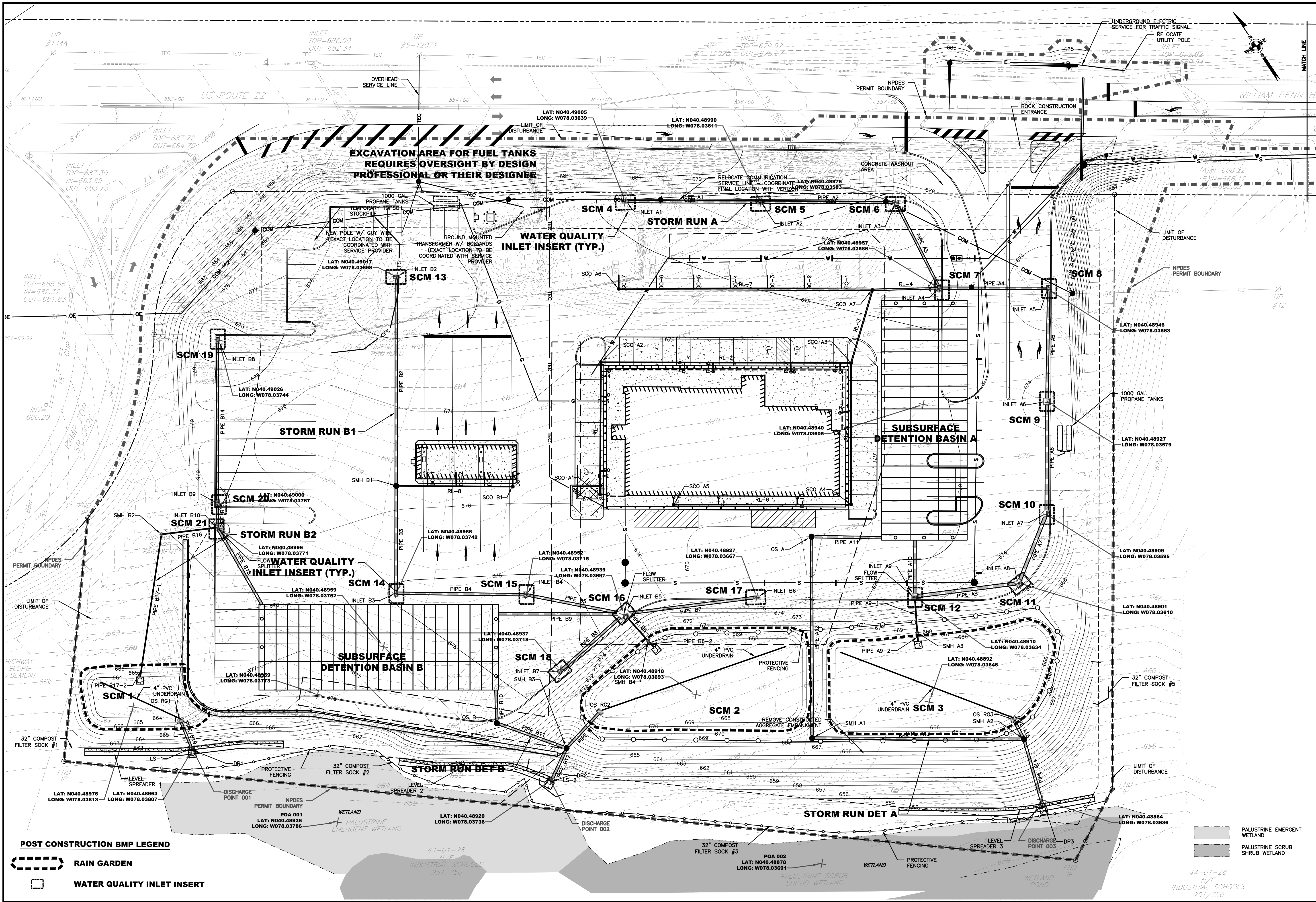
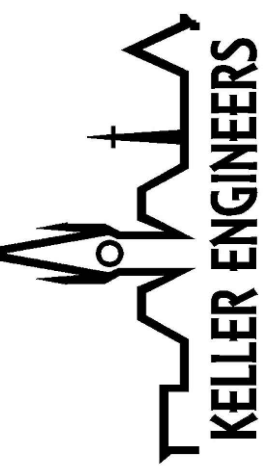
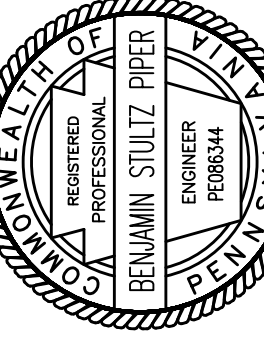




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**KELLER ENGINEERS**
CIVIL • STRUCTURAL • SURVEY

**BENJAMIN STULTZ**
REGISTERED PROFESSIONAL ENGINEER
PENNSYLVANIA #0008344

DATE	INITIALS	REVISION DESCRIPTION
07/01/26	BSP	DESIGN REVIEW COMMENTS
04/15/26	BSP	NPDES MAJOR MODIFICATION

SCALE: 1"=30'
0' 30'

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

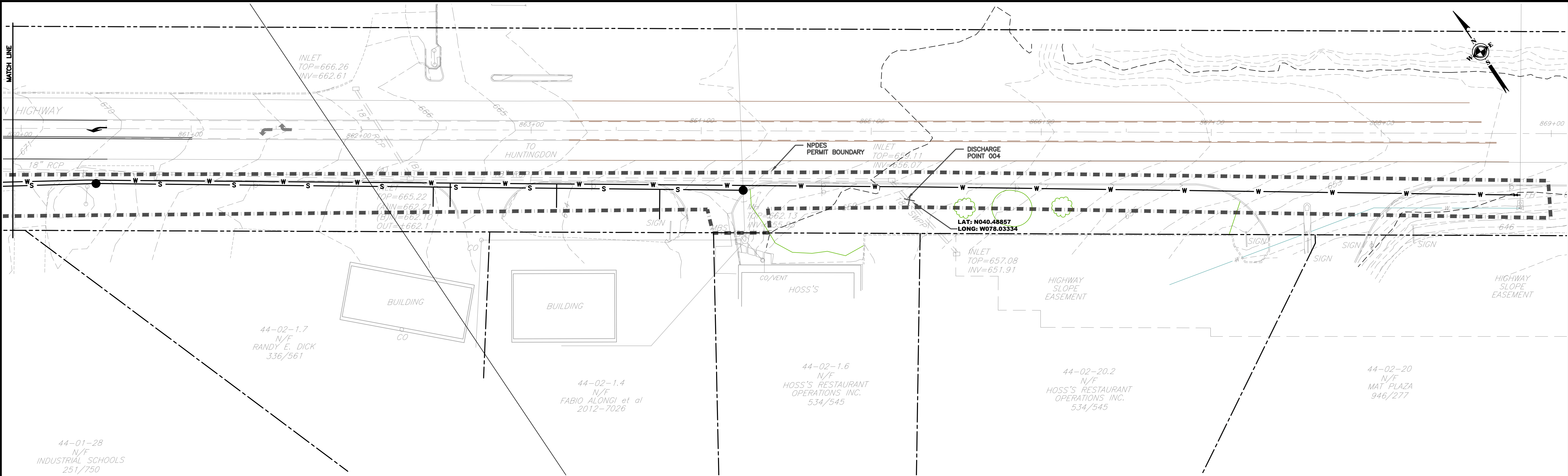
HUNTINGDON RUTTER'S STORE #93

SMITHFIELD TOWNSHIP, HUNTINGDON COUNTY
PENNSYLVANIA

PROJECT NO.: 3748-S
FILE NAME: PCSM1.DWG
DATE: 6/6/24
DESIGNED BY: BSP
DRAWN BY: BSP
CHECKED BY: ---

PCSM1

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STORMWATER FACILITIES MAINTENANCE AGREEMENT

1. THE MAINTENANCE OF ALL STORMWATER CONVEYANCE AND MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER, THEIR HEIRS, ASSIGNS OR SUCCESSORS IN TITLE. MAINTENANCE SHALL INCLUDE BUT, NOT BE LIMITED TO NORMAL MAINTENANCE AS WELL AS REPAIR OF STRUCTURAL DAMAGE OR DETERIORATION OF ANY KIND, INCLUDING THAT CAUSED BY SINKHOLES OR OTHER EVENTS. THE TOWNSHIP SHALL HAVE THE RIGHT, BUT NOT THE DUTY, OF ACCESS AT ANY TIME TO INSPECT AND MAINTAIN THE FACILITY AT THE PROPERTY OWNER'S EXPENSE IF THE OWNER SHALL FAIL TO PROPERLY MAINTAIN THE FACILITY. THE TOWNSHIP SHALL HAVE THE RIGHT TO SECURE RECOVERY OF SUCH COSTS BY FILING A MUNICIPAL LIEN AGAINST THE PROPERTY.
2. STORMWATER FACILITIES ASSOCIATED WITH THIS MAINTENANCE AGREEMENT INCLUDE, BUT ARE NOT LIMITED TO, STORMWATER INLETS, STORM WATER QUALITY UNITS, INFILTRATION BEDS, STORM PIPES, DOWNSPOUTS, ROOF DRAINS.
3. GENERAL OBJECTIVES OF MAINTENANCE ARE TO PREVENT CLOGGING OF STORM SEWERS FACILITIES AS WELL AS PREVENTING THE RELEASE OF TRASH, DEBRIS, OILS, GREASE, GRIT, ETC TO REGULATED WATERS OF THE COMMONWEALTH.
4. REQUIRED MAINTENANCE SHALL CONSIST OF INSPECTING AND CLEANING THE STORM WATER FACILITIES TO ENSURE THEY ARE IN PROPER WORKING ORDER. MAINTENANCE SHALL ALSO INCLUDE IMMEDIATELY REPAIRING OR REPLACING FACILITY COMPONENTS THAT ARE NOT WORKING PROPERLY. STORM SEWER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MAJOR STORMS. DETAILED INSPECTIONS BY A QUALIFIED INSPECTOR SHALL OCCUR AS NOTED BELOW TO ENSURE THAT THE FACILITIES ARE OPERATING AS DESIGNED AND TO SCHEDULE MAINTENANCE THAT THE FACILITIES MAY REQUIRE. IN ADDITION TO REGULARLY SCHEDULED INSPECTIONS, DEFICIENCIES SHOULD BE NOTED DURING ANY VISIT BY MAINTENANCE PERSONNEL. ANY TRASH, DEBRIS, OILS, GREASE, GRIT, ETC THAT HAS COLLECTED SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
5. LAWN SHALL NOT BE TREATED WITH FERTILIZERS - EXCEPT WHEN REESTABLISHING LAWN DUE TO DISTURBANCE.
6. THE POINT OF CONTACT FOR MAINTENANCE, INSPECTION, RECORDS, OR EMERGENCY SHALL BE:
CHR CORP. (CONTACT: ADAM BISKER, DIRECTOR OF MAINTENANCE), 2295 SUSQUEHANNA TRAIL, SUITE C, YORK, PA 17404,717-771-5908
7. MAINTENANCE OF SAID STORMWATER FACILITIES SHALL CONSIST OF:
INSPECTION - STORMWATER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MEASURABLE RAINFALL EVENTS (GREATER THAN 1"). REPAIRS, IF ANY, SHALL BE MADE IMMEDIATELY. THESE INSPECTIONS DO NOT NEED TO BE PERFORMED BY A QUALIFIED INSPECTOR. A MAINTENANCE/INSPECTION LOG AND WRITTEN REPORT SHALL BE KEPT OF ALL INSPECTIONS, REPAIRS, AND MAINTENANCE ACTIVITIES.

IN ADDITION TO SOMEONE PERFORMING THE ABOVE INSPECTIONS, A QUALIFIED INSPECTOR SHALL PERFORM INSPECTIONS OF THE STORMWATER FACILITIES ANNUALLY FOR THE FIRST FIVE (5) YEARS. AFTER FIVE YEARS OF ANNUAL INSPECTIONS, INSPECTIONS THEREON SHALL BE PERFORMED EVERY THREE (3) YEARS. INSPECTIONS BY A QUALIFIED INSPECTOR ARE ALSO REQUIRED DURING OR IMMEDIATELY AFTER THE SECESSION OF A 10 YEAR OR GREATER STORM (EQUATING TO AT LEAST 4.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD). SAID RECORDS SHALL BE KEPT ON SITE, ACCESSIBLE AND OPENED TO THE STORMWATER OFFICER UPON REQUEST SO THAT HE OR SHE MAY VERIFY THAT MAINTENANCE IS PROCEEDING AS APPROVED. THE ENTITY CONDUCTING THE INSPECTION SHALL SUBMIT A WRITTEN REPORT TO THE OWNER AND MUNICIPALITY REGARDING ANY MAINTENANCE / REPAIRS PERFORMED WITHIN THE PREVIOUS YEAR, THE CONDITIONS OF THE BMP'S, ANY RECOMMENDED REPAIRS, IF NEEDED, AND A SCHEDULE FOR COMPLETION OF SUCH REPAIRS. THE OWNER SHALL IMPLEMENT ALL NECESSARY REPAIRS IN ACCORDANCE WITH THE SUBMITTED SCHEDULE.

