

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

REGIONAL ENERGY ACCESS EXPANSION PROJECT COMPRESSOR STATION 515

BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

APRIL 2021

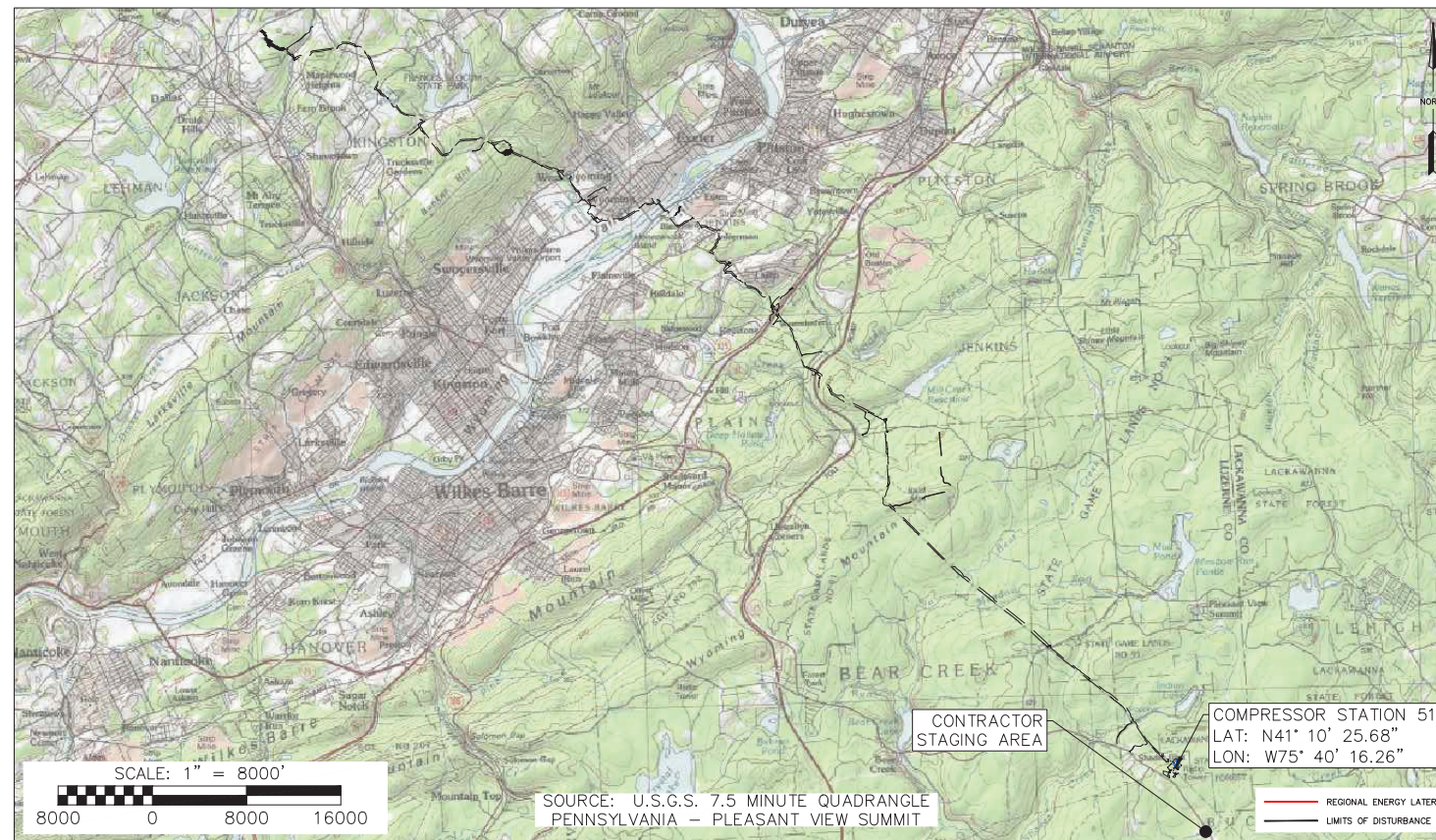
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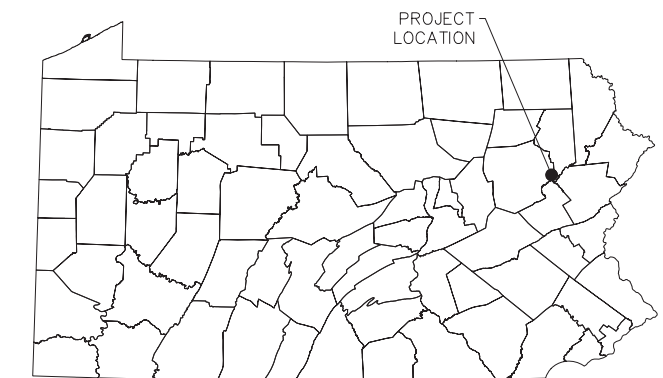
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LOCATION MAP



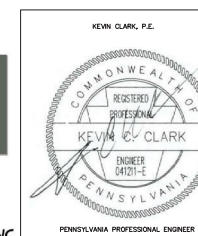
VICINITY MAP
N.T.S.

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4 OF 6	NOTES
5-6 OF 6	DETAILS

RECEIVING WATERS			
NAME	DESIGNATED USE	EXISTING USE	PFBC CLASSIFICATION
TRIB 04285 SHADES CREEK	HQ-CWF, MF	-	NATURALLY PRODUCING WILD TROUT STREAM
STONY RUN	HQ-CWF, MF	-	NATURALLY PRODUCING WILD TROUT STREAM

Call before you dig.
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.

