA).

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

- 1. THE SILT FENCE LINE ILLUSTRATED ON THESE PLANS SHALL SERVE AS THE STRICT LIMIT OF DISTURBANCE FOR THE PROJECT WITHIN OR ADJACENT TO REGULATED FRESHWATER WETLAND AREAS.
2. THE LIMITS OF CLEARING, GRADING, AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THESE LIMITS, AS DEPICTED ON THE PLAN SHALL BE TOTALLY UNDISTURBED, TO REMAIN IN NATURAL CONDITION.
3. ALL CATCH BASINS AND CULVERTS SHALL BE PROTECTED WITH SILT SACK SEDIMENT TRAPS AND/OR STRAW WATTLES DURING CONSTRUCTION ACTIVITIES. ALL PROPOSED STORM WATER DISCHARGE AREAS SHALL BE LINED WITH A RIPRAP SPLASH PAD AND PROTECTED WITH STAKED HAYBALE OUTLET PROTECTION (R.I. STD. 9.1.0), OR STAKED HAYBALE WITH SILT FENCE (R.I. STD. 9.3.0) OUTLET PROTECTION (STAKED HAYBALE OR STAKED HAYBALE WITH SILT FENCE) SHALL ALSO BE INSTALLED AT ALL EXISTING STORMWATER DISCHARGE LOCATIONS WHERE DISTRIBUTING PIPES, CATCH BASINS, AND MANHOLES ARE TO BE CLEANED AND FLUSHED.
4. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR CURRENTLY EXPOSED SHALL BE SEED, PROTECTED AND MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REGULARLY CHECK ALL SEEDING AREAS TO ENSURE THAT A GOOD STAND OF VEGETATION IS MAINTAINED.
5. ALL SILT FENCE, TEMPORARY TREATMENT (HAY, STRAW, ETC.) AND TEMPORARY EROSION PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
6. STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES OF NO GREATER THAN 2:1 AND SHALL BE TEMPORARILY SEED AND/OR STABILIZED PER CONTRACT SPECIFICATIONS.
7. THE SILT FENCE SHALL BE CHECKED BY THE CONTRACTOR ON A WEEKLY BASIS AND AFTER EACH STORM FOR UNDERMINING OR DETERIORATION. WEEKLY INSPECTION REPORTS SHALL BE PREPARED IN ACCORDANCE WITH THE PROJECT'S SOIL EROSION AND SEDIMENTATION CONTROL PLAN (SESCP). THE CONTRACTOR SHALL REPAIR OR REPLACE ANY SILT FENCE AS NEEDED. THE CONTRACTOR SHALL CLEAN THE ACCUMULATED SEDIMENT IF HALF OF THE ORIGINAL HEIGHT OF THE SILT FENCE BECOMES FILLED WITH SEDIMENTS.
8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SOIL EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL FOLLOW THE DIRECTION OF THE ENGINEER, TOWN ENGINEER, OR OWNER WITH REGARD TO INSTALLATION, MAINTENANCE, AND REPAIR OF ALL SOIL EROSION AND SEDIMENTATION CONTROLS ON THE PROJECT SITE. TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROLS (HAYBALES, SILT FENCE, ETC.) SHALL BE MAINTAINED UNTIL ALL EXPOSED SOILS ARE SATISFACTORILY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR RESEEDING ALL AREAS THAT DO NOT DEVELOP WITHIN ONE YEAR FROM THE COMPLETION OF CONSTRUCTION.
9. ALL REFERENCED SOIL EROSION AND SEDIMENTATION CONTROLS INCLUDING MATERIALS USED, APPLICATION RATES AND THE INSTALLATION PROCEDURES SHALL BE PERFORMED PER THE "RHODE ISLAND EROSION AND SEDIMENTATION HANDBOOK", ISSUED 1989 (REVISED 2014, UPDATED 2016).

DRAINAGE SYSTEM NOTES:

- 1. THE PROPOSED DRAINAGE LINES SHALL BE ADS N-12 HDPE PIPE OR AN APPROVED EQUAL UNLESS OTHERWISE NOTED ON THE SITE PLANS.
2. ALL RIM ELEVATIONS SHOWN ARE APPROXIMATE AND ARE TO BE SET FLUSH WITH FINAL GRADES.
3. BMP MAINTENANCE SCHEDULE:
1. PRIOR TO THE START OF CONSTRUCTION, THE SITE CONTRACTOR SHALL STAKE OUT AND PROTECT ALL SURFICIAL STORMWATER INFILTRATION AREAS, INCLUDING THE SEDIMENT FOREBAY AND SAND FILTER BASIN. CONSTRUCTION TRAFFIC IS NOT ALLOWED WITHIN THE INFILTRATION AREAS. CONSTRUCTION FENCING SHALL BE USED TO PROTECT AREA FROM CONSTRUCTION TRAFFIC. STORMWATER INFILTRATION AREAS SHALL BE PROTECTED FROM RUNOFF DURING CONSTRUCTION AND MAY NOT BE USED AS TEMPORARY SEDIMENTATION AREAS DURING CONSTRUCTION. SILT FENCE SHALL BE USED TO PROTECT THESE AREAS FROM RUNOFF.
2. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING THE CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL INCLUDE:
A. MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF THE STORMWATER RUNOFF (DRAINAGE) AND WATER QUALITY CONTROL SYSTEMS TO INCLUDE INSPECTION, CLEANING AND REPAIRS ALL PIPES, INTAKE AND DISCHARGE STRUCTURES, CATCH BASIN SUMPS, AND MANHOLES.
B. INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES FOR STRUCTURAL INTEGRITY/STABILITY AND EVIDENCE OF SOIL EROSION PROCESSES, AND MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF 1/2 INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR BI-MONTHLY IF NO RAINFALL EVENT OCCURS.
3. UPON COMPLETION OF THE PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION AND CLEANING OF THE DRAINAGE SYSTEM AND ALL ASSOCIATED STRUCTURES.
4. ALL INSTALLATION, CLEANING, AND MAINTENANCE OF THE STORMWATER DRAINAGE SYSTEM SHALL FOLLOW AT LEAST THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION MINIMUM STANDARDS, SECTION 212 AND SECTION 708. WHERE APPROPRIATE, PROCEDURES REGARDING THE DRAINAGE INSTALLATION, CLEANING, INSPECTION, AND MAINTENANCE OF THE STORMWATER DRAINAGE SYSTEM SHALL BE FOLLOWED AS OUTLINED IN THE "RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL" (RIDEM/RICRMC, 2010).
5. STORMWATER BMPs SHALL BE INSPECTED AND MAINTAINED BY THE OWNER AS FOLLOWS:

PEA GRAVEL DIAPHRAGMS

- PEA GRAVEL DIAPHRAGMS SHALL BE INSPECTED BI-ANNUALLY FOR SEDIMENT BUILDUP AND SEDIMENT SHALL BE REMOVED WHEN IT REACHES 25% OF THE TOTAL STORAGE VOLUME.
• PEA GRAVEL DIAPHRAGMS SHALL BE KEPT FREE FROM LITTER AND DEBRIS.
• SNOW STORAGE IS PROHIBITED WITHIN PEA GRAVEL DIAPHRAGMS.

INFILTRATION TRENCHES

- AFTER CONSTRUCTION, THE INFILTRATION TRENCHES SHALL BE INSPECTED ON AN ANNUAL BASIS FOR SEDIMENT BUILDUP AND SEDIMENT SHALL BE REMOVED WHEN IT REACHES 25% OF THE TOTAL STORAGE VOLUME.
• LITTER AND DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED OF.
• VEGETATION ALONG THE SYSTEM SHOULD BE MOWED AS FREQUENTLY AS NEEDED TO MAINTAIN HEIGHTS BETWEEN 2 TO 3 INCHES.
• SNOW STORAGE IS PROHIBITED WITHIN INFILTRATION TRENCHES.

PRE-TREATMENT SEDIMENT FOREBAY

- AFTER CONSTRUCTION, THE SEDIMENT FOREBAY SHALL BE INSPECTED AND CLEANED WHEN SEDIMENT BUILD-UP IS IN EXCESS OF 6" OR 25% OF THE SEDIMENT STORAGE VOLUME.

INFILTRATION BASIN

- DURING THE SIX MONTHS IMMEDIATELY AFTER CONSTRUCTION, THE INFILTRATION BASIN SHALL BE INSPECTED AFTER THE FIRST TWO RAINFALL EVENTS OF AT LEAST 1.0 INCH TO ENSURE THE SYSTEM IS FUNCTIONING PROPERLY. THEREAFTER INSPECTIONS SHALL BE CONDUCTED ON AN ANNUAL BASIS AND AFTER STORM EVENTS OF GREATER THAN OR EQUAL TO 2 INCHES.
• SILT AND SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE ACCUMULATION EXCEEDS SIX INCHES, OR WHEN WATER PONDS ON THE SURFACE OF THE DETENTION BASIN FOR MORE THAN 48 HOURS.
• SOIL EROSION GULLIES SHALL BE REPAIRED WHEN THEY OCCUR.
• THE OUTLET DEVICES SHALL BE CLEANED/REPAIRED WHEN NECESSARY.
• TRASH AND DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED OF.
• THE LOW FLOW ORIFICE GRATE SHALL BE INSPECTED AFTER MAJOR STORM EVENTS EXCEEDING 2 INCHES OF RAIN. ANY TRASH OR DEBRIS SHALL BE REMOVED IMMEDIATELY.

BIORETENTION BASINS

- DURING THE FIRST 6 MONTHS IMMEDIATELY AFTER CONSTRUCTION, FILTER PRACTICES SHALL BE INSPECTED FOLLOWING AT LEAST THE FIRST TWO PRECIPITATION EVENTS OF AT LEAST 1.0 INCH TO ENSURE THAT THE SYSTEM IS FUNCTIONING PROPERLY. THEREAFTER, INSPECTIONS SHALL BE CONDUCTED ON AN ANNUAL BASIS AND AFTER STORM EVENTS OF GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR TYPE III PRECIPITATION EVENT.
• MINOR EROSION GULLIES SHALL BE REPAIRED WHEN THEY OCCUR.
• PRUNING AND REPLACEMENT OF WOODY VEGETATION SHALL OCCUR WHEN DEAD OR DYING VEGETATION IS OBSERVED. SEPARATION OF HERBACEOUS VEGETATION ROOTSTOCK SHOULD OCCUR WHEN OVER-CROWDING IS OBSERVED, OR APPROXIMATELY ONCE EVERY 3 YEARS.
• THE MULCH LAYER SHOULD BE REMOVED, AND PROPERLY DISPOSED OF, OR ROTO-TILLED INTO THE SOIL SURFACE.
• IF AT LEAST 50% VEGETATION COVERAGE IS NOT ESTABLISHED AFTER 2 YEARS, A REINFORCEMENT PLANING SHOULD BE PERFORMED.
• IF THE SURFACE OF THE BIORETENTION SYSTEM BECOMES CLOGGED TO THE POINT THAT STANDING WATER IS OBSERVED ON THE SURFACE 48 HOURS AFTER PRECIPITATION EVENTS, THE SURFACE SHALL BE ROTO-TILLED OR CULTIVATED TO BREAKUP ANY HARD-PACKED SEDIMENT AND THEN RE-VEGETATED.
• SNOW STORAGE IS PROHIBITED WITHIN BIORETENTION BASINS.

- 6. ALL REMOVED SEDIMENT IS TO BE TESTED TO DETERMINE POLLUTANT CONTENT. THE SEDIMENT IS TO BE PROPERLY DISPOSED OF BASED UPON THE TEST RESULTS AND LOCAL, STATE, AND FEDERAL REGULATIONS.

LOAMING & SEEDING

SEEDING ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH SECTION L.02 SEEDING OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2010 EDITION (WITH LATEST ADDENDA), AND SHALL ALSO CONFORM TO THE FOLLOWING:

- 1. AFTER ROUGH GRADING IS COMPLETED, ALL DISTURBED AREAS AND AREAS LABELED AS 'LOAM AND SEED' ARE TO BE BROUGHT TO AN ELEVATION OF 6" BELOW THE PROPOSED FINISHED GRADE. SCARIFY THE SUBGRADE TO A DEPTH OF 12" WITH THE TEETH OF A BACKHOE OR A POWER RAKE TO RESULT IN AN UNCOMPACTED SUBSOIL. 6" OF GOOD QUALITY TOPSOIL IS TO BE APPLIED AND RAKED TO FINISHED GRADE.
2. THE TOPSOIL IS TO BE GOOD QUALITY LOAM, FERTILE AND FREE OF WEEDS, STICKS AND STONES OVER 3/4" IN SIZE AND OTHERWISE COMPLYING WITH SECTION M.18.01 OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADWAY AND BRIDGE CONSTRUCTION, 2010 EDITION (WITH LATEST ADDENDA).
3. PRIOR TO SEEDING OR SODDING, FERTILIZE WITH 10-10-10 OR EQUIVALENT ANALYSIS. AT LEAST 40% OF THE FERTILIZER NITROGEN SHALL BE IN SLOW RELEASE FORM. INCORPORATE THE FERTILIZER INTO THE TOP 1-2" OF THE PLANTING SOIL. APPLY AT A RATE OF 8 LBS. PER 1000 SQUARE FEET.
4. APPLY LIME AT A RATE OF ONE TON PER ACRE AND UNIFORMLY INCORPORATE INTO THE TOP 1-2" OF TOPSOIL.
5. SEEDING
AFTER THE SEED BED IS PREPARED, SEED IS TO BE BROADCAST EVENLY OVER THE SURFACE AND WORKED INTO THE TOP 1" OF SOIL. SEED SHALL BE APPROVED URI #2 OR APPROVED EQUAL. APPLY AT A RATE OF 4-5 LBS. PER 1000 SQUARE FEET OR AS OTHERWISE DIRECTED BY THE MANUFACTURER.

URI #2 IMPROVED SEED MIX, % BY WEIGHT:

- 40% CREEPING RED FESCUE
20% IMPROVED PERENNIAL RYEGRASS
20% IMPROVED KENTUCKY BLUEGRASS
20% KENTUCKY BLUEGRASS

RECOMMENDED SEEDING DATES ARE MARCH 15 TO JUNE 15 AND SEPTEMBER 15 TO NOVEMBER 15. AT THE CONTRACTORS DISCRETION, SEED MAY BE APPLIED BY HYDROSEEDING RATHER THAN THE METHOD DESCRIBED ABOVE.

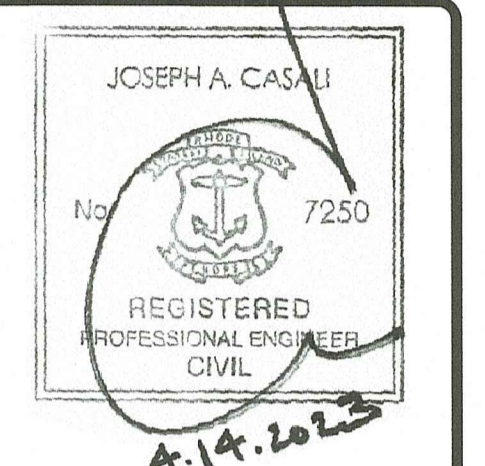
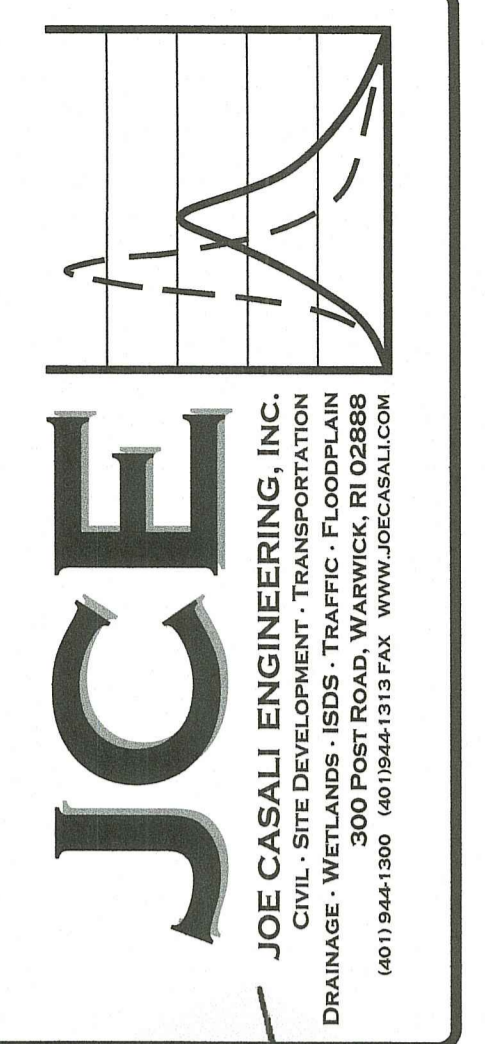
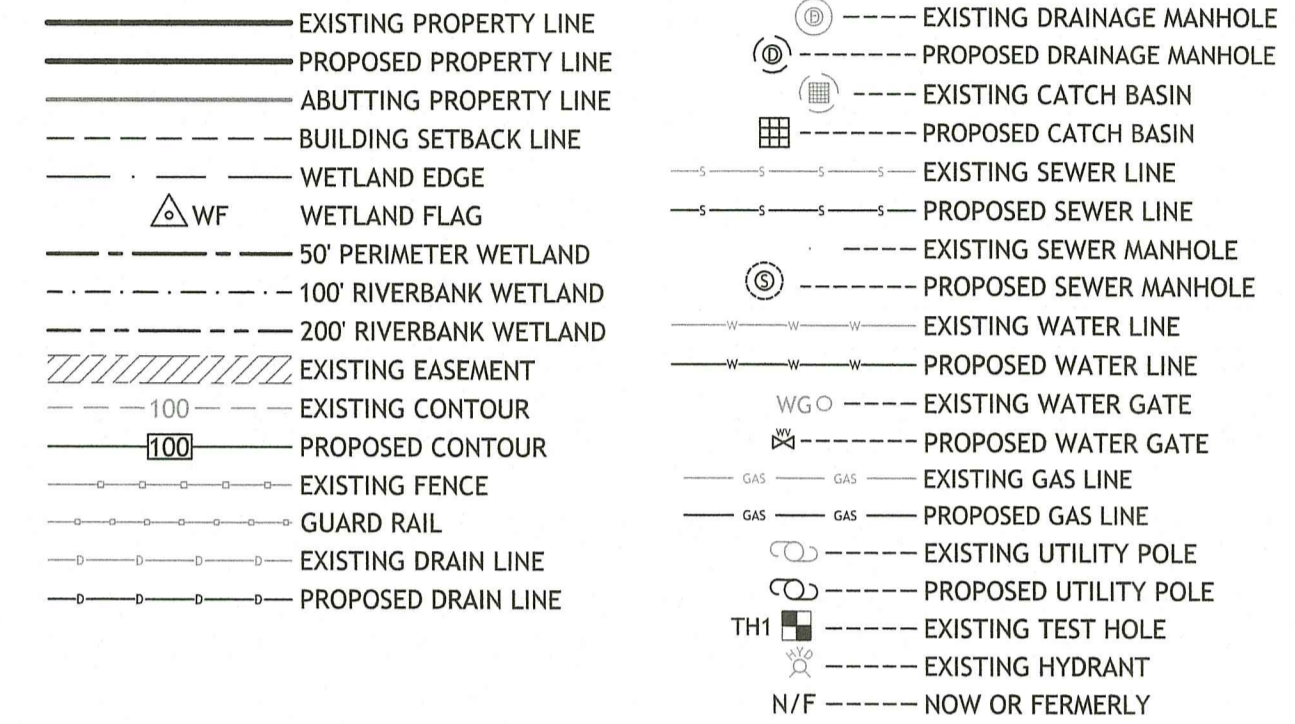
MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE LATEST REVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION.
2. TEMPORARY CONSTRUCTION SIGNS AND ALL APPLICABLE TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC.
3. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED IN THE STATE OR TOWN RIGHT-OF-WAY.
4. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS CHANNELING DEVICES, ETC, SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION.
5. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH THE RIDOT SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

MISCELLANEOUS UTILITY NOTES:

- 1. PRIOR TO CONSTRUCTION ALL POTENTIAL UTILITY/DRAINAGE CONFLICTS MUST BE IDENTIFIED BY THE CONTRACTOR. ANY MODIFICATIONS TO THE PROPOSED UTILITIES TO AVOID CONFLICTS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
2. OVERHEAD AND/OR UNDERGROUND ELECTRIC, GAS AND COMMUNICATIONS SERVICES ARE TO BE COORDINATED BY THE CONTRACTOR WITH THE APPROPRIATE UTILITY COMPANY.
3. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE A SUFFICIENT NUMBER OF WORKMEN AND GUARDS AS MAY BE NECESSARY TO PROPERLY SAFEGUARD THE PUBLIC FROM THEIR OPERATIONS.
4. THE CONTRACTOR SHALL TAKE PRECAUTIONS AGAINST DAMAGING OF PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES AND SHALL PROMPTLY REPAIR AT HIS OWN EXPENSE ANY DAMAGE TO SUCH PAVING, SIDEWALKS, UTILITIES, OR PRIVATE PROPERTIES TO THE SATISFACTION OF THE OWNER AND/OR THE TOWN OF SMITHFIELD.
5. EXISTING UTILITY FRAMES AND COVERS FOR SANITARY SEWER, WATER, GAS, STORM DRAINAGE AND OTHER UTILITIES SHALL BE ADJUSTED TO GRADE AS REQUIRED IN NEW PAVING AND PAVEMENT OVERLAY AREAS.
6. THE CONTRACTOR SHALL CONFINE HIS CONSTRUCTION OPERATIONS AND ACTIVITIES TO WITHIN THE STREET LINES, EASEMENT AND/OR RIGHT-OF-WAY, AS SHOWN ON THE DRAWINGS.
7. ALL CONSTRUCTION MATERIALS, AS WELL AS ALL MATERIAL SHOP DRAWINGS AND MANUFACTURERS DATA SHEETS SHALL BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER, OR HIS/HER REPRESENTATIVE PRIOR TO FABRICATION AND INSTALLATION.

LEGEND:



THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268
RI Department of Environmental Management
Office of Water Resources
APR 04 2023

Table with 3 columns: NO., DATE, DESCRIPTION. Revisions include 4/19/2022 RIDEM FILING, 10/18/2022 RIDEM RTC, and 4/2023 RIDEM RTC.

DESIGNED BY: WMLJR
DRAWN BY: SEP/SD
CHECKED BY: JAC
DATE: MARCH 2022
PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

GENERAL NOTES & LEGEND

SHEET 2 OF 14

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: JUN 06 2023 FILE #: 22-0145
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE ON CONSTRUCTION SITE
Dorothy L. Freeman

ZONING CRITERIA	REQUIRED	EXISTING (LOT 8)	EXISTING (LOT 268)
ZONING DISTRICT	R-40	R-40	R-40
MINIMUM LOT AREA	40,000 SF	2,781,347 SF	137,506 SF
MINIMUM LOT WIDTH AND FRONTAGE (1)	140 FT	NA	NA
MINIMUM FRONT YARD DEPTHS	40 FT	NA	NA
MINIMUM SIDE YARD DEPTH	35 FT	NA	NA
MINIMUM REAR YARD DEPTH	75 FT	NA	NA
MAXIMUM STRUCTURE HEIGHT (MAIN)	30 FT	NA	NA
MAXIMUM BUILDING COVERAGE	15%	0%	0%

(1) LOT WIDTH AND FRONTAGE SHALL BE CONTINUOUS, NOT INTERRUPTED BY ANY OTHER LOT AND ON A TOWN-ACCEPTED ROAD.

SOIL EVALUATION TEST PIT DATA			
	SURFACE EL.	SHWT / EL.	LEDGE / EL.
TH 1-1	328.84	20"/327.17	NE
TH 1-2	327.62	18"/326.12	NE
TH 2-1	325.38	20"/323.71	NE
TH 2-2	324.70	19"/323.12	NE
TH 3-1	321.58	20"/319.91	NE
TH 3-2	321.18	22"/319.35	NE
TH 4-1	326.05	84"/319.05	NE
TH 4-2	321.21	60"/316.21	NE
TH 5-1	318.13	30"/315.63	NE
TH 5-2	315.94	20"/314.27	NE
TH 6-1	306.33	<18" (DISCLAIMED)	NE
TH 6-2	306.75	<18" (DISCLAIMED)	NE
TH 6-3	309.49	18"/307.99	NE
TH 6-4	308.00	18"/306.50	NE
TH 7-1	312.08	20"/310.41	NE
TH 7-2	311.55	24"/309.55	NE
TH 8-1	310.71	24"/308.71	NE
TH 8-2	308.22	24"/306.22	NE
TH 9-1	335.59	20"/333.92	NE
TH 9-2	334.08	18"/332.58	NE
TH 10-1	332.72	20"/331.05	NE
TH 10-2	334.31	20"/332.64	NE

NOTE: TEST HOLES TH 1-1 THROUGH TH 10-12 WERE OBSERVED AND DOCUMENTED BY SUSAN B. CAPASO, LICENSE NO. D-4028 IN JANUARY 2021. SOIL EVALUATION LOGS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. NE = NOT ENCOUNTERED.

SOIL EVALUATION TEST PIT DATA			
	SURFACE EL.	SHWT / EL.	LEDGE / EL.
TH A	328.84	96"/327.17	NE
TH B	327.62	96"/326.12	NE
TH C	325.38	96"/323.71	NE
TH D	324.70	96"/323.12	NE
TH E	321.58	96"/319.91	NE
TH F	310.00	56"/305.33	NE

NOTE: TEST HOLES TH A THROUGH TH F WERE OBSERVED AND DOCUMENTED BY AMBER K. HARDY, M.S., LICENSE NO. D4098 IN OCTOBER 2022. SOIL EVALUATION LOGS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. NE = NOT ENCOUNTERED.



