

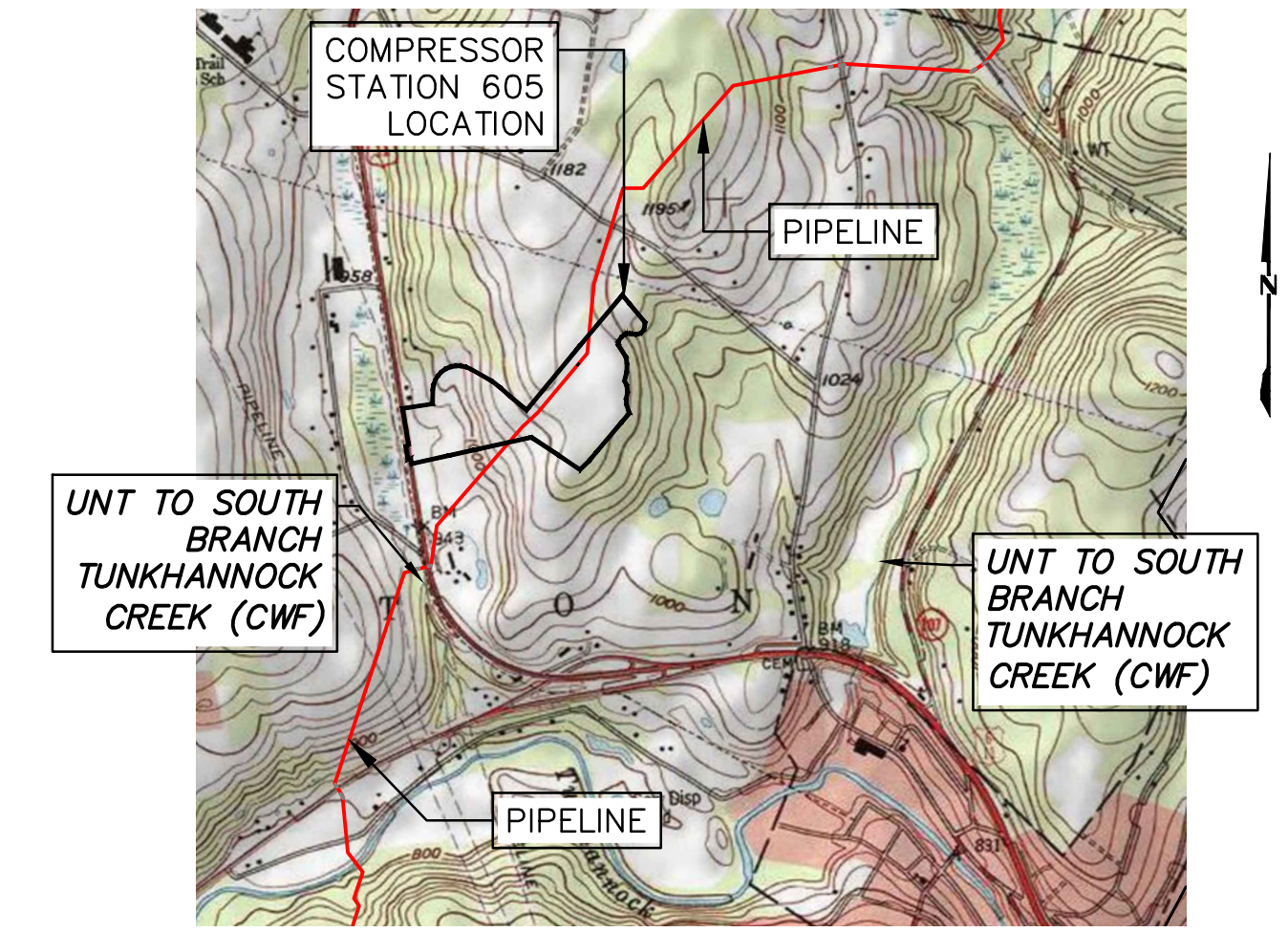
# ATLANTIC SUNRISE PROJECT PROPOSED 30" NATURAL GAS PIPELINE

## POST CONSTRUCTION STORMWATER MANAGEMENT PLANS FOR COMPRESSOR STATION 605

### PHASE 1

CLINTON TOWNSHIP  
WYOMING COUNTY

PENNSYLVANIA



USGS FACTORYVILLE QUADRANGLE

VICINITY MAP

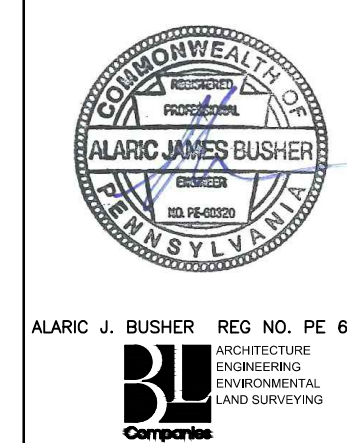
SCALE: 1"=2,000'

FACILITY NAME & TYPE	DRAWING NO.	SHEET NO.	DRAWING NAME
CS-605 COMPRESSOR STATION	(66-0605)F-1A-9	1 of 10	COVER SHEET
	(66-0605)F-1A-9	2 of 10	POST CONSTRUCTION STORMWATER MANAGEMENT OVERALL PLAN
	(66-0605)F-1A-9	3 of 10	SENSITIVE RESOURCES MAP
	(66-0605)F-1A-9	4 of 10	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
	(66-0605)F-1A-9	5 of 10	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
	(66-0605)F-1A-9	6 of 10	PCSM NOTES AND DETAILS
	(66-0605)F-1A-9	7 of 10	PCSM NOTES AND DETAILS
	(66-0605)F-1A-9	8 of 10	PCSM NOTES AND DETAILS
	(66-0605)F-1A-9	9 of 10	PCSM NOTES AND DETAILS
	(66-0605)F-1A-9	10 of 10	INFILTRATION BASIN 1 INSET



PENNSYLVANIA ACT 287 (1974)  
AS AMENDED BY PENNSYLVANIA  
ACT 199 (2004) REQUIRES NO  
LESS THAN THREE (3) WORKING  
DAYS AND NO MORE THAN (10)  
WORKING DAYS NOTICE TO  
UTILITIES BEFORE YOU EXCAVATE,  
DRILL, BLAST OR DEMOLISH.

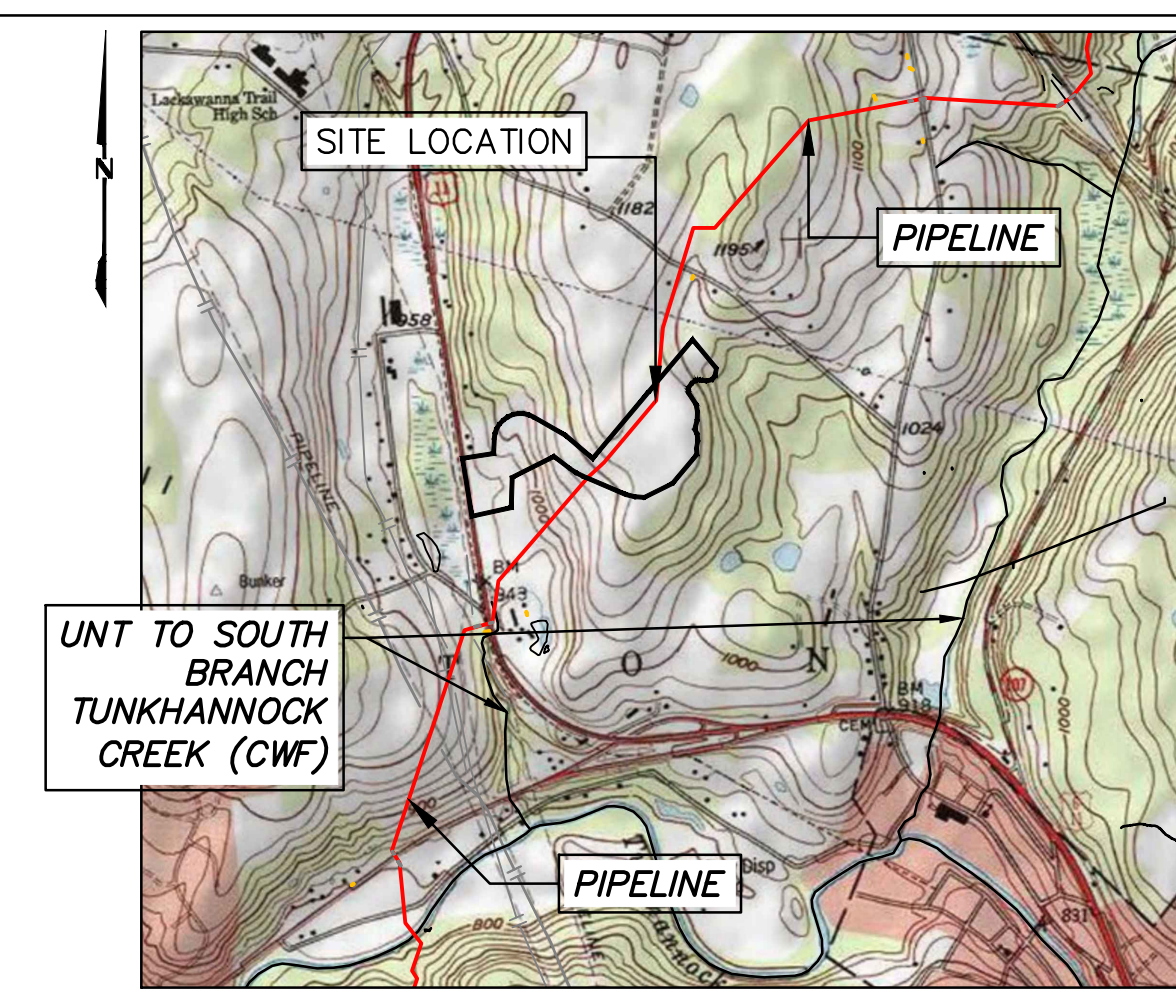
**ENGINEER OF RECORD**  
BL COMPANIES  
4242 CARLISLE PIKE, SUITE 260  
CAMP HILL, PA 17011  
P:717-651-9850  
F:717-651-9858



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/26/2015	BL	ISSUED FOR PADEP SUBMITTAL	W01161497	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W01161497	DAK	AJB
2	05/27/2016	BL	UPDATED PER BASIC SYSTEMS DESIGN COORDINATION	W01161497	AJB	AJB
3	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W01161497	AJB	AJB
4	April 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W01161497	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE			
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS			
FOR COMPRESSOR STATION 605			
CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA			
COVER SHEET			
DRAWN BY:	JEC	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
APPROVED BY:	AJB	DATE:	07/17/15
W.O. NUMBER:	1161497	DRAWING NUMBER:	(66-0605)F-1A-9
SCALE:	AS NOTED	REVISION:	4
SHEET:	1	OF:	10





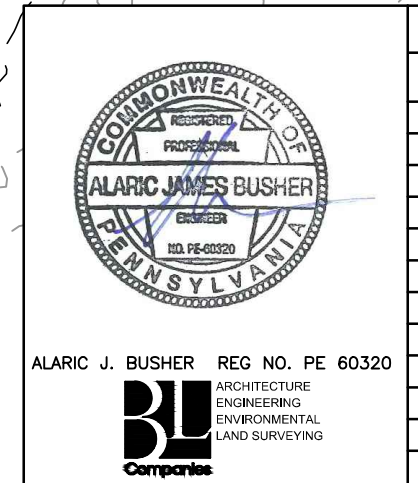
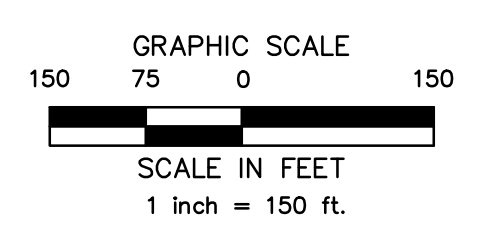
**SITE SOIL TYPES**

MrB	MORRIS CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
MrC	MORRIS CHANNERY SILT LOAM, 8 TO 18 PERCENT SLOPES
MxB	MORRIS FLAGGY LOAM, 3 TO 8 PERCENT SLOPES
MsC	MORRIS FLAGGY LOAM, 8 TO 15 PERCENT SLOPES
NcB	NORWICH AND CHIPPEWA CHANNERY SILT LOAMS, 3 TO 8 PERCENT SLOPES
OcC	OQUAGA CHANNERY LOAM, 8 TO 15 PERCENT SLOPES
OcD	OQUAGA CHANNERY LOAM, 15 TO 25 PERCENT SLOPES
OxB	OQUAGA FLAGGY LOAM, 3 TO 8 PERCENT SLOPES
WcC	WELLSBORO CHANNERY LOAM, 8 TO 15 PERCENT SLOPES
WcD	WELLSBORO CHANNERY LOAM, 15 TO 25 PERCENT SLOPES

**PROPOSED FEATURES**

	MAJOR CONTOUR (10' INTERVAL)
	MINOR CONTOUR (2' INTERVAL)
	LIMIT OF DISTURBANCE
	LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
	ESCGP-2 PERMIT BOUNDARY
	ORANGE CONSTRUCTION FENCE
	CENTERLINE GAS PIPELINE
	ROCK OUTLET/RIPRAP APRON
	GRAVEL COVER
	ACCESS ROAD
	BUILDING
	FUTURE BUILDING
	LIMIT OF FLOODWAY/FLOODPLAIN LINE

Drawn By & Date/Time: Jfjones Apr 28, 2017 - 9:33am  
 Drawing Location & Name: G:\J08514\14C\14C4909.DWG 010-CPLN\FCS\_PCSM14C4909(10).605.dwg



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
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1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161497	DAK	AJB
2	05/27/2016	BL	UPDATED PER BASIC SYSTEMS DESIGN COORDINATION	W0161497	DAK	AJB
3	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161497	AJB	AJB
4	April 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W0161497	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
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POST CONSTRUCTION STORMWATER MANAGEMENT PLANS			
FOR COMPRESSOR STATION 605			
CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA			
POST CONSTRUCTION STORMWATER MANAGEMENT OVERALL PLAN			
DRAWN BY:	AJB	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
APPROVED BY:	AJB	DATE:	07/17/15
W.O.:	1161497	DRAWING NUMBER:	(66-0605)F-1A-9
SCALE:	AS NOTED	REVISION:	4
			SHEET 2 OF 10



Drawn By & Date/Time: Jfjones Apr 28, 2017 - 9:34am  
 Drawing Location & Name: G:\J051\14C\14C4909\DWG\010-CPLN\FCS\_PCSM14C4909(10)\_605.dwg



### LEGEND

**EXISTING FEATURES**

- PROPERTY BOUNDARY LINE (APPROXIMATE)
- MAJOR CONTOUR (10' INTERVAL)
- MINOR CONTOUR (2' INTERVAL)
- FENCE
- STONE ROW
- SOIL BOUNDARY
- TREELINE
- CENTERLINE STREAM/EDGE WATERBODY
- DELINEATED WETLANDS
- SPOT ELEVATION
- TREE OR BUSH
- UTILITY POLE AND UTILITY LINE
- GUY POLE
- GUY POLE OR ANCHOR
- POST
- SIGN
- WATER WELL
- UTILITY BOX
- MONUMENT (PROPERTY BOUNDARY MARKER)
- IRON PIPE OR PIN (PROPERTY BOUNDARY MARKER)
- SOIL TYPE DESIGNATION
- ESCGP-2 PERMIT BOUNDARY
- LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- LIMIT OF DISTURBANCE (COMPRESSOR STATION 605)
- EXISTING ROAD
- ROW
- LIMIT OF FLOODWAY/FLOODPLAIN LINE

### LEGEND

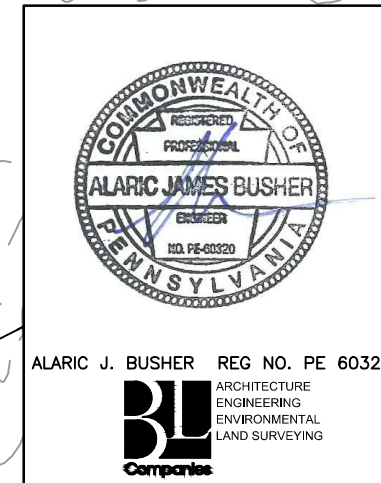
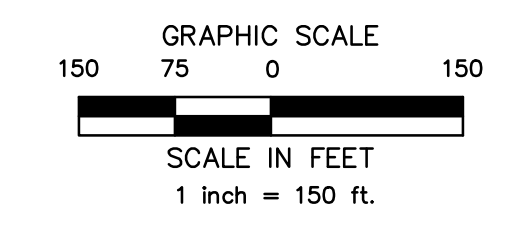
- WOODLANDS AREA
- SLOPES 15% - 25%
- SLOPES OVER 25%
- WETLANDS

### SENSITIVE NATURAL RESOURCES TABLE

EXISTING NATURAL SENSITIVE RESOURCE	MAPPED? YES/NO/N/A	TOTAL AREA (AC.)	PROTECTED AREA (AC.)
WATERBODIES	N/A	0.00	0.00
FLOODPLAINS	YES	0.04	0.00*
RIPARIAN AREAS	N/A	0.00	0.00
WETLANDS	YES	1.39	0.00*
WOODLANDS	YES	2.32	0.00
NATURAL DRAINAGE WAYS	YES	0.00	0.00
STEEP SLOPES, 15%-25%	YES	5.34	0.00
STEEP SLOPES, OVER 25%	YES	0.59	0.00
OTHER:			
TOTAL EXISTING:		9.76	0.00

\*AREAS ARE OUTSIDE OF STORMWATER STUDY LIMITS, SO NO PROTECTION CREDITS ARE CLAIMED FOR THESE RESOURCES.

SEE DEP STANDARD WORKSHEET 2 IN THE POST CONSTRUCTION STORMWATER MANAGEMENT COMPUTATIONS.



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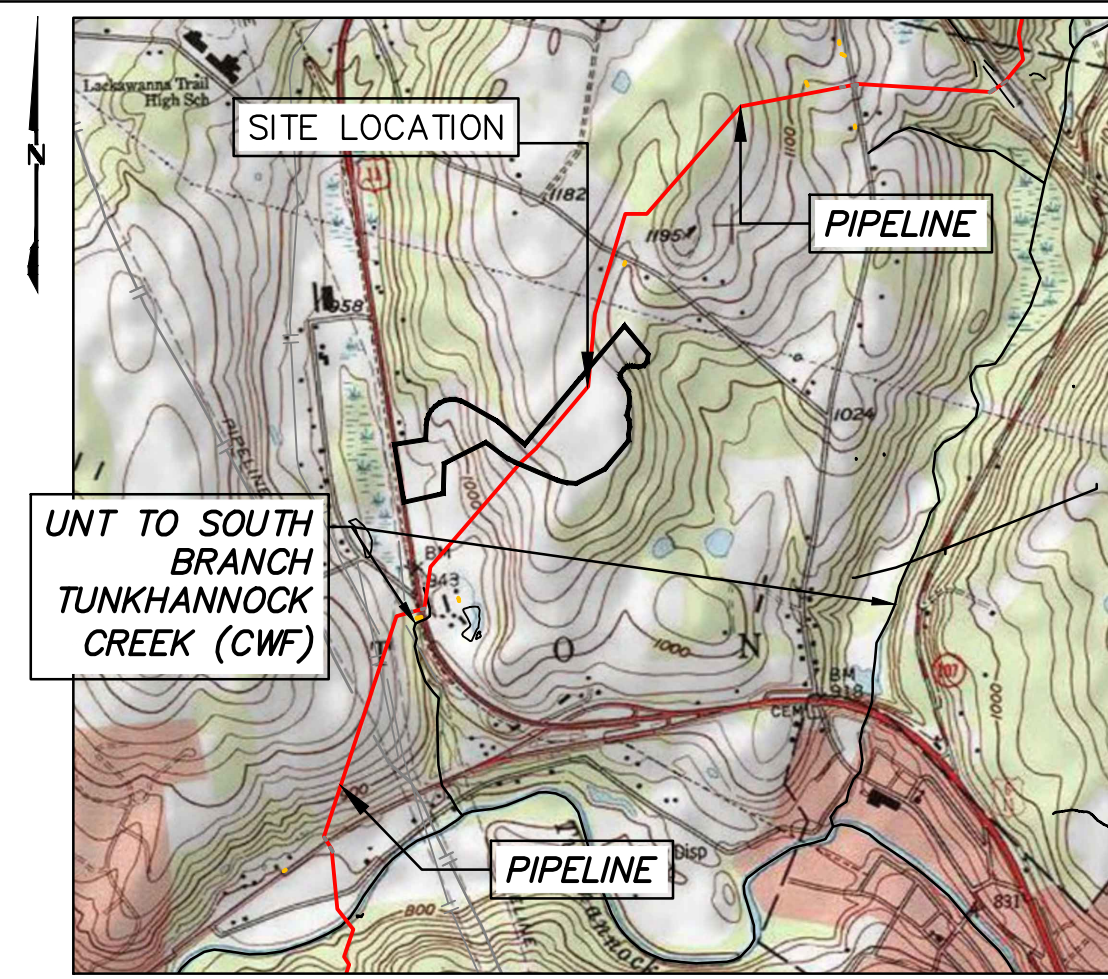
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
 ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE  
 POST CONSTRUCTION STORMWATER MANAGEMENT PLANS  
 FOR COMPRESSOR STATION 605  
 CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA  
 SENSITIVE RESOURCES MAP

**Williams**

DRAWN BY: ADE	DATE: 04/03/15	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: AJB	DATE: 04/03/15	ISSUED FOR CONSTRUCTION:	REVISION: 4
APPROVED BY: AJB	DATE: 07/17/15	DRAWING NUMBER:	(66-0605)F-1A-9
NO: 1161497			SHEET 3 OF 10

**LANDSCAPE SCHEDULE**

Symbol	Quant	Botanical Name	Common Name	Caliper	Height	Spread	Root	Notes
SHRUBS								
CS	8	Cornus serica	Redosier Dogwood 'Winter Flame'	0	18-24"	18-24"	3 gal	Full
IV	11	Ilex verticillata	Common Winterberry	0	24-30"	18-24"	5 gal	Full plant to base



**LOCATION MAP**

USGS FACTORYVILLE QUADRANGLE  
SCALE: 1"=2,000'

**SITE SOIL TYPES**

MrB	MORRIS CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
MrC	MORRIS CHANNERY SILT LOAM, 8 TO 18 PERCENT SLOPES
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OcD	OQUAGA CHANNERY LOAM, 15 TO 25 PERCENT SLOPES
OtB	OQUAGA FLAGGY LOAM, 3 TO 8 PERCENT SLOPES
WcC	WELLSBORO CHANNERY LOAM, 8 TO 15 PERCENT SLOPES
WcD	WELLSBORO CHANNERY LOAM, 15 TO 25 PERCENT SLOPES

**ESCGP-2 PERMIT TABLE**

LIMIT OF PERMIT BOUNDARY/SITE AREA	50.68
LIMIT OF DISTURBANCE	50.55
AREA OF PROTECTED/ SENSITIVE VALUE FEATURES	0.00
AREA OF RIPARIAN FOREST BUFFER PROTECTION	0.00
AREA OF MINIMUM DISTURBANCE/REDUCED GRADING	0.00
IMPERVIOUS AREA (ACCESS ROADS & PAD)	9.80
DEVELOPED AREA CONTROLLED BY BMPS	20.78

