

RIDEM FRESHWATER WETLAND PERMIT
 INSIGNIFICANT ALTERATION PERMIT
 APPLICATION PHASE-2D PLAN SET
 RIDEM FWW# 24-0123, WQC# 24-084, RIPDES# RIR10397

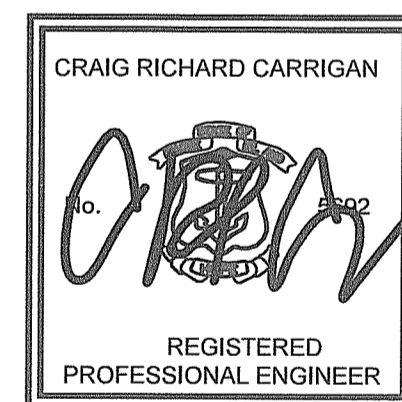
THE PRESERVE AT BOULDER HILLS, LLC
 &
 MTM DEVELOPMENT CORPORATION

87 KINGSTOWN ROAD
 A.P. 6B, LOT 2
 RICHMOND, RHODE ISLAND

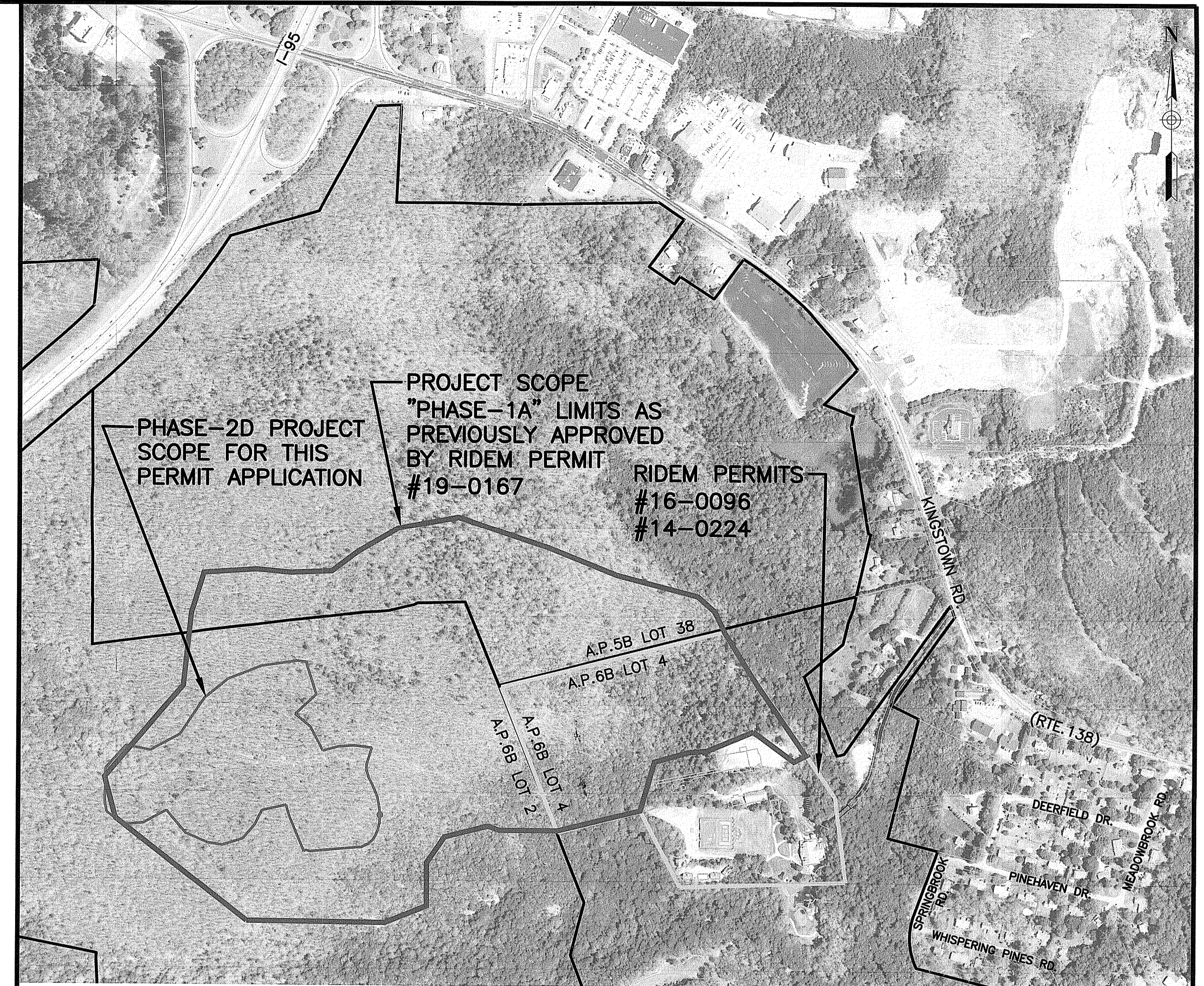
ISSUED FOR PERMITTING

PREPARED FOR
 THE PRESERVE AT BOULDER HILLS, LLC

DATE: MAY 3, 2024
 REVISED: JULY 17, 2024



CARRIGAN ENGINEERING, INC.
 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
 WAKEFIELD, RI 02879
 PHONE: (401) 789-6865



LOCATION MAP
 SCALE: 1"=400'

LIST OF DRAWINGS

- | | |
|--|--|
| 1. TITLE SHEET | 11. DRY SWALE PROFILES PLAN - 1 - F.I.O. |
| 2. EXISTING CONDITIONS SHEET | 12. DRY SWALE PROFILES PLAN - 2 - F.I.O. |
| 3. PROJECT SCOPE PLAN | 13. SECC PLAN - 1 - F.I.O. |
| 4. ZONE 1: GRADING & UTILITY PLAN - F.I.O. | 14. SECC PLAN - 2 |
| 5. ZONE 2: GRADING & UTILITY PLAN - F.I.O. | 15. SECC PLAN - 3 |
| 6. ZONE 3: GRADING & UTILITY PLAN - F.I.O. | 16. DETAIL SHEET - 1 - F.I.O. |
| 7. ZONE 4: GRADING & UTILITY PLAN - F.I.O. | 17. DETAIL SHEET - 2 - F.I.O. |
| 8. ZONE 5: GRADING & UTILITY PLAN | 18. DETAIL SHEET - 3 - F.I.O. |
| 9. ZONE 6: GRADING & UTILITY PLAN | 19. DETAIL SHEET - 4 |
| 10. ZONE 7: GRADING & UTILITY PLAN | |

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS
 SPECIFIED IN THE LETTER OF APPROVAL
 DATED: **AUG 22 2024** FILE #: **24-0123**
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE: INDIVIDUAL DRAWINGS WITHIN THE INDEX LIST OF DRAWINGS DENOTED AS "F.I.O." ARE FOR INFORMATION ONLY AND WERE SUBMITTED UNDER THE RIDEM FWW PERMIT #19-0167 APPROVAL.

PROJECT DATA

ASSESSORS REFERENCE:
 A.P. 6B LOT 2

REFERENCES:

- PROPERTY LINE INFORMATION OBTAINED FROM SURVEY PLANS TITLED "SV-1 EXISTING CONDITIONS SURVEY LIMITED CONTENT PERIMETER SURVEY PLANTATIONS, BOARD OF REGISTRATION OF PROFESSIONAL ENGINEERS AND BOARD OF REGISTRATION OF LAND SURVEYORS."
- ONLY PLANS STAMPED ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION.
- THE LOCATION AND ELEVATION FOR ALL EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY CROSSINGS OF PROPOSED UTILITIES AND EXISTING UTILITIES. ANY DISCREPANCIES IN THE LOCATION OF ANY UTILITY SHOWN OR ENCOUNTERED DURING CONSTRUCTION SHALL BE REPORTED TO MTM DEVELOPMENT CORPORATION, 87 KINGSTOWN RD, RICHMOND, RHODE ISLAND 02898; (401) 539-4653.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY DIG-SAFE (1-800-344-7233) A MINIMUM OF 72 WORKING HOURS, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF ANY EXCAVATION WORK. THE NAME OF THE COMPANY PERFORMING THE EXCAVATION MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE CALLER.
- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.

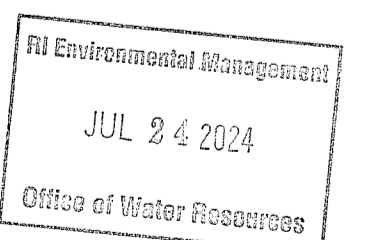
GENERAL NOTES:

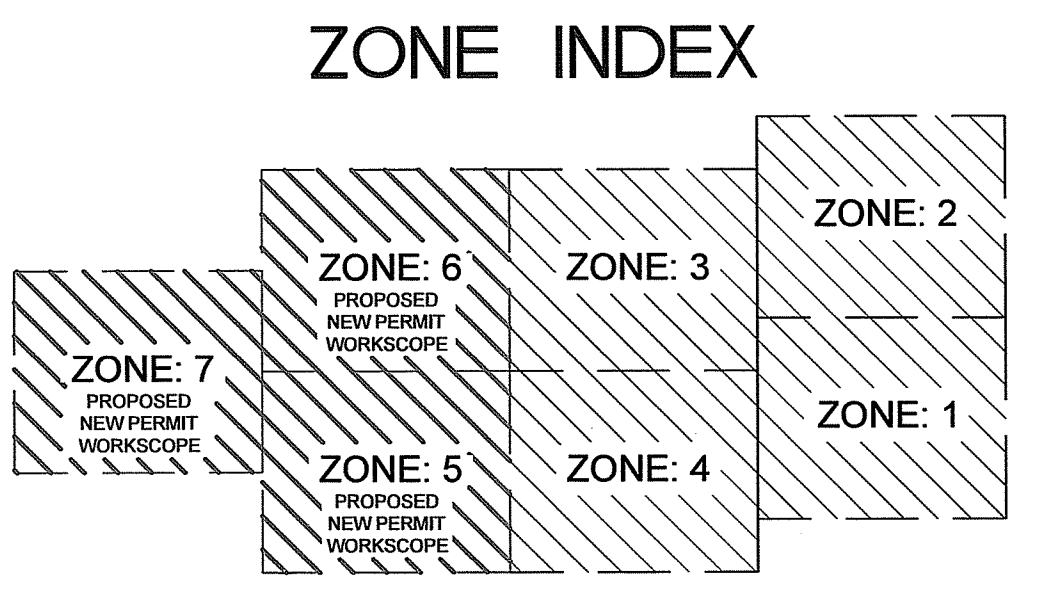
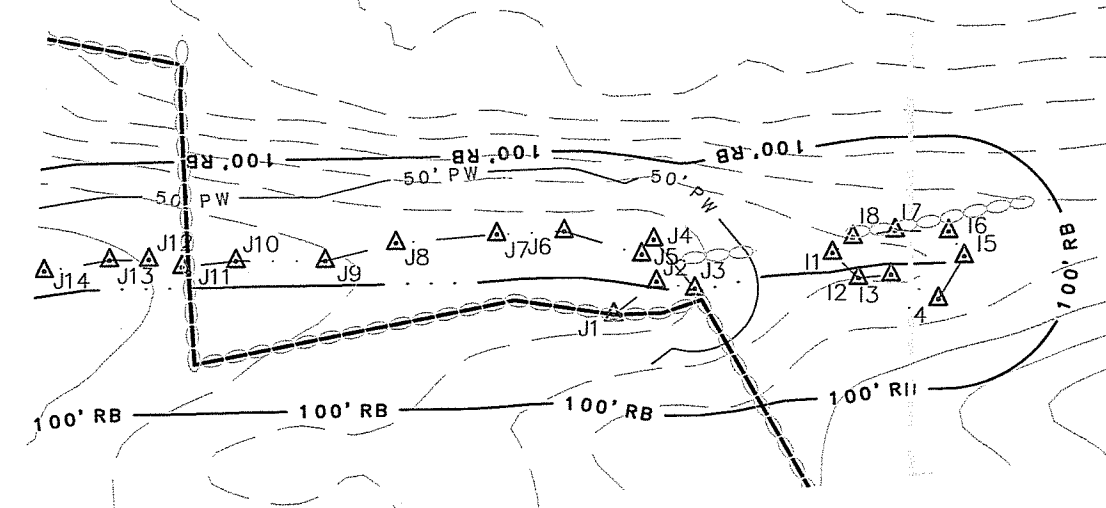
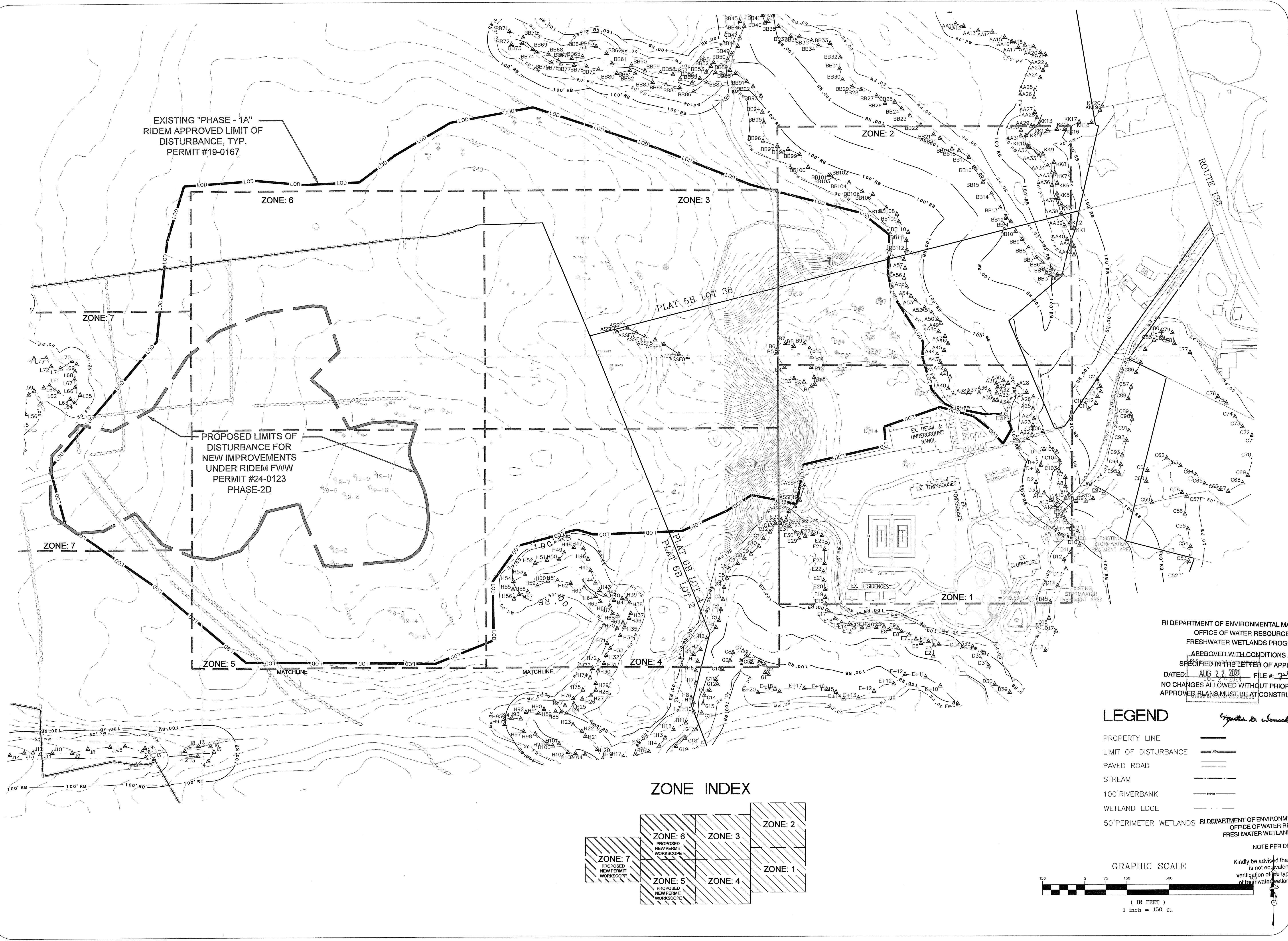
- ALL PLANS AND IMPROVEMENTS CONFORM TO ALL EXISTING AND AMENDED STANDARDS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, BOARD OF REGISTRATION OF PROFESSIONAL ENGINEERS AND BOARD OF REGISTRATION OF LAND SURVEYORS.
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RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM

NOTE PER DEM:

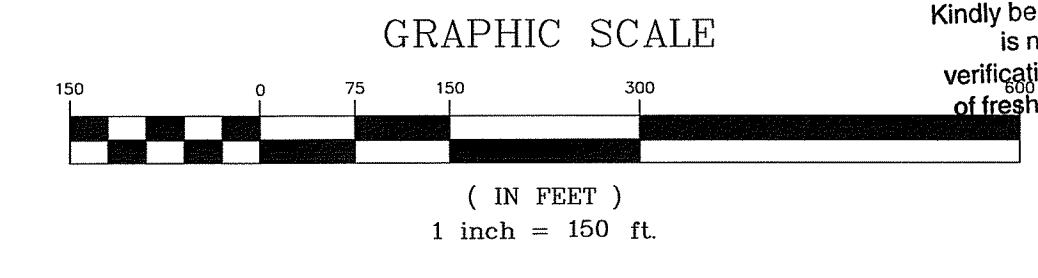
Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site





LEGEND

- PROPERTY LINE
- LIMIT OF DISTURBANCE
- PAVED ROAD
- STREAM
- 100' RIVERBANK
- WETLAND EDGE
- 50' PERIMETER WETLANDS



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Cynthia D. Wenzel

NOTE PER DEM:
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TITLE:
EXISTING CONDITIONS PROJECT SCOPE PLAN
 A.P. 6B, LOT 2
 87 KINGSTOWN ROAD
 RICHMOND, RHODE ISLAND

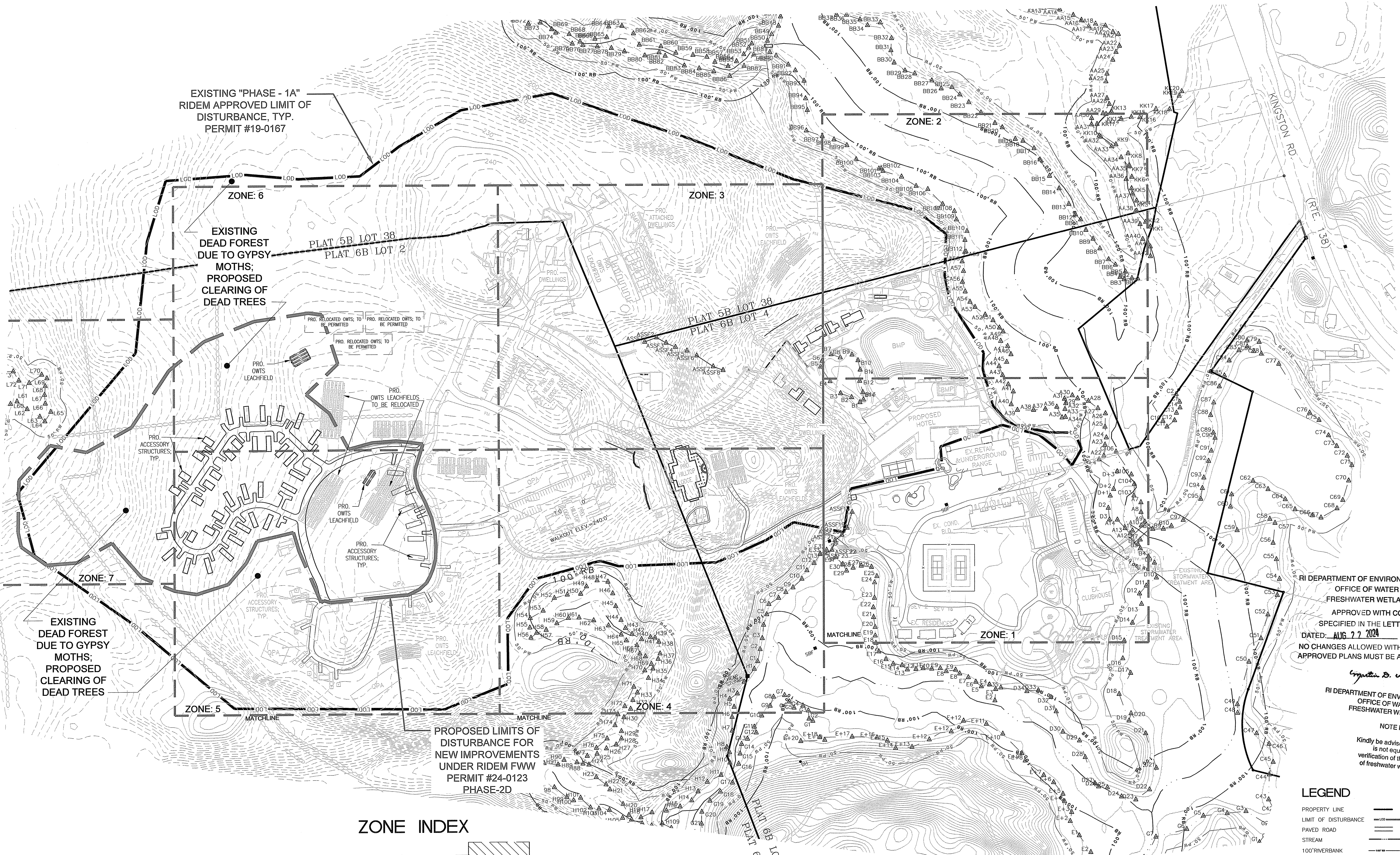
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN **DATE:** 5/3/24 **SHEET 2 OF 19**

NO.	DATE	DESCRIPTION	BY
1.	08/14/19	DEM COMMENTS	DKM
2.	07/17/24	RIDEM REVIEW COMMENTS DATED 6/11/2024 - PRIOR MOD. SUBM.	BDM

REGISTRATIONS:
 CRAIG RICHARD CARRIGAN

 REGISTERED PROFESSIONAL ENGINEER

CARRIGAN ENGINEERING, INC.
 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
 WAKEFIELD, RI 02879
 PHONE: (401) 789-6865

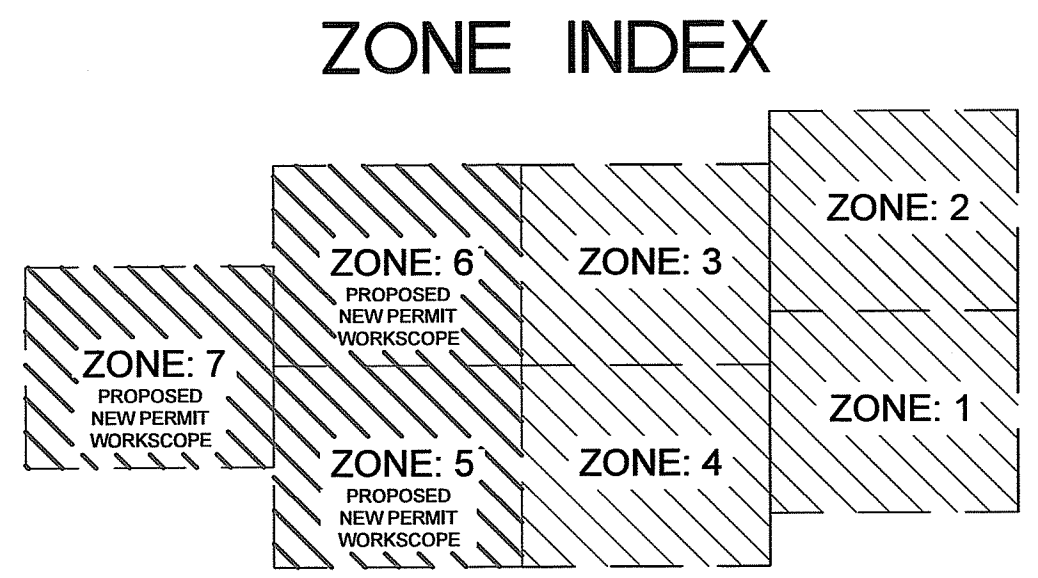


EXISTING "PHASE - 1A"
RIDEM APPROVED LIMIT OF
DISTURBANCE, TYP.
PERMIT #19-0167

EXISTING
DEAD FOREST
DUE TO GYPSY
MOTHS;
PROPOSED
CLEARING OF
DEAD TREES

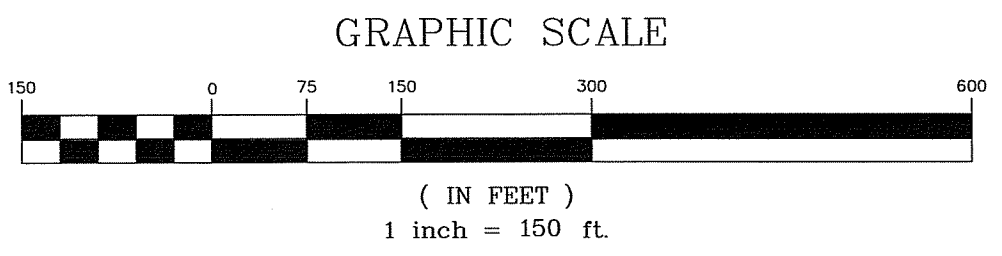
EXISTING
DEAD FOREST
DUE TO GYPSY
MOTHS;
PROPOSED
CLEARING OF
DEAD TREES

PROPOSED LIMITS OF
DISTURBANCE FOR
NEW IMPROVEMENTS
UNDER RIDEM FWW
PERMIT #24-0123
PHASE-2D



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Craig R. Carrigan
REGISTERED PROFESSIONAL ENGINEER
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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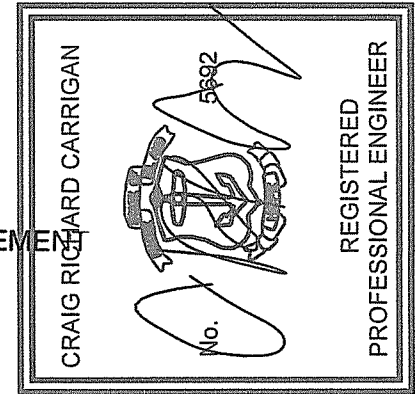


PROJECT SCOPE PLAN

A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN DATE: 5/3/24 SHEET 3 OF 19

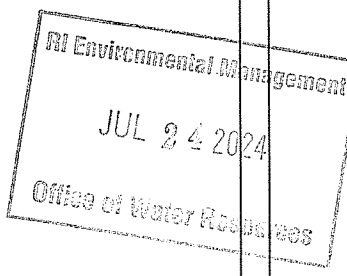
REVISIONS:

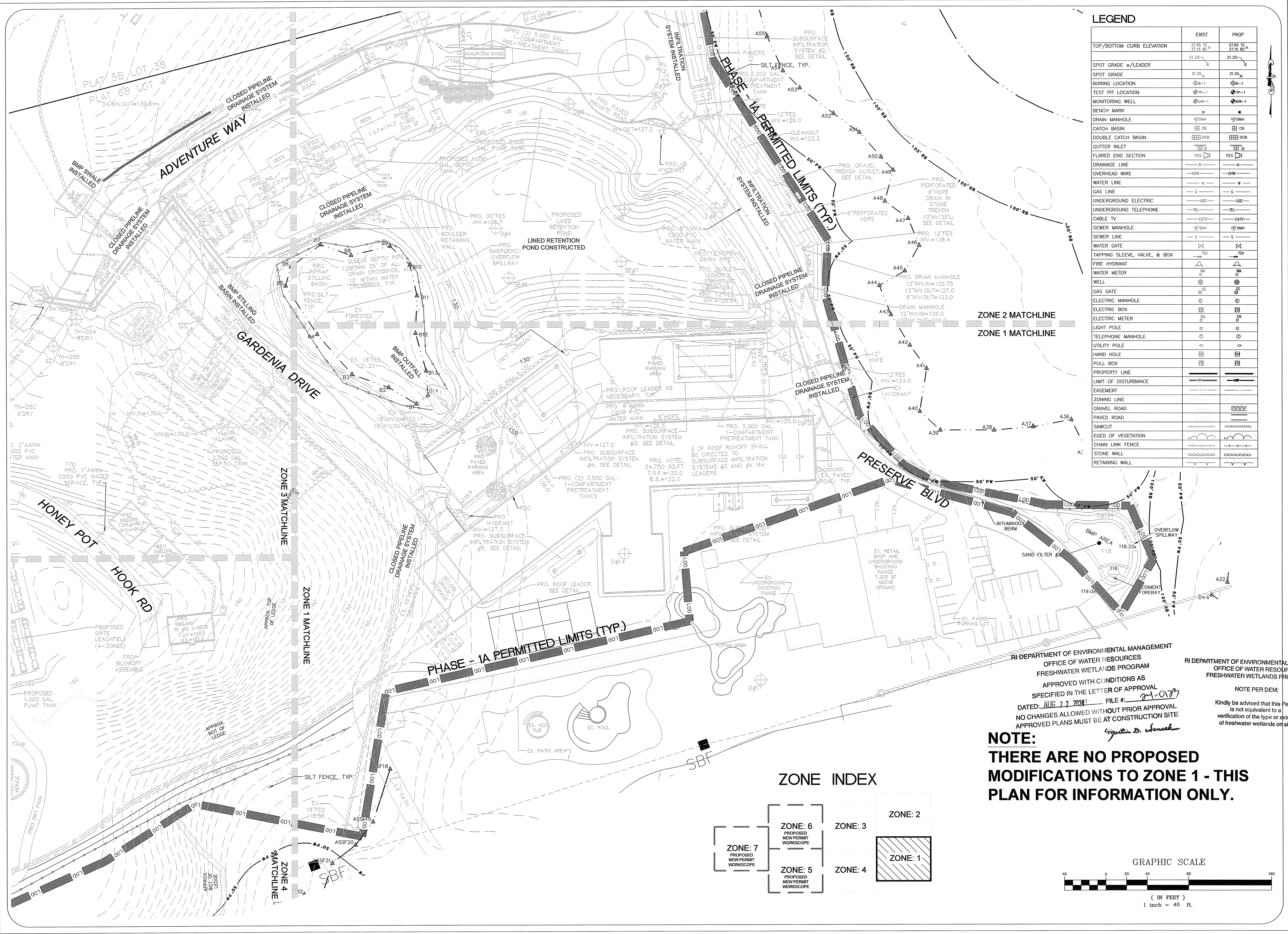
NO.	DATE	DESCRIPTION	BY
3.	07/17/24	RIDEM REVIEW COMMENTS DATED BDM 6.11.2024 - PRIOR MOD. SUBM.	DKM
2.	09/08/19	DEM COMMENTS	DKM
1.	08/14/19	DEM COMMENTS	DKM



