

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 4

YORK COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN

NOVEMBER 2016

DRAWING INDEX	
SHEET No.	DRAWING TITLE
ES-0.01 TO ES-0.22	EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS
ES-0.23	KEY PLAN
ES-4.01 TO ES-4.21	EROSION & SEDIMENT CONTROL & SITE RESTORATION PLANS

PREPARED BY:



TETRA TECH

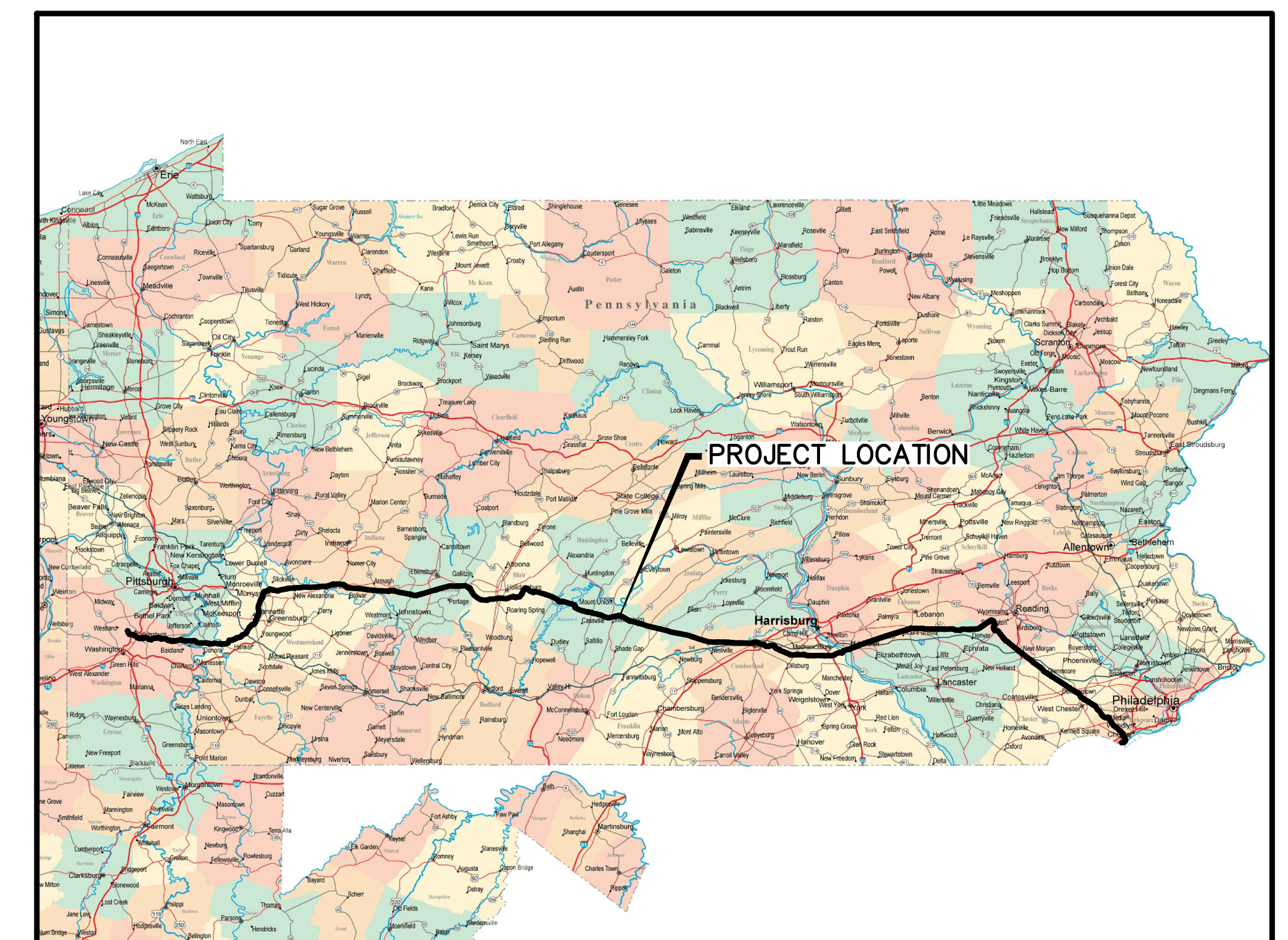
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661 ANDERSEN DRIVE – FOSTER PLAZA 7, PITTSBURGH, PA 15220
TEL: (412) 921-7090 | FAX: (412) 921-4040

PREPARED FOR:



SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA



LOCATION MAP
PENNSYLVANIA PIPELINE PROJECT
HOUSTON, PENNSYLVANIA TO MARCUS HOOK, PENNSYLVANIA

GENERAL EROSION & SEDIMENT CONTROL PLAN NOTES:

1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.
2. THE PROJECT TAKES PLACE WITHIN YORK COUNTY, PENNSYLVANIA.
3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU.
4. 100-YEAR FEMA FLOODPLAINS TAKEN FROM WWW.PASDA.PSU.EDU.
5. SEE SHEET ES-0.02 FOR STREAM AND WETLAND CROSSING TABLE.
6. A PRECONSTRUCTION MEETING IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY. THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, AND A REPRESENTATIVE FROM THE LOCAL PADEP OR CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING AT LEAST SEVEN DAYS IN ADVANCE.
7. A COPY OF THE APPROVED E&S PLANS MUST BE AVAILABLE AT THE PROJECT SITES AT ALL TIMES.
8. AT LEAST THREE DAYS PRIOR TO STARTING EARTH DISTURBANCE ACTIVITY, ALL CONTRACTORS INVOLVED IN THESE ACTIVITIES SHALL NOTIFY PENNSYLVANIA ONE CALL SYSTEM, INC. AT 8-1-1. CONTRACTOR MUST RECEIVE ALL CLEARANCES BEFORE STARTING CONSTRUCTION ACTIVITIES.
9. PIPELINE LOCATIONS AND LIMIT OF DISTURBANCE (LOD) FROM SUNOCO PIPELINE L.P.
10. GENERAL LOCATION AND SPACING FOR WATER BARS ARE SHOWN ON THE PLAN. WATER BARS LOCATION MAY BE ADJUSTED IN THE FIELD DUE TO ACTUAL SITE CONDITIONS; HOWEVER, INSTALLATION AND SPACING MUST CONFORM TO THE DETAIL PROVIDED ON THE PLAN SHEET ES-0.08.
11. THE RIGHTS-OF-WAYS AND EASEMENTS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF SUNOCO PIPELINE L.P. TO SECURE WITH THE INDIVIDUAL PROPERTY OWNER. THE RIGHTS-OF-WAY AND EASEMENTS SHOWN ON THIS PERMIT DRAWING REPRESENT THE BEST AVAILABLE PROPERTY INFORMATION AS PROVIDED TO TETRA TECH, INC. BY SUNOCO PIPELINE L.P. THE RIGHTS-OF-WAY AND EASEMENTS SHALL BE VERIFIED AND LOCATED IN THE FIELD BY SUNOCO PIPELINE L.P.
12. GENERAL E&S CONTROLS FOR SOIL STOCKPILE LOCATIONS ARE SHOWN ON THE TYPICAL DETAILS. ALONG THE ALIGNMENT, TOPSOIL WILL BE PUSHED TO ONE SIDE OF THE RIGHT OF WAY. THE TOPSOIL WILL BE PUSHED BACK DURING SITE RESTORATION. TOPSOIL WILL BE SEGREGATED AT ALL LOCATIONS THROUGHOUT THE PROJECT WHERE TOPSOIL EXISTS.
13. COMPOST FILTER SOCK INSTALLATION TO BE ADJUSTED AS NEEDED TO ACCOMMODATE ACTUAL CONTOURS IDENTIFIED IN FIELD DURING VARIOUS PHASES OF THE PROJECT.
14. IN-STREAM CONSTRUCTION IS RESTRICTED IN STOCKED TROUT STREAMS FROM MARCH 1 THROUGH JUNE 15 WHERE NOTED.
15. IN-STREAM CONSTRUCTION IS RESTRICTED IN WILD TROUT STREAMS FROM OCTOBER 1 THROUGH DECEMBER 31 WHERE NOTED.
16. THIS PROJECT WILL REQUIRE WATER FOR DUST CONTROL, PIPELINE CLEANING, HORIZONTAL DIRECTIONAL DRILLING AND HYDROSTATIC TESTING OF THE PIPELINE AND MAINLINE VALVES. ALL WATER FOR THESE ACTIVITIES WITHIN THE DELAWARE RIVER BASIN WILL BE SOURCED FROM MUNICIPAL WATER SOURCES. NO SURFACE WATER WITHDRAWAL WITHIN THE DELAWARE RIVER BASIN IS PROPOSED FOR THIS PROJECT.
17. ALL WATER USED FOR HYDROSTATIC TESTING OF THE PIPELINE AND MAINLINE VALVES WITHIN THE DELAWARE RIVER BASIN WILL BE DISCHARGED THROUGH THE DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY VIA SUNOCO FACILITIES AT MARCUS HOOK, DELAWARE COUNTY, PA.
18. PORTIONS OF THE PROJECT LOD HAVE BEEN DESIGNATED "TRAVEL LANES" WITH THE FOLLOWING CLASSIFICATIONS:
- A. TRAVEL AND CLEARING LOD - MECHANICAL CLEARING OF LAND BETWEEN HORIZONTAL DIRECTIONAL DRILL HDD WORKSPACES FOR LINE OF SIGHT AND, IN SOME CASES, ACCESS PURPOSES
- B. TRAVEL LOD - AREA NEEDED TO TRAVEL BETWEEN HORIZONTAL DIRECTIONAL DRILL WORKSPACES OR DOWN THE RIGHT-OF-WAY TO GET TO A HORIZONTAL DIRECTIONAL DRILL WORKSPACE
19. VOID MITIGATION PLAN FOR KARST TERRAIN AND UNDERGROUND MINING IS TO BE REVIEWED PRIOR TO CONSTRUCTION AND IMPLEMENTED AS NECESSARY OR REQUIRED THROUGHOUT CONSTRUCTION.
20. AT BLOCK VALVE SITES, FIELD SURVEYS WERE CONDUCTED TO ACCURATELY REFLECT FIELD CONDITIONS TO FACILITATE THE DESIGN OF THE SITES. THESE SURVEYS WERE CONDUCTED IN THE IMMEDIATE VICINITY OF THE PAD AND ROAD TO BE DESIGNED. DUE TO THE NATURE OF POST CONSTRUCTION STORMWATER DESIGN CRITERIA, SURVEY COULD NOT BE CONDUCTED FOR THE ENTIRE DRAINAGE AREAS AT EACH LOCATION. IN THESE AREAS, LIDAR DATA WAS SUBSTITUTED.