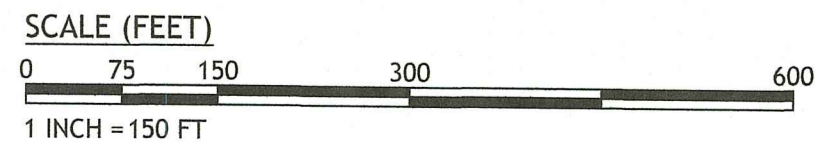
CEMETERY R.O.W. NOTE:
DEED BOOK 75, PAGE 411
RESERVING A RIGHT OF WAY TO THE MATHEWSON FAMILY
BURYING GROUND FROM WINDSOR AVENUE BY THE MOST
CONVENIENT ROUTE OR COURSE WITH OR WITHOUT VEHICLES

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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Nancy L. Freeman



JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER CIVIL
4-14-2023

THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

AP (Environmental) Plans
APR 9 4 2023
Office of Water Resources

REVISIONS:

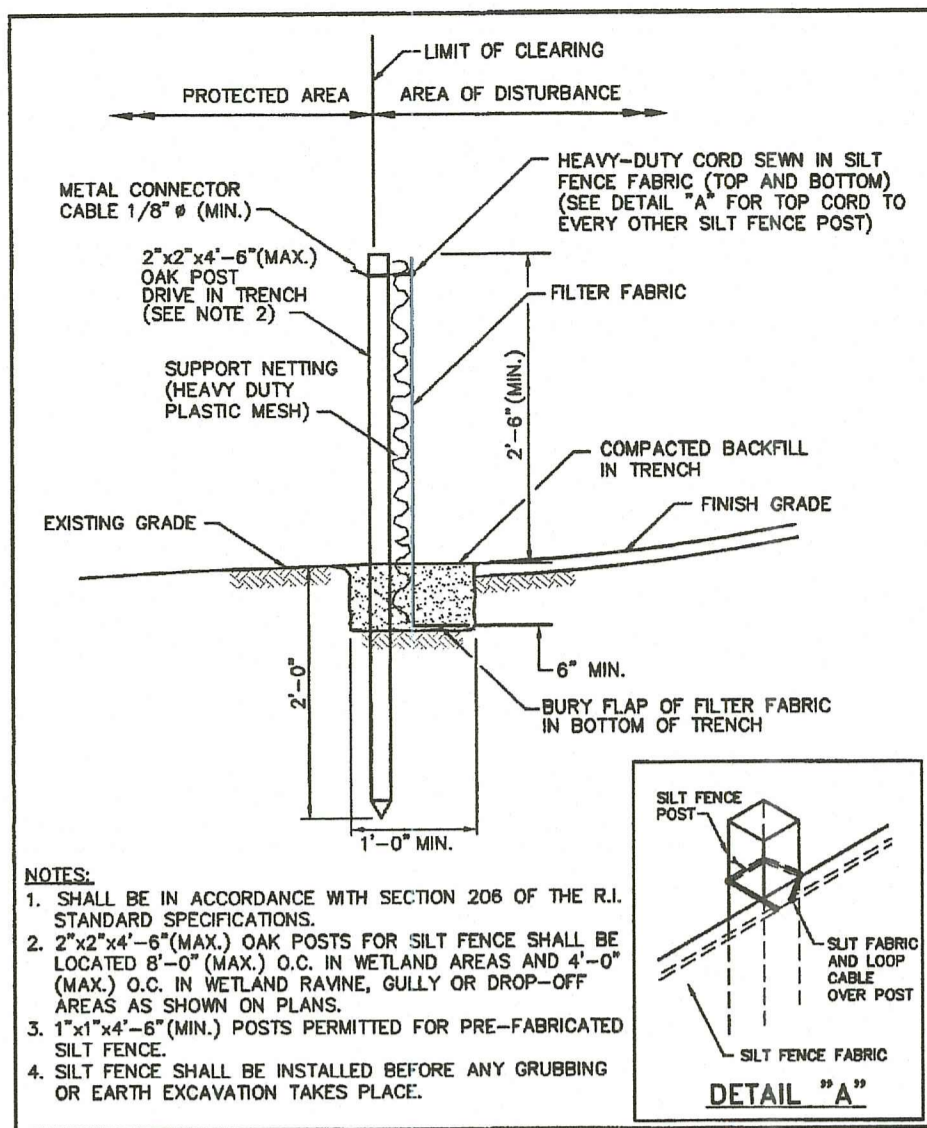
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3	4/2023	RIDEM RTC

DESIGNED BY: WMLJR
DRAWN BY: SEP/SD
CHECKED BY: JAC
DATE: MARCH 2022
PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

EXISTING CONDITIONS PLAN

SHEET 3 OF 14



- NOTES:**
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
 2. 2"x2"x4" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 6'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
 3. 1"x1"x4" (MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
 4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

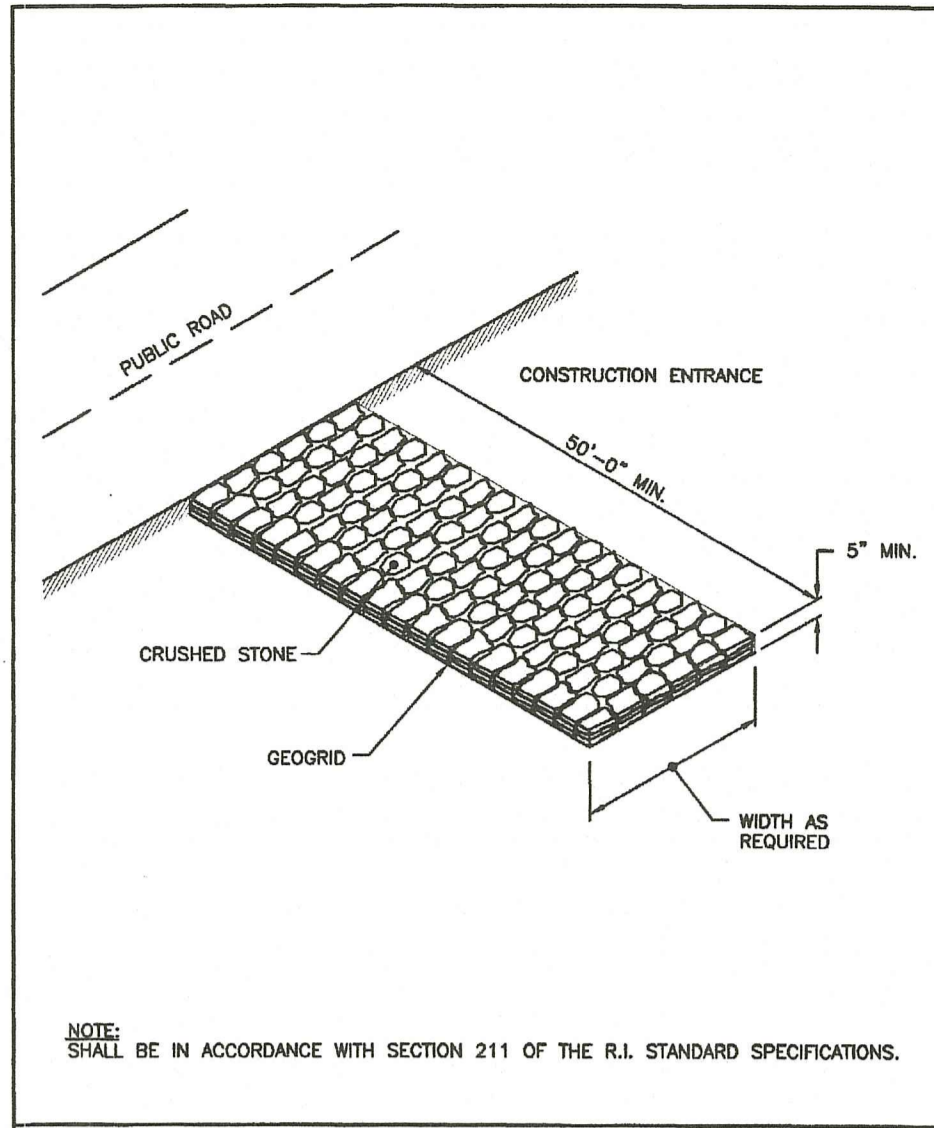
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SILT FENCE DETAIL

NO. BY DATE

APPROVED: *Joseph A. Casali* JUN 15, 1998

R.I. STANDARD 9.2.0



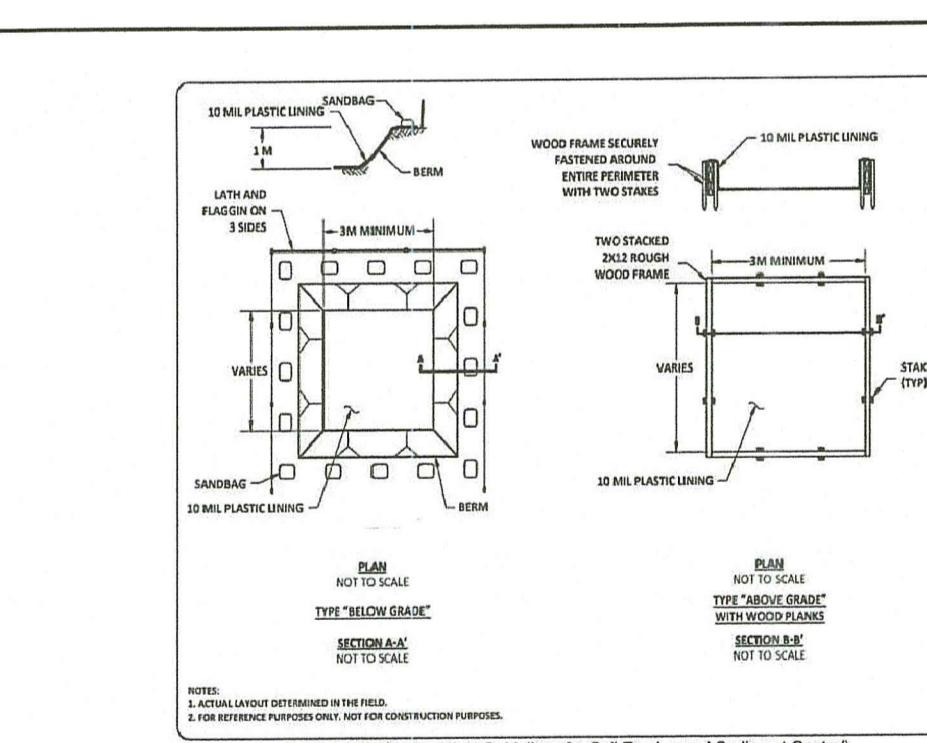
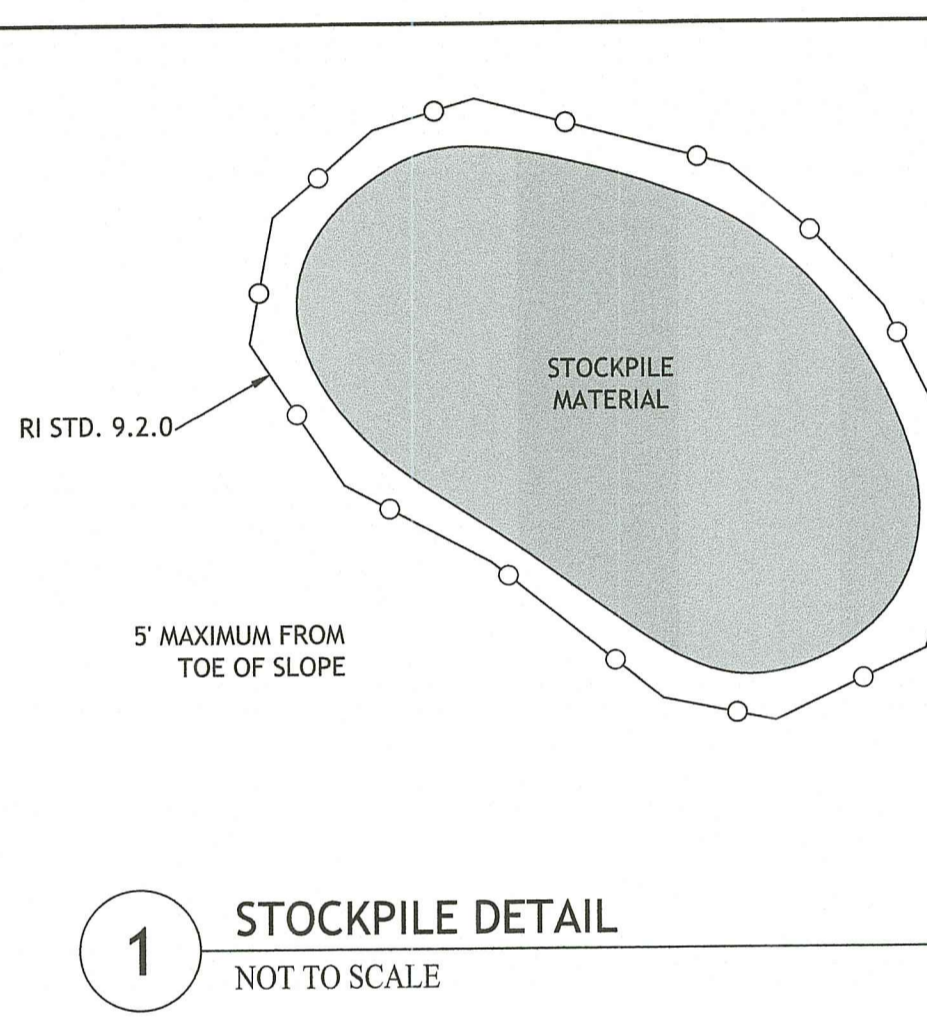
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONSTRUCTION ACCESS

NO. BY DATE

APPROVED: *Joseph A. Casali* JUN 15, 1998

R.I. STANDARD 9.9.0



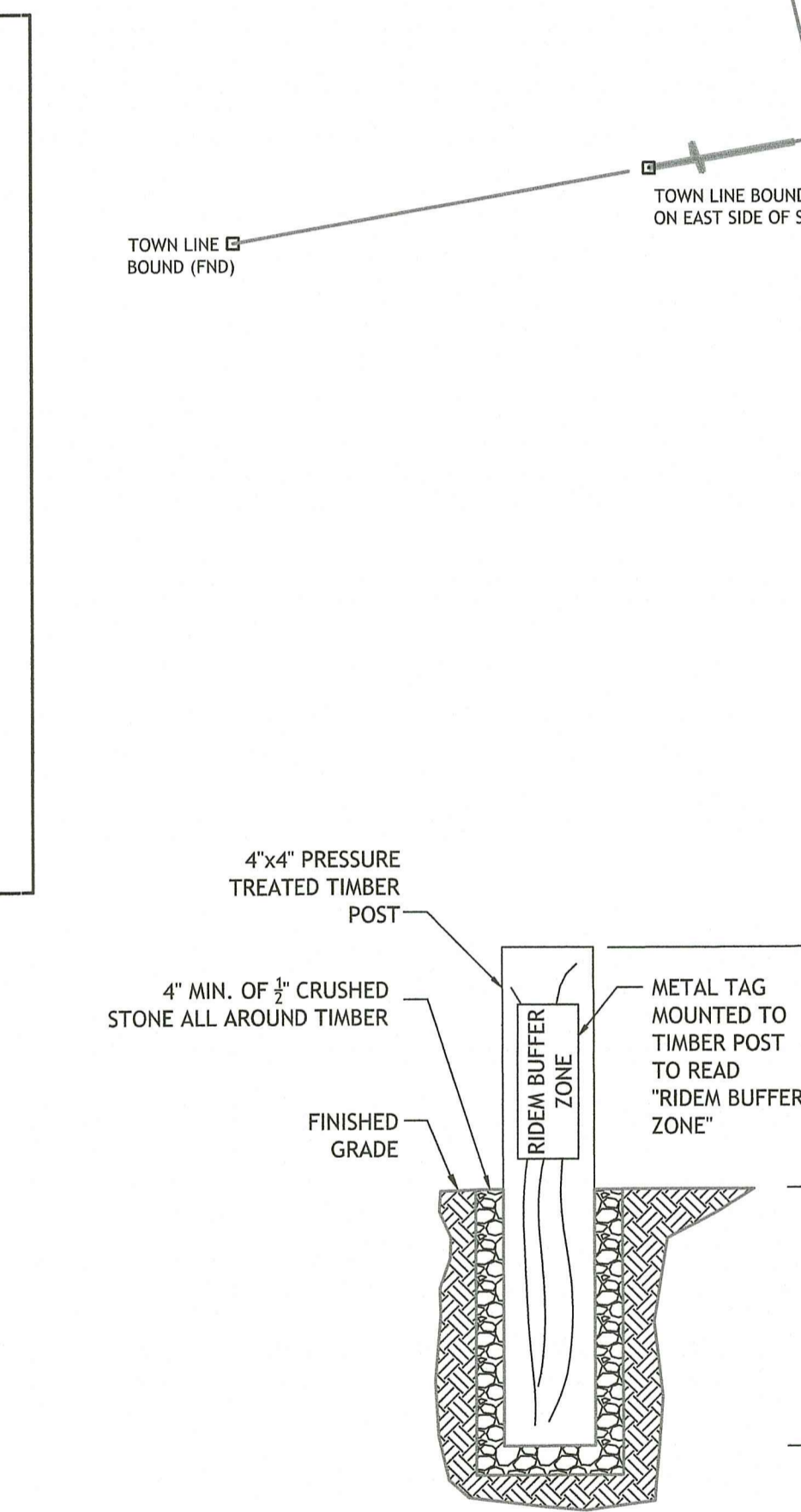
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

TEMP. CONCRETE WASHOUT FACILITY

NO. BY DATE

APPROVED: *Joseph A. Casali* JUN 15, 1998

R.I. STANDARD 9.9.0



RHODE ISLAND DEPARTMENT OF TRANSPORTATION

RIDEM BUFFER ZONE MARKER DETAIL

NO. BY DATE

APPROVED: *Joseph A. Casali* JUN 15, 1998

R.I. STANDARD 9.9.0

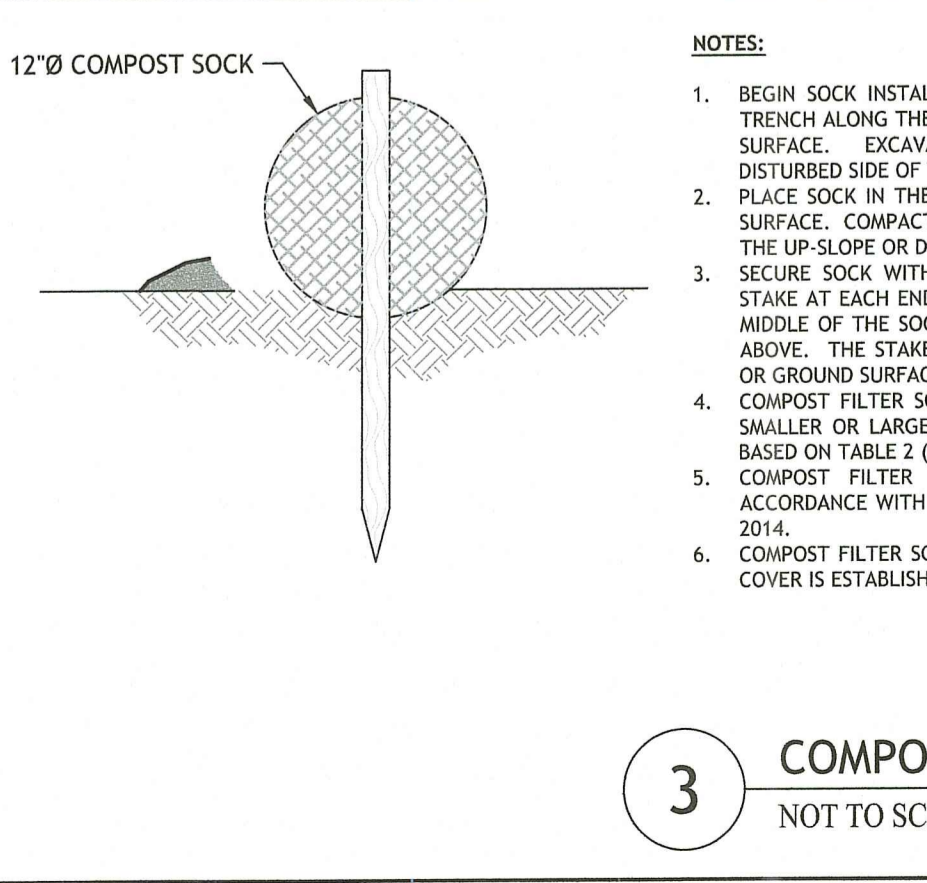
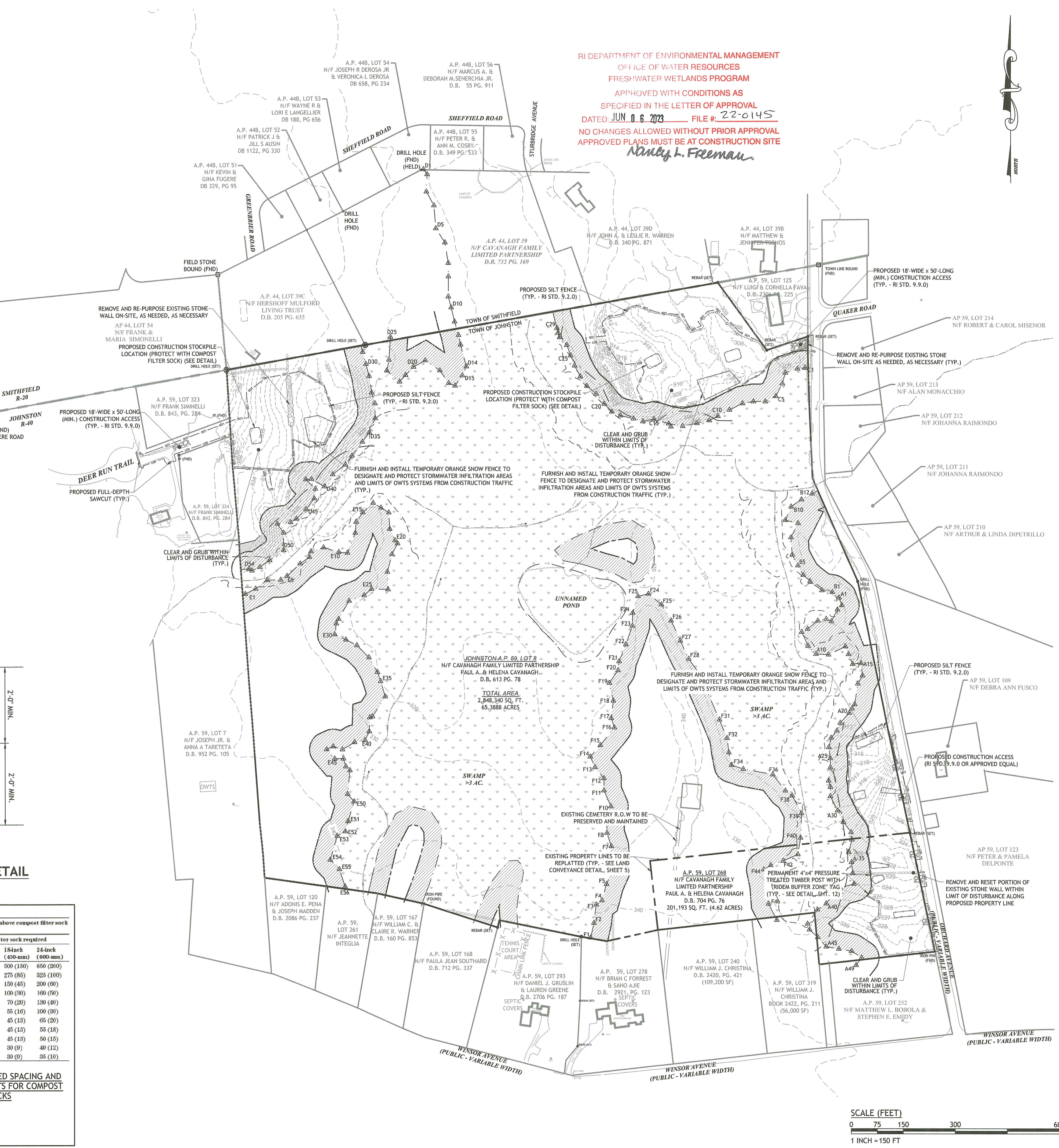


FIGURE 2: RECOMMENDED SPACING AND DIAMETER REQUIREMENTS FOR COMPOST FILTER SOCKS

Slope %	Maximum slope length above compost filter sock in ft. (m)			
	8-inch (200-mm)	12-inch (300-mm)	18-inch (450-mm)	24-inch (600-mm)
2 (or less)	900 (90)	375 (110)	500 (150)	650 (200)
5	200 (60)	250 (75)	275 (85)	325 (100)
10	100 (30)	125 (38)	150 (46)	200 (60)
15	70 (20)	85 (25)	100 (30)	150 (50)
20	60 (15)	65 (20)	70 (20)	130 (40)
25	40 (12)	50 (15)	55 (16)	100 (30)
30	30 (9)	40 (12)	45 (13)	65 (20)
35	30 (9)	40 (12)	45 (13)	55 (18)
40	30 (9)	40 (12)	45 (13)	50 (15)
45	20 (6)	25 (8)	30 (9)	40 (12)
50	20 (6)	25 (8)	30 (9)	35 (10)



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Only J. Freeman

JOE CASALI ENGINEERING, INC.
CIVIL SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
(401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
4.14.2023

THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

APR 9 4 2023
Office of Water Resources

REVISIONS:

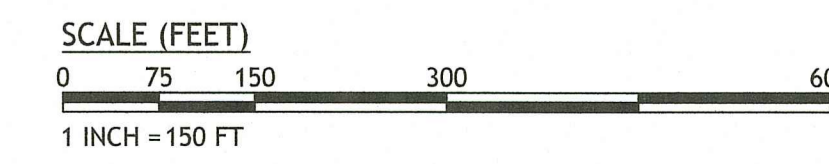
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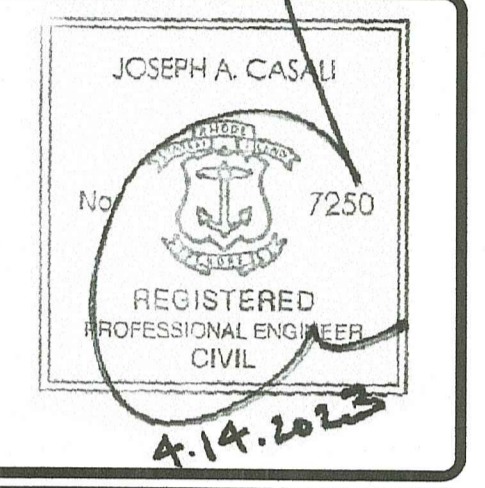
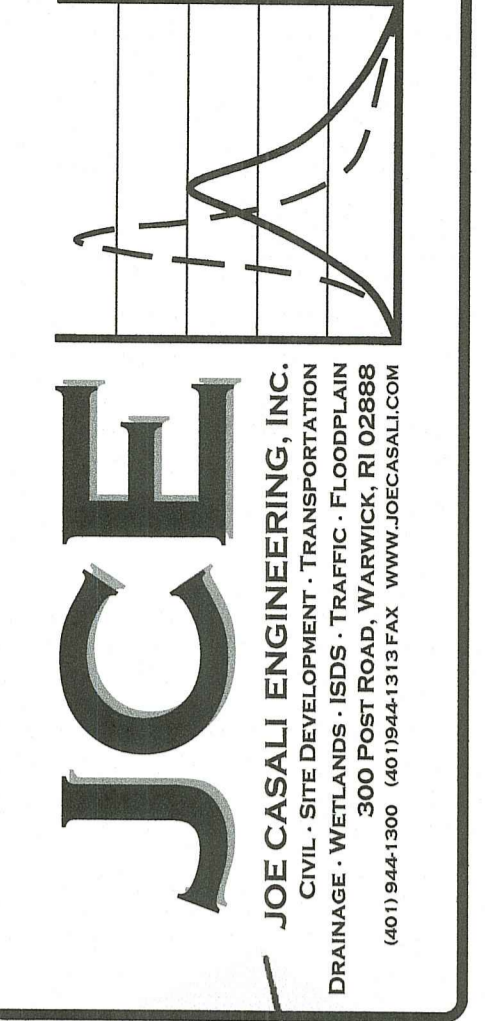
PRELIMINARY, NOT FOR CONSTRUCTION

SITE PREPARATION PLAN

SHEET 4 OF 14



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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THE CONSERVANCY AT WINSOR
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 JOHNSTON, RHODE ISLAND
 AP 59, LOTS 8 & 268

Environmental Management
 APR 24 2023
 Office of Water Resources

REVISIONS:

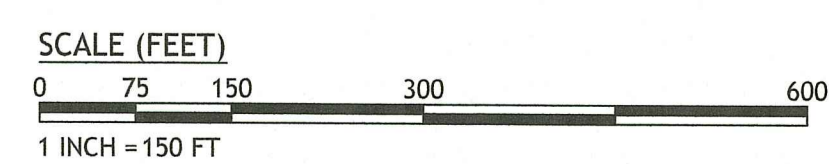
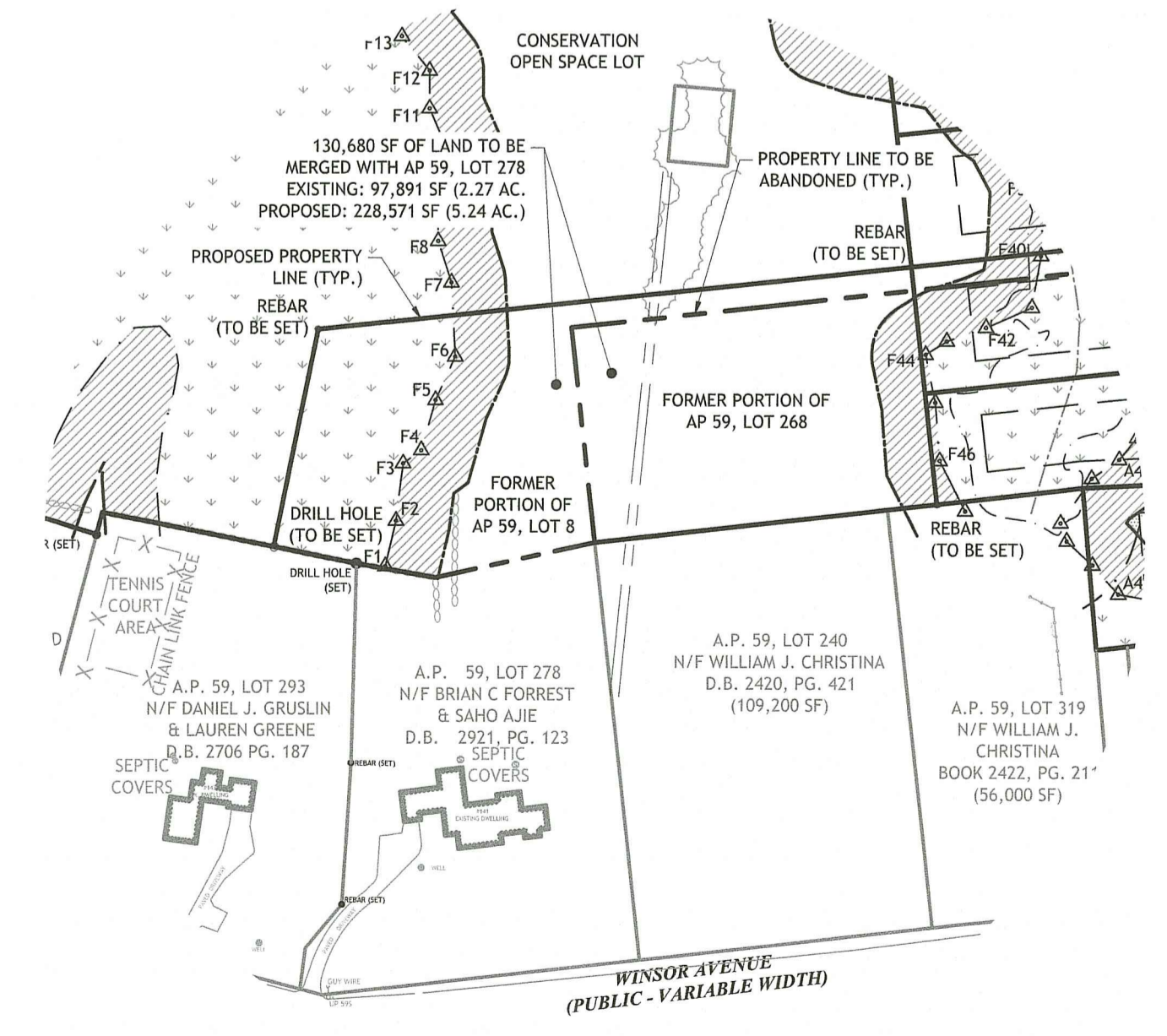
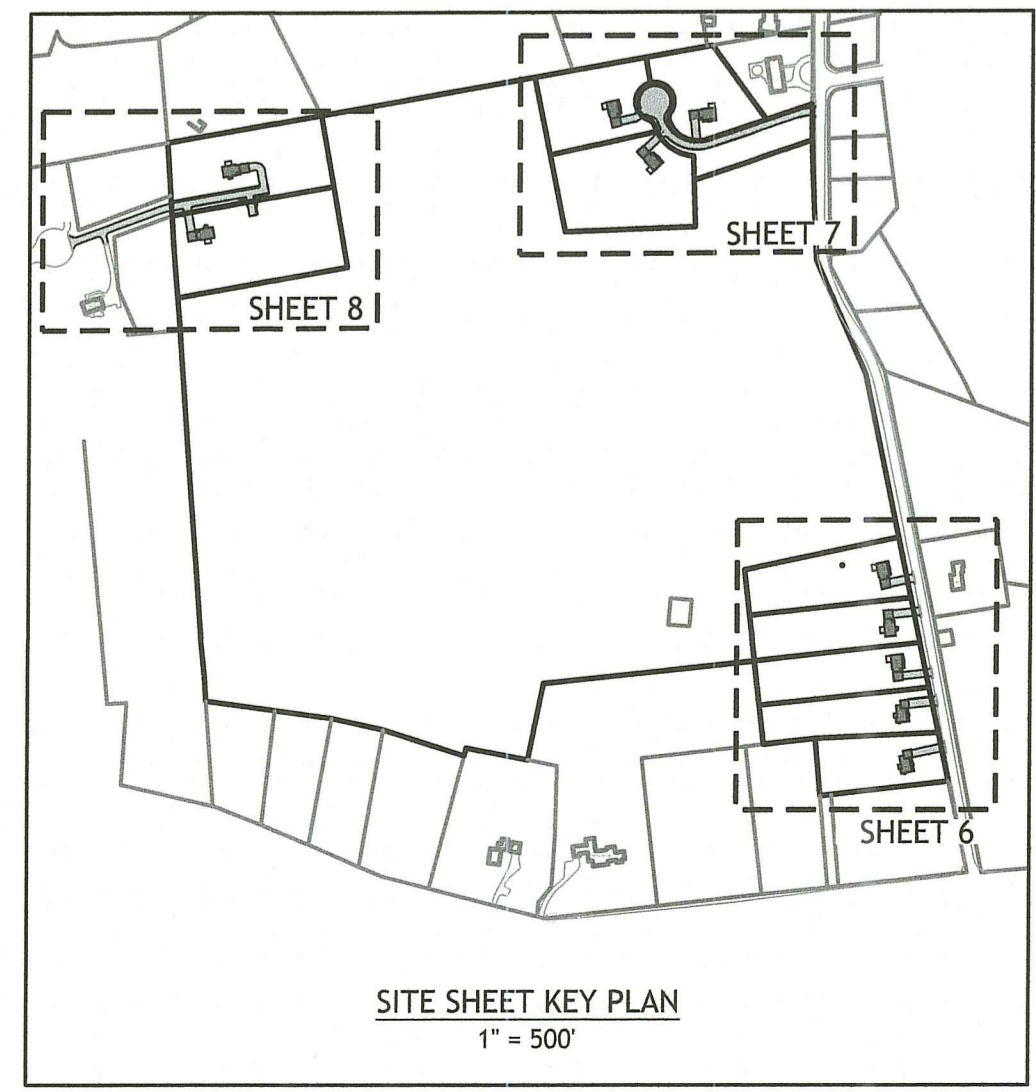
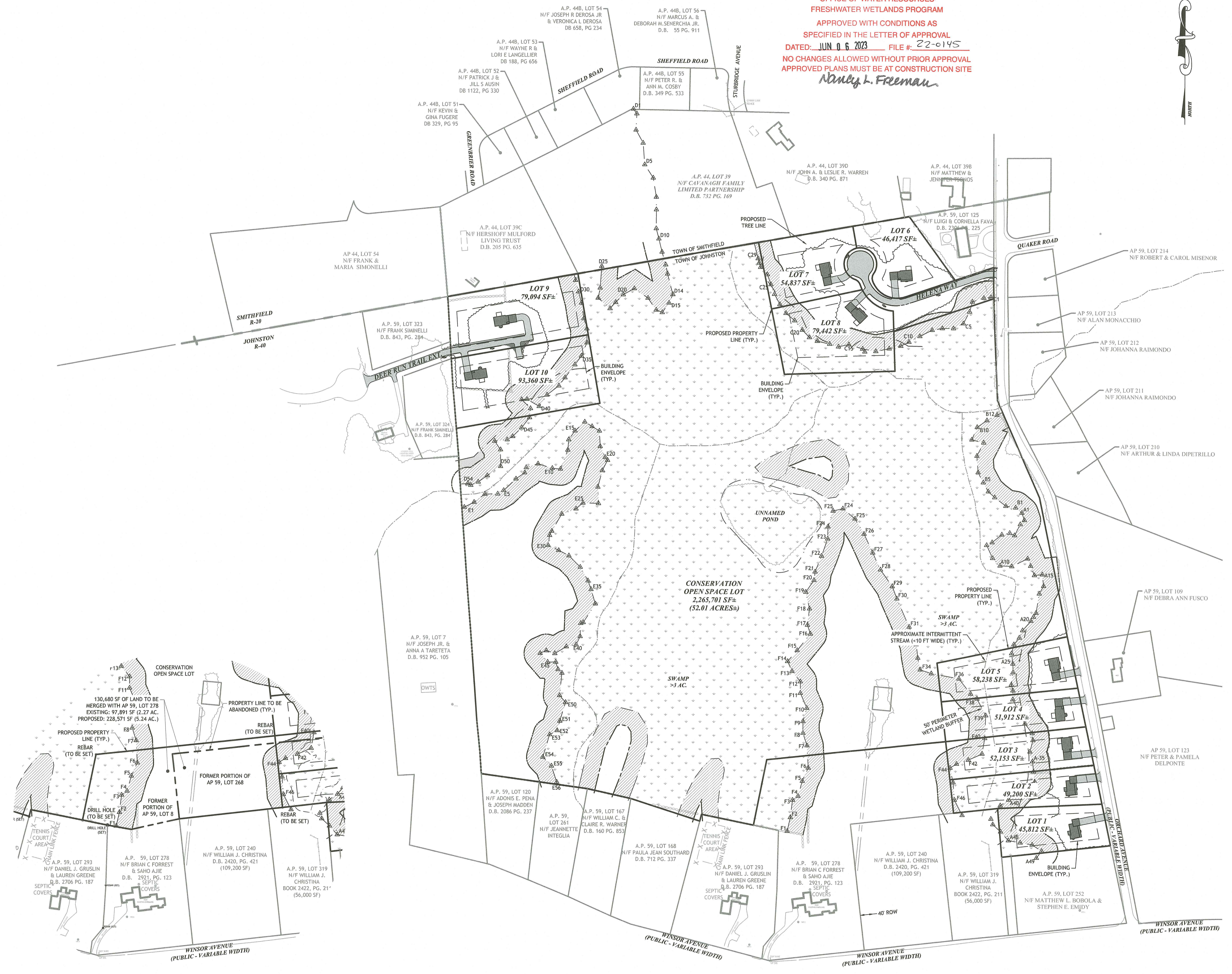
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DESIGNED BY: WMLJR
 DRAWN BY: SEP/SD
 CHECKED BY: JAC
 DATE: MARCH 2022
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PRELIMINARY, NOT FOR CONSTRUCTION

OVERALL SITE PLAN

SHEET 5 OF 14

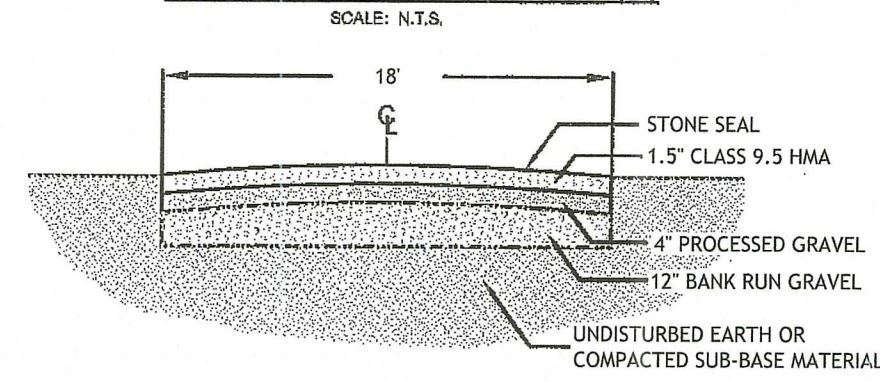


Q:\2023\Mark Cavanagh\ACAD\Orchard Ave [DEA RTC R2].dwg Apr. 24, 2023 12:14pm

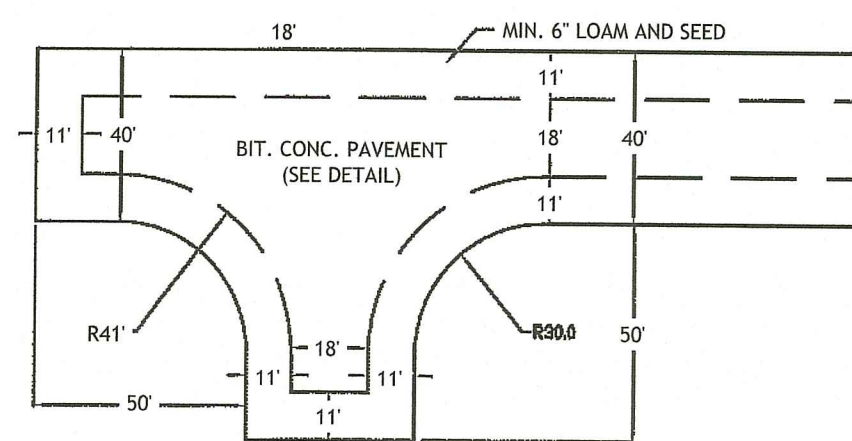


**Town of Johnston
Planning Department
RESIDENTIAL COMPOUND / PRIVATE STREETS
IN MINOR SUBDIVISIONS**

PAVEMENT DETAIL FIGURE (B)



**HAMMERHEAD (ALTERNATE) TURNAROUND FOR MINOR
SUBDIVISION RESIDENTIAL COMPOUND (PRIVATE)**

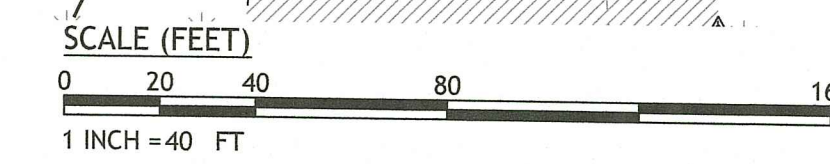
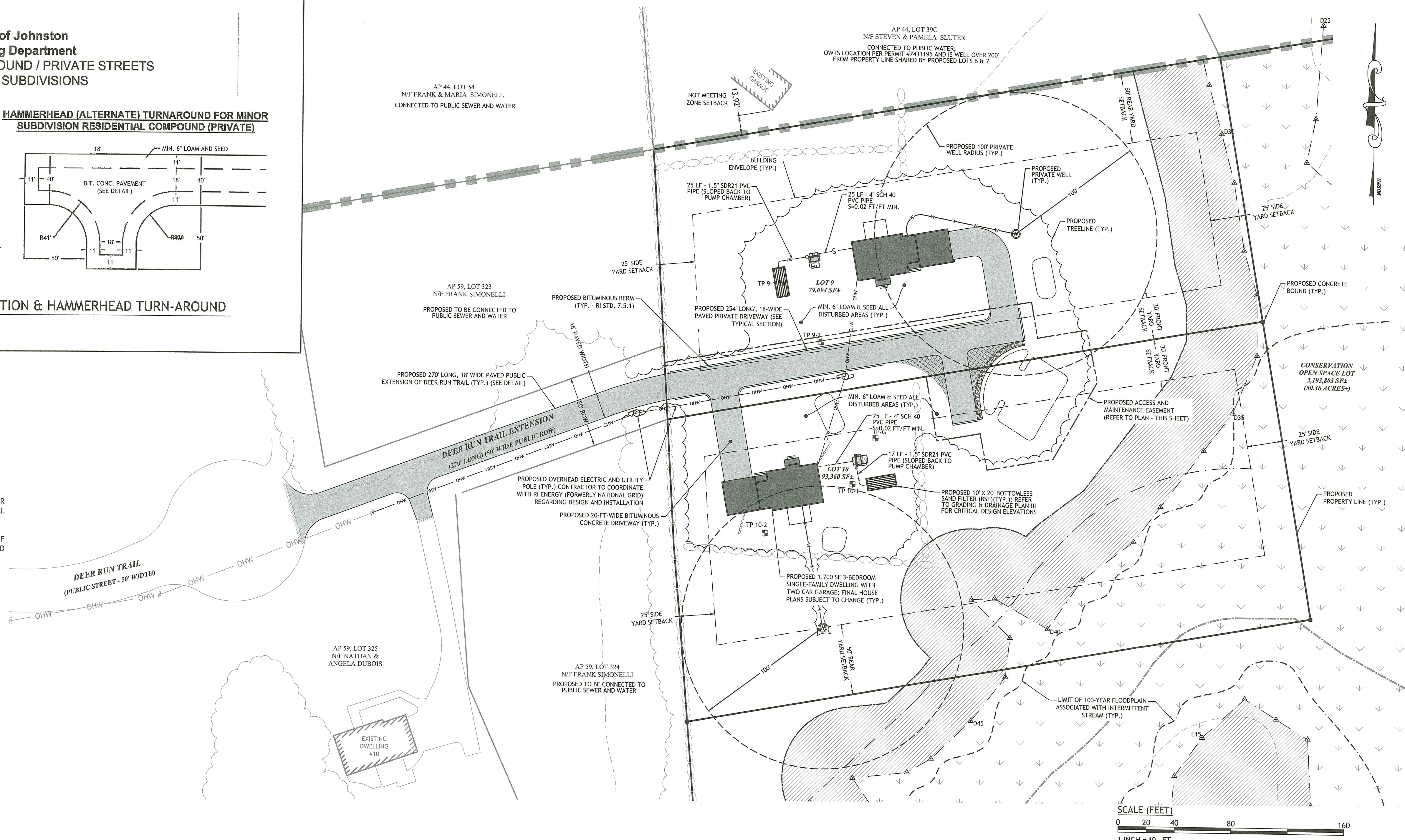
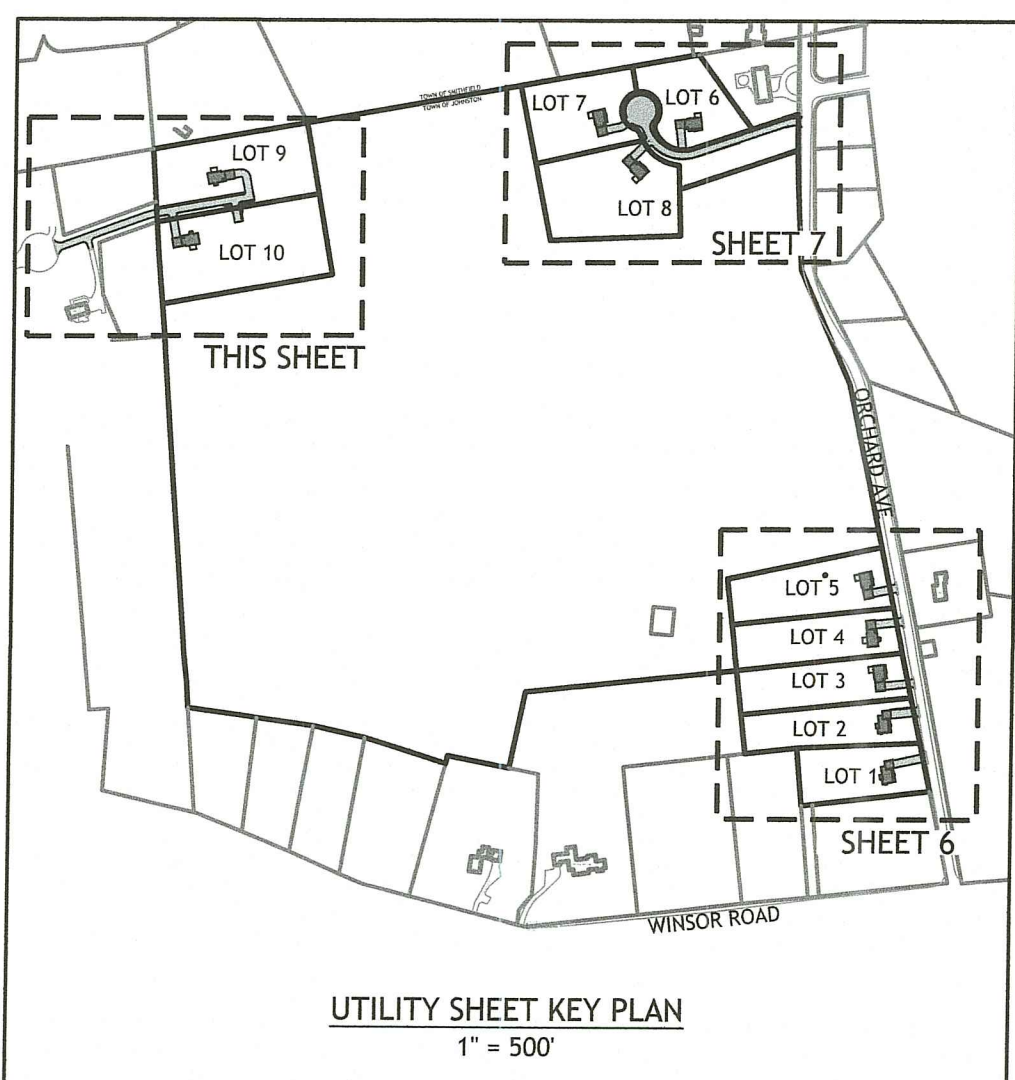
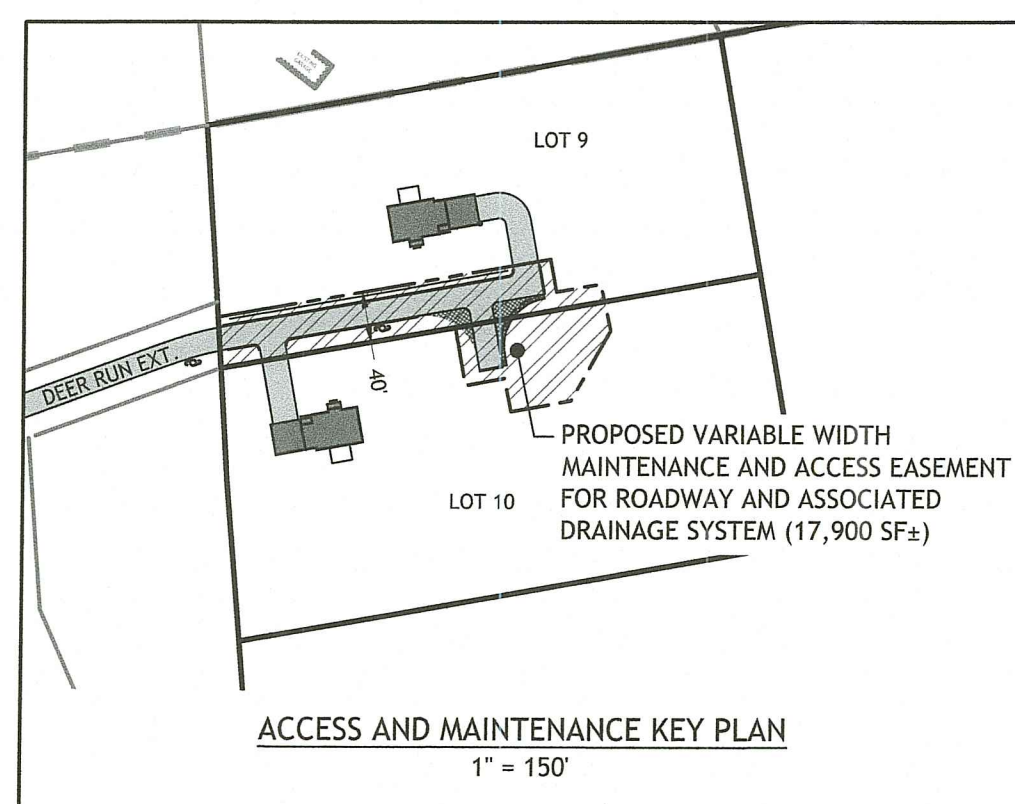


**TOWN OF JOHNSTON
PRIVATE ROADWAY CROSS-SECTION & HAMMERHEAD TURN-AROUND**
NOT TO SCALE

ZONING CRITERIA FOR CONSERVATION (NO PUBLIC WATER OR SEWER)	REQUIRED	LOT 9	LOT 10
ZONING DISTRICT	R-40	R-40	R-40
MINIMUM LOT AREA	20,000 SF	79,094 SF	93,360 SF
MINIMUM LOT WIDTH AND FRONTAGE	120 FT	>120 FT	>120 FT
MAXIMUM % IMPERVIOUS SURFACE	25%	<25%	<25%
MAXIMUM BUILDING HEIGHT	35 FT	>35 FT	>35 FT
MINIMUM FRONT YARD SIZE	30 FT	>30 FT	>30 FT
MINIMUM CRN. SIDE YARD SIZE	30 FT	>30 FT	>30 FT
MINIMUM SIDE YARD SIZE	25 FT	>25 FT	>25 FT
MINIMUM REAR YARD SIZE	50 FT	>50 FT	>50 FT

SUBDIVISION NOTES:

1. PROPOSED LOTS ARE TO BE SERVICED BY INDIVIDUAL ON-SITE WASTEWATER TREATMENT SYSTEMS (OWTS) AND INDIVIDUAL WATER SERVICES. ELECTRICAL SERVICE IS PROPOSED TO BE PROVIDED VIA UNDERGROUND ELECTRIC.
2. A HOMEOWNERS ASSOCIATION WILL BE DEVELOPED FOR PURPOSES OF ENSURING LONG-TERM MONITORING AND MAINTENANCE OF THE SHARED DRIVEWAY AND STORMWATER MANAGEMENT AREAS.



