

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

REGIONAL ENERGY ACCESS EXPANSION PROJECT COMPRESSOR STATION 200

EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

APRIL 2021
REVISED MARCH 2022

PROJECT OWNER/APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
2800 POST OAK BLVD, LEVEL 11
HOUSTON, TX 77056
PH: (713) 215-3427

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: 20.28 Ac.

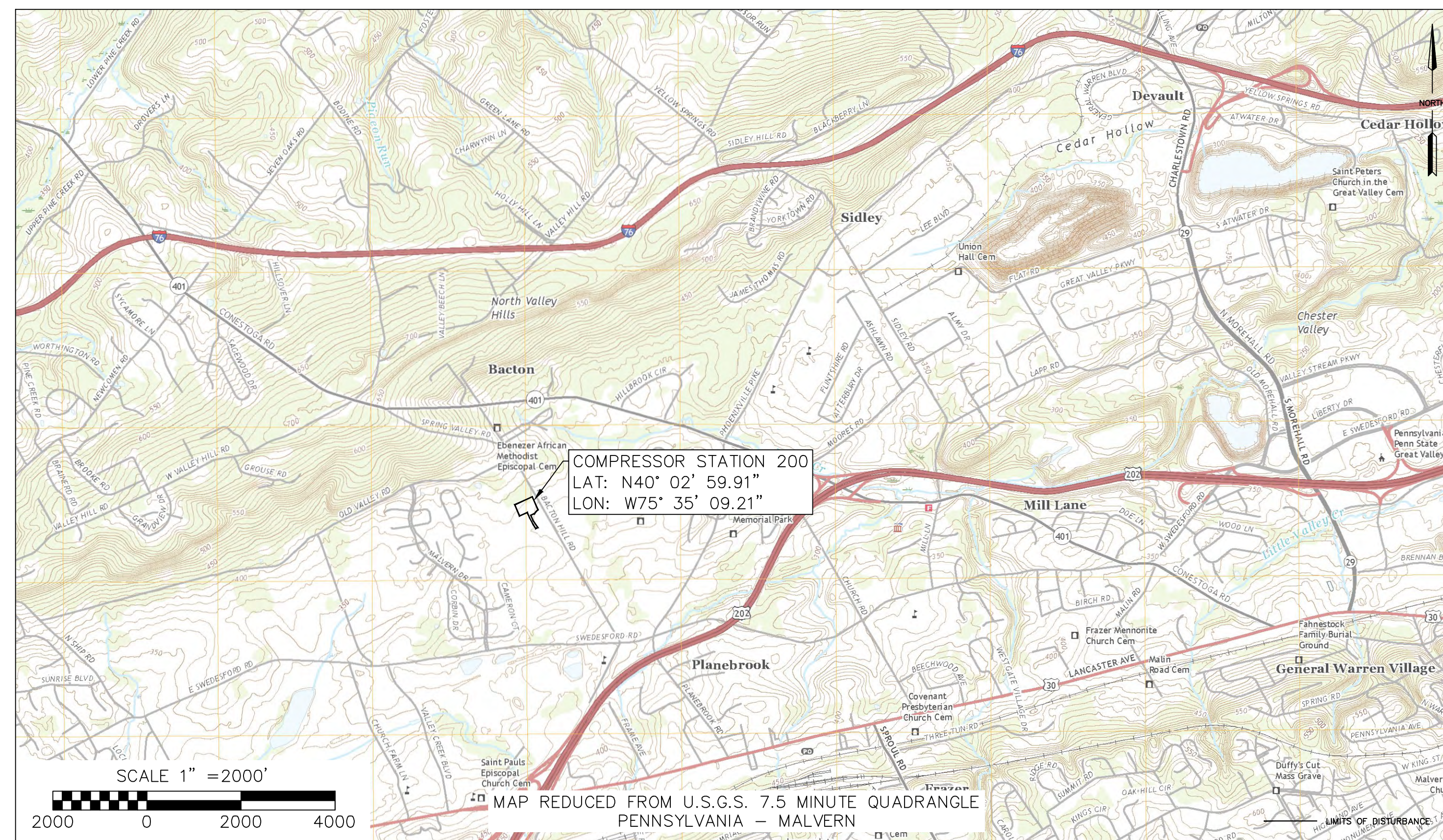
LIMIT OF DISTURBANCE: 3.16 Ac.

PROJECT DESCRIPTION

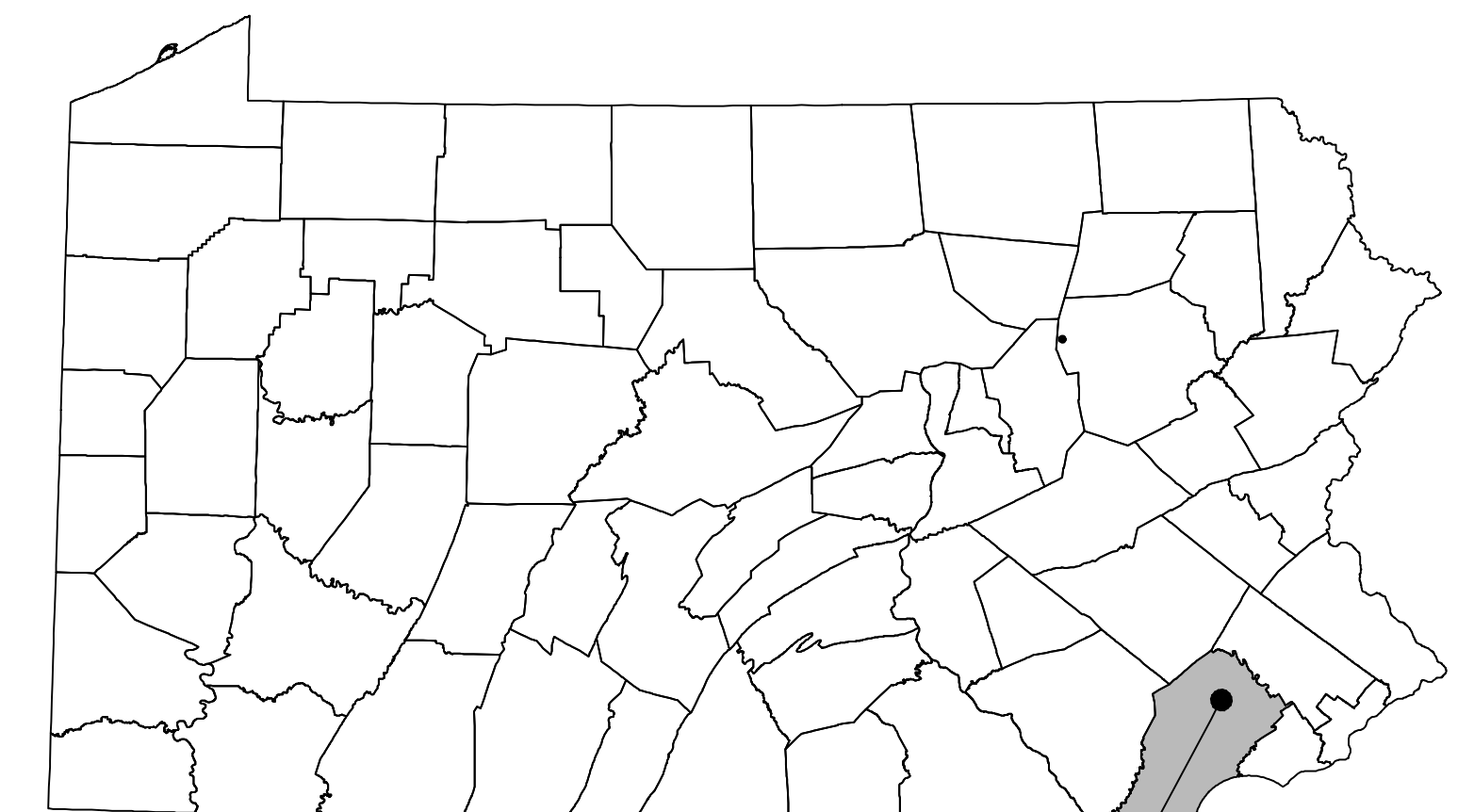
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO), INDIRECTLY OWNED BY THE WILLIAMS COMPANIES, INC. (WILLIAMS) IS SEEKING AUTHORIZATION FROM THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) UNDER SECTION 7(C) OF THE NATURAL GAS ACT AND PART 157 OF THE COMMISSIONS REGULATIONS, TO CONSTRUCT, OWN, OPERATE, 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 (PA) TO MULTIPLE DELIVERY POINTS ALONG TRANSCO'S LEIDY LINE IN PA, TRANSCO'S MAINLINE AT THE STATION 210 ZONE 6 POOLING POINT IN MERCER COUNTY, NEW JERSEY (NJ) AND MULTIPLE DELIVERY POINTS IN TRANSCO'S ZONE 6 IN NJ, PA, AND MARYLAND (MD).

