PRELIMINARY LAND DEVELOPMENT PLAN

FOR

HARRISGREENE CONDOMINIUMS

RESIDENTIAL CLUSTER DEVELOPMENT

TOWN OF WEST WARWICK ASSESSORS:
MAP 4 LOTS 215 & 335

IN

WEST WARWICK, RHODE ISLAND

OWNER/APPLICANT
JUSTIN WILBUR
35 TRIPOLI STREET
PROVIDENCE, RHODE ISLAND 02909
(401) 639-0560

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

DATE: APRIL 2018

REVISED APRIL 17, 2018 – WW SEWER AUTHORITY COMMENTS
REVISED MAY 29, 2018 – WW FIRE DEPARTMENT COMMENTS
REVISED JULY 10, 2018 – KCWA COMMENTS
REVISED JULY 26, 2018 – KCWA COMMENTS
REVISED OCTOBER 18, 2018 – PRELIMINARY SUBMISSION
REVISED NOVEMBER 9, 2018 – PRELIMINARY SUBMISSION 2
REVISED FEBRUARY 7, 2019 – PRELIMINARY SUBMISSION 3
REVISED OCTOBER 7, 2019 – RIDEM COMMENTS
REVISED JANUARY 28, 2020 – RIDEM COMMENTS

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

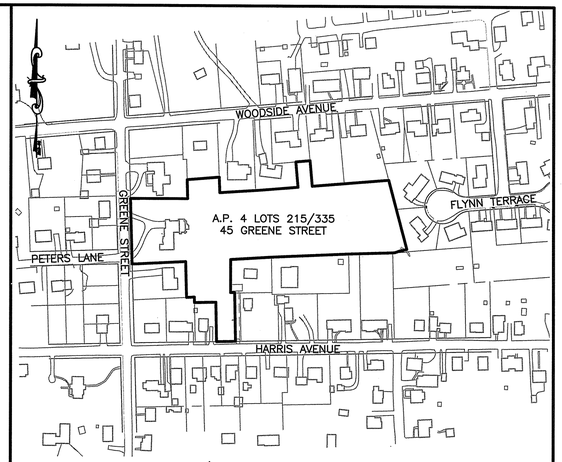
DATE APPROVED:_____

DATE ENDORSED:_____

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION
TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

THE ATTACHED DRAWING NUMBERS 1 TO 17 HAVE BEEN PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION, AND HAVE BEEN THOROUGHLY CHECKED BY ME.



LOCUS/LOCATION MAP
SCALE: 1"=200'

SHEET INDEX

Environmental Management
JAN 29 2020
Office of Water Resources

WEST WARWICK ZONING DISTRICT: R-8

CONVENTIONAL REQUIREMENTS (MINIMUMS)

LOT AREA – 8,000 S.F. (1–FAMILY)/12,000 S.F. (2–FAMILY)
LOT WIDTH – 80 FT
LOT DEPTH – 100 FT
LOT FRONTAGE – 70 FT
SETBACKS:

	PRINCIPAL	ACCESSORY
FRONT	25 FT	25 FT
INTERIOR SIDE	10 FT	10 FT
CORNER SIDE	25 FT	20 FT
REAR YARD	25 FT	10 FT

MAXIMUM STORIES – TWO
MAXIMUM HEIGHT – 25 FT
MAXIMUM BUILDING LOT COVERAGE – 25%

REFERENCE TO PROPERTY DEED AS RECORDED IN THE WEST WARWICK LAND EVIDENCE RECORDS
BOOK 2366 PAGE 208

LOCAL/STATE/FEDERAL PERMITS REQUIRED:

1. RIDEM RIPDES PROGRAM APPROVAL
2. WEST WARWICK PLANNING BOARD APPROVAL
3. KCWA WATER SYSTEM CONNECTION APPROVAL
4. WEST WARWICK SEWER CONNECTION APPROVAL

GENERAL NOTES:

1. THESE PLANS ARE ISSUED FOR PERMITTING REVIEW AND APPROVAL ONLY, AND ARE NOT ISSUED FOR CONSTRUCTION. PLANS MAY BE SUBJECT TO REVISIONS AND CONDITIONS OF LOCAL/STATE APPROVALS.
2. THE LOCATION AND ELEVATION FOR ALL EXISTING UTILITIES SHALL BE CONSIDERED APPROXIMATE, AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO 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 COMMONWEALTH ENGINEERS & CONSULTANTS, INC. 400 SMITH STREET, PROVIDENCE, RHODE ISLAND 02908; (401) 273-6600.
3. 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.
4. 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.
5. UNLESS OTHERWISE NOTED OR AUTHORIZED, RHODE ISLAND DEPARTMENT OF TRANSPORTATION (RIDOT) APPROVED MATERIALS SHALL BE USED; REFER TO RIDOT'S APPROVED MATERIAL LIST.
6. CONSTRUCT ALL WORK IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF RIDOT, THE TOWN OF WEST WARWICK, THE KENT COUNTY WATER AUTHORITY, AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.

PROJECT NO. 17033.00

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
ABUTTER LINE		
ZONING SETBACK LINE		
FLAGGED WETLAND EDGE	WF-## WF-##	
100' RIVERBANK WETLAND		
SOIL EVALUATION	SE-##	
SAWCUT LIMIT		
LIMIT OF DISTURBANCE	LOD LOD	
EDGE OF PAVEMENT		
BACK OF BERM		
BUILDING		
FENCELINE		
STONE WALL		
RETAINING WALL		
TREELINE		
CONTOUR LINE	##	##
SPOT GRADE	×##.#	×##.#
UTILITY POLE		
WATER MAIN	W WV	W WV
WATER GATE VALVE		
WATER CURB STOP		
HYDRANT		
SEWER MAIN	S	S
SEWER MANHOLE	S	S
DRAIN PIPE (≤18"ø)	D	D
DRAIN PIPE (>18"ø)		
DRAIN MANHOLE		
DRAIN INLET (CATCH BASIN)		

ABBREVIATIONS

APPROX	APPROXIMATE
BIT	BITUMINOUS
BOT	BOTTOM
BOW	BOTTOM OF WALL REVEAL FINISH GRADE (ACTUAL BASE OF WALL WILL BE LOWER THAN SURFACE ELEVATION)
CB	CATCH BASIN
CEM	CEMENT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CL##	PRESSURE RATING CLASS
CLDI	CEMENT-LINED DUCTILE IRON
CONC	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DG	DOUBLE-GRATE
DMH	DRAIN MANHOLE
ELEV	ELEVATION
EX	EXISTING
ESHGWT	ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
GWT	GROUNDWATER TABLE
HDPE	HIGH-DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH
LOD	LIMIT OF DISTURBANCE
LT	LEFT
MAX	MAXIMUM
MCU	MODULAR CONCRETE UNIT
MIN	MINIMUM
PROP	PROPOSED
PVC	POLY-VINYL CHLORIDE
PSI	POUNDS PER SQUARE INCH (PRESSURE RATING)
PC	POINT OF CURVATURE
PT	POINT/POINT OF TANGENCY
PVI	POINT OF VERTICAL INFLECTION
R&D	REMOVE & DISPOSE
R&R	REMOVE & RESET
R&S	REMOVE & STOCKPILE
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
SCH	SCHEDULE (PIPES)
SDR	STANDARD DIMENSION RATIO
SESC	SOIL EROSION & SEDIMENTATION CONTROL
SEV	SOIL EVALUATION
SF	SQUARE FEET
SG	SINGLE-GRATE
SMH	SEWER MANHOLE
SS	STAINLESS STEEL
STA	STATION
SY	SQUARE YARD
TH	TEST HOLE
TOW	TOP OF WALL
VERT	VERTICAL
W	WIDTH
WF	WETLAND FLAG
WQ	WATER QUALITY
YR	YEAR
'	FEET
"	INCHES
'/'	VERTICAL FEET/HORIZONTAL FOOT

GENERAL NOTES:

1. THESE PLANS HAVE BEEN ISSUED FOR LOCAL AND/OR STATE AGENCY REVIEW. ONLY PLANS STAMPED 'ISSUED FOR CONSTRUCTION' AFTER RECEIPT OF ALL LOCAL AND STATE APPROVALS SHALL BE USED FOR CONSTRUCTION.
2. SPECIFICATIONS & DETAILS GOVERNING THIS PROJECT ARE THE RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, 2013 EDITION & TOWN OF WEST WARWICK SUBDIVISION & LAND DEVELOPMENT STANDARDS. THE TOWN'S STANDARDS SHALL OVERRIDE RIDOT STANDARDS OUTSIDE OF STATE R.O.W.'S.
3. THE CONTRACTOR SHALL READ AND FAMILIARIZE ITSELF WITH THE TOWN'S SUBDIVISION & LAND DEVELOPMENT REGULATIONS (AS THEY PERTAIN TO CONSTRUCTION) PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED DRIVEWAY AND DRAINAGE SYSTEM IN ACCORDANCE WITH THE TOWN'S SPECIFICATIONS FOR CONSTRUCTION OF REQUIRED IMPROVEMENTS, AS SPECIFIED IN THE TOWN'S SUBDIVISION & LAND DEVELOPMENT REGULATIONS.
5. ANY REQUIRED AUTHORIZATION/PERMITS TO PERFORM WORK NOT PREVIOUSLY SECURED & PROVIDED BY THE OWNER SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION; THE CONTRACTOR SHALL ADHERE TO THE TERMS, CONDITIONS AND REQUIREMENTS OF ALL STATE & LOCAL PERMITS ISSUED FOR THE PROJECT.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY CONSTRUCTION OPERATIONS, INCLUDING ALL ACTIONS OR OMISSIONS OF ANY SUBCONTRACTORS, AGENTS OR EMPLOYEES. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL ASPECTS OF ON-SITE SAFETY, INCLUDING ANY DAMAGE TO EXISTING STRUCTURES.
7. ALL ELEVATIONS ON SUBJECT PROPERTY ARE BASED ON NGVD29 DATUM, AND HAVE A POTENTIAL VERTICAL VARIANCE OF 1± FEET.
8. NO EXISTING DRAINAGE STRUCTURE OR FACILITY SHALL BE ALTERED OR DISTURBED UNLESS SPECIFICALLY INDICATED ON THESE DRAWINGS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REPAIR.
9. ALL DISTURBED AREAS/STRUCTURES SHALL BE REPLACED IN-KIND, UNLESS OTHERWISE SHOWN OR AUTHORIZED BY THE TOWN.
10. THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE CONTRACT DOCUMENTS AND PLANS, AND SHALL INSPECT THE SITE. ANY CHANGES TO THE PROJECT, OR THE INSTALLATION OF AN ITEM FOR WHICH NO PARTICULAR DETAIL OR SPECIFICATION WAS PROVIDED, SHALL BE REVIEWED BY, AND MUST BE ACCEPTABLE TO, THE ENGINEER.
11. THE ABSENCE OF PARTICULAR DETAILS OR SPECIFICATIONS FOR WORK CALLED FOR ON THE PLANS SHALL NOT RELIEVE ANY LINES AND GRADES. ALL EXISTING AND PROPOSED UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEM FOUND WHICH DOES NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW.
12. ALL CONSTRUCTION IS SUBJECT TO THE INSPECTION OF AND APPROVAL BY THE TOWN. PROPER NOTIFICATION SHALL BE GIVEN PRIOR TO THE COMMENCEMENT OF ANY WORK, AND NO WORK SHALL PROCEED WITHOUT THE AUTHORIZATION OF THE TOWN.
13. PRIOR TO THE START OF CONSTRUCTION, THE APPROVED LIMIT OF DISTURBANCE SHALL BE LOCATED AND FIELD-DELINEATED BY A RI PLS; NO CLEARING OR DISTURBANCE SHALL TAKE PLACE OUTSIDE THE ESTABLISHED LIMIT AT ANY POINT DURING CONSTRUCTION, UNLESS EXPLICITLY AUTHORIZED BY THE TOWN.
14. PRIOR TO THE START OF EARTH-DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL SEDIMENT & SOIL EROSION CONTROL (SESC) DEVICES IN ACCORDANCE WITH RIDEM & TOWN STANDARDS.
15. THE LOCATION, SIZE AND SHAPE OF HOUSES/INDIVIDUAL DRIVEWAYS ARE DEPICTED TO DEMONSTRATE CONFORMANCE WITH VARIOUS STATE AND LOCAL SITE REQUIREMENTS FOR PERMITTING PURPOSES. THESE MAY ALL VARY ACCORDING TO BUYER PREFERENCES AND PERMITTING APPROVALS, EXCEPT THAT UNDER NO CIRCUMSTANCES SHALL ANY BUILDINGS BE ALLOWED BEYOND THE LIMITS OF DISTURBANCE OR THE BUILDING SETBACK LINES SHOWN ON THESE PLANS.
16. PROPOSED GRADING ON THE HOUSE LOTS IS TO BE USED AS A GUIDE, SUCH THAT THE DEVELOPED AREA IS GRADED TO DRAIN ALL SURFACE RUNOFF. LOT GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THE R.I. STATE BUILDING CODE FOR ONE AND TWO FAMILY DWELLINGS, LATEST EDITION.
17. ALL BASEMENTS (LOWEST FLOOR) SHALL BE LOCATED AT LEAST 1 FOOT ABOVE THE ESTIMATED SEASONAL HIGH GROUNDWATER TABLE. FOUNDATION DRAINAGE SHALL BE IN ACCORDANCE WITH THE R.I. BUILDING CODE FOR ONE & TWO FAMILY DWELLINGS.
18. COMMUNICATION LINES (ELECTRIC, TELEPHONE, AND CABLE TV) SHALL BE INSTALLED UNDERGROUND, UNLESS OVERHEAD SERVICE IS APPROVED BY THE TOWN.
19. ALL ROOT SYSTEMS, TREES, STUMPS, BUSHES, BOULDERS AND OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND TRANSPORTED AWAY FROM THE PROJECT SITE, UNLESS ON-SITE DISPOSAL AT AN APPROPRIATE LOCATION (OR LOCATIONS) IS APPROVED BY THE TOWN.
20. MANHOLE AND CATCH BASIN FRAMES & COVERS SHALL BE ADJUSTED TO FINISH GRADE WITH RED BRICK AND MORTAR. OTHER TYPES OF BRICK AND/OR PRECAST CONCRETE RINGS ARE NOT ACCEPTABLE. GRATES SHALL BE SET 0.1 FEET BELOW ROAD GRADE. MANHOLES SHALL BE CONSTRUCTED SO AT LEAST TWO COURSES OF BRICKS ARE BENEATH THE FRAME.
21. ALL MANHOLE AND CATCH BASIN FRAME & COVERS SHALL BE ADJUSTED TO THE FIRST COURSE OF PAVEMENT. THE FRAME AND COVERS SHALL BE RE-ADJUSTED IMMEDIATELY PRIOR TO PLACEMENT OF THE SECOND COURSE OF PAVEMENT.
22. ALL ROADWAY DRAINAGE SHALL REMAIN ON THE ROADWAY, AND SHALL NOT BE DIRECTED DOWN ANY OF THE INDIVIDUAL DRIVEWAYS. WHERE APPLICABLE, A BITUMINOUS APRON SHALL BE CONSTRUCTED ALONG EACH DRIVEWAY CURB CUT TO KEEP DRAINAGE IN THE DRIVEWAY.
23. PROPOSED ROAD AND DRIVEWAY SIGHT DISTANCE TRIANGLES SHALL BE CLEARED BY THE CONTRACTOR TO THE SATISFACTION OF THE TOWN.
24. ANY SLOPES GREATER THAN 2H:1V SHALL BE STABILIZED WITH RIDOT CLASS R-4 RIP RAP LAID ON TOP OF FILTER FABRIC (MIRAFI 180N OR APPROVED EQUAL). DEPTH OF RIP RAP TO BE 1.5 TIMES MAXIMUM STONE SIZE.
25. ALL HDPE PIPE SHALL BE ADS N-12 INTEGRAL BELL WATER-TIGHT PIPE OR APPROVED EQUAL.
26. AFTER SUBSTANTIAL COMPLETION OF THE ROAD AND DRAINAGE SYSTEMS, THE DEVELOPER SHALL INSTALL/CONSTRUCT MISCELLANEOUS WORK ITEMS SUCH AS GUARDRAILS, RIP RAP, SIGNAGE, OR ROAD MARKINGS NOT SHOWN ON THE PLANS BUT DETERMINED TO BE NECESSARY BY THE TOWN AND/OR DESIGN ENGINEER.

EXISTING CONDITIONS/UTILITIES NOTES:

1. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES, BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH 'DIG SAFE'. NO DRAINAGE STRUCTURE OR FACILITY SHALL BE DISTURBED WITHOUT PROPER PERMITS UNLESS SPECIFICALLY INDICATED ON THESE DRAWINGS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
2. ALL EXISTING UTILITIES HAVE BEEN PLOTTED BASED UPON THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION AND REPRESENT APPROXIMATE LOCATIONS. SOME OBSTRUCTIONS, OBSTACLES, OR DIFFICULTIES IN THE PATH OF THE WORK, EITHER ANTICIPATED OR DISCOVERED IN THE PERFORMANCE OF THE WORK, MAY NOT HAVE BEEN INDICATED BY DRAWINGS. THE CONTRACTOR SHALL BE UNDERSTOOD TO HAVE ENTERED INTO THE CONTRACT WITH FULL KNOWLEDGE THAT IN ANY WORK INVOLVING EXCAVATION OPERATIONS IN PUBLIC HIGHWAYS OR ADJACENT TO OTHER DEVELOPMENTS, SOME UNFORESEEN OBSTACLES, DIFFICULTIES, SOIL OR GROUND WATER CONDITIONS, ETC., MAY BE ENCOUNTERED, AND THAT THE CONTRACTOR HAS INCLUDED IN HIS BID AND CONTRACT OBLIGATIONS THE ASSUMPTIONS OF THE RISKS AND COSTS TO WHICH SUCH OBSTACLES, ETC. MAY SUBJECT HIM/HER.
3. THE LOCATION OF EXISTING UNDERGROUND PIPES, CONDUITS, AND STRUCTURES AS SHOWN HAS BEEN COLLECTED FROM THE BEST AVAILABLE SOURCES, AND THE OWNER, TOGETHER WITH HIS AGENTS, DOES NOT IMPLY OR GUARANTEE THE DATA AND INFORMATION IN CONNECTION WITH UNDERGROUND PIPES, CONDUITS, STRUCTURES, AND SUCH OTHER PARTS, AS TO THEIR COMPLETENESS, NOR THEIR LOCATIONS AS INDICATED. THE CONTRACTOR SHALL ASSUME THAT THERE ARE EXISTING WATER, GAS AND OTHER UTILITY CONNECTIONS IN ROUTE, WHETHER THEY APPEAR ON THE DRAWINGS OR NOT. ANY EXPENSE AND/OR DELAY OCCASIONED BY UTILITIES AND STRUCTURES OR DAMAGE THERETO, INCLUDING THOSE NOT SHOWN, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AT NO ADDITIONAL EXPENSE TO THE OWNER.
4. BEFORE PROCEEDING WITH CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL MAKE SUCH SUPPLEMENTAL INVESTIGATIONS, INCLUDING EXPLORATORY EXCAVATIONS BY HAND DIGGING, AS HE DEEMS NECESSARY TO UNCOVER AND DETERMINE THE EXACT LOCATIONS OF UTILITIES AND STRUCTURES AND SHALL HAVE NO CLAIMS FOR DAMAGES DUE TO ENCOUNTERING SUBSURFACE STRUCTURES OR UTILITIES IN LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS, OR WHICH ARE NOT MADE KNOWN TO THE CONTRACTOR PRIOR TO CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ALL DAMAGES TO EXISTING UTILITIES AND STRUCTURES.
5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL ENGAGE A RI PROFESSIONAL LAND SURVEYOR TO SET AND VERIFY ALL LINES AND GRADES. ALL EXISTING AND PROPOSED UTILITY LOCATIONS AND ELEVATIONS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY ITEM FOUND WHICH DOES NOT MATCH THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION FOR REVIEW.
6. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER/STATE/TOWN.
7. WHENEVER IT MAY BE NECESSARY TO CROSS OR INTERFERE WITH EXISTING CULVERTS, DRAINS, SEWERS, WATER PIPES, FIXTURES, GUARDRAILS, FENCES, GAS PIPES, OR OTHER STRUCTURES NEEDING SPECIAL CARE, DUE NOTICE SHALL BE GIVEN TO THE OWNER. WHENEVER REQUIRED, ALL OBJECTS SHALL BE STRENGTHENED TO MEET ANY ADDITIONAL STRESS THAT THE WORK HEREIN SPECIFIED MAY IMPOSE UPON IT, AND ANY DAMAGE CAUSED SHALL BE THOROUGHLY REPAIRED. THE ENTIRE WORK SHALL BE PERFORMED AT NO EXPENSE TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BROKEN MAINS OR UTILITIES ENCOUNTERED DURING THE PROGRESS OF THE WORK AND SHALL REPAIR AND BE RESPONSIBLE FOR CORRECTING ALL DAMAGES TO EXISTING UTILITIES, STRUCTURES AND PERSONAL "PROPERTY" WHICH MAY HAVE BEEN CAUSED BY BROKEN LINES AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY OR AUTHORITY TO CORRECT OR MAKE ANY CHANGES DUE TO UTILITIES OR OTHER OBSTRUCTIONS DURING CONSTRUCTION, BUT THE ENTIRE RESPONSIBILITY AND EXPENSE SHALL BE WITH THE CONTRACTOR. ALL DAMAGED ITEMS OF WORK OR ITEMS REQUIRED TO BE REMOVED AND REPLACED DUE TO CONSTRUCTION SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR TO THE COMPLETE SATISFACTION OF THE OWNER, AND AT NO ADDITIONAL EXPENSE TO THE OWNER.

SUBSURFACE CONDITIONS NOTES:

1. ALL SOIL AND TEST HOLE DATA, WATER TABLE ELEVATIONS, AND SOIL ANALYSIS SHOWN/REFERENCED ON THE DRAWINGS OR INCLUDED IN THE SPECIFICATIONS APPLY ONLY AT THE LOCATION OF THE TEST HOLES AND TO THE DEPTH INDICATED. SOIL TEST REPORTS ARE AVAILABLE FOR INSPECTION AT THE OFFICE OF THE DESIGN ENGINEER. ANY ADDITIONAL SUBSURFACE EXPLORATION SHALL BE DONE BY THE CONTRACTOR AT THEIR OWN EXPENSE. IT IS UNDERSTOOD THAT THE MAKING OF THE DEDUCTIONS, INTERPRETATIONS AND CONCLUSIONS FROM ALL THE ACCESSIBLE FACTUAL INFORMATION, INCLUDING THE NATURE OF THE MATERIALS TO BE EXCAVATED, THE DIFFICULTIES OF MAKING AND MAINTAINING THE REQUIRED EXCAVATIONS, AND THE DIFFICULTIES OF DOING OTHER WORK AFFECTED BY THE GEOLOGY AND OTHER SUBSURFACE CONDITIONS AT THE SITE OF THE WORK, ARE THE CONTRACTOR'S SOLE RESPONSIBILITY.
2. THE INDICATED ELEVATION OF THE WATER TABLE IS THAT EXISTING AT THE DATE THE TEST HOLE DATA WAS DETERMINED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND ALLOW FOR THE ELEVATION OF GROUNDWATER AT THE DATE OF PROJECT CONSTRUCTION. A DIFFERENCE IN ELEVATION BETWEEN GROUNDWATER SHOWN IN SOIL LOGS AND GROUNDWATER ACTUALLY ENCOUNTERED DURING CONSTRUCTION WILL NOT BE CONSIDERED AS A BASIS FOR EXTRA WORK.
3. ESTIMATED SEASONAL HIGH WATER TABLES ARE FOR CONSTRUCTION OF ON-SITE STORMWATER MANAGEMENT SYSTEMS ONLY, AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE. ESTIMATED SEASONAL HIGH WATER TABLES MAY BE EXCEEDED PERIODICALLY.

CONSTRUCTION NOTES:

1. DEVELOPER SHALL RETAIN THE SERVICES OF A RHODE ISLAND PROFESSIONAL ENGINEER TO REVIEW AND APPROVE SHOP DRAWINGS, SAMPLES, AND OTHER SUBMITTALS OF THE CONTRACTOR FOR CONFORMANCE WITH THE DESIGN CONCEPT (THIS PLAN SET) AND TOWN REGULATIONS, WHICH INCLUDE (BUT ARE NOT LIMITED TO) THE FOLLOWING:

   A. DRAINAGE SYSTEM SHOP DRAWINGS/SKETCHES FOR PIPE, PIPE JOINTS, PIPE BEDDING/BACKFILL MATERIALS (SIEVE ANALYSIS, ETC.), COMPACTION METHODS, MANHOLE STRUCTURES, FRAME & COVERS, FRAME & GRATES, FRAME & COVER ADJUSTMENT METHODS TO FINISH GRADE, PROPOSED RIM ELEVATIONS, PIPE INVERTS AND PIPE DIAMETERS. ANY SUBSTANTIAL CHANGES TO THE DESIGN CONCEPT SHALL BE BROUGHT TO THE TOWN'S ATTENTION.
   B. ROADWAY CONSTRUCTION SHOP DRAWINGS/SKETCHES FOR GRAVEL BASE MATERIALS, BITUMINOUS CONCRETE COURSES, SIGNAGE/STRIPING, UNDERDRAINS, GUARDRAILS, RETAINING WALLS AND CURBING/BERMS.
   C. SOIL EROSION CONTROL AND DEWATERING METHODS.
   D. COMPACTION METHODS FOR INSTALLING PIPE/MANHOLES, GRAVEL ROAD BASE AND BITUMINOUS CONCRETE COURSES.
   E. TESTING METHODS AND TESTING FREQUENCY FOR DRAINAGE AND ROAD SYSTEMS. TESTING FREQUENCY SHALL BE IN ACCORDANCE WITH RIDOT AND TYPICAL ENGINEERING STANDARDS.

2. THE SHOP DRAWING SUBMITTAL PACKAGE SHALL BE STAMPED BY A RHODE ISLAND PROFESSIONAL ENGINEER AND SUBMITTED TO THE TOWN/TOWN ENGINEER FOR REVIEW AND APPROVAL. SHOP DRAWING RECORDS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT, INCLUDING THE WARRANTY PERIOD.
3. MARKED-UP CONSTRUCTION DRAWINGS SHALL BE MAINTAINED AND KEPT AT THE JOB SITE FOR THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL PREPARE AND SUBMIT AS-BUILT DRAWINGS IN ACCORDANCE WITH TOWN REGULATIONS; AS-BUILTS SHALL BE STAMPED BY A R.I. PROFESSIONAL LAND SURVEYOR AND R.I. PROFESSIONAL ENGINEER.
5. PRIOR TO ACCEPTANCE OF INFRASTRUCTURE, A RI P.E. SHALL CERTIFY THE INFRASTRUCTURE WAS INSTALLED IN ACCORDANCE WITH THE DESIGN INTENT AND MEETS RIDOT/TOWN STANDARDS & PERMIT STIPULATIONS, AND IS READY FOR USE.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0158
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC DURING CONSTRUCTION, INCLUDING POLICE PROTECTION. ALL TEMPORARY AND VEHICULAR SIGNS, BARRICADES AND LANE CLOSURES SHALL BE IN CONFORMANCE WITH THE MAY 2012 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), INCLUDING ALL SUBSEQUENT REVISIONS.
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 WILL NOT BE PARKED IN THE STREET RIGHT-OF-WAYS.
4. SIGN MOUNTINGS SHALL BE IN ACCORDANCE WITH R.I.D.O.T. SPECIFICATIONS FOR TEMPORARY CONSTRUCTION SIGNS.

EARTHWORK NOTES:

1. SPECIFICATIONS & DETAILS TO GOVERN THIS PROJECT ARE THE RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION - AUGUST 2013 EDITION (INCLUDING ALL SUBSEQUENT ADDENDA) AS WELL AS TOWN STANDARDS; WHERE APPLICABLE, THE TOWN'S STANDARDS SHALL OVERRIDE RIDOT STANDARDS.
2. RIDOT STANDARDS ARE AVAILABLE FOR DOWNLOAD FROM THE RIDOT WEBSITE UNDER 'STANDARDS AND SPECIFICATIONS' (WWW.DOT.STATE.RI.US/ENGINEERING/STANDARDS/INDEX.ASP). TOWN STANDARDS ARE AVAILABLE FOR DOWNLOAD FROM THE TOWN OF WEST WARWICK WEBSITE.
3. EMBANKMENT SLOPES AND ALL DISTURBED AREAS ARE TO RECEIVE 4" OF TOPSOIL AND GRASS SEED UNLESS OTHERWISE NOTED.
4. ALL EXCAVATION AND PLACEMENT OF FILL SHALL BE IN ACCORDANCE WITH R.I.D.O.T. STANDARD SPECIFICATIONS SECTION 202 AND TOWN SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. ALL MATERIALS AND METHODS SHALL BE PERFORMED IN ACCORDANCE WITH THESE STANDARDS AND SPECIFICATIONS. ALL FILL BENEATH PAVEMENTS SHALL BE GRAVEL AS DEFINED IN THE RIDOT SPECIFICATIONS.
5. ALL AREAS COMPACTED BY CONSTRUCTION ACTIVITIES (OTHER THAN ROADWAYS AND BENEATH STRUCTURES) SHALL BE RESTORED TO PROMOTE INFILTRATION BY TILLING THE TOP 12 INCHES OF SOIL PRIOR TO FINAL STABILIZATION.
6. ALL UNSUITABLE MATERIAL (LOAM, SUBSOIL, ROOTS, TREE TRUNKS, CLAY, SILT, ORGANIC MATTER, LARGE STONES, ETC.) SHALL BE REMOVED FROM THE ROADWAY SUBGRADE AND EMBANKMENT AREAS PRIOR TO THE PLACEMENT OF THE GRAVEL SUBBASE/BERM MATERIAL AS DIRECTED AND APPROVED.
7. SUITABLE SURPLUS MATERIAL GENERATED BY EXCAVATIONS WITHIN THE PROJECT AREA (SAND, GRAVEL, LOAM, ETC.) SHALL BE RE-USED, TO THE EXTENT POSSIBLE, IN OTHER LOCATIONS WITHIN THE PROJECT AREA; MINING OF SITE MATERIALS (I.E. REMOVAL OF SUITABLE IN-SITU MATERIALS FROM THE SITE AND REPLACEMENT WITH IMPORTED BORROW MATERIALS) SHALL NOT BE PERMITTED.

GROUNDWATER REMOVAL & PROTECTION FROM FLOODING NOTES:

1. SOME EXCAVATIONS FOR PIPELINES, STRUCTURES, AND APPURTENANT WORK REQUIRED MAY OCCUR BELOW EXISTING GROUNDWATER LEVELS.
2. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL PUMPS, DRAINS, WELL POINTS AND/OR ANY OTHER FACILITIES FOR THE CONTROL, COLLECTION, AND DISPOSAL OF GROUNDWATER OR SURFACE AND SUBSURFACE WATER ENCOUNTERED IN THE PERFORMANCE OF THE WORK, AND SHALL PROVIDE ALL PUMPS, PIPING, AND DITCHING FOR THE REMOVAL OF WATER FROM THE TRENCHES AND EXCAVATIONS SO THAT ALL TRENCHES AND EXCAVATIONS MAY BE KEPT FREE FROM WATER AT ALL TIMES, AND SO THAT THE WORK MAY BE PERFORMED IN THE DRY.
3. DEWATERING OF EXCAVATIONS SHALL BE ACCOMPLISHED BY METHODS THAT HAVE BEEN APPROVED PRIOR TO COMMENCEMENT OF WORK BY THE ENGINEER, AND WHICH HAVE A BACKGROUND OF SUCCESSFUL DEWATERING OF EXCAVATIONS OF THE TYPE TO BE EMPLOYED FOR THE WORK.
4. PUMPING SHALL BE CONTINUOUS WHERE DIRECTED AND/OR AS NECESSARY TO PROTECT THE WORK, AND TO MAINTAIN SATISFACTORY PROGRESS OF SAME.
5. THE CONTRACTOR'S DEWATERING AND PUMPING OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT NO LOSS OF GROUND WILL RESULT THAT WILL ENDANGER ADJACENT EXISTING FEATURES OR TO THE CONTRACT WORK RESULTING FROM THE CONTRACTOR'S DEWATERING OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR, AS DIRECTED BY THE OWNER, AT NO ADDITIONAL EXPENSE TO THE OWNER. PRECAUTIONS SHALL BE TAKEN TO PROTECT NEW AND EXISTING WORK FROM FLOODING OR DAMAGE DURING STORMS OR OTHER CAUSES.
6. ALL PIPELINES OR STRUCTURES NOT STABLE AGAINST UPLIFT DURING CONSTRUCTION OR PRIOR TO COMPLETION SHALL BE THOROUGHLY BRACED OR OTHERWISE PROTECTED.
7. WATER FROM THE TRENCHES, EXCAVATIONS, AND DRAINAGE OPERATIONS SHALL BE DISPOSED OF IN SUCH A MANNER AS WILL CAUSE NEITHER INJURY TO PUBLIC HEALTH OR PRIVATE PROPERTY, NOR DAMAGE TO THE WORK COMPLETED OR IN PROGRESS.
8. THE CONTRACTOR SHALL CONSTRUCT DITCHES, ESTABLISH GRADING, AND PERFORM ANY AND ALL OTHER WORK AS MAY BE NECESSARY TO DIVERT AND PREVENT SURFACE WATER AND WATER FROM DEWATERING OPERATIONS FROM ENTERING EXCAVATION AND WORK AREAS.

STORMWATER SYSTEM OPERATION & MAINTENANCE NOTES:

1. INSPECTIONS AND PROPER MAINTENANCE ARE ESSENTIAL FOR THE LONGEVITY OF THE DRAINAGE SYSTEMS. THE DRAINAGE SYSTEM SHALL BE INSPECTED IN ACCORDANCE WITH THE OPERATION AND MAINTENANCE (O&M) PLAN PREPARED SPECIFICALLY FOR THIS DEVELOPMENT.
2. THE PINE ESTATES PHASE 3 HOMEOWNERS ASSOCIATION SHALL MAINTAIN ALL ELEMENTS OF THE PROPOSED COMMON DRAINAGE SYSTEM (CATCH BASINS, MANHOLE, PIPING, INFILTRATION BASINS, POROUS PAVEMENT). A LEGALLY BINDING AND ENFORCEABLE MAINTENANCE AGREEMENT SHALL BE EXECUTED BETWEEN THE OWNER AND A MAINTENANCE COMPANY TRAINED AND EXPERIENCED WITH THE MAINTENANCE REQUIREMENTS DETAILED IN THE O&M PLAN FOR THIS DEVELOPMENT, AS WELL AS THE 'RHODE ISLAND STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL,' LATEST EDITION (KNOWN AS THE 'MANUAL').
3. THE INDIVIDUAL DWELLING ROOF RUNOFF INFILTRATION CHAMBER SYSTEMS SHALL BE MAINTAINED BY THE INDIVIDUAL HOMEOWNERS.