CARRIGAN ENGINEERING INC

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86 BROOK FARM ROAD SOUTH
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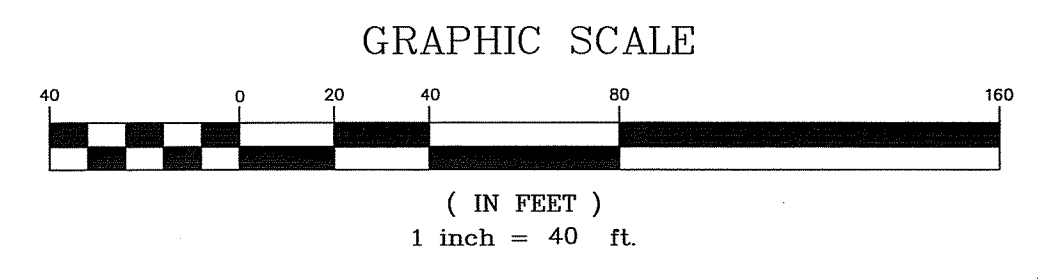
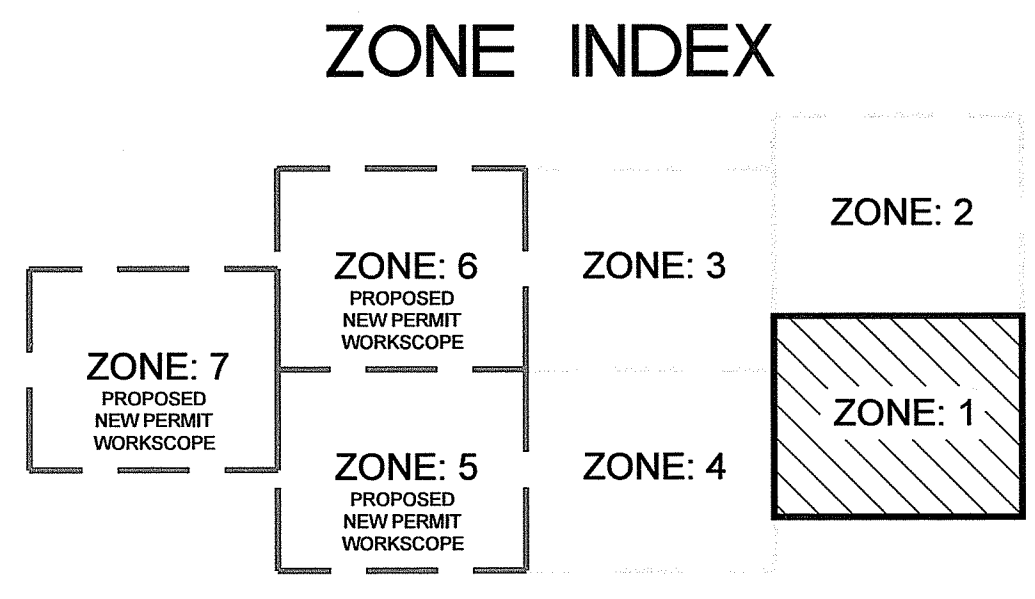




LEGEND

	EXIST	PROP
TOP/BOTTOM CURB ELEVATION	27.85 TC 27.35 BC X	27.85 TC 27.35 BC X
SPOT GRADE w/LEADER	21.25 X	21.25 X
SPOT GRADE	21.25 X	21.25 X
BORING LOCATION	⊕B-1	⊕B-1
TEST PIT LOCATION	⊕TP-1	⊕TP-1
MONITORING WELL	⊕MW-1	⊕MW-1
BENCH MARK	⊕	⊕
DRAIN MANHOLE	⊕DMH	⊕DMH
CATCH BASIN	⊕CB	⊕CB
DOUBLE CATCH BASIN	⊕DCB	⊕DCB
GUTTER INLET	⊕GI	⊕GI
FLARED END SECTION	FES	FES
DRAINAGE LINE	— D —	— D —
OVERHEAD WIRE	— OHW —	— OHW —
WATER LINE	— W —	— W —
GAS LINE	— G —	— G —
UNDERGROUND ELECTRIC	— UGE —	— UGE —
UNDERGROUND TELEPHONE	— TEL —	— TEL —
CABLE TV	— CATV —	— CATV —
SEWER MANHOLE	⊕SMH	⊕SMH
SEWER LINE	— S —	— S —
WATER GATE	⊕WG	⊕WG
TAPPING SLEEVE, VALVE, & BOX	⊕TSV	⊕TSV
FIRE HYDRANT	⊕FH	⊕FH
WATER METER	⊕WM	⊕WM
WELL	⊕	⊕
GAS GATE	⊕GG	⊕GG
ELECTRIC MANHOLE	⊕EMH	⊕EMH
ELECTRIC BOX	⊕EB	⊕EB
ELECTRIC METER	⊕EM	⊕EM
LIGHT POLE	⊕LP	⊕LP
TELEPHONE MANHOLE	⊕TMH	⊕TMH
UTILITY POLE	⊕UP	⊕UP
HAND HOLE	⊕HH	⊕HH
PULL BOX	⊕PB	⊕PB
PROPERTY LINE	— PL —	— PL —
LIMIT OF DISTURBANCE	— LD —	— LD —
EASEMENT	— E —	— E —
ZONING LINE	— Z —	— Z —
GRAVEL ROAD	— GR —	— GR —
PAVED ROAD	— PR —	— PR —
SAWTOOTH	— SA —	— SA —
EDED OF VEGETATION	— EV —	— EV —
CHAIN LINK FENCE	— CL —	— CL —
STONE WALL	— SW —	— SW —
RETAINING WALL	— RW —	— RW —

ZONE 2 MATCHLINE
ZONE 1 MATCHLINE



NOTE:
THERE ARE NO PROPOSED MODIFICATIONS TO ZONE 1 - THIS PLAN FOR INFORMATION ONLY.

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: AUG 22 2024 FILE #: 24-0187
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE PER DEM:
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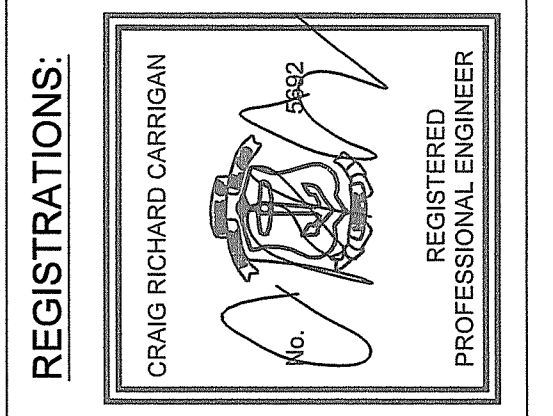
Signature of Engineer

TITLE:
ZONE 1 - GRADING & UTILITY PLAN
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.

REVISIONS:

NO.	DATE	DESCRIPTION	BY
3.	07/17/24	RIDEM REVIEW COMMENTS DATED 6.11.2024 - PRIOR MOD. SUBM.	BDM
2.	09/08/19	DEM COMMENTS	DKW
1.	08/14/19	DEM COMMENTS	DKW

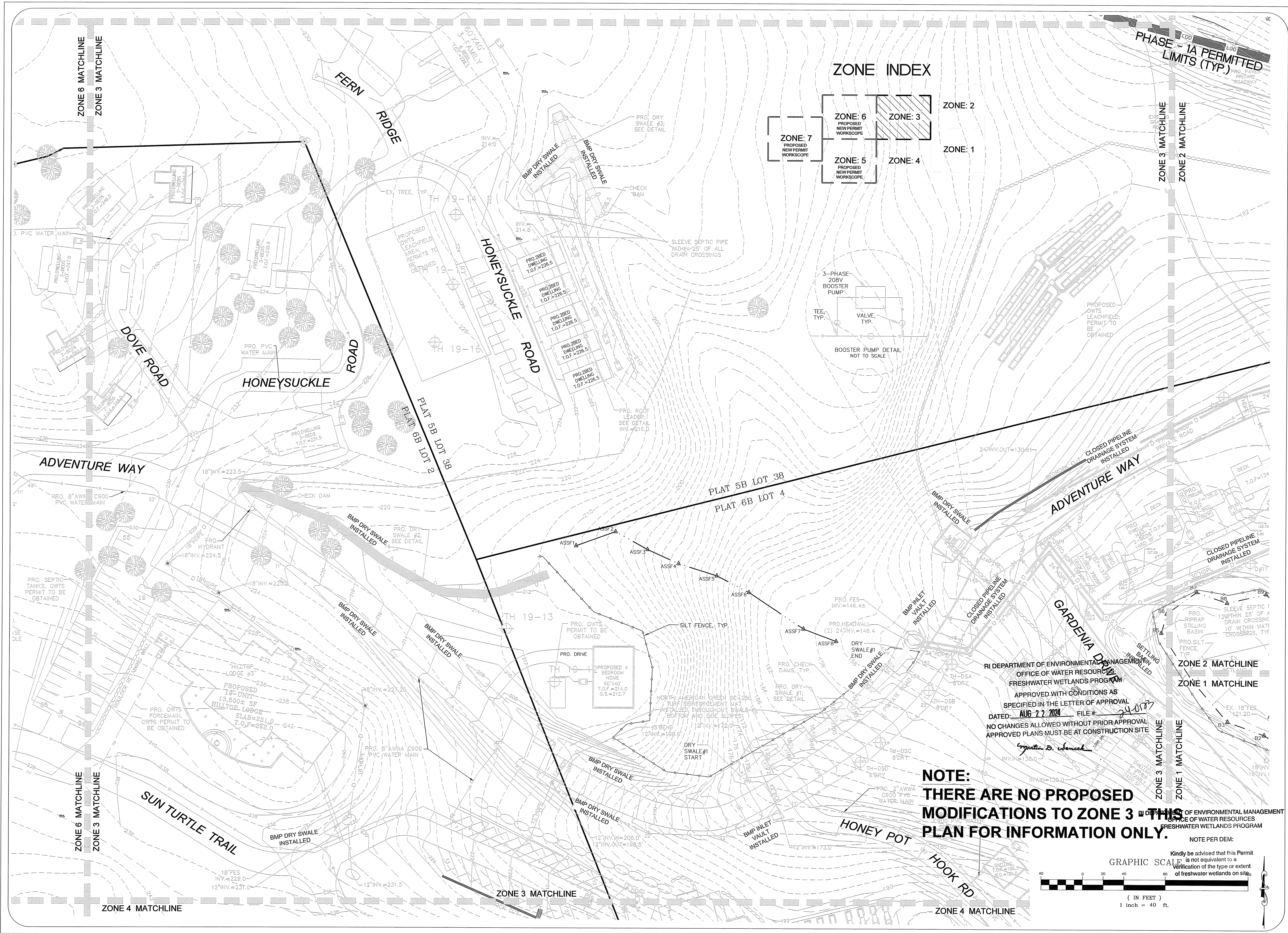
JOB NO.:
DATE: 5/3/24 SHEET 4 OF 19



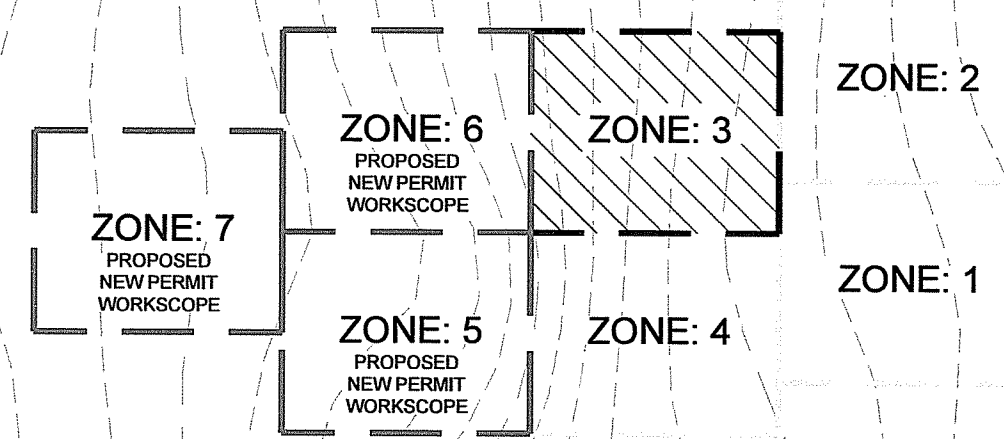
CARRIGAN ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL ENGINEERING
86 BROOK FARM ROAD SOUTH
WAKEFIELD, RI 02879
PHONE: (401) 789-6865

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

JUL 9 2024
Office of Water Resources

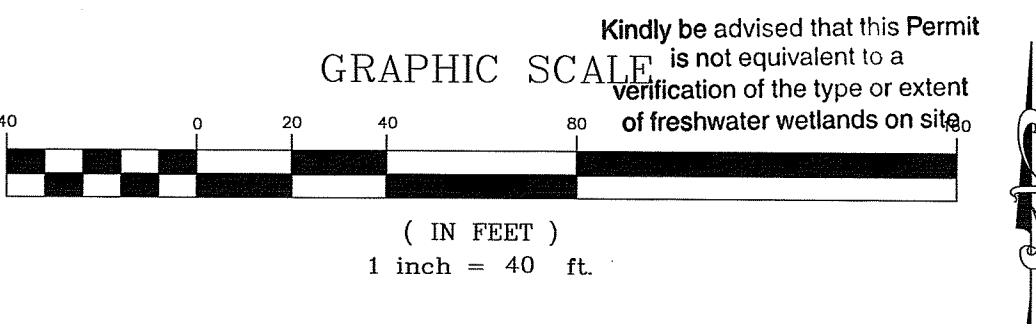


ZONE INDEX



RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS
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 DATED: **AUG 22 2024** FILE # *24077*
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Matthew B. Idema

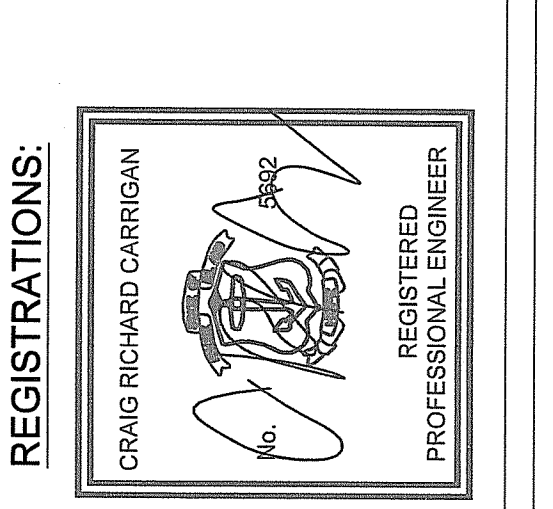
NOTE:
 THERE ARE NO PROPOSED
 MODIFICATIONS TO ZONE 3 - THIS
 PLAN FOR INFORMATION ONLY.



TITLE:
ZONE 3 - GRADING & UTILITY PLAN
 A.P. 6B, LOT 2
 87 KINGSTOWN ROAD
 RICHMOND, RHODE ISLAND
 PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
 SCALE: AS SHOWN DATE: 5/3/24 SHEET 6 OF 19

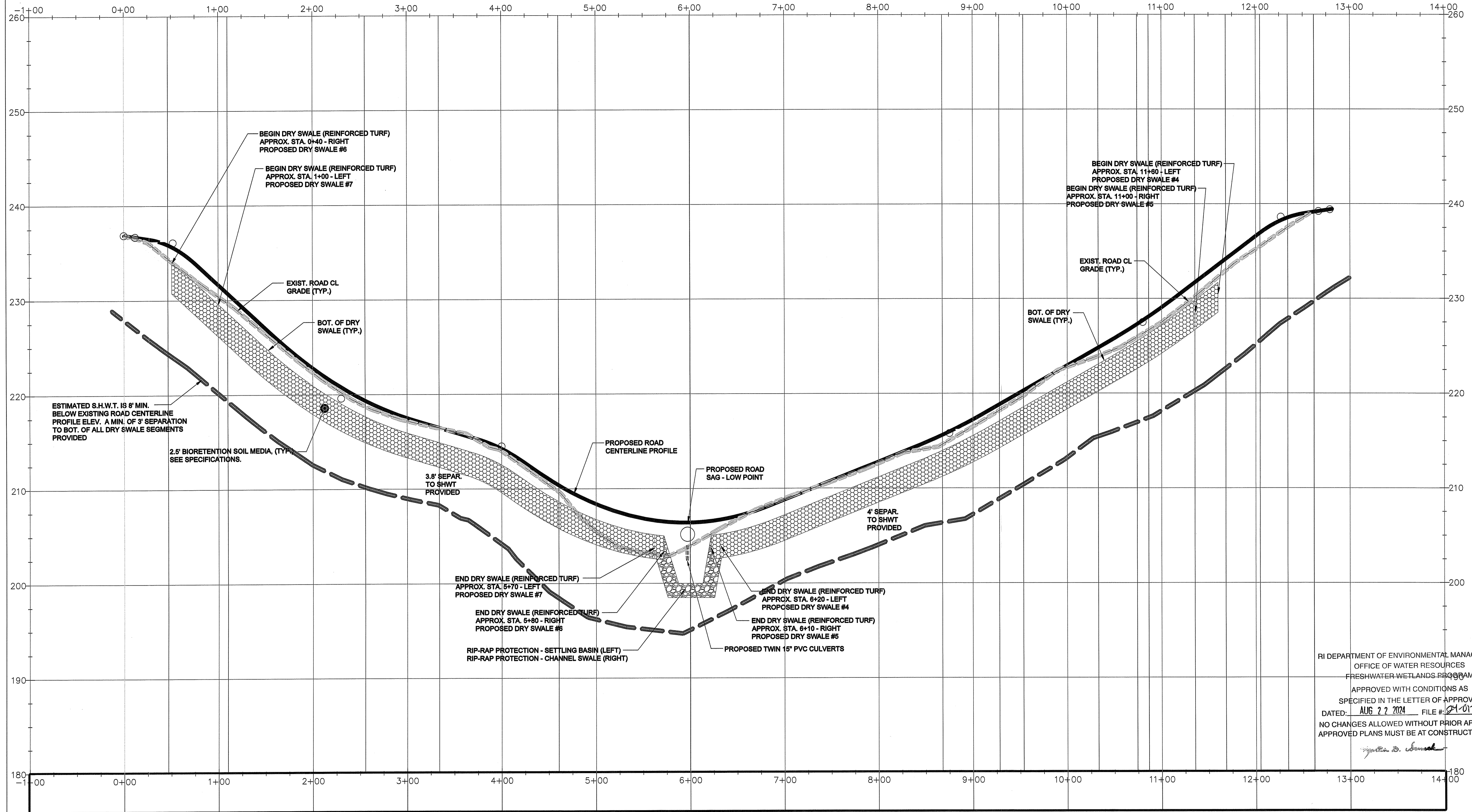
REVISIONS:

NO.	DATE	DESCRIPTION	BY
3.	07/17/24	RIDEM REVIEW COMMENTS DATED 6.11.2024 - PRIOR MOD. SUBM.	BDM
2.	05/03/24	MODIFICATION	BDM
1.	08/14/19	DEM COMMENTS	DKM



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 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
 WAKEFIELD, RI 02879
 PHONE: (401) 789-6865
 Environmental Management
 JUL 24 2024
 Office of Water Resources

PROPOSED AGAPE TRAIL ROAD PROFILE (DRY SWALE PROFILES)



- GENERAL NOTES:**
1. PROPOSED DRIVEWAY CULVERTS WILL BE 12" MIN. SIZE AND WILL ACT AS CHECK DAMS WITH THE PROPOSED DRY SWALES LOCATIONS.
 2. INSTALL NORTH AMERICAN GREEN SC-250 TURF REINFORCEMENT MATS ALONG SWALE BOTTOM AND SIDE SLOPES.
 3. REFER TO DRY SWALE PROFILES PLAN - 1 & SESC SHEETS FOR ADDITIONAL INFORMATION.
 4. ESTIMATED SEASONAL GROUNDWATER TABLE (ESHWT) IS A MINIMUM OF 3-FEET BELOW THE BOTTOM OF THE BIORETENTION LAYER.
 5. REFER TO BORING LOG SECTION OF STORMWATER MANAGEMENT PLAN & DETAILS SHEETS FOR TESTHOLE LOG TABLES. DRY SWALE ESHWT INTERPOLATED BETWEEN UPPER SEV THs & LOWER DTHs AT SAND FILTER #4.

- DRY SWALE LENGTHS - ADJUSTED VOLUME STORAGE DRIVEWAY DEDUCTIONS**
1. THE FOLLOWING REPRESENT ADJUST DRY SWALE LENGTHS FOR HYDROCAD MODELING RUNS FOR POST DEVELOPMENT CONDITIONS.
- DRY SWALE #4 (STA. 6+20L TO STA. 11+80L), 540LF - 150LF DRIVEWAY CULVERT CROSSING = 390LF TOTAL ADJUSTED DRY SWALE LENGTH.
 - DRY SWALE #5 (STA. 6+10R TO STA. 11+00R), 490LF - 120LF DRIVEWAY CULVERT CROSSING = 370LF TOTAL ADJUSTED DRY SWALE LENGTH.
 - DRY SWALE #6 (STA. 0+40R TO STA. 5+80R), 540LF - 105LF DRIVEWAY CULVERT CROSSING = 435LF TOTAL ADJUSTED DRY SWALE LENGTH.
 - DRY SWALE #7 (STA. 1+00L TO STA. 5+70L), 470LF - 105LF DRIVEWAY CULVERT CROSSING = 365LF TOTAL ADJUSTED DRY SWALE LENGTH.

SCALES: HOR. 1" = 50'
VERT. 1" = 5'

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Signature

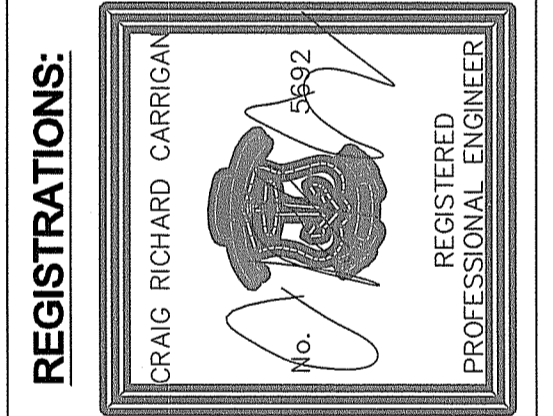
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DRY SWALE PROFILES -2
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN DATE: 7/13/24 SHEET 12 OF 19

REVISIONS:

NO.	DATE	DESCRIPTION	BY
4.	07/17/24	RIDEM REVIEW COMMENTS DATED 6.11.2024 - PRIOR MOD. SUBM.	BDM
3.	05/03/24	MODIFICATION	BDM
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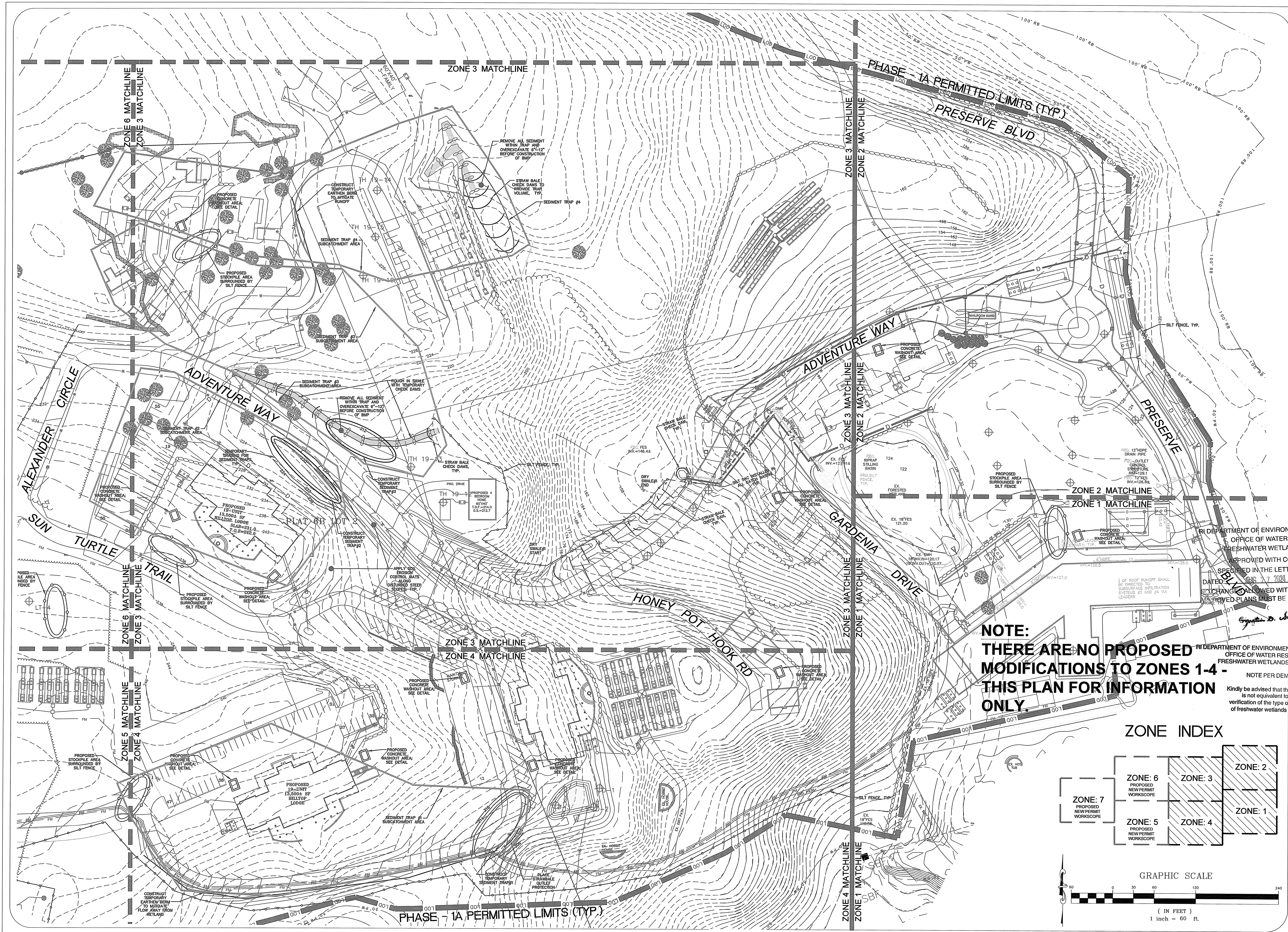
JOB NO.