JCE
JOE CASALI ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
300 WINDY ROAD, WARWICK, RI 02888
(401) 844-1300

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4.14.2023

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ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

RI Environmental Management
APR 24 2023
Office of Water Resources

REVISIONS:

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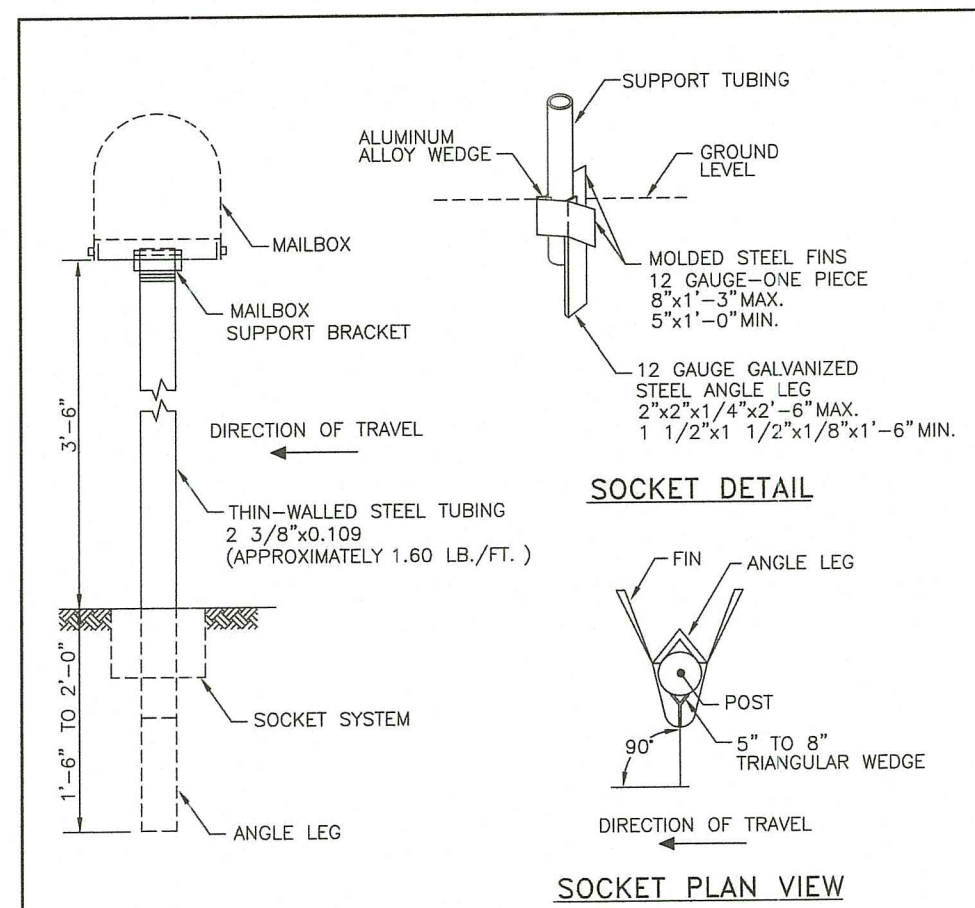
PRELIMINARY, NOT FOR CONSTRUCTION

SITE & UTILITY PLAN III: RESIDENTIAL COMPOUND

SHEET 8 OF 14

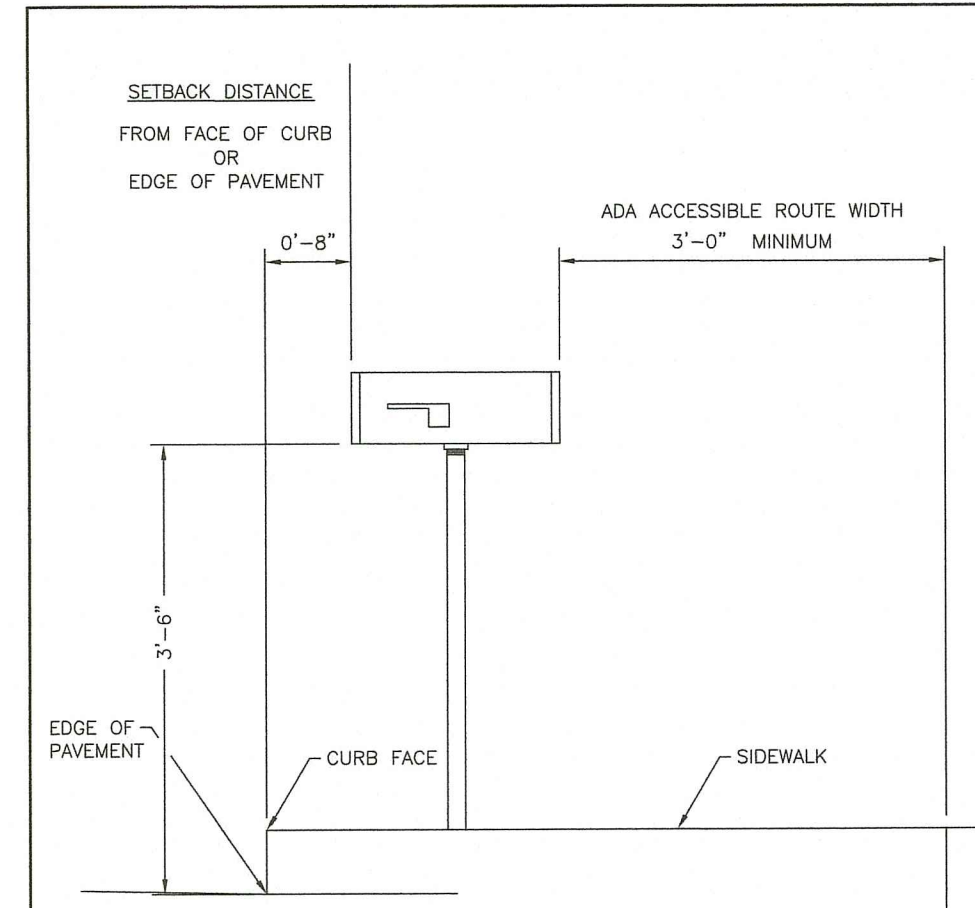
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Nancy L. Freeman

00-20-03 Mark Cavanaugh/ACAD/Orchard Ave [DEAN RTC, RJ], dwg, Apr. 24, 2023, 12:14pm



NOTES:
 1. SHALL BE IN ACCORDANCE WITH SECTION 917 OF THE R.I. STANDARD SPECIFICATIONS.
 2. CONTRACTOR WILL REPLACE EXISTING BOX IF BOX DOES NOT CONFORM TO U.S. POSTAL SERVICE SPECIFICATIONS. CONTRACTOR SHALL USE U.S. POSTAL SERVICE BOX 1, 1A OR 2.
 3. LOCATION OF POSTS TO BE SET UNDER ADVICE OF LOCAL MAIL CARRIER.
 4. ALL METAL SURFACES (INCLUDING MAILBOX) AND HARDWARE SHALL BE GALVANIZED WITH A MINIMUM GALVANIZED COATING OF 1.9 MILS.
 5. WHEN MORE THAN ONE SUPPORT SYSTEM IS TO BE INSTALLED, THE MINIMUM SPACING OF SUPPORT POSTS SHALL BE 3'-0".
 6. USE #2-1875x0.75 BOLTS WITH LOCKWASHERS FOR ALL SIZE BOXES (4 EACH SIDE).
 7. USE WITH RI STANDARD DETAIL 15.1.1.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
POST AND MOUNTING FOR RURAL MAILBOX
 R.I. STANDARD 15.1.1
 DATE: JUNE 15, 1998



NOTES:
 1. SHALL BE WHEN INSTALLING RURAL MAILBOXES RI STANDARD NOS. 15.1.0 AND 15.2.0.
 2. MAILBOXES SHALL BE SET TO PROVIDE 3'-0" OF CLEARANCE BETWEEN THE BACK FACE OF MAILBOX AND BACK OF SIDEWALK OR OBSTRUCTION.
 3. LOCATION OF POSTS TO BE SET UNDER ADVICE OF LOCAL MAIL CARRIER.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
SETTING AND MOUNTING DIMENSIONS FOR RURAL MAILBOX
 R.I. STANDARD 15.1.1
 DATE: JUNE 1, 2010

OWTS DESIGN DATA

LOT NUMBER	GOVERNING TEST HOLE NOS.	HIGH ELEV. CONTOUR	SHGWT DEPTH / ELEV.	STONE/SAND INTERFACE	TOP OF BSF	MAX. GS WITHIN 5' OF BSF	MIN. GS WITHIN 5' OF BSF
LOT 1	TH 1-1	330.00	20" / 328.33	331.50	332.25	331.75	330.25
LOT 2	TH 2-1	325.50	20" / 323.83	327.00	327.75	326.75	325.75
LOT 3	TH 3-1	325.50	20" / 323.83	326.83	327.83	327.50	325.50
LOT 4	TH 4-1	326.00	84" / 319.00	N/A	N/A	N/A	N/A
LOT 5	TH 5-1	325.00	30" / 322.50	325.50	326.25	325.75	324.25

TEST HOLE RESULTS

APPLICATION #2016-1665
 PERFORMED BY: SUSAN B. CAPASSO, D-4028
 DATE OF TEST: 1/5/2021 & 1/6/2021

SOIL EVALUATION TEST PIT DATA

SURFACE EL.	SHWT / EL.	LEDGE / EL.	
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TEST HOLE RESULTS

APPLICATION #2016-1665
 PERFORMED BY: AMBER K. HARDY, M.S., D-4098
 DATE OF TEST: OCTOBER 2022

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TEST HOLE RESULTS
 (SEE SOIL EVALUATION TEST PIT DATA, THIS SHEET)

DESIGN DATA

3-BEDROOM SINGLE-FAMILY DWELLING
 3 BEDROOMS * 115 GAL/BEDROOM/DAY = 345 GAL/DAY

SEPTIC TANK DESIGN:
 RESIDENTIAL BUILDINGS: FOR THREE (3) BEDROOMS OR LESS THE MINIMUM CAPACITY SHALL BE ONE THOUSAND (1,000) GALLONS. FOR EACH ADDITIONAL BEDROOM, ADD TWO HUNDRED AND FIFTY (250) GALLONS.

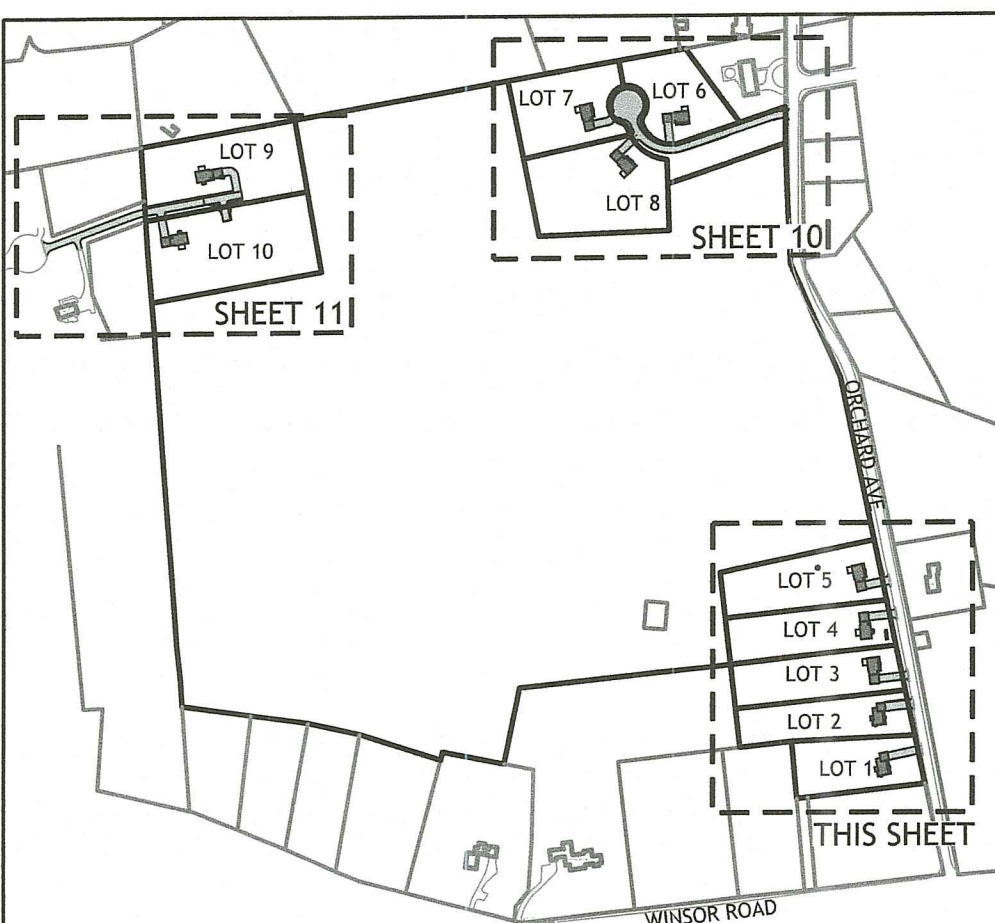
REQUIRED VOLUME: 3 BEDROOMS = 1,000 GALLONS
 PROVIDED VOLUME: 1,000 GALLONS

LEACHFIELD DESIGN:
 PER SOIL EVALUATION RESULTS OF AN SHGWT BETWEEN 18" AND 30" FOR LOTS 1, 2, 3 AND 5,
 A BOTTOMLESS SAND FILTER WILL BE UTILIZED

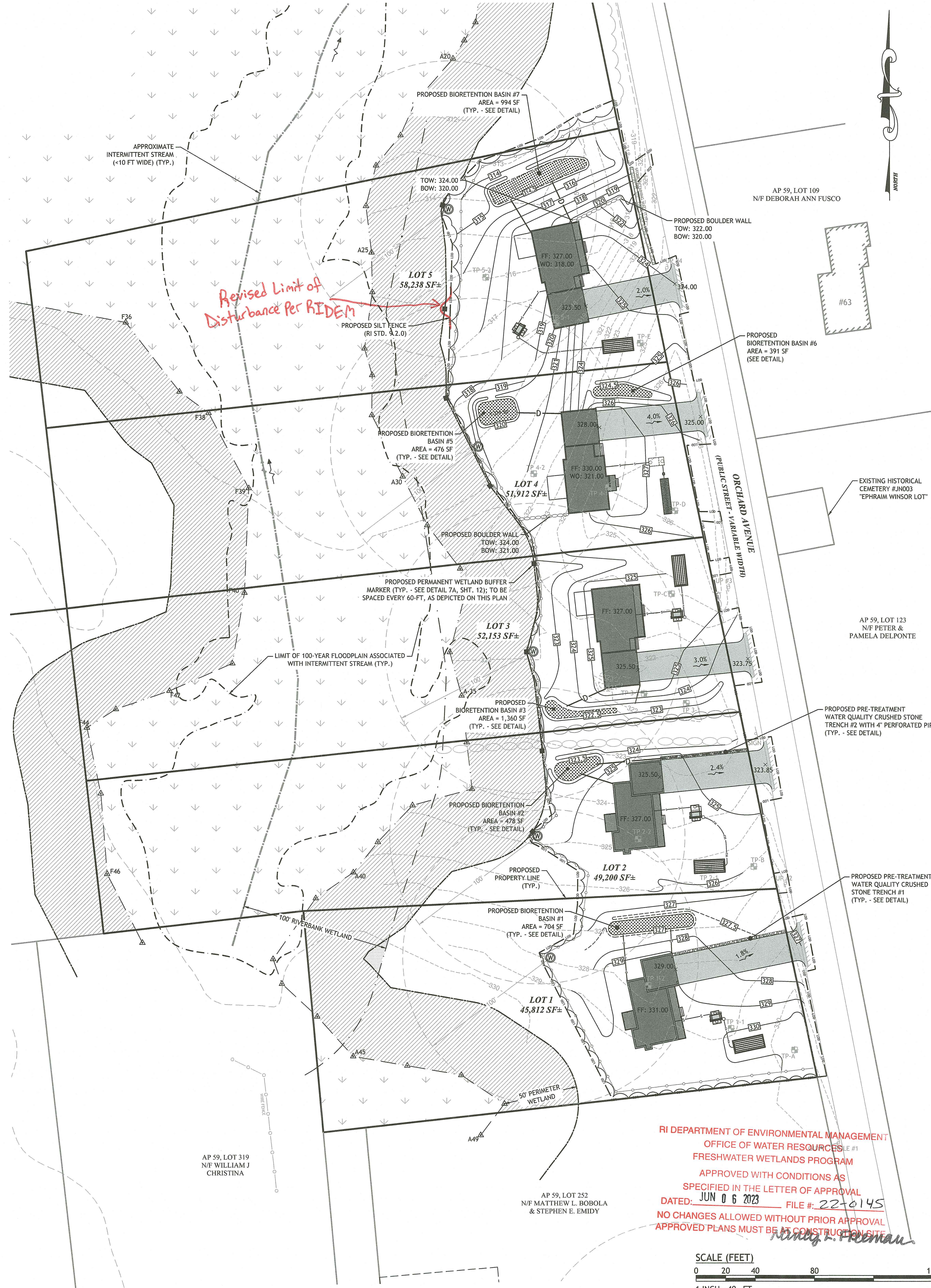
MIN. BSF SIZING:
 LOTS 1, 2, 3 & 5
 345 GPD / 1.9 GAL/SF/DAY (SOIL CAT. 8) = 181.57 SF
 10' x 20' BSF PROPOSED AT 200 SF > 181.57 SF MIN. ∴ OK

DUE TO 84" SHGWT, LOT 8 WILL HAVE A CONVENTIONAL LEACHFIELD

LOT 8 MIN. LEACHFIELD SIZING:
 345 GPD / 0.61 GAL/SF/DAY = 565.57 SF
 GST6218 PROPOSED AT 24.8 SF/LF
 565.57 SF / 24.8 SF/LF = 22.80 LF REQ.
 (1) 24 LF ROWS TOTALING 24 LF PROPOSED
 24 LF X 24.8 SF/LF = 595.20 SF > 565.57 SF ∴ OK



GRADING & DRAINAGE SHEET KEY PLAN
 1" = 500'



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED: JUN 06 2023 FILE #: 22-0145
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE IN CONSTRUCTION SITE

SCALE (FEET)
 0 20 40 80 160
 1 INCH = 40 FT

JCE
 JOE CASALI ENGINEERING, INC.
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION
 DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
 (401) 944-1300 (401) 944-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
 No. 7250
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 4.14.2023

THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
 ORCHARD AVENUE
 JOHNSTON, RHODE ISLAND
 AP 59, LOTS 8 & 268

Environmental Management
 APR 9 4 2023
 Office of Water Resources

REVISIONS:

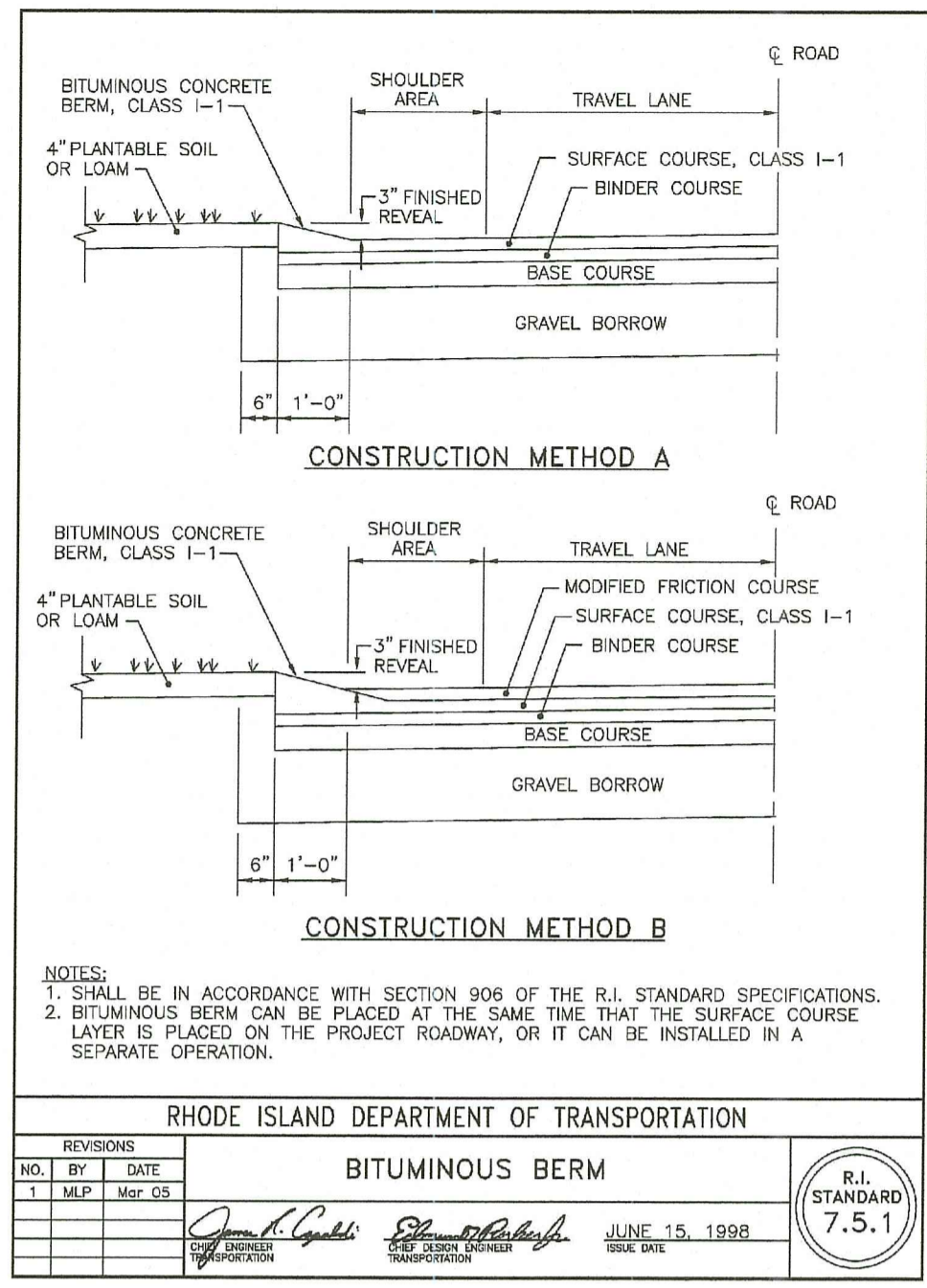
NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/2023	RIDEM RTC

DESIGNED BY: WMLJR
 DRAWN BY: SEP/SD
 CHECKED BY: JAC
 DATE: MARCH 2022
 PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

GRADING & DRAINAGE PLAN: ROAD FRONT LOTS

SHEET 9 OF 14



TEST HOLE RESULTS
 APPLICATION #2116-1572
 (SEE SOIL EVALUATION TEST PIT DATA, THIS SHEET)

DESIGN DATA
 3-BEDROOM SINGLE-FAMILY DWELLING
 3 BEDROOMS * 115 GAL/BEDROOM/DAY = 345 GAL/DAY

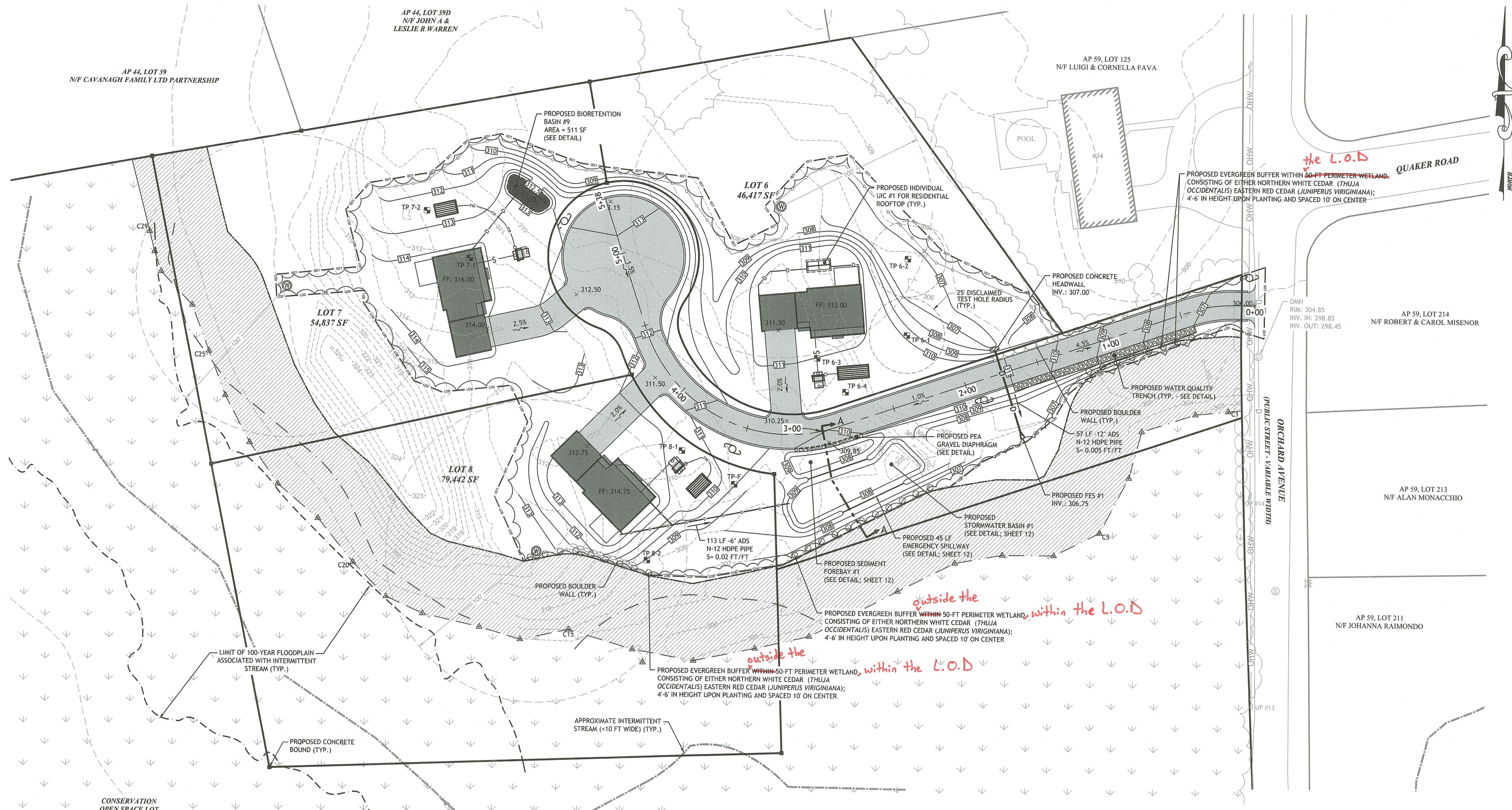
SEPTIC TANK DESIGN:
 RESIDENTIAL BUILDINGS: FOR THREE (3) BEDROOMS OR LESS THE MINIMUM CAPACITY SHALL BE ONE THOUSAND (1,000) GALLONS. FOR EACH ADDITIONAL BEDROOM, ADD TWO HUNDRED AND FIFTY (250) GALLONS.