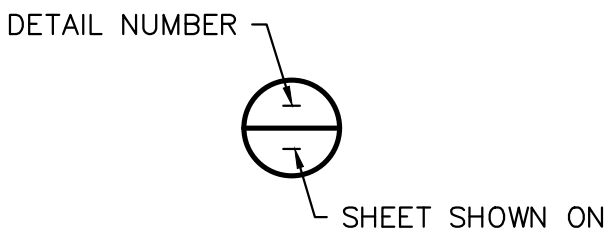
DRAWINGS BY TOWNSHIP		
COUNTY	TOWNSHIP	PLAN SHEETS
YORK	FAIRVIEW	ES-4.01 TO ES-4.21

LIMIT OF DISTURBANCE/PROJECT AREA TABLE		
	LIMIT OF DISTURBANCE	PROJECT AREA
YORK COUNTY	69 ACRES	69 ACRES

LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING TREE LINE
- EXISTING FENCELINE
- EXISTING STREAM WITH FLOW DIRECTION
- EXISTING ELECTRIC OVERHEAD
- EXISTING ELECTRIC UNDERGROUND
- EXISTING LIGHT POLE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING DOMINION GAS LINE
- EXISTING SANITARY SEWER LINE
- EXISTING BUILDING
- PROPERTY LINE
- COUNTY BOUNDARY
- TOWNSHIP BOUNDARY
- 100-YEAR FLOODWAY
- 100-YEAR FEMA FLOODWAY
- 100-YEAR FEMA FLOODPLAIN
- WATERSHED BOUNDARY
- ORANGE CONSTRUCTION FENCE
- EXISTING PEM WETLAND
- EXISTING PFO WETLAND
- EXISTING PSS WETLAND
- PROPOSED PIPE LOCATION
- PROPOSED PERMANENT RIGHT-OF-WAY
- PROPOSED TEMPORARY RIGHT-OF-WAY
- PROPOSED TEMPORARY WORKSPACE
- RIPARIAN FOREST BUFFER
- OUTFALL FLOW DIRECTION ARROW
- LIMIT OF DISTURBANCE (ESCGP-2 PERMIT BOUNDARY)/ AREA TO BE RESTORED
- ROCK CONSTRUCTION ENTRANCE
- ROCK CONSTRUCTION ENTRANCE WITH WASH RACKS
- AGGREGATE STOCKPILE
- PERMANENT WATER BAR
- TEMPORARY WATER BAR
- EROSION CONTROL BLANKET
- 12" COMPOST FILTER SOCK
- 18" COMPOST FILTER SOCK
- 24" COMPOST FILTER SOCK
- COMPOST SOCK SEDIMENT TRAP
- TRENCH PLUGS
- TEMPORARY TIMBER MAT
- TEMPORARY EQUIPMENT CROSSING
- WATER DEFLECTOR
- SPOIL STOCKPILE
- HORIZONTAL DIRECTIONAL DRILL
- CONVENTIONAL BORE
- ROW - TRAVEL AND CLEARING LOD
- ROW - TRAVEL LOD
- TEMPORARY UPSLOPE DIVERSION BERM
- TEMPORARY SLOPE PIPE
- TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN OCT-DEC
- TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN OCT-APR
- TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN MAR-JUN & OCT-DEC
- TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN MAR-JUN
- SPECIAL RESTORATION AREA - PFO TO PFO; SEE PFO RESTORATION PLANTING NOTES
- SPECIAL RESTORATION AREA - PSS TO PSS; SEE PSS RESTORATION NOTES
- SITE SPECIFIC PLAN DRAWING AREA. SITE SPECIFIC TOPOGRAPHIC SURVEY CONDUCTED IN THIS APPROXIMATE AREA. E&S CONTROL LAYOUT ON E&S PLAN MAY DIFFER FROM THE SITE SPECIFIC PLAN DUE ADDITIONAL SURVEY CONDUCTED IN THESE AREAS. SITE SPECIFIC PLAN SUPERSEDES E&S PLAN IN THESE AREAS.

