

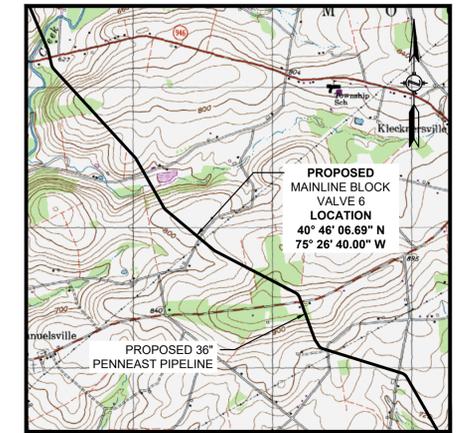
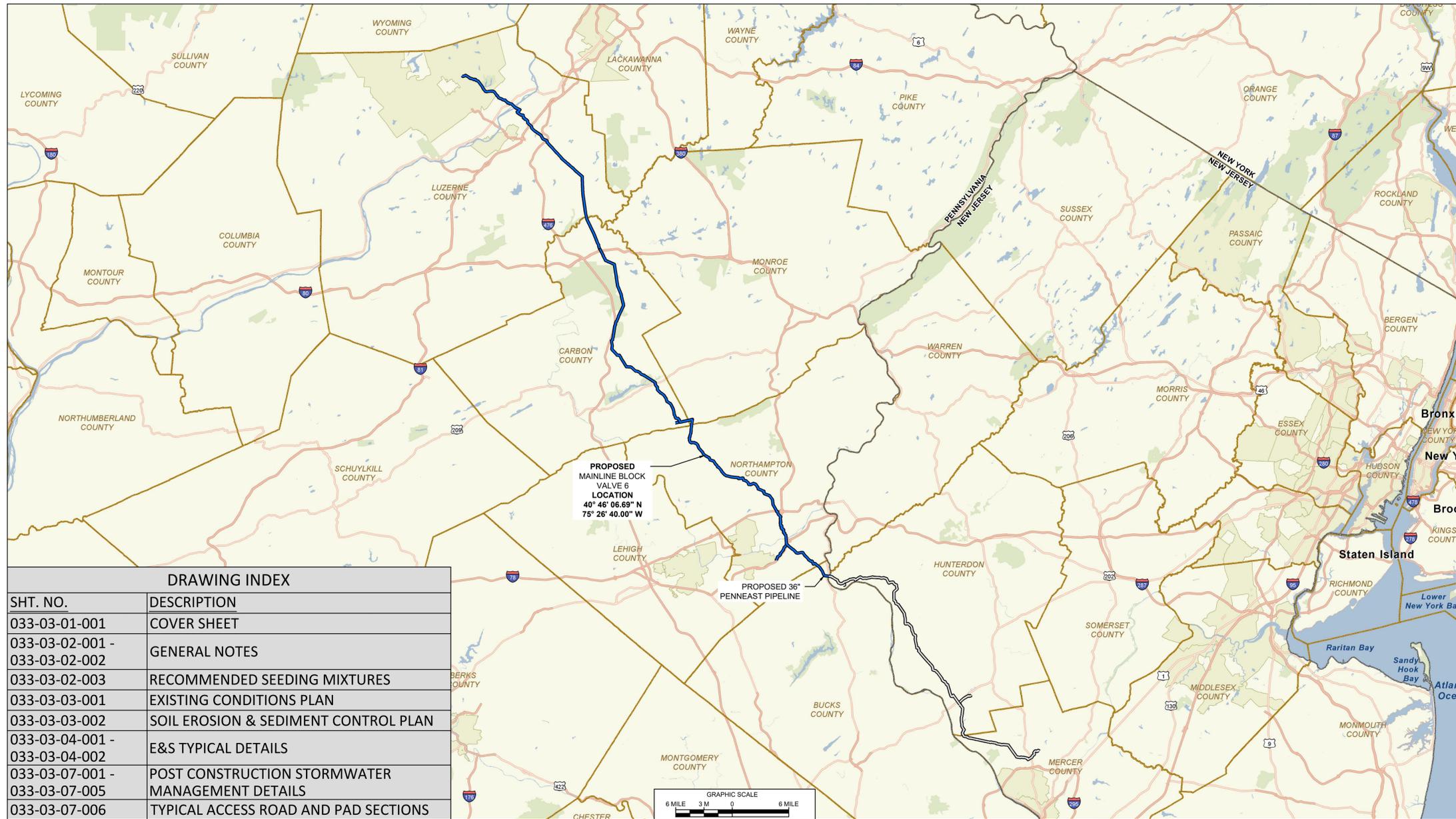
# PENNEAST PIPELINE COMPANY, LLC

## MAINLINE BLOCK VALVE 6

### MOORE TOWNSHIP

### NORTHAMPTON COUNTY, PENNSYLVANIA

## PADEP - SOIL EROSION AND SEDIMENT CONTROL PLAN



LOCATION MAP

SCALE: 1" = 200'  
USGS QUAD: MOORE TOWNSHIP, PENNSYLVANIA

DRAWING INDEX	
SHT. NO.	DESCRIPTION
033-03-01-001	COVER SHEET
033-03-02-001 - 033-03-02-002	GENERAL NOTES
033-03-02-003	RECOMMENDED SEEDING MIXTURES
033-03-03-001	EXISTING CONDITIONS PLAN
033-03-03-002	SOIL EROSION & SEDIMENT CONTROL PLAN
033-03-04-001 - 033-03-04-002	E&S TYPICAL DETAILS
033-03-07-001 - 033-03-07-005	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS
033-03-07-006	TYPICAL ACCESS ROAD AND PAD SECTIONS

- GENERAL NOTES:**
1. THIS PLAN SET CONTAINS ALL INFORMATION FOR THE SOIL EROSION AND SEDIMENT CONTROL PLAN (E&S PLAN) FOR THE PADEP ESCGP. THIS IS A PERMIT DOCUMENT ONLY. ADDITIONAL PLANS AND DOCUMENTATION ARE REQUIRED FOR CONSTRUCTION OF THE PROPOSED DEVELOPMENT.
  2. FULL SIZE SHEETS OF THIS PLAN SET MAY BE PRINTED OUT ON 24"x36" SHEETS. REPRODUCTION AT DIFFERENT SIZES SHALL RESULT IN DIFFERENT SCALES.
- REFERENCE (ALL SHEETS):**
1. EXISTING CONTOURS SHOWN WERE SURVEYED BY MOTT MACDONALD DURING 2015 AND 2016. ADDITIONAL EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015 AND SUPPLEMENTED FROM PASDA.
  2. SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 AND 2016.
  3. PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
  4. WATERBODY INFORMATION PROVIDED BY AECOM 2015 AND 2016.
  5. HORIZONTAL DATUM IS UTM83-18F. VERTICAL DATUM IS NAVD1988.

PENNSYLVANIA ONE-CALL SERIAL NUMBERS

20181981135-000



REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
		A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
		B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



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PENNEAST PIPELINE PROJECT			
MAINLINE BLOCK VALVE 6			
COVER SHEET			
NORTHAMPTON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	08/03/2018
CHECKED BY	KEK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	
DWG. NO.	033-03-01-001	REV. NO.	B

# PROJECT CONSTRUCTION SEQUENCING/SOIL LIMITATIONS

**GENERAL CONDITIONS:**

- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED AND IMMEDIATELY STABILIZED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. ANY DEVIATION FROM THE FOLLOWING SEQUENCE MUST BE APPROVED IN WRITING FROM THE JURISDICTIONAL COUNTY CONSERVATION DISTRICT.
- WORK EFFORT WILL BE SUBDIVIDED INTO CATEGORIES AND PERFORMED BY SPECIALIZED CREWS (E.G. SITES PREPARATION, PIPE CONSTRUCTION, ETC.). EACH CREW WILL PROGRESS IN A LOGICAL MANNER. THE TIME PERIOD BETWEEN SITE CLEARING AND FINAL STABILIZATION SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE. NO ONE SEGMENT OF AREA OF THE PIPELINE ALIGNMENT SHALL GO WITHOUT STABILIZATION (TEMPORARY OR PERMANENT) FOR A PERIOD GREATER THAN 30 DAYS IN ACCORDANCE WITH THE REQUIREMENTS FOR WELDED STEEL PIPELINE DESCRIBED IN CHAPTER 13 OF THE MARCH 2012 EROSION AND SEDIMENT POLLUTION CONTROL MANUAL. THE FOLLOWING DESCRIBES THE TYPICAL SEQUENCE OF CONSTRUCTION ACTIVITIES THAT SHALL OCCUR WITHIN THE TYPES OF AREAS DESCRIBED BELOW, WHICH WILL BE ENCOUNTERED DURING CONSTRUCTION.
- SOIL DISTURBANCE (E.G., GRUBBING, AND TOPSOIL STRIPPING) SHALL BE MINIMIZED PRIOR TO INSTALLING EROSION AND SEDIMENT CONTROLS IN THE VICINITY OF THE DISTURBANCE IN ACCORDANCE WITH THIS EROSION & SEDIMENT CONTROL PLAN (E&SCP). SIGNIFICANT DEVIATION FROM THE FOLLOWING SEQUENCE OF CONSTRUCTION MUST BE APPROVED IN WRITING (E.G. VIA E-MAIL) BY THE COUNTY CONSERVATION DISTRICT.
- STAGING AREAS, ASSEMBLY AREAS, TEMPORARY EQUIPMENT AND NON-HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET BACK FROM THE TOP OF THE STREAM BANK, WATER BODY, OR WETLAND AND OUTSIDE OF THE 100 YEAR FLOODWAY. HAZARDOUS OR POLLUTIVE MATERIAL STORAGE AREAS SHALL BE LOCATED A MINIMUM OF 100 FEET BACK FROM THE TOP OF THE STREAM BANK, WATER BODY, OR WETLAND AND OUTSIDE OF THE 100-YEAR FLOODWAY.
- THE GENERAL CONTRACTOR SHALL BE IDENTIFIED TO BECOME A CO-PERMITTEE IN THE EROSION AND SEDIMENT CONTROL GENERAL PERMIT (ESCGP) AND ARE RESPONSIBLE FOR THE DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. THE GENERAL CONTRACTOR SHALL BE JOINTLY AND INDIVIDUALLY RESPONSIBLE TOGETHER WITH PENNEAST (PERMITTEE) FOR COMPLIANCE WITH ALL CONDITIONS OF THIS PERMIT AND APPLICABLE LAWS PRIOR TO CONSTRUCTION. PENNEAST AND THE GENERAL CONTRACTOR SHALL NOTIFY THE PADEP OR THE CONSERVATION DISTRICT BY SUBMITTING AN APPLICATION FOR "CO-PERMITTEE ADDITION TO THE ESCGP AUTHORIZATION".

**CONSTRUCTION PREPARATION ACTIVITIES:**

- UPON INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMP'S AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN. DRAWINGS. DEVIATION FROM THE SEQUENCE MUST BE APPROVED BY THE APPLICABLE COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP, EXCEPT WHERE NOTED.
- ESTABLISH CONSTRUCTION SUPPORT FACILITIES.
- IDENTIFY UTILITIES AND OTHER CRITICAL SITE FEATURES TO BE PROTECTED.
- FLAG AND/OR STAKE SENSITIVE AREAS TO BE PROTECTED.
- FLAG AND/OR STAKE PROPOSED CONSTRUCTION LIMITS OF DISTURBANCE.

**BMP INSTALLATION SEQUENCE:**

- AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OWNER AND/OR OPERATOR SHALL NOTIFY THE PADEP BY EITHER TELEPHONE OR CERTIFIED MAIL OF THE INTENT TO COMMENCE EARTH DISTURBANCE ACTIVITIES. ATTENDANCE AT A PRE-CONSTRUCTION CONFERENCE IS REQUIRED UPON REQUEST OF THE PADEP.
- AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776 TO DETERMINE THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- INSTALL THE ROCK CONSTRUCTION ENTRANCE.
- CONFIRM COMPOST FILTER SOCK PLACEMENT DOWNSLOPE OF ANY PROPOSED DISTURBED/EXCAVATED AREA AND STOCKPILES. CONFIRM TEMPORARY WATERBAR INSTALLED DURING MAINLINE CONSTRUCTION. REPAIR AS NEEDED.
- PERFORM CLEARING AND GRUBBING TO THOSE AREAS DESCRIBED IN EACH STAGE OF WORK. REMOVE ALL EXCESS TOPSOIL FROM THE LIMITS OF DISTURBANCE AND STOCKPILE OFF-SITE. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY OFF-SITE WASTE AREAS HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR PADEP PRIOR TO BEING ACTIVATED. SAFETY FENCING SHALL BE INSTALLED TO PREVENT COMPACTION OF INFILTRATION AREAS.
- THE STONE BASE AND SUB-SURFACE INFILTRATION FACILITY SHALL BE INSTALLED. CARE SHALL BE TAKEN TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STONE INFILTRATION BASE. THE ENGINEER SHALL INSPECT THE SUB-SURFACE INFILTRATION FACILITY PRIOR TO BACKFILLING AROUND IT.
- PERFORM GRADING ACTIVITIES DETAILED BY PROPOSED CONTOURS, NOTES, AND DETAILS SHOWN ON THE PLAN DRAWINGS. REMOVE TEMPORARY WATERBAR. PER PROJECT SPECIFICATIONS. ADDITIONAL TEMPORARY PLACEMENT OF COMPOST FILTER SOCK MAY BE NECESSARY AT THE CONTRACTOR'S DISCRETION. SHOULD ACCELERATED EROSION BE OBSERVED DURING GRADING ACTIVITIES. INSTALL SUBSURFACE STORMWATER INFILTRATION SYSTEM DURING BULK FILLING OPERATIONS.
- CONSTRUCT PAD AND FACILITIES ACCORDING TO SPECIFICATIONS WITHIN THESE PLAN SHEETS INCLUDING ALL STABILIZATION MEASURES. GRADES WILL BE LEFT 1 FOOT BELOW CATCH BASIN INLET GRATE ELEVATIONS TO PREVENT SILT-LADEN STORMWATER RUNOFF FROM ENTERING THE SUBSURFACE PIPING. ONCE THE SITE HAS BEEN STABILIZED, GRADING SHALL BE BROUGHT TO FINAL ELEVATIONS.
- ALL AREAS WITH MINOR SOIL COMPACTION SHALL BE RIPPED TO A DEPTH OF 8", AND AREAS OF MAJOR COMPACTION SHALL BE RIPPED TO A DEPTH OF 20". NO RIPPING SHALL TAKE PLACE IN THE VICINITY OF THE MAINLINE PIPING OR OTHER UNDERGROUND UTILITIES.
- PLACE TOPSOIL IN ALL AREAS TO BE VEGETATED.
- APPLY SEED AND MULCH TO DISTURBED AREAS AS SPECIFIED AND IN ACCORDANCE WITH THIS PLAN.
- ANY TEMPORARY MEASURES (SUCH AS COMPOST FILTER SOCK, COLLECTION CHANNEL, RIPPAP APRONS, ETC.) INSTALLED BY CONTRACTOR DURING GRADING SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS OCCURRED WITH A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER, WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. THE ENGINEER SHALL INSPECT FINAL STABILIZATION PRIOR TO REMOVAL OF TEMPORARY MEASURES.
- CLEAN WORK AREA OF ANY DEBRIS CREATED DURING THE CONSTRUCTION SEQUENCE.