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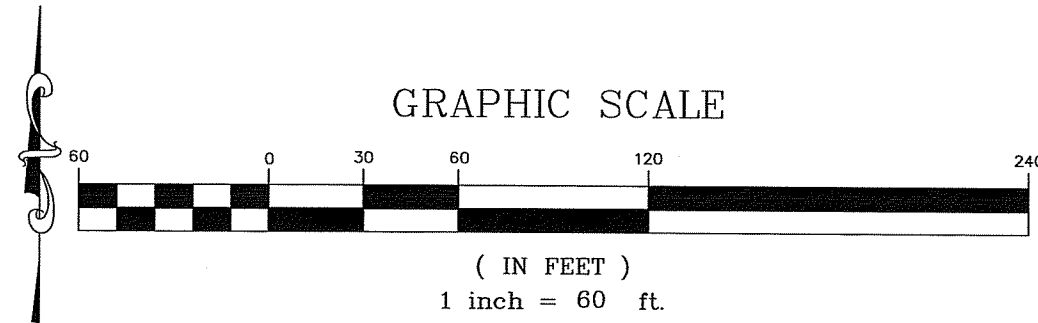
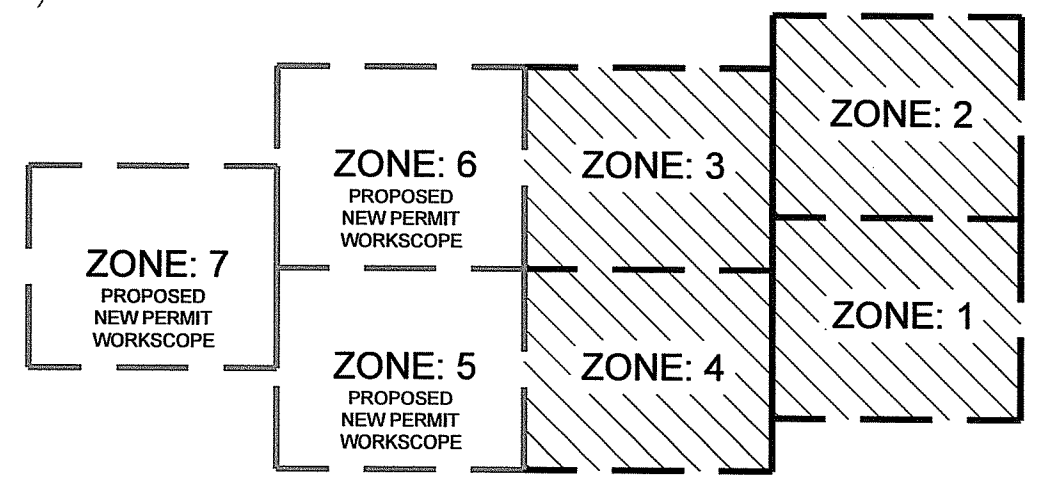
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Signature



NOTE:
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 MODIFICATIONS TO ZONES 1-4 -
 THIS PLAN FOR INFORMATION
 ONLY.

ZONE INDEX



SESC PLAN - 1
 A.P. 6B, LOT 2
 87 KINGSTOWN ROAD
 RICHMOND, RHODE ISLAND
 PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
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3.	05/03/24	MODIFICATION	BDM
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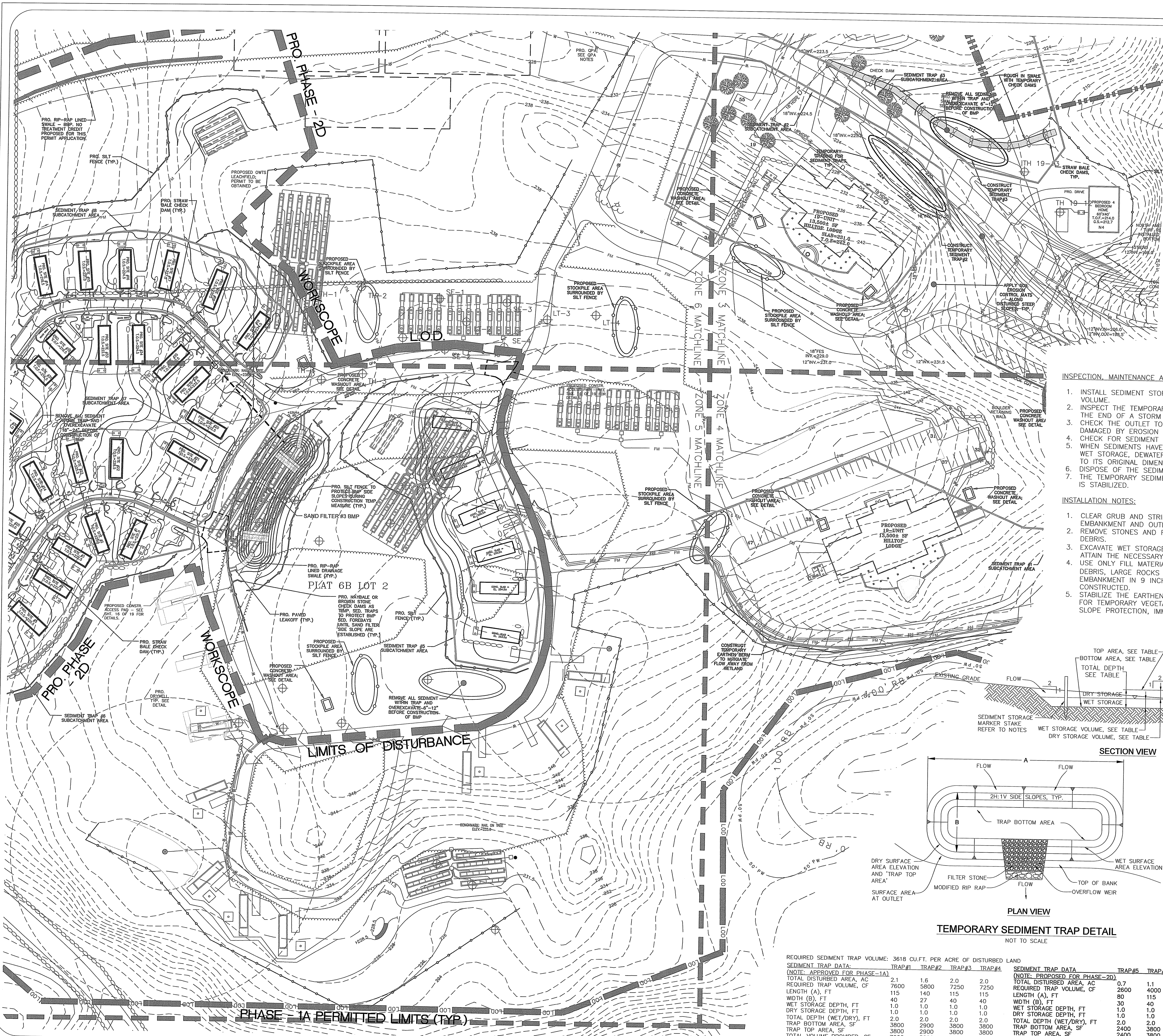
Signature D. Sanchez

REGISTERED PROFESSIONAL ENGINEER

CARRIGAN ENGINEERING, INC
 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
 WAKEFIELD, RI 02879
 PHONE: (401) 789-6865

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 NOTE PER DEM:
 Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

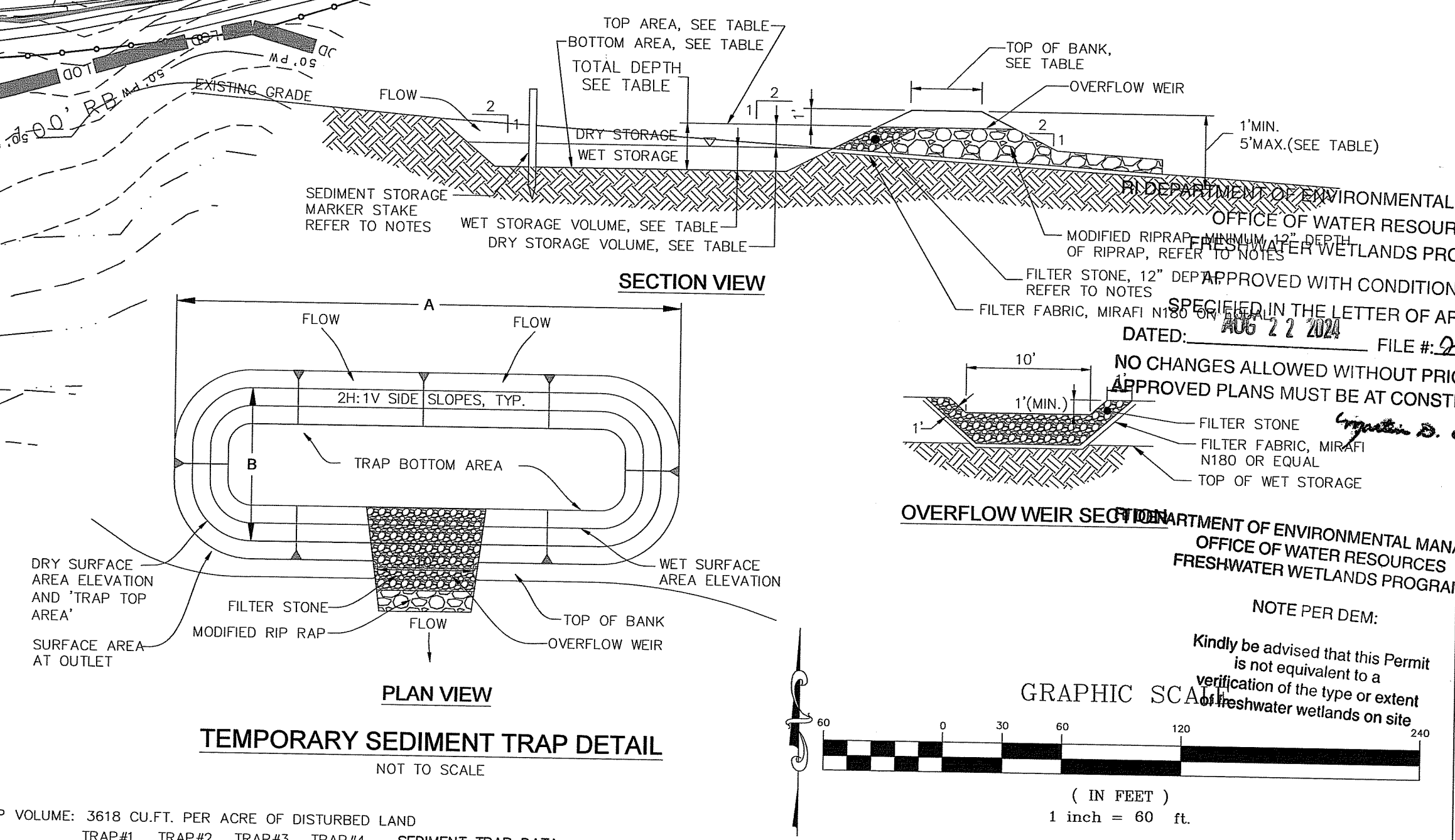
Office of Water Resources
 JUL 24 2024



- GENERAL NOTES:**
1. THE TEMPORARY SEDIMENT TRAP SHALL MEET ALL REQUIREMENTS FOR TEMPORARY SEDIMENT TRAPS OUTLINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST REVISION) SECTION SIX: SEDIMENT CONTROL MEASURES.
 2. THE TEMPORARY SEDIMENT TRAP SHALL HAVE AN INITIAL STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
 3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
 4. THE OUTLET SHALL BE LOCATED AT THE MOST DISTANT HYDRAULIC POINT FROM THE INLET.
 5. THE OUTLET CONSISTS OF A FERVIOUS STOKE DIKE WITH A CORE OF MODIFIED RIP RAP AND FACED ON THE UPSTREAM SIDE WITH STONE.
 6. TEMPORARY SEDIMENT TRAPS MUST OUTLET ONTO STABILIZED GROUND.
 7. MAXIMUM HEIGHT OF A TEMPORARY SEDIMENT TRAP EMBANKMENT IS LIMITED TO FIVE FEET.
 8. SIDE SLOPES OF THE EMBANKMENT SHALL BE 2:1 OR FLATTER.
 9. MODIFIED RIP RAP SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.10.03.2 AND BE R-4 GRADE RIPRAP.
 10. FILTER STONE SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.01.03 TABLE 1 COLUMN V FILTER STONE.

- INSPECTION, MAINTENANCE AND REMOVAL REQUIREMENTS:**
1. INSTALL SEDIMENT STORAGE STAKE WITH A MARKER AT ONE HALF OF THE WET STORAGE VOLUME.
 2. INSPECT THE TEMPORARY SEDIMENT TRAP AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCHES OR GREATER.
 3. CHECK THE OUTLET TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OF CONSTRUCTION EQUIPMENT.
 4. CHECK FOR SEDIMENTS ACCUMULATED AND FILTRATION PERFORMANCE.
 5. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF THE MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEMATER THE TRAP AS NEEDED, REMOVE SEDIMENTS AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
 6. DISPOSE OF THE SEDIMENT REMOVED FROM THE BASIN IN A SUITABLE AREA.
 7. THE TEMPORARY SEDIMENT TRAP MAY BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILIZED.

- INSTALLATION NOTES:**
1. CLEAR GRUB AND STRIP ANY VEGETATION AND ROOT MAT FROM ANY PROPOSED EMBANKMENT AND OUTLET AREA.
 2. REMOVE STONES AND ROCKS WHOSE DIAMETER IS GREATER THAN 3 INCHES AND OTHER DEBRIS.
 3. EXCAVATE WET STORAGE AND CONSTRUCT THE EMBANKMENT AND/OR OUTLET AS NEEDED TO ATTAIN THE NECESSARY STORAGE REQUIREMENTS.
 4. USE ONLY FILL MATERIAL FOR THE EMBANKMENT THAT IS FREE FROM EXCESSIVE ORGANICS, DEBRIS, LARGE ROCKS (OVER SIX INCHES) OR OTHER UNSUITABLE MATERIALS. COMPACT THE EMBANKMENT IN 9 INCH LAYERS BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
 5. STABILIZE THE EARTHEN EMBANKMENT USING ANY OF THE FOLLOWING MEASURES, SEEDING FOR TEMPORARY VEGETATION COVER, SEEDING FOR PERMANENT VEGETATIVE COVER, OR SLOPE PROTECTION, IMMEDIATELY AFTER INSTALLATION.



REQUIRED SEDIMENT TRAP VOLUME: 3618 CU.FT. PER ACRE OF DISTURBED LAND

SEDIMENT TRAP DATA (NOTE: APPROVED FOR PHASE-1A)	TRAP#1	TRAP#2	TRAP#3	TRAP#4	SEDIMENT TRAP DATA (NOTE: PROPOSED FOR PHASE-2D)	TRAP#5	TRAP#6	TRAP#7	TRAP#8
TOTAL DISTURBED AREA, AC	2.1	1.6	2.0	2.0	0.7	1.1	2.3	1.3	
REQUIRED TRAP VOLUME, CF	7600	5800	7250	7250	2600	4000	8400	4800	
LENGTH (A), FT	115	140	115	115	80	115	140	115	
WIDTH (B), FT	40	27	40	40	30	40	40	40	
WET STORAGE DEPTH, FT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
DRY STORAGE DEPTH, FT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
TOTAL DEPTH (WET/DRY), FT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
TRAP BOTTOM AREA, SF	3800	2900	3800	3800	2400	3800	5600	3800	
TRAP TOP AREA, SF	3800	2900	3800	3800	2400	3800	5600	3800	
TOTAL VOLUME PROVIDED, CF	7600	5800	7600	7600	4800	7600	11200	7600	

NOTE PER DEM:
Kindly be advised that this Permit is not equivalent to a verification of the type or extent of Freshwater wetlands on site.

GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

REGISTRATIONS:

CRAIG RICHARD CARRIGAN
REGISTERED PROFESSIONAL ENGINEER

REVISIONS:

NO.	DATE	DESCRIPTION	BY
4.	07/17/24	RICEM REVIEW COMMENTS DATED 6.11.2024 - PRIOR MOD. SUBM.	BDM
3.	05/03/24	MODIFICATION	BDM
2.	09/08/19	DEM COMMENTS	DKM
1.	08/14/19	DEM COMMENTS	DKM

TITLE:

SESC PLAN - 2
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND

PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.

SCALE: AS SHOWN DATE: 5/3/24 SHEET 14 of 19

JOB NO.

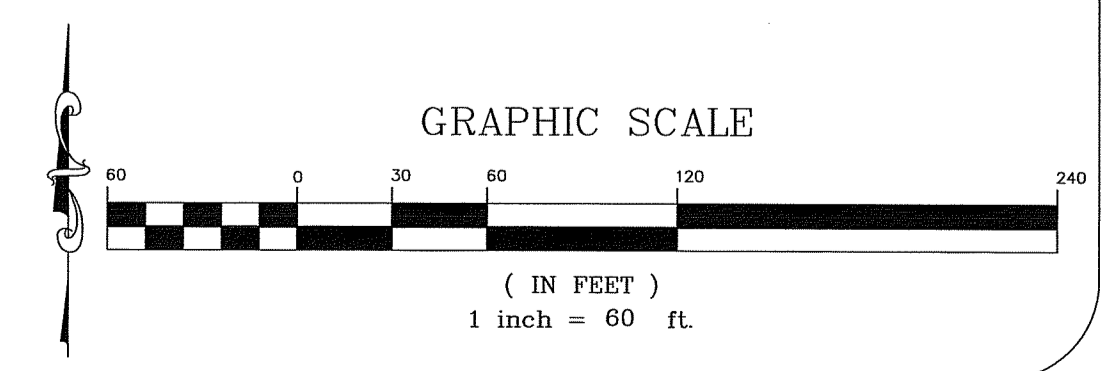
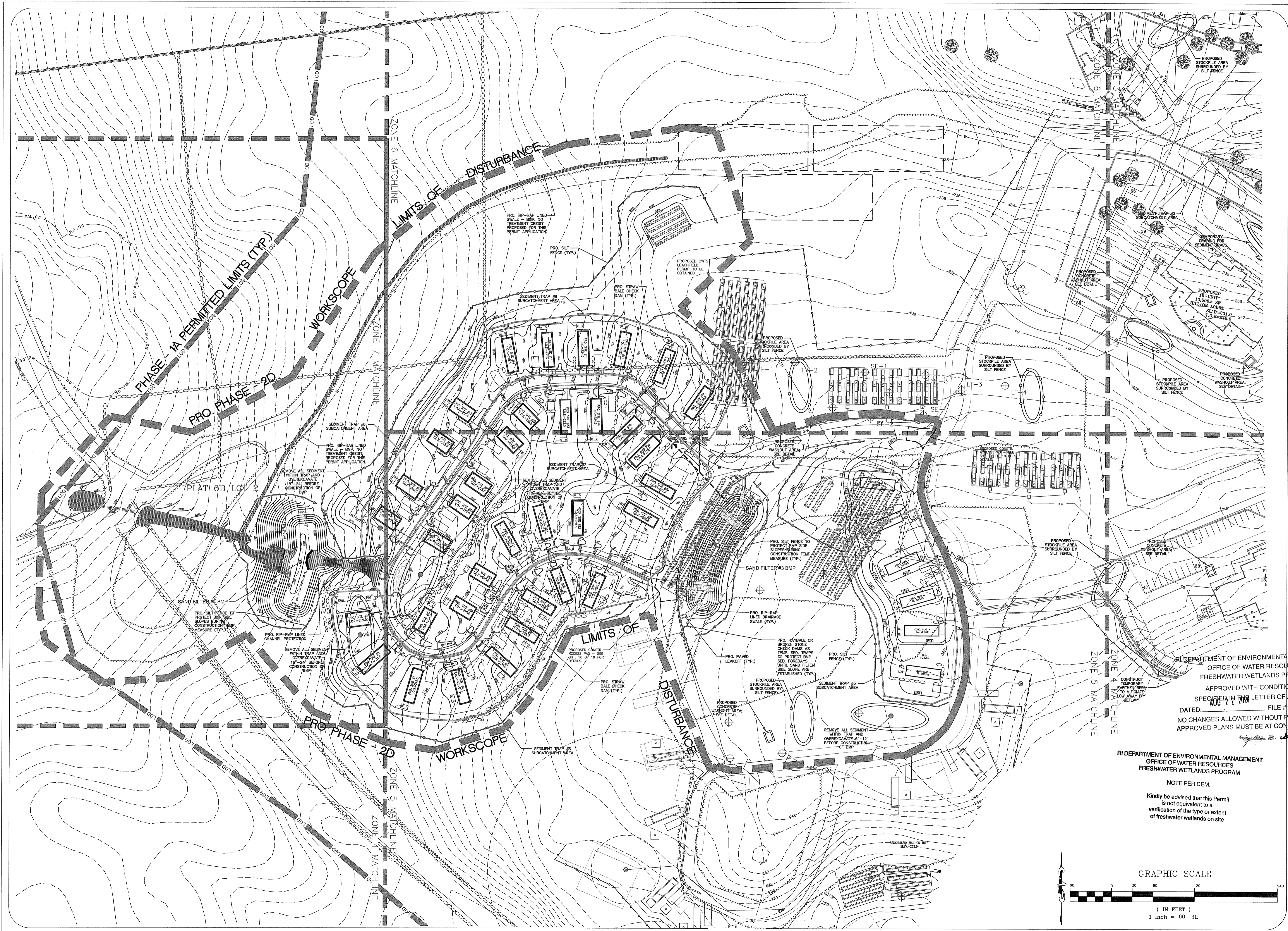
CARRIGAN ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL ENGINEERING
86 BROOK FARM ROAD SOUTH
WAKEFIELD, RI 02879
PHONE: (401) 789-6865

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED: AUG 22 2024 FILE # 241077

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

OFFICE OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM

JUL 8 2024
Office of Water Resources



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

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

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED: 06/27/24 FILE # 24-0173

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

TITLE:
SESC PLAN - 3
 A.P. 6B, LOT 2
 87 KINGSTOWN ROAD
 RICHMOND, RHODE ISLAND

PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
 SCALE: AS SHOWN DATE: 5/3/24 SHEET 15 of 19

REVISIONS:

NO.	DATE	DESCRIPTION	BY
4.	07/17/24	RIDEM REVIEW COMMENTS DATED 6/11/24 - PRIOR MOD. SUBM.	BDM
3.	05/03/24	MODIFICATION	BDM
2.	09/08/19	DEM COMMENTS	DKM
1.	08/14/19	DEM COMMENTS	DKM

REGISTRATIONS:

CRAGD RICHARD CARRIGAN
 No. [Signature]
 REGISTERED PROFESSIONAL ENGINEER

CARRIGAN ENGINEERING, INC.
 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
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 PHONE: (401) 789-6865

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

JUL 9 4 2024
 Office of Water Resources

GENERAL EROSION CONTROL NOTES:

- THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED AUG. 2013, AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO. THE 2013 STANDARD SPECIFICATIONS MAY BE OBTAINED AT THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION WEB PAGE. THESE SPECIFICATIONS ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO.
- LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL CHECK AND VERIFY LOCATIONS OF ALL EXISTING UTILITIES BOTH UNDERGROUND AND OVERHEAD. ANY DAMAGE TO EXISTING UTILITIES AS SHOWN ON THE PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. COSTS OF SUCH DAMAGE SHALL BE BORNE BY THE CONTRACTOR. NO EXCAVATION SHALL BE DONE UNTIL ALL INVOLVED UTILITY COMPANIES ARE NOTIFIED 48-HOURS IN ADVANCE. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY DIG-SAFE (1-800-344-7233) A MINIMUM OF 48 WORKING HOURS, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO THE START OF ANY EXCAVATION AND/OR BLASTING WORK. THE NAME OF THE COMPANY PERFORMING THE EXCAVATION AND/OR BLASTING WORK MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE CALLER.
- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY, BUT NOT LIMITED TO, THE STATE OF RHODE ISLAND, THE FEDERAL GOVERNMENT, LOCAL (TOWN/CITY) GOVERNMENT AND ALL INDIVIDUAL UTILITY COMPANIES PRIOR TO COMMENCING ANY WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROLS. ALL MATERIAL FOR FILL SHALL BE CLEAN AND FREE OF MATTER WHICH COULD POLLUTE ANY DOWN STREAM WATERCOURSE.
- FILL MATERIAL SHALL BE COMPACTED IN ONE FOOT (MAXIMUM) LIFTS TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-1557 (MODIFIED PROCTOR TEST).
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL AREAS NOT TO BE DEVELOPED THAT ARE COMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED BY TILLING THE TOP 12" OF SOIL.

EROSION CONTROL AND SOIL STABILIZATION PROGRAM:

- ALL STRAW BALES OR TEMPORARY PROTECTION SHALL REMAIN IN-PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
- THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LIMBS OF TREES, LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH RHODE ISLAND STANDARD SPECIFICATION M.20.01, AS AMENDED.
- THE SEED MIX SHALL BE INOCULATED WITHIN 24-HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
- THE DESIGN MIX UTILIZED IN ALL DISTURBED AREAS TO BE SEEDED SHALL BE COMPRISED OF THE FOLLOWING:

TYPE	% BY WEIGHT	SEEDING DATE
CREeping RED FESCUE	70	APRIL 1 - JUNE 15
ASTORIA BENTGRASS	5	AUGUST 15 - OCT.
BIRDFOOT TREFOIL	15	
PERENNIAL RYEGRASS	10	

- APPLICATION RATE 100 LBS/ACRE
LIMING AND FERTILIZING AS REQUIRED TO COMPLIMENT OR UPGRADE EXISTING CONDITIONS.
- ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR SHALL BE REPAIRED AND/OR RESEEDED.
- THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
- STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
- STOCKPILES OF TOPSOIL AND EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 2:1 AND STOCKPILE SHALL ALSO BE SEEDED AND/OR STABILIZED. THE STOCKPILES SHALL BE SURROUNDED BY STACKED STRAW BALES AND/OR SILT FENCE.
- ON SLOPES STEEPER THAN 30% MULCH APPLICATIONS SHALL BE TACKED DOWN BY "CRIMPING" OR "TRACKING".
- TREES TO BE RETAINED SHALL BE FENCED OR ROPED OFF TO PROTECT THEM FROM CONSTRUCTION EQUIPMENT.
- ALL PROPOSED PLANTINGS MUST BE ACCOMPLISHED AS EARLY AS POSSIBLE UPON COMPLETION OF GRADING AND CONSTRUCTION, AND AT LEAST PRIOR TO ANY ON-SITE OCCUPANCY.
- PLANTINGS SHALL BE MAINTAINED BY THE PROPERTY OWNER TO ENSURE SURVIVAL.
- SHOULD ANY OR ALL OF THE PROPOSED PLANTS FAIL TO SURVIVE AT LEAST ONE (1) FULL GROWING SEASON FROM THE TIME THEY HAVE BEEN PLANTED, THE OWNER SHALL BE FULLY RESPONSIBLE FOR REPLACING AND MAINTAINING THE SAME PLANT SPECIES FOR ONE (1) ADDITIONAL GROWING SEASON.
- ALL DISTURBED AREAS MUST BE SEEDED OR PLANTED WITHIN THE CONSTRUCTION SEASON.
- TEMPORARY SEEDING MUST BE DONE WITHIN ONE (1) MONTH AFTER DISTURBANCE.
- ALL DISTURBED AREAS MUST BE PERMANENTLY SEEDED OR PLANTED BEFORE OCTOBER 1ST, IF NOT THEY MUST BE TEMPORARILY SEEDED.
- SLOPES CONSTRUCTED AT, OR STEEPER THAN, 15% SHALL HAVE TEMPORARY EROSION CONTROL MATTING UTILIZED AS A SUPPORTIVE METHOD IN ADDITION TO THE METHODS DESCRIBED ABOVE UNLESS IN THE CASE WHERE PERMANENT TURF REINFORCEMENT MATS ARE INSTALLED IMMEDIATELY UPON CONSTRUCTION OF THE SLOPE. IN NO CASE SHALL STEEP SLOPES BE LEFT UNPROTECTED.
- ALL PROPOSED INLETS AND OUTLETS SHALL BE PROTECTED WITH TURF REINFORCEMENT AS PROPOSED ON THE PLANS AND/OR STRAW BALE INLET AND OUTLET PROTECTION DEVICES. SEE DETAILS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND PROCEDURES SET FORTH IN THE TOWN ZONING ORDINANCES; RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL, AMENDED MARCH 2015 AS PREPARED BY THE RIDEM AND CRMC, AND RHODE ISLAND EROSION AND SEDIMENT CONTROL HANDBOOK AS PREPARED BY RHODE ISLAND STATE CONSERVATION COMMITTEE, REVISED 2014, (AS REVISED).

NOTE:
THERE ARE NO PROPOSED MODIFICATIONS TO THIS SHEET - THIS PLAN FOR INFORMATION ONLY.

- EXTREME CARE SHALL BE EXERCISED AS TO PREVENT ANY MATERIALS FROM ENTERING THE ROADWAYS, ROADWAY DRAINAGE SYSTEMS, ADJACENT PROPERTY, WETLANDS, PERIMETER WETLANDS, AND RIVERBANK WETLANDS.
- STAKED STRAW BALES AND/OR SILT FENCE SHALL BE INSTALLED WHERE SHOWN ON THE PLAN AND AS REQUIRED TO PREVENT SEDIMENTATION INTO PERIMETER AND RIVERBANK WETLANDS.
- DENUDED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR MORE THAN 2 WEEKS OF TIME OR FOR THE INACTIVE WINTER SEASON.
- ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR STRAW MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK OR AS DIRECTED BY THE RESIDENT ENGINEER OR INSPECTOR. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 7 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
- PREPARE TEMPORARY SEEDING AREA, PROVIDE AND PLANT SEED IN ACCORDANCE WITH "RHODE ISLAND EROSION AND SEDIMENT CONTROL HANDBOOK" AS PREPARED BY THE RHODE ISLAND STATE CONSERVATION COMMITTEE, REVISED 2014, (AS REVISED).

SEED MIX:
ANNUAL RYE GRASS 1.5 LBS/1,000 SQ. FT.