DETAIL INDICATOR



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REVISIONS				REMARKS
NO.	BY	DATE		



SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
NOTES & DETAILS

DATE:	NOVEMBER 2016
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DESIGNED BY:	JB
DRAWN BY:	BH
CHECKED BY:	RS
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ES-0.01	
SHEET 0.01 OF 44	

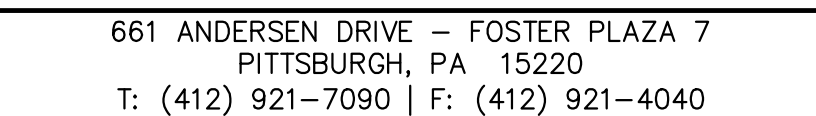
A
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B
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C
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D
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E
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F

B

C

1. TEST WIRES SHALL BE STRANDED COPPER WITH THW OR MTW INSULATION.
2. TEST WIRES SHALL BE OF THE GAUGE INDICATED AND PROVIDED WITH WIRE LABELS (WITHIN TEST STATION) TO IDENTIFY THE PIPELINE ATTACHMENT LOCATION. THE NO. 1 TEST WIRE SHALL BE ATTACHED TO THE PIPELINE AT THE LOWER STATION NO. WITH THE ADDITIONAL TEST WIRE ATTACHED AT THE SPACING INDICATED AND IN ORDER OF ADVANCING STATION NOS.
3. TEST WIRES ARE TO BE CONNECTED USING THE THERMITE WELD PROCESS.
4. COAT THERMITE WELD CONNECTION & ALL BELOW GRADE EXPOSED COPPER AS SPECIFIED FOR EXISTING PIPELINE COATING OR AS SPECIFIED FOR BARE PIPE.
5. INSTALL TEST WIRES WITHIN PIPE TRENCH AT THE FIVE OR SEVEN O'CLOCK POSITION OF THE PIPE. TEST WIRES SHALL NOT BE IN IMMEDIATE CONTACT WITH THE PIPE.
6. BACK-FILL AROUND WIRES MUST BE FREE OF SHARP MATERIALS WHICH COULD DAMAGE THE TEST WIRE INSULATION.

1



1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES

YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
NOTES & DETAILS

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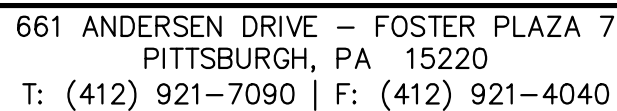
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DESIGNED BY:	JB
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ES-0.04	
SHEET 0.04	OF 44

A - IF LISTED SPECIES IS UNAVAILABLE DURING PLANTING, A COMPARABLE NATIVE SUBSTITUTE WILL BE USED.
B - USACE EASTERN MOUNTAINS AND PIEDMONT WETLAND STATUS TREES AND SHRUBS WILL BE PLANTED AT A DENSITY OF
AT LEAST 400 PLANTS/TREES PER ACRE IN ACCORDANCE WITH USACE GUIDANCE
C - DBH - DIAMETER AT BREAST HEIGHT



A

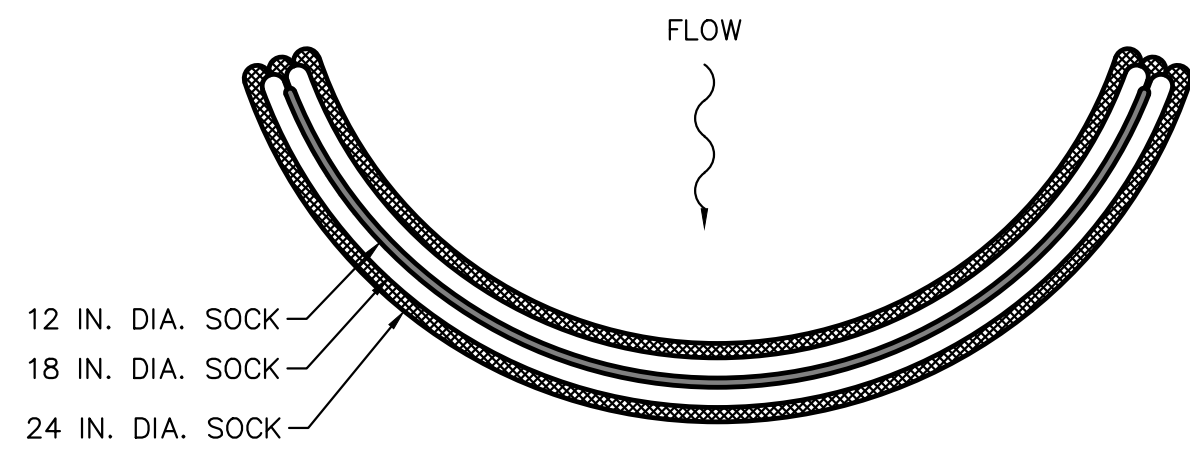
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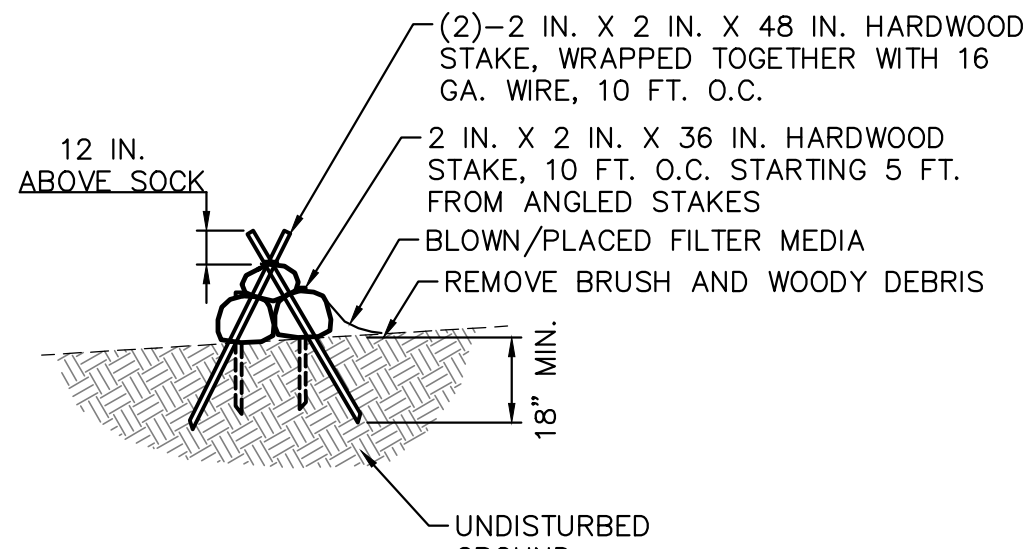
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F