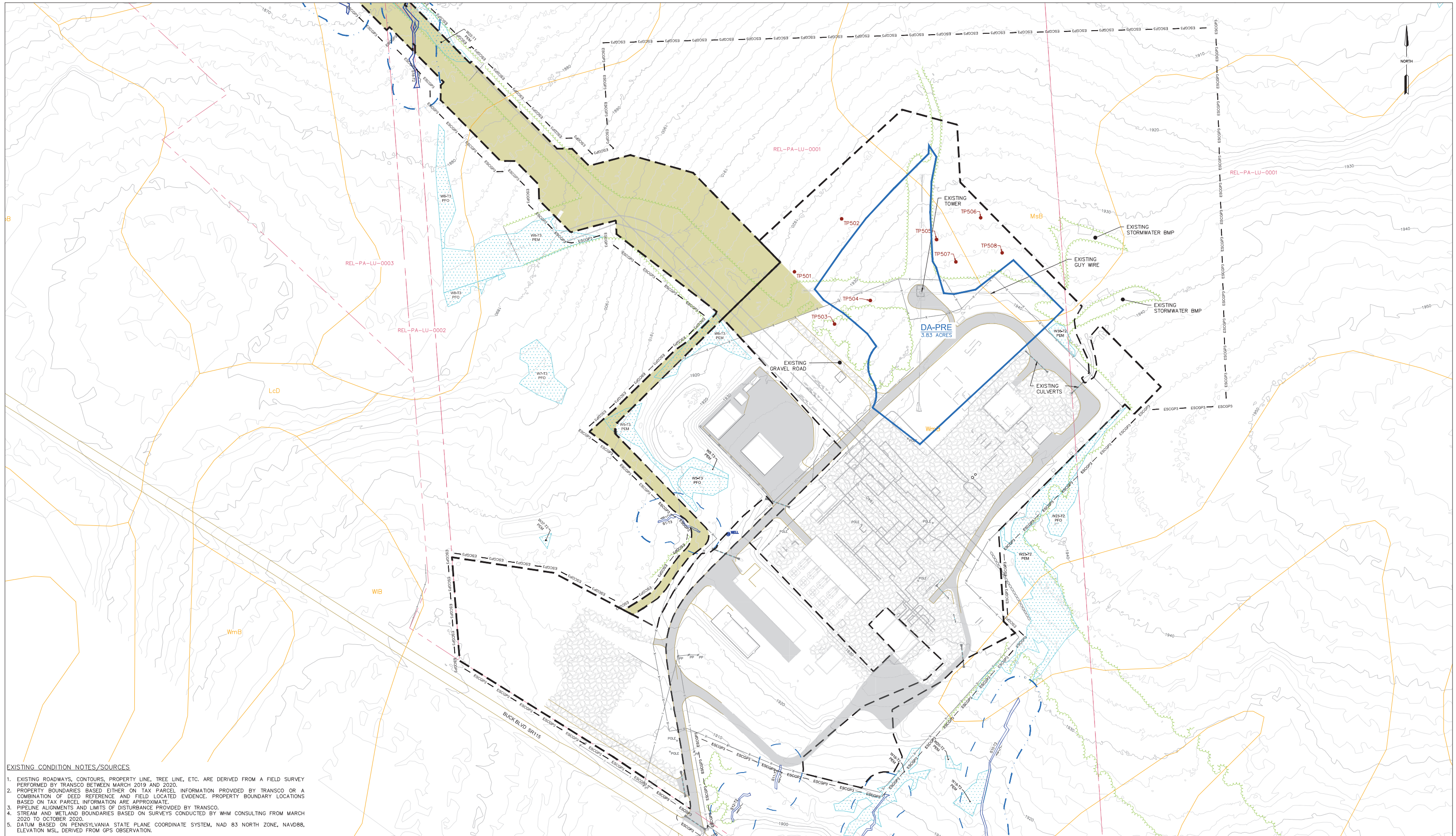


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NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
COMPRESSOR STATION 515
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
COVER

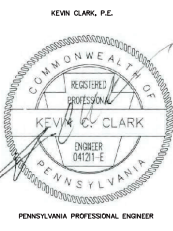
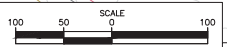
BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RJN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
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WO: 1211227	RID: 304	SHEET 1 OF 6	



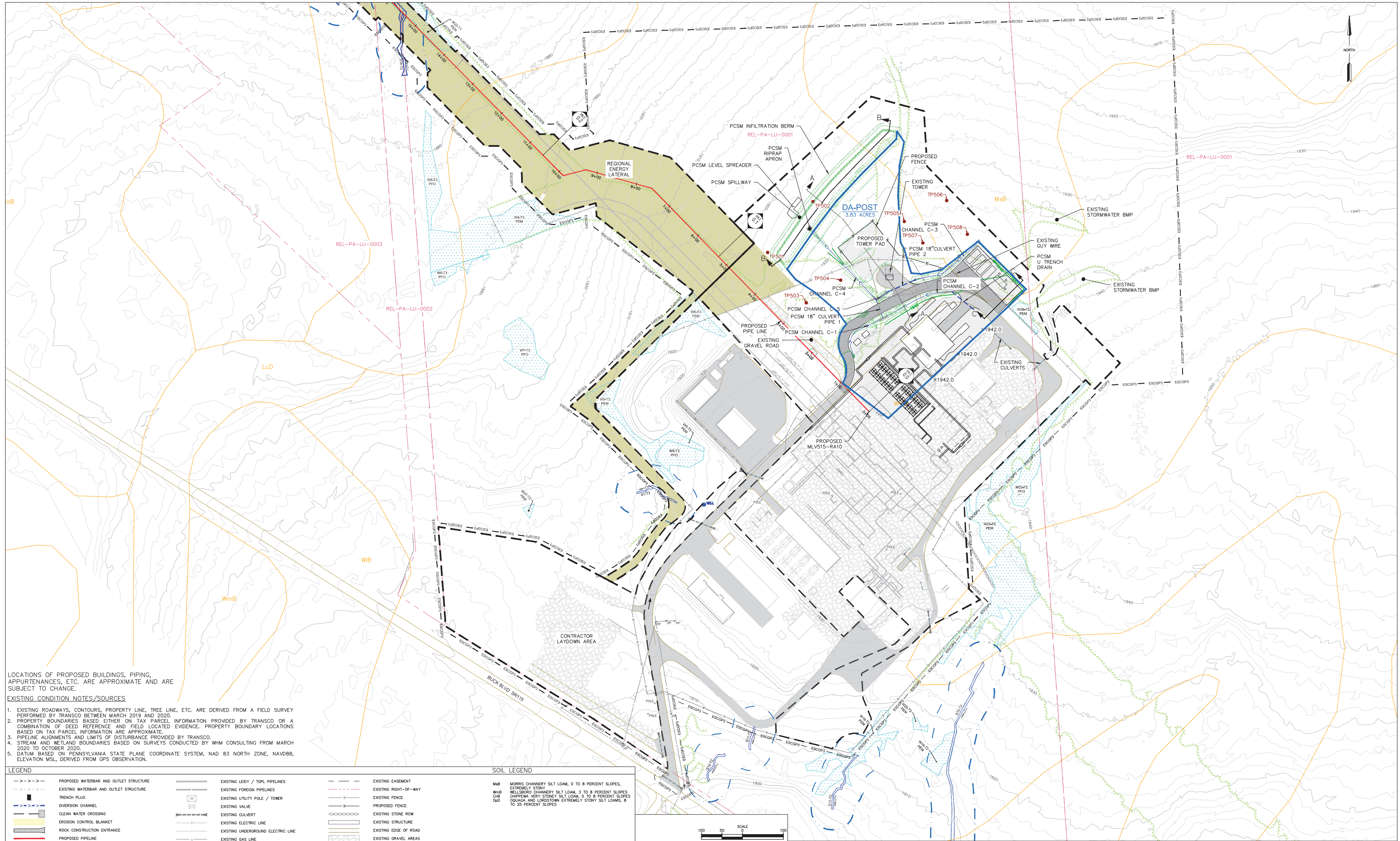
- EXISTING CONDITION NOTES/SOURCES**
- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN MARCH 2019 AND 2020.
 - PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. 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 FROM MARCH 2020 TO OCTOBER 2020.
 - DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