- TEMPORARY TREATMENTS TO STABILIZE EXPOSED SOILS SHALL CONSIST OF STRAW OR FIBER MULCH OR PROTECTIVE COVERS, SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS). THEY SHALL BE INCORPORATED INTO THE WORK WHEN SOILS ARE EXPOSED FOR TWO WEEKS OR MORE OR AS ORDERED BY THE RESIDENT ENGINEER OR OWNER AT NO ADDITIONAL COST.
- STRAW APPLICATIONS SHALL BE IN THE AMOUNT OF 4,000 LBS/ACRE.
- ALL NEW STRAW BALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED AND POTENTIAL SEDIMENTATION SOURCES ARE REMOVED.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EROSION CONTROL MAINTENANCE AND SHALL INSPECT/REPLACE AS NEEDED.
- ADDITIONAL STRAW BALES/SILT FENCE OR OTHER TREATMENTS SHALL BE PROVIDED AS DIRECTED BY ENGINEER, RIDEM OR LOCAL REPRESENTATIVES AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL INSPECT THE SOIL EROSION CONTROL DEVICES AFTER EVERY RAIN STORM EVENT AND EVERY 7 DAYS (WHICH EVER COMES FIRST). ANY SOIL MIGRATION PAST THE DEVICES SHALL BE REMOVED AND THE SOIL EROSION CONTROL DEVICES SHALL BE RE-ESTABLISHED TO PREVENT SOIL EROSION. ALL ACCUMULATED SEDIMENT IN FRONT OF THE DEVICES SHALL BE REMOVED AFTER EVERY RAIN STORM EVENT.
- ALL DISTURBED SOIL AREAS SHALL BE PROTECTED AGAINST SOIL EROSION BY PLACEMENT OF STRAW BALES AND/OR SILT FENCE ON THE DOWN GRADIENT SIDE OF THE DISTURBED AREA(S). SHOULD THE VOLUME AND/OR RATE OF STORMWATER RUNOFF BE TOO GREAT FOR A SINGLE DEVICE, THEN MULTIPLE DEVICES ARE REQUIRED SUCH AS SILT FENCE BACKED-UP WITH STRAW BALES. THESE ADDITIONAL DEVICES ARE NOT SHOWN ON THE PLAN BUT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- AT THE END OF THE PROJECT CONSTRUCTION ALL SEDIMENT IN MANHOLE SLUMPS AND WITHIN ANY DRAINAGE STRUCTURE OR BMP SHALL BE REMOVED.

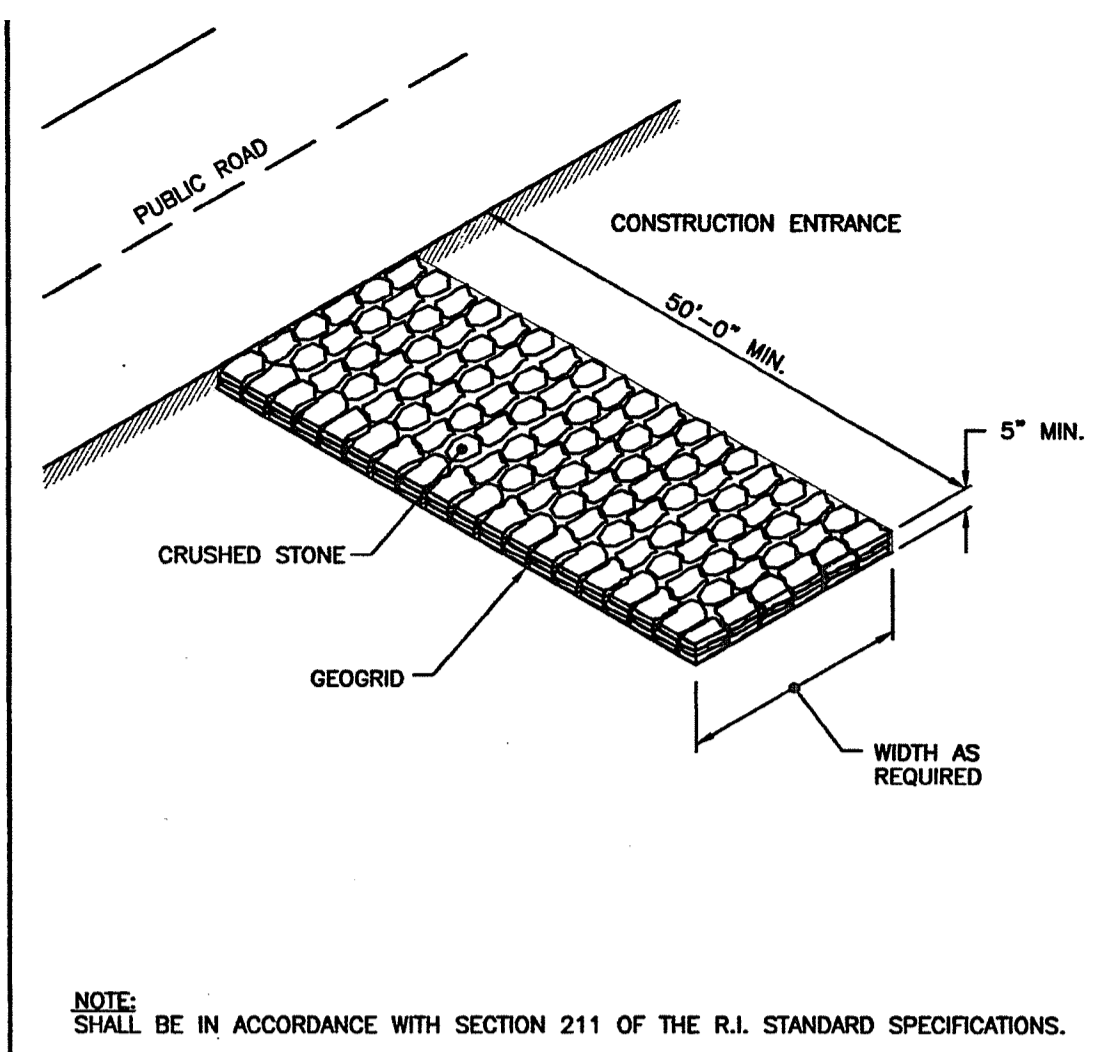
SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES:

- CONTRACTOR TO REFER TO RIDEM RIDES SOIL EROSION AND SEDIMENT CONTROL (SECC) REPORT AS WELL AS THESE DRAWINGS.
- INSTALL SEDIMENTATION PROTECTION DEVICES IN EXISTING CATCHBASINS AND INLET STRUCTURES.
- SURVEY AND STAKE LIMIT OF DISTURBANCE FOR PLACEMENT OF SEDIMENTATION CONTROL DEVICES.
- PLACE PERIMETER SEDIMENTATION CONTROL DEVICES. SEE DETAILS. IN NO CASE SHALL THE LIMIT OF WORK EXTEND BEYOND THE SEDIMENTATION CONTROL DEVICES.
- CONSTRUCT CONSTRUCTION ENTRANCE DEVICES LOCATED ALONG ROUTE 138. SEE DETAIL.
- CLEAR AND GRUB AREA WITHIN THE LIMIT OF DISTURBANCE.
- CONSTRUCT TEMPORARY SEDIMENT TRAPS.
- CLEAR AND ROUGH GRADE ROADS AND BUILDING SITES.
- INSTALL AND COMPACT GRAVEL BASE COURSE FOR ROADS.
- EXCAVATE AND POUR BUILDING FOUNDATION
- CONSTRUCT UTILITIES (SEWER, WATER, DRAINAGE, ETC.)
- 10.1. ENSURE THAT DRAIN MANHOLE GRATES ARE ABOVE GRADE TO ENSURE NO RUNOFF ENTERS INTO DRAINAGE SYSTEM.
- POUR BITUMINOUS CONCRETE BASE COURSE.
- FINISH REMAINDER OF CONSTRUCTION AND PAVE BITUMINOUS CONCRETE SURFACE COURSE.
- REMOVE TEMPORARY SOIL EROSION DEVICES.
- CLEAN OUT ALL DRAINAGE BASINS AND STRUCTURES AS NEEDED. REMOVE AND DISPOSE ALL ACCUMULATED SEDIMENT IN A SUITABLE AREA.

- REFERENCE IS MADE TO APPENDIX G "POLLUTION PREVENTION AND SOURCE CONTROLS" OF THE RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL, AMENDED 2015. THIS DOCUMENT SHALL BE REFERENCED AS FULLY AS THE POLLUTION PREVENTION TECHNIQUES. A BRIEF SUMMARY OF THE TECHNIQUES IS PROVIDED BELOW. REFER TO THE ABOVE REFERENCE FOR ALL TECHNIQUES TO BE IMPLEMENTED.
- HAZARDOUS MATERIALS CONTAINMENT:
A. OWNER TO PROVIDE TRASH CONTAINER. CONTAINER TO HAVE A COVER TO PREVENT TRASH FROM BLOWING OUT.
B. SWEEP STREET/PARKING AREA ANNUALLY.
- ROADS AND PARKING AREA MANAGEMENT:
A. SWEEP STREET/PARKING AREA ANNUALLY.
B. USE DEICING CHEMICALS AND SAND JUDICIOUSLY SINCE THEY CAUSE WATER QUALITY PROBLEMS. PROVIDE AND SPREAD IN ACCORDANCE WITH APPENDIX G RECOMMENDATIONS.
C. PLOW SNOW AND STORE ACCUMULATED SNOW PILES AWAY FROM SAND FILTER SYSTEM AND SEDIMENT FOREBAY.
* DEBRIS SHOULD BE CLEARED FROM THE SITE PRIOR USING THE SITE FOR SNOW DISPOSAL.
* DEBRIS SHOULD BE CLEARED FROM THE SITE AND PROPERLY DISPOSED OF AT THE END OF THE SNOW SEASON.
D. ONLY USE ASPHALT BASED SEALANTS WHEN SEALING THE PAVEMENTS. DO NOT USE COAL-TAR BASED SEALANTS SINCE THESE ARE MORE TOXIC.
- SEPTIC SYSTEM:
A. NO SEPTIC SYSTEMS PROPOSED.
- LAWN, GARDEN AND LANDSCAPE MANAGEMENT:
A. LAWN CONVERSION - REDUCE THE AMOUNT OF LAWN BY REPLANTING LAWN WITH GARDEN BEDS CONTAINING FLOWERS/SHRUBS. LAWNS REQUIRE MORE MAINTENANCE THAN FLOWER BEDS.
B. SOIL BUILDING - MAINTAIN A HEALTHY LAWN BY TESTING SOIL FOR PH, FERTILITY, COMPACTION, TEXTURE, AND EARTH WORM CONTENT.
C. GRASS SELECTION - SELECT DROUGHT TOLERANT GRASS SPECIES. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
D. MOWING AND THATCH MANAGEMENT - KEEP GRASS HEIGHT HIGH SUCH AS 2 TO 3 INCHES IN HEIGHT. THIS WILL REDUCE WEED GROWTH.
E. FERTILIZATION - MINIMIZE FERTILIZATION. FERTILIZE NO MORE THAN TWICE A YEAR. APPLY CAREFULLY SO FERTILIZER DOES NOT SPREAD ONTO IMPERVIOUS SURFACES. REFRAIN FROM THE USE OF PHOSPHATE BASED FERTILIZERS. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
F. WEED MANAGEMENT - NEVER USE CHEMICAL HERBICIDES TO ELIMINATE OR CONTROL WEEDS. OWNER SHALL REMOVE WEEDS BY PULLING OR DIGGING OUT. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
G. PEST MANAGEMENT - LIMIT PESTICIDE USE. CHOOSE PESTICIDES THAT POSE THE LEAST RISK TO HUMAN HEALTH AND THE ENVIRONMENT. REFER TO APPENDIX G FOR ADDITIONAL INFORMATION.
H. SENSIBLE IRRIGATION - WATER NO MORE THAN 1" PER WEEK. USE DROUGHT-RESISTANT GRASSES. CUT GRASS AT 2-3 INCHES.

SEDIMENTATION CONTROL PROGRAM:

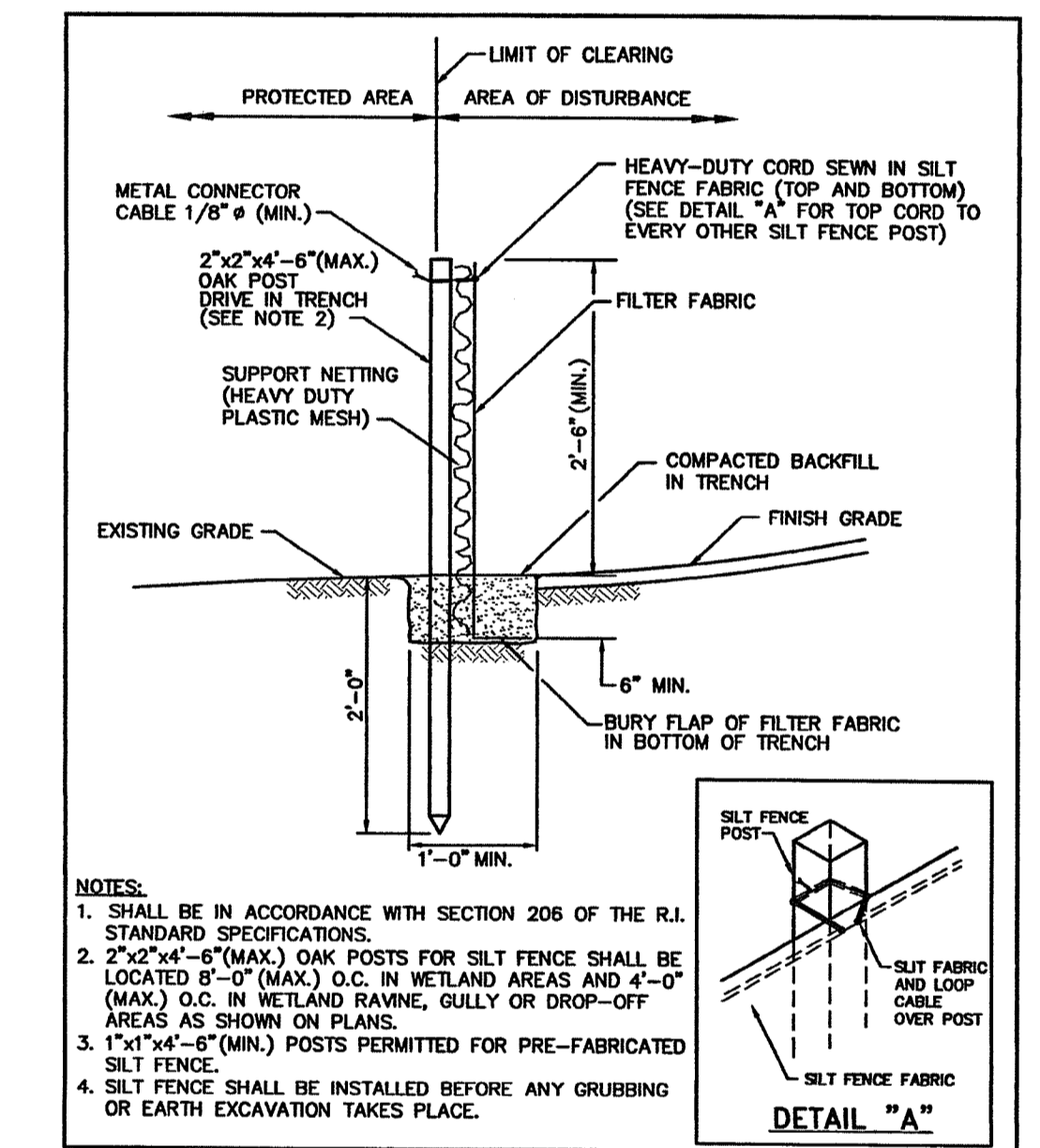
- EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEM.
- DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUN-OFF FLOW DURING STORMS.
- SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
- CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECTED TO STORMWATER FLOWAGE.
- ADDITIONAL STRAW BALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
- SEDIMENTATION TRAPS SHALL BE PROVIDED AT ALL DRAINAGE STRUCTURES DURING CONSTRUCTION (SILT SACS, STRAW BALES, TEMPORARY DITCHES, ETC).
- EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THE SITE PRIOR TO THE START OF CONSTRUCTION AND BE PROPERLY MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED INCLUDING:
7.1. THE INSTALLATION OF AN EROSION CONTROL FENCE IN ALL LOCATIONS SHOWN ON THE APPROVED SITE PLANS AND WHERE OTHERWISE NECESSARY TO PREVENT SEDIMENTS FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEMS.
7.2. ALL DISTURBED AREAS ARE TO BE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER PRIOR TO THE COMPLETION OF THE PROJECT. AREAS EXPOSED FOR EXTENDED PERIODS ARE TO BE COMPLETELY COVERED WITH SPREAD STRAW MULCH. CATCH BASINS WILL BE PROTECTED WITH SILT SACS & STRAW BALE FILTERS THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. SLUMPS ARE TO BE CLEARED IMMEDIATELY FOLLOWING INSTALLATION OF PERMANENT PAVEMENT.
7.4. OUTFALLS ARE TO BE PROTECTED BY STRAW BALE FILTERS UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER.
7.5. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
7.6. THE LIMITS OF ALL CLEARING, GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE SHALL REMAIN TOTALLY UNDISTURBED.
7.9. UPON COMPLETION OF CONSTRUCTION OF SITE IMPROVEMENTS AND THE STORMWATER DRAINAGE SYSTEM, ALL CATCH BASINS AND STORM DRAIN PIPING SHALL BE CLEANED OF SEDIMENT. SEDIMENT FOREBAY AND SAND FILTER SHALL BE CLEANED OF SEDIMENT TO THE DESIGN GRADES INDICATED.
7.10. AT NO TIME DURING CONSTRUCTION SHALL THE SUBGRADE OF THE SITE BE SUCH THAT SURFACE RUNOFF WILL BE PERMITTED TO DIRECTLY ENTER ANY DRAINAGE STRUCTURE. A TEMPORARY DEPRESSED AREA AROUND THE STRUCTURE SHALL BE INCORPORATED AS A SEDIMENTATION TRAP. THE MOUTH OF THE TRAP SHALL BE LINED WITH STRAW BALES AROUND THE COMPLETE PERIMETER. DURING ALL PRELIMINARY STAGES, THE TOP OF THE STRUCTURE SHALL ALWAYS BE HIGHER THAN THE SUBGRADE.
7.11. STRAW BALE EROSION CHECKS SHALL BE MAINTAINED AROUND ALL CATCH BASINS UNTIL ALL UPGRADING DISTURBED AREAS ARE STABILIZED BY PAVEMENT OR VEGETATION.
7.12. ALL COMPONENTS OF THE DRAINAGE SYSTEM MUST BE CLEANED OF SEDIMENT BY THE APPLICANT OR HIS REPRESENTATIVE IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.
7.13. INSPECT TEMPORARY DIVERSIONS AND THEIR COMPONENTS ONCE A WEEK AND AFTER EVERY RAINFALL. DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY SHOULD BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
7.14. CHECK DAMS SHALL BE INSTALLED EVERY 300 FEET FOR SLOPES OF 1% OR LESS, EVERY 200 FEET FOR SLOPES OF 2%, EVERY 150 FEET FOR SLOPES OF 3% TO 5%, AND EVERY 100 FEET FOR SLOPES OF 5% OR GREATER.
7.14.1. CHECK DAMS SHALL BE INSTALLED EVERY 20 FEET ALONG THE PROPOSED SWALE.
7.12. SEDIMENTS SHOULD BE REMOVED FROM THE CHECK DAM WHEN IT REACHES ONE-HALF THE DAM HEIGHT.



RHODE ISLAND DEPARTMENT OF TRANSPORTATION		
CONSTRUCTION ACCESS		
NO.	BY	DATE

APPROVED: *James G. Carrigan* JUN 15, 1998
REGISTERED PROFESSIONAL ENGINEER

R.I. STANDARD 9.9.0



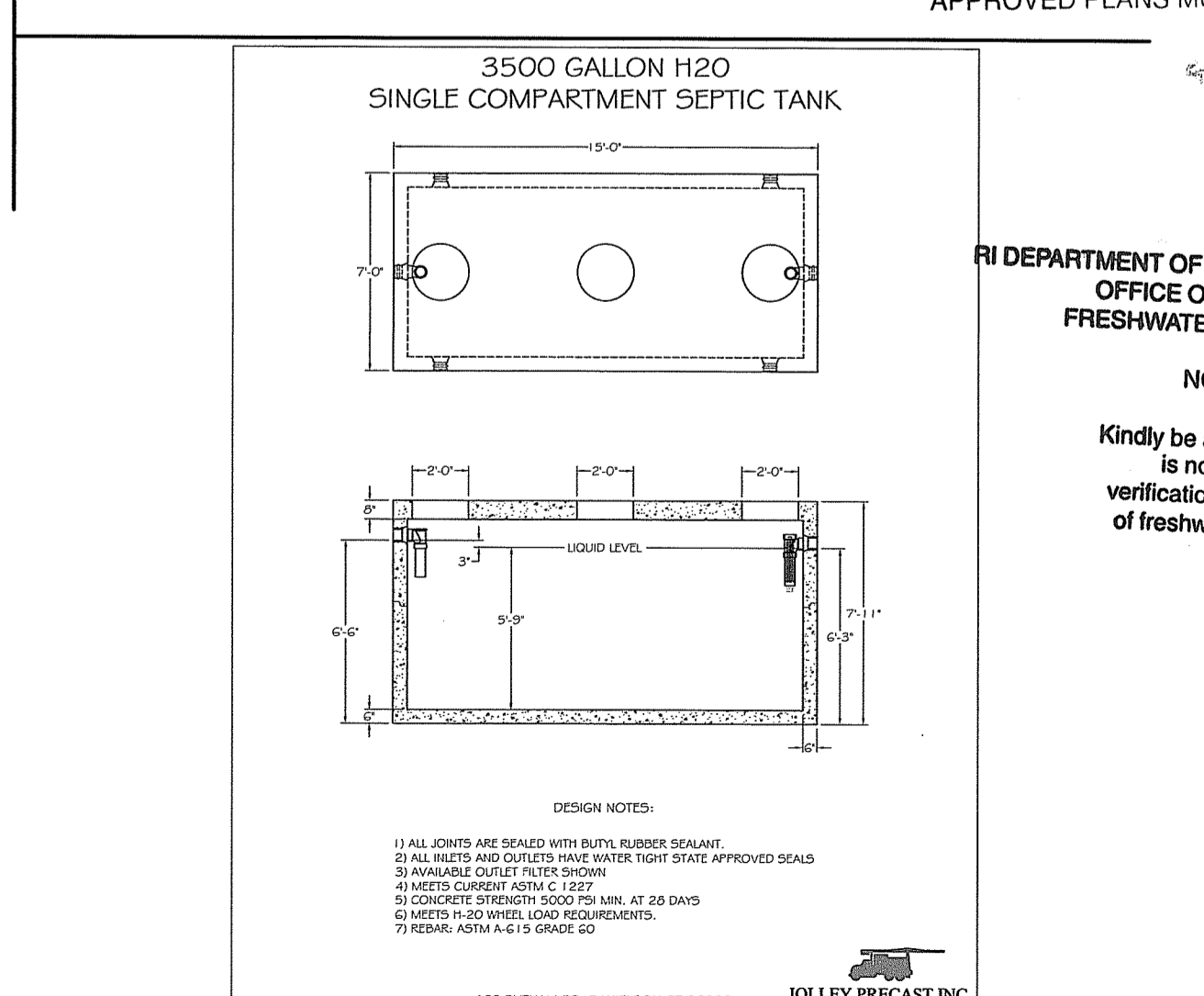
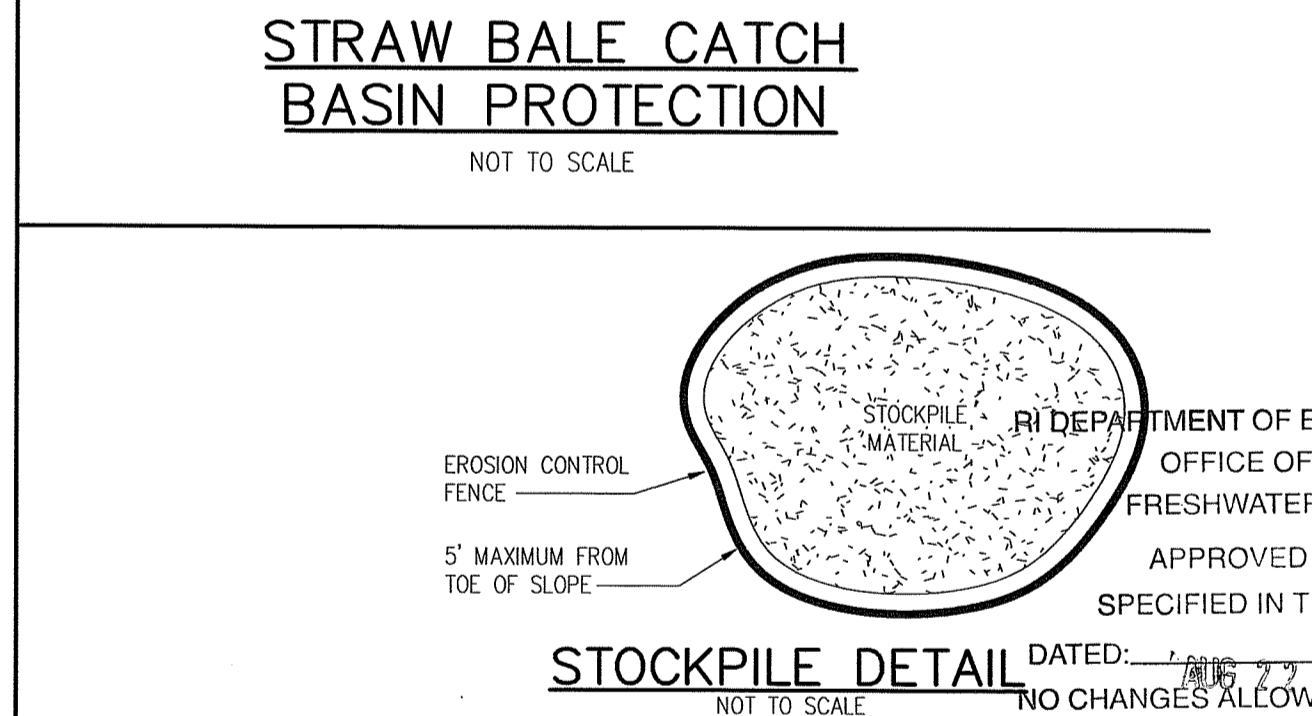
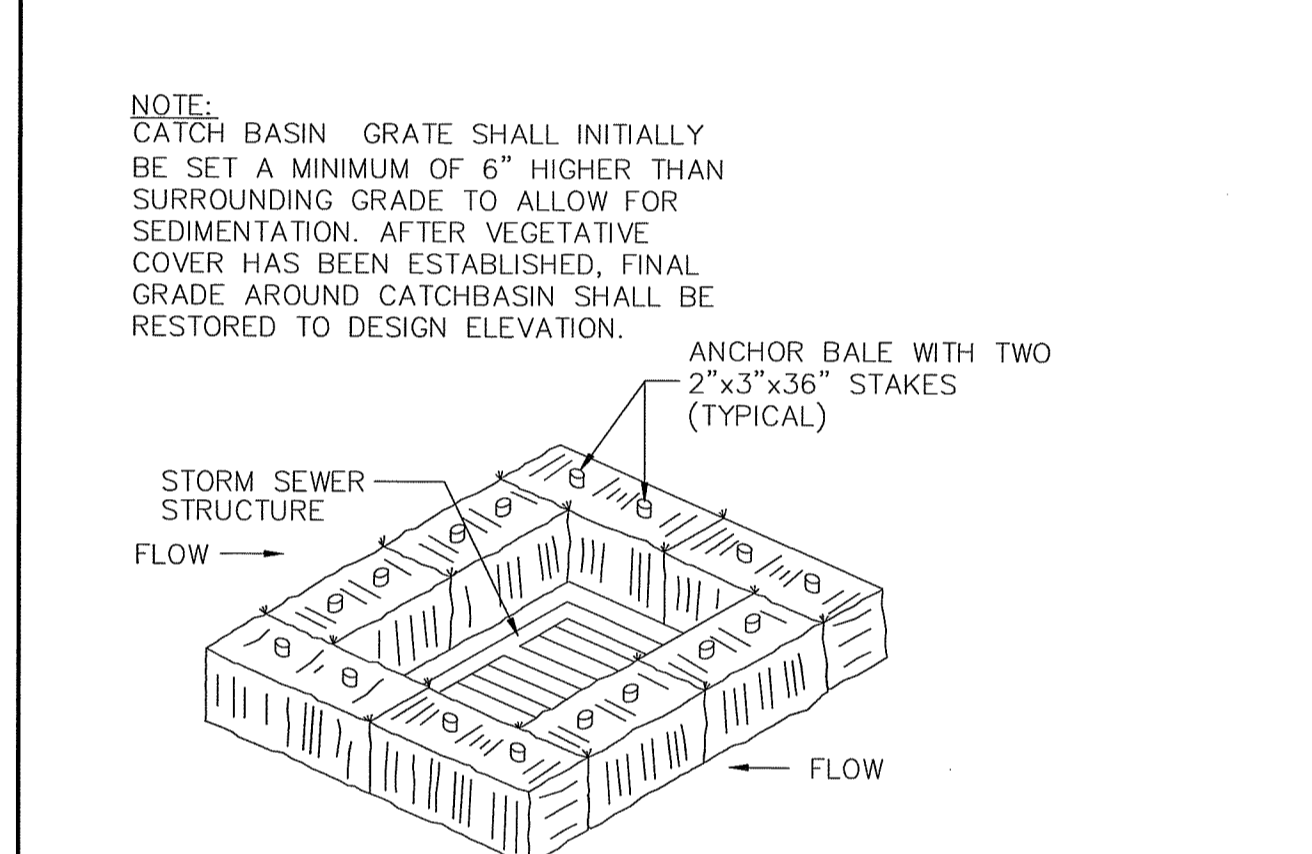
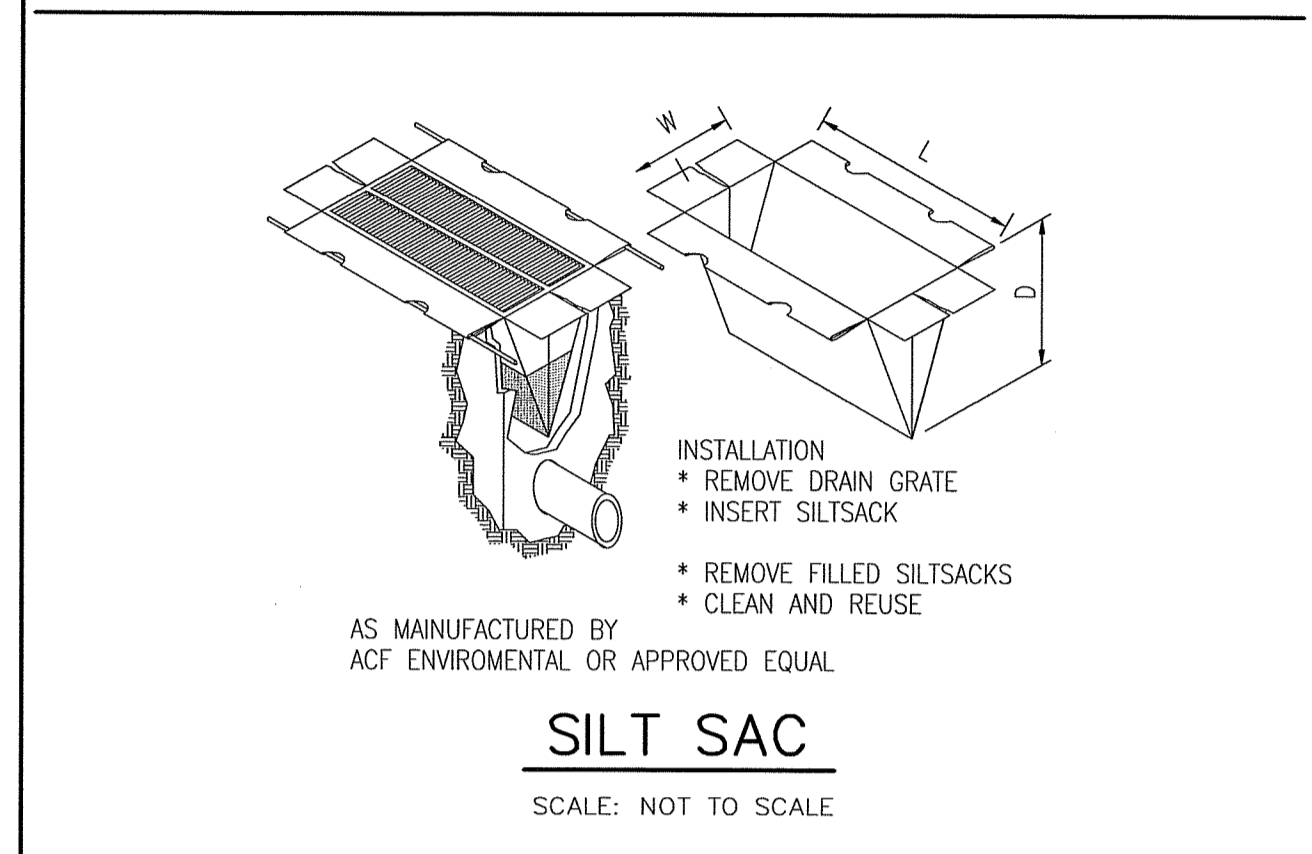
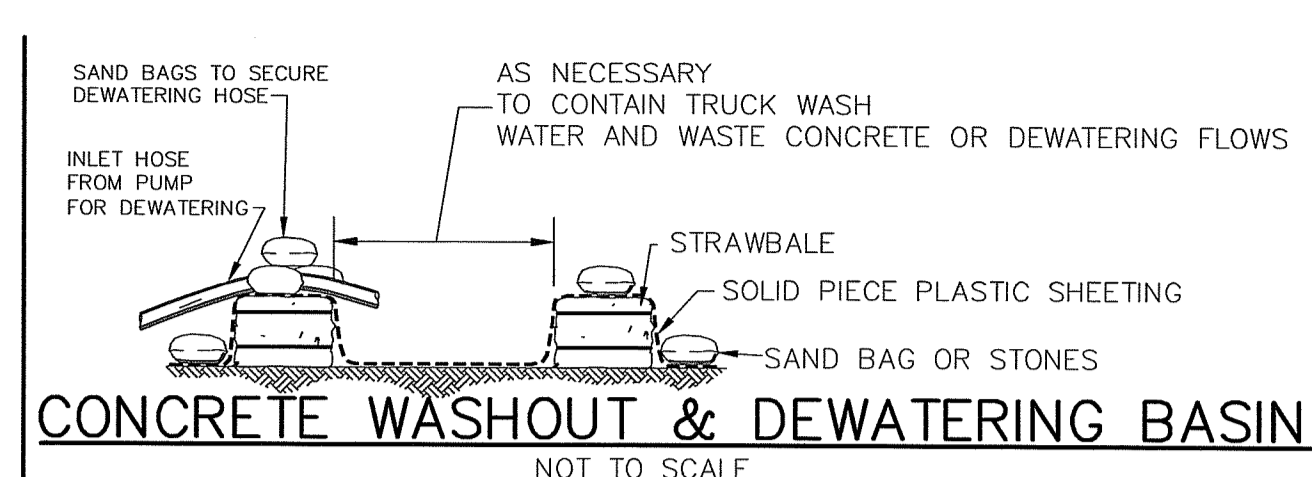
RHODE ISLAND DEPARTMENT OF TRANSPORTATION		
SILT FENCE DETAIL		
NO.	BY	DATE