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

Environmental Management
JAN 29 2020
Office of Water Resources

LEGEND, ABBREVIATIONS & NOTES

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION
TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
12-18-18

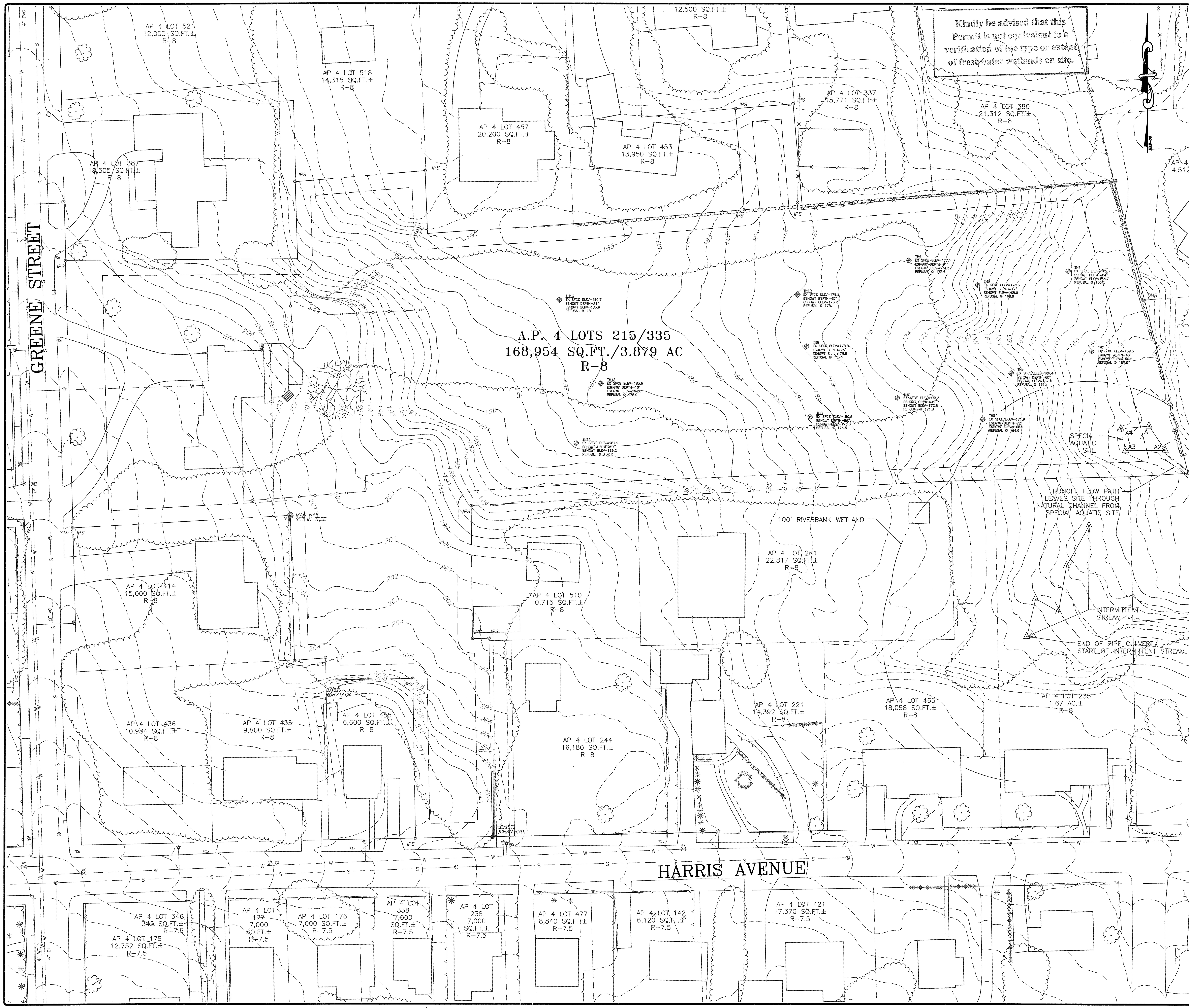
REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE
CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: N/A		SHEET NO: 2 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00


Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.
GREENE STREET
HARRIS AVENUE
A.P. 4 LOTS 215/335
168,954 SQ.FT./3.879 AC
R-8
12,500 SQ.FT.±
R-8
AP 4 LOT 521
12,003 SQ.FT.±
R-8
AP 4 LOT 518
14,315 SQ.FT.±
R-8
AP 4 LOT 457
20,200 SQ.FT.±
R-8
AP 4 LOT 453
13,950 SQ.FT.±
R-8
AP 4 LOT 337
15,771 SQ.FT.±
R-8
AP 4 LOT 380
21,312 SQ.FT.±
R-8
AP 4 LOT 387
18,505 SQ.FT.±
R-8
AP 4 LOT 261
22,817 SQ.FT.±
R-8
100' RIVERBANK WETLAND
SPECIAL AQUATIC SITE
RUNOFF FLOW PATH LEAVES SITE THROUGH NATURAL CHANNEL FROM SPECIAL AQUATIC SITE
INTERMITTENT STREAM
END OF PIPE CULVERT START OF INTERMITTENT STREAM
MAG NAIL SET IN TREE
AP 4 LOT 414
15,000 SQ.FT.±
R-8
AP 4 LOT 510
0,715 SQ.FT.±
R-8
AP 4 LOT 436
10,984 SQ.FT.±
R-8
AP 4 LOT 435
9,800 SQ.FT.±
R-8
AP 4 LOT 455
6,600 SQ.FT.±
R-8
AP 4 LOT 244
16,180 SQ.FT.±
R-8
AP 4 LOT 221
14,392 SQ.FT.±
R-8
AP 4 LOT 465
18,058 SQ.FT.±
R-8
AP 4 LOT 235
1.67 AC.±
R-8
AP 4 LOT 346
345 SQ.FT.±
R-7.5
AP 4 LOT 178
12,752 SQ.FT.±
R-7.5
AP 4 LOT 177
7,000 SQ.FT.±
R-7.5
AP 4 LOT 176
7,000 SQ.FT.±
R-7.5
AP 4 LOT 338
7,000 SQ.FT.±
R-7.5
AP 4 LOT 238
7,000 SQ.FT.±
R-7.5
AP 4 LOT 477
8,840 SQ.FT.±
R-7.5
AP 4 LOT 142
6,120 SQ.FT.±
R-7.5
AP 4 LOT 421
17,370 SQ.FT.±
R-7.5

GENERAL NOTES:

1. TOPOGRAPHY WAS PROVIDED TO BOYER ASSOCIATES BY FOSTER SURVEY COMPANY, AND WAS BASED ON AN ASSUMED DATUM.
2. DEPICTED FRESHWATER WETLAND FLAGS HUNG/REVIEWED BY NATURAL RESOURCE SERVICES, INC. IN 2018.
3. EXISTING GROUND COVER FOR THIS PROPERTY IS PRIMARILY VEGETATED OPEN SPACE & WOODS.
4. THE PARCEL OF LAND IS NOT LOCATED IN ANY NATIONAL HERITAGE AREAS OR HISTORIC DISTRICTS, GROUNDWATER RESERVOIR, WELLHEAD PROTECTION AREA OR SOLE SOURCE AQUIFER.
5. THE PROPERTY IS LOCATED WITHIN THE NORTH BRANCH PAWTUXET RIVER SUBBASIN.
6. THE EXISTING STRUCTURE LOCATED ON THE PARCEL IS NOT LISTED ON THE NATIONAL HISTORIC REGISTER.
7. THERE ARE NO KNOWN HISTORIC CEMETERIES WITHIN OR IMMEDIATELY ADJACENT TO SUBJECT PROPERTY.
8. EXISTING CONDITIONS AS OF NOVEMBER 2017.

SURVEY REFERENCE & NOTES:

1. BASE MAPPING HAS BEEN PREPARED FROM A SURVEY PLAN BY MARK D. BOYER, BOYER ASSOCIATES, JANUARY 2018.
2. THE SURVEY WAS CONDUCTED AND THE PLAN WAS PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ADOPTED ON NOVEMBER 25, 2015, AS FOLLOWS:

   BOUNDARY SURVEY: COMPREHENSIVE CLASS I STANDARD

   DATA ACCUMULATION SURVEY: CLASS III STANDARD

3. ALL NOTES, TERMS AND CONDITIONS OF THE BOYER ASSOCIATES SURVEY PLAN ARE APPLICABLE HERETO UNLESS OTHERWISE NOTED OR INDICATED HEREIN.

FLOOD ZONE NOTE:

THE SITE IS NOT LOCATED WITHIN ANY FLOOD ZONES, AS DEPICTED ON FIRM NUMBER 44003C0109H (EFFECTIVE DATE OCTOBER 2, 2015).

SOILS/SUBSURFACE CONDITIONS NOTE:

1. THE ENTIRE SITE IS UNDERLAIN BY CANTON URBAN LAND COMPLEX SOILS, PER THE USDA WEB SOIL SURVEY.
2. LIMITED ON-SITE SOIL EXPLORATIONS (TEST HOLES) WERE PERFORMED AT THE LOCATIONS INDICATED ON THE PLANS. WHERE DEPICTED ON THE PLANS, WATER TABLES AND LEDGE LAYERS ARE DEPICTED AT THE LOCATIONS DETERMINED BY THE AVAILABLE TEST HOLE DATA, AND SHOULD BE CONSIDERED APPROXIMATE & SUBJECT TO VARIATIONS AT LOCATIONS BETWEEN TEST HOLES.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:

DATE ENDORSED:

Environmental Management
JAN 2 9 2020
Office of Water Resources

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

EXISTING CONDITIONS PLAN

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
REGISTERED
PROFESSIONAL ENGINEER
10-18-18

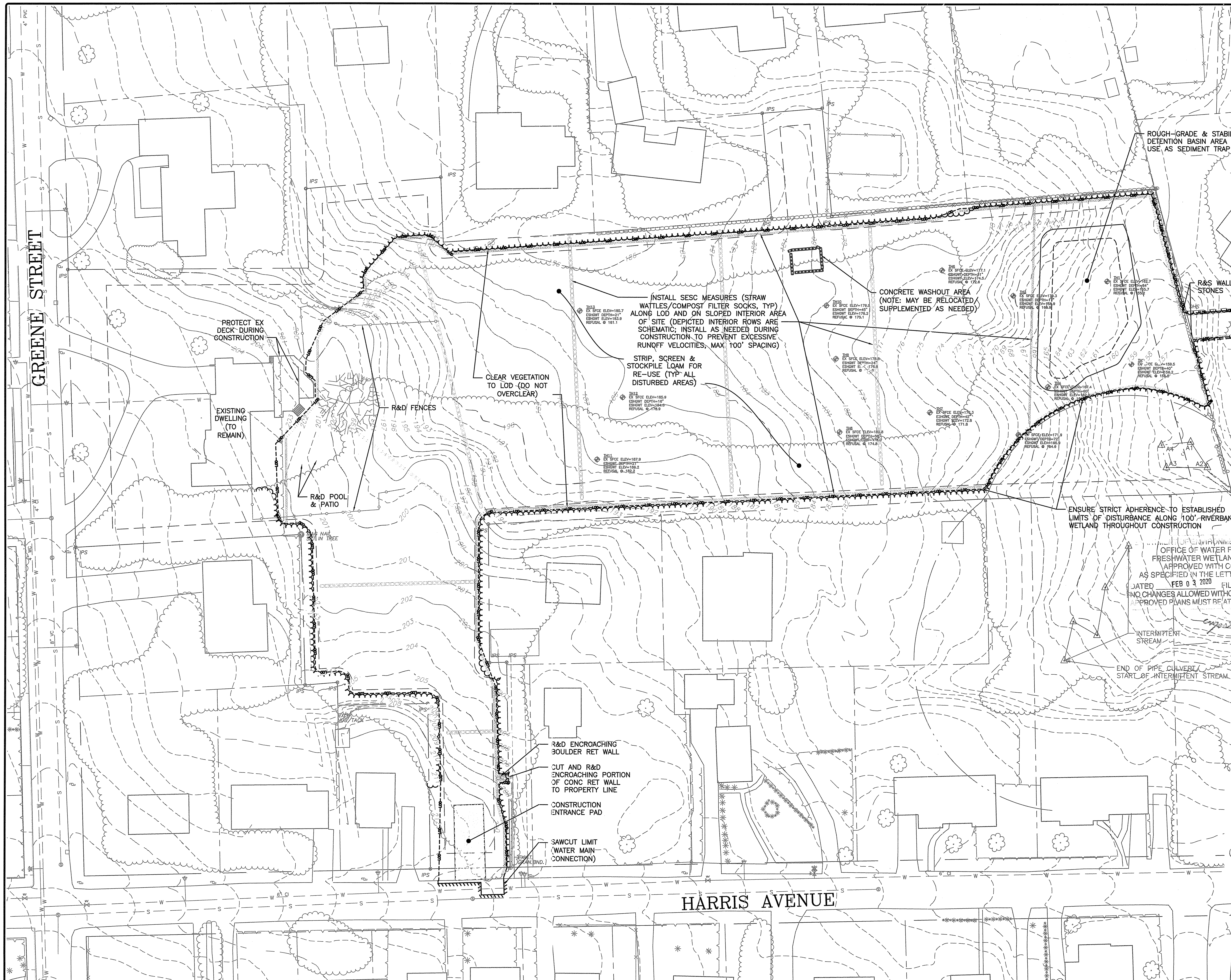
REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE
CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30'	SHEET NO: 3 OF 18	
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00	



Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.
GREENE STREET
FLYNN T
HARRIS AVENUE
ROUGH-GRADE & STABILIZE DETENTION BASIN AREA FOR USE AS SEDIMENT TRAP
SAWCUT LIMIT (SAN SEWER CONNECTION)
R&S WALL STONES
CUT, REMOVE & REPLACE CEM CONC RETAINING WALL
CONSTRUCTION ENTRANCE PAD
CONCRETE WASHOUT AREA (NOTE: MAY BE RELOCATED/SUPPLEMENTED AS NEEDED)
INSTALL SESC MEASURES (STRAW WATTLES/COMPOST FILTER SOCKS, TYP) ALONG LOD AND ON SLOPED INTERIOR AREA OF SITE (DEPICTED INTERIOR ROWS ARE SCHEMATIC; INSTALL AS NEEDED DURING CONSTRUCTION TO PREVENT EXCESSIVE RUNOFF VELOCITIES, MAX 100' SPACING)
STRIP, SCREEN & STOCKPILE LOAM FOR RE-USE (TYP ALL DISTURBED AREAS)
CLEAR VEGETATION TO LOD (DO NOT OVERCLEAR)
PROTECT EX DECK DURING CONSTRUCTION
EXISTING DWELLING (TO REMAIN)
R&D FENCES
R&D POOL & PATIO
ENSURE STRICT ADHERENCE TO ESTABLISHED LIMITS OF DISTURBANCE ALONG 100' RIVERBANK WETLAND THROUGHOUT CONSTRUCTION
INTERMITTENT STREAM
END OF PIPE CULVERT/ START OF INTERMITTENT STREAM
R&D ENCROACHING BOULDER RET WALL
CUT AND R&D ENCROACHING PORTION OF CONC RET WALL TO PROPERTY LINE
CONSTRUCTION ENTRANCE PAD
SAWCUT LIMIT (WATER MAIN CONNECTION)
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
JAN 29 2020

CATCH BASIN INSERT NOTE:
UPON COMPLETION OF STORMWATER SYSTEM COLLECTION & CONVEYANCE SYSTEM, INSTALL CATCH BASIN INSERTS IN ALL CATCH BASINS DOWNGRADIENT OF UNSTABILIZED AREAS UNTIL COMPLETION OF CONSTRUCTION/STABILIZATION OF GROUND COVER.

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:

DATE ENDORSED:

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

SITE PREPARATION/SESC PLAN

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
10-18-18
REGISTERED PROFESSIONAL ENGINEER

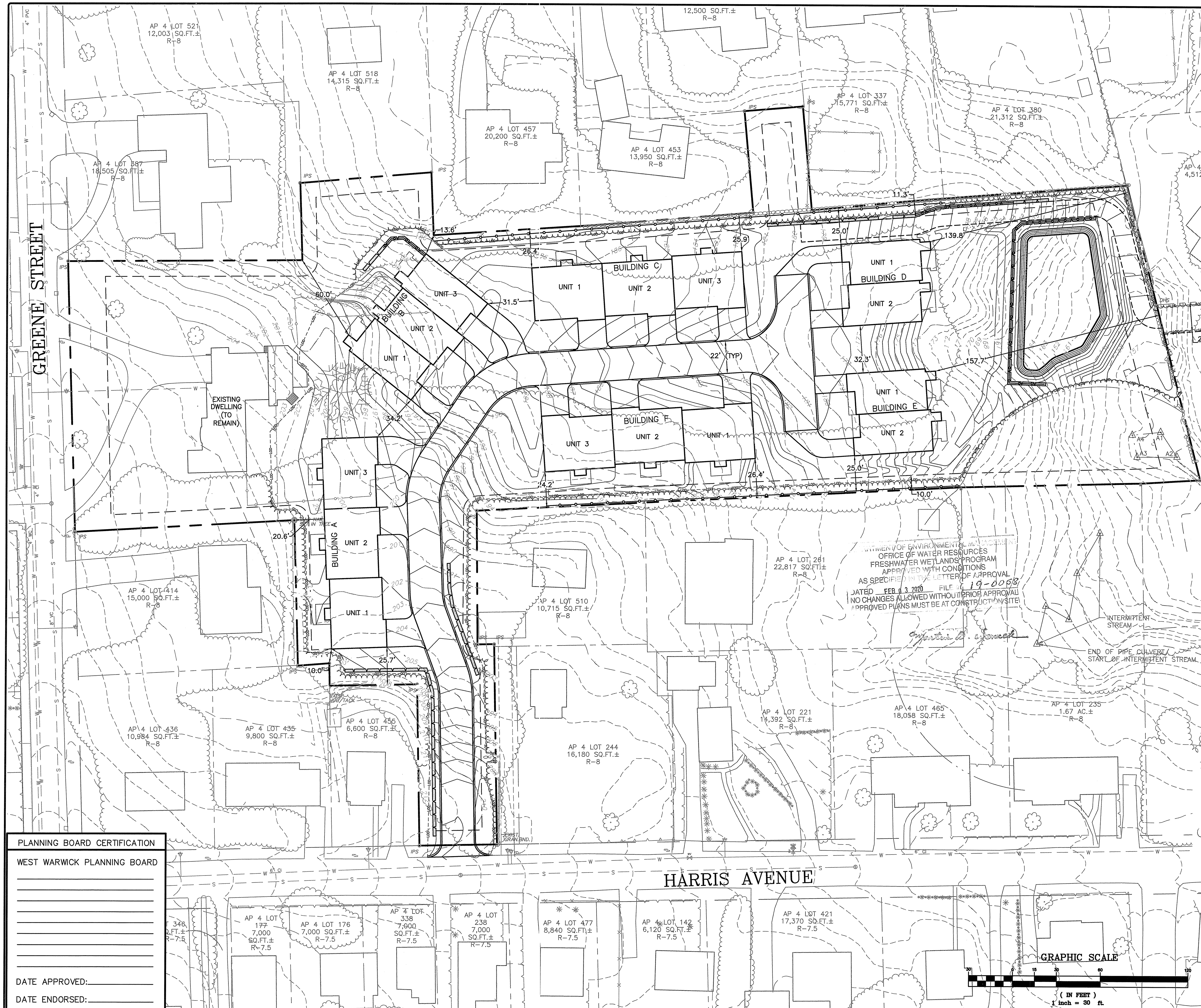
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30' | SHEET NO: 4 OF 18
DRAWN BY: MCZ | DESIGN BY: MCZ | CHECKED BY: TJB
DATE: APRIL 2018 | PROJECT NO.: 17033.00



GREENE STREET
HARRIS AVENUE
FLYNN T
BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING E
BUILDING F
UNIT 1
UNIT 2
UNIT 3
EXISTING DWELLING (TO REMAIN)
22' (TYP)
20.0' SEWER EASEMENT
INTERMITTENT STREAM
END OF PIPE CULVERT/ START OF INTERMITTENT STREAM
AP 4 LOT 521 12,003 SQ.FT.± R-8
AP 4 LOT 518 14,315 SQ.FT.± R-8
AP 4 LOT 387 18,505 SQ.FT.± R-8
AP 4 LOT 457 20,200 SQ.FT.± R-8
AP 4 LOT 453 13,950 SQ.FT.± R-8
AP 4 LOT 337 15,771 SQ.FT.± R-8
AP 4 LOT 380 21,312 SQ.FT.± R-8
AP 4 LOT 340 9,803 SQ.FT.± R-8
AP 4 LOT 381 11,250 SQ.FT.± R-8
AP 4 LOT 472 1,060 SQ.FT.± R-8
AP 4 LOT 392 9,040 SQ.FT.± R-8
AP 4 LOT 393 4,512 SQ.FT.± R-8
AP 4 LOT 394 10,912 SQ.FT.± R-8
AP 4 LOT 395 7,957 SQ.FT.± R-8
AP 4 LOT 414 15,000 SQ.FT.± R-8
AP 4 LOT 510 10,715 SQ.FT.± R-8
AP 4 LOT 261 22,817 SQ.FT.± R-8
AP 4 LOT 436 10,984 SQ.FT.± R-8
AP 4 LOT 435 9,800 SQ.FT.± R-8
AP 4 LOT 455 6,600 SQ.FT.± R-8
AP 4 LOT 244 16,180 SQ.FT.± R-8
AP 4 LOT 221 14,392 SQ.FT.± R-8
AP 4 LOT 465 18,058 SQ.FT.± R-8
AP 4 LOT 235 1.67 AC.± R-8
AP 4 LOT 177 7,000 SQ.FT.± R-7.5
AP 4 LOT 176 7,000 SQ.FT.± R-7.5
AP 4 LOT 338 7,900 SQ.FT.± R-7.5
AP 4 LOT 238 7,000 SQ.FT.± R-7.5
AP 4 LOT 477 8,840 SQ.FT.± R-7.5
AP 4 LOT 142 6,120 SQ.FT.± R-7.5
AP 4 LOT 421 17,370 SQ.FT.± R-7.5
Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF WATER RESOURCES FRESHWATER WETLANDS PROGRAM APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE 19-0068
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

WEST WARWICK ZONING DISTRICT: R-8

CONVENTIONAL REQUIREMENTS (MINIMUMS)

LOT AREA – 8,000 S.F. (1–FAMILY)/12,000 S.F. (2–FAMILY)
LOT WIDTH – 80 FT
LOT DEPTH – 100 FT
LOT FRONTAGE – 70 FT
SETBACKS:

	PRINCIPAL	ACCESSORY
FRONT	25 FT	25 FT
INTERIOR SIDE	10 FT	10 FT
CORNER SIDE	25 FT	20 FT
REAR YARD	25 FT	10 FT

MAXIMUM BUILDING LOT COVERAGE – 25%
TOTAL LOT AREA – 168,954 SF (3.879± AC)
MAXIMUM BUILDING LOT COVERAGE AREA – 42,239.5 SF
PROPOSED BUILDING AREA – 32,676 SF (INCL EX HOUSE & DECK)
PROPOSED BUILDING LOT COVERAGE – 19.34%

Environmental Management
JAN 29 2020
Office of Water Resources

PROPOSED DEVELOPMENT NOTES:

1. THE PROPOSED DEVELOPMENT CONSISTS OF 16 NEW SINGLE–STORY CONDOMINIUMS, CONFIGURED IN SIX 2–3 UNIT BUILDINGS;THE EXISTING DWELLING (#45 GREENE STREET) IS ALSO PROPOSED TO REMAIN.
2. THE NEW CONDOMINIUMS WILL BE ACCESSED BY A PRIVATE, COMMON DEAD–END DRIVEWAY MEETING ALL BUT ONE OF THE GEOMETRIC REQUIREMENTS OF THE TOWN OF WEST WARWICK FOR A LOCAL ROADWAY (11' LANE WIDTH PROPOSED VS 12' TYPICAL LANE WIDTH); THE TOTAL PROPOSED LENGTH OF THE COMMON DRIVEWAY IS APPROXIMATELY 560 LF. A WAIVER FOR THE REDUCED LANE WIDTH SHALL BE REQUESTED.
3. NO SIDEWALKS ARE PROPOSED ALONG THE COMMON DRIVEWAY; PROPOSED COMMON DRIVEWAY EDGE TREATMENT SHALL BE BITUMINOUS CONCRETE CAPE COD BERM.
4. UNITS SHALL HAVE ACCESS TO THE COMMON DRIVEWAY VIA INDIVIDUAL BITUMINOUS CONCRETE DRIVEWAYS.
5. SANITARY SEWER SERVICE IS PROPOSED VIA GRAVITY SEWER WITH CONNECTION TO THE EXISTING GRAVITY SEWER SYSTEM IN FLYNN TERRACE.
6. WATER SERVICE IS PROPOSED VIA A CONNECTION TO THE KCWA 6" WATER MAIN IN HARRIS AVENUE, AND SHALL BE REGULATED VIA A KCWA MASTER METER AT THE ENTRANCE TO THE DEVELOPMENT.
7. PROPOSED CONSTRUCTION ACCESS ROUTES WILL BE THE PROPOSED DRIVEWAY LOCATION ON HARRIS AVENUE AND THE WEST END OF FLYNN TERRACE.

LAYOUT PLAN

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
10-18-18
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
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6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

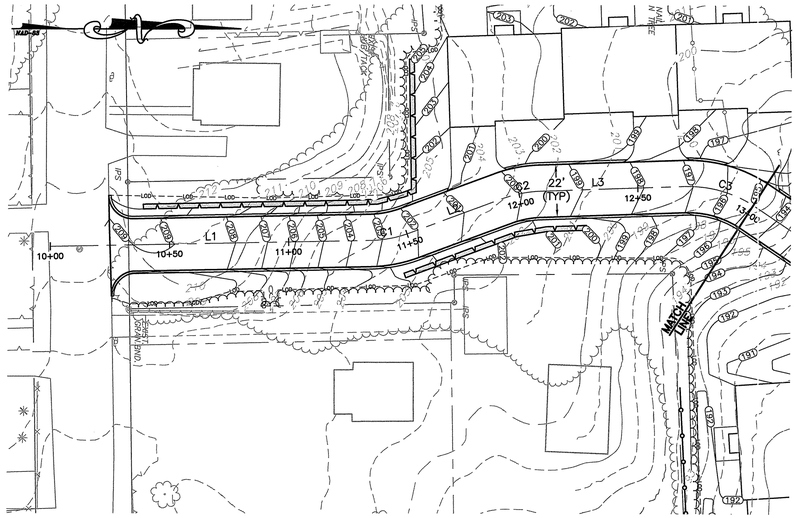
SCALE: 1"=30'	SHEET NO: 5 OF 18
DRAWN BY: MCZ / DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00

PLANNING BOARD CERTIFICATION

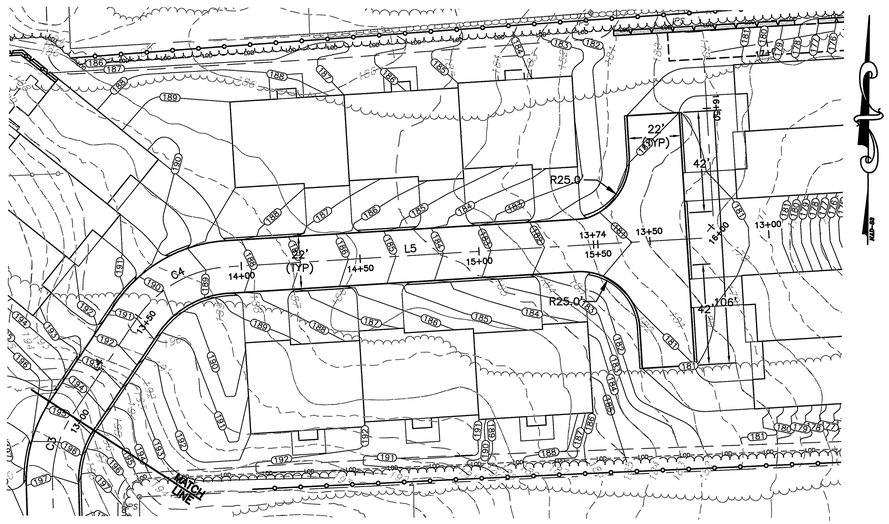
WEST WARWICK PLANNING BOARD

DATE APPROVED:

DATE ENDORSED:



PLAN VIEW – DRIVEWAY STA. 10+00 – 13+00



PLAN VIEW – DRIVEWAY STA. 13+00 – 16+00

HORIZONTAL ALIGNMENT TABLE

DRIVEWAY CL						
NUMBER	PC STA	PT STA	LENGTH	RADIUS	Δ	LINE/CHORD DIRECTION
L1	10+00.00	11+34.33	134.33			N1°06'04"W
C1	11+34.33	11+51.17	16.84	50.00	19.298	N10°45'01"W
L2	11+51.17	11+93.04	41.87			N20°23'57"W
C2	11+93.04	12+09.04	16.00	50.00	18.333	N11°13'59"W
L3	12+09.04	12+69.72	60.69			N2°04'00"W
C3	12+69.72	13+00.95	31.23	50.00	35.784	N15°49'31"E
L4	13+00.95	13+48.44	47.49			N33°43'02"E
C4	13+48.44	13+94.20	45.76	50.00	52.434	N59°56'04"E
L5	13+94.20	15+93.73	199.52			N86°07'30"E

PROFILE VIEW – DRIVEWAY CENTERLINE
STA. 10+00 – 16+00

SCALE: 1"=30'H/6'V

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DRIVEWAY PLAN & PROFILE

PERMIT AGENCY APPROVED NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
12-18-18

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
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6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

HARRISGREENE
CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30'	SHEET NO: 6 OF 18
DRAWN BY: MCZ / DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00

GREENE STREET

FLYNN T

HARRIS AVENUE

4'H BLACK VINYL-COATED CHAIN LINK FENCE (TYP ALL WALL SECTIONS WITH >4'H REVEAL)

MCU RETAINING WALL
TOP ELEV=192.0
BOT ELEV=186.0-191.5
MAX REVEAL=6.0'

MCU RETAINING WALL
MAX REVEAL=3.7'

TOW 182.0
BOW OUT 181.1
BOW IN 181.2

TOW 179.0
BOW OUT 178.0
BOW IN 177.0

TOW 182.0
BOW OUT 178.5
BOW IN 178.3

MCU RETAINING WALL
MAX REVEAL=5.2'

TOW 174.0
BOW OUT 173.4
BOW IN 171.0

TOW 179.0
BOW OUT 178.5
BOW IN 175.0

TOW 179.0
BOW OUT 178.5
BOW IN 173.8

TOW 169.5
BOW OUT 168.8
BOW IN 168.4

TOW 170.5
BOW OUT 164.0
BOW IN 163.0

MCU RETAINING WALL
MAX REVEAL=7.5'

TOW 170.5
BOW IN 164.0
BOW OUT 170.5

BOULDER WALL
(ALONG PERIMETER OF BASIN)
TOP ELEV=161.0
BOT ELEV=156.5
MAX REVEAL=4.5'

TOW 170.5
BOW IN 164.0
BOW OUT 165.0

TOW 170.5
BOW IN 163.8
BOW OUT 170.0

EXISTING DWELLING (TO REMAIN)

MCU RETAINING WALL
TOP ELEV=200.5-203.9
BOT ELEV=200.0-202.6

MCU RETAINING WALL
TOP ELEV=205.5-210.5
BOT ELEV=201.8-210.0

INTERMITTENT STREAM

END OF PIPE CULVERT / START OF INTERMITTENT STREAM

RETAINING WALL ABBREVIATIONS:
BOW: BOTTOM OF WALL REVEAL FINISH GRADE (ACTUAL BASE OF WALL WILL BE LOWER THAN SURFACE ELEVATION)
TOW: TOP OF WALL

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

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

JAN 29 2020
OFFICE OF WATER RESOURCES

GRADING PLAN

PERMIT AGENCY APPROVAL SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE
CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
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7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

SCALE: 1"=30'		SHEET NO: 7 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00

SEPTIC GRAVEL SPECIFICATION:
(FOR USE IN OVERDIG AREA BENEATH DETENTION BASIN)

GRAVEL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 3". UP TO 10% MAY BE SIZED BETWEEN 3/4" AND 3". GRAVEL SHALL MEET THE FOLLOWING:

SIEVE SIZE	% PASSING
3/4"	90–100%
#4	55%–100%
#10	40%–100%
#40	10%–50%
#100	0%–20%
#200	0%–5%

GRAVEL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY.
PERC RATE AFTER COMPACTION SHALL BE BETWEEN 7.25 TO 15.0 MIN/IN.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

JAN 29 2020

STORMWATER MANAGEMENT SYSTEM PLAN

PERMIT AGENCY REVISIONS
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No. 6278
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

REVISIONS

No.	DATE	DRWN	CHKD
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HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30'	SHEET NO: 8 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ · CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00

PLANNING BOARD CERTIFICATION

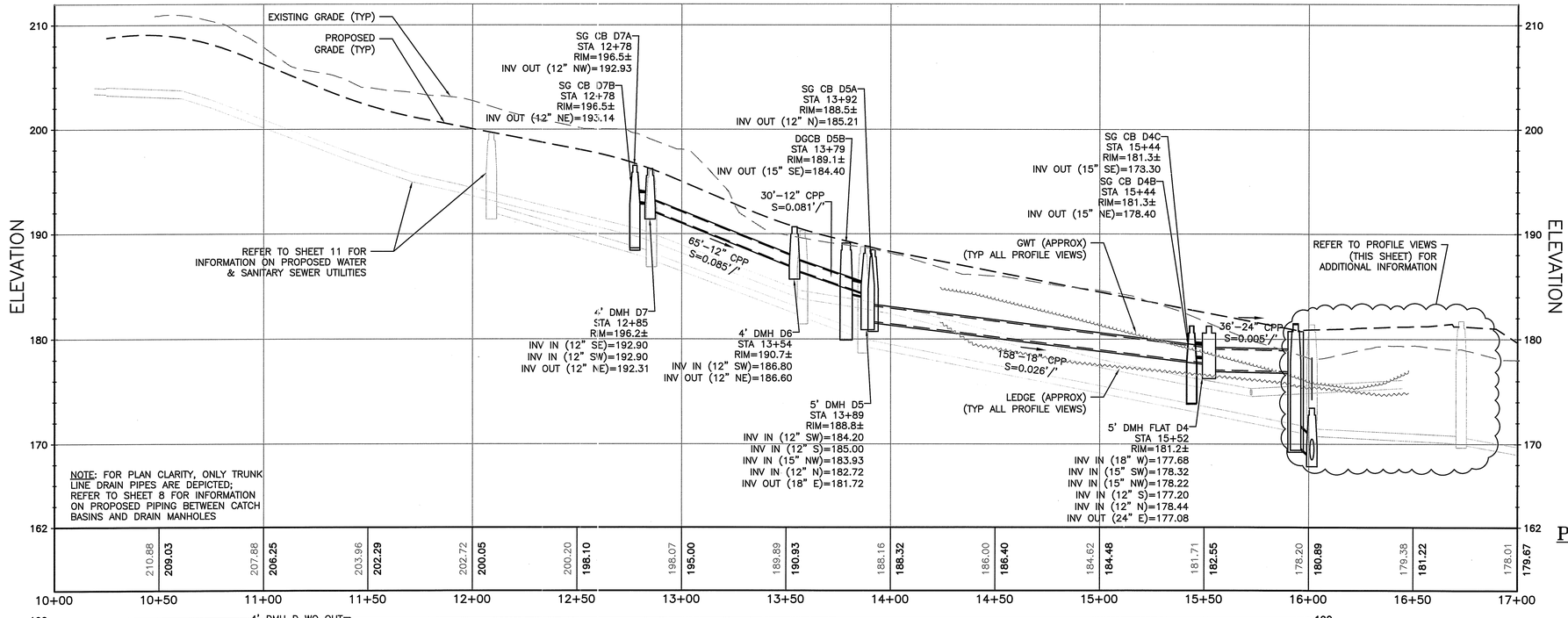
WEST WARWICK PLANNING BOARD

DATE APPROVED:________

DATE ENDORSED:________

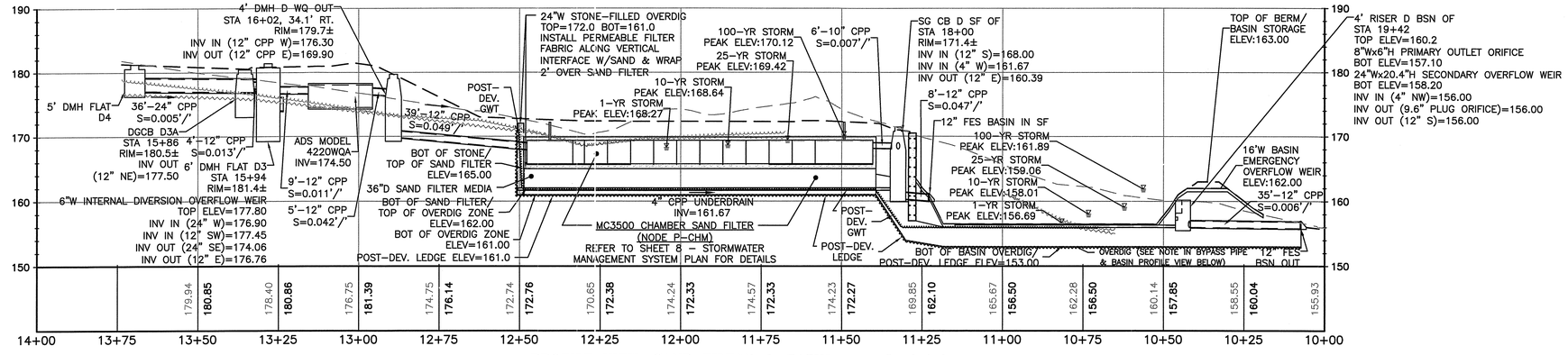
STORMWATER MANAGEMENT NOTES:

1. ALL STORMWATER DRAIN MANHOLES SHALL HAVE RI STD 6.2.1 FRAMES & COVERS.
2. ALL STORMWATER SINGLE CATCH BASINS SHALL HAVE RI STD 6.3.2 FRAMES & GRATES.
3. ALL CATCH BASINS SHALL HAVE 4' DEEP SUMPS, AS MEASURED FROM THE INVERT OF THE LOWEST (OUTGOING) PIPE IN EACH.
4. FOR DRAIN STRUCTURES WITH LABELS CONTAINING NAME AND STATION ONLY, REFER TO PLAN SHEET 9 – STORMWATER MANAGEMENT SYSTEM PROFILES FOR ADDITIONAL STRUCTURE INFORMATION (RIM ELEVATION, CONNECTED PIPE SIZES AND INVERT ELEVATIONS, ETC.)
5. TYPICALLY FINE-GRADE SURFACE TO SHED ROOF RUNOFF FROM DOWNSPOUTS TO NEAREST CATCH BASIN; IN LOCATIONS WHERE SURFACE GRADING CANNOT BE DEVELOPED TO SHED ROOF RUNOFF TO A CATCH BASIN, CONNECT DOWNSPOUTS TO 4" CPP DRAIN PIPES CONNECTED TO NEAREST DRAIN STRUCTURE (CATCH BASIN OR DRAIN MANHOLE).

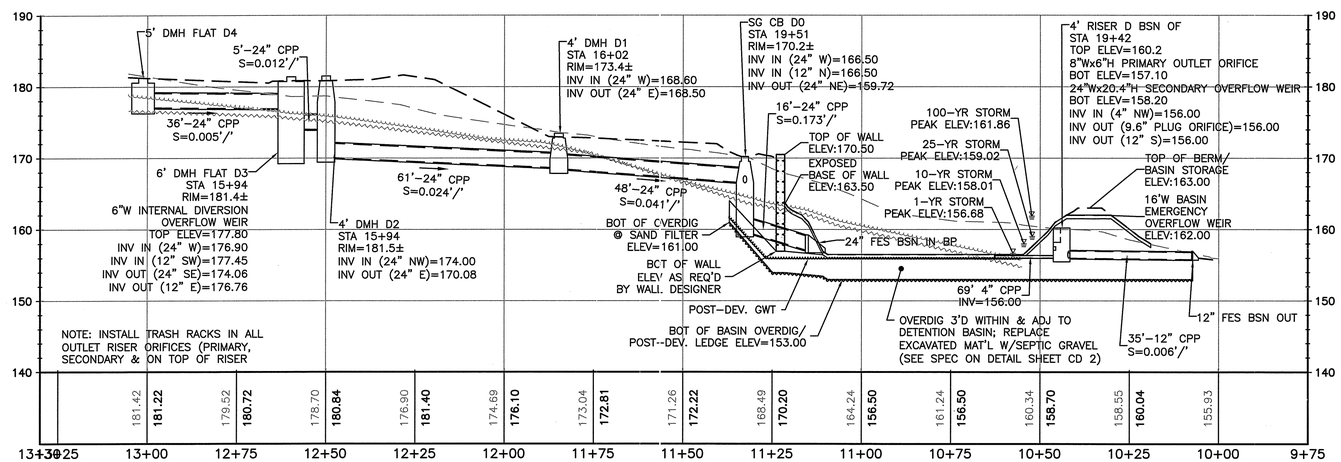


PROFILE VIEW – STORMWATER MANAGEMENT SYSTEM STA. 10+00 – 19+85

SCALE: 1"=30'H/6'V



PROFILE VIEW: SAND FILTER & BASIN SCALE: 1"=20'H/10'V



PROFILE VIEW: BYPASS PIPE & BASIN SCALE: 1"=20'H/10'V

CATCH BASIN SUMP NOTE:
ALL CATCH BASINS SHALL HAVE 4' DEEP SUMPS, AS MEASURED FROM THE INVERT OF THE LOWEST (OUTGOING) PIPE IN EACH.

