

BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET

SUSQUEHANNA COUNTY

FIGURE	FIGURE TITLE	SHEET NO.
ARF	ABACT ROCK FILTER	1
BBD	BROAD-BASED DIP	
BEC	BRIDGE EQUIPMENT CROSSING	
CD	COFFERDAM STREAM CROSSING	
CDM	CHECK-DAM	2
CFS	COMPOST FILTER SOCK	
CS	CLEANOUT-STAKE	
CST	COMPOST SOCK- SEDIMENT TRAP	
CWC	CLEAN WATER CROSSING (FLUME CROSSING)	3
DPX	DAM AND PUMP STREAM CROSSING	
DS	HYDROSTATIC DEWATERING STRUCTURE	
ECB	EROSION CONTROL BLANKET	
FD	FILTER SOCK DIVERSION	4
FEN	CONSTRUCTION FENCE	
FX	FLUME STREAM CROSSING	
HDD	HORIZONTAL DIRECTIONAL DRILL	
IPF	FILTER BAG INLET PROTECTION TYPE M	5
IPS	STONE AND CONCRETE INLET PROTECTION TYPE M	
MAT.1	TIMBER MATTING IN WETLANDS OR AT LOW POINTS	
MAT.2	TIMBER MATTING WITH FILL OVER EXISTING PIPELINES	
MAT.3	TIMBER MATTING AIR BRIDGE	6
MWC	WET MINOR WATERBODY CROSSING	
PWB	PUMP WATER FILTER BAG	
RAO	RIP RAP APRON AT PIPE OUTLET WITHOUT FLARED END SECTION	
RAP	RIP RAP GRADATION	7
RCE	ROCK CONSTRUCTION ENTRANCE	
RCW	ROCK CONSTRUCTION ENTRANCE WITH WASH RACK	
RFO	ROCK FILTER OUTLET	
RSF	REINFORCED SILT FENCE (30" HIGH)	8
RSS	RIP RAP STREAM BANK STABILIZATION	
RX.1	TRENCHED ROAD CROSSING	
RX.2	BORED ROAD/RAILROAD CROSSING	
SBR	STREAM BANK STABILIZATION WITH REINFORCEMENT BLANKET	9
SF	STANDARD SILT FENCE (18" HIGH)	
SSF	SUPER SILT FENCE (33" HIGH)	
TD	TRENCH DEWATERING	
TP	TRENCH PLUG INSTALLATION	10
TRV	TRASH RACK AND ANTI-VORTEX DEVICE	
TS.1	TOPSOIL SEGREGATION (1)	
TS.2	TOPSOIL SEGREGATION (2)	
TS.3	TOPSOIL SEGREGATION (3)	11
TTS	SIDE SLOPE (TWO-TONE) CONSTRUCTION PROCEDURE	
VCH	VEGETATED CHANNEL	
WB	WATERBAR	
WB.1	WATERBAR END TREATMENT NON-SPECIAL PROTECTION WATERSHED	10
WB.2	COMPOST FILTER SOCK AND SUMP (PADEP APPROVED ALTERNATE DETAIL) AT WATERBAR DISCHARGE	
WBX.1	BORED WATERBODY CROSSING	
WCC.1	"UNSATURATED WETLAND" INSTALLATION PROCEDURE	
WCC.2	"SATURATED WETLAND" INSTALLATION PROCEDURE	11
WCC.3	"INUNDATED WETLAND" INSTALLATION PROCEDURE	
WD	WATER-DEFLECTOR	
WEC	WETLAND EQUIPMENT	

DRAWING NUMBER	SHEET NO.	DRAWING NAME
24-1601-70-28-A/1683_3-BMP	1-1	COVER SHEET
ASR-BMP-GN	1-3	GENERAL NOTES
ASR-BMP	1-11	BEST MANAGEMENT PRACTICES STANDARD CONSTRUCTION DETAILS
24-1600-70-28-A/1683_3-BMP-SU-TB	1-1	QUANTITY, CROSSING, AND ACIDIC SOIL TABLES

TYPICAL WATERSHED

<p>WETLANDS</p> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td>W</td> <td>MAT.1</td> <td>WCC.1</td> </tr> <tr> <td></td> <td>WCC.2</td> <td>WCC.3</td> </tr> <tr> <td></td> <td>WCC.4</td> <td>PWB</td> </tr> </table>	W	MAT.1	WCC.1		WCC.2	WCC.3		WCC.4	PWB	<p>WATERBODIES</p> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td>S</td> <td>BEC</td> <td>CD</td> <td>DPX</td> <td>FX</td> </tr> <tr> <td></td> <td>HDD</td> <td>MWC</td> <td>RSS</td> <td></td> </tr> <tr> <td></td> <td>SBR</td> <td>WBL.1</td> <td>PWB</td> <td></td> </tr> </table>	S	BEC	CD	DPX	FX		HDD	MWC	RSS			SBR	WBL.1	PWB		<p>WETLAND/WATERBODIES</p> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td>WS</td> <td>BEC</td> <td>CD</td> <td>DPX</td> <td>FX</td> <td>HDD</td> </tr> <tr> <td></td> <td>MAT.1</td> <td>MWC</td> <td>RSS</td> <td>WBL.1</td> <td>PWB</td> </tr> <tr> <td></td> <td>WCC.1</td> <td>WCC.2</td> <td>WCC.3</td> <td>WCC.4</td> <td>SBR</td> </tr> </table>	WS	BEC	CD	DPX	FX	HDD		MAT.1	MWC	RSS	WBL.1	PWB		WCC.1	WCC.2	WCC.3	WCC.4	SBR
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E&S DETAIL GROUP LEGEND IS ALSO PROVIDED ON THE PIPELINE E&S PLANS. LEGEND IS SHOWN HERE FOR COORDINATION PURPOSES.



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572365	JLK	SMK
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572365	JLK	SMK
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572365	JLK	AJB

Drawn By & Date/Time: cmarstrano Nov 13, 2016 -- 1:07pm
Drawing Location & Name: G:\00514\140\DWG\BMPs&DETAILS\PL_DNT14c494909\NOTES-02--03.dwg

STANDARD EROSION & SEDIMENTATION CONTROL PLAN NOTES

- 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.
- 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 PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- 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.
- 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 CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- 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 AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(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 SHALL BE 2H:1V OR FLATTER.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'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.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- 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.
- ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
- VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LIMIT OF DISTURBANCE TO PUBLIC ROADS WITHOUT PASSING OVER A ROCK CONSTRUCTION ENTRANCE.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs SHALL 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, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- 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.
- 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.
- ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 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.
- ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SUPPAGE, 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.
- ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
- FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
- FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- 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 100 FEET OF A HO/VE SURFACE WATER AND WITHIN 50 FEET OF NON-HO/VE SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- 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.
- 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.
- E&S BMPs SHALL 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 THE DEPARTMENT.
- 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.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPs SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- 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.
- 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 THE 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.
- 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.
- ALL SWALES SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE SWALE SHALL BE IMMEDIATELY BACKFILLED AND THE SWALE RESTORED TO ITS ORIGINAL CROSS--SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE SWALE SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- SWALES HAVING RIPRAP, RENO MATRESS, OR GABION LININGS MUST BE SUFFICIENTLY OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
- SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN/TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
- SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
- ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
- UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS--BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER, WITHIN 100' OF A STREAM OR WETLAND IN A HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, WITHIN 50' OF A STREAM OR WETLAND IN A NON-HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN MAXIMUM 9 INCH LAYERED LIFTS AT 95% DENSITY.

GENERAL EROSION & SEDIMENT CONTROL NOTES

- INSPECT SNOW PLACEMENT AREAS DURING THE THAW CYCLE. INSTALL EROSION & SEDIMENT CONTROL BMPs DURING QUICK THAWS AND WHEN SNOW MELT RUNOFF IS CONCENTRATED OR IS CAUSING EROSION.
- DISCHARGING SEDIMENT LADEN WATER WHICH WILL CAUSE OR CONTRIBUTE TO THE DEGRADATION OF A BENEFICIAL USE OF A WATER OF THE STATE FROM THE CONSTRUCTION SITE, A DEWATERING SITE, OR SEDIMENT BASIN/TRAP INTO ANY WATER BODY OR STORM DRAIN WITHOUT FILTRATION OR EQUIVALENT TREATMENT IS PROHIBITED.
- DISCHARGES ORIGINATING FROM OFF--SITE SOURCES, WHICH FLOW THROUGH OR ACROSS THE AREAS DISTURBED BY CONSTRUCTION, SHALL BE DIVERTED AROUND THE ACTIVE CONSTRUCTION AREA WHENEVER POSSIBLE.
- STAGING AREAS, ASSEMBLY AREAS, TEMPORARY EQUIPMENT AND NON--HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED OUTSIDE THE 100--YR FLOOD ZONE. HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM SURFACE WATER BODIES.
- ALL EXCAVATED MATERIALS THAT WILL NOT BE USED ON THE SITE CANNOT BE STORED IN THE FLOODPLAIN AND MUST BE HAULED TO A DISPOSAL SITE LOCATED OUTSIDE OF THE FLOODPLAIN.
- CONSTRUCTION STAGING AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM THE EDGE OF A WETLAND.
- MEASURES SHALL BE TAKEN TO PREVENT TRENCHES FROM DRAINING A WETLAND OR CHANGING ITS HYDROLOGY.
- IT IS DESIRED THAT THE AMOUNT AND DURATION OF OPEN TRENCH BE MINIMIZED DURING THE PROJECT.
- IF TOPSOIL PILES ARE EXPOSED FOR GREATER THAN 4 DAYS, THEY SHALL BE SEEDDED WITH AN ANNUAL SEED MIXTURE AND MULCHED WITH STRAW.
- NO EROSION CONTROL BLANKET SHALL BE INSTALLED IN AGRICULTURAL AREAS EXCEPT AS REQUIRED TO CONSTRUCT THE TEMPORARY FLUME CROSSINGS.
- HYDRAULICALLY APPLIED EROSION CONTROL BLANKETS MAY BE USED IN LIEU OF EROSION CONTROL BLANKETS WITH PRIOR APPROVAL FROM THE COUNTY CONSERVATION DISTRICT.
- LOCATION AND SPACING OF THE WATERBARS ARE SHOWN ON THE PLAN. WATERBARS MAY BE ADJUSTED IN THE FIELD DUE TO ACTUAL SITE CONDITIONS. HOWEVER INSTALLATION AND SPACING MUST CONFORM TO THE DETAILS PROVIDED AND APPROVAL MUST BE OBTAINED FROM THE LOCAL CONSERVATION DISTRICT OR PA DEP.
- SEDIMENT REMOVED FROM PUBLIC ROADS OR BMPs WILL BE REUSED ON SITE OR DISPOSED OF AT A SITE WITH AN EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR DEP.
- CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SOIL EROSION AND SEDIMENT CONTROL NARRATIVE AND ENVIRONMENTAL CONSTRUCTION PLAN.
- CONTRACTOR SHALL MINIMIZE THE TOTAL AREA OF DISTURBANCE.
- UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED E&S DURING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED E&S, OR AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED E&S. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW. THE ON-SITE ENVIRONMENTAL INSPECTOR WILL LOG ACTIVITY WITHIN THE PROJECT LIMITS OF DISTURBANCE AND NOTIFY THE CONTRACTOR OF AREAS REQUIRING TEMPORARY STABILIZATION.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BMPs TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL COUNTY CONSERVATION DISTRICT AND/OR PADEP.
- MAINTAIN TEMPORARY SOIL STOCKPILES.
- NO EARTH DISTURBANCE ACTIVITIES WITHIN 50 FEET OF STREAM SWALES WILL BE PERFORMED UNTIL MATERIALS NEEDED TO COMPLETE THE CROSSING ARE AT THE NEAREST AVAILABLE LOCATION.
- THE CONTRACTOR IS REQUIRED TO PROVIDE CONTINUOUS MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES WITHIN DISTURBED AREAS.
- IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE LONGER THAN 4 DAYS IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL SUCH INACTIVE 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.~~
- ~~FOLLOW THE CONSTRUCTION/EROSION CONTROL IMPLEMENTATION PLAN AS OUTLINED ON THE DRAWINGS.~~
- ~~THE STAGING OF EARTHMOVING ACTIVITIES FOR THIS PROJECT IS A GENERAL DESCRIPTION OF THE WORK REQUIRED. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH PROJECT OWNER STANDARDS, THE PADEP REGULATIONS, AND ALL OTHER APPLICABLE FEDERAL, STATE OR LOCAL REGULATIONS.~~
- ~~SCHEDULE WORK TO BE PERFORMED IN A MANNER THAT MINIMIZES THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED TO THE ELEMENTS.~~
- ~~ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THIS 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. IMPLEMENT EROSION CONTROL MEASURES AS SPECIFIED. HOWEVER, THE CONTRACTOR MAY INSERT ADDITIONAL CONSTRUCTION PHASES IN ORDER TO EXPEDITE HIS WORK WHILE MAINTAINING THE SAME LEVEL OF PROTECTION. ANY DEVIATION FROM THE FOLLOWING SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL COUNTY CONSERVATION DISTRICT. CONSTRUCTION MUST BE IN ACCORDANCE WITH THE SEQUENCE OF BMP INSTALLATION INDICATED ON SITE SPECIFIC DETAIL SHEETS. THIS SEQUENCE IS DESIGNED TO MINIMIZE SOIL EROSION AND SEDIMENTATION. THE CONTRACTOR MAY DEVIATE SLIGHTLY FROM THE STAGING OF PERMANENT SITE IMPROVEMENTS, BUT NO DEVIATION FROM THE RELATIVE ORDER OF EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE LOCAL COUNTY CONSERVATION DISTRICT OR PADEP.~~
- THE FLOODWAY/FLOODPLAIN LINE SHOWN ON THE PLANS WAS DEVELOPED FROM AVAILABLE FEMA FLOODWAY MAPPING, FEMA FLOODPLAIN MAPPING, AND THE PA CHAPTER 105 FLOODWAY DEFINITION.
- EROSION & SEDIMENT CONTROLS SHOWN HEREON ARE THE MINIMUM REQUIRED. AS SPECIFIC SITE CONDITIONS MAY DICTATE, THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO MODIFY (OR REDLINE) THE DESIGNED BMPs WITHIN THE ROW AS MAY BE SHOWN WITHIN THE EROSION & SEDIMENT CONTROL PLAN TO BETTER ENSURE CHAPTER 102 COMPLIANCE.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR DEP AND BE FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.

EXISTING CONDITIONS NOTES

- EXISTING TOPOGRAPHY IS BASED UPON THE FOLLOWING:
 - PHOTOGRAMMETRIC SURVEY PROVIDED BY AEROMETRIC/QUANTUM AERIAL, BASED UPON DIGITAL AERIAL IMAGERY ACQUIRED MARCH THROUGH NOVEMBER OF 2012 AND APRIL OF 2013, AND COMPILED TO NATIONAL MAP ACCURACY STANDARDS FOR SCALE 1"=100' AND 2' CONTOUR INTERVAL.
 - SUPPLEMENTAL FIELD SURVEY DATA PROVIDED BY WILLIAMS SURVEY FOR AREAS WITHIN THE PROPOSED ACCESS ROADS CORRIDORS AND PROPOSED FACILITIES.
- NORTH ARROW AND COORDINATES ARE BASED UPON UNIVERSAL TRANSVERSE MERCATOR WITH NORTH AMERICAN DATUM OF 1983, ZONE 18, U.S. FOOT, CENTRAL MERIDIAN 75° WEST (UTM83--18F).
- ELEVATIONS ARE BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- WETLAND AND WATERBODY DELINEATIONS ARE BASED ON ENVIRONMENTAL SURVEY DATA PROVIDED BY E&E AND ARE LIMITED TO THE AREAS WITHIN OR IN CLOSE PROXIMITY TO THE ACCESS ROADS CORRIDORS, PROPOSED FACILITIES, AND PIPELINES.
- APPROXIMATE PROPERTY LINES ARE BASED UPON DIGITAL MAPPING PROVIDED BY WILLIAMS SURVEY AND ARE DEPICTED FOR GENERAL INFORMATION ONLY.
- LAND OWNER IDENTIFICATION IS BASED ON INFORMATION PROVIDED BY WILLIAMS SURVEY AND IS FOR GENERAL INFORMATION ONLY.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY WILLIAMS AND ITS ENGINEER OF ANY CONDITIONS THAT VARY FROM WHAT IS DEPICTED ON THIS PLAN.

THERMAL IMPACT ANALYSIS

IN ORDER TO AVOID THERMAL IMPACTS, THE LIMIT OF DISTURBANCE WITHIN THE PIPELINE RIGHT--OF--WAY HAS BEEN MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. ADDITIONALLY, ALL DISTURBED AREA WILL BE RESTORED TO AN EXISTING, VEGETATIVE CONDITION FOLLOWING CONSTRUCTION.

THE FOLLOWING PROVISIONS RELATED TO THERMAL IMPACTS BY ACCESS ROADS ARE INCLUDED IN THE E&SC ACCESS ROAD PLANS:

- THE MINIMUM PERMANENT CHANGES IN LAND COVER, NECESSARY TO CONSTRUCT THE REQUIRED FACILITIES ARE BEING PROPOSED.
- RUNOFF FROM THE PERMANENT IMPERVIOUS AREA WILL BE COLLECTED AS PART OF THE POST CONSTRUCTION STORMWATER MANAGEMENT / SITE RESTORATION (PCSM/SR) PLAN AND ROUTED TO PCSM/SR BMPs. IN ADDITION, IMPERVIOUS AREAS WILL BE GRAVEL INSTEAD OF ASPHALT WHEREVER PRACTICAL.
- THE REMOVAL OF VEGETATION, ESPECIALLY TREE COVER, WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION.
- THE IMPACTS TO EXISTING RIPARIAN CORRIDORS WILL BE LIMITED TO ONLY THAT NECESSARY FOR CONSTRUCTION.
- THE AMOUNT OF IMPERVIOUS SURFACES WILL BE LIMITED TO ONLY THAT NECESSARY TO SUPPORT THE CONSTRUCTION OF THE PIPELINE AND/OR OPERATION OF THE PIPELINE.
- ALL DISTURBED AREAS WILL BE RESTORED TO AN EXISTING, VEGETATIVE CONDITION FOLLOWING CONSTRUCTION AND IN ACCORDANCE WITH CHAPTER 102 AND ESCOP--2 PERMIT REQUIREMENTS FOR LINEAR OIL AND GAS PROJECTS.

NOTICES TO CONTRACTOR

- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO STARTING WORK.
- THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
- WATERBARS IN AGRICULTURAL/FARM FIELDS ARE TEMPORARY AND SHALL BE REMOVED AND RESTABILIZED UPON ESTABLISHMENT OF A UNIFORM 70 PERCENT PERMANENT VEGETATIVE COVER WITHIN THE UPSLOPE TRIBUTARY DRAINAGE AREA PER PA CHAPTER 102.22.
- ALL WORK WITHIN THE PUBLIC RIGHT--OF--WAY SHALL BE COORDINATED WITH THE AGENCY HAVING JURISDICTION.
- FURNISH & INSTALL SWALES WHENEVER CONCENTRATED FLOWS HAVE THE POTENTIAL TO RUN ONTO OR THROUGH THE CONSTRUCTION AREA. DIRECT THE SWALE DISCHARGE TO A RIP RAP ENERGY DISSIPATER AND VEGETATED AREA.
- THE CONTRACTORS SHALL BE ADDED AS CO--PERMITEES TO THE ESCOP--2 PERMIT.

RECEIVING WATERCOURSE - CHAPTER 93 DESIGNATION

REFER TO THE PIPELINE AND ACCESS ROAD PLANS FOR THE LOCATION, NAME AND CHAPTER 93 WATERCOURSE DESIGNATIONS. A SUMMARY TABLE OF WATERBODIES CROSSED BY THE PIPELINE AND CHAPTER 93 DESIGNATIONS ARE PROVIDED IN THE COUNTY--SPECIFIC TABLES INCLUDED AT THE END OF THIS PLAN SET.

RECYCLING AND DISPOSAL METHODS

THE RESTORATION OF THE PIPELINE RIGHT--OF--WAY WILL REQUIRE THE REMOVAL OF THE TEMPORARY MATERIALS. THE TEMPORARY MATERIALS INCLUDE, BUT MAY NOT BE LIMITED TO, STONE SURFACES AND ASSOCIATED GEOTEXTILES. THE CONTRACTORS ARE REQUIRED TO DISPOSE OF THE MATERIALS AT SUITABLE DISPOSALS OR RECYCLING SITES AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

CONTRACTORS ARE REQUIRED TO INVENTORY AND MANAGE THEIR CONSTRUCTION SITE MATERIALS. THE GOAL IS TO BE AWARE OF THE MATERIALS ON--SITE, ENSURE THEY ARE PROPERLY MAINTAINED, USED, AND DISPOSED OF, AND TO MAKE SURE THE MATERIALS ARE NOT EXPOSED TO STORMWATER.

MATERIALS COVERED

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON--SITE DURING CONSTRUCTION (NOTE: THIS LIST IS NOT AN ALL--INCLUSIVE LIST AND THE MATERIALS MANAGEMENT PLAN CAN BE MODIFIED TO ADDRESS ADDITIONAL MATERIALS USED ON--SITE):

- ACIDS
- DETERGENTS
- FERTILIZERS (NITROGEN/PHOSPHORUS)
- HYDROSEEDING MIXTURES
- PETROLEUM BASED PRODUCTS
- SANITARY WASTES
- SOIL STABILIZATION ADDITIVES
- SOLDER
- SOLVENTS
- OTHER (LIST HERE): _____

THESE MATERIALS MUST BE STORED AS APPROPRIATE AND SHALL NOT CONTACT STORM OR NON--STORMWATER DISCHARGES. CONTRACTOR SHALL PROVIDE A WEATHER PROOF CONTAINER TO STORE CHEMICALS OR ERODIBLE SUBSTANCES THAT MUST BE KEPT ON THE SITE. CONTRACTOR IS RESPONSIBLE FOR READING, MAINTAINING, AND MAKING EMPLOYEES AND SUBCONTRACTORS AWARE OF MATERIAL SAFETY DATA SHEETS (MSDSs).

MATERIAL MANAGEMENT PRACTICES

THE FOLLOWING ARE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF.

1. GOOD HOUSEKEEPING PRACTICES

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ON SITE DURING CONSTRUCTION:

- STORE ONLY ENOUGH MATERIAL REQUIRED TO DO THE JOB.
- STORE MATERIALS IN A NEAT, ORDERLY MANNER.
- STORE CHEMICALS IN WATERTIGHT CONTAINERS OR IN A STORAGE SHED, UNDER A ROOF, COMPLETELY ENCLOSED, WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT SPILL OR LEAKAGE. DRIP PANS SHALL BE PROVIDED UNDER DISPENSERS.
- SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
- INSPECTIONS WILL BE PERFORMED TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.
- COVER AND DEAM LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (I.E. SOIL, SPOILS, AGGREGATE, ETC.).
- MINIMIZE EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION.
- MINIMIZE THE POTENTIAL FOR OFF--SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS.

2. HAZARDOUS PRODUCTS

THESE PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS. MSDSS FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE(S) WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. A MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN A FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS WITH THE ORIGINAL LABELS IN LEGIBLE CONDITION.
- ORIGINAL LABELS AND MSDSS WILL BE PRODUCED AND USED FOR EACH MATERIAL.
- IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL/STATE/FEDERAL RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

3. HAZARDOUS WASTES

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF BY THE CONTRACTOR IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. SITE PERSONNEL WILL BE INSTRUCTED.

4. CONCRETE AND OTHER WASH WATERS

PREVENT DISPOSAL OF RINSE, WASH WATERS, OR MATERIALS ON IMPERVIOUS OR PEROVIOUS SURFACES, INTO STREAMS, WETLANDS OR OTHER WATER BODIES.

CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE, BUT ONLY IN EITHER (1) SPECIFICALLY DESIGNATED DIKED AREAS WHICH HAVE BEEN PREPARED TO PREVENT CONTACT BETWEEN THE CONCRETE AND/OR WASHOUT AND SOIL AND STORMWATER HAVING THE POTENTIAL TO BE DISCHARGED FROM THE SITE OR (2) IN LOCATIONS WHERE WASTE CONCRETE CAN BE POURED INTO FORMS TO MAKE RIPRAP OR OTHER USEFUL CONCRETE PRODUCTS.

THE HARDENED RESIDUE FROM THE CONCRETE WASHOUT DIKED AREAS WILL BE DISPOSED OF IN THE SAME MANNER AS OTHER NON--HAZARDOUS CONSTRUCTION WASTE MATERIALS OR MAY BE BROKEN UP AND USED ON THE SITE AS DEEMED APPROPRIATE BY THE CONTRACTOR AND GEOTECHNICAL ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

ALL CONCRETE WASHOUT AREAS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE AREA CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. IF REQUIRED, ADDITIONAL BMPs MUST BE IMPLEMENTED TO PREVENT CONCRETE WASTES FROM CONTRIBUTING TO STORMWATER DISCHARGES. THE LOCATION OF THE CONCRETE WASHOUT AREA(S) MUST BE IDENTIFIED, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT, ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S) IN THIS ESCP.

5. SANITARY WASTES

ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGES IS NEGLIGIBLE. ADDITIONAL BMPs MUST BE IMPLEMENTED, SUCH AS CONTAINMENT TRAYS (PROVIDED BY THE RENTAL COMPANY) OR SPECIAL CONTAINMENT CREATED WITH 2"x4" LUMBER, IMPERVIOUS PLASTIC, AND GRAVEL. THE LOCATION OF THE SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S), IN THIS ESCP, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT.

6. SOLID AND CONSTRUCTION WASTES

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL COMPLY WITH ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. THE DUMPSTER/CONTAINER LIDS SHALL BE CLOSED AT THE END OF EVERY BUSINESS DAY AND DURING RAIN EVENTS. APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE RECEIVING WATER.

7. CONSTRUCTION ACCESS

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED ROADS ADJACENT TO THE SITE ENTRANCE WILL BE INSPECTED DAILY AND SWEEP AS NECESSARY TO REMOVE ANY EXCESS MUD, DIRT, OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPULIN AS NECESSARY.

8. PETROLEUM PRODUCTS

ON--SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED DIKE OR BERMED AREAS. THE SITE WILL HAVE A DIKE OR BERM CONSTRUCTED AROUND IT TO CONTAIN SPILLS WHICH MAY OCCUR (CONTAINMENT VOLUME TO BE 110% OF VOLUME STORED). THE DIKE OR BERMED AREA SHALL BE LINED WITH AN IMPERVIOUS MATERIAL SUCH AS A HEAVY DUTY PLASTIC SHEET. DRIP PANS SHALL BE PROVIDED FOR ALL DISPENSERS. ANY ASPHALT SUBSTANCES USED ON THE SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

9. FERTILIZERS AND LANDSCAPE MATERIALS

FERTILIZERS WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO MINIMIZE THE POTENTIAL FOR EXPOSURE TO STORMWATER. STORAGE WILL BE UNDER COVER. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO MINIMIZE THE POTENTIAL FOR SPILLS. THE BIN SHALL BE LABELED APPROPRIATELY.

CONTAIN STOCKPILED MATERIALS, SUCH AS BUT NOT LIMITED TO, MULCHES, TOP SOIL, ROCKS AND GRAVEL, AND DECOMPOSED GRANITE, WHEN THEY ARE NOT ACTIVELY BEING USED.

APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURER RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL. DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN TWO DAYS PRIOR TO A FORECASTED RAIN EVENT OR DURING PERIODS OF PRECIPITATION.

10. PAINTS, PAINT SOLVENTS AND CLEANING SOLVENTS

CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT IN USE. EXCESS PAINT AND SOLVENTS WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL/STATE/FEDERAL REGULATIONS.

11. CONTAMINATED SOILS


ANY CONTAMINATED SOILS (RESULTING FROM SPILLS OF MATERIALS WITH HAZARDOUS PROPERTIES) WHICH MAY RESULT FROM CONSTRUCTION ACTIVITIES WILL BE CONTAINED AND CLEANED UP IMMEDIATELY IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

12. OFF--SITE WASTE AND BORROW AREAS

ALL OFF--SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OF PADEP FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.

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

REFER TO THE PIPELINE AND ACCESS ROAD EROSION AND SEDIMENTATION CONTROL PLANS FOR LAND USE INFORMATION.