APPROVED: *James G. Carrigan* JUN 15, 1998
REGISTERED PROFESSIONAL ENGINEER

R.I. STANDARD 9.2.0

TEST HOLE DATA FOR: RIDEM FWW APPROVAL #19-0167

TH#	DATE	SOIL DATA	SHWT DEPTH	TOTAL DEPTH
D-1	2/15/2016	A 0 - 6" SL		
		B 6" - 20" SL		
		C 20" - 144" S/GCOS	10'	12'
D-2	2/15/2016	A 0 - 8" SL		
		B 8" - 24" SL		
		C 24" - 144" S/GCOS	10'	12'
D-3	2/15/2016	A 0 - 7" FSL		
		B 7" - 26" FSL		
		C 26" - 120" VGS/CBGS	10'	10'
D-4	2/15/2016	A 0 - 7" FSL		
		B 7" - 30" FSL		
		C 30" - 120" CB,VGCOS/S	10'	10'
D-7	2/15/2016	A 0 - 5" FSL		
		B 5" - 13" SL		
		C 13" - 144" VGS	10'	12'
D-8	2/15/2016	A 0 - 8" FSL		
		B 8" - 15" GSL		
		C 15" - 144" G/S	10'	12'
D-13	2/16/2016	C 0" - 144" VGCOS/COS	10'	12'
		A 0 - 6" FSL		
		B 6" - 20" GFSL		
D-14	2/16/2016	C 20" - 144" VGCOS/COS	10'	12'
		A 0 - 2" FSL		
		B 2" - 24" FSL		
D-16	2/16/2016	A 0 - 2" FSL	2'	8'
		C 24" - 96" VFSL		



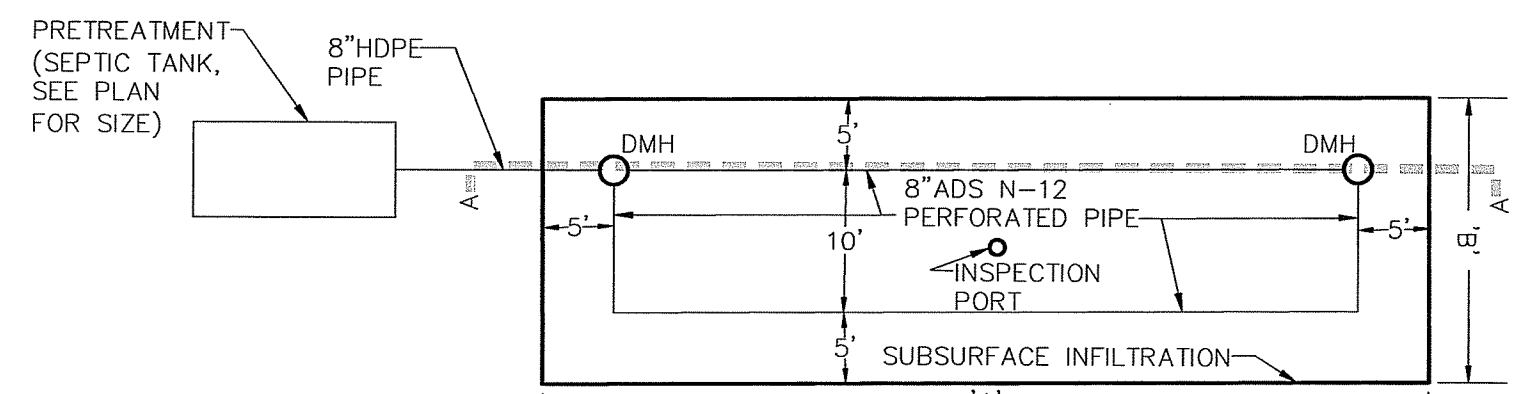
DETAIL SHEET - 1
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN DATE: 5/3/24 SHEET 16 OF 19

NO.	DATE	DESCRIPTION	BY

REGISTRATIONS:
CARRIGAN ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL ENGINEERING
86 BROOK FARM ROAD SOUTH
WAKEFIELD, RI 02879
PHONE: (401) 789-6865

REGISTRATIONS:
CARRIGAN ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL ENGINEERING
86 BROOK FARM ROAD SOUTH
WAKEFIELD, RI 02879
PHONE: (401) 789-6865

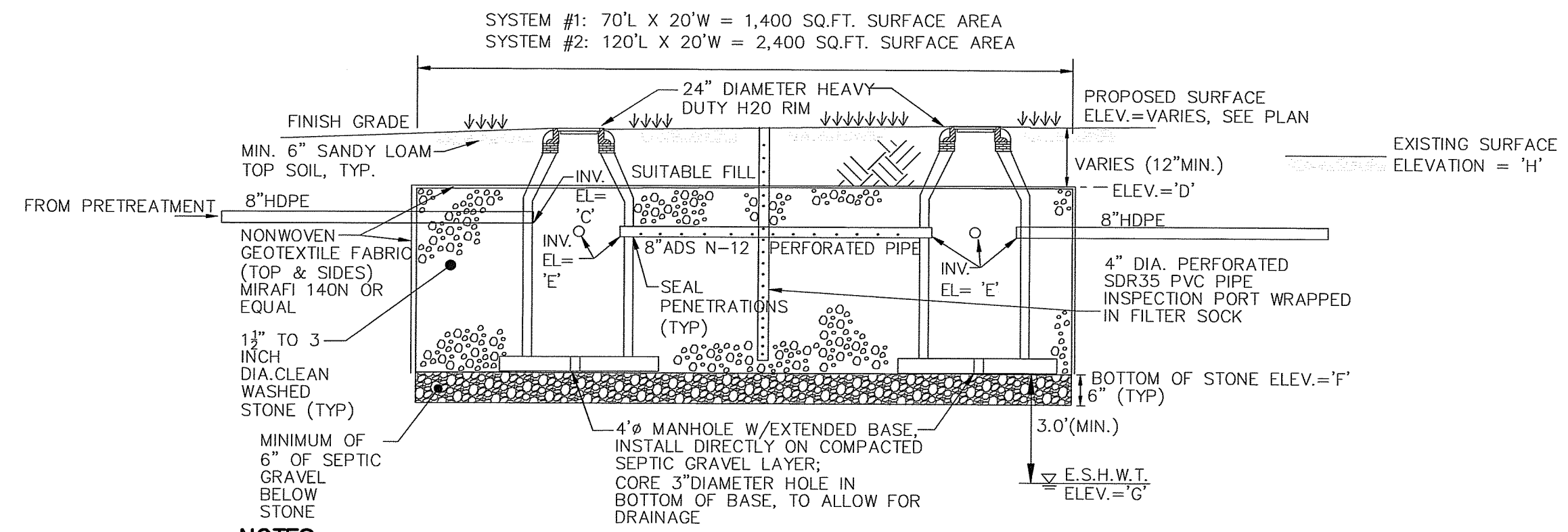
FILE: 3500-1C-H2O
463 FURNACE RD. DANVILLE CT 06239
www.carriganeng.com
HOLLEY PRECAST INC.
1-800-582-4638



DIMENSION/ELEVATION SCHEDULE:

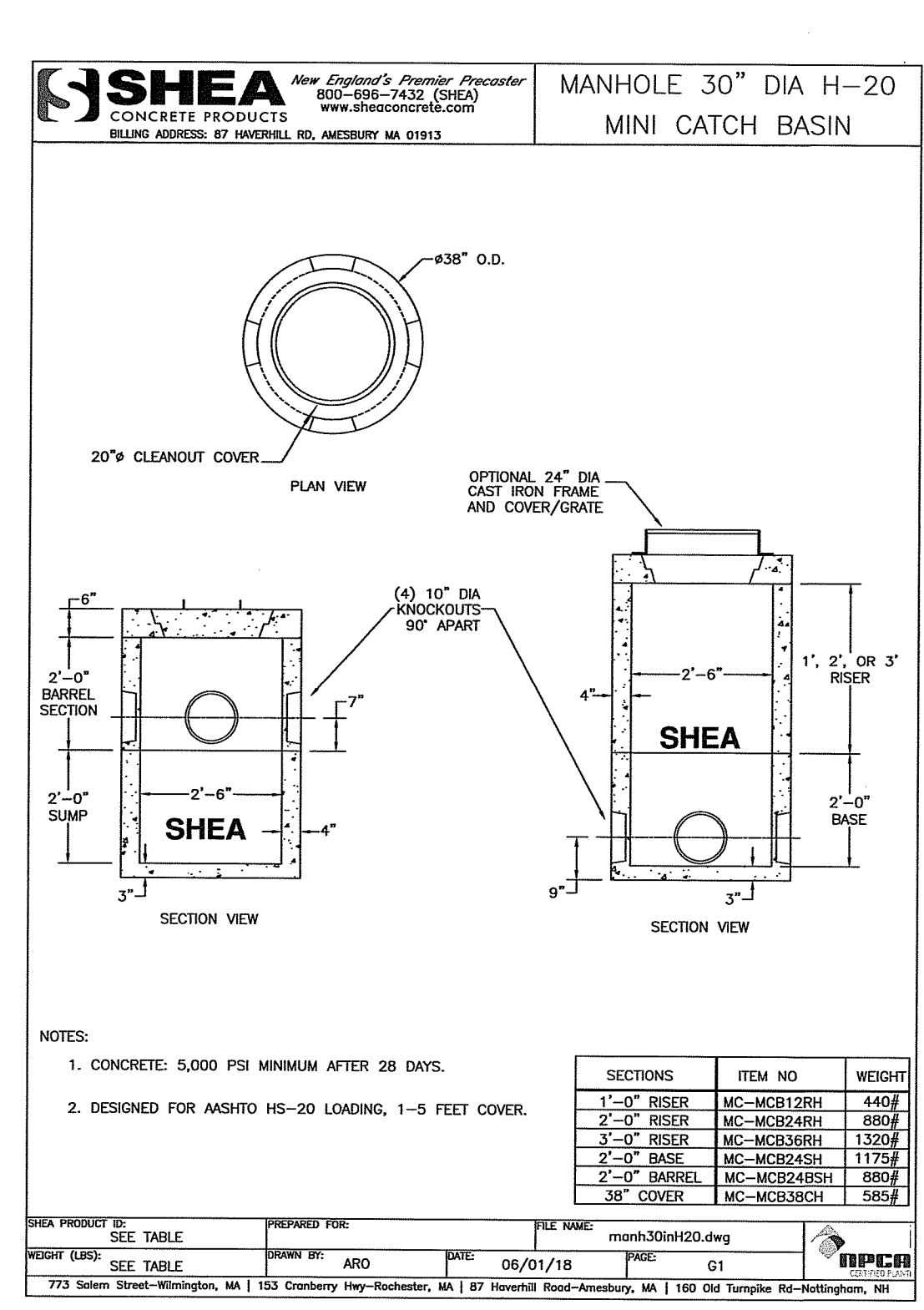
SYSTEM #1			SYSTEM #2			SYSTEM #3		
A' = 70'	A' = 120'	A' = 60'	A' = 70'	A' = 120'	A' = 60'	A' = 70'	A' = 120'	A' = 60'
B' = 20'	B' = 20'	B' = 40'	B' = 20'	B' = 20'	B' = 40'	B' = 20'	B' = 20'	B' = 40'
C' = 125.50'	C' = 125.50'	C' = 123.05'	C' = 125.50'	C' = 125.50'	C' = 123.05'	C' = 125.50'	C' = 125.50'	C' = 123.05'
D' = 127.50'	D' = 127.50'	D' = 124.00'	D' = 125.50'	D' = 125.50'	D' = 123.00'	D' = 125.50'	D' = 125.50'	D' = 123.00'
E' = 125.50'	E' = 125.50'	E' = 122.00'	E' = 125.50'	E' = 125.50'	E' = 122.00'	E' = 125.50'	E' = 125.50'	E' = 122.00'
F' = 123.00'	F' = 123.00'	F' = 122.00'	F' = 123.00'	F' = 123.00'	F' = 122.00'	F' = 123.00'	F' = 123.00'	F' = 122.00'
G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'	G' = 119.00'
H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'	H' = 129.00'

SUBSURFACE INFILTRATION SYSTEM PLAN VIEW
NOT TO SCALE



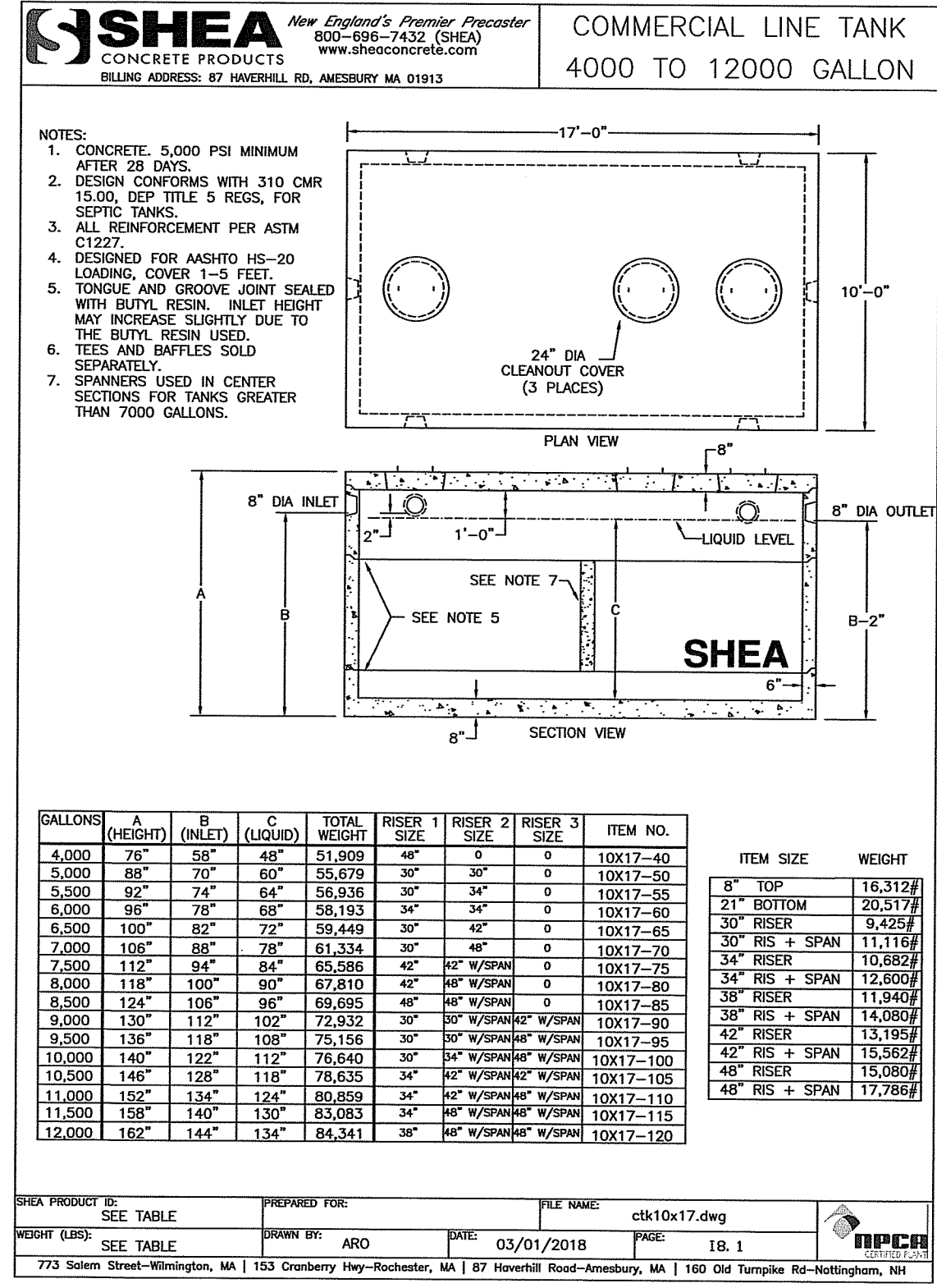
- NOTES:**
- CRUSHED STONE SHALL BE CLEAN AND WASHED WITH NO FINES.
 - CRUSHED STONE SHALL BE WRAPPED WITH FABRIC ON TOP & SIDES.
 - SCARIFY BOTTOM PRIOR TO PLACEMENT OF GRAVEL AND STONE.
 - DO NOT ALLOW SEDIMENT LAIDEN RUNOFF TO ENTER SYSTEM. DISTURBED AREAS SHALL BE FULLY STABILIZED WITH GRASS PRIOR TO ALLOWING RUNOFF TO ENTER SYSTEM.
 - THE BOTTOM OF ALL PROPOSED SUBSURFACE INFILTRATION SYSTEMS LIE WITHIN SOILS DEFINED AS STRUCTURELESS, SINGLE-GRAIN, LOOSE, SAND, VERY GRAVELLY SAND, COBBLY GRAVELLY SAND, AND COARSE SAND.

SUBSURFACE INFILTRATION SYSTEM SECTION A-A
NOT TO SCALE



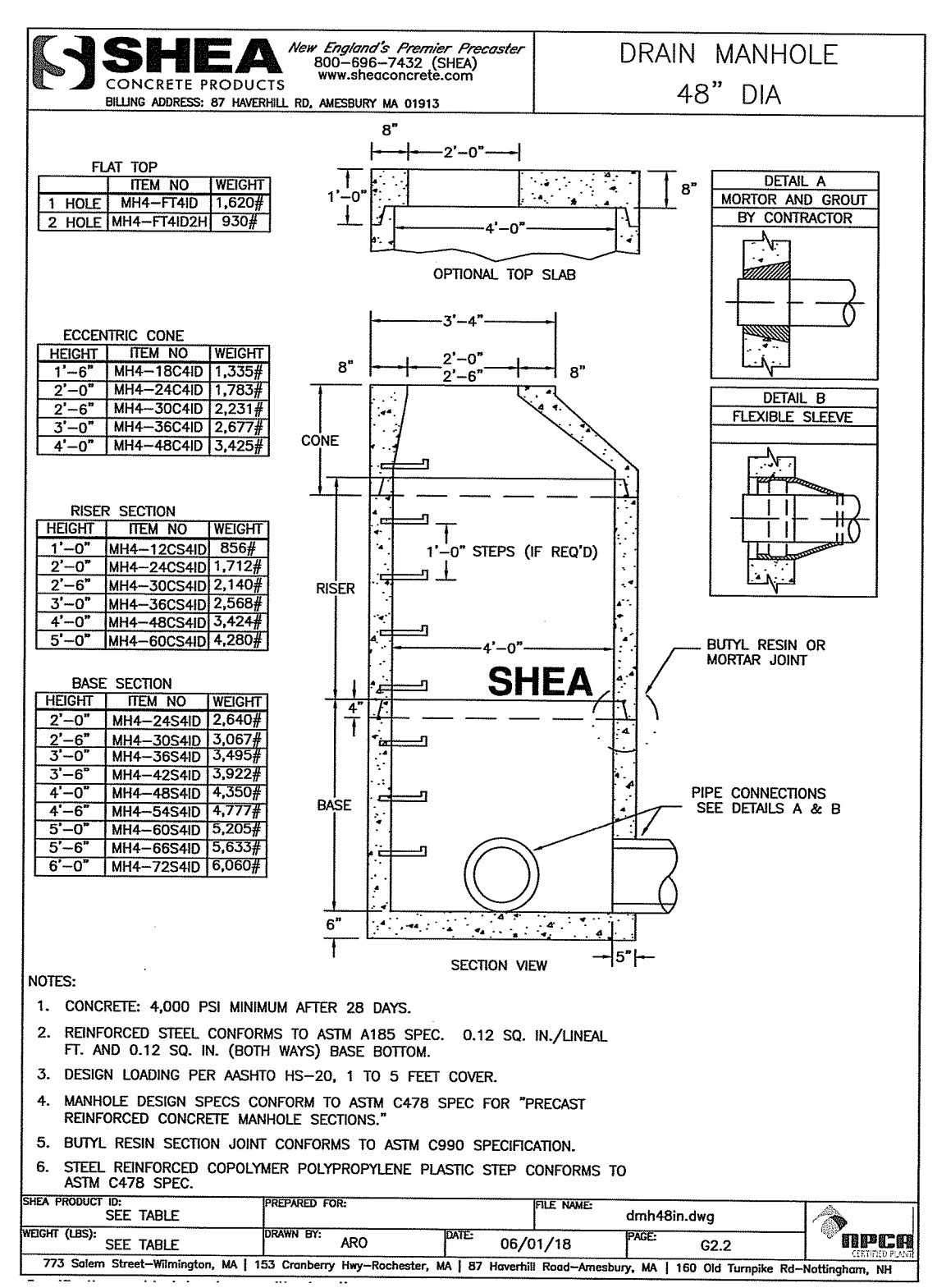
ITEM NO. WEIGHT

ITEM NO.	WEIGHT
1-0\"/>	

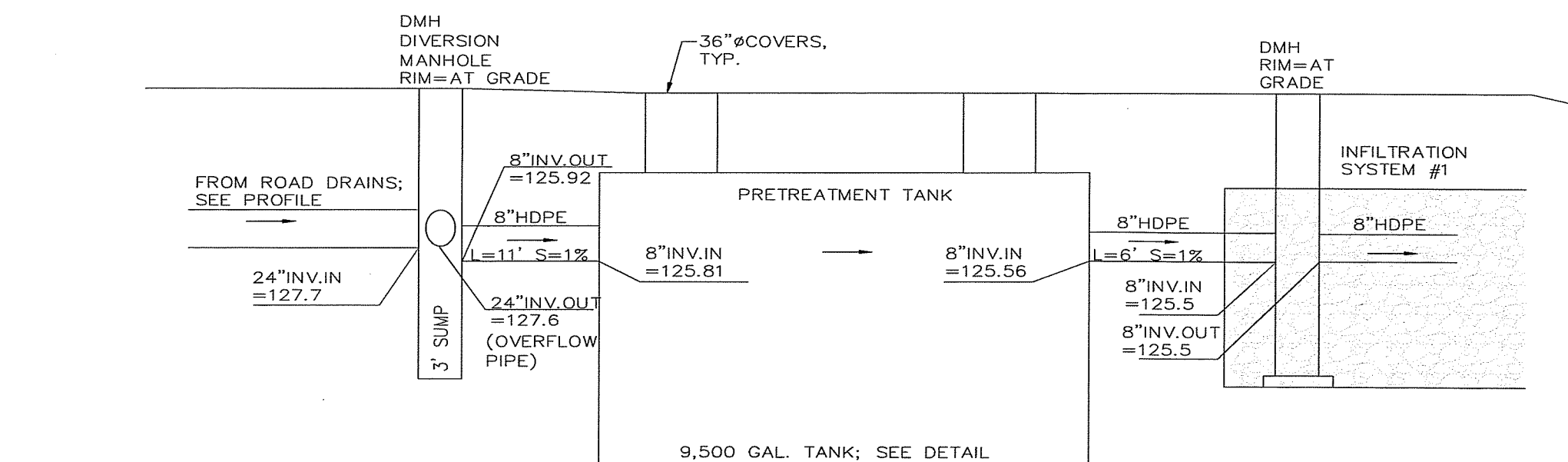


GALLONS

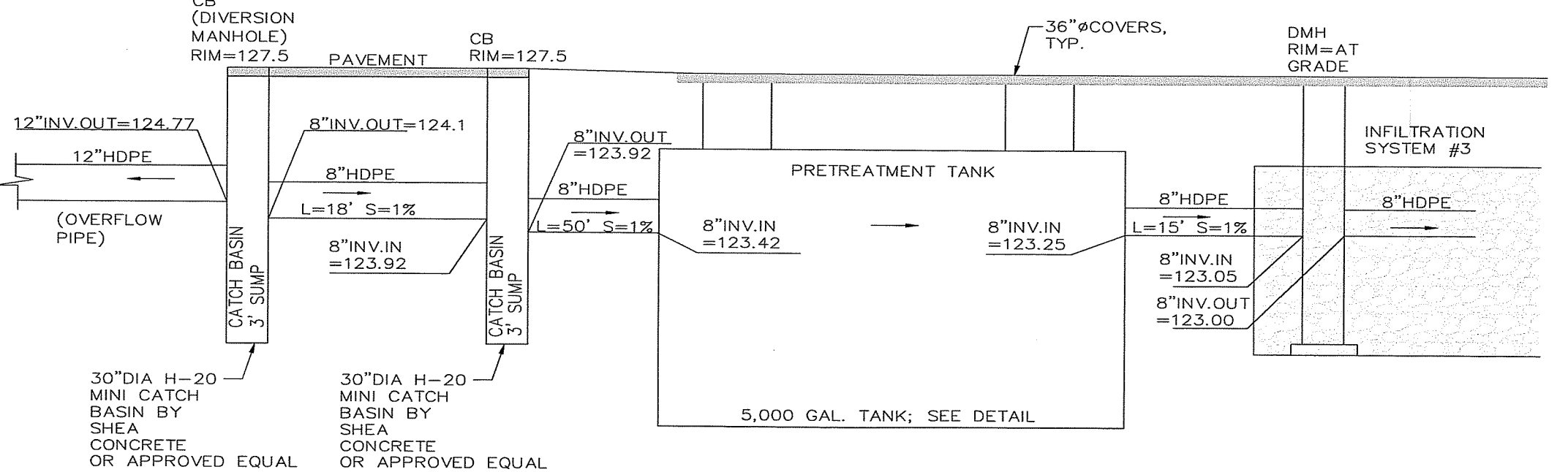
A (HEIGHT)	B (INLET)	C (LIQUID)	TOTAL WEIGHT	RISER 1 SIZE	RISER 2 SIZE	RISER 3 SIZE	ITEM NO.
4.000	28"	58"	45	30"	30"	0	10X17-40
5.000	38"	70"	60	30"	30"	0	10X17-50
6.000	48"	82"	75	30"	30"	0	10X17-60
7.000	58"	94"	90	30"	30"	0	10X17-70
8.000	68"	106"	105	30"	30"	0	10X17-80
9.000	78"	118"	120	30"	30"	0	10X17-90
10.000	88"	130"	135	30"	30"	0	10X17-100
11.000	98"	142"	150	30"	30"	0	10X17-110
12.000	108"	154"	165	30"	30"	0	10X17-120