**SITE CLEARING (TREE CUTTING) & GRUBBING:**

- INITIATE CLEARING AND GRUBBING OF CONSTRUCTION WORK AREA (CWA) AND ACCESS ROADS AS NEEDED. LIMIT CLEARING AND GRUBBING TO CUTTING EXISTING VEGETATION RATHER THAN BULLDOZING THE VEGETATION.
- ALL BRUSH AND TREES WILL BE FELLED INTO THE CWA TO MINIMIZE DAMAGE TO TREES AND STRUCTURES ADJACENT TO THE CWA.
- INSTALL TEMPORARY ACCESS ROADS.
- WOODY VEGETATION CLEARING OF THE CWA WILL TAKE PLACE IN A SINGLE PASS OF THE SITE. CONTRACTOR/PENNEAST TO DETERMINE WHETHER TIMBER WILL BE HAULED OFF SITE

OR CHIPPED AND SPREAD EVENLY WITHIN THE CWA, REMOVED FROM SITE, STOCKPILED AT STAGING AREAS OR BLOWN OFF-SITE WITH LANDOWNER APPROVAL. WOOD CHIPS WILL NOT BE LEFT WITHIN AGRICULTURAL LANDS, WETLANDS, OR WITHIN 50 FEET OF WETLANDS. WOOD CHIPS WILL NOT BE STOCKPILED IN A MANNER THAT THEY MAY BE TRANSPORTED INTO A WETLAND.

- INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN. EROSION AND SEDIMENT CONTROL INSTALLATION, SIMILAR TO OTHER ACTIVITIES, MAY BE CONDUCTED AS PIPELINE CONSTRUCTION ACTIVITIES PROGRESS, HOWEVER, SOIL DISTURBANCE SHALL BE MINIMIZED UNTIL THE APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROLS HAVE BEEN INSTALLED IN THE PROPOSED WORK AREA.
- GRUB TREE STUMPS IN CLEARED CWA. GRIND STUMPS AND REMOVE FROM RIGHT-OF-WAY AND HAUL OFF SITE OR STOCKPILE AT STAGING AREAS FOR USE AS MULCH STABILIZATION AFTER EARTH DISTURBING ACTIVITIES ARE COMPLETED.
- LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER TRENCH LINE.
- NOTIFY THE COUNTY CONSERVATION DISTRICT AFTER INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMP'S (INCLUDING TOPSOIL PILES) WITHIN EACH WORK AREA AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH BULK EARTH DISTURBANCE ACTIVITIES.
- EXISTING SURFACE DRAINAGE PATTERNS WILL NOT BE ALTERED BY THE PLACEMENT OF TIMBER OR BRUSH PILES AT THE EDGE OF THE CWA.

**HYDROSTATIC TESTING:**

- THE EI SHALL NOTIFY THE AGENCIES OF THE INTENT TO USE SPECIFIC TEST WATER SOURCES AT LEAST 48 HOURS BEFORE TESTING ACTIVITIES.
- PUMPS USED FOR HYDROSTATIC TESTING WITHIN 100 FEET OF ANY WATERBODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL COUNTERMEASURE PLAN.
- USE ONLY THE WATER SOURCES IDENTIFIED IN THE CLEARANCE PACKAGE/PERMIT BOOK.
- LOCATE HYDROSTATIC TEST MANIFOLDS OUTSIDE WETLANDS AND RIPARIAN AREAS TO THE GREATEST EXTENT PRACTICAL.
- FOR AN OVERLAND DISCHARGE OF TEST WATER, DEWATER INTO AN ENERGY DISSIPATION DEVICE CONSTRUCTED OF STRAW BALES AND ABSORBENT BOOMS.
- DEWATER ONLY AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR LOCATIONS IDENTIFIED IN THE HYDROSTATIC TEST PACKAGE.
- LOCATE ALL DEWATERING STRUCTURES IN A WELL-VEGETATED AND STABILIZED AREA. IF PRACTICAL, AND ATTEMPT TO MAINTAIN AT LEAST A 50-FOOT VEGETATED BUFFER FROM ADJACENT WATERBODY/WETLAND AREAS. IF AN ADEQUATE BUFFER IS NOT AVAILABLE, BMP'S OR SIMILAR EROSION CONTROL MEASURE MUST BE INSTALLED.
- REGULATE DISCHARGE RATE, USE ENERGY DISSIPATION DEVICE(S), AND INSTALL BMP'S, AS NECESSARY, TO PREVENT EROSION, STREAMBED SCOUR TO AQUATIC RESOURCES, SUSPENSION OF SEDIMENTS, FLOODING OR EXCESSIVE STREAM FLOW.
- THE EI SHALL SAMPLE AND TEST THE SOURCE WATER AND DISCHARGE WATER IN ACCORDANCE WITH THE PERMIT REQUIREMENTS.

**DEMobilIZATION AND SITE CLEAN UP:**

- COMPLETE PERMANENT STABILIZATION OF ALL REMAINING AREAS OF DISTURBANCE, INCLUDING:
  - REPLACE TOPSOIL
  - APPLY PERMANENT SEEDING, SOIL AMENDMENT, AND MULCH OR EROSION CONTROL BLANKET.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER OR OPERATOR SHALL CONTACT THE COUNTY CONSERVATION DISTRICT AND PADEP FOR AN INSPECTION PRIOR TO THE REMOVAL/CONVERSION OF THE EROSION AND SEDIMENT CONTROL BMP'S.
- REMOVE TEMPORARY CONTROL MEASURES UPON APPROVAL OF THE COUNTY CONSERVATION DISTRICT AGENT OR PADEP.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES, REMOVAL OF ALL TEMPORARY BMP'S, INSTALLATIONS OF ALL PERMANENT PCSM BMP'S, AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE COUNTY CONSERVATION DISTRICT OR PADEP FOR A FINAL INSPECTION. TEMPORARY WORKSPACE WILL BE RESTORED AS CLOSELY AS POSSIBLE TO ORIGINAL CONTOURS.
- ANY MATERIALS NOT INCORPORATED AS TRENCH BACKFILL OR GENERAL GRADING (E.G. UNCONTAMINATED SOIL, ROCK, STONE, GRAVEL, BRICK AND BLOCK, CONCRETE AND USED ASPHALT; AND WASTE FROM LAND CLEARING, GRUBBING AND EXCAVATION, INCLUDING TREES, BRUSH, STUMPS AND VEGETATIVE MATERIAL) WILL BE REUSED, RECYCLED OR REMOVED FROM THE CONSTRUCTION WORK LIMITS IN ACCORDANCE WITH PADEP \* SOLID WASTE MANAGEMENT AT 25 PA CODE.260.1 ET SEQ., 271.1 AND 287.1 ET SEQ.
- CONTRACTOR DEMOBILIZATION.

**POST-CONSTRUCTION:**

- CONTINUE TO CONDUCT INSPECTIONS UNTIL THE SITE HAS REACHED PERMANENT STABILIZATION.
- PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION, CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
- TEMPORARY E&S BMP'S MAY BE REMOVED AFTER THE ENTIRE CONTRIBUTORY AREA TO EACH BMP REACHES PERMANENT STABILIZATION.
- PRIOR TO APPLICATION OF THE SEED IN ALL SUPPORT & STAGING AREAS, THE SEEDBED WILL BE PREPARED TO A DEPTH OF 3 TO 4 INCHES USING APPROPRIATE EQUIPMENT TO PROVIDE A FIRM, SMOOTH SEEDBED THAT IS FREE OF DEBRIS AND SCARIFIED TO ENSURE SEEDS LODGE AND GERMINATE. THE SEED MIXTURE WILL BE APPLIED UNIFORMLY PER PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MARCH 2012, CHAPTER 11 STABILIZATION FOR SEEDING RECOMMENDATIONS.

**AGRICULTURAL / RESIDENTIAL RESTORATION NOTES:**

- GRAZING DEFERMENT PLANS WILL BE COORDINATED WITH LANDOWNERS TO MINIMIZE GRAZING DISTURBANCE OF REVEGETATED AREAS TO THE EXTENT PRACTICABLE.
- THE MIXING OF TOPSOIL WITH SUBSOIL SHALL BE PREVENTED BY STRIPPING TOPSOIL FROM THE WORK AREA WITHIN DESIGNATED AREAS AND IN COORDINATION WITH THE APPLICABLE ACCESS AGREEMENTS.
- SPECIAL RESTORATION CONDITIONS MAY BE COORDINATED WITH THE LANDOWNERS FOR AGRICULTURAL FIELDS, WHICH SHALL TAKE PRECEDENCE TO THE PROPOSED STABILIZATION PROCEDURES, ONLY IF THE SPECIAL CONDITIONS MEET THE MINIMUM REQUIREMENTS OF PADEP AND FERCL.

LIMITING SOIL CHARACTERISTICS LEGEND																			
MAP SYMBOL	SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/ STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS	MIN. DEPTH TO BEDROCK	pH
BIB	BEDINGTON-BERKS COMPLEX, 3 TO 8 PERCENT SLOPES	X	C	X	X			X		X		X	X					X	X
BkA	BERKS-WEIKERT COMPLEX, 0 TO 3 PERCENT SLOPES	X	C	X	X			X		X		X						X	
BkB	BERKS-WEIKERT COMPLEX, 3 TO 8 PERCENT SLOPES	X	C	X	X			X		X		X						X	X

SOURCE: AS TAKEN FROM TABLE E.1 OF THE THE PADEP E&SCP MANUAL, MARCH 2012. HTTP://WWW.ELIBRARY.DEP.STATE.PA.US/DSWEB/GET/DOCUMENT-88925/363-2134-008.PDF

**THE SOIL LIMITATIONS SHALL BE ADDRESSED AS FOLLOWS:**

**LIMITATIONS AND RESOLUTIONS:**

**LIMITATION: CUTBANKS CAVE, LOW STRENGTH** - CUTBANKS HAVE POTENTIAL TO CAVE AND MANY SOILS ARE LOW STRENGTH.  
**RESOLUTION:** CONTRACTOR SHALL BE AWARE OF POTENTIAL ISSUES AND FOLLOW OSHA GUIDELINES FOR OPEN TRENCHING. LOW SOIL STRENGTH IS NOT A CONCERN DUE TO THE NATURE OF THE PROPOSED PROJECT. UTILITY TRENCHING WILL NOT BE ADVERSELY EFFECTED BY POOR SOIL STRENGTH.

**LIMITATION: CORROSIVE TO STEEL AND/OR CONCRETE**  
**RESOLUTION:** IF STEEL PIPE IS USED RUST PROTECTION BY COATINGS AND/OR USE OF CATHODIC PROTECTION IS RECOMMENDED. IF CONCRETE IS USED SOIL SHALL BE TESTED AND CONCRETE COATED AS RECOMMENDED BY MANUFACTURER.

**LIMITATION: DROUGHTY** - SOILS EXHIBITING A POOR MOISTURE-HOLDING CAPACITY, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.  
**RESOLUTION:** FOR DROUGHTY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. DROUGHTY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

**LIMITATION: EASILY ERODIBLE**  
**RESOLUTION:** SPECIAL ATTENTION SHALL BE GIVEN TO MAINTAINING EXISTING VEGETATION IN EASILY ERODIBLE SOILS, TO THE EXTENT POSSIBLE. EASILY ERODIBLE SOILS WITHIN 50 FEET OF A SURFACE WATER SHOULD BE BLANKETED. WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT A SUFFICIENT VEGETATIVE FILTER STRIP BETWEEN THE WATERBAR AND A RECEIVING SURFACE WATER, THE WATERBAR SHOULD BE PROVIDED WITH A TEMPORARY PROTECTIVE LINER.

**LIMITATION: FLOODING** - ANY SOIL SUBJECT TO INUNDATION DURING A 2-YEAR/24HR STORM EVENT.  
**RESOLUTION:** (SEE WET SOILS)

**LIMITATION: HIGH WATER TABLE, POTENTIALLY HYDRIC** - HIGH WATER TABLE IS TO BE EXPECTED AND MANY OF THE SOILS ARE POTENTIALLY HYDRIC.  
**RESOLUTION:** FOLLOW E&S PLAN WITH REGARD TO PUMPING AND DEWATERING. DISCHARGE OF SEDIMENT LADEN WATER IS PROHIBITED UNLESS WITHOUT FIRST PASSING THRU A "PUMPED WATER FILTER BAG" BMP.

**LIMITATION: HYDRIC / HYDRIC INCLUSIONS** - A SOIL THAT IS SATURATED, FLOODED, OR PONDED LONG ENOUGH DURING THE GROWING SEASON TO DEVELOP ANAEROBIC-CONDITIONS. WHEN SUCH A SOIL IS LOCATED IN AN AREA THAT HAS HYDROPHYTIC VEGETATION AND WETLAND HYDROLOGY, A WETLAND IS PRESENT.

**RESOLUTION:** HYDRIC SOILS THAT ARE DELINEATED WETLANDS, SHOULD BE AVOIDED TO THE EXTENT POSSIBLE. STAGING AREAS SHOULD BE LOCATED 50 FEET FROM THE EDGE OF WETLAND. MOVEMENT OF VEHICLES ACROSS WETLAND MUST BE MINIMIZED. WHERE VEHICLES NEED TO CROSS WETLANDS, THE USE OF TEMPORARY TIMBER MATS SHALL BE USED DUE TO THE POTENTIAL FOR RUTTING. TRENCH PLUGS SHALL BE INSTALLED TO PREVENT THE TRENCH FROM DRAINING THE WETLANDS OR CHANGING THE HYDROLOGY.

**LIMITATION: LOW STRENGTH / LANDSLIDE PRONE** - SOILS WITH LOW STRENGTH HAVE A LESSER ABILITY TO RESIST SLOPE FAILURE, SUCH AS SLUMPING, FLOWING, ETC. MATERIALS WITH LOW SHEAR STRENGTH ARE MORE SUSCEPTIBLE TO LANDSLIDES AND EMBANKMENT FAILURES.  
**RESOLUTION:** PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE "PADEP - EROSION AND SEDIMENT CONTROL PROGRAM MANUAL," UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.

**LIMITATION: SLOW PERCOLATION** - PERMEABILITY RATE LESS THAN OR EQUAL TO 0.2 INCHES/HR.  
**RESOLUTION:** BMP'S TO BE INSPECTED AFTER RUNOFF EVENTS, MAKE SURE THERE IS ADEQUATE AREA FOR PUMPED WATER DISCHARGE. PCSM FACILITIES DESIGN BASED ON SITE SPECIFIC DESIGN.

**LIMITATION: PIPING**  
**RESOLUTION:** PIPING POTENTIAL IN THE SOIL WILL BE MINIMIZED BY THE USE OF TRENCH PLUGS. FURTHERMORE, ANY PLANNED EMBANKMENTS OR PERMANENT IMPOUNDMENTS SUSCEPTIBLE TO PIPING SHALL UTILIZE ANTI-SEEP COLLARS OR FILTER DIAPHRAGMS ON OUTLET BARRELS.

**LIMITATION: LIMITED AVAILABLE TOPSOIL**  
**RESOLUTION:** ANY EXCAVATED TOPSOIL WILL BE STOCKPILED AND REUSED. IF NECESSARY, ADDITIONAL TOPSOIL WILL BE BROUGHT ON-SITE.

**LIMITATION: FROST ACTION** - THE LIKELIHOOD OF UPWARD OR LATERAL EXPANSION OF THE SOIL CAUSED BY THE FORMATION OF SEGREGATED ICE LENSES, OR FROST HEAVE, AND THE SUBSEQUENT COLLAPSE OF THE SOIL AND LOSS OF STRENGTH ON THAWING, WHICH CAN DAMAGE ROADS, BUILDINGS, AND OTHER STRUCTURES AS WELL AS PLANT ROOTS.  
**RESOLUTION:** PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE TO ROADWAYS AND STRUCTURES.

**LIMITATION: WET SOILS** - SOME SOILS MAY EXHIBIT A HIGH WATER TABLE OR PONDING.  
**RESOLUTION:** IF HIGH WATER TABLE IS ENCOUNTERED, TRENCH DEWATERING WILL BE EMPLOYED. LOCATE PCSM FACILITIES AWAY FROM WET SOILS.