REVISIONS				TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	ATLANTIC SUNRISE PROJECT PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK	
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK	
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK	
							GENERAL NOTES
							DRAWN BY: ELZ DATE: 05/15/15 ISSUED FOR BID: SCALE:
							CHECKED BY: JLK DATE: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: 2
							APPROVED BY: SMK DATE: 07/08/15 DRAWING NUMBER: ASR--BMP--GN
							W.O. SHEET 1 OF 3



SUZAN

Drawn By & Date/Time: cmastrano Nov 13, 2016 - 1:07pm
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PIPELINE BMP INSTALLATION SEQUENCE

1. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
2. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
3. HOLD PRE-CONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL INSPECTORS, LOCAL COUNTY CONSERVATION DISTRICT (CCD), PADEP, AND DESIGN ENGINEER.
4. LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. FIELD LOCATE THE LOD.
5. LOCATE, STAKE AND/OR INSTALL ORANGE CONSTRUCTION FENCE AROUND SPECIAL AREAS OF CONCERN (I.E. WETLANDS, STREAMS, CULTURAL RESOURCES..)
6. PERFORM NON-MECHANIZED TREE CUTTING WHERE REQUIRED.
7. INSTALL CONSTRUCTION ENTRANCES.
8. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR DEP AND BE FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.
9. REMOVE BRUSH, INCLUDING STUMPS, ONLY IN AREAS NECESSARY TO EFFECTIVELY INSTALL PERIMETER SEDIMENT BARRIERS, UPSLOPE TEMPORARY FILTER SOCK DIVERSIONS AND TEMPORARY DIVERSION SWALES. LEVEL SIDE CUTS REQUIRED TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS AS SHOWN ON THE E&SC PLANS.
10. INSTALL PERIMETER CONTROLS (SEDIMENT BARRIERS). ACCESS REQUIREMENTS FOR PERIMETER CONTROLS ALONG PRIVATE DRIVES WITHIN THE LOD SHALL BE IN ACCORDANCE WITH THE LANDOWNER AGREEMENTS.
11. INSTALL PERMANENT AND TEMPORARY ACCESS ROADS AND ASSOCIATED BMPS (VEGETATED ROADSIDE DITCHES, DITCH RELIEF CULVERTS, AND RIPRAP OUTLET PROTECTION). SEE ACCESS ROAD SEQUENCE OF CONSTRUCTION FOR SPECIFIC CONSTRUCTION STEPS ASSOCIATED WITH ROAD CONSTRUCTION (PROVIDED IN SECTION 2 OF THE ESCOP-2 NOI).
12. THE COMPLIANCE MANAGER SHALL PROVIDE PADEP AT LEAST THREE DAYS' NOTICE PRIOR TO BULK EARTH DISTURBANCE AND UPON COMPLETED INSTALLATION OF PERIMETER EROSION CONTROLS.
13. HAVE SURVEY CREWS LOCATE AND RE-STAKE AS NEEDED, IF ANY STAKES ARE DAMAGED, IN ALL SPECIAL AREAS OF CONCERN (I.E., WETLANDS, STREAMS, ETC.)
14. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE THE CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED E&SC PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED E&SC; OR AN ACCEPTABLE E&SC BMP WHICH TEMPORARILY MINIMIZES ACCELERATED E&SC. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE ROW.
15. PROCEED WITH MAJOR CLEARING AND GRUBBING.
16. BEGIN CONSTRUCTION STAKING FOR TEMPORARY GRADING.
17. INSTALL CLEAN WATER CROSSINGS, INCLUDING LINERS, RIP RAP APRON ENERGY DISSIPATERS AND FLUME CROSSINGS
18. AS THE GRUBBING OPERATION COMMENCES, INSTALL ROCK FILTERS AND WATERBARS ALONG THE ALIGNMENT.
19. STRIP AND STOCKPILE TOPSOIL; INSTALL SEDIMENT BARRIERS AROUND STOCKPILES.
20. HAUL PIPE TO RIGHT-OF-WAY. BEND, PLACE ON SUPPORTS, ALIGN, AND WELD. INSTALL STREAM AND WETLAND CROSSING BMPS (TIMBER MATTING, TIMBER MAT BRIDGES). LAY PIPE IN DITCH IMMEDIATELY AFTER INSTALLING CROSSING, RESTORE DISTURBED AREA AND INSTALL STREAMBANK STABILIZATION.
21. CLEAR, GRUB, AND CONSTRUCT STREAM AND WETLAND CROSSINGS IN ACCORDANCE WITH CHAPTER 105, SECTION 404, 401, AND RELATED PERMITS. INSTALL STREAM FLUMES, AND/OR DAM AND PUMP AS SPECIFIED IN CHAPTER 105 PERMIT DOCUMENTS FOR CROSSING OF STREAM AND WETLAND AREAS. CONTRACTOR SHALL PLACE PIPE, INSTALL TRENCH PLUGS, BACKFILL TRENCH, AND TEMPORARILY STABILIZE WITHIN 48 HOURS OF EXCAVATING TRENCH IN RESOURCE CROSSING LOCATIONS.
22. DIG TRENCH OUTSIDE OF RESOURCE CROSSINGS. CONTRACTOR SHALL PLACE PIPE, INSTALL TRENCH PLUGS, AND BACKFILL TRENCH WITHIN 30 DAYS OF EXCAVATING TRENCH.
23. PERFORM NON-DESTRUCTIVE TESTING (NDT) INSPECTION OF WELDS AND APPLY COATING TO WELD AREA.
24. INSTALL TRENCH PLUGS.
25. BACKFILL PIPE TRENCH, REPAIR PERMANENT WATERBARS, REMOVE TEMPORARY WATERBARS, RETURN TEMPORARILY GRADED AREAS TO PRE-DEVELOPMENT GRADE, REPAIR/INSTALL EROSION CONTROL BLANKET AS NEEDED, IMMEDIATELY SEED AND STABILIZE DISTURBED AREAS (SLOPES, DITCHES AND CHANNELS) AS THEY ARE RETURNED TO FINAL GRADE. REFER TO PLANTING PLANS AND RIPARIAN BUFFER PLANTINGS, AS APPLICABLE, IN THE BMP PLAN SET AND E&S NARRATIVE.
26. PERFORM HYDROSTATIC PRESSURE TEST OF PIPELINE.
27. DEWATER PIPELINE UTILIZING APPROPRIATE BMPS, COMPLETE FINAL TIE-INS, AND DRY PIPELINE.
28. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS 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.
29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE PERMITTEE AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD AND/OR PADEP FOR AN INSPECTION PRIOR TO THE REMOVAL OF THE E&SC BMPS. REMOVAL OF TEMPORARY WETLAND AND STREAM CROSSINGS, TEMPORARY BMPS INCLUDING SEDIMENT BARRIERS, TEMPORARY FILTER SOCK DIVERSION SWALES, TEMPORARY CLEAN WATER DIVERSION SWALES (AND ASSOCIATED GRADING), CLEAN WATER CROSSING OUTFALL PROTECTION AND LEVEL SPREADERS, ROCK FILTERS, AND TEMPORARY WATERBARS ALONG THE ALIGNMENT.
30. COMPLETE SITE RESTORATION AND STABILIZATION, INCLUDING SOIL AERATION, SOIL TREATMENT, SEED APPLICATION AND MULCHING IN AREAS DISTURBED BY E&SC BMP REMOVAL. INSTALL RIPARIAN BUFFER PLANTINGS PER THE RIPARIAN BUFFER PLANTING PLANS.
31. REMOVE AND PROPERLY DISPOSE OF/RECYCLE E&SC BMPS. REMOVE STAKES AND ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED DURING E&SC BMP REMOVAL.

MAINTENANCE PROGRAM

THE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS AND STABILIZATION MEASURES. REFER TO BMP DETAILS FOR SPECIFIC OPERATION AND MAINTENANCE REQUIREMENTS.

1. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED ONCE EVERY SEVEN DAYS AND AFTER EACH RUNOFF EVENT. A WRITTEN REPORT MUST ALSO BE COMPLETED DOCUMENTING EACH INSPECTION AND, IF NECESSARY, ANY REPAIR, REPLACEMENT OR MAINTENANCE ACTIVITY.
2. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF REPAIRS OR ADDITIONAL MEASURES ARE FOUND TO BE NECESSARY, THEY WILL BE INITIATED WITHIN 24 HOURS OF THE INSPECTION REPORT.
3. BUILT UP SEDIMENT WILL BE REMOVED FROM PERIMETER BMPS WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE BMP.
4. PERIMETER BMPS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, DAMAGE, ETC., TO ENSURE THE MEASURE IS IN PROPER WORKING ORDER, AND THAT ANY POSTS/WOOD STAKES ARE SECURELY IN THE GROUND.
5. TEMPORARY SEDIMENT TRAPS, IF PRESENT, WILL BE INSPECTED FOR DEPTH OF SEDIMENT, AND BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES THE DESIGN CLEANOUT DEPTH.
6. TEMPORARY AND PERMANENT SEEDING, AND OTHER STABILIZATION MEASURES, WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
7. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. COPIES OF THE REPORT FORMS TO BE COMPLETED BY THE INSPECTOR ARE INCLUDED IN THIS ESCP.
8. THE INSPECTOR WILL IMPLEMENT INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS THAT ARE USED ON THE SITE IN GOOD WORKING ORDER. THE INSPECTOR WILL ALSO BE TRAINED IN THE COMPLETION OF, INITIATION OF ACTIONS REQUIRED BY, AND THE FILING OF THE INSPECTION FORMS.
9. DISTURBED AREAS AND MATERIALS STORAGE AREAS WILL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING THE STORMWATER.

A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN(S) WILL BE AVAILABLE ON THE SITE AT ALL TIMES.

ONCE ANY EROSION CONTROL MEASURES ARE INSTALLED, THE MAINTENANCE AND INSPECTION PROCEDURES ABOVE SHALL BEGIN. THE CONTRACTOR SHOULD BE AWARE THAT THE INSPECTION FORMS BECOME AN INTEGRAL PART OF THE ESCP AND SHALL BE MADE READILY AVAILABLE TO THE GOVERNMENT INSPECTION OFFICIALS, THE PROJECT OWNER'S ENGINEER, AND THE PROJECT OWNER FOR REVIEW UPON REQUEST DURING VISITS TO THE PROJECT SITE.

INSPECTORS SHOULD BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICE OF EROSION AND SEDIMENT CONTROLS AND POSSESS THE SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY AND TO ASSESS THE EFFECTIVENESS OF ANY SEDIMENT AND EROSION CONTROL MEASURES SELECTED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES FROM THE CONSTRUCTION SITE. THEY SHOULD ALSO HAVE READ AND UNDERSTOOD ALL PORTIONS OF THIS ESCP, INCLUDING THE ESCOP-2.

THE INDIVIDUAL(S) RESPONSIBLE FOR POST-STORM AND STORM EVENT BMP INSPECTIONS, AND THE QUALIFIED PERSON(S) ASSIGNED RESPONSIBILITY TO ENSURE FULL COMPLIANCE WITH THE PERMITS AND IMPLEMENTATION OF ALL ELEMENTS OF THE ESCP, INCLUDING THE PREPARATION OF THE ANNUAL COMPLIANCE EVALUATION AND THE ELIMINATION OF ALL UNAUTHORIZED DISCHARGES ARE:

NAME: _____

PHONE NUMBER: _____ EMERGENCY PHONE #: _____

COMPANY: _____

RESPONSIBILITIES: _____

NAME: _____

PHONE NUMBER: _____ EMERGENCY PHONE #: _____

COMPANY: _____

RESPONSIBILITIES: _____

TEMPORARY AND PERMANENT STABILIZATION

1. TEMPORARY STABILIZATION
- TEMPORARY SEEDING WITH STRAW MULCH COVER FOR INTERIM STABILIZATION IS A TYPE OF BMP THAT CAN USUALLY BE PROVIDED WHERE THE EARTH DISTURBANCE ACTIVITY TEMPORARILY CEASES (I.E. 4 DAYS OR MORE) UNLESS DIRECTED BY THE PROJECT OWNER, PADEP, OR CONSERVATION DISTRICT.
- THE INSTALLATION OF AN EROSION CONTROL BLANKET OR APPLICATION OF STRAW MULCH UPON SEEDED AREAS ARE BOTH CONSIDERED TO BE PERMANENT STABILIZATION BMPS TO PROTECT THE SEEDBED UNTIL VEGETATION IS ESTABLISHED.
2. PERMANENT STABILIZATION
- UPON COMPLETION OF ANY EARTH DISTURBANCE ACTIVITY, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
- EROSION & SEDIMENTATION CONTROLS SHALL BE LEFT IN PLACE UNTIL SUCH TIME AS THE DISTURBED AREAS HAVE PERMANENT STABILIZATION. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS 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.
3. STABILIZATION DURING NON-GROWING SEASONS
- WHEN UTILITY CONSTRUCTION MUST BE DONE AND IS COMPLETED DURING A NON-GROWING SEASON, INTERIM STABILIZATION BMPS MUST BE IMPLEMENTED AND ADEQUATELY MAINTAINED. THE APPLICATION OF STRAW MULCH AT THE RATE OF 3.0 TONS PER ACRE IS REQUIRED. THE BMPS SHOULD BE INSPECTED WEEKLY (UNLESS SNOW COVERED) AND AFTER EACH RUNOFF EVENT TO IDENTIFY AREAS THAT BECOME BARE.
- BARE AREAS SHOULD BE COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET. ALL TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROLS MUST BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
4. WHERE REQUIRED, STRAW MULCH MUST BE APPLIED AT A MINIMUM OF 3.0 TONS PER ACRE.
5. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT FINELY CHOPPED OR BROKEN.
6. PRIOR TO ANY SEEDING, LIME, OR FERTILIZATION APPLICATION, A SOIL TEST SHALL BE PERFORMED TO DETERMINE THE pH FACTOR. ADDITIONAL LIME AND FERTILIZER MAY BE REQUIRED, NO LIME OR FERTILIZERS SHALL BE USED IN WETLAND AREAS.
7. LIME, FERTILIZE, SEED, AND MULCH DISTURBED AREAS PER THE EROSION AND SEDIMENT CONTROL PLANS. IN AREAS OF STEEP SLOPES OR OBVIOUS AREAS WHERE POTENTIAL EROSION MAY OCCUR, AND EROSION CONTROL MAT OR FLEXIBLE GROWTH MEDIUM (FGM) SHALL BE USED. FGM SHALL BE APPLIED PER MANUFACTURER SPECIFICATIONS. NO LIME OR FERTILIZERS SHALL BE USED IN WETLAND OR STREAM AREAS.
8. WATERBARS WITHIN AGRICULTURAL OR RESIDENTIAL AREAS SHALL BE USED AS TEMPORARY FEATURES. WATERBARS MAY BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA IS AT LEAST 70% STABILIZED WITH PERENNIAL VEGETATION AS PER PA CHAPTER 102.22.

PIPELINE WORK SEQUENCE IN WETLANDS

FOR WORK IN WETLANDS, THE FOLLOWING STEPS SHALL BE INSERTED IN THE GENERAL PIPELINE CONSTRUCTION SEQUENCE ABOVE:

1. INSTALL ORANGE FLAGGING AROUND PERIMETER OF WETLAND AND SEDIMENT BARRIERS ALONG THE **LIMITS OF DISTURBANCE**.
2. LOCATE STAGING AREAS AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND.
3. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF THESE AREAS.
4. INSTALL CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS.
5. MATS, PADS, OR SIMILAR DEVICES SHALL BE USED DURING THE CROSSINGS OF WETLANDS. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD ON-SITE.
6. SOIL EXCAVATED FROM WETLAND AREAS SHALL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND SURFACE RESTITUTION.
7. DEWATER WORK AREA; WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT TRAP OR A FILTER BAG.
8. INSTALL PIPE.
9. INSTALL TRENCH PLUGS IN WETLAND AREAS PER THE E&S PLAN TO PREVENT THE TRENCH FROM DRAINING THE WETLAND OR CHANGING ITS MICROHYDROLOGY.
10. BACKFILL PIPE TRENCH. BACKFILL THE TOP 12-INCHES OF THE EXCAVATED TRENCH WITH THE STOCKPILED WETLAND SOIL TO MATCH ORIGINAL SURFACE GRADES.

PIPELINE WORK SEQUENCE AT STREAM CROSSINGS

FOR STREAM CROSSINGS, THE FOLLOWING STEPS SHALL BE INSERTED IN THE GENERAL PIPELINE CONSTRUCTION SEQUENCE ABOVE:

1. AFTER INSTALLATION OF SEDIMENTATION BMPS, INSTALL BYPASS HOSE, PUMP, OR COFFERDAM AS DESCRIBED IN STREAM CROSSING DETAILS AROUND THE WORK AREA.
2. DEWATER WORK AREA. WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG. WHERE POSSIBLE, EXCAVATION SHALL BE FROM THE TOP OF THE STREAM BANK.
3. STABILIZE CHANNEL EXCAVATION AND STREAM BANKS PRIOR TO REDIRECTING STREAM FLOW WITHIN 24 HOURS OF CROSSING BEING DONE FOR ALL STREAMS SMALLER THAN 10 FEET AND 48 HOURS FOR STREAMS LARGER THAN 10 FEET WIDE.
4. REMOVE BYPASS HOSE, PUMP, AND TEMPORARY DAM AS NEEDED.

ACCESS ROAD BMP INSTALLATION SEQUENCE

REFER TO SPECIFIC ACCESS ROAD CONSTRUCTION SEQUENCE NOTES INCLUDED IN THE ACCESS ROAD E&S PLAN SETS UNDER SEPARATE COVER.

ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN



THE FOLLOWING ACID PRODUCING SOILS CONTROL PLAN WAS DEVELOPED TO IDENTIFY BMPS AND PROCEDURES FOR MINIMIZING THE POTENTIAL FOR POLLUTION ASSOCIATED WITH THE DISTURBANCE OF THE AREAS WITHIN THE PROPOSED RIGHT-OF-WAY THAT CONTAIN ACID-PRODUCING SOILS WITH A pH LESS THAN 4.0.

ACID-PRODUCING SOILS AND BEDROCK CONTROL PLAN:

1. CONTRACTOR SHALL LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED. LOCATIONS WHERE ACIDIC SOILS ARE ANTICIPATED TO BE PRESENT ALONG THE PIPELINE CORRIDOR ARE PROVIDED IN THE COUNTY-SPECIFIC TABLE INCLUDED AT THE END OF THIS PLAN SET.
2. CONTRACTOR SHALL SEPARATELY STORE TOPSOIL STRIPPED FROM THE SITE AWAY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS AND BEDROCK'S.
3. CONTRACTOR SHALL STOCKPILE HIGH ACID-PRODUCING SOILS AND BEDROCK MATERIAL ON LEVEL GROUND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THESE MATERIALS HAVE A HIGH CLAY CONTENT.
4. CONTRACTOR SHALL COVER TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL AND BEDROCK MATERIAL TO BE EXPOSED MORE THAN 7 DAYS WITH PROPERLY ANCHORED, HEAVY-GRATE SHEETS OF POLYETHYLENE, WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF THREE TO SIX INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. IN ADDITION, THE CONTRACTOR SHALL INSTALL SILT FENCE AT THE TOE OF THE STOCKPILE SLOPE TO CONTAIN MOVEMENT OF MATERIAL. CONTRACTOR SHALL NOT APPLY TOPSOIL TO THE HIGH ACID-PRODUCING SOIL OR BEDROCK STOCKPILES TO PREVENT TOPSOIL CONTAMINATION.
5. CONTRACTOR SHALL ULTIMATELY DISPOSE OF HIGH ACID-PRODUCING SOILS OR BEDROCK WITH A pH OF FOUR OR LESS, OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS) BY PLACING THE MATERIAL COMBINED WITH LIMESTONE AT THE RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERING THE MIXTURE WITH A MINIMUM OF 12 INCHES OF SETTLED SOILS WITH A PH OF FIVE OR MORE EXCEPT AS FOLLOWS:

A. IN THE AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED, THE CONTRACTOR SHALL COVER THE LIMESTONE/SOIL MIXTURE WITH A MINIMUM OF 24 INCHES OF SOILS WITH A PH OF FIVE OR MORE.

B. CONTRACTOR SHALL NOT LOCATE ANY DISPOSAL AREA WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHER SURFACE WATERS TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
6. AT THE END OF EACH DAY, CONTRACTOR SHALL CLEAN ALL EQUIPMENT USED TO HANDLE HIGH ACID-PRODUCING SOILS OR BEDROCK TO PREVENT SPREADING OF HIGH-ACID MATERIALS TO OTHER PARTS OF THE PROPOSED RIGHT-OF-WAY, INTO STREAMS, OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED CORROSION.
7. CONTRACTOR SHALL PROVIDE AND INSTALL NON-VEGETATIVE EROSION CONTROLS (STONE TRACKING PADS, STRATEGICALLY-PLACE LIMESTONE CHECK DAMS, SILT FENCES, WOOD CHIPS) TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF OF THE PROPOSED RIGHT-OF-WAY.
8. FOLLOWING THE BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOILS AND BEDROCK, TOP SOILING, AND SEEDING OF THE PROPOSED RIGHT-OF-WAY, TRANSOCO SHALL MONITOR THE SITE FOR APPROXIMATELY SIX TO 12 MONTHS TO ASSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH-ACID SOIL OR BEDROCK PROBLEMS EMERGE. CONTRACTOR SHALL CORRECT ANY PROBLEMS THAT ARE DISCOVERED WITHIN THIS TIME PERIOD.
9. IF PROBLEMS OCCUR WHERE HIGH ACID-PRODUCING SOILS OR BEDROCK HAVE BEEN PLACED OR BURIED, THE APPLICANT SHALL MONITOR THESE AREAS FOR AT LEAST TWO YEARS TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE.

 <div>SUZANNE KING REG NO. PE 082757 </div>	REVISIONS							TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT PENNSYLVANIA BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET			
	NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.				
	0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK				
	1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK				
	2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK				
							GENERAL NOTES				
DRAWN BY:		ELZ	DATE:	05/15/15	ISSUED FOR BID:		SCALE:				
CHECKED BY:		JLK	DATE:	07/02/15	ISSUED FOR CONSTRUCTION:		REVISION:		2		
APPROVED BY:		SMK	DATE:	07/08/15	DRAWING NUMBER:		ASR-BMP-GN		SHEET 2 OF 3		
W.O.:											

RIP RAP GRADATION, FILTER BLANKET, & MAXIMUM VELOCITIES

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

Adapted from PennDOT Pub. 408, Section 703.2(c), Table C

ADAPTED FROM PENNDOT PUB. 408, SECTION 703.2 (c), TABLE C.

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

LIMING AND FERTILIZER RATES

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

PA DEP TABLE 11.2

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

SLOPE SEED MIX

Common Name	Scientific Name	# PLS/ acre	PLS/ sq ft	% of Mix
Big Bluestem	<i>Andropogon gerardii</i>	2	6	10
Little Bluestem	<i>Schizachyrium scoparium</i>	1	6	10
Switchgrass	<i>Panicum virgatum</i>	1.3	12	20
Timothy	<i>Phleum pratense</i>	0.4	12	20
Virginia Wildrye	<i>Elymus virginicus</i>	4.4	7.5	13
Deertongue	<i>Dichanthelium clandestinum</i>	0.7	6	10
Blackeyed Susan	<i>Rudbeckia hirta</i>	0.1	3	5
White Clover	<i>Trifolium repens</i>	0.2	3	5
Oxeye Sunflower	<i>Helioopsis helianthoides</i>	0.6	1.5	3
Partridge Pea	<i>Chamaecrista fasciculata</i>	1.1	1.5	3
Purple Coneflower	<i>Echinacea purpurea</i>	0.6	1.5	3
Total	--	12.3	60	100

NOTES:

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

ROW SEED MIX

Common Name	Scientific Name	# PLS/ acre ¹	PLS/sq ft	% of Mix
Red Top	<i>Agrostis gigantea</i>	0.1	12.0	20
Timothy	<i>Phleum prantense</i>	0.4	12.0	20
Tall Fescue	<i>Festuca arundinacea</i>	1.7	9.0	15
Annual Rygrass	<i>Lolium perenne multiflorum</i>	1.7	9.0	15
Italian Ryegrass	<i>Festulium</i>	1.7	9.0	15
Alsike Clover	<i>Trifolium hybridum</i>	0.2	3.0	5
White Clover	<i>Trifolium repens</i>	0.2	3.0	5
Ladino White Clover	<i>Trifolium repens latum</i>	0.2	3.0	5
Total	--	6.2	60.0	100

NOTES:

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

COVER CROP SEED MIXES

Common Name	Crop Type	# PLS/ acre	PLS/ sq ft	% of Mx
Warm Season				
Pearl Millet	Grass	6.9	12.6	70
Sunn Hemp	Legume	10.5	3.6	20
Nitro Radishes	Brassicac	3.1	1.8	10
Total	--	20.5	18	100
Cool Season				
Annual ryegrass	Grass	8	35.1	65
Red Clover	Legume	3.2	13.5	25
Nitro Radishes	Brassicac	9.4	5.4	10
Total	--	20.6	54	100

NOTES:

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

TEMPORARY SEED MIXTURE

TEMPORARY SEEDING SHALL CONSIST OF ANNUAL RYEGRASS (100 PERCENT BY WEIGHT), OR EQUIVALENT, AND SHALL BE PLACED AT THE RATE OF 5 POUNDS PER 1,000 SQUARE YARDS. TEMPORARY SEEDING SHALL BE APPLIED TO THOSE AREAS THAT ARE A POTENTIAL EROSION PROBLEM DURING CONSTRUCTION AND TO THOSE AREAS EXPOSED FOR LONGER THAN 20 CALENDAR DAYS. IF CONDITIONS DO NOT PERMIT TEMPORARY SEEDING, MULCHING SHALL BE EMPLOYED. ADDITIONALLY, NITROGEN FERTILIZER (50–50–50) @ ONE (1) TON PER ACRE, AGRICULTURAL LIME @ ONE (1) TON PER ACRE, AND STRAW MULCH @ THREE (3) TONS PER ACRE. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

SPECIES TYPE AND SEASON OF PLANTING

Species Type and Season of Planting Cover Crops ¹	
Cool Season - Spring	March 1 to June 1
Warm Season	June 1 to August 15
Cool Season - Fall	August 15 - October 15
Permanent Crop ²	
Spring	April 20 to June 15
Late Fall (dormant)	October 10 - March 1

NOTES:

1. SEEDING DATES FOR COVER CROPS ARE BASED ON DATES REFERENCED BY CLARK, ____.

2. SEEDING DATES FOR PERMANENT CROPS ARE BASED ON DATES REFERENCED BY LANDSHOOT, 1997 AND DELONG AND BRITTINGHAM, 2002

SEED AFTER OCTOBER 10 WHEN GROUND TEMPERATURES AT A DEPTH OF 4 INCHES ARE 45 F OR LOWER AND COOLER AIR TEMPERATURES ARE FORECASTED.

DORMANT SEEDING CAN OCCUR UNTIL SOIL IS FROZEN AND ADEQUATE PENETRATION OF THE DRILL SEEDER DOES NOT OCCURE.