STATIONING NOTE:
STATION VALUES INDICATED IN "SAND FILTER & DETENTION BASIN" PROFILE VIEW REFER TO A SEPARATE ALIGNMENT SPECIFIC TO THE STORMWATER MANAGEMENT STRUCTURES, AND NOT THE OVERALL SITE/DRIVEWAY ALIGNMENT.

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:_____

DATE ENDORSED:_____

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

JAN 29 2020

STORMWATER MANAGEMENT SYSTEM PROFILES

PERMIT AGENCY REVISIONS NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN — No 6278 — REGISTERED PROFESSIONAL ENGINEER — 10-18-18

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
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9	1-28-20	MCZ	TJB

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 9 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00	

Kindly be advised that this Permit is not an evaluation or a verification of the type or extent of freshwater wetlands on site.

GREENE STREET

FLYNN T

HARRIS AVENUE

4' SMH S5
STA 16+73
RIM=181.7±
INV IN (8" S)=170.07
INV OUT (8" E)=169.97

4' SMH S4
STA 17+67
RIM=173.3±
INV IN (8" W)=166.63
INV OUT (8" E)=166.53

4' SMH S3
STA 18+69
RIM=164.4±
INV IN (8" W)=157.39
INV OUT (8" S)=157.29

5' INSIDE DROP S0
STA 20+97
RIM=144.5±
INV IN (8" W)=139.67
INV OUT (EX 8")=
MATCH EX (135.10)

EX SMH (R&D)
RIM=144.5
INV OUT (8" E)=135.10

4' SMH S6
STA 16+02
RIM=181.4±
INV IN (8" W)=170.88
INV OUT (8" N)=170.78

4' SMH S7
STA 13+87
RIM=188.8±
INV IN (8" SW)=180.00
INV OUT (8" E)=179.33

±600 LF 8" CL52 CLDI WATER MAIN
INSTALL MIN 5' BELOW PROP FINISH
SURFACE GRADE

KCWA
PERMANENT
BLOW-OFF
ASSEMBLY

90'-8" PVC
S=0.037'/'

98'-8" PVC
S=0.093'/'

77'-8" PVC
S=0.082'/'

5' INSIDE DROP S2
STA 19+51
RIM=158.6±
INV IN (8" N)=151.00
INV OUT (8" E)=146.68

67'-8" PVC
S=0.011'/'

95'-8" PVC
S=0.044'/'

41'-8" PVC
S=0.028'/'

5' INSIDE DROP S1
STA 20+51
RIM=148.2±
INV IN (8" W)=142.50
INV OUT (8" E)=140.82

4' SMH S8
STA 13+58
RIM=190.3±
INV IN (8" SW)=182.20
INV OUT (8" NE)=182.10

28'-8" PVC
S=0.075'/'

209'
8" PVC
S=0.040'/'

HYDRANT &
6" GATE
VALVE
ASSEMBL

71'-8" PVC
S=0.075'/'

4' SMH S9
STA 12+86
RIM=196.0±
INV IN (8" S)=187.62
INV OUT (8" NE)=187.52

74'-8" PVC
S=0.060'/'

INSTALL WATER ABOVE SANITARY
SEWER & PROVIDE 18" MIN
VERT CLEARANCE FROM
CROSSING UTILITY MAINS (TYP)

6" SDR 35 PVC
SEWER LATERAL
(TYP OF 16, 1/UNIT)

3/4" TYPE K COPPER
WATER SERVICE
(TYP OF 16, 1/UNIT,
TOTAL ±220 LF MAIN
TO CURB STOPS

4' SMH S10
STA 12+09
RIM=199.6±
INV OUT (8" N)=192.08

CIP THRUST BLOCK &
KCWA-APPROVED JOINT-RESTRAINT
GLANDS (TYP @ ALL FITTINGS)

ABOVE-GRADE MASTER METER/RPZ
BACKFLOW PREVENTION ENCLOSURE

8"x6" D.I. REDUCER/
EXPANSION COUPLING

CONNECT TO EX 6" CI WATER MAIN
IN HARRIS AVENUE W/8"x6" SS
TAPPING SLEEVE & GATE VALVE

INTERMITTENT STREAM

END OF PIPE CULVERT/
START OF INTERMITTENT STREAM

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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UNIT	3/4" WATER SERVICE LENGTH (MAIN TO CURB STOP) (FT)
A1	14
A2	15
A3	15
B1	15
B2	16
B3	17
C1	15
C2	15
C3	15
D1	13
D2	13
E1	18
E2	27
F1	4
F2	4
F3	4
TOTAL:	220

UTILITY SERVICE NOTES

1) EACH CONDOMINIUM UNIT SHALL BE PROVIDED WITH INDEPENDENT WATER AND SANITARY SEWER SERVICE CONNECTIONS.
2) SANITARY SEWER CONNECTIONS SHALL BE 6" SDR 35 GASKETED PVC PIPE.
3) WATER SERVICES SHALL BE 3/4" TYPE K COPPER DESIGNED FOR POTABLE WATER SERVICE, CONFORMING TO ANSI/ASTM B88.
4) WATER & SANITARY SEWER SERVICE CONNECTIONS SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE KCWA AND THE WEST WARWICK SEWER AUTHORITY (WWSA), RESPECTIVELY. ALL WATER MAINS AND SERVICES SHALL BE MIN 10' FROM SANITARY SEWER MAIN & SERVICE PIPES AND MANHOLES.
5) DEPICTED WATER AND SANITARY SEWER SERVICE CONNECTION LOCATIONS MAY BE ADJUSTED BY CONTRACTOR DURING CONSTRUCTION, PROVIDED THAT ALL APPLICABLE CLEARANCE REQUIREMENTS OF BOTH THE KCWA AND WWSA ARE MET.

OFF-ROAD SEWER MANHOLE NOTE

SET FRAMES & COVERS OF ALL OFF-ROAD SEWER MANHOLES ±0.5 FEET ABOVE ADJACENT FINISH GRADE.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

JAN 29 2020

PERMIT AGENCY REVISIONS
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-19-18

REVISIONS

No.	DATE	DRWN	CHKD
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9	1-28-20	MCZ	TJB

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS

A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

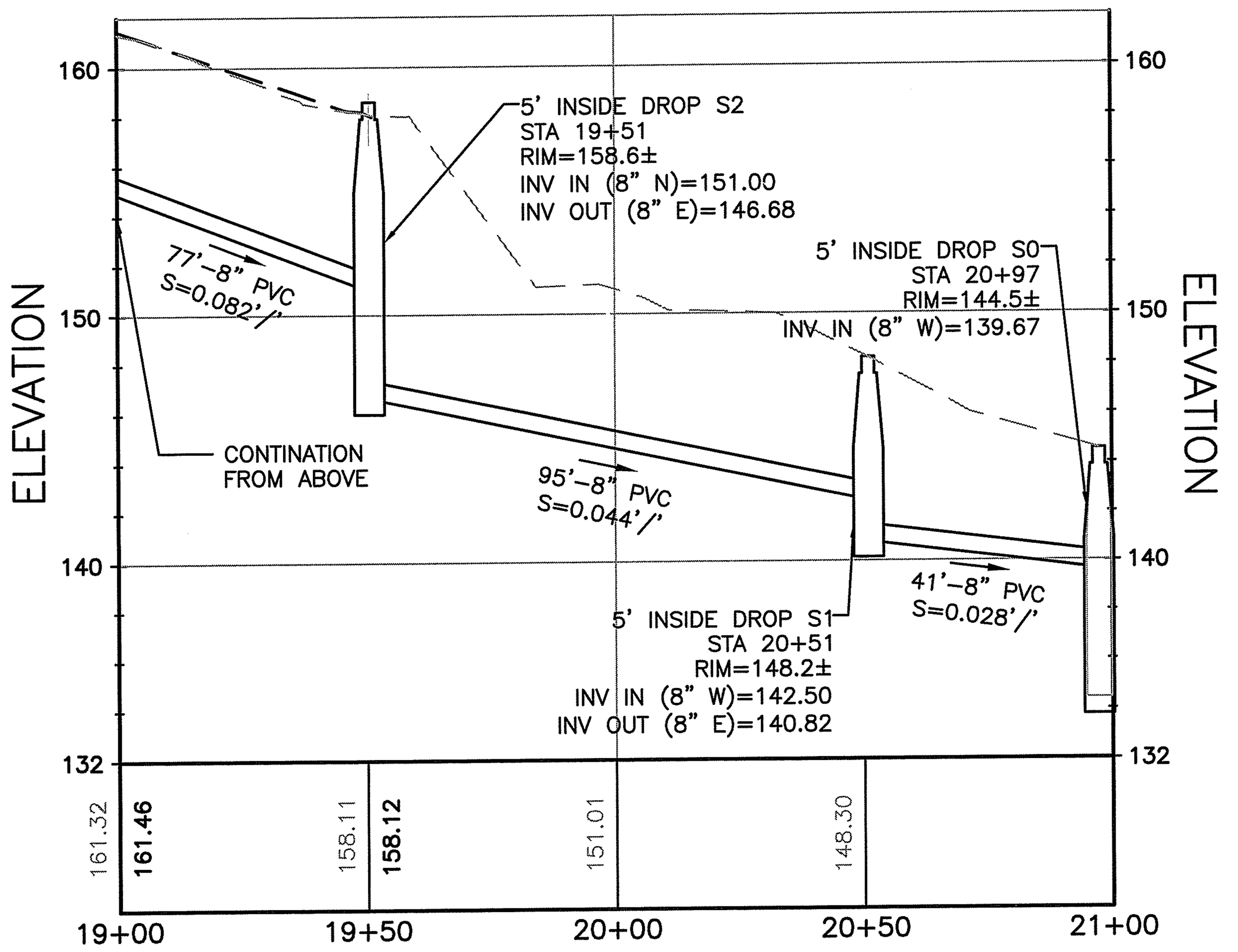
SCALE: 1"=30' | SHEET NO: 10 OF 18
DRAWN BY: MCZ | DESIGN BY: MCZ | CHECKED BY: TJB
DATE: APRIL 2018 | PROJECT NO.: 17033.00

UTILITY PLAN

PROFILE VIEW - UTILITIES (SANITARY SEWER & WATER)

STA. 10+00 - 21+00

SCALE: 1"=30'H/6'V



JAN 29 2020

UTILITY PROFILES

PLANNING BOARD CERTIFICATION
WEST WARWICK PLANNING BOARD
____
DATE APPROVED:__________
DATE ENDORSED:__________

NOT FOR CONSTRUCTION
TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

REVISIONS

No.	DATE	DRWN	CHKD
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COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
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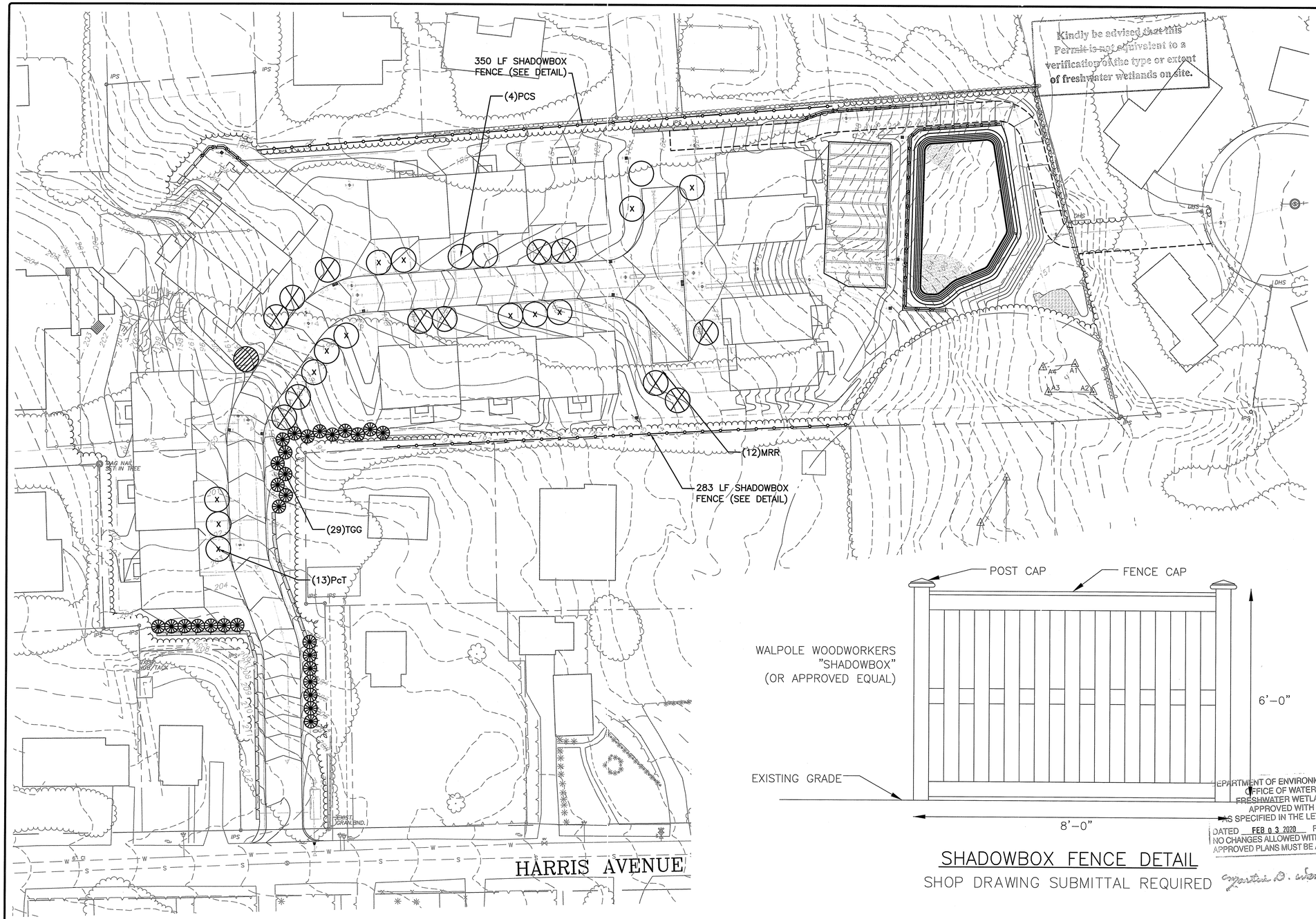
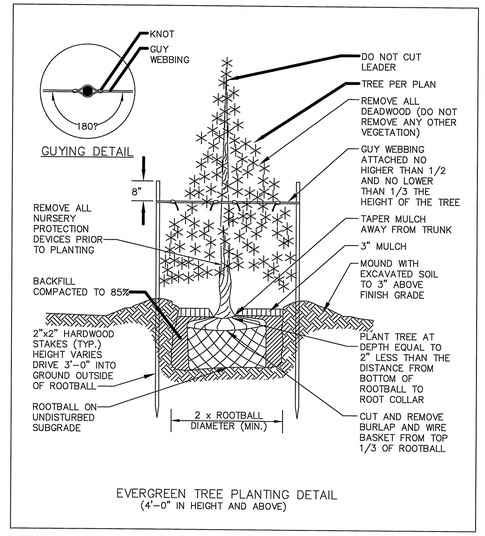
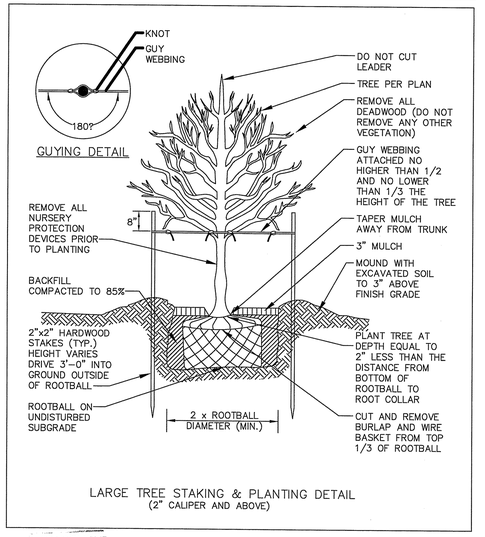
HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30'H / 1"=6'V		SHEET NO: 11 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00





EVERGREEN TREE PLANTING DETAIL
(4'-0" IN HEIGHT AND ABOVE)



LARGE TREE STAKING & PLANTING DETAIL
(2" CALIPER AND ABOVE)

SHADOWBOX FENCE DETAIL
SHOP DRAWING SUBMITTAL REQUIRED

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

JAN 29 2020
Office of Water Resources

LANDSCAPE PLAN

MASTER PLANT SCHEDULE

SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
MRR	12	Malus x 'Royal Raindrops'	Royal Raindrops crabapple	15 GAL.	CAN	15' o.c.
PcT	13	Prunus cerasifera 'Thundercloud'	Thundercloud plum	15 GAL.	CAN	15' o.c.
PCS	4	Pyrus calleryana 'Cleveland Select'	Cleveland Select pear	15 GAL.	CAN	15' o.c.
TGG	29	Thuja plicata 'Green Giant'	Green Giant arbor-vitae	10 GAL.	CAN	8' o.c.

LANDSCAPE NOTES:

1) ALL PLANT MATERIAL TO CONFORM TO AAN STANDARDS.
2) ALL PLANT MATERIAL TO RECEIVE THREE INCHES OF SHREDDED PINE BARK MULCH.
3) ALL PLANT MATERIAL TO BE GUARANTEED TO SURVIVE AT LEAST ONE GROWING SEASON, OR THEY SHALL BE REPLACED AT THE LANDSCAPE CONTRACTOR'S EXPENSE.
4) ALL PLANT MATERIAL SUBJECT TO VERIFICATION AS TO LOCATION AND SPECIES.
5) THERE WILL BE NO PLANT MATERIAL SUBSTITUTIONS WITHOUT THE WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT.
6) DISTURBED SOILS WITHIN THE PROJECT LIMITS ARE TO BE LOAMED AND SEEDED.
7) DETENTION BASIN BOTTOM AND SIDE SLOPES SHALL BE SEEDED WITH THE APPLICABLE RIDOT SEED MIXTURE (SLOPE MIXTURE ON SLOPES), AND SHALL CONFORM TO RIDOT SEEDING RATES AND DATES.

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:

DATE ENDORSED:

REVISIONS

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COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: 1"=30'		SHEET NO: 12 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00

GENERAL SOIL EROSION/ SEDIMENTATION CONTROL NOTES:

1. THE RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL HANDBOOK, LATEST EDITION, SHALL BE APPLICABLE TO THIS PROJECT AS APPLICABLE, AND IS MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO.
2. ALL REQUIRED SITE IMPROVEMENTS SHALL BE INSPECTED BY THE DESIGNATED AUTHORITY (E.G. TOWN ENGINEER, PLANNING BOARD, OTHER DESIGNATED AGENT(S)) TO ENSURE SATISFACTORY COMPLETION. IN NO CASE SHALL THE CONSTRUCTION/INSTALLATION OF ANY IMPROVEMENTS BE STARTED UNTIL 48-HOUR PRIOR NOTIFICATION IS GIVEN TO THE DESIGNATED AUTHORITY.
3. A FINAL INSPECTION OF ALL SITE IMPROVEMENTS, UTILITIES AND GRADING WILL BE MADE TO DETERMINE WHETHER THE WORK IS SATISFACTORY AND IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED FINAL CONSTRUCTION DRAWINGS AND THE APPLICABLE SPECIFICATIONS.
4. LOCATIONS AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE, AND HAVE BEEN DEPICTED BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL CHECK AND VERIFY LOCATIONS OF ALL EXISTING UTILITIES, BOTH UNDERGROUND AND OVERHEAD. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY, AND THE COSTS OF SUCH DAMAGE SHALL BE BORNE BY THE CONTRACTOR.
5. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO OBTAIN ANY AND ALL PERMITS REQUIRED BY AGENCIES HAVING JURISDICTION OVER THE PROJECT, INCLUDING BUT NOT LIMITED TO FEDERAL, STATE AND LOCAL GOVERNMENTS, QUASI-GOVERNMENTAL ENTITIES, AND ALL INDIVIDUAL UTILITY COMPANIES, PRIOR TO COMMENCING ANY WORK. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY ADHERING TO AND ABIDING BY ANY/ALL REQUIREMENTS OF SAID PERMITS.
6. THE CONTRACTOR SHALL NOTIFY DIG-SAFE (1-800-344-7233) AS WELL AS ANY/ALL NON-PARTICIPATING UTILITY AGENCIES/OPERATORS A MINIMUM OF 72 WORKING HOURS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO THE START OF ANY EXCAVATION AND/OR BLASTING WORK; NO EXCAVATION SHALL BE INITIATED PRIOR TO THE PASSAGE OF THE 72-HOUR NOTIFICATION PERIOD. THE NAME AND DIG-SAFE LICENSE NUMBER OF THE COMPANY PERFORMING THE EXCAVATION AND/OR BLASTING WORK MUST BE SUPPLIED TO DIG-SAFE, IF IT IS DIFFERENT FROM THE CALLER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SOIL EROSION & SEDIMENTATION CONTROLS FOR THE DURATION OF THE WORK (SEE OTHER APPLICABLE NOTES).
8. ALL MATERIAL FOR FILL SHALL BE CLEAN AND FREE OF MATTER THAT COULD POLLUTE ANY DOWNSTREAM WATERCOURSE OR RESOURCE AREA.
9. ALL 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).

SOIL EROSION CONTROL & STABILIZATION PROGRAM:

1. SOIL EROSION CONTROL AND STABILIZATION SHALL BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND PROCEDURES SET FORTH IN THE LOCAL SUBDIVISION/DEVELOPMENT REGULATIONS & ZONING ORDINANCES, THE RI SOIL EROSION & SEDIMENT CONTROL HANDBOOK, AND THE APPROVED SOIL EROSION & SEDIMENTATION CONTROL PLAN (SESCP) FOR THE PROJECT.
2. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL/SOIL STABILIZATION MEASURES, AND SHALL INSPECT/REPLACE THEM AS NEEDED.
3. TREES TO BE RETAINED SHALL BE FENCED OR ROPED OFF TO PROTECT THEM FROM CONSTRUCTION EQUIPMENT.
4. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR, OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE.
5. ANY AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE DESIGNATED AUTHORITY, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, AS DIRECTED BY THE DESIGNATED AUTHORITY.
6. IF WORK CONTINUES WITHIN ANY DISTURBED 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 5 WORKING DAYS.
7. TEMPORARY STABILIZATION TREATMENTS SHALL CONSIST OF A STRAW, 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 AS WARRANTED OR AS ORDERED BY THE DESIGNATED AUTHORITY.
8. STRAW APPLICATIONS SHALL BE IN THE AMOUNT OF 3,000-4,000 LBS/ACRE.
9. ALL TEMPORARY STABILIZATION SHALL REMAIN IN-PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED.
10. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN FIFTEEN (15) DAYS OF FINAL GRADING.
11. ON BOTH STEEP AND LONG SLOPES, CONSIDERATION SHOULD BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
12. TEMPORARY SEEDING MUST BE DONE WITHIN ONE (1) MONTH AFTER DISTURBANCE.
13. SLOPES CONSTRUCTED AT OR STEEPER THAN 15% SHALL HAVE TEMPORARY EROSION CONTROL MATTING UTILIZED AS A SUPPLEMENTAL MEASURE IN ADDITION TO THE METHODS DESCRIBED ABOVE.
14. DISTURBED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR MORE THAN 2 WEEKS OF TIME OR FOR THE INACTIVE WINTER SEASON.
15. PREPARE TEMPORARY SEEDING AREA, PROVIDE AND PLANT SEED IN ACCORDANCE WITH THE FOLLOWING AND ANY/ALL APPLICABLE STANDARDS:

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

16. STOCKPILES OF TOPSOIL AND EARTH MATERIALS SHALL NOT BE LOCATED NEAR WATERWAYS. STOCKPILES SHALL HAVE NO SLOPE GREATER THAN 2:1 AND SHALL BE SURROUNDED BY STAKED HAY BALES, SILT FENCE, OR COMPOST FILTER SOCK. STOCKPILES EXPOSED FOR EXCESSIVE PERIODS OF TIME SHALL RECEIVE TEMPORARY TREATMENT CONSISTING OF PLANTING ANNUAL RYE GRASS OR PROTECTING WITH HAY, STRAW OR FIBER MATTING.
17. THE CONTRACTOR SHALL INSPECT SOIL EROSION CONTROL/STABILIZATION MEASURES AFTER EVERY RAIN STORM EVENT GENERATING GREATER THAN 0.25" OF RAINFALL, OR EVERY 7 DAYS (WHICH EVER COMES FIRST). ANY SOIL MIGRATION PAST THE DEVICES SHALL BE REMOVED AND THE SOIL EROSION CONTROL MEASURES SHALL BE RE-ESTABLISHED TO PREVENT FURTHER SOIL EROSION.
18. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THE PRECEDING PROVISIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR; THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.

SEDIMENTATION CONTROL PROGRAM:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXISTING STORMWATER RUNOFF TO, THROUGH AND ACROSS THE SITE DURING CONSTRUCTION. EXTREME CARE SHALL BE EXERCISED TO PREVENT ERODIBLE MATERIALS (SEDIMENTS) WITHIN DISTURBED AREAS OF THE SITE FROM ENTERING STORMWATER DRAINAGE SYSTEMS AND/OR DOWNSTREAM WATERCOURSES/ RESOURCE AREAS DURING CONSTRUCTION.
2. TO THAT PURPOSE, SEDIMENTATION CONTROLS SHALL BE INSTALLED AT/ON THE SITE PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO:
   A) PERIMETER CONTROLS (STAKED STRAW WATTLES/CFS) IN ALL LOCATIONS SHOWN ON THE APPROVED SITE PLANS AND WHERE OTHERWISE NECESSARY TO PREVENT SEDIMENTS FROM ENTERING DOWNSTREAM WATERCOURSES AND STORMWATER DRAINAGE SYSTEMS;
   B) ANY CATCH BASINS EITHER ON-SITE OR POTENTIALLY IMPACTED BY SITE RUNOFF SHALL BE PROTECTED AS INDICATED/DIRECTED THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE STABILIZED;
   C) GROUND AT ALL DRAINAGE OUTFALLS IS TO BE PROTECTED BY STRAW WATTLE/CFS FILTERS OR APPROVED EQUAL UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED WITH APPROVED GROUND COVER.
3. SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL, AND ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
4. AT NO TIME DURING CONSTRUCTION SHALL THE ERODIBLE SUBGRADE OF THE SITE BE SUCH THAT SURFACE RUNOFF WILL BE PERMITTED TO DIRECTLY ENTER ANY DRAINAGE SYSTEM INLET. A TEMPORARY DEPRESSED AREA AROUND THE INLET SHALL BE CREATED AS A SEDIMENTATION TRAP; THE MOUTH OF THE TRAP SHALL BE LINED WITH STRAW WATTLES/CFS AROUND THE COMPLETE PERIMETER OF THE INLET. DURING ALL PRELIMINARY STAGES, THE TOP OF THE INLET STRUCTURE SHALL ALWAYS BE HIGHER THAN THE ADJACENT SUBGRADE SURFACE.
5. CARE SHALL BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (EITHER TEMPORARY OR PERMANENT) OR PROPOSED WATERCOURSES/FLOW DIVERSIONS OR THOSE AREAS SUBJECTED TO STORMWATER FLOWAGE.
6. CONTRACTOR SHALL INSPECT TEMPORARY WATERCOURSES/FLOW DIVERSIONS AND THEIR COMPONENTS ONCE A WEEK AND AFTER EVERY RAINFALL. DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
7. CHECK DAMS SHALL BE INSTALLED IN WATERCOURSES/FLOW DIVERSIONS 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. SEDIMENTS SHALL BE REMOVED FROM THE CHECK DAMS WHEN THEY REACH ONE-HALF THE DAM HEIGHT.
8. ADDITIONAL STRAW BALES, CFS OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE ENGINEER.
9. 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 HAY MULCH.
10. UPON COMPLETION OF CONSTRUCTION OF SITE IMPROVEMENTS AND THE STORMWATER DRAINAGE SYSTEM (PARTICULARLY ADEQUATE STABILIZATION OF ALL UNPAVED AREAS), ALL STORM DRAIN PIPING AND STRUCTURES (DROP INLETS, DRAIN MANHOLES, CATCH BASINS) SHALL BE CLEANED OF ACCUMULATED SEDIMENTS, WHICH SHALL BE LEGALLY DISPOSED OF AT AN OFF-SITE LOCATION.

SUGGESTED SEQUENCE AND STAGING OF LAND DISTURBING ACTIVITIES:

1. PRIOR TO THE INITIATION OF ANY SITE DISTURBANCE, NOTIFY RIDEM OF THE START OF CONSTRUCTION FOLLOWING CURRENT RIDEM NOTIFICATION PROCEDURE.
2. SURVEY AND STAKE LIMITS OF DISTURBANCE (LOD) FOR PLACEMENT OF SEDIMENTATION CONTROL DEVICES.
3. INSTALL CONSTRUCTION ENTRANCE RIP-RAP STABILIZATION PAD(S).
4. PLACE PERIMETER SEDIMENTATION CONTROL DEVICES (STRAW WATTLES OR COMPOST FILTER SOCKS (CFS)) ALONG LOD. IN NO CASE SHALL WORK BE PERFORMED BEYOND THE ESTABLISHED SEDIMENTATION CONTROL DEVICES/LOD WITHOUT PRIOR AUTHORIZATION FROM THE DESIGNATED AGENT.
5. INSTALL VEGETATION/TREE PROTECTION AS APPLICABLE FOR VEGETATED AREAS/TREES TO BE PRESERVED.
6. SELECTIVELY CLEAR/CLEAR AND GRUB DESIGNATED AREAS OF SITE.
7. BEGIN CONSTRUCTION OF DEVELOPMENT SITE FEATURES (EXCAVATING AND GRADING, ETC.). TOPSOIL AND SUBSOIL TO BE STRIPPED AND STOCKPILED IN DESIGNATED & APPROVED AREAS FOR LATER REUSE; MATERIAL STOCKPILES TO BE PROTECTED AS DEPICTED IN APPLICABLE DETAIL.
8. ROUGH GRADE SWALES/WATERWAYS; INSTALL STRAW WATTLE/CFS CHECK DAM DEVICES TO TRAP SEDIMENT IN ANY ROUGHED-IN CHANNEL(S) THAT WILL TEMPORARILY CONVEY RUNOFF DURING CONSTRUCTION. REFER TO APPLICABLE NOTES THIS SHEET FOR CHECK DAM SPACING.
9. CONSTRUCT NON-STORMWATER UTILITIES (SANITARY SEWER, WATER, GAS, ELECTRIC, ETC.) AND FINISH PROPOSED PAVED SURFACES TO BASE PAVEMENT COURSE.
10. FINISH CONSTRUCTING DRAINAGE SYSTEMS WHEN PERIMETER AREAS ARE STABILIZED SO SEDIMENT CONTAMINATED RUNOFF WILL NOT FLOW INTO COMPLETED DRAINAGE DEVICES; PROTECT DRAINAGE SYSTEMS UNTIL ALL AREAS ARE STABILIZED.
11. PERFORM BUILDING CONSTRUCTION.
12. INSTALL ALL FINAL PAVING/HARDSCAPE SURFACES.
13. LOAM & SEED ALL DISTURBED AREAS NOT TO BE PAVED/HARDSCAPED.
14. REMOVE ALL ACCUMULATED SEDIMENTS IN DRAINAGE SYSTEMS, AND REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER A PERMANENT GROWTH OF VEGETATION IS ESTABLISHED.

SEEDING/PLANTING:

1. ALL DISTURBED AREAS MUST BE SEEDED OR PLANTED (WHETHER TEMPORARILY OR PERMANENTLY) WITHIN THE CONSTRUCTION SEASON; THE TYPICAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1ST THROUGH OCTOBER 15TH.
2. TOPSOIL IN SEEDED AREAS SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS.
3. THE SEED MIX SHALL BE INOCULATED WITHIN 24-HOURS BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
4. 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 TREEFOIL	15	
PERENNIAL RYEGRASS	10	

APPLICATION RATE 100 LBS/ACRE

LIMING AND FERTILIZING AS REQUIRED TO COMPLEMENT OR UPGRADE EXISTING CONDITIONS.

5. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR, AND SHALL DO SO AT NO ADDITIONAL EXPENSE.
6. 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.
7. ALL PROPOSED PLANTINGS MUST BE MAINTAINED BY THE CONTRACTOR TO ENSURE SURVIVAL DURING THE FULL WARRANTY PERIOD. 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 CONTRACTOR SHALL BE SOLELY AND FULLY RESPONSIBLE FOR REPLACING AND MAINTAINING THE SAME PLANT SPECIES FOR ONE (1) ADDITIONAL GROWING SEASON.

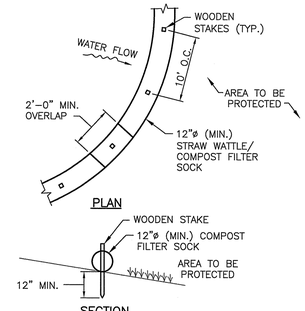
STORMWATER INFILTRATION PRACTICES:

1. STORMWATER INFILTRATION MEASURES ARE HEAVILY RELIANT ON THE INFILTRATION CAPACITY OF THE UNDERLYING IN-SITU SOILS FOR THEIR PROPER FUNCTION AND LONGEVITY. OVER-COMPACTION OF UNDERLYING SOILS WILL COMPROMISE THE EFFECTIVENESS OF SUCH PRACTICES.
2. THE CONTRACTOR SHALL TAKE ALL DUE CARE TO PREVENT OVER-COMPACTION OF UNDERLYING SOILS IN AREAS OF PROPOSED STORMWATER INFILTRATION MEASURES, BY MARKING OFF THE LOCATION BEFORE THE START OF CONSTRUCTION AND CONSTRUCTING THE INFILTRATION PRACTICE LAST, CONNECTING UPSTREAM DRAINAGE AREAS ONLY AFTER CONSTRUCTION IS COMPLETE AND THE CONTRIBUTING AREA IS STABILIZED.
3. INFILTRATION PRACTICES SHALL NEVER SERVE AS SEDIMENT CONTROL DEVICES DURING THE SITE CONSTRUCTION PHASE. THE CONTRACTOR SHALL SUBMIT A PLAN TO THE DESIGNATED AUTHORITY (FOR APPROVAL) INDICATING HOW SEDIMENT WILL BE PREVENTED FROM ENTERING THE AREA OF AN INFILTRATION FACILITY.
4. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED DOWN TO NATIVE UNDISTURBED MATERIAL PRIOR TO CONSTRUCTING THE FINAL INFILTRATION PRACTICES.
5. IF NECESSARY OR DIRECTED, THE CONTRACTOR SHALL RESTORE THE INFILTRATION CAPACITY OF ALL COMPACTED IN-SITU SOILS BENEATH INFILTRATION MEASURES BY TILLING OR SCARIFYING COMPACTED SOILS TO A MINIMUM DEPTH OF 18" BENEATH THE BOTTOM OF THE PROPOSED INFILTRATION MEASURE.
6. THE DESIGNATED AUTHORITY MAY REQUIRE THE CONTRACTOR TO PERFORM, AT ITS SOLE EXPENSE, INFILTROMETER TESTING OF THE IN-SITU SUBGRAGE SOILS PRIOR TO INSTALLATION OF THE INFILTRATION PRACTICE TO DEMONSTRATE THAT THE NECESSARY SOIL INFILTRATION CAPACITY WILL BE PROVIDED BY THE UNDERLYING SOILS.

LONG-TERM POLLUTION PREVENTION NOTES:

SITE OWNER/OPERATOR SHALL REFER TO AND FOLLOW THE APPROVED OPERATION & MAINTENANCE (O&M) PLAN PREPARED FOR THIS PROJECT. A BRIEF SUMMARY OF LONG-TERM POLLUTION PREVENTION TECHNIQUES THAT MAY BE APPLIED TO THE PROJECT (AS APPROPRIATE) IS PROVIDED BELOW:

1. SOLID WASTE CONTAINMENT:
   A. OWNER TO PROVIDE TRASH CONTAINER. CONTAINER TO HAVE A COVER TO PREVENT TRASH FROM BLOWING OUT.
   B. SWEEP COMMON DRIVEWAY ANNUALLY.
2. HAZARDOUS MATERIALS CONTAINMENT:
   A. STORE ALL HAZARDOUS MATERIALS INSIDE STORAGE LOCKERS OR OTHER APPROVED METHODS WHICH HAVE SECONDARY CONTAINMENT SYSTEMS.
   B. SECONDARY CONTAINMENT MUST BE INCLUDED WHEREVER SPILLS MIGHT OCCUR (E.G. FUELING AND HAZARDOUS MATERIAL TRANSFER AND LOADING AREAS).
3. ROADS AND PARKING AREA MANAGEMENT:
   A. SWEEP COMMON DRIVEWAY AREA ANNUALLY.
   B. USE DEICING CHEMICALS AND SAND JUDICIOUSLY, AS THEY HAVE THE POTENTIAL TO CAUSE WATER QUALITY PROBLEMS. PROVIDE AND SPREAD IN ACCORDANCE WITH O&M RECOMMENDATIONS.
      * PLOW SNOW AND STORE ACCUMULATED SNOW PILES AWAY FROM INFILTRATION PRACTICES. KEEP SNOW PILES 50 FEET FROM WETLAND EDGE AND AREA SUBJECT TO STORM FLOW.
      * DEBRIS SHOULD BE CLEANED 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, AS THESE ARE MORE TOXIC.
4. 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 EARTHWORM CONTENT.
   C. GRASS SELECTION - SELECT DROUGHT TOLERANT GRASS SPECIES.
   D. MOWING AND THATCH MANAGEMENT - MAINTAIN GRASS AT MINIMUM 3 TO 4 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.
   F. WEED MANAGEMENT - NEVER USE CHEMICAL HERBICIDES TO ELIMINATE OR CONTROL WEEDS. OWNER SHALL REMOVE WEEDS BY PULLING OR DIGGING OUT.
   G. PEST MANAGEMENT - LIMIT PESTICIDE USE. CHOOSE PESTICIDES THAT POSE THE LEAST RISK TO HUMAN HEALTH AND THE ENVIRONMENT.
   H. SENSIBLE IRRIGATION - WATER NO MORE THAN 1" PER WEEK. USE DROUGHT-RESISTANT GRASSES. CUT GRASS AT 3-4 INCHES.