**PROPOSED FEATURES**

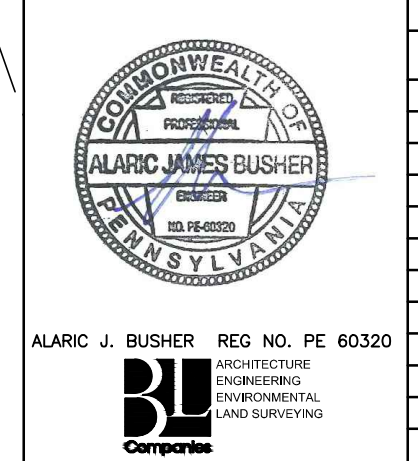
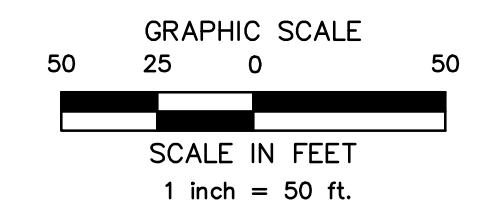
- 10' — MAJOR CONTOUR (10' INTERVAL)
- 2' — MINOR CONTOUR (2' INTERVAL)
- 1' — MINOR CONTOUR (1' INTERVAL)
- LOD — LIMIT OF DISTURBANCE (COMPRESSOR STATION 605)
- — — — — LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
- ESCGP2 — ESCGP-2 PERMIT BOUNDARY
- x — x — x — x — ORANGE CONSTRUCTION FENCE
- — — — — CENTERLINE GAS PIPELINE
- ▨ SWALE LINING
- ▨ EROSION CONTROL BLANKET
- ▨ ROCK OUTLET/RIPRAP APRON
- ⊠ TEST PIT LOCATION
- INFILTRATION TEST LOCATION
- ▨ ACCESS ROAD/STREET SWEEPING AREA
- ▨ TRM LINING
- ▨ CLAY CORE LIMITS



MATCH LINE: SEE SHEET NO. 5

**RECEIVING WATERCOURSE - CHAPTER 93 DESIGNATION**

THE RECEIVING WATERCOURSE FOR DRAINAGE AREAS A AND B IS AN UNNAMED TRIBUTARY TO SOUTH BRANCH TUNKHANNOCK CREEK, CWF. APPROXIMATE DISTANCE FROM SITE: ±200 FT (WEST)  
THE RECEIVING WATERCOURSE FOR DRAINAGE AREA C IS AN UNNAMED TRIBUTARY TO SOUTH BRANCH TUNKHANNOCK CREEK, CWF. APPROXIMATE DISTANCE FROM SITE: ±2000 FT (EAST)



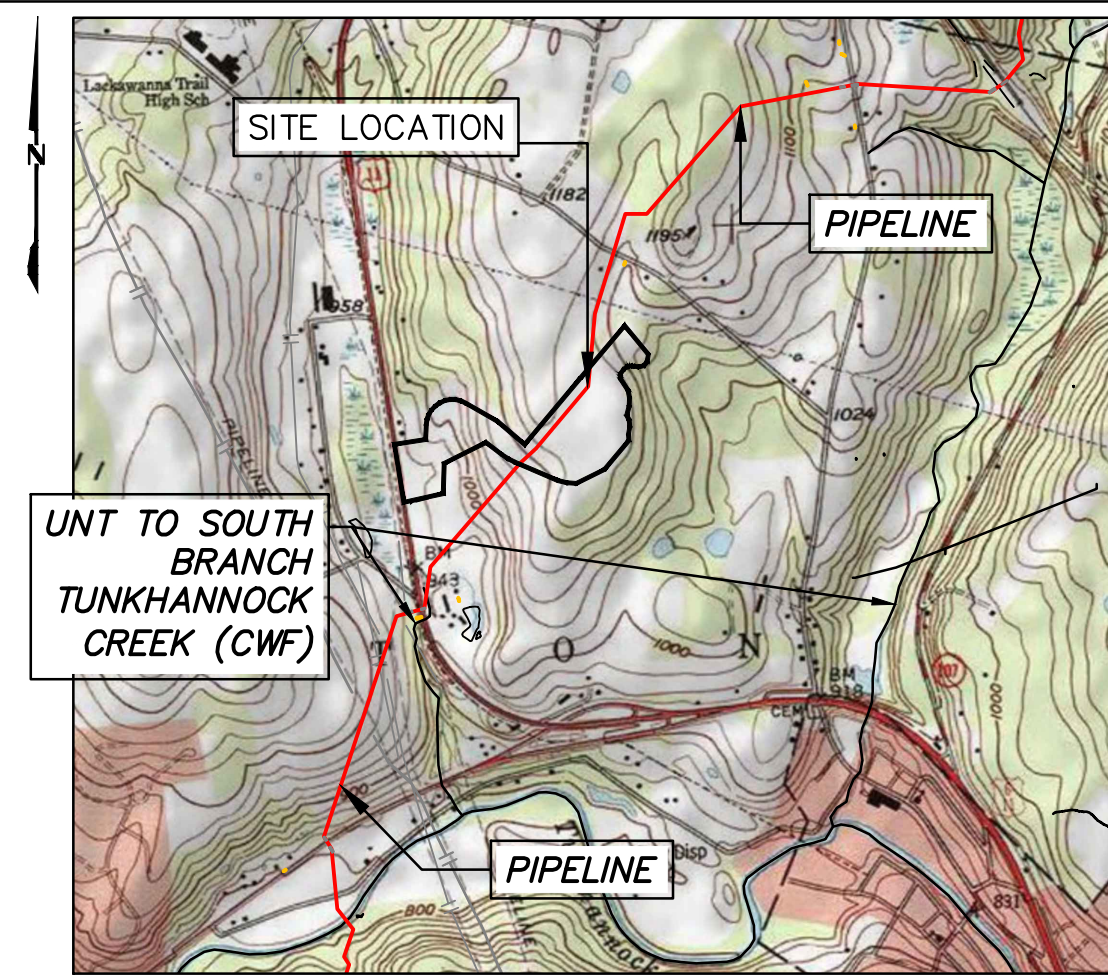
REVISIONS			
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FOR COMPRESSOR STATION 605			
CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA			
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN			
DRAWN BY:	ADE	DATE:	04/03/15
CHECKED BY:	AJB	DATE:	04/03/15
APPROVED BY:	AJB	DATE:	07/17/15
W.D. NO.:	1161497	APP.:	AJB
SCALE:	AS NOTED	REVISION:	4
DRAWING NUMBER:	(66-0605)F-1A-9	SHEET:	4
OF:	10		

Drawn By & Date/Time: Jfjones Apr 28, 2017 - 9:20am  
Drawing Location & Name: G:\0651\14C\14C4909\DWG\010-CPLN\FCS\_PCSM14C4909(10)\_605.dwg

**LANDSCAPE SCHEDULE**

Symbol	Quant	Botanical Name	Common Name	Caliper	Height	Spread	Root	Notes
CS	8	Cornus serica	Redosier Dogwood 'Winter Flame'	0	18-24"	18-24"	3 gal	Full
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**LOCATION MAP**

USGS FACTORYVILLE QUADRANGLE  
SCALE: 1"=2,000'

**SITE SOIL TYPES**

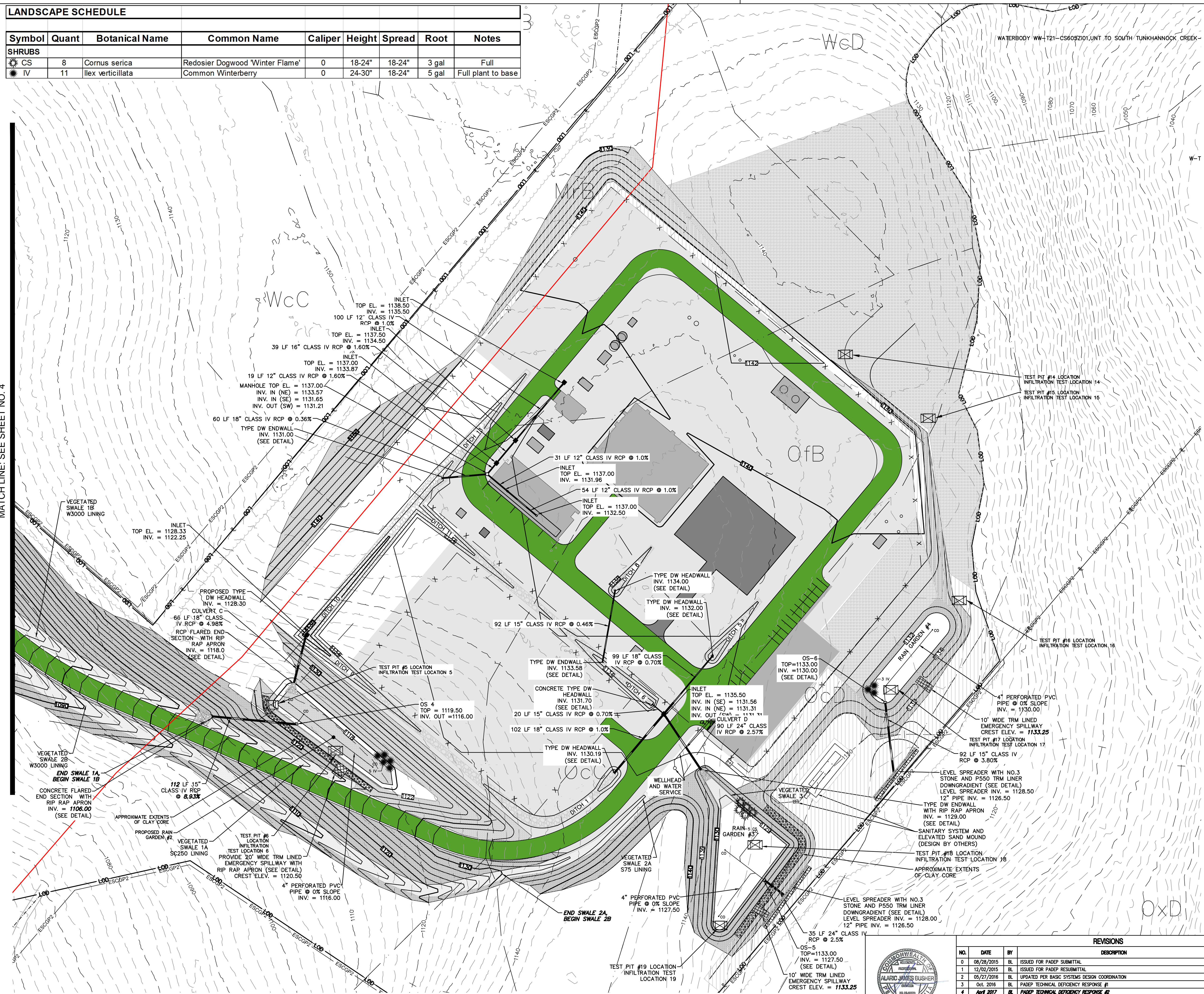
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**PROPOSED FEATURES**

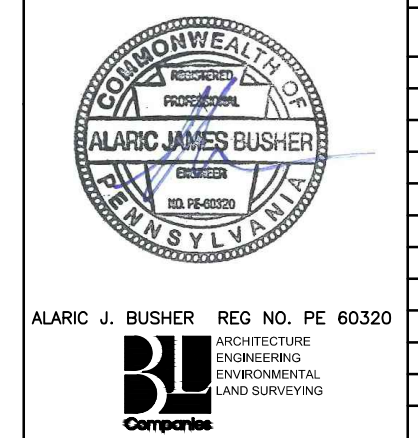
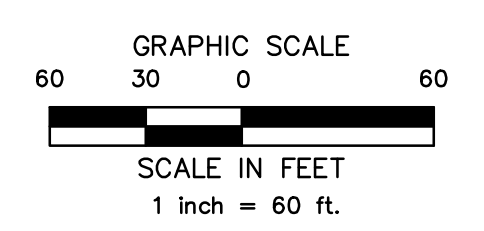
1450	MAJOR CONTOUR (10' INTERVAL)
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LOD	LIMIT OF DISTURBANCE (COMPRESSOR STATION 605)
---	LIMIT OF WORKSPACE (OVERALL PIPELINE PROJECT)
ESCGP2	ESCGP-2 PERMIT BOUNDARY
-x-x-x-x-	ORANGE CONSTRUCTION FENCE
-x-x-	CHAIN LINK FENCE
---	CENTERLINE GAS PIPELINE
---	SWALE LINING
---	EROSION CONTROL BLANKET
---	ROCK OUTLET/RIPRAP APRON
⊗	TEST PIT LOCATION
□	INFILTRATION TEST LOCATION
---	GRAVEL COVER
---	ACCESS ROAD/ STREET SWEEPING AREA
---	BUILDING / SIDEWALK
---	FUTURE BUILDING
---	TRM LINING
---	CLAY CORE LIMITS
---	SOIL AMENDMENT AREA
---	LANDSCAPE RESTORATION AREA

NOTE: OWNER/OPERATOR SHALL NOT PAVE GRAVEL AREAS WITHOUT APPROVAL FROM THE CONSERVATION DISTRICT OR PADEP, SO AS TO MAINTAIN REDUCED PARKING AREA IMPERVIOUSNESS.

MATCH LINE: SEE SHEET NO. 4



Drawn By & Date/Time: Jfjones Apr 28, 2017 - 9:23am  
Drawing Location & Name: G:\00514\14C\14C4909\DWG\010-CPLN\FCS\_PCSM14C4909(10)\_.605.dwg



REVISIONS			
NO.	DATE	BY	DESCRIPTION
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1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL
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APPROVED BY:	AJB	DATE:	07/17/15
W.D. NO.	1161497	APP.	AJB
ISSUED FOR:	ISSUED FOR CONSTRUCTION	SCALE:	AS NOTED
REVISION:	4	DRAWING NUMBER:	(66-0605)F-1A-9
W.D.:	1161497	SHEET:	5
		OF:	10



## PCSM STANDARD NOTES

**PERMIT TERMINATION**  
UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER § 102.22(A)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPs IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH §§ 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS), AND PCSM REQUIREMENTS, THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:  
(1) THE FACILITY NAME, ADDRESS AND LOCATION.  
(2) THE OPERATOR NAME AND ADDRESS.  
(3) THE PERMIT NUMBER.  
(4) THE REASON FOR PERMIT TERMINATION.  
(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs IN ACCORDANCE WITH § 102.8(M) AND PROOF OF COMPLIANCE WITH § 102.8(M)(2).

**PCSM REQUIREMENTS**  
PCSM REPORTING AND RECORD KEEPING: THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

**LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES:** A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ON-SITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPs, STRUCTURALLY ENGINEERED BMPs, OR OTHER BMPs AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

**FINAL CERTIFICATION:** THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:  
"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 P.A.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."

(1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.  
(2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs.

### PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPs ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OF ANY APPLICABLE LOCAL, STATE OR FEDERAL LAW, RULES AND REGULATIONS. THE PERMITTEE OR CO-PERMITTEE SHALL CONDUCT A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION WITHIN 30 DAYS.

THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs.

FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE NECESSARY ACCESS FOR LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPs AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUCCESSOR GRANTEE, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER § 102.7(B)(5) (RELATING TO PERMIT TERMINATION).

THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPs OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs LOCATED ON THE PROPERTY.

**CLEAN FILL IS DEFINED AS:** UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.)

**CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE:**

FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL AND MUST BE KEPT ON SITE AND MADE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. FAILURE TO PRODUCE THE FORM UPON REQUEST MAY RESULT IN THE REVOKING, SUSPENSION OR TERMINATION OF YOUR PERMIT COVERAGE. A COPY OF FORM FP-001 CAN BE FOUND AT THE END OF THESE INSTRUCTIONS.

**ENVIRONMENTAL DUE DILIGENCE:**  
INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.

## RECYCLING AND DISPOSAL OF MATERIALS

BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE § 102.8(V)(v). PROPER TRASH DISPOSAL, RECYCLING OF MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.

UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPs BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.

WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING: FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIME, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENT'S EMBRARY AT [WWW.DEWATER.STATE.PA.US](http://WWW.DEWATER.STATE.PA.US).

SILT, SEDIMENT, TRASH, CONSTRUCTION WASTES AND ALL OTHER WASTES GENERATED DURING OPERATION AND MAINTENANCE ACTIVITIES SHALL BE PROPERLY MANAGED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS. ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.

## RESPONSIBLE PARTY

OPERATION AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (APPLICANT).

## OPERATIONS AND MAINTENANCE PROGRAM PERMANENT STORMWATER FACILITIES

THE PERMIT APPLICANT SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PERMANENT STORMWATER FACILITIES LOCATED ON THE SUBJECT PROPERTIES. PERMANENT MAINTENANCE OF THE STORM SYSTEM AFTER ACCEPTANCE WILL PRIMARILY CONSIST OF ROUTINE CLEANING OF ACCUMULATED SEDIMENT AND DEBRIS BY FACILITY STAFF OR PRIVATE CONTRACTORS. THE SPECIFIC MAINTENANCE STEPS AND SCHEDULE ARE LISTED BELOW.

- VEGETATED SWALES**  
VEGETATED SWALES ARE TO BE INSPECTED ANNUALLY FOR SEDIMENT, BUILD-UP, EROSION DEBRIS, AND DAMAGE DUE TO TRAFFIC. DITCHES SHOULD BE MAINTAINED TO ENSURE THAT THE SPECIFIED DESIGN DIMENSIONS AND VEGETATIVE LINING ARE AVAILABLE AT ALL TIMES. NO MORE THAN ONE-THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 3 AND 6 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY. ANY LITTER, DEBRIS, SEDIMENT, VEGETATION, OR OTHER ITEMS REMOVED DURING MAINTENANCE ACTIVITIES WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE ESCOP-2 REQUIREMENTS.
- DETENTION/INFILTRATION BASIN**  
INSPECT DETENTION/INFILTRATION FACILITY ANNUALLY AND INSPECT SOIL, REPAIR ERODED AREAS AND REMOVE LITTER AND DEBRIS AS NEEDED. INSPECT TWICE A YEAR FOR SEDIMENT BUILDUP, EROSION AND VEGETATIVE CONDITIONS. REMOVE AND REPLACE DEAD AND DISEASED VEGETATION. ANY LITTER, DEBRIS, SEDIMENT, VEGETATION, OR OTHER ITEMS REMOVED DURING MAINTENANCE ACTIVITIES WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE ESCOP-2 REQUIREMENTS. COMPACTION OF THE BASIN BOTTOM SHALL BE PREVENTED. MONITOR WATER DRAW DOWN TIME IN INFILTRATION AREAS AND REPLACE ENGINEERED SOILS IF DEWATERING TIME INCREASES TO MORE THAN 3 HOURS. MAINTAIN INFILTRATION AREAS AS INDICATED ON THE POST CONSTRUCTION STORMWATER MANAGEMENT PLANS.
- STREET SWEEPING**  
VISUAL INSPECTION OF DRIVEWAYS AND PARKING AREAS FOR DEBRIS, SEDIMENT AND GENERAL DRAINAGE CONDITIONS. ONE OF THE INSPECTIONS MUST BE PERFORMED AFTER THE LAST SNOW MELTS (TYPICALLY IN APRIL). PERFORM STREET SWEEPING OF THESE AREAS AT THE TIME OF THE INSPECTIONS. IN WINTER, PERFORM SWEEPING IMMEDIATELY AFTER SNOW MELTS TO REMOVE ACCUMULATED SAND, GRIT AND DEBRIS FROM DRIVEWAYS AND TO REDUCE THE AMOUNT OF POLLUTANTS ENTERING SURFACE WATERS. ALL SWEEP MATERIAL SHALL BE TESTED PRIOR TO DISPOSAL TO DETERMINE IF IT IS HAZARDOUS. THE APPLICANT SHALL ADHERE TO ALL FEDERAL AND STATE REGULATIONS THAT APPLY TO THE DISPOSAL AND REUSE OF SWEEPINGS.
- SOIL AMENDMENT AND RESTORATION**  
A. RESTRICT VEHICLE ACCESS TO SOIL AMENDMENT AND RESTORATION AREAS.  
B. INSPECT AND MAINTAIN SOIL AMENDMENT AND RESTORATION AREAS.
- RAIN GARDEN**  
INSPECT RAIN GARDEN ANNUALLY AND INSPECT SOIL, REPAIR ERODED AREAS AND REMOVE LITTER AND DEBRIS AS NEEDED. INSPECT TWICE A YEAR FOR SEDIMENT BUILDUP, EROSION AND VEGETATIVE CONDITIONS. REMOVE AND REPLACE DEAD AND DISEASED VEGETATION. ANY LITTER, DEBRIS, SEDIMENT, VEGETATION, OR OTHER ITEMS REMOVED DURING MAINTENANCE ACTIVITIES WILL BE DISPOSED OF IN A MANNER CONSISTENT WITH THE ESCOP-2 REQUIREMENTS.
- REDUCE PARKING AREA IMPERVIOUSNESS**  
GRAVEL AREAS WILL BE MAINTAINED IN GOOD CONDITION AND WILL NOT BE PAVED WITHOUT OBTAINING PRIOR APPROVAL FROM THE DEP OR THE COUNTY CONSERVATION DISTRICT.
- REFER TO THE TABLES BELOW FOR THE OPERATION AND MAINTENANCE OF POST CONSTRUCTION BEST MANAGEMENT PRACTICES.**
- ANNUAL CERTIFICATION OF MAINTENANCE PROCEDURES**  
THE FACILITY SHALL MAINTAIN A CHECKLIST WHENEVER THE STORM SYSTEM IS INSPECTED AND CLEANED. AN ANNUAL LIST OF INSPECTIONS AND MAJOR CLEANING OPERATIONS AND REPAIRS (PUMPING, SWEEPING PARKING LOTS, CLEANING CATCH BASIN SUMPS ETC.) SHALL BE MAINTAINED. THE LOCAL CDD OR ENFORCEMENT OFFICIALS SHALL HAVE ACCESS TO THOSE RECORDS.
- ESCOP2 COMPLIANCE WITH ESCOP-2 REQUIREMENTS AND RECORD KEEPING FOR PERMANENT STORMWATER DISCHARGE AND MAINTENANCE AND OTHER APPLICABLE ESCOP-2 AND DEP REQUIREMENTS REGARDING DISCHARGES.**
- LANDSCAPE RESTORATION**  
A. AREA OF LANDSCAPE RESTORATION SHALL BE MAINTAINED WITH SEASONAL MOWING AND RESEED AREAS THAT NEED REESTABLISHED.  
B. FIRST YEAR CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES.  
C. THIRD YEAR MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL.