THE EXISTING COMPRESSOR STATION 200 COMPONENT OF THE PROJECT IS LOCATED IN EAST WHITELAND TOWNSHIP, CHESTER COUNTY. PROPOSED ARE COMPRESSOR STATION MODIFICATIONS TO CONNECT THE EXISTING TRANSCO MAINLINE A INTO SUCTION TO SUPPORT SOUTH FLOW.

THIS POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN HAS BEEN DEVELOPED FOR THE COMPRESSOR STATION 200 SITE. THE PCSM PLAN SHALL BE DESIGNED AND IMPLEMENTED TO BE CONSISTENT WITH THE PCSM PLAN UNDER 25 PA. CODE § 102.8 (RELATING TO PCSM REQUIREMENTS). THE WORK AND DISTURBED AREAS ARE LOCATED WITHIN TRANSCO PROPERTY, EXISTING EASEMENTS OR LEGALLY OBTAINED WORKSPACE. THE LIMIT OF DISTURBANCE (LOD) FOR THE COMPRESSOR STATION 200 SITE WILL BE APPROXIMATELY 3.16 ACRES.



LOCATION MAP



VICINITY MAP
N.T.S.

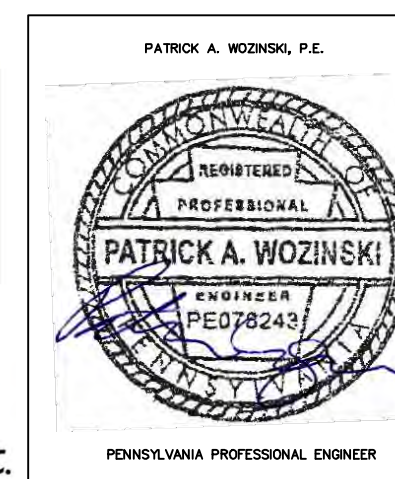
SHEET INDEX	
SHEET NUMBER	DRAWING TITLE
1 OF 6	COVER
2 OF 6	EXISTING SITE CONDITIONS
3 OF 6	PCSM SITE PLAN
4 OF 6	NOTES
5-6 OF 6	DETAILS

RECEIVING WATERS		
NAME	DESIGNATED USE	EXISTING USE
VALLEY CREEK (EAST)*	EV, MF	N/A
VALLEY CREEK (WEST)	CWF, MF	N/A

*DISTURBANCE LOCATED IN THIS WATERSHED ONLY

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

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.



NO.		DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	06/29/21	RHM	RHM	REVISED PER PADEP COMMENTS.			
2	03/01/22	RHM	RHM	RESPONSE TO PADEP TECHNICAL DEFICIENCY LETTER			

Williams

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT -
COMPRESSOR STATION 200
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
COVER
EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA

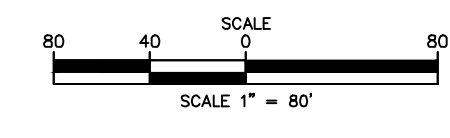
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CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: PW	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 6
WO: 1232813	RID: 305		



EXISTING CONDITION NOTES/SOURCES

1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO IN 2020.
2. PROPERTY BOUNDARIES BASED EITHER 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		SOIL LEGEND	
	ESCP PERMIT BOUNDARY		CONESTOGA SILT LOAM, 0 TO 3 PERCENT SLOPES
	LIMITS OF DISTURBANCE		URBAN LAND-CONESTOGA COMPLEX, 0 TO 9 PERCENT SLOPES
	DELINEATED WETLAND		EXISTING GRADE MAJOR CONTOURS (10' C.I.)
	SOL BOUNDARY / TYPE		EXISTING GRADE MINOR CONTOURS (2' C.I.)
	EXISTING TREELINE / TREE/SHRUB		TEST PIT LOCATION
	PROPERTY LINE		
	EXISTING LEADY / TOP/L 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		
	EXISTING WETLAND		



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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 REGIONAL ENERGY ACCESS EXPANSION PROJECT -
 COMPRESSOR STATION 200
 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
 EXISTING CONDITIONS PLAN
 EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA

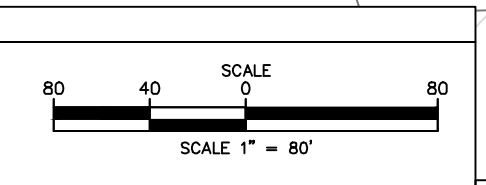
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EXISTING CONDITION NOTES/SOURCES

- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO IN 2020.
- PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
- PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
- STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING IN 2020.
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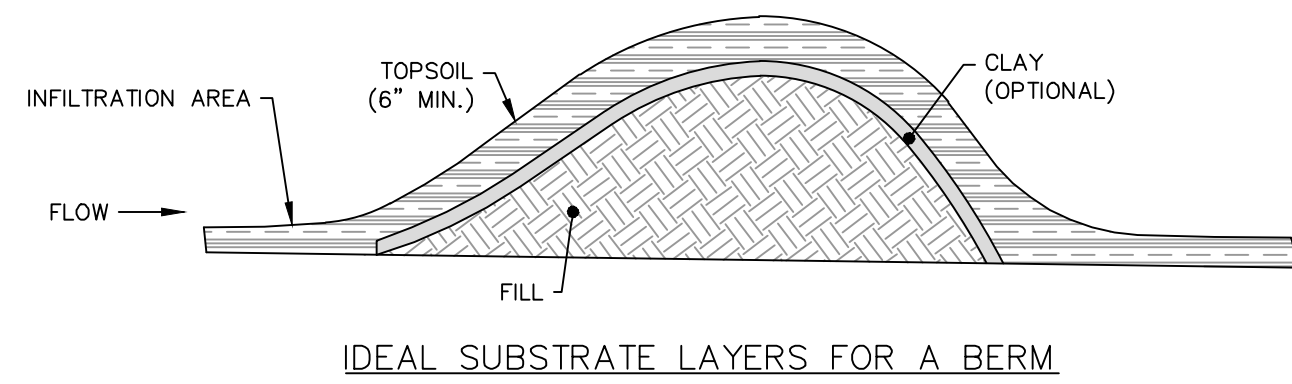
LEGEND		SOIL LEGEND	
	PERMIT BOUNDARY		EXISTING WATER LINE
	LIMITS OF DISTURBANCE		EXISTING SANITARY LINE
	DELINEATED WETLAND		EXISTING STORM SEWER
	SOIL BOUNDARY / TYPE		EXISTING TELEPHONE LINE
	EXISTING TREE LINE / TREE/SHRUB		EXISTING FIBER OPTIC LINE
	PROPERTY LINE		EXISTING UNDERGROUND CABLE LINE
	EXISTING LEDY / TGPL PIPELINES		EXISTING STORM INLET
	EXISTING FOREIGN PIPELINES		EXISTING SANITARY MANHOLE
	EXISTING UTILITY POLE / TOWER		EXISTING COMMUNICATION/ELECTRIC MANHOLE
	EXISTING VALVE		EXISTING FIRE HYDRANT
	EXISTING CULVERT		EXISTING POWER POLE
	EXISTING ELECTRIC LINE		EXISTING EASEMENT
	EXISTING UNDERGROUND ELECTRIC LINE		EXISTING RIGHT-OF-WAY
	EXISTING GAS LINE		EXISTING FENCE
	PROPOSED FENCE		EXISTING WATERSHED DIVISION
	EXISTING STRUCTURE		PROPOSED GRAVEL
	EXISTING EDGE OF ROAD		EXISTING GRADE MAJOR CONTOURS (10' C.I.)
	EXISTING GRADE MAJOR CONTOURS (2' C.I.)		EXISTING GRADE MINOR CONTOURS (2' C.I.)
	EXISTING GRADE MINOR CONTOURS (10' C.I.)		PROPOSED PAD SUBGRADE MAJOR CONTOURS (10' C.I.)
	PROPOSED PAD SUBGRADE MINOR CONTOURS (2' C.I.)		TEST PIT LOCATION
	PROPOSED INFILTRATION AREA		PROPOSED VEGETATED FILTER STRIP



REVISIONS				W.O. NO.	CHK.	APP.
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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
 EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA

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 W.O. 1232813 RID: 305 DRAWING NUMBER: 26-1000-70-28-D SHEET 3 OF 6



INFILTRATION BERM NOTES:

AN INFILTRATION BERM IS A MOUND OF COMPACTED EARTH WITH SLOPING SIDES THAT IS USUALLY LOCATED ALONG A CONTOUR ON RELATIVELY GENTLY SLOPING SITES.