LEGEND		SOIL LEGEND	
	EXISTING WATERBAR AND OUTLET STRUCTURE		MsB MORRIS CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY
	TRENCH PLUG		WmB WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES, CHIPPERS VERY STONY, SILT LOAM, 0 TO 8 PERCENT SLOPES
	CLEAN WATER CROSSING		OsB ONACHA AND LOSTOWN EXTREMELY STONY SILT LOAM, 8 TO 25 PERCENT SLOPES
	ESCOP-3 PERMIT BOUNDARY		
	LIMITS OF DISTURBANCE		
	APPROX. ENVIRONMENTAL STUDY LIMITS		
	DELINEATED WETLAND		
	DELINEATED WATERWAY / STREAM (TOP OF BANK)		
	STREAM FLOW DIRECTION		
	RIPIARIAN BUFFER		
	500/FEMA FLOODWAY		
	FEMA 100-YEAR FLOODPLAIN		
	SOIL BOUNDARY / TYPE		
	EXISTING TREELINE / TREE/SHRUB		
	PROPERTY LINE		
	EXISTING LEDDY / TPPL PIPELINES		
	EXISTING FOREIGN PIPELINES		
	EXISTING UTILITY POLE / TOWER		
	EXISTING VALVE		
	EXISTING EASEMENT		
	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		
	EXISTING EASEMENT		
	EXISTING RIGHT-OF-WAY		
	EXISTING FENCE		
	EXISTING STONE ROW		
	EXISTING STRUCTURE		
	EXISTING EDGE OF ROAD		
	EXISTING GRAVEL AREAS		
	EXISTING PAVEMENT		
	EXISTING GRADE MAJOR CONTOURS (10' C.I.)		
	EXISTING GRADE MINOR CONTOURS (2' C.I.)		
	TEST PIT/INFILTRATION TEST LOCATION (2020)		



REVISIONS			
NO.	DATE	BY	DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT COMPRESSOR STATION 515 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN EXISTING CONDITIONS BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA			
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WO: 1211227	RID: 304		

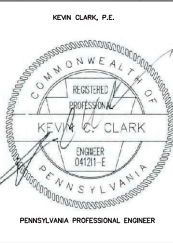
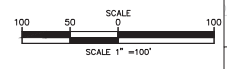


LOCATIONS OF PROPOSED BUILDINGS, PIPING, APPURTENANCES, ETC. ARE APPROXIMATE AND ARE SUBJECT TO CHANGE.

EXISTING CONDITION NOTES/SOURCES

1. EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN MARCH 2019 AND 2020.
2. PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
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4. STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING FROM MARCH 2020 TO OCTOBER 2020.
5. DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD83, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.

LEGEND		SOIL LEGEND	
	PROPOSED WATERBAR AND OUTLET STRUCTURE		EXISTING EASEMENT
	EXISTING WATERBAR AND OUTLET STRUCTURE		EXISTING RIGHT-OF-WAY
	TRENCH PLUG		EXISTING FENCE
	DIVERSION CHANNEL		EXISTING STONE ROW
	CLEAN WATER CROSSING		EXISTING STRUCTURE
	EROSION CONTROL BLANKET		EXISTING EDGE OF ROAD
	ROCK CONSTRUCTION ENTRANCE		EXISTING GRAVEL AREAS
	PROPOSED PIPELINE		PROPOSED GRAVEL
	ESCOP-3 PERMIT BOUNDARY		EXISTING PAVEMENT
	LIMITS OF DISTURBANCE		PROPOSED PAVEMENT
	APPROX. ENVIRONMENTAL STUDY LIMITS		EXISTING GRADE MAJOR CONTOURS (10' C.I.)
	DELINEATED WETLAND		EXISTING GRADE MINOR CONTOURS (2' C.I.)
	DELINEATED WATERWAY / STREAM (TOP OF BANK)		PROPOSED GRADE MAJOR CONTOURS (10' C.I.)
	RIPIARIAN FLOW DIRECTION		PROPOSED GRADE MINOR CONTOURS (2' C.I.)
	RIPIARIAN BUFFER		TEST PIT/INFILTRATION TEST LOCATION (2020)
	50/FEMA FLOODWAY		
	FEMA 100-YEAR FLOODPLAIN		
	SOIL BOUNDARY / TYPE		
	EXISTING TREELINE / TREE/SHRUB		
	PROPERTY LINE		
	EXISTING LEAKY / 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 WELL		



REVISIONS			
NO.	DATE	BY	DESCRIPTION

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 REGIONAL ENERGY ACCESS EXPANSION PROJECT
 COMPRESSOR STATION 515
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
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SHEET 3 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 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.
 - 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 LIMITS OF DISTURBANCE