### VEGETATED SWALES

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNDESIRABLE ESTABLISHMENT. RESEED BARE AREAS; ROTOTILL OR CULTIVATE THE SURFACE OF THE SAND/SOIL BED OF DRY SWALES IF THE SWALE DOES NOT DRAW DOWN WITHIN 48 HOURS. WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDES WHEN NECESSARY. REMOVE SEDIMENT BUILD-UP WITHIN THE BOTTOM OF THE SWALE ONCE IT HAS ACCUMULATED TO 25% OF THE ORIGINAL DESIGN VOLUME, OR ONCE IT HAS COVERED VEGETATION.	AS NEEDED	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES. & CORRECT. MOW AND TRIM VEGETATION TO ENSURE SAFETY. PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS-SECTION & LONGITUDINAL SLOPE. CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE. CORRECT AS NEEDED. IF DRAWDOWN TIMES EXCEED 72 HOURS, INITIATE CORRECTIVE ACTIONS.	ANNUAL	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES. & CORRECT. MOW AND TRIM VEGETATION TO ENSURE SAFETY. PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS-SECTION & LONGITUDINAL SLOPE. CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED.	ANNUAL	
INSPECT SWALE IMMEDIATELY AFTER SPRING MELT. REMOVE RESIDUALS AND REPLACE DAMAGED VEGETATION. IF ROADSIDE OR PARKING LOT, RUNOFF IS DIRECTED TO THE SWALE, MULCHING &/OR SOIL AERATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE & MOISTURE CAPACITY & TO REDUCE THE IMPACT OF DEICING AGENTS. USE NONTOWING, ORGANIC DEICING AGENTS. PLANT SALT TOLERANT VEGETATION IN SWALES.	ANNUAL - SPRING	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT OUTLET CONTROL DEVICES AFTER EVERY MAJOR RAINFALL EVENT (>1 IN.) TO ENSURE FREE FLOW.	AS NEEDED	
INSPECT SOIL & REPAIR ERODED AREAS, REMOVE LITTER AND DEBRIS	AS NEEDED	
ENSURE THAT INFILTRATION REPLACES DEWATER BETWEEN STORMS. REPLACE ENGINEERED DEWATERING TIME INCREASES TO MORE THAN THREE DAYS.	ANNUAL	
INSPECT FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, REMOVE & REPLACE DEAD & DISEASED VEGETATION.	TWICE PER YEAR	

### STREET SWEEPING

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
VISUAL INSPECTION OF DRIVEWAYS AND PARKING AREAS FOR DEBRIS, SEDIMENT AND GENERAL DRAINAGE CONDITIONS. ONE OF THE INSPECTIONS MUST BE PERFORMED AFTER THE LAST SNOW MELTS (TYPICALLY IN APRIL). PERFORM STREET SWEEPING OF THESE AREAS AT THE TIME OF THE INSPECTIONS.	MONTHLY	

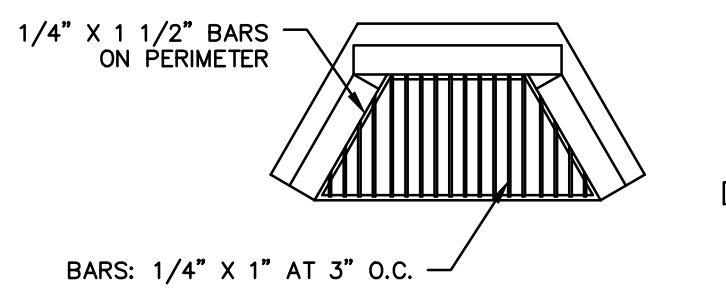
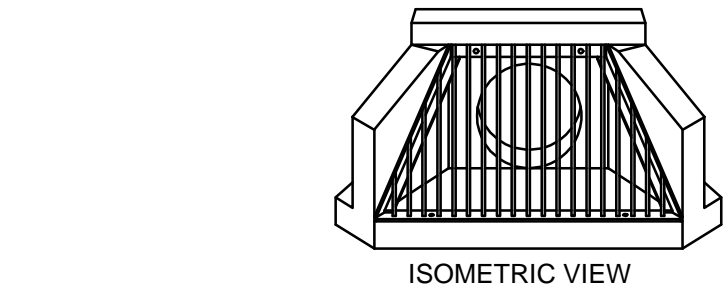
OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
IN WINTER, PERFORM SWEEPING IMMEDIATELY AFTER SNOW MELT TO REMOVE ACCUMULATED SAND, GRIT AND DEBRIS FROM PAVEMENT AREAS AND TO REDUCE THE AMOUNT OF POLLUTANTS ENTERING SURFACE WATERS.	AFTER EACH SNOW MELT	

### INFILTRATION BASIN

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES. & CORRECT. MOW AND TRIM VEGETATION TO ENSURE SAFETY. PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS-SECTION & LONGITUDINAL SLOPE. CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE. CORRECT AS NEEDED. IF DRAWDOWN TIMES EXCEED 72 HOURS, INITIATE CORRECTIVE ACTIONS.	ANNUAL	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT OUTLET CONTROL DEVICES AFTER EVERY MAJOR RAINFALL EVENT (>1 IN.) TO ENSURE FREE FLOW.	AS NEEDED	
INSPECT SOIL & REPAIR ERODED AREAS, REMOVE LITTER AND DEBRIS	AS NEEDED	
ENSURE THAT INFILTRATION REPLACES DEWATER BETWEEN STORMS. REPLACE ENGINEERED DEWATERING TIME INCREASES TO MORE THAN THREE DAYS.	ANNUAL	
INSPECT FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, REMOVE & REPLACE DEAD & DISEASED VEGETATION.	TWICE PER YEAR	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
GENERAL MAINTENANCE NOTES: 1. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED. 2. DURING PERIODS OF EXTENDED DROUGHT, BIORETENTION AREAS MAY REQUIRE WATERING.	SEASONAL	
CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES	FIRST YEAR	
MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL	THIRD YEAR	



- NOTES:
- TRASH RACK MATERIAL TO BE HOT DIPPED GALVANIZED STEEL.
  - ATTACH TRASH RACK TO HEADWALL WITH 3/8" DIA. S.S. ANCHOR BOLTS.
  - HINGED VERSION AVAILABLE.

## TYPE DW ENDWALL WITH TRASHRACK

N.T.S

## SOIL AMENDMENT & RESTORATION NOTES

- NOTES:**
- AMENDED SOIL MIX SHALL CONSIST OF 33% ORGANIC MATTER (COMPOST) AND 67% SOIL BASE (TOPSOIL) (2:1 SOIL TO COMPOST RATIO). SOIL SHALL HAVE A CLAY CONTENT OF LESS THAN 10% AND BE FREE OF TOXIC SUBSTANCES.
  - CONSTRUCT ONLY AFTER UPSTREAM AREAS HAVE BEEN STABILIZED OR DIVERT RUNOFF DURING CONSTRUCTION.
  - SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WITHIN THE DRIP LINE OF TREES OR TREE LINES.
  - SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE OVER UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE.
  - SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WHERE TRENCHING OR DRAINAGE LINES ARE INSTALLED.
  - SOILS AMENDMENT AND RESTORATION SHOULD NOT TAKE PLACE WHERE COMPACTION OF THE SOILS BY DESIGN IS REQUIRED.
  - THE METHODOLOGY SHOULD BE PERFORMED WHEN THE SOIL CONDITIONS ARE DRY.
  - ON-SITE SOILS WITH AN ORGANIC CONTENT OF AT LEAST 5% CAN BE PROPERLY STOCKPILED (TO MAINTAIN ORGANIC CONTENTS) AND REUSED.
  - PROCEDURE ROTOTILL, OR RIP THE SUBGRADE, REMOVE ROCKS, DISTRIBUTE THE COMPOST, SPREAD THE NUTRIENTS, ROTOTILL AGAIN.
  - ADD 6" COMPOST/AMENDMENT AND TILL UP TO 8" FOR MINOR COMPACTION.
  - ADD 10" COMPOST/AMENDMENT AND TILL UP TO 20" FOR MAJOR COMPACTION.
  - INSTALL PERMANENT SEED MIXTURE (MEADOW)

AMENDED SOIL PARAMETERS			
SOIL TEXTURE	IDEAL BULK DENSITIES g/cm <sup>3</sup>	BULK DENSITIES THAT MAY AFFECT ROOT GROWTH g/cm <sup>3</sup>	BULK DENSITIES THAT RESTRICT ROOT GROWTH g/cm <sup>3</sup>
SANDS, LOAMY SANDS	< 1.60	1.69	1.80
SANDY LOAMS, LOAMS	< 1.40	1.63	1.80
SANDY CLAY LOAMS, LOAMS, CLAY LOAMS	< 1.40	1.60	1.75
SILT, SILT LOAMS	< 1.30	1.60	1.75
SOIL LOAMS, SILTY CLAY LOAMS	< 1.10	1.55	1.65
SANDY CLAYS, SILTY CLAYS, SOME CLAY LOAMS (35-45% CLAY)	< 1.10	1.49	1.58
CLAYS (> 45% CLAY)	< 1.10	1.39	1.47

### RAIN GARDENS

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION. INSPECT GRASS ALONG SIDE SLOPES FOR EROSION, RILLS, OR GULLIES. & CORRECT. MOW AND TRIM VEGETATION TO ENSURE SAFETY. PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION. INSPECT FOR POOLS OF STANDING WATER; DEWATER & DISCHARGE TO AN APPROVED LOCATION, RESTORE TO DESIGN GRADE. INSPECT FOR UNIFORMITY IN CROSS-SECTION & LONGITUDINAL SLOPE. CORRECT AS NEEDED. INSPECT SWALE INLET AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE. CORRECT AS NEEDED. IF DRAWDOWN TIMES EXCEED 72 HOURS, INITIATE CORRECTIVE ACTIONS.	ANNUAL	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT OUTLET CONTROL DEVICES AFTER EVERY MAJOR RAINFALL EVENT (>1 IN.) TO ENSURE FREE FLOW.	AS NEEDED	
INSPECT SOIL & REPAIR ERODED AREAS, REMOVE LITTER AND DEBRIS	AS NEEDED	
INSPECT FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, REMOVE & REPLACE DEAD & DISEASED VEGETATION.	TWICE PER YEAR	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
GENERAL MAINTENANCE NOTES: 1. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED. 2. DURING PERIODS OF EXTENDED DROUGHT, BIORETENTION AREAS MAY REQUIRE WATERING.	SEASONAL	
CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES	FIRST YEAR	
MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL	THIRD YEAR	

### PARKING AREA IMPERVIOUSNESS

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND MAINTAIN GRAVEL AREAS	AS NEEDED	

### LANDSCAPE RESTORATION

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
MOW AND RESEED AREAS THAT NEED REESTABLISHED	SEASONAL	
CONTROL WEEDS BY MOWING BACK 4-6 INCHES TALL ONCE THE WEEDS REACH 12 INCHES	FIRST YEAR	
MOW MEADOW VERY CLOSE TO GROUND AND REMOVE MOW MATERIAL	THIRD YEAR	

### SOIL AMENDMENT & RESTORATION

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
RESTRICT VEHICLE ACCESS	AT ALL TIMES	

OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE
INSPECT AND MAINTAIN SOIL AMENDMENT & RESTORATION AREAS	AS NEEDED	

GENERAL MAINTENANCE NOTES:			
OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE	
INSPECT AND MAINTAIN SOIL AMENDMENT & RESTORATION AREAS	AS NEEDED		

GENERAL MAINTENANCE NOTES:			
OPERATION & MAINTENANCE PROCEDURES	ACTIVITY	SCHEDULE	
INSPECT AND MAINTAIN SOIL AMENDMENT & RESTORATION AREAS	AS NEEDED		

ALARIC J. BUSHER REG. NO. PE 60320

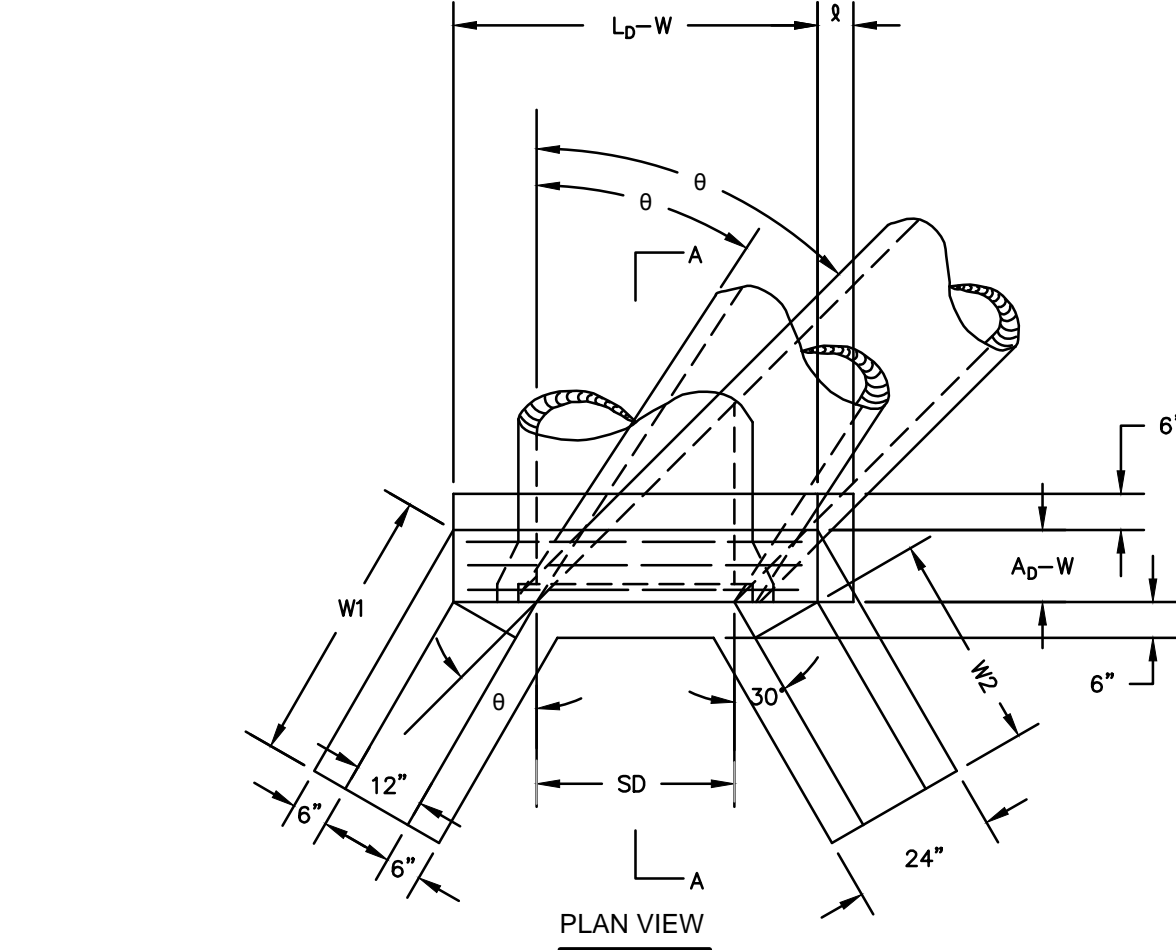
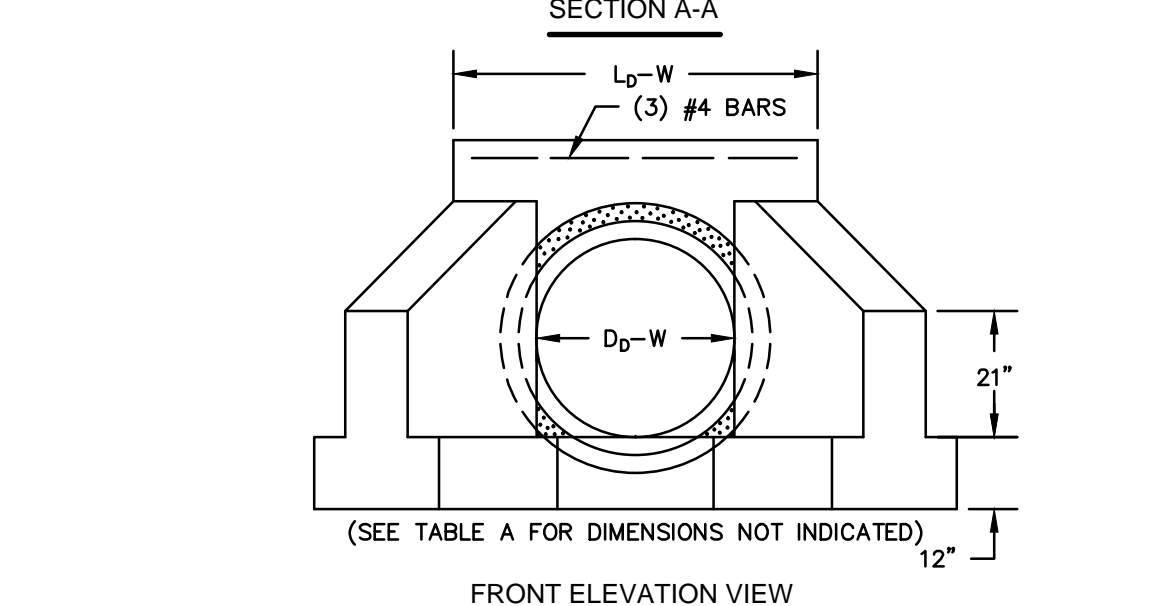


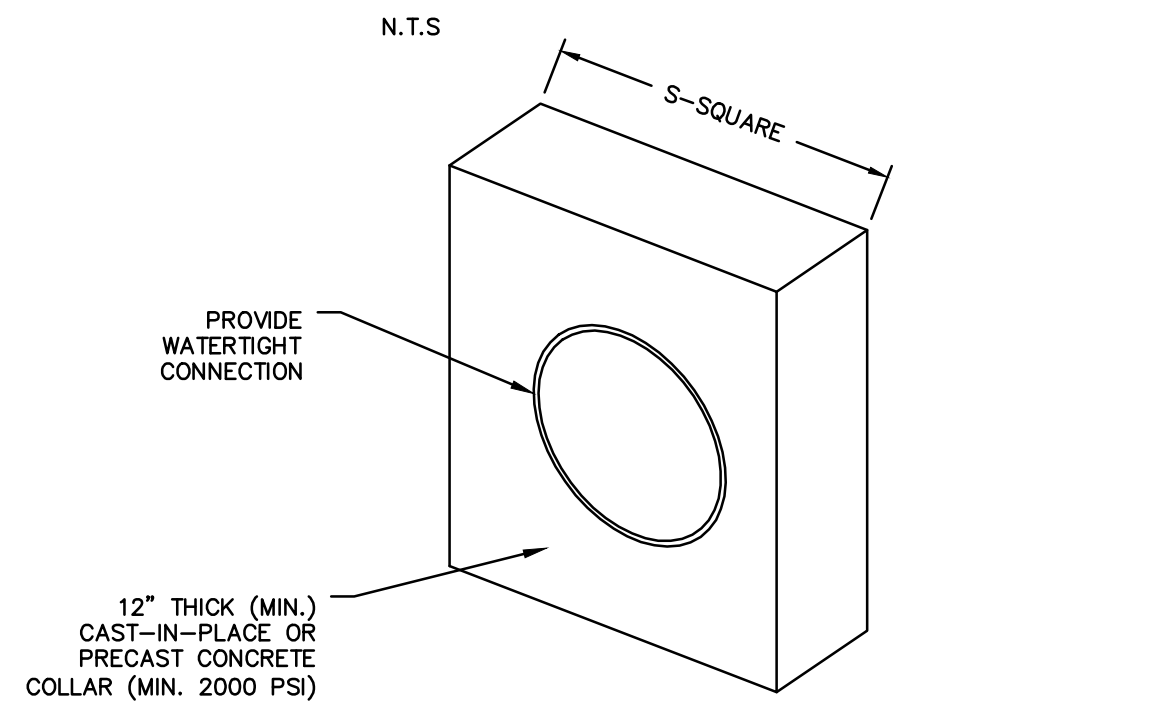
TABLE A			
PIPE DIAM	L	W	A
18"	4.0'	4.0'	12"
24"	4.6'	4.25'	12"
36"	5.8'	4.6'	12"
42"	6.4'	5.8'	12"
48"	6.9'	6.9'	12"
54"	7.5'	8.0'	12"
60"	8.1'	9.2'	12"
72"	9.2'	11.5'	15"

NOTES:  
-CONCRETE SHALL BE CLASS "AA"  
-EXPOSED EDGES SHALL BE CHAMFERED ONE (1) INCH



- NOTES:
- ALL ENDWALLS AND HEADWALLS SHALL HAVE A TRASH SCREEN (SEE DETAIL).

## TYPE DW ENDWALL



- ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT. COLLAR SIZE AND SPACING SHALL BE AS INDICATED BELOW.

BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	DISTANCE RISER TO 1ST COLLAR (FT)	COLLAR SPACING (FT)
BASIN 1	18	55	3	15	10
RAINGARDEN 1	12	32	2	15	10
RAINGARDEN 2					

RIP RAP GRADATION, FILTER BLANKET, MAXIMUM VELOCITIES

Riprap Gradation, Filter Blanket Requirements, Maximum Velocities Percent Passing (Square Openings)						
Class, Size NO. Rock Size (Inches)	R-8	R-7	R-6	R-5	R-4	R-3
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15				100	
12		0-15	15-50			
9			15-50		100	
6			0-15	15-50		
4				0-15	15-50	
3					0-15	15-50
2						0-15
Nominal Placement Thickness (inches)	63	45	36	27	18	9
Filter Stone V <sub>max</sub> (ft/sec)	AASHTO #1 17.0	AASHTO #1 14.5	AASHTO #1 13.0	AASHTO #3 11.5	AASHTO #3 9.0	AASHTO #57 6.5

Adapted from PennDOT Pub. 406, Section 703.2(c), Table C

ADAPTED FROM PENNDOT PUB. 406, SECTION 703.2 (C), TABLE C.

1. THIS IS A GENERAL STANDARD. SOIL CONDITIONS AT EACH SITE SHOULD BE ANALYZED TO DETERMINE ACTUAL FILTER SIZE. A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT, USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, MAY BE SUBSTITUTED FOR THE FILTER STONE FOR GRADIENTS < 10%.

