

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
SOIL EROSION & SEDIMENT CONTROL AND RESTORATION SITE PLAN  
REGIONAL ENERGY ACCESS EXPANSION PROJECT  
DELAWARE RIVER REGULATOR

LOWER MOUNT BETHEL TOWNSHIP, NORTHAMPTON COUNTY, PENNSYLVANIA  
APRIL 2021  
REVISED MARCH 2022

PROJECT OWNER/APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
PARK PLACE CORPORATE CENTER TWO,  
2800 POST OAK BLVD, LEVEL 11  
HOUSTON, TX 77056  
CONTACT: JOSEPH DEAN, MANAGER PERMITTING

PLAN PREPARER / ENGINEER

WHM CONSULTING, LLC  
366 WALKER DRIVE SUITE 300  
STATE COLLEGE, PA 16801  
PH: (814) 689-1650  
CONTACT: RYAN NELSON, PROJECT MANAGER

BAI GROUP, LLC.  
366 WALKER DRIVE SUITE 300  
STATE COLLEGE, PA 16801  
PH: (814) 238-2060  
CONTACT: PATRICK WOZINSKI, P.E. PROJECT ENGINEER

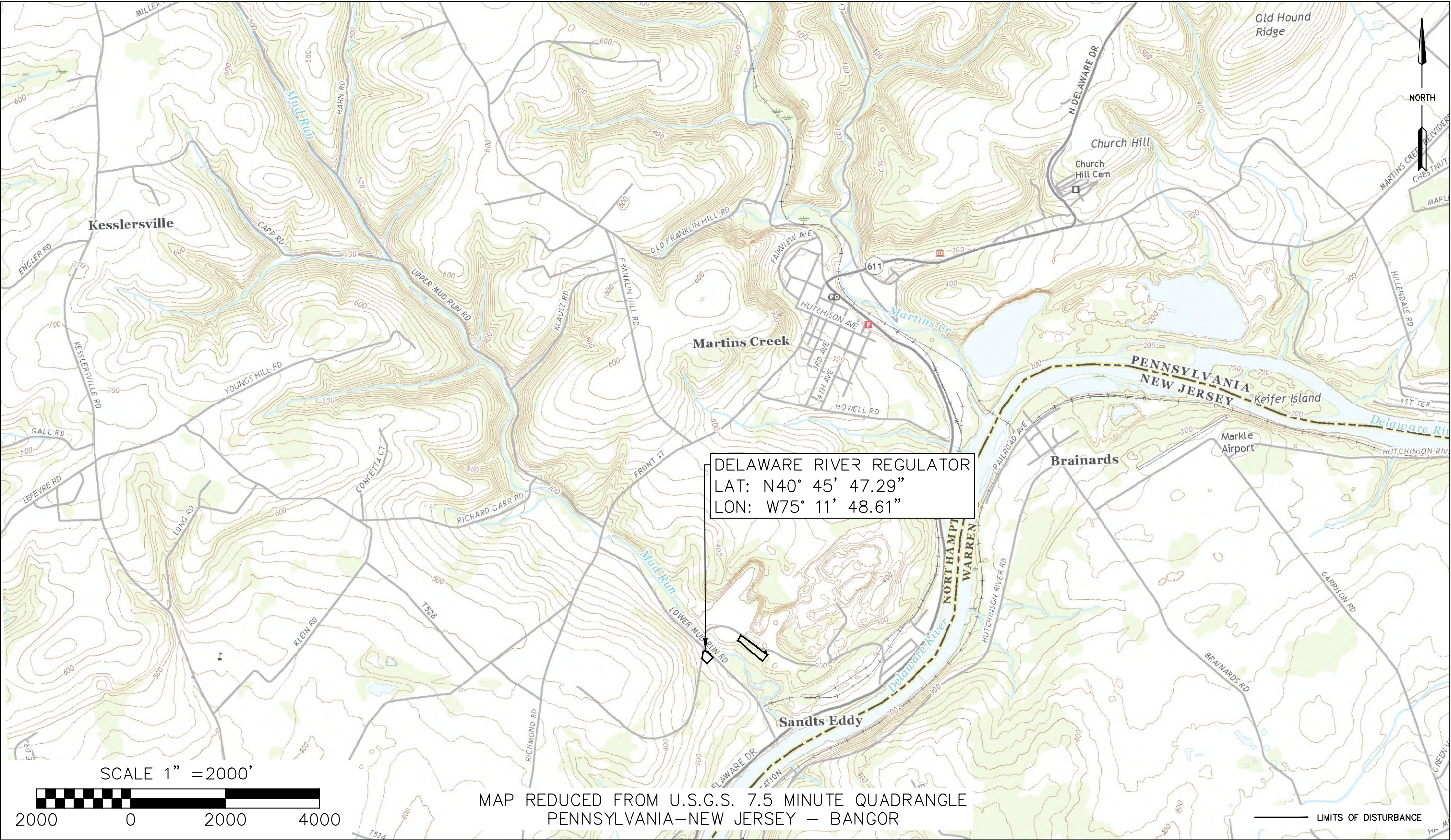
PROJECT INFORMATION

ESCP PERMIT BOUNDARY: 11.28 Ac.

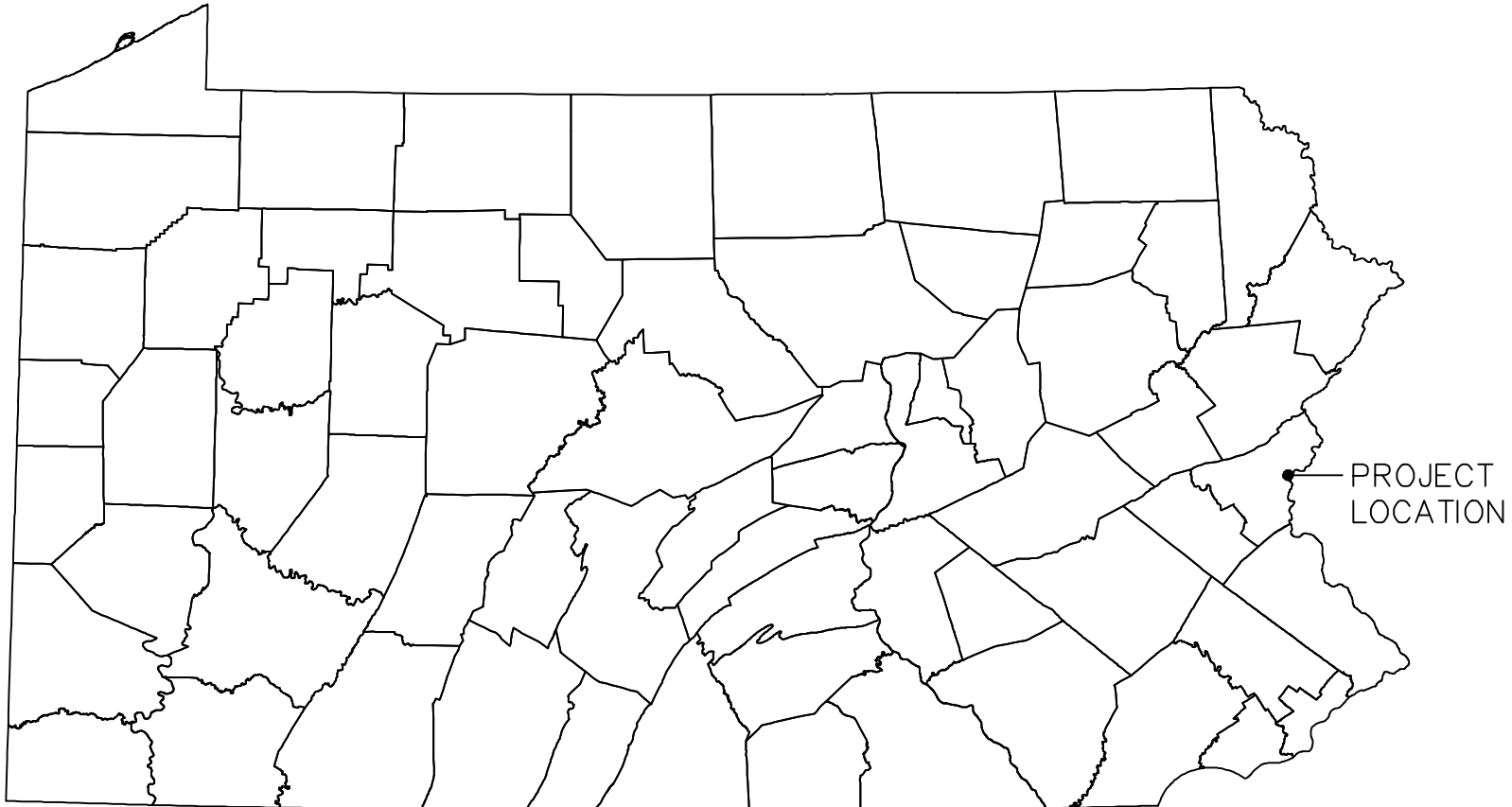
LIMIT OF DISTURBANCE: 3.25 Ac.