FACW MEADOW MIX ERNMX-122

Seeding Rate	20 lb per acre, or 1/2 lb per 1,000 sq ft
Mix Type	Wet Meadow & Wetland Sites
31.0%	Fox Sedge, PA Ectype (Carex vulpinoidea, PA Ectype)
20.0%	Virginia Wildrye, PA Ectype (Elymus virginicus, PA Ectype)
14.0%	Lurid (Shallow) Sedge, PA Ectype (Carex lurida, PA Ectype)
5.0%	Green Bulrush, PA Ectype (Scirpus atrovirens, PA Ectype)
4.0%	Blue Vervain, PA Ectype (Verbena hastata, PA Ectype)
3.5%	Wood Reedgrass, PA Ectype (Cinna arundinacea, PA Ectype)
3.0%	Soft Rush (Juncus effusus)
3.0%	Blunt Broom Sedge, PA Ectype (Carex scoparia, PA Ectype)
3.0%	Hop Sedge, PA Ectype (Carex lupulina, PA Ectype)
2.0%	Sensitive Fern (Onoclea sensibilis)
2.0%	Oxeye Sunflower, PA Ectype (Helioopsis helianthoides, PA Ectype)
1.0%	Rattlesnake Grass, PA Ectype (Glyceria canadensis, PA Ectype)
1.0%	Woolgrass, PA Ectype (Scirpus cyperinus, PA Ectype)
1.0%	Swamp Milkweed, PA Ectype (Asclepias incarnata, PA Ectype)
1.0%	New England Aster, PA Ectype (Aster novae-angliae (Symphyotrichum n.), PA Ectype)
1.0%	Flat Topped White Aster, PA Ectype (Aster umbellatus (Doellingeria umbellata), PA Ectype)
0.5%	Joe Pye Weed, PA Ectype (Eupatorium fistulosum, PA Ectype)
0.5%	Boneset, PA Ectype (Eupatorium perfoliatum, PA Ectype)
0.5%	Ditch Stonecrop, PA Ectype (Penthorum sedoides, PA Ectype)
0.5%	Narrowleaf Blue Eyed Grass (Sisyrinchium angustifolium)
0.5%	Seedbox, PA Ectype (Ludwigia alternifolia, PA Ectype)
0.5%	Great Blue Lobelia, PA Ectype (Lobelia siphilitica, PA Ectype)
0.5%	Mud Plantain (Water Plantain), PA Ectype (Alisma subcordatum (A. plantago-aquatica), PA Ectype)
0.5%	Square Stemmed Monkeyflower, PA Ectype (Mimulus ringens, PA Ectype)
0.4%	Bladder (Star) Sedge, PA Ectype (Carex intumescens, PA Ectype)
0.1%	Slender Mountainmint (Pycnanthemum tenuifolium)

RIPARIAN BUFFER MIX ERNMX-178

Seeding Rate	20 lb per acre with a cover crop at 30 lb per acre (dry sites - grain oats, Jan 1-Aug 1)
Mix Type	Riparian Sites
20.0%	Virginia Wildrye, PA Ectype (Elymus virginicus, PA Ectype)
16.0%	Indiangrass, PA Ectype (Sorghastrum nutans, PA Ectype)
15.0%	Deertongue, 'Tioga' (Panicum dandestinum (Dichanthelium c.), 'Tioga')
12.5%	Big Bluestem, 'Niagara' (Andropogon gerardi, 'Niagara')
8.0%	Switchgrass, 'Carthage', NC Ectype (Panicum virgatum, 'Carthage', NC Ectype)
5.0%	Partridge Pea, PA Ectype (Chamaecrista fasciculata (Cassia f.), PA Ectype)
4.0%	Autumn Bentgrass, PA Ectype (Agrostis perennans, PA Ectype)
4.0%	Blue Vervain, PA Ectype (Verbena hastata, PA Ectype)
3.0%	Blackeyed Susan, Coastal Plain NC Ectype (Rudbeckia hirta, Coastal Plain NC Ectype)
3.0%	Oxeye Sunflower, PA Ectype (Helioopsis helianthoides, PA Ectype)
2.3%	New England Aster, PA Ectype (Aster novae-angliae (Symphyotrichum n.), PA Ectype)
2.0%	Soft Rush (Juncus effusus)
1.0%	Boneset, PA Ectype (Eupatorium perfoliatum, PA Ectype)
1.0%	Joe Pye Weed, PA Ectype (Eupatorium fistulosum, PA Ectype)
1.0%	Blue False Indigo, Southern WV Ectype (Baptisia australis, Southern WV Ectype)
1.0%	New York Ironweed, PA Ectype (Vernonia noveboracensis, PA Ectype)
0.5%	Great Blue Lobelia, PA Ectype (Lobelia siphilitica, PA Ectype)
0.5%	Wild Bergamot, PA Ectype (Monarda fistulosa, PA Ectype)
0.2%	Grassleaf Goldenrod, PA Ectype (Euthamia graminifolia (Solidago g.), PA Ectype)

PERMANENT SEED MIXTURES COOL & WARM SEASON GRASSES

HAYFIELDS

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

PASTURES

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

SLOPING/FORESTED LAND

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

DROUGHT/ROCKY SITES

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

NON-AGRICULTURAL MEADOWS

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

NATIVE NON-NATIVE FOOD PLOT MIX

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

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

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

BRASSICA MIX

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

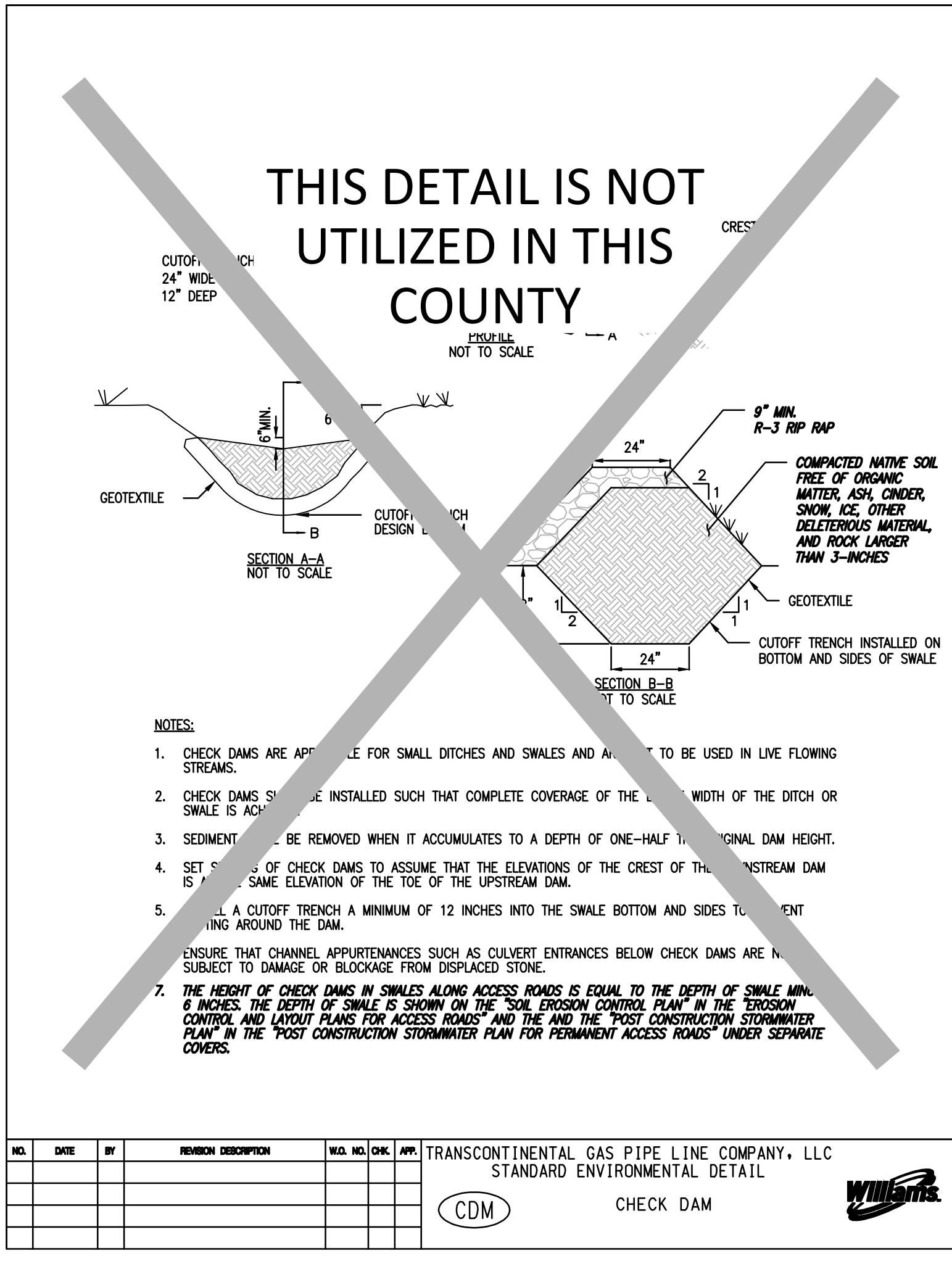
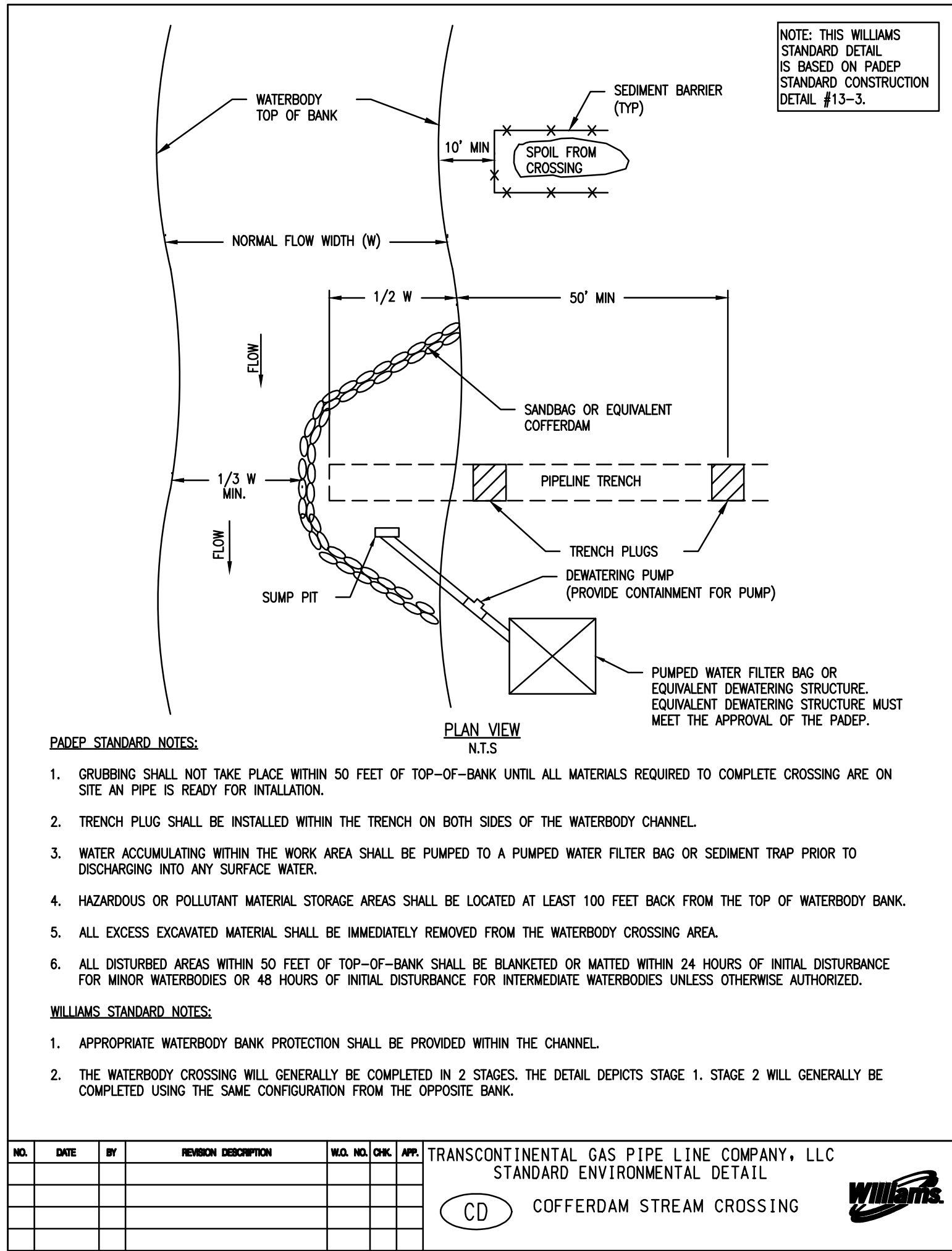
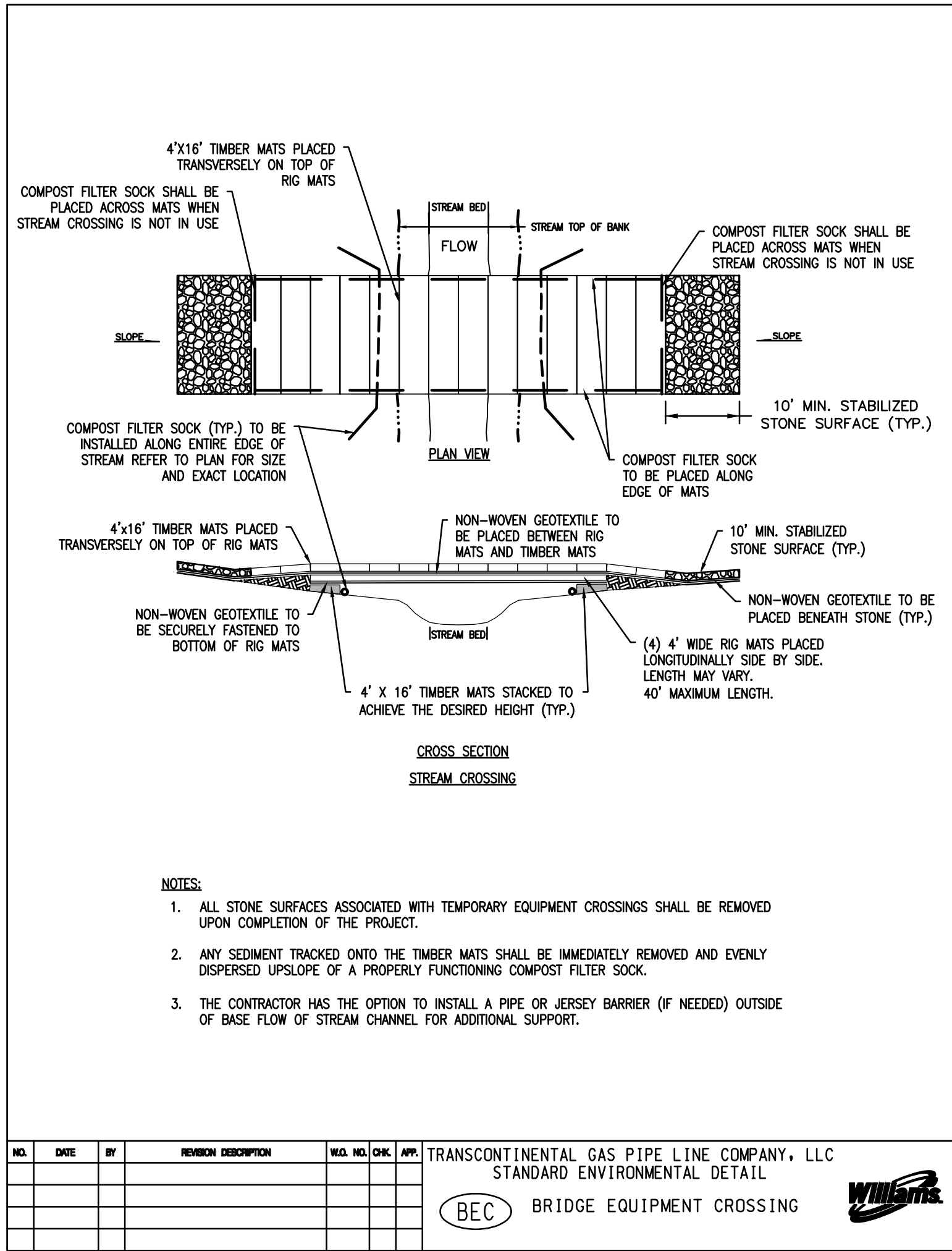
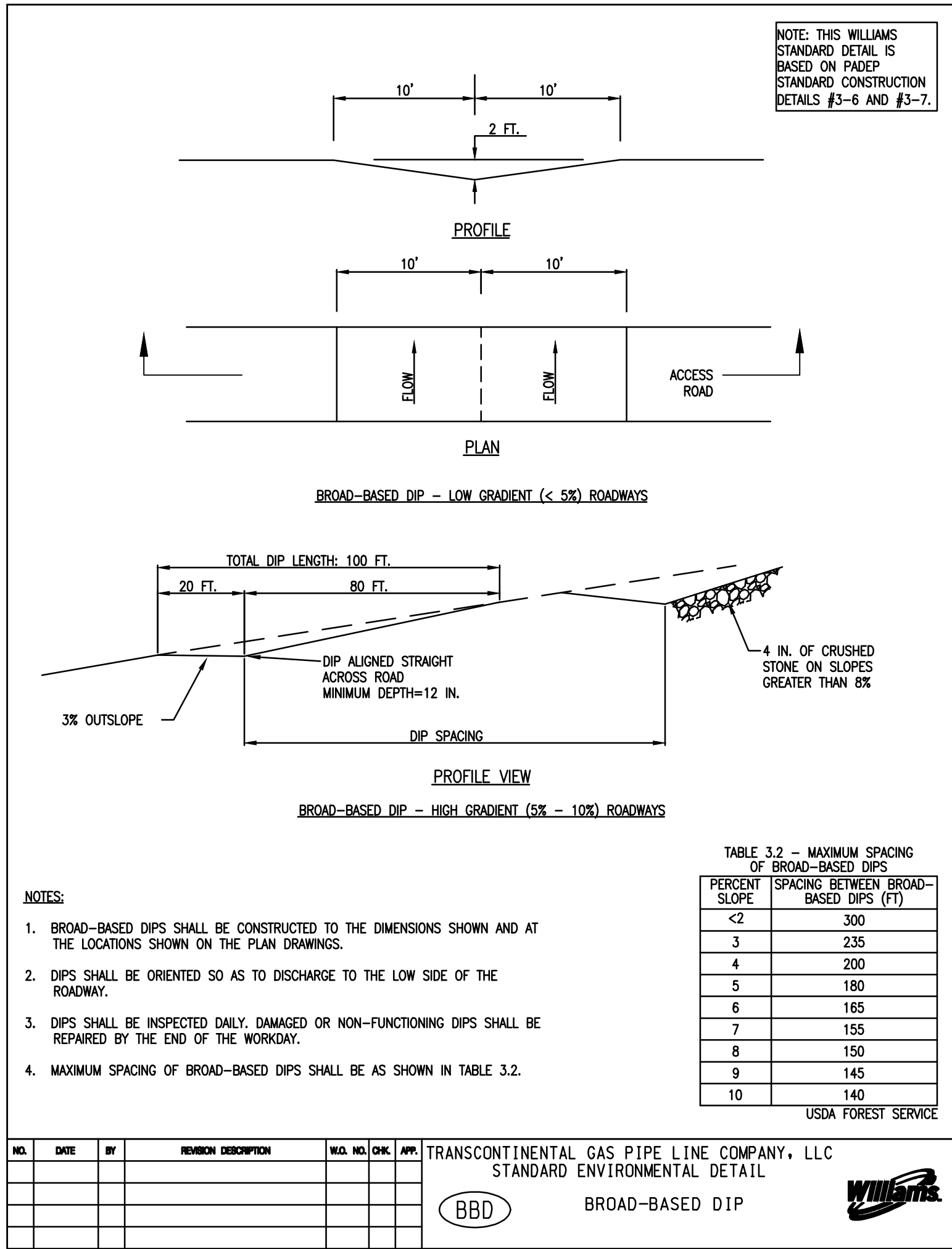
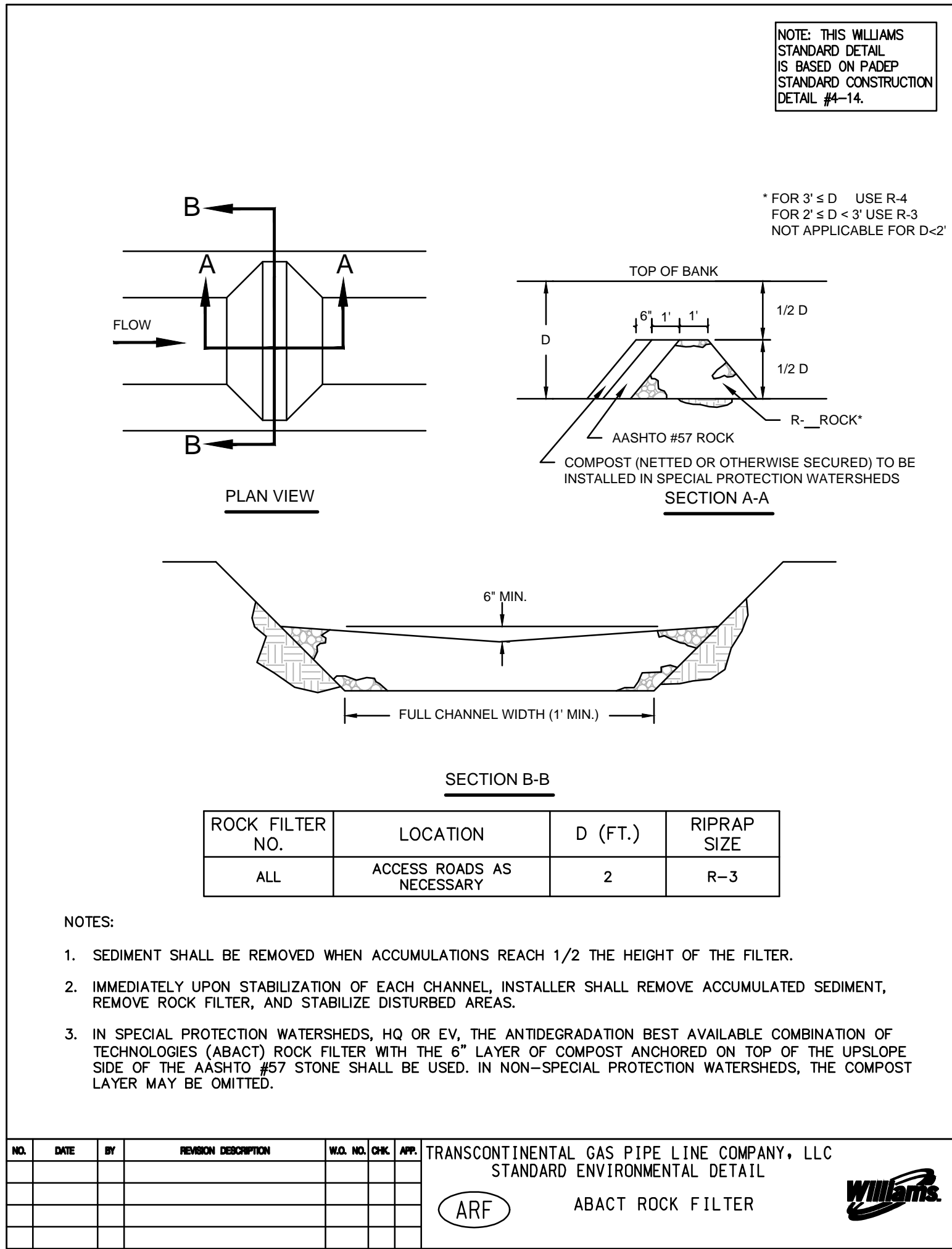
MULCH

1. MULCHES SHOULD BE APPLIED AT THE RATES SHOWN IN TABLE 11.6
2. 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.
3. 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 HEAVIEST AT EDGES OF SEEDED AREAS AND AT CRESTS OF RIDGES AND BANKS TO PREVENT LOSS BY WIND. THE REMAINDER OF THE AREA SHOULD HAVE BINDER APPLIED UNIFORMLY. BINDERS MAY BE APPLIED AFTER MULCH IS SPREAD OR SPRAYED INTO THE MULCH AS IT IS BEING BLOWN ONTO THE SOIL. APPLYING STRAW AND BINDER TOGETHER IS GENERALLY MORE EFFECTIVE.
4. 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.
5. 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.
6. SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED. THE APPLICATION RATE FOR ANY HYDROMULCH SHOULD BE 2,000 LB/ACRE AT A MINIMUM.
7. 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).
8. NO MULCH MAY BE APPLIED IN WETLANDS.

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
WOOD CHIPS	4–6 TONS	185–275 LB.	1,650–2,500 LB.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDRO- MULCH	1 TON	47 LB.	415 LB.	SEE LIMITATIONS ABOVE
HYDRAULICALLY APPLIED BLANKETS	3,000 LB.	N/A	N/A	SLOPES UP TO 3H:1V
	4,000 LB.	N/A	N/A	SLOPES STEEPER THAN 3H:1V

OPERATIONS AND MAINTENANCE PROGRAM PERMANENT STORMWATER FACILITIES

THE PERMIT APPLICANT SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PERMANENT STORMWATER FACILITIES LOCATED ON THE SUBJECT PROPERTIES. PERMANENT MAINTENANCE OF THE STORM SYSTEM AFTER ACCEPTANCE WILL PRIMAR



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.D.	CHK.	APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK
2	02/04/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	AJB
3	03/28/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	AJB
4	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	AJB

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT				SCALE:	
BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET				REVISION:	
BEST MANAGEMENT PRACTICES DETAILS				DRAWN BY: ELZ DATE: 05/15/15 ISSUED FOR BID:	
				CHECKED BY: JLK DATE: 07/02/15 ISSUED FOR CONSTRUCTION:	
				APPROVED BY: SMK DATE: 07/08/15 DRAWING NUMBER: ASR-BMP	
				W.D.:	
				SHEET 1 OF 11	

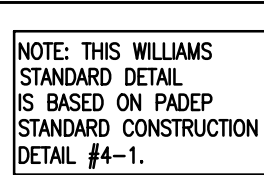


FIGURE 4.1
Sediment Barrier Alignment

[illegible]

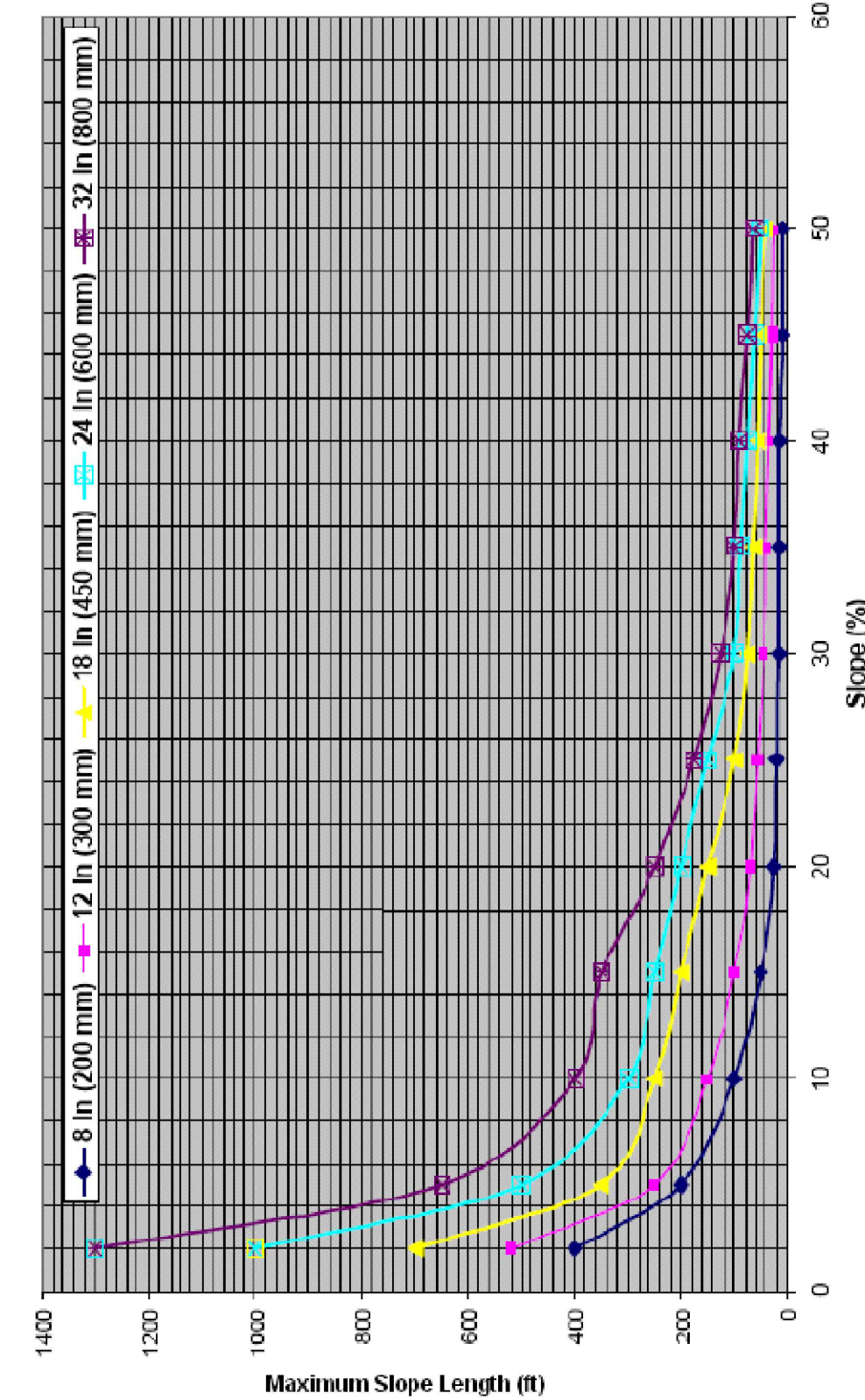
Material Type	3 mil HDPE	3 mil HDPE	3 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 30"	12" 18" 24" 30"	12" 18" 24" 32"	12" 18" 24" 30"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	6 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting	HDPE biaxial net				
	Continuously wound				
	Fusion-welded junctures				
	3/4" X 3/4" Max. aperture size				
Outer Filtration Mesh	Composite Polypropylene Fabric (Woven layer and non-woven fleecle mechanically fused via needle punch)				
	3/16" Max. aperture size				
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

TABLE 4.2
COMPOST 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" SIEVE
SOLUBLE SALT CONCENTRATION	5.0 DS/M (MHOS/CM) MAXIMUM

NOTES

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2. (SEE SHEET 2 OF 3 FOR THIS DETAIL).
2. 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 ANGLE. MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE 4.2. (SEE SHEET 3 OF 3 FOR THIS DETAIL). STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
3. TRAP AND HOLDER SHALL BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. SOCKS SHALL BE INSPECTED 24 HOURS AFTER EACH RAINFALL EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. UPON STABILIZATION OF THE AREA, THE SOCKS SHALL BE REMOVED. THE SOCKS MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
8. SOCKS SHALL BE INSTALLED PARALLEL TO THE CONTOURS, TYPICALLY, IN AREAS WHERE THE SLOPE OF THE CATCHMENT AREA IS LESS THAN FIVE PERCENT. THE SOCKS MAY BE INSTALLED AS NECESSARY TO MINIMIZE THE NUMBER OF SEPARATE SOCK SEGMENTS ALONG THE EDGE OF DISTURBANCE.



[illegible]

NOTE: 8" diameter socks should only be used to control small (< ¼ acre) disturbed areas on individual house lots).