PLAN VIEW



STAKING VIEW

DESIGN NOTES:

1. COMPOST SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
3. SEDIMENT ACCUMULATION SHALL NOT EXCEED $\frac{1}{3}$ THE TOTAL HEIGHT OF THE TRAP.
4. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NOTES:

SOCK MATERIAL SHALL MEET THE STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST SOCK SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.

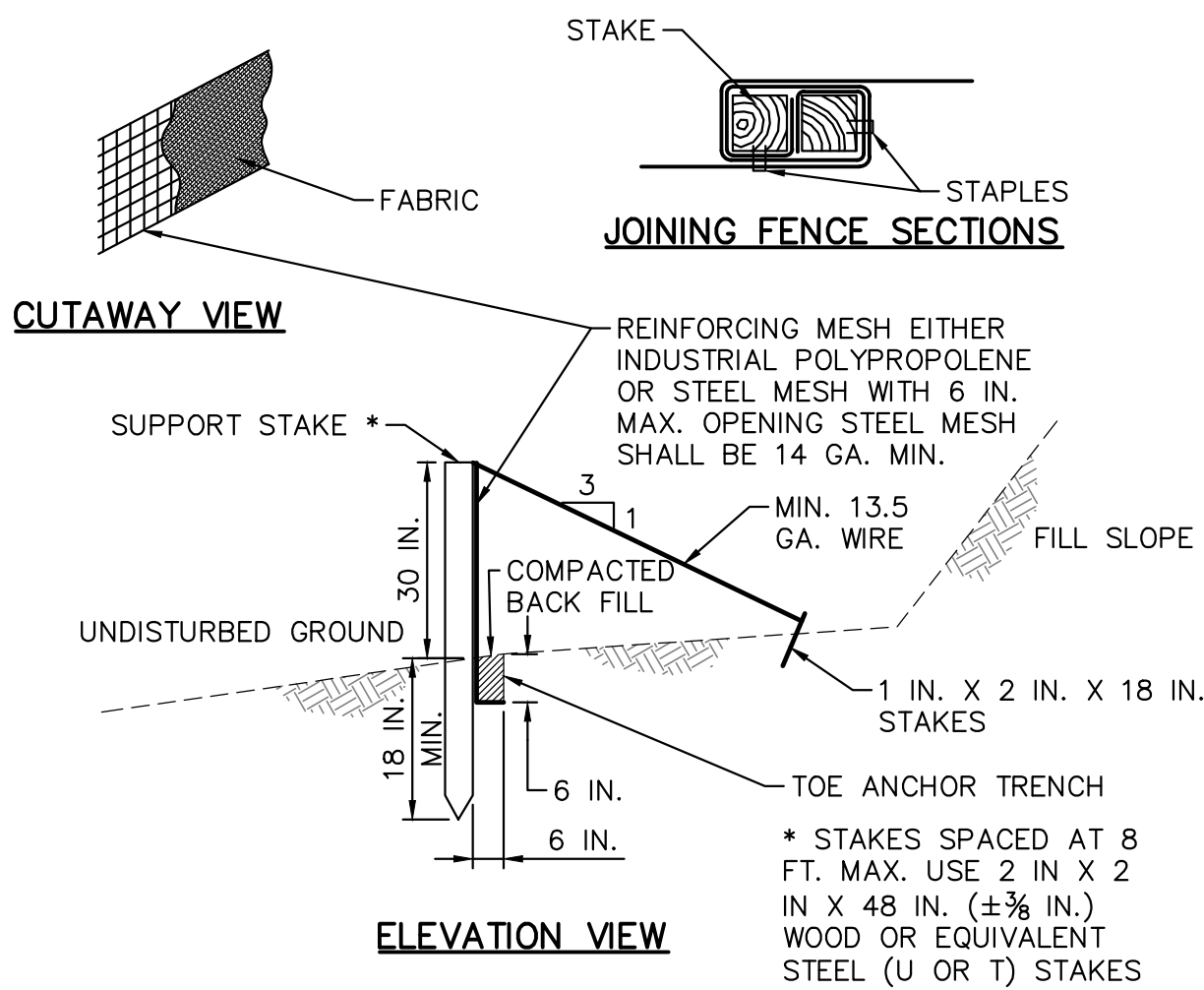
COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)

THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.

COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES $\frac{1}{3}$ THE HEIGHT OF THE SOCKS.

PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 EYAR.

COMPOST SOCK SEDIMENT TRAP (6) 0.06
NOT TO SCALE



ELEVATION VIEW

REINFORCED SILT FENCE (30" HIGH) (9) 0.06
NOT TO SCALE

NOTES:

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 (THIS SHEET) OF THE PA DEP EROSION CONTROL MANUAL.

FABRIC WIDTH SHALL BE 42 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES. AN 18 IN. SUPPORT STAKE SHALL BE DRIVEN 12 IN. MINIMUM INTO UNDISTURBED GROUND.

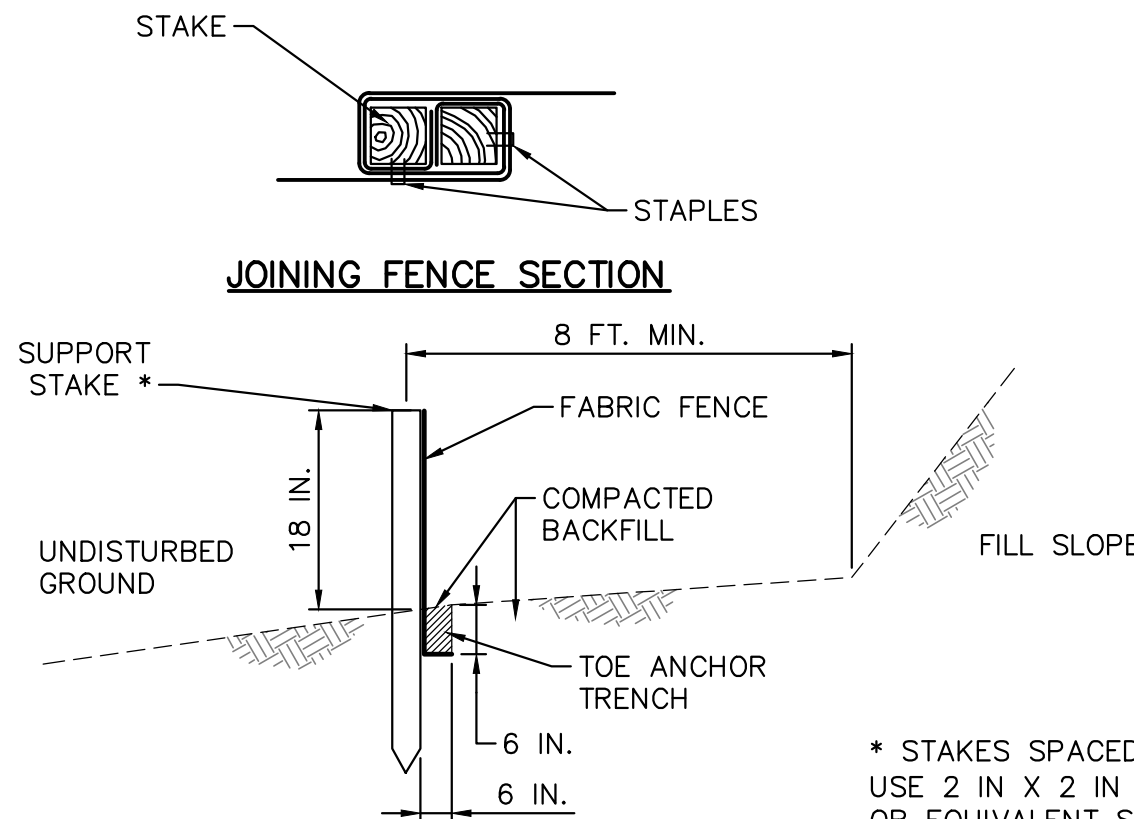
SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET (STANDARD CONSTRUCTION DETAIL # 4-6).

FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

SILT FENCE CANNOT BE USED IN HQ/EV OR SILTATION IMPAIRED WATERSHEDS.



SECTION VIEW

* STAKES SPACED AT 8 FT. MAX. USE 2 IN X 2 IN (± 3/8 IN.) WOOD OR EQUIVALENT STEEL (U OR T) STAKES.

NOTES:

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 (THIS SHEET) OF THE PA DEP EROSION CONTROL MANUAL.

FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.

SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

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SILT FENCE CANNOT BE USED IN HQ/EV OR SILTATION IMPAIRED WATERSHEDS.