**LIMITATION: MIN. DEPTH TO BEDROCK** - SOME SOILS HAVE A MIN DEPTH OF BEDROCK LESS THAN THE TYPICAL TRENCH DEPTH OF 7 FT (ASSUMES 3 FT OF COVER, PIPE DIAMETER, AND BEDDING DEPTH OF 1 FT).  
**RESOLUTION:** CONTRACTOR TO PLAN FOR ROCK REMOVAL DURING TRENCHING OPERATIONS. FOR SEDIMENT BARRIERS REQUIRING STAKING (E.G. SILT FENCES, ETC.), DEPTH TO BEDROCK LESS THAN 2 FT CAN IMPACT ABILITY TO DRIVE STAKE AND/OR POLE (FOR SUPER SILT FENCE). IN THESE AREAS, COMPOST FILTER SOCK OR OTHER APPLICABLE BMP NOT REQUIRING STAKING MAY BE CONSIDERED.

**LIMITATION: pH** - SOME SOILS HAVE pH VALUES LESS THAN 5.5, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.  
**RESOLUTION:** AS IS TYPICAL FOR THESE TYPE OF SOILS, LIME WILL BE ADDED AS NEEDED TO PRODUCE VEGETATIVE STABILITY.

**LIMITATION: LOW FERTILITY**  
**RESOLUTION:** IF NECESSARY TO PRODUCE VEGETATIVE STABILITY OF THE SOIL, FERTILIZER OR NUTRIENT SUPPLEMENTS WILL BE ADDED TO THE SOIL TO PRODUCE VEGETATIVE STABILITY. FOR LOW FERTILITY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. LOW FERTILITY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

		CLIENT APPROVAL
		DATE

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CHK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



		PENNEAST PIPELINE PROJECT MAINLINE BLOCK VALVE 6 GENERAL NOTES NORTHAMPTON COUNTY, PENNSYLVANIA	
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KJK	SCALE	AS SHOWN
APPROVED BY	MJD	APPROVED BY	
DWG. NO.	033-03-02-001	REV. NO.	8

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## ENVIRONMENTAL NOTES

**GENERAL NOTES (FROM PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL- MARCH 2012):**

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING), THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. 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.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL COUNTY CONSERVATION DISTRICT OR BY DEP PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE CONSTRUCTION SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35-FEET. STOCKPILE SLOPES MUST BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BMPs TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL DEP OFFICE.
10. ALL BUILDING MATERIALS AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEP'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORRIGHT-OF-WAY AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEP FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. VEHICLES AND EQUIPMENT SHALL ENTER AND EXIT THE WORKSPACE DIRECTLY ONLY FROM ACCESS POINTS SHOWN ON THE APPROVED E&S PLANS.
15. UNTIL THE SITE IS STABILIZED, ALL E&S BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADE, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS
19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4-INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2-INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OR SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STATE AND LOCAL STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.

29. E&S BMPs MUST REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR DEP.
30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPs.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY E&S BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPs MUST BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS SHOULD BE PERFORMED ONLY DURING THE GERMINATING SEASON.
32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPs, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPs MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
35. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS LEAVES WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIALS/WASTES.
36. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
37. CHANNELS HAVING RIPRAP, RENO MATTRESS OR GABION LININGS MUST BE SUFFICIENTLY OVER EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
38. SEDIMENT TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATER.
39. SEDIMENT TRAPS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
40. ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
41. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT TRAP TO THE MUNICIPAL INSPECTOR, LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
42. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND OR DETAIL SHEETS.
43. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.

**PENNEAST'S ENVIRONMENTAL INSPECTOR(S) SHALL BE RESPONSIBLE FOR:**

1. INSPECTING TEMPORARY EROSION CONTROL MEASURES AT LEAST ON A DAILY BASIS IN AREAS OF ACTIVE CONSTRUCTION OR EQUIPMENT OPERATION, ON A WEEKLY BASIS IN AREAS WITH NO CONSTRUCTION OR EQUIPMENT OPERATION, AND WITHIN 24 HOURS OF EACH 0.5 INCH OF RAINFALL; THIS RESPONSIBILITY MAY BE TRANSFERRED TO FIELD OPERATIONS AFTER CONSTRUCTION IS COMPLETE BUT BEFORE RESTORATION IS SUCCESSFUL.
2. ENSURING THE REPAIR OF ALL INEFFECTIVE TEMPORARY EROSION CONTROL MEASURES WITHIN 24 HOURS OF IDENTIFICATION.
3. KEEPING RECORDS OF COMPLIANCE OF THE (E&SCP AND ANY CERTIFICATES) AND OTHER FEDERAL OR STATE ENVIRONMENTAL PERMITS DURING ACTIVE CONSTRUCTION AND RESTORATION.
4. ESTABLISH A PROGRAM TO MONITOR THE SUCCESS OF RESTORATION. IMPLEMENTATION OF THIS PROGRAM MAY BE TRANSFERRED TO (FIELD SERVICES) UPON COMPLETION OF CONSTRUCTION AND RESTORATION ACTIVITIES.

SUMMARY MAINTENANCE SCHEDULE FOR TEMPORARY BMPs:	
ACTIVITY	FREQUENCY
<b>CULVERTS</b>	
INSPECT CULVERTS AND REMOVE ACCUMULATED DEBRIS IMMEDIATELY	WEEKLY AND AFTER EACH RUNOFF EVENT
REMOVE ACCUMULATED SEDIMENT AND ACCUMULATED ORGANIC MATTER	EVERY SPRING AND FALL AND AFTER STORMWATER EVENTS OVER 1-INCH OF RAINFALL
INSPECT CULVERT INLET AND SEDIMENT CONTROL BARRIERS, CLEAN AND REPLACE AS NEEDED	WEEKLY AND AFTER EACH RUNOFF EVENT
INSPECT RIPRAP APRONS. REPLACE DISPLACED RIPRAP WITHIN THE APRON IMMEDIATELY.	WEEKLY AND AFTER EACH RUNOFF EVENT
<b>ROCK CONSTRUCTION ENTRANCES</b>	
INSPECT ROCK CONSTRUCTION ENTRANCES	WEEKLY AND AFTER EACH RUNOFF EVENT
ADD ROCK TO MAINTAIN SPECIFIED DIMENSIONS AND CAPACITY TO REMOVE SEDIMENT FROM THE TIRES	AS NEEDED
REMOVE SEDIMENT DEPOSITED ON PAVED ROADWAYS AND RETURN TO THE CONSTRUCTION SITE	IMMEDIATELY, AS NEEDED
<b>INLET FILTER BAGS</b>	
INSPECT INLET FILTER BAGS AND MAKE NECESSARY REPAIRS IMMEDIATELY AFTER THE INSPECTION	WEEKLY AND AFTER EACH RUNOFF EVENT
CLEAN OR REPLACE THE FILTER BAG	WHEN BAG IS 1/2 FULL OR FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET
<b>PUMPED WATER FILTER BAGS</b>	
INSPECT FILTER BAG. CEASE PUMPING IF ANY PROBLEM IS DETECTED.	DAILY
REPLACE FILTER BAG	WHEN FILTER BAG BECOMES 1/2 FULL OF SEDIMENT OR FAILS
<b>SEDIMENT BARRIERS</b>	
INSPECT SEDIMENT BARRIERS. REPAIR ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACE WITHIN 24 HOURS.	WEEKLY AND AFTER EACH RUNOFF EVENT
REMOVE ACCUMULATED SEDIMENT	WHEN ACCUMULATIONS REACH HALF THE ABOVEGROUND HEIGHT OF THE COMPOST FILTER SOCK OR SILT FENCE
INSTALL A ROCK FILTER OUTLET WHERE A SEDIMENT BARRIER FAILS DUE TO UNANTICIPATED CONCENTRATED FLOW	AS NEEDED
REMOVE ACCUMULATED SEDIMENT FROM ROCK FILTER OUTLETS	WHEN ACCUMULATIONS REACH 1/3 HEIGHT OF THE OUTLET

	 <p><b>Know what's below. Call before you dig.</b></p>		CLIENT APPROVAL  DATE		
REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
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		PENNEAST PIPELINE PROJECT MAINLINE BLOCK VALVE 6 GENERAL NOTES NORTHAMPTON COUNTY, PENNSYLVANIA			
DRAWN BY		CAF	DATE ISSUED		10/15/2018
CHECKED BY		KEK	SCALE		AS SHOWN
APPROVED BY		MJD	APPROVED BY		
DWG. NO.		033-03-02-002		REV	8



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**Clover/Food Plot with ROW Mix<sup>1,2,3</sup>**

Mix Composition

- 10% Standard ROW Mix (for soil stabilization)
- 30% Medium Red Clover
- 33% Ladino Clover
- 20% Pinnacle (jumbo) Ladino Clover
- 7% White Dutch Clover

Seeding Rate: 40 lb per acre or as recommended by seed vendor

<sup>1</sup> An alternative seed mixture may be requested by the landowner(s).

<sup>2</sup> Fescue must be endophyte-free.

<sup>3</sup> Legumes should be treated with a species specific inoculate prior to seeding. Legume seed and soil should be scarified.

**Standard Upland ROW Mix<sup>1,2,3</sup>**

Mix Composition

- 20% Orchardgrass
- 20% Climax Timothy
- 15% Perennial Ryegrass
- 10% Annual Ryegrass
- 10% Red Fescue
- 10% Medium Red Clover
- 10% Ladino Clover
- 5% Birdsfoot Trefoil

Seeding Rate: 40 lb per acre or as recommended by seed vendor

<sup>1</sup> An alternative seed mixture may be requested by the landowner(s).

<sup>2</sup> Fescue must be endophyte-free.

<sup>3</sup> Legumes should be treated with a species specific inoculate prior to seeding. Legume seed and soil should be scarified.

**TABLE 11.2  
Soil Amendment Application Rate Equivalents**

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
10-20-20 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

Adapted from Penn State, "Erosion Control and Conservation Plantings on Noncropland"

NOTE: A compost blanket which meets the standards of Chapter 11 may be substituted for the soil amendments shown in Table 11.2.

**Residential Mix<sup>1,2</sup>**

Mix Composition

- 33% Penlawn Creeping Red Fescue
- 25% 98/85 Kentucky Bluegrass
- 14% Fiji Perennial Ryegrass
- 14% ASP0112 Perennial Ryegrass
- 14% ASP6004 Perennial Ryegrass

Seeding Rate: 40 lb per acre or as recommended by seed vendor

<sup>1</sup> An alternative seed mixture may be requested by the landowner(s).

<sup>2</sup> Fescue must be endophyte-free.

**TABLE 11.6  
Mulch Application Rates**

Mulch Type	Application Rate (Min.)			Notes
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	
Straw	3 tons	140 lb.	1,240 lb.	Either wheat or oat straw, free of weeds, not chopped or finely broken
Hay	3 tons	140 lb.	1,240 lb.	Timothy, mixed clover and timothy or other native forage grasses
Wood Chips	4 - 6 tons	185 - 275 lb.	1,650 - 2,500 lb.	May prevent germination of grasses and legumes
Hydromulch	1 ton	47 lb.	415	See limitations above

1. 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.
2. 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°F ARE TYPICALLY REQUIRED. APPLICATION SHOULD GENERALLY BE HEAVIER AT EDGES OF SEEDED AREAS AND AT CRESTS OF RIDGES AND ON 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.
3. 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.
4. 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.
5. 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 LBI/ACRE AT A MINIMUM.
6. 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. SHOULD NOT BE USED IN AREAS OF CONCENTRATED FLOW (E.G. SWALES).
7. NO MULCH MAY BE APPLIED IN WETLANDS.

CONTRACTOR SHALL INSTALL SEED MIXTURE AS DIRECTED BY PENNEAST. SEED MIXTURE USE WILL VARY ACCORDING TO PROJECT, LANDOWNER REQUEST, AND ENVIRONMENTAL REQUIREMENTS.



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A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
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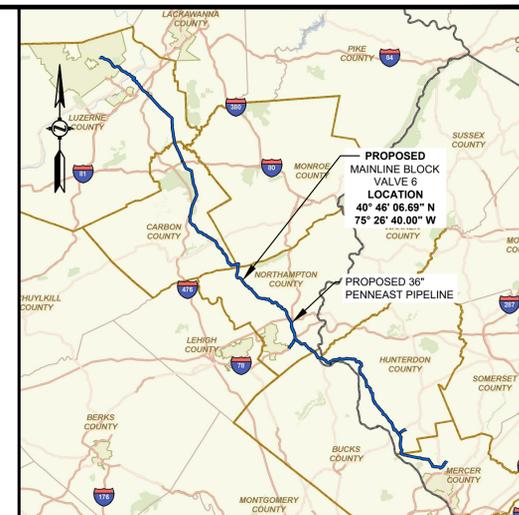
PENNEAST PIPELINE PROJECT  
MAINLINE BLOCK VALVE 6  
RECOMMENDED SEEDING MIXTURES  
NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	KEK	SCALE	AS SHOWN
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DWG. NO.	033-03-02-003	REV. NO.	8



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NORTHAMPTON COUNTY, PENNSYLVANIA  
USGS QUAD: KUNKLETOWN, PENNSYLVANIA

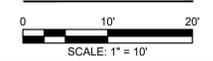


LOCATION MAP  
SCALE: 1" = 15 MILES

LEGENDS

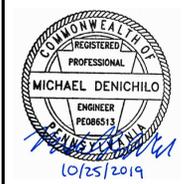
- PROPOSED**
- PROPOSED PIPELINE
  - - - PROPOSED PIPELINE PERMANENT EASEMENT
  - ▬ PROPOSED PIPELINE LIMITS OF DISTURBANCE (REFER TO MAINLINE EROSION AND SEDIMENT CONTROL PLAN)
  - - - PROPOSED PERMANENT FACILITY EASEMENT
  - ▬ ESCGP BOUNDARY
- EXISTING**
- PROPERTY LINE
  - 1260' EXISTING MAJOR CONTOUR
  - 1261' EXISTING MINOR CONTOUR
  - PE-LU-001.000 LINE LIST NUMBER
  - SOIL BOUNDARY
  - UbB SOIL TYPE ABBREVIATION
  - OH EXISTING OVERHEAD LINE
  - EXISTING UTILITY POLE
  - EXISTING SIGN

SITE PLAN



- REFERENCE:
1. EXISTING CONTOURS SHOWN WERE SURVEYED BY MOTT MACDONALD DURING 2015 THRU 2019. ADDITIONAL EXISTING CONTOURS WERE PROVIDED BY PICTOMETRY, 2015 AND SUPPLEMENTED FROM USGS.
  2. SITE TOPOGRAPHIC AND FEATURE SURVEY PERFORMED BY MOTT MACDONALD 2015 THRU 2019.
  3. PROPERTY INFORMATION ON THIS PLAN BASED ON GIS TAX MAP DATA AND RECTIFIED PROPERTY LINES AND ARE NOT THE RESULT OF A BOUNDARY SURVEY.
  4. WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
  5. HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