MAINTAIN A MINIMUM 2-FOOT SEPARATION TO BEDROCK AND SEASONALLY HIGH WATER TABLE, PROVIDE DISTRIBUTED INFILTRATION AREA (5:1 IMPERVIOUS AREA TO INFILTRATION AREA - MAXIMUM), SITE ON NATURAL, UNCOMPACTED SOILS WITH ACCEPTABLE CAPACITY.

THE BACK OF THE BERM SHALL BE LINED WITH SC1506N LINING WITH A STAPLE D PATTERN AND SHALL EXTEND AT LEAST 10 FT BEYOND THE TOE OF THE BERM.

BERMS SHALL HAVE SIDE SLOPES OF 3:1.

THE CREST OF THE BERM SHOULD BE LOCATED NEAR ON EDGE OF THE BERM, RATHER THAN IN THE MIDDLE, TO ALLOW FOR A MORE NATURAL, ASYMMETRICAL SHAPE.

BERMS SHOULD BE VEGETATED USING SEED MIXTURE 1 PLUS 3 FROM TABLE 11.5.

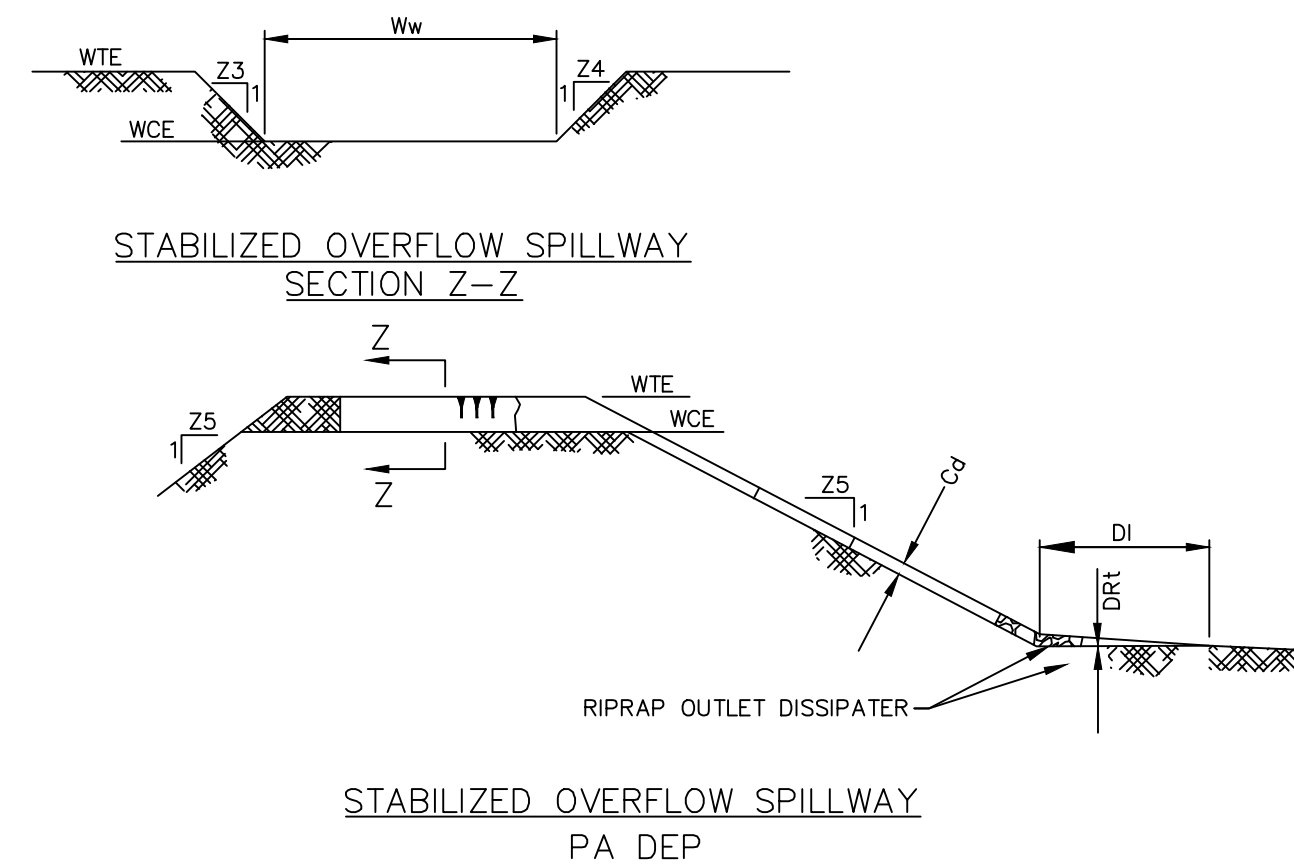
INFILTRATION BERM No.	LENGTH OF BERM (ft)	HEIGHT OF BERM (ft)	BOTTOM ELEV. (ft) (B.E.)	TOP OF BERM ELEV. (ft)	SHWT BELOW GROUND (in)	BEDROCK BELOW GROUND (in)	SPILLWAY ELEV. (ft)	TOP SPILLWAY WIDTH (ft)
INFILTRATION BERM 1	215.6	1.70	384.35	386.00	24	>48"	385.60	4

GEOHAZARD NOTES:

- IF SOLUBLE LIMESTONE OR OTHER CARBONATE ROCKS IS ENCOUNTERED, SURFACE WATER BEST MANAGEMENT PRACTICES SHOULD BE IMPLEMENTED ACCORDING TO THE EROSION AND SEDIMENTATION CONTROL PLANS TO PROVIDE POSITIVE SURFACE WATER DRAINAGE AWAY FROM BUILDING AREAS, EXCAVATIONS, AND EXPOSED ROCK AT ALL TIMES BEFORE, DURING, AND AFTER CONSTRUCTION.
- STORMWATER MANAGEMENT PLANS SHOULD ALSO INCORPORATE USE OF WATERTIGHT JOINTS IN PIPING AND CONSIDERATION OF POTENTIAL ADVERSE IMPACTS OF INFILTRATION, IF USED.
- IF BEDROCK IS ENCOUNTERED, EXCAVATION OTHER THAN BLASTING SHOULD BE IMPLEMENTED.
- EXCAVATIONS SHOULD BE CLOSED AS SOON AS POSSIBLE AFTER EXPOSURE.
- ANY PROPOSED WATER UTILITY TRENCHES SHOULD BE LINED TO PREVENT INFILTRATION AND/OR UNDERGROUND PIPING SHOULD BE LEAK PROOF AND UTILIZED GASKETED JOINTS.
- SHOULD SINKHOLES OR OTHER SUBSIDENCE CONDITIONS OCCUR, A GEOTECHNICAL ENGINEER SHOULD BE NOTIFIED TO INVESTIGATE IN FURTHER DETAIL AND PROVIDE REMEDIAL RECOMMENDATIONS.
- GEOTECHNICAL PERSONNEL ARE RECOMMENDED TO BE ON-SITE DURING CONSTRUCTION IN AREAS WHERE GEOHAZARD MITIGATION MEASURES ARE RECOMMENDED.
- PERIODIC MONITORING OF FIELD CONDITIONS IS RECOMMENDED IN AREAS WHERE DRAINAGE CAUSES WATER TO POOL.