LIMING AND FERTILIZER RATES

Soil Amendment	Permanent Seeding Application Rate			Notes
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	
Agricultural lime	6 tons	240 lb.	2,480 lb.	Or as per soil test; may not be required in agricultural fields
10-10-20 fertilizer	1,000 lb.	25 lb.	210 lb.	Or as per soil test; may not be required in agricultural fields
Temporary Seeding Application Rate				
Agricultural lime	1 ton	40 lb.	410 lb.	Typically not required for topsoil stockpiles
10-10-10 fertilizer	500 lb.	12.5 lb.	100 lb.	Typically not required for topsoil stockpiles

PA DEP TABLE 11.2

1 NO LIME AND/OR FERTILIZER MAY BE APPLIED IN WETLANDS.

SLOPE SEED MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Big Bluestem	Andropogon gerardii	2.0	6.0	10
Little Bluestem	Schizachyrium scoparium	1.0	6.0	10
Switchgrass	Panicum virgatum	1.3	12.0	20
Timothy	Phleum pratense	0.4	12.0	20
Virginia Wildrye	Elymus virginicus	4.4	7.5	13
Deertongue	Dichanthelium clandestinum	0.7	6.0	10
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	5
White Clover	Trifolium repens	0.2	3.0	5
Oxeye Sunflower	Helopsis helianthoides	0.6	1.5	3
Partridge Pea	Chamaecrista fasciculata	1.1	1.5	3
Purple Coneflower	Echinacea purpurea	0.6	1.5	3
Total	--	12.3	60.0	100.00

NOTES:

1 PLS IS ROUNDED TO THE NEAREST TENTH OF A POUND.  
PLS = PURE LIVE SEED

ROW SEED MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Red Top	Agrostis gigantea	0.1	12.0	20
Timothy	Phleum pratense	0.4	12.0	20
Tall Fescue	Festuca arundinacea	1.7	9.0	15
Annual Ryegrass	Lolium perenne multiflorum	1.7	9.0	15
Italian Ryegrass	Festulum	1.7	9.0	15
Alsike Clover	Trifolium hybridum	0.2	3.0	5
White Clover	Trifolium repens	0.2	3.0	5
Ladino White Clover	Trifolium repens latum	0.2	3.0	5
Total	--	6.2	60.0	100

NOTES:

1 PLS IS ROUNDED TO THE NEAREST TENTH OF A POUND.  
PLS = PURE LIVE SEED

PERMANENT SEED MIXTURES COOL & WARM SEASON GRASSES

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Orchardgrass	Dactylis glomerata	4.0	60.0	40
Timothy	Phleum pratense	2.0	60.0	40
Ladino White Clover	Trifolium repens latum	0.8	15.0	10
Red Clover	Trifolium pratense	2.4	15.0	10
Total	--	9.2	150.0	100

PASTURES

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Timothy	Phleum pratense	0.5	15.0	25%
Perennial Ryegrass	Lolium perenne	2.3	12.0	20%
Red Top	Agrostis gigantea	0.1	9.0	15%
Italian Ryegrass	Festulolium	1.7	9.0	15%
Alsike Clover	Trifolium hybridum	0.6	9.0	15%
Ladino White Clover	Trifolium repens latum	0.3	6.0	10%
Total	--	5.5	60.0	100%

SLOPING/FORESTED LAND

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Sideoats Grama	Bouteloua curtipendula	1.4	6.0	10%
Little Bluestem	Schizachyrium scoparium	1.0	6.0	10%
Switchgrass	Panicum virgatum	1.3	12.0	20%
Timothy	Phleum pratense	0.4	12.0	20%
Virginia Wildrye	Elymus virginicus	4.24	7.2	12%
Deertongue	Dichanthelium clandestinum	0.7	6.0	10%
Blackeyed Susan	Rudbeckia hirta	0.1	2.4	4%
White Clover	Trifolium repens	0.1	2.4	4%
Oxeye Sunflower	Helopsis helianthoides	0.8	1.8	3%
Partridge Pea	Chamaecrista fasciculata	1.7	2.4	4%
Purple Coneflower	Echinacea purpurea	0.7	1.8	3%
Total	--	12.3	60.0	100%

DROUGHT/ROCKY SITES

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Little Bluestem	Schizachyrium scoparium	1.5	9.0	15%
Timothy	Phleum pratense	0.3	9.0	15%
Prairie Junegrass	Koeleria macrantha	0.1	6.0	10%
Deertongue	Dichanthelium clandestinum	1.0	9.0	15%
Sideoats Grama	Bouteloua curtipendula	2.7	12.0	20%
Virginia Wildrye	Elymus virginicus	3.5	6.0	10%
Partridge Pea	Chamaecrista fasciculata	2.1	3.0	5%
Ladino White Clover	Trifolium repens latum	0.2	3.0	5%
Lanceleaf Coreopsis	Coreopsis lanceolata	0.6	3.0	5%
Total	--	12.0	60.0	100%

NON-AGRICULTURAL MEADOWS

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Virginia Wildrye	Elymus virginicus	5.3	9.0	15%
Little Bluestem	Schizachyrium scoparium	1.5	9.0	15%
Sideoats Grama	Bouteloua curtipendula	2.1	9.0	15%
Deertongue	Dichanthelium clandestinum	1.0	9.0	15%
Partridge Pea	Chamaecrista fasciculata	4.2	6.0	10%
Oxeye Sunflower	Helopsis helianthoides	1.3	3.0	5%
Lanceleaf Coreopsis	Coreopsis lanceolata	1.2	6.0	10%
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	5%
Butterfly Milkweed	Asclepias tuberosa	5.2	6.0	10%
Total	--	21.8	60.0	100%

NATIVE NON-NATIVE FOOD PLOT MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Timothy	Phleum pratense	0.4	12.0	20%
Upland Bent Grass	Agrostis perennans	0.1	9.0	15%
Virginia Wildrye	Elymus virginicus	5.3	9.0	15%
White Clover	Trifolium repens	0.5	9.0	15%
Ladino White Clover	Trifolium repens latum	0.7	12.0	20%
Crimson Clover	Trifolium incarnatum	3.5	9.0	15%
Total	--	10.4	60.0	100%

STORM BASIN MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Orchardgrass	Dactylis glomerata	0.8	12.0	20%
Timothy	Phleum pratense	0.4	9.0	15%
Switchgrass	Panicum virgatum	1.0	12.0	20%
Virginia Wildrye	Elymus virginicus	7.1	9.0	15%
Fox Sedge	Carex vulpinoidea	0.3	3.0	5%
Oxeye Sunflower	Helopsis helianthoides	1.3	3.0	5%
Swamp Milkweed	Asclepias incarnata	1.7	12.0	20%
Total	--	12.6	60.0	100%

POLLINATOR MIX (TO BE ADDED TO ANY MIX UPON LANDOWNER REQUEST)

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Butterfly Milkweed	Asclepias tuberosa	2.6	3.0	15%
Purple Coneflower	Echinacea purpurea	1.1	3.0	15%
Dense Blazing Star	Liatris spicata	0.7	2.0	10%
Lanceleaf Coreopsis	Coreopsis lanceolata	0.4	2.0	10%
Blackeyed Susan	Rudbeckia hirta	0.1	3.0	15%
Oxeye Sunflower	Helopsis	1.3	3.0	15%
Wild Bergamot	Monarda fistulosa	0.1	2.0	10%
Hoary Mountainmint	Pycnanthemum	0.0	2.0	10%
Total	--	6.3	20.0	100%

BRASSICA MIX

Common Name	Scientific Name	# PLS/acre	PLS/sq ft	% of Mix
Bonar (Rape)	Brassica napus	2.7	6.6	33%
Turnip	Brassica rapa	12.9	6.6	33%
Nitro Radish	Raphanus	11.8	6.8	34%
Total	--	27.4	20.0	100%

SITE SOIL TYPES AND LIMITATIONS

MAP UNIT NAME	MAP UNIT DESIGNATION	SLOPES	SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	HIGH WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK-SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
MORRIS FLAGGY SILT LOAM	M6B	3-8%	MORRIS	X	C/S	X	X	X	X	X	X	X	X	X	X				X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X		
MORRIS CHANNERY SILT LOAM	M6B	3-8%	MORRIS	X	C/S	X	X	X	X	X	X	X	X	X	X				X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X		
NORWICH AND CHIPPEWA SOILS	N6B	3-8%	NORWICH AND CHIPPEWA	X	C/S	X	X	X	X	X	X	X	X	X	X	X			X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X	X	
OQUAGA CHANNERY LOAM	O6C	8-15%	OQUAGA	X	C/S	X	X	X	X	X	X	X	X	X	X				X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X		
OQUAGA FLAGGY LOAM	O6B	3-8%	OQUAGA	X	C/S	X	X	X	X	X	X	X	X	X	X				X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X		
WELLSBORO CHANNERY LOAM	W6C	8-15%	WELLSBORO	X	C/S	X	X	X	X	X	X	X	X	X	X	X			X
				X	C/S	X	X	X	X	X	X	X	X	X	X	X	X	X	

SOILS LIMITATIONS AND RESOLUTIONS

LIMITATION	RESOLUTION
CUTBANKS CAVE	EXCAVATIONS WILL BE PROPERLY SUPPORTED BY SHEETING AND SHORING TO PREVENT CAVES.
CORROSIVE TO CONCRETE/STEEL	NO CONCRETE OR STEEL PIPING IS PROPOSED WITHOUT APPROPRIATE TREATMENT OR PROTECTION.
DROUGHTY	EXISTING SUITABLE TOPSOIL AND SOIL AMENDMENTS WILL BE USED DURING CONSTRUCTION.
EASILY ERODIBLE	TEMPORARY AND PERMANENT EROSION CONTROL BMPs WILL BE EMPLOYED THROUGHOUT THE SITE.
FLOODING	ENSURE THAT THE SITE HAS PROPER DRAINAGE.
HIGH WATER TABLE	A GEOTECHNICAL INVESTIGATION WAS CONDUCTED TO MINIMIZE CONFLICTS WITH SATURATED ZONES.
HYDRIC/HYDRIC INCLUSIONS	A WETLAND INVESTIGATION WAS COMPLETED TO DETERMINE IF WETLANDS ARE PRESENT IN THE DEVELOPMENT AREA.
LOW STRENGTH	A MAXIMUM OF 3:1 SLOPES ARE PROPOSED.
SLOW PERCOLATION	FIELD INVESTIGATIONS OF PERCOLATION RATES AT THE INFILTRATION AREAS WERE PERFORMED TO VERIFY THE SOILS PERCOLATION CAPACITY.
PIPING	WATERTIGHT PIPE, ANTISEEP COLLARS, CLAY CORES THROUGH BASIN BERMS, AND CONCRETE ENDWALLS WILL BE USED TO MINIMIZE THE DANGER OF PIPING.
POOR SOURCE OF TOPSOIL	EXISTING TOPSOIL, WHICH HAS PROVEN TO BE SUITABLE, WILL BE REUSED ON THE SITE.
FROST ACTION	PAVEMENT SUBBASE WILL BE PROVIDED TO MINIMIZE FROST AFFECTS.
SHRINK-SWELL	STONE BASE WILL BE PROVIDED TO PREVENT SHRINK-SWELL FROM EFFECTING PAVEMENT.
POTENTIAL SINKHOLE	GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS WILL BE FOLLOWED FOR ANY POTENTIAL OCCURRENCES.
PONDING	SURFACE GRADING AND DRAINAGE FACILITIES WILL BE PROVIDED TO MINIMIZE PONDING AFFECTS.
WETNESS	WET WEATHER CONSTRUCTION RECOMMENDATIONS, PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS, WILL BE EMPLOYED TO MINIMIZE THE AFFECTS OF WETNESS DURING CONSTRUCTION. SURFACE GRADING, SURFACE GRADING AND DRAINAGE WILL BE PROVIDED TO MINIMIZE WETNESS AFFECTS AFTER CONSTRUCTION.

MULCH

- MULCHES SHOULD BE APPLIED AT THE RATES SHOWN IN TABLE 11.6
- STRAW AND HAY MULCH SHOULD BE ANCHORED OR TACKIFIED IMMEDIATELY AFTER APPLICATION TO PREVENT BEING WINDBLOWN. A TRACTOR-DRAWN IMPLEMENT MAY BE USED TO "CRIMP" THE STRAW OR HAY INTO THE SOIL - ABOUT 3 INCHES. THIS METHOD SHOULD BE LIMITED TO SLOPES NO STEEPER THAN 3H:1V. THE MACHINERY SHOULD BE OPERATED ON THE CONTOUR. CRIMPING OF HAY OR STRAW BY RUNNING OVER IT WITH TRACKED MACHINERY IS NOT RECOMMENDED.
- POLYMERIC AND GUM TACKIFIERS MIXED AND APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS MAY BE USED TO TACK MULCH. AVOID APPLICATION DURING RAIN AND ON WINDY DAYS. A 24-HOUR CURING PERIOD AND A SOIL TEMPERATURE HIGHER THAN 45° ARE TYPICALLY REQUIRED. APPLICATION SHOULD GENERALLY BE HEAVIEST AT EDGES OF SEEDED AREAS AND AT CRESTS OF RIDGES AND BANKS TO PREVENT LOSS BY WIND. THE REMAINDER OF THE AREA SHOULD HAVE BINDER APPLIED UNIFORMLY. BINDERS MAY BE APPLIED AFTER MULCH IS SPREAD OR SPRAYED INTO THE MULCH AS IT IS BEING BLOWN ONTO THE SOIL. APPLYING STRAW AND BINDER TOGETHER IS GENERALLY MORE EFFECTIVE.
- SYNTHETIC BINDERS, OR CHEMICAL BINDERS, MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THEY ARE NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
- MULCH ON SLOPES 8% OR STEEPER SHOULD BE HELD IN PLACE WITH NETTING. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED. THE APPLICATION RATE FOR ANY HYDROMULCH SHOULD BE 2,000 LB/ACRE AT A MINIMUM.
- HYDRAULICALLY APPLIED BLANKETS CAN BE AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. THEY MAKE USE OF A CROSS-LINKED HYDROCOLLOID TACKIFIER TO BOND THERMALLY PROCESSED WOOD FIBERS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS. IN ANY CASE, MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

# EARTH DISTURBANCE ACTIVITY - PAST, PRESENT, AND FUTURE LAND USES

THE LAND USES AND AQUATIC FEATURES FOUND WITHIN THE PROJECT AREA OCCUR ON MIXED HARDWOOD UPLAND FOREST, AND SHALLOW FLOODED WETLANDS. ACCORDING TO THE IMAGERY PROVIDED BY THE PENNSYLVANIA GEOLOGICAL SURVEY, THE LAND USES WITHIN THE PROJECT AREA REMAINED SIMILAR BETWEEN 1939 AND 1967. THE LAND USES ON THE 1939 AERIALS WERE PRIMARILY COMPOSED OF MIXED HARDWOOD UPLAND FOREST. FUTURE LAND USE WOULD INVOLVE THE INSTALLATION OF THE COMPRESSOR STATION PAD AND ACCESS ROADS.

## THERMAL IMPACT ANALYSIS

IN ORDER TO PREVENT AN INCREASE IN STREAM TEMPERATURE, CONSTRUCTION OF THESE FACILITY WILL INCORPORATE THE FOLLOWING BMP'S TO ADDRESS POTENTIAL THERMAL IMPACTS. GRAVEL WILL PRIMARILY BE USED IN LIEU OF ASPHALT FOR ACCESS ROAD AND PAD CONSTRUCTION TO PREVENT THE COLLECTION AND SUBSEQUENT HEATING OF STORMWATER ON THE SURFACE OF THESE AREAS. NO TREE REMOVAL IS PROPOSED AS PART OF THE METER STATION WORK. THE RECEIVING WATERS FOR THE SITE ARE 90' ± FROM THE SITE. VEGETATED SWALES AND INFILTRATION BASINS WILL BE PROVIDED TO CAPTURE AND AID IN THE INFILTRATION OF THE NET RUNOFF VOLUME INCREASE ASSOCIATED WITH THE TRANSITION FROM PRE-DEVELOPMENT CONDITIONS TO POST-DEVELOPMENT CONDITIONS.

## CRITICAL STAGES OF CONSTRUCTION

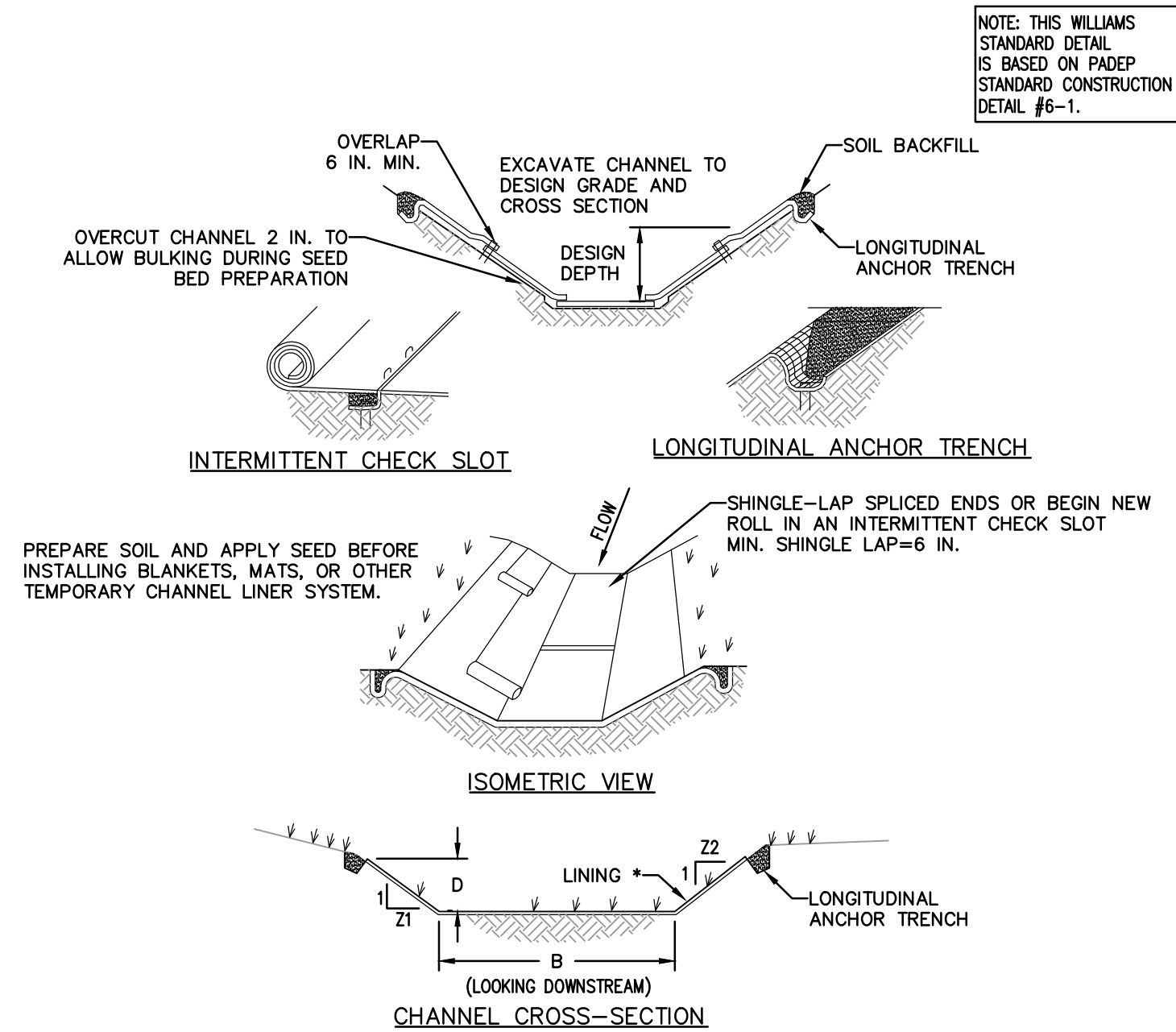
THE FOLLOWING ARE CRITICAL STAGES OF CONSTRUCTION:

1. INSTALLATION OF SEDIMENT BASIN.
2. INSTALLATION OF VEGETATED SWALES.
3. INSTALLATION OF RAIN GARDENS #1, 2, 3, & 4.
4. CONVERSION SEDIMENT BASIN TO INFILTRATION BASIN 1.
5. SOIL AMENDMENT AND LANDSCAPE RESTORATION.

## COMPRESSOR STATION SEQUENCE OF CONSTRUCTION

1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL HIRE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
2. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
3. HOLD PRE-CONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL INSPECTORS, LOCAL COUNTY CONSERVATION DISTRICT (CCD), PADEP, AND DESIGN ENGINEER.
4. INSTALL ORANGE CONSTRUCTION FENCE AROUND AREAS TO BE PROTECTED.
5. LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE LIMITS OF DISTURBANCE.
6. INSTALL ROCK CONSTRUCTION ENTRANCE (RCE).
7. REMOVE BRUSH TO EFFECTIVELY INSTALL PERIMETER CONTROLS, LEVEL SIDE CUTS TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS ON THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
8. THE COMPLIANCE MANAGER SHALL PROVIDE PADEP AND CCD AT LEAST THREE DAYS' NOTICE PRIOR TO BULK EARTH DISTURBANCE AND UPON COMPLETED INSTALLATION OF PERIMETER EROSION CONTROLS.
9. \* INSTALL SEDIMENT BASIN #1, INCLUDING CLAY CORE, ANTISEEP COLLARS, SLOPE LINERS, CLEANOUT STAKE, AND ASSOCIATED IMPROVEMENTS. MINIMIZE THE USE OF HEAVY EQUIPMENT WITHIN THE BASIN BOTTOM TO AVOID COMPACTION OF SOIL.
10. INSTALL VEGETATED ROADSIDE SWALES, INCLUDING THE TEMPORARY SEGMENTS WITHIN SEDIMENT BASIN #2, CULVERTS AND RIPRAP OUTLET PROTECTION. ROUGH GRADE ACCESS ROADS.
11. \* INSTALL DRAINAGE CHANNEL APRONS AS SOON AS SWALE GRADING IS COMPLETE.
12. \* INSTALL SEDIMENT TRAP #1 INCLUDING CLAY CORE, ANTISEEP COLLARS, SLOPE LINERS, CLEANOUT STAKE, AND ASSOCIATED IMPROVEMENTS. MINIMIZE THE USE OF HEAVY EQUIPMENT WITHIN THE BASIN BOTTOM TO AVOID COMPACTION OF SOIL.
13. BEGIN CONSTRUCTION STAKING FOR GRADING.
14. BEGIN GRADING AND STRIP AND STOCKPILE TOPSOIL WITHIN THE AREA OF IMPROVEMENTS AND INSTALL SEDIMENT BARRIERS AROUND STOCKPILES.
15. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE THE CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION, OR AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW. THE ON-SITE ENVIRONMENTAL INSPECTOR WILL LOG DAILY ACTIVITY WITHIN THE LOD AND NOTIFY THE CONTRACTOR OF AREAS REQUIRING TEMPORARY STABILIZATION (I.E., AREAS WHERE WORK HAS CEASED FOR AT LEAST FOUR DAYS).
16. GRADE THE COMPRESSOR STATION PADS, INCLUDING STORMWATER RUNOFF CONVEYANCE FEATURES AS SHOWN ON THE E&S AND PCSM/SR PLANS (SECTIONS 2 AND 3 OF THE ESCGP-2 NO). INSTALL OUTFALL PIPE FROM RAIN GARDEN #1 (OS-3) AND SEAL PIPE.
17. IMMEDIATELY STABILIZE SIDE SLOPES WITH EROSION CONTROL MATTING WHEN SLOPES ARE 3:1 OR GREATER. SEE PCSM/SR PLANS AND DETAIL SHEETS, AS PROVIDED IN SECTION 3 OF THE ESCGP-2 NOL (PATTERNS DIFFER BY SLOPE CATEGORY). INSTALL RIP RAP SLOPE STABILIZATION WHERE SHOWN ON THE PCSM/SR PLANS.
18. ESTABLISH FINAL GRADE.
19. SURFACE STABILIZATION, APPLY PERMANENT STABILIZATION MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS REACHED FINAL GRADE.
20. UPON COMPLETION OF ALL EARTHWORK ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR AN INSPECTION PRIOR TO THE REMOVAL/CONVERSION OF THE E&S BMPS.
21. \* AFTER ALL UPSLOPE DISTURBED AREAS ARE STABILIZED, INSTALL RAIN GARDEN #1 AND OUTFALL PIPE (OS-2). REMOVE SEAL FROM OS-3 AND INSTALL ORIFICE PLATE. CONVERT SEDIMENT BASIN #1 TO PROPOSED INFILTRATION BASIN #1. OVER EXCAVATE AND INSTALL ENGINEERED SOIL WITHIN THE BOTTOM OF INFILTRATION BASIN #1. MINIMIZE THE USE OF HEAVY EQUIPMENT TO AVOID COMPACTION OF THE SOIL. INSTALL FILTER SOCK #14 TO PROTECT BASIN BOTTOM.
22. \* INSTALL RAIN GARDENS #2 AND #4. CONVERT SEDIMENT TRAP #1 TO RAIN GARDEN #3.
23. \* INSTALL SOIL AMENDMENTS AND LANDSCAPE RESTORATION SEEDING WHERE INDICATED ON THE PLAN.
24. AFTER FINISH GRADING AND TOPSOIL PLACEMENT IS COMPLETED, DISTURBED AREAS SHALL BE FERTILIZED, SEEDED, AND MULCHED. SEED MIXTURES, FERTILIZER AND MULCH APPLICATIONS RATES AND DATES SHALL CONFORM TO THE TABLES PROVIDED ON THE PCSM/SR PLANS AND DETAIL SHEETS (SECTION 3 OF THE ESCGP-2 NO), LAND OWNER AGREEMENTS AND/OR THE ECP (SECTION 4 OF THE ESCGP-2 NO).
25. AFTER SEEDING, FERTILIZING AND MULCHING IS COMPLETE, INSTALL EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED OR ON SLOPES OF 3:1 OR GREATER.
26. AFTER THE SITE IS PERMANENTLY STABILIZED AND UPON PADEP OR LOCAL CCD AND OWNER APPROVAL OF STABILIZATION AND RE-VEGETATION, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND STABILIZE AREAS DISTURBED BY REMOVAL.
27. \* COMPLETE SITE STABILIZATION, SEED APPLICATION, EROSION CONTROL BLANKET INSTALLING IN BASIN, AND MULCHING.
28. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR A FINAL INSPECTION.
29. MAINTAIN E&S BMPS UNTIL SITE WORK IS COMPLETE AND UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
30. REMOVE AND PROPERLY DISPOSE/RECYCLE E&S BMPS. REMOVE ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED DURING E&S BMP REMOVAL UPON ESTABLISHMENT OF UNIFORM 70% VEGETATIVE COVER.