Adapted from Filtrexx

NO.	DATE	BY	REVISION DESCRIPTION	NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL


COMPOST FILTER SOCK


3 OF 3



(OR EQUAL)

PAINT POST RED AT CLEANOUT ELEVATION

MARK CLEANOUT ELEVATION ON POST

BOTTOM OF SEDIMENT BASIN


POST WHITE BELOW CLEANOUT ELEVATION

NO.	DATE	BY	REVISION DESCRIPTION	NO.	CHK.	APP.

CS

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

CLEANOUT STAKE



THIS DETAIL IS NOT
UTILIZED IN THIS
COUNTY




NOTES:

1. SEE COMPOST FILTER SOCK (CFS) DETAIL FOR MORE INFORMATION. SOCK MATERIAL SHALL MEET THE STANDARDS OF TABLE 4.1. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2.
2. COMPOST SOCK SEDIMENT TRAP SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SUMP, FOLLOWING THE LOWER SIDE OF THE TRAP.
3. THE MAXIMUM TRIBUTARY DRAINAGE AREA SHALL BE 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.
4. COMPOST SOCK SEDIMENT TRAP SOCKS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.
5. PHOTODEGRADABLE AND BIOLOGICALLY DEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN ONE YEAR.
6. DESIGN NOTES:
 - A. COMPOST SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2,000 CUBIC FEET OF STORAGE CAPACITY WITH A 12" FREEBOARD FOR EACH ADDITIONAL TRIBUTARY TO THE TRAP.
 - B. MINIMUM BASE WIDTH IS EQUIVALENT TO THE HEIGHT.
 - C. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
 - D. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS INDICATED TO THE LEFT.
 - E. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NO.	DATE	BY	REVISION DESCRIPTION	NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL




CST COMPOST SOCK SEDIMENT TRAP

REFER TO THE QUANTITY, CROSSING AND ACIDIC
SOIL TABLES FOR DETAIL AND DESIGN

NO.	DATE	BY	REVISION DESCRIPTION	NO.	NO.	CWK	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
STANDARD ENVIRONMENTAL DETAIL



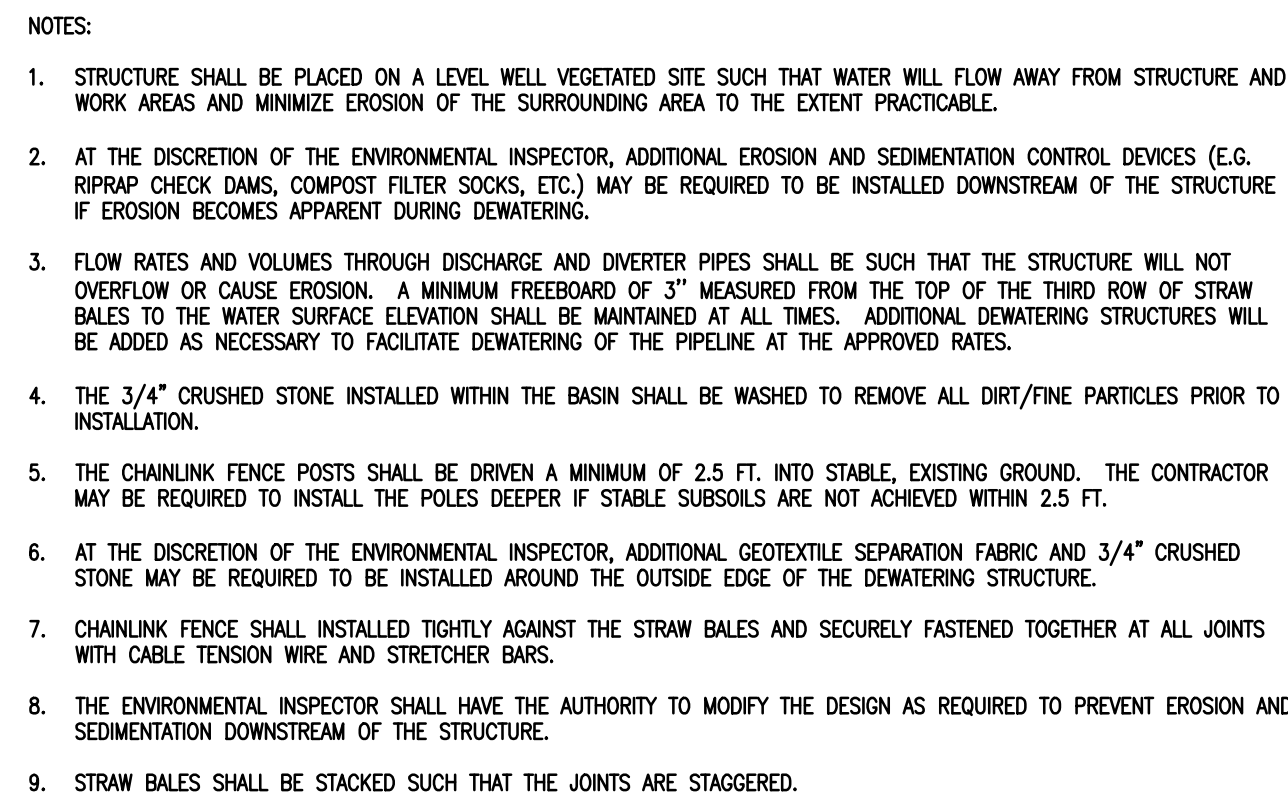
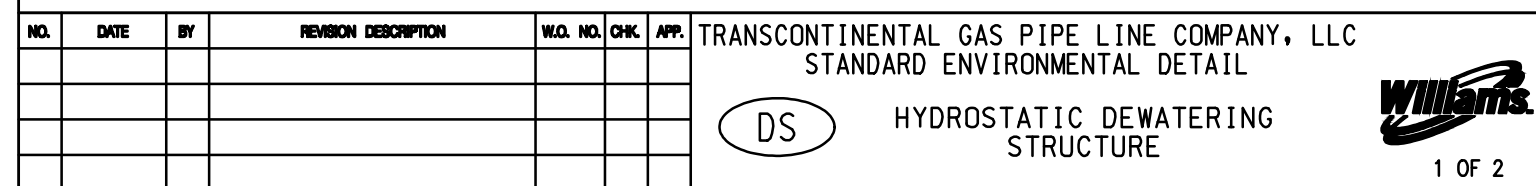
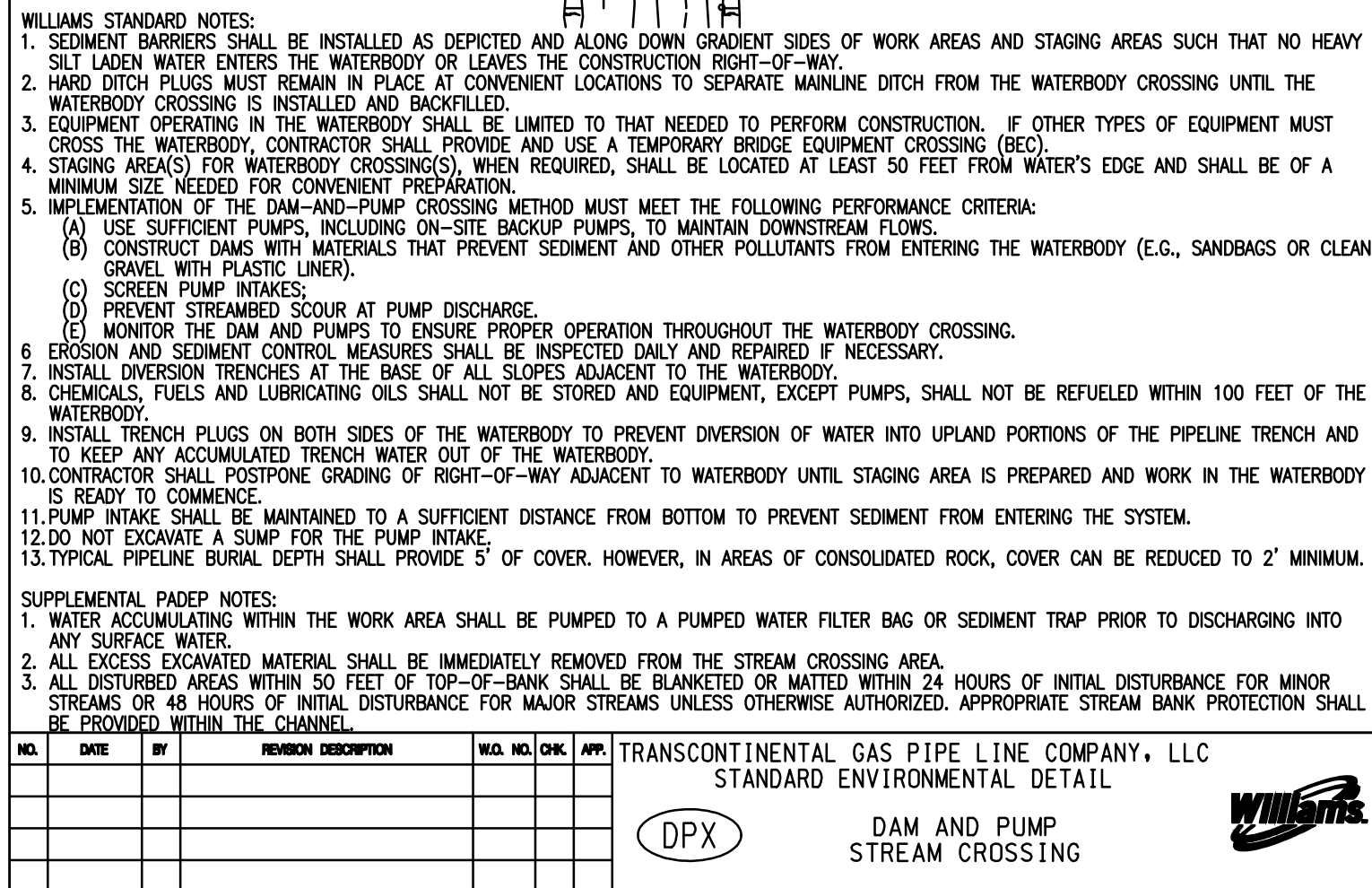
CWC
CLEAN WATER CROSSING
(FLUME CROSSING)




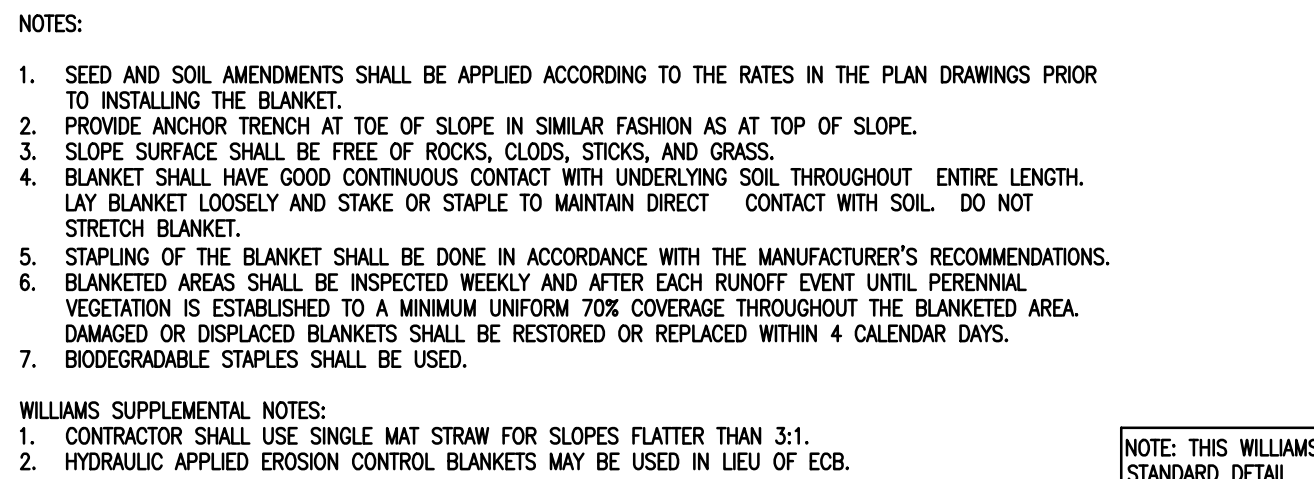
SUZANNE KING REG. NO. PE 08275


BL ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING
Companies

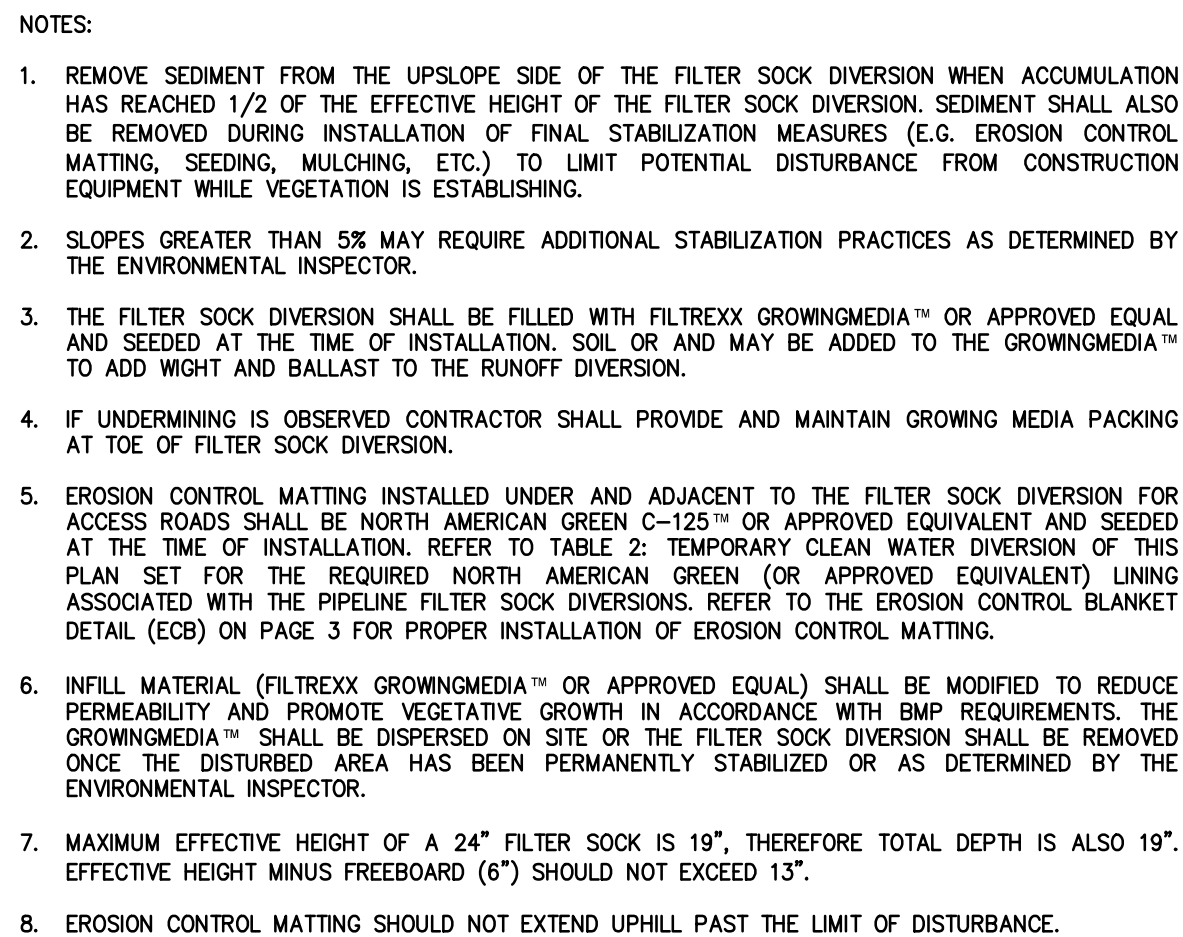
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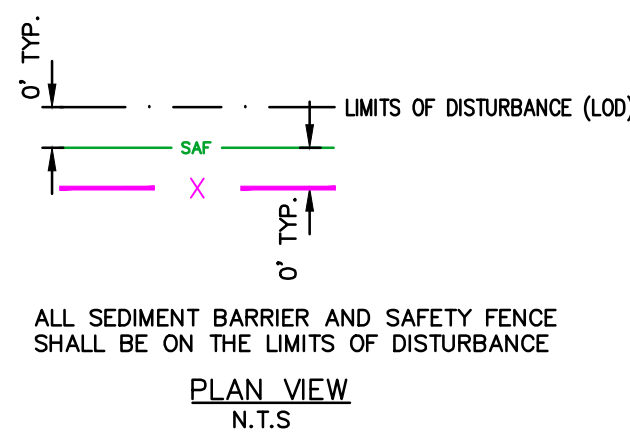
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ADAPTED FROM PADEP					DETAIL #11-1.	
NO.	DATE	BY	REVISION DESCRIPTION	NO.	CHK.	APP.
						TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
						(ECB) EROSION CONTROL BLANKET
						




NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CNK.	APP.
							TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
							(FD) FILTER SOCK DIVERSION
							
							1 OF 1




NO.	DATE	BY	REVISION DESCRIPTION	NO.	DATE	APP.

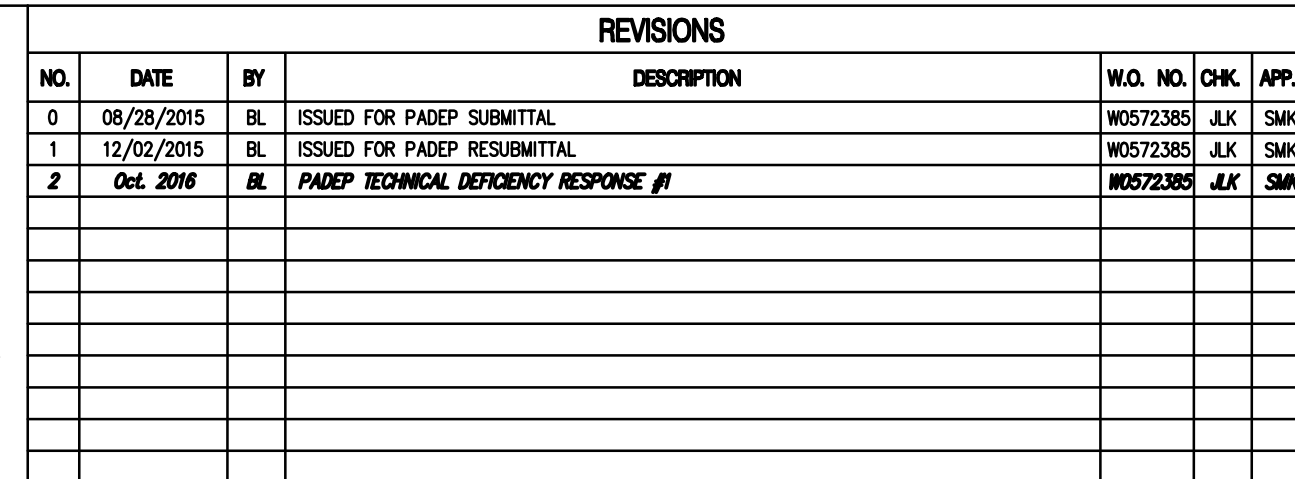
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL



CONSTRUCTION FENCE

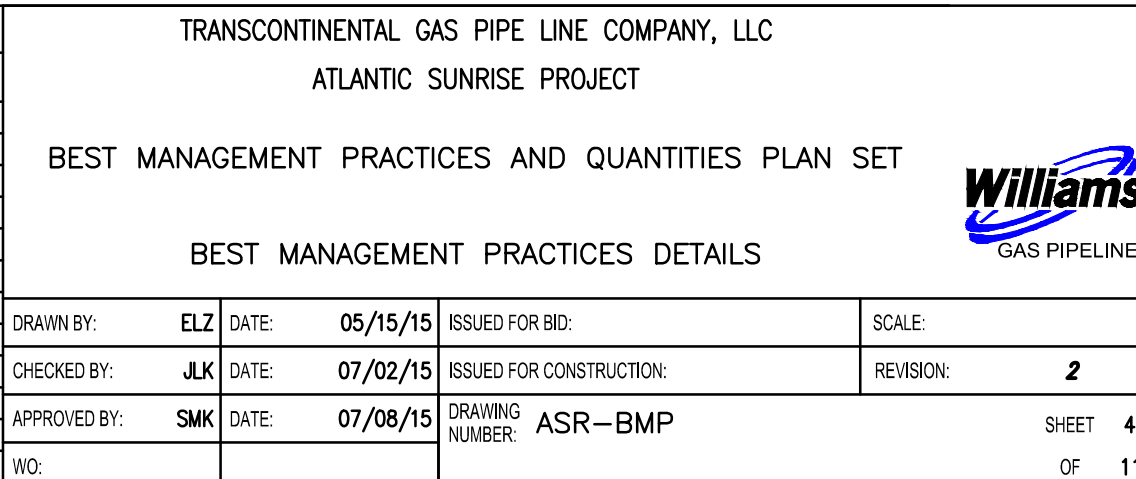
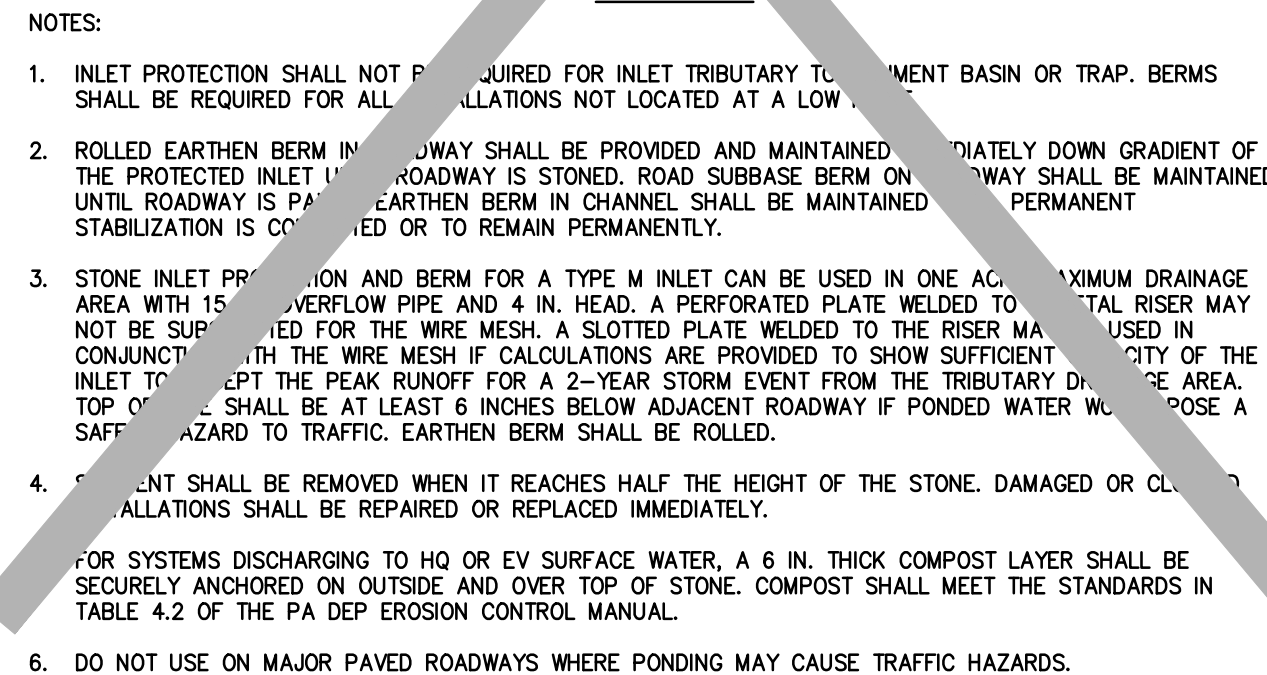
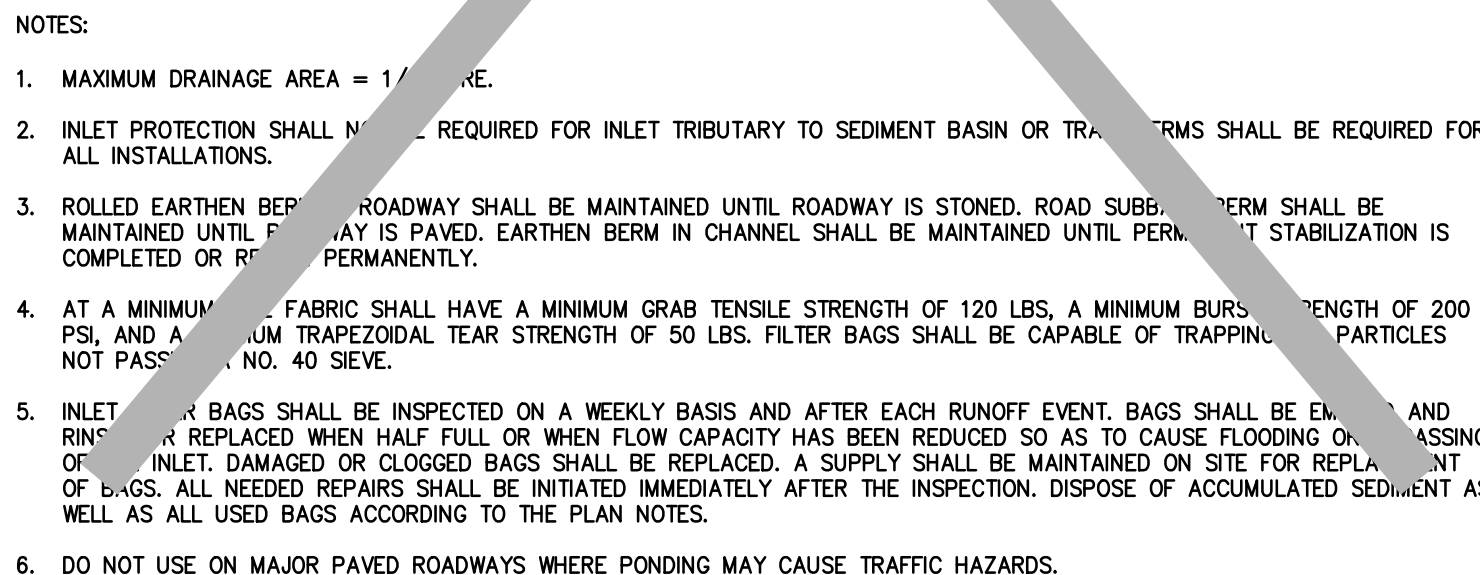
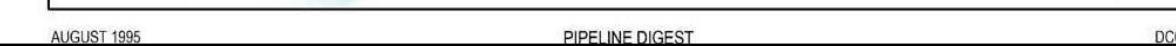
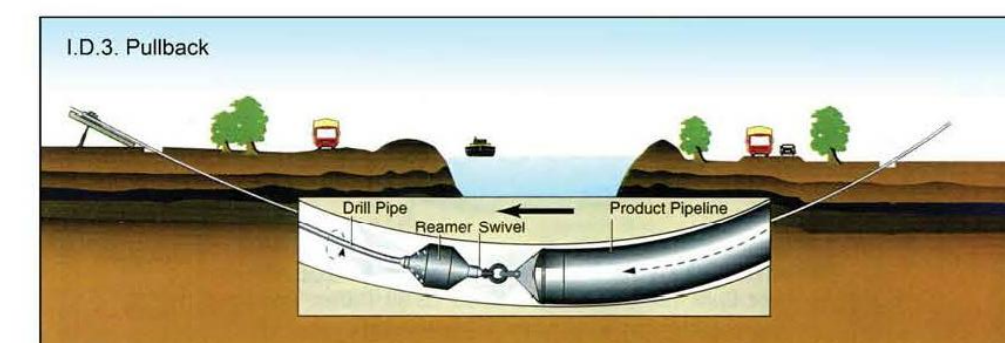
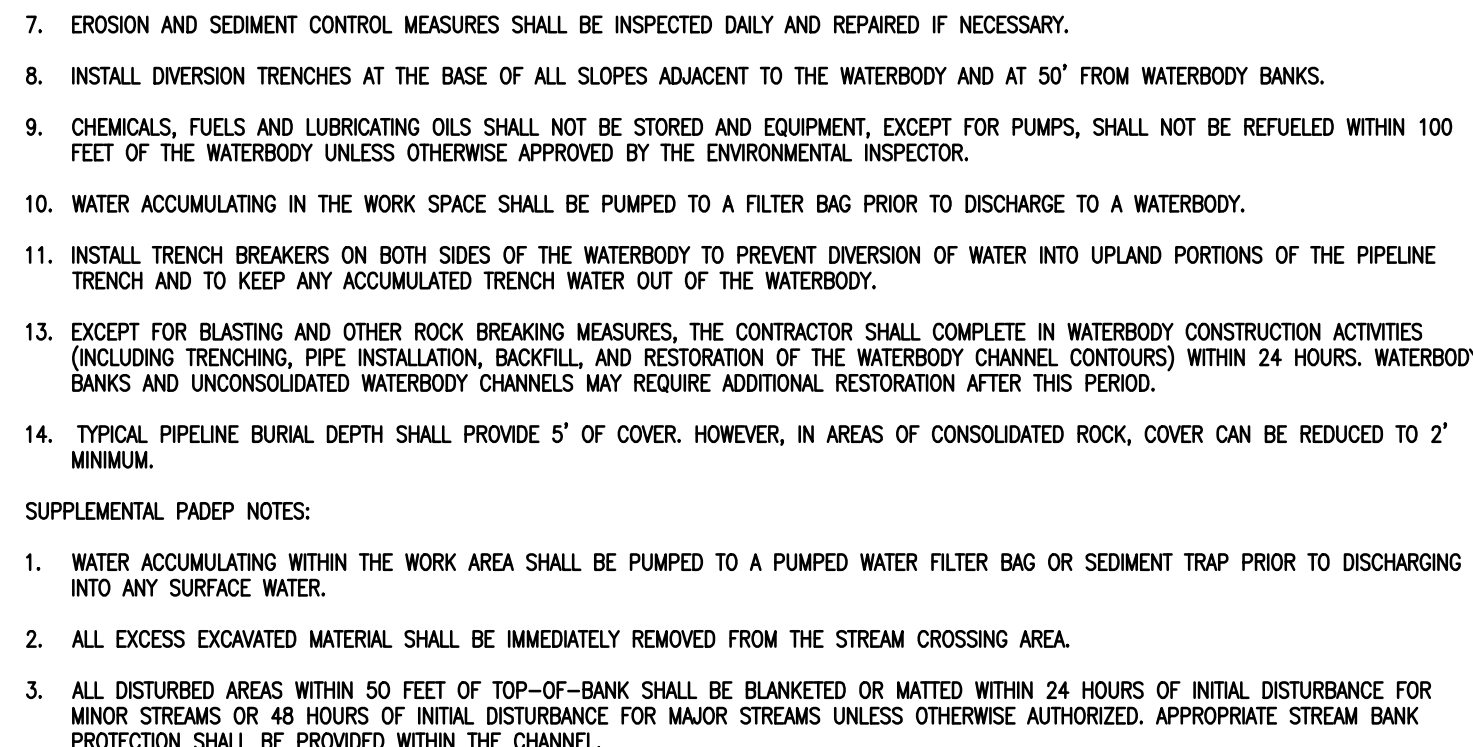
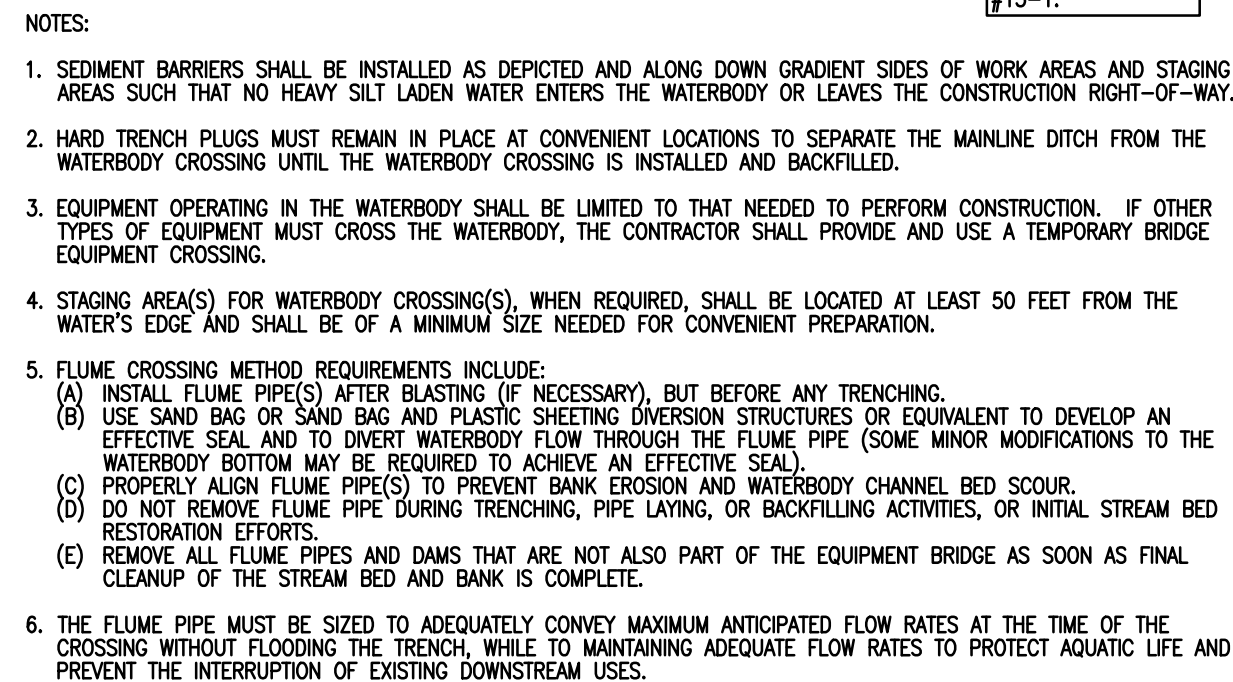