A SCM CERTIFICATION FORM SHOULD BE COMPLETED FOR EACH SCM WITHIN 30 DAYS OF COMPLETION OF THE SCM

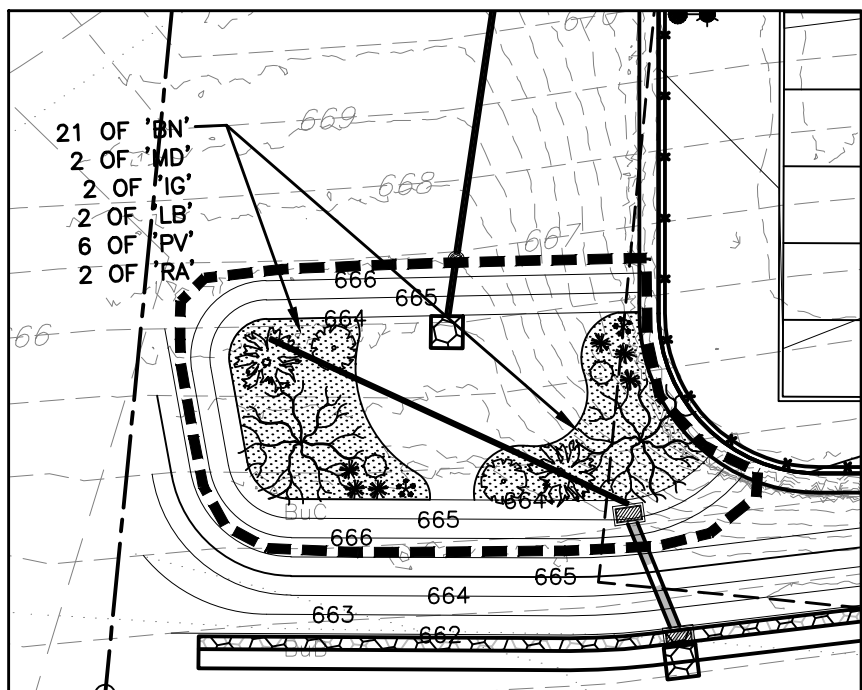
DEBRIS AND LITTER CONTROL - STORMWATER MANAGEMENT FACILITIES SHALL BE KEPT IN FUNCTIONING ORDER FREE OF DEBRIS AND LITTER.

MAINTENANCE RECORD - THE LOT OWNER IS TO KEEP A WRITTEN RECORD OF ALL INSPECTIONS, REPAIRS, AND CLEANINGS. THE MAINTENANCE RECORD SHALL BE KEPT CURRENT AND PROVIDED TO THE MUNICIPALITY AS NOTED ABOVE.

UNDERGROUND DETENTION BASIN - STORMWATER FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER MEASURABLE RAINFALL EVENTS (GREATER THAN 1"). THESE INSPECTIONS DO NOT NEED TO BE PERFORMED BY A QUALIFIED INSPECTOR, AND WRITTEN REPORTS ARE NOT REQUIRED. THE OUTLET STRUCTURES SHALL BE INSPECTED YEARLY. PLEASE SEE THE "INSPECTION" SECTION FOR MORE DETAILS ON INSPECTIONS. IF ANY REPAIRS ARE REQUIRED, THEY SHALL BE MADE IMMEDIATELY. IF SEDIMENT ACCUMULATES TO DEPTH GREATER THAN 4", SEDIMENT SHALL BE REMOVED VIA A VACUUM TRUCK. DEBRIS SHALL BE REMOVED FROM THE OUTLET STRUCTURES. DEFORMATION TO THE PAVEMENT ABOVE THE TERREARCH BASIN, CHANGES IN GRADE ACROSS THE BASIN, AND/OR POTHOLES IN THE STONE BASIN BOTTOM, COULD ALL BE INDICATIONS THAT A SINKHOLE OR OTHER KARST FEATURE HAS DEVELOPED UNDER THE BASIN(S). CHR CORP SHALL BE CONSULTED IMMEDIATELY IF ANY OF THESE ITEMS ARE NOTICED. PARTIAL OR FULL REPLACEMENT OF THE BASIN(S) MAY BE REQUIRED. THE TERREARCH UNITS AND OR PIPING WOULD NEED TO BE REMOVED, THE SINKHOLE WOULD NEED TO BE FILLED/STABILIZED, AND THE BASIN(S) WOULD NEED TO BE REINSTALLED PER THE INSTALLATION DETAIL(S). THIS WORK SHALL BE DONE WHEN NO RAIN IS IN THE FORECAST.
ACCESS: VIA ACCESS MANHOLES

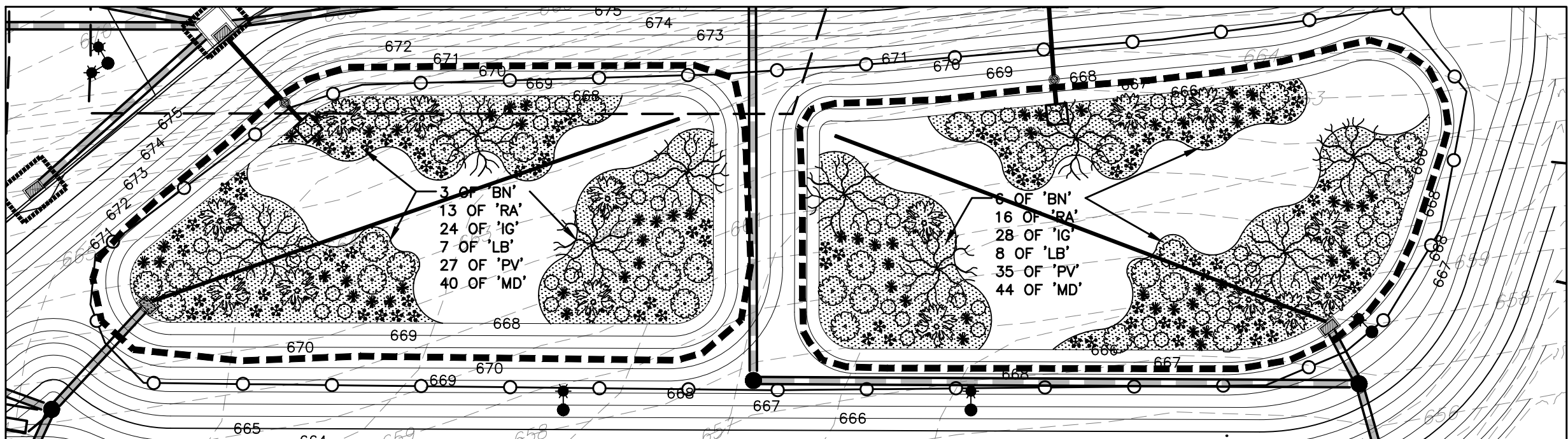
- RAIN GARDEN/BIO-RETENTION
- REGULAR MAINTENANCE IS NEEDED INITIALLY AFTER CONSTRUCTION AND CONTINUING INSPECTION AND MAINTENANCE IS REQUIRED TO ASSURE PROPER OPERATION OF THE SCM.
- UPON INITIAL COMPLETION OF CONSTRUCTION, INSPECT BASIN WEEKLY AND AFTER RUNOFF EVENTS. EVIDENCE OF EROSION, ACCUMULATED DEBRIS/SEDIMENT, AND FAILURE TO ESTABLISH A GOOD STAND OF VEGETATION IN THE BASIN MUST BE IMMEDIATELY ADDRESSED.
 - ROUTINE INSPECTION WILL BE CONDUCTED AT LEAST QUARTERLY AND AFTER MAJOR RUNOFF EVENTS. AS FOLLOWS -
 - INSPECT AND CLEAN THE INLETS AND PIPES LEADING TO THE BASIN.
 - INSPECT THE BASIN VEGETATION AND RE-SEED ANY OBSERVED BARE SPOTS.
 - EVIDENCE OF EROSION MUST BE IMMEDIATELY REPAIRED.
 - ACCUMULATED SEDIMENT OR DEBRIS MUST BE REMOVED AND PROPERLY DISPOSED OF.
 - ADDITIONAL MULCH MUST BE REPLENISHED WHEN EROSION IS EVIDENT. EVERY TWO (2) TO THREE (3) YEARS INSPECT ENTIRE MULCH LAYER COMPLETELY REPLACE IF NEEDED OR SUPPLEMENT ONLY THE AREAS NEEDING REPLACEMENT MULCH LAYER.
 - INSPECT THE OUTLET STRUCTURES FOR EROSION, DAMAGE, AND STABILITY. REPAIR AS NEEDED.
 - MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER OPERATION, AND TO SUPPRESS INVASIVE VEGETATION AND WEEDS. MOW ONLY WHEN DRY TO AVOID RUTTING.
 - SHOULD THE BASIN STILL HAVE PONDED WATER 3 DAYS AFTER A PRECIPITATION OR THAWING EVENT, FURTHER INVESTIGATION MUST BE CONDUCTED TO INSPECT FOR CLOGGED OUTFALL DEVICES, UNDERDRAINS, PIPES, OR SPILLWAYS AND REPAIR AS NEEDED.

NATIVE TREE PLANTINGS - WHILE TREES ARE BEING ESTABLISHED, PRUNING MAY BE REQUIRED.
DETIRIUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. STONE BASE COVER SHOULD BE RE-SPREAD WHEN LOSS OF STONE IS EVIDENT AND SHALL BE REPLENISHED AS NEEDED. DURING PERIODS OF EXTENDED DROUGHT, NATIVE PLANTINGS MAY REQUIRE WATERING. TREES SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH. ANY DEAD TREES SHALL BE REPLANTED. IF NATIVE TREE REPLACEMENT IS NEEDED, TREE AND STONE SHALL BE REMOVED AND REPLACED. INSTALL THE NEW NATIVE TREE(S) PER THE LANDSCAPING NOTES, TREE PLANTING DETAIL, AND PER THE PLAN.
ACCESS: VIA PARKING LOT



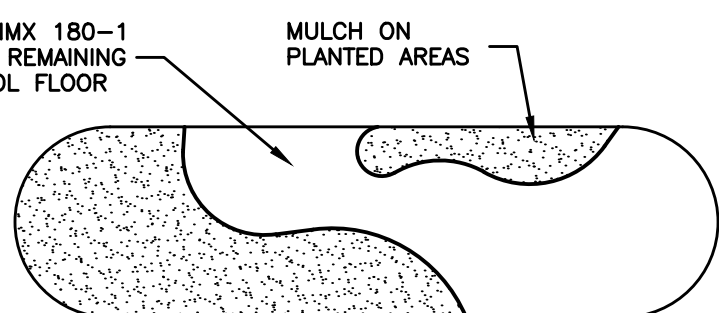
SCM 1 LANDSCAPING

PCSM SCM LANDSCAPING LEGEND					
SYM.	TAG	QUA.	BOTANICAL NAME	COMMON NAME	PLANTING SIZE / CONDITIONS
	BN	11	BETULA NIGRA "HERITAGE"	HERITAGE RIVER BIRCH	8' H., BALLED & BURLAPPED, AS SHOWN ON PLAN
	RA	31	RHUS AROMATICA 'LO GRO'	GROW LOW FRAGRANT SUMAC	12" H., CONTAINER
	LB	17	LINDERA BENZOIN	SPICEBUSH	36" H., CONTAINER
	IG	54	ILEX GLABRA 'SHAMROCK'	DWARF INKBERRY	24" H., CONTAINER
	PV	68	PANICUM VIRGATUM	SWITCHGRASS	24" H., CONTAINER
	MD	86	MONARDA DIDYMA	RED BEEBALM	18" H., CONTAINER



SCM 2 & 3 LANDSCAPING

SCALE: 30' 0' 30'
1"=30'



SCHEMATIC BIORETENTION PLAN

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BENJAMIN STULTZ PIPER
ENGINEER
F008344

07/07/26 BSP	DEP. REVIEW COMMENTS
04/15/26 BSP	NPDES MAJOR MODIFICATION
DATE & INITIALS	REVISION DESCRIPTION

SCALE: 30' 0' 30'
1"=30'

**POST CONSTRUCTION
STORMWATER MANAGEMENT PLAN**

HUNTINGDON RUTTER'S STORE #83

SMITHFIELD TOWNSHIP, HUNTINGDON COUNTY
PENNSYLVANIA

PROJECT NO.: 3748-S
FILE NAME: PCSM1.MWG
DATE: 6/6/24
DESIGNED BY: BSP
DRAWN BY: BSP
CHECKED BY: ---

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PCSM2

CONSTRUCTION NOTES

SEQUENCE OF INSTALLATION OF PCSM SCM'S

NOTE: CRITICAL STAGE REQUIRING OVERSIGHT BY LICENSED PROFESSIONAL

1. PROTECTIVE FENCING AND COMPOST FILTER SOCK SHALL REMAIN IN PLACE ABOVE WETLANDS AND ANY STREAMS AS SHOWN ON THE PCSM PLAN DRAWINGS TO PROTECT WETLAND RESOURCES FROM IMPACT DURING CONSTRUCTION.