\* INDICATES A CRITICAL STAGE OF PCSM INSTALLATION TO BE OBSERVED BY A LICENSED PROFESSIONAL OR DESIGNEE. CONTRACTOR TO PROVIDE THREE WORKING DAYS' NOTICE TO DESIGN ENGINEER.



\* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

NOTES:  
ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

REFER TO "TABLE 2: TEMPORARY CLEAN WATER DIVERSION SUMMARY" AT THE END OF THIS PLAN SET FOR CHANNEL INFORMATION CHART FOR THE DIVERSION SWALES ALONG THE PIPELINE RIGHT OF WAY.

SWALE SUMMARY TABLE							
SWALE NO.	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	TEMPORARY LINING*	PERMANENT LINING
VEGETATED SWALE 1A	2.0	1.5	11.0	3.0	3.0	SC250	GRASS/SC250
VEGETATED SWALE 1B	5.0	2.0	17.0	3.0	3.0	W3000	GRASS/W3000
VEGETATED SWALE 2A	2.0	1.5	11.0	3.0	3.0	S75	GRASS
VEGETATED SWALE 2B	5.0	2.0	17.0	3.0	3.0	W3000	GRASS/W3000
VEGETATED SWALE 3	10.0	6.0	46.0	3.0	3.0	SC250	GRASS/SC250

## VEGETATED CHANNEL

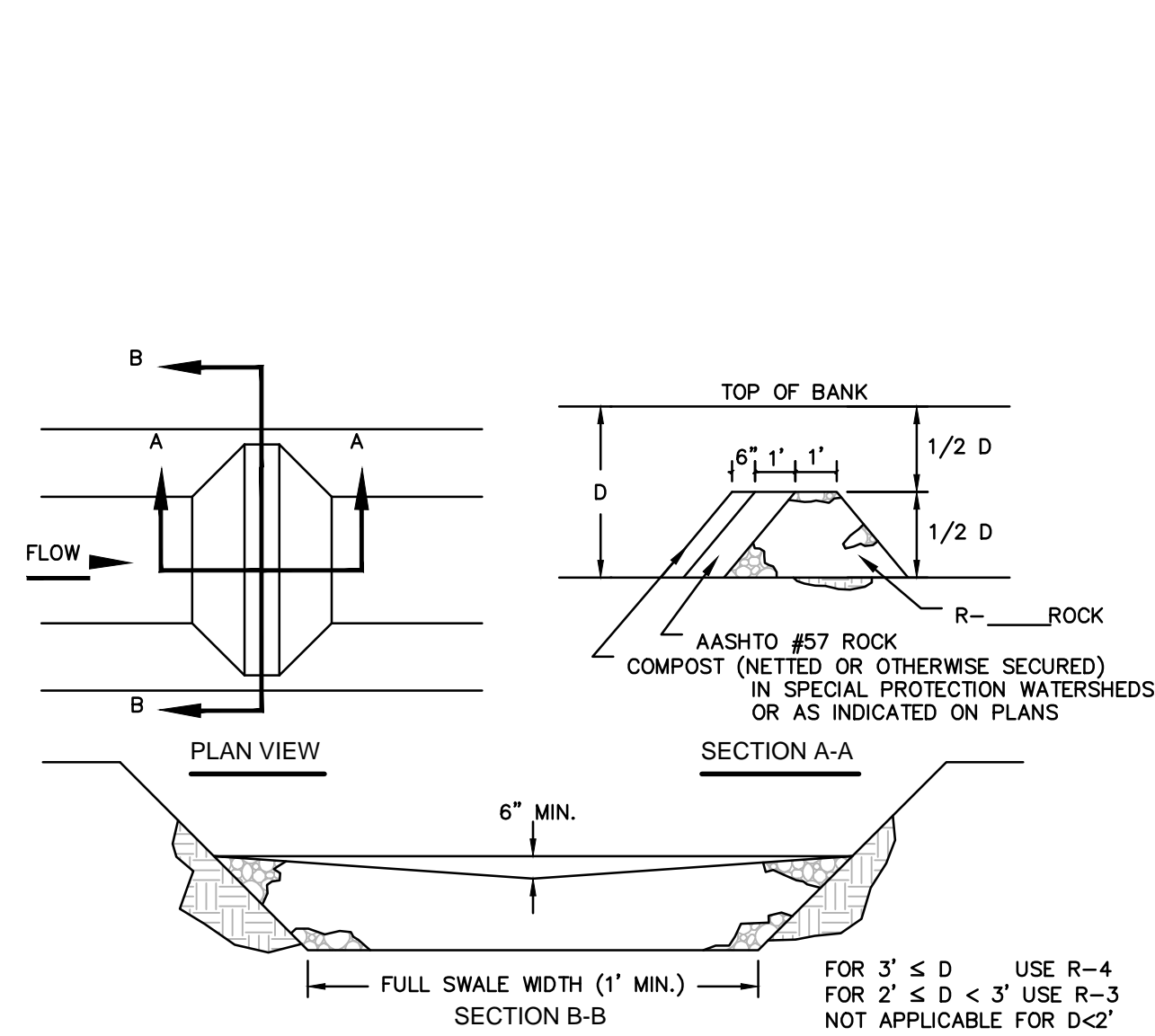
N.T.S.

## ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN

THE FOLLOWING ACID PRODUCING SOILS CONTROL PLAN WAS DEVELOPED TO IDENTIFY BMPS AND PROCEDURES FOR MINIMIZING THE POTENTIAL FOR POLLUTION ASSOCIATED WITH THE DISTURBANCE OF THE AREAS WITHIN THE PROPOSED RIGHT-OF-WAY THAT CONTAIN ACID-PRODUCING SOILS.

ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN:

1. CONTRACTOR SHALL LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED.
2. CONTRACTOR SHALL SEPARATELY STORE TOPSOIL STRIPPED FROM THE SITE AWAY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS AND BEDROCK.
3. CONTRACTOR SHALL STOCKPILE HIGH ACID-PRODUCING SOILS AND BEDROCK MATERIAL ON LEVEL GROUND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THESE MATERIALS HAVE A HIGH CLAY CONTENT.
4. CONTRACTOR SHALL COVER TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL AND BEDROCK MATERIAL TO BE EXPOSED MORE THAN 30 DAYS WITH PROPERLY ANCHORED, HEAVY-GRADE SHEETS OF POLYETHYLENE, WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF THREE TO SIX INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. IN ADDITION, THE CONTRACTOR SHALL INSTALL SILT FENCE AT THE TOE OF THE STOCKPILE SLOPE TO CONTAIN MOVEMENT OF MATERIAL. CONTRACTOR SHALL NOT APPLY TOPSOIL TO THE HIGH ACID-PRODUCING SOIL OR BEDROCK STOCKPILES TO PREVENT TOPSOIL CONTAMINATION.
5. CONTRACTOR SHALL ULTIMATELY DISPOSE OF HIGH ACID-PRODUCING SOILS OR BEDROCK WITH A PH OF FOUR OR LESS, OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS) BY PLACING THE MATERIAL COMBINED WITH LIMESTONE AT THE RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERING THE MIXTURE WITH A MINIMUM OF 12 INCHES OF SETTLED SOILS WITH A PH OF FIVE OR MORE EXCEPT AS FOLLOWS:
  - A. IN THE AREAS WHERE TREES OF SHRUBS ARE TO BE PLANTED, THE CONTRACTOR SHALL COVER THE LIMESTONE/SOIL MIXTURE WITH A MINIMUM OF 24 INCHES OF SOILS WITH A PH OF FIVE OR MORE.
  - B. CONTRACTOR SHALL NOT LOCATE ANY DISPOSAL AREA WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHER SURFACE WATERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. AT THE END OF EACH DAY, CONTRACTOR SHALL CLEAN ALL EQUIPMENT USED TO HANDLE HIGH ACID-PRODUCING SOILS OR BEDROCK TO PREVENT SPREADING OF HIGH-ACID MATERIALS TO OTHER PARTS OF THE PROPOSED RIGHT-OF-WAY, INTO STREAMS, OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED CORROSION.
7. CONTRACTOR SHALL PROVIDE AND INSTALL NON-VEGETATIVE EROSION CONTROLS (STONE TRACKING PADS, STRATEGICALLY-PLACE LIMESTONE CHECK DAMS, SILT FENCES, WOOD CHIPS) TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF OF THE PROPOSED RIGHT-OF-WAY.
8. FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT-OF-WAY, TRANSCO SHALL MONITOR THE SITE FOR APPROXIMATELY SIX TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH-ACID SOIL OR BEDROCK PROBLEMS EMERGE. CONTRACTOR SHALL CORRECT ANY PROBLEMS THAT ARE DISCOVERED WITHIN THIS TIME PERIOD.
9. IF PROBLEMS OCCUR WHERE HIGH ACID-PRODUCING SOILS OR BEDROCK HAVE BEEN PLACED OR BURIED, THE APPLICANT SHALL MONITOR THESE AREAS FOR AT LEAST TWO YEARS TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE.

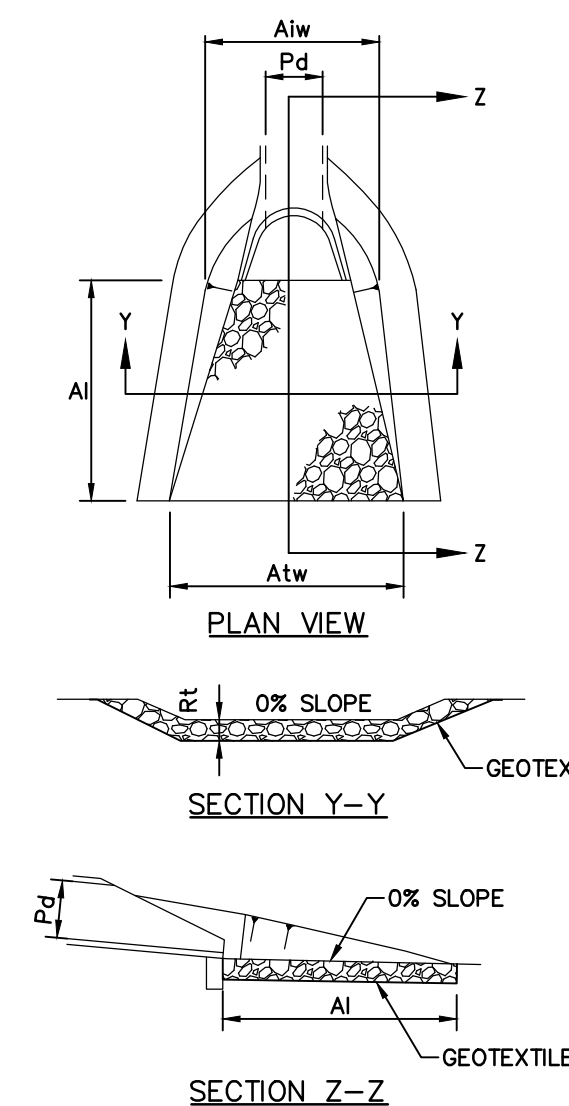


SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTER. IMMEDIATELY UPON STABILIZATION OF EACH SWALE, INSTALLER SHALL REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

## ROCK FILTER

N.T.S. PADEP-4-14

NOTE: THIS WILLIAMS STANDARD DETAIL IS BASED ON PADEP STANDARD CONSTRUCTION DETAIL #9-1.



NOTE: THIS WILLIAMS STANDARD DETAIL IS BASED ON PADEP STANDARD CONSTRUCTION DETAIL #9-2.

## RIPRAP SWALE DETAIL

N.T.S. PADEP-6-3

OUTLET NO.	PIPE DIA PD (IN)	RIPRAP			APRON	
		SIZE (R-...)	THICK. Rt (IN)	LENGTH Ai (FT)	INITIAL WIDTH AiW (FT)	TERMINAL WIDTH (Atw) (FT)
BASIN 1	18	4	18	10	5	15
RAINGARDEN 1 TO BASIN 1	24	4	18	10	4	14
RAINGARDEN 1	12	4	18	10	3	13
RAINGARDEN 2	15	4	18	14	4	18
CULVERT A	38X60	6	36	26	15	41
CULVERT B (SWALE 2B)	36	5	24	22	9	31
CULVERT C	18	4	18	12	4.5	16.5
CULVERT D	24	4	18	12	6	18

NOTES:

1. ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLANS. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.
2. ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

## RIP-RAP APRON AT PIPE OUTLET WITH FLARED END SECTION

N.T.S.

## RIP-RAP APRON AT PIPE OUTLET WITHOUT FLARED END SECTION

N.T.S.

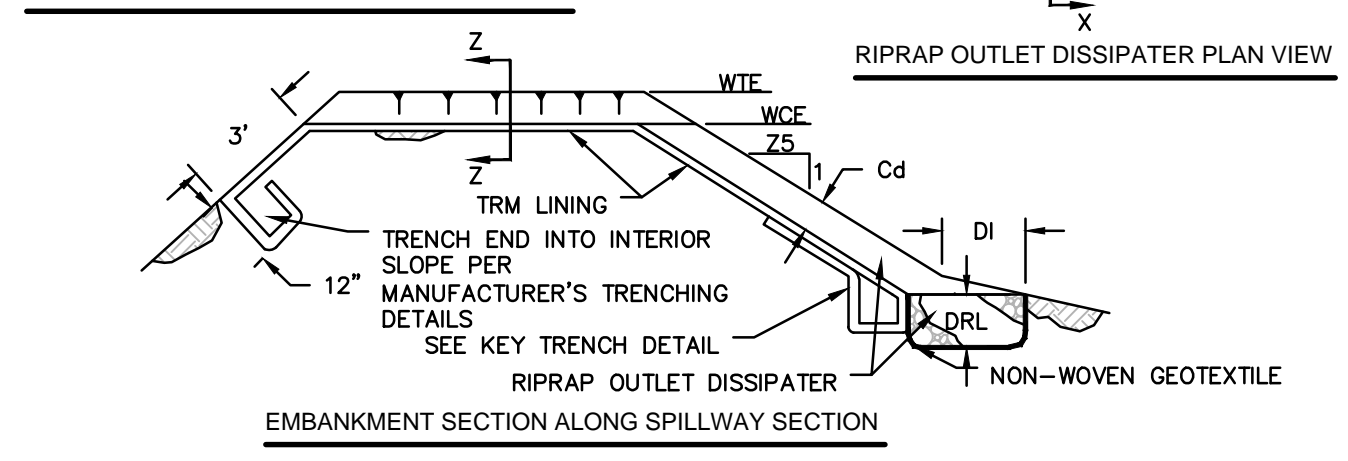
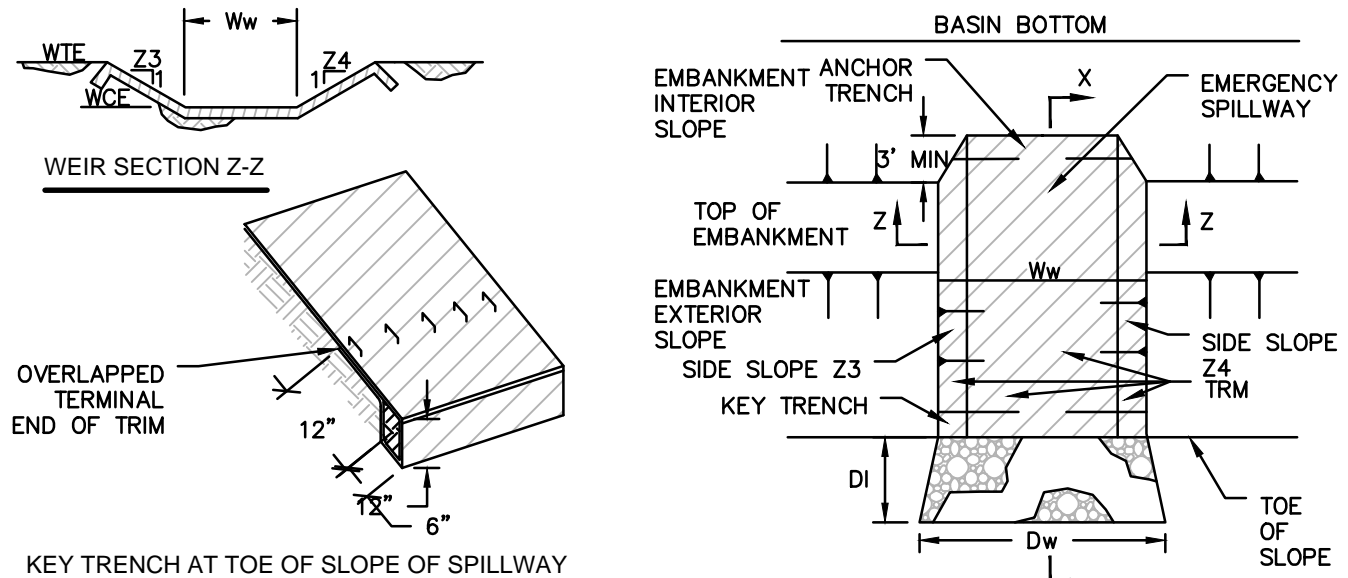
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1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161497	DAK AJB
2	05/27/2016	BL	UPDATED PER BASIC SYSTEMS DESIGN COORDINATION	W0161497	DAK AJB
3	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161497	AJB AJB
4	April 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W0161497	AJB AJB

ALARIC J. BUSHER REG. NO. PE 60320

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE  
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS  
FOR COMPRESSOR STATION 605  
CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA  
PCSM NOTES AND DETAILS

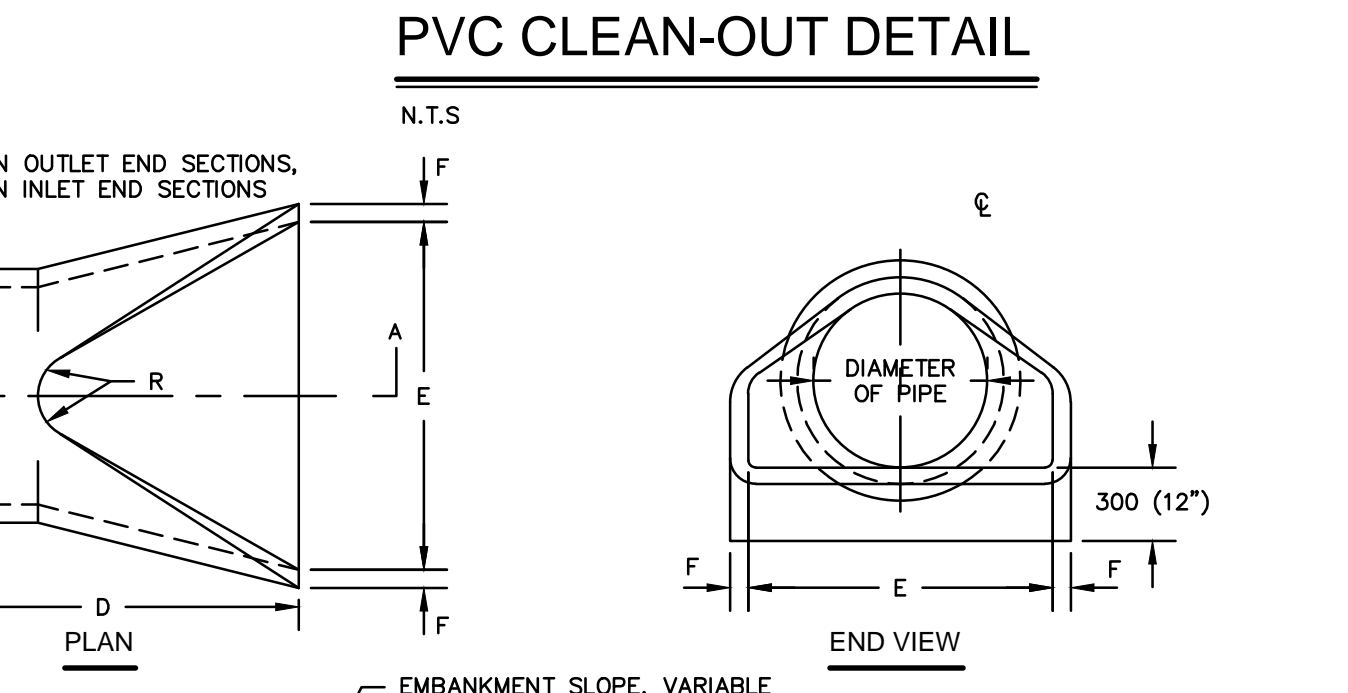
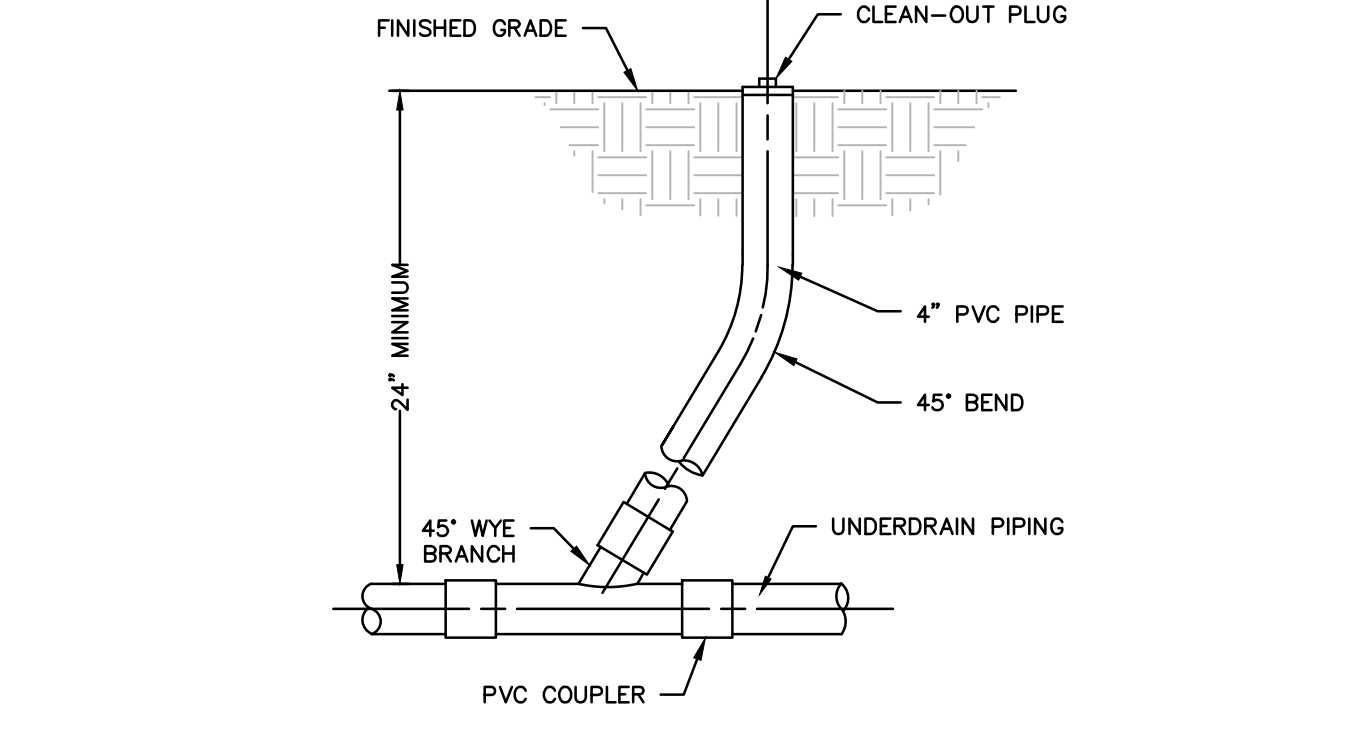
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APPROVED BY: AJB DATE: 07/17/15 DRAWING NUMBER: (66-0605)F-1A-9 SHEET 8 OF 10