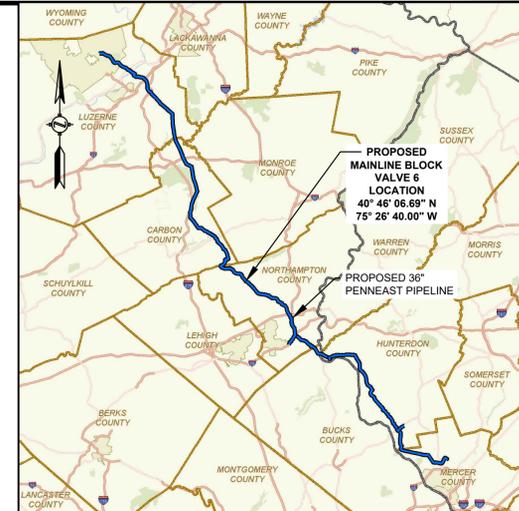
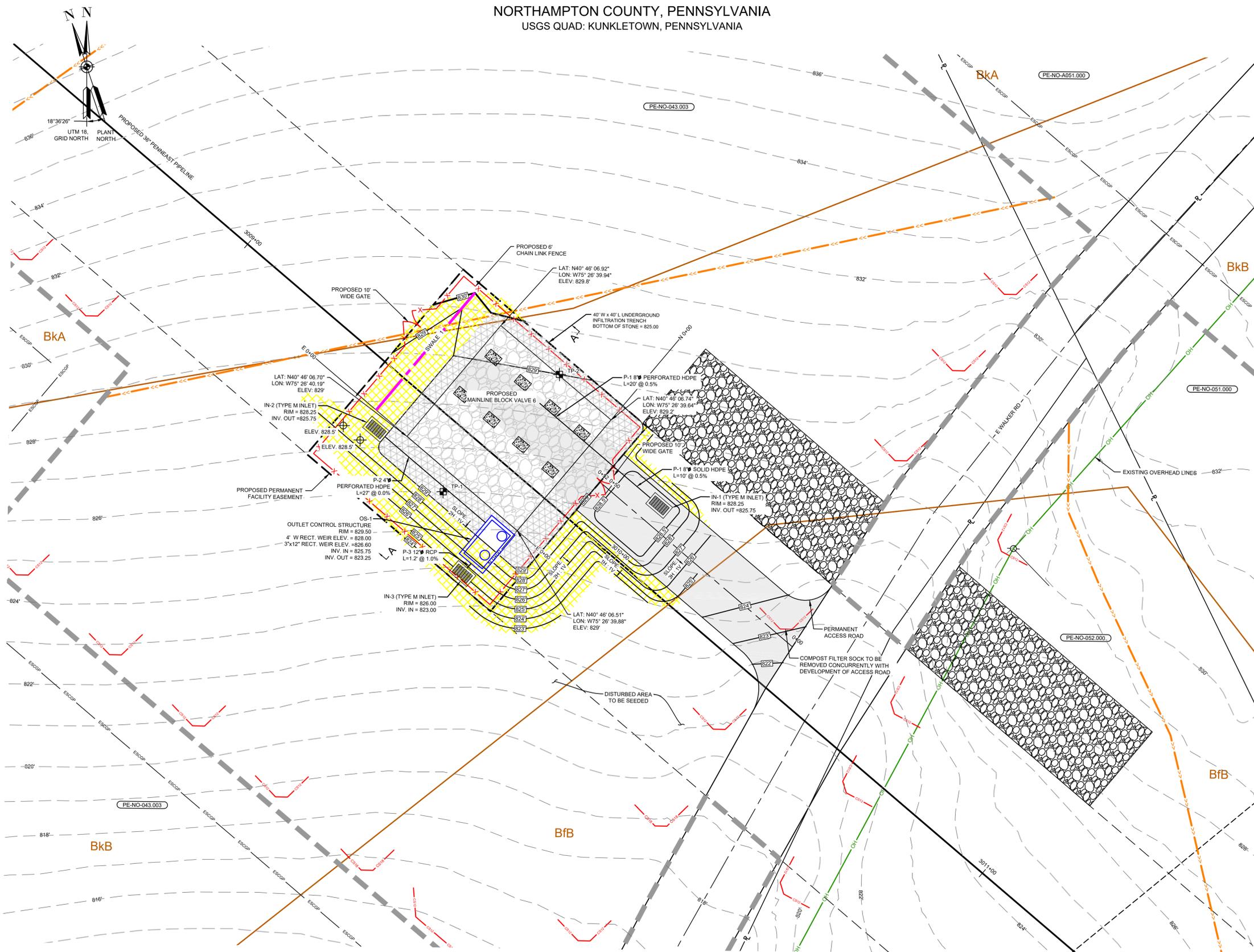
REFERENCE DRAWINGS		REVISIONS					
DWG. NO.	TITLE	NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
		A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
		B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	MJD(MM)



PENNEAST PIPELINE PROJECT MAINLINE BLOCK VALVE 6 EXISTING CONDITIONS PLAN NORTHAMPTON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	033-03-03-001	REV. NO.	B

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NORTHAMPTON COUNTY, PENNSYLVANIA  
USGS QUAD: KUNKLETTOWN, PENNSYLVANIA



LOCATION MAP  
SCALE: 1" = 15 MILES

**PROPOSED**

- PROPOSED 36" PIPELINE
- PROPOSED PIPELINE PERMANENT EASEMENT
- FACILITY PERMANENT EASEMENT
- PROPOSED PIPELINE LIMITS OF DISTURBANCE (REFER TO MAINLINE EROSION & SEDIMENT CONTROL PLAN)
- ESCCP BOUNDARY
- IMPERVIOUS AREA
- INFILTRATION TRENCH
- IMPERVIOUS AREA OVER INFILTRATION TRENCH
- VEGETATED AREA OVER INFILTRATION TRENCH
- PROPOSED FENCE
- COMPOST FILTER SOCK; SEE FIG. 4, 4A & 4B (TYP.) (REFER TO MAINLINE EROSION AND SEDIMENT CONTROL PLAN FOR SUPPORTING CALCULATIONS)
- ROCK CONSTRUCTION ENTRANCE SEE FIG. 2 (TYP.)
- EROSION CONTROL BLANKETS; SEE FIG. 23 & 24 (TYP.)
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- TEST PITS
- PROPOSED CONCRETE BLOCK
- TEMPORARY WATERBAR TO BE REMOVED CONCURRENTLY WITH DEVELOPMENT OF MLV SITE; SEE FIG. 9 (TYP)

**EXISTING**

- PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING OVERHEAD LINE
- EXISTING UTILITY POLE
- EXISTING FENCE
- LINE LIST NUMBER
- SOIL BOUNDARY
- EXISTING ROAD CENTERLINE
- SOIL TYPE ABBREVIATION



**SITE PLAN**  
SCALE: 1" = 10'

- REFERENCE:**
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  - WATERBODY INFORMATION PROVIDED BY AECOM 2015 THRU 2019.
  - HORIZONTAL DATUM IS UTM83-16F. VERTICAL DATUM IS NAVD1988.

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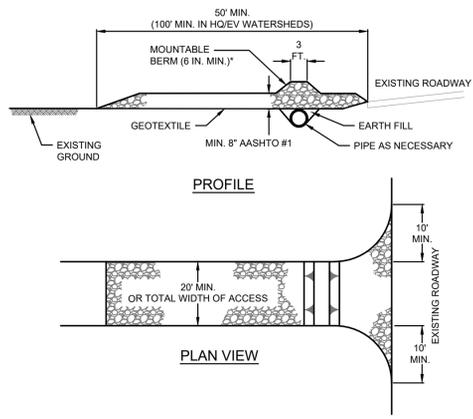


**PENNEAST PIPELINE PROJECT**  
**MAINLINE BLOCK VALVE 6**  
**SOIL EROSION & SEDIMENT CONTROL PLAN**  
NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY	CAF	DATE ISSUED	10/15/2018
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**PROFILE**

**PLAN VIEW**

\* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

**NOTES:**

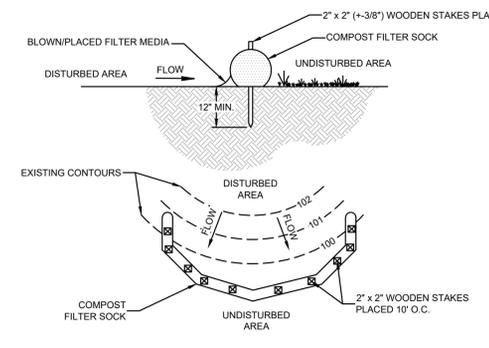
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

PENNEAST PIPELINE PROJECT				
ROCK CONSTRUCTION ENTRANCE				
STANDARD CONSTRUCTION DETAIL				
#3-1				
FIGURE 2				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK



SOCK FABRIC SHALL MEET MINIMUM SPECIFICATIONS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30-50% PASS THROUGH 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM

**NOTES:**

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS SOIL SUPPLEMENT.

THIS BMP IS AN APPROVED ABACT (ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES) FOR USE IN HQ/EV WATERSHEDS.

18" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR SUPER SILT FENCE.

12" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR 18" TO 30" SILT FENCE.

PENNEAST PIPELINE PROJECT				
COMPOST FILTER SOCK				
STANDARD CONSTRUCTION DETAIL				
#4-1				
FIGURE 4				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK

**TABLE 4.1**  
**Compost Sock Fabric Minimum Specifications**

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
<b>Material Characteristics</b>	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
<b>Mesh Opening</b>	3/8"	3/8"	3/8"	3/8"	1/8"
<b>Tensile Strength</b>		26 psi	26 psi	44 psi	202 psi
<b>Ultraviolet Stability % Original Strength (ASTM G-155)</b>	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
<b>Minimum Functional Longevity</b>	6 months	9 months	6 months	1 year	2 years
<b>Two-ply systems</b>					
<b>Inner Containment Netting</b>	<b>HDPE biaxial net</b>				
	<b>Continuously wound</b>				
<b>Outer Filtration Mesh</b>	<b>Fusion-welded junctures</b>				
	<b>3/4" X 3/4" Max. aperture size</b>				
	<b>Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch)</b>				
<b>3/16" Max. aperture size</b>					
<b>Sock fabrics composed of burlap may be used on projects lasting 6 months or less.</b>					

PENNEAST PIPELINE PROJECT				
COMPOST SOCK FABRIC				
MINIMUM SPECIFICATIONS				
FIGURE 4A				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK

Maximum Slope Length for Compost Filter Sock

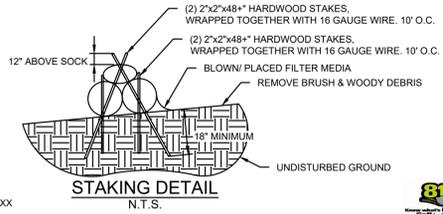
Slope - Percent	Maximum Slope Length (ft) Above Sock			
	12	18	24	32
5	250	350	500	650
10	150	250	300	400
15	100	200	250	350
20	70	150	200	250
25	50	100	150	180
30	45	70	100	130
35	40	60	90	100
40	35	45	80	90
45	30	40	60	80
50	20	30	40	60

ADAPTED FROM PA DEP GRAPH (FIGURE 4.2)

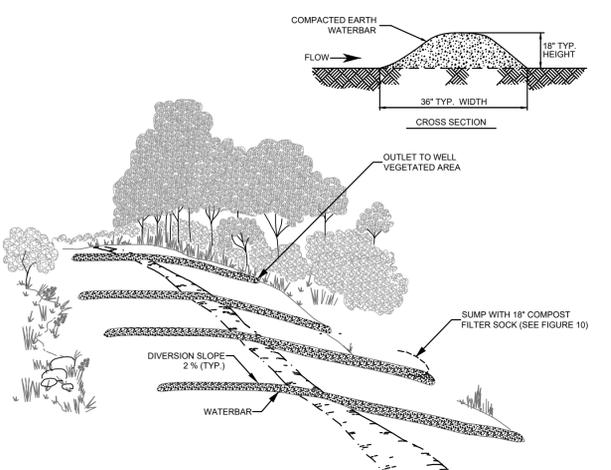
SLOPES OVER 50% NEED A 32-INCH DURASOXX INDEPENDENT OF UP-SLOPE LENGTH.

THREE COMPOST FILTER SOCKS MAY BE STACKED IN PYRAMIDAL FORM AND USED IN PLACE OF 24-INCH OR 32-INCH COMPOST FILTER SOCK WHERE NECESSARY. THE FOLLOWING EQUIVALENCY TABLE SHALL BE USED IN SUCH INSTANCES:

SINGLE COMPOST FILTER SOCK DIAMETER	ACCEPTABLE COMPOST FILTER SOCK PYRAMIDAL CONFIGURATION EQUIVALENT
24-INCH	12" 18" 18"
32-INCH	18" 18"



PENNEAST PIPELINE PROJECT				
MAXIMUM SLOPE LENGTH				
FOR COMPOST FILTER SOCK				
FIGURE 4B				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK



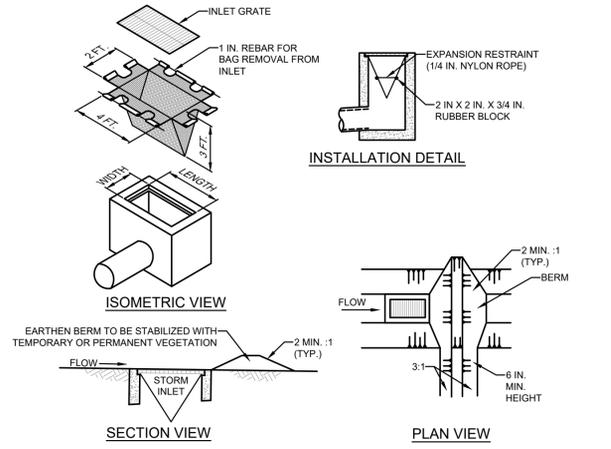
- INSTALLATION REQUIREMENTS:**
- PERMANENT WATERBARS ARE REQUIRED AT ALL STREAM, RIVER AND OTHER WATERBODY CROSSINGS AS WELL AS UP-SLOPE FROM ROADWAY AND RAILROAD CUT SLOPES.
  - INSTALL PERMANENT WATERBARS IN ALL AREAS EXCEPT RESIDENTIAL OR AGRICULTURAL AS NECESSARY TO AVOID EXCESSIVE EROSION.
  - ON SLOPES GREATER THAN 30 PERCENT, INSTALL WATERBARS WITH EROSION CONTROL BLANKET ON THE SWALE SIDE.
  - FILTER RUN-OFF WATER BY CONSTRUCTING THE DISCHARGE END IN A WELL VEGETATED STABLE AREA, OR BY USING AN EMERGENCY DISSIPATING DEVICE (SHOWN ABOVE) AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

MAXIMUM SPACING FOR PERMANENT WATERBAR

SLOPE (%)	SPACING (FT.)
<5	250
5 - 15	150
>15 - 30	100
>30	50

- MAINTENANCE REQUIREMENTS:**
- INSTALL A PROTECTIVE LINER, WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT SUFFICIENT VEGETATIVE GROWTH.
  - INSTALL WITH A 2% (TYP.) OUTFALL ANGLE.
  - POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
  - INSPECT WATERBARS DURING AND FOLLOWING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
  - KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
  - SEED AND MULCH PERMANENT WATERBARS FOLLOWING CONSTRUCTION.