NOTES:
1. ALL MATERIAL TO MEET REQUIREMENTS OF SECTION 206 OF RI STANDARD SPECIFICATIONS.
2. SUBMIT SHOP DRAWING OF COMPOST MATERIAL FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT.
3. COMPOST FILTER SOCK IS AN APPROVED "OR EQUAL" TO COMPOST FILTER BERM WHEN INSTALLED IN ACCORDANCE WITH THE TABLE BELOW:

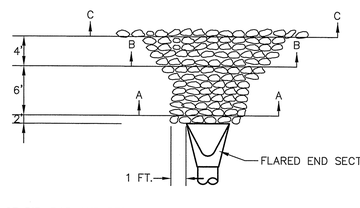
   MAXIMUM LENGTH ABOVE COMPOST FILTER SOCK (FEET) AND CORRESPONDING DIAMETER OF SOCK REQUIRED:

   UPGRADIENT

SLOPE	8"ø	12"ø	18"ø	24"ø
2%	300'	375'	500'	650'
5%	200'	250'	275'	325'
10%	100'	125'	150'	200'
20%	50'	65'	70'	130'
30%	30'	40'	45'	85'
40%	30'	40'	45'	50'
50%	20'	25'	30'	35'

STRAW WATTLE/COMPOST FILTER SOCK

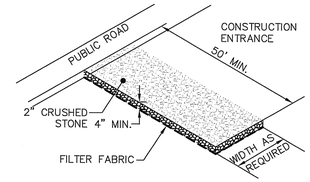
NOT TO SCALE



NOTES:
1. CLASS OF RIP-RAP AND BEDDING TO BE SPECIFIED IN CONTRACT DOCUMENTS.
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.

RIP-RAP TABLE

STONE / DEPTH	BEDDING SIZE / DEPTH
M02.02.4 / 12"	1"STONE / 4"
M02.02.4 = 8" - 95 / 100%, 4" - 0 / 25%, 2½" - 0 / 5%	



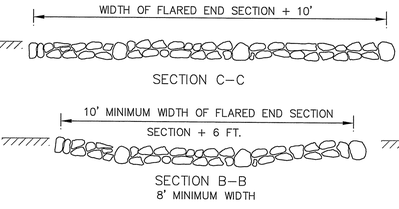
MATERIALS SIZE

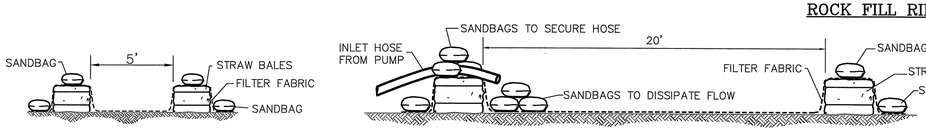
SQUARE MESH SIEVES	2"CRUSHED STONE OR GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
	% FINER	% FINER	% FINER
2-1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1-1/2 INCHES	30-55	0-15	35-70
1-1/4 INCHES	0-25	-	-
1 INCH	0-5	-	0-15
3/4 INCH	-	0-5	-
1/2 INCH	-	-	0-5
3/8 INCH	-	-	-

NOTE:
STABILIZATION PAD TO BE IN COMFORMANCE WITH STANDARDS SET FORTH IN THE "RHODE ISLAND GUIDELINES FOR SOIL & SEDIMENT CONTROL."

RIP-RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE

NOT TO SCALE

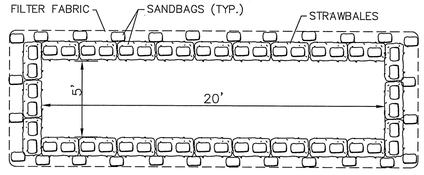




ROCK FILL RIP-RAP @ FLARED END SECTIONS

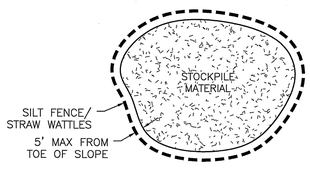
NOT TO SCALE

NOTES:
1. LOCATE SEDIMENT TRAP WHERE FLOW CAN DISSIPATE THROUGH FILTER FABRIC AND STRAWBALES.
2. SEDIMENT TRAP LENGTH SHOULD BE FOUR TIMES ITS WIDTH.
3. USE SAND BAGS AS NEED TO HOLD/SECURE FILTER FABRIC.
4. ALL COLLECTED SEDIMENT IS TO BE DISPOSED OF PROPERLY PER ANY APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.
5. DEWATERING BASINS MUST BE LOCATED WITHIN THE PROPOSED LIMITS OF DISTURBANCE.



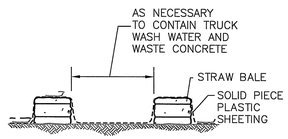
DEWATERING BASIN & SEDIMENT TRAP

NOT TO SCALE



MATERIAL STOCKPILE DETAIL

NOT TO SCALE



CONCRETE WASHOUT

NOT TO SCALE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

RECEIVED
JAN 29 2020

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

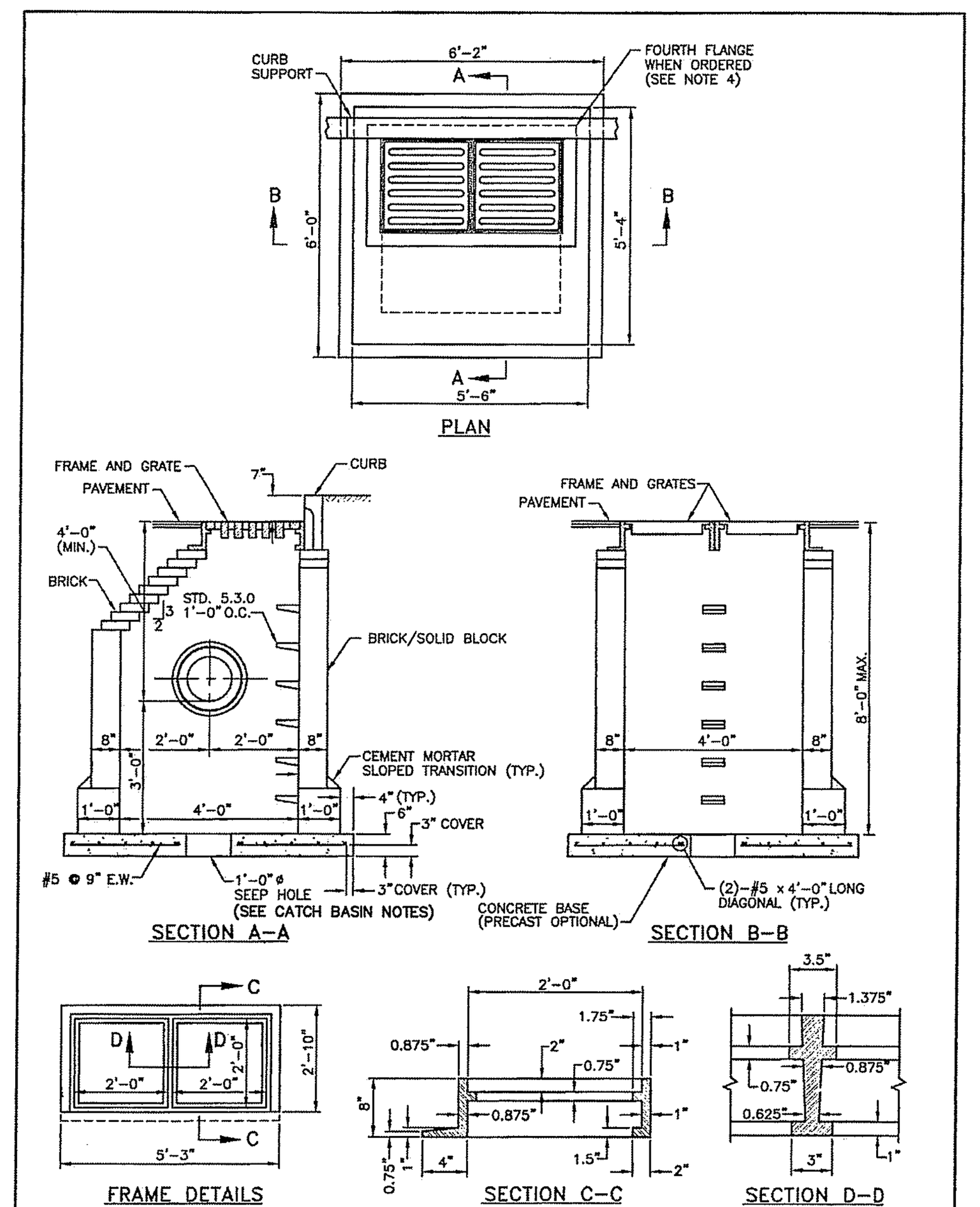
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS

A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

CONSTRUCTION DETAILS 1

SCALE: AS NOTED	SHEET NO: 13 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ / CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. 1/2" CEMENT MORTAR PLASTER COAT ON ALL INSIDE AND OUTSIDE SURFACES.
3. USE 8" WALLS UP TO 6'-0" DEPTH, AND 1'-0" WALLS UP TO 8'-0" DEPTH.
4. TWO SINGLE FRAMES WITH THREE FLANGES AND TWIN GRATES MAY BE SUBSTITUTED FOR THE DOUBLE FRAME WITH TWIN GRATES.

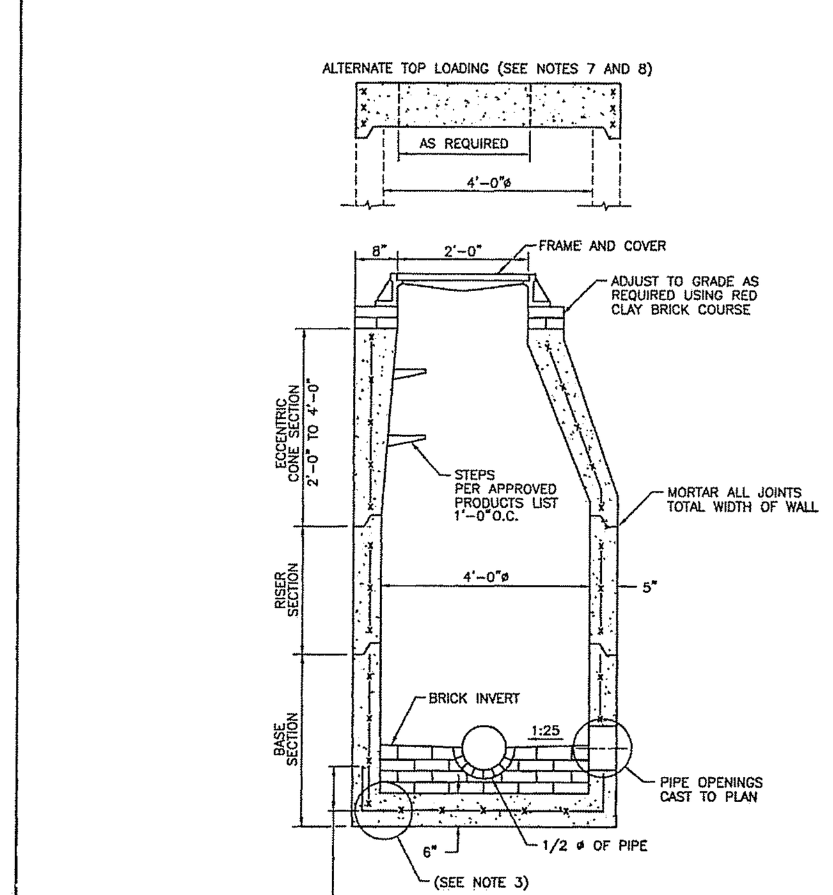
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRICK/SOLID BLOCK DOUBLE GRATE CATCH BASIN GRATE PARALLEL TO EDGE OF PAVEMENT

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 3.3.4



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQ. IN. / LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN/LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

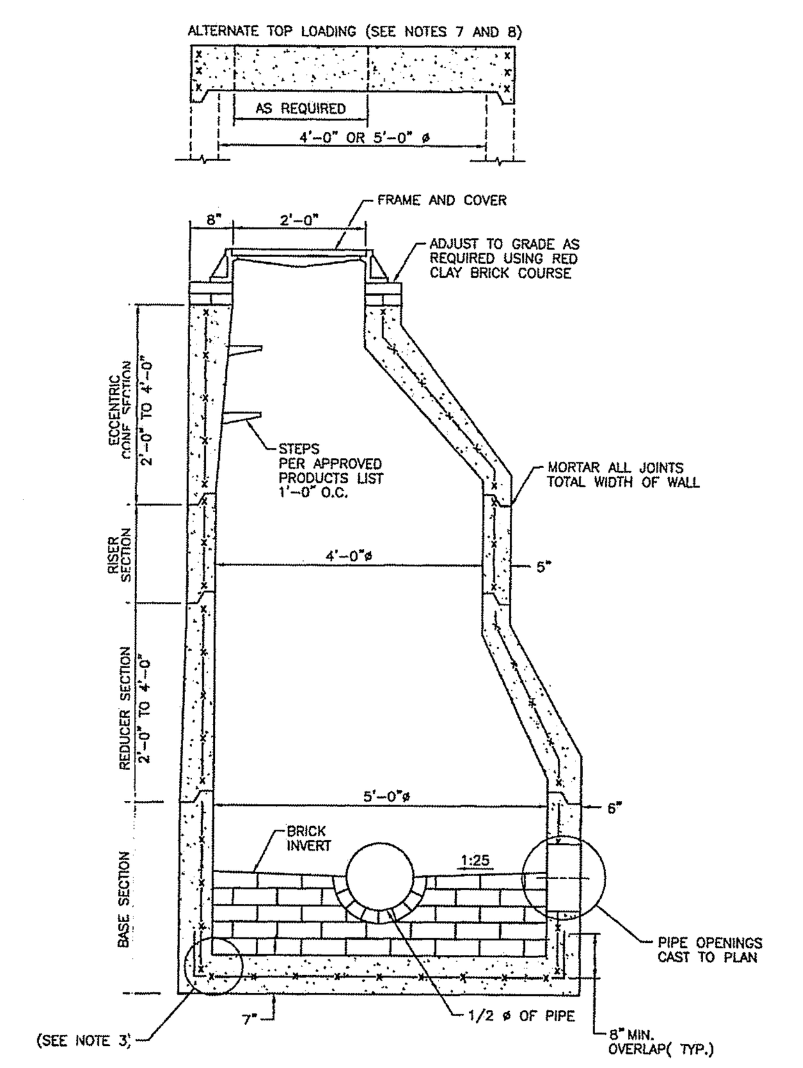
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 4'-0" ROUND MANHOLE

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 4.2.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.15 SQ. IN./LIN. FT. MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.0).
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
9. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 5'-0" ROUND MANHOLE

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 4.2.1

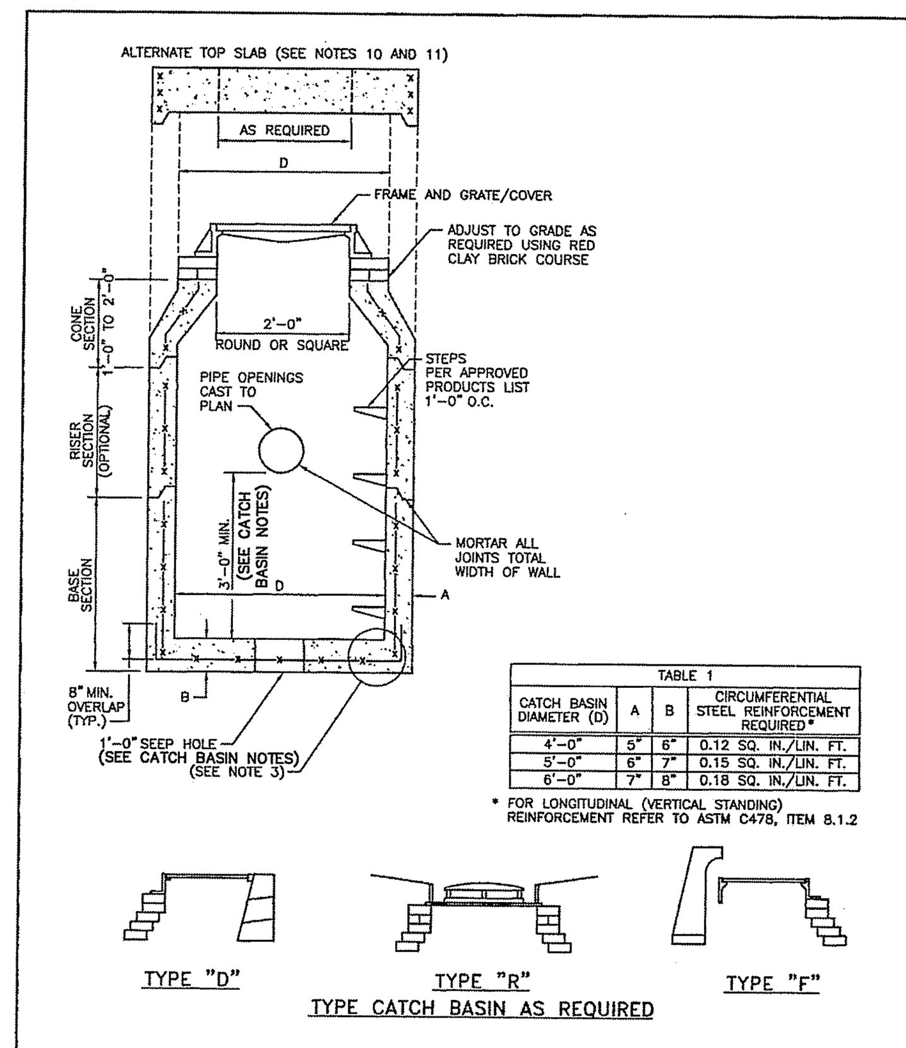


TABLE 1			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

TYPE "D" TYPE "R" TYPE "F"

TYPE CATCH BASIN AS REQUIRED

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0"CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING (SEE STD. 4.7.2).
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.
12. REFER TO STD. 5.2.0 FOR MAXIMUM PIPE SIZES.

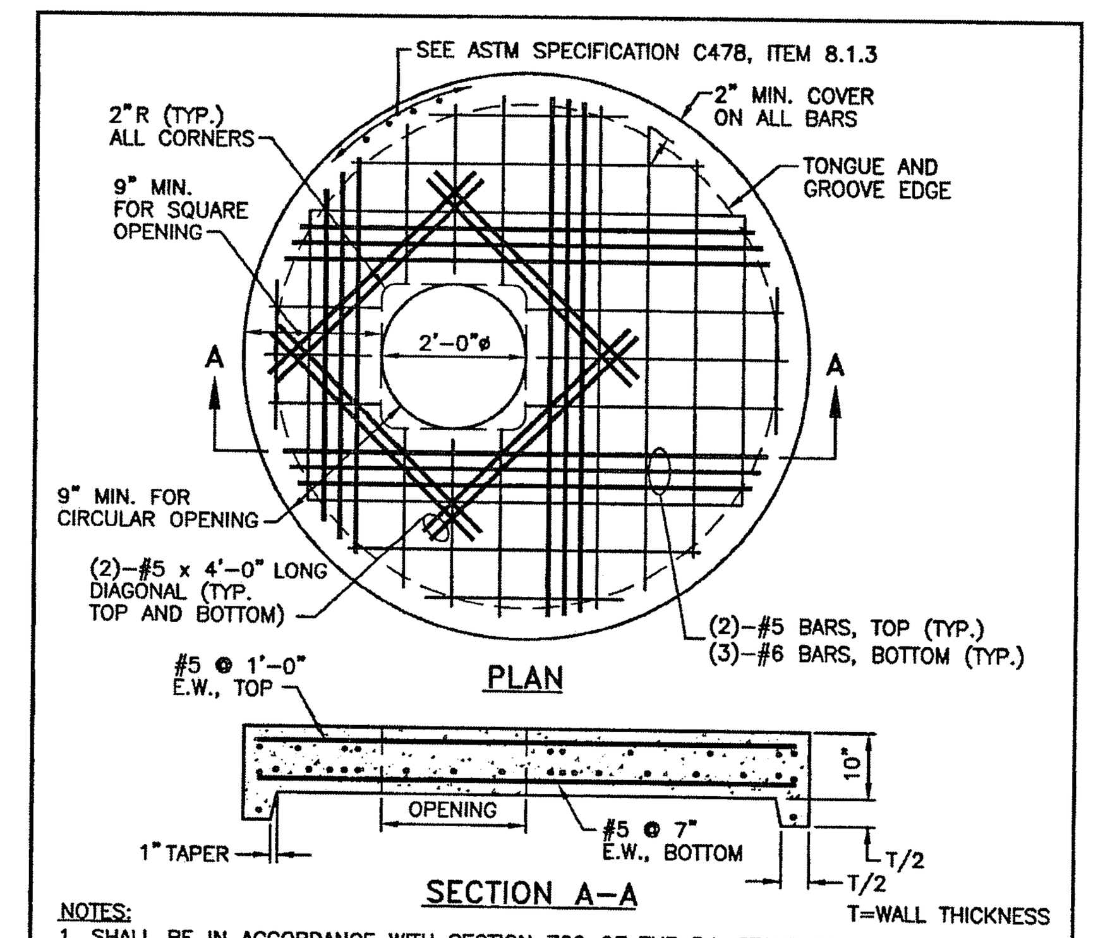
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 4.4.0



NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
3. THE CENTER LINE OF THE OPENING MUST BE WITHIN 2" FROM THE STEPS.
4. ALTERNATE TOP COVER IS STEEL REINFORCED TO MEET OR EXCEED H-25 OR HS-25 LOADINGS WITH EARTH PRESSURES INCLUDED. THIS IMPLIES THAT THE TOP SLAB IS DESIGNED FOR AXLE LOADS OF NO MORE THAN 20 TONS.
5. ALL REBAR SHALL HAVE A MINIMUM OF 2" CLEARANCE FROM OPENING.
6. ALL REBARS IN THE BOTTOM MAT ARE #5 @ 2", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (3)-#6 SHOWN WITH A HEAVIER LINE FOR CLARITY). REBARS IN THE TOP MAT ARE #5 @ 1'-0", BOTH WAYS, WITH 2" MINIMUM COVER, EXCEPT FOR REBARS ADJACENT TO THE OPENING. THESE BARS SHALL BE (2)-#5 BARS.

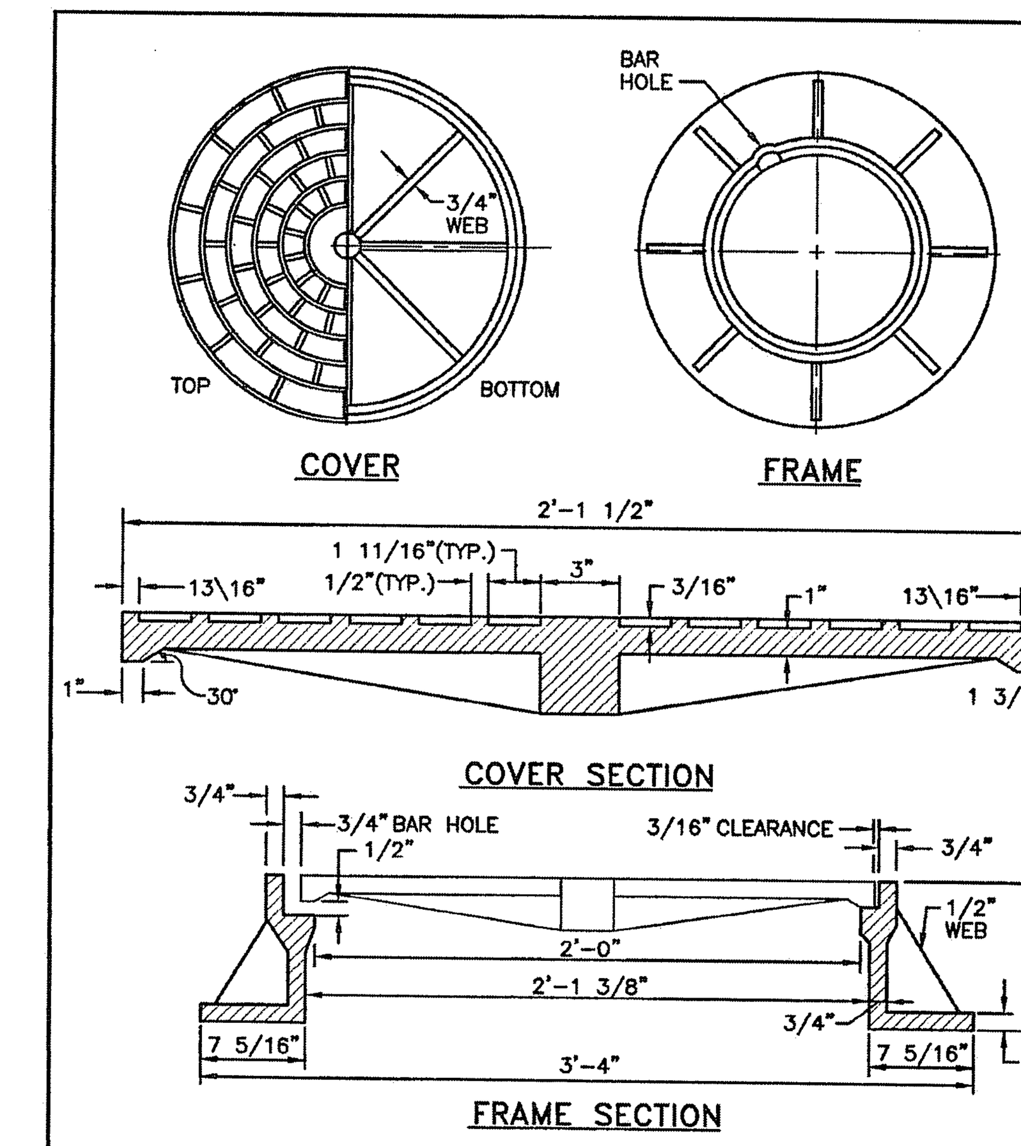
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

ALTERNATE TOP COVER FOR ROUND PRECAST MANHOLES AND CATCH BASINS

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 4.7.2



NOTES:
1. FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.
2. FRAME AND COVER SEATS MUST HAVE MACHINE FINISH.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

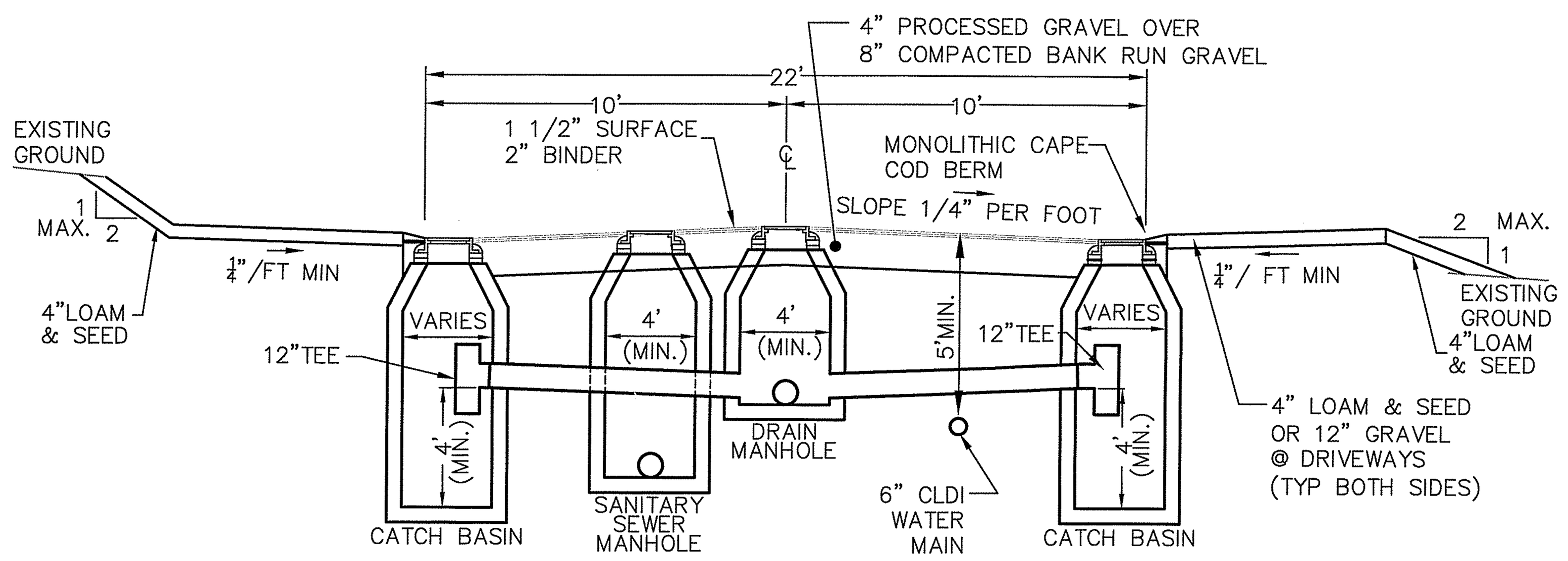
HEAVY-DUTY ROUND FRAME AND COVER

REVISIONS | NO. | BY | DATE

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 6.2.1

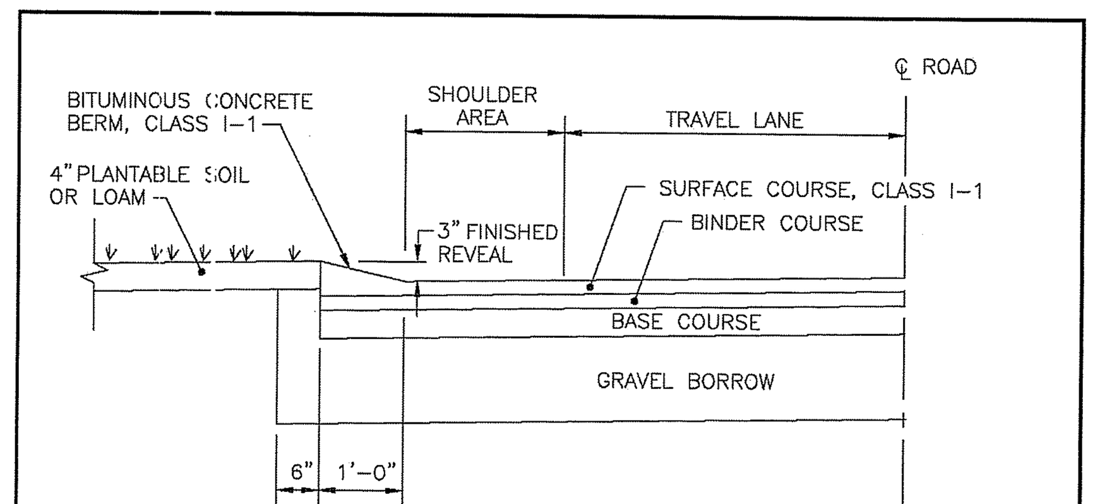
CATCH BASIN NOTES (APPLICABLE TO RI STD. 3.3.4 & 4.4.0):
1) ALL CATCH BASINS SHALL HAVE FOUR (4) FOOT DEEP SUMPS, RATHER THAN RIDOT STD. THREE (3) FOOT DEEP SUMPS.
2) SEEP HOLES SHALL NOT BE PROVIDED IN ANY CATCH BASIN SUMPS.



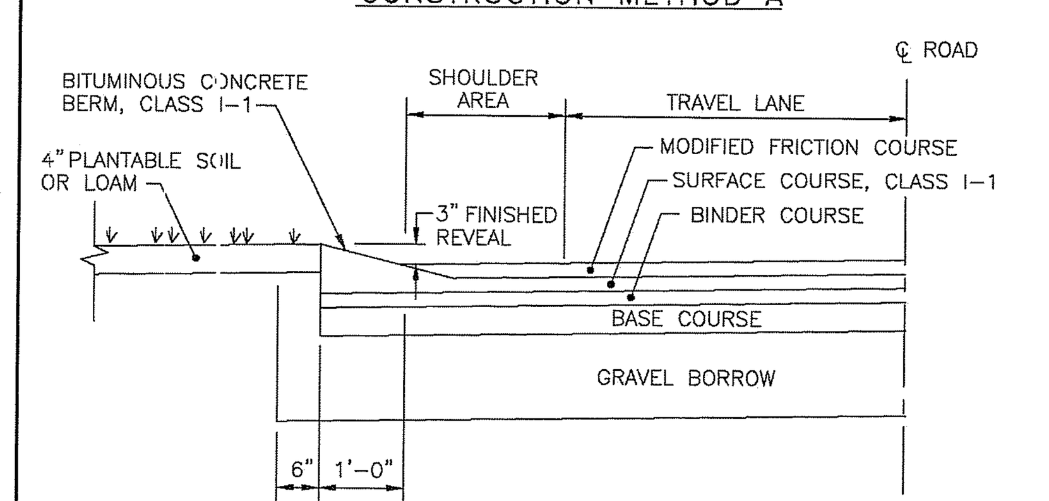
TYPICAL COMMON DRIVEWAY CROSS SECTION

NOT TO SCALE

NOTES:
1. ROAD BASE SHALL CONSIST OF 12" COMPACTED GRAVEL BASE CONSISTING OF:
   - 4"D 1" PROCESSED GRAVEL COMPACTED TO 95% RELATIVE DENSITY (MIN)
   - 8"D GRADED BANK RUN GRAVEL COMPACTED TO 95% RELATIVE DENSITY (MIN)
2. ROAD LANE WIDTH SHALL VARY @ CUL-DE-SAC.
3. GRASSED SHOULDER WIDTHS & SLOPES SHALL VARY; REFER TO SHEET 7 – GRADING & UTILITY PLAN FOR SPECIFIC WIDTHS & GRADES OF ROADWAY SHOULDERS.
4. DRAIN & SEWER MANHOLES MAY BE INSTALLED OFF-CENTER OF ROADWAY ALIGNMENT; REFER TO SHEET 8 – STORMWATER PLAN FOR SPECIFIC HORIZONTAL LOCATIONS.
5. CATCH BASINS SHALL BE CONNECTED ONLY TO DRAIN MANHOLES. THERE SHALL BE NO CONNECTIONS BETWEEN CATCH BASINS AND SANITARY SEWER MANHOLES.



CONSTRUCTION METHOD A



CONSTRUCTION METHOD B

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. BITUMINOUS BERM CAN BE PLACED AT THE SAME TIME THAT THE SURFACE COURSE LAYER IS PLACED ON THE PROJECT ROADWAY, OR IT CAN BE INSTALLED IN A SEPARATE OPERATION.