SOIL MAPPING UNIT	SOIL SERIES
MsB	MORRIS CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES, EXTREMELY STONY
OpD	OQUAGA AND LORSDTOWN EXTREMELY STONY SILT LOAMS, 8 TO 25 PERCENT SLOPES
WmB	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
Wc	WELLSBORO CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
Wd	WELLSBORO CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPES
WmB	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES, EXTREMELY STONY

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 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
MORRIS	MsB	X	C/S	X	X		X	X	X	X		X	X				X
OQUAGA	OpD	X	C	X	X			X	X	X			X				
WELLSBORO	WmB, Wc, Wd, WmB	X	C/S	X	X		X	X	X	X		X	X				X

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

THE LIMIT OF DISTURBANCE (LOD) FOR COMPRESSOR STATION 515 WILL BE APPROXIMATELY 24.83 ACRES. CONSTRUCTION ACTIVITIES AT COMPRESSOR STATION 515 WILL INVOLVE THE INSTALLATION A GRAVEL PAD, SEVERAL BUILDINGS, A NEW COMMUNICATIONS TOWER, PROPOSED BMPs AND OTHER COMPRESSOR STATION MODIFICATIONS. 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 LAND USE FOR THE PAST FEW DECADES HAS BEEN A COMPRESSOR STATION SITE. THE CONTRACTOR WILL CONSTRUCT STORMWATER BMPs TO MITIGATE THE INCREASE IN VOLUME AND PEAK RATES ASSOCIATED WITH CONSTRUCTION. THE PROPOSED BMPs ARE DESIGNED TO STORE THE NET INCREASE IN VOLUME BETWEEN THE PRE- AND POST-DEVELOPMENT 2-YEAR RAIN EVENTS. REFER TO THE STORMWATER BMP SIZING CALCULATIONS IN THE PCSM NARRATIVE FOR ADDITIONAL INFORMATION.

BMP DESCRIPTION NARRATIVE

COLLECTION CHANNELS, CULVERTS AND AN INFILTRATION BERM WILL BE INSTALLED ACROSS THE DEVELOPED AREA TO CONVEY THE NET INCREASE IN VOLUME BETWEEN THE PRE- AND POST-DEVELOPMENT 2-YEAR STORM EVENTS AND MITIGATE THE INCREASE (PRE-POST DEVELOPMENT) IN PEAK RUNOFF FOR THE 1-, 2-, 10-, 25-, 50-, AND 100-YEAR STORM EVENTS. COLLECTION CHANNELS WILL BE CONSTRUCTED TO DIRECT THE MAJORITY OF RUNOFF FROM THE DEVELOPED AREA TO THE INFILTRATION BERM.

BMP INSTALLATION SEQUENCE

- THE PCSM BMPs SHOULD BE INSTALLED IN A MANNER DESIGNED TO:
- PROTECT BMP AREAS ASSOCIATED WITH INFILTRATION FROM COMPACTION PRIOR TO AND DURING INSTALLATION.
 - MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
 - SELECT PLANTS THAT ARE WELL ADAPTED TO THE SPECIFIC SITE CONDITIONS. MEADOW PLANTS MUST BE ABLE TO OUT COMPETE WEED SPECIES IN THE FIRST FEW YEARS AS THEY BECOME ESTABLISHED.
 - ALL TEMPORARY E&S BMPs WILL BE REMOVED FOLLOWING SITE STABILIZATION. DO NOT REMOVE OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.
 - INSTALL BMPs AS FOLLOWS:
 - CONSTRUCT COLLECTION CHANNELS AND CULVERTS AS SHOWN IN THE PLAN.
 - STABILIZE THE CHANNELS WITH SPECIFIED CHANNEL LININGS.
 - INFILTRATION BERM
 - COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERMS WILL BE CONSTRUCTED. MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF EMPTY SOIL).
 - LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
 - BRING IN FILL MATERIAL TO MAKE UP THE MAJOR PORTION OF THE BERM. SOIL SHOULD BE ADDED IN 8-INCH LIFTS AND COMPACTED AFTER EACH ADDITION ACCORDING TO DESIGN SPECIFICATIONS. THE SLOPE AND SHAPE OF THE BERM SHOULD BE GRADED OUT AS SOIL IS ADDED.
 - PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION. IF COMPACTION OF THIS AREA DOES OCCUR, SCARIFY THE SOIL TO A DEPTH OF AT LEAST 8 INCHES.
 - COMPLETE FINAL GRADING OF THE BERM AFTER THE TOP LAYER OF SOIL IS ADDED. TAMP SOIL DOWN LIGHTLY AND SMOOTH SIDES OF THE BERM. THE CREST AND BASE OF THE BERM SHOULD BE AT LEVEL GRADE.
 - PLANT BERM WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
 - MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.
 - ALL INSTALLED BMPs WILL BE MONITORED UNTIL FINAL SITE STABILIZATION IS ACHIEVED.
 - FOLLOW LONG TERM OPERATION AND MAINTENANCE GUIDELINES DISCUSSED BELOW.

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 VEGETATION

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 SEEDS 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 SEEDS WITH A MIXTURE AS OUTLINED IN THE DETAILS PAGES OF THE EROSION AND SEDIMENT CONTROL PLAN SET. APPLY LIQUID 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
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 Habit	Tolerates				Minimum Seed Specifications ³				
		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
Switchgrass ⁴	bunch	yes	yes	yes	yes			(60 PLS)		390
Big bluestem	bunch	no	yes	yes	yes			(60 PLS)		150
Cool-Season Grasses										
Tall Fescue	bunch	yes	no	yes	no	95	80		80	227
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	227
Kentucky bluegrass	sod	no	no	no	no	85	75		75	2,200
Reed canarygrass	sod	yes	yes	yes	yes	95	70		70	520
Orchardgrass	bunch	yes	yes	yes	yes	95	80		80	654
Timothy	bunch	yes	no	yes	yes	95	80		80	1,230
Smooth bromegrass	sod	no	no	yes	no	95	80		80	136
Legumes ⁵										
Crownvetch	sod	no	yes	yes	yes	98	40	30	65	120
Birdsfoot trefoil ⁶	bunch	yes	no	yes	yes	98	60	20	80	400
Flatpea	sod	no	no	yes	yes	98	55	20	75	10
Serecia lepedeza	bunch	no	no	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
Sudangrass	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 SEEDS 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, PLANTS 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 BE AT LEAST 75% OR BETTER. CROWN VETCH SHOULD HAVE AT LEAST 40% READILY GERMINABLE SEED AND 30% HARD SEED. 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 TREFLOIL IS ADAPTED OVER THE ENTIRE STATE, EXCEPT IN THE EXTREME SOUTHEAST WHERE CROWN AND ROOT ROTTS MAY INJURE STANDS.

