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

MLV-515RA20
ZENKER MAIN LINE VALVE SITE PLAN

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

APRIL 2021

PROJECT OWNER/APPLICANT

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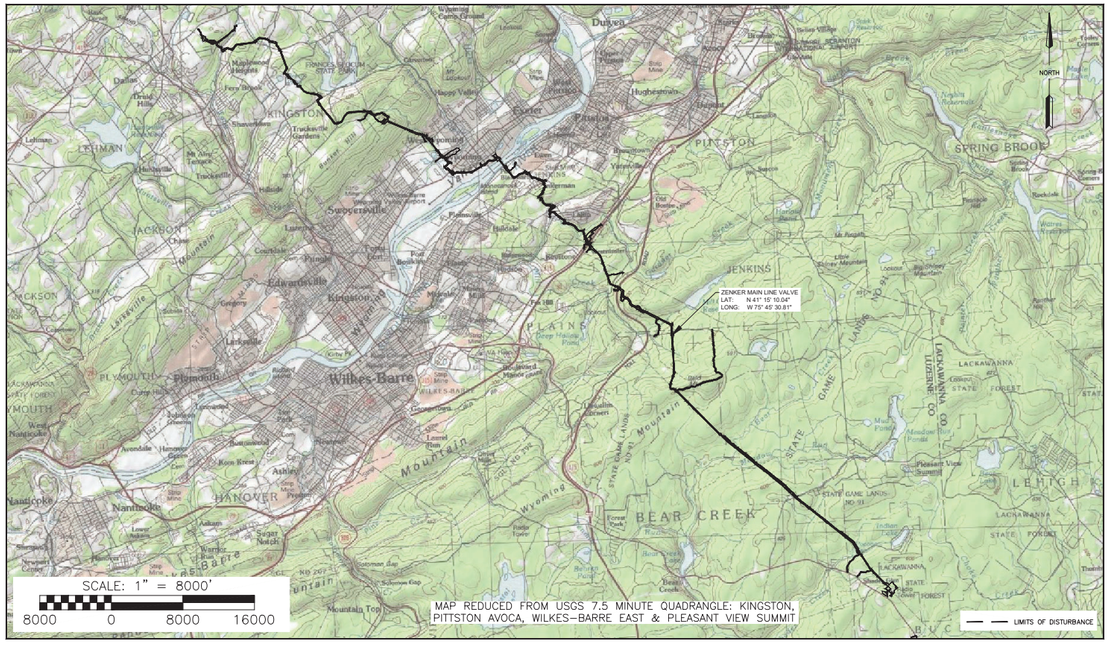
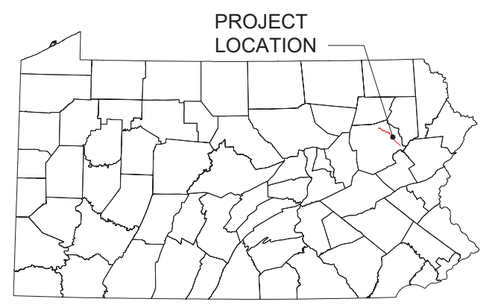


LOCATION MAP



VICINITY MAP
N.T.S.

SHEET INDEX	
SHEET NUMBER	**DRAWING TITLE**
1 OF 5	COVER SHEET
2 OF 5	EXISTING CONDITIONS PLAN
3 OF 5	PROPOSED CONDITIONS PLAN
4 OF 5	NOTES
5 OF 5	DETAILS

RECEIVING WATERS			
NAME	**DESIGNATED USE**	**EXISTING USE**	**PFBC CLASSIFICATION**
MILL CREEK, TRIBUTARY 63014 & 63015 TO MILL CREEK	CWF	N/A	CLASS A WILD TROUT

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.

KEVIN CLARK, P.E.
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
KEVIN C. CLARK
ENGINEER
044214-E
PENNSYLVANIA PROFESSIONAL ENGINEER

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

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REGIONAL ENERGY ACCESS EXPANSION PROJECT
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COVER SHEET

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

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CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
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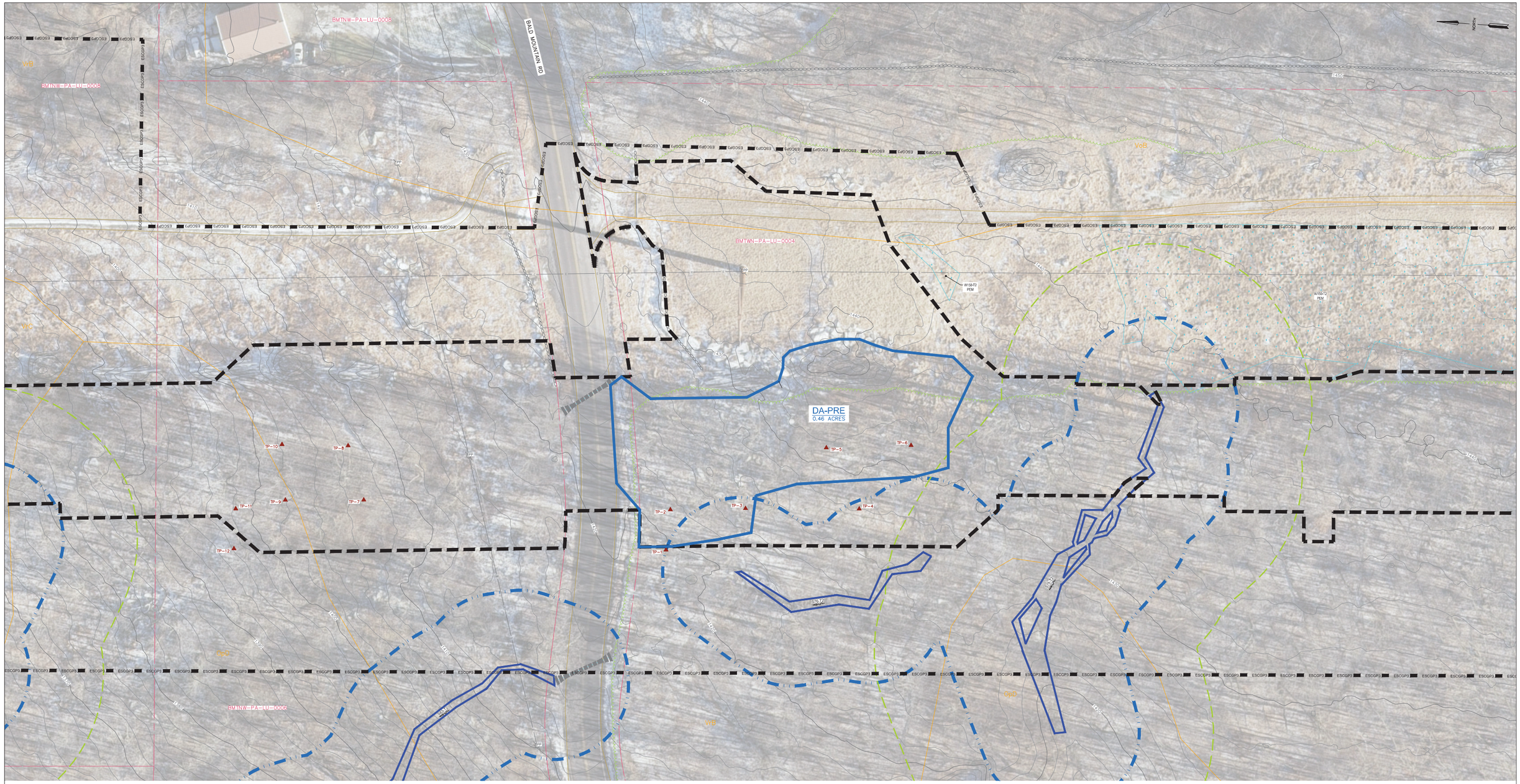
WO: 1211227	RID: 207	DRAWING NUMBER: 26-1000-70-28-D	



LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- ESCGP-3 PERMIT BOUNDARY
- LIMITS OF DISTURBANCE
- EXISTING FENCE
- EXISTING STONE ROW
- EXISTING STRUCTURE
- EXISTING EDGE OF ROAD
- EXISTING GRAVEL AREAS
- EXISTING GRADE MAJOR CONTOURS (10' C.I.)
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- 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 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
- PRE-CONSTRUCTION DRAINAGE AREA
- TP4 TEST PIT/INFILTRATION TEST LOCATION

SOIL LEGEND

LcD LACKAWANNA CHANNERY SILT LOAM, 8 TO 25 PERCENT SLOPES, EXTREMELY STONY
OpD OQUAGA AND LORDSTOWN EXTREMELY STONY SILT LOAMS, 8 TO 25 PERCENT SLOPES
VoB VOLUSIA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
VoC VOLUSIA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
VrB VOLUSIA CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY
VrC VOLUSIA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES, EXTREMELY STONY

EXISTING CONDITION NOTES/SOURCES

1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN 2019 AND 2020.
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5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

SCALE
30 15 0 30
SCALE 1" = 30'

BAM GROUP
WHM consulting, LLC

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
KEVIN C. CLARK
ENGINEER
PENNSYLVANIA PROFESSIONAL ENGINEER

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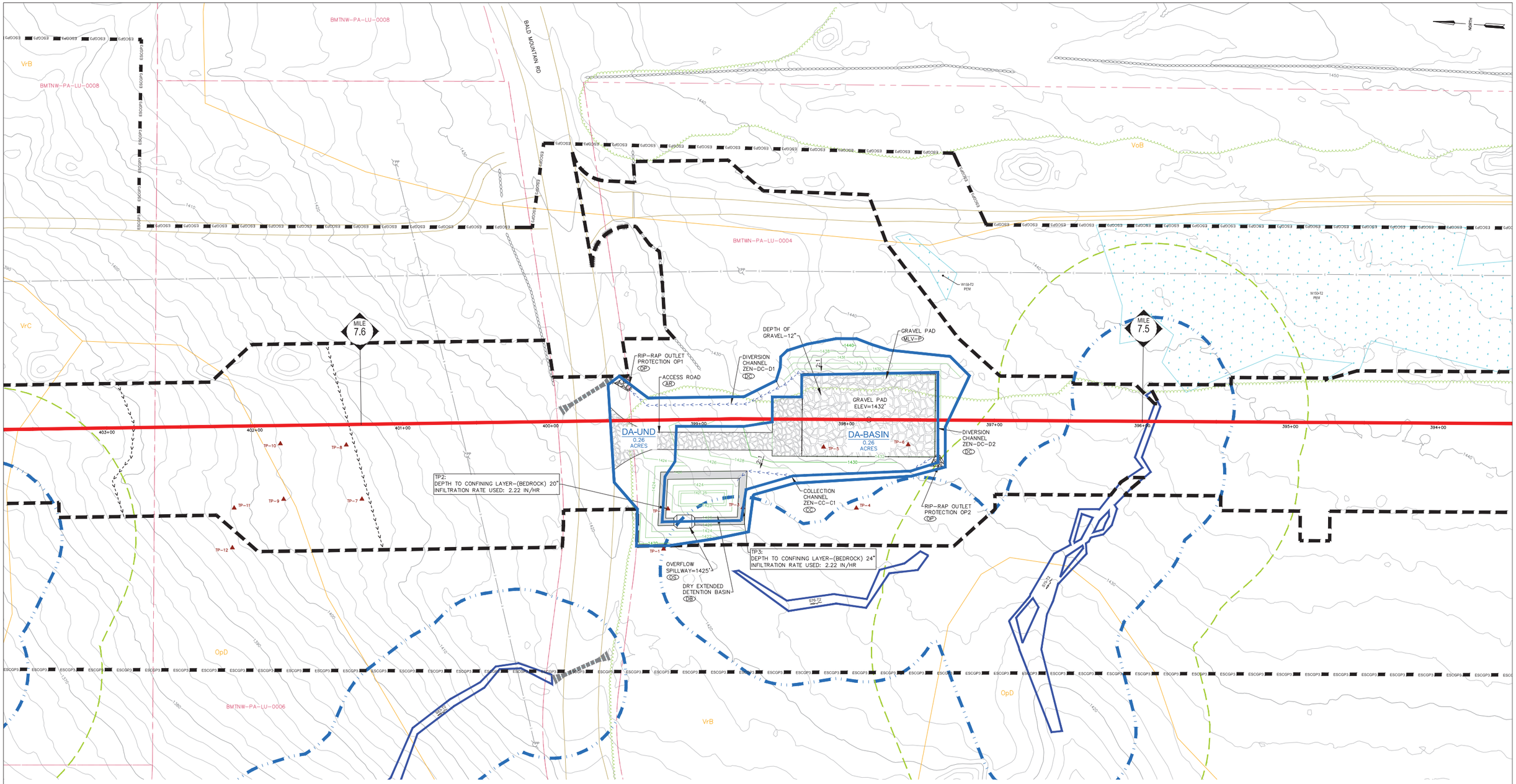