PENNEAST PIPELINE PROJECT				
WATERBAR				
INSTALLATION AND MAINTENANCE				
FIGURE 9				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK



**NOTES:**

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN SWALE SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS. A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

PENNEAST PIPELINE PROJECT				
FILTER BAG INLET PROTECTION				
TYPE M INLET				
STANDARD CONSTRUCTION DETAIL #4-14				
FIGURE 14				
NO	REVISION DESCRIPTION	DATE	DRAWN	CK



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PENNEAST PIPELINE PROJECT

MAINLINE BLOCK VALVE 6

E&S TYPICAL DETAILS

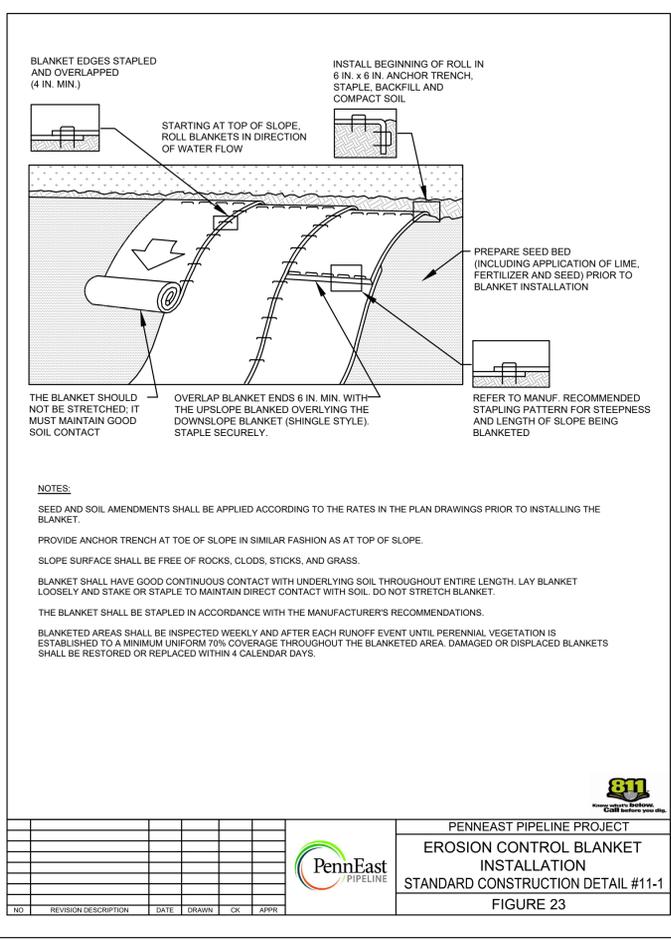
NORTHAMPTON COUNTY, PENNSYLVANIA

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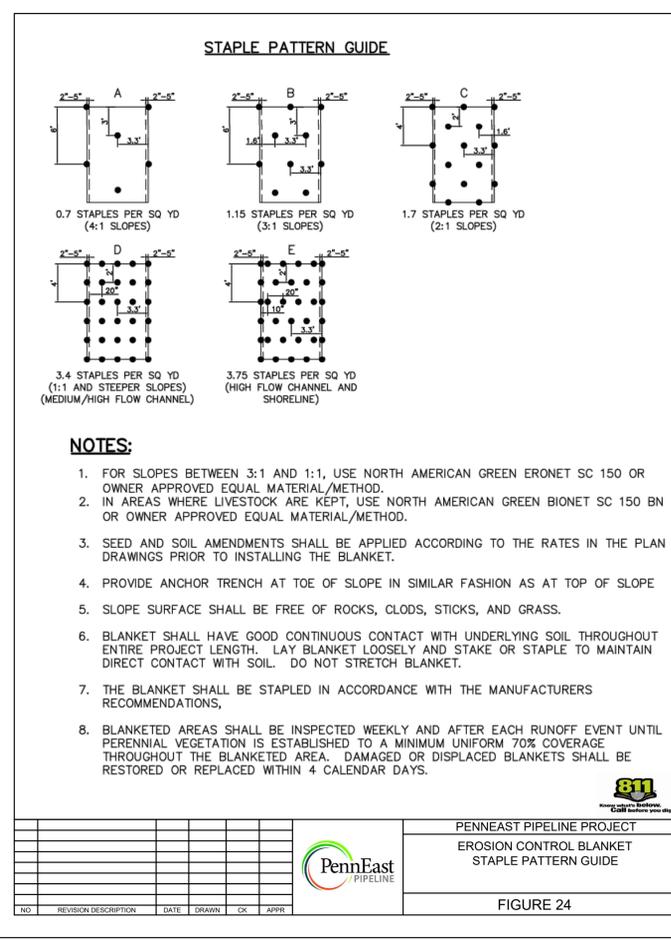
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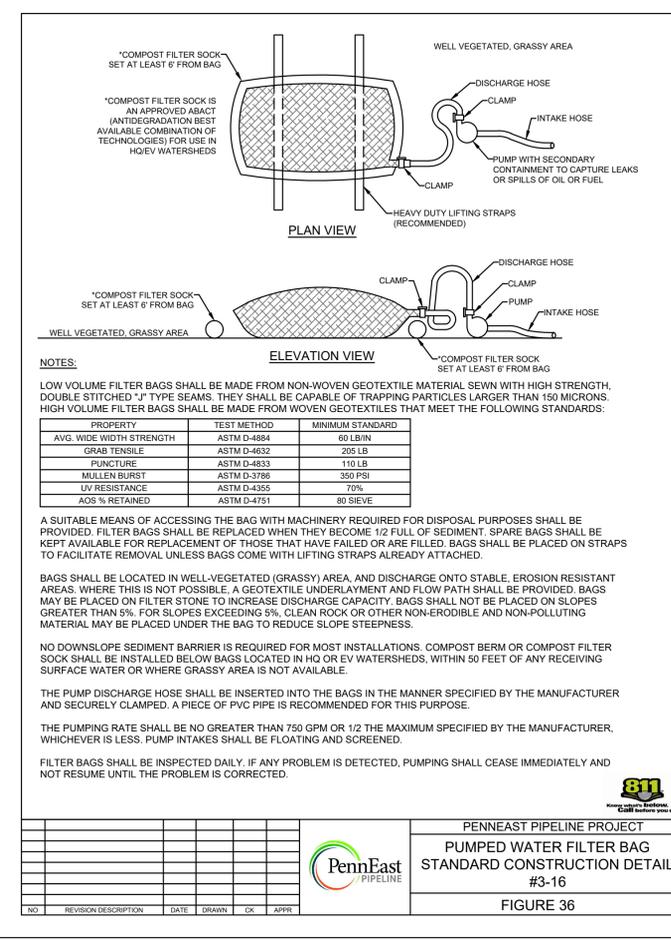
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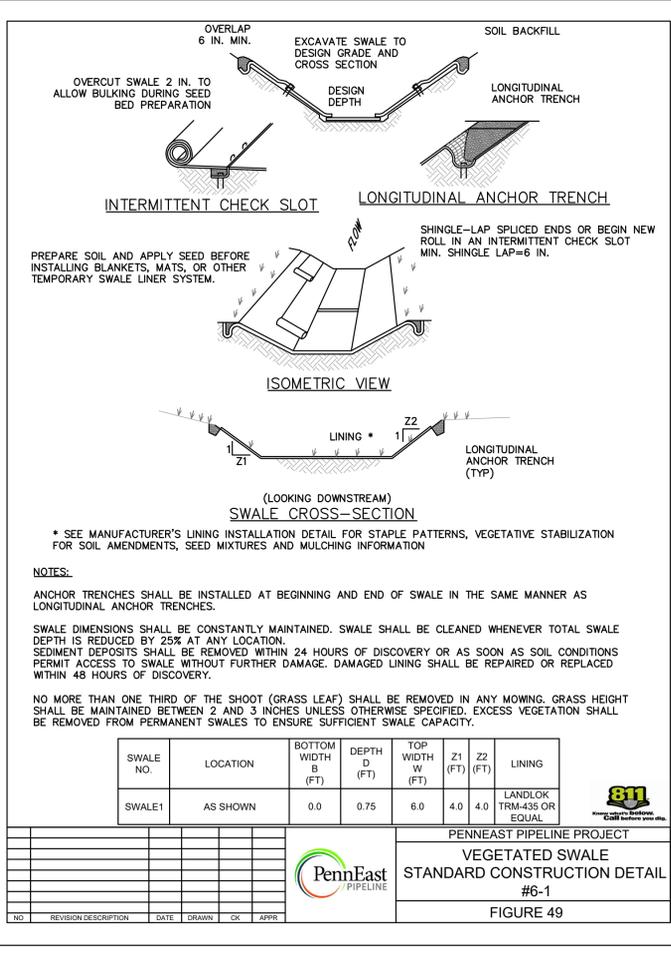
PENNEAST PIPELINE PROJECT  
**EROSION CONTROL BLANKET INSTALLATION**  
 STANDARD CONSTRUCTION DETAIL #11-1  
 FIGURE 23



PENNEAST PIPELINE PROJECT  
**EROSION CONTROL BLANKET STAPLE PATTERN GUIDE**  
 FIGURE 24



PENNEAST PIPELINE PROJECT  
**PUMPED WATER FILTER BAG STANDARD CONSTRUCTION DETAIL #3-16**  
 FIGURE 36



PENNEAST PIPELINE PROJECT  
**VEGETATED SWALE STANDARD CONSTRUCTION DETAIL #6-1**  
 FIGURE 49



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PENNEAST PIPELINE PROJECT  
**MAINLINE BLOCK VALVE 6 E&S TYPICAL DETAILS**  
 NORTHAMPTON COUNTY, PENNSYLVANIA

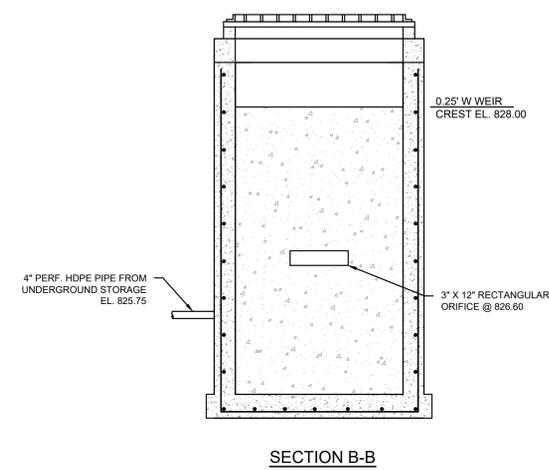
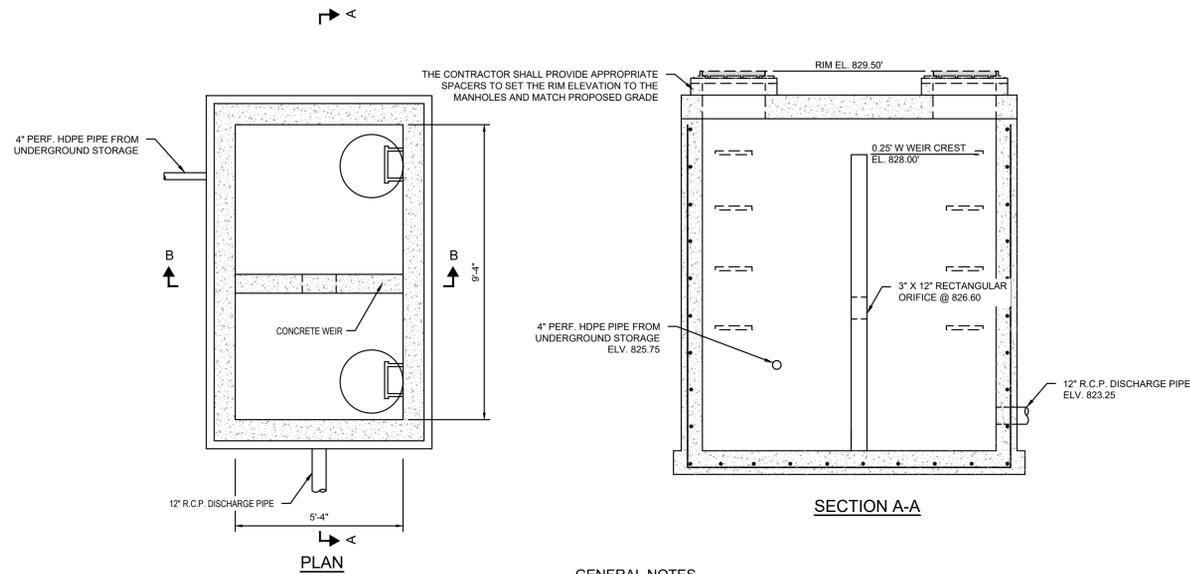
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**SUB-SURFACE DETENTION OUTLET CONTROL STRUCTURE**

NO SCALE

**GENERAL NOTES**

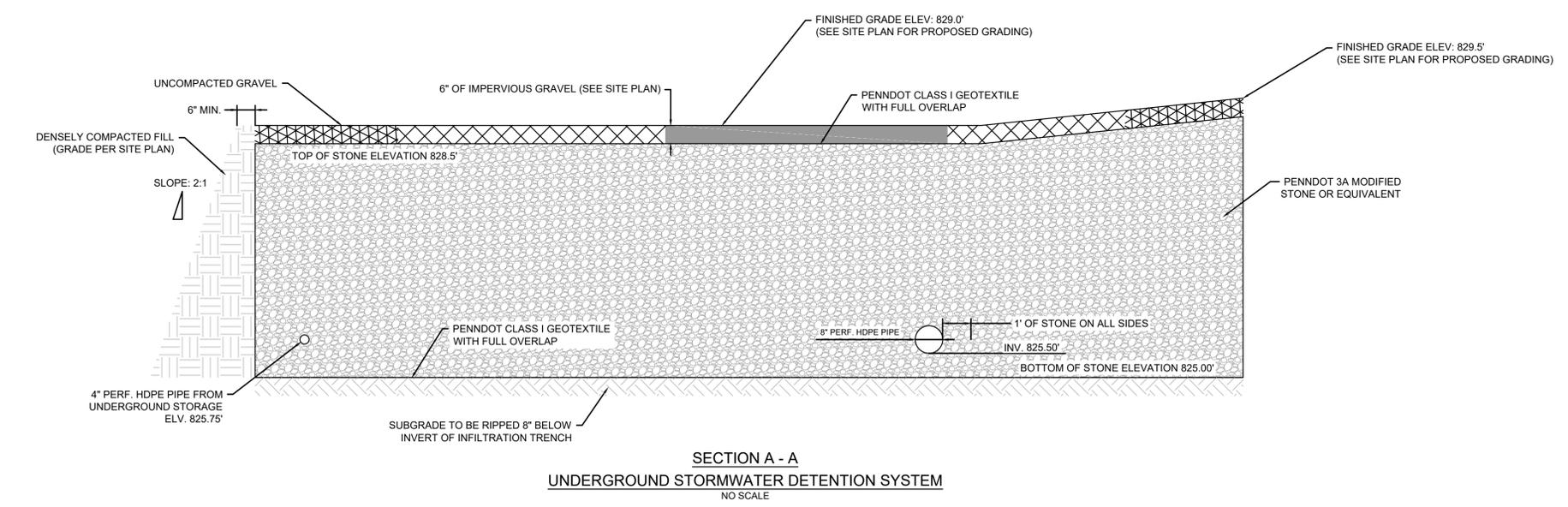
1. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY AND COORDINATE ALL DIMENSIONS AND DETAILS CONCERNING HIS WORK BEFORE PROCEEDING WITH SAID WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
2. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF EXISTING STRUCTURES AND CLEARANCES TO THE NEW CONSTRUCTION.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI STANDARD 318-99), AND "ACI DETAILING MANUAL- (ACI 66 (94)), EXCEPT AS SPECIFICALLY MODIFIED BY THE CONTRACT DRAWINGS AND THE SPECIFICATIONS.
4. ALL CONCRETE USED ON THE PROJECT SHALL HAVE A SPECIFIED 28-DAY COMPRESSIVE STRENGTH (FC) AS NOTED BELOW. SUCH STRENGTHS SHALL BE DETERMINED BY A TESTING LABORATORY.  
A) FC = 5,000 PSI FOR ALL PRECAST STRUCTURES ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH, FY = 60 KSI AND SHALL BE NEW DEFORMED BILLET-STEEL CONFORMING TO ASTM A615-96a, GRADE 60.
5. ALL COLUMN TIES AND BEAM STIRRUPS SHALL BE REINFORCING BARS CONFORMING TO ASTM A615-96a, GRADE 40.
6. ALL WELDED WIRE REINFORCING (WWR) SHALL CONFORM TO ASTM A185-01.
7. THE STRUCTURE IS DESIGNED TO MEET THE REQUIREMENTS OF ASTM C-478, "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS." THE REINFORCED CONCRETE STRUCTURES ARE TO BE DESIGNED TO WITHSTAND AASHTO HS-20 LIVE LOAD CONDITIONS (DESIGN OF FRAME AND COVER BY OTHERS).
8. CONTRACTOR TO SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION SHOWING FABRICATION DETAILS AND DIMENSIONS.