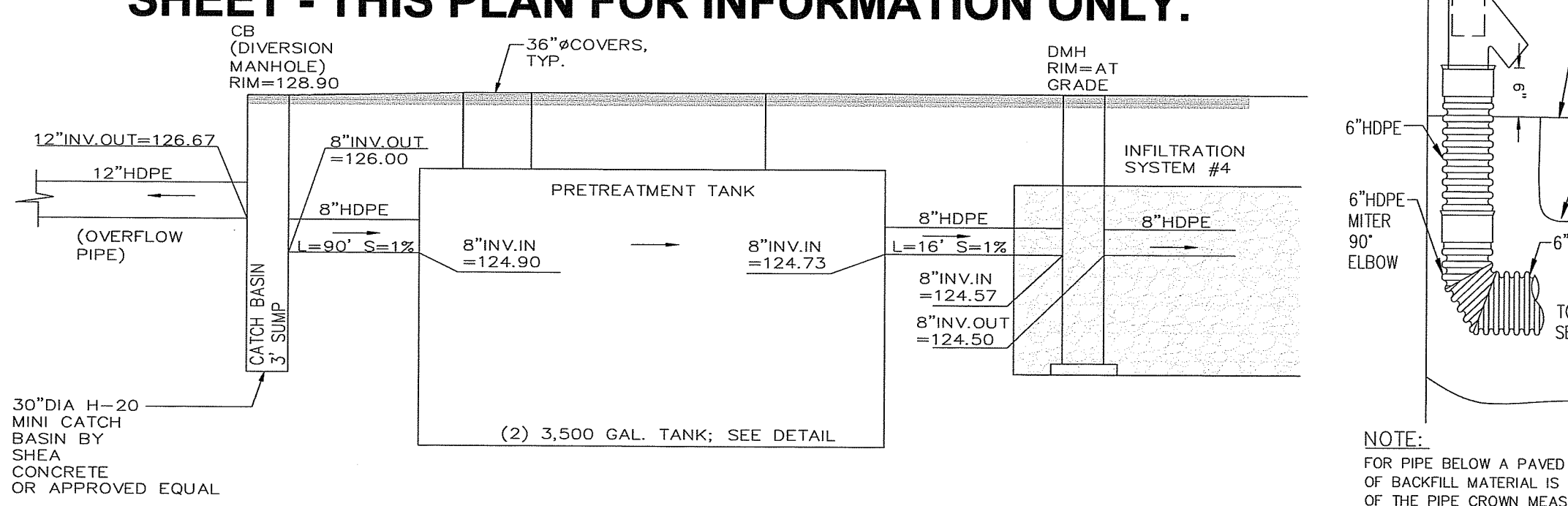
- NOTES:**
- CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
 - REINFORCED STEEL CONFORMS TO ASTM A185 SPEC. 0.12 SQ. IN./LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
 - DESIGN LOADING PER ASHITO HS-20, 1 TO 5 FEET COVER.
 - MANHOLE DESIGN SPECS CONFORM TO ASTM C478 SPEC FOR 'PRECAST REINFORCED CONCRETE MANHOLE SECTIONS'.
 - BUTYL RESIN SECTION JOINT CONFORMS TO ASTM C990 SPECIFICATION.
 - STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO ASTM C478 SPEC.



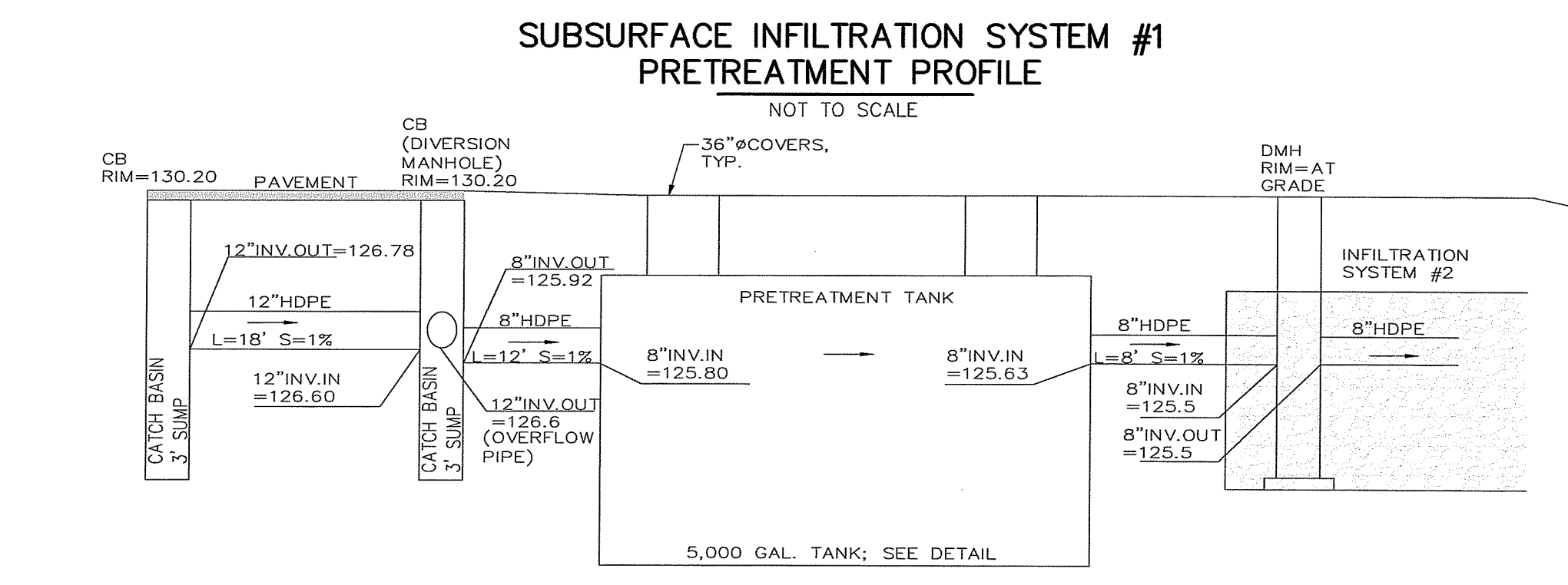
SUBSURFACE INFILTRATION SYSTEM #1 PRETREATMENT PROFILE
NOT TO SCALE



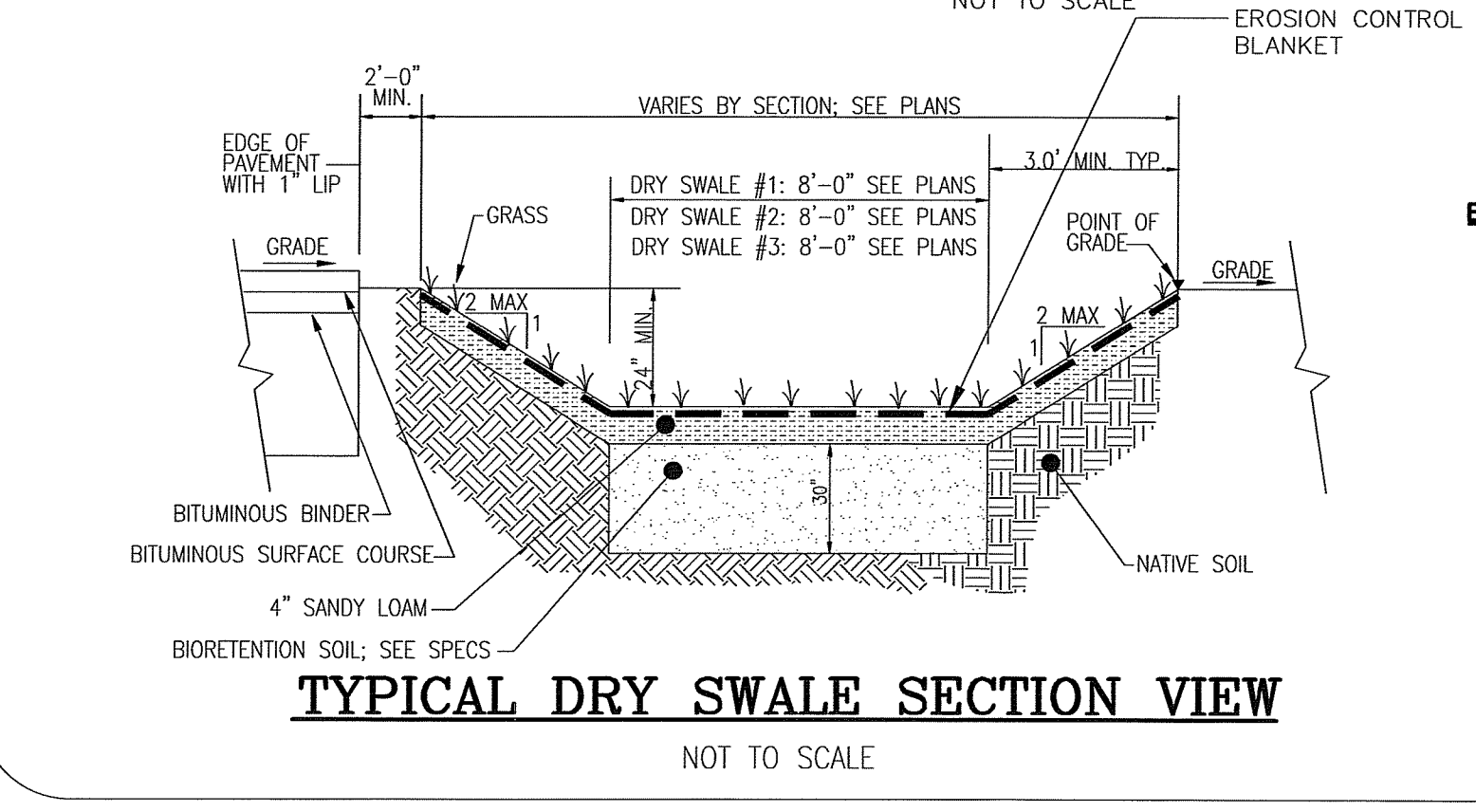
NOTE:
THERE ARE NO PROPOSED MODIFICATIONS TO SHEET - THIS PLAN FOR INFORMATION ONLY.



SUBSURFACE INFILTRATION SYSTEM #4 PRETREATMENT PROFILE
NOT TO SCALE



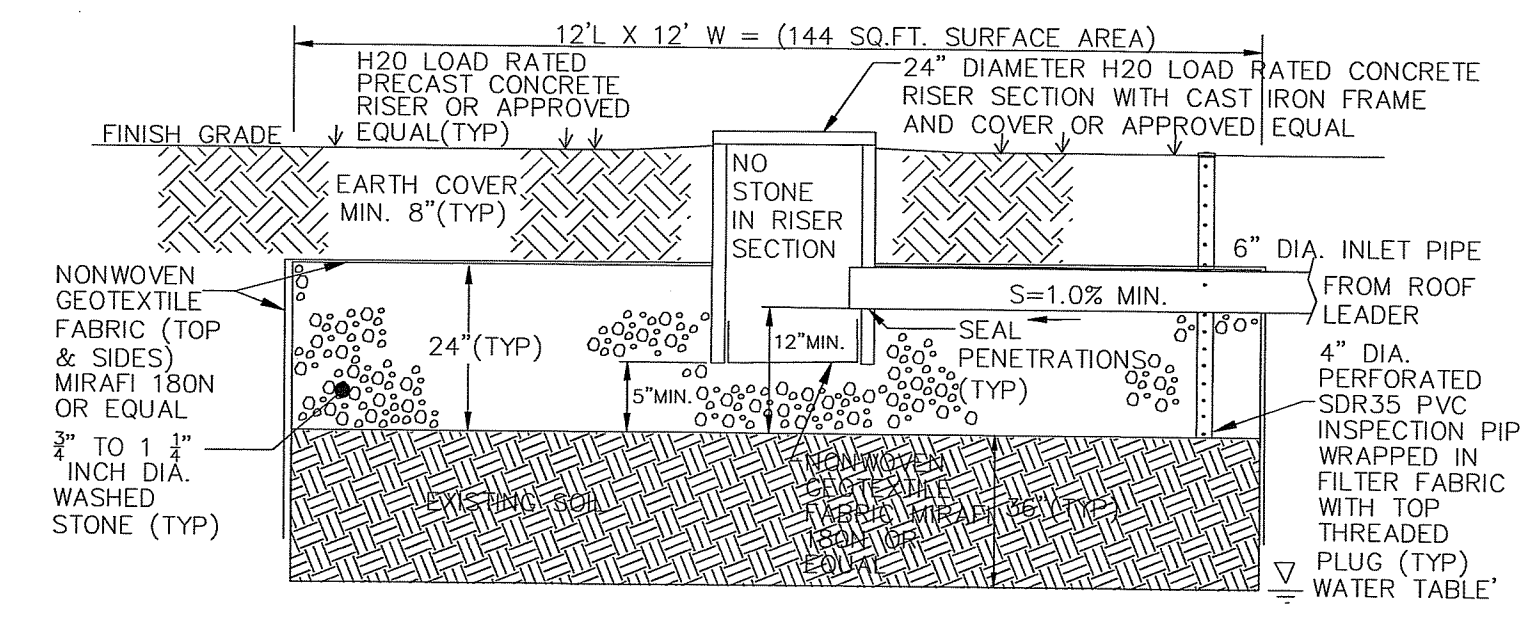
SUBSURFACE INFILTRATION SYSTEM #2 PRETREATMENT PROFILE
NOT TO SCALE



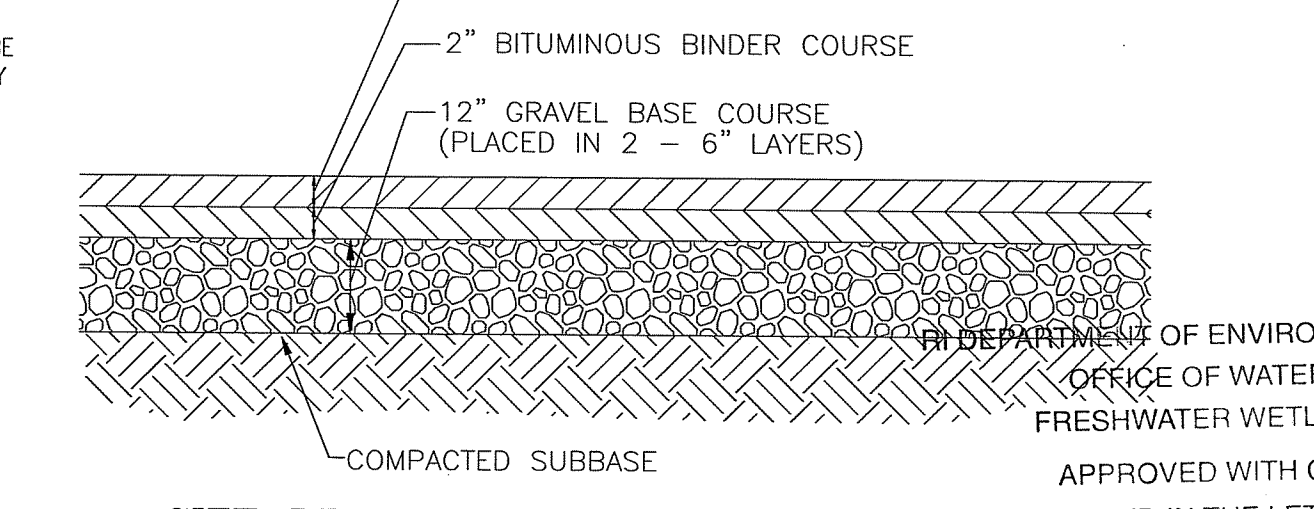
TYPICAL DRY SWALE SECTION VIEW
NOT TO SCALE

- BIORETENTION SOIL SPEC.:**
- BIORETENTION SOIL MIX (BY VOLUME):**
 - SAND: 85 TO 88%
 - ORGANIC MATTER: 3 TO 5%
 - SILT: 0 TO 12%
 - CLAY: 0 TO 2%
 - THE BIORETENTION SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OTHER WOODY MATERIAL OVER 1" IN DIAMETER, OR BRUSH/SEEDS FROM NOXIOUS WEEDS. PLACEMENT OF THE SOIL SHOULD BE IN LIFTS OF 6 INCHES, LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET).

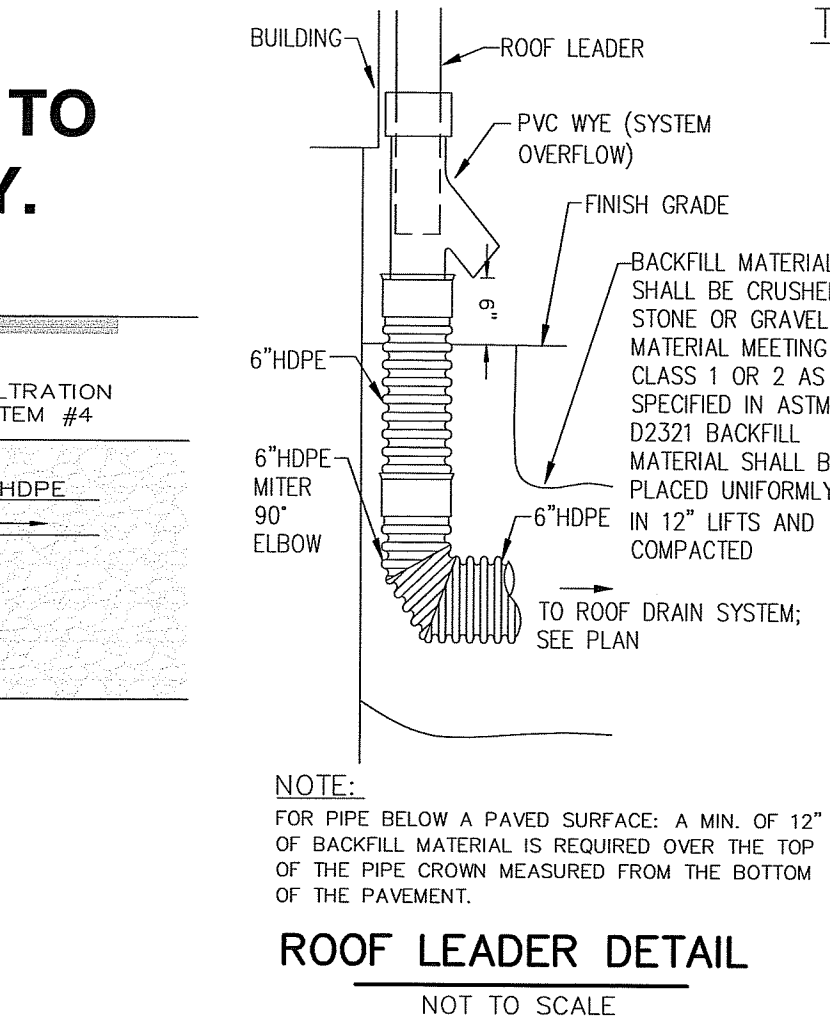
- DRY SWALE & VEGETATED SWALE MAINTENANCE NOTES:**
- OPEN CHANNEL PRACTICES SHALL BE INSPECTED ANNUALLY AND AFTER STORMS OF GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR TYPE III PRECIPITATION EVENT.
 - SEDIMENT BUILD-UP WITHIN THE BOTTOM OF THE CHANNEL SHALL BE REMOVED WHEN GREATER THAN OR EQUAL TO 3" DEPTH OF SEDIMENT HAS BEEN ACCUMULATED IN THE CHANNEL.
 - ERODED SIDE SLOPES AND CHANNEL BOTTOMS SHALL BE STABILIZED AS NECESSARY.
 - IN THE ABSENCE OF EVIDENCE OF CONTAMINATION, REMOVED DEBRIS MAY BE TAKEN TO A LANDFILL OR OTHER PERMITTED FACILITY.
 - SEDIMENT TESTING MAY BE REQUIRED PRIOR TO SEDIMENT DISPOSAL WHEN CONTAMINATION IS PRESENT.
 - VEGETATION SHALL BE MOWED AS REQUIRED TO MAINTAIN GRASS HEIGHTS IN THE 4-6 INCH RANGE, WITH MANDATORY MOWING ONCE GRASS HEIGHTS EXCEED 10 INCHES.
 - IF THE SURFACE OF THE DRY SWALE BECOMES CLOGGED TO THE POINT THAT STANDING WATER IS OBSERVED ON THE SURFACE 48 HOURS AFTER PRECIPITATION EVENTS, OR BOTTOM SHALL BE ROTOTILLED OR CULTIVATED TO BREAK UP ANY HARD-PAKED SEDIMENT, AND THEN RESEDED.
 - EVERY FIVE YEARS, THE CHANNEL BOTTOM SHOULD BE SCRAPPED TO REMOVE SEDIMENT AND TO RESTORE ORIGINAL CROSS SECTION AND INFILTRATION RATE, AND SHOULD BE SEED TO RESTORE GROUND COVER.
 - DURING INSPECTION, ANY STRUCTURAL COMPONENTS OF THE SYSTEM, INCLUDING TRASH RACKS, VALVES, PIPES, AND SPILLWAY STRUCTURES, SHOULD BE CHECKED FOR PROPER FUNCTION. ANY CLOGGED OPENINGS SHOULD BE CLEANED OUT AND REPAIRS SHOULD BE MADE WHERE NECESSARY.



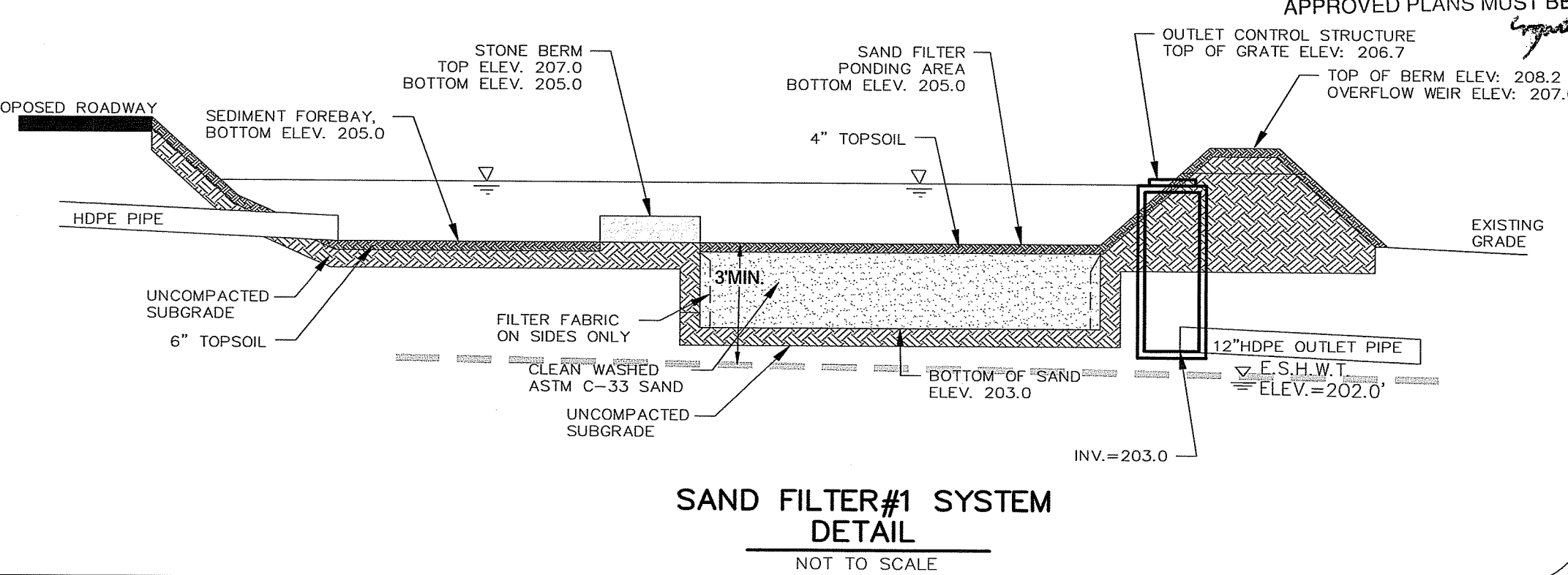
- TYPICAL NOTES:**
- CRUSHED STONE SHALL BE CLEAN WITH NO FINES.
 - CRUSHED STONE SHALL BE WRAPPED WITH FABRIC ON TOP & SIDES.
 - SCARIFY BOTTOM PRIOR TO PLACEMENT OF SAND AND STONE.
 - PIPE ROOF RUNOFF FROM DOWNSPOUTS (WHERE INDICATED) TO DRYWELL TO MAXIMUM EXTENT POSSIBLE.
 - DO NOT ALLOW SEDIMENT LAIDEN RUNOFF TO ENTER DRYWELL.
 - 6" PIPE SHALL BE HDPE OR APPROVED EQUAL, MINIMUM SLOPE = 1.0% (1/8" PER FOOT).
 - DRY WELLS PROVIDE 96 CUBIC FEET OF VOLUME; PROVIDING WQV FOR UP 1,150 SF OF ROOF TOP.