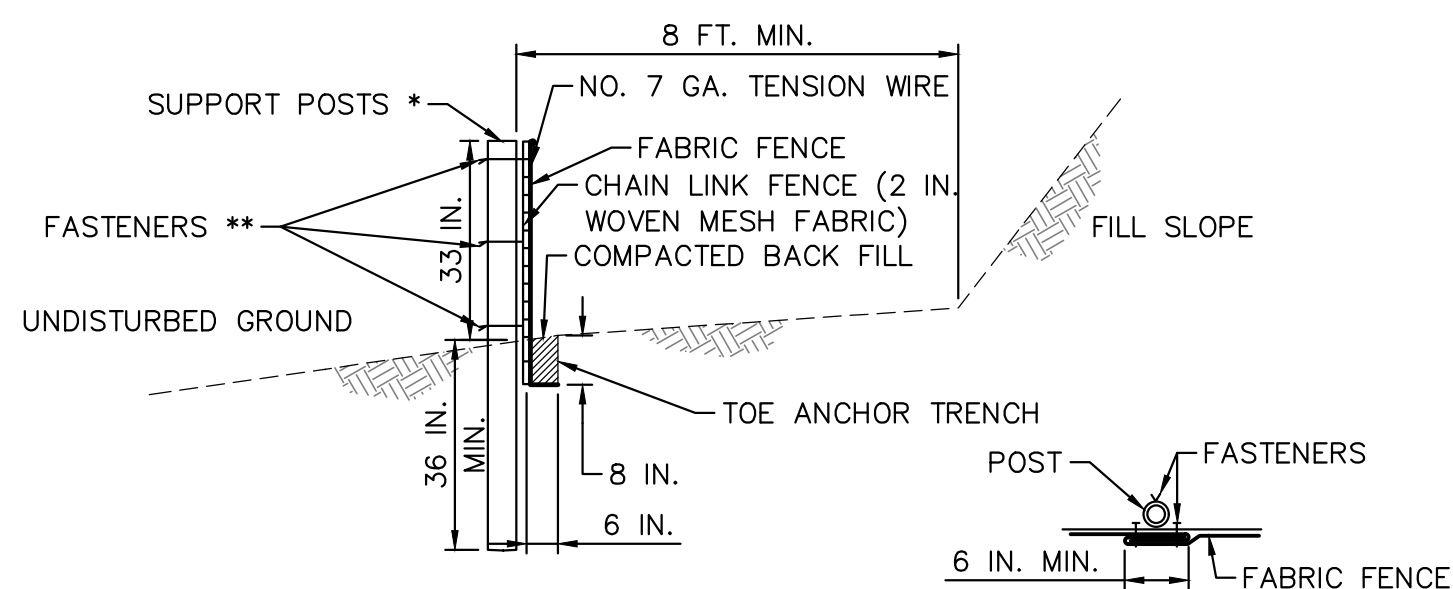
STANDARD SILT FENCE (18" HIGH) (7) 0.06
NOT TO SCALE

TABLE 4.3

FABRIC PROPERTIES FOR SILT FENCE		
FABRIC PROPERTY	MINIMUM ACCEPTABLE VALUE	TEST METHOD
GRAB TENSILE STRENGTH (LB)	120	ASTM D1682
ELONGATION AT FAILURE (%)	20% MAX.	ASTM D1682
MULLEN BURST STRENGTH (PSI)	200	ASTM D3786
TRAPEZOIDAL TEAR STRENGTH (LB)	50	
PUNCTURE STRENGTH (LB)	40	ASTM D 751 (MODIFIED)
SLURRY FLOW RATE (GAL/MIN/SF)	0.3	ASTM 5141
EQUIVALENT OPENING SIZE	30	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY (%)	80	ASTM G-26

TABLE 4.4

SLOPE - PERCENT	MAXIMUM SLOPE LENGTH (FT) ABOVE FENCE		
	STANDARD (18" HIGH) SILT FENCE	REINFORCED (30" INCH) SILT FENCE	SUPER SILT FENCE
2 (OR LESS)	150	500	1000
5	100	250	550
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50



SECTION VIEW

JOINING FENCE SECTIONS

* POSTS SPACED AT 10 FT. MAX. USE 2-1/2 IN. DIA HEAVY DUTY GALVANIZED OR ALUMINUM POSTS.

** CHAIN LINK TO POST FASTENERS SPACED AT 14 IN. MAX. USE NO. 9 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL WIRE. FABRIC TO SHAIN FASTENERS SPACED AT 24 IN. MAX. ON CENTER.

NOTES:

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 (THIS SHEET) OF THE PA DEP EROSION CONTROL MANUAL.

FABRIC WIDTH SHALL BE 42 IN. MINIMUM.

POSTS SHALL BE INSTALLED USING A POSTHOLE DRILL.

CHAIN LINK SHALL BE GALVANIZED NO. 11.5 GA. STEEL WIRE WITH 2-1/4 IN. OPENING, NO. 11 GA. ALUMINUM COATED STEEL WIRE IN ACCORDANCE WITH ASTM-A-491, OR GALVANIZED NO. 9 GA. STEEL WIRE TOP AND BOTTOM WITH GALVANIZED NO. 11 GA. STEEL INTERMEDIATE WIRES. NO. 7 GAGE TENSION WIRE TO BE INSTALLED HORIZONTALLY THROUGH HOLES AT TOP AND BOTTOM OF CHAIN-LINK FENCE OR ATTACHED WITH HOG RINGS AT 5 FT MAX. CENTERS.