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- EXISTING POWER POLE
- EXISTING WELL
- PROPOSED CONSTRUCTION FENCE
- PROPOSED PIPELINE
- PROPOSED PIPELINE GROUNDBED
- PROPOSED WATERBAR AND OUTLET STRUCTURE
- PROPOSED DIVERSION CHANNEL
- PROPOSED FENCE
- PROPOSED GRAVEL
- PROPOSED GRADE MAJOR CONTOURS (10' C.I.)
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BA GROUP
WHM consulting, LLC

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PENNSYLVANIA PROFESSIONAL ENGINEER

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RESOLUTION TO SOIL LIMITATIONS

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

1. TO OFFSET THE CAVING OF CUTBANKS, TRENCHING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE OSHA TECHNICAL MANUAL FOR TRENCHING.
2. PREVENTATIVE COATINGS SHALL BE USED TO PREVENT CORROSION OF CONCRETE AND/ OR STEEL.
3. 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.
4. 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.
5. 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.
6. 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.
7. IN SOILS THAT ARE A POOR SOURCE OF TOPSOIL, DROUGHTY OR PRONE TO WETNESS, SOIL TESTING IS ENCOURAGED TO DETERMINE THE APPROPRIATE APPLICATIONS OF SOIL AMENDMENTS TO PROMOTE GROWTH. SOILS ONSITE THAT ARE FAIR SOURCES OF TOPSOIL, WILL BE IDENTIFIED, STRIPPED AND STOCKPILED FOR USE DURING RESTORATION.
8. 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.

Table 2 – Soils mapping units within the LOD

Soil Mapping Unit	Soil Series
VrB	Volusia channery silt loam, 0 to 8 percent slopes, extremely stony
VoB	Volusia channery silt loam, 0 to 8 percent slopes

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	CORROSIVE TO CONCRETE\STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
Volusia	VrB, VoB	X	C/S	X	X		X	X	X	X	X	X	X				

CHARACTERISTICS OF EARTH DISTURBANCE ACTIVITY, INCLUDING PAST, PRESENT AND PROPOSED LAND USE PROPOSED ALTERATIONS TO THE AREA

THE LIMIT OF DISTURBANCE WILL BE APPROXIMATELY 0.46 ACRES, TRANSCO WILL BE INSTALLING VARIOUS TIE–IN AND MAINLINE VALVE (MLV) FACILITIES ALONG THE REL PIPELINE AS A MEANS OF CONTROLLING GAS FLOWS. WORK AND DISTURBED AREAS ARE LOCATED WITHIN TRANSCO PROPERTY, EXISTING EASEMENTS, OR LEGALLY OBTAINED TEMPORARY WORKSPACE. USING DATA TAKEN FROM GOOGLE EARTH AND MULTI–RESOLUTION LAND CHARACTERISTICS (MRLC) CONSORTIUM WEBSITE (HTTPS://WWW.MRLC.GOV/VIEWER/), IT APPEARS THAT THE REGIONAL ENERGY LATERAL PIPELINE SITE HAS BEEN A WOODLAND FOR OVER THE PAST 20 YEARS. WITHIN APPROXIMATELY THE PAST 7 YEARS, A POWERLINE CORRIDOR WAS CONSTRUCTED ADJACENT TO THE SITE. BASED ON THE SURROUNDING LAND CHARACTERISTICS, LAND USE PRIOR TO ROW CONSTRUCTION WITHIN THE PAST 50 YEARS LIKELY WOULD HAVE BEEN WOODLAND. EARTH DISTURBANCE ACTIVITIES AT EACH FACILITY WILL INCLUDE GRADING TO CREATE LEVEL GRAVEL PAD AREAS, INSTALLATION OF PCSM BMP'S, AND CONSTRUCTION OF GRAVEL ACCESS ROADS. DISTURBED AREAS WITHIN THE TEMPORARY WORKSPACES WILL BE RESTORED TO THE ORIGINAL CONTOURS. THE CONTRACTOR WILL CONSTRUCT STORMWATER BMPS TO MITIGATE THE INCREASE IN VOLUME AND PEAK RATES ASSOCIATED WITH CONSTRUCTION. THE PROPOSED BMPS ARE DESIGNED TO EVAPORATE AND/OR INFILTRATE THE NET INCREASE IN VOLUME BETWEEN THE PRE– AND POST–DEVELOPMENT 2–YEAR RAIN EVENTS.

BMP DESCRIPTION NARRATIVE

MAINLINE VALVE MLV–515RA02– ZENKER VALVE YARD IS PROPOSED ALONG THE REL PIPELINE IN BEAR CREEK TOWNSHIP, LUZERNE COUNTY AT MILEPOST 7.54. IT IS PROPOSED AS A MEANS TO ISOLATE GAS FLOWS ALONG SECTIONS OF A PIPELINE. PIG LAUNCHERS/RECEIVERS AND COMMUNICATION EQUIPMENT MAY BE LOCATED AT THE MLV FACILITY. THE FACILITY WILL INCLUDE A 125 FOOT LONG GRAVEL ACCESS ROAD, 55 FT X 90 FT GRAVEL PAD, VARIOUS DIVERSION AND COLLECTION CHANNELS, AND A DRY EXTENDED DETENTION BASIN PCSM BMP.