PROJECT DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC (TRANSCO), INDIRECTLY OWNED BY THE WILLIAMS COMPANIES, INC. (WILLIAMS) IS SEEKING AUTHORIZATION FROM THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) UNDER SECTION 7 (c) OF THE NATURAL GAS ACT TO CONSTRUCT, OWN, OPERATE, AND MAINTAIN THE PROPOSED PROJECT FACILITIES ASSOCIATED WITH THE REGIONAL ENERGY ACCESS EXPANSION PROJECT (PROJECT). THE PROJECT IS AN EXPANSION OF TRANSCO'S EXISTING NATURAL GAS TRANSMISSION SYSTEM THAT WILL ENABLE TRANSCO TO PROVIDE AN INCREMENTAL 829,400 DEKATHERMS PER DAY (Dth/d) OF YEAR-ROUND FIRM TRANSPORTATION CAPACITY FROM THE MARCELLUS SHALE PRODUCTION AREA IN NORTHEASTERN PENNSYLVANIA TO MULTIPLE DELIVERY POINTS ALONG TRANSCO'S LEIDY LINE IN PA, NJ, AND MD. THE EXISTING DELAWARE RIVER REGULATOR COMPONENT OF THE PROJECT IS LOCATED IN LOWER MOUNT BETHEL TOWNSHIP, NORTHAMPTON COUNTY. PROPOSED FACILITY MODIFICATIONS TO UPSIZE THE EXISTING CONTROL VALVES. SUBJECT TO FERC'S CERTIFICATION OF THE PROJECT AND RECEIPT OF THE NECESSARY PERMITS AND AUTHORIZATIONS, TRANSCO ANTICIPATES CONSTRUCTION OF THE PROJECT TO START IN THE SECOND QUARTER 2023 TO MEET A PROPOSED IN-SERVICE DATE IN FOURTH QUARTER 2024.



LOCATION MAP



VICINITY MAP  
N.T.S.

SHEET INDEX	
SHEET NUMBER	DRAWING TITLE
1 OF 6	COVER
2 OF 6	EXISTING CONDITIONS PLAN
3 OF 6	E&S SITE PLAN
4-5 OF 6	NOTES
6 OF 6	DETAILS

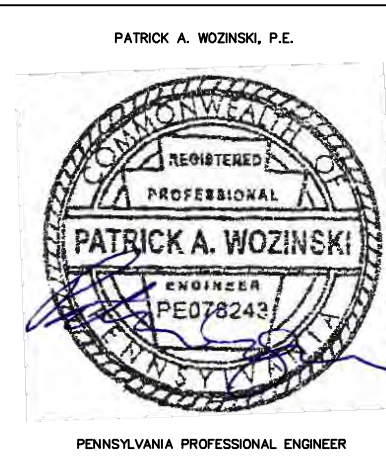
RECEIVING WATERS		
NAME	DESIGNATED USE	EXISTING USE
MUD RUN	CWF, MF	N/A

E&S BMP LEGEND		
DESCRIPTION	SYMBOL	SHEET NUMBER
CONSTRUCTION ENTRANCE	CE	6
PUMP WATER FILTER BAG	PWB	6
COMPOST FILTER SOCK	CFS	6
EROSION CONTROL BLANKET	ECB	6
ACCESS ROAD CULVERT DETAIL	RC	6
COMPOST SOCK CONCRETE WASHOUT INSTALLATION	CW	6
FILTER BAG INLET PROTECTION		6

XXX INDICATES SOIL EROSION CONTROL MEASURE DETAIL

Call before you dig. 811  
1-800-242-1776 or

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



REVISIONS					
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT - DELAWARE RIVER REGULATOR SOIL EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN COVER LOWER MOUNT BETHEL TWP., NORTHAMPTON COUNTY, PENNSYLVANIA			
DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE:
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 6





**EXISTING CONDITION NOTES/SOURCES**

1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO. IN 2020. CONTOUR DATA WAS SUPPLEMENTED WITH PAMAP LIDAR 2' CONTOURS OUTSIDE OF THE SURVEY AREA.
2. PROPERTY BOUNDARIES BASED ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
3. PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
4. STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING IN 2020.
5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

**LEGEND**

PROPERTY LINE

EXISTING RIGHT-OF-WAY

ESCP PERMIT BOUNDARY

LIMITS OF DISTURBANCE

EXISTING FENCE

EXISTING STONE ROW

EXISTING STRUCTURE

EXISTING EDGE OF ROAD

EXISTING GRADE MAJOR CONTOURS (10' C.I.)

EXISTING GRADE MINOR CONTOURS (2' C.I.)

EXISTING WATERBAR AND OUTLET STRUCTURE

APPROX. ENVIRONMENTAL STUDY LIMITS

DELINEATED WETLAND

DELINEATED WATERWAY / STREAM (TOP OF BANK)

STREAM FLOW DIRECTION

RIPARIAN BUFFER

50'/FEMA FLOODWAY

FEMA

W62

EXISTING VALVE

EXISTING CULVERT

EXISTING ELECTRIC LINE

EXISTING UNDERGROUND ELECTRIC LINE

EXISTING GAS LINE

EXISTING WATER LINE

EXISTING SANITARY LINE

EXISTING STORM SEWER

EXISTING TELEPHONE LINE

EXISTING FIBER OPTIC LINE

EXISTING UNDERGROUND CABLE LINE

FEMA 100-YEAR FLOODPLAIN

SOIL BOUNDARY / TYPE

EXISTING TREELINE / TREE/SHRUB

EXISTING LEIDY / TGPL PIPELINES

EXISTING FOREIGN PIPELINES

EXISTING UTILITY POLE / TOWER

EXISTING VALVE

EXISTING CULVERT

EXISTING ELECTRIC LINE

EXISTING UNDERGROUND ELECTRIC LINE

EXISTING GAS LINE

EXISTING WATER LINE

EXISTING SANITARY LINE

EXISTING STORM SEWER

EXISTING TELEPHONE LINE

EXISTING FIBER OPTIC LINE

EXISTING UNDERGROUND CABLE LINE

EXISTING STORM INLET

EXISTING SANITARY MANHOLE

EXISTING COMMUNICATION/ELECTRIC MANHOLE

EXISTING FIRE HYDRANT

EXISTING POWER POLE

EXISTING WELL

BvD BERKS-WEIKERT COMPLEX, 15 TO 25 PERCENT SLOPES

ClB CLARKSBURG SILT LOAM, 3 TO 8 PERCENT SLOPES

DvC DUFFIELD-HYDER SILT LOAMS, 8 TO 15 PERCENT SLOPES

Ho HOLLY SILT LOAM

PQ PITS, QUARRY

UdD UDORTHENTS, LIMESTONE, 8 TO 25 PERCENT SLOPES

WdC WASHINGTON SILT LOAM, 8 TO 15 PERCENT SLOPES

WbD WASHINGTON SILT LOAM, 15 TO 25 PERCENT SLOPES

70 35 0 70

SCALE

SCALE 1" = 70'

PATRICK A. WOZINSKI, P.E.

REGISTERED PROFESSIONAL ENGINEER

PE078243

PENNSYLVANIA PROFESSIONAL ENGINEER

**PA GROUP**

**WHM consulting, inc.**

designs, permits, inspections

REVISIONS					W.O. NO.			CHK.			APP.		
NO.	DATE	BY	DESCRIPTION										

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

REGIONAL ENERGY ACCESS EXPANSION PROJECT -

DELAWARE RIVER REGULATOR

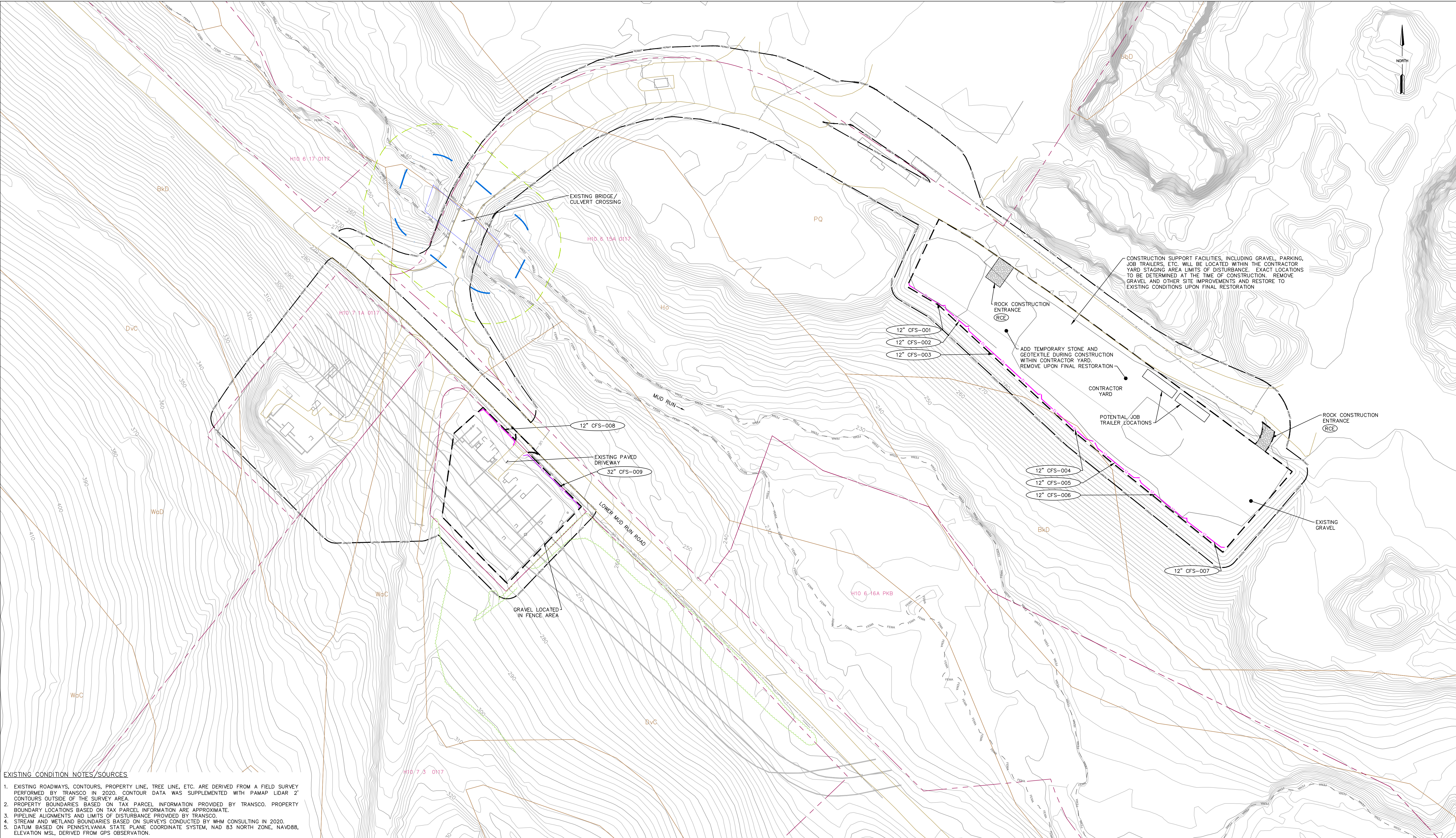
SOIL EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN

EXISTING CONDITIONS PLAN

LOWER MOUNT BETHEL TWP., NORTHAMPTON COUNTY, PENNSYLVANIA

DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE:
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APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 2 OF 6
WO: 1232578	RID: 305		





- EXISTING CONDITION NOTES/SOURCES
1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO IN 2020. CONTOUR DATA WAS SUPPLEMENTED WITH PAMAP LIDAR 2" CONTOURS OUTSIDE OF THE SURVEY AREA.
  2. PROPERTY BOUNDARIES BASED ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
  3. PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
  4. STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING IN 2020.
  5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

**LEGEND**

	ROCK CONSTRUCTION ENTRANCE
	ESCP PERMIT BOUNDARY
	LIMITS OF DISTURBANCE
	DELINEATED WETLAND
	SOIL BOUNDARY / TYPE
	EXISTING TREELINE / TREE/SHRUB
	PROPERTY LINE
	EXISTING LEIDY / TGPL PIPELINES
	EXISTING FOREIGN PIPELINES
	EXISTING UTILITY POLE / TOWER
	EXISTING VALVE
	EXISTING CULVERT
	EXISTING ELECTRIC LINE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING GAS LINE
	EXISTING WATER LINE
	EXISTING SANITARY LINE
	EXISTING STORM SEWER
	EXISTING TELEPHONE LINE
	EXISTING FIBER OPTIC LINE
	EXISTING UNDERGROUND CABLE LINE
	EXISTING STORM INLET
	EXISTING SANITARY MANHOLE
	EXISTING COMMUNICATION/ELECTRIC MANHOLE
	EXISTING FIRE HYDRANT
	EXISTING POWER POLE
	EXISTING EASEMENT
	EXISTING RIGHT-OF-WAY
	EXISTING FENCE
	PROPOSED FENCE
	EXISTING STRUCTURE
	EXISTING EDGE OF ROAD
	EXISTING GRADE MAJOR CONTOURS (10' C.I.)
	EXISTING GRADE MINOR CONTOURS (2' C.I.)
	PROPOSED GRADE MAJOR CONTOURS (10' C.I.)
	PROPOSED GRADE MINOR CONTOURS (2' C.I.)
	12" COMPOST FILTER SOCK
	18" COMPOST FILTER SOCK
	24" COMPOST FILTER SOCK
	32" COMPOST FILTER SOCK
	DELINEATED WATERWAY / STREAM (TOP OF BANK)
	STREAM FLOW DIRECTION
	RIPIARIAN BUFFER
	50' FEMA FLOODWAY
	FEMA 100-YEAR FLOODPLAIN

**SOIL LEGEND**

BkD	BERKS-MERKERT COMPLEX, 15 TO 25 PERCENT SLOPES
CbD	CLARKSBURG SILT LOAM, 3 TO 8 PERCENT SLOPES
DvC	DUFFIELD-RYDER SILT LOAMS, 8 TO 15 PERCENT SLOPES
Hg	HOLLY SILT LOAM
PQ	PITS, QUARRY
UdD	UDORTHENTS LIMESTONE, 8 TO 25 PERCENT SLOPES
WbC	WASHINGTON SILT LOAM, 8 TO 15 PERCENT SLOPES
WdD	WASHINGTON SILT LOAM, 15 TO 25 PERCENT SLOPES

70 35 0 70  
SCALE  
SCALE 1" = 70'

PATRICK A. WOZINSKI, P.E.

PENNSYLVANIA PROFESSIONAL ENGINEER

REVISIONS					W.O. NO.	CHK.	APP.
NO.	DATE	BY	DESCRIPTION				

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
REGIONAL ENERGY ACCESS EXPANSION PROJECT -  
DELAWARE RIVER REGULATOR  
SOIL EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN  
EROSION AND SEDIMENT PLAN  
LOWER MOUNT BETHEL TWP., NORTHAMPTON COUNTY, PENNSYLVANIA

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WO: 1232578	RID: 305		



STANDARD EROSION AND SEDIMENT POLLUTION CONTROL NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, 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 COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OR EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE WILL NOT BE APPROVED IN WRITING FROM THE LOCAL COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE 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.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS IN THE AMOUNT NECESSARY TO COMPLETE THE FINISHED 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. STOCKPILES SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE (LOD). FILTER SOCK OR SILT FENCE SHALL BE PLACED DOWNGRADIENT OF STOCKPILES.
9. 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.
10. 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.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LOTS AND ONTO ROADS AS IDENTIFIED ON THE PLANS.
15. 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, REGARDING, 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.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE AS NEEDED AND 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 SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES ON COMPACTED SOILS PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, LOCATIONS OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
29. E&S BMPS 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.
30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY 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.
32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL COUNTY CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF 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.
34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
35. ALL E&S CONVEYANCE CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
36. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE E&S CONVEYANCE CHANNELS SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
37. E&S CONVEYANCE CHANNELS HAVING RIPRAP, RENO MATTRESS, OR GABION LININGS MUST BE SUFFICIENTLY OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
38. SEDIMENT 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.
39. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
40. 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 COUNTY CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
41. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, LOCAL COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT.
42. 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.
43. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.

BMP INSTALLATION SEQUENCE

1. AT LEAST 10 WORKING DAYS AHEAD OF STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE CONTRACTOR SHALL INITIATE THE PENNSYLVANIA ONE-CALL COMPLEX TICKET. THE PENNSYLVANIA ONE CALL SYSTEM CAN BE REACHED AT 1-800-242-1776.
2. A PRECONSTRUCTION CONFERENCE IS REQUIRED AS SPECIFIED IN 25 PA. CODE § 102.5(E) 7 DAYS PRIOR TO THE STARTING OF EARTH DISTURBANCE ACTIVITIES. THE PURPOSE OF THIS CONFERENCE IS TO REVIEW ALL PERMITEE, CO-PERMITEES, OPERATORS, CONSULTANTS, THE DEP INSPECTORS AND LICENSED PROFESSIONALS OR THE DESIGNEES WHO WILL BE RESPONSIBLE FOR THE CRITICAL STAGES OF THE APPROVED PCSM/RESTORATION PLAN.
3. LOCATE ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES.
4. INSTALL CONSTRUCTION ENTRANCE.
5. REMOVE BRUSH TO EFFECTIVELY INSTALL PERIMETER CONTROLS, LEVEL SIDE CUTS TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS ON THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
6. INSTALL PERIMETER COMPOST FILTER SOCKS AS DESIGNATED ON THE PLANS.
7. PROCEED WITH CLEARING AND GRUBBING THE REST OF THE SITE AS NECESSARY.
8. BEGIN GRADING AND STRIP AND STOCKPILE TOPSOIL WITHIN THE DESIGNATED AREA AND INSTALL SEDIMENT BARRIERS AROUND STOCKPILES IF APPLICABLE.
9. IF APPLICABLE, INSTALL ORANGE SECURITY FENCE. THE NECESSITY OF A SECURITY FENCE WILL BE AT THE DISCRETION OF THE CONTRACTOR.
10. BEGIN CONSTRUCTION STAKING FOR LAYOUT OF TEMPORARY GRAVEL SURFACE.
11. STABILIZE THE SITE WITH GEOTEXTILE AND GRAVEL SURFACING WITHIN LIMITS OF DISTURBANCE (PORTION OF THE SITE OR ENTIRE SITE).
12. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY WHERE THE CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION, OR AN ACCEPTABLE BMP, WHICH TEMPORARILY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS WITHIN THE RIGHT OF WAY. THE ON-SITE ENVIRONMENTAL INSPECTOR WILL LOG DAILY ACTIVITY WITHIN THE LIMITS OF DISTURBANCE AND NOTIFY THE CONTRACTOR OF AREAS REQUIRING TEMPORARY STABILIZATION (I.E., AREAS WHERE WORK HAS CEASED FOR AT LEAST FOUR DAYS).
13. ONCE THE SITE IS DEEMED NO LONGER NECESSARY, REMOVE ALL GRAVEL AND GEOTEXTILE FABRIC FROM THE SITE. BMPS WILL REMAIN IN PLACE AND FUNCTIONAL.
14. SCARIFY TO DE-COMPACT RESTORATION AREAS. SPREAD THE TOPSOIL FROM THE STOCKPILES THROUGHOUT THE SITE AND GRADE SITE TO MATCH PRE-DEVELOPED GRADE. IMMEDIATELY FERTILIZE, SEED AND STABILIZE AREAS AT FINISHED GRADE. MAINTAIN E&SC CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND SITE IS STABILIZED. WITH THE EXCEPTION OF AGRICULTURAL USE AREAS, AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS MINIMUM UNIFORM 70% PERENNIAL VEGETATION 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. WHEN E&S CONTROLS ARE TO BE REMOVED IN AGRICULTURAL NON-SENSITIVE AREAS (STREAMS/WETLANDS), AGRICULTURAL LANDOWNERS SHALL MAINTAIN AGRICULTURAL BMPS PER PADEP REGULATIONS.
15. 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. WHEN CONTROLS ARE TO BE REMOVED IN AGRICULTURAL NON-SENSITIVE AREAS (STREAMS/WETLANDS), AGRICULTURAL LANDOWNERS SHALL MAINTAIN AGRICULTURAL BMPS PER PADEP REGULATIONS.
16. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO THE REMOVAL OF THE E&S BMPS.
17. 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.
18. SUBMIT NOTICE OF TERMINATION ONCE THE PROJECT IS COMPLETE AND PERMANENTLY STABILIZED.