2. WHEN DRIVING OR DRAGGING AROUND THE LOCATION OF PCSM SCM'S TO AVOID OVER

2. WHEN ALL SURFACES TRIBUTARY TO THE PCSM SCM'S, RAIN GARDENS, VEGETATED SWALE, VOLUME STORAGE SCM'S, AND LANDSCAPE RESTORATION AREAS, HAVE ACHIEVED PERMANENT VEGETATION, DEFINED AS THE ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OF EROSION RESISTANT PERENNIAL SPECIES OR COVERED WITH AN ACCEPTABLE PERMANENT SCUM; SUCH AS, PAVEMENT FOR STREETS AND SIDEWALKS, THE PCSM SCM'S CAN BE CONSTRUCTED ACCORDING TO THE FOLLOWING SEQUENCE:

SUBSURFACE DETENTION BASIN PCSM SCM'S

3. EXCAVATE SCM'S TO THE DEPTH NEEDED TO ADD THE CLAY LINING AND ROCK LAYERS AND TERRE ARCH STRUCTURES TO THE REQUIRED FINAL DEPTH.

4. OUTFALL DEVICES; SUCH AS, PIPES AND RISERS, CAN NOW BE INSTALLED AND BECOME OPERATIONAL.

5. BACKFILL AREA WITH STONE AS REQUIRED BY MANUFACTURERS SPECIFICATIONS.

6. COMPLETE FINAL LEVELING TO ACHIEVE PROPOSED DESIGN ELEVATIONS.

7. STABILIZE ALL SURROUNDING DISTURBED SOIL SURFACES BY SEEDING AND MULCHING

8. ADDITIONAL SITE LANDSCAPE PLANTINGS CAN TAKE PLACE AT THIS TIME OR IN THE NEAR FUTURE.

LICENSED PROFESSIONAL MUST OVERSEE IMPLEMENTATION OF ALL PCSM SCM'S

EXCAVATION OF THE FUEL STORAGE TANK AREA SHALL BE CONSIDERED A CRITICAL STAGE. A DESIGN PROFESSIONAL OR THEIR DESIGNEE SHALL BE ONSITE TO OBSERVE AND PROVIDE DIRECTION SHOULD PYRITIC SHALE BE UNCOVERED.

SHOULD ROUTINE INSPECTION REVEAL THAT A PCSM SCM IS NOT FUNCTIONING AS DESIGNED, THE OWNER MUST IMMEDIATELY TAKE ACTION TO CORRECT THE PROBLEM. STRUCTURAL FAILURES SUCH AS, BROKEN OR CLOGGED PIPES CAN BE RESOLVED BY REPLACING AND REPAIRING THE SCM TO THE ORIGINAL DESIGN (SEE PCSM SCM MAINTENANCE GUIDELINES FOR THIS PROJECT'S SPECIFIC SCM'S SHOWN BELOW). SHOULD A PCSM SCM CONSTRUCTED TO THE ORIGINAL DESIGN SPECIFICATIONS FAIL TO FUNCTION, THE OWNER MUST IMMEDIATELY CONTACT A STORMWATER DESIGN ENGINEER/PROFESSIONAL TO EVALUATE THE PROBLEM AND RECOMMEND CORRECTIONS. ANY MODIFICATION PROPOSED TO ADDRESS THE PROBLEM MUST BE SUBMITTED TO THE HUNTINGDON COUNTY CONSERVATION DISTRICT AND DEP FOR REVIEW AND APPROVAL PRIOR TO INITIATING IMPLEMENTATION OF CORRECTIVE ACTIONS.

IN ACCORDANCE WITH THE PNDI AVOIDANCE MEASURE, NO TREES MAY BE CUT BETWEEN MAY 15TH THROUGH AUGUST 15TH.

SUBSURFACE DETENTION BASIN SCM'S
MANUFACTURER SPECIFIED MAINTENANCE PROGRAM MUST BE IMPLEMENTED FOR THIS SCM.

"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 P.C.S.A. § 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

OWNERSHIP/OPERATION/MAINTENANCE:
M&G REALTY/RUTTERS, AS THE OWNER OF THIS DEVELOPMENT, WILL BE RESPONSIBLE FOR THE DAY TO DAY OPERATION AND MAINTENANCE OF THE PERMANENT FACILITIES AND WILL BE ULTIMATELY RESPONSIBLE FOR LONG-TERM MAINTENANCE OF THE PERMANENT STORMWATER SCMS. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF THE PERMANENT BIO-RETENTION AREAS SHALL BE INSPECTED AND REPAIRED AS NEEDED ACCORDING TO THE ABOVE NOTES. A WRITTEN REPORT WILL BE MAINTAINED AT THE SITE DOCUMENTING ALL INSPECTION AND MAINTENANCE ACTIVITIES.

TERRE ARCH 48

PERFORMANCE, DESIGN & INSTALLATION SPECIFICATIONS

THE TERRE ARCH 48 IS A PRECAST CONCRETE MODULAR ROMAN ARCH STRUCTURE WITH 5000PSI COMPRESSIVE STRENGTH CONSISTING OF THREE CONNECTED PARALLEL ARCHES FOR SUBSURFACE STORAGE OF STONE FILL.

1. INFILTRATION TO RECHARGE THE GROUND WATER; DETENTION WHERE SITE CONDITIONS REQUIRE

2. HS-25 LOAD RATING ON THE CROWN OF THE ARCH; NO MINIMUM COVER OR FILL REQUIREMENTS; NO REQUIREMENT FOR STONE BETWEEN THE ARCHES OR ABOVE THE STRUCTURE; DIRECT ACCESS FOR HEAVY INSTALLATION EQUIPMENT.

(PERMETER STONE FILL IS REQUIRED PRIOR TO INSTALLATION EQUIPMENT ACCESS):

3. MINIMUM STONE SUB-BASE DEPTH OF SIX (6") INCH WITH A MINIMUM SUBSURFACE BEARING CAPACITY OF 3000 PSF; STONE BASE MAY BE INCREASED BY ENGINEER, IF REQUIRED TO BALANCE LOADS;

4. MAXIMUM COVER UP TO 20 FT. (VERIFY SUB-BASE DEPTH AND SOIL BEARING CAPACITY);

5. A SUITED QUALITY TERRACE KLEEN SHOULD BE USED WHERE KLEEN SHOULD BE PLACED UPSTREAM FROM THE TERRE ARCH TO PREVENT ENTRY OF SEDIMENT, OIL, GREASE, LITTER, AND DEBRIS INTO TERRE ARCH

6. 160 FT 2 (8 FEET BY 20 FEET) INFILTRATION SURFACE PER STRUCTURE;

7. 636 FT 3 (5.32FT 3 / FT 2) OF IN CUSTOMARY INSTALLATION (I.E. 6" STONE BED (5" #8 AND 1" #5 STONE) AND VALLEYS

BETWEEN ARCHES FILLED WITH 4" OF STONE TO THE TOP OF THE BUTTRESSES & 6" OF STONE COVER);

8. TERRE ARCH 48 WEIGHS 15,700 LBS.; PLACEMENT FROM TRUCK INTO THE PREPARED EXCAVATION BY CRANE;

9. VENT AND DRAIN HOLES CAST AT THE TOP OF THE ARCH AND IN THE VALLEY AREAS OF THE TERRE ARCH;

10. DISTRIBUTION HOLES ARE CAST INTO THE LEGS OF THE ARCHES TO ALLOW FLOW BETWEEN ALL SECTIONS;

11. ANTI-SURF AND EROSION MAT REQUIRED UNDER MANHOLE AND TERRE ARCH WHERE INFLOW OCCURS;

12. NO GRADE SUDS OR MISALIGNMENT WITH PROPER INSTALLATION;

13. NO REQUIREMENT FOR SPACING OR BACKFILLING BETWEEN EACH STRUCTURE;

14. NO REQUIREMENT FOR GEOTEXTILE SEPARATION LAYER BELOW. USE FILTER FABRIC OR GEOTEXTILE WHERE SILT MIGRATION FROM TOP OF THE TOP INTO THE STORAGE VOID SPACE IS DESIRABLE

15. MANUFACTURER SHALL SUBMIT INFORMATION DRAWINGS AND SPECIFICATIONS REQUESTED BY ENGINEER;

16. EACH TERRE ARCH SHALL HAVE FOUR (4) LIFTING POINTS WITH UN-LIFT PINS. CONTRACTOR SHALL PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING CAPACITY TO UNLOAD AND SET THE TERRE ARCH;

17. CONTRACTOR SHALL EXCAVATE, DEWATER AND SHORE AS REQUIRED BY ENGINEER OR SAFETY REGULATIONS;

18. AFTER ARCH DISTRIBUTION BOX SHALL INCLUDE RISER SECTIONS THAT EXTEND TO GRADE WITH MANHOLE ACCESS INTO ENTIRE TERRE ARCH SYSTEM.

19. WARRANTY: 4 YEARS FROM DATE OF SUBSTANTIAL COMPLETION FOR LABOR AND MATERIAL IN THE EVENT THAT THE MATERIAL SUPPLIED IS NOT FREE FROM DEFECTS; STRUCTURE SHALL BE INSTALLED ONLY FOR THE PARTICULAR APPLICATION

FOR WHICH IT WAS SPECIFICALLY MANUFACTURED;

20. TERRE ARCH INSTALLATION MAY REQUIRE DISTRIBUTION BOX(ES) AND END CAPS AS SHOWN ON THE DRAWINGS.

PRODUCT SUBSTITUTION PROCEDURES

1. NO SUBSTITUTE SYSTEM SHALL BE APPROVED AS EQUIVALENT TO TERRE ARCH SYSTEM UNLESS THE ENGINEER SHALL RECEIVE AND APPROVE DRAWINGS AND SPECIFICATIONS STAMPED AND SEALED BY A PROFESSIONAL ENGINEER SHOWING THE FOLLOWING:
 - a. SPECIFIC SIZING CALCULATIONS CLEARLY SHOWING THAT THE UNIT MEETS OR EXCEEDS THE PERFORMANCE, DESIGN AND INSTALLATION SPECIFICATIONS OF THE TERRE ARCH.
 - b. SYSTEM SHALL ALLOW ACCESS FROM GRADE THROUGH MANHOLE INTO THE ENTIRE UNDERGROUND SYSTEM

1. MAINTENANCE PROCEDURES
CLEAN OUT OR WHEN A PROPER WATER QUALITY DEVICE IS PLACED IN FRONT OF THE TERRE ARCH SYSTEM NO
MAINTENANCE IS ANTICIPATED;
2. INSPECTION CAN BE ACCOMPLISHED FROM GRADE WITH PROPER EQUIPMENT, BY ENTRY THROUGH THE
MANHOLE
OPENINGS IN THE DISTRIBUTION MANIFOLD.
3. SYSTEM SHALL CONTAIN SUFFICIENT DISTRIBUTION MANIFOLDS TO ALLOW ENTRY FOR INSPECTION AND MAINTENANCE INTO
EACH ARCH ROW OF EACH TERRE ARCH.