Test Pit	Test #1	Test #2	Final Rate Used
TP-1	15.0 inch/hr	13.5 inch/hr	14.25 inch/hr
TP-2	9.0 inch/hr	7.5 inch/hr	8.25 inch/hr <sup>1</sup>
Observed Overall Rate			10.0 inch/hr <sup>1</sup>
Design Rate (Factor of Safety of 2)			5.0 inch/hr <sup>2</sup>

Test Pit No.	Existing Grade Elevation (feet)	Proposed BMP Invert (feet)	Infiltration Test Elevation (feet)	Excavation Depth Elevation (feet)	Depth to High Groundwater (feet)
MLV6-TP-1	821.4	N/A	819.9	817.9	No evidence of high groundwater observed
MLV6-TP-2	824.6	N/A	820.1	818.1	No evidence of high groundwater observed

**NOTES:**

1. THE RATES FROM WTP-1 AND WTP-2 REPRESENT DESIGN RATES AS THE REQUIRED FACTOR OF SAFETY IS INCORPORATED INTO THE BASIN FLOOD TEST.
2. PROJECT DESIGN RATE FOR MLV-3 IS BASED ON WTP-1 WHICH IS WITHIN THE FOOTPRINT OF THE PROPOSED BMP, HOWEVER, THE DESIGN RATE IS CONSISTENT WITH THE OTHER TEST PIT LOCATION.



**SECTION A - A  
UNDERGROUND STORMWATER DETENTION SYSTEM**

NO SCALE

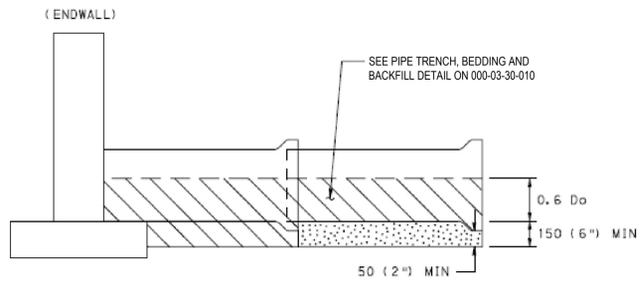
CLIENT APPROVAL	
DATE	

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

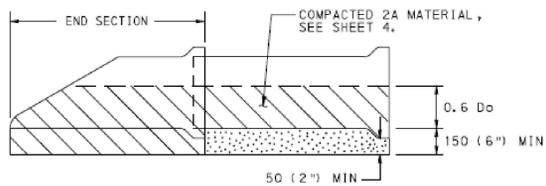
10/25/2019

<b>PENNEAST PIPELINE PROJECT MAINLINE BLOCK VALVE 6 POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS</b> NORTHAMPTON COUNTY, PENNSYLVANIA			
DRAWN BY	CAF	DATE ISSUED	10/15/2018
CHECKED BY	WMC	SCALE	AS SHOWN
APPROVED BY	JRD	APPROVED BY	
DWG. NO.	033-03-07-001	REV. NO.	B

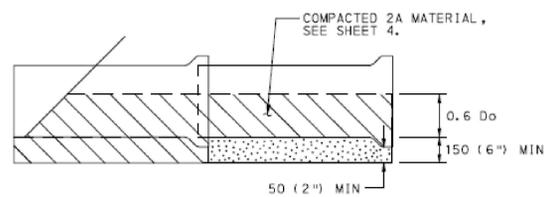




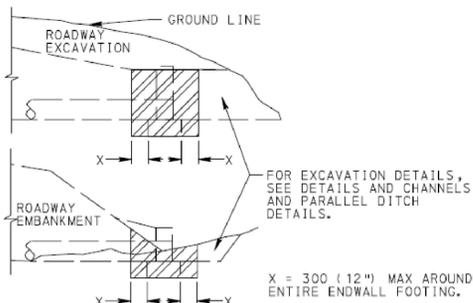
**BACKFILL DETAIL AT ENDWALL**  
(FOR CONCRETE PIPE)



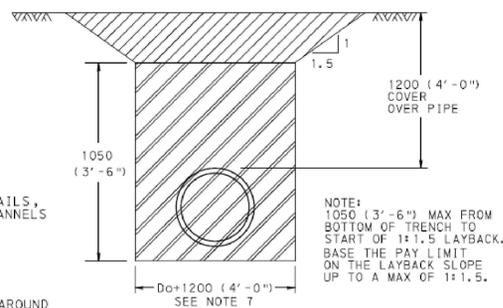
**BACKFILL DETAIL AT END SECTION**  
(FOR CONCRETE PIPE)



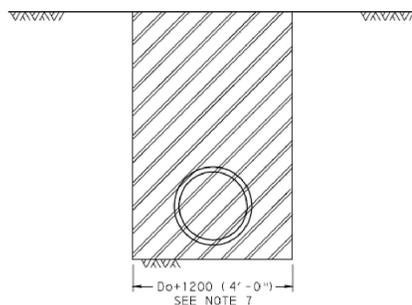
**BACKFILL DETAIL AT LAST SECTION OF PIPE**  
(FOR CONCRETE PIPE)



**EXCAVATION FOR ENDWALLS**



**PIPE TRENCH, BEDDING AND BACKFILL DETAIL**  
(NOT TO SCALE)



**PAY LIMITS FOR PIPE EXCAVATION**

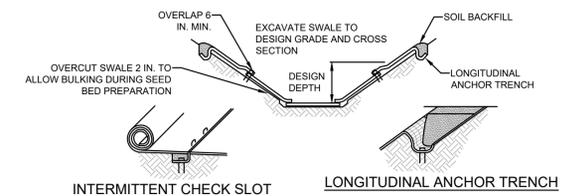
**NOTES**

1. PROVIDE MATERIALS AND CONSTRUCT AS SPECIFIED IN PUBLICATION 408, SECTION 601 FOR PIPE CULVERTS, SECTION 602 FOR CORRUGATED METAL PIPE-ARCH CULVERTS AND SECTION 603 FOR METAL PLATE CULVERTS.
2. SHORING OR TRENCH BOX INSTALLATION FOR FLEXIBLE PIPE IS NOT NORMALLY USED. IF SHORING OR TRENCH BOX INSTALLATION IS PERMITTED IN SPECIAL CIRCUMSTANCES, REFER TO PUBLICATION 408, SECTION 601.3(g).
3. IN ALL EXCAVATION AREAS FOLLOW OSHA SAFETY REQUIREMENTS.
4. DO NOT COMPACT NO. 8 MATERIAL USED FOR BEDDING UNDER CONCRETE PIPES.
5. ALLOW NO PAYMENT FOR EXCAVATION IN EXCESS OF SPECIFIED LIMITS AND FOR ADDITIONAL BACKFILL MATERIAL REQUIRED.
6. PAYMENT FOR THE BACKFILL ENVELOPE, INCLUDING BEDDING, COARSE AGGREGATE AND SUITABLE MATERIAL UP TO 300 (12") ABOVE THE PIPE IS INCIDENTAL TO THE PIPE.
7. FOR BOTTOM TRENCH WIDTHS  $\geq 2.5$  m (8'-0"), ALL EXCAVATION IS CLASS 1.
8. FOR INLET OR OUTLET PROTECTION SEE DETAIL A-4.
9. CONSTRUCT FLEXIBLE BASE REPLACEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 316.
10. PREPARE EXPOSED VERTICAL AND HORIZONTAL SURFACES AS PER PUBLICATION 408, SECTION 409.3(K).
11. FOR NON-OVERLAY APPLICATIONS, THE TOP 40 (1 1/2") OF BASE REPLACEMENT WILL BE SUPERPAVE WEARING COURSE.
12. FOR RESTORATION OF RIGID PAVEMENT, REFER TO PUBLICATION 408, SECTION 516 AND RC-26M.
13. FOR SUPERPAVE BASE REPLACEMENT, SAW CUTTING, EXCAVATION, HAULING AND DISPOSAL, BITUMINOUS TACK COAT, BITUMINOUS MATERIAL, AND SEALING OF THE JOINTS ARE CONSIDERED AS INCIDENTAL.
14. PERFORM AND COMPLETE PIPE RESTORATION WORK PRIOR TO THE FLEXIBLE SUPERPAVE BASE REPLACEMENT.

**LEGEND**

- CLASS 4 EXCAVATION
- CLASS 1 EXCAVATION
- AGGREGATE FOR BEDDING (AASHTO NO. 8)
- COARSE AGGREGATE (2A)

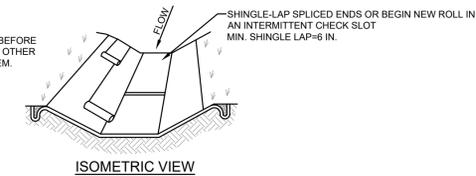
Do = OUTSIDE DIAMETER OF PIPE.



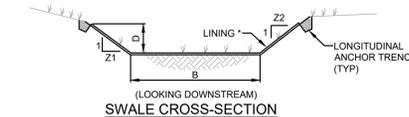
**INTERMITTENT CHECK SLOT**

**LONGITUDINAL ANCHOR TRENCH**

PREPARE SOIL AND APPLY SEED BEFORE INSTALLING BLANKETS, MATS, OR OTHER TEMPORARY SWALE LINER SYSTEM.



**ISOMETRIC VIEW**



**SWALE CROSS-SECTION**

\* 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 SWALE IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

SWALE DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. SWALE SHALL BE CLEANED WHENEVER TOTAL SWALE 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 SWALE 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 SWALES TO ENSURE SUFFICIENT SWALE CAPACITY.

SWALE NO.	BOTTOM WIDTH (FT)	LEFT SIDE SLOPE (H:V)	RIGHT SIDE SLOPE (H:V)	DEPTH (FT)	LINING MATERIAL
SWALE1	0.0	4.0	4.0	0.75	LANDLOK TRM-435 OR EQUAL

**VEGETATED SWALE DETAIL**  
(NOT TO SCALE)

**NOTE:**  
THESE DETAILS HAVE BEEN ADAPTED FROM PENNDOT JUNE 2010 STANDARD DRAWINGS. ADDITIONAL INFORMATION FROM STANDARD PENNDOT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED AS REFERENCED.



**PENNEAST PIPELINE PROJECT**  
MAINLINE BLOCK VALVE 6  
POST CONSTRUCTION STORMWATER  
MANAGEMENT DETAILS  
NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018  
CHECKED BY WMC SCALE AS SHOWN  
APPROVED BY JRD APPROVED BY

DWG. NO. 033-03-07-003 REV. NO. 8

DRAINAGE PIPE INSTALLATION PROCEDURE

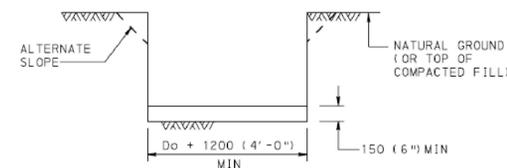
CONSTRUCTION DETAILS BELOW COVER THE FOLLOWING CONDITIONS:

- (A) PIPE LYING ON TOP OF THE NATURAL GROUND, ROCK OR COMPACTED (97% SPD) FILL.
- (B) THE EXISTING GROUND IS BETWEEN THE TOP AND THE BOTTOM OF THE PROPOSED PIPE AND THE PIPE IS TO BE COVERED WITH EARTH FILL.
- (C) THE TOP OF PIPE IS BELOW THE LEVEL OF THE NATURAL GROUND OR COMPACTED FILL (TO MINIMUM 97% SPD) AND TO BE COVERED WITH EARTH FILL TO HEIGHTS ABOVE THE NATURAL GROUND.

STEP 1 : REMOVE TOPSOIL (COMPRESSIBLE LAYER OF ORGANIC MATERIAL) TO A WIDTH EQUAL TO 5 OUTSIDE DIAMETERS OF THE PIPE IN ALL FILL CONDITIONS ABOVE (A), (B) & (C). ALSO IF SPECIFIED ON THE CONTRACT DRAWING, UNDERCUT FOR THE DEPTH BELOW THE BEDDING AS SHOWN BY DESIGN (MAKE MIN WIDTH 5 DIAMETERS OF PIPE). PAY AS CLASS 1 EXCAVATION.

STEP 2 : CONSTRUCT THE EMBANKMENT TO 1200 (4'-0") ABOVE THE TOP OF PIPE OR TO THE SUBGRADE ELEVATION, WHICHEVER IS LESS. FOR PIPES 1800 (12") OR GREATER SEE NOTE 1.

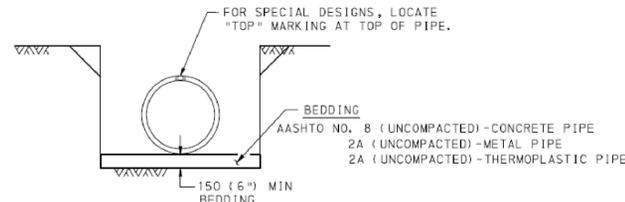
STEP 3 : EXCAVATE THE TRENCH TO THE WIDTH OF THE OUTSIDE DIAMETER OF THE PIPE BARREL PLUS 1200 (4'-0") AND CREATE AN APPROPRIATE BEDDING 150 (6") DEEP.



STEP 4 : FOR CONCRETE PIPE, IF THIS EXCAVATION IS THROUGH ROCK, OR HARD SHALE, OR IN AREAS OF UNDERCUT, PROVIDE 150x40 mm/m (6"x1/2" INCH/FT) OF Do+1200 (4'-0"), BELOW THE INTENDED BOTTOM ELEVATION OF THE PIPE, 400 (16") MAX.

NOTE: IF UNSUITABLE MATERIAL IS FOUND, UNDERCUT AS DIRECTED AND BACKFILL WITH SUITABLE MATERIAL TO BOTTOM OF BEDDING ELEVATION. (UNLESS OTHERWISE SPECIFIED.)

STEP 5 : LAY PIPE ON APPROPRIATE BEDDING. SEE STEP 6D FOR METAL PIPE ARCH AND METAL PLATE PIPE ARCH.



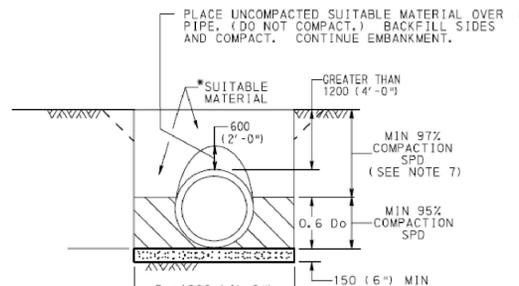
STEP 6 : FOR CONCRETE PIPE, SEE STEP 6A.  
 FOR METAL PIPE AND METAL PLATE PIPE, SEE STEP 6B.  
 FOR THERMOPLASTIC PIPE, SEE STEP 6C.  
 FOR METAL PIPE ARCH AND METAL PLATE PIPE ARCH, SEE STEP 6D.

NOTE:

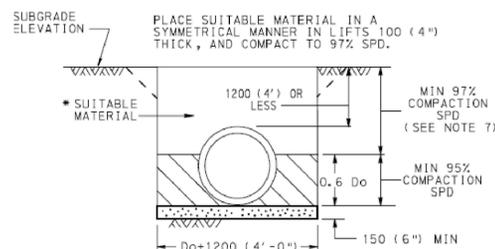
WHEN LAYING PIPE FOR INFILTRATION TRENCHES, LEVEL SPREADERS AND SUBSURFACE STORMWATER STORAGE FACILITIES CARE SHALL BE TAKEN TO AVOID COMPACTION OF SUBGRADE.

STEP 6A : CONCRETE PIPE

PLACE 2A COARSE AGGREGATE MATERIAL, IN LIFTS 100 (4") THICK, ADJACENT TO THE LOWER HAUNCHES TO A HEIGHT OF 0.6 Do. COMPACT TO 95% SPD. TEST THE SIDE BACKFILL MATERIAL AND CONTINUE EMBANKMENT IN ACCORDANCE WITH PUBLICATION 408, SECTION 601.