1 OF 1



BEST MANAGEMENT PRACTICES DETAILS

DRAWN BY: ELZ	DATE: 05/15/15	ISSUED FOR BID:	SCALE:
CHECKED BY: JKL	DATE: 07/02/15	ISSUED FOR CONSTRUCTION:	REVISION: 2
APPROVED BY: SMK	DATE: 07/08/15	DRAWING NUMBER: ASR-BMP	SHEET 3
WO:			OF 11



All wood members are 4"x4"

3/16" galvanized steel cable

Direction of travel

Connect loops with 3/16" cable clamps

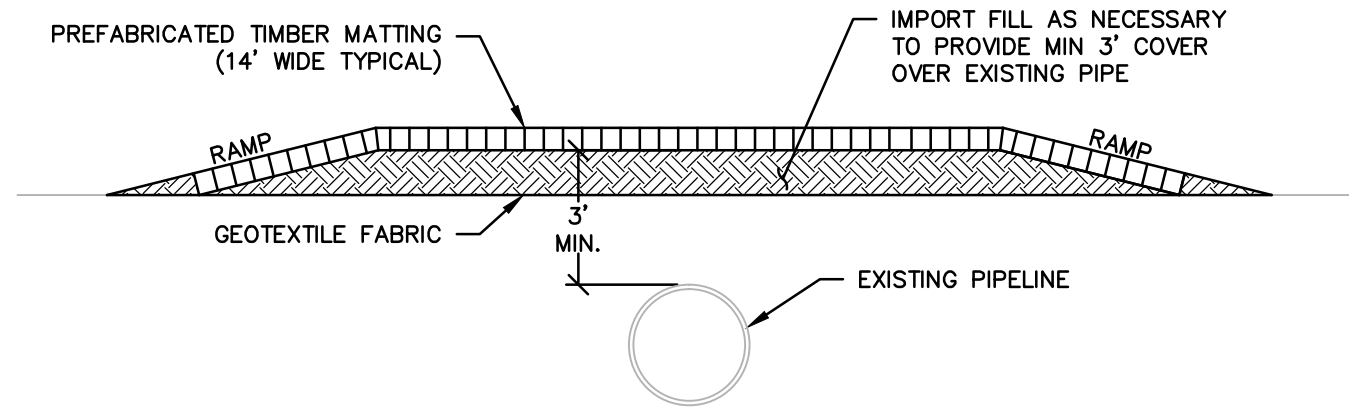
2 ft

10 ft

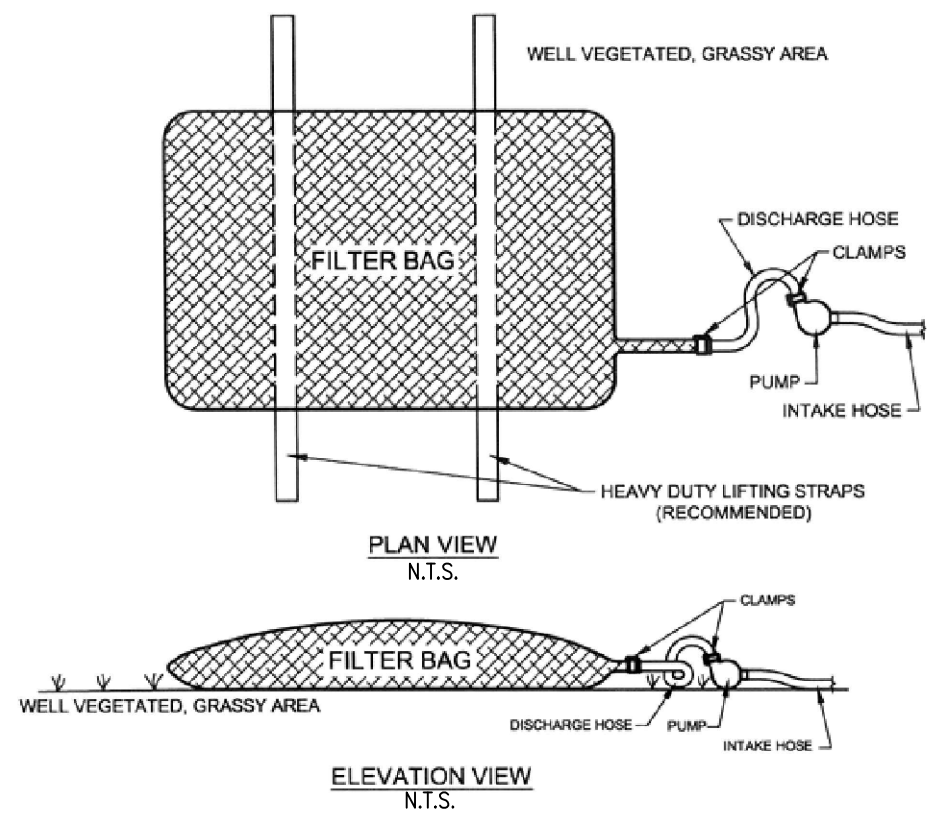
2 ft

University of Minnesota FS 07009

A geotextile underlayment must be used under the wood mat.




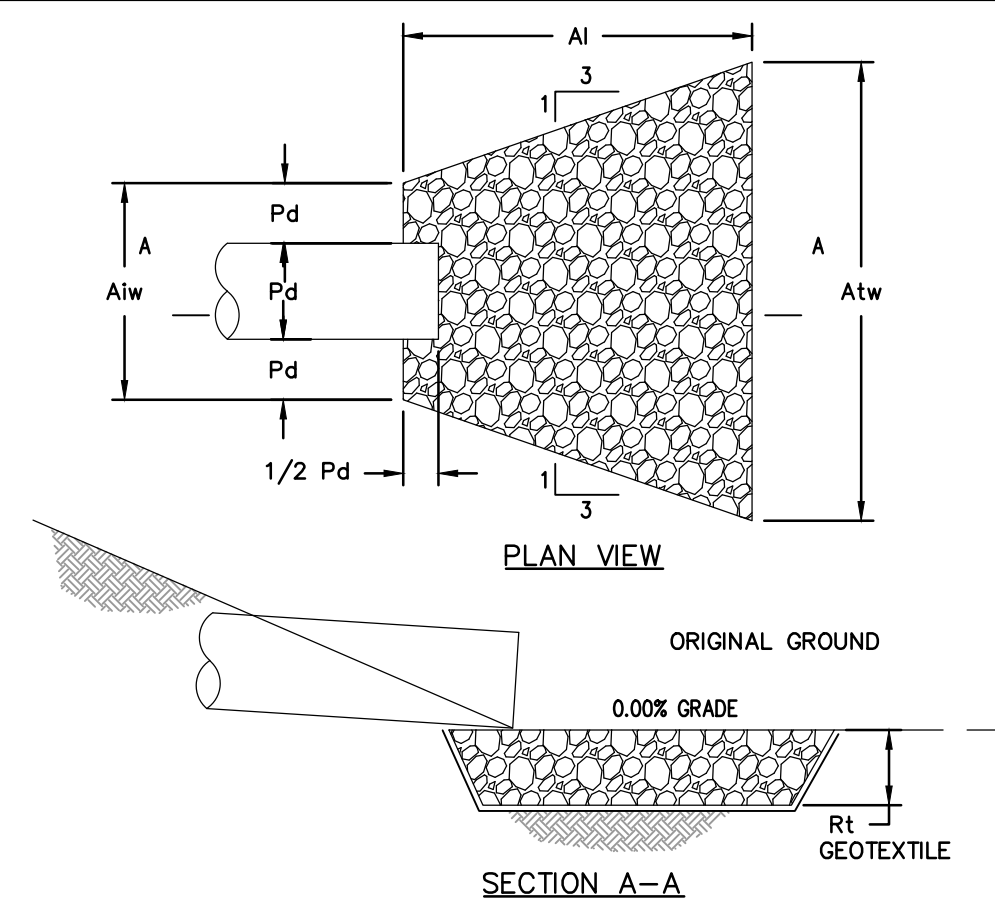
1. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO DETERMINE THE NUMBER OF EQUIPMENT MATERIALS REQUIRED.

[illegible]

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4684	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE


ADAPTED FROM PADEP

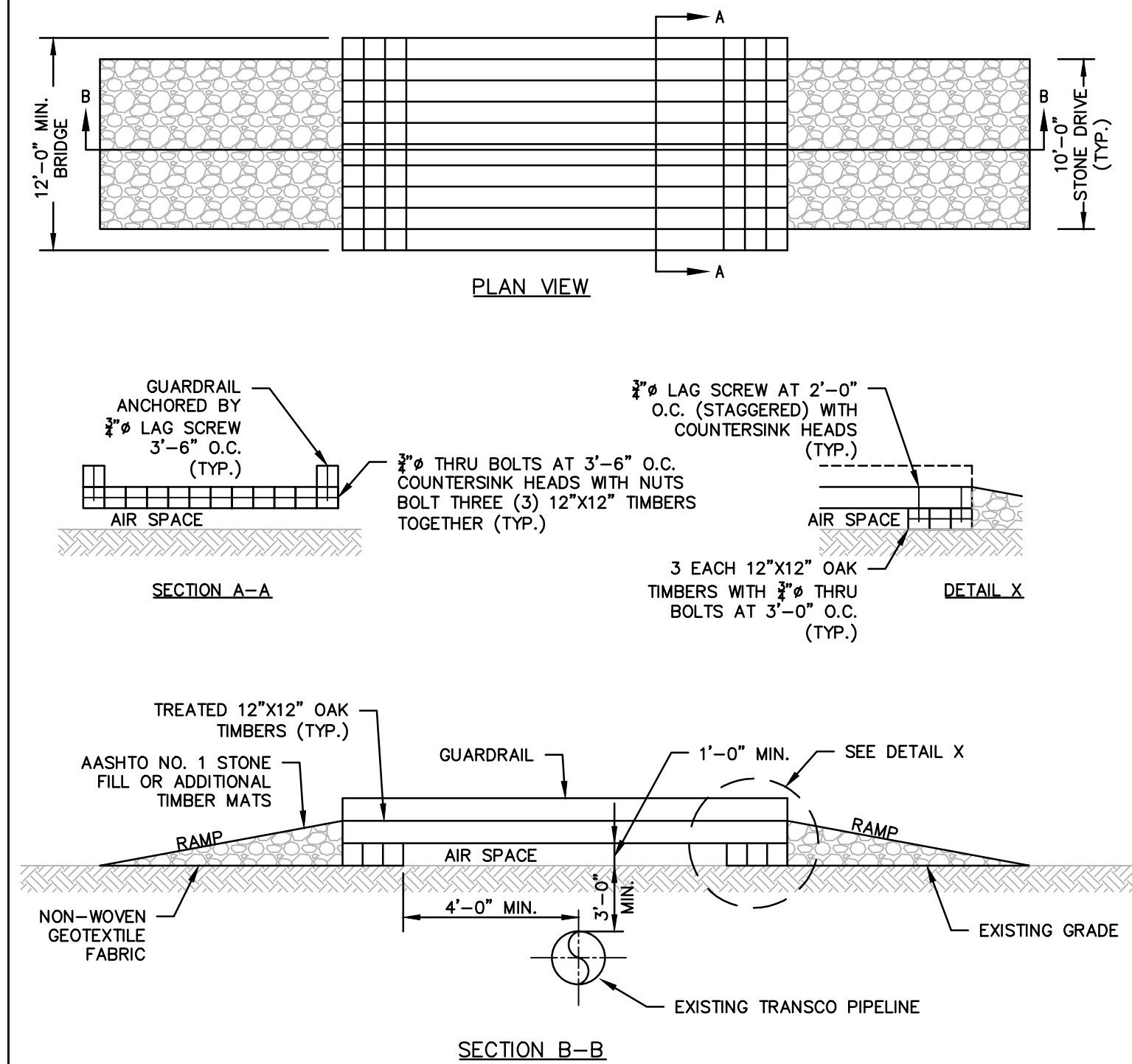
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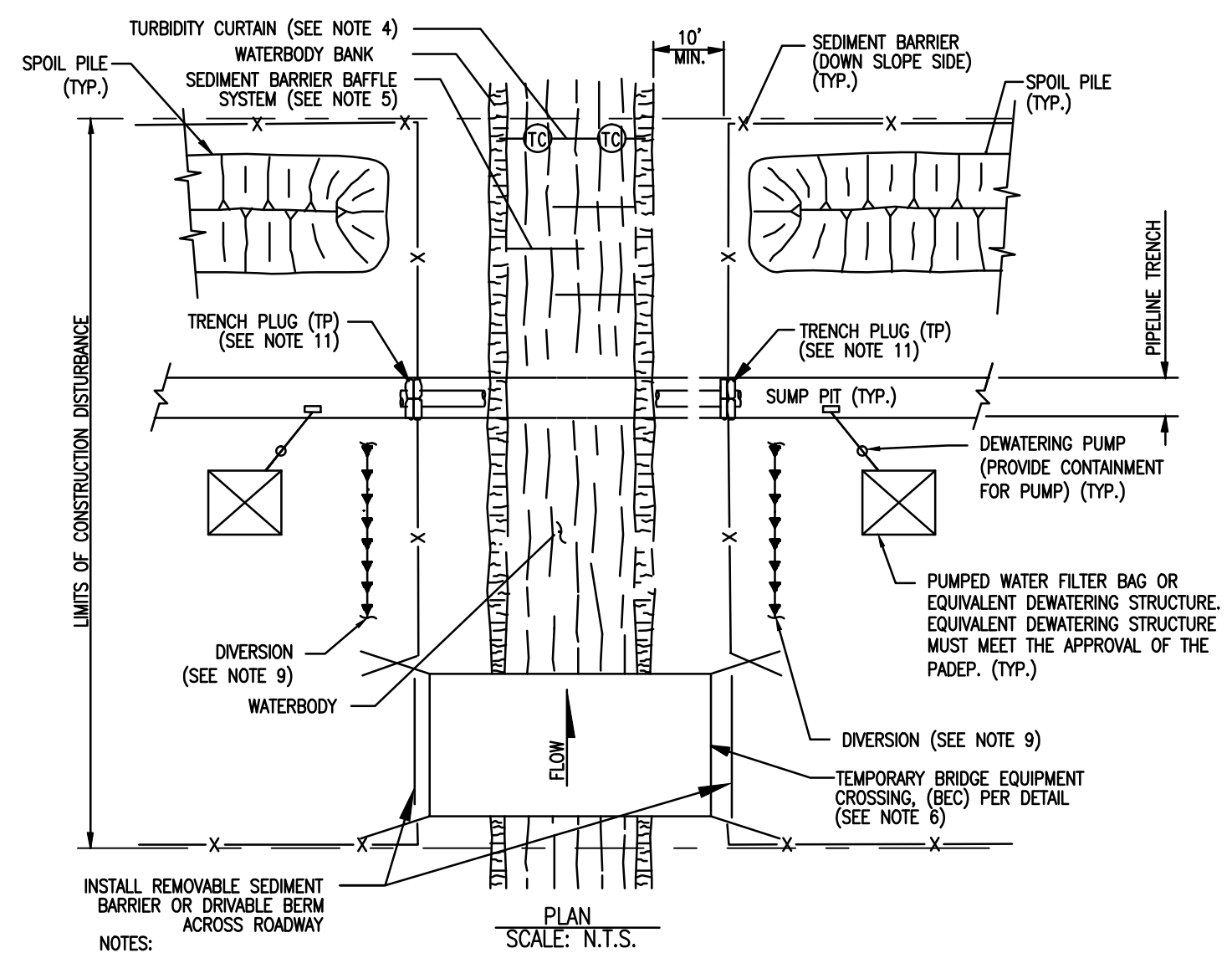
OUTLET NO.	PIPE DIA PD (IN)	RIPRAP		APRON		
		SIZE (R—)	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)
* ALL INFORMATION CAN BE FOUND ON ACCESS ROAD AND EROSION AND SEDIMENT CONTROL PLANS. REFER TO NOTES 4 AND 5 FOR DIMENSION LOCATIONS.						

BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
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NO.	DATE	BY	REVISION DESCRIPTION	NO.	NO.	CHK.	APP.
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							<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> RAD </div> RIP RAP APRON AT PIPE OUTLET WITHOUT FLARED END SECTION
							



1. IF STONE USED FOR RAMP, INSTALL 1 (ONE) LAYER OF NON-WOVEN GEOTEXTILE FABRIC PRIOR TO INSTALLING THE STONE.
2. MINIMUM WIDTH OF BRIDGE IS 12'-0" WITH A 10'-0" WIDE STONE DRIVE.

[illegible]

THIS METHOD APPLIES TO MINOR WATERBODY CROSSINGS THAT ARE DEFINED AS WATERBODIES THAT ARE LESS THAN OR EQUAL TO 10 FEET WIDE AND 10 FEET DEEP. THE FOLLOWING REQUIREMENTS SHALL BE OBSERVED:

1. SEDIMENT BARRIERS SHALL BE INSTALLED AS DEPICTED AND ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS THE WATERBODY OR LEAVES THE CONSTRUCTION RIGHT OF WAY. 2. SEDIMENT BARRIERS SHALL BE INSTALLED UPSTREAM OF THE WORK AREAS TO SEPARATE MAINLINE DITCH FROM THE WATERBODY. 3. CROSSING UNDER THE WATERBODY IS INSTALLED AND BACK FILLED. 4. IF FLOW THROUGH CURTAINS DOWNSTREAM OF CROSSING AT EDGE OF WORK CORRIDOR IF STREAM FLOW IS CONDUCTIVE TO INSTALL CURTAIN. 5. IF FLOW OF WATERBODIES IS SUCH THAT TURBIDITY CURTAIN CAN NOT BE INSTALLED, THEN INSTALL DOWNSTREAM SEDIMENT CURTAIN. 6. EQUIPMENT OPERATING IN THE WATERBODY SHALL BE LIMITED TO THAT NEEDED TO PERFORM CONSTRUCTION. IF OTHER TYPES OF EQUIPMENT MUST CROSS THE WATERBODY, CONTRACTOR SHALL PROVIDE AND USE TEMPORARY STREAM CROSSING (BEC). 7. TEMPORARY STREAM CROSSING SHALL BE INSTALLED UPSTREAM OF THE WORK AREAS AND STAGING AREAS. IT MUST SOO FROM WATER'S EDGE AND SHALL BE OF A MINIMUM SIZE, MEASURES SHALL BE CONVENIENT PREPARATION. 8. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED DAILY AND REPAIRED IF NECESSARY. 9. INITIAL DIVERSION OF FLOW TO THE BASE OF THE WATERBODY SHALL BE LIMITED TO 50 FEET. 10. CHEMICALS, FUELS AND LUBRICATING OILS SHALL NOT BE STORED AND EQUIPMENT SHALL NOT BE REFUELED WITHIN 100 FEET OF THE WATERBODY. 11. INSTALL TRENCH PLUGS ON BOTH SIDES OF THE WATERBODY TO PREVENT DIVERSION OF WATER INTO UPLAND PORTIONS OF THE PIPELINE TRENCH AND TO KEEP ANY ACCUMULATED TRENCH WATER OUT OF THE WATERBODY. 12. CONSTRUCTION SHALL BE LIMITED TO THE MINIMUM NECESSARY TO MAINTAIN THE WATERWAY. 13. STAGING AREA IS PREPARED AND WORK IN THE WATERBODY IS READY TO COMMENCE. 14. PREPARED FOR BLASTING AND OTHER ROCK BREAKING MEASURES, COMPLETE IN STREAM CONSTRUCTION ACTIVITIES (INCLUDING EXCESSIVE EROSION) SHALL BE LIMITED TO 24 HOURS OF RESTORATION (24 HOURS OF RESTORATION PER 24 HOURS OF STREAM BANKS AND UNCONSOLIDATED STREAM BEDS MAY REQUIRE ADDITIONAL RESTORATION AFTER THIS PERIOD.


NO.	DATE	BY	REVISION DESCRIPTION	NO.	NO.	CHK.	APP.
							TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
							(MWC) WET MINOR WATERBODY CROSSING
							

TABLE 6.6 Riprap Gradation, Filter Blanket Requirements, Maximum Velocities						
Percent Passing (Square Openings)						
Class, Size No. Rock Size (Inches)	R-8	R-7	R-6	R-5	R-4	R-3
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15					
12		0-15	15-50		100	
9				15-50		
6			0-15		15-50	100
4				0-15		
3					0-15	15-50
2						0-15
Nominal Placement Thickness (Inches)	63	45	36	27	18	9
Filter Stone ¹ V _{max} (ft/sec)	AASHTO #1	AASHTO #1	AASHTO #1	AASHTO #3	AASHTO #3	AASHTO #57

Adapted from PennDOT Pub. 408, Section 703.2(c), Table C

1 This is a general standard. Soil conditions at each site should be analyzed to determine actual filter size. A suitable woven or non-woven geotextile underlayment, used according to the manufacturer's recommendations, may be substituted for the filter stone for gradients < 10%.

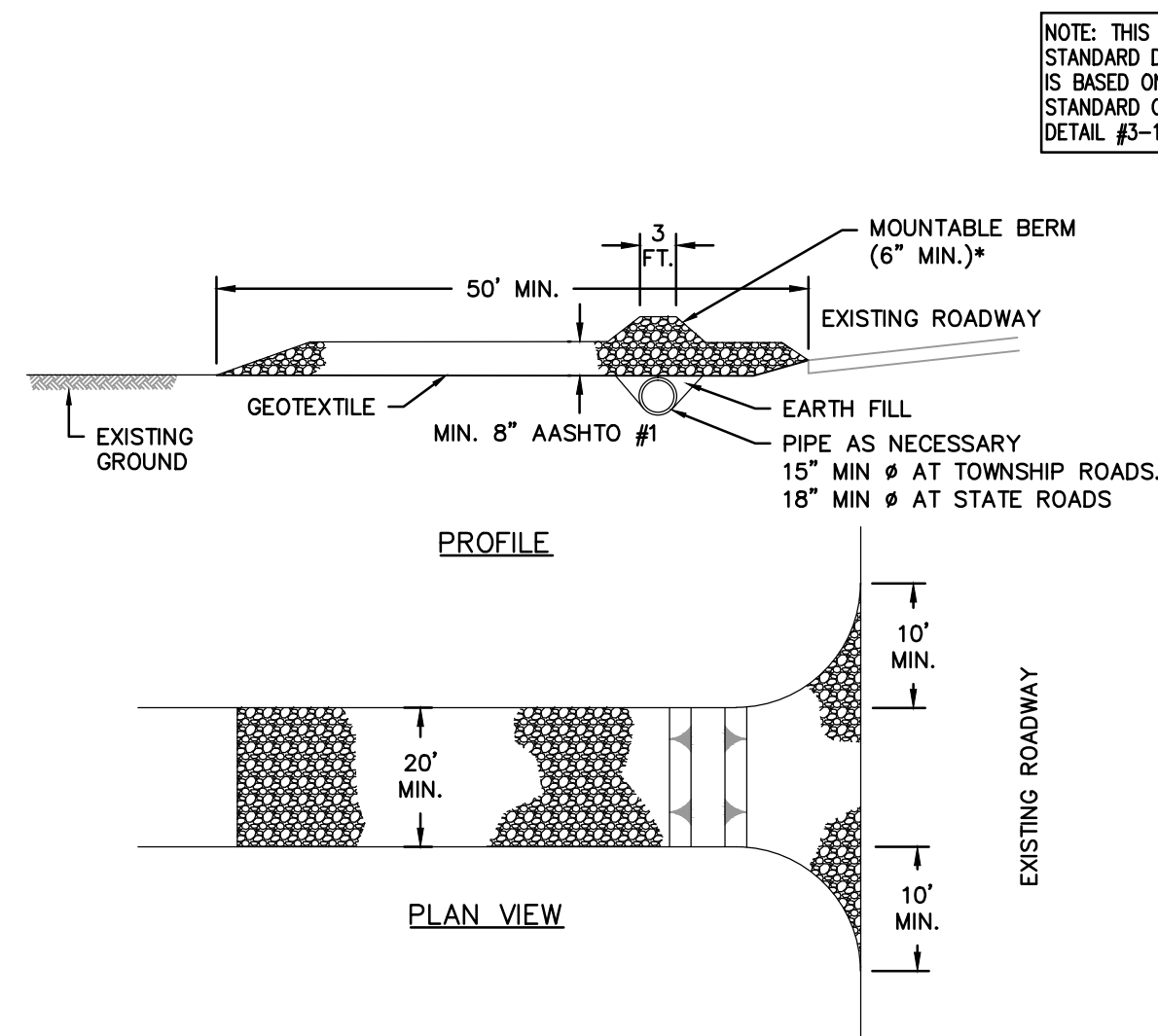
TABLE 6.7
Comparison of Various Gradations of Coarse Aggregates

Total Percent Passing														
AASHTO NUMBER	6"	4"	3 1/2"	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30
1	100	90-100	25-60			0-15		0-5						
3			100	90-100	35-70		0-15		0-5					
5						100	90-100	20-55	0-10	0-5				
57						100	90-100	25-60			0-10	0-5		
67							100	90-100		20-55	0-10	0-5		
7							100	90-100	40-70	0-15	0-5			
8								100	85-100	10-30	0-10	0-5		
10									100	75-100				10-30

PennDOT Publication 408, Section 703.2(c), Table C

Tables 6.6 and 6.7 should be placed on the plan drawings of all sites where riprap channel linings are proposed.

NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
								RAP RIP RAP GRADATION



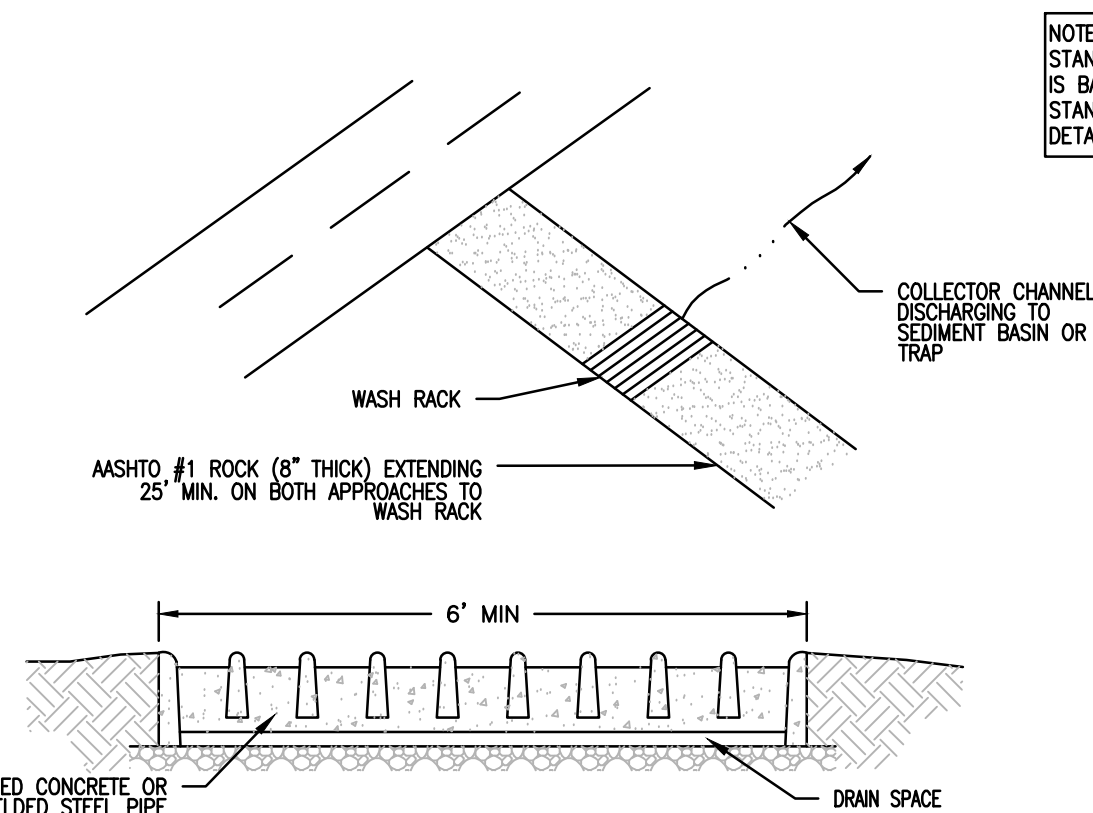
NOTE: THIS WILLIAMS
STANDARD DETAIL
IS BASED ON PADEP
STANDARD CONSTRUCTION
DETAIL #3-1.

* 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 OF ROCK MATERIAL 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.
- RCE WITH WASH RACK, SEE DETAIL ROW, TO BE INSTALLED IN, OR WITHIN 100 FEET OF, SPECIAL PROTECTION WATERSHEDS AS WELL AS WITHIN 50 FEET OF WETLANDS.
- WITHIN WETLANDS RCE AND/OR RCE WITH WASHRACK SHALL BE REPLACED WITH TIMBER MAT AND CLASS 1 GEOTEXTILE UNDERLAYMENT.

NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
								RCE ROCK CONSTRUCTION ENTRANCE



NOTE: THIS WILLIAMS
STANDARD DETAIL
IS BASED ON PADEP
STANDARD CONSTRUCTION
DETAIL #3-2.

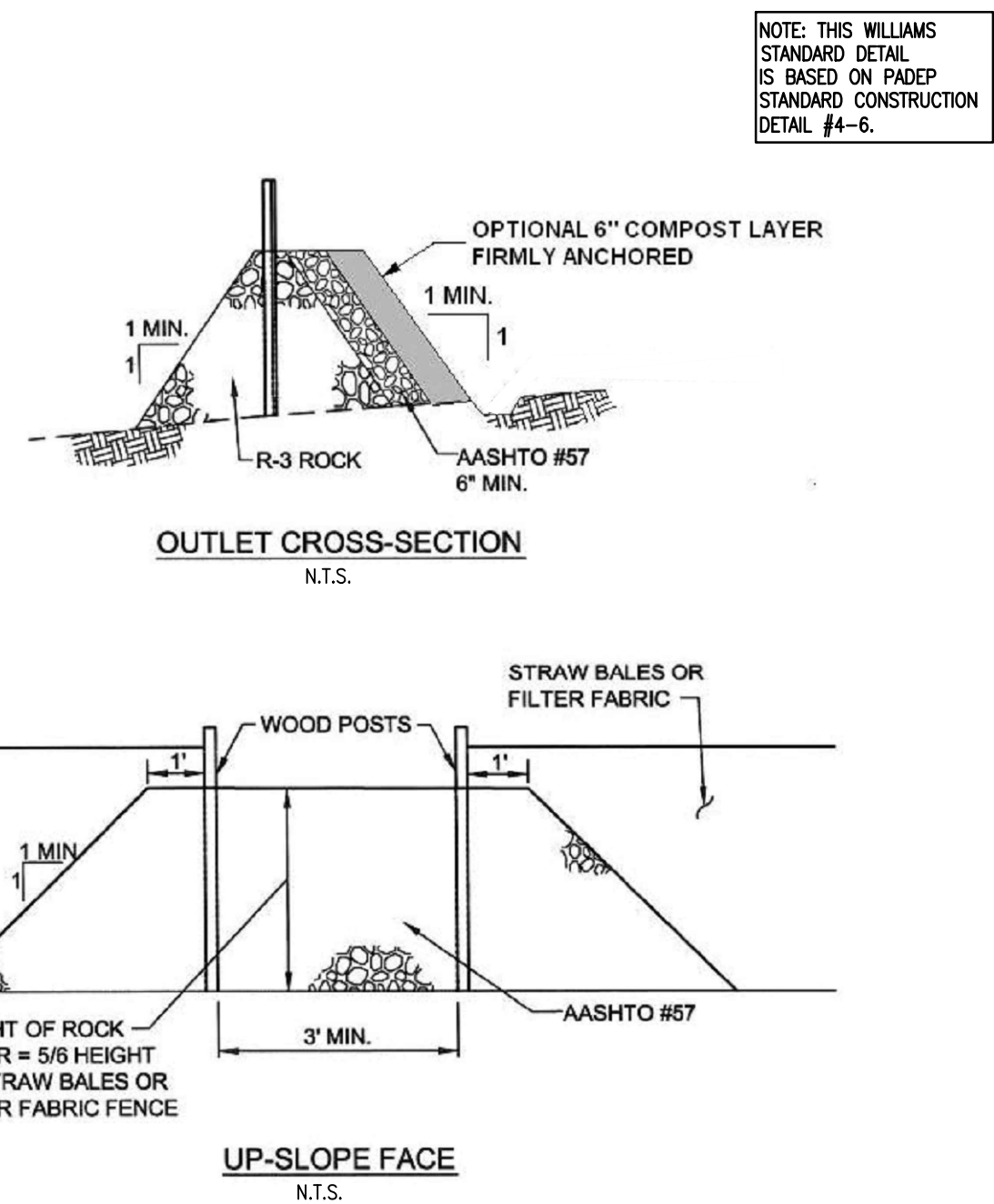
PADEP STANDARD NOTES:

- WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.
- WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.
- A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.
- MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

SUPPLEMENTAL NOTES:

- RCW TO BE INSTALLED IN, OR WITHIN 100 FEET OF, SPECIAL PROTECTION WATERSHEDS AS WELL AS WITHIN 50 FEET OF WETLANDS.
- WASH RACK SHALL BE INSTALLED IN COORDINATION WITH THE NOXIOUS AND INVASIVE PLANT MANAGEMENT PLAN. ALTERNATIVE WHEEL WASHING METHODS, SUCH AS PRESSURE WASHING, BRUSHING, OR USE OF COMPRESSED AIR AND/OR AN ELEVATED WASH RACK, MAY BE USED IN CERTAIN LOCATIONS DEPENDING ON THE ANTICIPATED SEDIMENT AND LOCAL VEGETATION.
- VACUUM SWEEPING MAY BE USED TO MITIGATE THE SPREAD OF SEDIMENT BEYOND THE RCES. RCES WILL BE INSPECTED FOR SEDIMENT TRACKING ONTO PUBLIC ROADWAYS. IF SEDIMENT IS OBSERVED IN THE PUBLIC ROADWAY, THE ROADWAY SHALL BE VACUUM SWEEPED UPON DISCOVERY. ANY LARGE CLUMPS OF DIRT THAT ACCUMULATE ON THE ROAD SURFACE WILL NEED TO BE HAND CLEARED BEFORE VACUUM SWEEPING. ALL VEHICLES LEAVING THE RCE SHALL BE INSPECTED FOR LARGE CLUMPS OF DEBRIS. IF DEBRIS, LARGER THAN 4" DIAMETER IS OBSERVED, IT SHALL BE MANUALLY REMOVED FROM THE VEHICLE. DIRT ROADS SHALL BE INSPECTED WEEKLY FOR RUTTING. THERE SHALL BE NO MORE THAN A MAXIMUM OF 8" OF RUTTING ON ACCESS ROADS. IF RUTTING IN EXCESS OF 8" IS OBSERVED, THE ROAD SHALL BE ROLLED AS SOON AS FEASIBLE. DUMP TRUCKS HAULING MATERIAL FROM RCES IN SPECIAL PROTECTION WATERSHEDS WILL BE COVERED WITH A TARPULIN.
- WITHIN WETLANDS RCE AND/OR RCE WITH WASHRACK SHALL BE REPLACED WITH TIMBER MAT AND CLASS 1 GEOTEXTILE UNDERLAYMENT.

NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
								RCW ROCK CONSTRUCTION ENTRANCE WITH WASH RACK



NOTE: THIS WILLIAMS
STANDARD DETAIL
IS BASED ON PADEP
STANDARD CONSTRUCTION
DETAIL #4-6.

ADAPTED FROM MARYLAND DOE

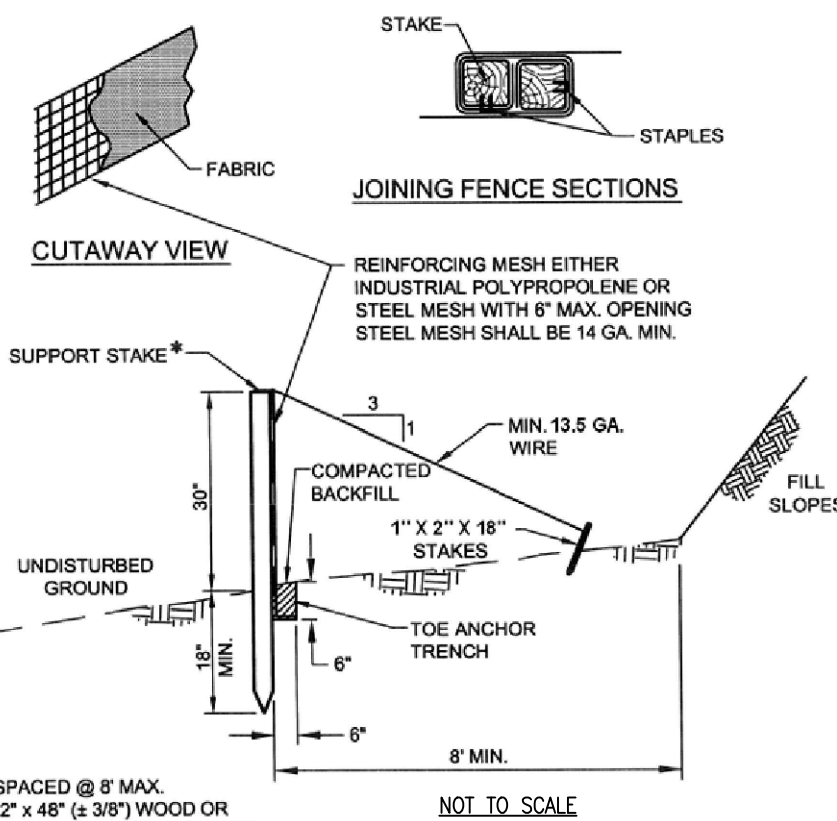
NOTES:

- A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A STRAW BALE BARRIER OR FILTER FABRIC FENCE HAS OCCURRED DUE TO CONCENTRATED FLOW.
- SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

PADEP SUPPLEMENTAL NOTE:

- ANCHORED COMPOST LAYER SHALL BE USED ON UP SLOPE FACE IN HQ AND EV WATERSHEDS.

NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
								RFO ROCK FILTER OUTLET



NOTE: THIS WILLIAMS
STANDARD DETAIL
IS BASED ON PADEP
STANDARD CONSTRUCTION
DETAIL #4-8.

AT A MINIMUM, THE FABRIC SHALL HAVE THE FOLLOWING PROPERTIES:

FABRIC PROPERTY	MINIMUM ACCEPTABLE VALUE	TEST METHOD
GRAB TENSILE STRENGTH (LB)	120	ASTM D1682
ELONGATION AT FAILURE (%)	20% MAX.	ASTM D1682
MULLEN BURST STRENGTH (PS)	200	ASTM D 3786
TRAPEZOIDAL TEAR STRENGTH (LB)	50	ASTM 5141
PUNCTURE STRENGTH (LB)	40	ASTM D 751 (MODIFIED)
SLURRY FLOW RATE (GAL/MIN/SF)	0.3	ASTM 5141
EQUIVALENT OPENING SIZE	30	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY (%)	80	ASTM G-26

ADAPTED FROM NEW YORK DEC
AND PENN-DOT PUB 408

MAXIMUM SLOPE LENGTHS FOR REINFORCED SILTY FENCE:

SLOPE-PERCENT	MAXIMUM SLOPE LENGTH (FT)
2 (OR LESS)	500
5	250
10	150
15	100
20	70
25	55
30	45
35	40
40	35
45	30
50	25

- FABRIC WIDTH SHALL BE 42" MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES. 18" SUPPORT STAKE SHALL BE DRIVEN 12" MIN. INTO UNDISTURBED GROUND.
- SILTY FENCE SHALL BE INSTALLED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION SHALL BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
- SEDIMENT SHALL BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
- ANY SECTION OF SILTY FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET (RFO).
- FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.
- SILTY FENCE SHOULD BE PLACED ON CONTOURS TO THE EXTENT PRACTICAL. SILTY FENCE SHOULD NOT BE USED TO DELINEATE THE LIMITS OF THE CONSTRUCTION RIGHT-OF-WAY.
- SILTY FENCE IS NOT ALLOWED IN CERTAIN SPECIAL PROTECTION WATERSHEDS; COMPOST FILTER SOCKS SHALL BE USED.

ADAPTED FROM PADEP

NO.	DATE	BY	REVISION DESCRIPTION	W.D.	NO.	CHK.	APP.	TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC STANDARD ENVIRONMENTAL DETAIL
								RSF REINFORCED SILTY FENCE (30" HIGH)



REVISIONS				W.D.	NO.	CHK.	APP.
NO.	DATE	BY	DESCRIPTION				
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1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK	
2	02/04/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK	
3	03/26/2016	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	AJB	
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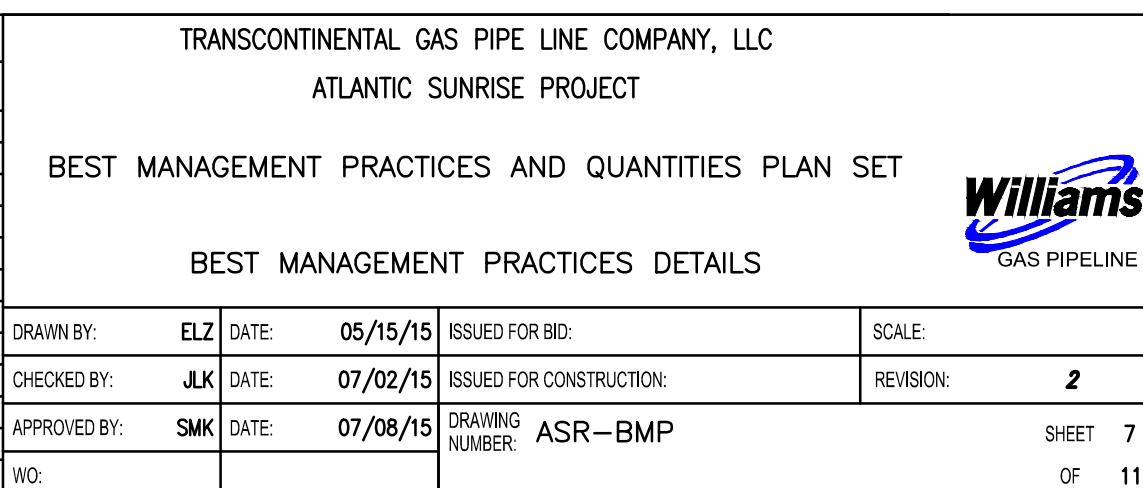
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT				BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET			
BEST MANAGEMENT PRACTICES DETAILS				DRAWN BY: ELZ DATE: 05/15/15 ISSUED FOR BID: SCALE:			
				CHECKED BY: JLK DATE: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: 4			
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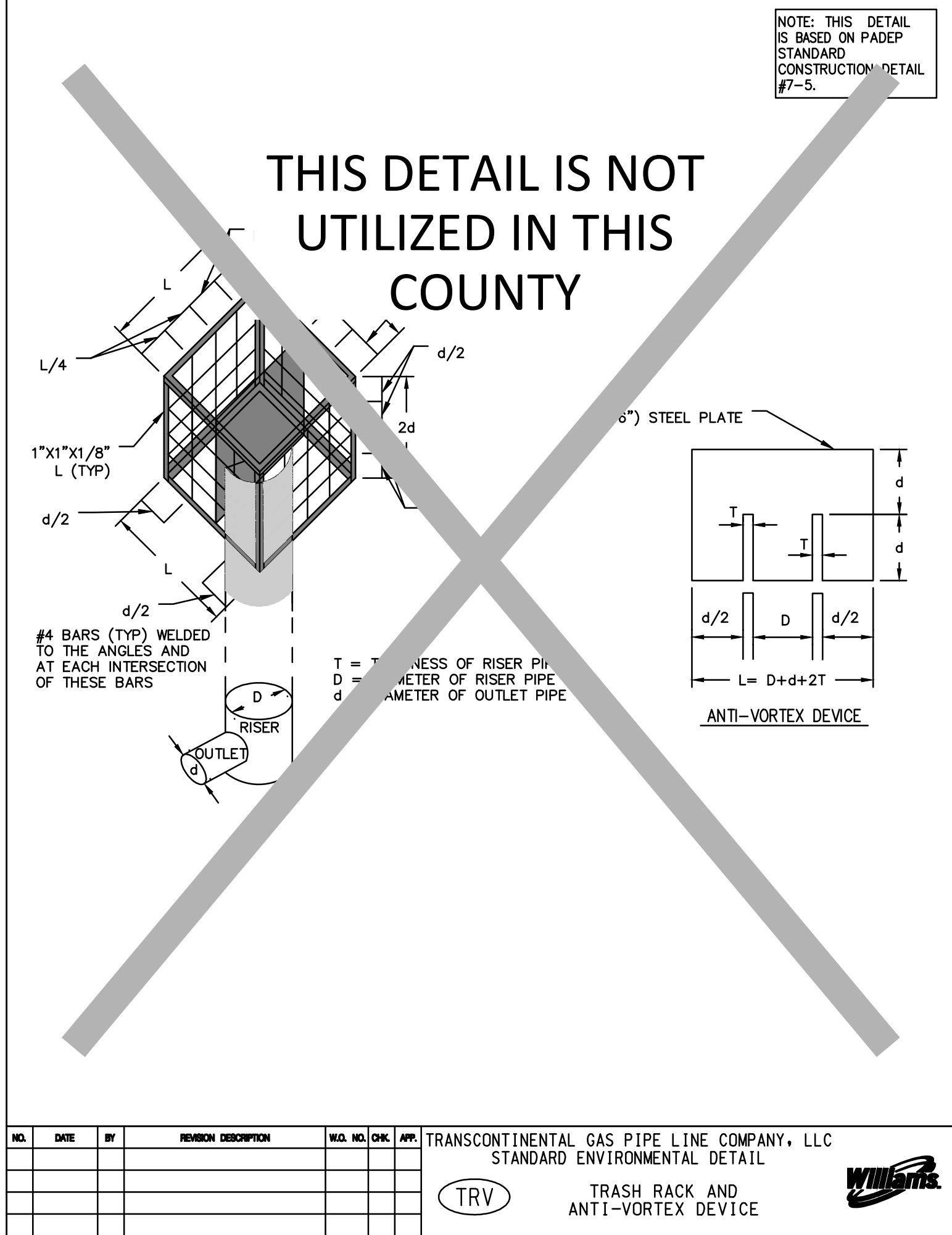
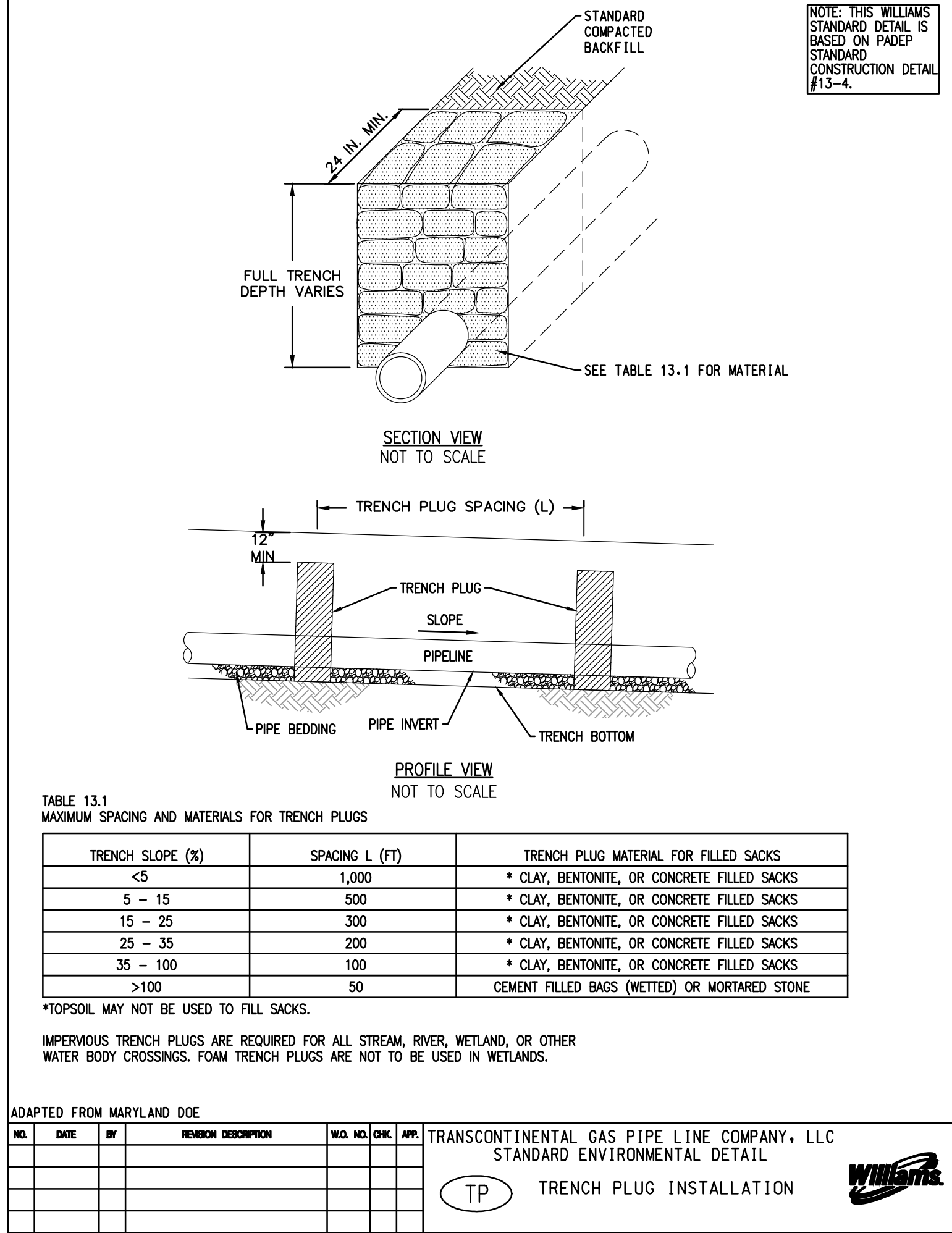
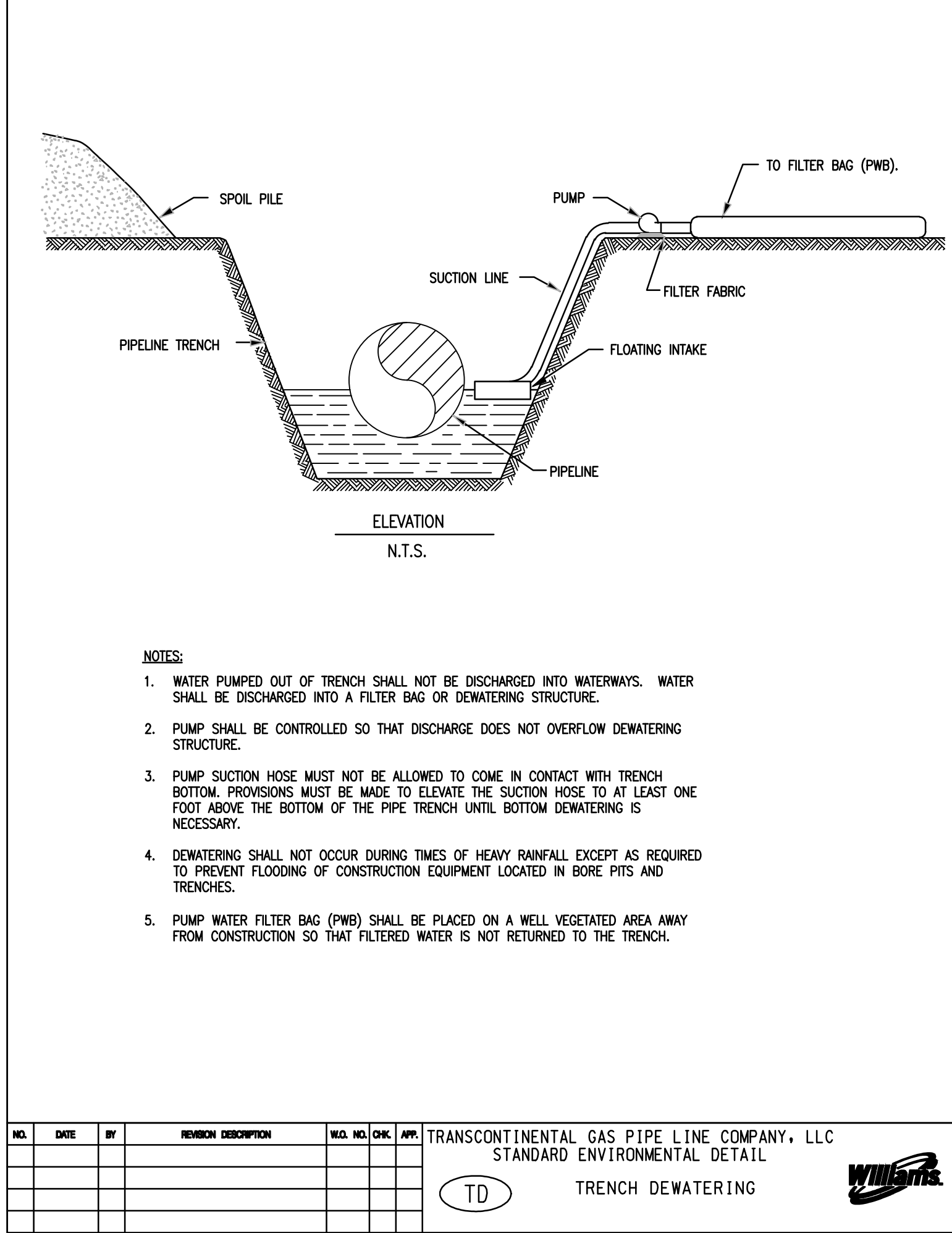
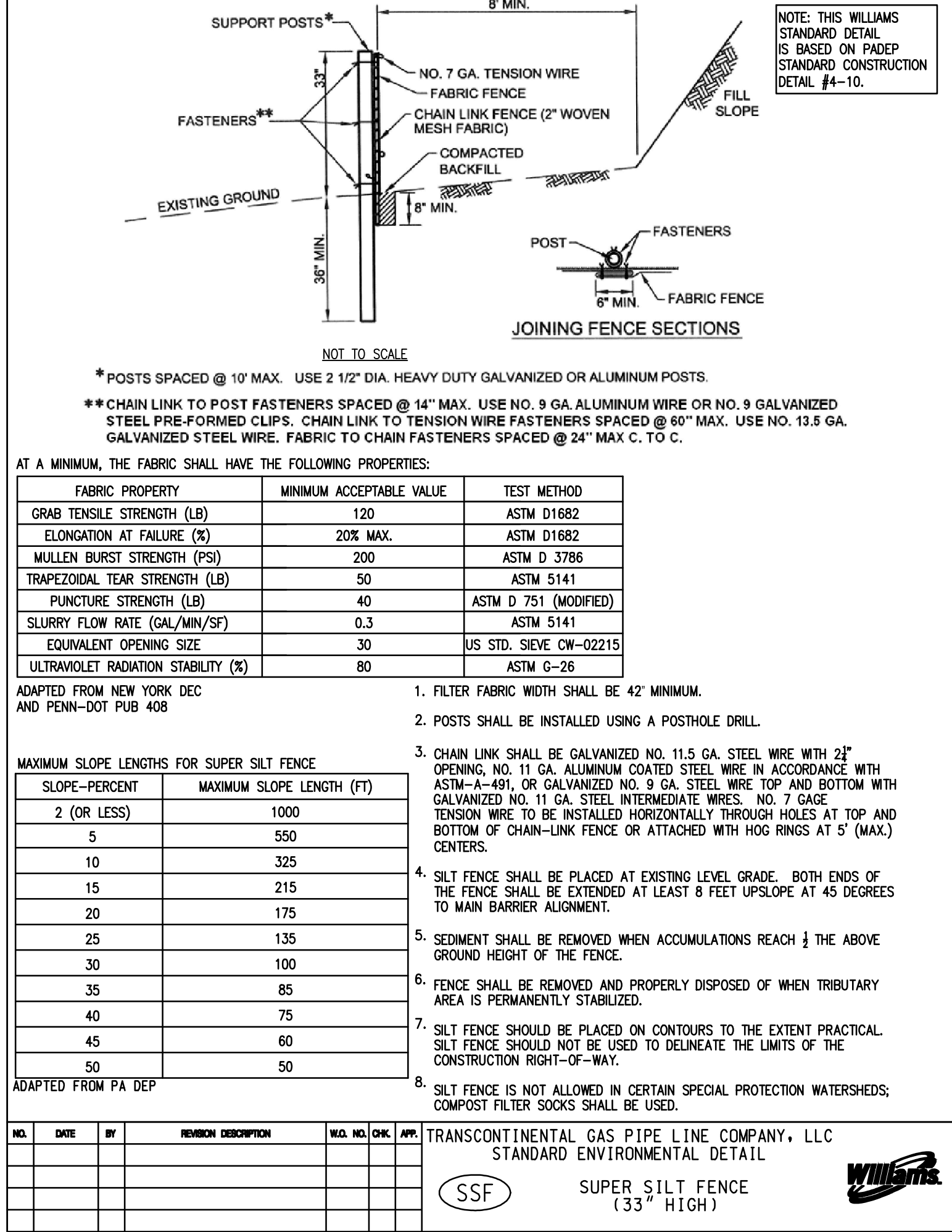
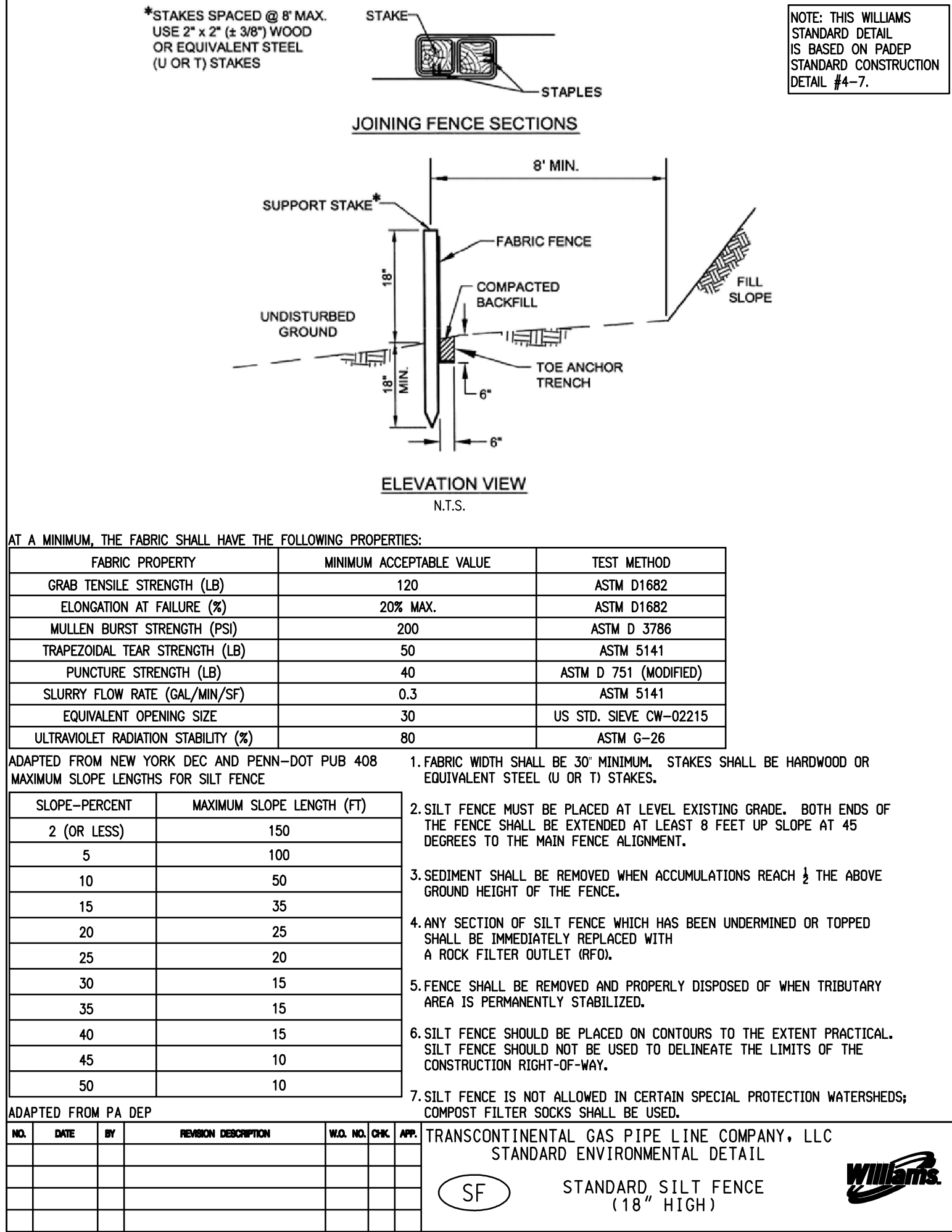