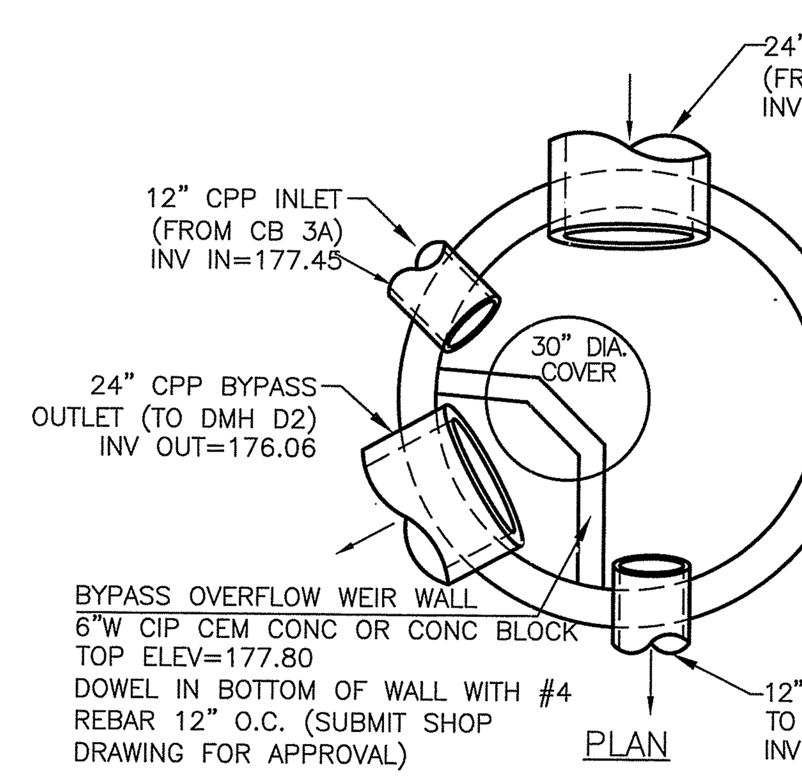
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

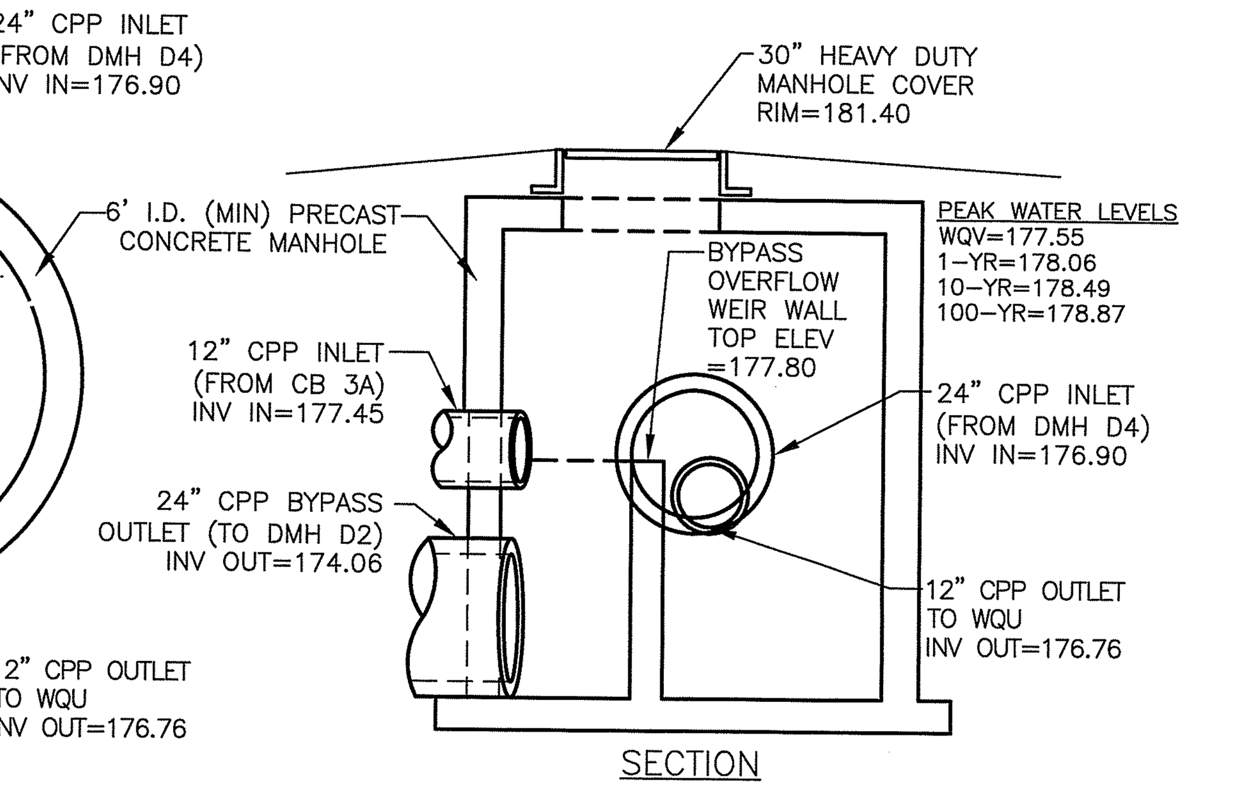
BITUMINOUS BERM

REVISIONS		
NO.	BY	DATE
1	MLP	Mar 05

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 7.5.1

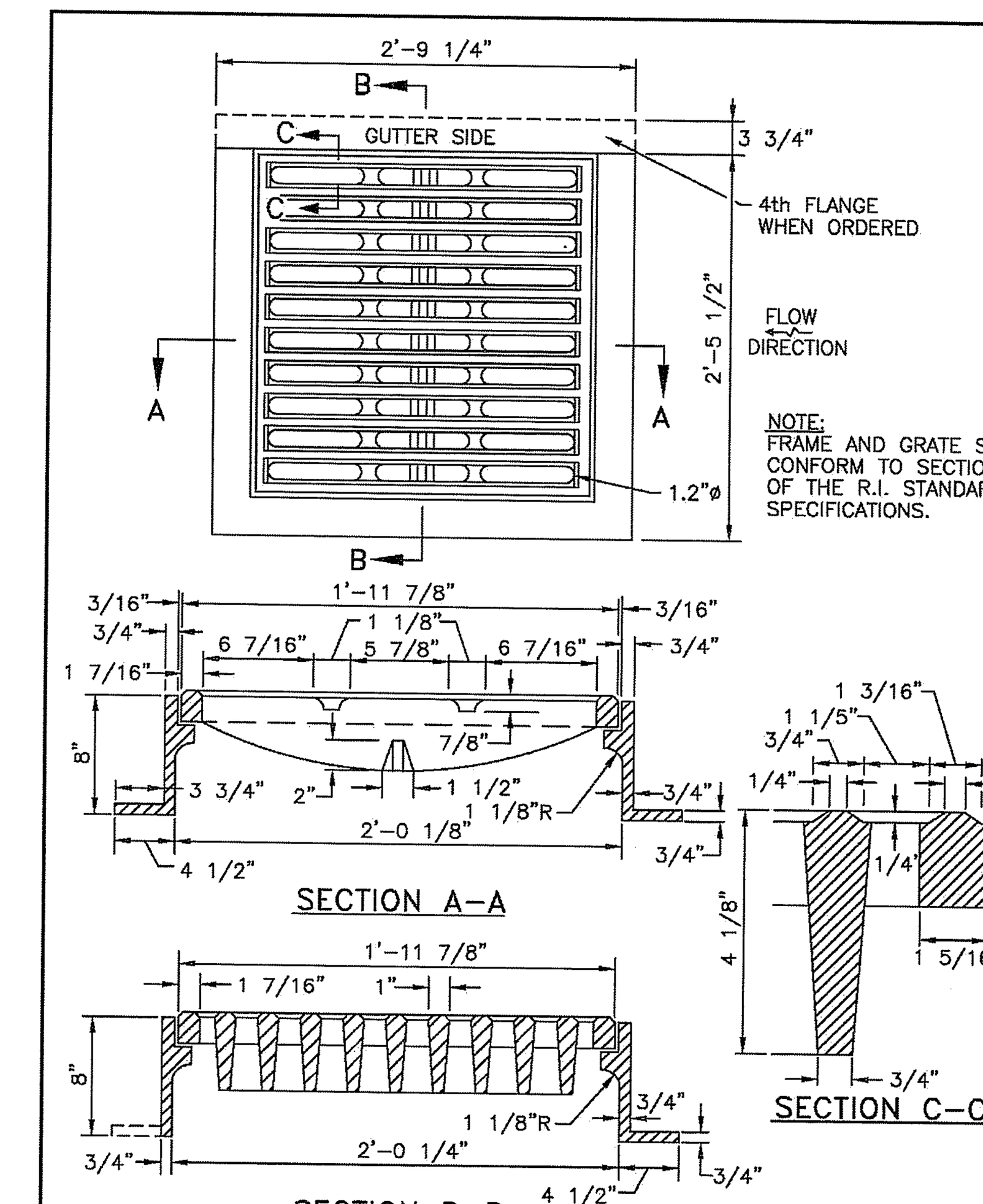




NOTES:
1. PRECAST CONCRETE MANHOLE MANUFACTURER SHALL SUBMIT SHOP DRAWING OF STRUCTURE FOR REVIEW AND APPROVAL.
2. LOCATE WEIR WALL AND MANHOLE OPENING TO PROVIDE ACCESS TO ALL PIPE PENETRATIONS FOR MAINTENANCE AND ABILITY FOR CLEAN-OUT.

DIVERSION MH (DMH-D3)

NOT TO SCALE



NOTE:
FRAME AND GRATE SHALL CONFORM TO SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

SQUARE FRAME AND GRATE (BICYCLE SAFE)

REVISIONS		
NO.	BY	DATE
1	MLP	7/21/06

CHIEF ENGINEER TRANSPORTATION — CHIEF DESIGN ENGINEER TRANSPORTATION — JUNE 15, 1998 ISSUE DATE

R.I. STANDARD 6.3.2

SEPTIC GRAVEL SPECIFICATION:

(FOR USE IN OVERDIG AREA BENEATH DETENTION BASIN)

GRAVEL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 3". UP TO 10% MAY BE SIZED BETWEEN 3/4" AND 3".
GRAVEL SHALL MEET THE FOLLOWING:

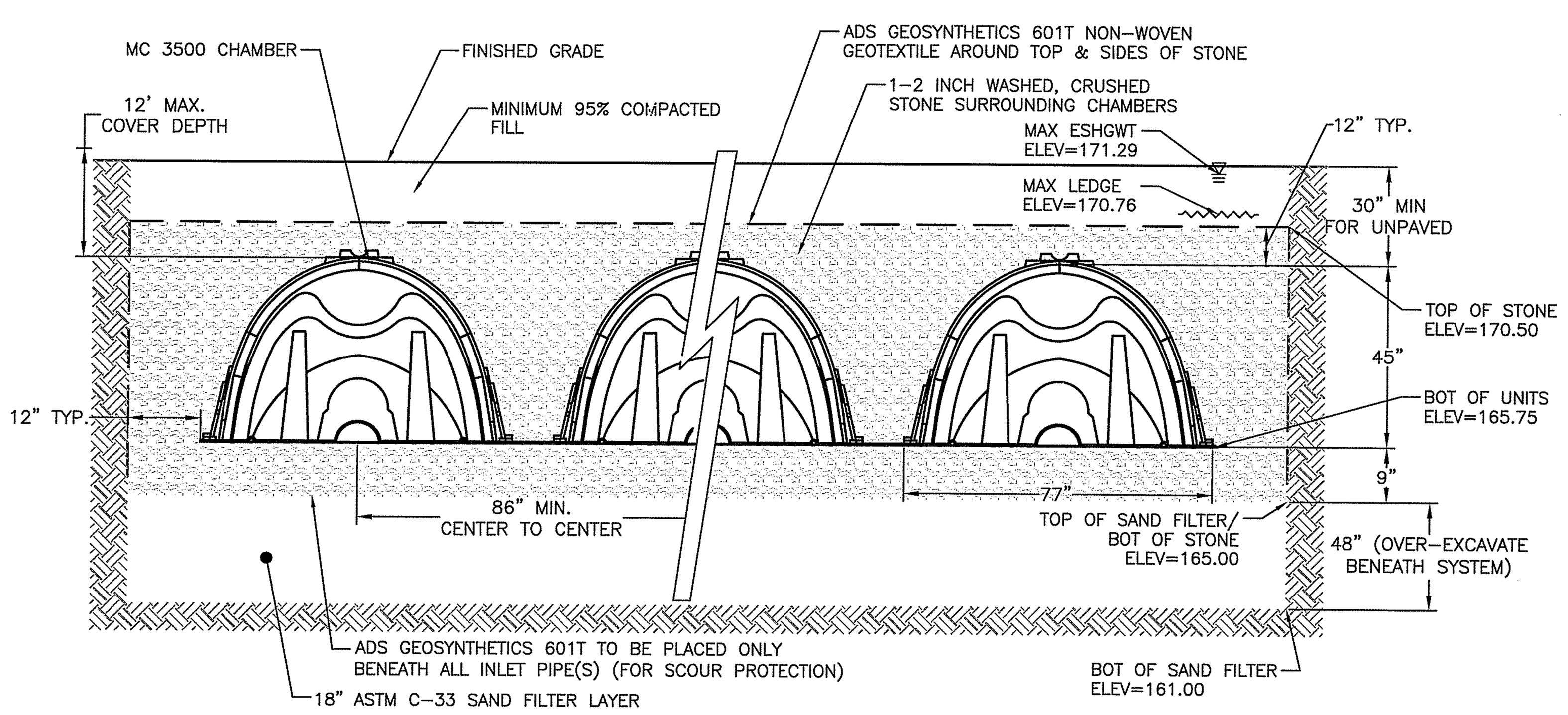
SIEVE SIZE	% PASSING	SIEVE SIZE	% PASSING
3/4"	90–100%	#40	10%–50%
#4	55%–100%	#100	0%–20%
#10	40%–100%	#200	0%–5%

GRAVEL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY.
PERC RATE AFTER COMPACTION SHALL BE BETWEEN 7.25 TO 15.0 MIN/IN.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

[illegible]

JAN 2 9 2020



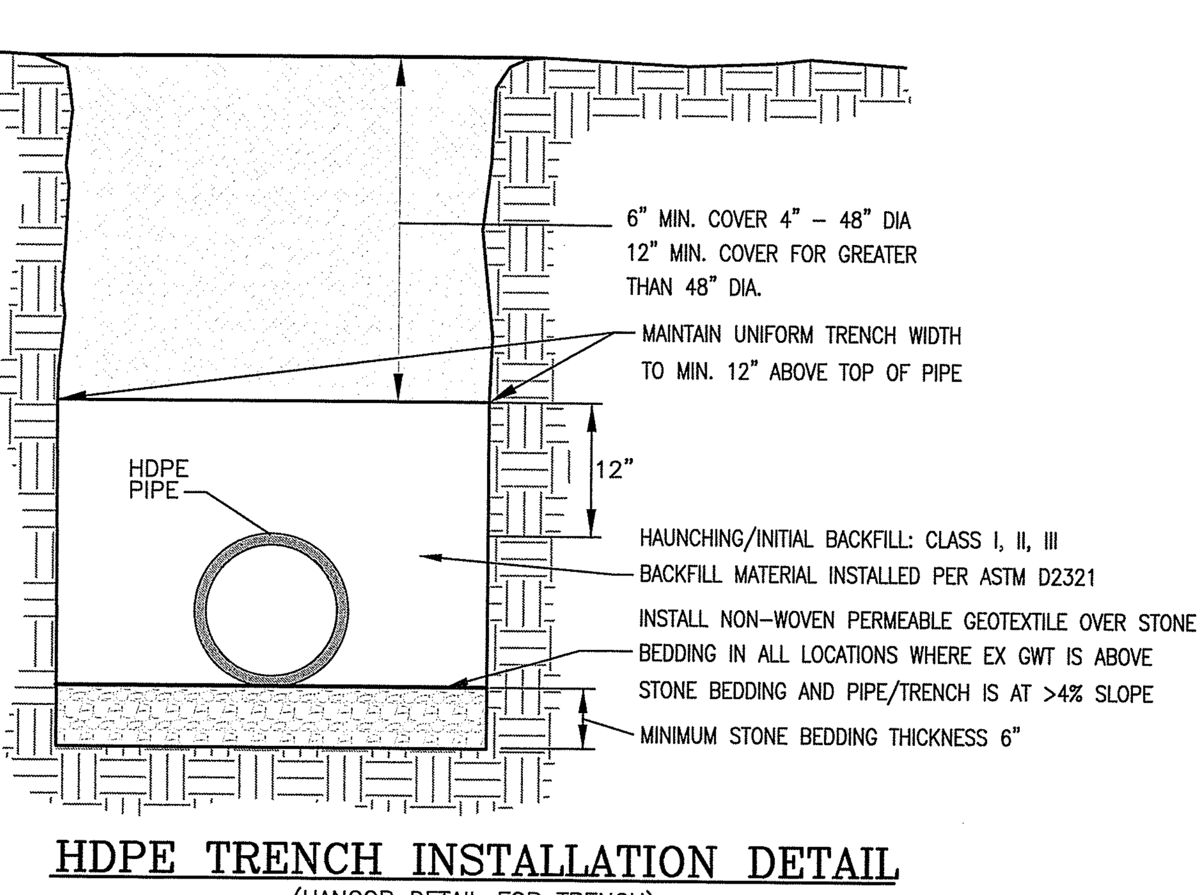
SAND FILTER TYPICAL SECTION

NOT TO SCALE

RECOMMENDED MINIMUM TRENCH WIDTH

PIPE DIAMETER IN. (MM)	TRENCH WIDTH IN. (M)
4 – 8 (100–200)	*
10 (250)	24 (0.6)
12 (300)	28 (0.7)
15 (375)	35 (0.9)
18 (450)	43 (1.1)
24 (600)	56 (1.4)
30 (750)	60 (1.5)
36 (900)	65 (1.7)
42 (1050)	84 (2.1)
48 (1200)	91 (2.3)
54 (1350)	97 (2.5)
60 (1500)	103 (2.6)

*BASED ON SMALLEST AVAILABLE BUCKET SIZE



HDPE TRENCH INSTALLATION DETAIL

(HANCOR DETAIL FOR TRENCH)
NOT TO SCALE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:________

DATE ENDORSED:________

CONSTRUCTION DETAILS 2

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
10-18-18
REGISTERED PROFESSIONAL ENGINEER

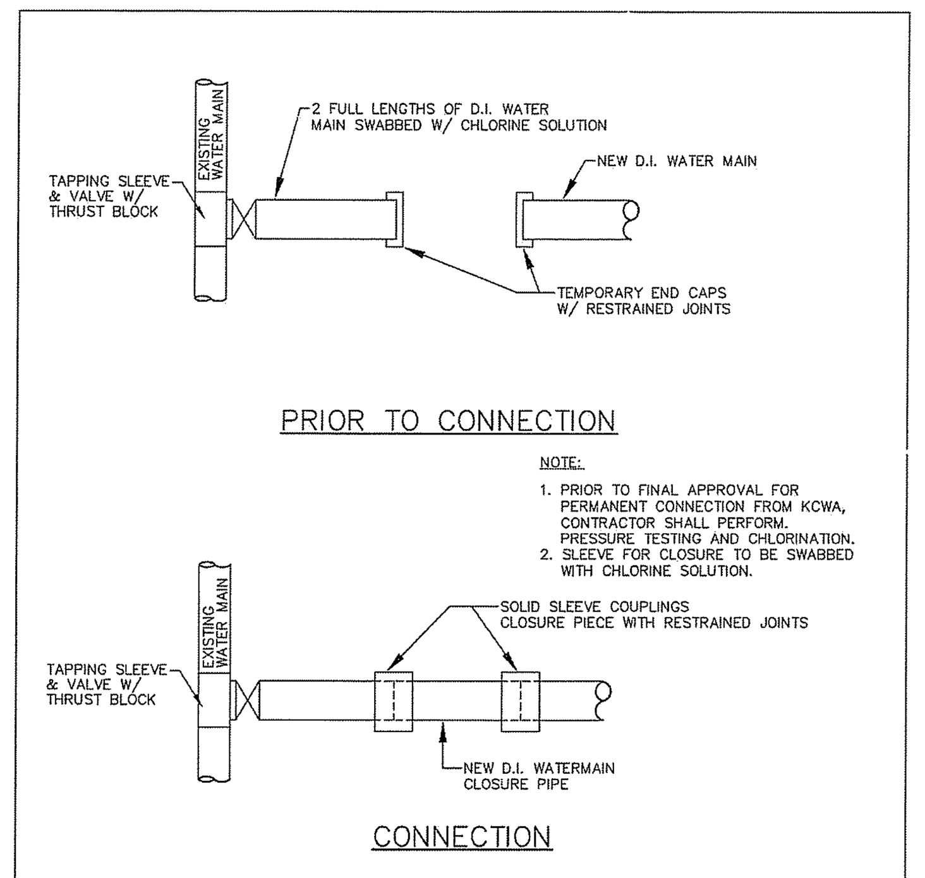
REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE
CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

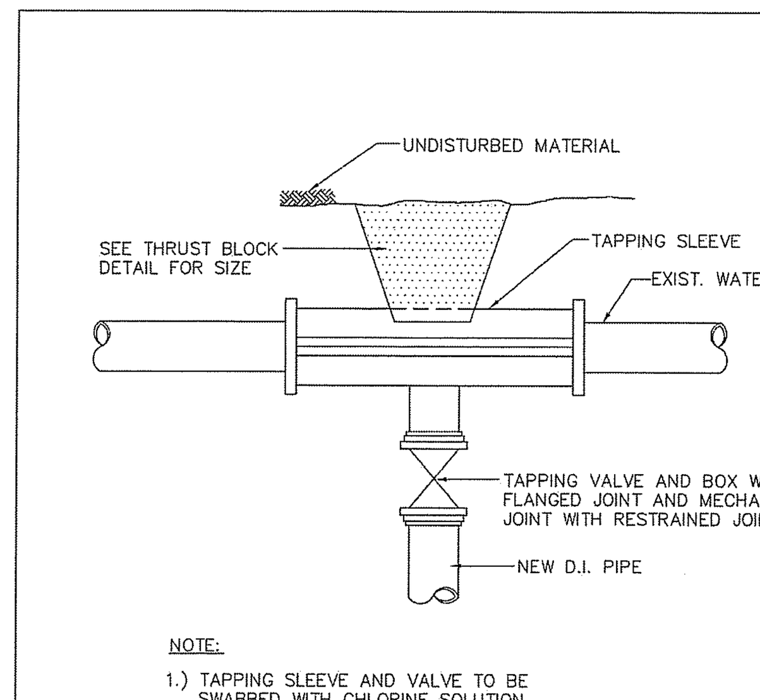
SCALE: AS NOTED		SHEET NO: 14 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00



NOTE:

1. PRIOR TO FINAL APPROVAL FOR PERMANENT CONNECTION FROM KCWA, CONTRACTOR SHALL PERFORM. PRESSURE TESTING AND CHLORINATION.
2. SLEEVE FOR CLOSURE TO BE SWABBED WITH CHLORINE SOLUTION.

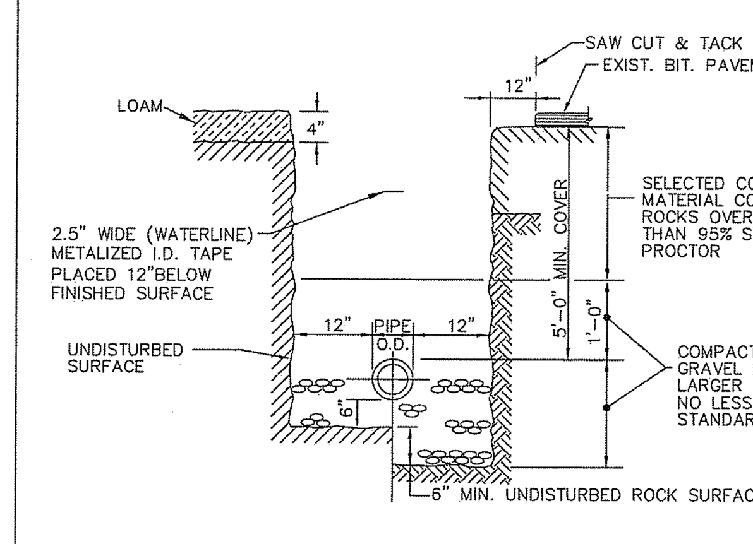
KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **CONNECTION OF NEW WATER MAIN TO EXISTING WATER MAIN** — NOT TO SCALE — DATE: 09/2006 — CONVM.DWG



NOTE:

1.) TAPPING SLEEVE AND VALVE TO BE SWABBED WITH CHLORINE SOLUTION.

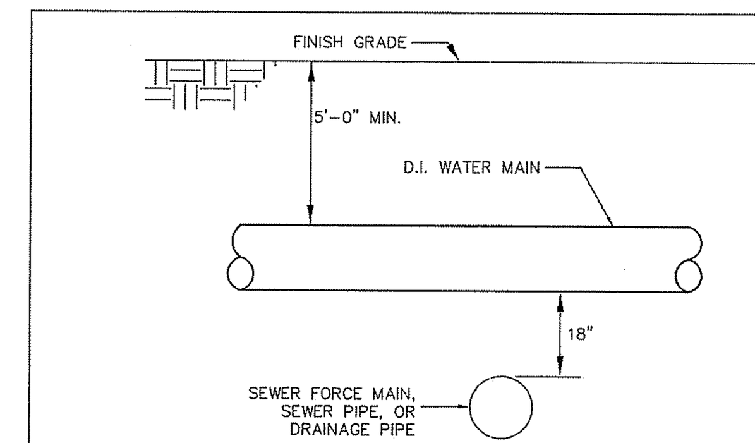
KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **TAPPING SLEEVE AND VALVE** — NOT TO SCALE — DATE: 09/2006 — TAPNGSLEVE.DWG



NOTES:

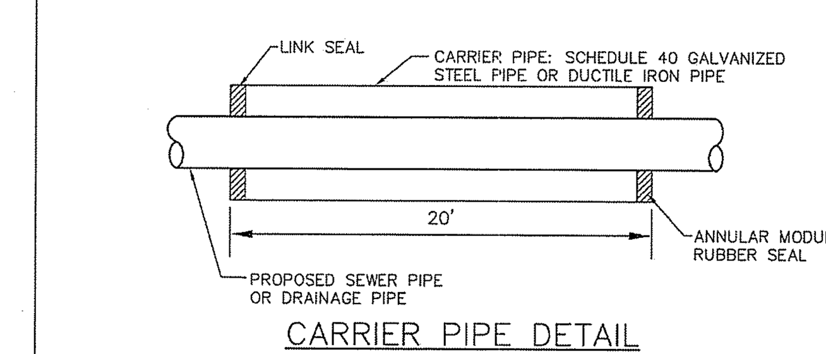
1. ROADWAY RESTORATION IN ACCORDANCE WITH COMMUNITY OR RIDOT.

KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **TRENCH INSTALLATION IN ROCK AND SOIL** — NOT TO SCALE — DATE: 09/2006 — TRENCHDT.DWG

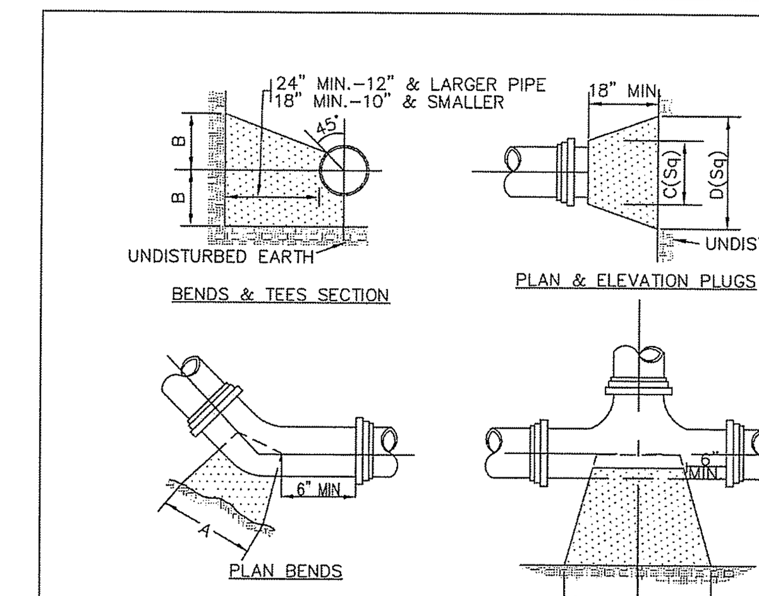


NOTES:

1. THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 18 INCHES.
2. THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10 FEET.
3. IF 1 OR 2 CANNOT BE MAINTAINED THE PROPOSED UTILITY SHALL BE INSTALLED WITHIN A CARRIER PIPE UPON WRITTEN APPROVAL BY THE KCWA.
4. SEWER MAIN AND SERVICES ARE NOT ALLOWED TO CROSS OVER THE TOP OF WATER MAIN.
5. CONCRETE ENCASEMENT IS NOT ALLOWED.



KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **UTILITY SEPERATION** — NOT TO SCALE — DATE: 09/2006 — UTILSEPD.DWG



NOTES:

1.) ALL CONCRETE SHALL BE 4000 P.S.I @ 28 DAYS.
2.) CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
3.) FORMS TO BE USED AS NECESSARY.
4.) ALL BOLTS AND NUTS TO BE PROTECTED FROM CONCRETE AND EASILY ACCESSIBLE WHEN THRUST BLOCK INSTALLED.
5.) REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL CALCULATIONS DURING DESIGN TO MEET CONDITIONS OF PROJECT AND KCWA REQUIREMENTS.

SIZE	TEES		PLUGS		90° BEND		45° BEND		22½° BEND		11¼° BEND	
	A	B	C	D	A	B	A	B	A	B	A	B
6"	20"	10"	10"	21"	24"	12"	18"	9"	13"	7"	9"	5"
8"	26"	13"	12"	26"	32"	16"	24"	12"	17"	9"	12"	6"
10"	34"	17"	14"	34"	40"	20"	30"	15"	22"	11"	15"	8"
12"	41"	20"	16"	41"	48"	24"	35"	18"	25"	13"	18"	9"
16"	54"	27"	20"	54"	64"	32"	47"	23"	34"	17"	24"	12"

KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **THRUST BLOCK** — NOT TO SCALE — DATE: 09/2006 — TBLKDET.DWG

RESTRAINED PIPE LENGTHS FOR RESTRAINED FITTINGS

FITTING	RESTRAINED LENGTH
12" PLUG	94'
12" TEE	44'
12" 90°	58'
12" 45°	44'
12" 22 1/2°	22'
12" 11 1/4°	22'
8" PLUG	58'
8" TEE	44'
8" 90°	44'
8" 45°	22'
8" 22 1/2°	22'
8" 11 1/4°	22'
8" X 6"	44'
6" PLUG	44'
6" TEE	22'
6" 90°	22'
6" 45°	22'
6" 22 1/2°	22'
6" 11 1/4°	22'

NOTE:

1. ALL JOINTS, INCLUDING PIPE JOINTS, VALVE JOINTS, AND FITTING JOINTS, SHALL BE RESTRAINED WITHIN THE LIMITS OF RESTRAINED LENGTHS LISTED ON THIS TABLE. MECHANICAL JOINT PIPE AND MECHANICAL RESTRAINTS WILL BE IN ACCORDANCE WITH THE ABOVE TABLE.
2. THE TABLE SHOWS LENGTHS OF PIPES WHICH MUST BE RESTRAINED ON BOTH SIDES OF THE FITTING.
3. ALL DEAD END PIPE SHALL BE PROPERLY RESTRAINED PRIOR TO PRESSURE TESTING.
4. REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF R.I. SHALL VERIFY ALL RESTRAINING CALCULATIONS & LENGTHS DURING DESIGN, MEETING ALL REQUIREMENTS OF THE KCWA.

KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **RESTRAINED PIPE LENGTHS** — NOT TO SCALE — DATE: 09/2006 — ASBTDET.DWG

WATER SYSTEM NOTES:

1. CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL KENT COUNTY WATER AUTHORITY (KCWA) RULES, REGULATIONS, AND INSTALLATION REQUIREMENTS.
2. CONTRACTOR TO COORDINATE SHUTDOWN OF EXISTING WATER MAIN WITH KCWA PRIOR TO ANY WORK.
3. CONSTRUCTION MATERIALS AND METHODS FOR WATER MAINS AND SERVICE CONNECTIONS HAVE BEEN STANDARDIZED BY KCWA. THE CONTRACTOR SHALL ONLY USE KCWA APPROVED MATERIALS AND METHODS. THE CONTRACTOR SHALL USE KCWA MATERIALS AND METHODS WHEN IN CONFLICT WITH DRAWINGS.
4. WATER MAIN PIPE: ALL DUCTILE-IRON PIPE AND APPURTENANCES SHALL BE FROM A SINGLE MANUFACTURER SOURCE. FOREIGN PIPE FITTINGS AND GASKETS ARE STRICTLY FORBIDDEN. DUCTILE IRON PIPE SHALL CONFORM TO ANSI/AWWA C151/A21.51, ANSI/AWWA C150/A21.50 CLASS 52 DOUBLE CEMENT MORTAR LINED. GASKETS SHALL CONFORM TO ANSI/AWWA C111/A21.1. ALL PIPES SHALL HAVE A BITUMINOUS OUTSIDE COATING IN ACCORDANCE WITH ANSI/AWWA C151/A21.51 AND ANSI/AWWA C153/A21.53 RESPECTIVELY. ALL PIPES SHALL BE CEMENT-MORTAR LINED AND SEAL COATED IN ACCORDANCE WITH ANSI/AWWA C104/A21.14 EXCEPT THE LINING THICKNESS SHALL BE TWICE THAT SPECIFIED. JOINTS FOR PIPE SHALL BE PUSH-ON (TYTON STYLE ONLY) OR MECHANICAL JOINT CONFORMING TO ANSI/AWWA C111. ALL MECHANICAL JOINT PIPES SHALL BE SUPPLIED WITH ACCESSORIES. RESTRAINED JOINTS SHALL BE SUITABLE FOR 150 PSI WORKING PRESSURE AND FABRICATED OF HEAVY SECTION DUCTILE IRON CASTING. GASKETS SHALL MEET THE MATERIAL REQUIREMENTS OF ANSI/AWWA AND MADE IN THE USA.

   TYPE: DUCTILE IRON MEETING ANSI/AWWA C151/A21.51 ANSI/AWWA C150/A21.50.
   CLASS: SPECIAL THICKNESS CLASS 52.
   LINING: DOUBLE CEMENT MORTAR MEETING ANSI/AWWA C151/A21.5.
   END JOINTS: PUSH ON (TYTON STYLE ONLY) – MEETING ANSI/AWWA C111/A21.51. MECHANICAL JOINT – MEETING ANSI/AWWA C111/A21.11.
   COATING: EXTERIOR: ANSI/AWWA C104/A21.4.
   INTERIOR: ALL REQUIREMENTS OF EPA FOR POTABLE WATER.
   GASKET: RUBBER MEETING ANSI/AWWA C111/A21.11. NITRILE (IN CONTAMINATED SOIL).

5. FITTINGS: DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI/AWWA C153/A21.53. FOREIGN FITTINGS, GASKET GLANDS AND ACCESSORIES ARE STRICTLY FORBIDDEN. ALL FITTINGS SHALL HAVE A BITUMINOUS OUTSIDE COATING IN ACCORDANCE WITH ANSI/AWWA C151/A21.51 AND ANSI/AWWA C153/A21.53 RESPECTIVELY. ALL FITTINGS SHALL BE CEMENT-MORTAR LINED AND SEAL COATED IN ACCORDANCE WITH ANSI/AWWA C104/A21.14 EXCEPT THE LINING THICKNESS SHALL BE TWICE THAT SPECIFIED. JOINTS FOR FITTINGS SHALL BE MECHANICAL JOINT CONFORMING TO ANSI/AWWA C111. ALL MECHANICAL JOINT FITTINGS SHALL BE SUPPLIED WITH GLANDS AND ACCESSORIES.

   TYPE: 4 INCH TO 12 INCH DUCTILE IRON COMPACT MEETING ANSI/AWWA C153/A21.53. 16 INCH AND LARGER DUCTILE IRON MEETING ANSI/AWWA C153/A21.53 OR ANSI/AWWA C110/A21.10.

   PRESSURE CLASS: PIPE FITTINGS SHALL HAVE A PRESSURE RATING OF 350 FOR 24-INCH AND SMALLER AND 250 PSI FOR 30-INCH AND LARGER. FITTINGS SHALL AT A MINIMUM HAVE THE SAME PRESSURE RATING AS THE CONNECTING PIPE.

   GASKETS: RUBBER MEETING ANSI/AWWA C111/A21.11. NITRILE (IN CONTAMINATED SOIL).

5. VALVES: VALVES SHALL BE CAST IRON OR DUCTILE IRON 250-PSI WORKING PRESSURE. OPERATING STEM SHALL BE PROVIDED WITH A MINIMUM OF TWO (2) O-RING STEM SEALS. BONNET AND GLAND BOLTS/WASHERS SHALL BE STAINLESS STEEL. WEDGES SHALL BE FULLY ENCAPSULATED. THE INTERIOR AND EXTERIOR SURFACES OF ALL CAST IRON OR DUCTILE IRON COMPONENTS SHALL BE FUSION BOND EPOXY COATED, 8 MILS MINIMUM THICKNESS. EPOXY COATING MUST BE UNDAMAGED WITH NO CHIPS OR ABRASIONS. FIELD TOUCH-UP OF INTERIOR COATING IS NOT ALLOWED. FIELD TOUCH-UP OF EXTERIOR SURFACES SHALL BE IN ACCORDANCE WITH MANUFACTURES RECOATING SPECIFICATIONS ONLY. CONTRACTORS SHALL USE SPECIAL HANDLING AND INSTALLATION PRECAUTIONS WITH THE USE OF EPOXY COATED VALVES AS NECESSARY TO ENSURE THAT NO COATING SYSTEM DAMAGE OCCURS. AT A MINIMUM FIBER SLINGS OR BELTS SHALL BE USED FOR ALL HANDLING. ALL EPOXY-COATED VALVES SHALL BE PALLETIZED AND PROPERLY SHRINK-WRAPPED UPON DELIVERY TO ASSURE COATING SYSTEM INTEGRITY IS NOT COMPROMISED. ALL EPOXY VALVES FOUND MISHANDLED AT DELIVERY OR DURING INSTALLATION SHALL BE REJECTED AND REMOVED FROM THE JOB SITE. ALL VALVES SHALL BE MANUFACTURED TO MEET OR EXCEED AWWA C509 AND ISO 9000 ALONG WITH THE DESIGN AND OPERATING CHARACTERISTICS OF THE FOLLOWING DEVICES:

   RESILIENT SEAT GATE 4 INCH TO 12 INCH:

   TYPE: BURIED SERVICE NON-RISING STEM.

   ABOVE GRADE SERVICE OR PITS OS & Y WITH HAND WHEEL OR NON-RISING STEM WITH HAND WHEEL.

   WORKING PRESSURE: 250 PSI
   OPENING: LEFT OR RIGHT, DEPENDING ON SYSTEM LOCATION
   STEM: 420 STAINLESS STEEL OR EQUAL WITH MINIMUM 60,000 PSI YIELD STRENGTH
   FASTENERS: STAINLESS STEEL, TYPE 304 FOR ALL OF THE VALVE
   COATINGS: INTERNAL & EXTERIOR TO BE COATED WITH FUSE BONDED HOLIDAY FREE EPOXY COATING MINIMUM 8 MILS NOMINAL THICKNESS MEETING OR EXCEEDING AWWA C550
   WEDGES: FULLY RUBBER ENCAPSULATED CAST IRON, DUCTILE IRON OR BRONZE GATE MEETING AWWA C509
   OPERATING NUT: 2 INCH SQUARE OPERATING NUT WITH HEXAGON STAINLESS STEEL BOLT FASTENER
   STEM SEAL: MINIMUM TWO O-RING SEALS
   CONNECTION: MECHANICAL JOINT

   TAPPING SLEEVE & VALVE: VALVES SHALL BE FULL BODY AND FULL PORT TAPPING TYPE MEETING THE REQUIREMENTS PARAGRAPH 4.9.1.1 ABOVE. SLEEVES SHALL BE FULL PORT DUCTILE IRON OR GRADE 18-8 TYPE 304 STAINLESS STEEL. DUCTILE IRON SLEEVES SHALL BE OF THE SAME MANUFACTURER AS OF THE VALVE AND BITUMINOUS COATED. ALL SLEEVES SHALL BE MANUFACTURED TO MEET OR EXCEED THE DESIGN AND OPERATING CHARACTERISTICS OF ONE OF THE FOLLOWING DEVICES:

   TYPE: RESILIENT SEAT GATE VALVES DESIGNED SPECIFICALLY FOR TAPPING.

   SEAL: STAINLESS STEEL SLEEVES SHALL USE GRID PATTERN VIRGIN RUBBER ASTM 2000, FULL 360-DEGREE PIPE COVERAGE. DUCTILE IRON SLEEVES SHALL USE MECHANICAL JOINT WITH RUBBER SEALS.

   MAXIMUM WORKING PRESSURE: 4-12 INCH: 250 PSI 16-24 INCH: 200 PSI

   FASTENER: GRADE 18-8 TYPE 304 STAINLESS STEEL.