AREA	A	B
TERRE ARCH 48 UNITS	60	60
PONDING DEPTH (PD)	4.67 FT	4.67 FT
FOUNDATION STONE DEPTH (SD)	1.0'	1.0'
COVER STONE DEPTH (SD)	0.5'	0.5'
OUTLET STRUCTURE TYPE	ORIFICE PLATE	ORIFICE PLATE
ORIFICE DIAMETER	3"	4"
OUTLET STRUCTURE ORIFICE ELEV.	661.25	663.90
100 YR WATER SURFACE ELEV.	666.39	669.30
2 YR WATER SURFACE ELEV.	663.22	665.66
BOTTOM ELEV.	661.50	664.00
FLOOR ELEV.	662.50	665.00
STRUCTURE TOP ELEV.	667.17	669.67
DISCHARGE PIPE INV.	661.50	664.00
DISCHARGE PIPE OUTLET INV.	661.25	663.90
DISCHARGE PIPE	PIPE A11	PIPE B10

ELEVATION VIEW

TERRE ARCH 48 STRUCTURE

W

EROSION GRID
(UNDER DISTRIBUTION
MANIFOLD AND
ADJACENT TERRE
ARCH UNIT(S))

ANTI-SCOUR MAT
UNDER EROSION GRID
INFLUENT PIPE

NOTE:
EROSION GRID AND
ANTI-SCOUR MAT USED
ONLY AT INFLUENT PIPE(S)

INFLUENT
PIPE

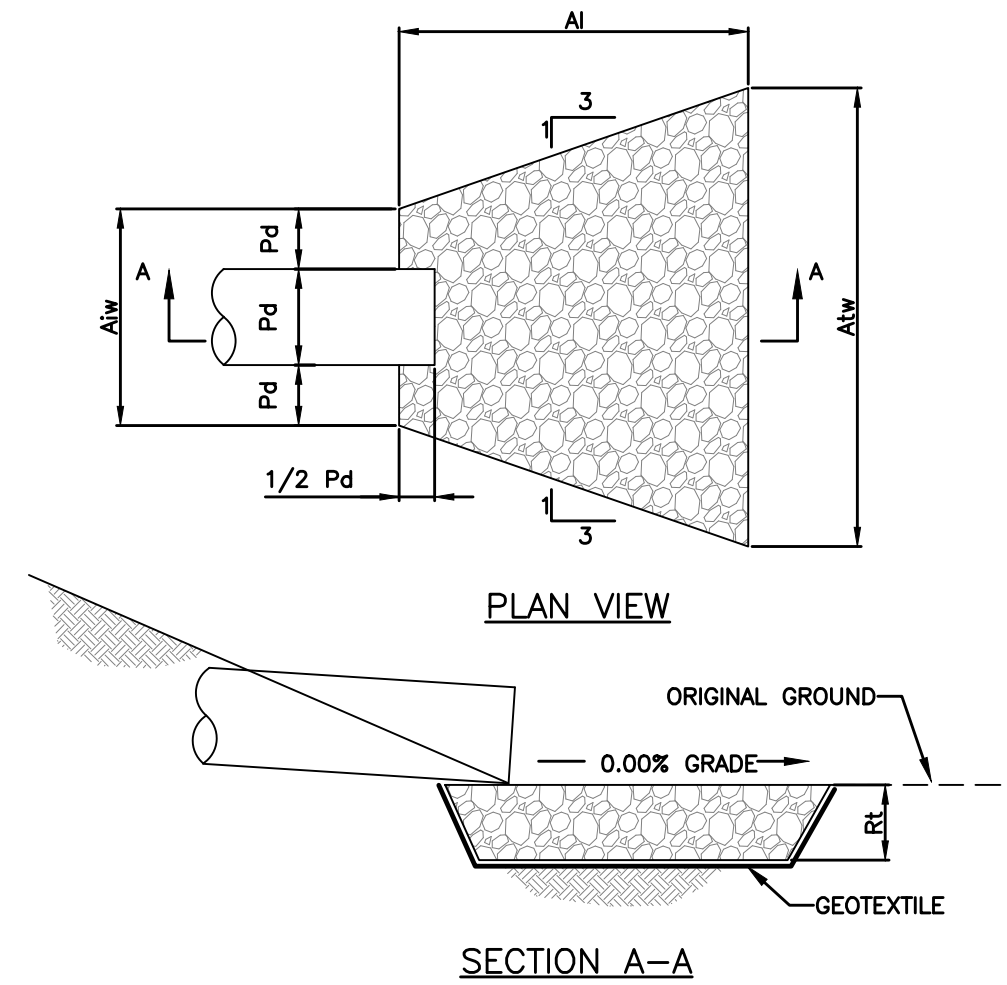
1'-6"

1'-0"

TYPICAL LAYOUT

CA
SL

SUBSURFACE DETENTION BASIN



OUTLET NO.	PIPE NO.	PIPE DIA Pd (IN)	RIPRAP		AFRON		
			SIZE R—	THICK. Rt (IN)	LENGTH At (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)
1	LS—1	15	3	18	5	5	5
2	LS—2	18	3	18	5	5	5
3	LS—3	18	3	18	5	5	5
4	B17—2	6	3	18	5	5	5
5	B6—2	6	3	18	5	5	5
6	A9—2	6	3	18	5	5	5

NOTES:

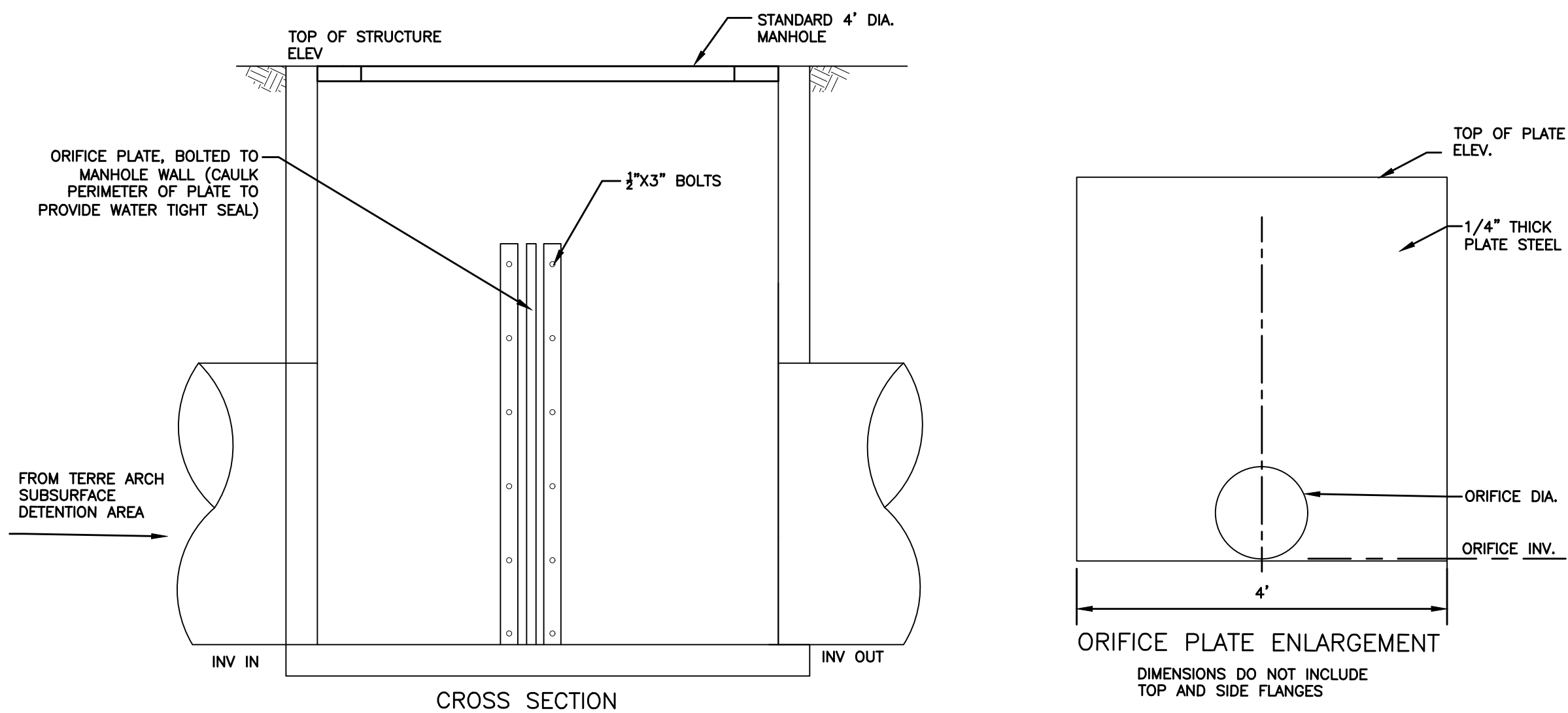
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.

STANDARD CONSTRUCTION DETAIL #9-2
RIPRAP APRON AT PIPE OUTLET
NO FLARED ENDWALL

NOT TO SCALE



TERRE ARCH SCOUR PROTECTION NOTES:

1. SCOUR PROTECTION MATS ARE SPECIFIED AND FURNISHED BY THE TERRE ARCH SUPPLIER, CONTECH ENGINEERED SOLUTIONS.

2. SCOUR PROTECTION MATTING IS TO BE PLACED AT ALL INFLUENT PIPE LOCATIONS.

3. ANTI SCOUR MATS ARE TO BE PLACED ON THE STONE BASE AND COVERED WITH THE EROSION MATS AS SHOWN PRIOR TO INSTALLING THE TERRE ARCH UNITS.

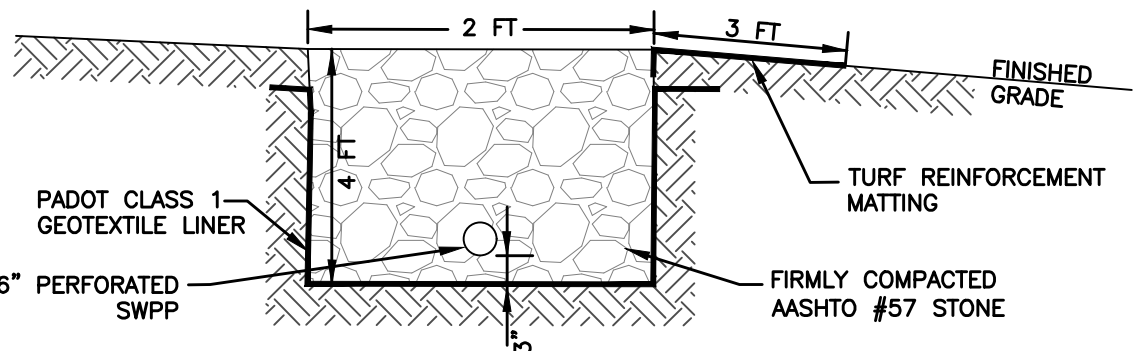
4. EROSION MAT:
SIZE: 15'x22'
TYPE: SYNTEEN SF 12 GEOGRID

5. ANTI SCOUR MAT:
SIZE: 6'-6"x15'
TYPE: TENCATE WOVEN FILTRATION MEDIA
WHITE HONEYCOMB FILTER

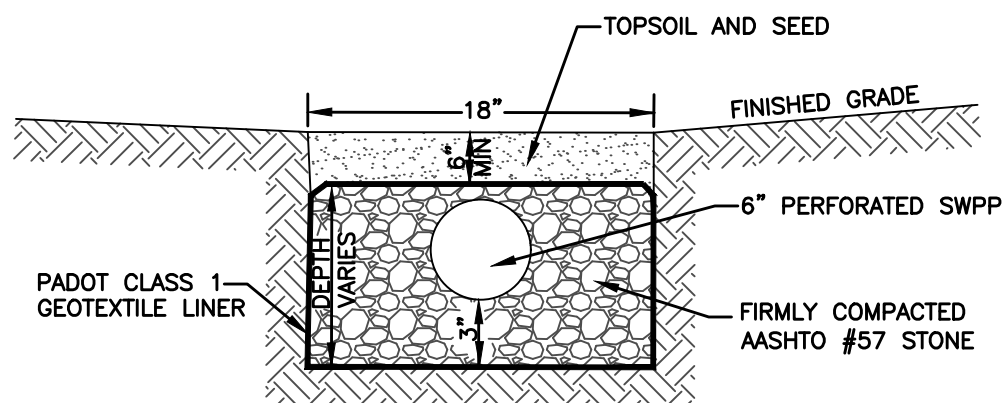
OUTLET STRUCTURE SCHEDULE:

SUBSURFACE DETENTION AREA	A	B
OUTLET PIPE	PIPE A12	PIPE B11
OUTLET PIPE DIA.	18"	18"
INV. OUT	661.15	663.80
INV. IN	661.25	663.90
OUTLET STRUCTURE TOP ELEV.	676.10	675.50
STRUCTURE TYPE	4' DIA. MH	4' DIA. MH
TOP OF PLATE ELEV.	666.50	669.50
ORIFICE DIA.	3"	4"
ORIFICE INV.	661.25	663.90

SUBSURFACE DETENTION OUTLET STRUCTURE



SUBSURFACE LEVEL SPREADER



NOTES:

1. GROUNDWATER SEEPS UNCOVERED DURING EXCAVATION SHALL BE DIRECTED TO THE NEAREST WETLAND.
2. SLOPE PIPE AT A MINIMUM 0.25% TO DAYLIGHT.
3. COMPLETELY WRAP STONE IN GEOTEXTILE MATERIAL.