SITE DRIVEWAYS AND PARKING AREAS
NOT TO SCALE



ROOF LEADER DETAIL
NOT TO SCALE



SAND FILTER #1 SYSTEM DETAIL
NOT TO SCALE

DETAIL SHEET - 2
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN DATE: 5/3/24 SHEET 17 OF 19

REVISIONS:

NO.	DATE	DESCRIPTION	BY
1.	06/14/19	DEM COMMENTS	DKM
2.	05/03/24	MODIFICATION	BDM
2.	07/17/24	RIDEW REVIEW COMMENTS: DA TED	BDM

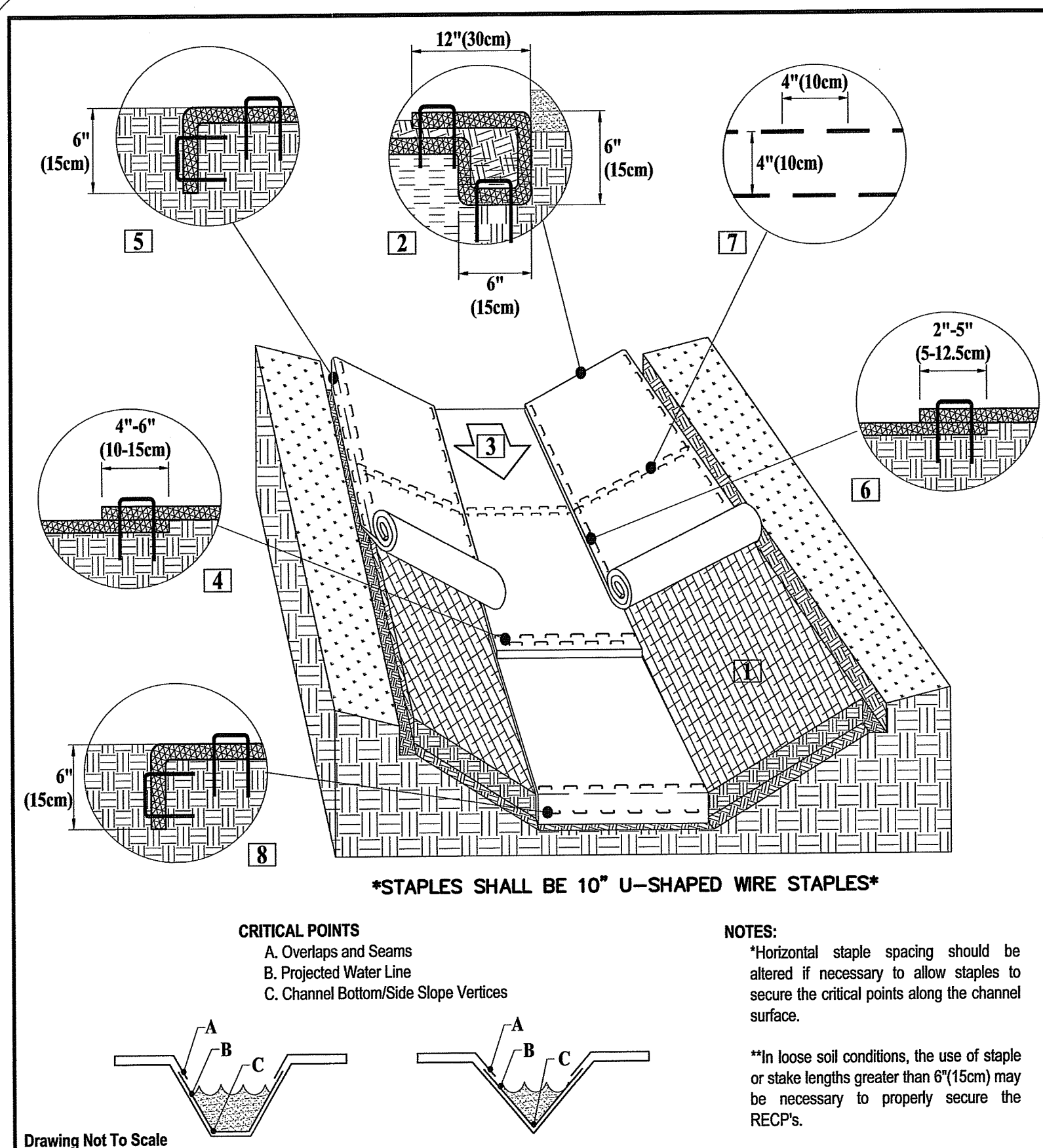
REGISTRATIONS:

CARIGAN ENGINEERING INC.
CIVIL AND ENVIRONMENTAL ENGINEERING
86 BROOK FARM ROAD SOUTH
WAKEFIELD, RI 02879
PHONE: (401) 789-6865

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED: **6/6 2 2024** FILE # **21-0117**

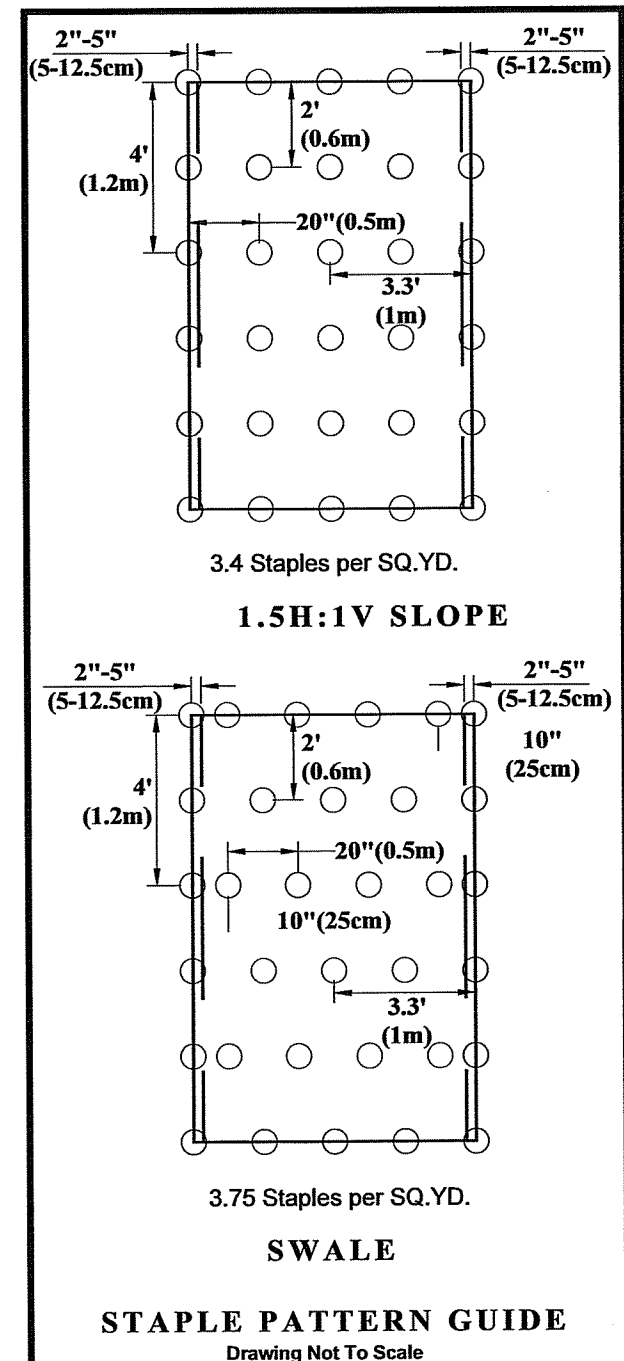
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL APPROVED PLANS MUST BE AT CONSTRUCTION SITE

CARIGAN ENGINEERING INC.
JUL 24 2024
Office of Water Resources Program



CHANNEL INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6\"/>



CRITICAL POINTS
 A. Overlaps and Seams
 B. Projected Water Line
 C. Channel Bottom/Side Slope Vertices

NOTES:
 *Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.
 **In loose soil conditions, the use of staple or stake lengths greater than 6\"/>

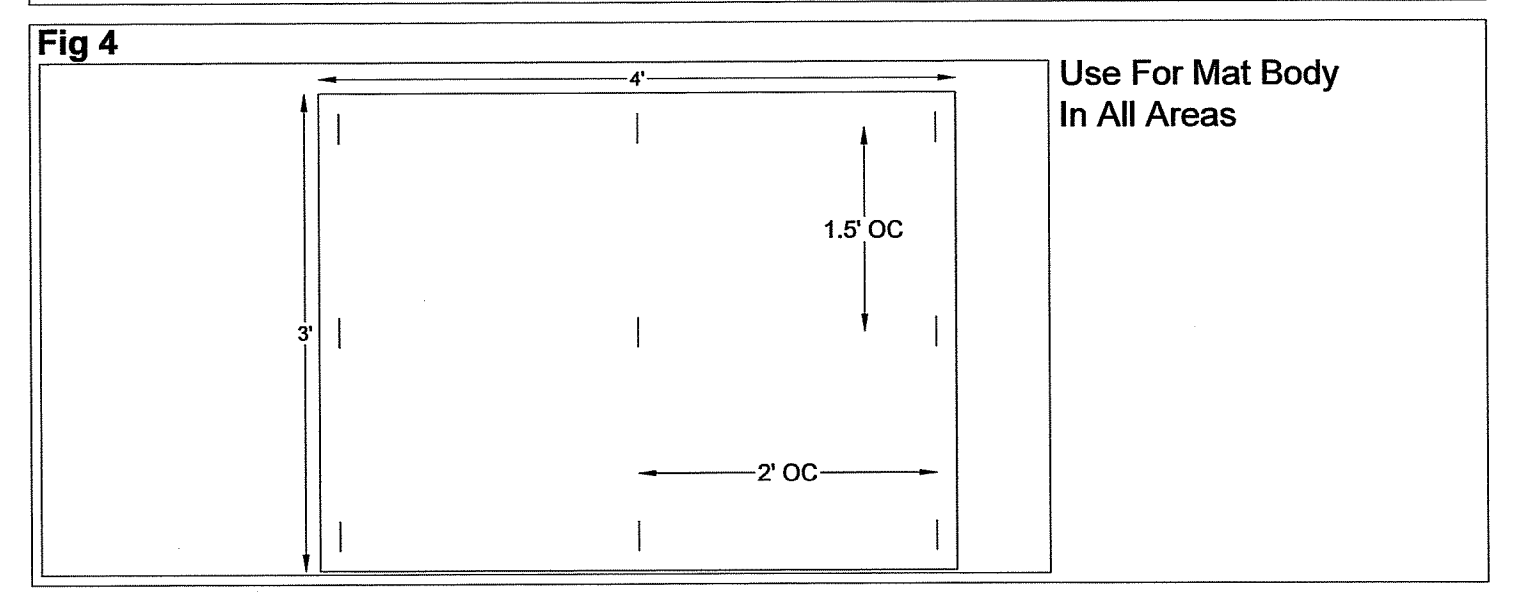
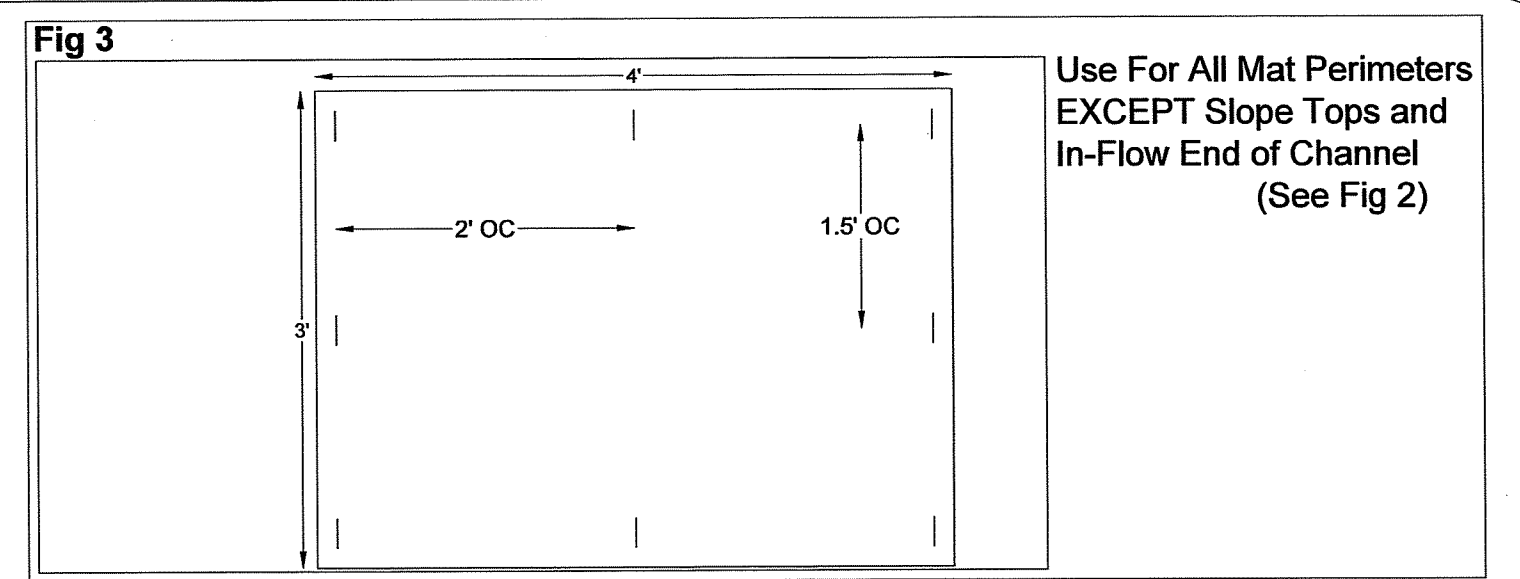
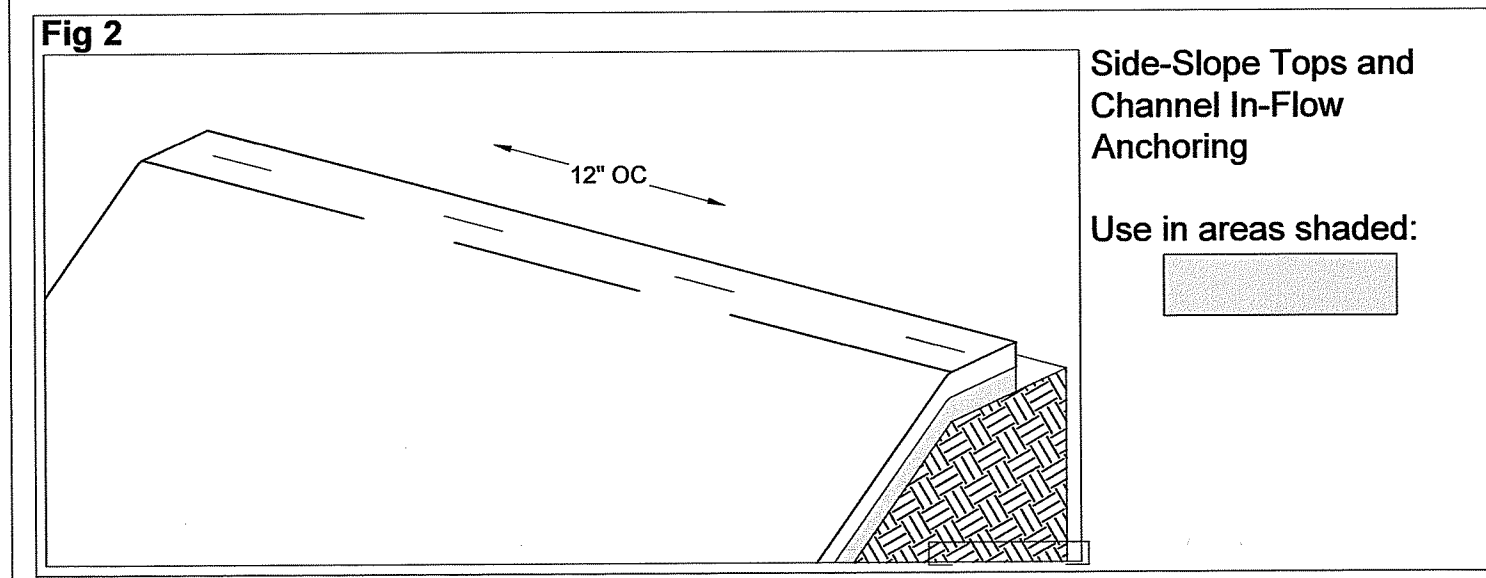
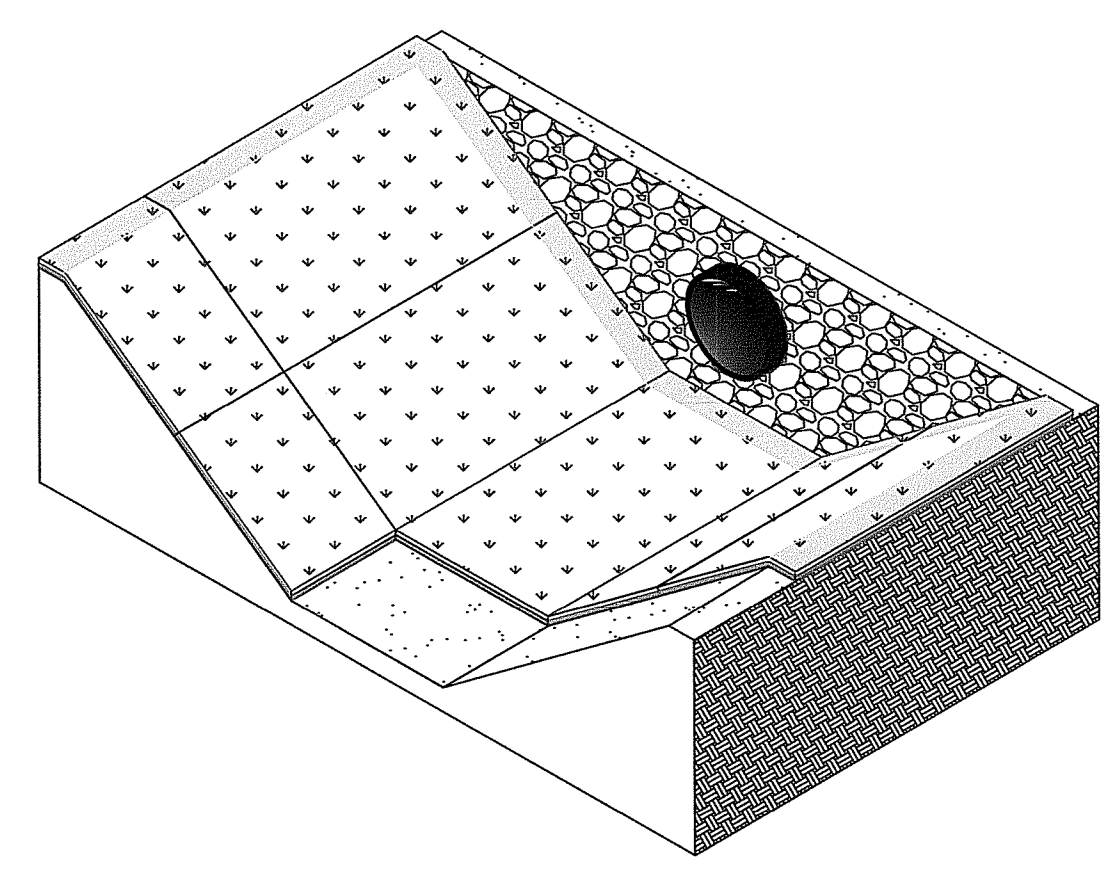
Disclaimer:
 The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

North American Green
 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633
 PH: 800-722-2040 www.nagreen.com

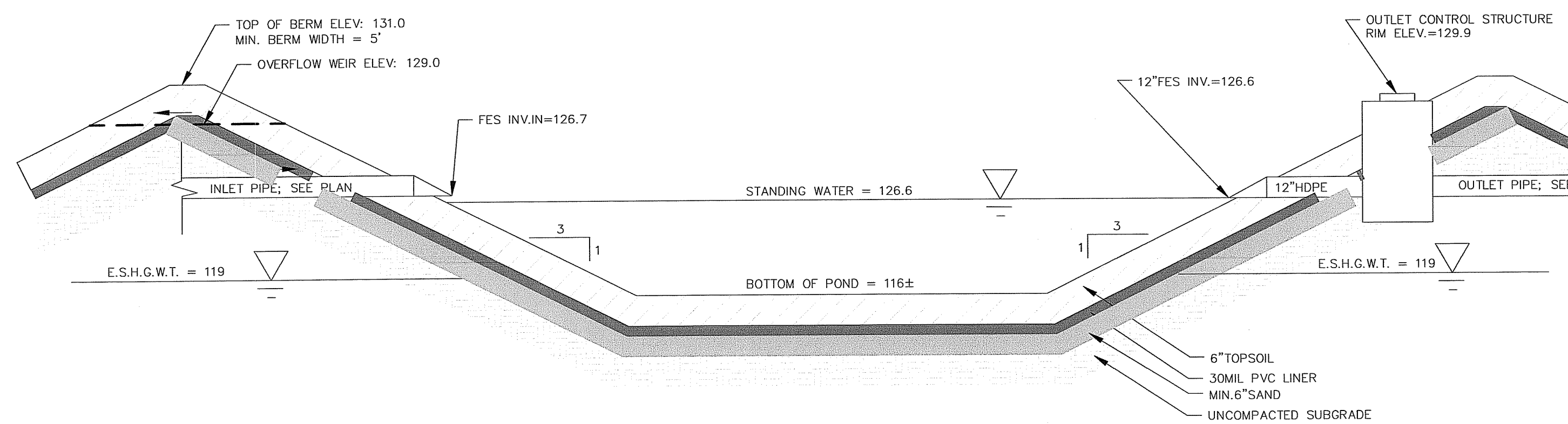
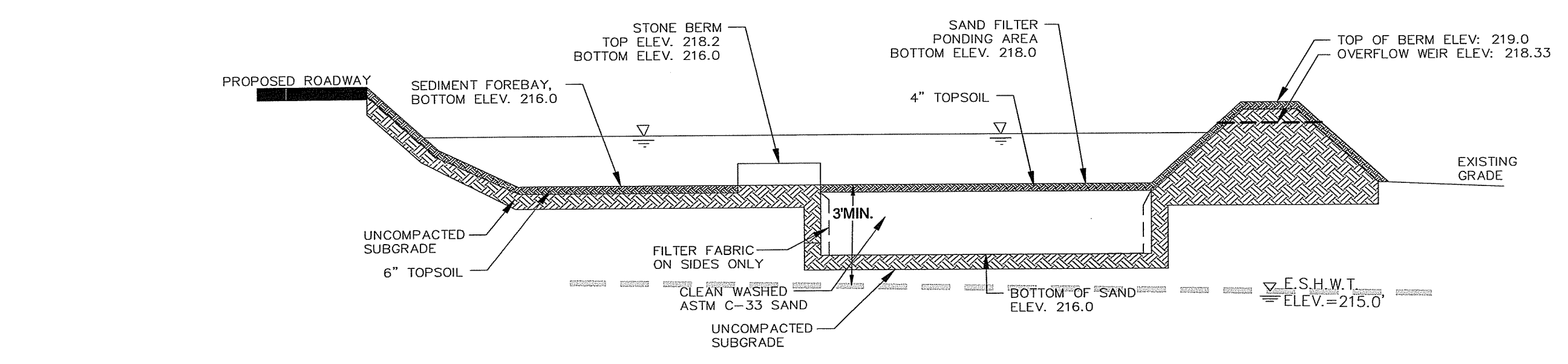
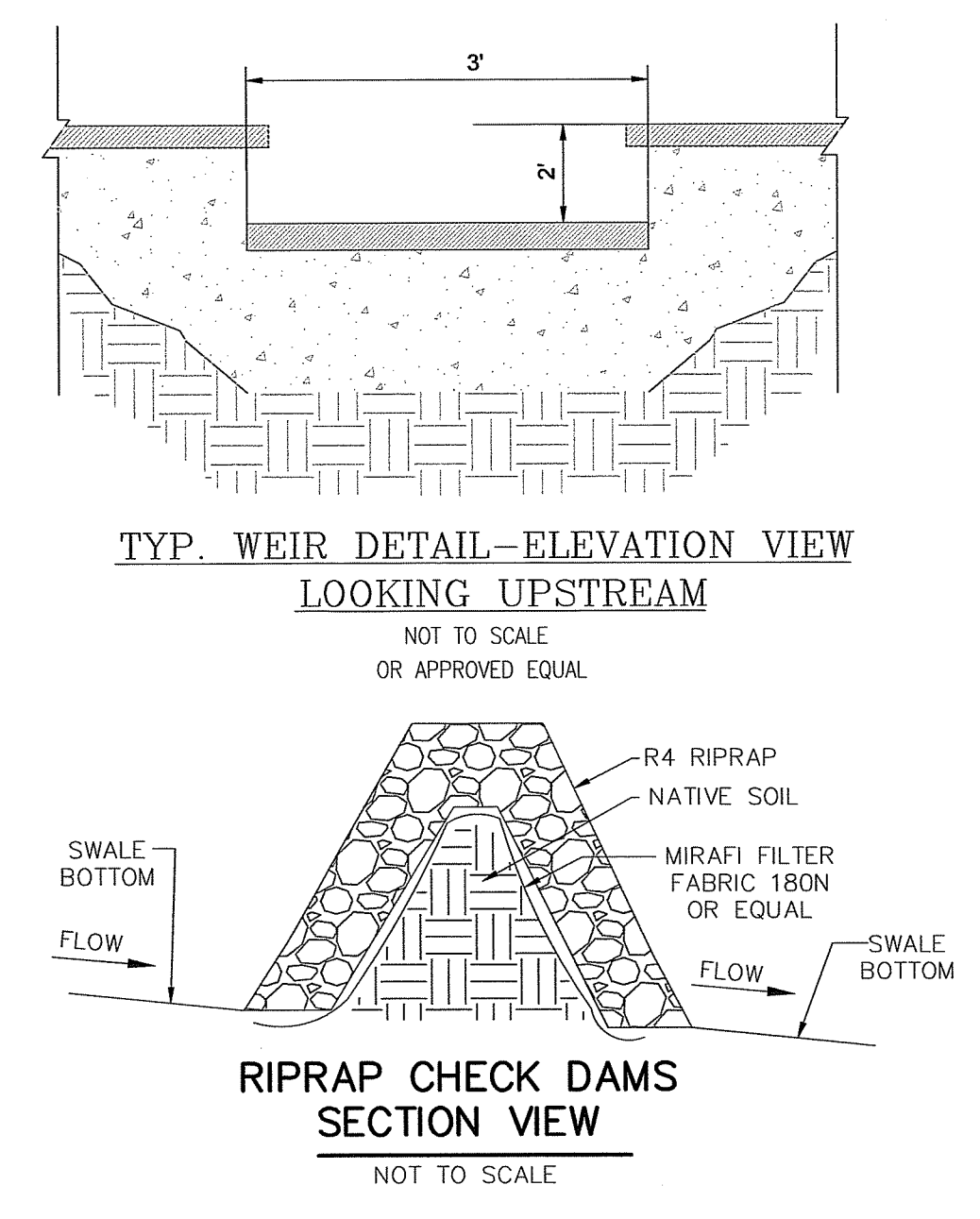
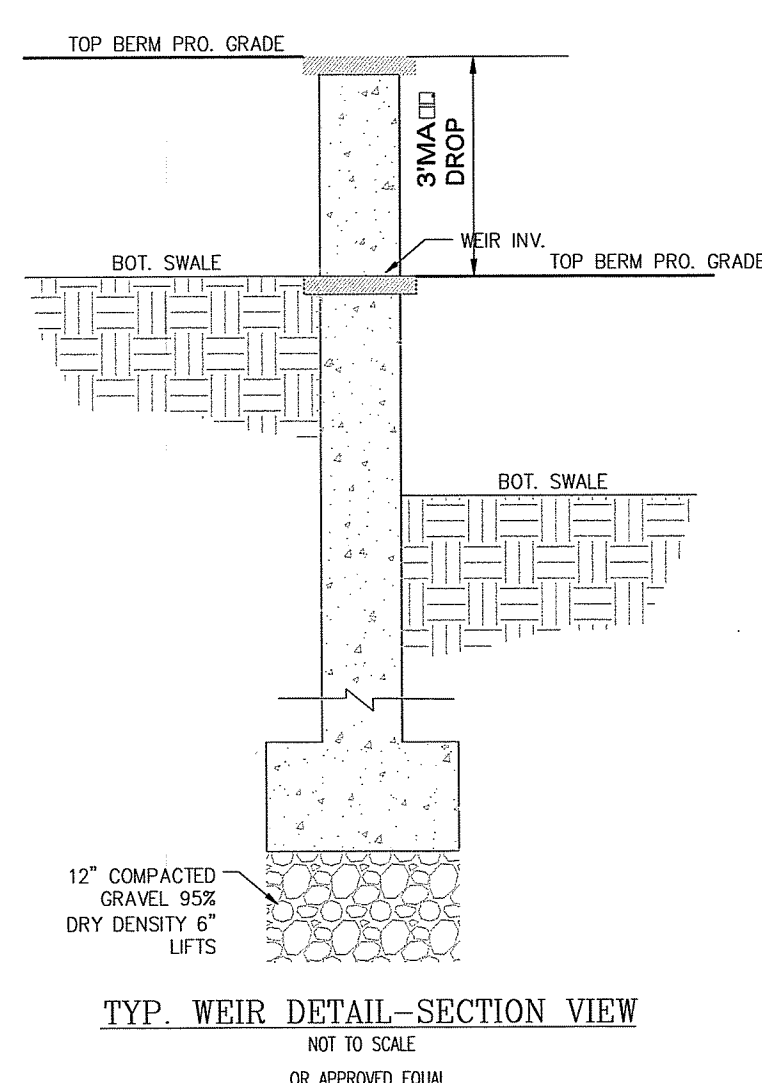
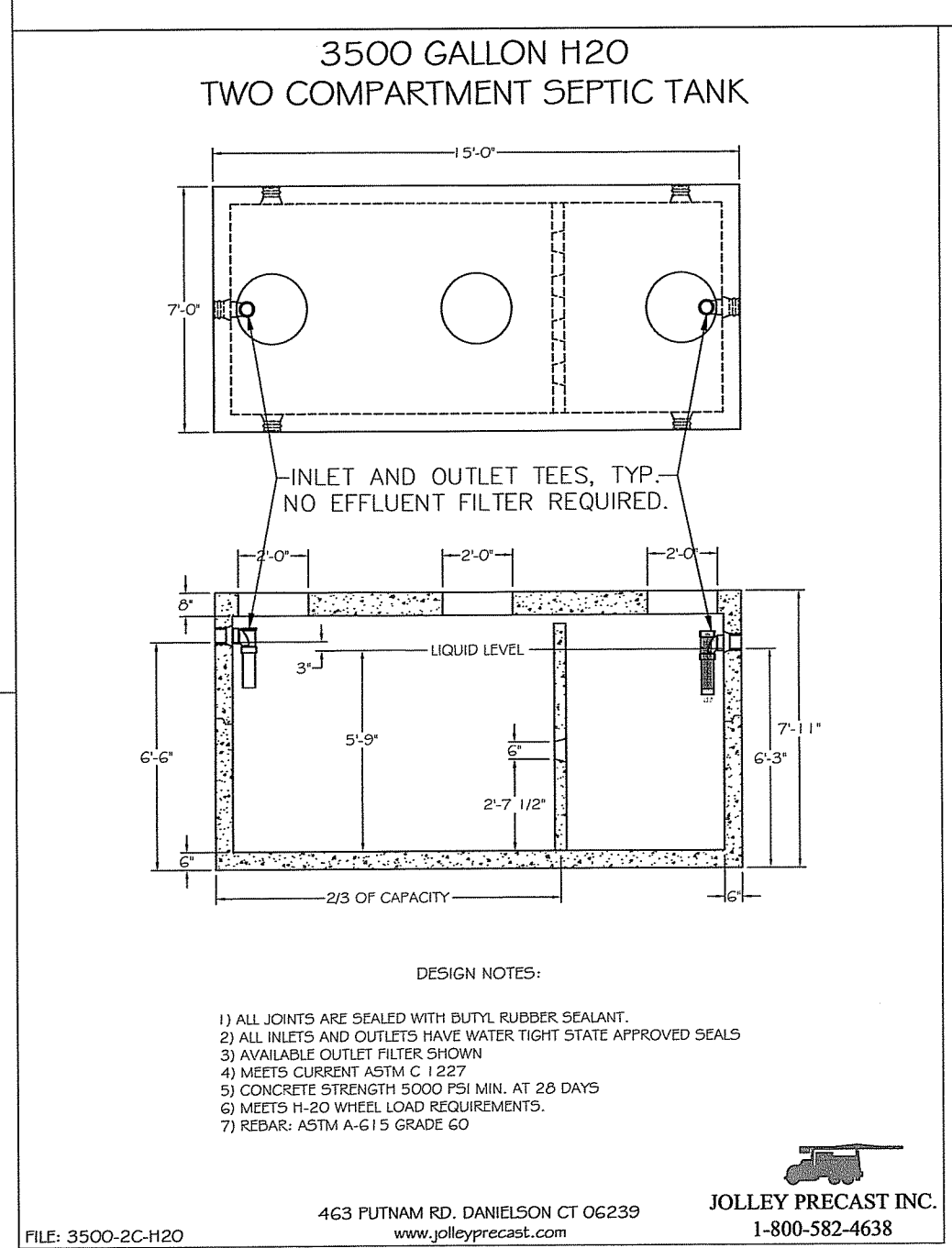
North American Green
 5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633
 PH: 800-722-2040 www.nagreen.com