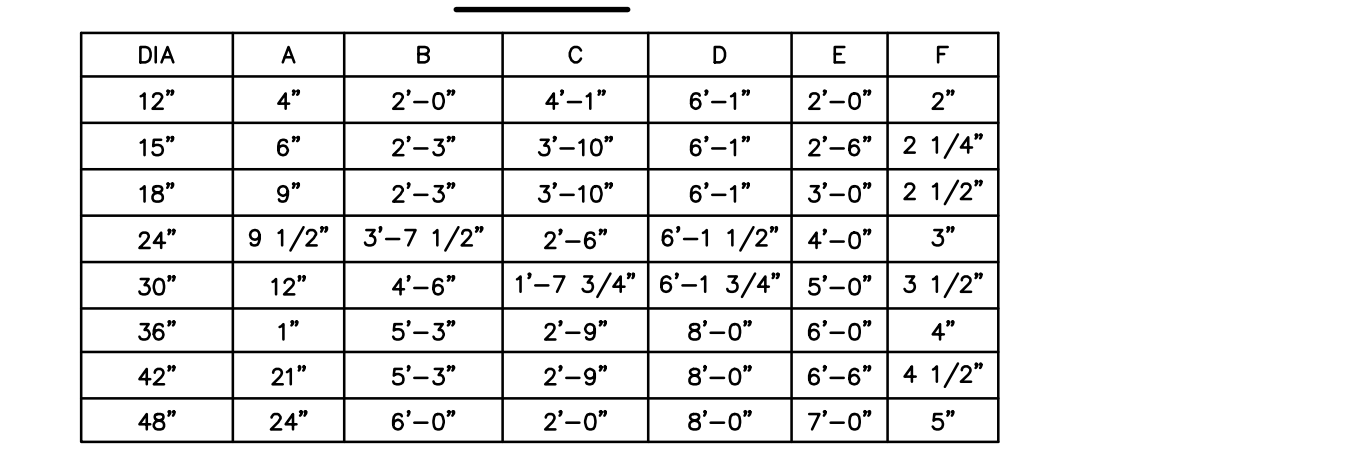
BASIN NO.	WEIR		CREST ELEV. WCE (FT)	WIDTH Ww (FT)	TRM TYPE	SWALE	LENGTH L (FT)	WIDTH D <sub>w</sub> (FT)	RIPRAP SIZE (R-)	RIPRAP THICK. DRL (N)
	Z3 (FT)	Z4 (FT)								
BASIN 1	3	3	958.00	15	P550	NA	NA	NA	NA	N/A
RAINGARDEN 1	3	3	962.00	15	P550	B	NA	NA	SEE RIP RAP APRON TABLE	
RAINGARDEN 2	3	3	1122.00	15	W3000	B	NA	NA	SEE RIP RAP APRON TABLE	
RAINGARDEN 3	3	3	1134.00	10	SC250	B	NA	NA	N/A	
RAINGARDEN 4	3	3	1134.00	10	SC250	B	NA	NA	N/A	

HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING. DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET SWALE SHALL BE REPLACED IMMEDIATELY. RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR. THE USE OF BAFFLES THAT REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS LINERS.

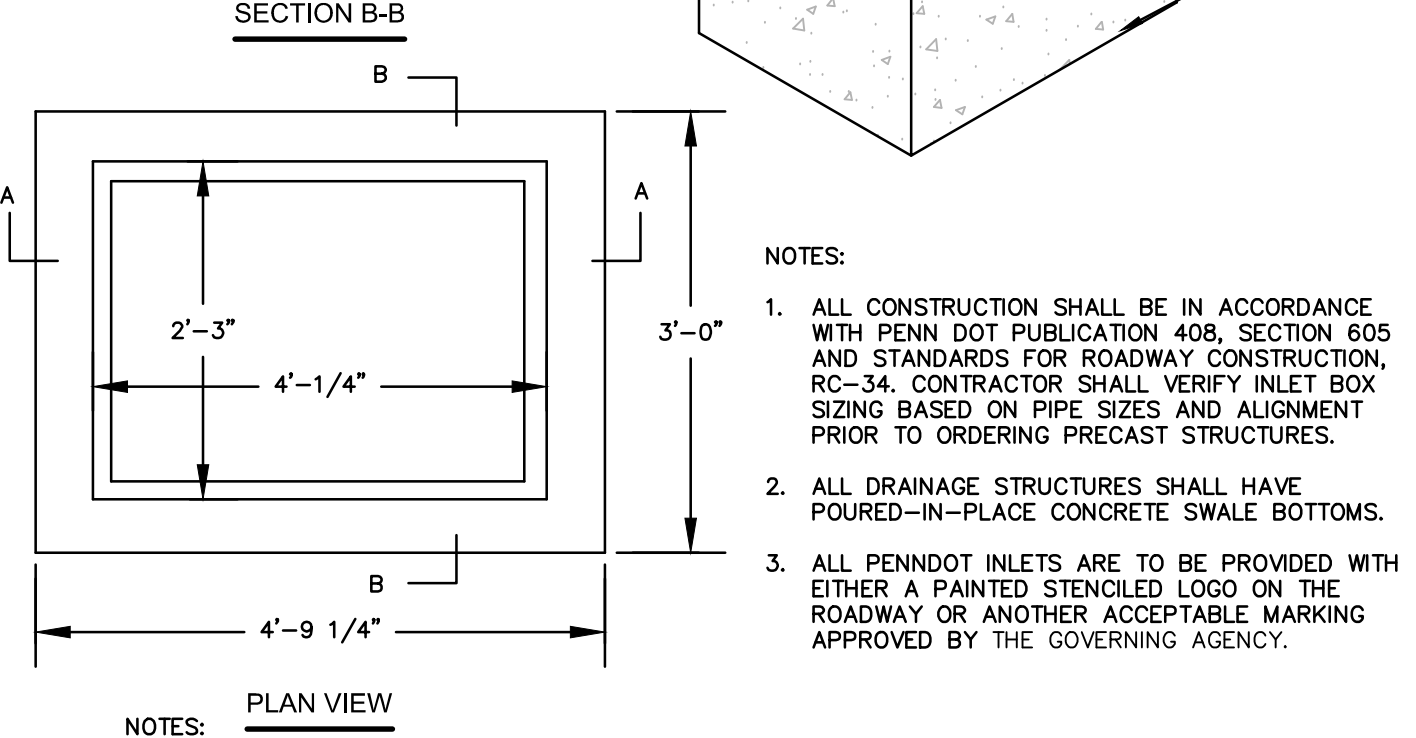
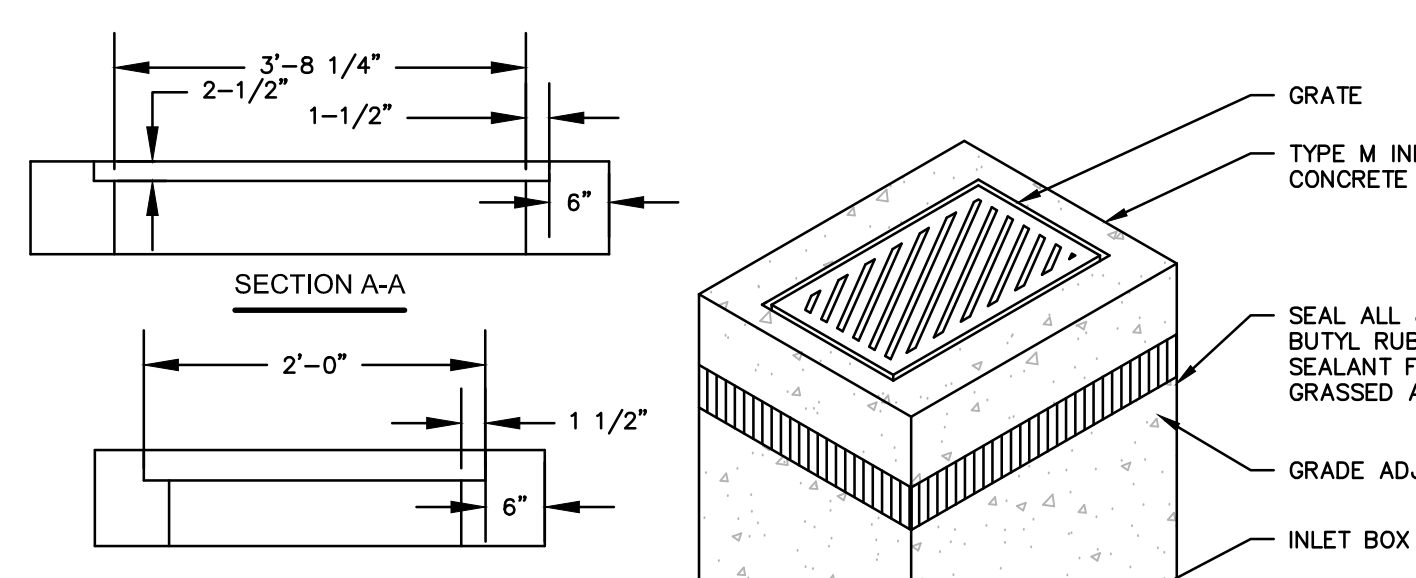
**BASIN EMERGENCY SPILLWAY WITH TRM LINING**



DIA	A	B	C	D	E	F
12"	4"	2'-0"	4'-1"	6'-1"	2'-0"	2"
15"	6"	2'-3"	3'-10"	6'-1"	2'-6"	2 1/4"
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"
24"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"
30"	12"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3 1/2"
36"	1"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"
48"	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"

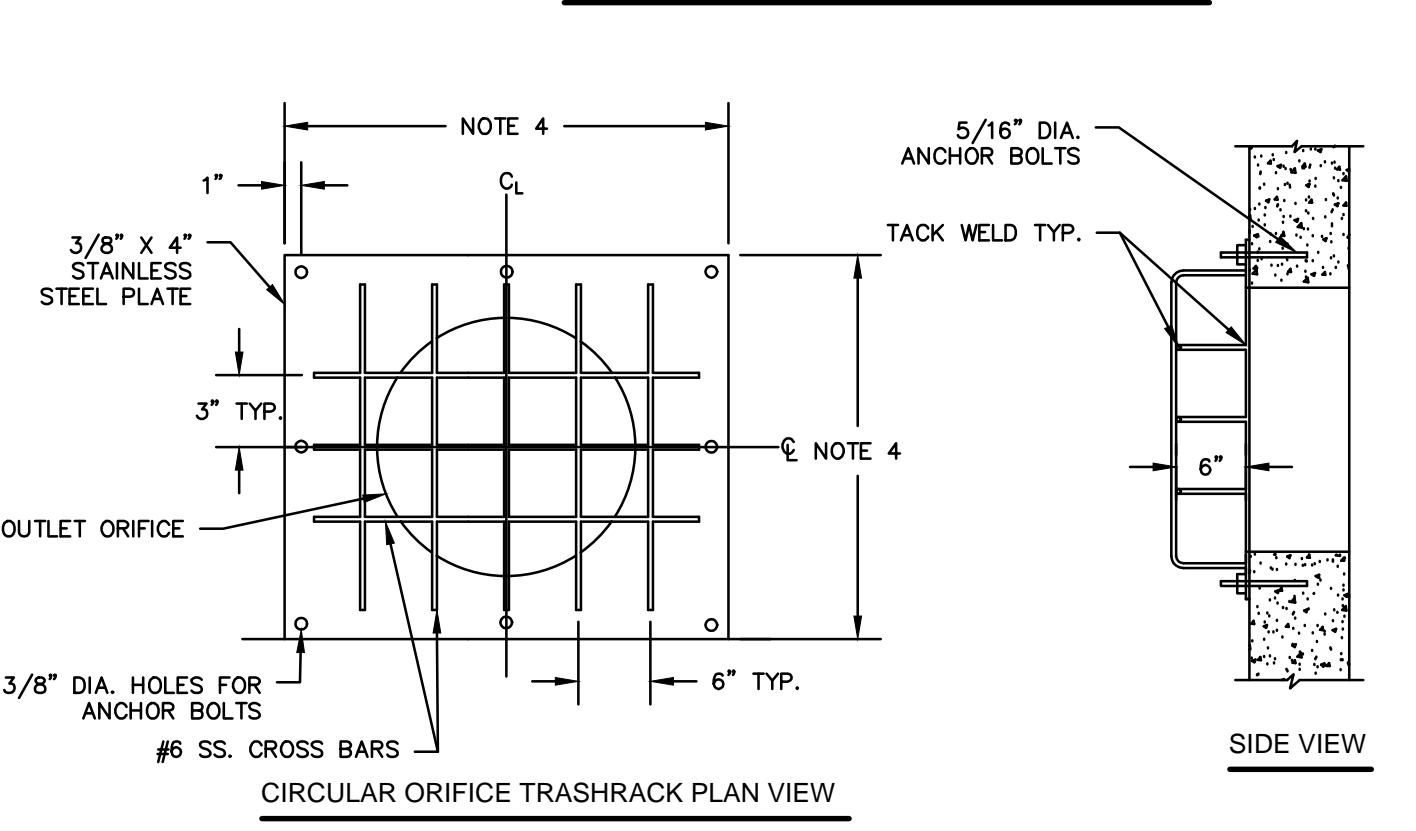
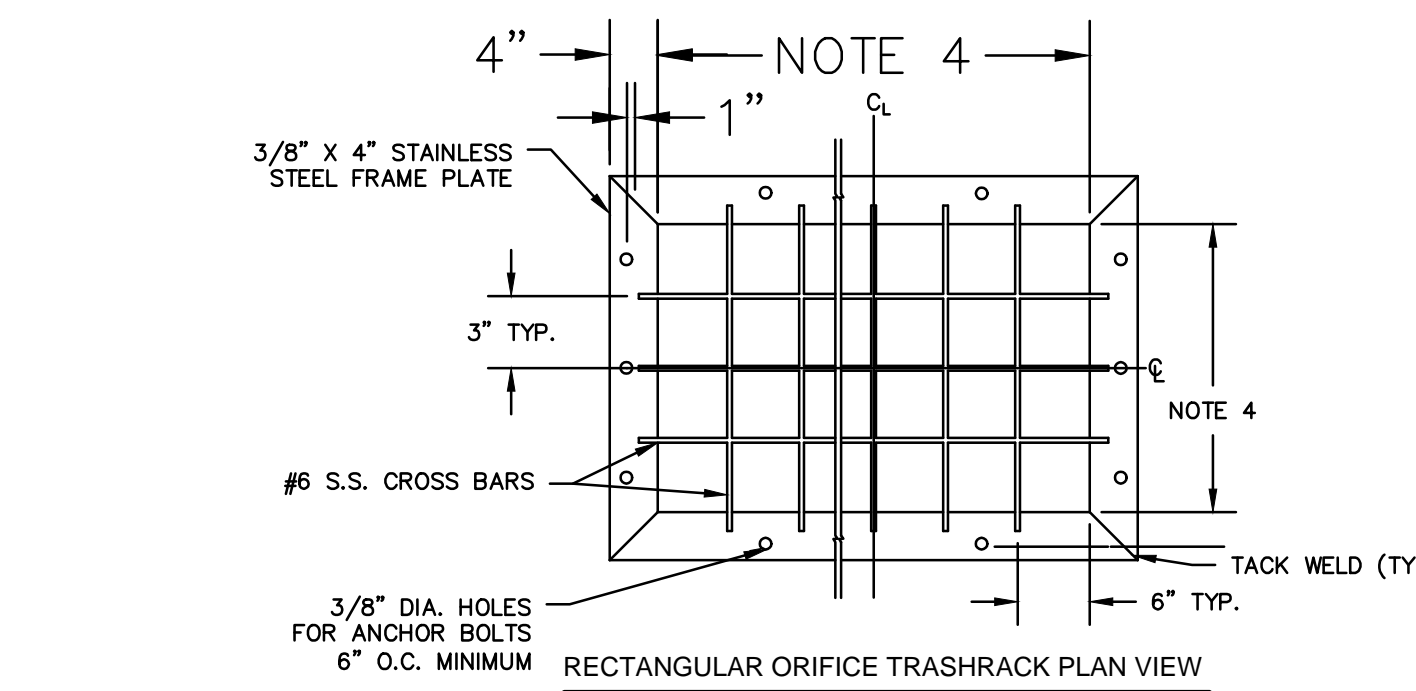


CONCRETE FLARED END SECTION (ROUND PIPE)



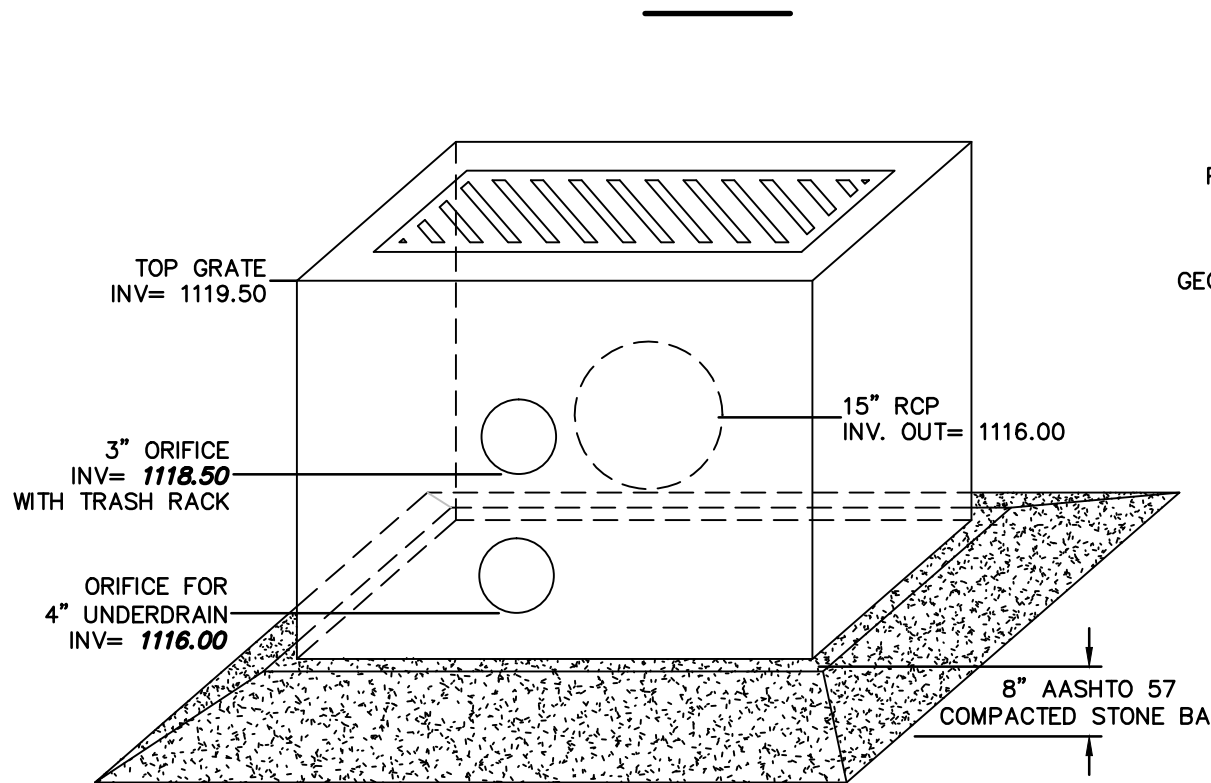
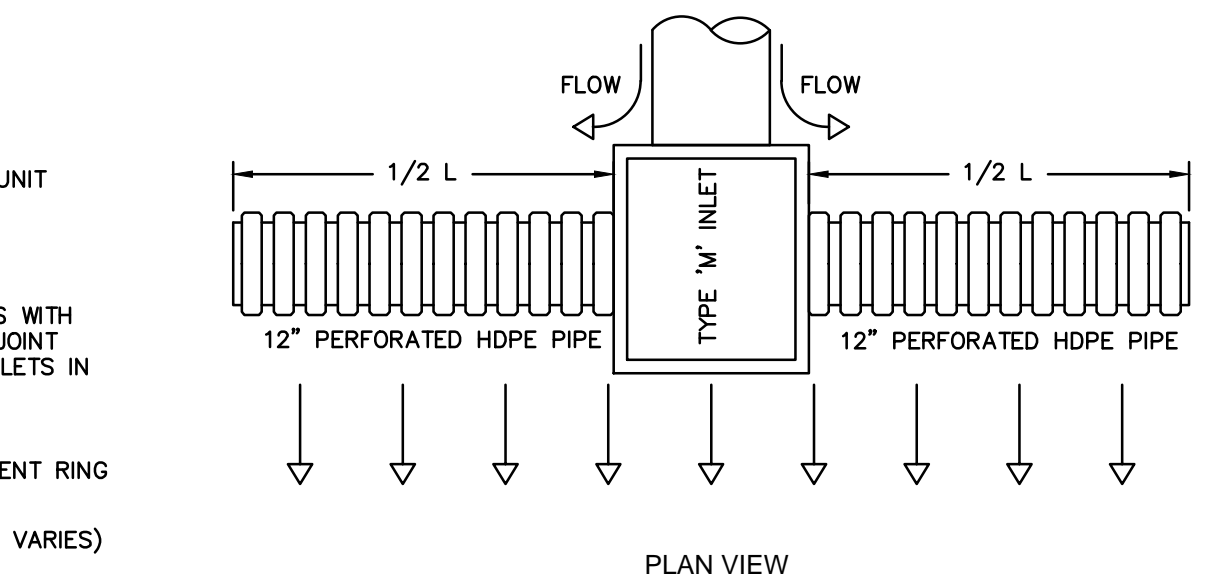
NOTES:  
 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENN DOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC-34. CONTRACTOR SHALL VERIFY INLET BOX SIZING BASED ON PIPE SIZES AND ALIGNMENT PRIOR TO ORDERING PRECAST STRUCTURES.  
 2. ALL DRAINAGE STRUCTURES SHALL HAVE POURED-IN-PLACE CONCRETE SWALE BOTTOMS.  
 3. ALL PENNDOT INLETS ARE TO BE PROVIDED WITH EITHER A PAINTED STENOILED LOGO ON THE ROADWAY OR ANOTHER ACCEPTABLE MARKING APPROVED BY THE GOVERNING AGENCY.