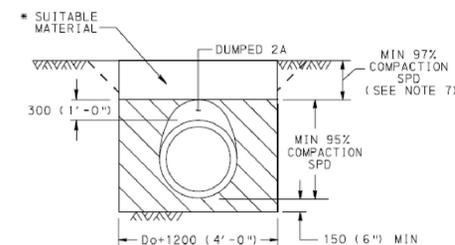
GREATER THAN 1.2 m (4') TO 14.6 m (48')  
 FOR FILLS OVER 14.6 m (48'), SEE NOTE 8.



SHALLOW FILLS 1200 (4'-0") AND LESS

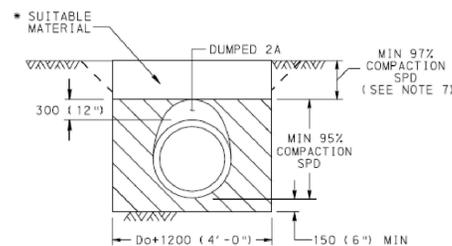
STEP 6B : METAL PIPE AND METAL PLATE PIPE

PLACE 2A COARSE AGGREGATE MATERIAL, IN LIFTS 100 (4") THICK, ADJACENT TO THE LOWER HAUNCHES TO A HEIGHT OF 300 (12") ABOVE TOP OF PIPE. COMPACT TO 95% SPD. TEST THE BACKFILL MATERIAL AND CONTINUE EMBANKMENT IN ACCORDANCE WITH PUBLICATION 408, SECTION 601.



STEP 6C : THERMOPLASTIC PIPE

PLACE 2A COARSE AGGREGATE MATERIAL, IN LIFTS 100 (4") THICK, ADJACENT TO THE LOWER HAUNCHES TO A HEIGHT OF 300 (12") ABOVE TOP OF PIPE. COMPACT TO 95% SPD. TEST THE BACKFILL MATERIAL AND CONTINUE EMBANKMENT IN ACCORDANCE WITH PUBLICATION 408, SECTION 601.



NOTES

1. THE INSTALLATION OF PIPES 1800 (72") OR GREATER INSIDE DIAMETER OR SPAN IS PERMITTED WITHOUT PLACING EMBANKMENT FIRST. MAKE THE BACKFILL ENVELOPE AS SHOWN ON THIS DRAWING EXCEPT PROVIDE 2A MATERIAL ON EACH SIDE OF THE PIPE EQUAL TO ONE OUTSIDE DIAMETER OR SPAN OF THE PIPE. FOR CONCRETE PIPE, THE WIDTH OF UNCOMPACTED AGGREGATE FOR BEDDING (AASHTO NO. 8) REMAINS AT Do + 1200 (4'-0"). PAYMENT FOR THE 2A MATERIAL IS AS PER NOTE 3.
2. A HIGHER STRENGTH PIPE THAN SPECIFIED MAY BE SUPPLIED AT NO ADDITIONAL COST TO THE DEPARTMENT.
3. PAYMENT FOR THE BACKFILL ENVELOPE INCLUDING BEDDING, COARSE AGGREGATE AND SUITABLE MATERIAL UP TO 300 (12") ABOVE THE PIPE IS INCIDENTAL TO THE PIPE.
4. TO PRECLUDE POINT LOADING ON RELATIVELY RIGID CONCRETE PIPE, DO NOT COMPACT AASHTO NO. 8 BEDDING MATERIAL.
5. FOR TRENCH BOX/SHORING INSTALLATION REQUIREMENTS REFER TO PUBLICATION 408, SECTION 601.
6. PERMIT PLACEMENT OF BACKFILL MATERIAL IN LAYERS, LIFTS, 200 (8") THICK WHEN USING VIBRATORY COMPACTION EQUIPMENT.
7. COMPACT TOP 1000 (3'-0") OF SUBGRADE TO 100% IN ACCORDANCE WITH PUBLICATION 408, SECTION 206.3.
8. FOR REINFORCED CONCRETE PIPES INSTALLED WITH GREATER THAN 14.6 m (48") OF FILL, PROVIDE 300 (12") BEDDING MINIMUM AND 400 (16") WHEN ROCK IS PRESENT.

LEGEND

- AGGREGATE FOR BEDDING (AASHTO NO. 8), UNCOMPACTED
- COARSE AGGREGATE (2A)

Do = OUTSIDE DIAMETER OF PIPE, MILLIMETERS (INCHES)  
 SPD = STANDARD PROCTOR DENSITY  
 ID = INSIDE DIAMETER

\* SUITABLE = MATERIAL CONTAINING NO DEBRIS, ORGANIC MATTER, FROZEN MATERIAL OR LARGE STONES WITH A DIAMETER GREATER THAN ONE-HALF THE THICKNESS OF THE COMPACTED LAYERS BEING PLACED.

PIPE TRENCH, BEDDING AND BACKFILL DETAIL

(NOT TO SCALE)

NOTE:

THESE DETAILS HAVE BEEN ADAPTED FROM PENNDOT JUNE 2010 STANDARD DRAWINGS. ADDITIONAL INFORMATION FROM STANDARD PENNDOT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED AS REFERENCED.



CLIENT APPROVAL

DATE

REVISIONS

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

PENNEAST PIPELINE PROJECT  
 MAINLINE BLOCK VALVE 6  
 POST CONSTRUCTION STORMWATER  
 MANAGEMENT DETAILS  
 NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018  
 CHECKED BY WMC SCALE AS SHOWN  
 APPROVED BY JRD APPROVED BY

DWG. NO. 033-03-07-004 REV. NO. 8

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**POST CONSTRUCTION STORM WATER BMP NOTES:**

**GENERAL:**

- DISTURBANCE TO VEGETATION AND EXISTING DRAINAGE FEATURES SHALL BE LIMITED TO THE GREATEST EXTENT PRACTICAL.
- NO VEGETATION SHALL BE DISTURBED AND NO GROUND CLEARED FOR THE INSTALLATION OF THE STORMWATER SWALE AND STORMWATER TRENCH, EXCEPT FOR THE FOOTPRINT OF THE STORMWATER SWALE AND STORMWATER TRENCH THEMSELVES.
- POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) BMPs SHALL BE INSTALLED AS LATE IN THE CONSTRUCTION PROCESS AS POSSIBLE.
- AREAS TO BE OCCUPIED BY PCSM BMPs SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION AND SURROUNDED WITH SNOW FENCE OR OTHER BARRIER. CARE SHALL BE TAKEN TO PREVENT COMPACTION OF SOIL IN UNDISTURBED AREAS AND THOSE AREAS OCCUPIED OR TO BE OCCUPIED BY PCSM BMPs.
- ENTRY OF SEDIMENT LADEN WATER TO THE PCSM BMPs SHALL BE PREVENTED.
- PCSM BMPs SHALL BE INSPECTED DURING CONSTRUCTION AS PER THE REQUIREMENTS OF THE PA BMP MANUAL AND AS SPECIFIED ELSEWHERE ON CONSTRUCTION DRAWINGS.
- ALL PLANTINGS AND SEEDING SHALL BE NATIVE NON-INVASIVE SPECIES.

**CONSTRUCTION SEQUENCE:**

- AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OWNER AND/OR OPERATOR SHALL NOTIFY THE PADEP BY EITHER TELEPHONE OR CERTIFIED MAIL OF THE INTENT TO COMMENCE EARTH DISTURBANCE ACTIVITIES. ATTENDANCE AT A PRE-CONSTRUCTION CONFERENCE IS REQUIRED UPON REQUEST OF THE PADEP.
- AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776 TO DETERMINE THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- INSTALL THE ROCK CONSTRUCTION ENTRANCE.
- CONFIRM COMPOST FILTER SOCK PLACEMENT DOWNSLOPE OF ANY PROPOSED DISTURBED/EXCAVATED AREA AND STOCKPILES. CONFIRM TEMPORARY WATERBAR INSTALLED DURING MAINLINE CONSTRUCTION. REPAIR AS NEEDED.
- PERFORM CLEARING AND GRUBBING TO THOSE AREAS DESCRIBED IN EACH STAGE OF WORK. REMOVE ALL EXCESS TOPSOIL FROM THE LIMITS OF DISTURBANCE AND STOCKPILE OFF-SITE. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY OFF-SITE WASTE AREAS HAVE AN E&SC PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR PADEP PRIOR TO BEING ACTIVATED. SNOW FENCING SHALL BE INSTALLED TO PREVENT COMPACTION OF INFILTRATION AREAS.
- THE STONE BASE AND SUB-SURFACE INFILTRATION FACILITY SHALL BE INSTALLED. CARE SHALL BE TAKEN TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STONE INFILTRATION BASE. THE ENGINEER SHALL INSPECT THE SUB-SURFACE INFILTRATION FACILITY PRIOR TO BACKFILLING AROUND IT.
- PERFORM GRADING ACTIVITIES DETAILED BY PROPOSED CONTOURS, NOTES, AND DETAILS SHOWN ON THE PLAN DRAWINGS. REMOVE TEMPORARY WATERBAR. PER PROJECT SPECIFICATIONS, ADDITIONAL TEMPORARY PLACEMENT OF COMPOST FILTER SOCK MAY BE NECESSARY AT THE CONTRACTOR'S DISCRETION. SHOULD ACCELERATED EROSION BE OBSERVED DURING GRADING ACTIVITIES, INSTALL SUBSURFACE STORMWATER INFILTRATION SYSTEM DURING BULK FILLING OPERATIONS.
- CONSTRUCT PAD AND FACILITIES ACCORDING TO SPECIFICATIONS WITHIN THESE PLAN SHEETS INCLUDING ALL STABILIZATION MEASURES. GRADES WILL BE LEFT 1 FOOT BELOW CATCH BASIN INLET GRATE ELEVATIONS TO PREVENT SILT-LADEN STORMWATER RUNOFF FROM ENTERING THE SUBSURFACE PIPING. ONCE THE SITE HAS BEEN STABILIZED, GRADING SHALL BE BROUGHT TO FINAL ELEVATIONS.
- ALL AREAS WITH MINOR SOIL COMPACTION SHALL BE RIPPED TO A DEPTH OF 8", AND AREAS OF MAJOR COMPACTION SHALL BE RIPPED TO A DEPTH OF 20". NO RIPPING SHALL TAKE PLACE IN THE VICINITY OF THE MAINLINE PIPING OR OTHER UNDERGROUND UTILITIES.
- PLACE TOPSOIL IN ALL AREAS TO BE VEGETATED.
- APPLY SEED AND MULCH TO DISTURBED AREAS AS SPECIFIED AND IN ACCORDANCE WITH THIS PLAN.
- ANY TEMPORARY MEASURES (SUCH AS COMPOST FILTER SOCK, COLLECTION CHANNEL, RIPRAP APRONS, ETC.) INSTALLED BY CONTRACTOR DURING GRADING SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS OCCURRED WITH A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER, WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. THE ENGINEER SHALL INSPECT FINAL STABILIZATION PRIOR TO REMOVAL OF TEMPORARY MEASURES.
- CLEAN WORK AREA OF ANY DEBRIS CREATED DURING THE CONSTRUCTION SEQUENCE.

**SPECIFICATIONS:**

- SITE PREPARATION**
  - ALL EXCAVATION AREAS, EMBANKMENTS, AND WHERE STRUCTURES ARE TO BE INSTALLED SHALL BE CLEARED AND GRUBBED AS NECESSARY.
  - A MINIMUM 10-FOOT RADIUS AROUND THE INLET AND OUTLET STRUCTURES CAN BE CLEARED TO ALLOW CONSTRUCTION.
  - CARE SHOULD BE TAKEN TO PREVENT COMPACTION OF THE BOTTOM OF THE BASIN. IF COMPACTION SHOULD OCCUR, SOILS SHOULD BE RESTORED AND AMENDED TO A DEPTH OF 18" USING A MIXTURE OF 3 PARTS SAND TO 1 PART TOPSOIL.
  - THE OPERATOR WILL REMOVE, RECYCLE OR DISPOSE FROM THE SITE ALL EXCESS CONSTRUCTION MATERIALS AND WASTES IN ACCORDANCE WITH PENNSYLVANIA'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ. THE CONTRACTOR WILL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
- EARTH FILL MATERIAL & PLACEMENT**
  - THE FILL MATERIAL SHOULD BE TAKEN FROM APPROVED DESIGNATED EXCAVATION AREAS. IT SHOULD BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6 INCHES, OR OTHER OBJECTIONABLE MATERIALS. MATERIALS ON THE OUTER SURFACE OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION.
  - AREAS WHERE FILL IS TO BE PLACED SHOULD BE SCARIFIED PRIOR TO PLACEMENT.
  - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE SITE SHOULD BE CONTROLLED. FOR THE EMBANKMENT, EACH LIFT SHOULD BE COMPACTED TO 95% OF THE STANDARD PROCTOR. FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE. YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.
- STRUCTURE BACKFILL**
  - BACKFILL ADJACENT TO PIPES AND STRUCTURES SHOULD BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHOULD BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHOULD FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHOULD DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET TO ANY PART OF THE STRUCTURE. EQUIPMENT SHOULD NOT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24 INCHES OR GREATER OVER THE STRUCTURE OR PIPE.
  - STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF THE PADOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MATERIAL SHOULD BE PLACED SO THAT A MINIMUM OF 6 INCHES OF FLOWABLE FILL SHOULD BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL MATERIAL SHOULD BE 7 INCHES TO ASSURE FLOWABILITY OF THE MIXTURE. ADEQUATE MEASURES SHOULD BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL ALL METAL PIPE SHOULD BE BITUMINOUS COATED. ADJOINING SOIL FILL SHOULD BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 4 INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT.
  - REFER TO CHAPTER 220 OF PENNDOT PUB. 408 (2000).
  - STABILIZATION**
    - ALL BORROW AREAS SHOULD BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHOULD BE STABILIZED BY SEEDING, PLANTING AND MULCHING.
    - ALL DRAINAGE PIPING, FLARED END SECTIONS, PRECAST STRUCTURES AND CASTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PADOT FORM 408 AS AMENDED.
    - ALL DRAINAGE PIPING SHALL HAVE WATER TIGHT JOINTS.

**MAINTENANCE AND INSPECTION NOTES:**

THESE REQUIREMENTS ARE INDEPENDENT OF THE EROSION AND SEDIMENT CONTROL REQUIREMENT DURING CONSTRUCTION. HOWEVER CERTAIN TASKS MAY OVERLAP.