RESPONSIBILITIES FOR FILL MATERIALS

IF THE SITE WILL NEED TO HAVE FILL IMPORTED FROM AN OFF SITE LOCATION, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND THE DETERMINATION OF CLEAN FILL WILL IN MOST CASES RESIDE WITH THE OPERATOR.

IF THE SITE WILL HAVE EXCESS FILL THAT WILL NEED TO BE EXPORTED TO AN OFF SITE LOCATION, THE RESPONSIBILITY OF CLEAN FILL DETERMINATION AND ENVIRONMENTAL DUE DILIGENCE RESTS ON THE APPLICANT.

IF ALL CUT AND FILL MATERIALS WILL BE USED ON THE SITE, A CLEAN FILL DETERMINATION IS NOT REQUIRED BY THE OPERATOR UNLESS THERE IS A BELIEF THAT A SPILL OR RELEASE OF A REGULATED SUBSTANCE OCCURRED ON SITE.

APPLICANTS AND/OR OPERATORS MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT THE FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. DEFINITIONS OF CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE ARE PROVIDED BELOW. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL," DOCUMENT NUMBER 258 2182 773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEFWEB.STATE.PA.US.

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

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

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

GENERAL MAINTENANCE NOTES FOR ALL BMPS:

ROUTINE MAINTENANCE INSPECTIONS WILL BE REQUIRED TO ENSURE THE PERFORMANCE OF ALL THE SEDIMENT CONTROL BMP DEVICES. AT A MINIMUM, ALL STRUCTURES AND DEVICES SHALL BE INSPECTED ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT. THIS INSPECTION SHALL BE FOLLOWED WITH A REPAIR SCHEDULE OF ALL NOTED DEFICIENCIES. VEGETATION PROGRESS SHALL ALSO BE INCLUDED IN THIS INSPECTION. VOID AREAS SHALL PROMPTLY BE RESEEDED AND MULCHED TO ESTABLISH PROTECTION.

UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRAIDING, RESEEDING, REMULCHING, AND RENETTING, MUST BE DONE IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS TO THOSE INSTALLED, WILL BE REQUIRED.

SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF WITHIN THE LIMIT OF DISTURBANCE IN LANDSCAPE AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN STOCKPILES AREAS.

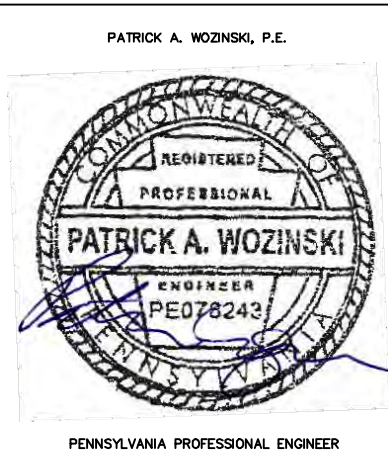
ALL CHANNELS MUST BE KEPT FREE OF OBSTRUCTIONS SUCH AS FILL, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIALS/WASTES WITH EXCEPTION TO OTHER REQUIRED BMPS (I.E., CHECK DAMS). CHANNELS SHOULD BE KEPT MOWED AND/OR FREE OF ALL WEEDY, BRUSHY OR WOODY GROWTH. ANY UNDERGROUND UTILITIES RUNNING ACROSS/ THROUGH THE CHANNEL(S) SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL(S) REPAIRED AND STABILIZED PER THE CHANNEL SECTION DETAIL.

SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE AS NEEDED AND 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 SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

ALL NECESSARY REPAIRS WILL BE MADE IMMEDIATELY.

MAINTENANCE SCHEDULE			
CONTROL MEASURE	INSPECT	PROBLEMS TO LOOK FOR	POSSIBLE REMEDIES
BROAD BASED DIP	DAILY	SEDIMENT/DEBRIS BLOCKING THE NORMAL FLOW OF WATER. WASHOUTS, BULGES, OR SLUMPS.	REPAIR DAMAGED OR NON-FUNCTIONING DIPS.
COMPOST FILTER SOCK	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	BARRIER HAS BEEN UNDERMINED OR TOPPED SEDIMENT AT 1/2 HEIGHT OF BARRIER TORN OR DAMAGED FABRIC SOCK IS OLDER THAN PERMITTED RUNOFF ESCAPING AROUND BARRIER	REPLACE WITH A ROCK FILTER OUTLET. INCREASE NUMBER OF STAKES AT AFFECTED AREA. REMOVE SEDIMENT, PLACE ACROSS SITE AS FILL. REPAIR ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACE. EXTEND BARRIER.
CLEAN WATER CROSSING	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	CHANNEL DEPTH NOT MAINTAINED. EROSION AROUND TRENCH INLETS AND WATERSHEDS. DAMAGED CHANNEL LINING. SEDIMENT/DEBRIS BLOCKING NORMAL FLOW OF WATER. TRASH AND DEBRIS.	RECONSTRUCT CHANNEL. REGRADE AND REPAIR ANY UNDERMINED OR WASHED OUT AREAS. REPLACE CHANNEL LINING. REMOVE SEDIMENT WHEN TOTAL CHANNEL DEPTH IS REDUCED BY 25%. REMOVE TRASH AND DEBRIS.
DIVERSION BERM/DIVERSION TERRACE	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	SEDIMENT/DEBRIS BLOCKING THE NORMAL FLOW OF WATER. WASH OUTS, BULGES OR SLUMPS. UNSTABLE SIDE SLOPES. DAMAGED CHANNEL LINING. REDUCED CAPACITY DUE TO DECREASE IN CHANNEL DIMENSIONS. VEGETATION GROWTH.	REMOVE SEDIMENT/DEBRIS. SPREAD SEDIMENT ACROSS SITE. REPAIR OR REPLACE IMMEDIATELY UPON DISCOVERY. RECONSTRUCT CHANNEL. REPLACE CHANNEL LINING. RE-SEED.
EROSION CONTROL BLANKET	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	TORN OR LOOSE STAPLED AREAS. VEGETATION GROWTH. BLANKET DESTROYED OR DAMAGED.	REMOVE AND REPLACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REGRADE AND REPAIR ANY UNDERMINED OR WASHED OUT AREAS. RE-SEED.
HYDROSTATIC DEWATERING STRUCTURE	DURING DEWATERING ACTIVITIES.	ACCUMULATIONS REACH ½ THE ABOVEGROUND HEIGHT OF THE BARRIER. DAMAGED OR DETERIORATED STRAW BALES.	REMOVE SEDIMENT/DEBRIS. REPLACE STRAW BALES.
PUMPED WATER FILTER BAG	BEFORE AND AFTER EACH USE	TORN FABRIC, TEARS OR BREACHES. SEDIMENT ESCAPING WITH PURGE WATER. MORE THAN 50% FILLED WITH SEDIMENT.	REPLACE FILTER BAG. REMOVE SEDIMENT. SPREAD OVER SITE.
ROCK CONSTRUCTION ENTRANCE	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	STONE THICKNESS NOT CONSTANTLY MAINTAINED. SEDIMENT ON PUBLIC ROADWAY.	ADD ROCK TO BRING TO SPECIFIED DIMENSIONS. SWEEP MATERIAL BACK TO PROJECT SITE. DO NOT WASH ROADWAY WITH WATER.
ROCK FILTER OUTLET	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	LINING WASHED AWAY. SEDIMENT AT 1/3 HEIGHT OF BARRIER. RUNOFF ESCAPING AROUND BARRIER. CLOGGING.	RESHAPE AS NECESSARY AND REPLACE TOP LAYER WITH CLEAN STONE. REPLACE RIPRAP WITH LARGER SIZE RIPRAP. REBUILD/EXTEND BARRIER. WASH OR REPLACE SEDIMENT LADEN STONE.
TRENCH PLUG (PRIOR TO BACKFILLING)	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	STORMWATER POOLING WITHIN THE EXCAVATION BEHIND A TRENCH PLUG. FAILED TRENCH PLUG.	PUMP WATER THROUGH A PUMPED WATER FILTER BAG OVER STABLE, UNDISTURBED EARTH, REPAIR TRENCH PLUG.
VEGETATION	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	SEDIMENT AT TOE-OF-SLOPE. RILLS AND GULLIES FORMING. BARE SOIL PATCHES.	CHECK FOR TOE-OF-SLOPE DIVERSION & INSTALL, IF NEEDED. FILL RILLS AND RE-GRADE GULLIED SLOPES. RE-SEED, FERTILIZE, LIME AND RE-MULCH.
SEDIMENT TRAP	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	TRASH AND OTHER DEBRIS. SEDIMENT AT CLEAN-OUT ELEVATION. DAMAGED OR CLOGGED COMPOST FILTER SOCK. EROSION. VEGETATION GROWTH. STANDING WATER MORE THAN 7 DAYS AFTER RAINFALL EVENT.	DISPOSE OF TRASH PROPERLY. REMOVE SEDIMENT, PLACE ACROSS SITE AS FILL. REMOVE CLOGGED MATERIAL. RESTORE TO DESIGN SPECIFICATIONS. PUMP WATER THROUGH A PUMPED WATER FILTER BAG OVER STABLE, UNDISTURBED EARTH.