ERNST RIPARIAN BUFFER MIX - ERNMIX 178

PERCENTAGE OF MIX COMPOSITION	SCIENTIFIC NAME	COMMON NAME
30.0%	PANICUM CLANDESTINUM	DEERTONGUE
20.0%	ELYMUS VIRGINICUS	VIRGINIA WILDORIE
11.8%	ANDROPOGON GEARARDII	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%	RUBROCOXA HIRTA	BLACKEYED SUSAN
2.0%	HELIOPSIS HELIANTHOIDES	OKEYE 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%	AGRO STIS PERENNANS	AUTUMN BENTGRASS
0.5%	HELENIUM AUTUMNALE	COMMON SNEEZEWEED
0.5%	MO NARDA FISTULOSA	WILD BERGAMOT
0.5%	VERNO NIA NO VERO RACINOS	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

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

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.DEFWEB.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

THERMAL IMPACTS TO SURFACE WATERS ARE NOT ANTICIPATED. MOST OF THE STORMWATER WILL BE ROUTED THROUGH THE STORMWATER BMP 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 RETAINED IN THE BMPs FOR A PERIOD OF 12 HOURS BEFORE BEING DISCHARGED DURING A 100-YEAR/24-HOUR STORM EVENT. THIS RETENTION PERIOD IS LONGER FOR LESS INTENSE STORMS. THEREFORE, AS A RESULT OF THESE MEASURES, NO SIGNIFICANT THERMAL IMPACT TO THE RECEIVING WATERS IS ANTICIPATED.

ANTI-DEGRADATION REQUIREMENTS

A HYDRAULIC ANALYSIS WAS CONDUCTED TO DETERMINE THE LOCATION OF COMPRESSOR STATION 515 ALONG TRANSCO'S EXISTING PIPELINE SYSTEM. THE DEFINED HYDRAULIC RANGE FOR COMPRESSOR STATION 515 IS PRIMARILY LOCATED WITHIN EXCEPTIONAL VALUE (EV) OR HIGH-QUALITY (HQ) WATERSHEDS. TRANSCO USED VARIOUS CRITERIA TO EVALUATE PARCELS SUITABLE FOR A COMPRESSOR STATION WITHIN THE HYDRAULIC RANGE REQUIRED TO MEET THE PURPOSE AND NEED OF THE PROJECT. THE CRITERIA FOR PARCEL EVALUATION INCLUDED BUT WAS NOT LIMITED TO EXISTING CONDITIONS, RESOURCE IMPACTS, WORKSPACE, AND REASONABLE AVAILABILITY. BASED ON THE LOCATION SELECTED FOR COMPRESSOR STATION 515, IMPACTS TO EV AND HQ WATERSHEDS ARE UNAVOIDABLE. TRANSCO DETERMINED THAT THERE ARE NO COST-EFFECTIVE AND ENVIRONMENTAL SOUND Viable NON-DISCHARGE ALTERNATIVES FOR THE PROJECT.

EARTH DISTURBANCE WILL BE MINIMIZED TO THE EXTENT PRACTICAL AND WILL BE PHASED OR SEQUENCED TO ONLY DISTURB PORTIONS THAT ARE NECESSARY FOR THE SPECIFIC SCOPE OF WORK. WHERE POSSIBLE, THE LOD WAS DECREASED TO AVOID ADDITIONAL DISTURBANCE TO THE EXTENT PRACTICAL.

ANTI-DEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT) STANDARDS HAVE BEEN PROPOSED FOR COMPRESSOR STATION 515 BECAUSE THERE ARE NO Viable NON-DISCHARGE ALTERNATIVES. THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THE PROJECT OUTLINES A MORE STRINGENT DESIGN AND E&S BMPs THAT MEET ABACT STANDARDS.

THE COMPRESSOR STATION 515 IS LOCATED IN HQ WATERSHEDS AND CONSTRUCTION ACTIVITIES IN THESE AREAS WILL RESULT IN INCREASED DISCHARGE OF STORMWATER TO SURFACE WATERS WHICH WILL BE MITIGATED BY THE IMPLEMENTATION OF POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) BMPs. PROPOSED PCSM 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.

RIPARIAN BUFFERS

TEMPORARY WORKSPACE ASSOCIATED WITH COMPRESSOR STATION 515 IS LOCATED WITHIN A SMALL PORTION OF A NON-FORESTED RIPARIAN BUFFER OF STREAM 52--72--620A. AFTER COMPLETING THE CONSTRUCTION ACTIVITIES, THE IMPACTED RIPARIAN AREA WILL BE RESTORED BACK TO PRE-EXISTING CONDITIONS AND RESEEDED WITH A RIPARIAN SEED MIX.

BECAUSE THE PROJECT IS TEMPORARY IN NATURE AND THE SITE WILL BE FULLY RESTORED TO ITS PREEXISTING CONDITION LEAVING RIPARIAN BUFFERS UNDISTURBED TO THE EXTENT PRACTICAL, IT IS ELIGIBLE FOR THE RIPARIAN BUFFER WAIVER UNDER 25 PA. CODE §102.14(c)(2)(iv). AS SUCH, A RIPARIAN BUFFER WAIVER HAS BEEN REQUESTED ALONG WITH THIS ESCOP-3 APPLICATION (SECTION 1--7).

NON-STRUCTURAL AND STRUCTURAL WATER QUALITY BMP DESCRIPTION

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. 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. TEMPORARILY IMPACTED RIPARIAN BUFFER WILL BE FULLY RESTORED TO ITS PREEXISTING CONDITIONS. DISTURBED AREAS THAT ARE NOT PROPOSED TO BE IMPERVIOUS WILL BE REVEGETATED AS PER THE SEEDING AND MULCHING NOTES PROVIDED IN PCSM PLAN NOTES.