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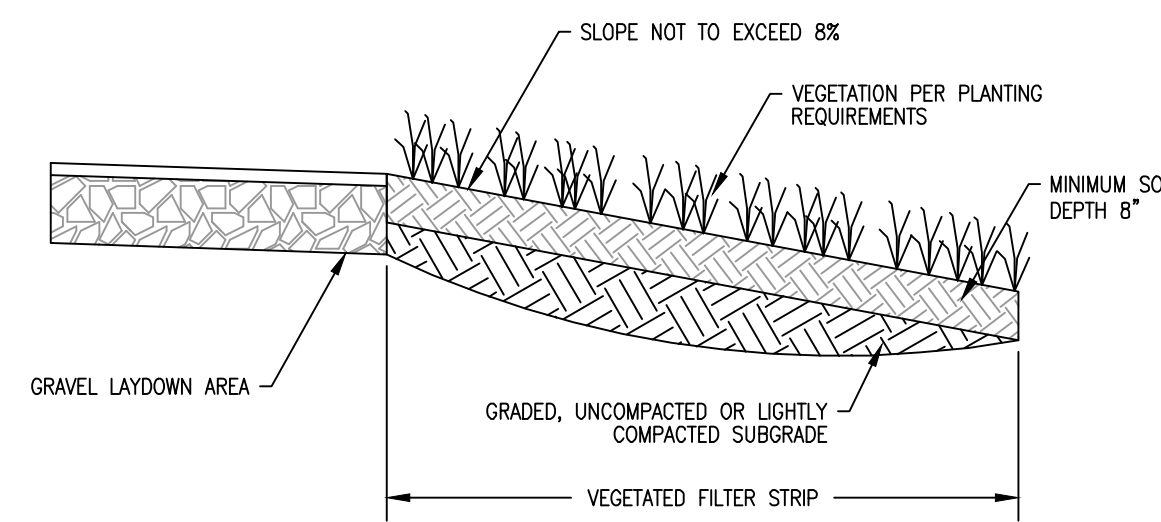
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
INFILTRATION BERM



BMP	WEIR				LINING	CHANNEL		DISSIPATOR			
	Z3 (ft)	Z4 (ft)	TOP ELEV. WTE (ft)	CREST ELEV. WCE (ft)		RIPRAP THICK. LR (in)	Z5 (ft)	DEPTH Cd (ft)	LENGTH DI (ft)	WIDTH Dd (ft)	RIPRAP THICK. DR (in)
INFILTRATION BERM	2	2	386.00	385.60	4	N/A	(SEE LEVEL SPREADER DETAIL)				

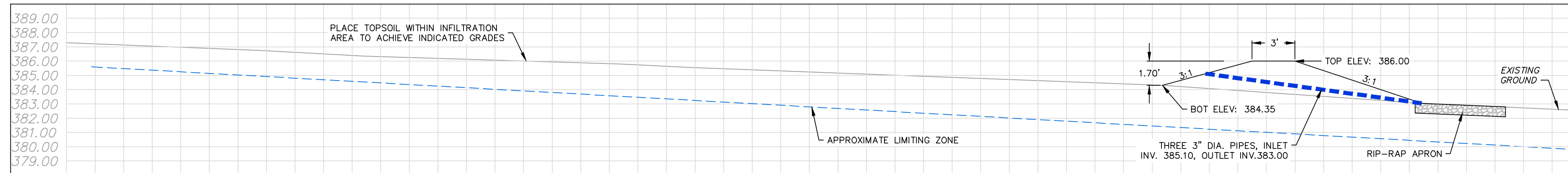
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
STABILIZED OVERFLOW SPILLWAY

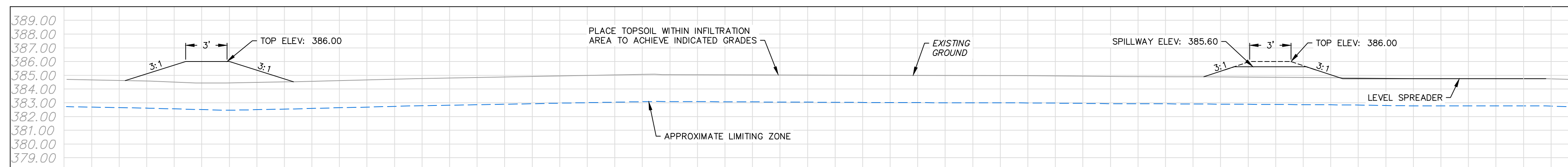


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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
PROJECT SPECIFIC DETAIL
VEGETATED FILTER STRIP



SECTION A-A
NOT TO SCALE

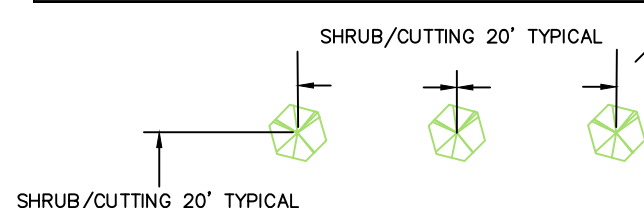


SECTION B-B
NOT TO SCALE

PLANTING NOTES:
ALL PLANTS SHALL BE INSTALLED ACCORDING TO THE ACCEPTABLE STANDARDS OF THE TRADE AND UNDER THE SUPERVISION OF A LANDSCAPE PROFESSIONAL WITH SUITABLE PRACTICAL FIELD EXPERIENCE IN PLANT INSTALLATION PROJECTS. ALL PLANT MATERIALS SHALL BE NURSERY GROWN AND SHALL BE GUARANTEED TO BE TRUE TO NAME AND HEALTHY UPON DELIVERY. ANY SUBSTITUTIONS BASED UPON AVAILABILITY OR SITE CONDITIONS MUST BE APPROVED BY A PROFESSIONAL WITH EXPERIENCE IN TREE AND SHRUB PLANTING DESIGN.

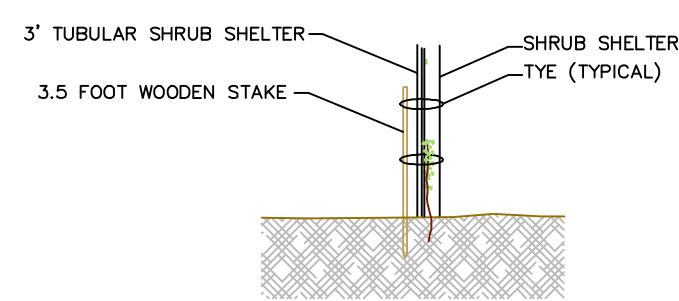
SHRUBS SHALL BE PLANTED BY DIGGING A HOLE TWICE THE SIZE OF THE WIDTH OF THE ROOTBALL DOWN INTO THE SUBSTRATE AT THE POINT OF INSTALLATION. IF THE PLANT IS IN A PLASTIC CONTAINER, THIS SHALL BE CAREFULLY REMOVED TO KEEP THE ROOTBALL INTACT. AFTER PLANTING, THE AREA SHOULD BE BACKFILLED AND WATERED. SHRUBS MAY BE PROVIDED WITH SUPPORT STAKES IF THIS IS DEEMED NECESSARY BY THE INSTALLER.

Scientific Name	Common Name	Status	Container	Spacing
<i>Cornus alba</i>	redosier dogwood	FACW	Shrub	bare root or 1 gal
<i>Cornus amomum</i>	silky dogwood	FACW	Shrub	bare root or 1 gal
<i>Cornus racemosa</i>	gray dogwood	FAC	Shrub	bare root or 1 gal
<i>Lindera benzoin</i>	northern spicebush	FAC	Shrub	bare root or 1 gal
<i>Viburnum dentatum</i>	southern arrowwood	FAC	Shrub	bare root or 1 gal
<i>Viburnum prunifolium</i>	smooth blackhaw	FACU	Shrub	bare root or 1 gal



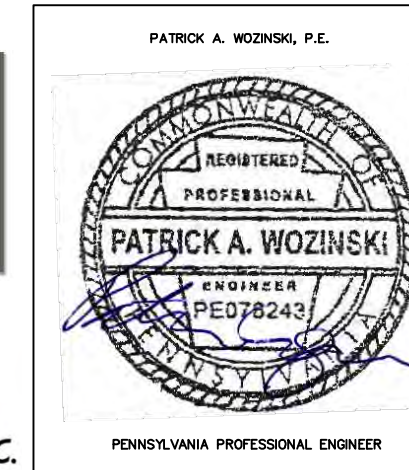
1. TYPICAL SPACING IS APPROXIMATE. ALL PLANTS WILL BE PLANTED IN A GRID TO PROVIDE UNIFORM COVER OF THE MITIGATION AREA BASED ON CENTERS OUTLINED ABOVE. RANDOM ALTERATION OF THE SHRUBS IN DIFFERENT PLANTING ZONES IS ACCEPTABLE TO PROVIDE GREATER VEGETATIVE DIVERSITY.

TYPICAL SPACING DETAIL
NOT TO SCALE



NOTE: SHRUB SHELTERS ARE TO BE MADE FROM BIODEGRADABLE PLASTIC TUBING.