\* REFER TO BMP DETAIL FOR ADDITIONAL MAINTENANCE REQUIREMENTS AND REMEDIES.



REVISIONS					
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT - DELAWARE RIVER REGULATOR SOIL EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN NOTES LOWER MOUNT BETHEL TWP., NORTHAMPTON COUNTY, PENNSYLVANIA					
DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:		SCALE:	
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:		REVISION:	
APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER:		SHEET 4	
WO: 1232578	RID: 305	26-1000-70-28-D		OF 6	



RESOLUTION TO SOIL LIMITATIONS

TRANSCO PROPOSES THE FOLLOWING RESOLUTIONS TO COMPENSATE FOR SOIL LIMITATIONS SUMMARIZED IN TABLE 3 ABOVE:

- TO OFFSET THE CAVING OF CUTBANKS, TRENCHING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE OSHA TECHNICAL MANUAL FOR TRENCHING.
- PREVENTATIVE COATINGS SHALL BE USED TO PREVENT CORROSION OF CONCRETE AND/OR STEEL.
- WHEN BEDROCK IS ENCOUNTERED IT WILL BE REMOVED BY MECHANICAL METHODS OR BLASTING. BLASTING WILL CONFORM WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. THIS IS NOT ANTICIPATED.
- PRECAUTIONS WILL BE TAKEN TO PREVENT SLOPE FAILURE WHEN WORKING WITHIN LOW STRENGTH SOILS BY FLATTENING CUT / FILL SLOPES, NOT OVERLOADING, MAINTAINING LATERAL SUPPORT, AND PREVENTING SATURATION OF SOILS. USE OF THESE SOILS WILL BE AVOIDED FOR ROADWAY CONSTRUCTION.
- FOR SOILS PRONE TO FLOODING, SLOW PERCOLATION, PONDING WETNESS, HAVE A SEASONAL HIGH WATER TABLE, OR ARE HYDRIC, EXCAVATIONS IN SOILS THAT HAVE THESE CHARACTERISTICS WILL LIKELY ENCOUNTER WATER, DEWATER WITH APPROPRIATE MEANS SUCH AS PUMP WATER FILTER BAGS, SEDIMENT TRAPS, ETC.
- SOILS THAT HAVE THE POTENTIAL TO SWELL, SHRINK, OR HEAVE DUE TO FROST ACTION MAY CAUSE DAMAGE TO ROADWAYS OR PADS WHERE FOUNDATIONS ARE CRITICAL REMOVAL AND REPLACEMENT OF SOILS WITH SUITABLE MATERIAL MAY BE REQUIRED.
- IN SOILS THAT ARE A POOR SOURCE OF TOPSOIL, DROUGHTY OR PRONE TO WETNESS, SOIL TESTING IS ENCOURAGED TO DETERMINE THE APPROPRIATE APPLICATION OF SOIL AMENDMENTS TO PROMOTE GROWTH. SOILS ONSITE THAT ARE FAIR SOURCES OF TOPSOIL, WILL BE IDENTIFIED, STRIPPED AND STOCKPILED FOR USE DURING RESTORATION.
- FOR THOSE SOILS THAT ARE EASILY ERODIBLE, PROVIDE PROTECTIVE LINING, SEEDING AND MULCHING, EROSION CONTROL BLANKETS (ROLLS OR HYDRAULICALLY APPLIED), TRACKING SLOPES, UPSTREAM DIVERSIONS, WATERBARS, ETC., TO MINIMIZE EROSION OF THE SOILS.
- IF A SINKHOLE OCCURS, IT WILL BE REPAIRED ACCORDING TO THE SINKHOLE REPAIR DETAIL SHOWN IN THE DETAILS SHEETS.

TABLE 2--SOILS MAPPING UNITS WITHIN LIMITS OF DISTURBANCE	
SOIL MAPPING UNIT	SOIL SERIES
Bkd	BERKS--WEIKERT COMPLEX, 15 TO 25 PERCENT SLOPES
DvC	DUFFIELD--RYDER LOAMS, 8 TO 15 PERCENT SLOPES
PQ	PIT, QUARRY

TABLE 3--LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTH DISTURBANCE PROJECTS (EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE (BMP) MANUAL-- TECHNICAL GUIDANCE NUMBER 363--3134--008/PAGE 401															
SOIL NAME	SOIL WITH SLOPE CLASS	CUTBANKS CAVE	CORROSION TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SLOPE STABLE WATER TABLE	HYDRIC/HYDRIC INCLUSIONS	LOW STRENGTH/LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE
BERKS	Bkd	X	C	X	X			X	X	X	X	X			
DUFFIELD	DvC	X	C/S		X			X	X	X	X	X		X	X

CHARACTERIZATIONS OF EARTH DISTURBANCE ACTIVITIES, INCLUDING PAST, PRESENT AND PROPOSED LAND USES

THE EXISTING DELAWARE RIVER REGULATOR COMPONENT OF THE PROJECT IS LOCATED IN LOWER MOUNT BETHEL TOWNSHIP, NORTHAMPTON COUNTY.AT DELAWARE RIVER REGULATOR INVOLVES FACILITY MODIFICATIONS TO UPSIZE THE EXISTING CONTROL VALVES. TRANSCO WILL USE AND IMPLEMENT THE PRACTICES, MEASURES, AND DETAILS TO CONTROL SOIL EROSION AND OFF-SITE SEDIMENTATION DURING CONSTRUCTION. USING DATA TAKEN FROM GOOGLE EARTH AND MULTI-RESOLUTION LAND CHARACTERISTICS (MRLC) CONSORTIUM WEBSITE (HTTPS://WWW.MRLC.GOV/VIEWER/), IT APPEARS THAT FOR THE PAST FEW DECADES THE LAND HAS BEEN UTILIZED AS A REGULATOR STATION SITE AND WILL CONTINUE AS SUCH.

SEEDING AND MULCHING:

THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED. ESTABLISHMENT OF TEMPORARY COVER MUST TAKE PLACE WITHIN 4 DAYS OF CESSATION OF WORK. TEMPORARY EROSION AND SEDIMENTATION CONTROL BMPS CAN BE REMOVED WHEN THE SITE MEETS FINAL STABILIZATION. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT A PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT HARD COVER SUCH AS PAVEMENT OR BUILDINGS HAS STABILIZED THE SURFACE. IT SHOULD BE NOTED THAT THE 70% REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT JUST A PERCENT OF THE SITE. NO HAY OR STRAW MULCH SHALL BE PLACED ON WATERBODY BANKS. AT A MINIMUM, ALL WATERBODY BANKS SHALL BE COVERED WITH EROSION CONTROL BLANKET. IN ADDITION, ONLY STRAW MULCH SHALL BE USED IN AREAS ADJACENT TO WETLANDS.

TEMPORARY REVEGETATION

AFTER GRADING AND EXCAVATION IS COMPLETED WITHIN AN AREA, VEGETATION WILL BE SOWN PROMPTLY AFTER CEASING EARTHWORK. IN THOSE AREAS, HAY, STRAW MULCH, OR OTHER SIMILAR MATERIAL WILL BE APPLIED TO NEWLY SEEDED AREAS TO PROTECT AGAINST EROSION UNTIL THE VEGETATION IS ESTABLISHED. HAY, STRAW MULCH, OR OTHER SIMILAR MATERIAL SHALL BE APPLIED AT A RATE OF AT LEAST 3 TONS PER ACRE. EROSION CONTROL BLANKET SHALL BE USED ON STREAM BANKS. NO HAY OR STRAW, MULCH OR BLANKET SHALL BE UTILIZED IN WETLAND AREAS.

PERMANENT SEEDING AND MULCHING

TOPSOIL WILL BE REPLACED PRIOR TO STABILIZATION. DISTURBED AREAS SHALL BE SEEDED WITH A MIXTURE AS OUTLINED IN THE DETAILS PAGES OF THE EROSION AND SEDIMENT CONTROL PLAN SET. APPLY LIME AND FERTILIZER IN ACCORDANCE WITH SOIL TEST RECOMMENDATIONS OR AS OUTLINED IN THE BELOW TABLE. HAY, STRAW MULCH, OR OTHER SIMILAR MATERIAL SHALL BE APPLIED AT A RATE OF AT LEAST 3 TONS PER ACRE.

TABLE 11.2 SOIL AMENDMENT APPLICATION RATE EQUIVALENTS				
SOIL AMENDMENT	PERMANENT SEEDING APPLICATION RATE			NOTES
	PER ACRE	PER 1,000 SF	PER 1,000 SY	
AGRICULTURAL LIME	6 TONS	20 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQ. IN AGRICULTURAL FIELDS
10--20--20 FERTILIZER	1,000 LBS.	25 LBS.	210 LBS.	OR AS PER SOIL TEST; MAY NOT BE REQ. IN AGRICULTURAL FIELDS
TEMPORARY SEEDING APPLICATION RATE				
AGRICULTURAL LIME	1 TON	4 LBS.	410 LBS.	TYP. NOT REQ. FOR TOPSOIL STOCKPILES
10--10--10 FERTILIZER	500 LBS.	12.5 LBS.	100 LBS.	TYP. NOT REQ. FOR TOPSOIL STOCKPILES

ADAPTED FROM PENN STATE, "EROSION CONTROL AND CONSERVATION PLANTINGS ON NONCROPLAND"

NOTE: A COMPOST BLANKET WHICH MEETS THE STANDARDS OF THIS CHAPTER MAY BE SUBSTITUTED FOR THE SOIL AMENDMENTS SHOWN IN TABLE 11.2