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 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 PREPARED'S RESUME IS PROVIDED IN THE PERMIT APPLICATION.

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

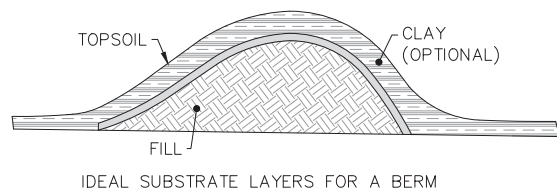
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
COMPRESSOR STATION 515
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

NOTES

BUCKTOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: DRV	DATE: 03/31/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RIN	DATE: 03/31/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: KCC	DATE: 03/31/21		
WO: 121227	RID: 304	DRAWING NUMBER: 26-1000-70-28-D	SHEET 4 OF 6

KEVIN C. CLARK, P.E.
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
NO. 121227
STATE COLLEGE, PA



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.

BERMS SHOULD BE RELATIVELY LOW, PREFERABLE NO MORE THAN 24 INCHES IN HEIGHT.

BERMS SHALL HAVE SIDE SLOPES OF 2:1 AND ARE NOT TO BE MOWED..

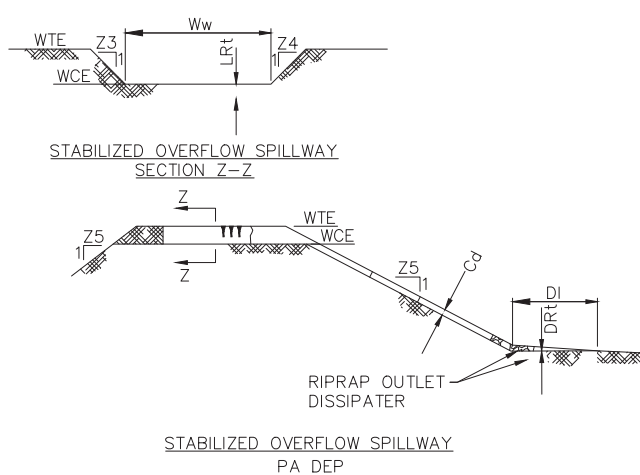
THE CREST OF THE BERM SHOULD BE LOCATED NEAR ON EDGE OF THE BERM, RATHER THAN IN THE MIDDLE, TO ALLOW FOR A MORE NATURAL, ASYMMETRICAL SHAPE.

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

INFILTRATION BERM No.	LENGTH OF BERM (ft) (L)	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	420	2.00	1925.50	1927.50	24 MIN	>24	1926.62	11.5

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

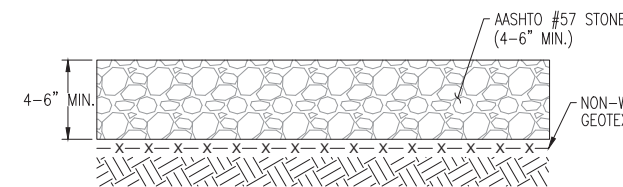
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
INFILTRATION BERM



BMP	WEIR				LINING		CHANNEL		DISSIPATOR				
	Z3 (ft)	Z4 (ft)	TOP ELEV. WTE (ft)	CREST ELEV. WCE (ft)	WIDTH Ww (ft)	RIPRAP SIZE (R-)	RIPRAP THICK. Lrt (in)	Z5 (ft)	DEPTH Cd (ft)	LENGTH Dl (ft)	WIDTH Dw (ft)	RIPRAP SIZE (R-)	RIPRAP THICK. DRT (in)
INFILTRATION BERM	2	2	1927.50	1926.62	8								

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

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



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.

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

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

PLAN VIEW

SECTION A-A

APRON No.	PIPE DIA. Do (in)	MAN "n" FOR PIPE	PIPE SLOPE (ft/ft)	O (CFS)	V (FPS)	RIPRAP SIZE	Rt (in)	At (ft)	Atw (ft)	Atw (ft)
C-1	24	0.035	0.035	4.70	3.45	R-3	9	8	6	14.5
C-2	24	0.035	0.017	6.38	2.88	R-3	9	8	6	14.5
C-3	24	0.035	0.014	3.22	2.24	R-3	9	8	6	14.5
C-4	48	0.035	0.038	12.94	4.77	R-3	9	24	12	36.0
C-5	24	0.035	0.014	2.88	2.32	R-3	9	8	6	14.5
CULVERT 1	18	0.012	0.010	12.94	7.29	R-4	18	12	4.5	16.5
CULVERT 2	18	0.012	0.010	2.94	4.71	R-3	9	8	4.5	12.5
TRENCH DRAIN	12	0.012	0.010	1.22	4.98	R-3	9	8	3	11.0

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
RIPRAP APRON OUTLET PROTECTION

ORIGINAL GRADE

SECURE EROSION CONTROL MAT W/ METAL PINS OR STAPLES

LIME, FERTILIZE, SEED AND MULCH AS PER REVEGETATION PLAN

CHANNEL I.D.	LENGTH (ft)	SLOPE (%)	BASE WIDTH (ft)	DEPTH (ft)	SIDE SLOPES (Z1/Z2)	TOP WIDTH (ft)	LINING	OUTLET
C-1	140	3.5	2.0	1.17	3/3	9.02	GRASS	CULVERT 1
C-2	180	1.7	2.0	1.33	3/3	9.98	GRASS	CULVERT 1
C-3	180	1.4	2.0	1.17	3/3	9.02	GRASS	CULVERT 2
C-4	240	3.8	4.0	1.17	3/3	11.02	GRASS	INFILTRATION BERM
C-5	30	1.4	2.0	1.17	3/3	9.02	GRASS	CHANNEL C-4
BERM SPILLWAY	30	1.0	6.0	1.50	3/3	15.00	GRASS	LEVEL SPREADER

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL
TYPICAL COLLECTION / DIVERSION CHANNEL

CHANNEL

ROAD

HOPE CULVERT

RECEIVING CHANNEL (SEE PLANS FOR OUTLET CONDITION)

USE NON-WOVEN GEOTEXTILE FABRIC UNDER ALL RIP-RAP

COMPACTED OR UNDISTURBED SOIL SUBGRADE

6" STONE SUBBASE

PIPE DIAMETER

NOTES:

- BARRELS SHALL BE PLACED AT THE MINIMUM SLOPE INDICATED FOR THE CHANNEL.
- AN ADDITIONAL 0.5 OF FREEBOARD SHALL BE PROVIDED IN THE CHANNEL ON THE INVERT SIDE OF THE CULVERT.
- IF MULTIPLE BARRELS ARE USED, THEY SHALL BE PLACED SUCH THAT THERE IS A MINIMUM OF 1 BARREL WIDTH BETWEEN.
- CORRUGATED METAL OR HOPE MAY BE USED UPON EVALUATION BY AN ENGINEER.