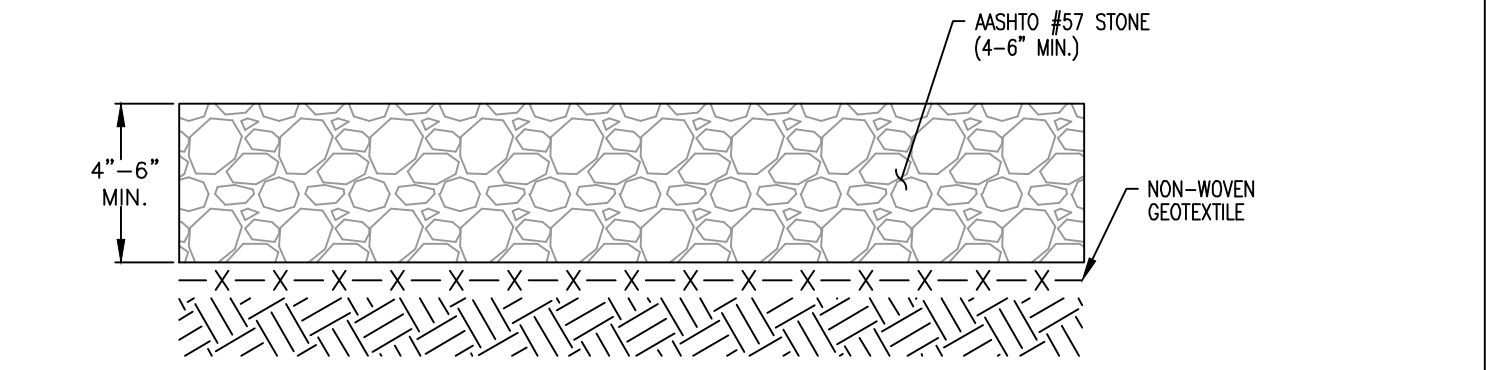
TYPICAL SHRUB SHELTER DETAIL
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DETAILS
EAST WHITELAND TWP., CHESTER COUNTY, PENNSYLVANIA

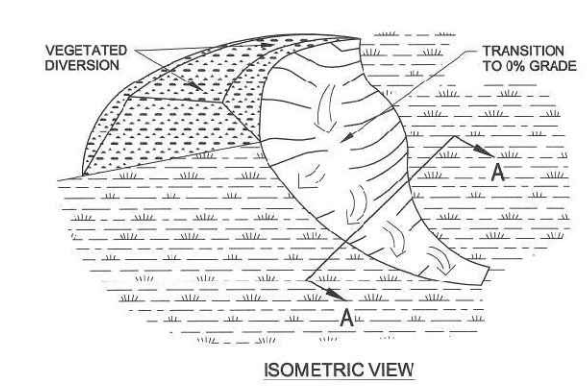
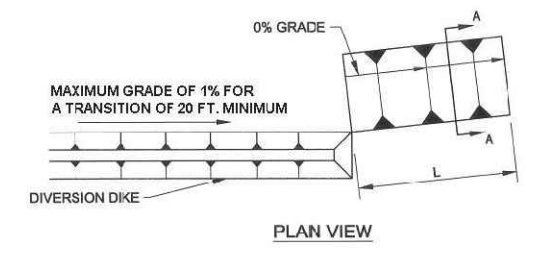
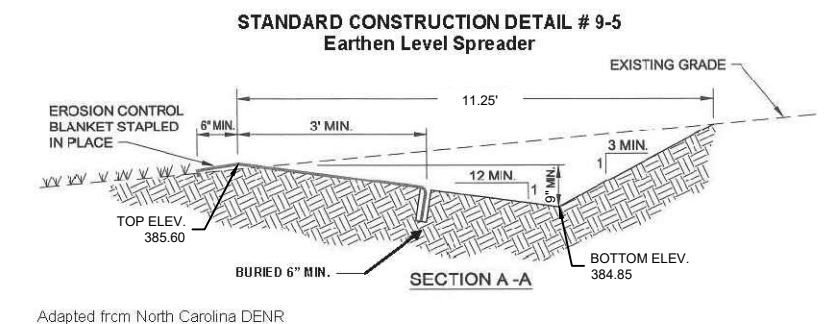
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- NOTES:**
- CROSS SECTION TO BE APPLIED TO DRY AREAS WITHOUT DRAINAGE CONCERNS.
 - EXISTING MATERIAL TO BE REMOVED AND STOCKPILED IN AN APPROVED LOCATION ONLY.
 - EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION & SEDIMENT POLLUTION CONTROL PLAN FOR THE PROJECT.
 - GRADING AND CROSS SLOPES VARY BY EXISTING CONDITIONS; SEE SPECIFIC DESIGN AND PROFILE FOR MORE DETAIL.
 - WITHIN EXTENTS OF GRADING FOR PERMANENT ACCESS ROADS AND VALVE SITES, COMPACT ALL SOIL FILL/BACKFILL AND COARSE AGGREGATE WITH FINES TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. CONTRACTOR SHALL UTILIZE ADEQUATELY SIZED AND CONFIGURED EQUIPMENT TO ACHIEVE SPECIFIED COMPACTION.
 - AS DIRECTED BY ENGINEER AND APPROVED BY OWNER, EXCAVATE AND STABILIZE SOFT SPOTS, UNSATISFACTORY SOILS AND AREAS OF EXCESSIVE PUMPING OR RUTTING.
 - PROOF-ROLLING OF SUBGRADE MAY BE REQUIRED TO DETERMINE PROPER COMPACTION BY OWNER.
 - PAD MAY BE TOPPED WITH AASHTO #57 AGGREGATE TO PROVIDE A DRIVING SURFACE

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
PROPOSED GRAVEL PAD



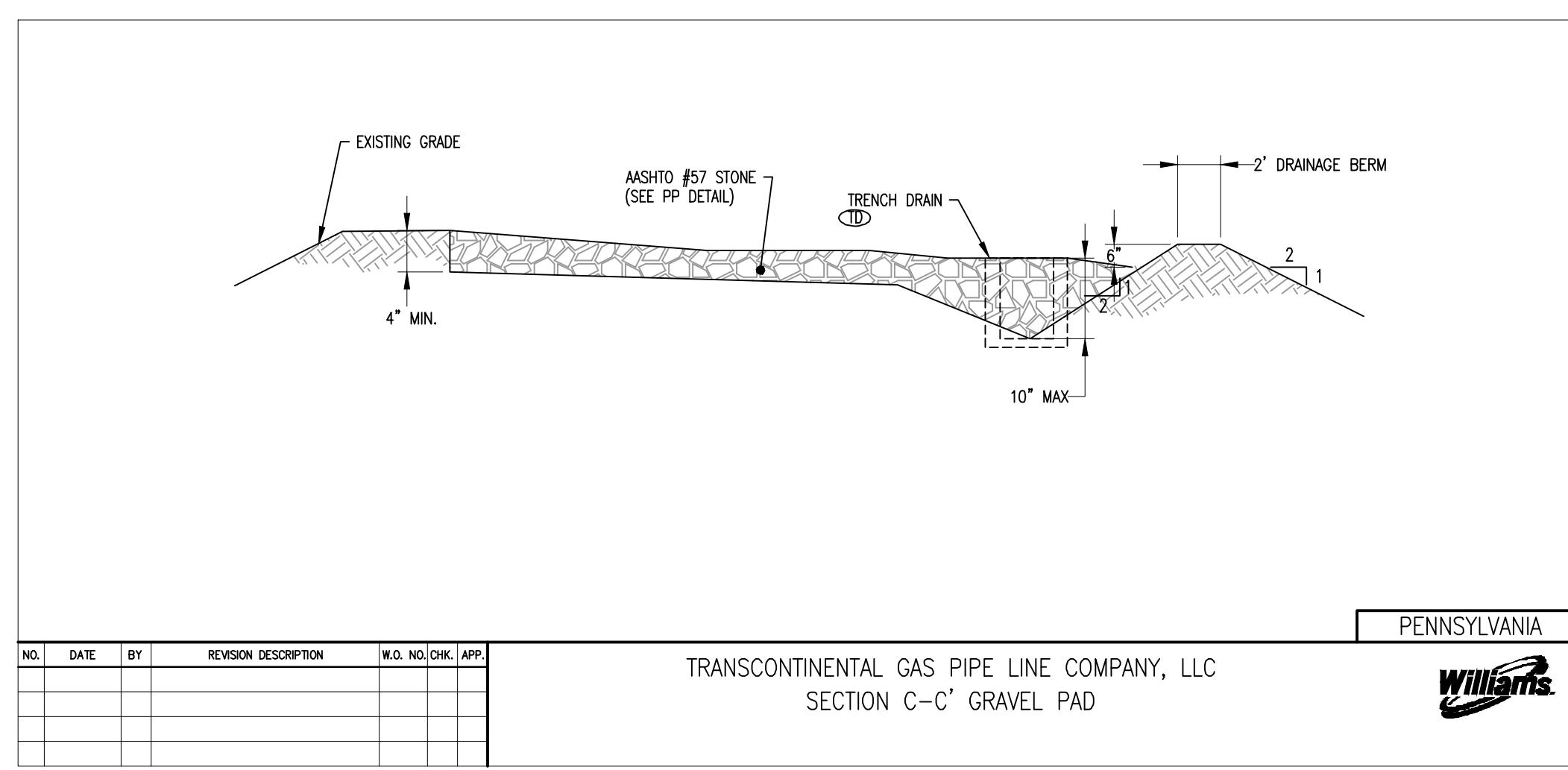
- NOTES:**
- LEVEL SPREADER SHALL BE CONSTRUCTED AND MAINTAINED LEVEL. SMALL VARIATIONS IN HEIGHT ON THE DOWNSTREAM LIP SHALL BE LESS THAN 0.05% SLOPE ALONG THE WEIR.
 - VARIATIONS IN EXISTING GROUND ELEVATION SHALL BE LESS THAN 4 INCHES.
 - CLEAR DEBRIS (I.E. EARTH, WOOD, AND OTHER ORGANIC MATTER) LOCATED WITHIN 15 FEET DOWN SLOPE OF THE LEVEL SPREADER THAT MAY ACCUMULATE.
 - TO PRESERVE INFILTRATION CAPACITY, THE UNDERLYING SOILS SHOULD REMAIN UNDISTURBED, UNCOMPACTED, AND PROTECTED FROM HEAVY EQUIPMENT.