REQUIRED VOLUME: 3 BEDROOMS = 1,000 GALLONS
PROVIDED VOLUME: 1,000 GALLONS

LEACHFIELD DESIGN:
 PER SOIL EVALUATION RESULTS OF AN 18" SHGWT FOR LOTS 6 AND 7, A BOTTOMLESS SAND FILTER WILL BE UTILIZED

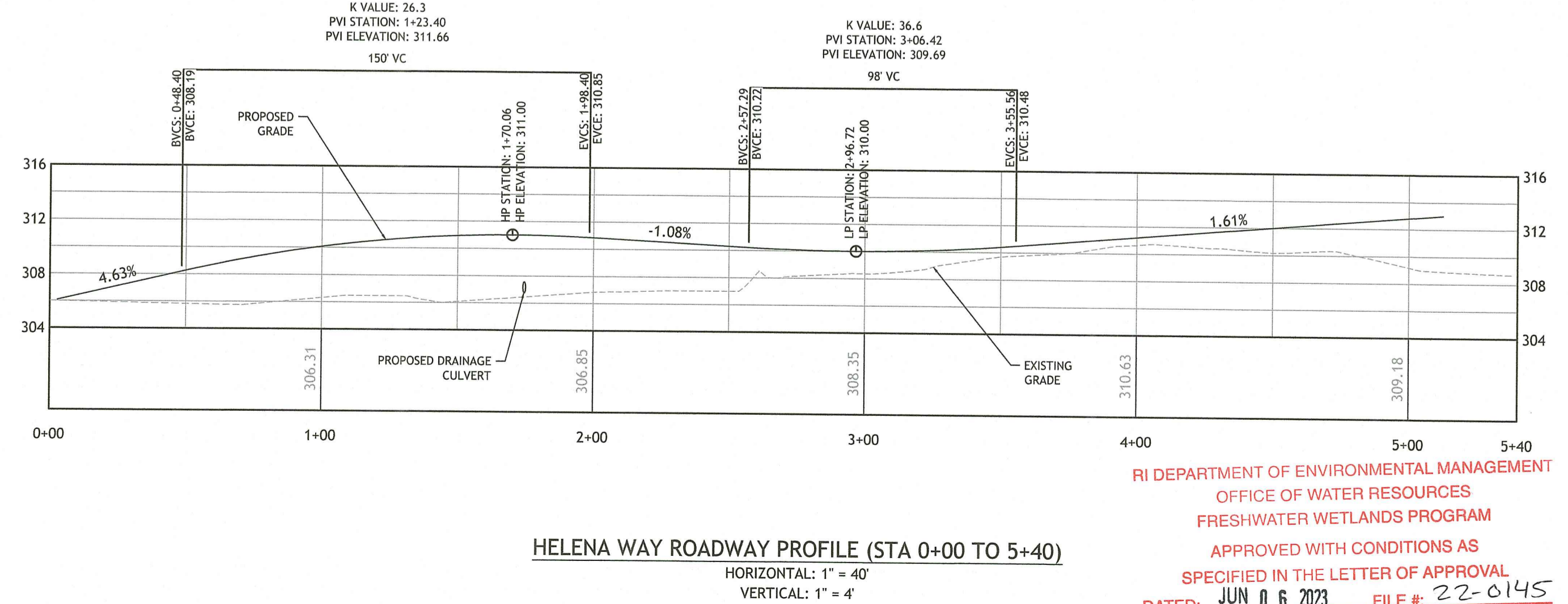
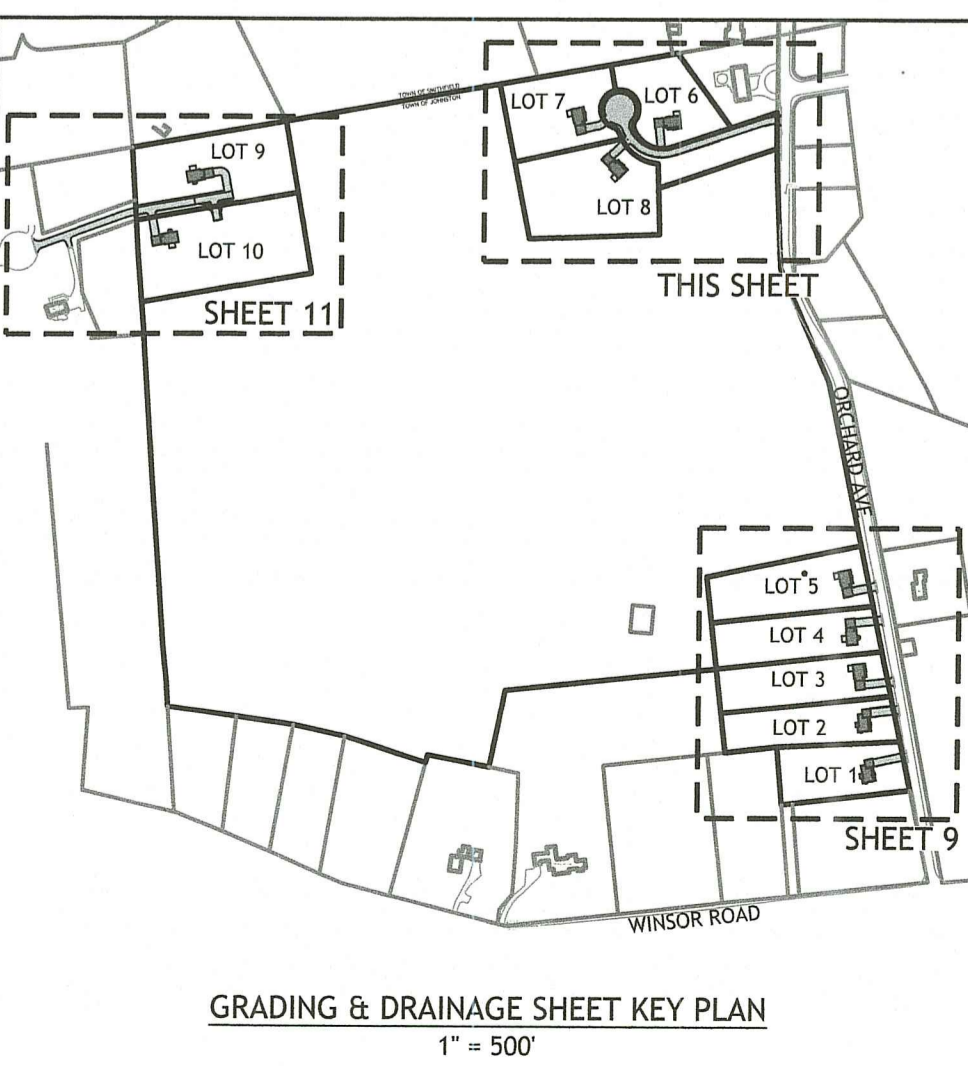
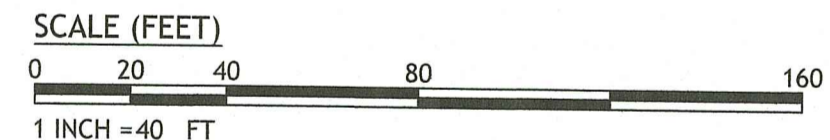
MIN. BSF SIZING:
 LOTS 6
 345 GPD / 1.9 GAL/SF/DAY (SOIL CAT. 8) = 181.57 SF
 10' x 20' BSF PROPOSED AT 200 SF > 181.57 SF MIN. ∴ OK

MIN. BSF SIZING:
 LOTS 7 & 8
 345 GPD / 2.3 GAL/SF/DAY (SOIL CAT. 6) = 150 SF
 10' x 15' BSF PROPOSED AT 150 SF = 150 SF MIN. ∴ OK



OWTS DESIGN DATA

LOT NUMBER	GOVERNING TEST HOLE NOS.	HIGH ELEV. CONTOUR	SHGWT DEPTH / ELEV.	STONE/SAND INTERFACE	TOP OF BSF	MAX. GS WITHIN 5' OF BSF	MIN. GS WITHIN 5' OF BSF
LOT 6	TH 6-4	309.00	18" / 307.50	310.50	311.25	310.25	309.75
LOT 7	TH 7-2	312.00	24" / 310.00	313.00	313.75	313.25	311.75
LOT 8	TH 8-1	310.00	24" / 308.00	311.00	311.75	311.25	309.75



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED: JUN 06 2023 FILE #: 22-0145

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 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Susan B. Capasso

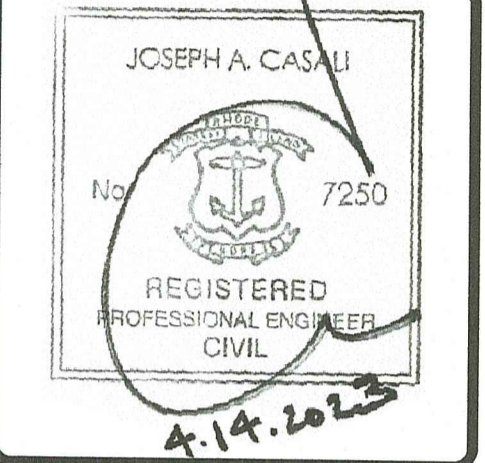
TEST HOLE RESULTS
 APPLICATION #2016-1665
 PERFORMED BY: SUSAN B CAPASSO, D-4028
 DATE OF TEST: 1/5/2021 & 1/6/2021

SOIL EVALUATION TEST PIT DATA	SURFACE EL.	SHWT / EL.	LEDGE / EL.
TH 6-1	306.33	<18" (DISCLAIMED)	NE
TH 6-2	306.75	<18" (DISCLAIMED)	NE
TH 6-3	309.49	18" / 307.99	NE
TH 6-4	308.00	18" / 306.50	NE
TH 7-1	312.08	20" / 310.41	NE
TH 7-2	311.55	24" / 309.55	NE
TH 8-1	310.71	24" / 308.71	NE
TH 8-2	308.22	24" / 306.22	NE

NOTE: TEST HOLES WERE OBSERVED AND DOCUMENTED BY SUSAN B. CAPASSO, LICENSE NO. D-4028 IN JANUARY 2021. SOIL EVALUATION LOGS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. NE = NOT ENCOUNTERED.

SOIL EVALUATION TEST PIT DATA	SURFACE EL.	SHWT / EL.	LEDGE / EL.
TH F	310.00	56" / 305.33	NE

NOTE: TEST HOLE TH F WAS OBSERVED AND DOCUMENTED BY AMBER K. HARDY, M.S., LICENSE NO. D4098 IN OCTOBER 2022. SOIL EVALUATION LOGS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. NE = NOT ENCOUNTERED.



THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
 ORCHARD AVENUE
 JOHNSTON, RHODE ISLAND
 AP 59, LOTS 8 & 268

Environmental Management
 APR 24 2023
 Office of Water Resources

REVISIONS:

NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/2023	RIDEM RTC

DESIGNED BY: WMLJR
 DRAWN BY: SEP/SD
 CHECKED BY: JAC
 DATE: MARCH 2022
 PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

GRADING & DRAINAGE PLAN II: PRIVATE ROAD

SHEET 10 OF 14

OWTS DESIGN DATA							
LOT NUMBER	GOVERNING TEST HOLE NOS.	HIGH ELEV. CONTOUR	SHGWT DEPTH / ELEV.	STONE/SAND INTERFACE	TOP OF BSF	MAX. GS WITHIN 5' OF BSF	MIN. GS WITHIN 5' OF BSF
LOT 9	TH 9-1	336.00	20' / 333.83	337.00	337.75	337.25	335.75
LOT 10	TH 10-1	332.75	20' / 331.08	334.25	335.00	334.50	333.00

TEST HOLE RESULTS

APPLICATION #2016-1665
 PERFORMED BY: SUSAN B. CAPASSO, D-4028
 DATE OF TEST: 1/5/2021 & 1/6/2021

SOIL EVALUATION TEST PIT DATA			
	SURFACE EL.	SHWT / EL.	LEDGE / EL.
TH 9-1	335.59	20' / 333.92	NE
TH 9-2	334.08	18' / 332.58	NE
TH 10-1	332.72	20' / 331.05	NE
TH 10-2	334.31	20' / 332.64	NE

NOTE: TEST HOLES WERE OBSERVED AND DOCUMENTED BY SUSAN B. CAPASSO, LICENSE NO. D-4028 IN JANUARY 2021. SOIL EVALUATION LOGS ARE AVAILABLE TO THE CONTRACTOR UPON REQUEST. NE = NOT ENCOUNTERED.

TEST HOLE RESULTS

APPLICATION #2116-1572
 (SEE SOIL EVALUATION TEST PIT DATA, THIS SHEET)

DESIGN DATA

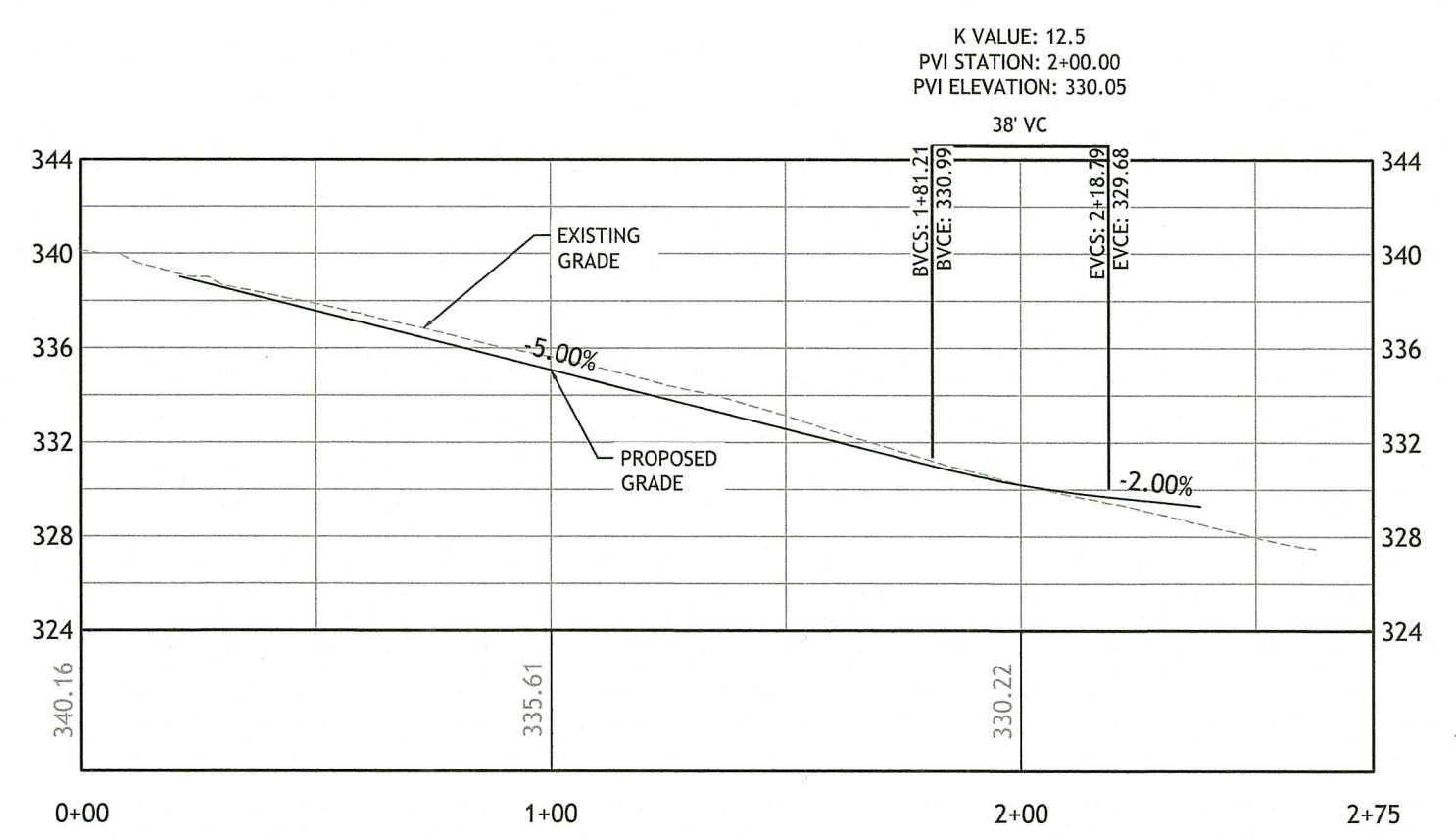
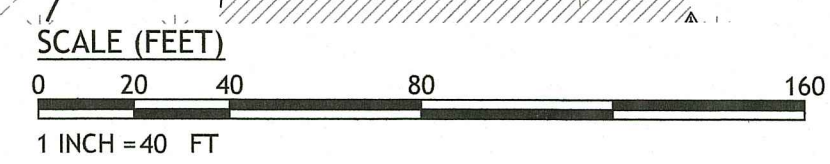
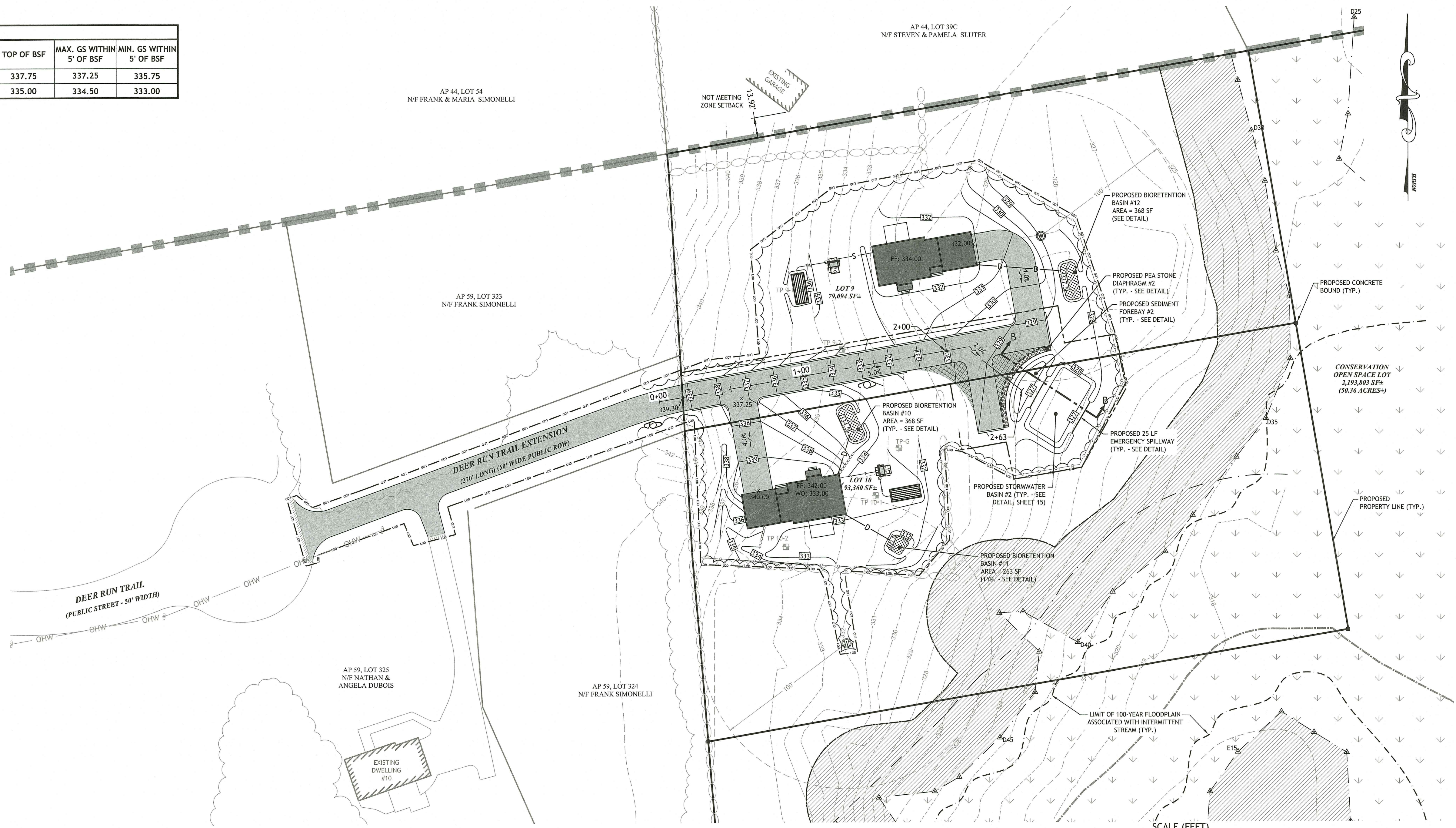
3-BEDROOM SINGLE-FAMILY DWELLING
 3 BEDROOMS * 115 GAL/BEDROOM/DAY = 345 GAL/DAY

SEPTIC TANK DESIGN:
 RESIDENTIAL BUILDINGS: FOR THREE (3) BEDROOMS OR LESS THE MINIMUM CAPACITY SHALL BE ONE THOUSAND (1,000) GALLONS. FOR EACH ADDITIONAL BEDROOM, ADD TWO HUNDRED AND FIFTY (250) GALLONS.

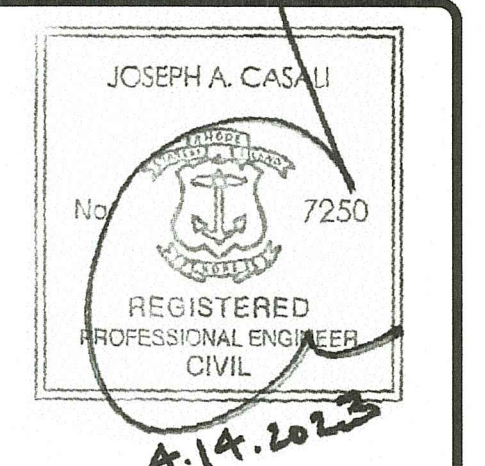
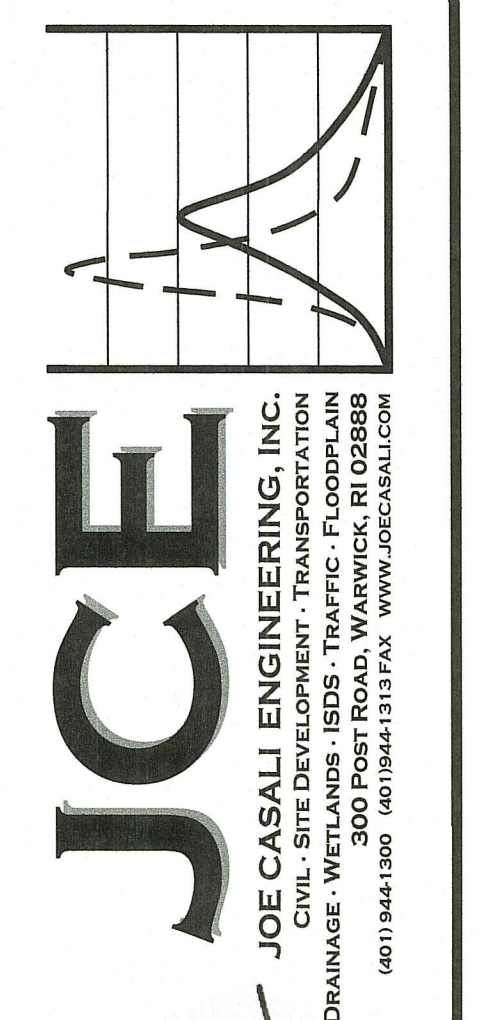
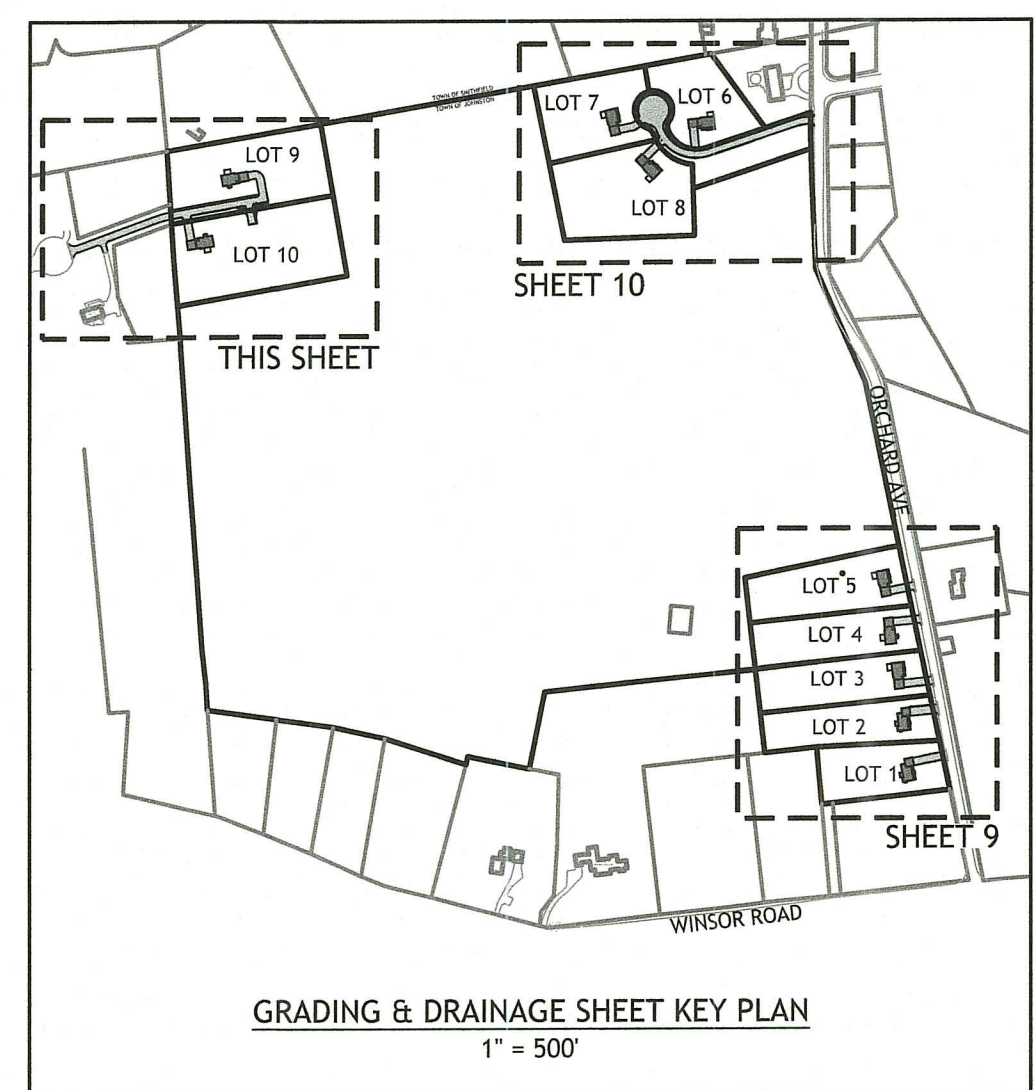
REQUIRED VOLUME: 3 BEDROOMS = 1,000 GALLONS
 PROVIDED VOLUME: 1,000 GALLONS

LEACHFIELD DESIGN:
 PER SOIL EVALUATION RESULTS OF AN 20" SHGWT FOR LOTS 9 AND 10, A BOTTOMLESS SAND FILTER WILL BE UTILIZED

MIN. BSF SIZING:
 LOTS 9 & 10
 345 GPD / 1.9 GAL/SF/DAY (SOIL CAT. 8) = 181.57 SF
 10' x 20' BSF PROPOSED AT 200 SF > 181.57 SF MIN. ∴ OK



DEER RUN EXTENSION ROADWAY PROFILE (STA 0+00 TO 2+75)
 HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 8'



THE CONSERVANCY AT WINSOR
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 AP 59, LOTS 8 & 268

APR 24 2023
 Office of Water Resources

REVISIONS:

NO.	DATE	DESCRIPTION
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DESIGNED BY: WMLJR
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PRELIMINARY, NOT FOR CONSTRUCTION

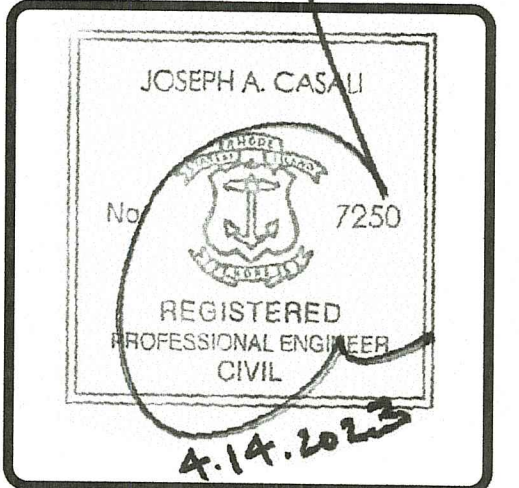
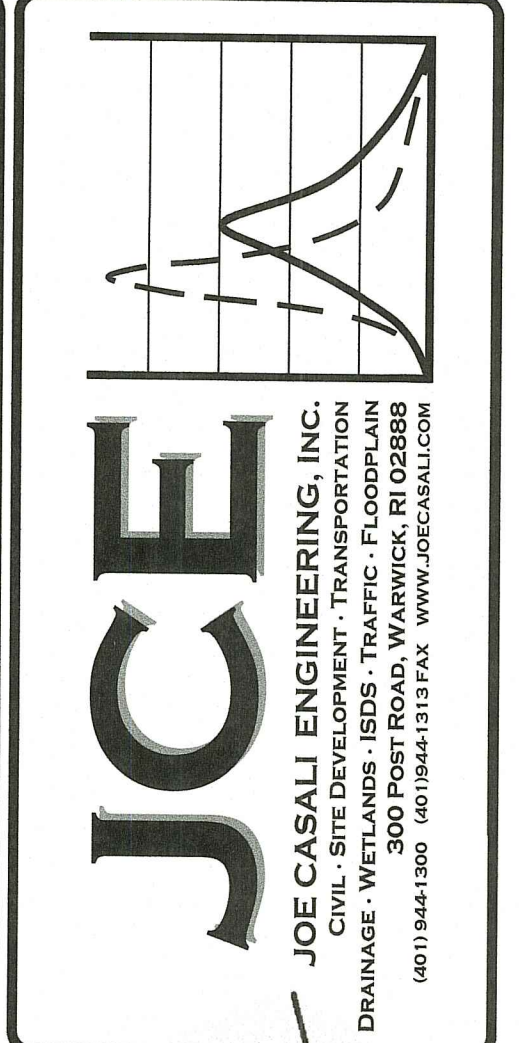
GRADING & DRAINAGE PLAN III: COMPOUND

SHEET 11 OF 14

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
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 DATED: JUN 06 2023 FILE #: 22-0145
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Nancy L. Freeman

Q:\20-03 Mark Cavanaugh\CAD\Orchard Ave [DEA RTC R2].dwg Apr. 24, 2023 12:11pm



THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

RI Environmental Management
 APR 24 2023
 Office of Water Resources

REVISIONS:

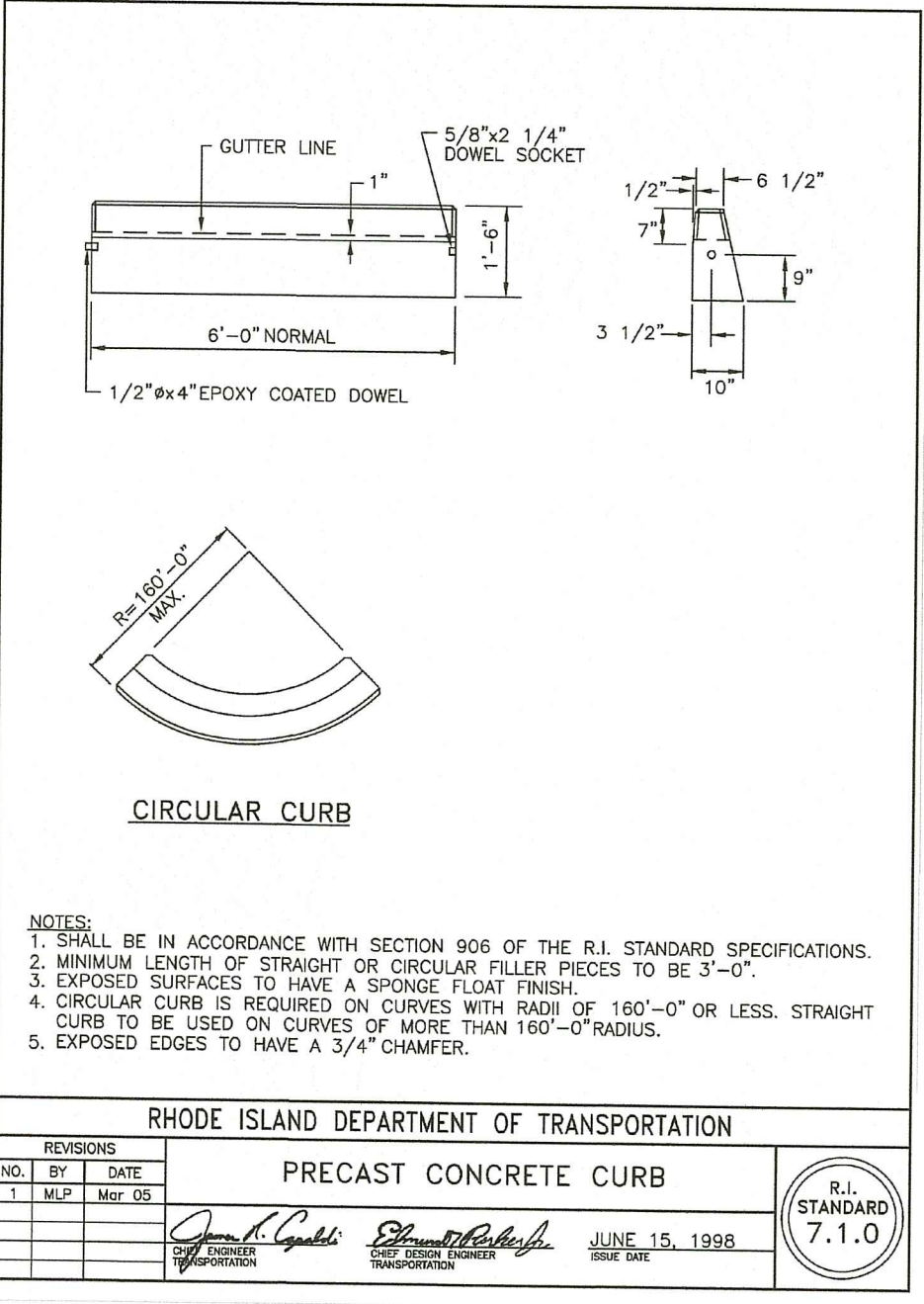
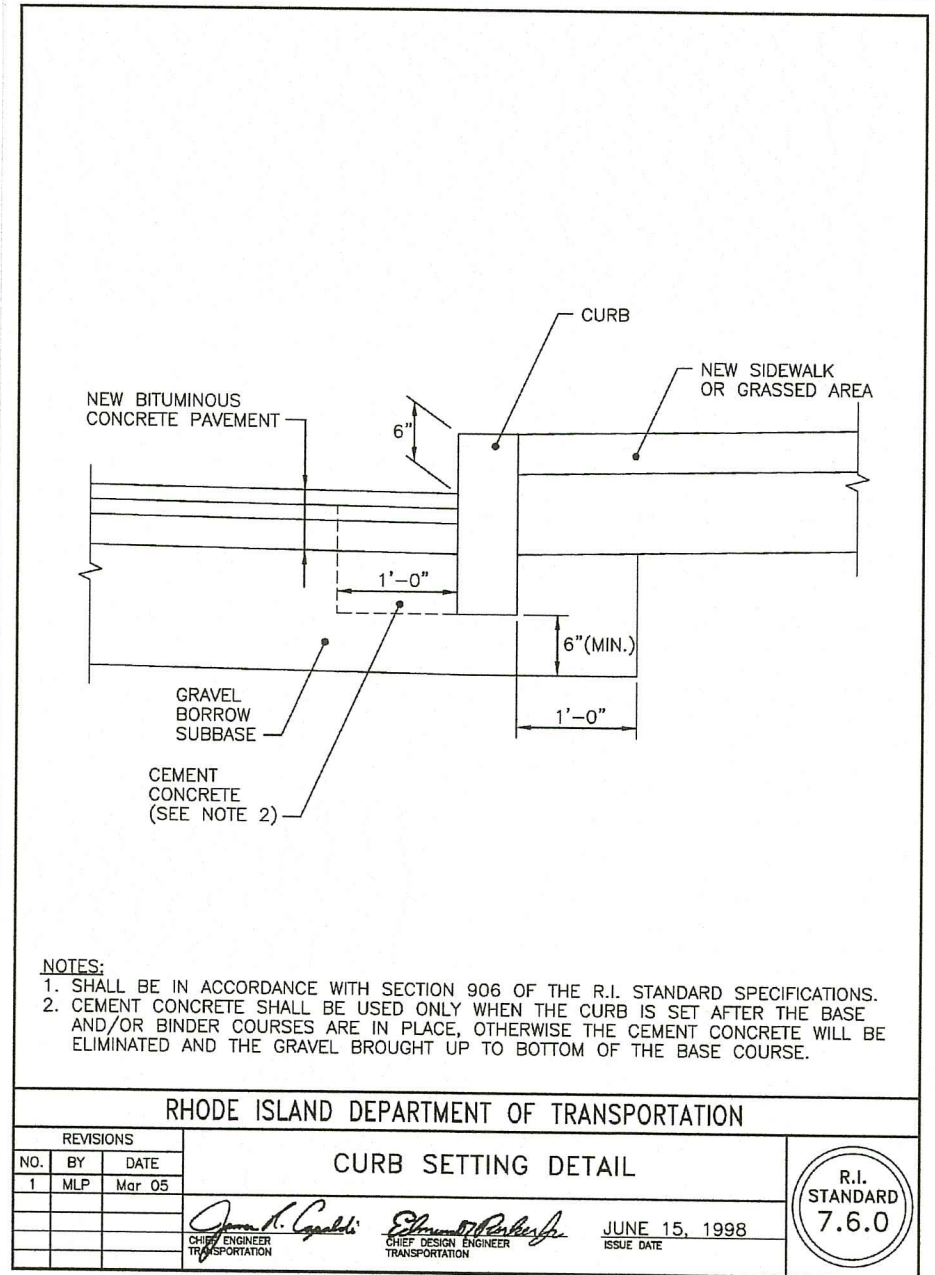
NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/20/23	RIDEM RTC

DESIGNED BY: WMLJR
 DRAWN BY: SEP/SD
 CHECKED BY: JAC
 DATE: MARCH 2022
 PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

DRAINAGE DETAILS I

SHEET 12 OF 14



SEDIMENT FOREBAY #1

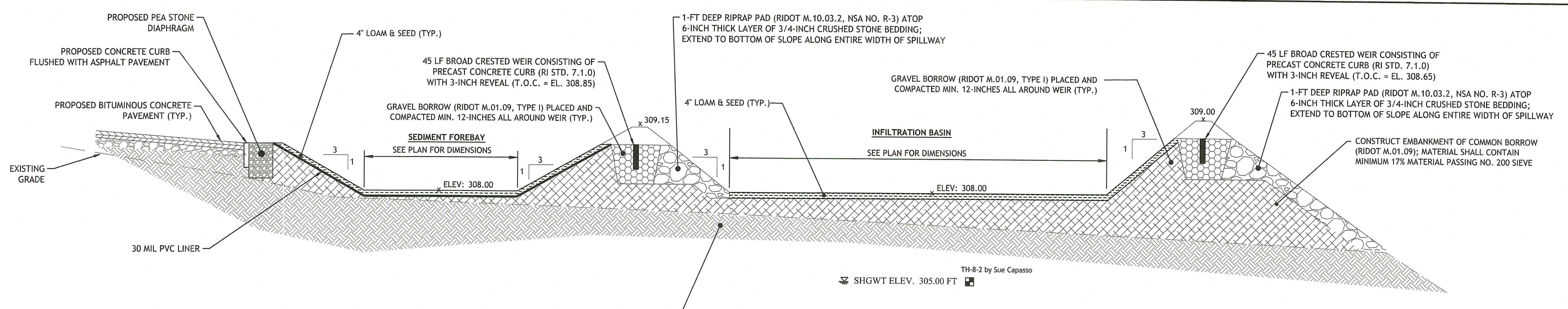
DESCRIPTION	ELEV.
100 YEAR STORM	309.00
25 YEAR STORM	308.96
10 YEAR STORM	308.94
2 YEAR STORM	308.91
1 YEAR STORM	308.89
TOP OF POND	309.00
BOTTOM OF POND	308.00

INFILTRATION BASIN #1

DESCRIPTION	ELEV.
100 YEAR STORM	308.80
25 YEAR STORM	308.76
10 YEAR STORM	308.74
2 YEAR STORM	308.71
1 YEAR STORM	308.69
TOP OF POND	309.00
BOTTOM OF POND	308.00

NOTE:
 1. FERTILIZER AND PESTICIDES SHALL NOT BE APPLIED TO GRASSES WITHIN THE INFILTRATION BASIN.

5 SEDIMENT FOREBAY & INFILTRATION BASIN #1 SECTION A-A
 NOT TO SCALE



UNCOMPACTED SUBGRADE: CONTRACTOR TO SCARIFY SUBGRADE IMMEDIATELY PRIOR TO PLACEMENT OF LOAM (TYP.) IF STORMWATER BMP FOOTPRINTS WERE SUBJECT TO UNNECESSARY COMPACTION FROM CONSTRUCTION EQUIPMENT, CONTRACTOR SHALL OVER-EXCAVATE BMP FOOTPRINT BY 1-FT, SCARIFY SUBGRADE AND REPLACE WITH BANK RUN GRAVEL IN A MINIMUM OF 12-IN THICK LOOSE LIFTS, COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR AND A MAXIMUM OF 92% MODIFIED PROCTOR.

SEDIMENT FOREBAY #2

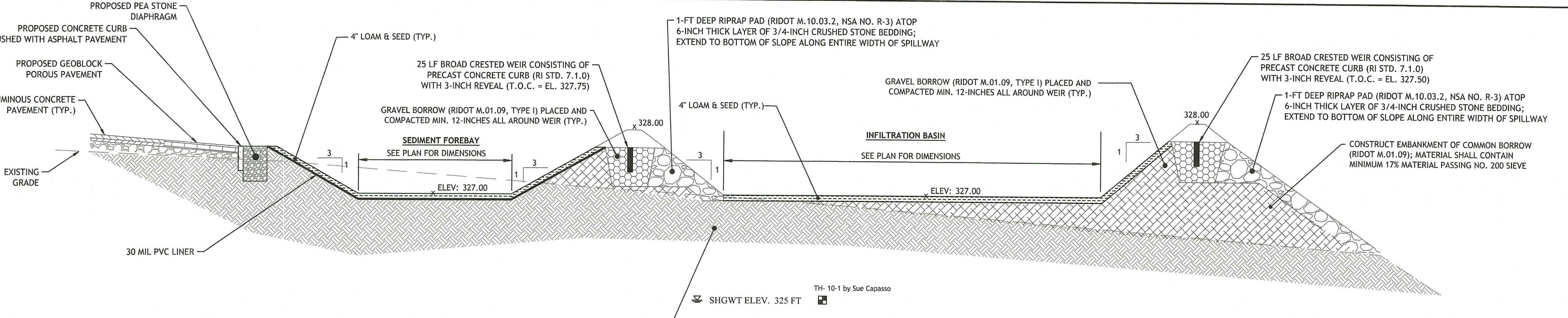
DESCRIPTION	ELEV.
100 YEAR STORM	328.00
25 YEAR STORM	327.93
10 YEAR STORM	327.89
2 YEAR STORM	327.84
1 YEAR STORM	327.81
TOP OF POND	328.00
BOTTOM OF POND	327.00

INFILTRATION BASIN #2

DESCRIPTION	ELEV.
100 YEAR STORM	327.75
25 YEAR STORM	327.68
10 YEAR STORM	327.64
2 YEAR STORM	327.59
1 YEAR STORM	327.56
TOP OF POND	328.00
BOTTOM OF POND	327.00

NOTE:
 1. FERTILIZER AND PESTICIDES SHALL NOT BE APPLIED TO GRASSES WITHIN THE INFILTRATION BASIN.

6 SEDIMENT FOREBAY & INFILTRATION BASIN #2 SECTION B-B
 NOT TO SCALE



UNCOMPACTED SUBGRADE: CONTRACTOR TO SCARIFY SUBGRADE IMMEDIATELY PRIOR TO PLACEMENT OF LOAM (TYP.) IF STORMWATER BMP FOOTPRINTS WERE SUBJECT TO UNNECESSARY COMPACTION FROM CONSTRUCTION EQUIPMENT, CONTRACTOR SHALL OVER-EXCAVATE BMP FOOTPRINT BY 1-FT, SCARIFY SUBGRADE AND REPLACE WITH BANK RUN GRAVEL IN A MINIMUM OF 12-IN THICK LOOSE LIFTS, COMPACTED TO A MINIMUM OF 85% MODIFIED PROCTOR AND A MAXIMUM OF 92% MODIFIED PROCTOR.

BIORETENTION BASIN CRITICAL ELEVATIONS

BIORETENTION BASIN ID (SEE SHT. 9)	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5
EXIST. GROUND ELEVATION	326.5	323.10	322.25	319.0	325.0
TOP OF BASIN (BERM)	327.5	324.0	323.0	320.0	325.0
BOTTOM OF BASIN	327.0	323.5	322.5	319.5	324.5
BOTTOM OF AMENDED SOIL	326.0	322.5	321.5	318.5	323.5
SHGWT ELEV.	325.0	321.50	320.42	314.0	318.0
SEPARATION TO SHGWT	2.0'	2.0'	2.1'	5.5'	6.5'
TEST HOLE REFERENCE	TH 1-2	TH 2-2	TH 3-2	TH 4-2	TH 5-2

BIORETENTION BASIN CRITICAL ELEVATIONS

BIORETENTION BASIN ID (SEE SHT. 10 & 11)	LOT 7	LOT 9	LOT 10	LOT 11
EXIST. GROUND ELEVATION	309.0	327.0	334.0	331.17
TOP OF BASIN (BERM)	313.0	328.0	335.0	332.0
BOTTOM OF BASIN	312.5	327.5	334.5	331.5
BOTTOM OF AMENDED SOIL	311.5	326.5	333.5	330.5
SHGWT ELEV.	307.33	325.5	332.33	329.50
SEPARATION TO SHGWT	5.2'	2.0'	2.2'	2.0'
TEST HOLE REFERENCE	TH 7-1	TH 9-2	TH 10-1	TH 10-2

PLEASE NOTE THERE ARE NO BIORETENTION BASINS NO. 4 & 8. THESE BIORETENTION BASINS HAVE BEEN REMOVED DURING THE DESIGN PROCESS

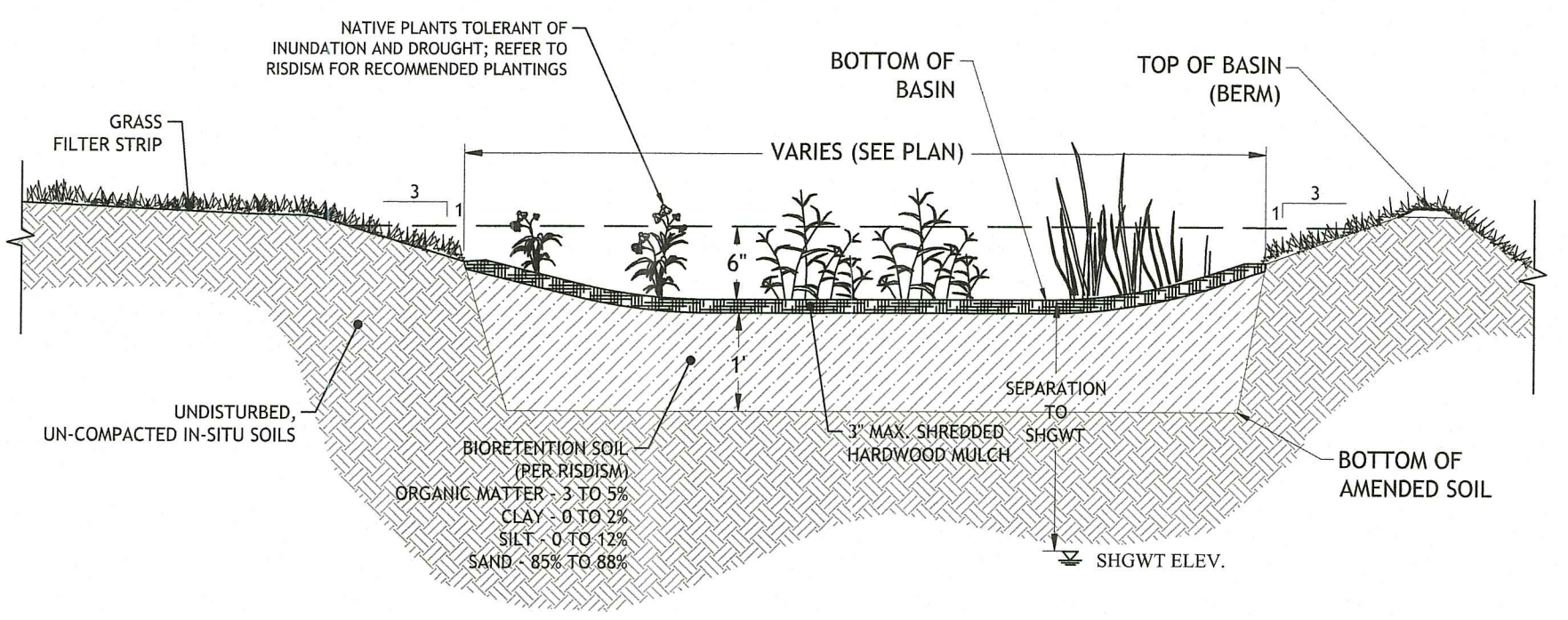
BIORETENTION BASIN FILTER BED CALCULATION

BIORETENTION BASIN ID (SEE SHT. 9, 10 & 11)	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 7	LOT 9	LOT 10	LOT 11
MINIMUM REQUIRED FILTER BED AREA (SF) (250-RICR-150-10-8.23D6)	255	190	183	100	72	164	100	50	50
PROVIDED BED AREA (SF)	507	314	250	258	255	761	273	261	114

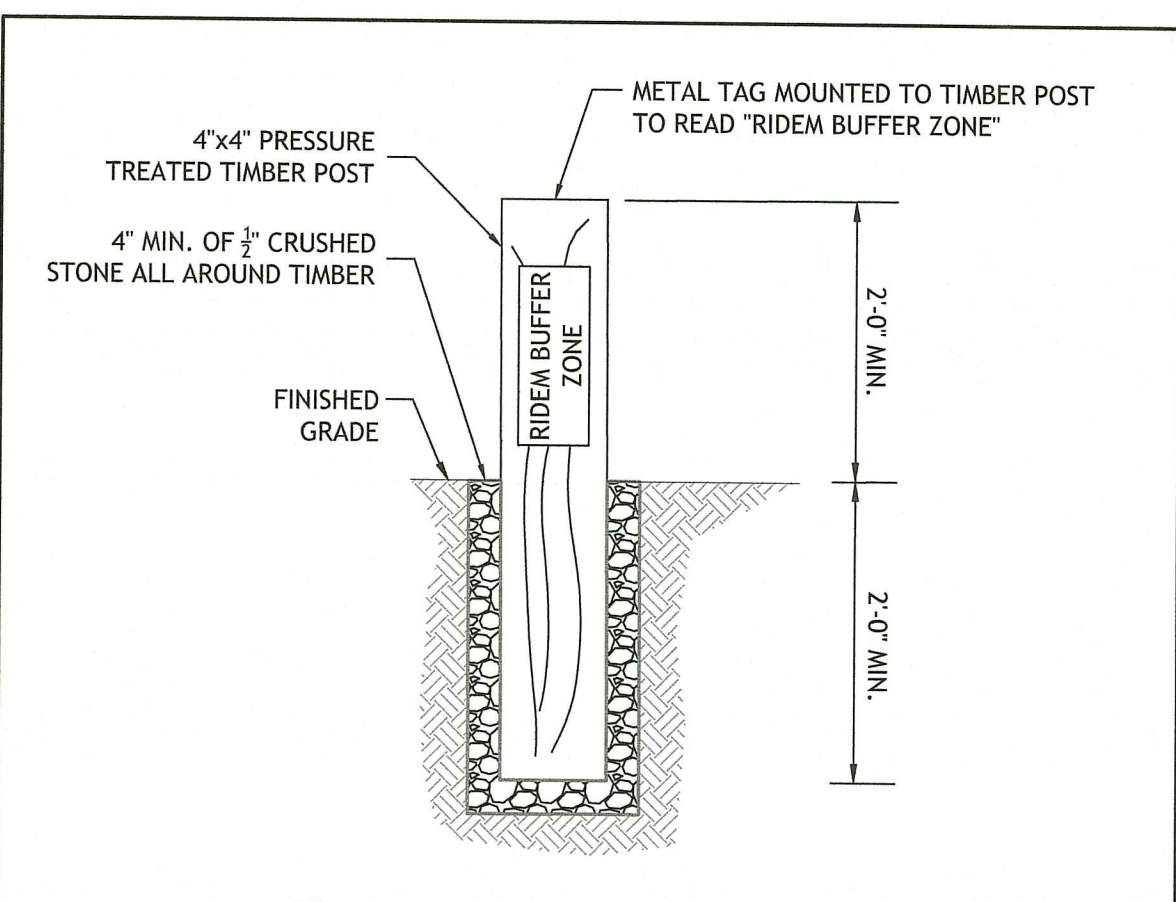
RULE 250-RICR-150-10-8.23D6 - MINIMUM REQUIRED FILTER BED

$A_f = (WQ_v)(df) / [(k)(hf + df)(tf)]$

Where:
 Af = Surface area of filter bed (square feet)
 Df = Filter bed depth (feet)
 K = Coefficient of permeability of filter media (feet/day)
 hf = Average Height of water above surface of practice (feet)
 tf = Design filter bed drain time (days)

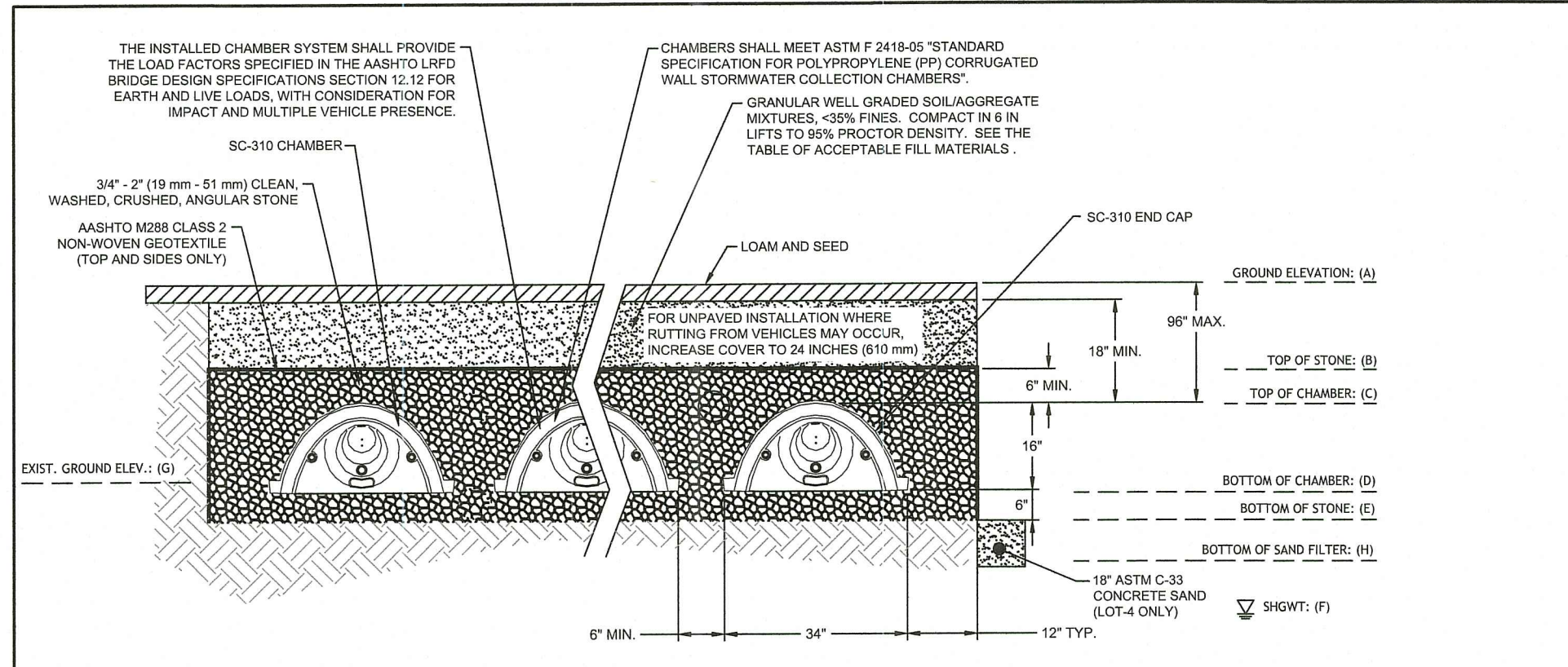


7 BIORETENTION BASIN
 NOT TO SCALE



7A RIDEM BUFFER ZONE MARKER DETAIL
 NOT TO SCALE

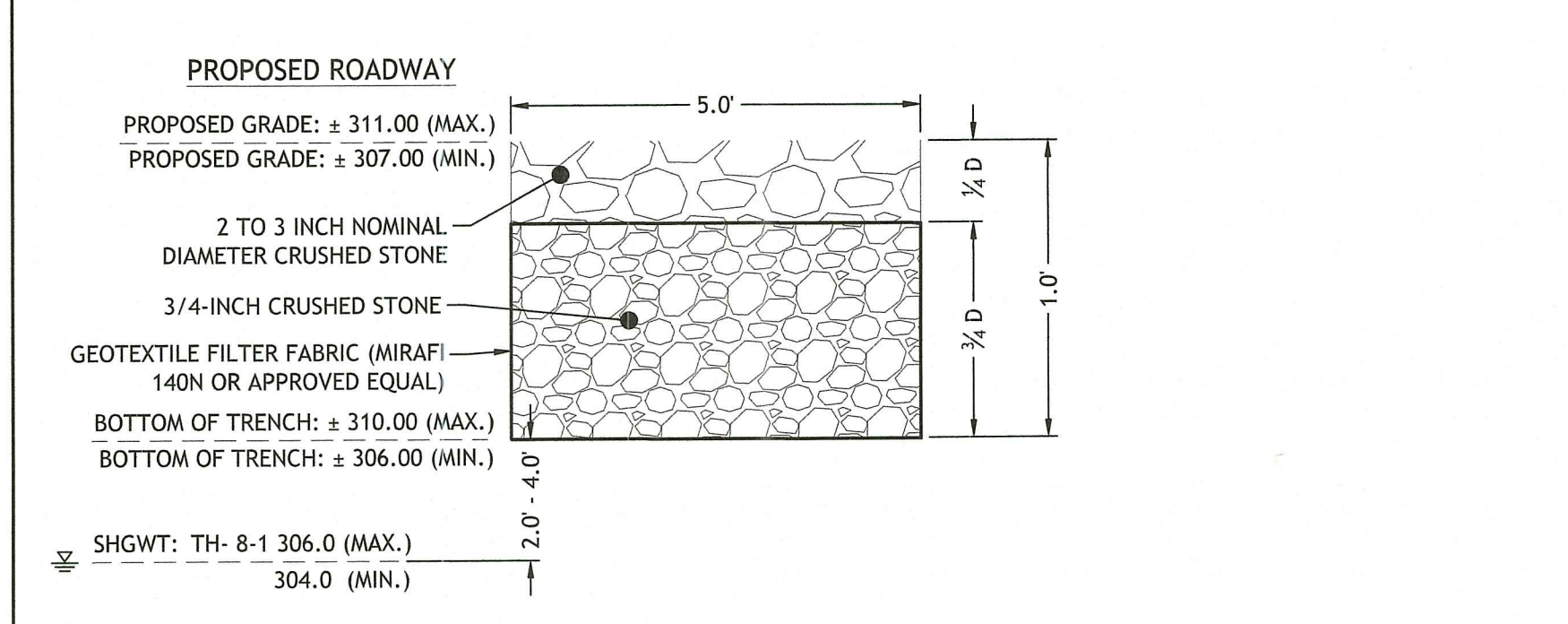
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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 Nancy L. Freeman



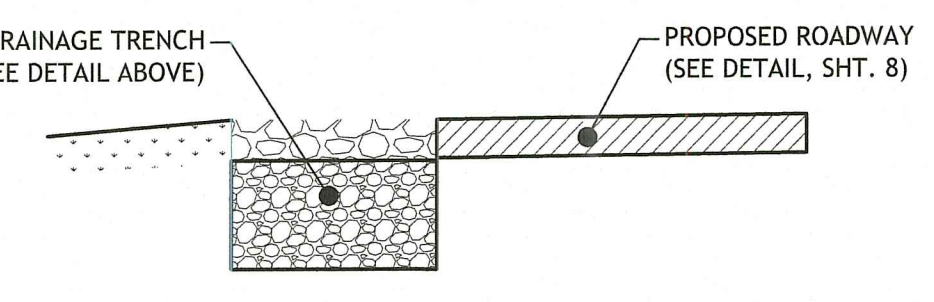
- UNDERGROUND INFILTRATION SYSTEM NOTES:**
- STORMTECH REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
 - OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-992-2694 TO SPEAK TO A TECHNICAL SERVICES REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
 - STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVES, ETC.) (MINIMUM COVER IS 18" (457 mm) NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96" (2438 mm) INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE BUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24" (610 mm), MAXIMUM COVER IS 96" (2438 mm).
 - THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
 - ASPHALT M888 CLASS 2 NON-WOVEN GEOTEXTILE FILTER FABRIC MUST BE USED AS INDICATED IN THE PROJECT PLANS.
 - STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
 - BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
 - THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMTECH SYSTEM. TEMPORARY FENCE, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
 - THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMTECH SYSTEM DURING ALL PHASES OF THE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
 - STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL STORMTECH AT 1-888-992-2694 OR VISIT WWW.STORMTECH.COM.