ID	REQ'D FLOW (cfs)	LENGTH	INV. IN (ft)	INV. OUT (ft)	SLOPE (ft/ft)	NO. OF PIPES	PIPE DIA (in)
CULVERT 1	10.25	50	1934.93	1934.50	0.01	1	18
CULVERT 2	2.94	80	1935.50	1935.00	0.01	1	18

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
TYPICAL ACCESS ROAD CULVERT

STONE DEPTH MAY VARY; ADD AS NEEDED FOR ROAD STABILITY

CLEAN STONE

NON-WOVEN GEOTEXTILE

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.
- TEMPORARILY WIDENED ROAD SHOULD FOLLOW THE SAME SPECIFICATION FOR WIDENED ROADS. THE EXISTING ROAD SHALL BE MAINTAINED.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL
PERMANENT/TEMPORARY STONE ACCESS ROAD

BA GROUP

WWM consulting, inc.

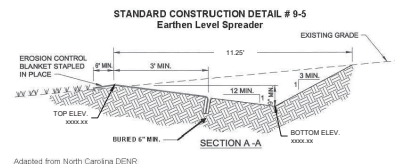
KEVIN CLARK, P.E.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER

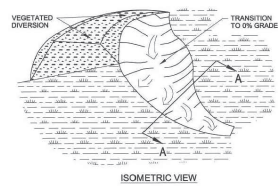
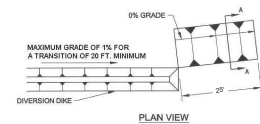
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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
REGIONAL ENERGY ACCESS EXPANSION PROJECT
COMPRESSOR STATION 515
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
DETAILS
BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: DRV	DATE: 03/11/21	ISSUED FOR BID:	SCALE: AS NOTED
CHECKED BY: RUN	DATE: 03/11/21	ISSUED FOR CONSTRUCTION:	REVISION:
APPROVED BY: KCC	DATE: 03/11/21		
WO: 121227	RID: 304	DRAWING NUMBER: 26-1000-70-28-D	SHEET 5 OF 6



Adapted from North Carolina DENR



Adapted from EPA-625/9-78-006

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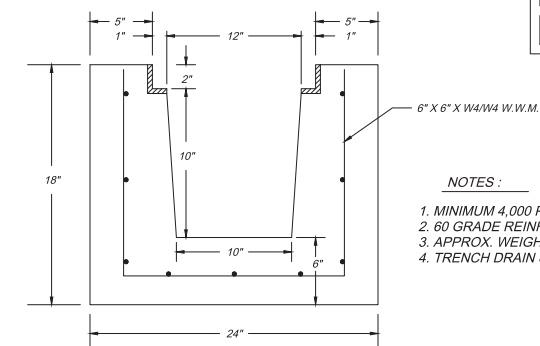
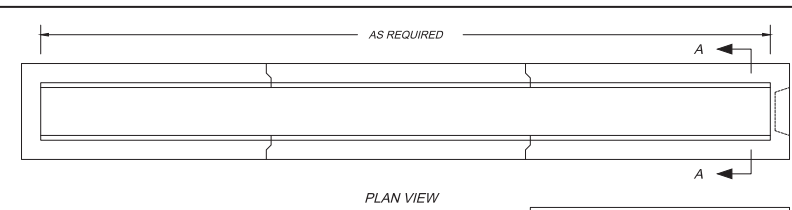
- LEVEL SPREADER SHALL BE CONSTRUCTED AND MAINTAINED LEVEL. SMALL VARIATIONS IN HEIGHT ON THE DOWNSTREAM LIP SHALL BE LESS THAN 0.05% SLOPE ALONG THE WEIR.
- VARIATIONS IN EXISTING GROUND ELEVATION SHALL BE LESS THAN 4 INCHES.
- CLEAR DEBRIS (I.E. EARTH, WOOD, AND OTHER ORGANIC MATTER) LOCATED WITHIN 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.

OPERATION & MAINTENANCE:

- LEVEL SPREADER SHALL BE MONITORED FOR 2 YEARS ON A QUARTERLY BASIS AND SEMI-ANNUALLY THEREAFTER.
- INSPECTIONS SHALL BE MADE FOLLOWING RAINFALL EVENTS EXCEEDING 1 INCH.
- MONITORING INCLUDES BOTH THE LEVEL SPREADER AND THE DOWN SLOPE AREA UP TO AND INCLUDING THE RECEIVING STREAM.

LEVEL SPREADER
PERMANENT STORMWATER MEASURE (LS)

PENNSYLVANIA					
NO.	DATE	BY	REVISION DESCRIPTION	NO. NO.	CHK. APP.
			TRANSCONTINENTAL GAS PIPE LINE CORPORATION PROJECT SPECIFIC DETAIL		
			(LS) LEVEL SPREADER		

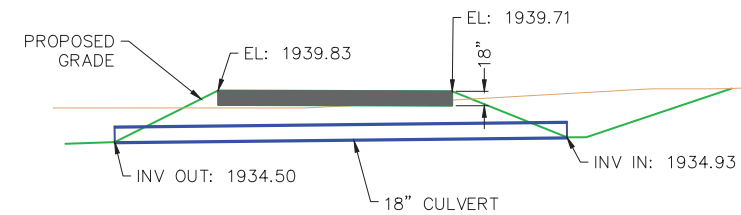


NOTES:

- MINIMUM 4,000 PSI CONCRETE @ 28 DAYS
- 60 GRADE REINFORCEMENT
- APPROX. WEIGHT = 325 LBS/LIN.FT.
- TRENCH DRAIN SHALL HAVE A MIN. H20 LOAD CAPACITY