- SWALES:**

MAINTENANCE ACTIVITIES TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM EVENT (> 1 INCH RAINFALL DEPTH):

  - INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION (ADDRESS WHEN > 3 INCHES AT ANY SPOT OR COVERING VEGETATION)
  - INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES, CORRECT AS NEEDED
  - INSPECT FOR POOLS OF STANDING WATER; DEWATER AND DISCHARGE TO AN APPROVED LOCATION AND RESTORE TO DESIGN GRADE
  - MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION; DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY; MOW ONLY WHEN SWALE IS DRY TO AVOID RUTTING
  - INSPECT FOR LITTER; REMOVE PRIOR TO MOWING
  - INSPECT FOR UNIFORMITY IN CROSS-SECTION AND LONGITUDINAL SLOPE, CORRECT AS NEEDED
  - INSPECT SWALE INLET (CURB CUTS, PIPES, ETC.) AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED

MAINTENANCE ACTIVITIES TO BE DONE AS NEEDED:

  - PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT
  - RESEED BARE AREAS; INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SOIL IS EXPOSED OR EROSION CHANNELS ARE FORMING
  - ROTOILL AND REPLANT SWALE IF DRAW DOWN TIME IS MORE THAN 48 HOURS
  - INSPECT AND CORRECT CHECK DAMS WHEN SIGNS OF ALTERED WATER FLOW (CHANNELIZATION, OBSTRUCTIONS, EROSION, ETC.) ARE IDENTIFIED
  - WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDE ONLY WHEN ABSOLUTELY NECESSARY

MAINTENANCE UNDER WINTER CONDITIONS:

  - INSPECT SWALE IMMEDIATELY AFTER THE SPRING MELT. REMOVE RESIDUALS (E.G. SAND) AND REPLACE DAMAGED VEGETATION WITHOUT DISTURBING REMAINING VEGETATION.
  - IF ROADSIDE OR PARKING LOT RUNOFF IS DIRECTED TO THE SWALE, MULCHING AND/OR SOIL AERATION/MANIPULATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE AND MOISTURE CAPACITY AND TO REDUCE THE IMPACTS OF DEICING AGENTS.
  - USE NONTOXIC, ORGANIC DEICING AGENTS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT.
  - USE SALT-TOLERANT VEGETATION IN SWALES.
- INFILTRATION TRENCH:**
  - OUTLET CONTROL STRUCTURES WILL BE INSPECTED AND CLEANED AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS.
  - VEHICLES WILL NOT BE PARKED OR DRIVEN ON THE BASIN.
  - THE TRENCH WILL BE INSPECTED AFTER RUNOFF EVENTS TO MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN 72 HOURS. THE TRENCH WILL ALSO BE INSPECTED FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION CONTROL MEASURES, AND SIGNS OF WATER CONTAMINATION/SPILLS. ACCUMULATED SEDIMENT WILL BE REMOVED INSPECT AND CORRECT EROSION PROBLEMS, AND SEDIMENT AND DEBRIS ACCUMULATION (ADDRESS WHEN > 3 INCHES AT ANY SPOT).
  - INSPECT FOR LITTER, REMOVE FROM BASIN AS REQUIRED.
  - SEDIMENT WILL BE PROPERLY DISPOSED OF.

**THE SOIL LIMITATIONS SHALL BE ADDRESSED AS FOLLOWS:**

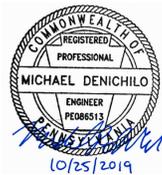
**LIMITATIONS AND RESOLUTIONS:**

- LIMITATION: CUTBANKS CAVE, LOW STRENGTH** - CUTBANKS HAVE POTENTIAL TO CAVE AND MANY SOILS ARE LOW STRENGTH.  
**RESOLUTION:** CONTRACTOR SHALL BE AWARE OF POTENTIAL ISSUES AND FOLLOW OSHA GUIDELINES FOR OPEN TRENCHING. LOW SOIL STRENGTH IS NOT A CONCERN DUE TO THE NATURE OF THE PROPOSED PROJECT. UTILITY TRENCHING WILL NOT BE ADVERSELY EFFECTED BY POOR SOIL STRENGTH.
- LIMITATION: CORROSIIVE TO STEEL AND/OR CONCRETE**  
**RESOLUTION:** IF STEEL PIPE IS USED RUST PROTECTION BY COATINGS AND/OR USE OF CATHODIC PROTECTION IS RECOMMENDED. IF CONCRETE IS USED SOIL SHALL BE TESTED AND CONCRETE COATED AS RECOMMENDED BY MANUFACTURER.
- LIMITATION: DROUGHTY** - SOILS EXHIBITING A POOR MOISTURE-HOLDING CAPACITY, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.  
**RESOLUTION:** FOR DROUGHTY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. DROUGHTY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.
- LIMITATION: EASILY ERODIBLE**  
**RESOLUTION:** SPECIAL ATTENTION SHALL BE GIVEN TO MAINTAINING EXISTING VEGETATION IN EASILY ERODIBLE SOILS, TO THE EXTENT POSSIBLE. EASILY ERODIBLE SOILS WITHIN 50 FEET OF A SURFACE WATER SHOULD BE BLANKETED. WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT A SUFFICIENT VEGETATIVE FILTER STRIP BETWEEN THE WATERBAR AND A RECEIVING SURFACE WATER, THE WATERBAR SHOULD BE PROVIDED WITH A TEMPORARY PROTECTIVE LINER.
- LIMITATION: FLOODING** - ANY SOIL SUBJECT TO INUNDATION DURING A 2-YEAR/24HR STORM EVENT.  
**RESOLUTION:** (SEE WET SOILS)
- LIMITATION: HIGH WATER TABLE, POTENTIALLY HYDRIC** - HIGH WATER TABLE IS TO BE EXPECTED AND MANY OF THE SOILS ARE POTENTIALLY HYDRIC.  
**RESOLUTION:** FOLLOW E&S PLAN WITH REGARD TO PUMPING AND DEWATERING. DISCHARGE OF SEDIMENT LADEN WATER IS PROHIBITED UNLESS WITHOUT FIRST PASSING THRU A "PUMPED WATER FILTER BAG" BMP.
- LIMITATION: HYDRIC / HYDRIC INCLUSIONS** - A SOIL THAT IS SATURATED, FLOODED, OR PONDED LONG ENOUGH DURING THE GROWING SEASON TO DEVELOP ANAEROBIC-CONDITIONS. WHEN SUCH A SOIL IS LOCATED IN AN AREA THAT HAS HYDROPHYTIC VEGETATION AND WETLAND HYDROLOGY, A WETLAND IS PRESENT.  
**RESOLUTION:** HYDRIC SOILS THAT ARE DELINEATED WETLANDS, SHOULD BE AVOIDED TO THE EXTENT POSSIBLE. STAGING AREAS SHOULD BE LOCATED 50 FEET FROM THE EDGE OF WETLAND. MOVEMENT OF VEHICLES ACROSS WETLAND MUST BE MINIMIZED. WHERE VEHICLES NEED TO CROSS WETLANDS, THE USE OF TEMPORARY TIMBER MATS SHALL BE USED DUE TO THE POTENTIAL FOR RUTTING. TRENCH PLUGS SHALL BE INSTALLED TO PREVENT THE TRENCH FROM DRAINING THE WETLANDS OR CHANGING THE HYDROLOGY.
- LIMITATION: LOW STRENGTH / LANDSLIDE PRONE** - SOILS WITH LOW STRENGTH HAVE A LESSER ABILITY TO RESIST SLOPE FAILURE, SUCH AS SLUMPING, FLOWING, ETC. MATERIALS WITH LOW SHEAR STRENGTH ARE MORE SUSCEPTIBLE TO LANDSLIDES AND EMBANKMENT FAILURES.  
**RESOLUTION:** PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEPPENING AND OVERLOADING SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 OF THE "PADEP - EROSION AND SEDIMENT CONTROL PROGRAM MANUAL." UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH.
- LIMITATION: SLOW PERCOLATION** - PERMEABILITY RATE LESS THAN OR EQUAL TO 0.2 INCHES/HR.  
**RESOLUTION:** BMPs TO BE INSPECTED AFTER RUNOFF EVENTS, MAKE SURE THERE IS ADEQUATE AREA FOR PUMPED WATER DISCHARGE. PCSM FACILITIES DESIGN BASED ON SITE SPECIFIC TESTING.  
**LIMITATION: PIPING**  
**RESOLUTION:** PIPING POTENTIAL IN THE SOIL WILL BE MINIMIZED BY THE USE OF TRENCH PLUGS. FURTHERMORE, ANY PLANNED EMBANKMENTS OR PERMANENT IMPOUNDMENTS SUSCEPTIBLE TO PIPING SHALL UTILIZE ANTI-SEEP COLLARS OR FILTER DIAPHRAGMS ON OUTLET BARRELS.
- LIMITATION: LIMITED AVAILABLE TOPSOIL**  
**RESOLUTION:** ANY EXCAVATED TOPSOIL WILL BE STOCKPILED AND REUSED. IF NECESSARY, ADDITIONAL TOPSOIL WILL BE BROUGHT ON-SITE.
- LIMITATION: FROST ACTION** - THE LIKELIHOOD OF UPWARD OR LATERAL EXPANSION OF THE SOIL CAUSED BY THE FORMATION OF SEGREGATED ICE LENSES, OR FROST HEAVE, AND THE SUBSEQUENT COLLAPSE OF THE SOIL AND LOSS OF STRENGTH ON THAWING, WHICH CAN DAMAGE ROADS, BUILDINGS, AND OTHER STRUCTURES AS WELL AS PLANT ROOTS.  
**RESOLUTION:** PRECAUTIONS ARE NEEDED TO PREVENT DAMAGE TO ROADWAYS AND STRUCTURES.
- LIMITATION: WET SOILS** - SOME SOILS MAY EXHIBIT A HIGH WATER TABLE OR PONDING.  
**RESOLUTION:** IF HIGH WATER TABLE IS ENCOUNTERED, TRENCH DEWATERING WILL BE EMPLOYED. LOCATE PCSM FACILITIES AWAY FROM WET SOILS.
- LIMITATION: MIN. DEPTH TO BEDROCK** - SOME SOILS HAVE A MIN DEPTH OF BEDROCK LESS THAN THE TYPICAL TRENCH DEPTH OF 7 FT (ASSUMES 3 FT OF COVER, PIPE DIAMETER, AND BEDDING DEPTH OF 1 FT).  
**RESOLUTION:** CONTRACTOR TO PLAN FOR ROCK REMOVAL DURING TRENCHING OPERATIONS. FOR SEDIMENT BARRIERS REQUIRING STAKING (E.G. SILT FENCES, ETC.), DEPTH TO BEDROCK LESS THAN 2 FT CAN IMPACT ABILITY TO DRIVE STAKE AND/OR POLE (FOR SUPER SILT FENCE). IN THESE AREAS, COMPOST FILTER SOCK OR OTHER APPLICABLE BMP NOT REQUIRING STAKING MAY BE CONSIDERED.
- LIMITATION: pH** - SOME SOILS HAVE pH VALUES LESS THAN 5.5, WHICH MAY LIMIT THE VEGETATIVE STABILIZATION ABILITY OF THE SOIL.  
**RESOLUTION:** AS IS TYPICAL FOR THESE TYPE OF SOILS, LIME WILL BE ADDED AS NEEDED TO PRODUCE VEGETATIVE STABILITY.
- LIMITATION: LOW FERTILITY**  
**RESOLUTION:** IF NECESSARY TO PRODUCE VEGETATIVE STABILITY OF THE SOIL, FERTILIZER OR NUTRIENT SUPPLEMENTS WILL BE ADDED TO THE SOIL TO PRODUCE VEGETATIVE STABILITY. FOR LOW FERTILITY SOILS, CONTRACTOR TO REFER TO "TABLE 11-3: PLANT TOLERANCES OF SOIL LIMITATION FACTORS" TO SELECT APPROPRIATE VEGETATION. EROSION CONTROL BLANKETS SHOULD ALSO BE CONSIDERED IN SOIL CONDITIONS THAT MAKE REVEGETATION DIFFICULT (E.G. LOW FERTILITY). WHEN INSTALLED PROPERLY, EROSION CONTROL BLANKETS CAN HELP HOLD SOIL PARTICLES IN PLACE AND RETAIN SOIL MOISTURE, PROMOTING SEED GERMINATION.

TABLE E.1 LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTH-MOVING PROJECTS (ABSENCE OF AN X DOES NOT MEAN "NO POTENTIAL LIMITATION")

LIMITING SOIL CHARACTERISTICS LEGEND																			
MAP SYMBOL	SOIL NAME	CUTBANKS CAVE	CORROSIIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS	MIN. DEPTH TO BEDROCK	pH
BIB	BEDINGTON-BERKS COMPLEX, 3 TO 8 PERCENT SLOPES	X	C	X	X			X		X		X	X					X	X
BKA	BERKS-WEIKERT COMPLEX, 0 TO 3 PERCENT SLOPES	X	C	X	X			X		X	X	X						X	
BKB	BERKS-WEIKERT COMPLEX, 3 TO 8 PERCENT SLOPES	X	C	X	X			X		X	X	X						X	X

SOURCE: AS TAKEN FROM TABLE E.1 OF THE THE PADEP E&SPCP MANUAL, MARCH 2012. HTTP://WWW.ELIBRARY.DEP.STATE.PA.US/DSWEB/GET/DOCUMENT-88925/363-2134-008.PDF



**Know what's below.  
Call before you dig.**

NO. DESCRIPTION DATE DRAWN CK APPR

A ISSUED FOR PADEP 10/15/2018 CAF(MM) WMC(MM) MJD(MM)

B RE-ISSUED FOR PADEP 10/2019 MWF(MM) DOW(MM) WMC(MM)

CLIENT APPROVAL \_\_\_\_\_

DATE \_\_\_\_\_

**PENNEAST PIPELINE PROJECT**

**MAINLINE BLOCK VALVE 6**

**POST CONSTRUCTION STORMWATER**

**MANAGEMENT DETAILS**

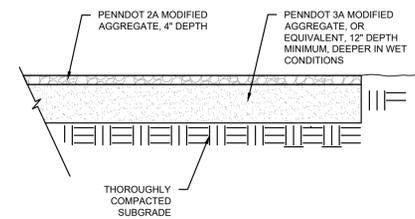
NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY CAF DATE ISSUED 10/15/2018

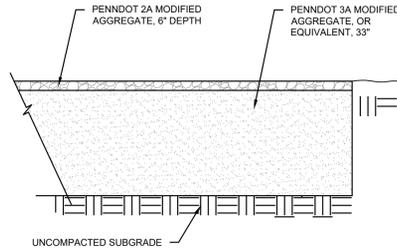
CHECKED BY WMC SCALE AS SHOWN

APPROVED BY JRD APPROVED BY \_\_\_\_\_

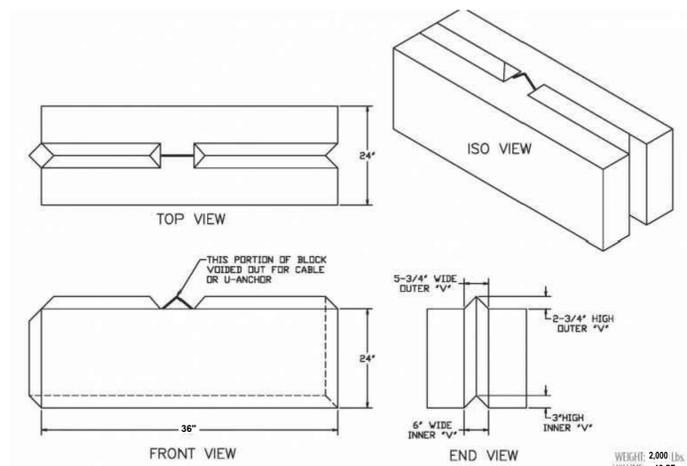
DWG. NO. 033-03-07-005 REV. NO. 8



TYPICAL ACCESS ROAD CROSS-SECTION DETAIL  
(NOT TO SCALE)

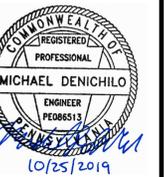


TYPICAL PAD  
CROSS SECTION DETAIL  
(NOT TO SCALE)



TYPICAL CONCRETE BLOCK DETAIL  
(NOT TO SCALE)

WEIGHT: 2,000 lbs.  
VOLUME: 12 CF



**NOTE:**  
THESE DETAILS HAVE BEEN ADAPTED FROM PENNDOT JUNE 2010 STANDARD DRAWINGS.  
ADDITIONAL INFORMATION FROM STANDARD PENNDOT DRAWINGS AND SPECIFICATIONS ARE  
INCORPORATED AS REFERENCED.

	CLIENT APPROVAL DATE				
<b>REVISIONS</b>					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	ISSUED FOR PADEP	10/15/2018	CAF(MM)	WMC(MM)	MJD(MM)
B	RE-ISSUED FOR PADEP	10/2019	MWF(MM)	DOW(MM)	WMC(MM)

PENNEAST PIPELINE PROJECT  
MAINLINE BLOCK VALVE 6  
TYPICAL ACCESS ROAD AND PAD SECTIONS  
NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY CAF	DATE ISSUED 10/15/2018
CHECKED BY WMC	SCALE AS SHOWN
APPROVED BY JRD	APPROVED BY
DWG. NO. 033-03-07-006	REV. NO. B

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