LEVEL SPREADER
PERMANENT STORMWATER MEASURE

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TRANSCONTINENTAL GAS PIPE LINE CORPORATION
PROJECT SPECIFIC DETAIL
LEVEL SPREADER

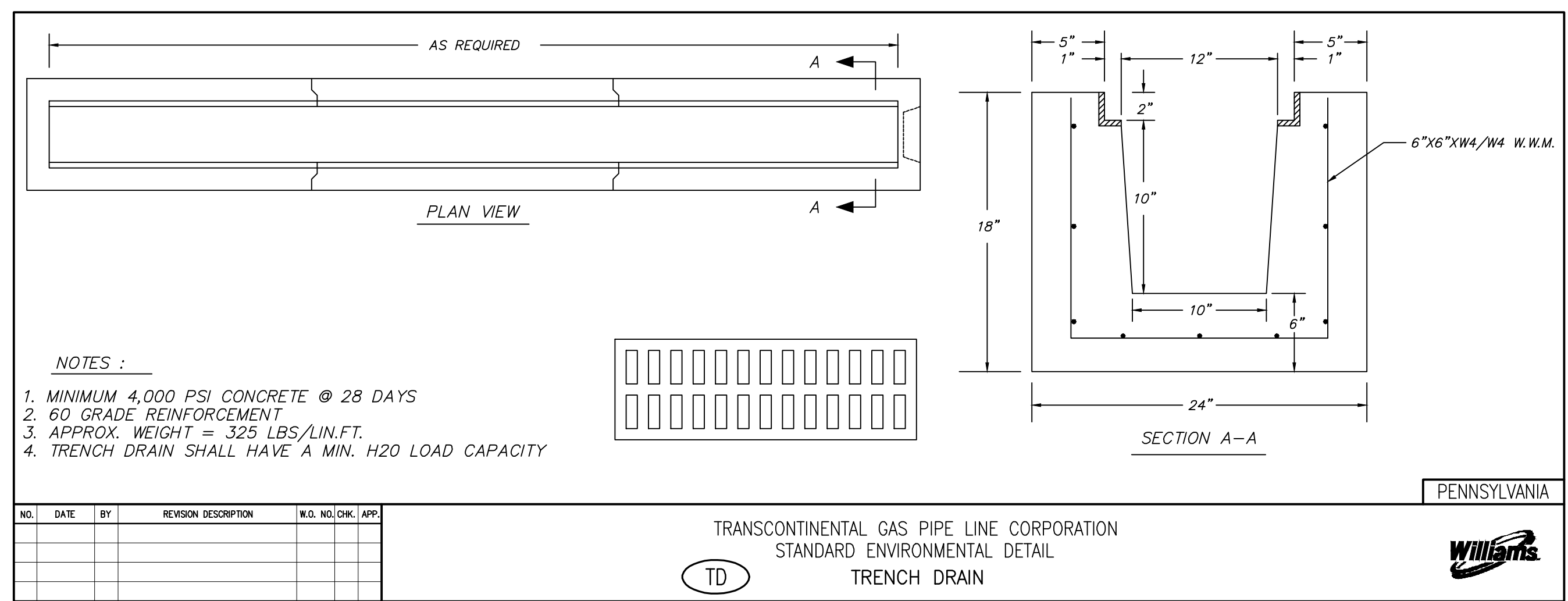




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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
SECTION C-C' GRAVEL PAD

PAENNSYLVANIA

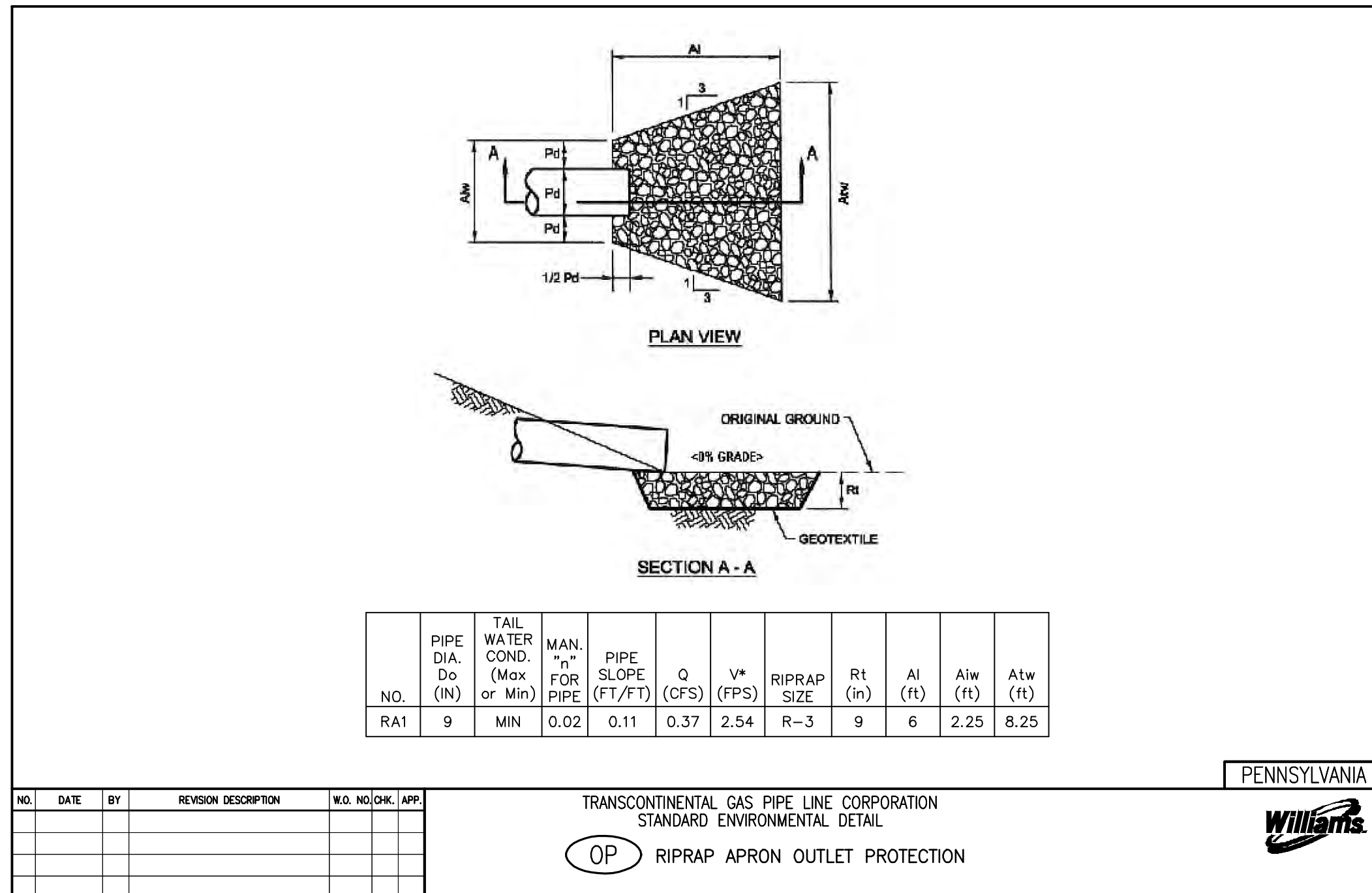


- NOTES :
1. MINIMUM 4,000 PSI CONCRETE @ 28 DAYS
 2. 60 GRADE REINFORCEMENT
 3. APPROX. WEIGHT = 325 LBS/LIN.FT.
 4. TRENCH DRAIN SHALL HAVE A MIN. H2O LOAD CAPACITY