GROUNDWATER REMEDIATION—PERFORATED DRAIN

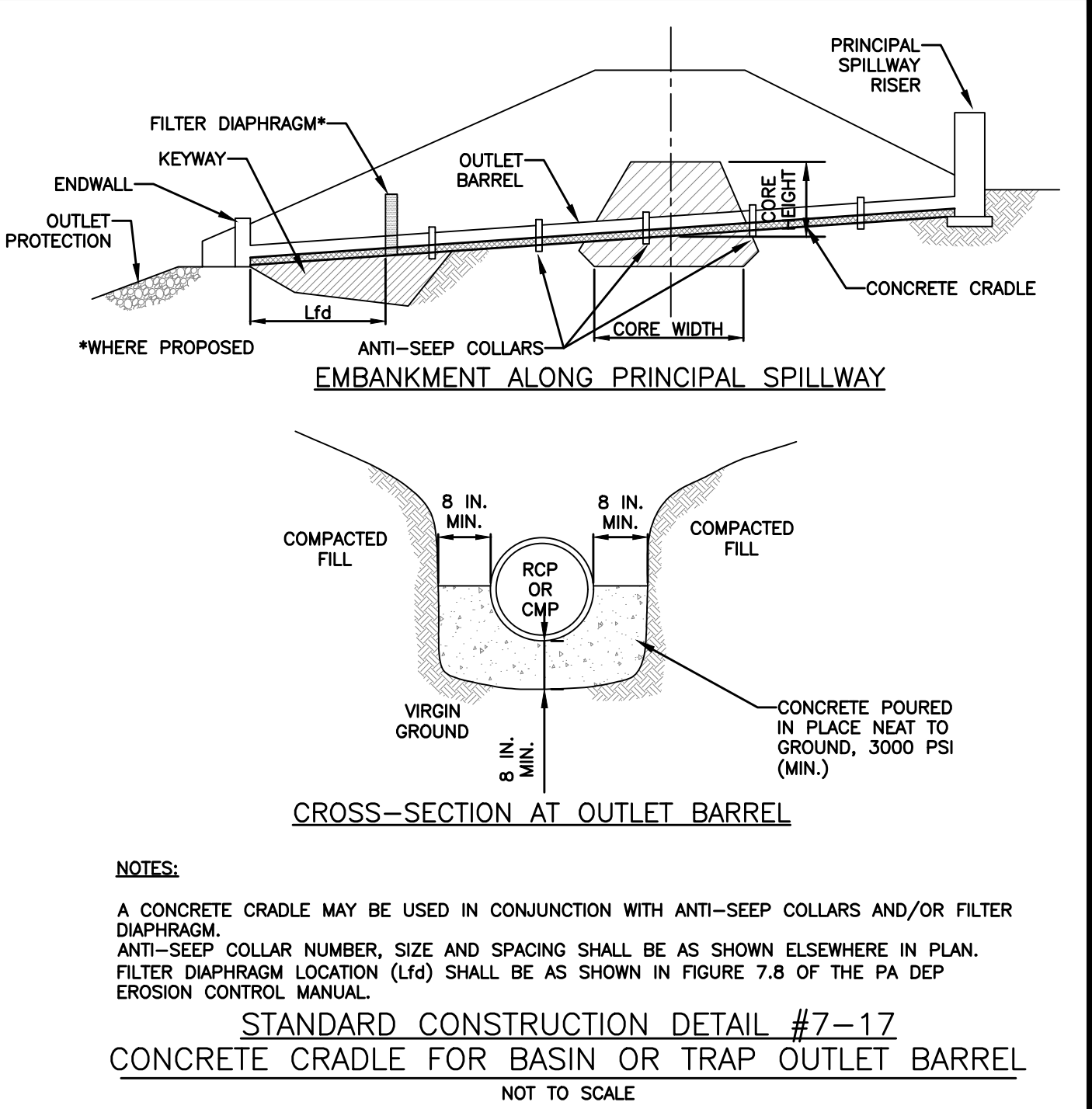
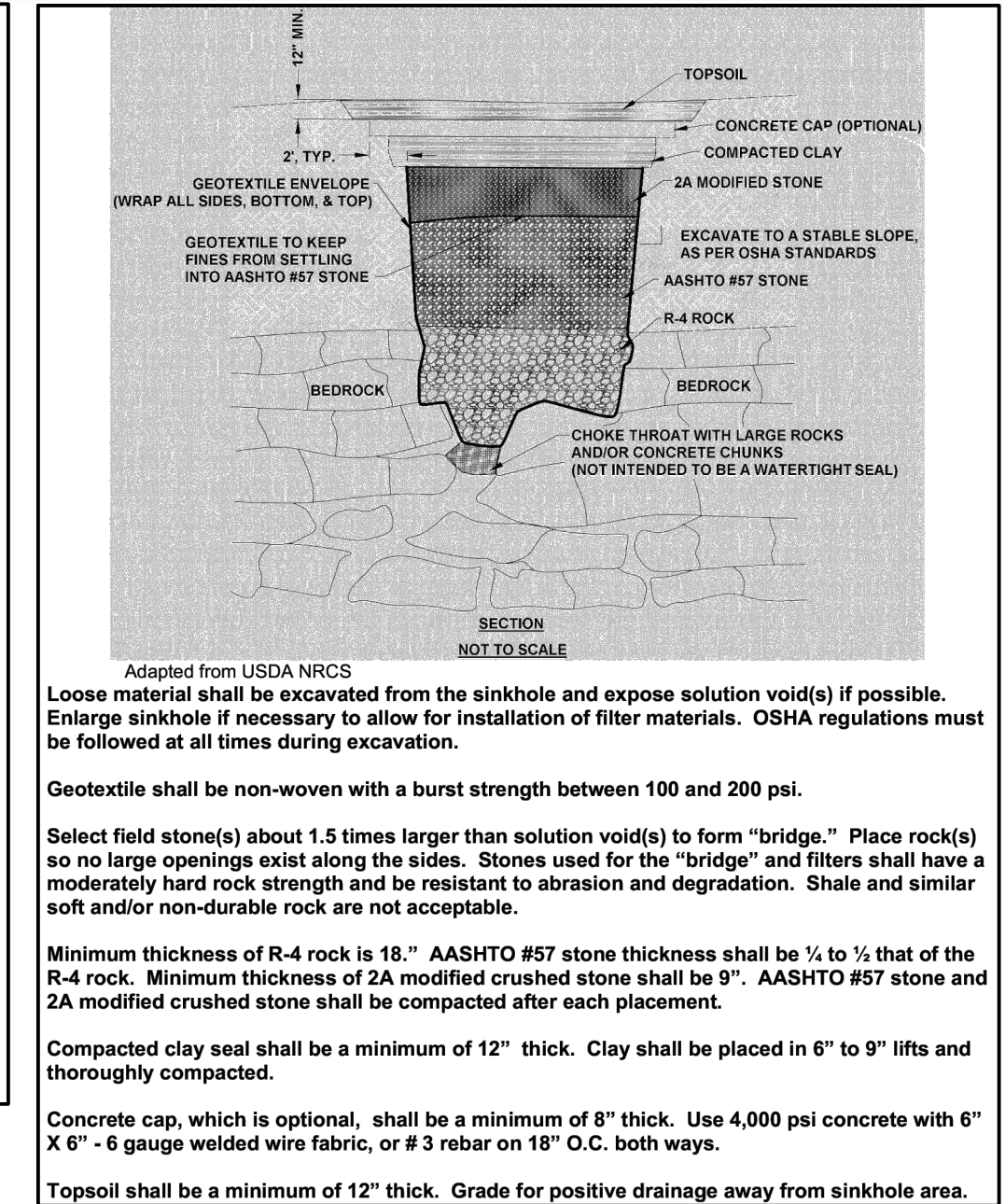
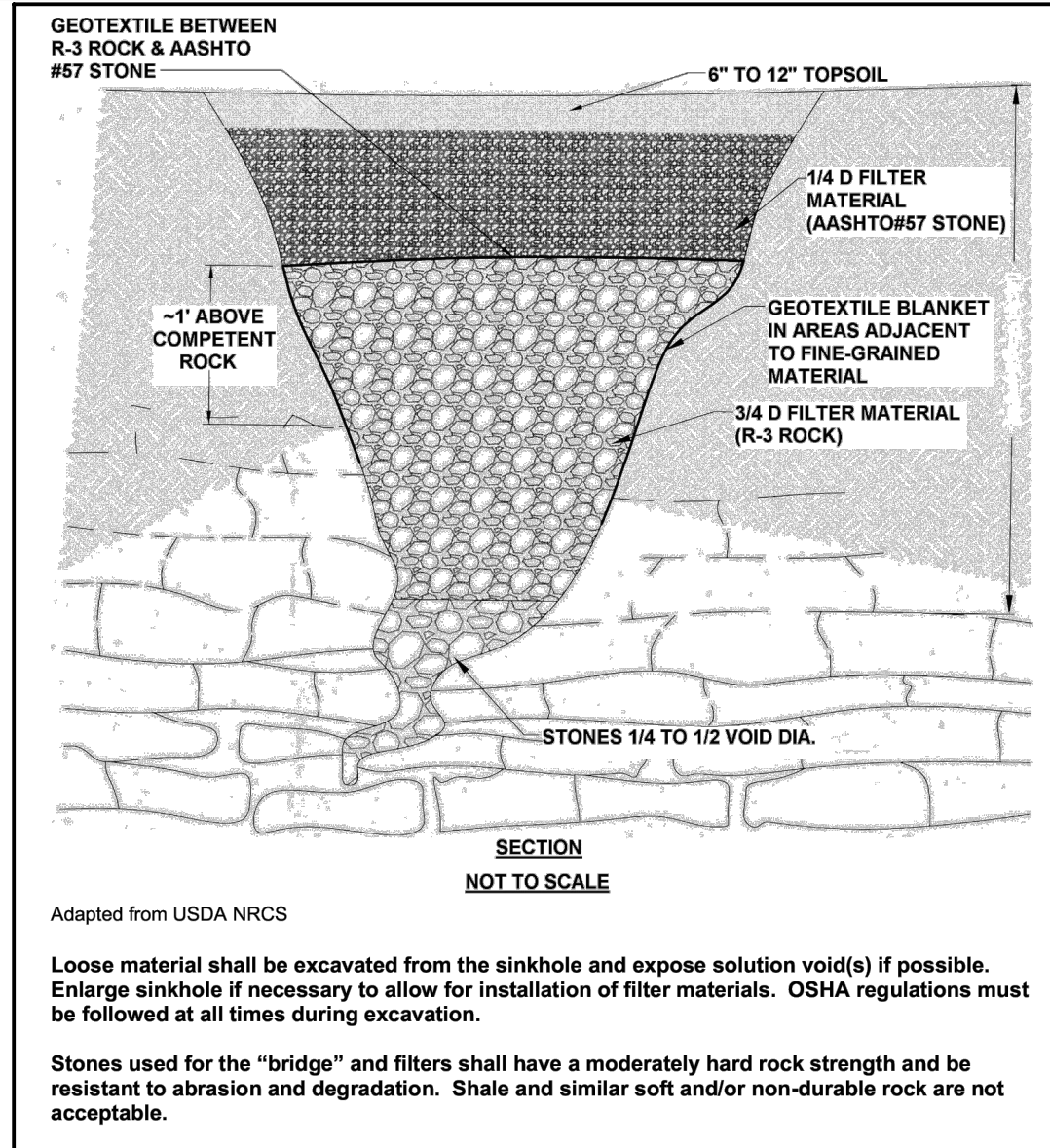
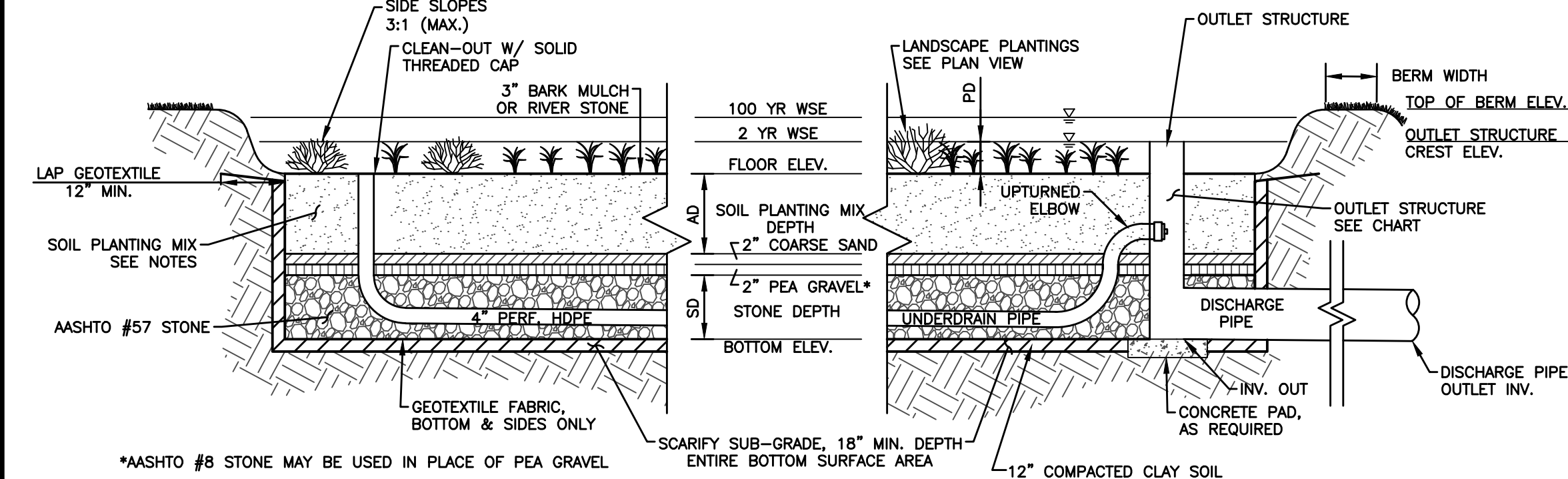
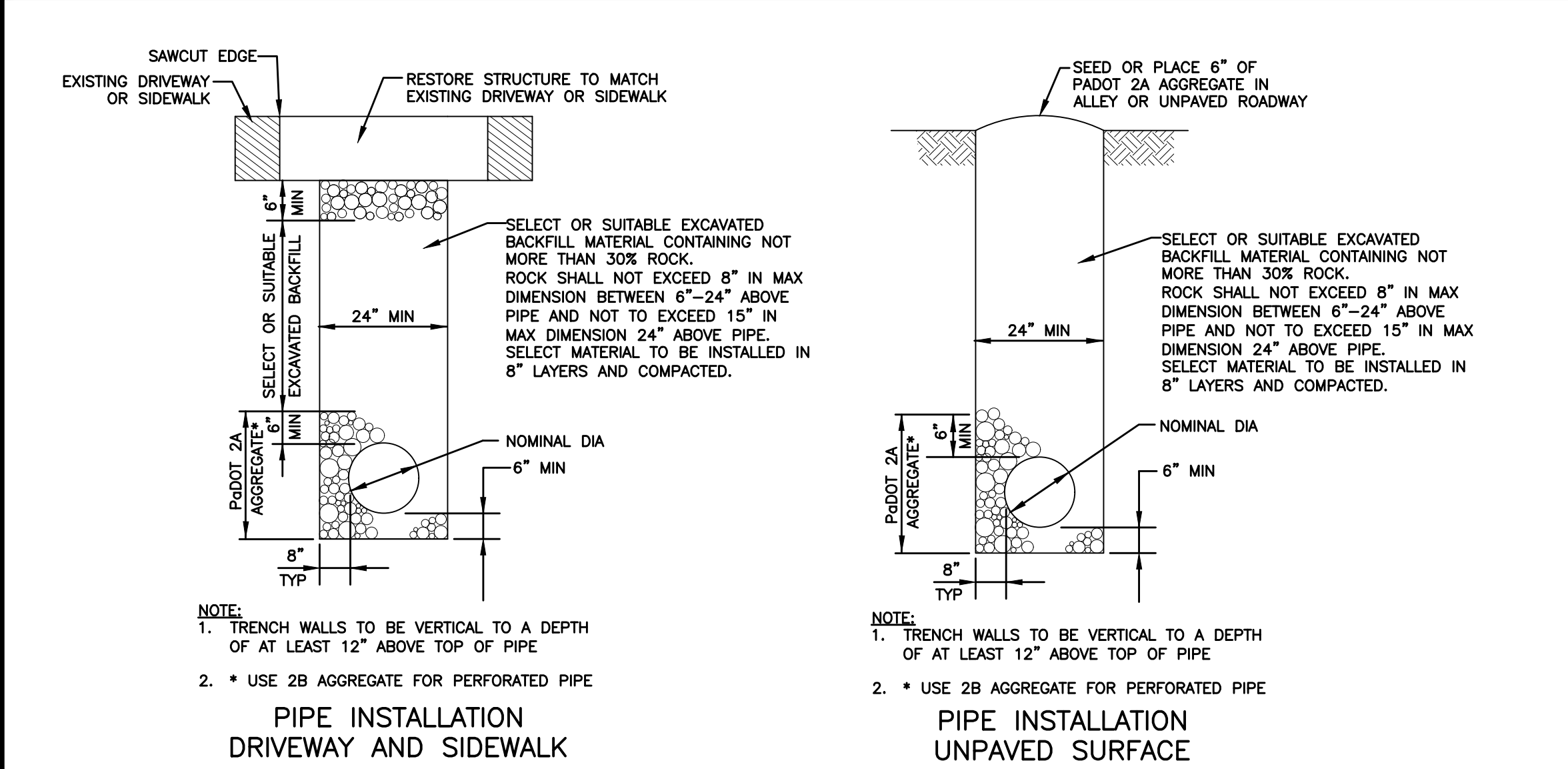
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HUNTINGDON RUTTER'S STORE #93