TABLE 11.3											
Plant Tolerances of Soil Limitation Factors											
Species	Growth Habit1	Tolerates				Minimum Seed Specifications3					
		Wet Soil	Dry Site	Low Fertility	Acid Soil (Ph 5-5.5)2	Purity (%)	Ready Germ (%)	Hard Seed (%)	Total Germ (%)	Seeds/lb (1,000s)	
Deertongue	bunch	yes	yes	yes	yes	95	75		75	250	
Weeping lovegrass	bunch	no	yes	yes	yes	97	75		75	1,500	
Switchgrass4	bunch	yes	yes	yes	yes	(60 PLS)				390	
Big bluestem	bunch	no	yes	yes	yes	(60 PLS)				150	
Cool-Season Grasses											
Redtop	sod	yes	yes	yes	yes	92	80		80	5,000	
Fine fescues	sod	no	no	yes	no	95	80		80	400	
Perennial ryegrass	bunch	yes	no	no	no	95	85		85	227	
Annual ryegrass	bunch	yes	no	yes	no	95	85		85	2,200	
Kentucky bluegrass	sod	no	no	yes	no	85	75		75	654	
Reed canarygrass	sod	yes	yes	yes	yes	95	70		70	520	
Orchardgrass	bunch	yes	yes	yes	no	95	80		80	654	
Timothy	bunch	yes	no	yes	yes	95	80		80	1,230	
Smooth brome	sod	no	yes	yes	no	95	80		80	136	
Legumes5											
Birdsfoot trefoil6	bunch	yes	no	yes	yes	98	60	20	80	400	
Flatpea	sod	no	no	yes	yes	98	55	20	75	10	
Serecia lespedeza	bunch	no	yes	yes	yes	98	60	20	80	335	
Cereals											
Winter wheat	bunch	no	no	no	no	98	85		85	15	
Winter rye	bunch	no	no	yes	yes	98	85		85	18	
Spring oats	bunch	no	no	no	no	98	85		85	13	
Sundangrass	bunch	no	yes	no	no	98	85		85	55	
Japanese millet	bunch	yes	no	yes	yes	98	80		80	155	

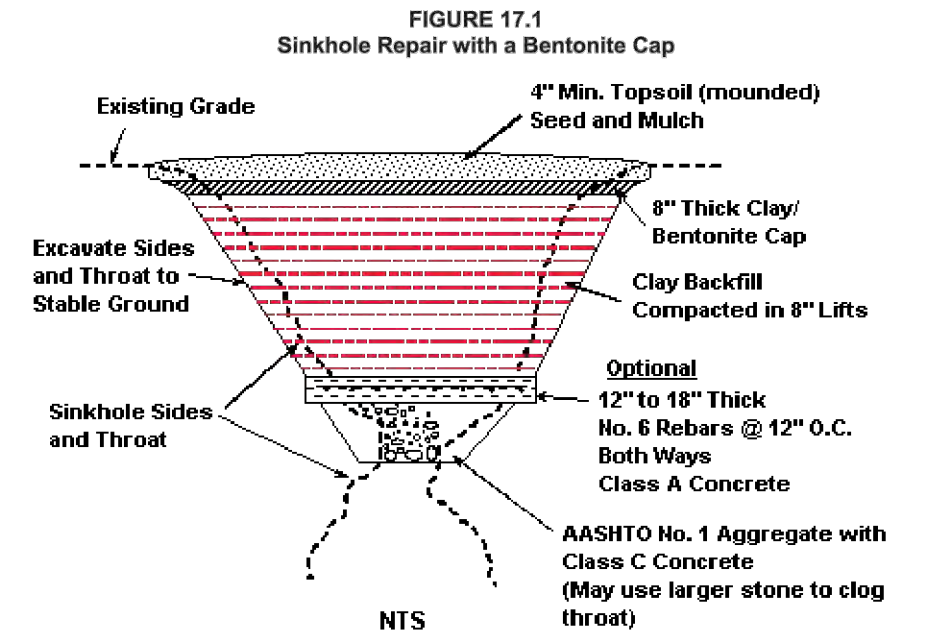
- GROWTH HABIT REFERS TO THE ABILITY OF THE SPECIES TO EITHER FORM A DENSE SOD BY VEGETATIVE MEANS (STOLONS, RHIZOMES, OR ROOTS) OR REMAIN IN A BUNCH OR SINGLE PLANT FORM. IF SEEDED HEAVILY ENOUGH, EVEN BUNCH FORMERS CAN PRODUCE A VERY DENSE STAND. THIS IS SOMETIMES CALLED A SOD, BUT NOT IN THE SENSE OF A SOD FORMED BY VEGETATIVE MEANS.
- ONCE ESTABLISHED, PLANS MAY GROW AT A SOMEWHAT LOWER pH, BUT COVER GENERALLY IS ONLY ADEQUATE AT PH 6.0 OR ABOVE.
- MINIMUM SEED LOTS ARE TRULY MINIMUM, AND SEED LOTS TO BE USED FOR REVEGETATION PURPOSES SHOULD EQUAL OR EXCEED THESE STANDARDS. THUS, DEERTONGUE GRASS SHOULD GERMINATE 75% OR BETTER. COMMONLY SEED LOTS ARE AVAILABLE THAT EQUAL OR EXCEED MINIMUM SPECIFICATIONS. REMEMBER THAT DISTURBED SITES ARE ADVERSE FOR PLAN ESTABLISHMENT. READY GERMINATION REFERS TO SEED THAT GERMINATES DURING THE PERIOD OF THE GERMINATION TEST AND THAT WOULD BE EXPECTED, IF CONDITIONS ARE FAVORABLE, TO GERMINATE RAPIDLY WHEN PLANTED. THE OPPOSITE OF READY GERMINATION IS DORMANT SEED, OF WHICH HARD SEED IS ONE TYPE.
- SWITCHGRASS SEED IS SOLD ONLY IN THE BASIS OF PLS.
- NEED SPECIFIC LEGUME INOCULANT. INOCULANT SUITABLE FOR GARDEN PEAS AND SWEETPEAS USUALLY IS SATISFACTORY FOR FLATPEA.
- BIRDSFOOT TREFOIL IS ADAPTED OVER THE ENTIRE STATE, EXCEPT IN THE EXTREME SOUTHEAST WHERE CROWN AND ROOT ROTS MAY INJURE STANDS.

TABLE 11.4				
Recommended Seed Mixtures				
Mixture Number	Species	Seeding Rate--Pure Live Seed <sup>d</sup>		
		Most Sites	Adverse Sites	
1 <sup>2</sup>	Spring oats (spring), or Annual ryegrass (spring or fall), or Winter Wheat (fall), or Winter rye (fall)	64 10 90 56	96 15 120 112	
	Fine fescue, or Kentucky bluegrass, plus Redtop <sup>3</sup> , or Perennial ryegrass	35 25 3 15	40 30 3 20	
	Birdsfoot trefoil, plus Tall fescue	6 30	10 35	
11	Deertongue, plus Birdsfoot trefoil	15 6	20 10	
	Switchgrass, or Big Bluestem, plus Birdsfoot trefoil	15 15 6	20 20 10	
13	Orchardgrass, plus Smooth brome	20 25 6	30 35 10	

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- PLS IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35%, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
- IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF 2 BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT 1 BUSHEL PER ACRE. IF GERMINATION IS BELOW 90% INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
- THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN 4 INCHES.
- KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
- DO NOT MOW SHORTER THAN 9 TO 10 INCHES.

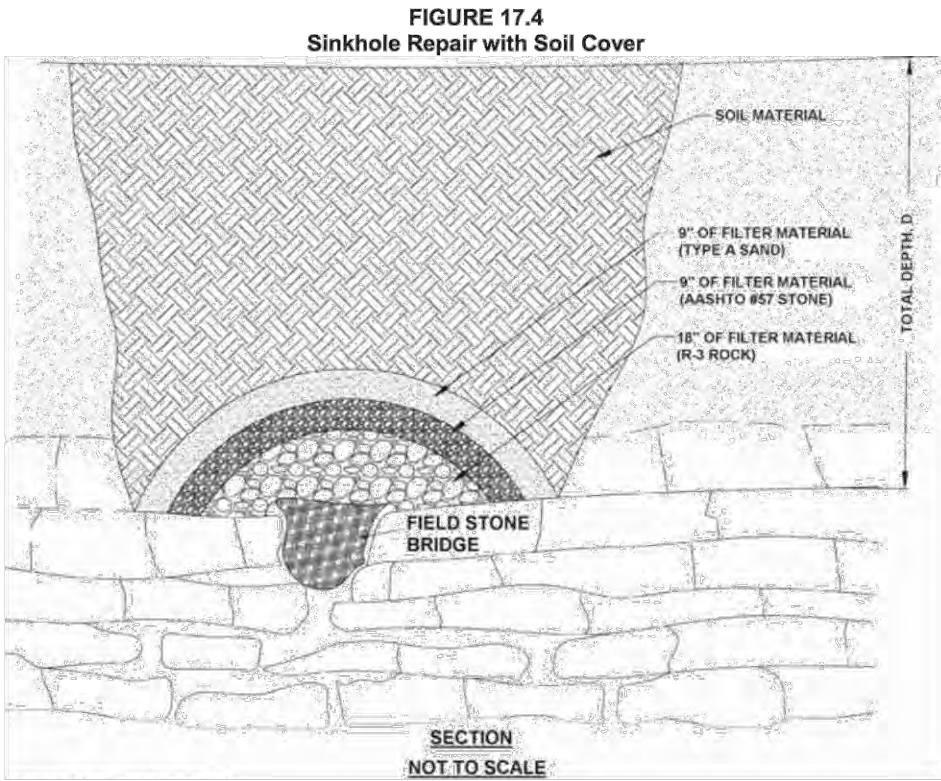
ERNST RIPARIAN BUFFER MIX - ERNMIX 178		
PERCENTAGE OF MIX COMPOSITION	SCIENTIFIC NAME	COMMON NAME
30.0%	PANICUM CLANDESTINUM	DEERTONGUE
20.0%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
11.8%	ANDROPOGON GERARDII	BIG BLUESTEM
10.5%	SORGHASTRUM NUTANS	INDIANAGRASS
5.0%	PANICUM VIRGATUM	SWITCHGRASS
4.0%	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
4.0%	VERBENA HASTATA	BLUE VERVAIN
3.0%	JUNCUS EFFUSUS	SOFT RUSH
3.0%	RUDBECKIA HIRTA	BLACKEYED SUSAN
2.0%	HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
1.0%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
0.7%	ASTER NOVAE-ANGIAE	NEW ENGLAND ASTER
0.7%	ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
0.7%	EUPATORIUM PERFORIATUM	BONESET
0.5%	AGRO STIS PERENNANS	AUTUMN BENTGRASS
0.5%	HELENIUM AUTUMNALE	COMMON SNEEZEWEED
0.5%	MO NARDA FISTULOSA	WILD BERGAMOT
0.5%	VERNO NIA NO VERO RACENSIS	NEW YORK IRONWEED
0.4%	PHYCNANTHEMUM TENUIFOLIUM	NARROWLEAF MOUNTAINMINT
0.4%	SOLIDAGO PATULA	ROUGHLEAF GOLDENROD
0.3%	EUPATORIUM FISTULOSUM	JOE PYE WEED
0.3%	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA
0.2%	ASTER PUNICUS	PURPLESTEM ASTER