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TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
TRENCH DRAIN

PAENNSYLVANIA



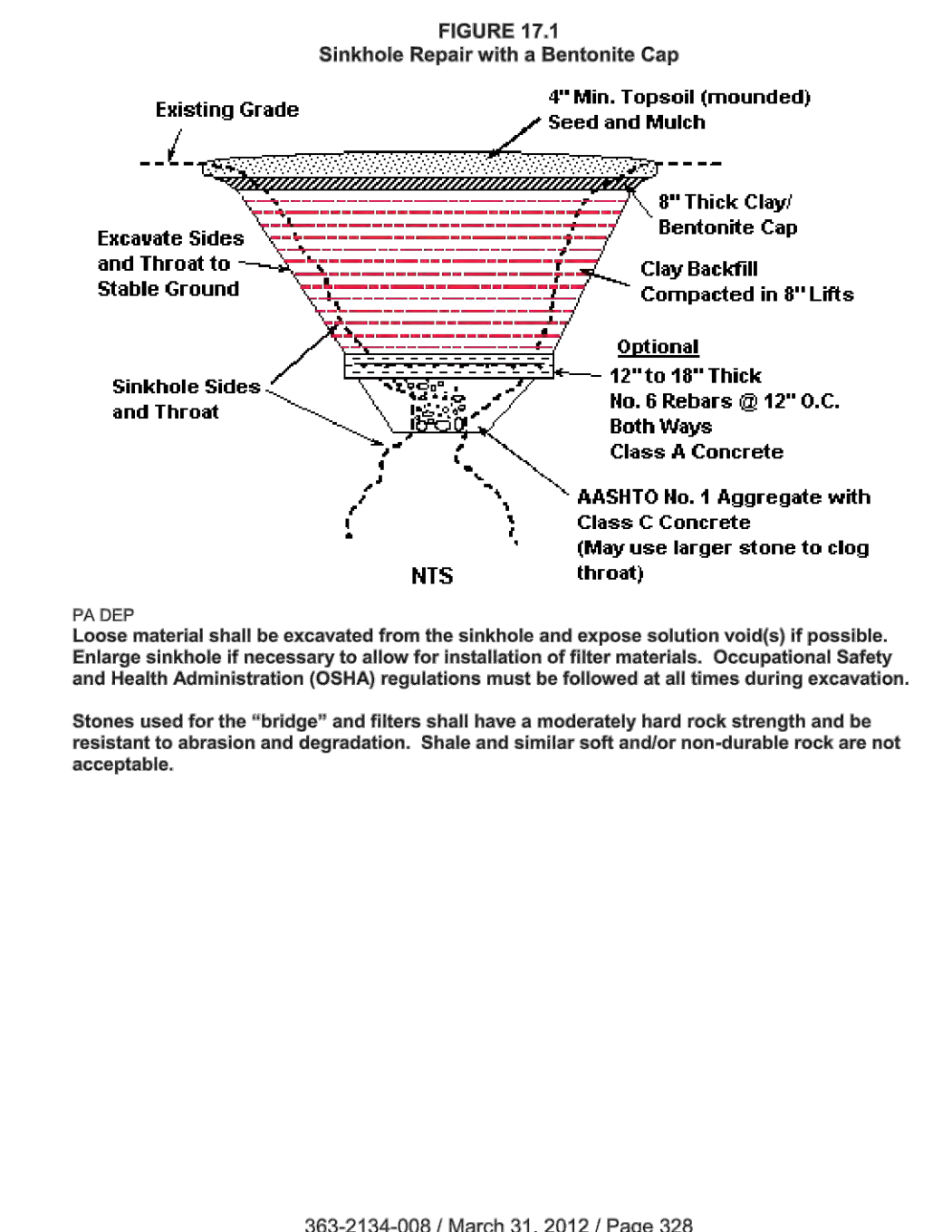
NO.	PIPE DIA. (IN)	TAIL WATER COND. (Max or Min)	MAN. "n" FOR PIPE	PIPE SLOPE (FT/FT)	Q (CFS)	V* (FPS)	RIPRAP SIZE	Rt (in)	At (ft)	Atw (ft)	Atw (ft)
RA1	9	MIN	0.02	0.11	0.37	2.54	R-3	9	6	2.25	8.25

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

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

OP RIPRAP APRON OUTLET PROTECTION

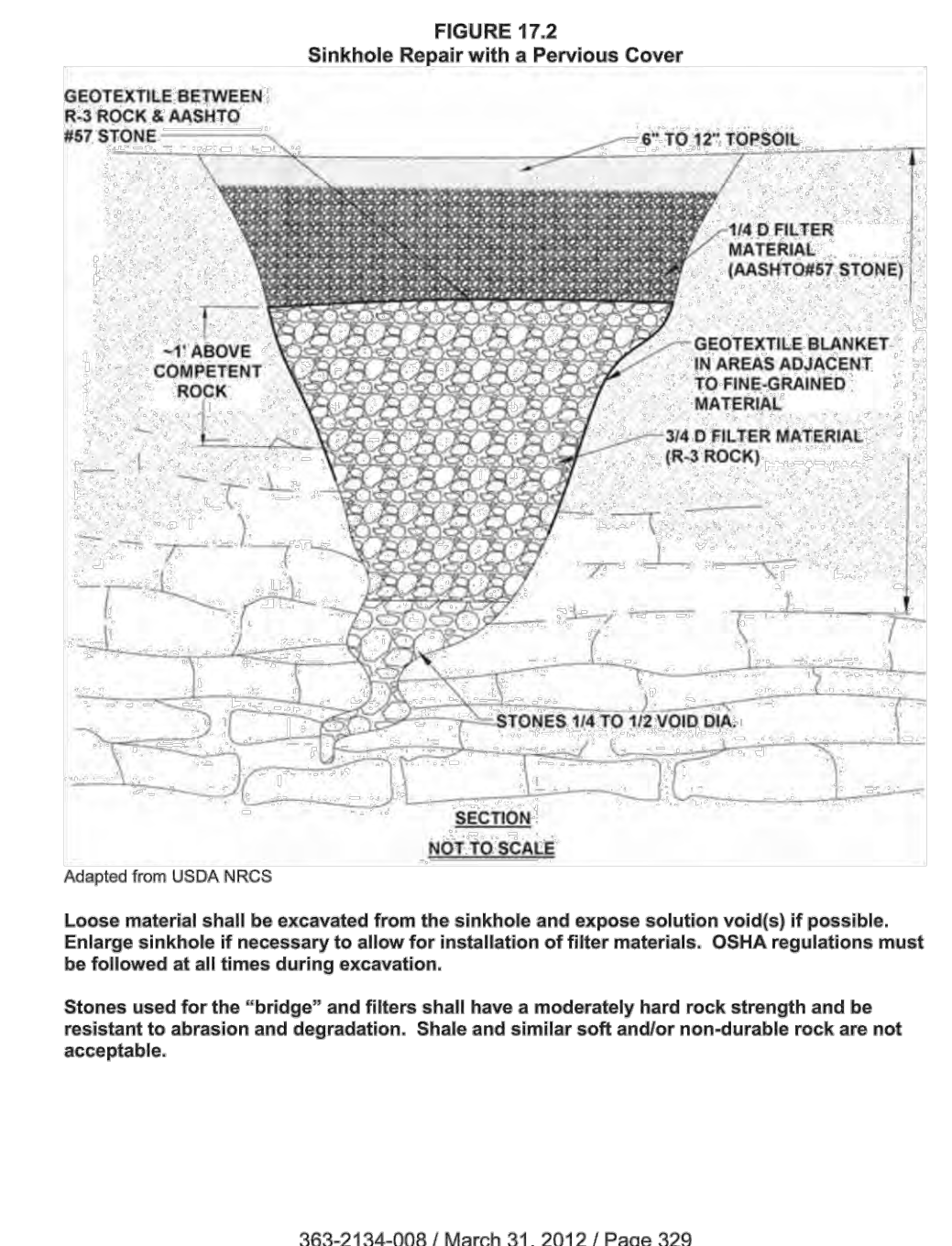
PAENNSYLVANIA



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.