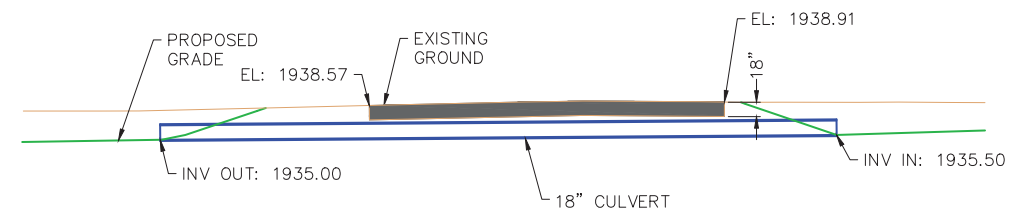
ID	REQ'D FLOW (cfs)	LENGTH	INV. IN (ft)	INV. OUT (ft)	SLOPE (ft/ft)	NO. OF PIPES	PIPE DIA (in)
TRENCH DRAIN	1.22	50	1941.0	1940.50	0.01	1	10"x10"

PENNSYLVANIA					
NO.	DATE	BY	REVISION DESCRIPTION	NO. NO.	CHK. APP.
			TRANSCONTINENTAL GAS PIPE LINE CORPORATION STANDARD ENVIRONMENTAL DETAIL TRENCH DRAIN		



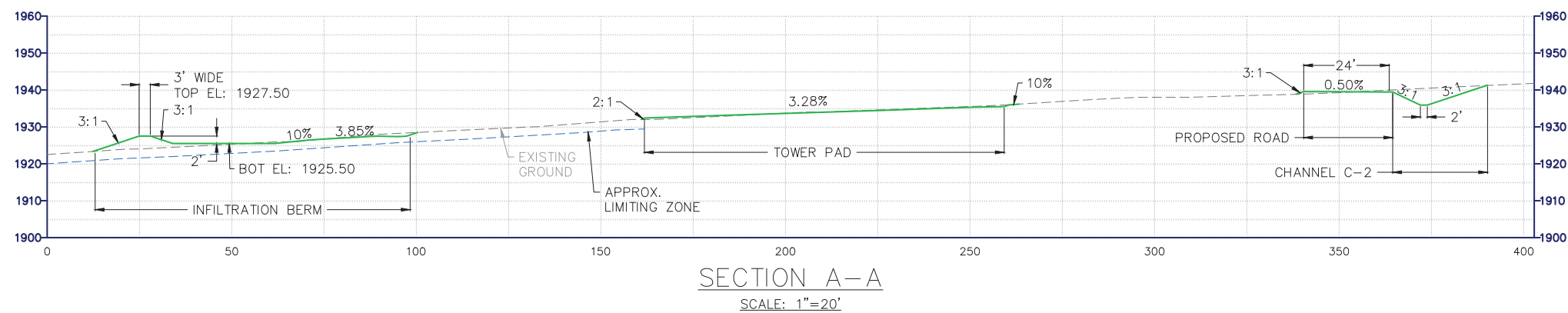
CULVERT PIPE 1 SECTION

SCALE: 1"=10'



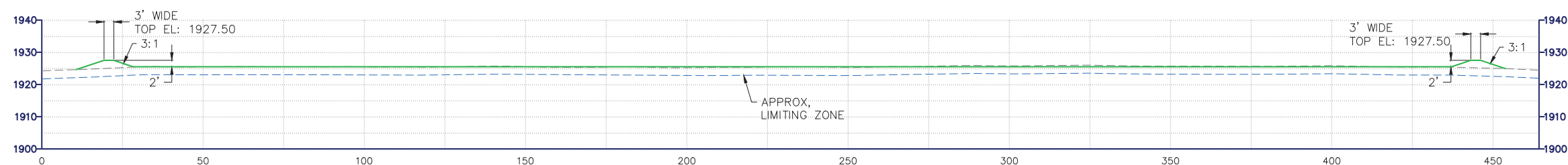
CULVERT PIPE 2 SECTION

SCALE: 1"=10'



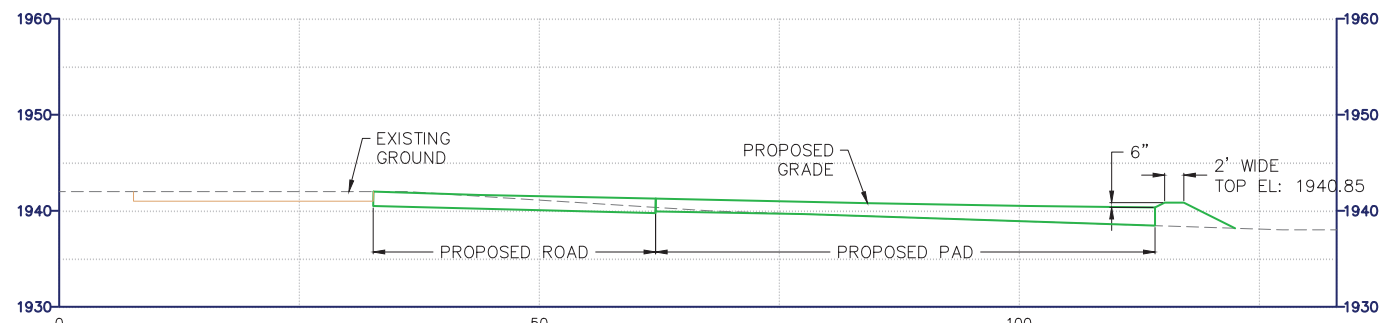
SECTION A-A

SCALE: 1"=20'



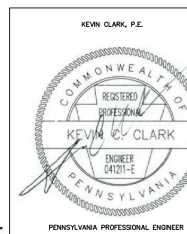
SECTION B-B

SCALE: 1"=20'



PAD SECTION C-C

SCALE: 1"=10'



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

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC REGIONAL ENERGY ACCESS EXPANSION PROJECT COMPRESSOR STATION 515 POST CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS			
BUCK TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA			
DRAWN BY: DRV	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 6 OF 6
WO: 121227	RID: 304		