DIVERSION CHANNELS WILL COLLECT AND CONVEY UPSLOPE STORMWATER RUNOFF AWAY FROM THE SITE. A COLLECTION CHANNEL WILL COLLECT STORMWATER RUNOFF FROM THE VALVE PAD AND CONVEY IT TO A DRY EXTENDED DETENTION BASIN. THE BASIN WILL MITIGATE THE NET INCREASE IN STORMWATER RUNOFF VOLUME FOR THE 2–YEAR, 24–HOUR PRE–POST STORM EVENT BY INFILTRATION AND EVAPOTRANSPIRATION. FURTHER, THE BASIN WILL MITIGATE PEAK RATE INCREASES FOR THE 2–, 10, 50, AND 100–YEAR, 24–HOUR STORM EVENTS.

BMP INSTALLATION SEQUENCE

THE PCSM BMPS SHOULD BE INSTALLED IN A MANNER DESIGNED TO:

1. PROTECT BMP AREAS ASSOCIATED WITH INFILTRATION FROM COMPACTION PRIOR TO AND DURING INSTALLATION.
2. MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
3. VALVE YARD PAD
   a. AS THE VALVE YARD PAD REACHES FINAL GRADE, ENSURE THE SUBGRADE ELEVATIONS DIRECT STORMWATER RUNOFF TO COLLECTION CHANNEL C1.
   b. COMPACT THE SUBGRADE FILL TO LIMIT INFILTRATION IN THE PAD AREA. PROPER COMPACTION IS NECESSARY AS THE ENTIRE VALVE YARD PAD IS A FILL CONSTRUCTION.
   c. PLACE AGGREGATE FINAL COVER TO ACHIEVE FINAL GRADE ON VALVE YARD PAD.
4. DIVERSION CHANNELS
   a. CONSTRUCT DIVERSION CHANNELS AS SHOWN IN THE PLAN. INSTALL OUTLET PROTECTION AS REQUIRED.
   b. STABILIZE THE CHANNELS WITH SPECIFIED CHANNEL LININGS.
5. DRY EXTENDED DETENTION BASIN
   a. INSTALL ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
      - THE AREA IMMEDIATELY ADJACENT TO THE BASIN MUST BE STABILIZED IN ACCORDANCE WITH THE PADEP'S EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (2000 OR LATEST EDITION) PRIOR TO BASIN CONSTRUCTION.
   b. PREPARE SITE FOR EXCAVATION AND/OR EMBANKMENT CONSTRUCTION.
      - ALL EXISTING VEGETATION SHOULD REMAIN IF FEASIBLE AND SHOULD ONLY BE REMOVED IF NECESSARY FOR CONSTRUCTION.
      - CARE SHOULD BE TAKEN TO PREVENT COMPACTION OF THE BASIN BOTTOM.
      - IF EXCAVATION IS REQUIRED, CLEAR THE AREA TO BE EXCAVATED OF ALL VEGETATION. REMOVE ALL TREE ROOTS, ROCKS, AND BOULDERS ONLY IN EXCAVATION AREA
   c. EXCAVATE BOTTOM OF BASIN TO DESIRED ELEVATION (IF NECESSARY).
   d. INSTALL SURROUNDING EMBANKMENTS AND INLET AND OUTLET CONTROL STRUCTURES.
   e. GRADE SUBSOIL IN BOTTOM OF BASIN, TAKING CARE TO PREVENT COMPACTION. COMPACT SURROUNDING EMBANKMENT AREAS AND AROUND INLET AND OUTLET STRUCTURES.
   f. APPLY AND GRADE PLANTING SOIL.
   g. APPLY GEOTEXTILES AND OTHER EROSION–CONTROL MEASURES.
   h. SEED, PLANT AND MULCH ACCORDING TO PLANTING PLAN
   i. INSTALL ANY ANTI–GRAZING MEASURES, IF NECESSARY.
6. COLLECTION CHANNEL C1
   a. CONSTRUCT COLLECTION CHANNEL AS SHOWN IN THE PLAN.
   b. STABILIZE THE CHANNEL WITH SPECIFIED CHANNEL LININGS.
7. ALL TEMPORARY E&S BMPS WILL BE REMOVED FOLLOWING SITE STABILIZATION. OTHER EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL THE SITE IS FULLY STABILIZED.
8. ALL INSTALLED BMPS WILL BE MONITORED UNTIL FINAL SITE STABILIZATION IS ACHIEVED.
9. LONG TERM OPERATION AND MAINTENANCE GUIDELINES DISCUSSED ON THIS SHEET SHALL BE FOLLOWED.

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

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

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

ERNST RIPARIAN BUFFER MIX - ERNMX 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-ANGLIAE*	NEW ENGLAND ASTER
0.7%	*ASTER UMBELLATUS*	FLAT TOPPED WHITE ASTER
0.7%	*EUPATORIUM PERFOLIATUM*	BONESET
0.5%	*AGROSTIS PERENNANS*	AUTUMN BENTGRASS
0.5%	*HELENIUM AUTUMNALE*	COMMON SNEEZEWEED
0.5%	*MONARDA FISTULOSA*	WILD BERGAMOT
0.5%	*VERNONIA NOVEBORACENSIS*	NEW YORK IRONWEED
0.4%	*PYCNANTHEMUM 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 PUNICEUS*	PURPLESTEM ASTER

1. SEEDING RATE: 20 LBS/ACRE WITH A COVER CROP AT 30 LBS/ACRE
2. THIS SEED MIX IS TO BE USED TO REVEGETATE WORKSPACE WITHIN THE DESIGNATED 150' RIPARIAN BUFFER AREA WHERE SLOPES ARE LESS THAN 10%. IF THE SLOPE EXCEEDS 10%, A STANDARD UPLAND ROW MIX SHOULD BE USED.
3. AN ALTERNATIVE SEED MIXTURE THAT CONTAINS SIMILAR SPECIES IS ACCEPTABLE.

TABLE 11.4
Recommended Seed Mixtures

Mixture Number	Species	Seeding Rate-Pure Live Seed[1]: Most Sites	Adverse Sites
1[2]	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
2[3]	Tall fescue, or Fine fescue, or Kentucky bluegrass, plus Redtop[4], or Perennial ryegrass	60 35 25 3 15	75 40 30 3 20
3	Birdsfoot trefoil, plus Tall fescue	6 30	10 35
4	Birdsfoot trefoil, plus Reed canarygrass	6 10	10 15
8	Flatpea, plus Tall fescue, plus Perennial ryegrass	20 20 20	30 30 25
9[6]	Serecia lespedeza, plus Tall fescue, plus Redtop[4]	10 20 3	20 25 3
10	Tall fescue, plus Fine fescue	40 10	60 15
11	Deertongue, plus Birdsfoot trefoil	15 6	20 10
12[7]	Switchgrass, or big Bluestem, plus Birdsfoot trefoil	15 15 6	20 20 10
13	Orchardgrass, plus Smooth bromegrass, plus Birdsfoot trefoil	20 25 6	30 35 10

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

[1] 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.