Williams

2 OF 2

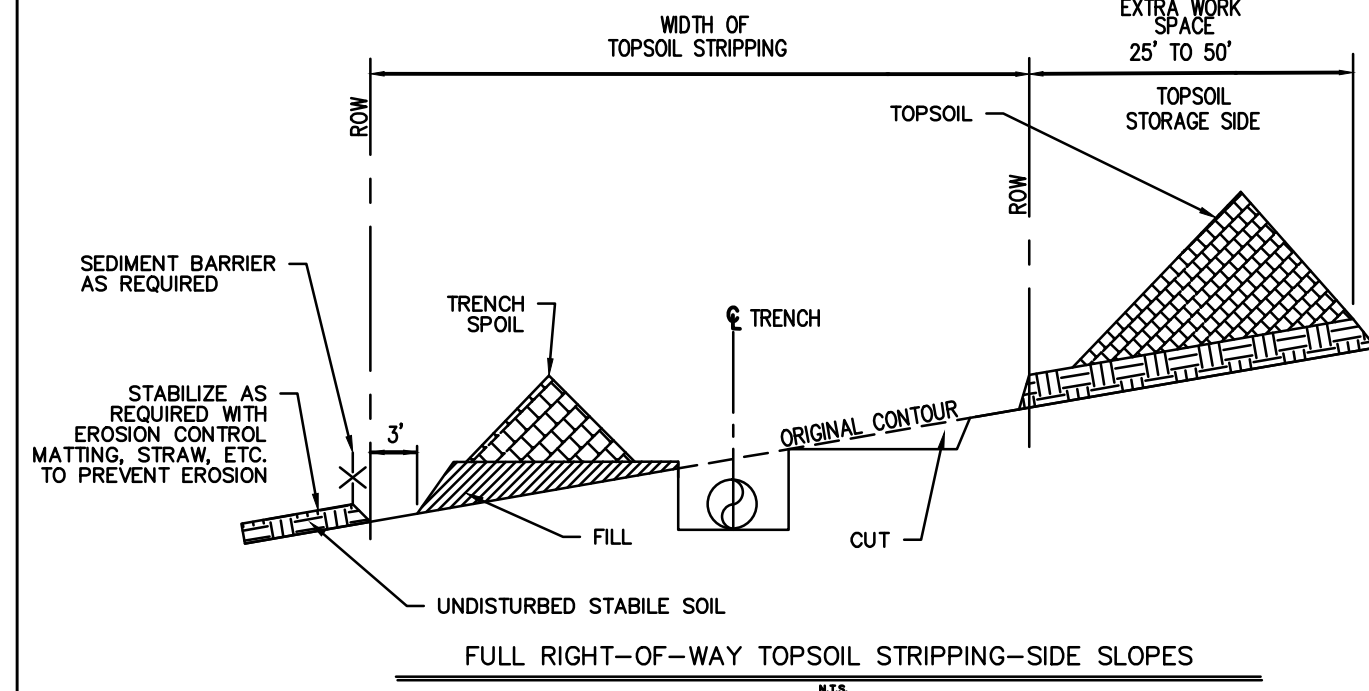




REVISIONS				
NO.	DATE	BY	DESCRIPTION	W.O. NO. CHK. APP.
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385 JLK SMK
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385 JLK SMK
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385 JLK SMK

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT				
BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET				
BEST MANAGEMENT PRACTICES DETAILS				
DRAWN BY:	ELZ	DATE:	05/15/15	ISSUED FOR BID:
CHECKED BY:	JLK	DATE:	07/02/15	ISSUED FOR CONSTRUCTION:
APPROVED BY:	SMK	DATE:	07/08/15	DRAWING NUMBER: ASR-BMP
W.O.:				



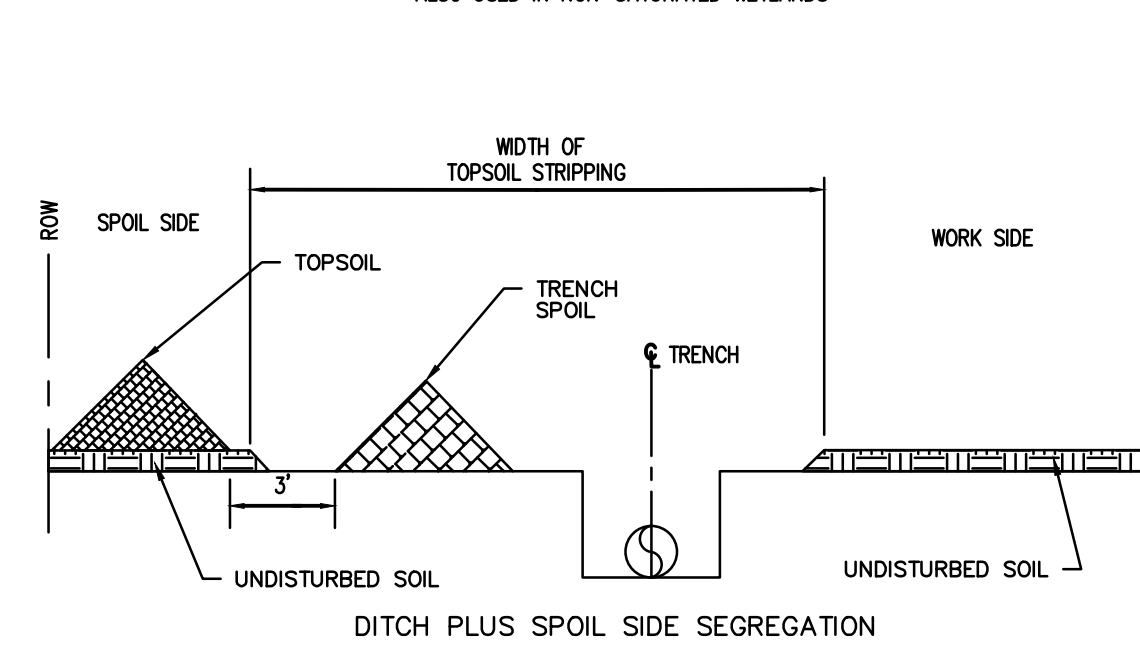


1. ALLOW FOR A 3" SEPARATION BETWEEN THE TOPSOIL PILE AND THE TRENCH SPOIL.
2. RETURN TRENCH SPOIL TO TRENCH AND COMPACT. FEATHER OUT EXCESS SPOIL OVER STRIPPED AREA LEAVING A LOW CROWN CENTERED OVER THE TRENCH. ALLEVATE COMPACTION OF SUBSOILS OVER THE STRIPPED AREA.
3. RETURN TOPSOIL EVENLY OVER THE STRIPPED AREA AFTER TRENCH HAS SUFFICIENTLY SETTLED OR HAS BEEN COMPACTED
4. ALLEVATE COMPACTION OF TOPSOIL OVER ENTIRE RIGHT-OF-WAY.
5. SEGREGATED TOPSOIL MAY NOT BE USED FOR PADDING THE PIPE.
6. INSTALL SEDIMENT BARRIER AS SHOWN ON PLAN.

NEL	DWE	BY	REVISION DESCRIPTION	NEL NO.	COR.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

(TS-1) TOPSOIL SEGREGATION (1)

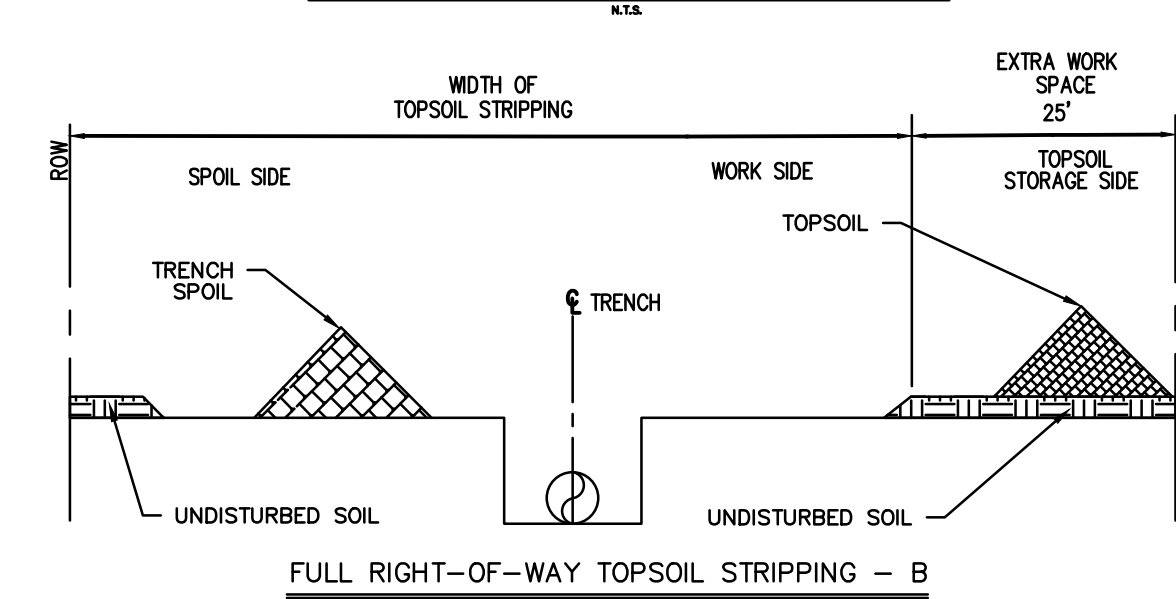


1. ALLOW FOR A 3" SEPARATION BETWEEN THE TOPSOIL PILE AND THE TRENCH SPOIL.
2. RETURN TRENCH SPOIL TO TRENCH AND COMPACT. FEATHER OUT EXCESS SPOIL OVER STRIPPED AREA LEAVING A LOW CROWN CENTERED OVER THE TRENCH. ALLEVIATE COMPACTION OF SUBSOLS OVER THE AREA.
3. RETURN TOPSOIL EVENLY OVER THE STRIPPED AREA AFTER TRENCH HAS SUFFICIENTLY SETTLED OR HAS BEEN COMPACTED.
4. ALLEVIATE COMPACTION OF TOPSOIL OVER ENTIRE RIGHT-OF-WAY.
5. SEGREGATED TOPSOIL MAY NOT BE USED FOR PADDING THE PIPE.
6. INSTALL SEDIMENT BARRIER AS SHOWN ON PLAN.

NO.	DATE	BY	REVISION DESCRIPTION	NO.	NO.	CHECKED	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

(TS-2) TOPSOIL SEGREGATION (2)

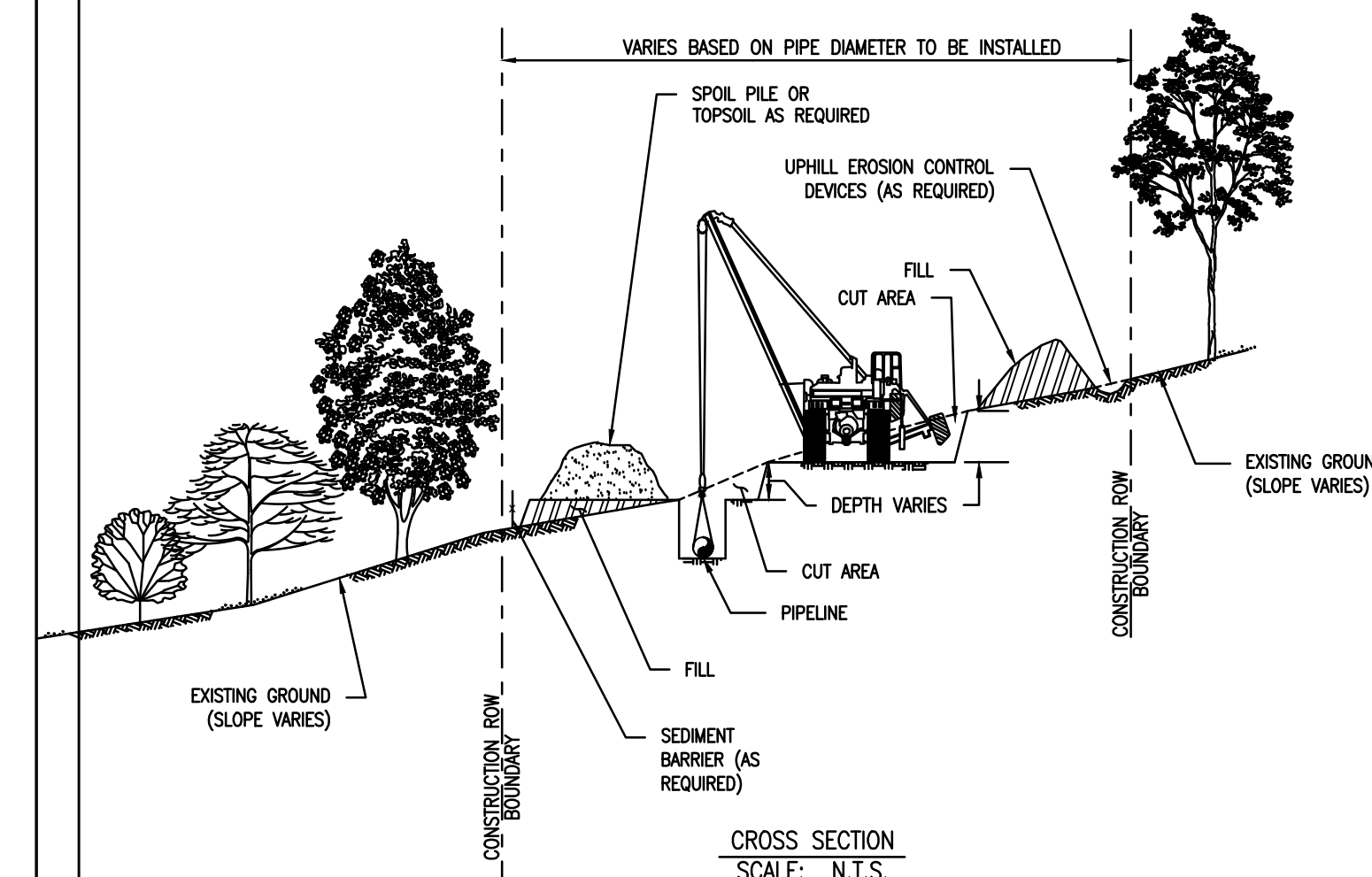


1. ALLOW FOR A 3' SEPARATION BETWEEN THE TOPSOIL PILE AND THE TRENCH SPOIL.
2. RETURN TRENCH SPOIL TO TRENCH AND COMPACT. FEATHER OUT EXCESS SPOIL OVER STRIPPED AREA LEAVING A LOW CROWN CENTERED OVER THE TRENCH. ALLEVATE COMPACTION OF SUBSOLUS.
3. RETURN TOPSOIL EVENLY OVER THE STRIPPED AREA AFTER TRENCH HAS SUFFICIENTLY SETTLED OR HAS BEEN COMPACTED.
4. ALLEVATE COMPACTION OF TOPSOIL OVER ENTIRE RIGHT-OF-WAY.
5. SEGREGATED TOPSOIL MAY NOT BE USED FOR PADDING THE PIPE.
6. INSTALL SEDIMENT BARRIER AS SHOWN ON PLAN.


No.	Date	By	Revision Description	No.	No.	Cmk	App.

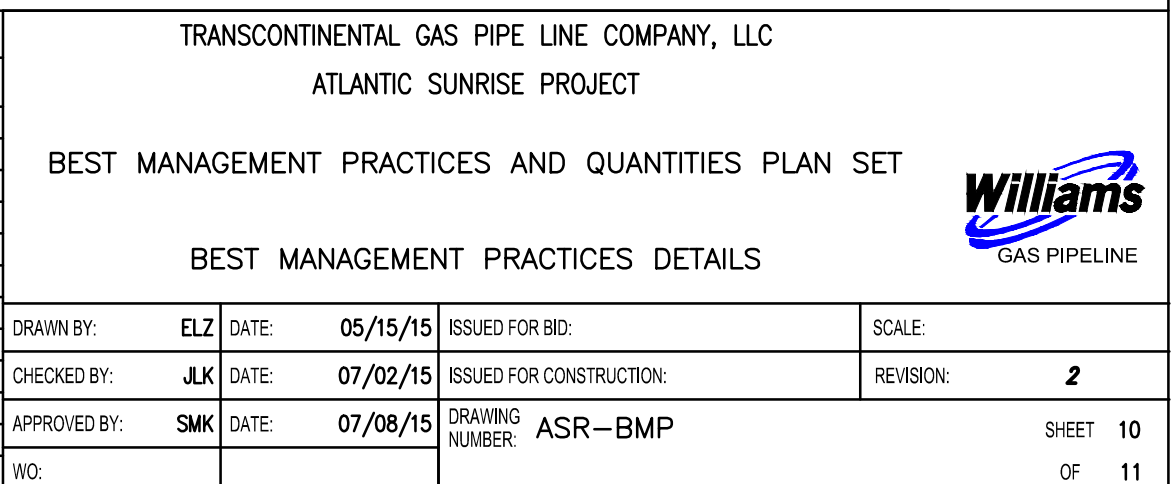
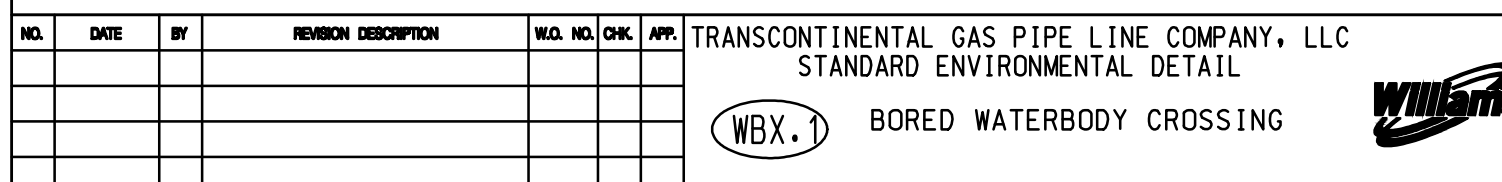
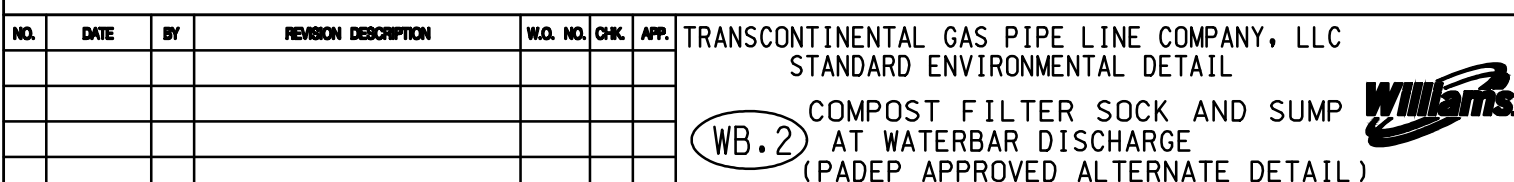
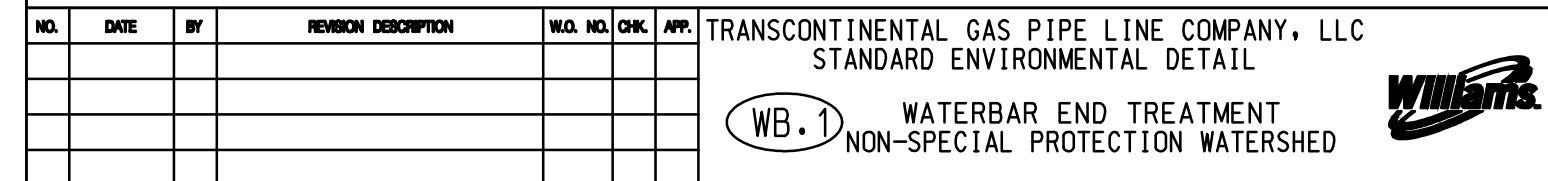
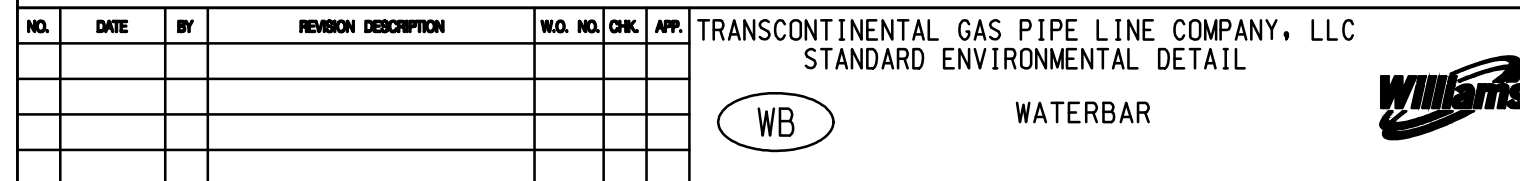
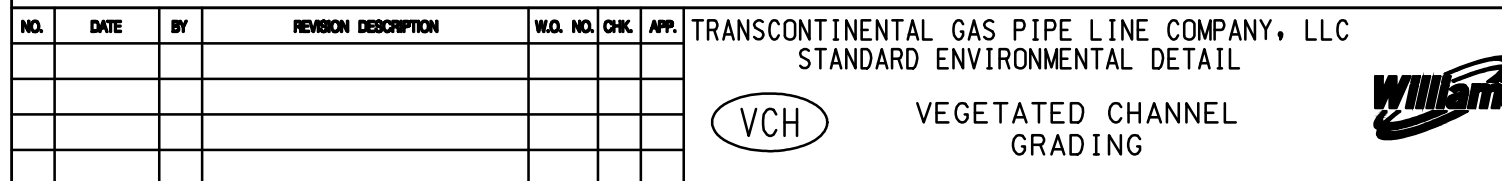
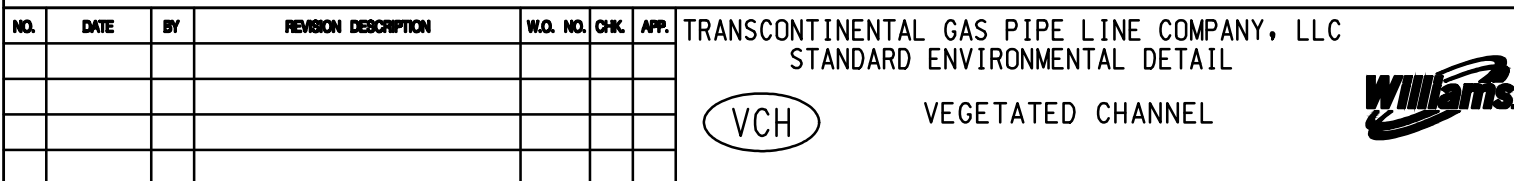
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