**TYPE "M" INLET**

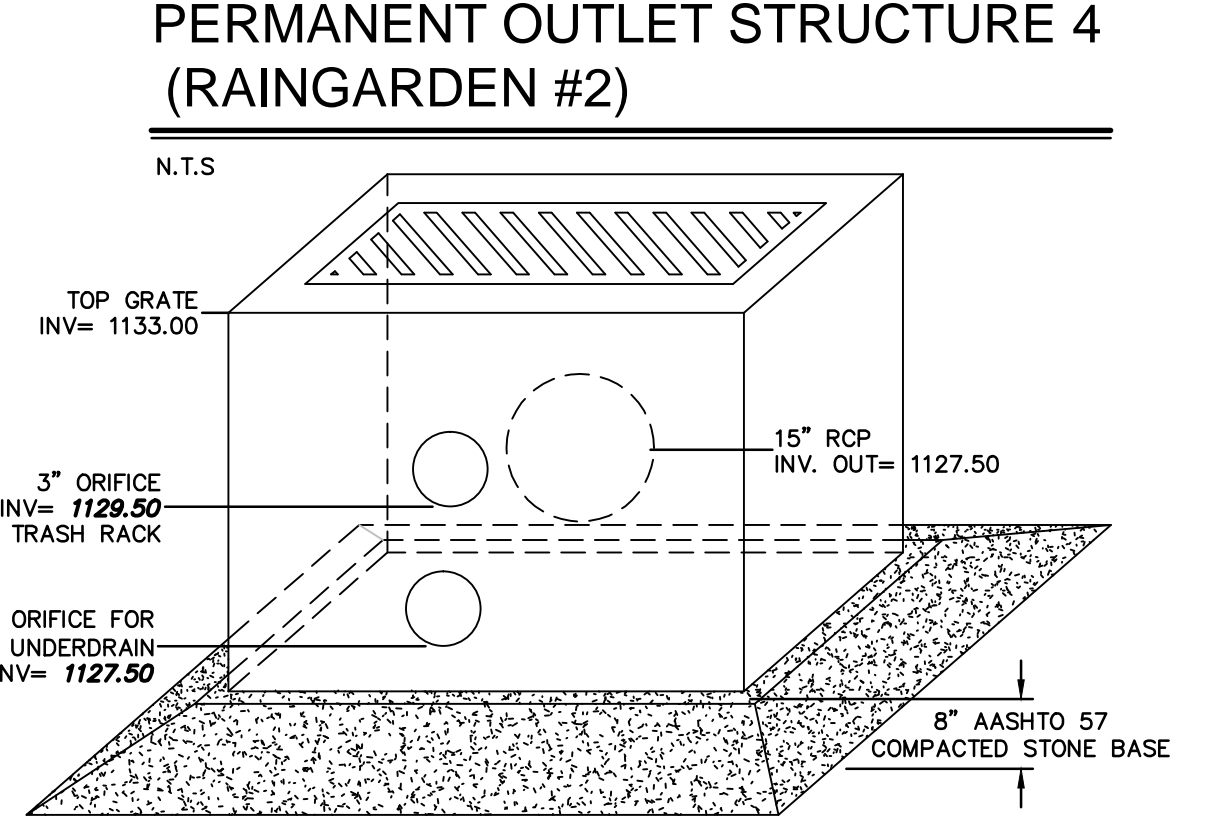


NOTES:  
 1. TRASH RACK MATERIAL TO BE STAINLESS STEEL.  
 2. SECURE THE TRASHRACK PLATE TO THE SIDE OF THE INLET BOX USING 5/16" x 2" STAINLESS STEEL BOLTS AND APPROPRIATE ANCHORS.  
 3. DURING INSTALLATION OF THE TRASH RACK PLATE, PLACE THIN LAYER OF BLACK MASTIC MATERIAL BETWEEN THE TRASHRACK PLATE AND THE INLET BOX WALL AS A GASKET TO CREATE A WATER TIGHT SEAM.  
 4. SEE PERMANENT OUTLET STRUCTURE DETAIL FOR ORIFICE PLATE DIMENSIONS.

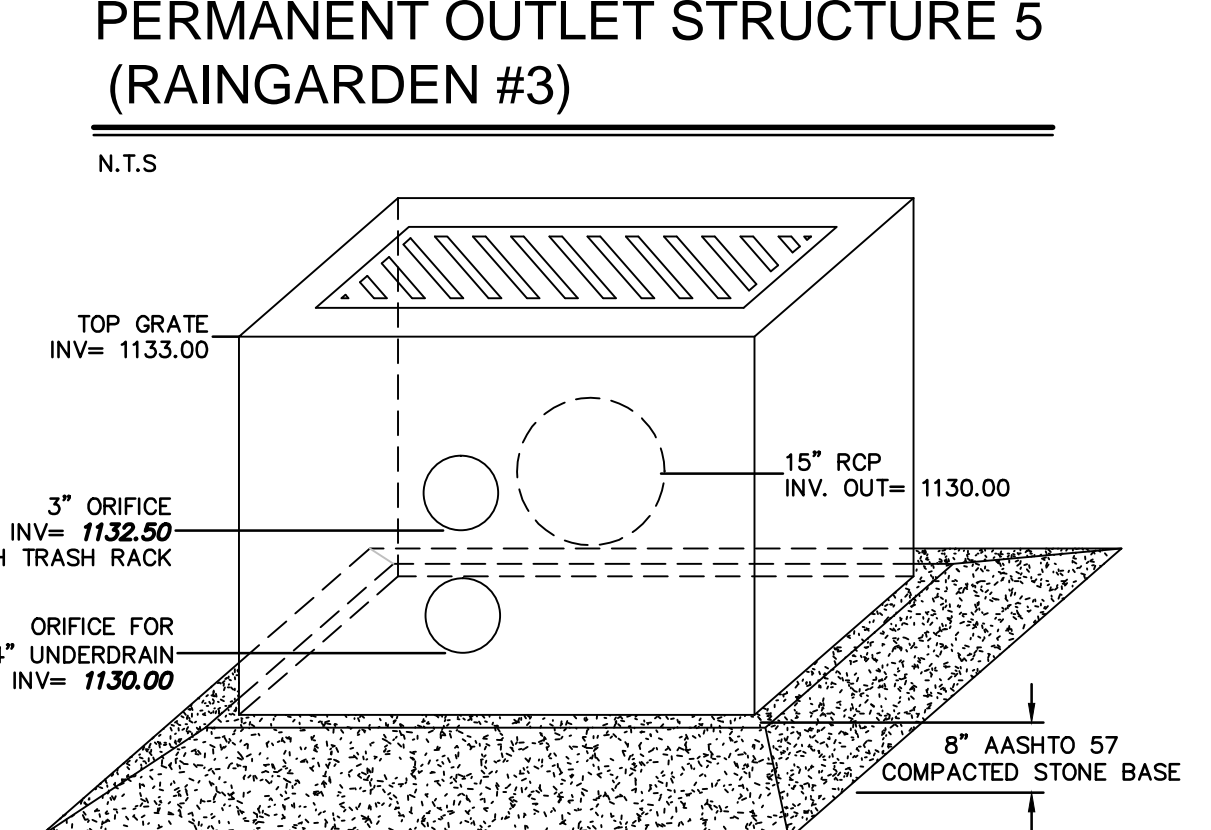
**PERMANENT OUTLET STRUCTURE TRASH RACK**



NOTES:  
 1. THE PROPOSED OUTLET STRUCTURE SHALL BE A TYPE "M" INLET IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC-34.  
 2. OUTLET STRUCTURE SHALL CONTAIN A TRASH RACK.



NOTES:  
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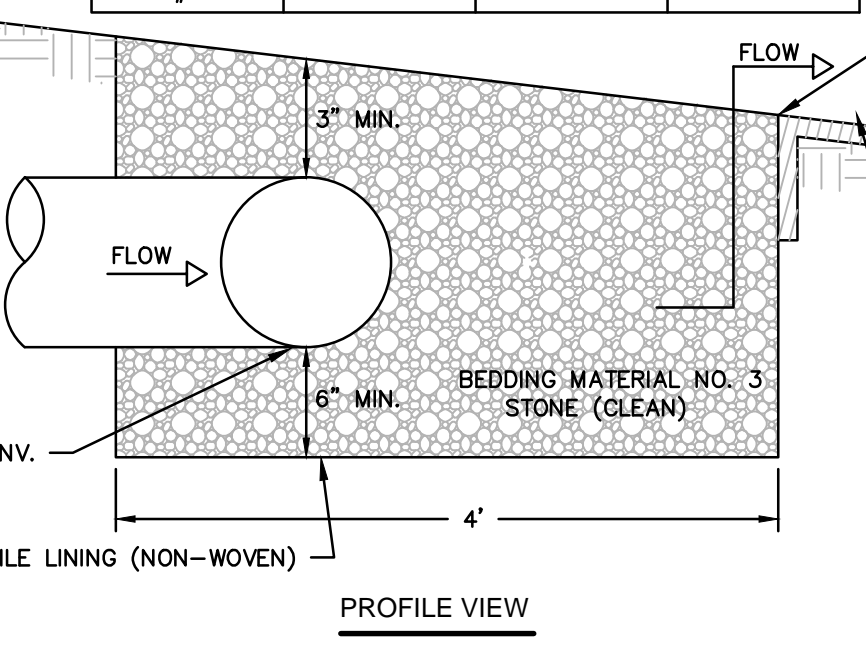


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 1. THE PROPOSED OUTLET STRUCTURE SHALL BE A TYPE "M" INLET IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC-34.  
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**PERMANENT OUTLET STRUCTURE TRASH RACK**

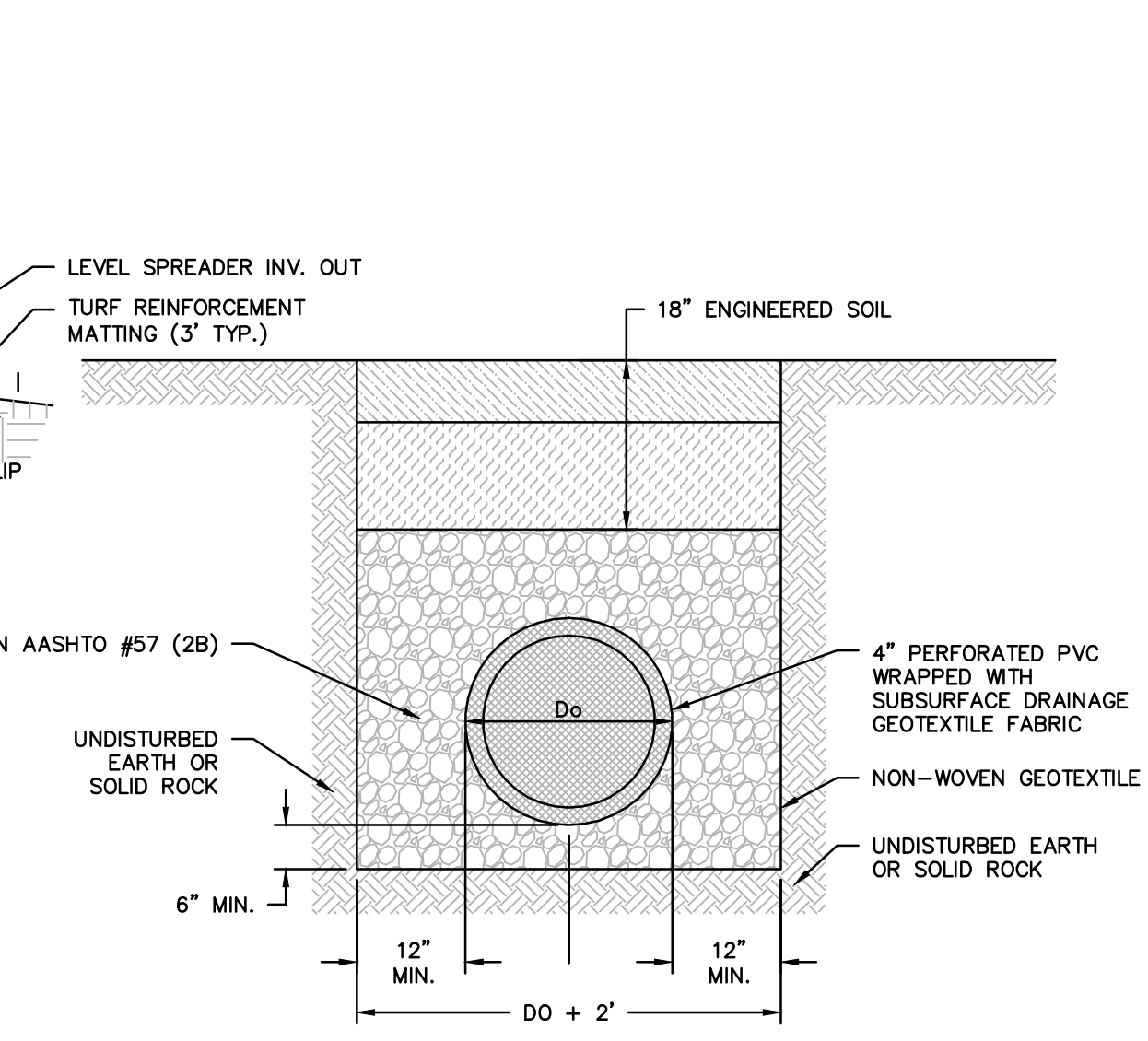
LEVEL SPREADER SUMMARY TABLE

LEVEL SPREADER NO.	LENGTH (L) (FT)	PIPE INVERT	SPREADER INVERT OUT
RAIN GARDEN #3	100	1126.50	1128.00
RAIN GARDEN #4	86	1126.50	1128.00

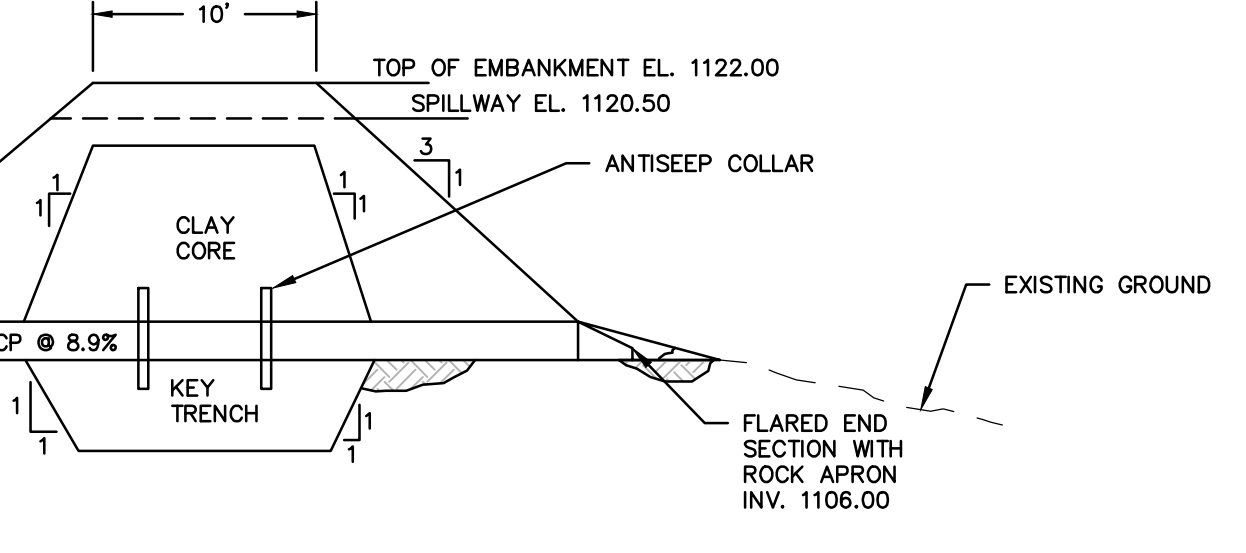


**LEVEL SPREADER WITH SUBSURFACE DISCHARGE**

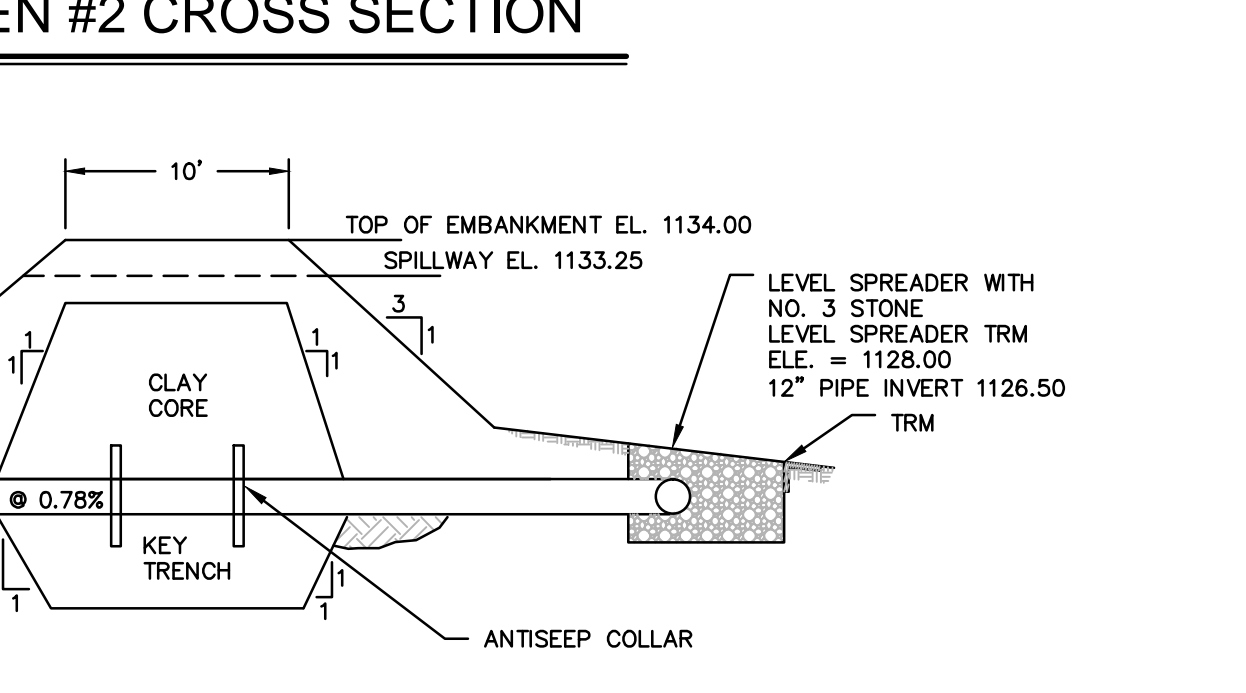
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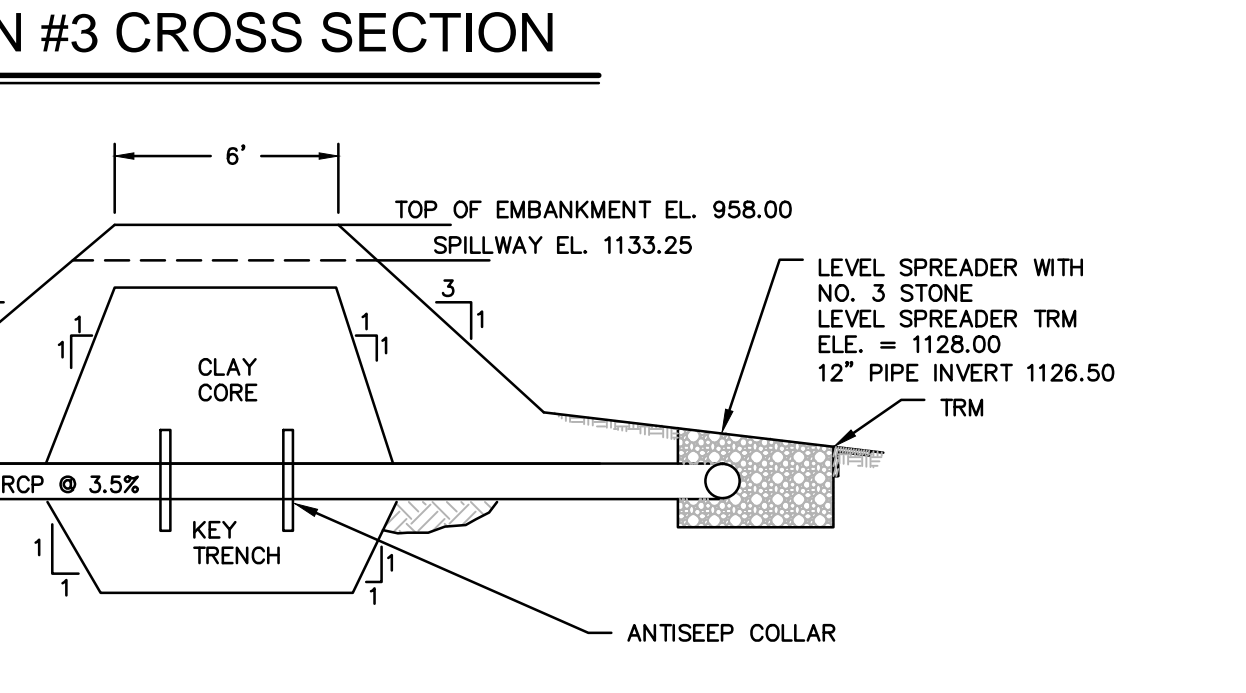
**PERFORATED DRAINAGE PIPE TRENCH SECTION**



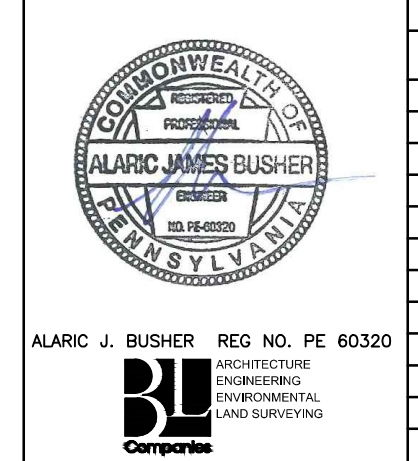
NOTES:  
 1. CLAY CORE SHALL BE COMPOSED OF CL, CH, MH OR CL-ML SOILS WITH A PERMEABILITY LESS THAN OR EQUAL TO 1.0x10<sup>-6</sup> CM/S. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM-D 1557; WITHIN ± 3% OPTIMUM MOISTURE CONTENT.  
 2. ENGINEERED SOIL SHALL CONTAIN 30% TOP SOIL, 30% SAND, 20% ORGANIC COMPOST, 20% FINE SHREDDED WOOD CHIPS, SOIL MIX SHALL CONTAIN NO MORE THAN 10% CLAY AND BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES.