[2] 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.

[3] THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN 4 INCHES.

[4] KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER OOUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH ASX WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.

[5] USE FOR HIGHWAY SLOPES AND SIMILAR SITES WHERE THE DESIRED SPECIES AFTER ESTABLISHMENT IS CROWNVETCH.

[6] USE ONLY IN EXTREME SOUTHEASTERN OR EXTREME SOUTHWESTERN PENNSYLVANIA. SERECIA IESPEDEZA IS NOT WELL ADAPTED TO MOST OF PA.

[7] DO NOT MOW SHORTER THAN 9 TO 10 INCHES.

[8] SEE MIXTURES CONTAINING CROWN VETCH SHOULD NOT BE USED IN AREAS ADJACENT TO WETLANDS OR STREAM CHANNELS DUE TO THE NATURE OF THIS SPECIES.

TABLE 11.5
Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Condition	Nurse Crop	Seed Mixture (Select one mixture)
Slopes and Banks (not mowed)		
Well-drained	1 plus	3, 8, or 12[1]
Variable drainage	1 plus	3
Slopes and Banks (mowed)		
Well-drained	1 plus	2 or 10
Slopes and Banks (grazed/hay)		
Well-drained	1 plus	2, 3, or 13
Gullies and Eroded Areas	1 plus	3, or 12[1]
Erosion Control Facilities (BMPs)		
Sod waterways, spillways, frequent water flow areas	1 plus	2, 3, or 4
Drainage ditches		
Shallow, less than 3 feet deep	1 plus	2, 3, or 4
Deep, not mowed	1 plus	
Pond banks, dikes, levees, dams, diversion channels, And occasional water flow areas		
Mowed areas	1 plus	2 or 3
Non-mowed areas	1 plus	
For hay or silage on diversion channels and occasional water flow areas	1 plus	3 or 13
Highways [2]		
Non-mowed areas		
Well-drained	1 plus	8, 9, or 10
Variable drained	1 plus	3
Poorly drained	1 plus	3 or 4
Areas mowed several times per year	1 plus	2, 3, or 10
Utility Right-of-way		
Well-drained	1 plus	8, or 12[1]
Variable drained	1 plus	3
Well-drained areas for grazing/hay	1 plus	2, 3, or 13
Effluent Disposal Areas	1 plus	3 or 4
Sanitary Landfills	1 plus	3, 11[1], or 12[1]
Surface mines		
Spoils, mine wastes, fly ash, slag, settling basin		
Residues and other severely disturbed areas (lime to soil test)	1 plus	3, 4, 8, 9, 11[1], or 12[1]
Severely disturbed areas for grazing/hay	1 plus	3 or 13

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

1. For seed mixtures 11 and 12, only use spring oats or weeping lovegrass (included in mix) as nurse crop.
2. Contact the Pennsylvania Department of Transportation district roadside specialist for specific suggestions on treatment techniques and management practices.
3. Seed mixtures containing crown vetch should not be used in areas adjacent to wetlands or stream channels due to the invasive nature of this species.

PCSM CRITICAL STAGES

CRITICAL POINTS REQUIRING VISITS BY THE LICENSED PROFESSIONAL OR DELEGATE ARE AS FOLLOWS:

1. UPON COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO ASCERTAIN THE DRY EXTENDED DETENTION BASIN AREA HAS BEEN FLAGGED AND FENCE ERECTED TO PREVENT ACCESS TO THE AREA.
2. AT COMPLETION OF DIVERSION CHANNELS TO ENSURE THEY HAVE BEEN CONSTRUCTED TO THE PROPOSED LINES AND GRADES, THE SPECIFIED LINING MATERIALS HAVE BEEN INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AND IF APPLICABLE, VEGETATION HAS BEEN ESTABLISHED.
3. AT THE BEGINNING OF CONSTRUCTION OF THE DRY EXTENDED DETENTION BASIN TO ENSURE THE INFILTRATION AREA HAS NOT BEEN COMPACTED BY CONSTRUCTION ACTIVITIES.
4. DURING CONSTRUCTION OF THE DRY EXTENDED DETENTION BASIN THE LICENSED PROFESSIONAL WILL OBSERVE THAT THE BMP IS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
5. AT COMPLETION OF COLLECTION CHANNEL C1 TO ENSURE IT HAS BEEN CONSTRUCTED TO THE PROPOSED LINE AND GRADE, THE SPECIFIED LINING MATERIAL HAS BEEN INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, AND IF APPLICABLE, VEGETATION HAS BEEN ESTABLISHED.
6. FOLLOWING INSTALLATION OF THE VALVE YARD PAD SUBGRADE TO ENSURE STORMWATER FLOW IS DIRECTED TO COLLECTION CHANNEL C1.
7. FOR FINAL INSPECTION OF CONSTRUCTED BMPS.
8. AT THE ESTABLISHMENT OF HARD SURFACE STABILIZATION OR 70% VEGETATION COVERS TO ALLOW REMOVAL OF E&S CONTROLS.

LONG TERM OPERATION AND MAINTENANCE SCHEDULE

ALL BMPS SHOULD BE PROPERLY MAINTAINED TO ENSURE THEIR EFFECTIVENESS. SHEET FLOW CONDITIONS AND INFILTRATION MUST BE SUSTAINED THROUGHOUT THE LIFE OF THE BMP. INSPECT BMPS FOR CLOGGING FROM SEDIMENT OR DEBRIS, DAMAGE BY FOOT OR VEHICULAR TRAFFIC, AND FLOW CHANNELIZATION. INSPECTIONS SHOULD BE MADE ON A QUARTERLY BASIS FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, AND THEN TWICE PER YEAR THEREAFTER. INSPECTIONS SHOULD ALSO BE MADE AFTER EVERY STORM EVENT GREATER THAN 1 INCH DURING THE ESTABLISHMENT PERIOD.