HUNTINGDON RUTTER'S STORE #93

SMITHFIELD TOWNSHIP, HUNTINGDON COUNTY
PENNSYLVANIA

PROJECT NO.:	3746-5	PCSM3 KELLER ENGINEERS, INC. EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER RIGHTS IN THESE PLANS. NOT TO BE REPRODUCED, COPIED, ALTERED OR CHANGED IN ANY FORM OR MANNER, NOR ARE THEY TO BE ASSIGNED WITHOUT WRITTEN PERMISSION AND CONSENT OF KELLER ENGINEERS, INC.
FILE NAME:	PCSM3.DWG	
DATE:	6/6/24	
DESIGNED BY:	BSP	
DRAWN BY:	BSP	
CHECKED BY:		



"RAIN GARDEN" SCHEDULE:			
AREA	1	2	3
TOP OF BERM	666.00	670.00	668.00
BERM TOP WIDTH	3.0'	5.0'	5.0'
PONDING DEPTH (PD)	1" MAX.	1" MAX.	1" MAX.
SOIL PLANTING MIX DEPTH (AD)	1.5"	1.5"	1.5"
STONE DEPTH (SD)	0.5'	0.5'	0.5'
OUTLET STRUCTURE TOP UNIT	M TOP	M TOP	M TOP
OUTLET STRUCTURE TYPE	STANDARD INLET	STANDARD INLET	STANDARD INLET
OUTLET STRUCTURE CREST ELEV.	665.00	669.00	667.00
100 YR WATER SURFACE ELEV.	664.17	668.30	666.21
2 YR WATER SURFACE ELEV.	664.26	668.30	666.22
FLOOR ELEV.	664.00	668.00	666.00
BOTTOM ELEV.	662.00	666.00	664.00
UNDERDRAIN PIPE	4" HDPE	4" HDPE	4" HDPE
UPTURNED ELBOW INV. ELEV.	663.00	667.00	665.00
UNDERDRAIN ORIFICE DIA.	1/16"	1/8"	1/8"
INV. OUT - DISCHARGE PIPE	662.00	666.00	662.00
DISCHARGE PIPE	B19	B13	A15
DISCHARGE PIPE OUTLET INV.	661.50	660.10	654.40

SOIL PLANTING MIX NOTES:

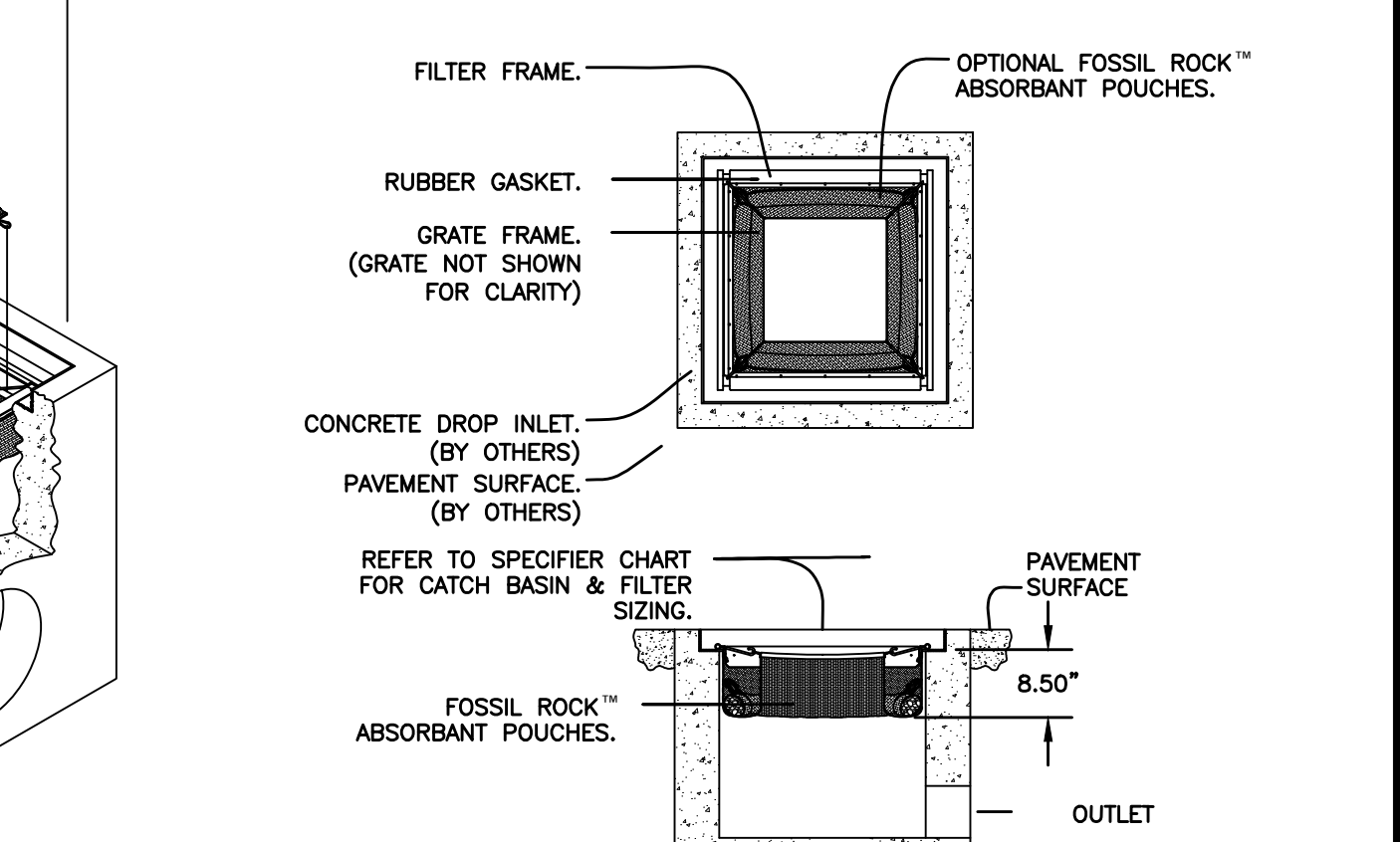
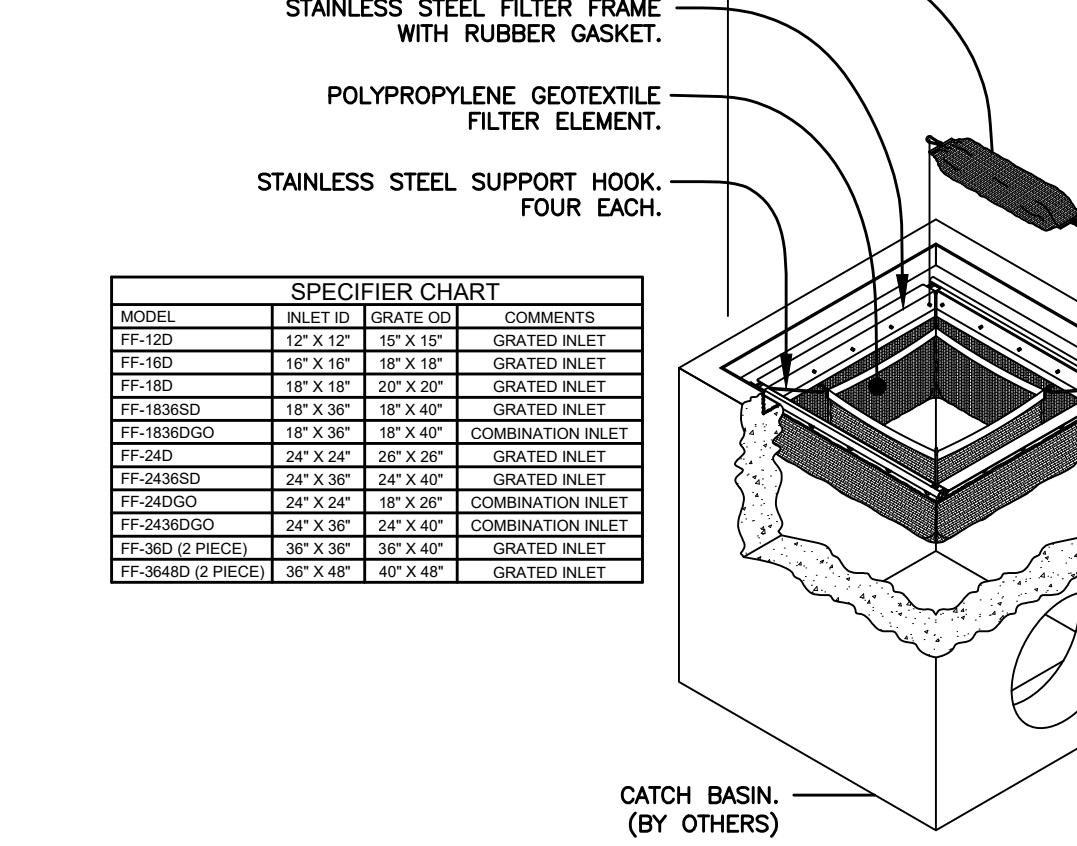
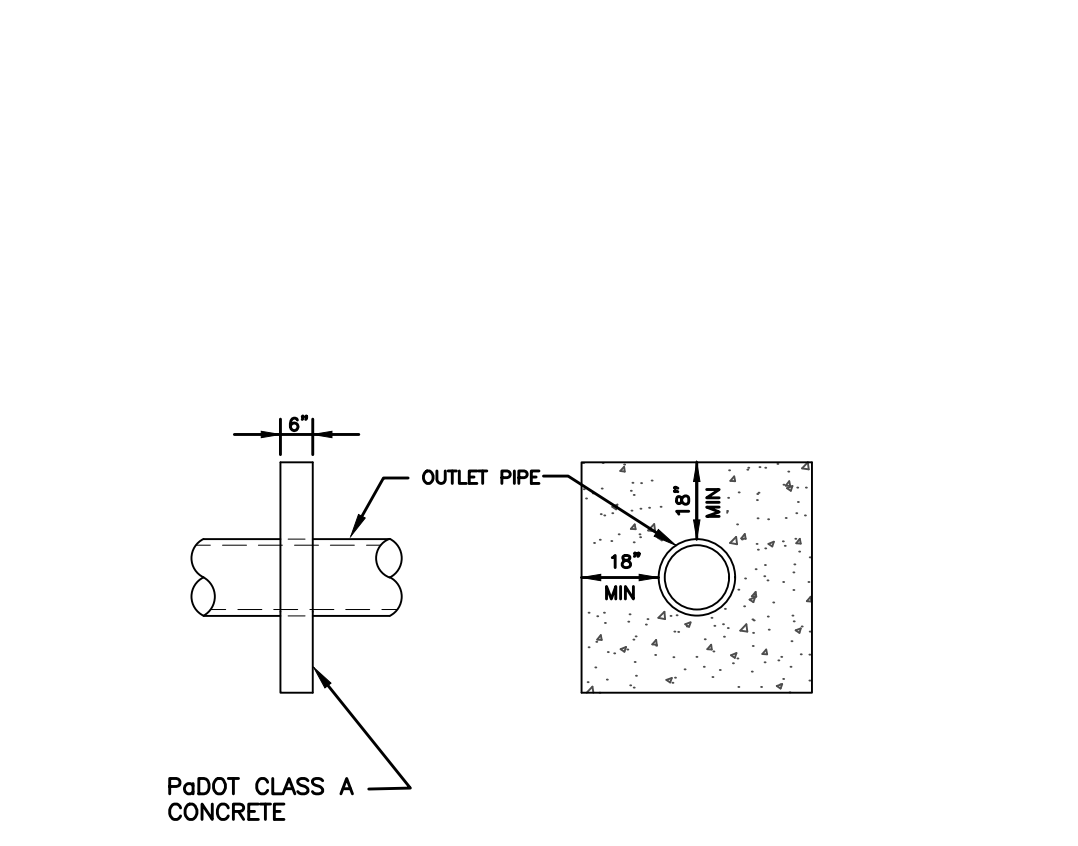
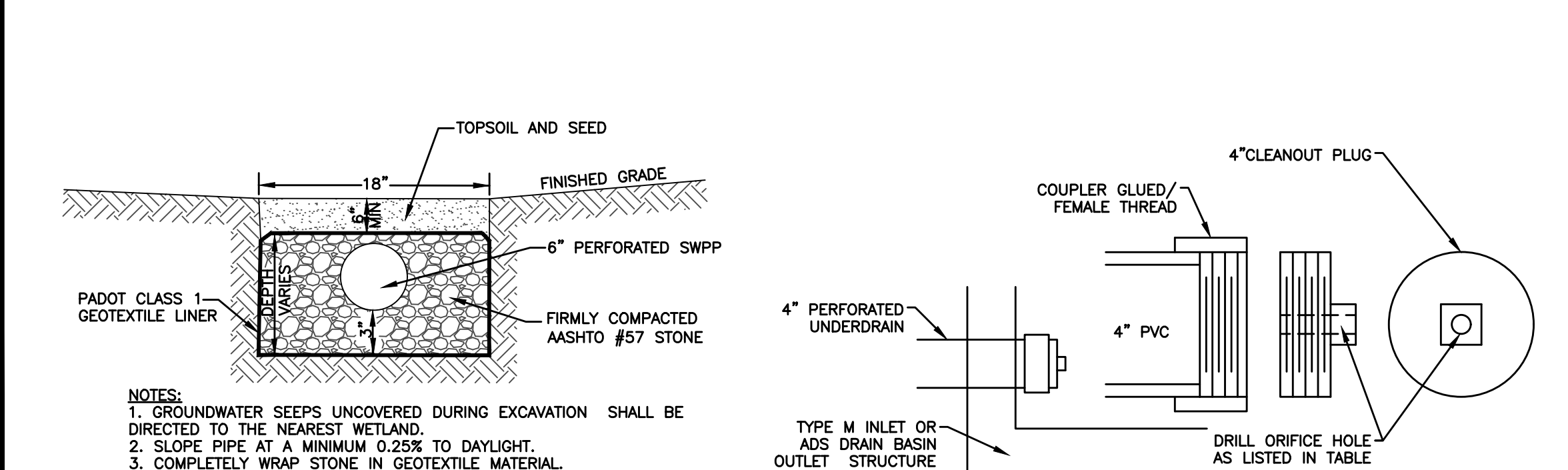
1. SOIL PLANTING MIX TO GENERALLY CONSIST OF:
 - A. 20% GOOD QUALITY TOPSOIL. UNSATISFACTORY TOPSOIL MATERIALS ARE DEFINED AS THOSE CONTAINING HIGH CLAY COMPOSITION, TRASH, DEBRIS, ROCKS, OR FROZEN MATERIAL. GOOD QUALITY TOPSOIL MAY OR MAY NOT BE AVAILABLE ON SITE.
 - B. 30% GOOD QUALITY COMPOST. THE PURPOSE OF THE COMPOST COMPONENT IS TO INCREASE ORGANIC CONTENT OF THE SOIL PLANTING MIX MIXTURE TO PROMOTE PLANT MATERIAL GROWTH UPON THE BASIN BOTTOM. DO NOT USE BIO-SOLID COMPOST MIXTURE SOURCES; DO NOT USE COMPOST SOURCES WITH HIGH CLAY CONTENT OR PARTICULATES.
 - C. 50% CLEAN WASHED SAND. THE PURPOSE OF THE SAND COMPONENT IS TO LOOSEN THE OVERALL SOIL PLANTING MIX MIX TO PROMOTE INFILTRATION.
 - D. LINE ANTI-FLOCCULATION AGENT AS DIRECTED BY PROJECT SOIL SCIENTIST.
 - E. A 3" LAYER OF 1/4" CLEAN WASHED ANTI-SKID MATERIAL MAY BE PLACED ON THE BOTTOM OF THE RAINGARDEN IN LIEU OF THE GEOTECHNICAL FABRIC.
2. FINAL SOIL PLANTING MIX MIXTURE COMPONENTS AND COMPOSITION SHALL BE DETERMINED BY PROJECT SOIL SCIENTIST BASED ON ON-SITE TEST MIXTURE PREPARATION AND INFILTRATION TESTING.
3. PROCURE, MIX, STORE, AND PLACE SOIL PLANTING MIX IN ACCORDANCE WITH POST CONSTRUCTION STORMWATER MANAGEMENT PLAN.
4. PLACE SOIL PLANTING MIX LOOSE IN 8" LIFTS ON BASIN SUBGRADE, STARTING AT LOWEST END OF BASIN. DO NOT PLACE SOIL PLANTING MIX IN STANDING WATER. DO NOT COMPACT. AVOID RUNNING EQUIPMENT ON COMPLETED BASIN BOTTOM.

OPTIONAL SOIL PLANTING MIX NOTES:

5. FINAL SOIL PLANTING MIXTURE COMPONENTS AND COMPOSITION SHALL BE DETERMINED BY PROJECT SOIL SCIENTIST BASED ON ON-SITE TEST MIXTURE PREPARATION AND INFILTRATION TESTING.
6. PROCURE, MIX, STORE, AND PLACE SOIL PLANTING MIX IN ACCORDANCE WITH POST CONSTRUCTION STORMWATER MANAGEMENT PLAN.
7. PROJECT GEOTECHNICAL ENGINEER MUST INSPECT AND TEST SOIL PLANTING MIX FOREIGN BORROW MATERIAL SOURCES PRIOR TO DELIVERY TO PROJECTION SITE. REVIEW MATERIAL CERTIFICATIONS (SAND), AND APPROVE COMPOST SOURCES. MATERIALS THAT HAVE NOT BEEN PRE-APPROVED BY PROJECT SOIL SCIENTIST SHALL BE REMOVED FROM SITE.
8. THE PROJECT SOIL SCIENTIST MUST INSPECT THE EXPOSED BASIN SUBGRADE AND PROVIDE MITIGATION RECOMMENDATIONS PRIOR TO PLACEMENT OF SOIL PLANTING MIX MIXTURE. SUCH RECOMMENDATIONS COULD INCLUDE FURTHER UNDERCUT TO REMOVE OBJECTIONABLE SUBGRADE MATERIAL SUCH AS CLAY, FURTHER UNDERCUT TO EXPOSE ROCK PLANE IF PROXIMATE TO FINAL BASIN SUBGRADE ELEVATION, AND SCARIFICATION OR CHISEL PLOWING OF BASIN SUBGRADE MATERIAL TO PROMOTE INFILTRATION.
9. THE PROJECT SOIL SCIENTIST SHALL BE PRESENT DURING SOIL PLANTING MIX MIXTURE PREPARATION AND PLACEMENT PROCESS TO PROVIDE QUALITY ASSURANCE AND CONTROL.
10. PLACE SOIL PLANTING MIX LOOSE IN 8" LIFTS ON BASIN SUBGRADE, STARTING AT LOWEST END OF BASIN. DO NOT PLACE SOIL PLANTING MIX IN STANDING WATER. DO NOT COMPACT. AVOID RUNNING EQUIPMENT ON COMPLETED BASIN BOTTOM.