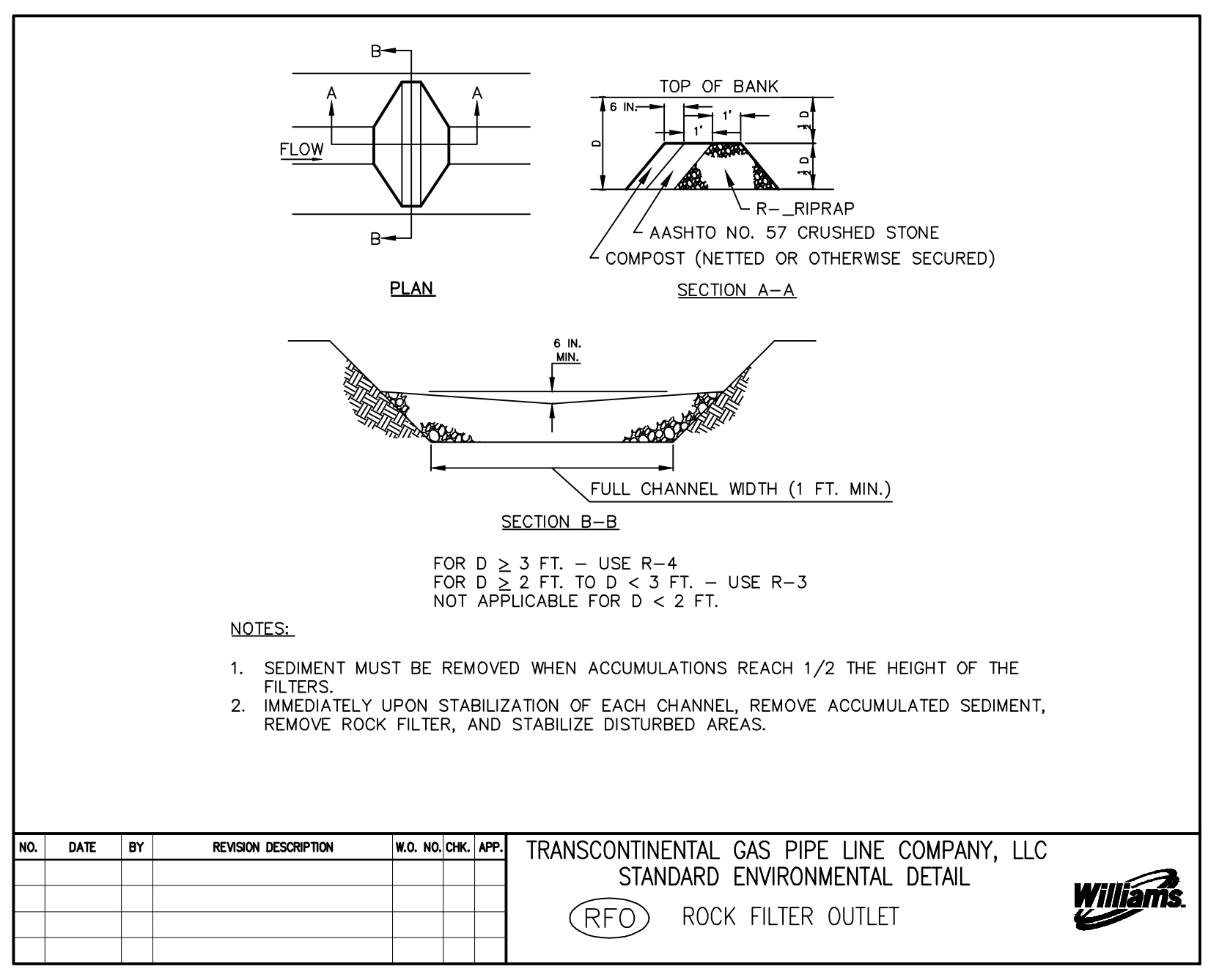
363-2134-008 / March 31, 2012 / Page 328



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.

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.

363-2134-008 / March 31, 2012 / Page 329



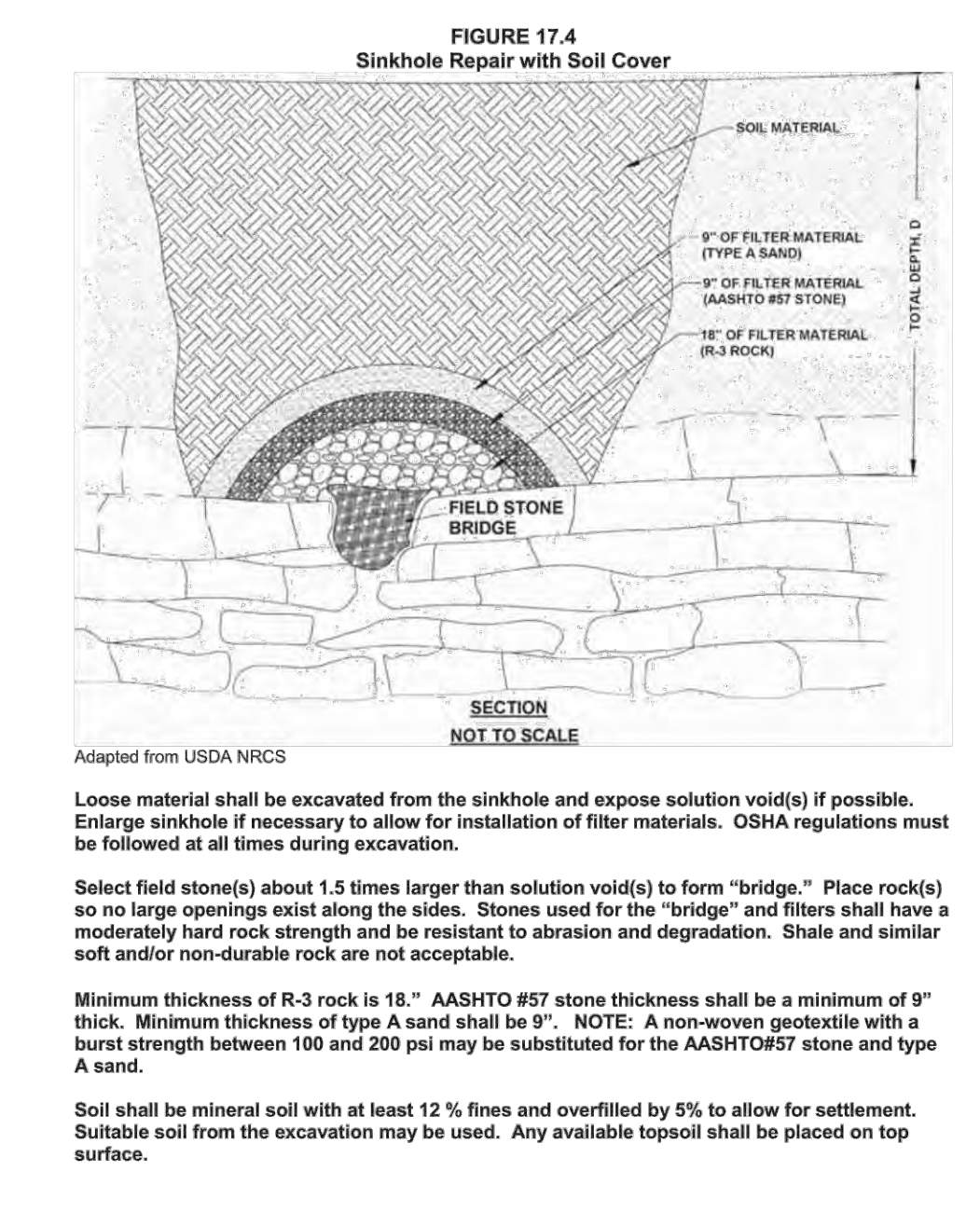
- NOTES:
1. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS
 2. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

RFO ROCK FILTER OUTLET

PAENNSYLVANIA



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.

363-2134-008 / March 31, 2012 / Page 331

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.



NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	06/29/21	RHM	REVISED PER PADEP COMMENTS.			
2	03/01/22	RHM	RESPONSE TO PADEP TECHNICAL DEFICIENCY LETTER			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT - COMPRESSOR STATION 200 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS EAST WHITELAND TWP., CHESTER 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 6 OF 6