OPERATION AND MAINTENANCE GUIDELINES SHOULD BE PROVIDED TO ALL FACILITY OWNERS AND TENANTS. SEDIMENT AND DEBRIS SHOULD BE ROUTINELY REMOVED UPON OBSERVATION. IF EROSION IS OBSERVED, MEASURES SHOULD BE TAKEN TO IMPROVE DISPERSION METHOD TO ADDRESS THE SOURCE OF EROSION.

THE FOLLOWING FACILITIES WILL BE INSPECTED:

- DIVERSION CHANNEL AND COLLECTION CHANNEL
- DRY EXTENDED DETENTION BASIN, AND
- RIPRAP OUTLET PROTECTION.

DIVERSION CHANNELS D1 AND D2, AND COLLECTION CHANNEL C1 WILL BE INSPECTED FOR SEDIMENT ACCUMULATION, DAMAGE CAUSED BY EROSION, AND LACK OF GROUND COVER. REPAIRS WILL BE MADE IMMEDIATELY. DURING THE GROWING SEASON, THE CHANNELS WILL BE REGULARLY MOWED (TO PREVENT CLOGGING WITH WEEDS AND HIGH GRASS) TO ENSURE PROPER FUNCTIONING.

GRASS COVER SHOULD BE MOWED WITH LOW GROUND PRESSURE EQUIPMENT AS NEEDED TO CONTROL NOXIOUS WEEDS. MOWING SHOULD BE DONE ONLY WHEN THE SOIL IS DRY IN ORDER TO PREVENT TRACKING DAMAGE TO VEGETATION, SOIL COMPACTION, AND FLOW CONCENTRATIONS. IF VEGETATIVE COVER IS NOT FULLY ESTABLISHED WITHIN THE DESIGNATED TIME, IT SHOULD BE REPLACED WITH AN ALTERNATIVE SPECIES. UNWANTED OR INVASIVE GROWTH SHOULD BE REMOVED ON AN ANNUAL BASIS.

VEGETATED AREAS WILL BE INSPECTED WEEKLY AND AFTER RUNOFF EVENTS UNTIL PERMANENT VEGETATION IS ACHIEVED. ONCE THE VEGETATION IS ESTABLISHED, INSPECTIONS OF HEALTH, DIVERSITY, AND DENSITY SHOULD BE PERFORMED AT LEAST TWICE PER YEAR, DURING BOTH THE GROWING AND NON–GROWING SEASON. VEGETATIVE COVER SHOULD BE SUSTAINED AT 85% AND REESTABLISHED IF DAMAGE GREATER THAN 50% IS OBSERVED.

THE DRY EXTENDED DETENTION BASIN WILL BE INSPECTED FOR SEDIMENT ACCUMULATION. SEDIMENT BUILDUP IN THE BASIN WILL BE REMOVED AND BE PROPERLY DISPOSED. ALL DAMAGE CAUSED BY EROSION WILL BE REPAIRED IMMEDIATELY. SIDE SLOPE AREAS (BOTH INTERIOR AND EXTERIOR) WILL BE CHECKED FOR LACK OF GROUND COVER AND GULLY EROSION. THESE AREAS WILL BE REGRADED, AS NECESSARY, THEN FERTILIZED, SEEDED AND MULCHED. THE DISCHARGE STRUCTURE (TRAPEZOIDAL SPILLWAY) WILL BE INSPECTED FOR DAMAGE. REPAIRS WILL BE MADE IMMEDIATELY. DEBRIS THAT HAS ACCUMULATED ON THE SPILLWAY WILL BE IMMEDIATELY REMOVED. IF PROBLEMS ARE FOUND WITH THE TRAPEZOIDAL SPILLWAY, REPAIRS WILL BE MADE IMMEDIATELY.

THE RIPRAP OUTLET PROTECTION, OP1 AND OP2, SHALL BE INSPECTED QUARTERLY, AND AFTER EVERY MAJOR STORM (I.E., 10–YEAR, 24–HOUR EVENT) TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. DISPLACED RIPRAP WITHIN THE RIPRAP OUTLET PROTECTION SHALL BE REPLACED IMMEDIATELY. ALL OTHER NEEDED REPAIRS WILL ALSO BE MADE IMMEDIATELY TO PREVENT FURTHER DAMAGE.

MATERIAL RECYCLING AND DISPOSAL

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.DEPWEB.STATE.PA.US.

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

THERMAL IMPACTS

DUE TO THE OVERALL NATURE OF THE PROJECT, THERMAL IMPACTS TO SURFACE WATERS ARE NOT ANTICIPATED. THE PRIMARY MEANS TO ADDRESS THERMAL IMPACTS ON THIS PROJECT IS TO LIMIT THE SIZE AND DURATION OF EXPOSED EARTH.

STORMWATER RUNOFF ASSOCIATED WITH THE INSTALLATION OF THE COMPRESSOR UNITS WILL BE ROUTED THROUGH THE STORMWATER BMP'S DESIGNED TO RETAIN AND INFILTRATE THE FIRST SURGE OF WATER FROM THE SITE. THE FIRST SURGE OF WATER WILL BE THE WARMEST WATER FOR THE DURATION OF THE STORM EVENT AND WILL QUICKLY COOL AS THE STORM EVENT PROGRESSES. THE BMPS ARE DESIGNED TO CAPTURE AND INFILTRATE THIS WARMEST SURGE OF STORMWATER. BASED ON ROUTING CALCULATIONS, STORMWATER IS NOT DISCHARGED FROM THE BMPS FOR THE FIRST 12 HOURS DURING A 100–YEAR/24–HOUR STORM EVENT. THE RETENTION PERIOD IS LONGER FOR LESS INTENSE STORMS. THEREFORE, THROUGH THESE MEASURES, THERE IS NO SIGNIFICANT THERMAL IMPACT TO THE RECEIVING WATERS ANTICIPATED.