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 1. CLAY CORE SHALL BE COMPOSED OF CL, CH, MH OR CL-ML SOILS WITH A PERMEABILITY LESS THAN OR EQUAL TO 1.0x10<sup>-6</sup> CM/S. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM-D 1557; WITHIN ± 3% OPTIMUM MOISTURE CONTENT.  
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REVISIONS

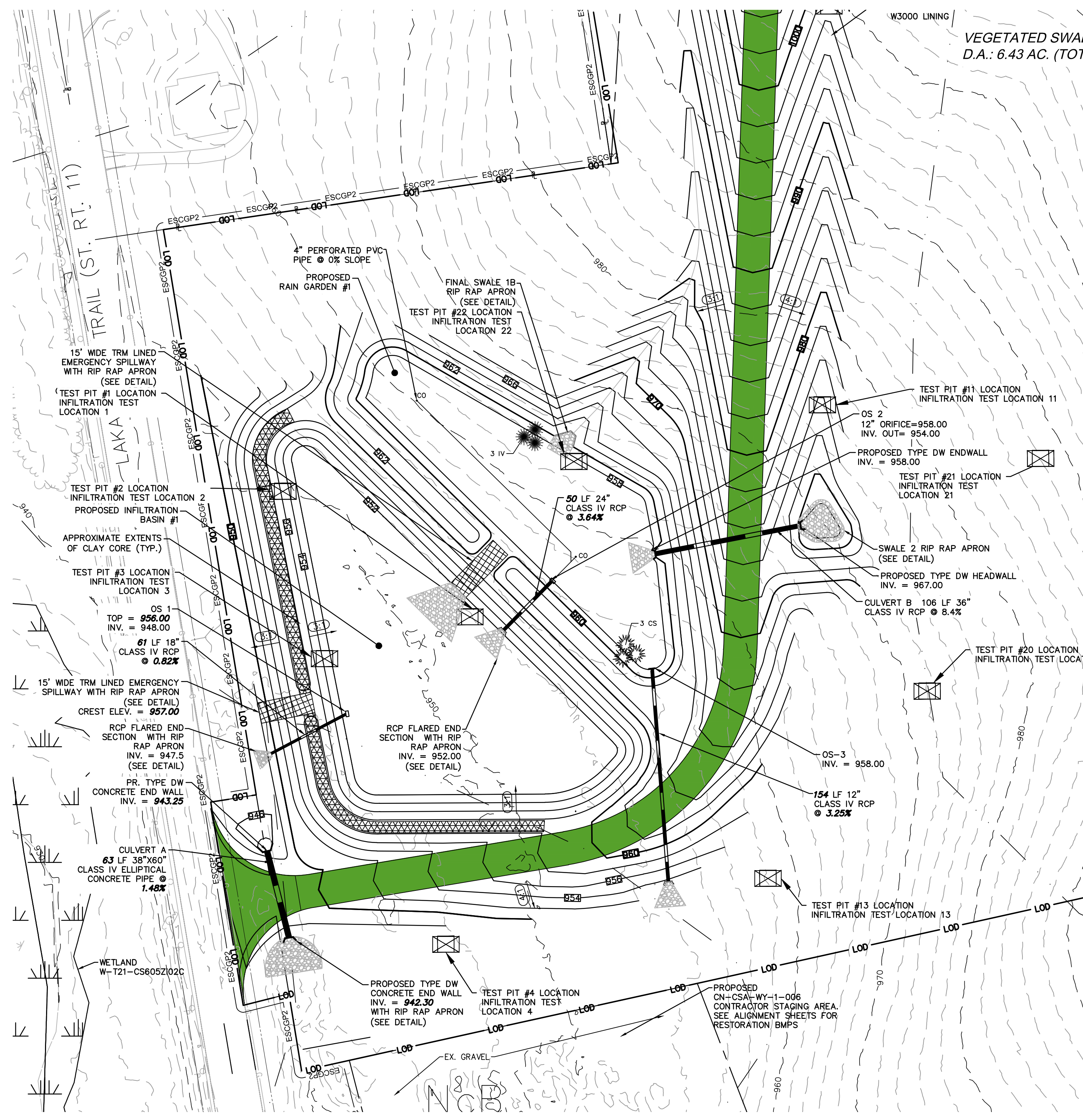
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2	05/27/2016	BL	UPDATED PER BASIC SYSTEMS DESIGN COORDINATION	W0161497	AJB	AJB
3	04/2016	BL	PADEP TECHNICAL DEPENDENCY RESPONSE #1	W0161497	AJB	AJB
4	April 2017	BL	PADEP TECHNICAL DEPENDENCY RESPONSE #2	W0161497	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
 ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE  
 POST CONSTRUCTION STORMWATER MANAGEMENT PLANS  
 FOR COMPRESSOR STATION 605  
 CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA  
 PCSM NOTES AND DETAILS

DRAWN BY: ADE DATE: 04/03/15 ISSUED FOR BID: SCALE: AS NOTED  
 CHECKED BY: AJB DATE: 04/03/15 ISSUED FOR CONSTRUCTION: REVISION: 4  
 APPROVED BY: AJB DATE: 07/17/15 DRAWING NUMBER: (66-0605)F-1A-9 SHEET 9 OF 10

Drawn By & Date/Time: Jrfjones Apr 27, 2017 1:04pm  
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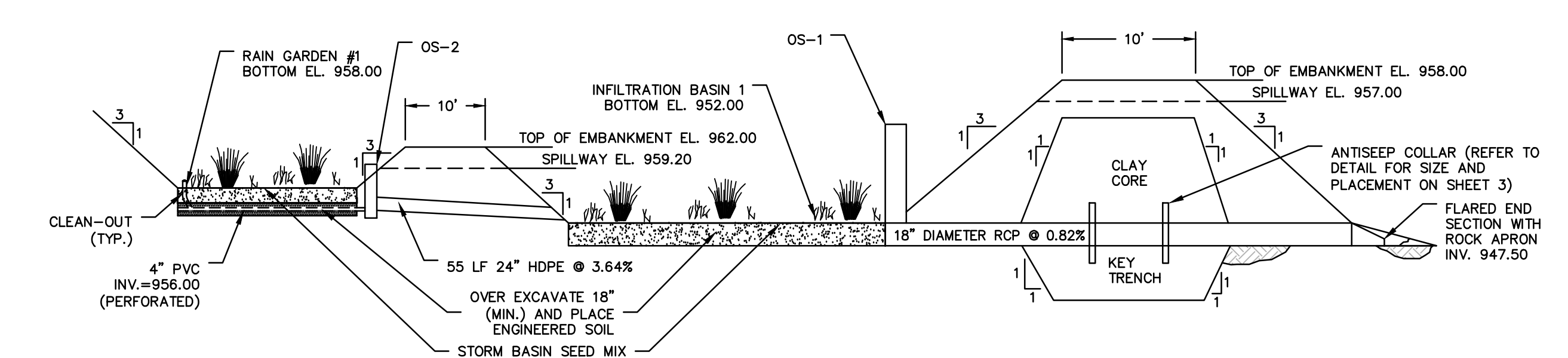
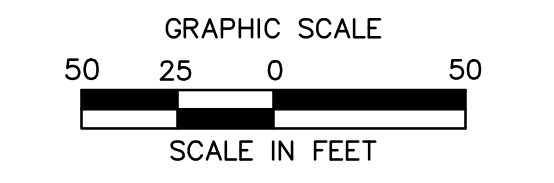
Drawn By & Date/Time: Jrfjones Apr 28, 2017 - 9:24am  
 Drawing Location & Name: G:\0551\14C\14C4909\DWG\010-CPLN\FCS\_PCSM14C4909(10)\_605.dwg



**RAINGARDEN 1 TO INFILTRATION BASIN 1**

**PROPOSED FEATURES**

— 10' —	MAJOR CONTOUR (10' INTERVAL)
— 2' —	MINOR CONTOUR (2' INTERVAL)
— LOD —	LIMIT OF DISTURBANCE
— ESCGP2 —	ESCGP-2 PERMIT BOUNDARY
— [Symbol] —	ROCK OUTLET/RIPRAP APRON
— [Symbol] —	ACCESS ROAD

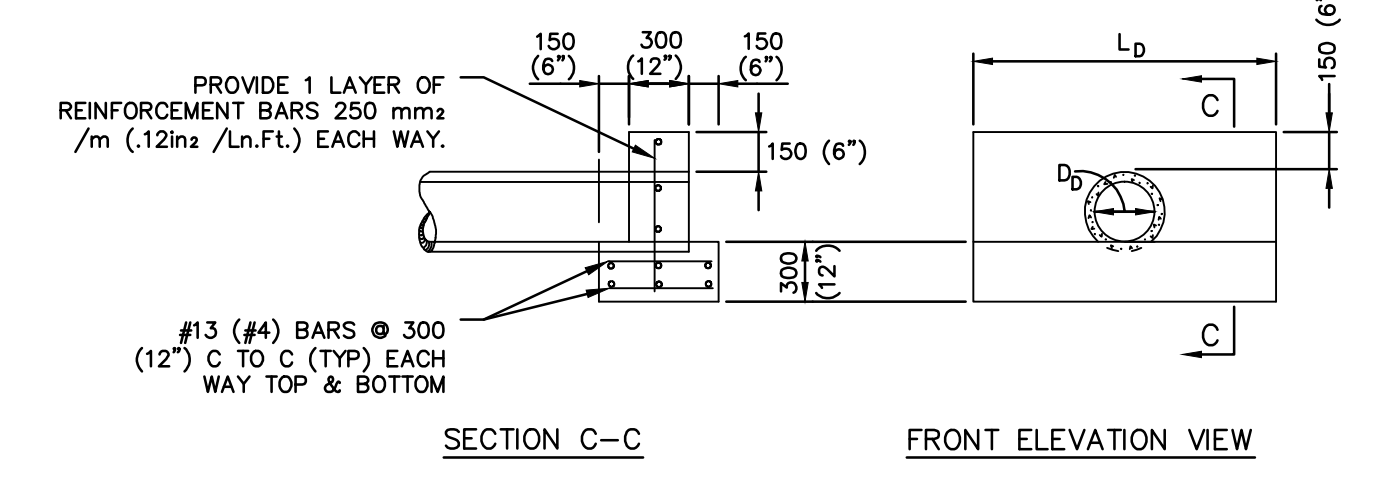


- NOTES:**
1. CLAY CORE SHALL BE COMPOSED OF CL, CH, MH OR CL-ML SOILS WITH A PERMEABILITY LESS THAN OR EQUAL TO  $1.0 \times 10^{-6}$  CM/S. MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DENSITY PER ASTM-D 1557; WITHIN  $\pm 3\%$  OPTIMUM MOISTURE CONTENT.
  2. ENGINEERED SOIL SHALL CONTAIN 30% TOP SOIL, 30% SAND, 20% ORGANIC COMPOST, 20% FINE SHREDDED WOOD CHIPS. SOIL MIX SHALL CONTAIN NO MORE THAN 10% CLAY AND BE FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES.

**RAIN GARDEN 1 TO INFILTRATION BASIN 1 CROSS SECTION**

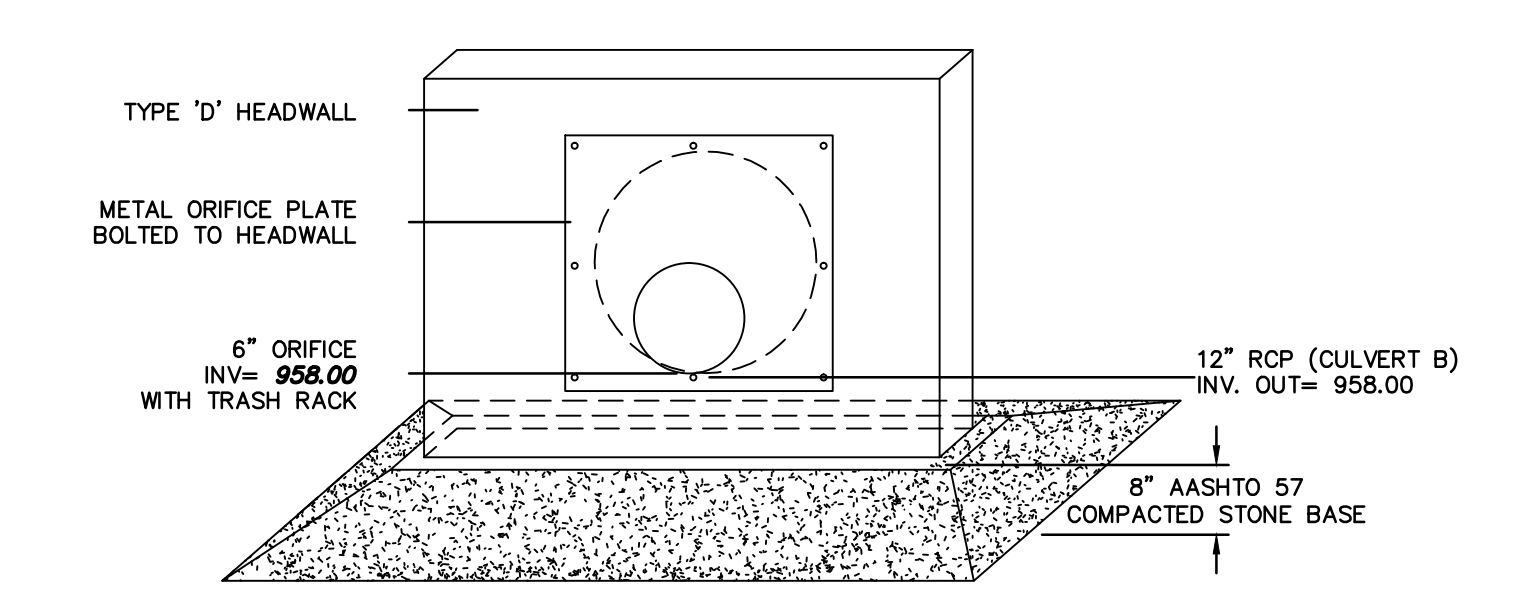
N.T.S.

PIPE DIAMETER	L <sub>D</sub>
450 AND 525 (18" AND 21")	1500 (5')
600 AND 675 (24" AND 27")	2100 (7')
750 AND 825 (30" AND 33")	2700 (9')
900 AND 975 (36" AND 39")	3000 (10')
1050 AND 1125 (42" AND 45")	3300 (11')
1200 AND 1275 (48" AND 51")	3600 (12')



**TYPE D ENDWALL**

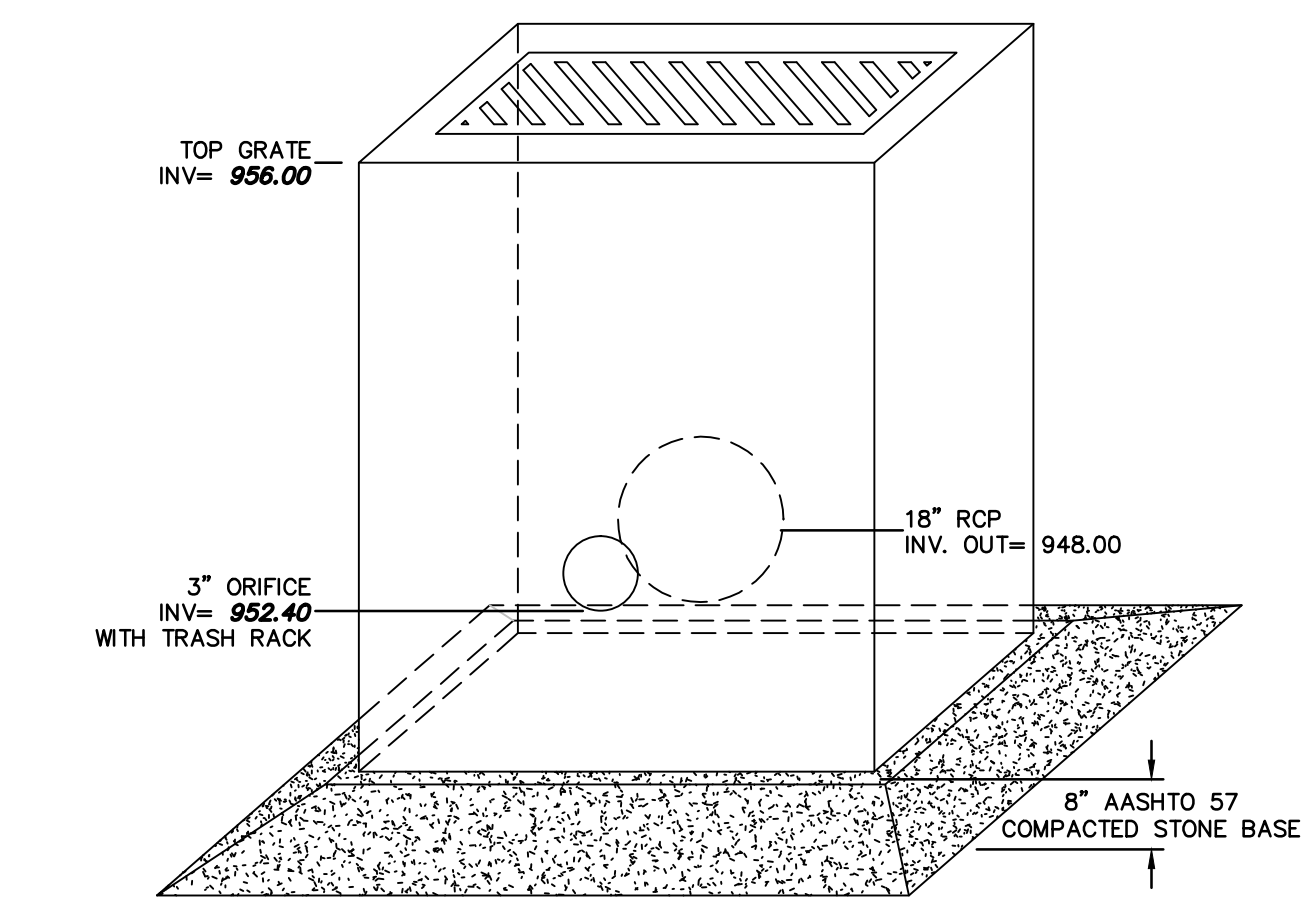
N.T.S.



**RAIN GARDEN #1 PERMANENT OUTLET STRUCTURE 3**

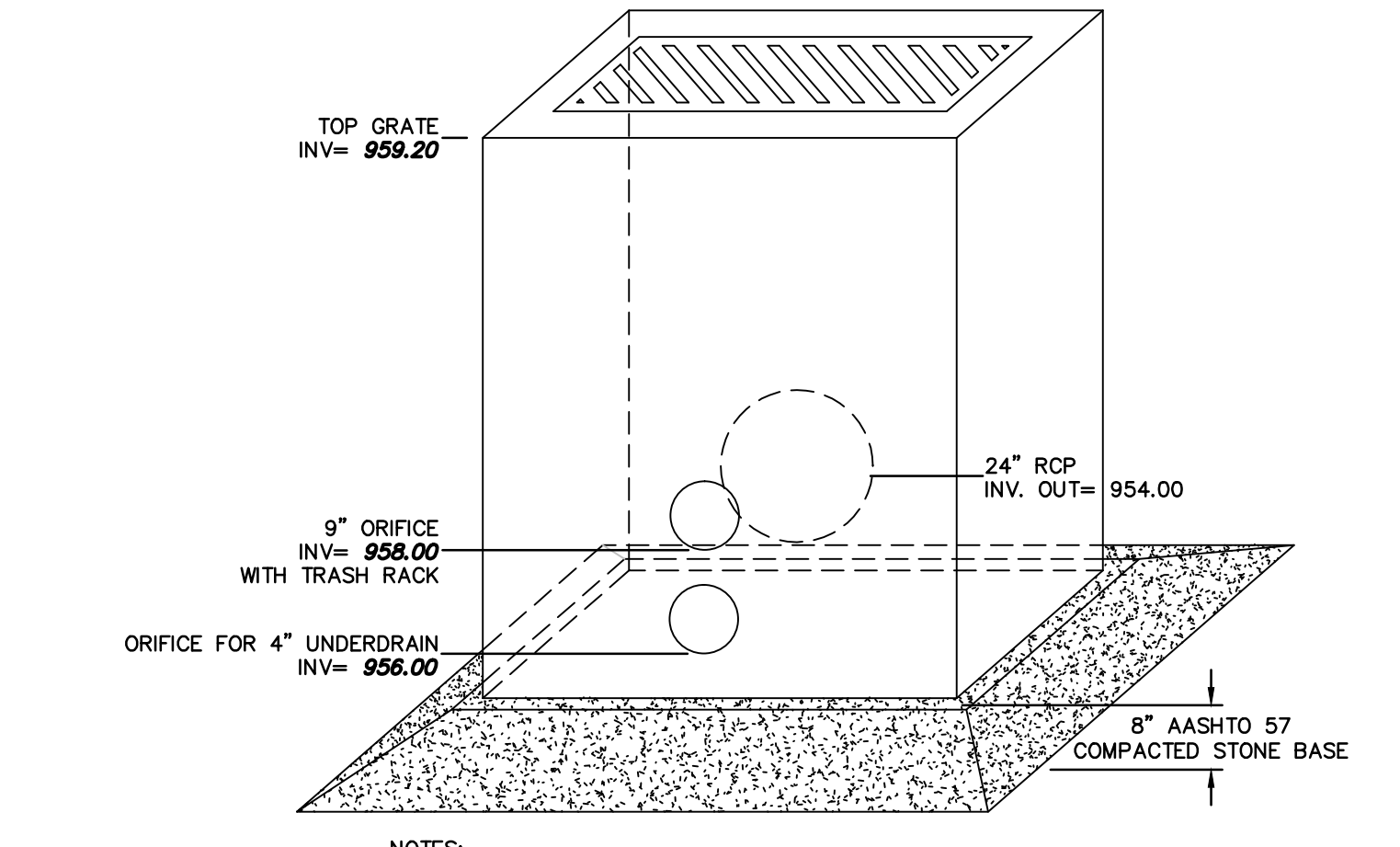
N.T.S.

- NOTES:**
1. PROVIDE WATERTIGHT SEAL BETWEEN HEADWALL AND METAL PLATE.



**INFILTRATION BASIN #1 PERMANENT OUTLET STRUCTURE 1**

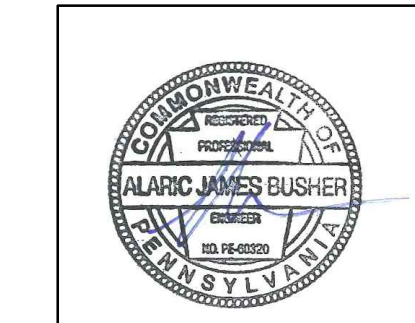
N.T.S.



**RAIN GARDEN #1 PERMANENT OUTLET STRUCTURE 2**

N.T.S.

- NOTES:**
1. THE PROPOSED OUTLET STRUCTURE SHALL BE A TYPE "M" INLET IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 605 AND STANDARDS FOR ROADWAY CONSTRUCTION, RC-34.
  2. OUTLET STRUCTURE SHALL CONTAIN A TRASH RACK.



ALARIC J. BUSHER REG. NO. PE 60320  
 ARCHITECTURE  
 ENGINEERING  
 ENVIRONMENTAL  
 LAND SURVEYING

REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.D. NO.	CHK.	APP.
0	08/26/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0161497	DAK	AJB
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0161497	DAK	AJB
2	05/27/2016	BL	UPDATED PER BASIC SYSTEMS DESIGN COORDINATION	W0161497	AJB	AJB
3	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0161497	AJB	AJB
4	April 2017	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #2	W0161497	AJB	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
ATLANTIC SUNRISE PROJECT- PROPOSED 30" NATURAL GAS PIPELINE			
POST CONSTRUCTION STORMWATER MANAGEMENT PLANS			
FOR COMPRESSOR STATION 605			
CLINTON TOWNSHIP, WYOMING COUNTY, PENNSYLVANIA			
<b>INSET OF INFILTRATION BASIN 1</b>			
DRAWN BY: ADE	DATE: 04/03/15	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: AJB	DATE: 04/03/15	ISSUED FOR CONSTRUCTION:	REVISION: 4
APPROVED BY: AJB	DATE: 07/17/15	DRAWING NUMBER: (66-0605)F-1A-9	SHEET 10 OF 10
W.D.:	1161497		