PA DEP  
Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. Occupational Safety and Health Administration (OSHA) regulations must be followed at all times during excavation.

Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.

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Adapted from USDA NRCS

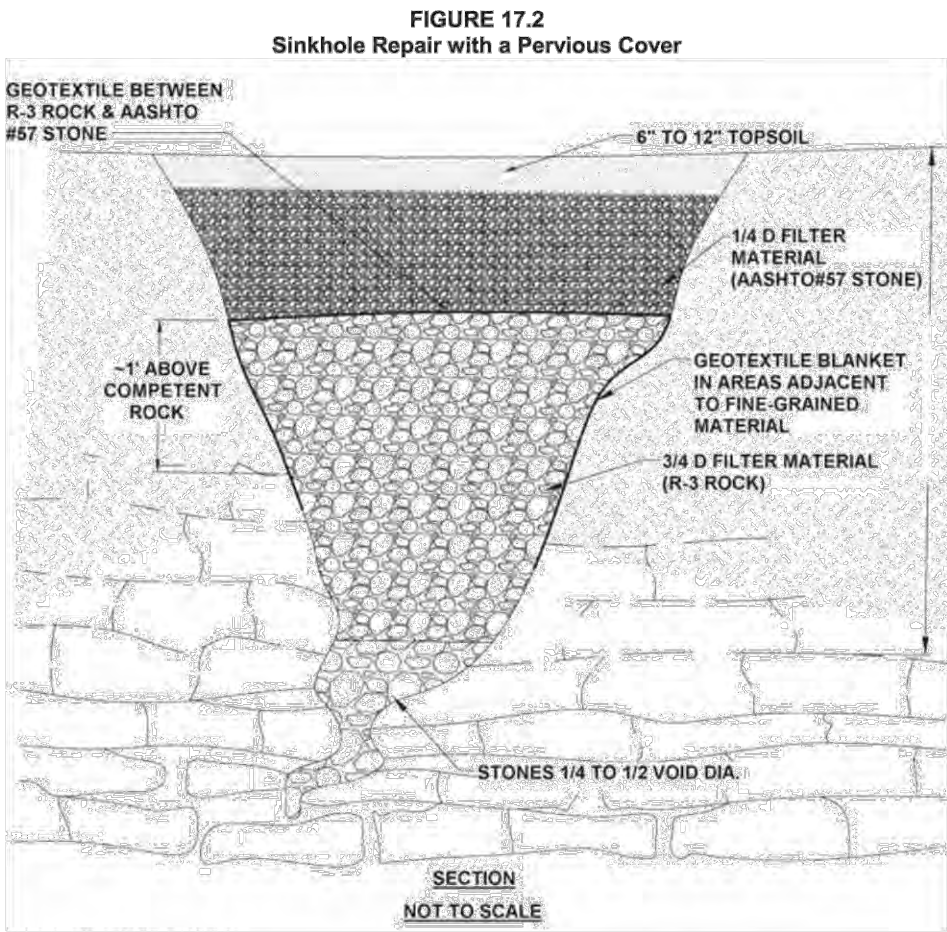
Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.

Select field stone(s) about 1.5 times larger than solution void(s) to form "bridge." Place rock(s) so no large openings exist along the sides. Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.

Minimum thickness of R-3 rock is 18." AASHTO #57 stone thickness shall be a minimum of 9" thick. Minimum thickness of type A sand shall be 9". NOTE: A non-woven geotextile with a burst strength between 100 and 200 psi may be substituted for the AASHTO#57 stone and type A sand.

Soil shall be mineral soil with at least 12 % fines and overfilled by 5% to allow for settlement. Suitable soil from the excavation may be used. Any available topsoil shall be placed on top surface.

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Adapted from USDA NRCS

Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.

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SINKHOLE NOTES:

SINKHOLES VARY GREATLY IN SIZE AND NATURE. THEREFORE, SPECIFIC METHODS OF REPAIRING SINKHOLES WILL DEPEND ON SITE CONDITIONS INCLUDING BUT NOT NECESSARILY LIMITED TO:

- SINKHOLE DIAMETER AND DEPTH
- SURFACE SLOPE
- PRESENCE OR ABSENCE OF SURFACE RUNOFF
- SOIL TYPE
- CONNECTIVITY TO PUBLIC OR PRIVATE WATER SUPPLIES
- PROXIMITY OF SURFACE WATERS
- EASE OF ACCESS BY CONSTRUCTION EQUIPMENT
- POTENTIAL DANGER TO THE PUBLIC OR DAMAGE TO STRUCTURES