ANTIDEGRADATION REQUIREMENTS

THE SITE IS LOCATED IN HIGH QUALITY WATERSHED AND CONSTRUCTION ACTIVITIES AT THE SITE WILL RESULT IN INCREASED DISCHARGE OF STORMWATER TO SURFACE WATERS. THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THE SITE OUTLINES A MORE STRINGENT DESIGN AND E&S BMPS THAT MEET ABACT STANDARDS. WITH REGARD TO WATERS IDENTIFIED AS SPECIAL PROTECTION UNDER CHAPTER 93 (HQ–CWF AND EV), THE FOLLOWING IS A WRITTEN DEMONSTRATION OUTLINING HOW THE PROJECT IS MEETING THE ANTIDEGRADATION REQUIREMENTS FOUND WITHIN CHAPTER 93 AND 102.

TRANSCO EVALUATED THE FEASIBILITY ON NON–DISCHARGE ALTERNATIVES SUCH AS ALTERNATIVE SITE LOCATION, LIMITING DISTURBED AREA AND PROTECTING RIPARIAN BUFFERS. THE LOCATION WAS CHOSEN SUCH THAT DISTURBANCE TO SURROUNDING AREAS AND SENSITIVE FEATURES SUCH AS RIPARIAN BUFFERS WAS MINIMIZED. THE EXISTING / DESIGNATED USE OF THE STREAMS WITHIN THE PROJECT AREA ARE TO BE PROTECTED THROUGH E&S AND PCSM MEASURES TAKEN BY TRANSCO. PROPOSED INFILTRATION BMPS ARE DESIGNED WITH STORMWATER VOLUME REDUCTION AND WATER QUALITY TREATMENT MAXIMIZED TO THE EXTENT PRACTICABLE WITHIN THE SITE CONSTRAINTS TO MAINTAIN AND PROTECT EXISTING WATER QUALITY AND EXISTING AND DESIGNATED USES. STORMWATER BMPS WILL BE DESIGNED TO MEET THE ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT) STANDARDS AS OUTLINED BY THE PA DEP E&S MANUAL GUIDANCE (MARCH 2012). COMPOST FILTER SOCKS, WHICH IS AN ABACT BMP, WILL BE USED ACROSS THE SITE TO PREVENT SEDIMENTS FROM REACHING ADJACENT SURFACE WATERS. EARTH DISTURBANCE WILL BE MINIMIZED TO THE EXTENT PRACTICAL AND WILL BE PHASED OR SEQUENCED TO ONLY DISTURBED PORTIONS THAT ARE NECESSARY FOR THE SPECIFIC SCOPE OF WORK. ALSO, IMMEDIATE STABILIZATION WILL TAKE PLACE WHEN EARTHWORK COMMENCES WITHIN A SPECIFIC AREA. WHEREVER POSSIBLE, THE LOD WAS DECREASED TO AVOID DISTURBING ADDITIONAL GROUND AND WILL BE KEPT TO THE MINIMUM WIDTH AND DEPTH NECESSARY TO SAFELY COMPLETE CONSTRUCTION ACTIVITIES.

RIPARIAN BUFFERS

TEMPORARY WORKSPACE ASSOCIATED WITH MLV–515REL20–ZENKER VALVE YARD IS LOCATED WITHIN THE NON–FORESTED RIPARIAN BUFFER OF STREAM, S75–T2. AFTER COMPLETING THE CONSTRUCTION ACTIVITIES, THE IMPACTED RIPARIAN AREA WILL BE RESTORED BACK TO PRE–EXISTING CONTOURS AND RE–SEEDED WITH A RIPARIAN SEED MIX.

NON–STRUCTURAL AND STRUCTURAL WATER QUALITY BMP DESCRIPTION

1. LIMIT OF DISTURBANCE WILL BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE BY DISTURBING ONLY THOSE AREAS NECESSARY TO COMPLETE THE PROPOSED EARTHWORK AND BMP INSTALLATIONS.
2. SENSITIVE FEATURES SUCH AS WETLANDS AND RIPARIAN BUFFERS WILL BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE. THESE AREAS WILL BE CLEARLY DELINEATED IN THE FIELD AND PROTECTED PRIOR TO ANY CONSTRUCTION ACTIVITIES TAKING PLACE. EXISTING VEGETATION IS NOT TO BE REMOVED FROM THE PROTECTED AREA AND THE AREAS SHALL NOT BE SUBJECT TO GRADING OR MOVEMENT OF EXISTING SOILS. ANY PROTECTED AREAS THAT HAVE BEEN DISTURBED/COMPACTED DURING CONSTRUCTION WILL BE RESTORED USING SOIL AMENDMENT AND RESTORATION.
3. TEMPORARILY IMPACTED RIPARIAN BUFFER WILL BE FULLY RESTORED TO ITS PREEXISTING CONDITIONS
4. DISTURBED AREAS THAT ARE NOT PROPOSED TO BE IMPERVIOUS WILL BE REVEGETATED AS PER THE SEEDING AND MULCHING NOTES PROVIDED IN PCSM PLAN NOTES.
5. DRY EXTENDED DETENTION BASIN WILL ACT AS A WATER QUALITY BMP. RELATIVELY STEEPER SLOPES ARE UTILIZED FOR THE DRY EXTENDED DETENTION BASIN EMBANKMENTS TO MINIMIZE DISTURBED AREA.
6. WHEREVER POSSIBLE, EXISTING NATURAL DRAINAGE PATTERNS WILL BE UTILIZED TO DIVERT FLOW TO THE PROPOSED INFILTRATION BASIN.

THE PCSM PLAN SHALL BE PREPARED BY A PERSON TRAINED AND EXPERIENCED IN EROSION CONTROL METHODS AND TECHNIQUES

THESE PLANS AND NARRATIVE WERE PREPARED BY BY KEVIN C. CLARK, PE (BAI GROUP, LLC) OF STATE COLLEGE, PA IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION STORMWATER BMP MANUAL, DECEMBER, 2006. THE PLAN PREPARER'S RESUME IS PROVIDED IN THE PERMIT APPLICATION).

BAI GROUP
WHM consulting, LLC

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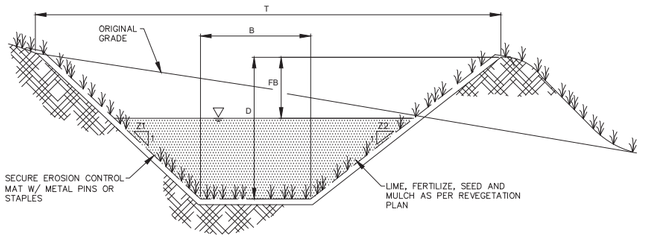
REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
MLV-515RA20
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
Williams.