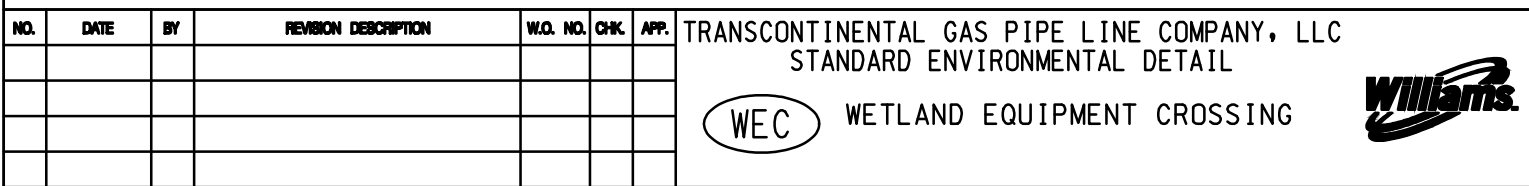
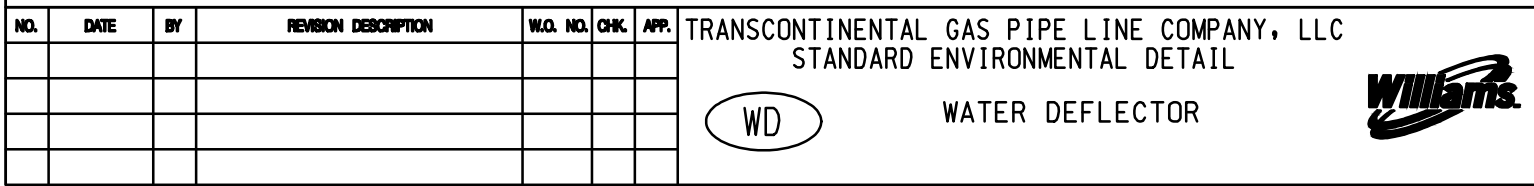
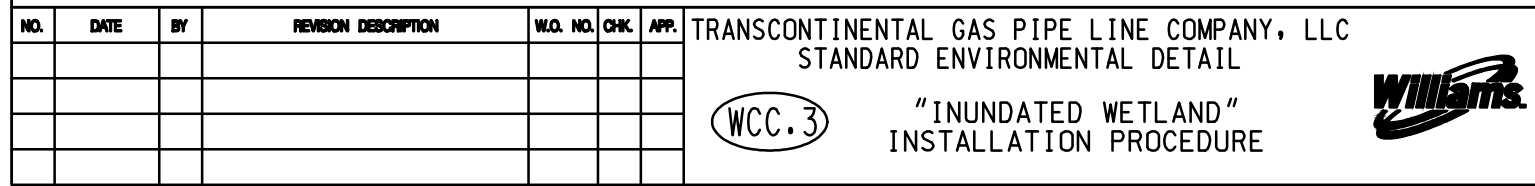
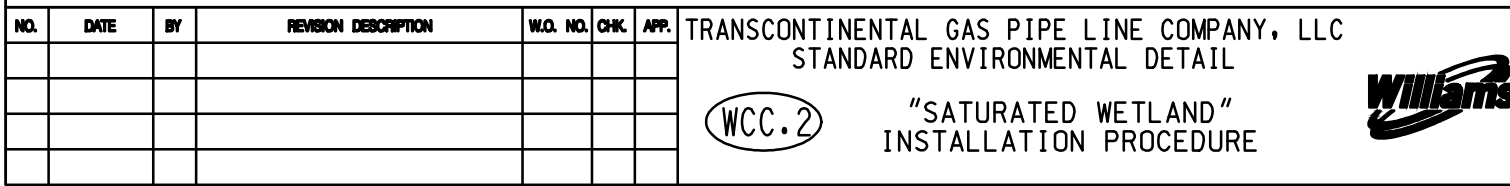
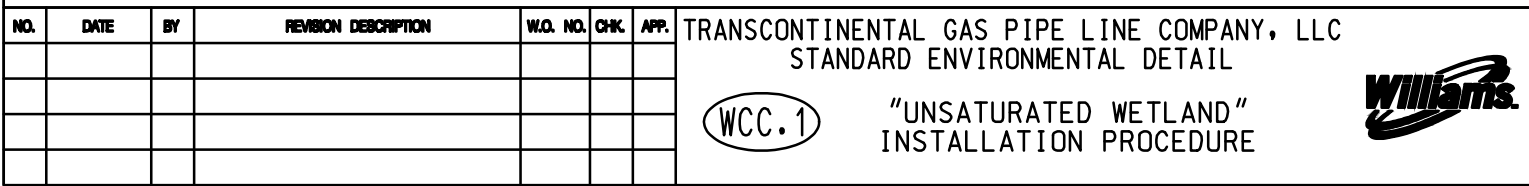
TS.3 TOPSOIL SEGREGATION (3)



1. TWO-TONE THE RIGHT-OF-WAY TO LIMIT THE NEED FOR DEEP CUTS AND ADDITIONAL RIGHT-OF-WAY ON STEEP SLOPES. THE MINIMUM WORKSPACE WITH ALONG STEP SIDE SLOPES WILL VARY DEPENDING ON THE DIAMETER OF PIPE TO BE INSTALLED. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED FOR WORKER SAFETY DEPENDING ON THE SEVERITY OF THE GRADE.
2. EMPLOY EROSION CONTROL MEASURES SUCH AS WATERBARS, CROSS DITCHES, TEMPORARY DRAINAGE PIPES, TEMPORARY SWALES, TEMPORARY OUTLET PROTECTION, ETC. AS REQUIRED TO PREVENT EROSION AND SEDIMENTATION OUTSIDE OF THE CONSTRUCTION RIGHT-OF-WAY. CLEAR AND STAKE AREAS TO ALLOW FOR EXTRA SPOIL.
3. ENSURE SIDE BOOM TRACTORS ARE EQUIPPED WITH BOOM EXTENDERS AND COUNTERWEIGHTS IF REQUIRED.
4. USE BACKHOE TO ASSIST BULDOZERS WITH REPLACING CUTS.
5. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL MEASURES AS REQUIRED.
6. REVEGETATE / SEED DISTURBED AREAS AS NOTED IN THE CONSTRUCTION DOCUMENTS OR AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR.

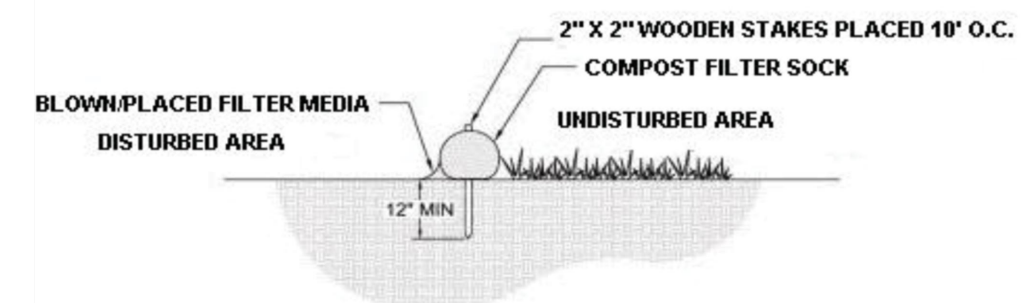
NO.	DATE	BY	REVISION DESCRIPTION	NO.	NO.	CHK.	APP.
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC ATLANTIC SUNRISE PROJECT			
BEST MANAGEMENT PRACTICES AND QUANTITIES PLAN SET			
BEST MANAGEMENT PRACTICES DETAILS			
DRAWN BY:	ELZ	DATE: 05/15/15	ISSUED FOR: BI
CHECKED BY:	JKL	DATE: 07/02/15	ISSUED FOR CONSTRUCTION:
PROVED BY:	SMK	DATE: 07/08/15	REVISION: 2
BY:	DRAWING NUMBER: ASR-BMP		SHEET 11 OF 11

E&S WORKSHEET #1	
Compost Filter Sock	
PROJECT NAME: ATLANTIC SUNRISE PROPOSED GAS PIPELINE	
LOCATION: LENOX TOWNSHIP, SUSQUEHANNA COUNTY	
PREPARED BY: ESS	DATE: 09-13-2016
CHECKED BY: AJB	DATE: 09-15-2016



MILEPOST NO.	Dia. In.	LOCATION			SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
		BEGIN STA.	to	END STA.		
12	26703+50			5	102	
24	26747+00			5	107	
12	26755+25			6	84	
24	26777+00			14	87	
12	26777+75			4	203	
12	26799+25			4	83	
12	26799+50			4	83	
12	26857+75			2	82	
24	26864+50			8	172	
12	26877+75			9	78	
12	26888+00			7	97	
12	26893+25			6	140	
24	26949+50			15	151	
12	27029+50			8	120	
12	27111+50			23	14	
24	27124+00			14	134	
12	27189+00			9	89	
24	27187+75			16	153	
24	27289+00			26	102	
24	27299+50			13	204	
18	27344+00			13	200	
24	27444+75			13	85	
12	27504+00			5	204	
24	27544+00			22	84	
31	27584+25			20	224	
24	27624+50			31	93	
12	27644+75			3	25	
12	27654+25			14	60	
12	27664+75			12	15	
24	27674+25			9	150	
12	27804+50			17	23	
24	27814+25			11	132	
18	27874+50			27	328	
24	27944+50			28	126	
24	27944+75			7	378	
24	27954+25			7	378	
12	28039+50			7	103	
24	28124+25			10	113	
24	28144+25			10	114	
24	28154+25			12	88	

PLAN VIEW

CROSS-SECTION

PROFILE

SLOPE RANGE ID	RIGHT-OF-WAY SLOPE, %	O. CFS	WIDTH (W), FT	CHANNEL LINING	* RIPRAP APRON, R-#	RIPRAP NOMINAL PLACEMENT THICKNESS (T), IN	RIPRAP APRON LENGTH, FT
①	0 - 2%	≤ 50	17	C125	R-4	18	15
②	2 - 10%	≤ 50	14	P550	R-4	18	15
③	10 - 20%	≤ 50	12	W3000	R-4	18	15
④	20 - 30%	≤ 50	10	W3000	R-5	27	15
⑤	30 - 40%	≤ 50	8	W3000	R-6	36	15
⑥	40 - 50%	≤ 50	8	W3000	R-7	45	15

RIPRAP APRON SIZING WAS DETERMINED USING MAXIMUM ALLOWABLE VELOCITY OUTLINED IN TABLE 6.6 OF THE PA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, DATED MARCH 2012

* REFER TO TEMPORARY DIVERSION SUMMARY FOR LEVEL SPREADER DESIGN

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC
STANDARD ENVIRONMENTAL DETAIL

CWC CLEAN WATER CROSSING

WILLIAMS

A cross-sectional diagram of a compost filter sock installation. A circular sock is placed on the ground surface. To the left of the sock, the ground is labeled "BLOWN PLACED FILTER MEDIA DISTURBED AREA". To the right of the sock, the ground is labeled "UNDISTURBED AREA" and shows grass. Two arrows point to the top of the sock, labeled "2\" X 2\" WOODEN STAKES PLACED 10\" O.C.". A vertical dimension line below the sock indicates a depth of "12\" MIN".

MILEPOST NO.	Dia. In.	LOCATION			SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)	
		BEGIN STA.	to	END STA.			TYPE
24	24	2818+00	to	2818+00	21	143	
	12	2819+00	to	2819+75	Stream	14	25
	12	2819+75	to	2822+00		14	25
	18	2820+00	to	2822+75	Road	17	110
	12	2822+75	to	2822+75	Road	9	19
	24	2823+25	to	2823+25	Road	5	470
	24	2823+25	to	2830+00		5	440
	24	2830+00	to	2837+50		4	142
	12	2837+00	to	2837+75	Wetland	3	211
	12	2838+00	to	2838+75		2	258
	24	2839+50	to	2841+75		7	168
	12	282+50	to	2844+25		10	61
	12	2844+25	to	2844+50		15	15
54 M-0067	24	2844+50	to	2856+75	MOC-0067 within	27	89
	12	2857+00	to	2858+75	Wetland/Stream	10	110
	24	2858+50	to	2870+75		8	161
	12	2870+75	to	2871+75	Wetland	5	176
	12	2871+75	to	2878+25		7	150
	12	2878+25	to	2891+25		2	100
	12	2891+25	to	2891+50	Road	8	30
	12	2891+50	to	2892+50		5	187
	12	2891+50	to	2898+00		5	212
55	24	2898+00	to	2909+00		25	105
	12	2909+00	to	2910+25	Wetland/Stream	16	45
	12	2910+25	to	2911+25		17	40
	24	2915+75	to	2915+75		8	181
	12	2920+00	to	2921+50		7	120
	12	2921+75	to	2923+00		6	142
	12	2923+00	to	2928+25	Wetland	5	89
	12	292675	to	292800		3	120
M-0061	24	2928+25	to	1+00		10	87
	18	1+25	to	5+50	Wetland/Stream	5	286
	24	5+50	to	2939+75		18	82
	18	2939+75	to	2942+50		15	116
	12	2942+50	to	2943+50	Road	17	17
	12	2943+50	to	2943+00	Road	15	63

TEMPORARY DIVERSION SUMMARY - SUSQUEHANNA COUNTY, PENNSYLVANIA																								
MILE POST	DIVERSION								WATERBODY**					FLUME (CLEAN WATER) CROSSING					LEVEL SPREADER					
	DIVERSION ID	DIVERSION TYPE	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	TEMPORARY LINING	PERMANENT LINING	DISCHARGE TYPE	WIDTH (FT)	LENGTH (FT)	RIP RAP SIZE***	FLUME CHL. FLOU% (CH)	FLUME CHL. FLOU WIDTH	FLUME CHL. FLOU LINING	RIP RAP SIZE***	Q (CFS)	H (FT)	C ₁₀₀	LENGTH (FT)	DOWNSTREAM COVER	ALLOWABLE VELOCITY (FT/S)	VELOCITY (FT/S)
50	50.04	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	1	17	C125	R-4	4	0.18	3.0	17	GRASS	4	1.91
	50.05	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	6	14	P550	R-4	2.4	0.15	3.0	14	FOREST	2	1.74
	50.06	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	2	17	C125	R-4	8.96	0.195	3.0	25	FOREST	2	1.99
	50.07	FILTER SOCK	0	2	14	0	7	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	7	14	P550	R-4	1.76	0.12	3.0	14	FOREST	2	1.56
51	51.01	SWALE	2	2.5	12	2	2	C125	REINFORCED VEGETATION	FLUME	-	-	-	6	14	P550	R-4	21.44	0.5	3.0	20	GRASS	4	3.18
	51.02	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	2	14	P550	R-4	13.28	0.47	3.0	14	GRASS	4	3.09
	51.03	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	6	14	P550	R-4	12.32	0.195	3.0	48	FOREST	2	1.99
	51.04	SWALE	2	2	10	2	2	C125	REINFORCED VEGETATION	FLUME	-	-	-	12	12	W3000	R-4	16.32	0.5	3.0	15	GRASS	4	3.18
	51.05	FILTER SOCK	0	2	16	0	8	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	13	12	W3000	R-4	0.8	0.08	3.0	12	GRASS	4	1.27
	51.06	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	9	14	P550	R-4	17.92	0.5	3.0	17	GRASS	4	3.18
52	52.01	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	7	14	P550	R-4	2.4	0.15	3.0	14	GRASS	4	1.74
53	53.01	SWALE	2	2	10	2	2	C125	REINFORCED VEGETATION	FLUME	-	-	-	8	14	P550	R-4	26.4	0.195	3.0	102	FOREST	2	1.99
54	54.01	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	5	14	P550	R-4	0.64	0.062	3.0	14	GRASS	4	1.12
	54.02	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	FLUME	-	-	-	10	14	P550	R-4	2.24	0.14	3.0	14	GRASS	4	1.68
55	55.01	SWALE	2	2	10	2	2	S75	UNREINFORCED VEGETATION	WATERBODY	2	8	R-4	-	-	-	8.96	N/A	N/A	N/A	WATERBODY	N/A	N/A	
	55.02	FILTER SOCK	0	2	11	0	5.5	SC150	REINFORCED VEGETATION	FLUME	-	-	-	22	10	W3000	R-5	2.56	0.19	3.0	10	GRASS	4	1.96
56	56.01	FILTER SOCK	0	2	16	0	8	SC150	REINFORCED VEGETATION	FLUME	-	-	-	15	12	W3000	R-4	0.96	0.09	3.0	12	FOREST	2	1.35
	56.02	SWALE	2	2	10	2	2	SC150	REINFORCED VEGETATION	FLUME	-	-	-	4										

Waterbody ID	Waterbody Name	Milepost	County	Township	Stream Type	State Water Quality Use Classification - Designated Use	State Fishery Classification	Crossing Method	Crossing Window
WW-T30-21001	UNT to Willow Brook (WW-T30-21001)	51.35	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21004A	UNT to Willow Brook (WW-T12-21004A)	51.68	Susquehanna	Lenox	Intermittent	CWF, MF	Wild Trout Waters	N/A	January 1 through September 30
WW-T12-21004	UNT to Willow Brook (WW-T12-21004)	51.69	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21004	UNT to Willow Brook (WW-T12-21004)	51.69	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21001	Willow Brook (WW-T12-21001)	52.37	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T30-21001	Untey Branch (WW-T30-21001)	53.40	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T50-12002	Millard Creek (WW-T50-12002)	54.12	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T50-21003	UNT to Millard Creek (WW-T50-21003)	54.13	Susquehanna	Lenox	Intermittent	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21007	UNT to Millard Creek (WW-T12-21007)	55.10	Susquehanna	Lenox	Intermittent	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21007A	UNT to Millard Creek (WW-T12-21007A)	55.11	Susquehanna	Lenox	Epheermal	CWF, MF	Wild Trout Waters	Flume	January 1 through September 30
WW-T92-12002	UNT to Tower Branch (WW-T92-12002)	MOC-0061-0.07	Susquehanna	Lenox	Epheermal	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T12-21009A	UNT to Tower Branch (WW-T12-21009A)	MOC-0061-0.09	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T48-21001	Tower Branch (WW-T48-21001)	56.80	Susquehanna	Lenox	Perennial	CWF, MF	Wild Trout Waters	Dam-and-Pump	January 1 through September 30
WW-T17-21001	UNT to Tower Branch (WW-T17-21001)	57.15	Susquehanna	Lenox	Epheermal	CWF, MF	Wild Trout Waters	Flume	January 1 through September 30

Waterbody IDs with "RS" designations are in non-surveyed area and are based on remote sensing

Key: CWF = Coldwater Fishes HQ-High Quality WWF=Warm Water Fishes
MF = Migratory Fishes TSF=Trout Stocked Fishes
UNT = Unnamed Tributary EV=Exceptional Value


Pipeline Facility/	Mile Post		Linear Distance	Bedrock Formation	Acid Potential	Rock Type	Rippability	MoC Number MP to MP
	From	To						
Susquehanna	49.6	50.4	0.8	Catskill (undifferentiated)	Typically Non-acid sulfide bearing	Sandstone & conglomerate	Difficult	M-0051 0.0 to 0.07
Susquehanna	50.6	50.8	0.2					
Susquehanna	51.5	51.5	0.0					
Susquehanna	52.2	52.2	0.0					
Susquehanna	53.0	53.1	0.1					
Susquehanna	54.9	55.2	0.3					
Susquehanna	56.3	56.4	0.1					M-0061 0.0 to 0.16 M-0062 0.0 to 0.25
		Subtotal	1.5					

MILEPOST NO.	Dia. in.	LOCATION		TYPE	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FEET)
		BEGIN STA.	END STA.			
55 M-0062	18	2943+00	to 2946+25		14	122
	32	2946+25	to 9+25		9	352
56	24	7+75	to 12+50	Wetland	7	375
	12	12+00	to 2963+25		7	61
	18	2964+00	to 2967+50		16	175
	12	2967+50	to 2969+50		11	65
	24	2969+50	to 2971+50		15	74
	18	2971+50	to 2973+25		19	116
	24	2975+50	to 2990+75		13	113
	12	2990+75	to 2997+25	Wetland/Stream	7	114
	24	2994+75	to 2996+75		7	153
	24	2997+00	to 2998+75		7	150
	12	2999+00	to 3000+50	Wetland/Stream	5	110
57	24	3000+50	to 3007+50		7	138
	18	3007+75	to 3011+25		13	192
	12	3011+50	to 3011+50	Road	17	22
	12	3011+75	to 3011+75	Road	14	17
	12	3011+75	to 3013+00		15	90
	24	3013+00	to 3017+75		15	136
	12	3017+50	to 3018+00	Stream	12	22
	24	3018+00	to 3018+50		11	251

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SUZANNE MARIE KING
ENGINEER
PE062787

SUZANNE KING REG NO. PE 0827

BL
Companies
ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

REVISONS					TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC			
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.	ATLANTIC SUNRISE PROJECT	
0	08/28/2015	BL	ISSUED FOR PADEP SUBMITTAL	W0572385	JLK	SMK	PROPOSED 30" CENTRAL PENN LINE NORTH	
1	12/02/2015	BL	ISSUED FOR PADEP RESUBMITTAL	W0572385	JLK	SMK	PENNSYLVANIA BEST MANAGEMENT PRACTICES AND	
2	Oct. 2016	BL	PADEP TECHNICAL DEFICIENCY RESPONSE #1	W0572385	JLK	SMK	QUANTITIES PLAN SET	
							SUSQUEHANNA COUNTY, PENNSYLVANIA	
							QUANTITY, CROSSING AND ACIDIC SOIL TABLES	
								
							DRAWN BY: ELZ DATE: 05/15/15 ISSUED FOR BID: SCALE:	
							CHECKED BY: JLK DATE: 07/02/15 ISSUED FOR CONSTRUCTION: REVISION: 2	
							APPROVED BY: SMK DATE: 07/08/15 DRAWING NUMBER: 24-1601-70-28-A/1683_3-BMP-SU-TB SHEET 1	
							W.O.: OF 1	

Wetland ID	Milepost	County	Township	Wetland Classes Impacted
W-730-21002	51.48	Susquehanna	Lenox	PEM
W-712-21001A	52.29	Susquehanna	Lenox	PEM
W-770-21001A-1 / W-770-21001A-2	52.95	Susquehanna	Lenox	PEM
W-T51-21004	53.31	Susquehanna	Lenox	PEM
W-T64-21001-1	53.74	Susquehanna	Lenox	PEM
W-T50-21002	54.12	Susquehanna	Lenox	PFO
W-T50-21003	54.13	Susquehanna	Lenox	PFO
W-T12-21007A	54.38	Susquehanna	Lenox	PEM
W-T12-21008-1	55.10	Susquehanna	Lenox	PEM
W-T12-21009A / W-T12-21009A-2	55.46	Susquehanna	Lenox	PEM
W-T12-21009B	MOC-0061.05	Susquehanna	Lenox	PSS
W-T12-21009C	MOC-0061.06	Susquehanna	Lenox	PFO
W-T48-21007A	M-00620.19	Susquehanna	Lenox	PEM
W-T48-21002C	M-00620.22	Susquehanna	Lenox	PFO
W-T48-21001	56.75	Susquehanna	Lenox	PEM
W-T48-21003	56.81	Susquehanna	Lenox	PEM

Wetland IDs with "RS" designations are in non-surveyed area and are based on remote sensing data.

Key:

PEM = Palustrine Emergent

PFO = Palustrine Forested

PSS = Palustrine Scrub-Shrub

MP Begin	MP End	County	Map Unit Symbol	pH	MP Begin	MP End	County	Map Unit Symbol	pH
50.55	50.60	Susquehanna	McB2	6.6	54.08	54.15	Susquehanna	Mn	5.5
50.60	50.66	Susquehanna	LkR2	5.5	54.15	54.18	Susquehanna	MpD	6.6
50.66	50.80	Susquehanna	LoB	5.5	54.18	54.42	Susquehanna	VsB	6
50.80	50.84	Susquehanna	LaD	5.5	54.42	54.44	Susquehanna	MpD	6.6
50.84	50.93	Susquehanna	WeD	5.8	54.44	54.63	Susquehanna	VfB	6
50.93	51.01	Susquehanna	WC2	5	54.63	54.71	Susquehanna	McB2	6.6
51.01	51.05	Susquehanna	McC2	5.3	54.71	54.91	Susquehanna	VcB2	6.7
51.05	51.13	Susquehanna	WeD2	5.3	54.91	54.98	Susquehanna	LoB	5.5
51.13	51.31	Susquehanna	McC2	5.3	54.98	55.02	Susquehanna	LaD	5.5
51.31	51.37	Susquehanna	MoB2	5.3	55.02	55.08	Susquehanna	LoB	5.5
51.37	51.45	Susquehanna	WeD	5	55.08	55.10	Susquehanna	LaD	5.5
51.45	51.48	Susquehanna	LaD	5.5	55.10	55.14	Susquehanna	MpD	6.6
51.48	51.51	Susquehanna	MC2	6.6	55.14	55.17	Susquehanna	VfB	6
51.51	51.64	Susquehanna	MC2	5.3	55.17	55.30	Susquehanna	McB2	6.6
51.64	51.67	Susquehanna	MC2	6.6	55.30	55.45	Susquehanna	VcB2	6.7
51.67	51.74	Susquehanna	WeD2	5.3	M-0061 0.02	M-0061 0.02	Susquehanna	VcB2	6.7
51.74	51.97	Susquehanna	McC2	5.3	M-0061 0.02	M-0061 0.06	Susquehanna	VfC	6
51.97	52.20	Susquehanna	WC2	5.3	M-0061 0.06	M-0061 0.06	Susquehanna	Mn	5.5
52.20	52.25	Susquehanna	WD2	5.3	M-0061 0.10	M-0061 0.16	Susquehanna	VfB	6
52.25	52.33	Susquehanna	VcD2	6.7	55.62	55.94	Susquehanna	WC2	5
52.33	52.36	Susquehanna	Bc	4.8	M-0062 0.00	M-0062 0.02	Susquehanna	WC2	5
52.36	52.48	Susquehanna	MoC2	5.3	M-0062 0.02	M-0062 0.02	Susquehanna	WeC2	5.3
52.48	52.75	Susquehanna	McC2	6.6	M-0062 0.08	M-0062 0.11	Susquehanna	WeB2	5.3
52.75	52.84	Susquehanna	McB2	6.6	M-0062 0.11	M-0062 0.16	Susquehanna	WeC2	5.3
52.84	52.98	Susquehanna	VcB2	6.7	M-0062 0.16	M-0062 0.19	Susquehanna	MB2	5.3
52.98	53.05	Susquehanna	WeB2	5.3	M-0062 0.19	M-0062 0.25	Susquehanna	WC2	5
53.05	53.07	Susquehanna	LaB	5.5	56.10	56.18	Susquehanna	IsD	5.3
53.07	53.13	Susquehanna	McB2	6.6	56.18	56.20	Susquehanna	WeB	5
53.13	53.25	Susquehanna	MC2	6.6	56.20	56.30	Susquehanna	BfD2	5.3
53.25	53.38	Susquehanna	VcC2	6.7	56.30	56.35	Susquehanna	LaD	5.5
53.38	53.43	Susquehanna	Vy	5.8	56.35	56.45	Susquehanna	MpB	6.6
53.43	53.52	Susquehanna	LkC2	5.5	56.45	56.47	Susquehanna	McB2	6.6
53.52	53.78	Susquehanna	WeB2	5.3	56.47	56.52	Susquehanna	VfB	6
53.78	53.80	Susquehanna	VsB	5	56.52	56.77	Susquehanna	VsB	6
53.80	53.82	Susquehanna	WeB2	5.3	56.77	56.85	Susquehanna	Vy	5.8
53.82	53.84	Susquehanna	LkR2	5.5	56.85	56.93	Susquehanna	MC2	6.6
53.84	53.87	Susquehanna	LkC2	5.5	56.93	57.05	Susquehanna	McC2	6.6
53.87	53.90	Susquehanna	McC2	6.6	57.05	57.14	Susquehanna	MoB2	5.3
53.90	54.08	Susquehanna	VcC2	6.7					