PIPE SIZE	A (ADS N-12 PIPE)
4"	17.00"
6"	19.00"
8"	21.00"
10"	24.00"
12"	26.00"
15"	29.00"

MRC RAIN GARDEN WITH RISER OUTLET STRUCTURE & PERFORATED UNDERDRAIN



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07/01/26 BSP	DES. REVIEW COMMENTS
04/15/26 BSP	NPDES MAJOR MODIFICATION
DATE & INITIALS	REVISION DESCRIPTION

50' 0' 50' 0' 5'

VERTICAL

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

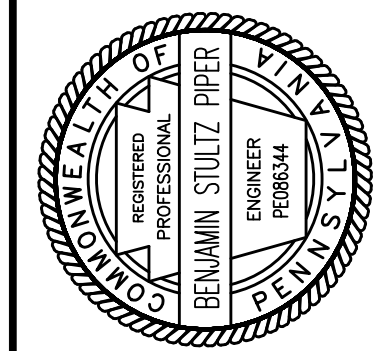
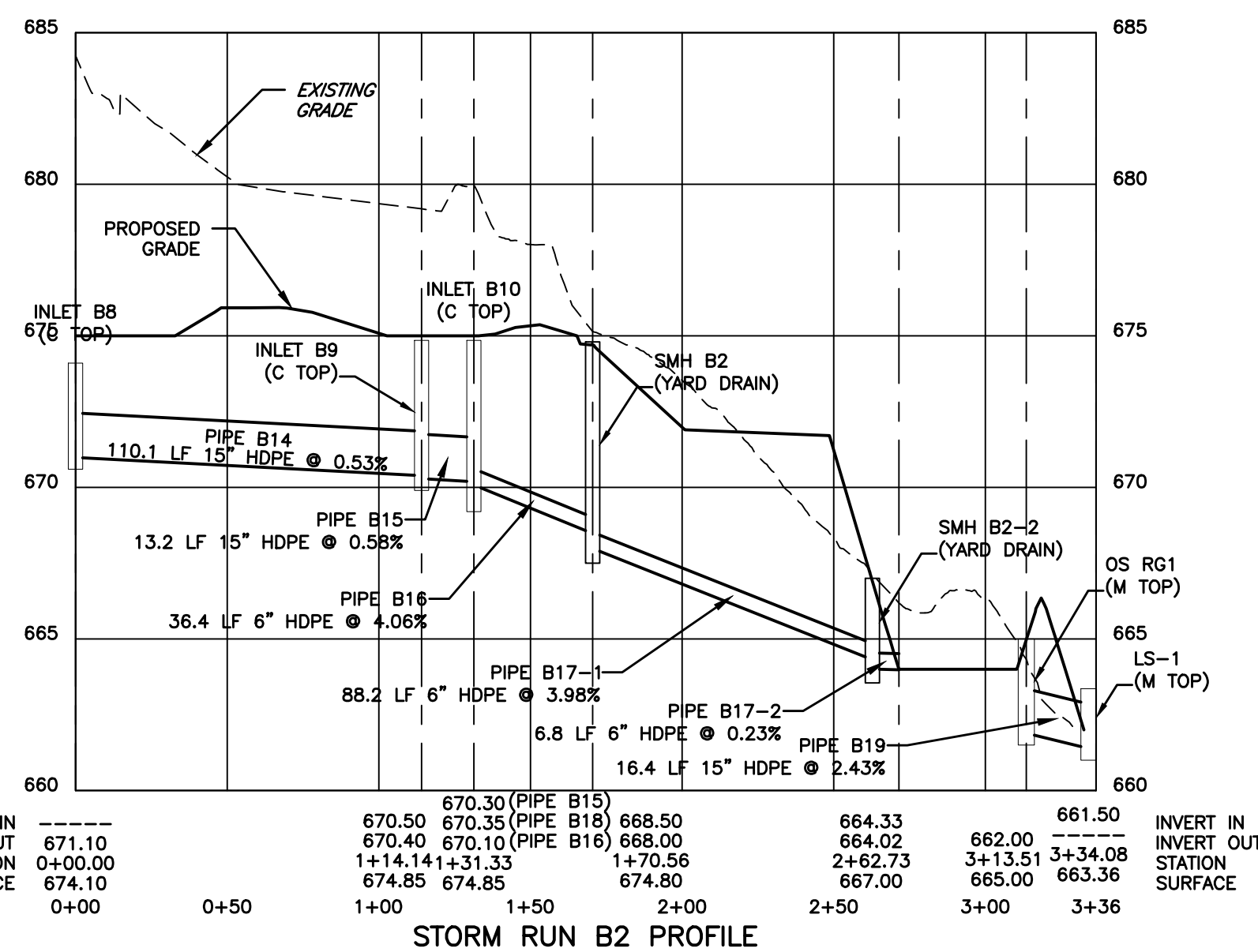
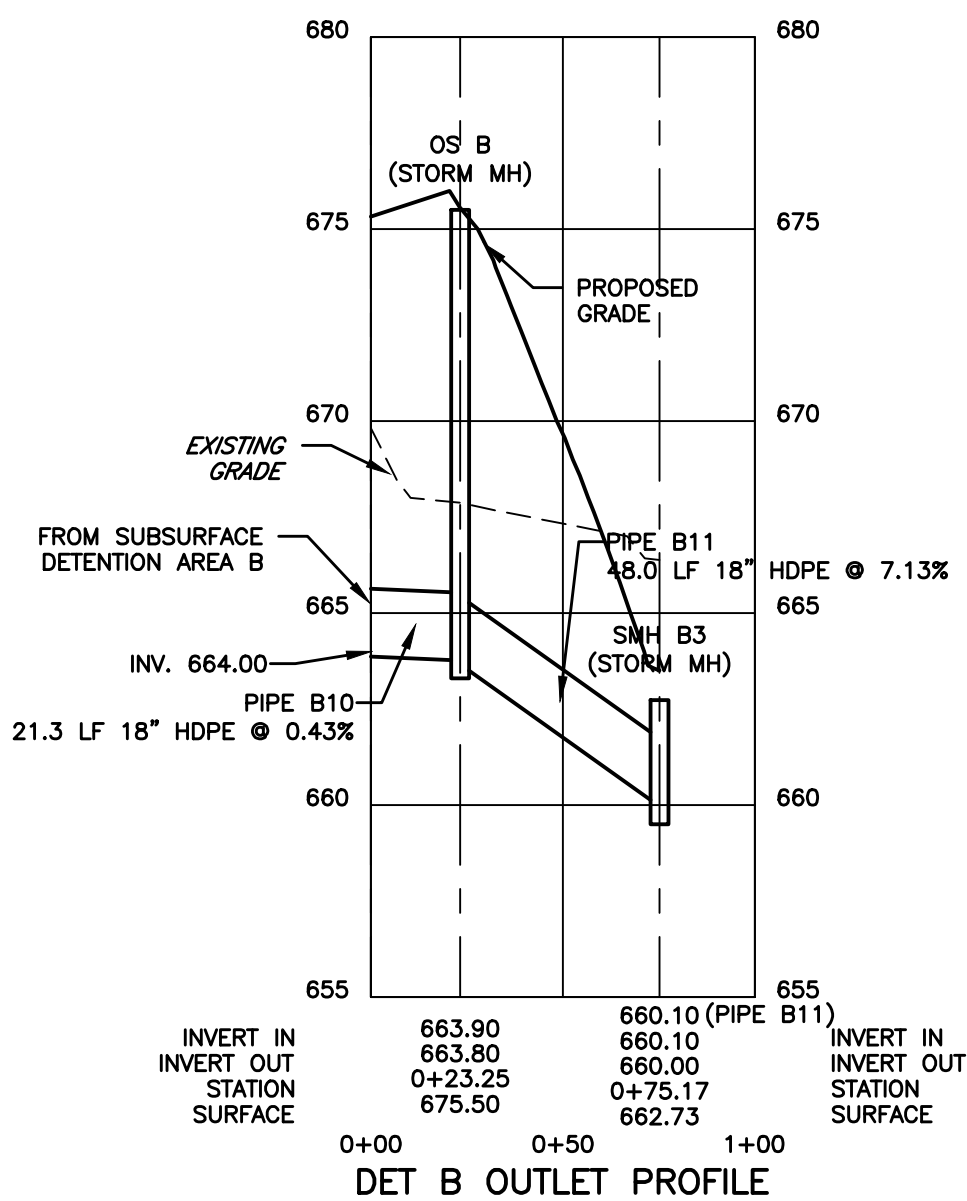
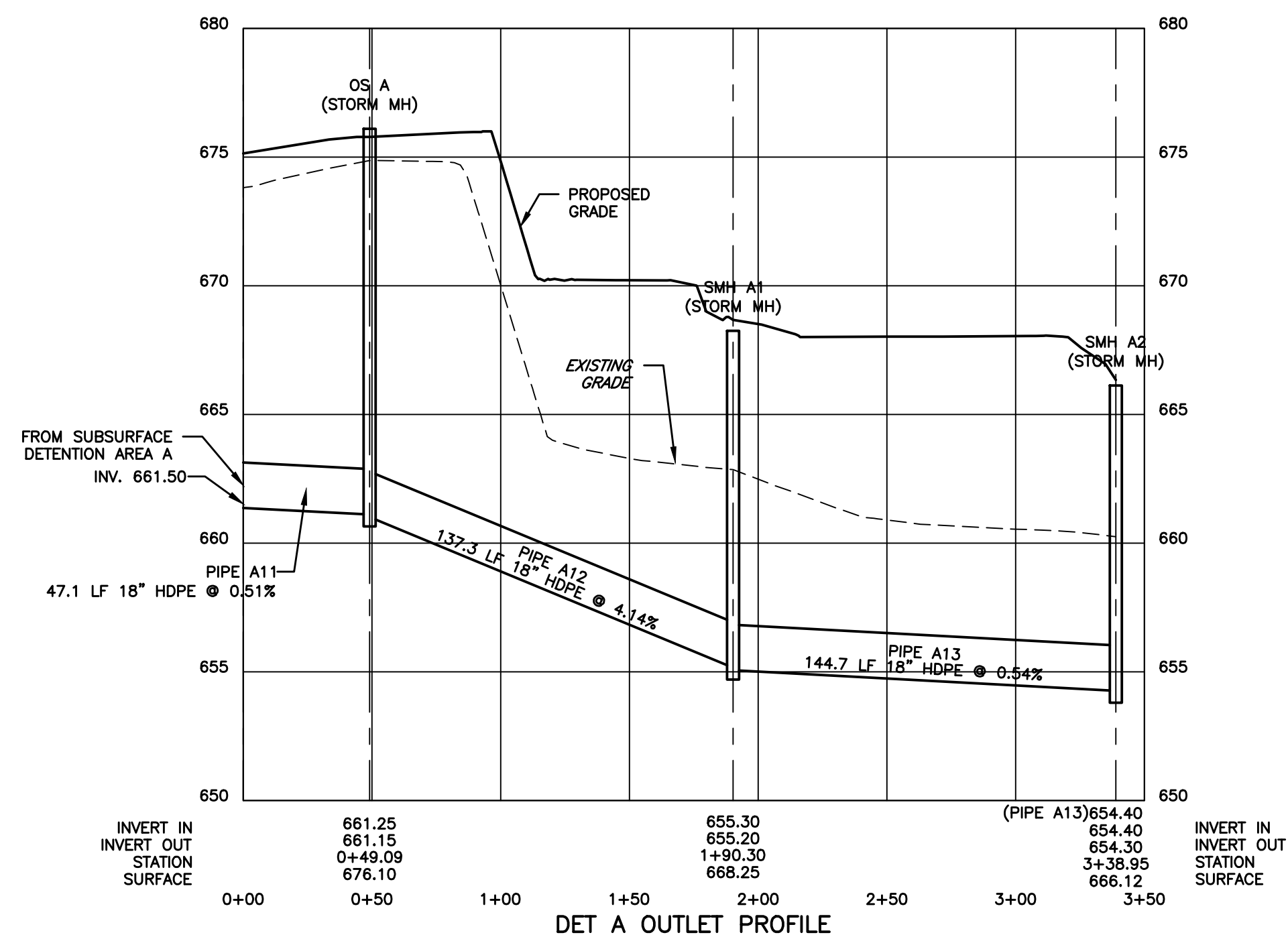
HUNTINGDON RUTTER'S STORE #93

SMITHFIELD TOWNSHIP, HUNTINGDON COUNTY, PENNSYLVANIA

PROJECT NO.: 3746-S
FILE NAME: PCSM4MVG
DATE: 6/6/24
DESIGNED BY: BSP
DRAWN BY: BSP
CHECKED BY: ---

PCSM4

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**POST CONSTRUCTION
STORMWATER MANAGEMENT PLAN**

HUNTINGDON RUTTER'S STORE #93

SMITHFIELD TOWNSHIP, HUNTINGDON COUNTY
PENNSYLVANIA

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PROJECT NO.:	3746-5
FILE NAME:	PCSWM.DWG
DATE:	6/6/24
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