	LOT 6
A (PROPOSED GROUND ELEV.)	311.00
B (TOP OF STONE)	309.83
C (TOP OF CHAMBER)	308.83
D (BOTTOM OF CHAMBER)	307.50
E (BOTTOM OF STONE)	307.00
F (SHOWT)	305.0
DIST. E-F (SEP. TO SHOWT)	2.0'
TEST HOLE REFERENCE	TH 6-3; 18"
G (EXISTING GROUND ELEV.)	306.50
H (BOTTOM OF SAND FILTER)	N/A

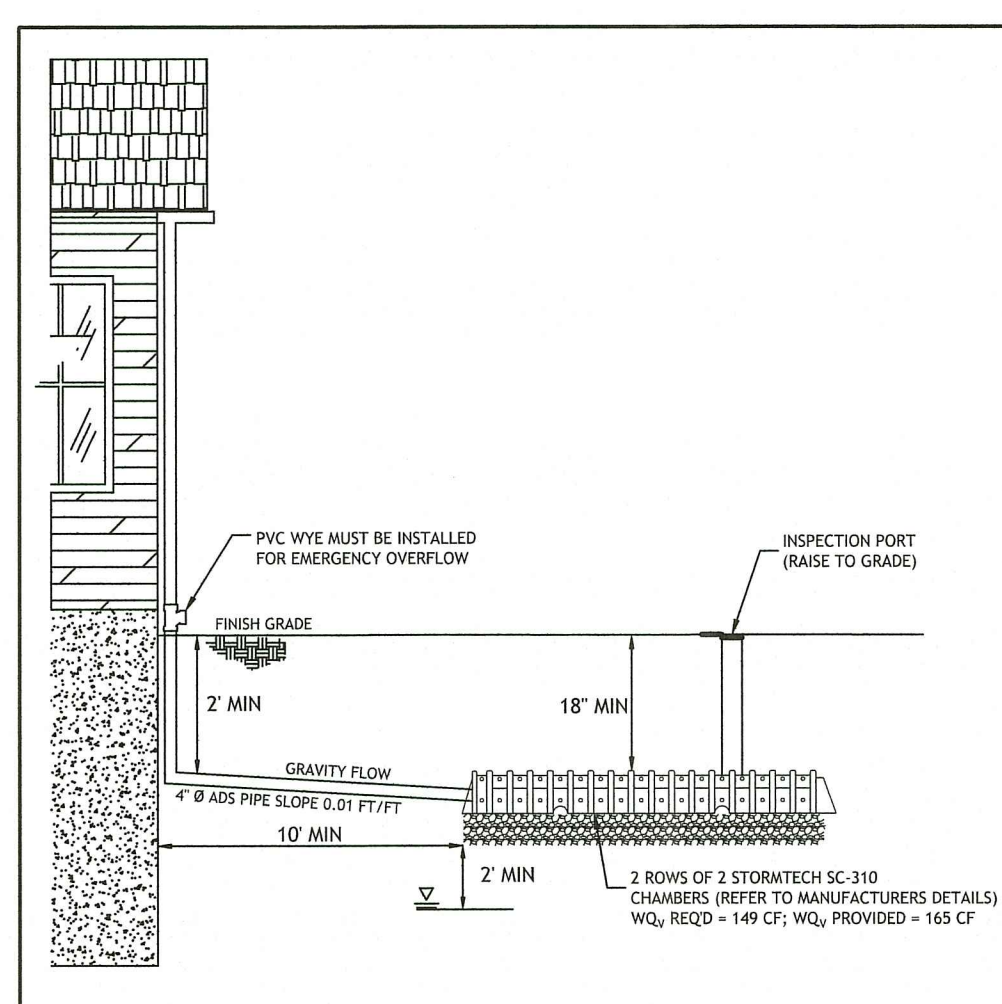
8 ROOFTOP INFILTRATION SYSTEM
NOT TO SCALE



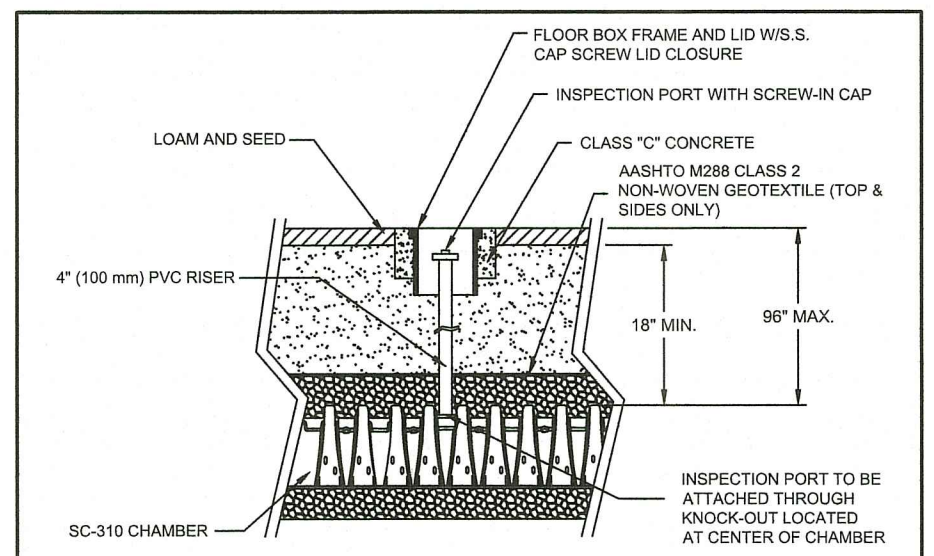
NOTE:
1. "MAX." INDICATES HIGHEST ELEVATION OF TRENCH (IN THE WEST); "MIN." INDICATES LOWEST ELEVATION OF THE TRENCH (IN THE EAST).



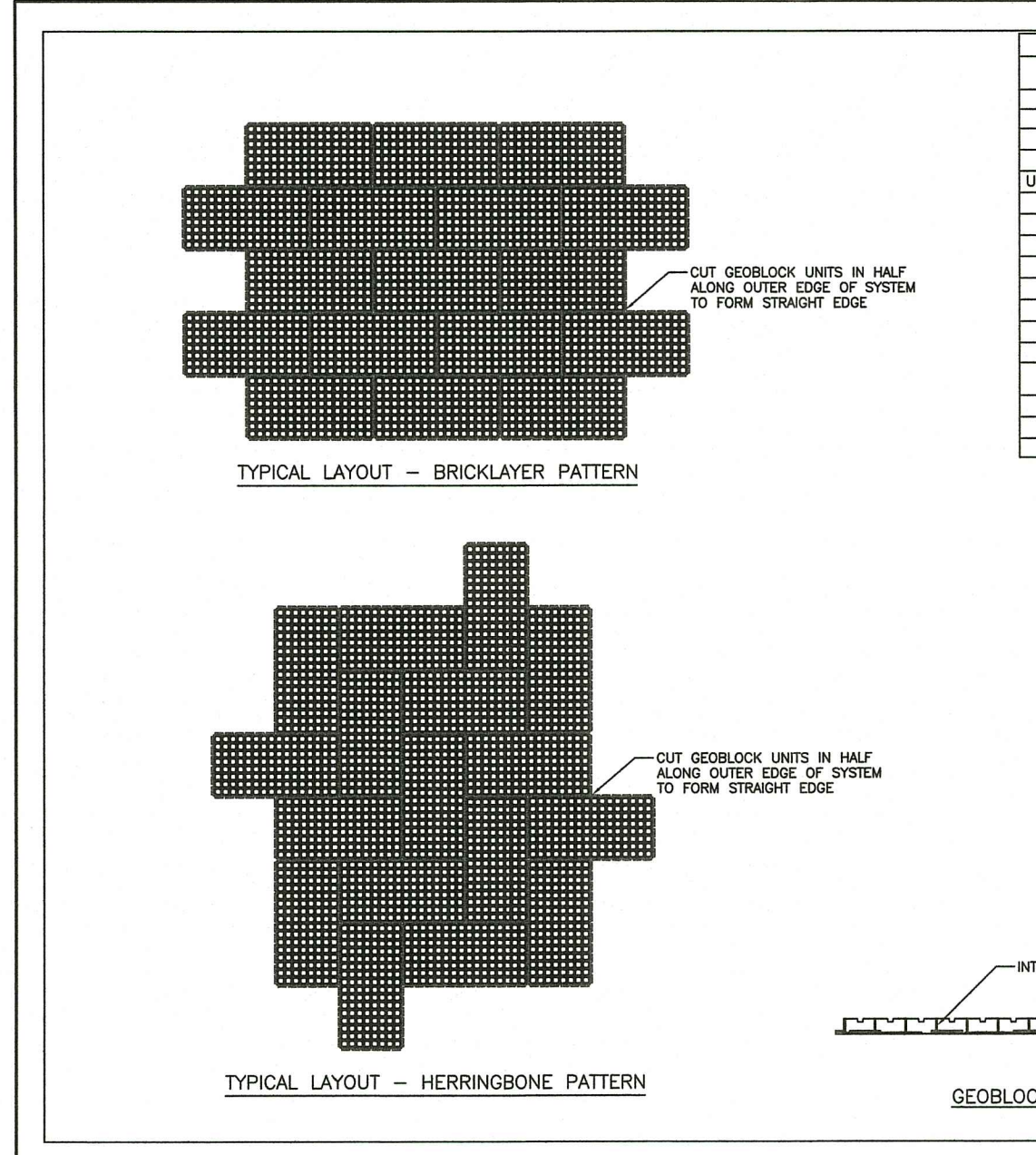
12 ROADWAY DRAINAGE TRENCH LOTS 6, 7 & 8
NOT TO SCALE



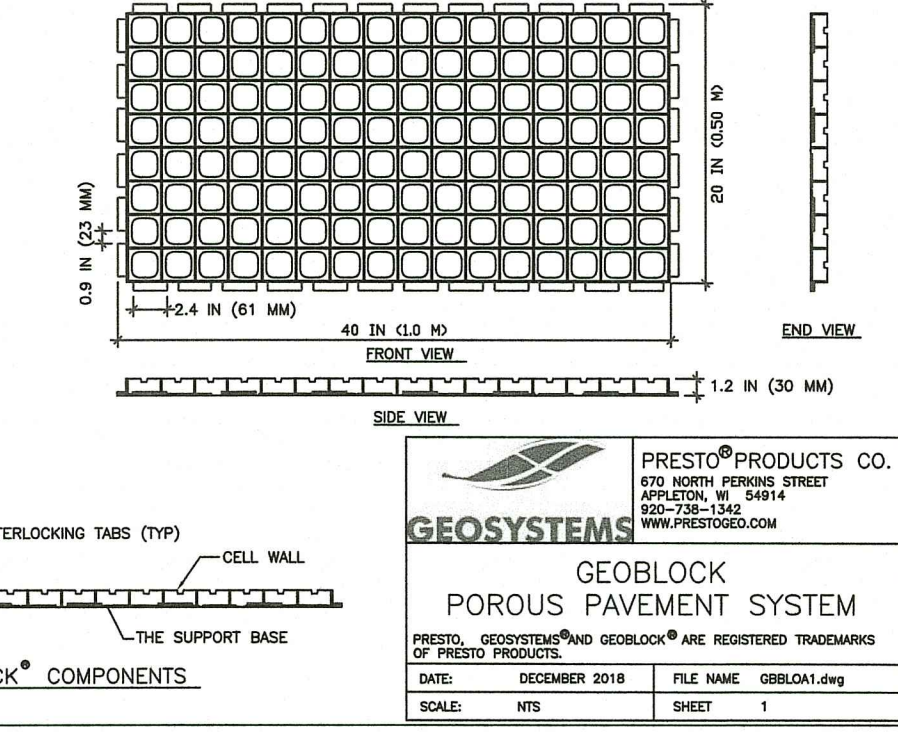
9 ROOFTOP INFILTRATION SYSTEMS - TYPICAL SECTION
NOT TO SCALE



10 INSPECTION PORT DETAIL
NOT TO SCALE



GEOBLOCK MATERIAL SPECIFICATION	
MATERIAL	UP TO 100% RECYCLED POLYETHYLENE
COLOR	RANGES DARK "SMOKE" GRAY TO BLACK
CHEMICAL RESISTANCE	SUPERIOR
CARBON BLACK FOR UV STABILIZATION, %	1.5 TO 2.0%
UNIT MIN CRUSH STRENGTH - EMPTY @ 70F (21C)	420 PSF (2,800 KPA)
UNIT MIN CRUSH STRENGTH - SAND FILLED @ 70F (21C)	5,980 PSF (41,285 KPA)
FLEXURAL MODULUS @ 70F (21C)	35,000 PSF (240,000 KPA)
NOMINAL DIMENSIONS - WIDTH X LENGTH	20 X 40 IN. (515 X 1,016 MM)
NOMINAL UNIT DEPTH	1.2 IN. (30 MM)
NOMINAL AREA	5.3 SQFT (0.5 SQMTR)
CELLS PER UNIT	126
CELL SIZE	2.25 X 2.25 IN. (57 X 57 MM)
TOP OPEN AREA PER UNIT	88%
BOTTOM OPEN AREA PER UNIT	95%
INTERLOCKING OFFSET SHEAR TRANSFER PINS	12 TABS PER 40 IN. (PER 1 M)
NOMINAL WEIGHT PER UNIT	4.7 LBS (2.1 KG)
RUNOFF COEFFICIENT @ 2.5 IN/HR (64 MM) RAIN	0.15
UNITS PER PALLET	92



PRESTO PRODUCTS CO.
670 NORTH PARKWAY STREET
MILWAUKEE, WI 53214
262-738-1340
WWW.PRESTO2GO.COM

GEOBLOCK POROUS PAVEMENT SYSTEM

PRESTO, GEOBLOCK AND GEOBLOCK ARE REGISTERED TRADEMARKS OF PRESTO PRODUCTS.

DATE: DECEMBER 2019 FILE NAME: GBL001.dwg
SCALE: NTS SHEET: 1

13 GEOBLOCK POROUS PAVEMENT
NOT TO SCALE

RECOMMENDED MINIMUM TRENCH WIDTHS	
PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS (575 AXLE LOAD) *

PIPE DIAM.	HEAVY CONSTRUCTION (575 AXLE LOAD) *
12" - 48"	12"
54" - 60"	24"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER.

NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2231, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL, AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER. MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4" - 24" (100mm-600mm); 6" (150mm) FOR 30" - 48" (750mm-900mm).
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2231, LATEST EDITION.
- MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54" - 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

JCE

JOE CASALI ENGINEERING, INC.
CIVIL, SITE DEVELOPMENT, TRANSPORTATION
DRAINAGE, WETLANDS, TRANSPORTATION
300 POST ROAD, WARWICK, RI 02888
(401) 944-1300 (401) 944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
4.14.2023

THE CONSERVANCY AT WINSOR
PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

Environmental Management
Office of Water Resources
APR 24 2023

REVISIONS:

NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/2023	RIDEM RTC

DESIGNED BY: WMLJR
DRAWN BY: SEP/SD
CHECKED BY: JAC
DATE: MARCH 2022
PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

DRAINAGE DETAILS II

SHEET 13 OF 14

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: JUN 06 2023 FILE #: 22-0145

NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Andy L. Freeman

GENERAL OWTS NOTES:

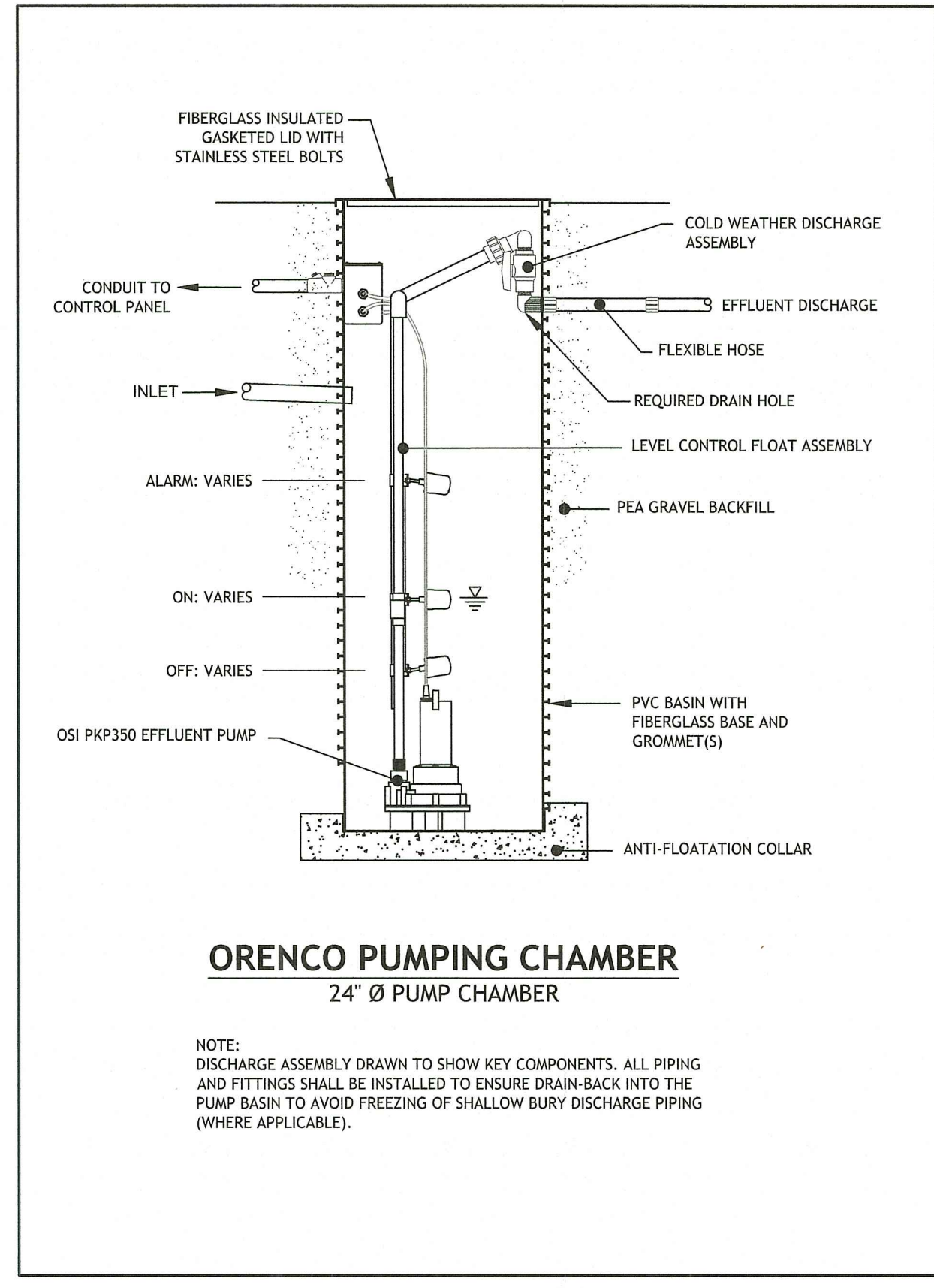
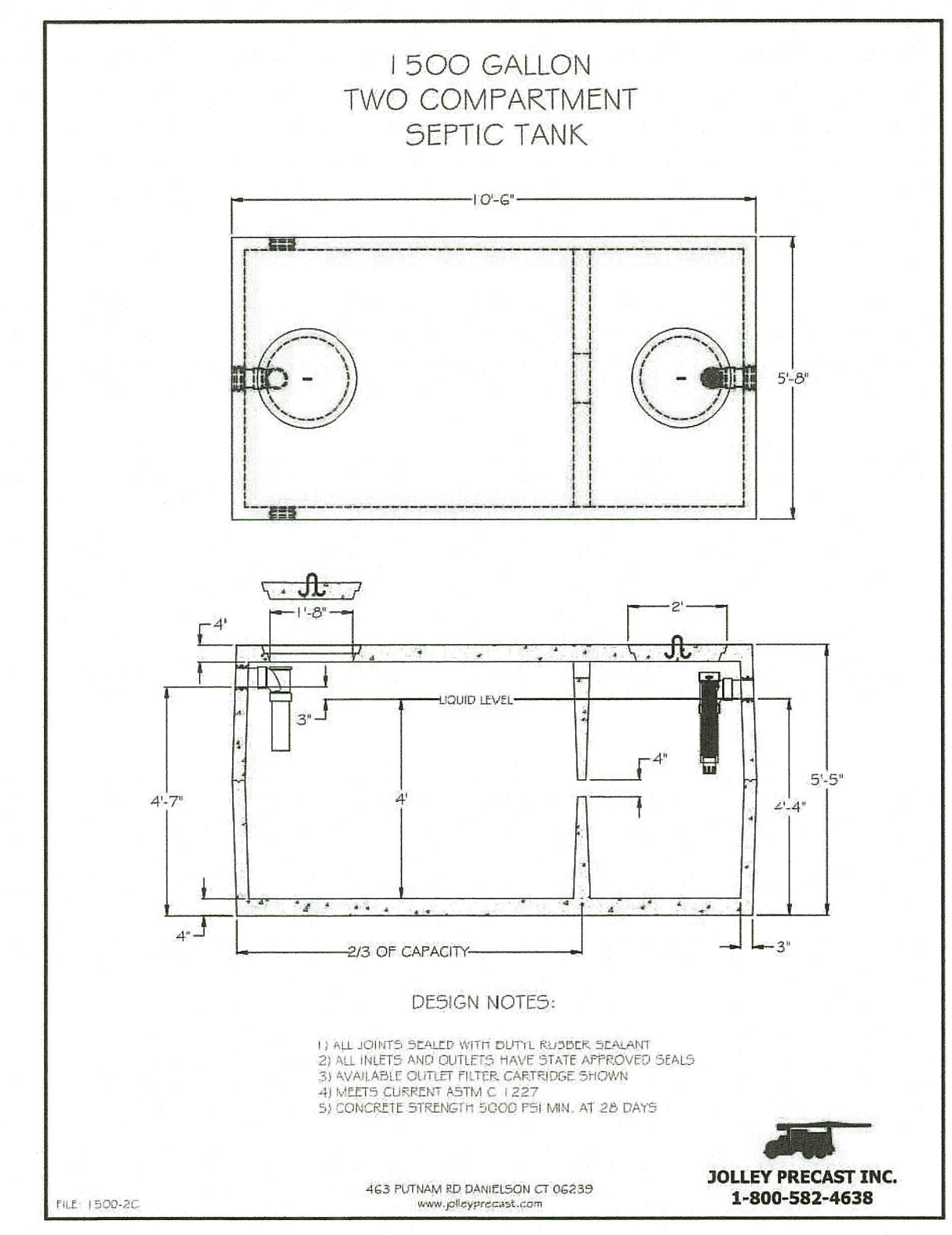
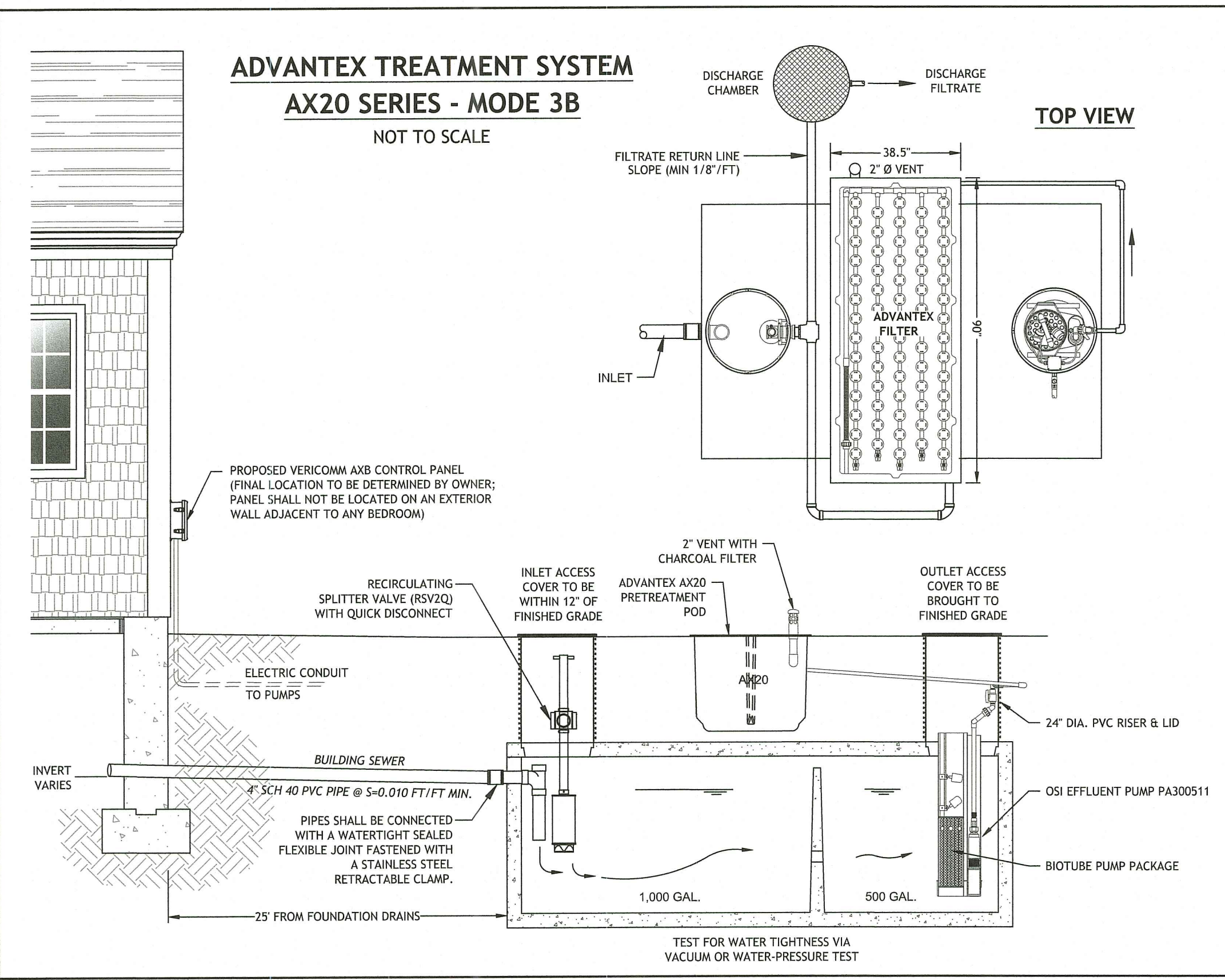
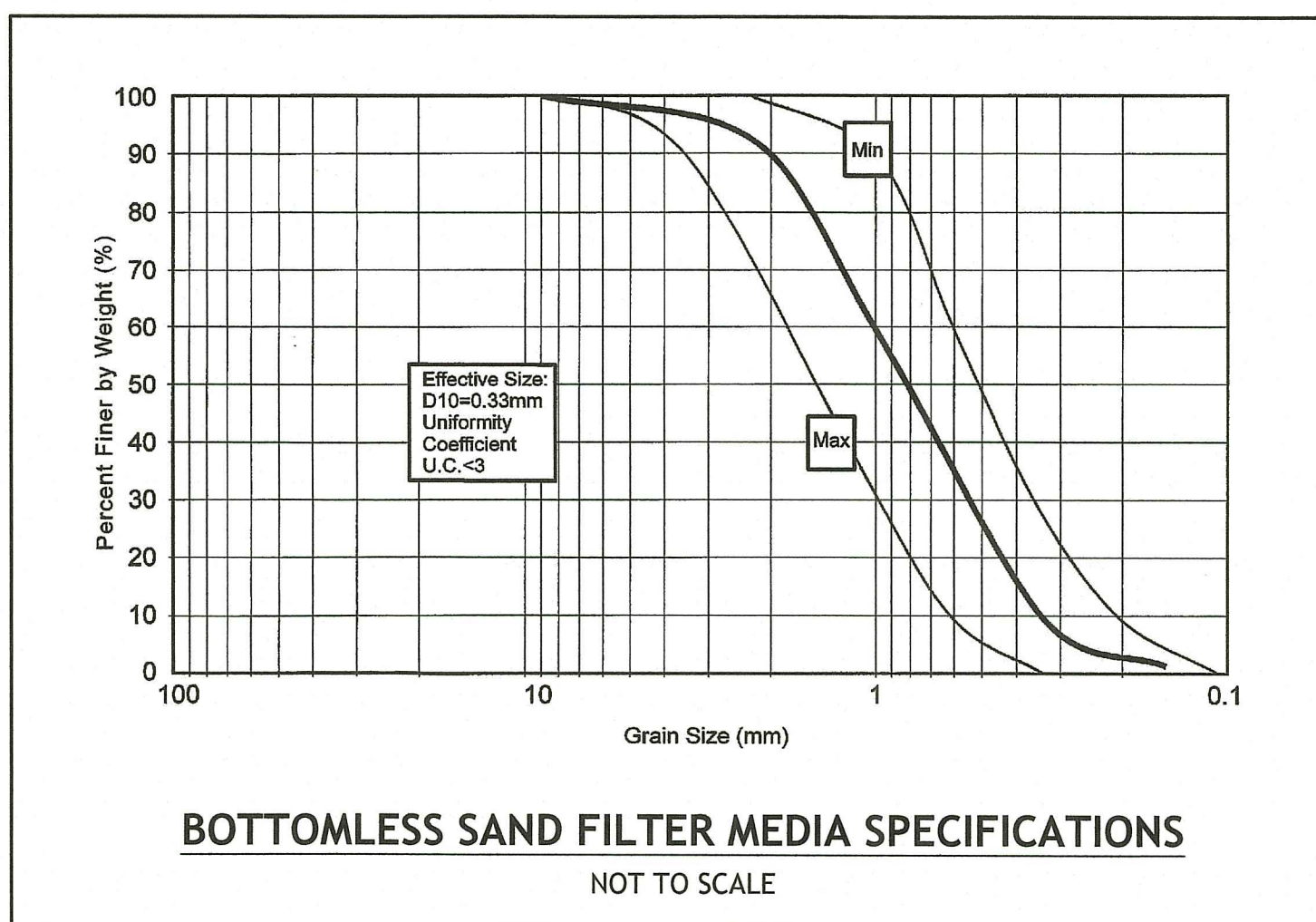
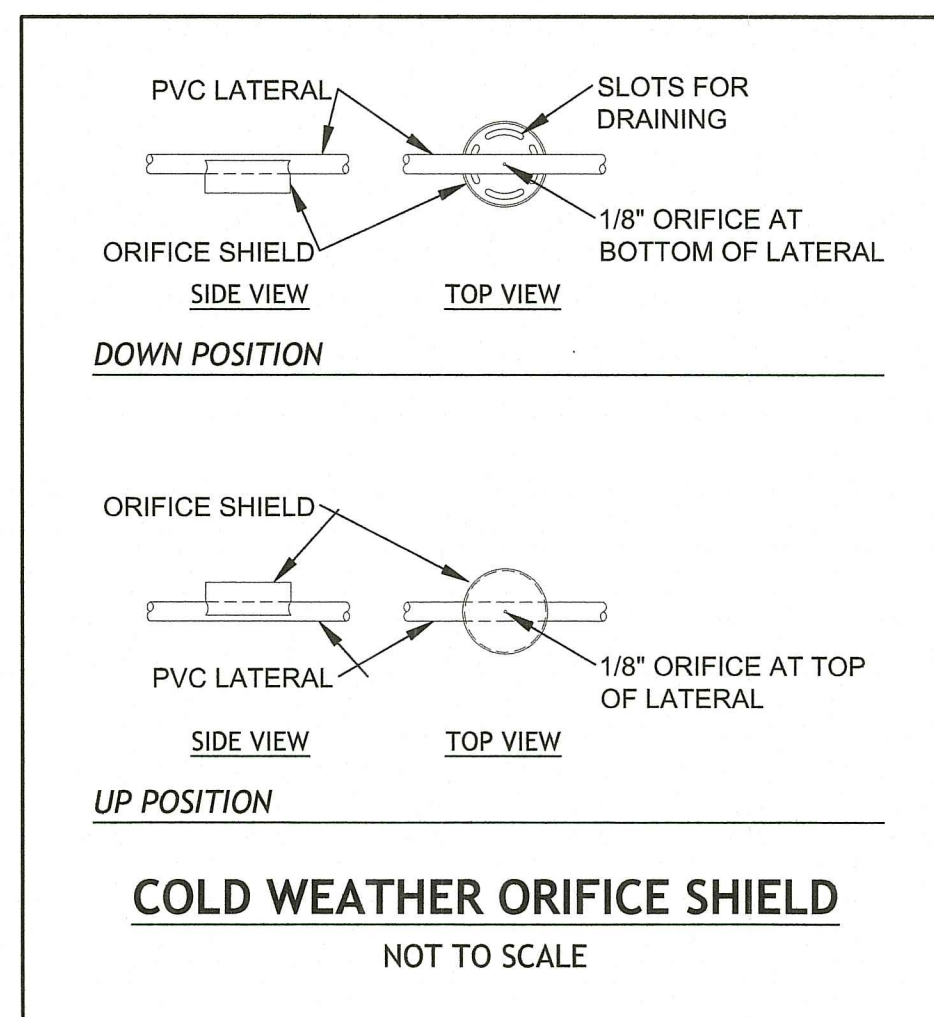
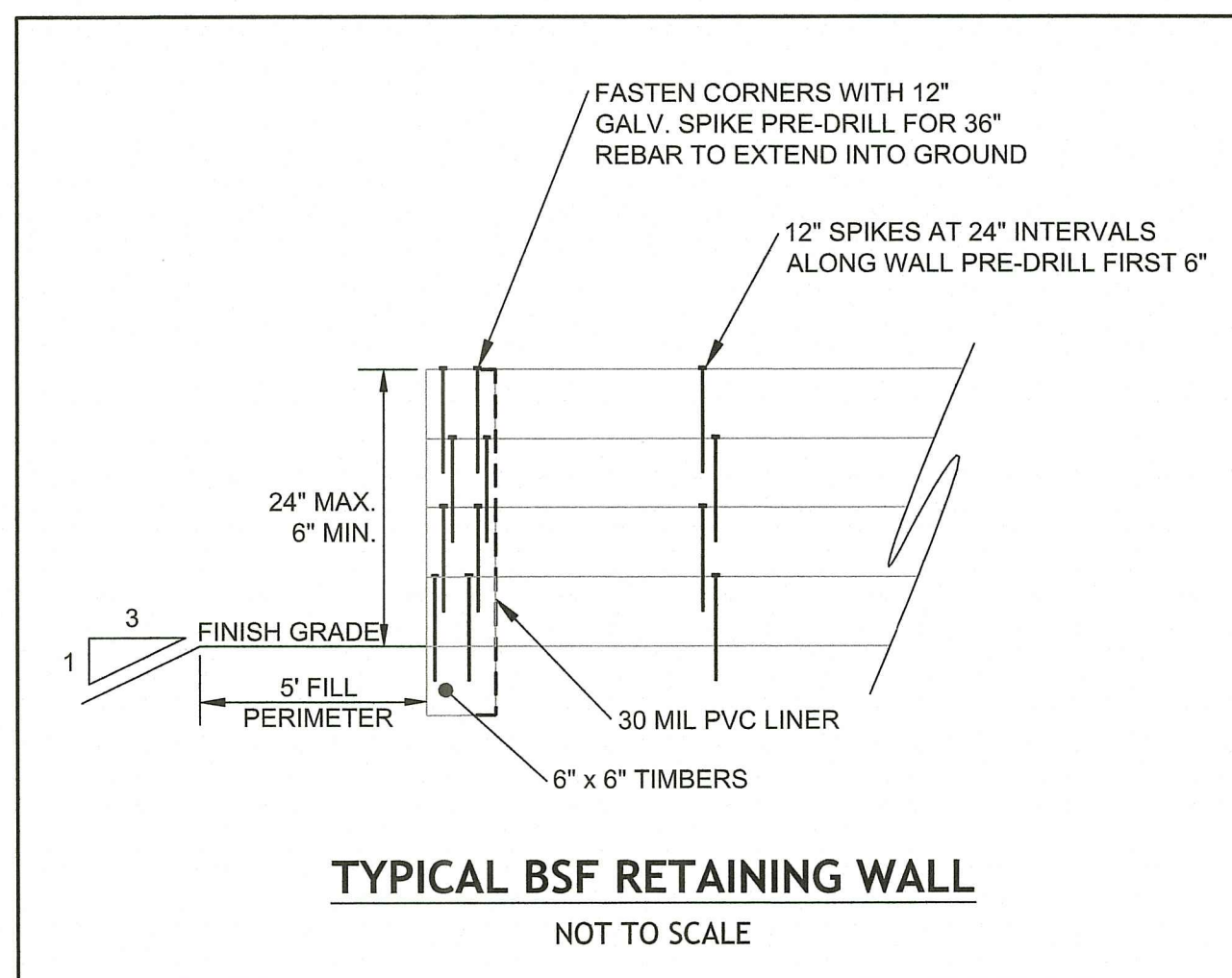
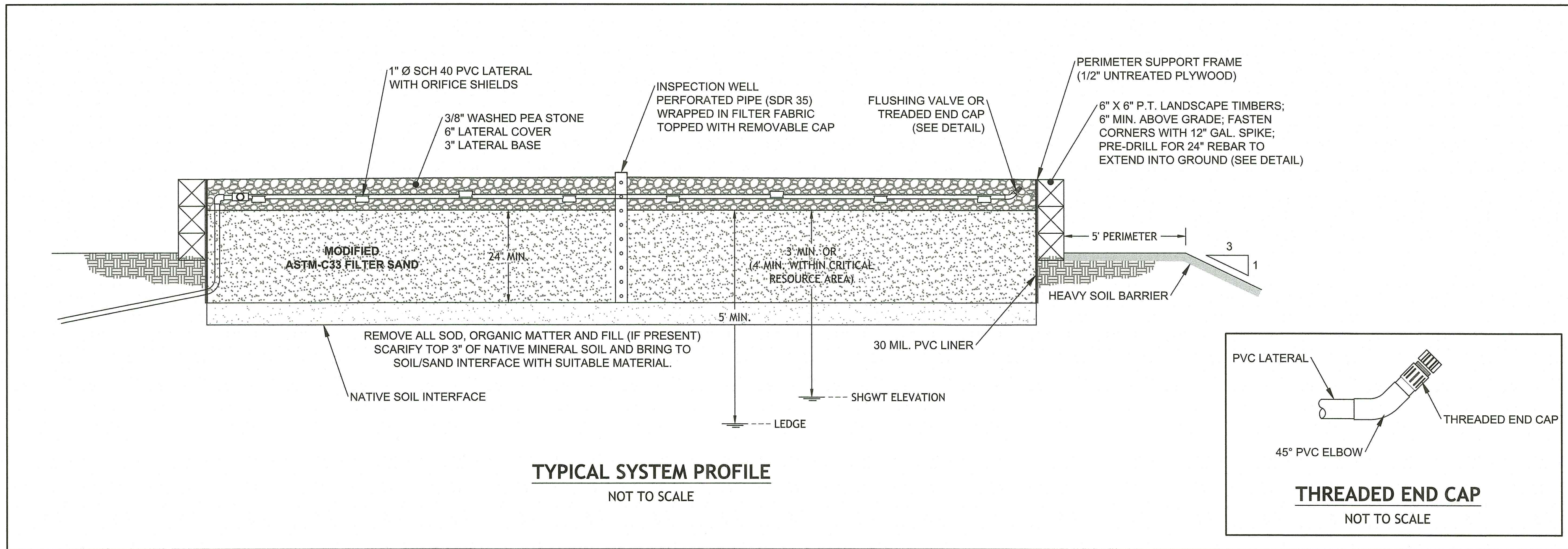
- THIS DESIGN IS SUBMITTED TO RIDEM TO BE REVIEWED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS. CONSTRUCTION OF THIS SYSTEM WILL REQUIRE THE DESIGNER'S CERTIFICATE OF CONSTRUCTION FOR OWTS.
- UNLESS OTHERWISE SPECIFIED, THE SYSTEM HAS NOT BEEN DESIGNED WITH THE PROVISIONS FOR GARBAGE GRINDERS.
- THERE ARE NO KNOWN PUBLIC WELLS, EXISTING OR PROPOSED, WITHIN 500 FEET OF THE DESIGNED SYSTEM UNLESS SHOWN.
- NO DRIVING, PARKING OR PAVING WITHIN 10' OF BSF.
- THIS SEWERAGE DISPOSAL SYSTEM SHALL CONFORM TO ALL THE REGULATIONS UNDER SECTIONS 42-17.1-2(1), (M) (R) AND (S) AND SECTION 23-19.5-4 AND CHAPTER 42-35 OF THE GENERAL LAWS OF RHODE ISLAND.
- ALL PIPES EXCEPT IN THE LEACHING FIELD SHALL BE SOLID 4 INCH DIAMETER SDR 35 WITH WATER TIGHT JOINTS OR EQUIVALENT UNLESS OTHERWISE SPECIFIED.
- ALL GRAVITY PIPES UNLESS OTHERWISE SPECIFIED SHALL HAVE A SLOPE NOT LESS THAN 1/8 INCH PER FOOT BUT NO GREATER THAN 3%.
- SEPTIC TANK AND DOSING TANK SHALL BE SET ON A LEVEL STABLE BASE THAT WILL NOT SETTLE.
- INSPECTIONS OR AS-BUILT PLANS ARE REQUIRED, DESIGNER MUST BE NOTIFIED 48 HOURS IN ADVANCE AND COMPONENTS OF SYSTEM MUST BE LEFT EXPOSED.

OPERATIONAL AND MAINTENANCE NOTES:

- THIS SYSTEM SHALL PROVIDE FOR AN AUDIBLE ALARM FOR HIGH WATER IN THE PUMP CHAMBERS WHICH MAY BE SILENCED BY PUSHING A BUTTON ON THE CONTROL PANEL. THIS SITUATION MAY DEVELOP WITH UNUSUALLY HIGH WATER USAGE AND WILL NOT INDICATE AN ONGOING PROBLEM. REPEATED ALARMS, OR ALARMS WITH NO UNUSUAL WATER USAGE SHOULD BE REPORTED TO YOUR MAINTENANCE PROVIDER.
- THE PROPERTY OWNER SHALL ENTER INTO MAINTENANCE CONTRACTS FOR BOTH THE ADVANTEX AX SYSTEM AND THE BSF DISPOSAL FIELD. EACH UNIT SHOULD HAVE A MINIMUM OF 2 INSPECTIONS ANNUALLY.
- THE MAINTENANCE PROVIDER SHALL AFFIX THEIR NAME AND 24-HOUR CONTACT PHONE INSIDE THE CONTROL BOX LOCATED ON THE EXTERIOR OF THE HOUSE.
- THE BSF INSPECTION SHALL INCLUDE A SAMPLING OF THE BSF INFILTRATE TO CHECK FOR CLARITY.
- BSF LATERALS SHALL BE CLEANED ANNUALLY BY OPENING THE LATERAL THREADED END CAP AND CLEANING THE ENTIRE LENGTH OF THE LATERAL WITH A BOTTLE BRUSH. THE ACCUMULATED CLEANED MATERIAL MAY BE DEPOSITED IN THE INLET OF THE SEPTIC TANK. EACH LATERAL IS TO BE FLUSHED AS REQUIRED.
- THE TOP OF THE BSF FIELD IS TO BE KEPT CLEAN OF DEBRIS AND UNWANTED VEGETATION (WEEDS, LEAVES, BRUSH, ETC.). LANDSCAPE TIMBERS AS DESIGNED SHALL BE MAINTAINED TO PREVENT CRUSHING OF THE SYSTEM BY UNWANTED LOADS, AND SURFACE WATER INDICATION OF THE SYSTEM.
- ELECTRONIC COMPONENTS OF THE ADVANTEX AND THE BSF SYSTEMS SHALL BE CHECKED ANNUALLY FOR OPERATION.
- ALL FLOATS IN THE PUMP CHAMBERS SHALL BE HOSED DOWN AND CLEANED FROM BUILD-UP.
- THE INLET OF THE SEPTIC TANK AND THE DOSING TANK SHALL BE INSPECTED FOR SLUDGE AND SCUM ACCUMULATION. WHEN THESE MATERIALS BUILD UP TO 33% OF THE SEPTIC TANK HEIGHT, THE TANK SHOULD BE PUMPED AND THE ACCUMULATIONS APPROPRIATELY REMOVED.
- THE FILTER IN THE PUMP CHAMBERS SHALL BE CLEANED ANNUALLY.
- SHOULD THE PUMP ASSEMBLY BE REMOVED, THE VAULT SHALL BE CLEANED AND FILLED WITH CLEAN WATER TO PREVENT THE SCREEN FROM BEING FOULED WITH SOLIDS.
- TIMER SETTINGS SHALL BE CHECKED AT EVERY ESTABLISHED MAINTENANCE AND INSPECTION VISIT AND ADJUSTED AS NEEDED BY THE SERVICE PROVIDER.
- ALL TANKS AND BASINS SHALL BE VISUALLY INSPECTED FOR WATER TIGHTNESS.
- PROPERTY OWNER TO REDUCE ANY SHADING IN THE AREA OF THE BOTTOMLESS SAND FILTER TO REDUCE FREEZE POTENTIAL. ANY ACTIVITY TO REDUCE SHADING MUST BE IN ACCORDANCE WITH THE RIDEM WETLANDS APPROVALS.

BOTTOMLESS SAND FILTER NOTES:

- THE BOTTOMLESS SAND FILTER (BSF) IS INCORPORATED AS THE DISPOSAL BED IN THIS DESIGN TO MAXIMIZE THE REMOVAL OF PATHOGENIC ORGANISMS (PAGE 6 RIDEM TRC GUIDELINES).
- PER RIDEM NOTICE 4/30/04, TOTAL PEA STONE DEPTH IS INCREASED TO 9" TO REDUCE WINTER FREEZE POTENTIAL.
- THE BSF AREA IS TO BE LOCATED AND STAKED IN THE FIELD BY THE INSTALLER PRIOR TO CONSTRUCTION. PROTECTION AGAINST HEAVY VEHICLE TRAFFIC MUST BE ESTABLISHED IN THE BSF AREA PRIOR TO INITIATING ANY CONSTRUCTION OPERATIONS ON THE SITE. DEGRADATION OF THE PROPOSED SITE AREA WILL REQUIRE A RE-DESIGN.
- SYSTEM COMPONENTS WITHIN THIS DESIGN ARE AVAILABLE FROM ORENCO SYSTEMS INC., 814 AIRWAY AVENUE, SUTHERLIN, OR. 97479. LOCAL DEALER INFORMATION IS AVAILABLE AT 1-800-348-9843 OR WWW.ORENCO.COM.
- A MINIMUM TEN (10) FEET MUST BE MAINTAINED BETWEEN THE BSF AND ADJACENT TREES AND SHRUBS.
- INTERMITTENT PRESSURE DOSED EFFLUENT WILL PROVIDE A UNIFORM DISTRIBUTION OF WASTE WATER OVER THE BSF AREA, MINIMIZING LOCALIZED SATURATION. LATERAL GATE VALVES ARE DESIGNED FOR PLACEMENT OFF THE HEADER LINE SO AS TO EQUALIZE HYDRAULIC PRESSURE IN THE DISPERSAL.
- THE PRESSURE LINE IS TO BE SLOPED BACK TOWARDS THE PUMP CHAMBER FROM THE BSF FIELD TO ELIMINATE FREEZING.
- THE BSF SAND MEDIA MUST CONFORM TO ASTM C-33 SPECIFICATIONS. EFFECTIVE SIZE (D10) OF 0.3 mm AND A UNIFORMITY COEFFICIENT (D60/D10) OF 3.0 TO 4.0. MAXIMUM MATERIAL PASSING THE NUMBER 200 SIEVE SHALL BE 1%. THE INSTALLER SHALL PRODUCE GRADATION ANALYSIS RESULTS FOR THE MATERIAL PROVIDED FROM THE SUPPLIER.
- PERIMETER STRIPPING OF THE SOIL MATERIAL BELOW THE BSF IS PROHIBITED, UNLESS FILL MATERIAL IS PRESENT.
- THE WALLS OF THE BSF ENCLOSURE MUST BE LINED WITH A 30 MIL PVC LINER WITH ALL BOOTS, PATCHES, REPAIRS, AND SEAMS HAVING THE SAME PROPERTIES AS THE LINER.
- ANY PENETRATION THROUGH THE PVC LINER WALL SHALL BE DONE WITH A PVC BOOT ATTACHMENT GLUED TO THE LINER WITH APPROPRIATE RESILIENT SEALER.
- EXCAVATOR/BACKHOE BUCKET USED TO PLACE MEDIA SHALL BE WASHED THOROUGHLY BEFORE LOADING PROCESS.
- SAND MEDIA SHALL BE PLACED IN 6 INCH LIFTS AND WETTED TO PROVIDE EVEN SETTLING. AFTER PLACEMENT OF EACH LIFT EDGES OF THE FILTER SHALL BE WALKED DOWN, CLEAN SHOES ARE REQUIRED FOR THIS PROCESS.
- AFTER SAND MEDIA HAS SETTLED, 3 INCHES OF 3/8 INCH WASHED PEA STONE SHALL BE PLACED OVER SAND MEDIA. AFTER INSTALLATION OF DISTRIBUTION LATERALS ADD 6 INCHES OF WASHED PEA STONE TO COVER THE SYSTEM. NO FILTER FABRIC OF ANY KIND IS TO BE USED BETWEEN THE SAND AND OVERLYING PEA STONE LAYERS.
- THE ELEVATION OF THE BSF INVERT SHALL EXTEND 5 FEET BEYOND THE WALL PERIMETER.
- WHILE NOT NORMALLY EXPERIENCED, THERE HAVE BEEN REPORTED INSTANCES WHERE SAND FILTER SYSTEMS HAVE BEEN KNOWN TO EXPERIENCE PROBLEMS WITH FREEZING OF PIPES UNDER EXTREME COLD CONDITIONS. WHILE MOST SAND FILTER INSTALLATIONS OPERATE PROPERLY AND WITHOUT FREEZING PROBLEMS, THE POSSIBILITY OF FREEZING MAY EXIST UNDER CERTAIN CIRCUMSTANCES. SHOULD THE OWNER WISH TO MAXIMIZE THE AVOIDANCE OF THIS POSSIBILITY, THE OWNER MAY ELECT THE OPTION OF INSTALLING AN ELECTRIC HEAT TRACING SYSTEM ON THE PIPELINES. OWNER SHOULD CONTACT MANUFACTURERS/SUPPLIERS OF SUCH EQUIPMENT FOR FURTHER INFORMATION.
- SUPPORT WALLS ARE NEEDED TO PREVENT CAVING OF FILTER WALLS DURING CONSTRUCTION. THESE WALLS SHALL BE RIGID AND MADE OF PLYWOOD (OR EQUIVALENT) AND 2" x 4" SUPPORT BOARDS.
- A PERMANENT TOP FRAME STRUCTURE MUST BE PROVIDED ON ANY PORTION OF THE BSF THAT IS INSTALLED ABOVE GRADE (MAX OF 24" ABOVE GRADE). THE PERIMETER OF THE BSF, BELOW THE REQUIRED PERIMETER OF TIMBERS, MAY BE BERMED WITH NATIVE SOIL OR OTHER MATERIAL SUCH AS LANDSCAPE STONE OR OTHER NON-DEGRADING MATERIAL. BELOW GRADE USE OF TIMBERS IS PROHIBITED.

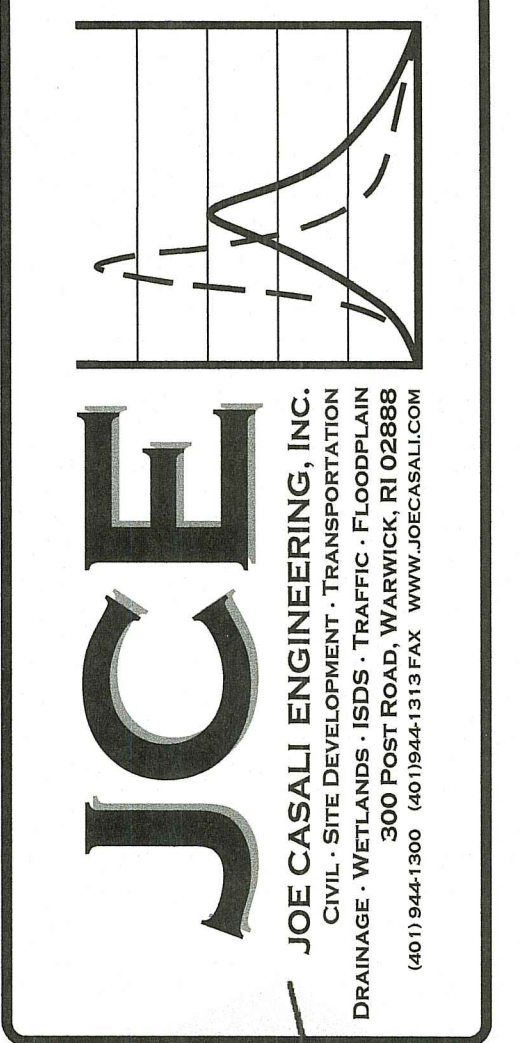


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PROPOSED MAJOR SUBDIVISION
ORCHARD AVENUE
JOHNSTON, RHODE ISLAND
AP 59, LOTS 8 & 268

Environmental Management
APR 24 2023
Office of Water Resources

REVISIONS:

NO.	DATE	DESCRIPTION
1	4/19/2022	RIDEM FILING
2	10/18/2022	RIDEM RTC
3	4/2023	RIDEM RTC

DESIGNED BY: WMLJR
DRAWN BY: SEPSJD
CHECKED BY: JAC
DATE: MARCH 2022
PROJECT NO: 20-03

PRELIMINARY, NOT FOR CONSTRUCTION

OWTS TYPICAL DETAILS

SHEET 14 OF 14