NORTH AMERICAN GREEN SC-250 TURF REINFORCEMENT MAT

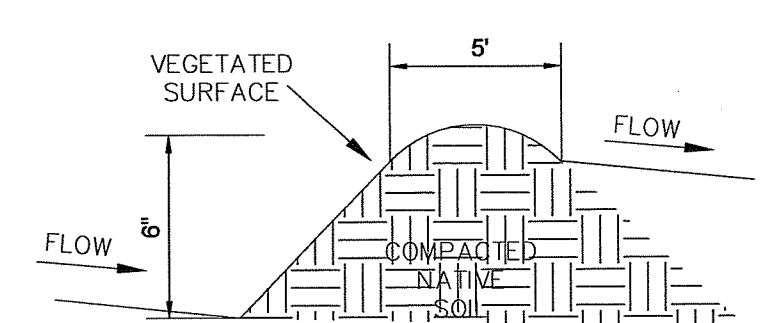
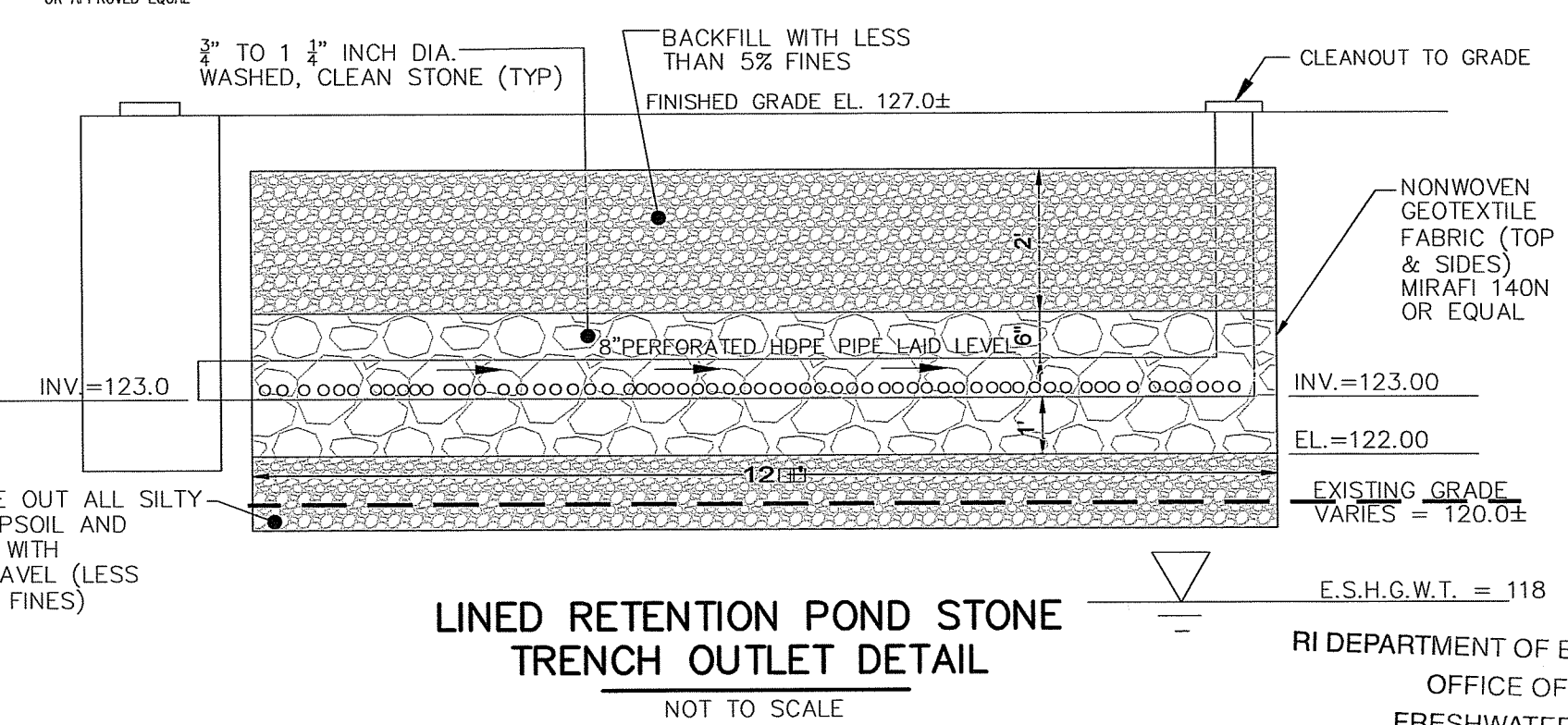
DRY SWALE #1 TURF REINFORCEMENT MAT DETAILS
 OR APPROVED EQUAL
 NOT TO SCALE



SHEARFORCE 12 TURF REINFORCEMENT MAT DETAILS
 OR APPROVED EQUAL
 NOT TO SCALE



NOTE:
 THERE ARE NO PROPOSED MODIFICATIONS TO THIS SHEET - THIS PLAN FOR INFORMATION ONLY.



SPREADER DESIGN:
 L = 0/(V*W)
 10YR STORM:
 Q = 2.0 CFS
 V = 1.0 FPS
 D = 2\"/>

DETAIL SHEET - 3
 A.P. 6B LOT 2D
 87 KINGSTOWN ROAD
 RICHMOND, RHODE ISLAND
 PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
 SCALE: AS SHOWN DATE: 5/3/24 SHEET 18 OF 19

REVISIONS:

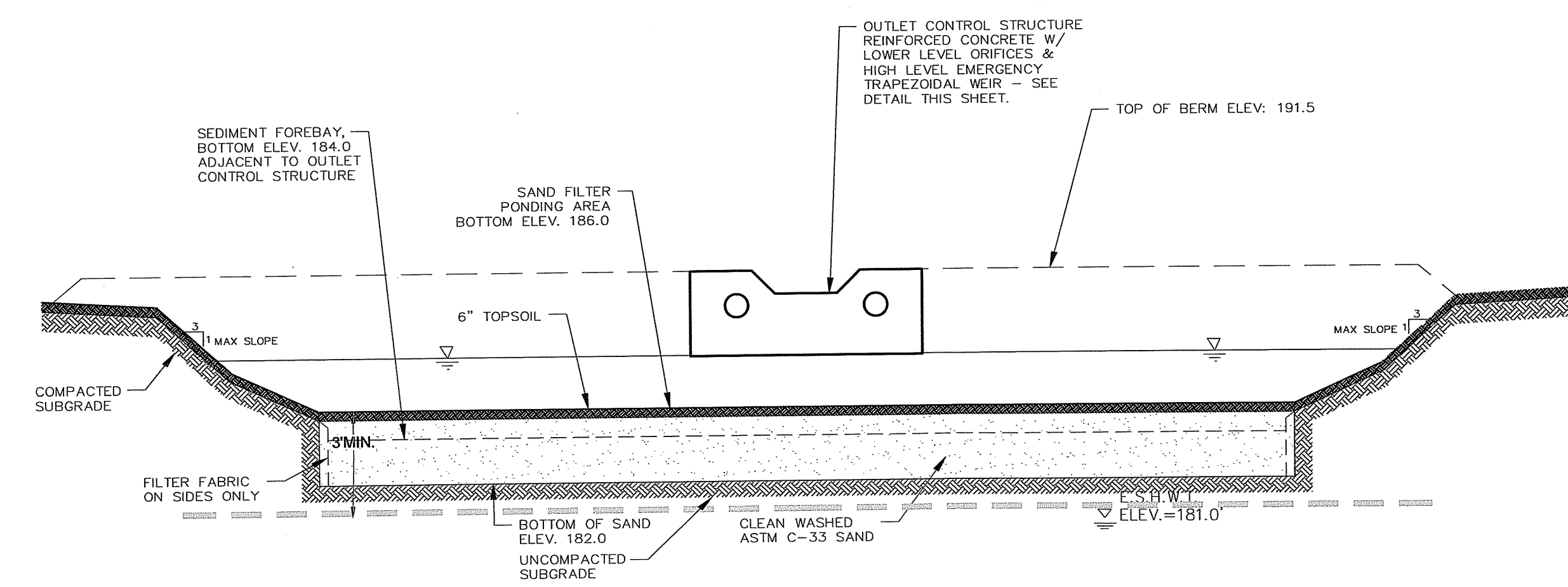
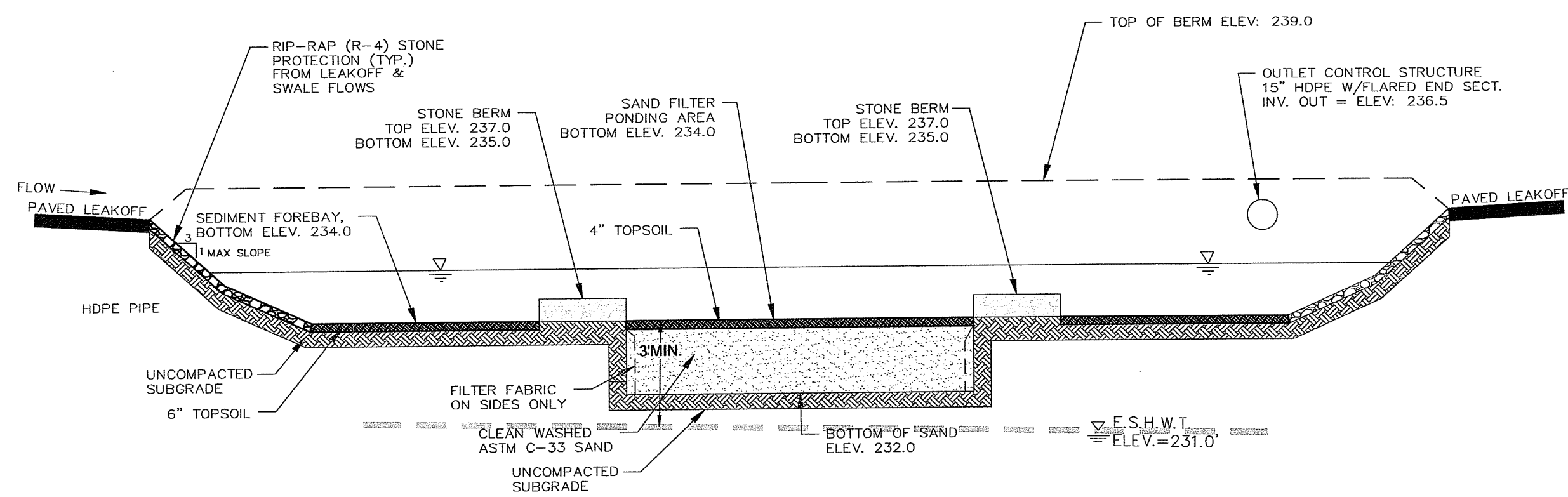
NO.	DATE	DESCRIPTION	BY
3.	07/17/24	RIDEM REVIEW COMMENTS DATED 06/11/2024 - PRIOR MOD. SUBM.	BDM
2.	05/03/24	MODIFICATION	BDM
1.	06/14/19	DEM COMMENTS	DKM

REGISTRATIONS:

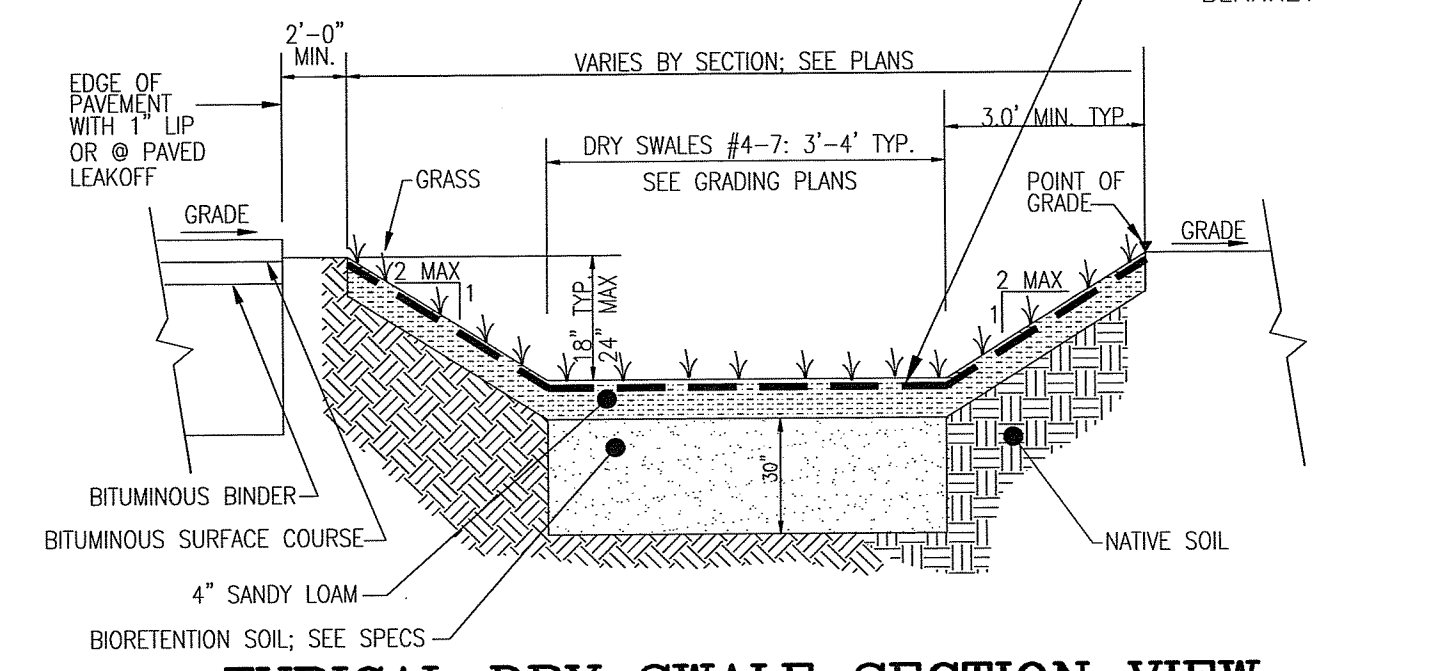
NO.	DATE	DESCRIPTION	BY
1.	06/14/19	DEM COMMENTS	DKM

REGISTRATIONS:
 CRAIG RICHARD CARRIGAN
 REGISTERED PROFESSIONAL ENGINEER

CARRIGAN ENGINEERING, INC.
 CIVIL AND ENVIRONMENTAL ENGINEERING
 86 BROOK FARM ROAD SOUTH
 WAKEFIELD, RI 02879
 PHONE: (401) 789-6865
 JUL 24 2024
 Office of Water Resources



FOR DRY SWALES #4-#7

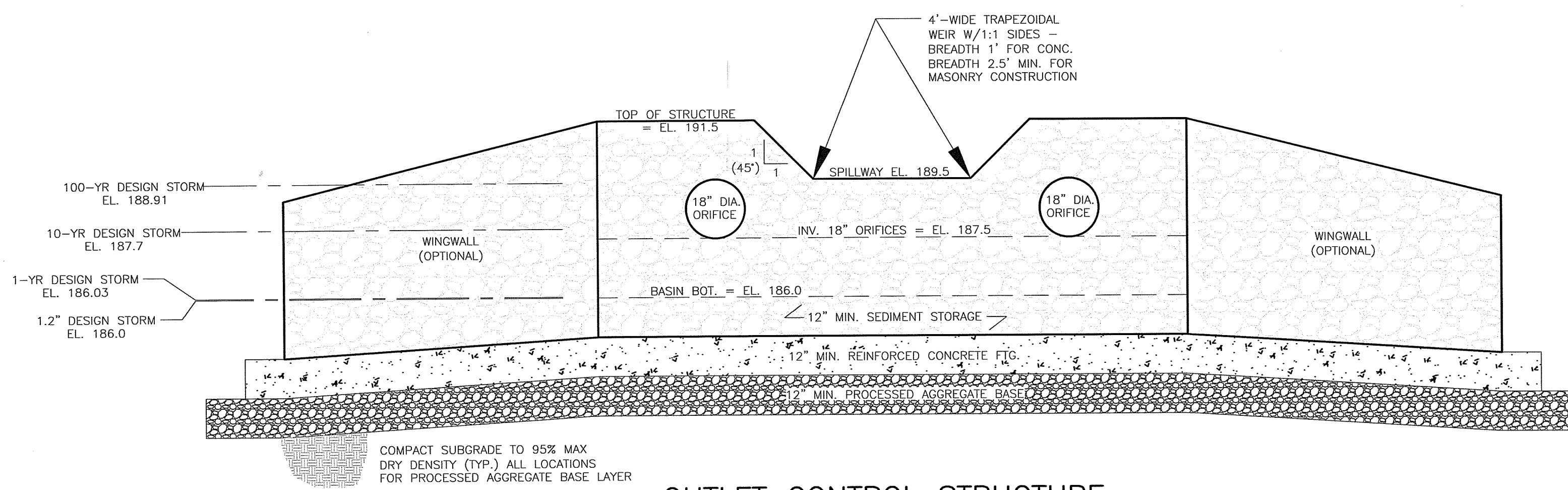
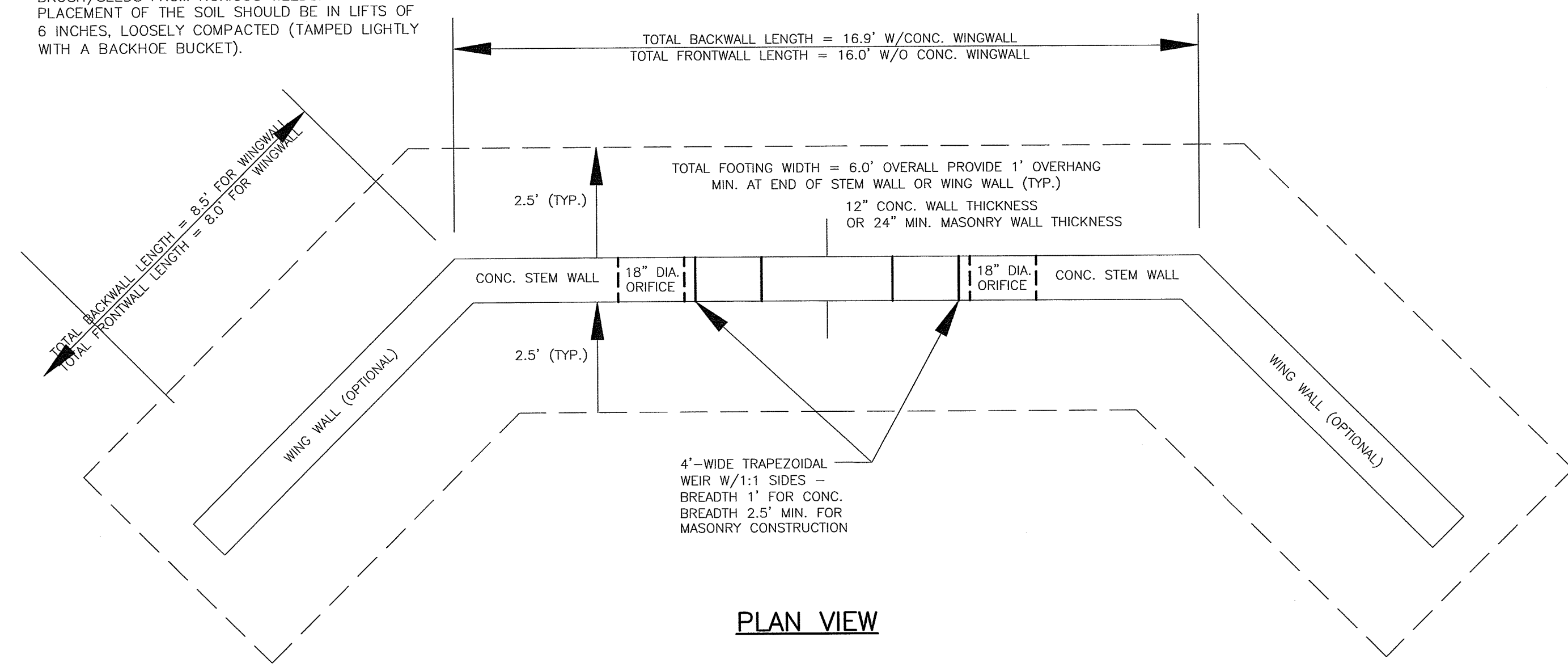


- BIORETENTION SOIL SPEC:**
- BIORETENTION SOIL MIX (BY VOLUME):
 - SAND 85 TO 88%
 - ORGANIC MATTER 3 TO 5%
 - SILT 0 TO 12%
 - CLAY 0 TO 2%
 - THE BIORETENTION SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OTHER WOODY MATERIAL OVER 1" IN DIAMETER, OR BRUSH/SEEDS FROM NOXIOUS WEEDS. PLACEMENT OF THE SOIL SHOULD BE IN LIFTS OF 6 INCHES, LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET).

TESTHOLE DATA - PHASE 2D PERMIT IMPROVEMENTS

TH#	DATE	SOIL DATA	SHWT DEPTH	TOTAL DEPTH	COMMENTS	DRAINAGE BMP DESIGN ELEMENT
19-6	2/22/2019	A 0-2" SL CAT. 3 Bw 2"-24" ST, SL CAT. 3 C 24"-96" VG, SL CAT. 3	7'	8'	REF. RIDEM OWTS SEV THs #1729-1882	SAND FILTER DET. BASIN #3 (ADJACENT TO ALEXANDER CIRCLE EXD.)
19-7	2/22/2019	A 0-2" SL CAT. 3 Bw 2"-24" ST, SL CAT. 3 C 24"-96" VG, SL CAT. 6M	7'	8'	REF. RIDEM OWTS SEV THs #1729-1882	SAND FILTER DET. BASIN #3 (ADJACENT TO ALEXANDER CIRCLE EXD.)
19-8	2/22/2019	A 0-2" SL CAT. 3 Bw 2"-24" ST, SL CAT. 3 C 24"-72" VG, SL CAT. 6M	5'	6'	REF. RIDEM OWTS SEV THs #1729-1882	
D24-1	5/23/2024	Ap 0-8" SL CAT. 3 Bw1 8"-26" SIL CAT. 3 Bw2 26"-40" SIL CAT. 5 2C 40"-120"+ VG, LS 1M	8'+	10'	STORM DRAINAGE TESTHOLES BY LICENSED SOIL EVAL.	SAND FILTER DET. BASIN #4 (OUTFALL CHANNEL SOUTH AGAPE TRAIL)
D24-2	5/23/2024	Ap 0-4" SL CAT. 3 Bw 4"-24" SL CAT. 3 2C 24"-96"+ VG, LS 1M	8'+	8'	STORM DRAINAGE TESTHOLES BY LICENSED SOIL EVAL.	SAND FILTER DET. BASIN #4 (OUTFALL CHANNEL SOUTH AGAPE TRAIL)

NOTE: FOR DRY SWALES #4 TO #7 - SITE CONDITIONS BETWEEN BETWEEN TH#19-6, TH#19-7 AT SAND FILTER #3 BMP AND D24-1 & D24-2 ARE CONSISTENT BASED ON UTILITY TESTHOLES EXCAVATED. THEREFOR, AN ESTIMATED SHWT FOR DRY SWALES #4 TO #7 IS ESTIMATED TO BE 8' PLUS BELOW THE ORIGINAL ROAD CL GRADE OF AGAPE TRAIL. REFER TO DRY SWALE PROFILE - 2 SHEET 12 OF 19 FOR GRAPHICAL DEPICTION OF THE ESTIMATED GROUNDWATER TABLE GRADIENT - A MINIMUM OF 3' SEPARATION FOR THE PROPOSED BIORETENTION LAYER AND SHWT IS PROPOSED.



OUTLET CONTROL STRUCTURE SAND FILTER DET. BASIN #3

SCALE: NOT TO SCALE

ELEVATION VIEW

CONSTRUCTION NOTES:

- ALL SOFT YIELDING AND ORGANIC MATERIALS SHALL BE REMOVED FROM THE PROPOSED OUTLET STRUCTURE FOOTING LOCATIONS.
- CONCRETE SHALL BE 4000psi, MIN 5% AIR ENTRAINMENT.
- REINFORCEMENT SHALL BE #5 BAR, 12" O.C. FOR THE FOOTING, OUTLET STRUCTURE STEM AND WINGWALLS (OPTIONAL).
- BACKFILLED AND PREPARED SOIL/STONE MATERIALS SHALL BE 95% MAX. DRY DENSITY. FOR MASONRY CONSTRUCTION - CONTRACTOR SHALL REQUEST DETAILS FROM ENGINEER OF RECORD.
- PROPOSED CHANGES TO WEIR/ORIFICE OUTLETS SHALL BE COORDINATED WITH ENGINEER OF RECORD TO MEET PROPOSED CONDITIONS DISCHARGE DESIGN FLOWS.
- PATTERN SHOWN IS CONCRETE STAMPED FORM PATTERN TO BE APPROVED BY OWNER (IF REQUIRED).

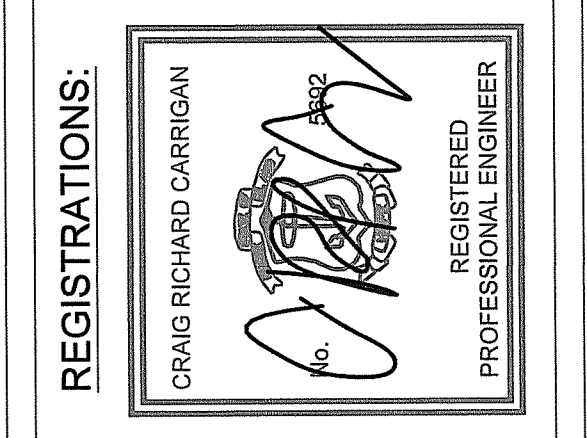
RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED: AUG 27 2024 FILE #:
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

DETAIL SHEET - 4
A.P. 6B, LOT 2
87 KINGSTOWN ROAD
RICHMOND, RHODE ISLAND
PREPARED FOR: THE PRESERVE AT BOULDER HILLS LLC.
SCALE: AS SHOWN DATE: 5/3/24 SHEET 19 OF 19

REVISIONS:

NO.	DATE	DESCRIPTION	BY
3.	07/17/24	RIDEM REVIEW COMMENTS DATED 6.11.2024 - PRIOR MOD. SUBM.	BDM
2.	05/03/24	MODIFICATION	BDM
1.	05/14/19	DEM COMMENTS	DKM

JOB NO.



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