6. SERVICE PIPE SERVICE PIPE SIZES ¾ TO 2 INCH SHALL BE COPPER PIPE. COPPER TUBING JOINTS SHALL COMPLY WITH NSF 61 AND CONFORM TO ONE OF THE FOLLOWING TYPES:

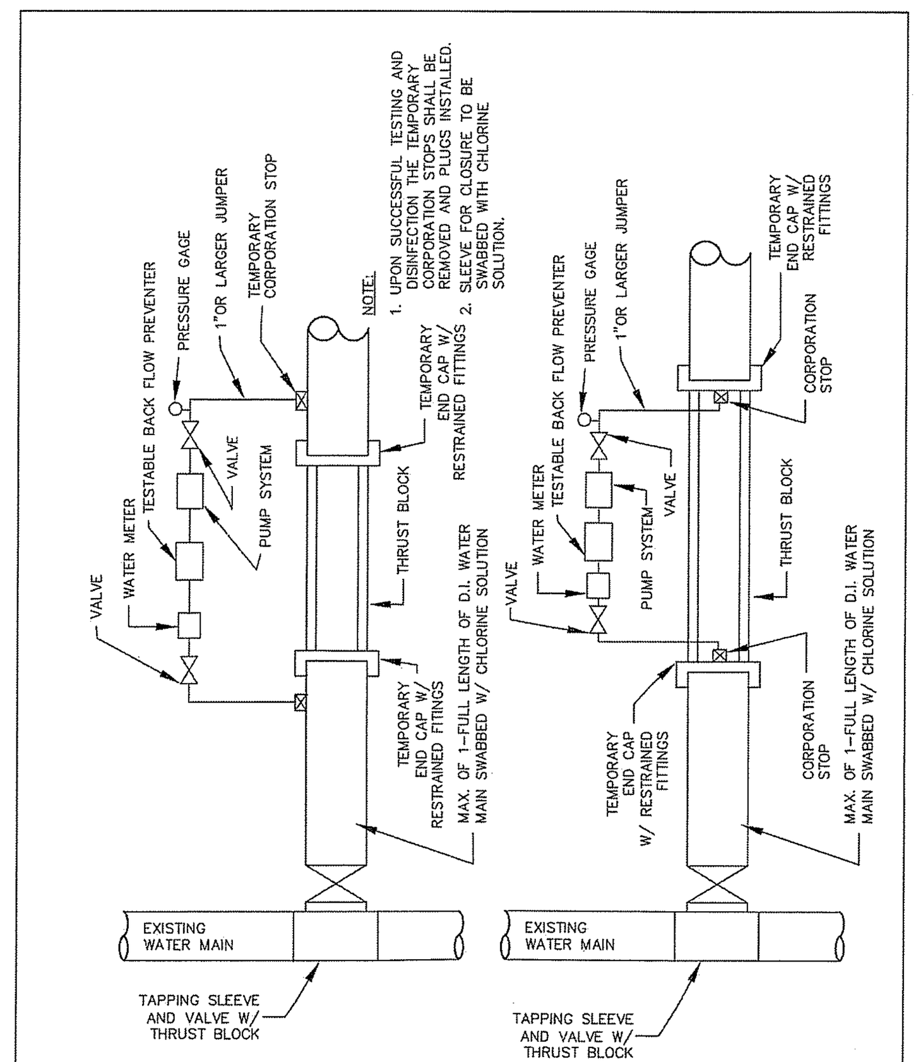
   A. BRAZED JOINTS – ALL JOINT SURFACES SHALL BE CLEANED AND APPROVED FLUX SHALL BE APPLIED WHERE REQUIRED. THE JOINT SHALL BE BRAZED WITH A FILLER METAL CONFORMING TO AWS A5.8.
   B. FLARED JOINTS – FLARED JOINTS FOR WATER PIPE SHALL BE MADE BY A TOOL DESIGNED FOR THAT OPERATION.
   C. MECHANICAL JOINTS – MECHANICAL JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND BE RATED FOR 200 PSI MINIMUM.
   D. SOLDERED JOINTS – SOLDER JOINTS SHALL BE MADE IN ACCORDANCE WITH THE METHODS OF ASTM B828. ALL CUT TUBE ENDS SHALL BE REAMED TO THE FULL INSIDE DIAMETER OF THE TUBE END. ALL JOINT SURFACES SHALL BE CLEANED. A FLUX CONFORMING TO ASTM B813 SHALL BE APPLIED. THE JOINT SHALL BE SOLDERED WITH A SOLDER CONFORMING TO ASTM B 32. THE JOINING OF WATER SUPPLY PIPING SHALL BE MADE WITH LEAD-FREE SOLDERS AND FLUXES. "LEAD FREE" SHALL MEAN A CHEMICAL COMPOSITION EQUAL TO OR LESS THAN 0.2-PERCENT LEAD.

   PE PIPE AND TUBING JOINTS SHALL COMPLY WITH NSF 61, BE RATED FOR A WORKING PRESSURE OF 200 PSI AND CONFORM TO ONE OF THE FOLLOWING TYPES:

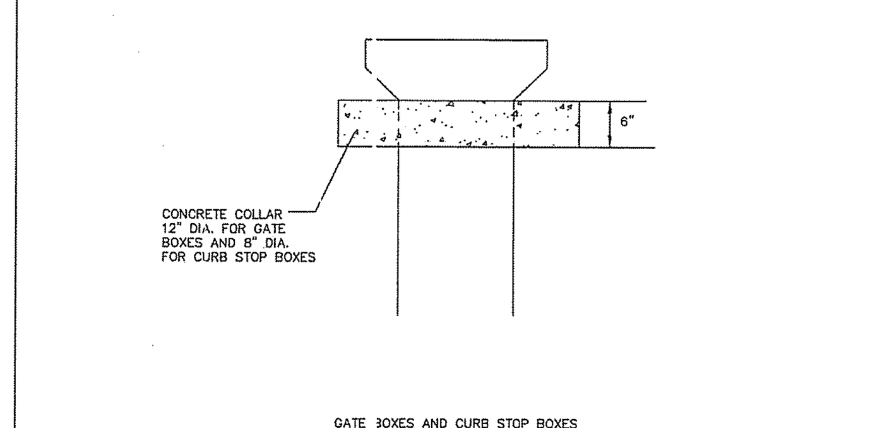
   A. HEAT FUSION JOINTS – JOINT SURFACES SHALL BE CLEAN AND FREE FROM MOISTURE. ALL JOINT SURFACES SHALL BE HEATED TO MELT TEMPERATURE AND JOINED. THE JOINT SHALL BE UNDISTURBED UNTIL COOL. JOINTS SHALL BE MADE IN ACCORDANCE WITH ASTM D2657.
   B. MECHANICAL JOINTS – MECHANICAL JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
   C. GENERAL – PE PIPE SHALL BE CUT SQUARE, WITH A CUTTER DESIGNED FOR PLASTIC PIPE. EXCEPT WHERE JOINED BY HEAT FUSION, PIPE ENDS SHALL BE CHAMFERED TO REMOVE SHARP EDGES. KINKED PIPE SHALL NOT BE INSTALLED. THE MINIMUM PIPE BENDING RADIUS SHALL NOT BE LESS THAN 30 PIPE DIAMETERS, OR THE MINIMUM COIL RADIUS, WHICHEVER IS GREATER. PIPING SHALL NOT BE BENT BEYOND STRAIGHTENING OF THE CURVATURE OF THE COIL. BENDS SHALL NOT BE PERMITTED WITHIN 10 PIPE DIAMETERS OF ANY FITTING OR VALVE. STIFFENER INSERTS INSTALLED WITH COMPRESSION-TYPE COUPLINGS AND FITTINGS SHALL NOT EXTEND BEYOND THE CLAMP OR NUT OF THE COUPLING OR FITTING.

7. CORPORATION STOPS SHALL BE BALL TYPE WITH EITHER STAINLESS STEEL, SYNTHETIC COATED BRASS BALL OR NICKEL COATED BRASS BALL DESIGNED FOR POTABLE WATER SERVICE UP TO 300 PSI. BODY SHALL BE HEAVY CAST LEAD FREE 'ENVIROBRASSII' UNS ALLOY NUMBER C89520 ASTM B584-98a AND/OR AWWA C800/ASTM B-62 MEETING OR EXCEEDING THE LEAD LEACHING PERFORMANCE SPECIFICATIONS OF ANSI/NSF 61 STANDARD. ALL CORPORATION STOPS SHALL MEET OR EXCEED DESIGN STANDARDS OF AWWA C800 ALONG WITH THE FOLLOWING:
   A. TYPE = FORD OR EQUAL
   B. OPEN = OPENS LEFT
   C. END CONNECTIONS = COMPRESSION WITH NON-CORROSIVE GRIP RING MEETING ASTM B-159-BUNA N RUBBER AND CONDUCTIVITY RING. THREADED END SHALL BE AWWA CC TAPER THREAD FOR DIRECT TAP.
8. CURB STOPS SHALL BE BALL TYPE WITH EITHER STAINLESS STEEL, SYNTHETIC COATED BRASS BALL OR NICKEL COATED BRASS BALL DESIGNED FOR POTABLE WATER SERVICE UP TO 300 PSI. BODY SHALL BE HEAVY CAST LEAD FREE 'ENVIROBRASSII' UNS ALLOY NUMBER C89520 ASTM B584-98a AND/OR AWWA C800/ASTM B-62 MEETING OR EXCEEDING THE LEAD LEACHING PERFORMANCE SPECIFICATIONS OF ANSI/NSF 61 STANDARD. ALL CURB STOPS SHALL MEET OR EXCEED DESIGN STANDARDS OF AWWA C800 ALONG WITH THE FOLLOWING:
   A. TYPE = FORD OR EQUAL
   B. OPEN = OPENS LEFT
   C. END CONNECTIONS = COMPRESSION WITH NON-CORROSIVE GRIP RING MEETING ASTM B-159-BUNA N RUBBER AND CONDUCTIVITY RING.
   D. DRAIN = NONE
9. SADDLE FOR SERVICE CONNECTION TO DUCTILE IRON MAIN, IF USED, SHALL BE DUCTILE IRON OR TYPE 304 STAINLESS STEEL WITH STAINLESS STEEL BOLTS, WASHERS, NUTS AND BANDS. DUCTILE IRON COMPONENTS SHALL BE COATED WITH FUSION BONDED EPOXY MINIMUM 8 MILS THICKNESS MEETING OR EXCEEDING AWWA C550 OR NYLON COATED.
   A. TYPE = FORD OR EQUAL (SADDLE ON 8" DUCTILE IRON MAIN)
   B. BODY = DUCTILE IRON OR GRADE 18-8 TYPE 304 STAINLESS STEEL
   C. BAND = GRADE 18-8 TYPE 304 STAINLESS STEEL DOUBLE BAND.
   D. FASTENERS = 304 STAINLESS STEEL STUD, NUT & WASHERS.
   E. GASKET = VIRGIN RUBBER ASTM 2000.
   F. OUTLET = THREADED OUTLET TAPPED TO AWWA C800 FOR THE APPROPRIATE SERVICE SIZE.
10. DUCTILE IRON COUPLINGS: STRAIGHT AND TRANSITION COUPLINGS SHALL BE DUCTILE IRON MANUFACTURED TO MEET AWWA C 219 AND FITTED WITH STAINLESS STEEL BOLTS WASHERS AND NUTS. DUCTILE IRON COMPONENTS SHALL BE COATED WITH FUSION BONDED EPOXY MINIMUM 8 MILS THICKNESS MEETING OR EXCEEDING AWWA C550. COUPLINGS SHALL BE MANUFACTURED TO MEET OR EXCEED THE DESIGN AND OPERATING CHARACTERISTICS OF THE FOLLOWING:

    TYPE: FORD OR EQUAL.
    BODY: DUCTILE IRON.
    COATING: DUCTILE IRON COMPONENTS SHALL BE EPOXY COATED AWWA C 500.
    FASTENERS: 304 STAINLESS STEEL STUD, NUT & WASHERS.
    GASKET: RUBBER ASTM 2000.
11. ALL METERS SHALL BE COMPATIBLE WITH THE SYSTEM UTILIZED BY THE KENT COUNTY WATER AUTHORITY, THE NEPTUNE E-CODER R-900. ALL METERS SHALL READ IN CUBIC FEET AND BE CAPABLE OF BEING READ BY THE RADIO FREQUENCY SYSTEM USED BY KCWA. REGISTER SHALL CONTAIN A 9-DIGIT LOCAL REGISTRATION AND 4-8 DIGITS CAN BE COMMUNICATED FOR BILLING PURPOSES.
12. SERVICE BOXES (LOCATED OFF ROADWAYS) SHALL BE MANUFACTURED IN NORTH AMERICA. THEY SHALL BE HEAVY PATTERN CAST IRON, BUFFALO STYLE, SLIP ADJUSTABLE TYPE WITH HEAVY CAST IRON COVER AND BRASS BOLT FASTENER TYPE LOCK. THE WORD 'WATER' SHALL BE CAST UPON THE COVER IN HEAVY PATTERN RAISED LETTERS. COVERS SHALL BE DROP IN TYPE WITHOUT FINS SOLID RING. BOXES SHALL HAVE A BITUMINOUS INTERNAL AND EXTERNAL COATING IN ACCORDANCE WITH ANSI/AWWA C151/A21.51 AND ANSI/AWWA C153/A21.53 RESPECTIVELY. BOXES SHALL HAVE BARRELS OF NOT LESS THAN 2-1/2" IN DIAMETER. THE UPPER SECTION OF EACH BOX SHALL HAVE A BOTTOM FLANGE OF SUFFICIENT BEARING AREA TO PREVENT SETTLING. THE BASE OF THE LOWER SECTION SHALL BE A REINFORCED ARCH CONFIGURATION AND SIZED TO ENCLOSE THE CURB STOP. BOX SECTIONS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE COMPLETE COVERAGE FOR THE DEPTH OF BURY.
13. VALVE ROAD BOXES ALL VALVES LOCATED IN ROADWAYS (EXCEPT SWING-CHECK) SHALL BE EQUIPPED WITH A CAST IRON "BUFFALO" TYPE, ADJUSTABLE (SLIDING) VALVE ROAD BOX. THE UPPER PORTION SHALL BE 26 INCH LONG AND THE BOTTOM SECTION 48 INCH (MIN). COVERS SHALL BE 5-1/4" IN DIAMETER SOLID RING SEAT WITH THE WORD "WATER" (IN CAPS) CAST UPON IT. THE UPPER PORTION OF THE BOX SHALL BE MANUFACTURED WITH A HEAVY FLANGE HAVING SUFFICIENT BEARING AREA TO PREVENT SETTLEMENT. THE LOWER SECTION SHALL BE CONFIGURED TO ENCLOSE THE VALVE STUFFING BOX WITH AN INSIDE DIAMETER OF AT LEAST 4-1/4 INCH. THE INSTALLED BOX SHALL BE CAPABLE OF VERTICAL ADJUSTMENT OF A MINIMUM OF 6 INCH WHILE MAINTAINING AN OVERLAP OF A LEAST 4 INCH BETWEEN SECTIONS.
14. ALL HOSE BIBS PROVIDED FOR THE HOUSES SHALL BE OF THE DESIGN, WHICH INCORPORATES A BUILT-IN TAMPER PROOF VACUUM BREAKER FEATURE AS MANUFACTURED BY THE BOSE BIB MAKER. ALL HOSE BIB FIXTURES SHALL BE AMERICAN MADE. THIS REQUIREMENT IS APPLICABLE TO ALL INTERIOR AND EXTERIOR HOSE BIB APPLICATIONS. EXISTING PROPERTIES SHALL BE RETROFITTED WITH NON-REMOVABLE HOSE BIB VACUUM BREAKER ASSEMBLIES SPECIFICALLY DESIGNED TO ADAPT TO THE EXISTING HOSE BIB CONFIGURATION.
15. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO INSTALL AN APPROPRIATE THERMAL EXPANSION DEVICE IN THE FACILITY TO COMPLY WITH CROSS CONNECTION REQUIREMENTS OF THE RHODE ISLAND PLUMBING CODE.
16. MINIMUM COVER OVER WATER PIPE IS 5 FEET.
17. PROVIDE WARNING TAPE OVER SERVICE AS SHOWN IN TRENCH DETAIL.
18. THE WATER MAIN AND SERVICES SHALL BE FILLED, FLUSHED, HYDROSTATICALLY PRESSURE TESTED TO 180 PSI AND CHLORINATED/DISINFECTED IN ACCORDANCE WITH KCWA RULES & REGULATIONS, AWWA C651, RHODE ISLAND DEPARTMENT OF HEALTH, AND "AWWA MANUAL OF WATER SUPPLY PRACTICE M55 – PE PIPE DESIGN AND INSTALLATION". REFER TO SECTION 3.23 'DISINFECTION/CHLORINATION' OF THE KCWA RULES AND REGULATIONS AND KCWA'S 'CUSTOMER WATER SERVICE DISINFECTION POLICY'. NOTE: MAXIMUM VELOCITY WHEN FILLING THE PE PIPE WITH WATER SHALL BE 1 FT/SEC (1 GAL/MIN FOR 1" CTS PIPE).
19. A MINIMUM OF TEN-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED IN THE PLACEMENT OF WATER MAINS, SERVICES OR APPURTENANCES WITHIN THE VICINITY OF SEWER FACILITIES OR VICE VERSA. WHERE WATER MAINS CROSS SEWER MAINS, THE CROWN OF THE SEWER MAIN SHALL BE AT LEAST 18-INCHES BELOW THE BOTTOM OF THE WATER MAIN. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT, HORIZONTAL SEPARATION OR IN THE CASE OF CROSSING THE EIGHTEEN-INCH, VERTICAL SEPARATION, A DEVIATION FROM THIS RESTRICTION MAY BE ALLOWED ON A CASE BY CASE BASIS WITH PRIOR APPROVAL FROM THE GENERAL MANAGER/CHIEF ENGINEER AS TO THE PROPOSED MATERIALS AND INTERVENTIONS TO BE TAKEN TO PROTECT THE WATER SYSTEM FROM THE POSSIBILITY OF CONTAMINATION. IN ALL CASES, FORCE MAIN SEWER INFRASTRUCTURE MUST BE LOCATED BELOW WATER MAINS.
20. METALIZED DETECTABLE IDENTIFICATION TAPE 2" IN WIDTH OR GREATER, BLUE IN COLOR AND PRINTED WITH "CAUTION WATER LINE BURIED BELOW" SHALL BE UTILIZED OVER ALL WATER LINES AND SERVICES. SET TO A DEPTH FROM FINISHED GRADE OF NO MORE THAN 1'-0".
21. A TEMPORARY PATCH SHALL BE INSTALLED OVER THE FRESHLY BACKFILLED TRENCH IN AN EXISTING STREET OR SIDEWALK USING HOT BITUMINOUS CONCRETE. IT SHALL BE AT LEAST 3" THICK CONSISTING OF EQUAL THICKNESS LAYERS OF MODIFIED BINDER AND TYPE I-1 WEARING COURSE. AFTER 60 DAYS, THE TEMPORARY PATCH SHALL BE REMOVED AND REPLACED WITH A PERMANENT PATCH. ALL PAVEMENT EDGES SHALL BE SAW CUT.
22. AN AS-BUILT PLAN IS REQUIRED. CONTRACTOR SHALL RETAIN THE SERVICES OF A RHODE ISLAND PROFESSIONAL LAND SURVEYOR TO INSPECT THE SERVICE AND PREPARE THE AS-BUILT PLAN IN ACCORDANCE WITH THE KCWA RULES AND REGULATIONS.



KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **TEMPORARY CONNECTION FOR PRESSURE TESTING AND DISINFECTION** — NOT TO SCALE — DATE: 09/2006 — TEMPCONP.DWG



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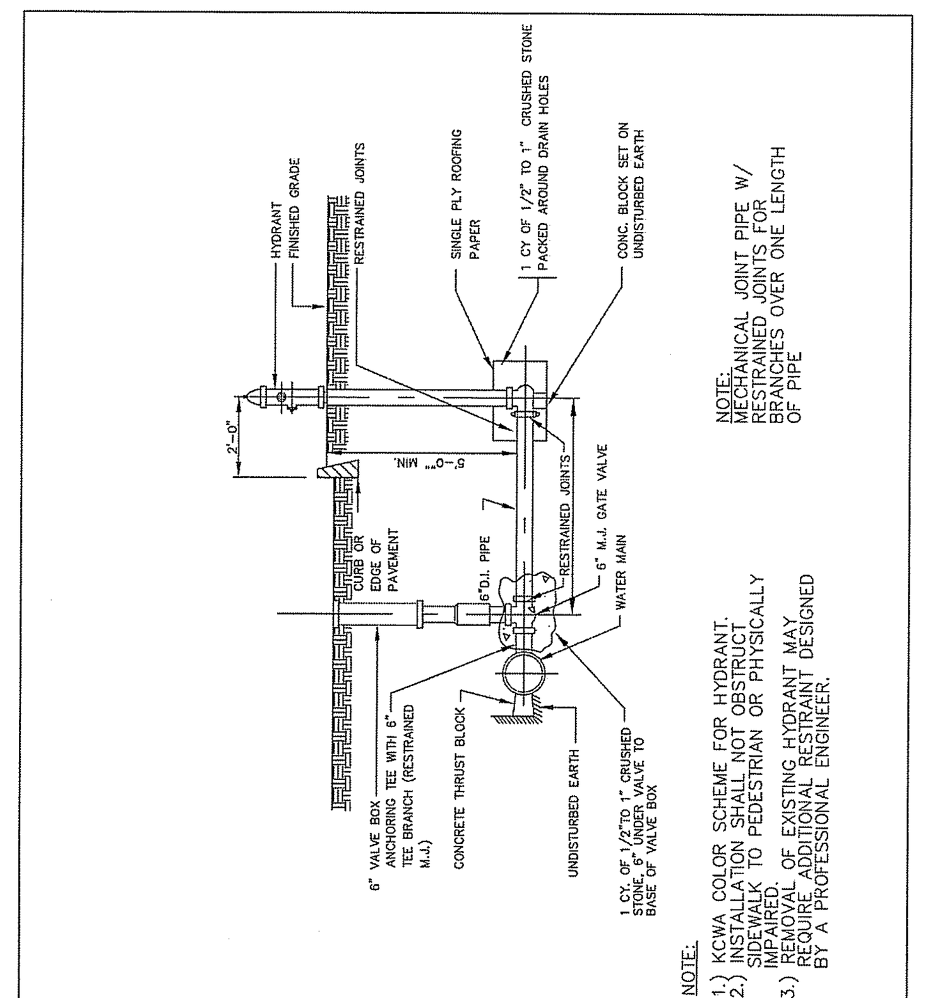

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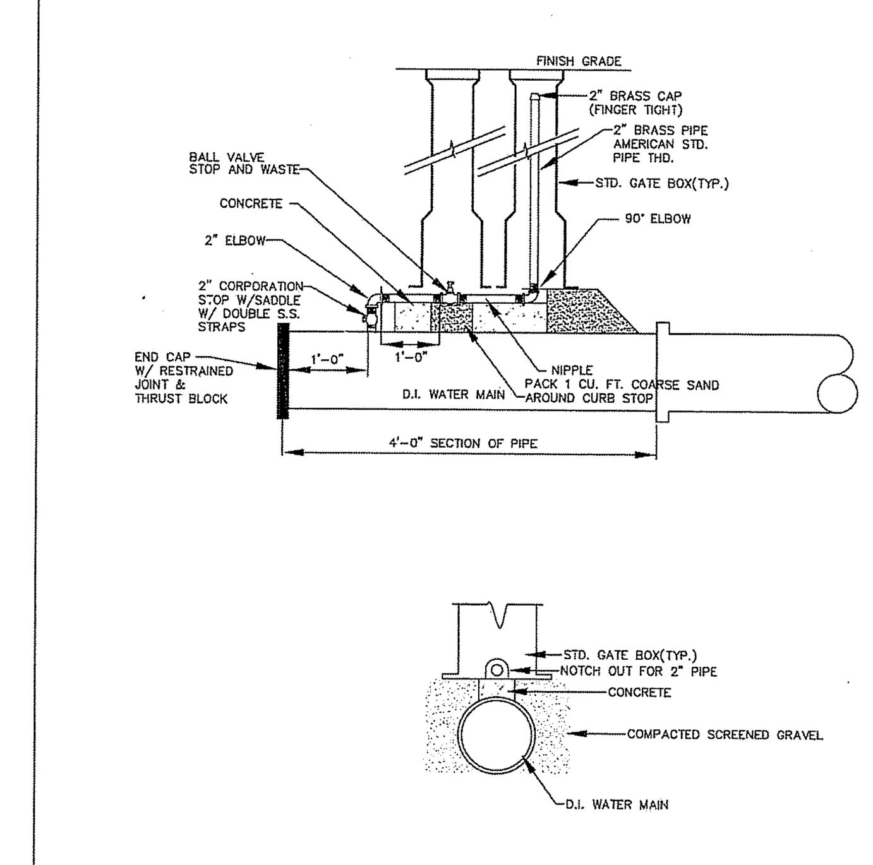
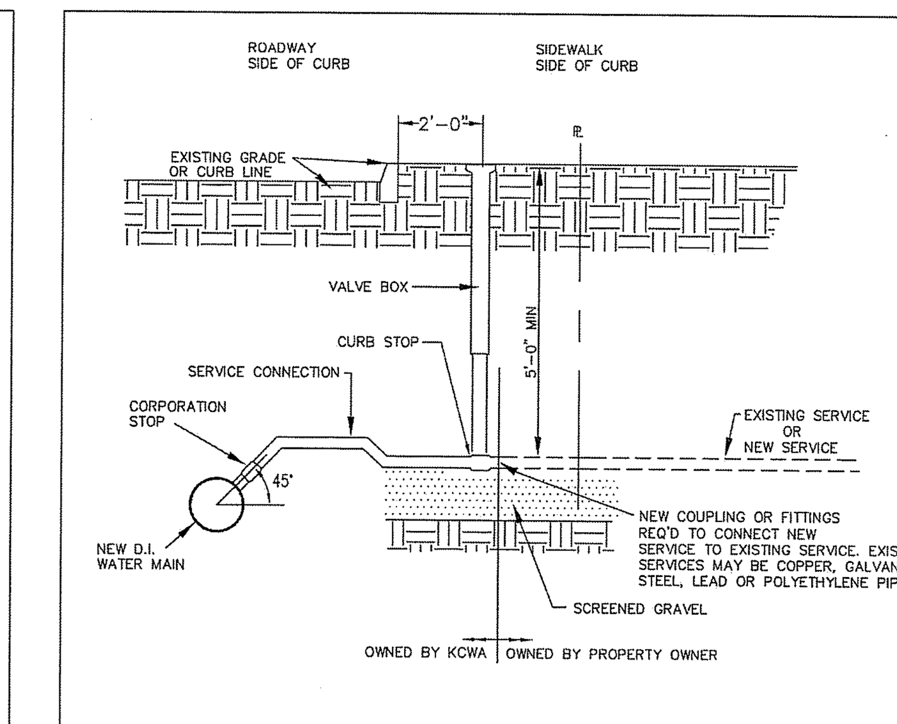


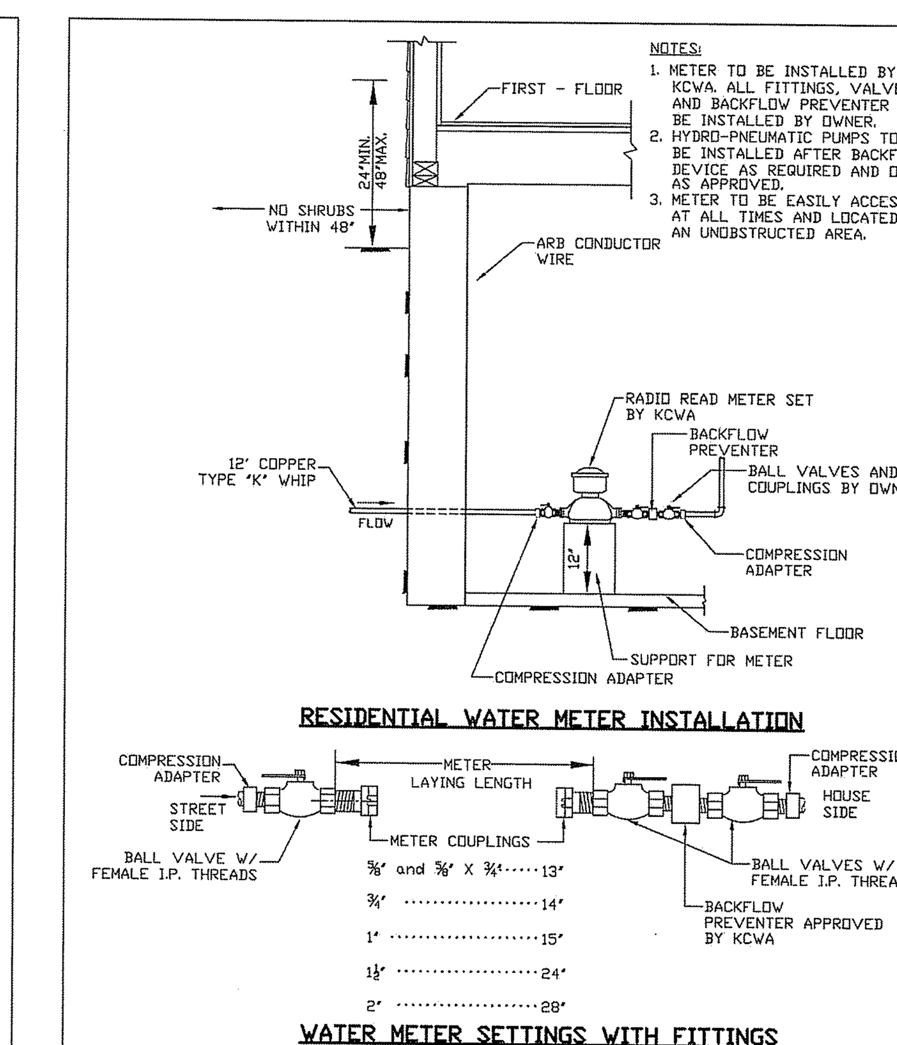
KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **PERMANENT BLOWOFF ASSEMBLY** — NOT TO SCALE — DATE: 09/2006 — PBLOWOFF.DWG



NOTE:

1.) SERVICE MATERIALS PER KCWA SPECIFICATION UNLESS CITY OR TOWN CODES REQUIRE SPECIFIC MATERIALS THAT HAVE BEEN APPROVED BY KCWA.
2.) SERVICE LINE FROM CURB BOX TO BUILDING SHALL BE INSPECTED, TESTED AND APPROVED BY THE LOCAL PLUMBING INSPECTOR.

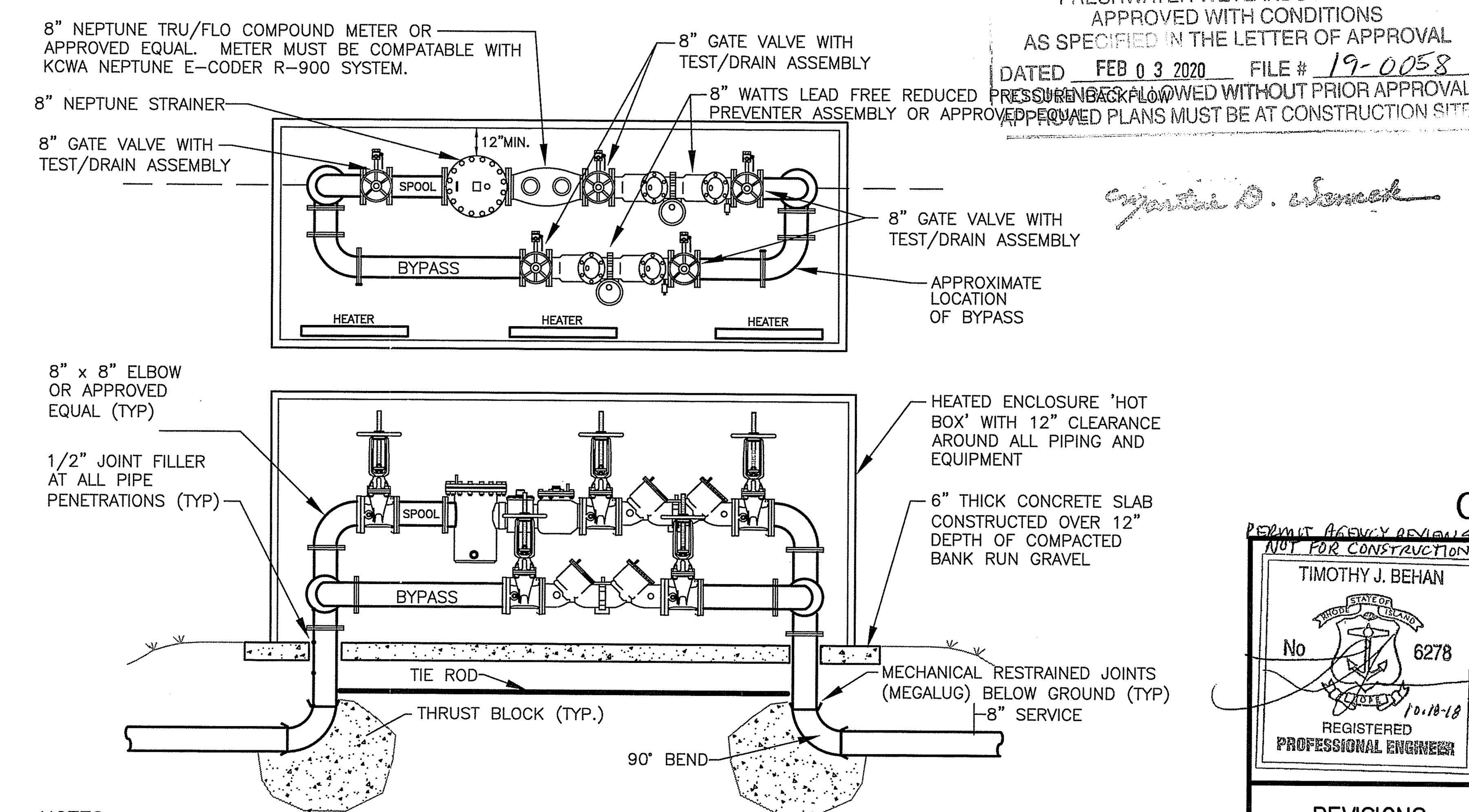
KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **SERVICE CONNECTION** — NOT TO SCALE — DATE: 09/2006 — SERCONDET.DWG



NOTES:

1. METER TO BE INSTALLED BY KCWA. ALL FITTINGS, VALVES, AND BACKFLOW PREVENTER TO BE INSTALLED BY OWNER.
2. HYDRO-PNEUMATIC PUMPS TO BE INSTALLED AFTER BACKFLOW DEVICE AS REQUIRED AND ONLY AS APPROVED.
3. METER TO BE EASILY ACCESSIBLE AT ALL TIMES AND LOCATED IN AN UNOBSTRUCTED AREA.

KCWA "proudly serving" — KENT COUNTY WATER AUTHORITY — **RESIDENTIAL WATER METER** — NOT TO SCALE — DATE: 09/2006 — RESW.DWG



NOTES:

1. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL OF ENTIRE MASTER METER ENCLOSURE, ASSEMBLY AND HEATING SYSTEM.
2. ALL WORK AND MATERIALS SHALL BE PERFORMED IN ACCORDANCE WITH KCWA STANDARDS.
3. INSTALL MASTER METER ENCLOSURE IN STRICT CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. PROVIDE NON-CORROSIVE SUPPORTS FOR RPZ AND METER (CONCRETE OR EQUAL).
5. ALL PIPING, VALVES AND EQUIPMENT SHALL BE RATED FOR 150 PSI WORKING PRESSURE OR GREATER AS SPECIFIED BY KCWA.
6. ENCLOSURE SHALL BE MANUFACTURED TO PREVENT FREEZING TEMPERATURES WITHIN ENCLOSURE WHEN OUTSIDE TEMPERATURES DROP TO -20F.
7. ENCLOSURE SHALL BE DESIGNED WITH 'FLIP TOPS' FOR EASY ACCESS AND MAINTENANCE.
8. ENCLOSURE SHALL BE DESIGNED WITH 'BLOW OUT PANELS' TO ACCOMODATE RPZ FLOW RATES OF 320 GPM.
9. ENCLOSURE SHALL BE MANUFACTURED BY HOTBOX OR EQUAL.