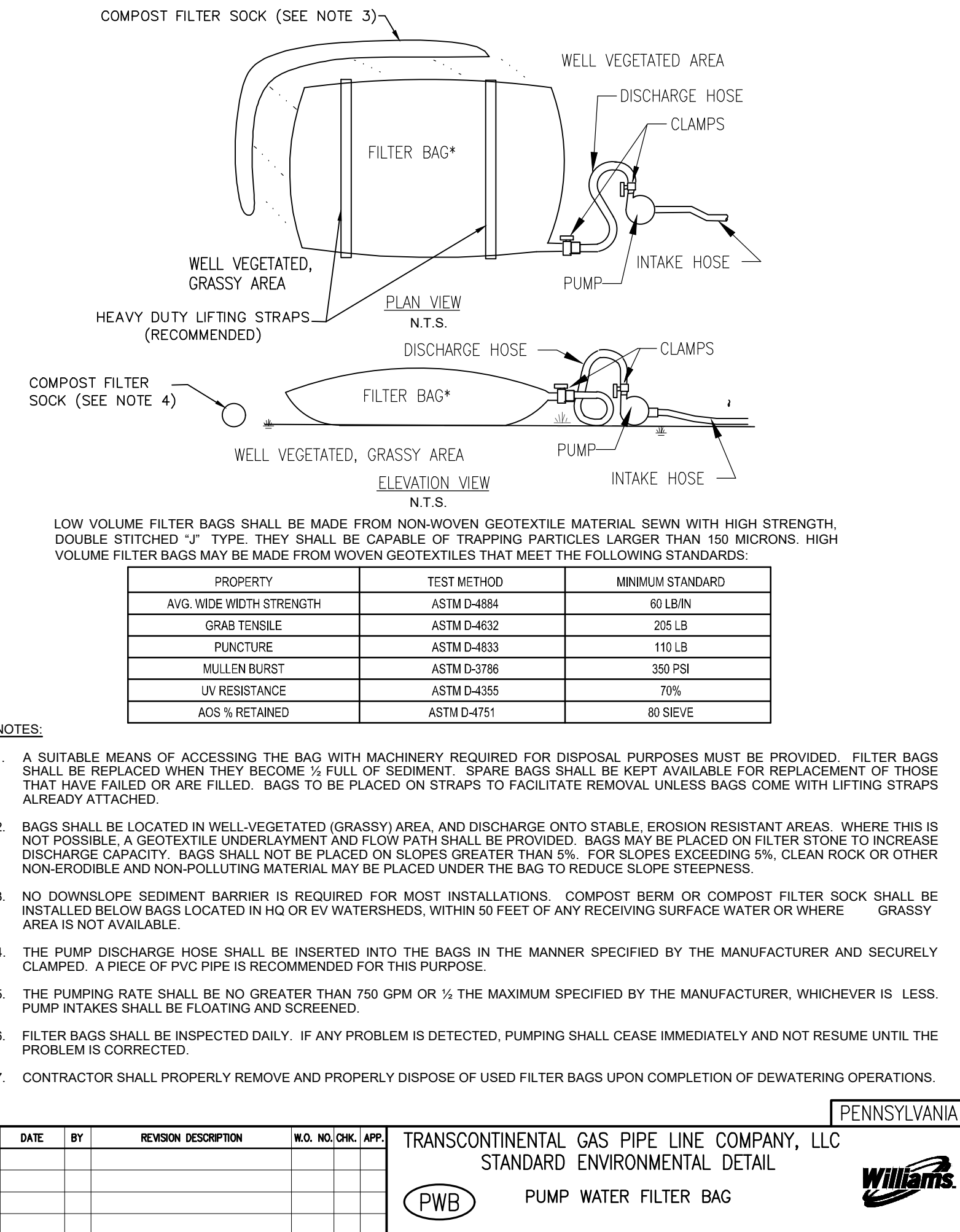
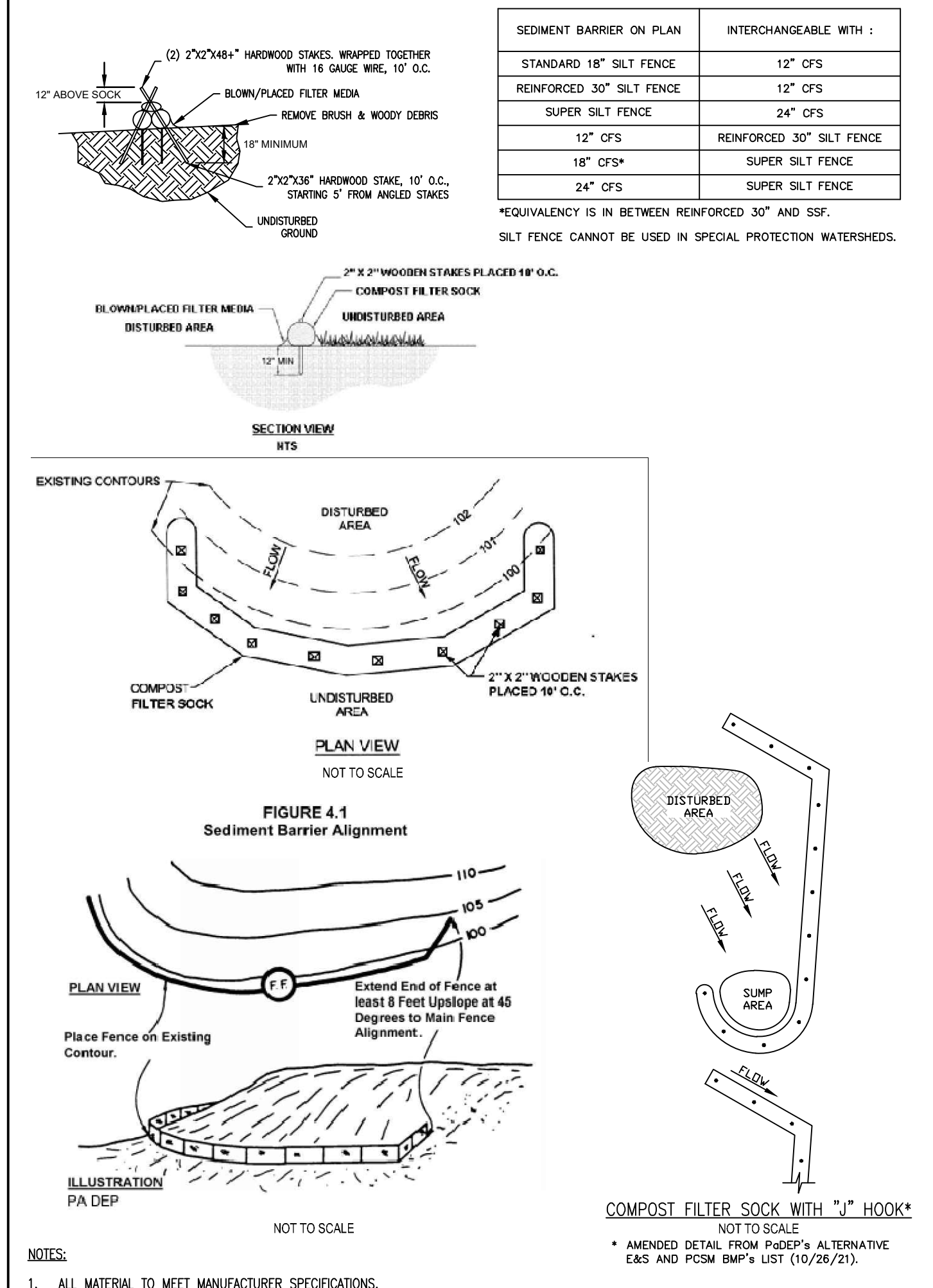
DUE TO THE VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER. FIGURES 17.1, 17.2 & 17.4 ARE PROVIDED AS GENERAL GUIDELINES FOR THE REPAIR OF SINKHOLES. THEY MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SPECIFIC SITE CONDITIONS. SITE SPECIFIC REPAIR PLANS WILL BE REVIEWED ON A CASE-BY-CASE BASIS.



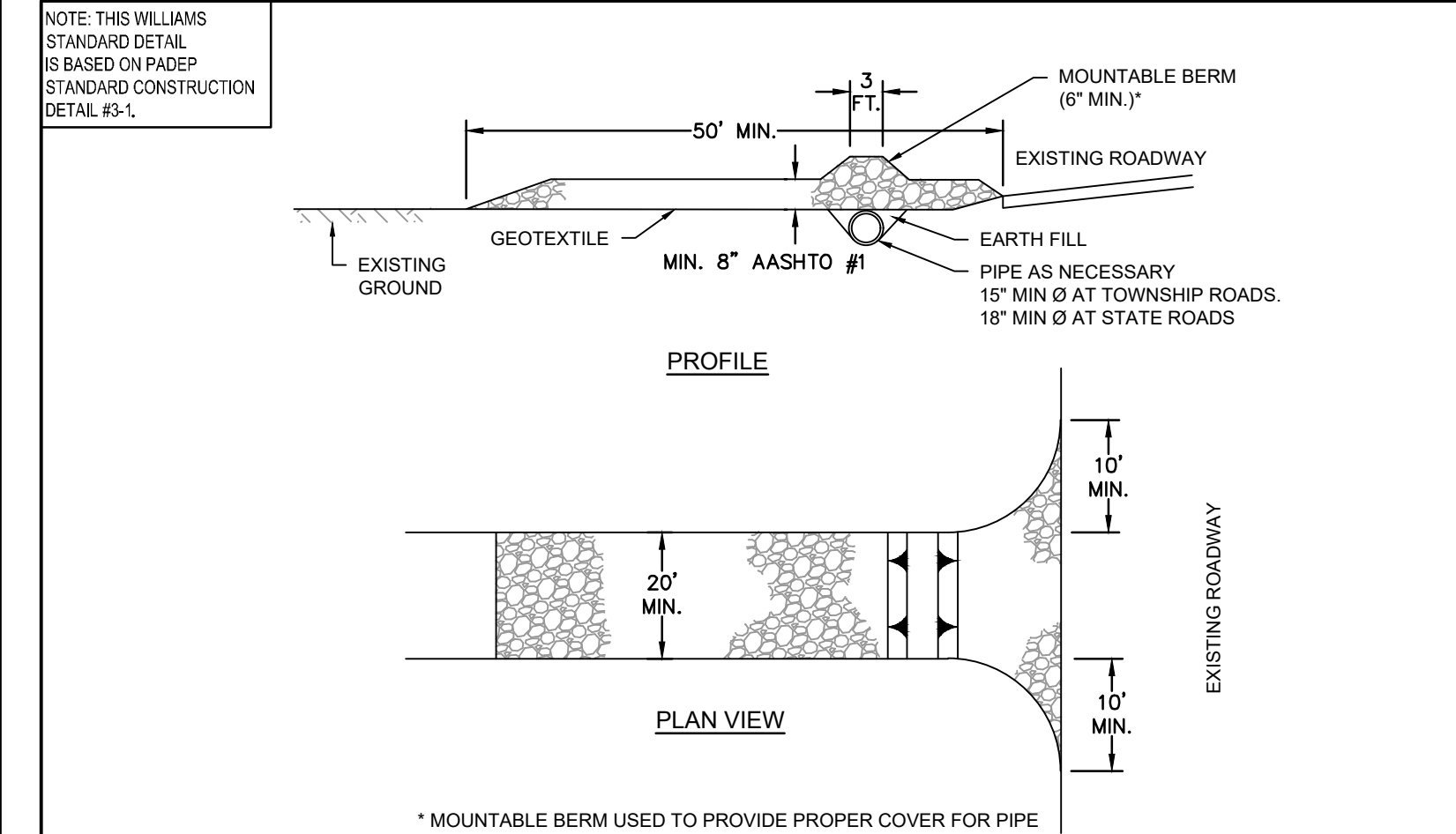
REVISIONS				W.O. NO.	CHK.	APP.
NO.	DATE	BY	DESCRIPTION			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT - DELAWARE RIVER REGULATOR SOIL EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN NOTES LOWER MOUNT BETHEL TWP., NORTHAMPTON COUNTY, PENNSYLVANIA					
DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE:		
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:		
APPROVED BY: PW	DATE: 03/31/21				
WO: 1232578	RID: 305	DRAWING NUMBER:	26-1000-70-28-D	SHEET 5 OF 6	





SOCK No.	LOCATION	SLOPE (%)	SLOPE LENGTH ABOVE BARRIER (LF)	DIA (in)
1	SOUTHWEST SIDE OF STAGING AREA	1	168	12
2	SOUTHWEST SIDE OF STAGING AREA	2	123	12
3	SOUTHWEST SIDE OF STAGING AREA	2	138	12
4	SOUTHWEST SIDE OF STAGING AREA	2	154	12
5	SOUTHWEST SIDE OF STAGING AREA	2	161	12
6	SOUTHWEST SIDE OF STAGING AREA	2	163	12
7	SOUTHWEST SIDE OF STAGING AREA	2	165	12
8	WEST SIDE OF LOWER MUD RUN ROAD	10	140	12
9	WEST SIDE OF LOWER MUD RUN ROAD	10	301	32



- NOTES:
- REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
  - RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
  - MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
  - MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.
  - RCE WITH WASH RACK, SEE DETAIL RCW, 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 WASH RACK SHALL BE REPLACED WITH TIMBER MAT AND CLASS 1 GEOTEXTILE UNDERLAYMENT.

PENNSYLVANIA

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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
STANDARD ENVIRONMENTAL DETAIL

RCE ROCK CONSTRUCTION ENTRANCE

Williams