NOTES

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: RHM	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: KCC	DATE: 03/31/21	DRAWING NUMBER: 26-1000-70-28-D	SHEET 4 OF 5
WO: 1211227	RID: 207		



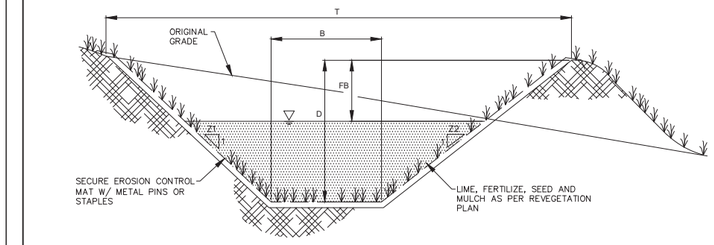
Channel ID.	LENGTH [FT]	SLOPE [%]	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	OUTLET
ZEN-DC-D1	127	8.390	1	1.67	1/1	4.34	NAG P550	OP2
ZEN-DC-02	70	4.290	1	1.67	1/1	4.35	NAG SC250	OP3

PENNSYLVANIA

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

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

DC TYPICAL DIVERSION CHANNEL



Channel ID.	LENGTH [FT]	SLOPE (%)	BASE WIDTH [FT]	DEPTH [FT]	SIDE SLOPES [Z1/Z2]	TOP WIDTH [FT]	LINING	OUTLET
ZEN-CC-C1	135	3.70	1	1.50	1/1	4.00	NAG SC250	POND

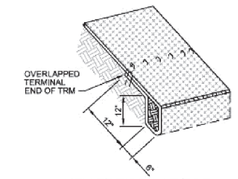
PENNSYLVANIA

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

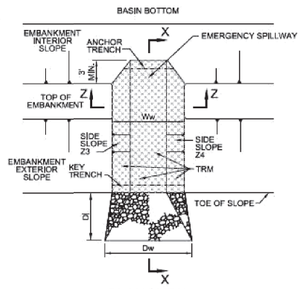
TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

CC TYPICAL COLLECTION CHANNEL

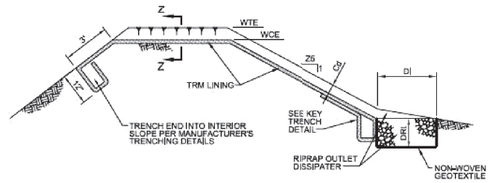
WEIR
SECTION Z - Z



KEY TRENCH AT TOE
OF SLOPE OF SPILLWAY



PLAN VIEW
RIPRAP OUTLET DISSIPATOR



EMBANKMENT SECTION ALONG EMERGENCY SPILLWAY
SECTION X-X

HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING.

DISPLACED LINER WITHIN SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

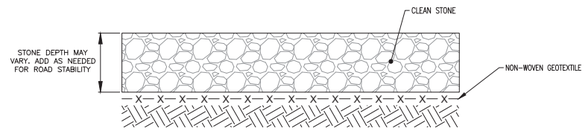
BASIN NO.	WEIR					LINING	CHANNEL		DISSIPATER			
	Z3 (FT)	Z4 (FT)	TOP ELEV WCE (FT)	CREST ELEV WCE (FT)	WIDTH W w (FT)	TRM TYPE	Z5 (FT)	DEPTH C d (FT)	LENGTH DI (FT)	WIDTH D w (FT)	RIPRAP SIZE (R-__)	RIPRAP THICK. DRt (IN)
DB 1	2	2	1426	1425	5	SC250	2	1	5	5	3	9

PENNSYLVANIA

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

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

IFB-1 INFILTRATION BASIN EMERGENCY SPILLWAY DETAIL



NOTES:

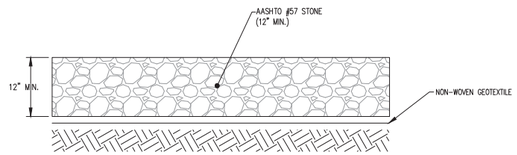
1. CROSS SECTION TO BE APPLIED TO DRY AREAS WITHOUT DRAINAGE CONCERNS.
2. EXISTING MATERIAL TO BE REMOVED AND STOCKPILED IN AN APPROVED LOCATION ONLY.
3. EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION & SEDIMENT POLLUTION CONTROL PLAN FOR THE PROJECT.
4. GRADING AND CROSS SLOPES VARY BY EXISTING CONDITIONS; SEE SPECIFIC DESIGN AND PROFILE FOR MORE DETAIL.
5. 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.
6. AS DIRECTED BY ENGINEER AND APPROVED BY OWNER, EXCAVATE AND STABILIZE SOFT SPOTS, UNSATISFACTORY SOILS AND AREAS OF EXCESSIVE PUMPING OR RUTTING.
7. PROOF-ROLLING OF SUBGRADE MAY BE REQUIRED TO DETERMINE PROPER COMPACTION BY OWNER.
8. TEMPORARILY WIDENED ROAD SHOULD FOLLOW THE SAME SPECIFICATION FOR WIDENED ROADS. THE EXISTING ROAD SHALL BE MAINTAINED.

PENNSYLVANIA

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

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

AR PERMANENT/TEMPORARY STONE ACCESS ROAD



NOTES:

1. CROSS SECTION TO BE APPLIED TO DRY AREAS WITHOUT DRAINAGE CONCERNS.
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TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

MLV-P MAIN LINE VALVE PAD

BA GROUP

WHM consulting, LLC

KEVIN CLARK, P.E.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
KEVIN C. CLARK
ENGINEER
041201-E

PENNSYLVANIA PROFESSIONAL ENGINEER

REVISIONS

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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
MLV-515RA20
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

DETAILS

BEAR CREEK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: RHM	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: KCC	DATE: 03/31/21		SHEET 5
WO: 1211227	RID: 207	DRAWING NUMBER: 26-1000-70-28-D	OF 5