ABOVE-GROUND WATER METER & BACKFLOW PREVENTION ENCLOSURE

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:

DATE ENDORSED:

JAN 2 9 2020

CONSTRUCTION DETAILS 3

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
10-18-18
REGISTERED PROFESSIONAL ENGINEER

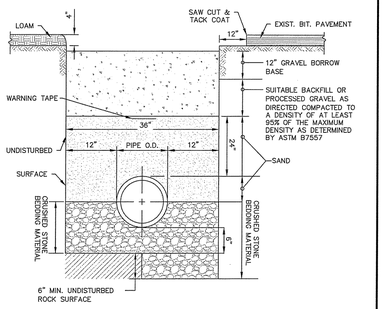
REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

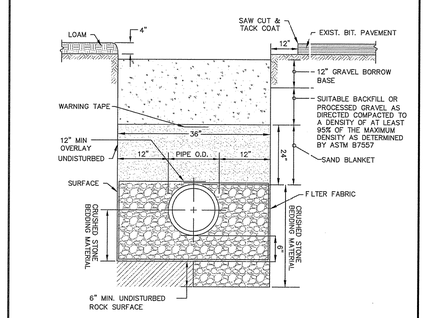
SCALE: AS NOTED | SHEET NO: 15 OF 18
DRAWN BY: MCZ | DESIGN BY: MCZ | CHECKED BY: TJB
DATE: APRIL 2018 | PROJECT NO.: 17033.00



NOTES:
1. MINIMUM DEPTH OF COVER SHALL BE 4'-0"
2. PAVEMENT RESTORATION SHALL CONFORM TO THE DEPARTMENT OF PUBLIC WORKS REQUIREMENTS

Town of West Warwick
Rhode Island

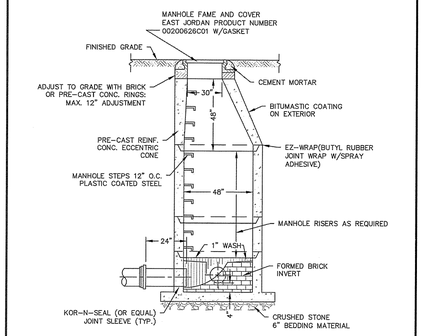
Figure WW-1
TRENCH DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



NOTES:
1. MINIMUM DEPTH OF COVER SHALL BE 4'-0"
2. PAVEMENT RESTORATION SHALL CONFORM TO THE DEPARTMENT OF PUBLIC WORKS REQUIREMENTS

Town of West Warwick
Rhode Island

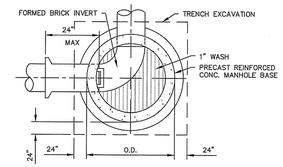
Figure WW-2
TRENCH DETAIL WET CONDITION DETAIL
Standard Sanitar / Sewer Requirements
Date: 2018 | Scale: No Scale



NOTES:
1. ALL LIFTING HOLES TO BE PLUGGED IN AND OUT WITH HYDRAULIC CEMENT

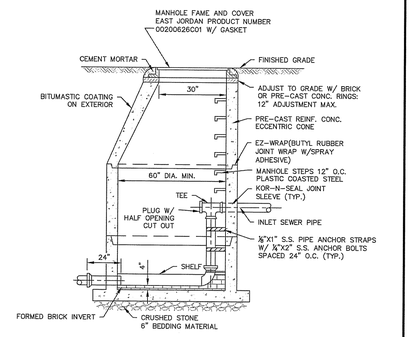
Town of West Warwick
Rhode Island

Figure WW-4
SEWER MANHOLE DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



Town of West Warwick
Rhode Island

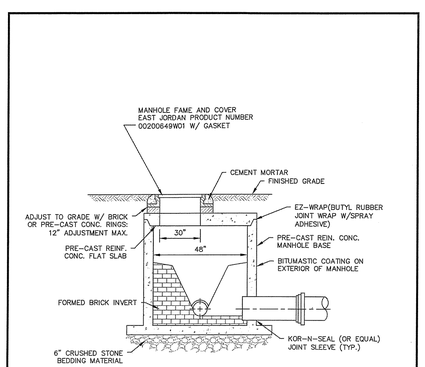
Figure WW-5
PRECAST MANHOLE DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



NOTES:
1. ALL LIFTING HOLES TO BE PLUGGED IN AND OUT WITH HYDRAULIC CEMENT
2. DROP PIPE SHALL BE PVC AND SAME SIZE AS INLET SEWER

Town of West Warwick
Rhode Island

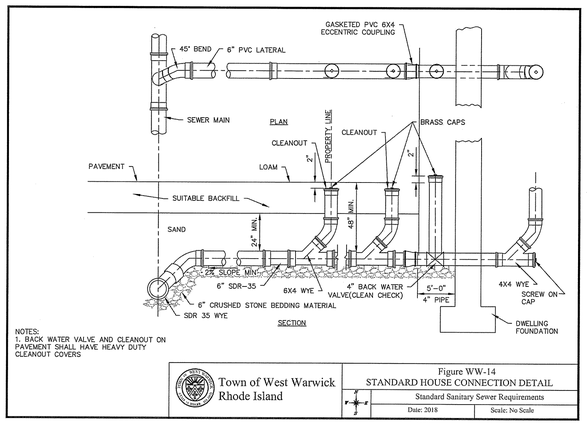
Figure WW-6
INSIDE DROP SANITARY MANHOLE DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



NOTES:
1. SHALLOW MANHOLES SHALL BE PROVIDED ONLY WHERE THE VERTICAL HEIGHT OF THE MANHOLE IS LESS THAN 6'-0"
2. ALL LIFTING HOLES TO BE PLUGGED IN AND OUT WITH HYDRAULIC CEMENT

Town of West Warwick
Rhode Island

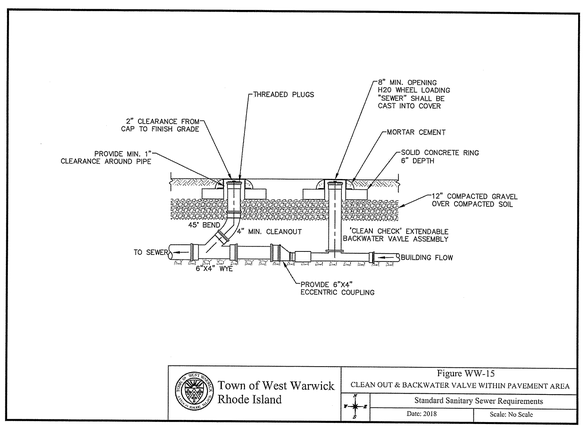
Figure WW-7
SANITARY SHALLOW MANHOLE DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



NOTES:
1. BACK WATER VALVE AND CLEANOUT ON PAVEMENT SHALL HAVE HEAVY DUTY CLEANOUT COVERS

Town of West Warwick
Rhode Island

Figure WW-14
STANDARD HOUSE CONNECTION DETAIL
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale



Town of West Warwick
Rhode Island

Figure WW-15
CLEAN OUT & BACKWATER VALVE WITHIN PAVEMENT AREA
Standard Sanitary Sewer Requirements
Date: 2018 | Scale: No Scale

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 0 3 2020 FILE # 19-0858
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

JAN 29 2020

CONSTRUCTION DETAILS 4

SEWER NOTES:

1. ALL CONSTRUCTION, MATERIALS, SPECIFICATIONS, AND PROCEDURES SHALL CONFORM WITH THE "STANDARD SANITARY SEWER REQUIREMENTS OF THE TOWN OF WEST WARWICK" AND ALL APPLICABLE FEDERAL, STATE AND TOWN BUILDING AND PLUMBING CODES. ANY DEVIATIONS FROM THESE PRECRIBED PROCEDURES AND MATERIALS SHALL BE APPROVED BY THE SUPERINTENDANT BEFORE INSTALLATION. THE CONTRACTOR SHALL REVIEW SAID STANDARD PRIOR TO ANY WORK. THE SEWER AUTHORITY'S STANDARDS SUPERSEED THESE DESIGN PLANS WHERE CONFLICTS EXIST.
2. PROTECTION OF WATER LINES:
   A. HORIZONTAL SEPARATION: SEWERS SHALL BE LAID AT A MINIMUM OF AT LEAST 10 FEET, HORIZONTALLY, FROM ANY EXISTING OR PROPOSED WATER MAIN OR SERVICE.
   B. VERTICAL SEPARATION: WHENEVER SEWERS CROSS UNDER WATER MAINS, OR SERVICES, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. SEWERS SHALL ALWAYS CROSS UNDER THE WATER MAIN OR SERVICE.
3. PIPE SHALL BE LAID IN THE DRY AND AT NO TIME SHALL WATER IN THE TRENCH BE PERMITTED TO FLOW INTO THE SEWER.
4. BACKFILL FROM THE CENTERLINE OF THE PIPE TO A HEIGHT OF TWO FEET ABOVE THE PIPE SHALL BE SAND BLANKET MATERIAL PLACED EVENLY FOR THE FULL WIDTH OF THE TRENCH AND COMPACTED IN 12-INCH LAYERS. THE REMAINDER OF THE TRENCH SHALL BE BACKFILLED EVENLY WITH SUITABLE (EXCAVATED OR BORROW) BACKFILL MATERIAL AND COMPACTED IN 12-INCH LAYERS. CUSHION AND BACKFILL MATERIAL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY BY TAMPING AND COMPACTING IN LAYERS (ONE (1) FOOT MAXIMUM) TO ACHIEVE THE REQUIRED COMPACTION.
5. THE CONTRACTOR SHALL SUBMIT AN AS-BUILT DRAWING AFTER COMPLETION OF THE SERVICE CONNECTIONS UTILIZING DISTANCES FROM PERMANENT STRUCTURES. THE DEPTH OF THE SEWER MAIN AT THE PROPERTY LINE AND AT THE DWELLING UNIT SHALL BE RECORDED AS WELL AS TIES TO ALL CLEANOUTS AND BENDS.
6. ALL GRAVITY PIPE AND FITTINGS SHALL BE PVC SDR35 MEETING ASTM D3034 UNLESS NOTED OTHERWISE. LOW PRESSURE SEWER PIPE SHALL BE SDR21 PVC PRESSURE PIPE WITH GASKETED JOINTS AND BE FULLY RESTRAINED AGAINST PULL-OUT.
7. BACKFLOW PREVENTER: ALL CONNECTIONS ARE TO BE EQUIPPED WITH A BACKFLOW PREVENTER. BACKFLOW PREVENTERS MUST CONFORM WITH THE WEST WARWICK BUILDING INSPECTOR'S REQUIREMENTS AND THE BUILDING OFFICIALS CODE ADMINISTRATORS BASIC NATIONAL PLUMBING CODE, ARTICLE 10, SECTION P-1003.0.
8. INSPECTION: ALL SEWER LINE CONSTRUCTION SHALL BE INSPECTED BY THE SEWER AUTHORITY PRIOR TO BACKFILLING.
9. TESTING: THE CONTRACTOR WILL BE REQUIRED TO PERFORM THE PIPE DEFLECTION TEST ON EACH SECTION OF PIPE INSTALLED. ALL TESTING SHALL BE WITNESSED BY THE SEWER AUTHORITY. NO SEWER FLOWS ARE ALLOWED UNTIL AUTHORIZED BY THE SEWER AUTHORITY.
10. MAINTENANCE OF SEWAGE FLOWS: THE CONTRACTOR SHALL MAINTAIN SEWAGE FLOWS ON SUBJECT SITE UNTIL ALL WORK HAS BEEN ACCEPTED BY THE SEWER AUTHORITY. SEWAGE DISCHARGES OR OVERFLOWS ARE STRICTLY PROHIBITED.

SEWER TRENCH MATERIAL SPECIFICATION:

1. BEDDING MATERIAL: THE BEDDING MATERIAL SHALL BE CRUSHED STONE CONSISTING OF DURABLE CRUSHED ROCK IN DURABLE CRUSHED GRAVEL STONE, FREE FROM ICE, SNOW, SAND, CLAY, LOAM, OR OTHER DELETERIOUS MATERIAL. THE CRUSHED STONE SHALL CONFORM TO THE REQUIREMENTS OF 100% PASSING THE ONE (1) INCH SCREEN, 90-100% PASSING THE THREE-QUARTER (3/4) INCH SCREEN, 10- 50% PASSING THE ONE-HALF (1/2) INCH SCREEN, 0-20% PASSING THE THREE-EIGHTS (3/8) INCH SCREEN AND 0-5% PASSING THE NUMBER FOUR (4) SIEVE.
2. SAND BLANKET: THE SAND SHALL BE FREE FROM ICE, SNOW, ROOTS, RUBBISH, AND OTHER DELETERIOUS OR ORGANIC MATTER. THE SAND BLANKET SHALL CONFORM TO 22 THE REQUIREMENTS OF 100% PASSING ONE-HALF (1/2) INCH SCREEN, 85-100% PASSING THE THREE-EIGHTS (3/8) INCH SCREEN, 60-85% PASSING THE NUMBER FOUR (#4) SIEVE, 35-60% PASSING THE NUMBER SIXTEEN (#16) SIEVE, 10-35% PASSING THE NUMBER FIFTY (#50) SIEVE AND 2-10% PASSING THE NUMBER ONE-HUNDRED (#100) SIEVE.
3. BACKFILL: BACKFILL SHALL BE EXCAVATED MATERIALS FREE-DRAINING CLEAN GRANULAR SOIL SUITABLE FOR BACKFILL. UP TO 20 PERCENT OF BACKFILL MATERIAL MAY BE ROCK-LIKE MATERIALS NOT TO EXCEED 0.05 CUBIC FEET IN VOLUME, NOR MORE THAN 6 INCHES IN LENGTH. THE BACKFILL SHALL NOT CONTAIN ANY DEBRIS, PAVEMENT, FROZEN MATERIAL, ORGANIC MATTER, OR PEAT.

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:_____

DATE ENDORSED:_____

NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

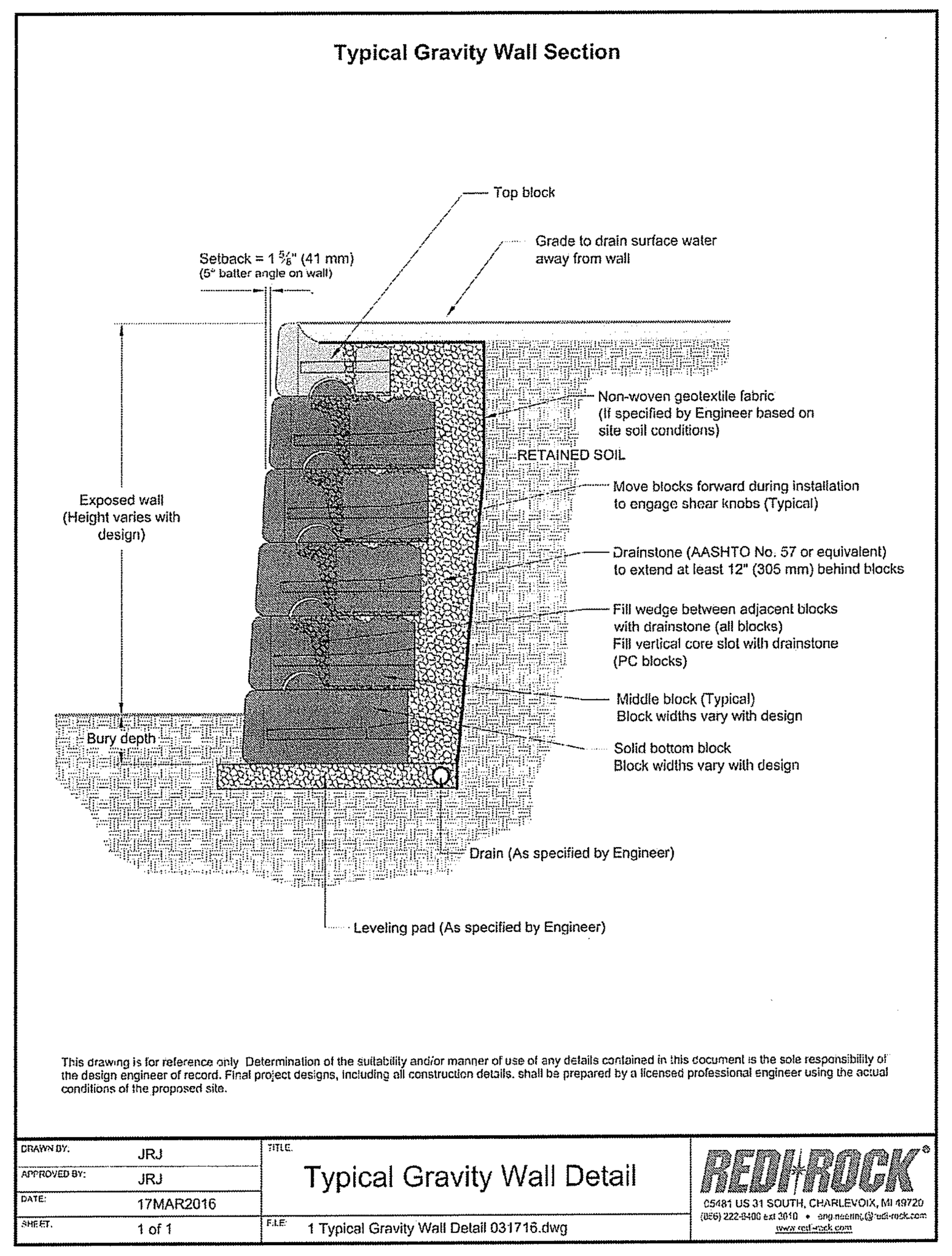
REVISIONS

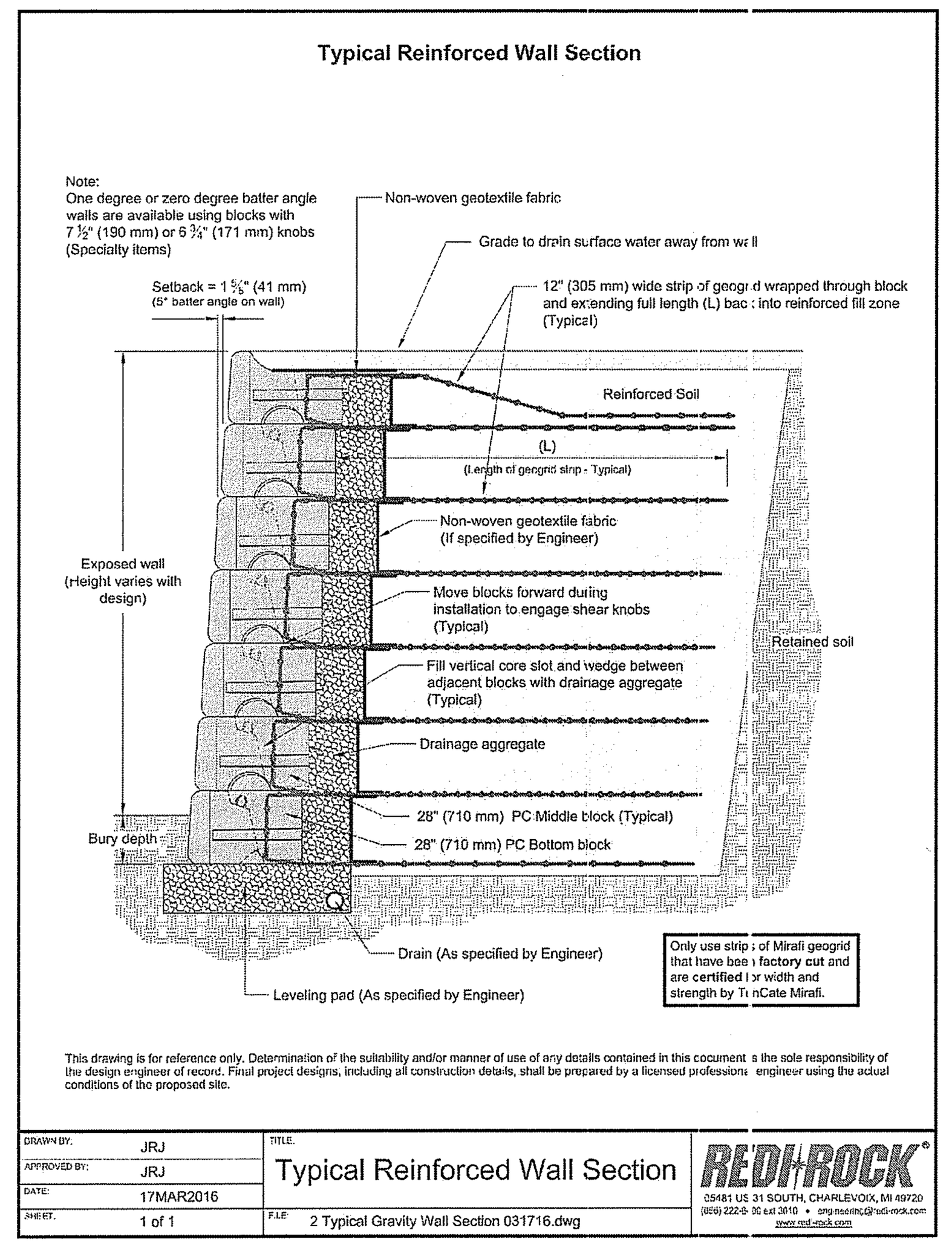
No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

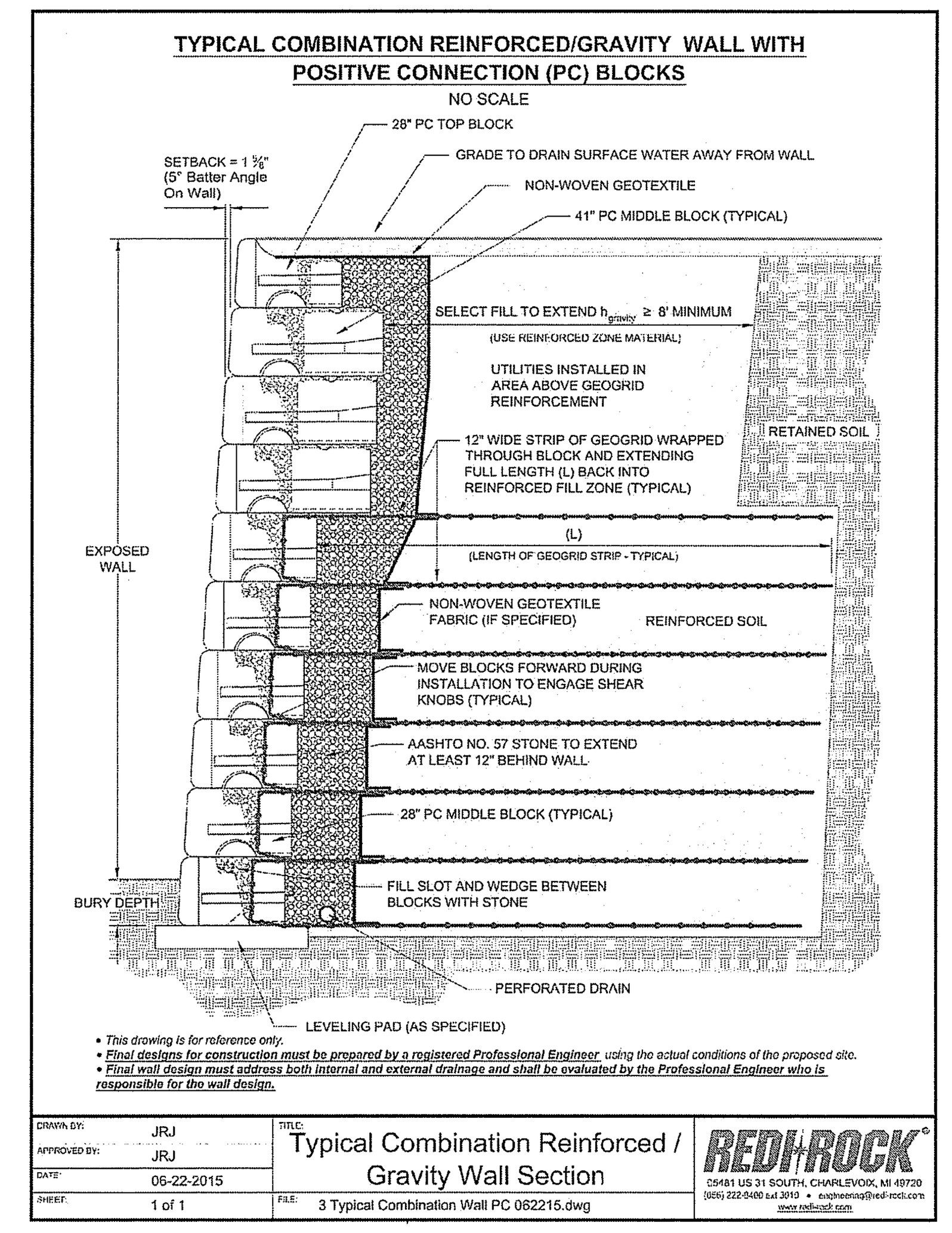
COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

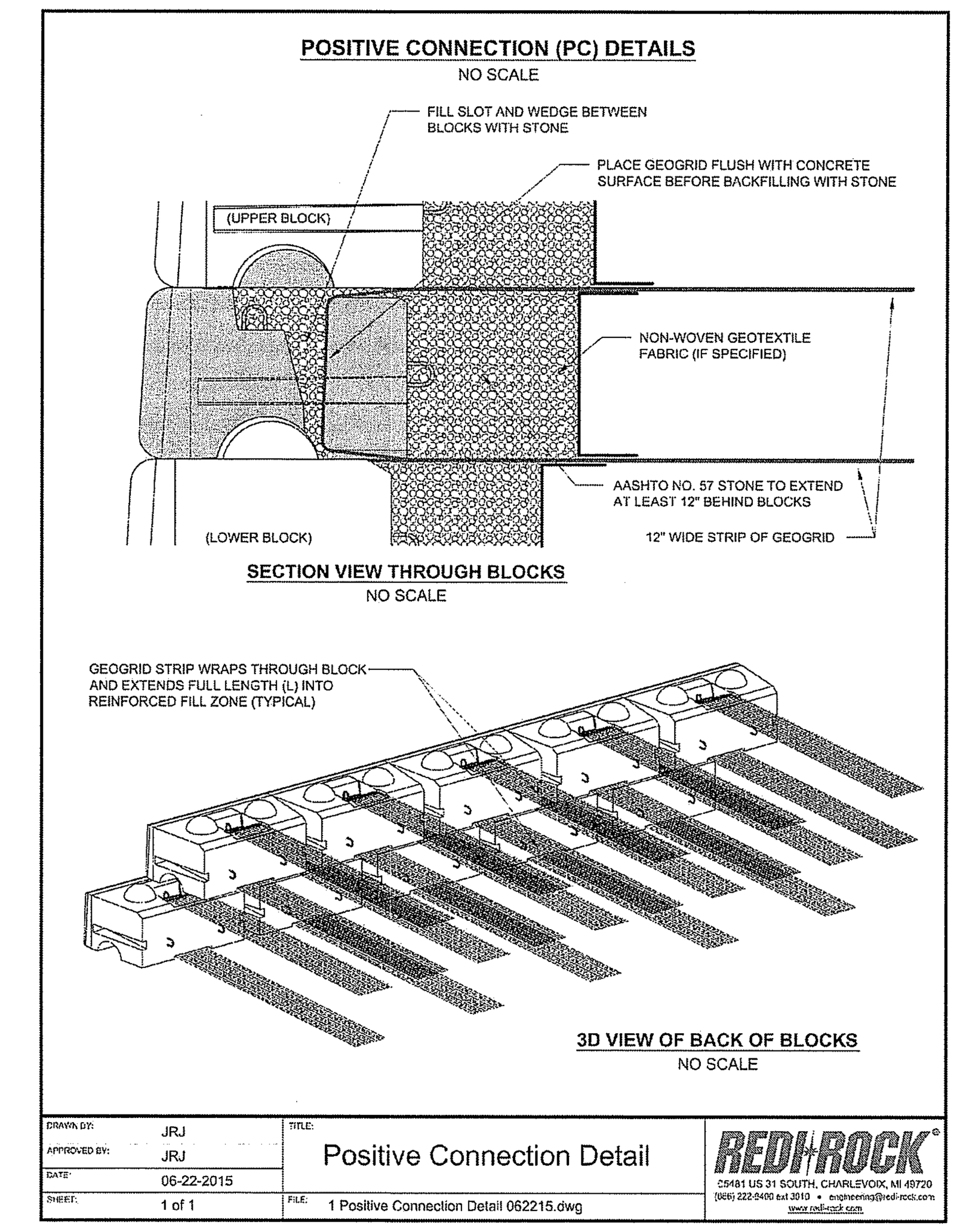
HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

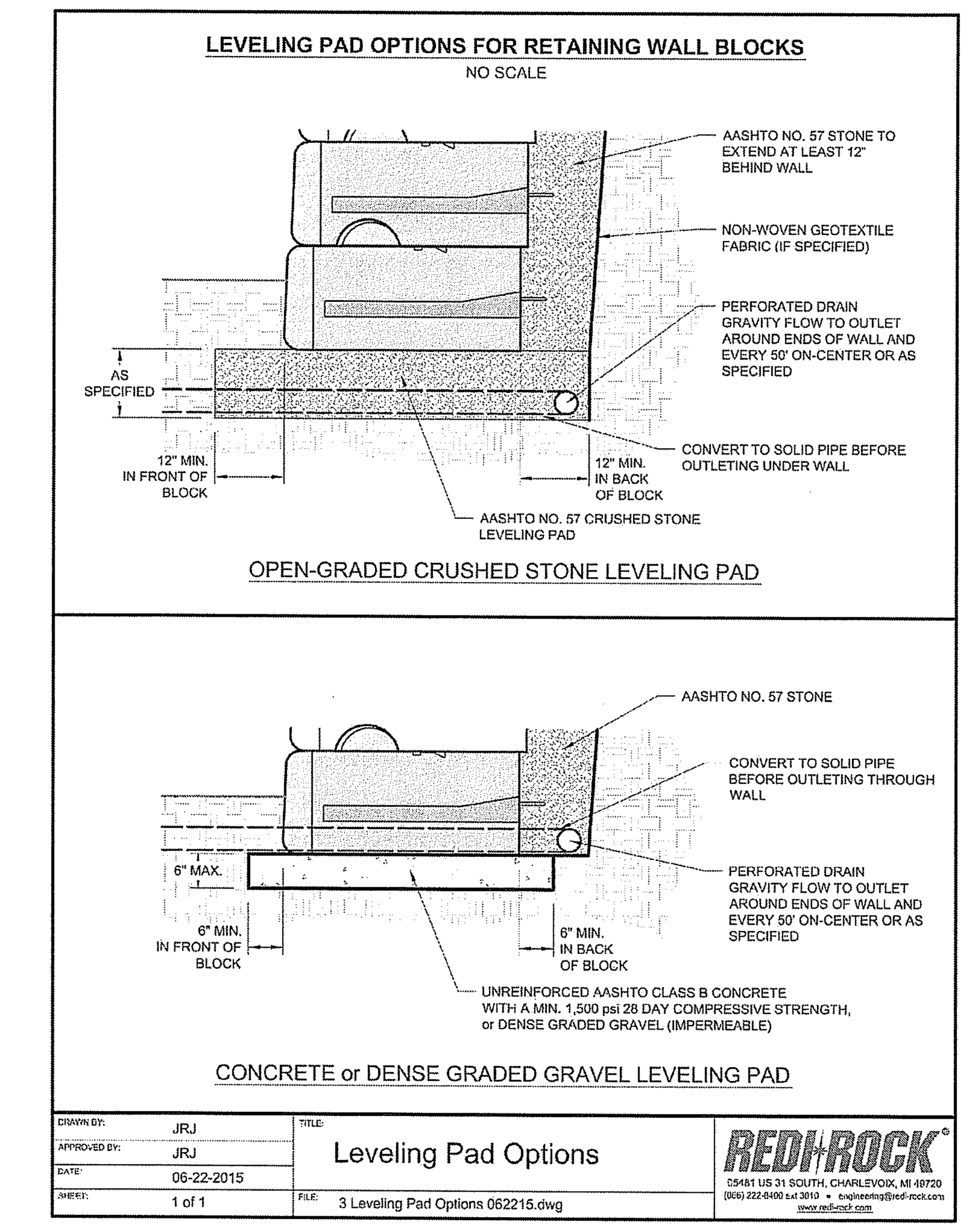
SCALE: AS NOTED		SHEET NO: 16 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00

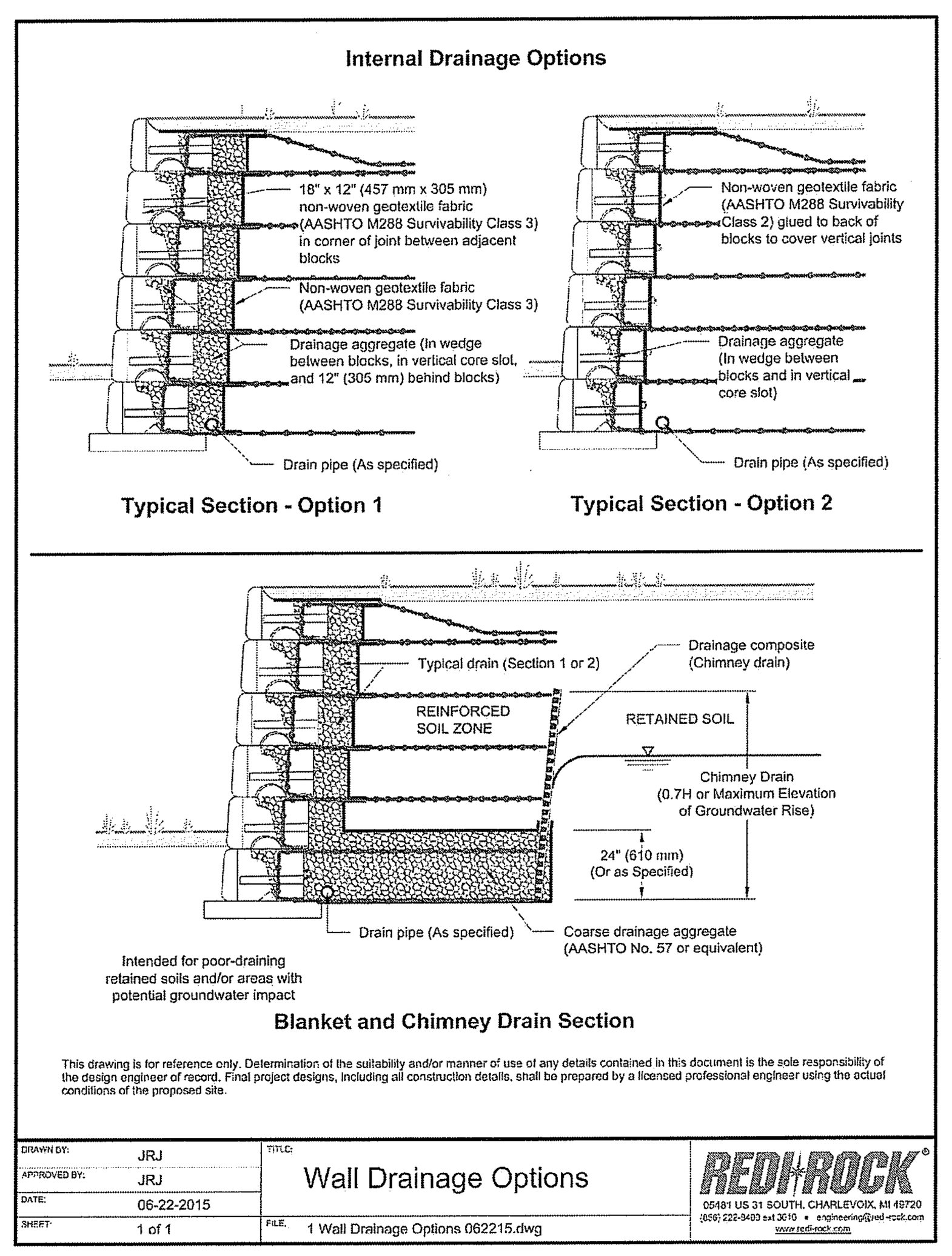


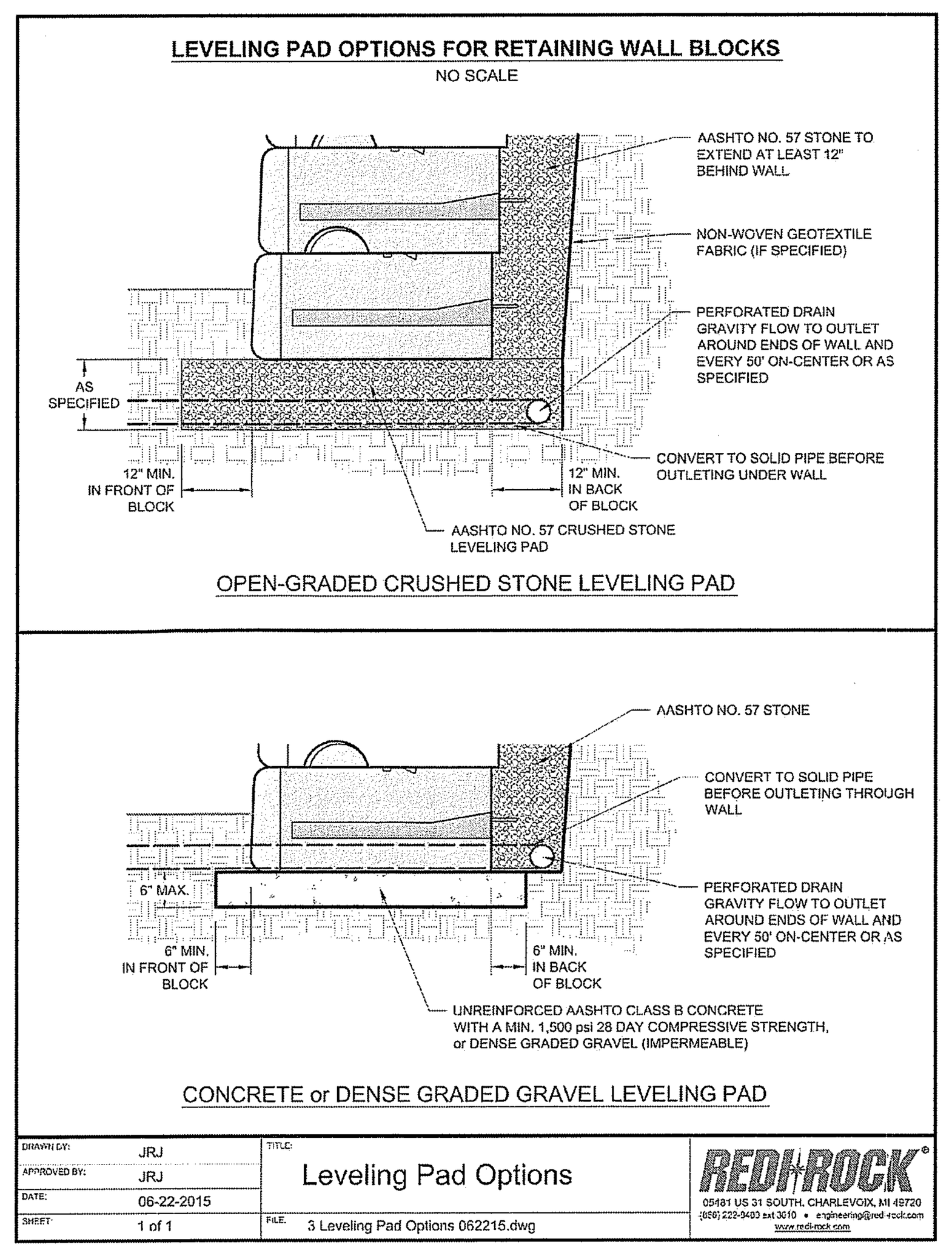


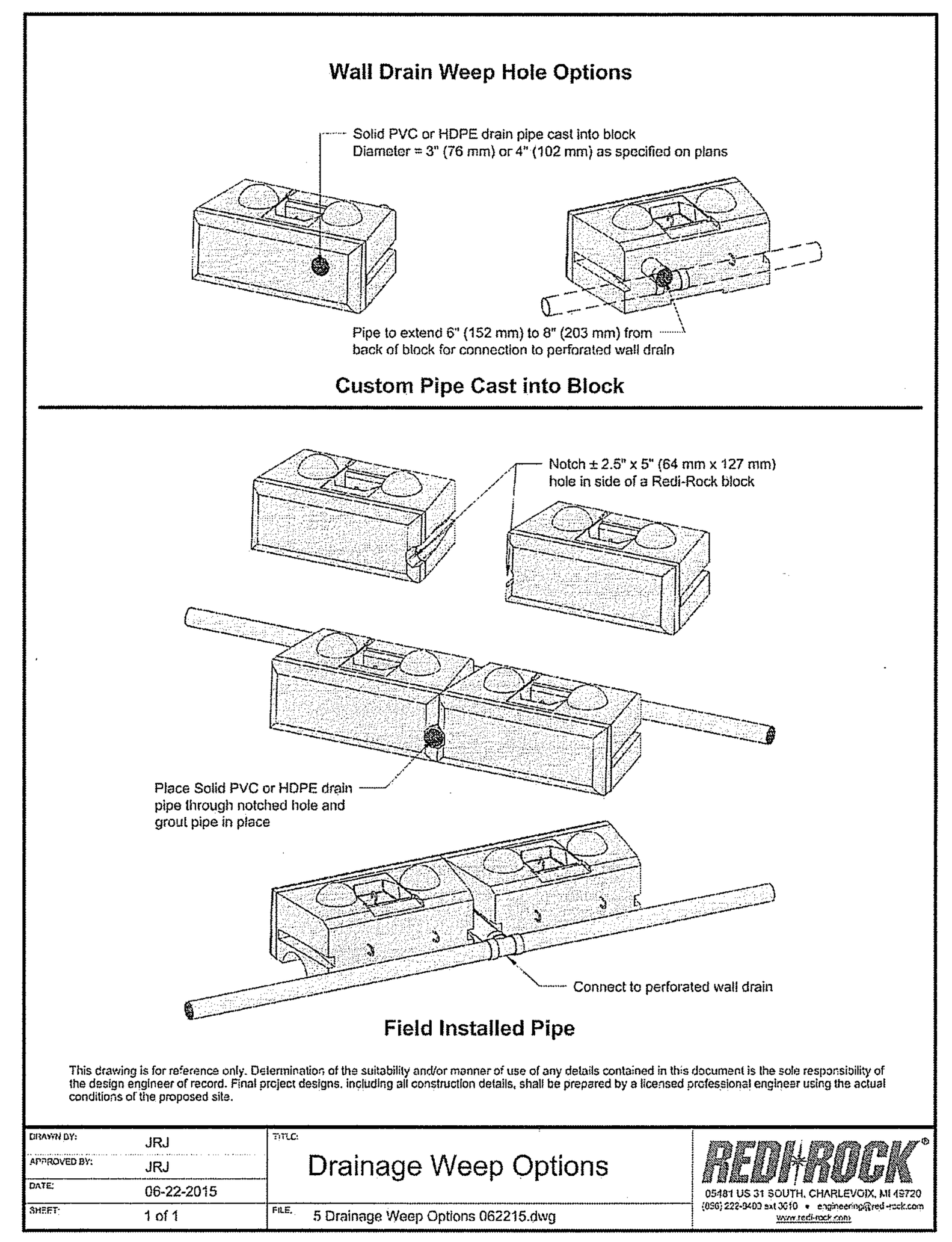


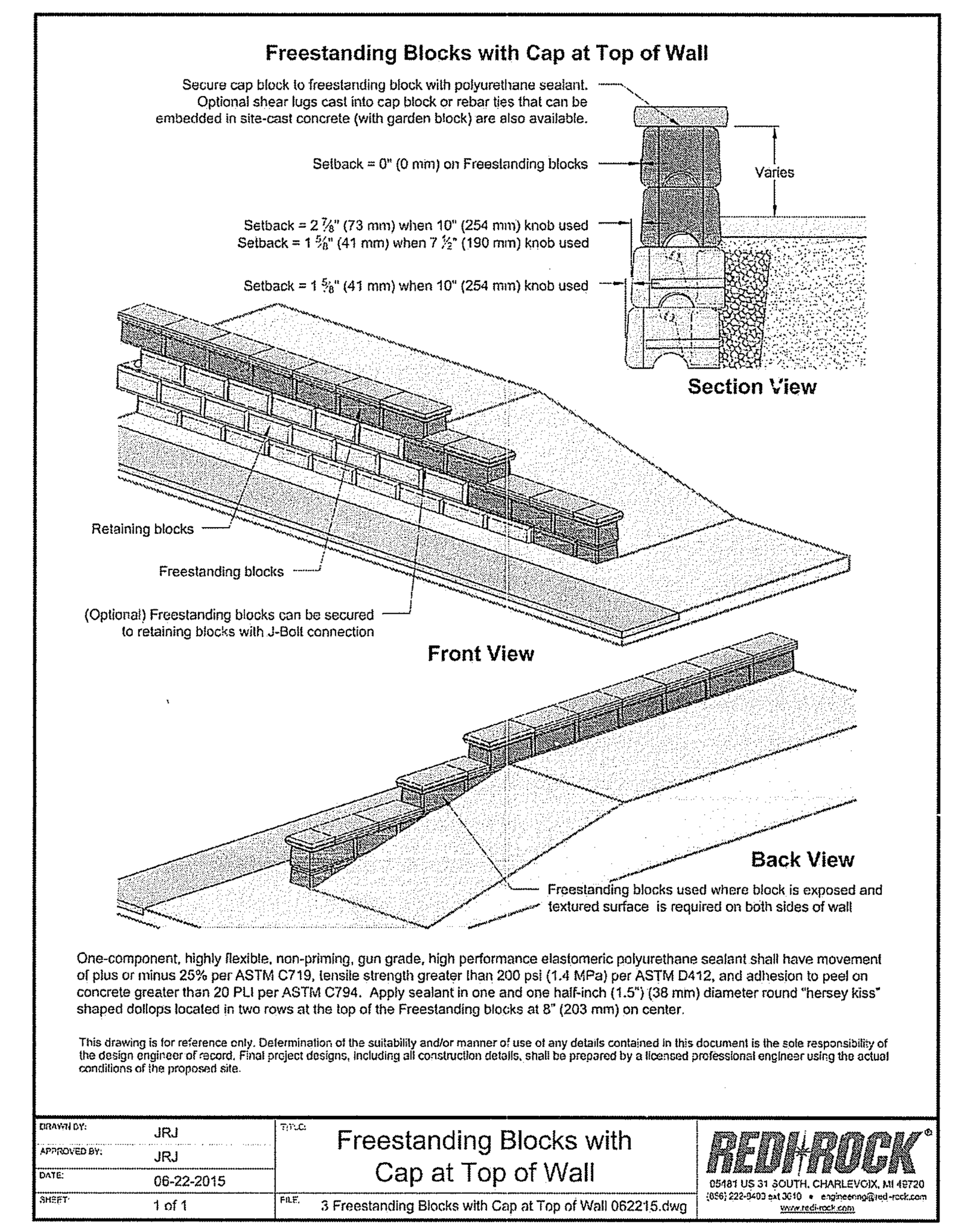


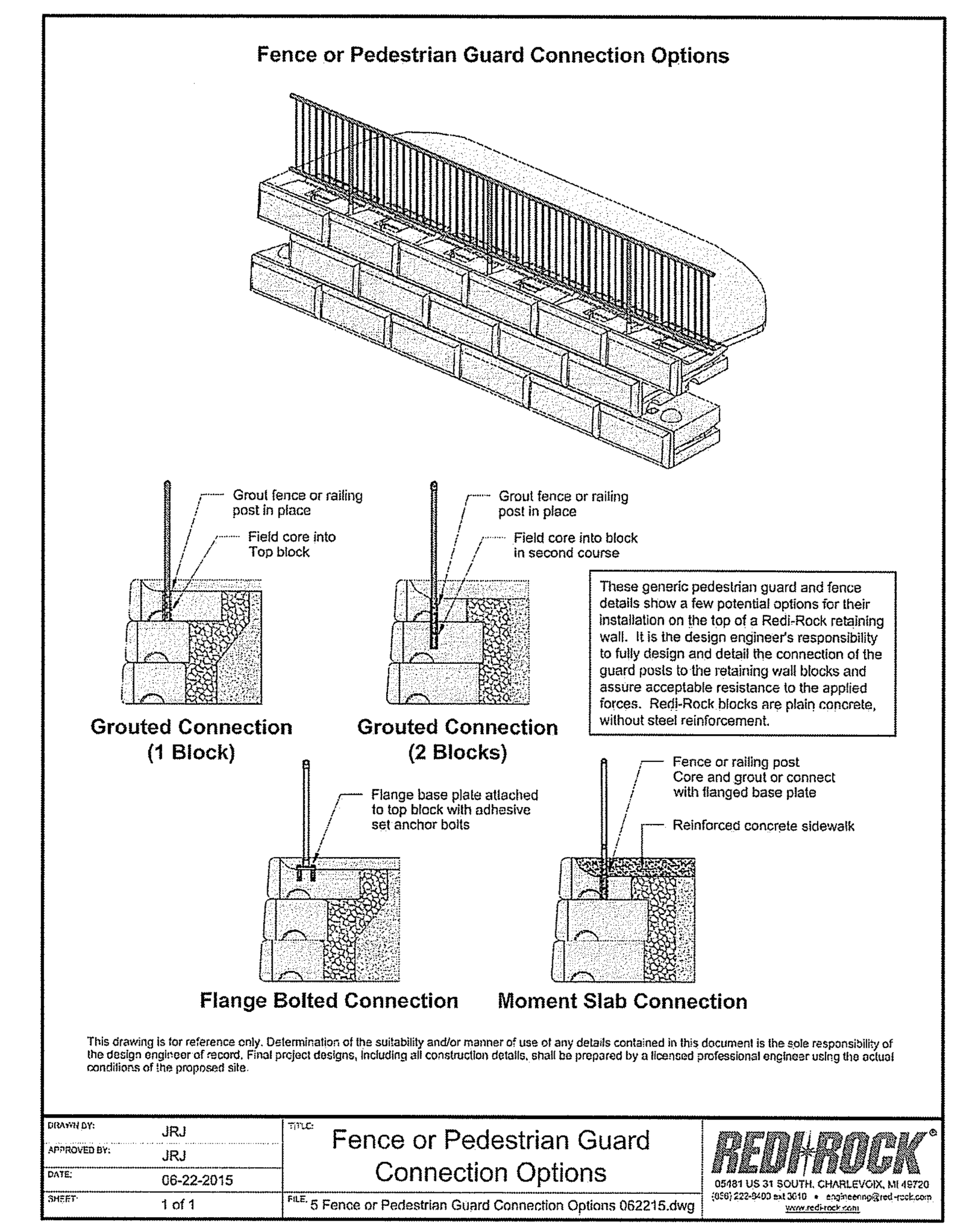


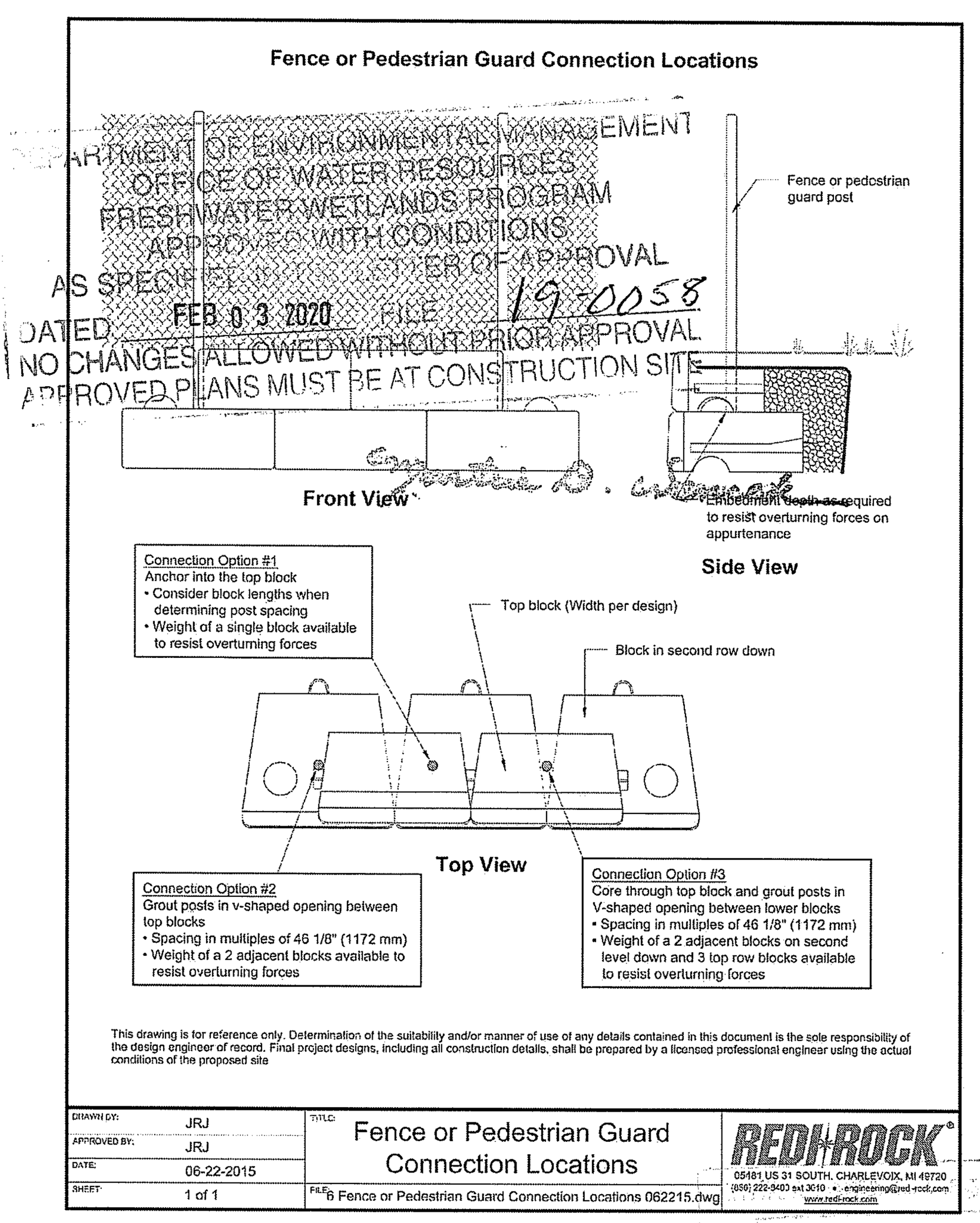




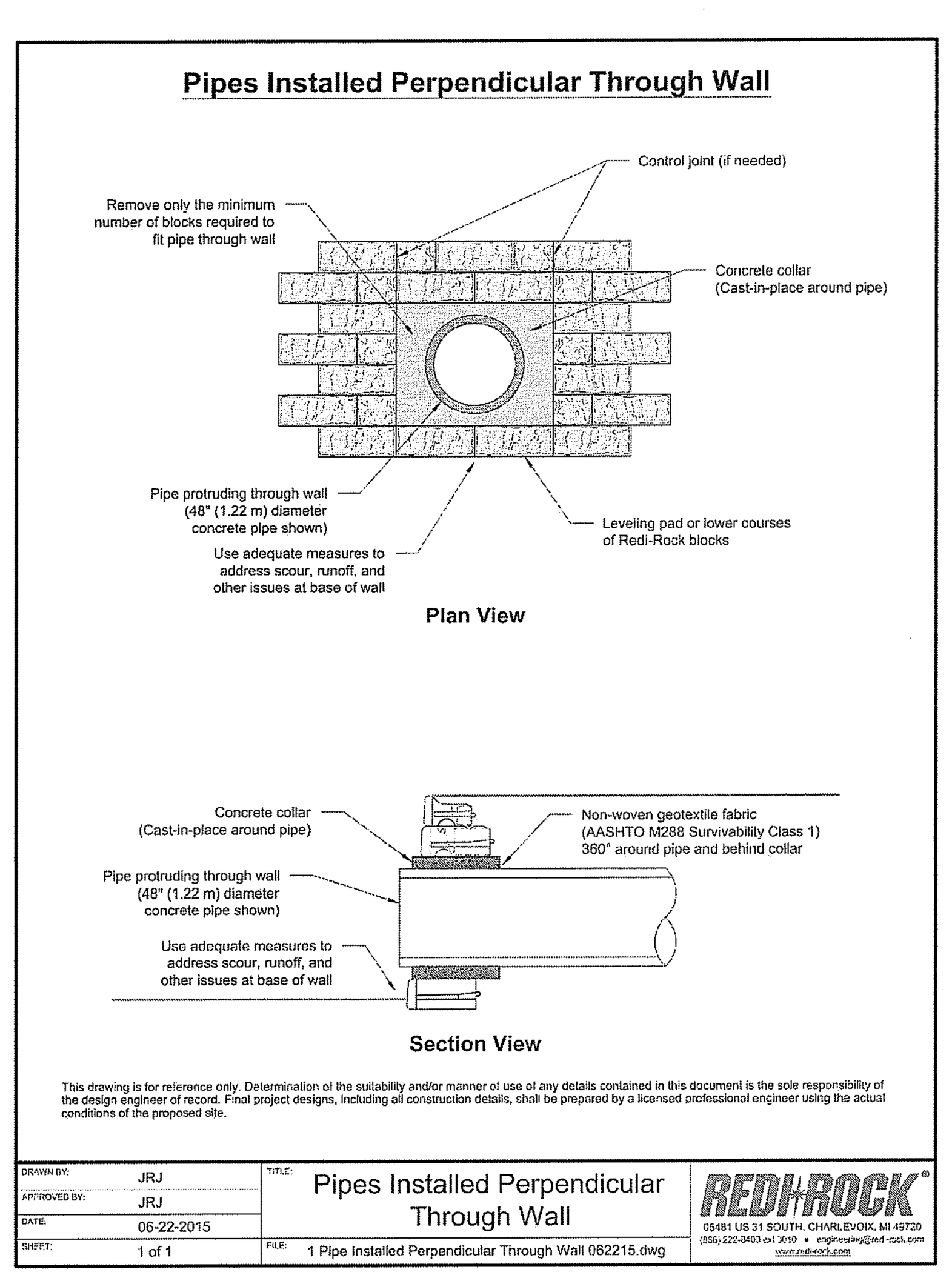


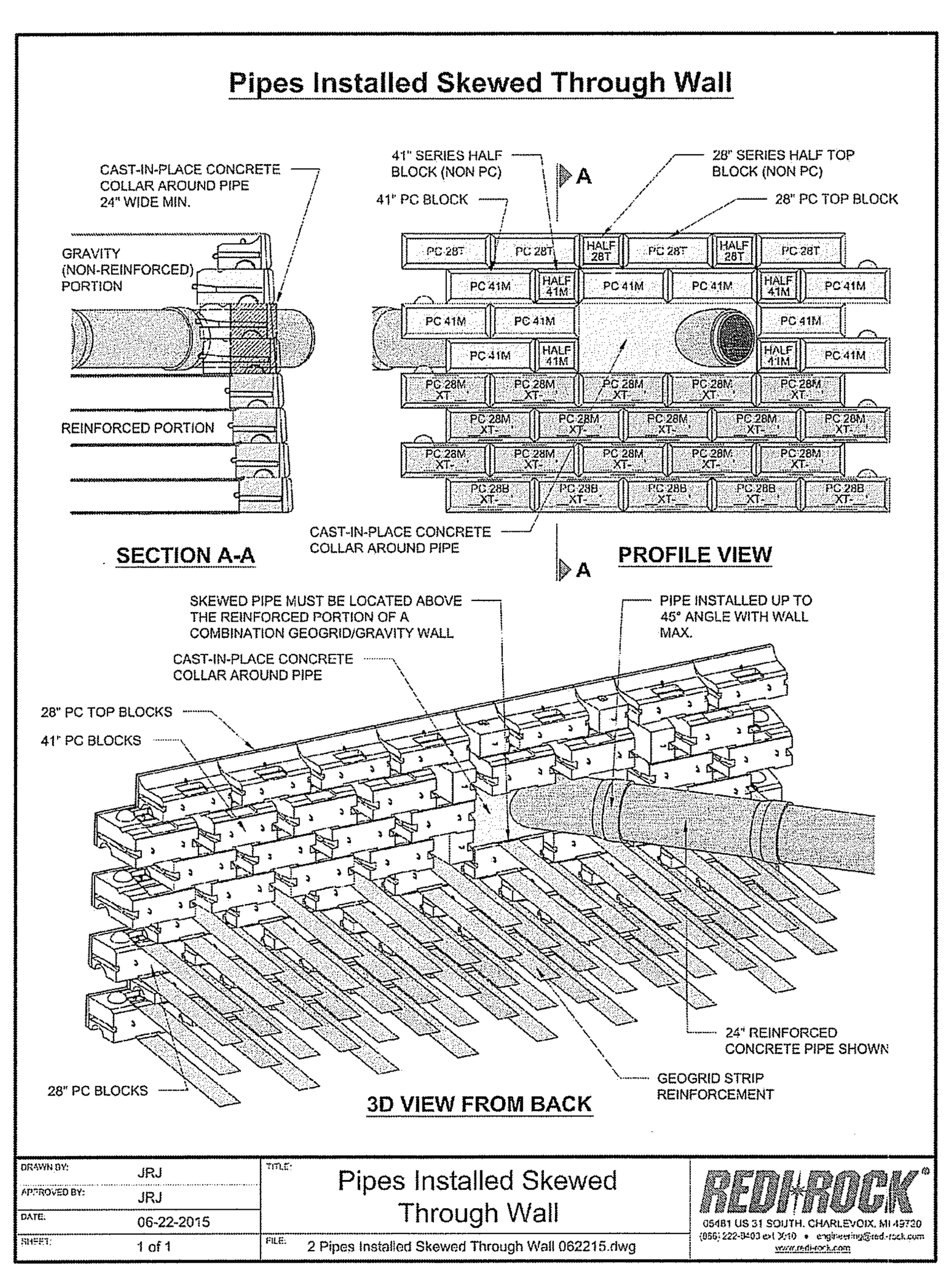


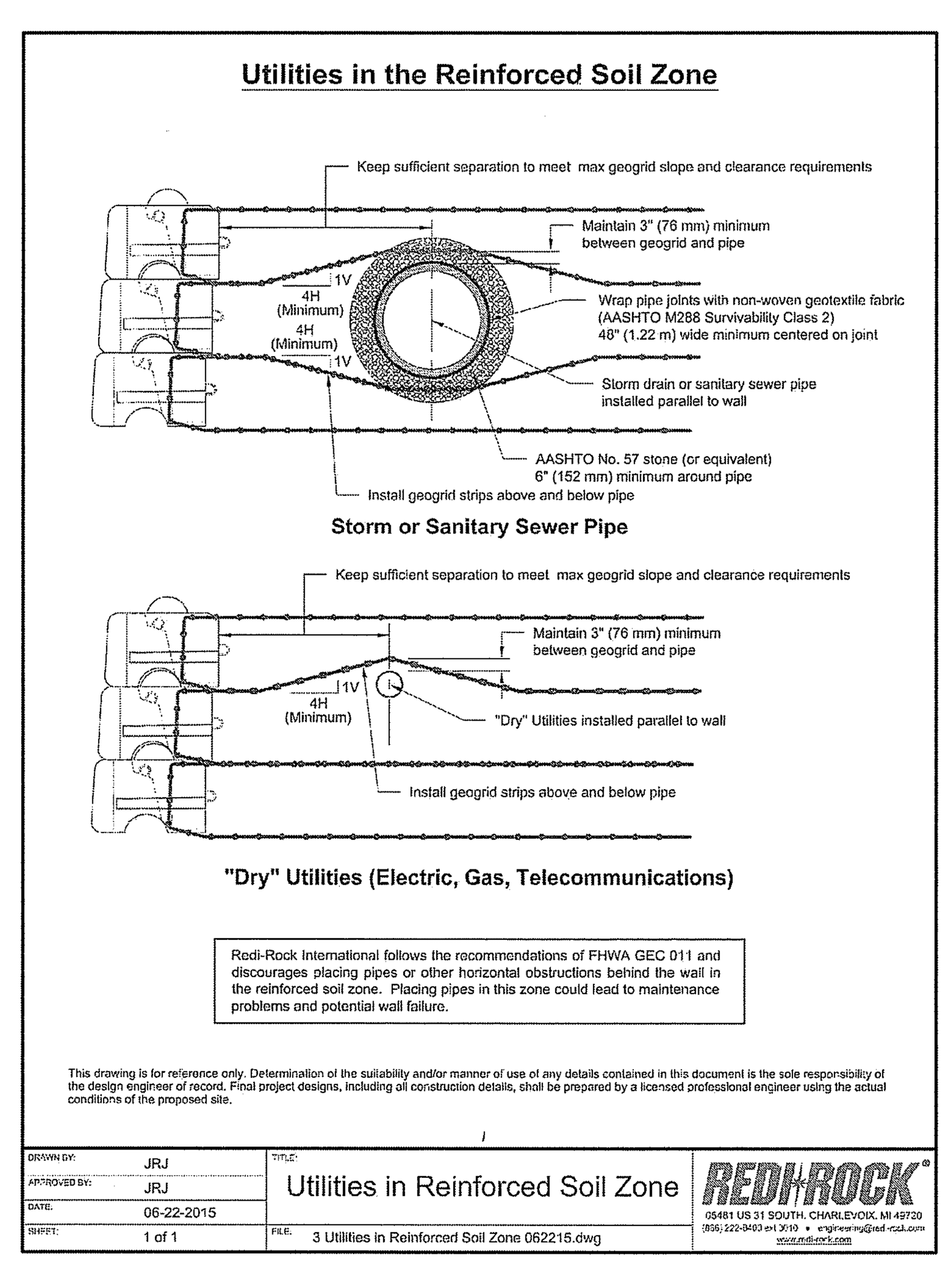


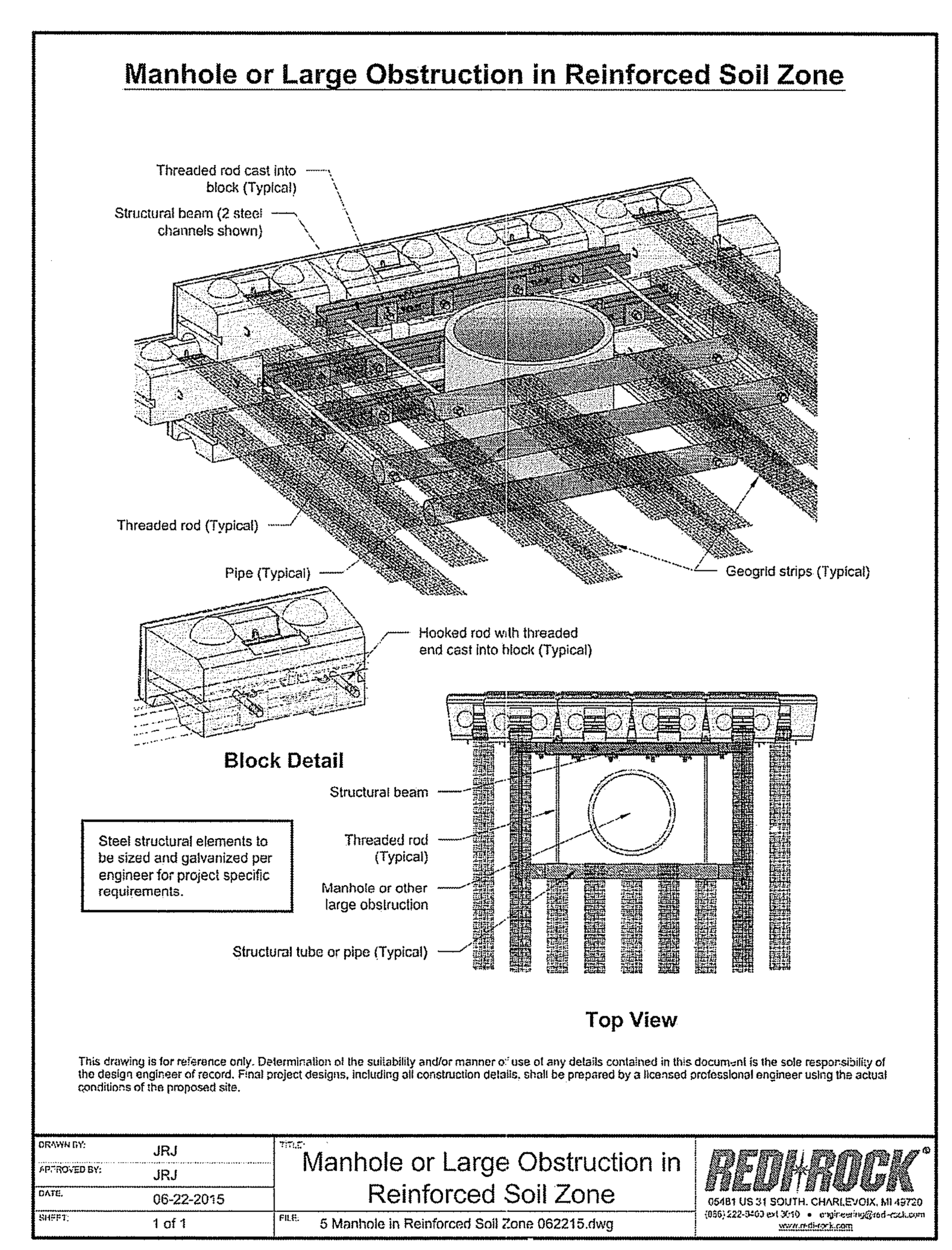


JAN 29 2020









MODULAR CONCRETE UNIT (MCU) WALL NOTES

1) MCU WALLS SHALL BE REDI–ROCK OR OWNER–APPROVED EQUAL WALL SYSTEM(S).
2) SELECTED WALL SYSTEM(S) SHALL BE CAPABLE OF SUPPORTING THE ANTICIPATED LOADING CONDITIONS BASED ON THE PROPOSED SITE DEVELOPMENT LAYOUT, GRADING AND UTILITY PLANS.
3) THE REDI–ROCK DETAILS PROVIDED HEREON ARE INTENDED FOR REFERENCE ONLY DURING THE PERMITTING REVIEW PROCESS, AND SHALL NOT BE CONSTRUED AS FINAL ENGINEERED WALL DESIGNS.
4) CONTRACTOR SHALL RETAIN A RHODE ISLAND LICENSED PROFESSIONAL STRUCTURAL ENGINEER TO PERFORM THE FINAL DESIGN CALCULATIONS FOR THE MCU WALL SYSTEM(S) SELECTED, AND SHALL PROVIDE STAMPED AND SIGNED PLANS & DETAILS FOR ALL WALLS TO THE LOCAL BUILDING OFFICIAL FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION OF SAID WALLS.
5) 4'H BLACK VINYL–COATED CHAIN LINK FENCE SHALL BE INSTALLED ON ALL WALL SECTIONS WITH A REVEAL GREATER THAN 4' HIGH.
6) BOTTOM OF WALL ELEVATIONS INDICATED ON DRAWINGS REFER TO THE PROPOSED FINISH SURFACE GRADE AT THE BOTTOM OF THE EXPOSED FACE OF WALL (REVEAL), AND NOT THE ACTUAL BOTTOM ELEVATION OF THE OVERALL WALL STRUCTURE. THE ELEVATION OF THE BASE OF THE WALL SHALL BE BELOW PROPOSED FINISH SURFACE GRADE OF THE EXPOSED FACE OF THE WALL.

CONSTRUCTION DETAILS 5

PERMIT AGENCY REVIEW SET
NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
10-18-18
REGISTERED PROFESSIONAL ENGINEER

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED:________

DATE ENDORSED:________

REVISIONS

No.	DATE	DRWN	CHKD
1	4–17–18	MCZ	TJB
2	5–29–18	MCZ	TJB
3	7–10–18	MCZ	TJB
4	7–26–18	MCZ	TJB
5	10–18–18	MCZ	TJB
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8	10–7–19	MCZ	TJB
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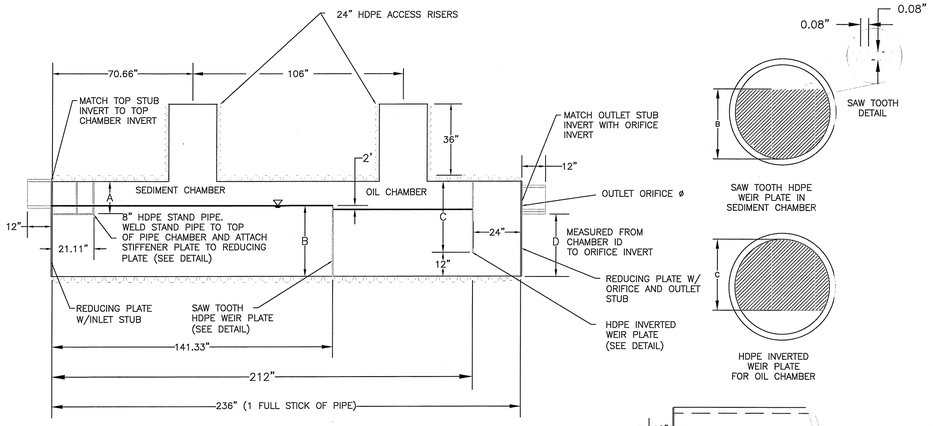
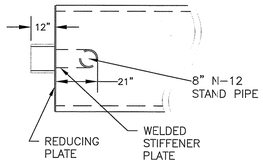
WEST WARWICK, RHODE ISLAND

SCALE: AS NOTED	SHEET NO: 17 OF 18
DRAWN BY: MCZ · DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018	PROJECT NO.: 17033.00



MODEL #	MAIN PIPE DIA.	TREAT. FLOW RATE	SIEVE SIZE	INLET STUB DIA.	OUTLET STUB DIA.	ORIFICE DIA.	A	B	C	D
4220WQAXX	42"	1.75 CFS	140	12"	12"	8.13"	16.1"	30"	30"	28"

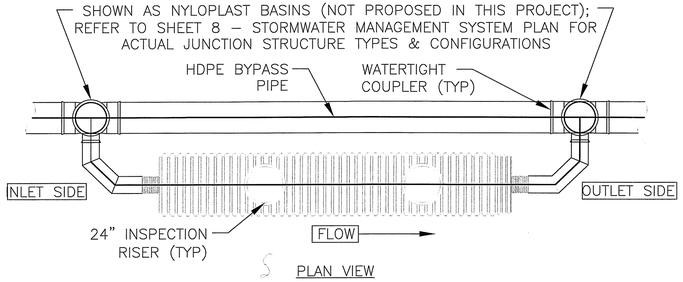
NOTES:
1. ALL DIMENSIONS ARE NOMINAL
2. ALL FITTING CONNECTIONS WILL BE MADE USING A STANDARD BELL/BELL OR SPLIT COUPLER



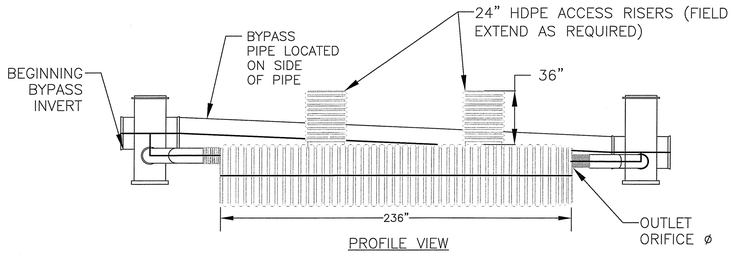
DISPERSION BAFFLE DETAIL
(TOP VIEW)

ADS 20-FOOT WQU DETAIL
NOT TO SCALE

SHOWN AS NYLOPLAST BASINS (NOT PROPOSED IN THIS PROJECT); REFER TO SHEET 8 – STORMWATER MANAGEMENT SYSTEM PLAN FOR ACTUAL JUNCTION STRUCTURE TYPES & CONFIGURATIONS



PLAN VIEW



PROFILE VIEW

MODEL #	MAIN PIPE DIA.	SIEVE SIZE	PARTICLE SIZE (CM)	TREATED FLOW RATE (CFS)	INLET ø	OUTLET ø	OUTLET ORIFICE ø	ELEVATION CHANGE*
4220WQAXX	42"	140	0.0106	1.75	12"	12"	8.13"	14.8"

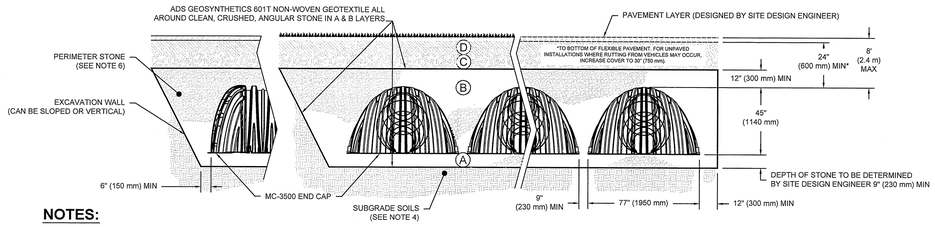
ADS MODEL 4220WQA WQU DETAIL
NOT TO SCALE

ADS WATER QUALITY UNIT DETAILS NOTE:
1. THE DETAILS ABOVE ARE STANDARD PRODUCT DETAILS FROM ADS, INC. THEY DO NOT, AND ARE NOT INTENDED TO, DEPICT THE ACTUAL FIELD-INSTALLED CONFIGURATION OF THE WATER QUALITY UNIT.
2. REFER TO THE STORMWATER PLAN AND PROFILE SHEETS FOR SPECIFIC INFORMATION ABOUT THE PROPOSED INSTALLATION OF THE WATER QUALITY UNIT AND ASSOCIATED STRUCTURES (I.E. DIVERSION MANHOLE, BYPASS PIPE).

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

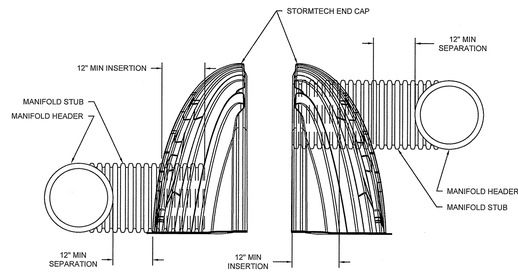
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



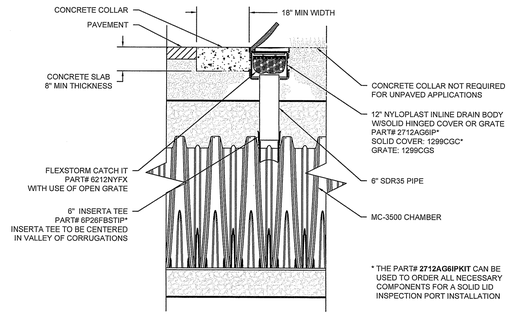
NOTES:
1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.

MC-3500 TYPICAL SECTION DETAIL
NOT TO SCALE



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-SERIES END CAP INSERTION DETAIL
NOT TO SCALE



MC-3500 6" INSPECTION PORT DETAIL
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED FEB 03 2020 FILE # 19-0058
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PLANNING BOARD CERTIFICATION

WEST WARWICK PLANNING BOARD

DATE APPROVED: _____

DATE ENDORSED: _____

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM – 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

JAN 29 2020

PERMIT AGENCY REVISIONS

NOT FOR CONSTRUCTION

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER
10-18-18

REVISIONS

No.	DATE	DRWN	CHKD
1	4-17-18	MCZ	TJB
2	5-29-18	MCZ	TJB
3	7-10-18	MCZ	TJB
4	7-26-18	MCZ	TJB
5	10-18-18	MCZ	TJB
6	11-9-18	MCZ	TJB
7	2-7-19	MCZ	TJB
8	10-7-19	MCZ	TJB
9	1-28-20	MCZ	TJB

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908

HARRISGREENE CONDOMINIUMS
A.P. 4 LOTS 215/335
GREENE STREET/HARRIS AVENUE
WEST WARWICK, RHODE ISLAND

SCALE: AS NOTED		SHEET NO: 18 OF 18
DRAWN BY: MCZ	DESIGN BY: MCZ	CHECKED BY: TJB
DATE: APRIL 2018		PROJECT NO.: 17033.00

CONSTRUCTION DETAILS 6