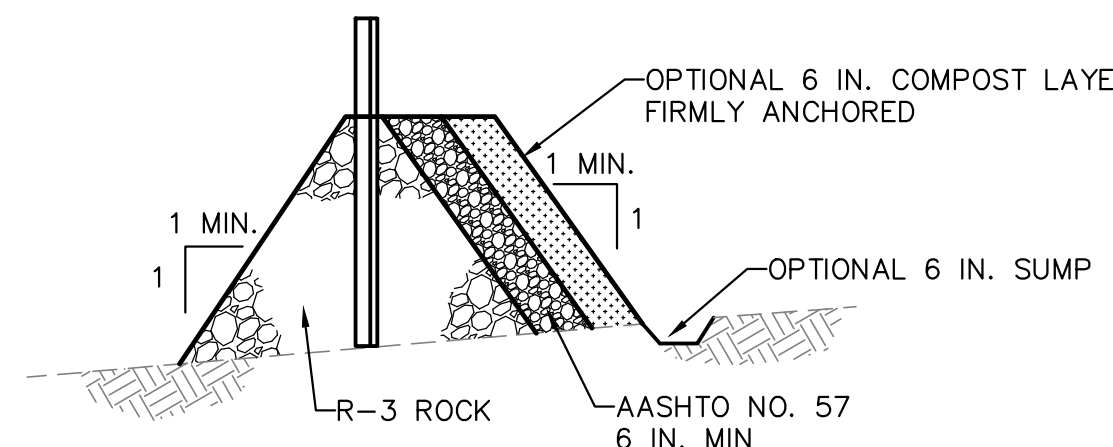
SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.

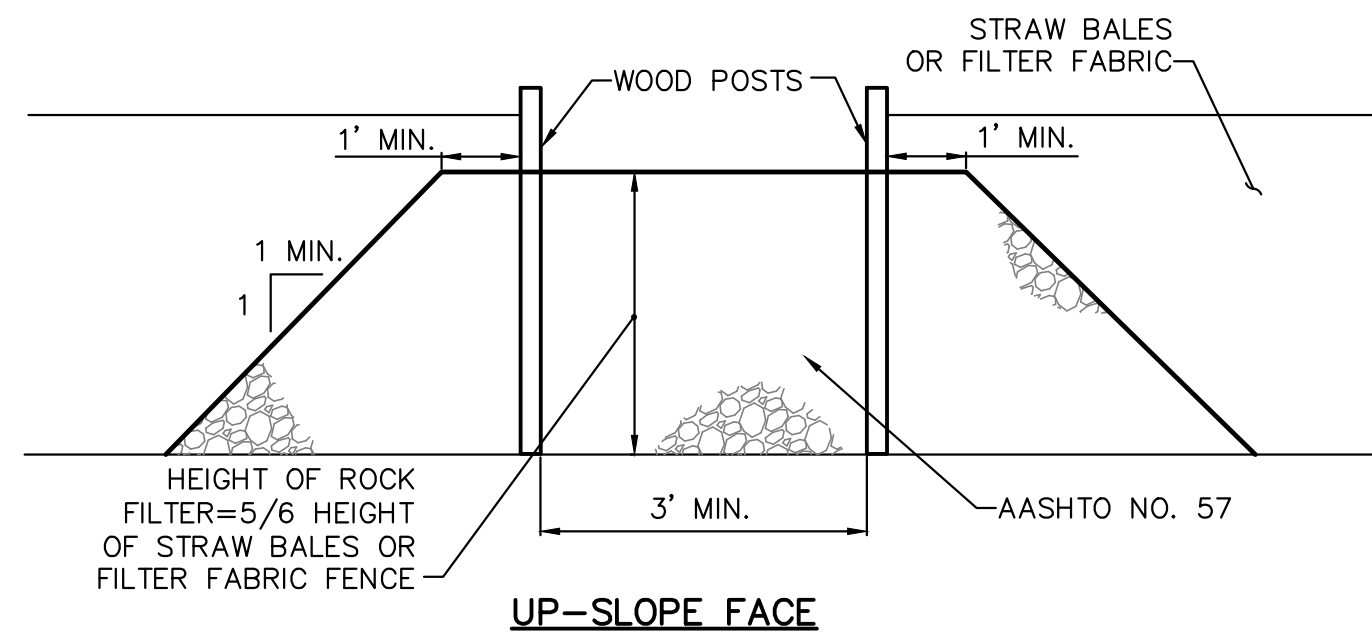
FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

SILT FENCE CANNOT BE USED IN HQ/EV OR SILTATION IMPAIRED WATERSHEDS.

SUPER SILT FENCE (8) 0.06
NOT TO SCALE



OUTLET CROSS-SECTION



UP-SLOPE FACE

NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6 (PA DEP E&S MANUAL)

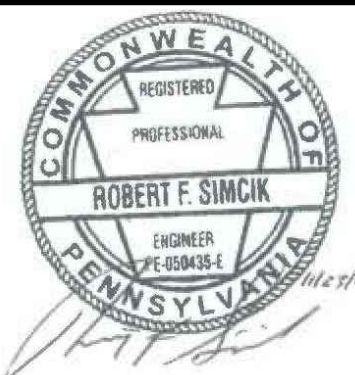
ROCK FILTER OUTLET

NOT TO SCALE



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REVISIONS			
NO.	BY	DATE	REMARKS



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ES-0.06	
SHEET	0.06 OF 44



* TOP SOIL MAY NOT BE USED TO FILL SACKS

IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL STREAM, RIVER, WETLAND,
OR OTHER WATERBODY CROSSINGS.



1. DEFLECTOR SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM DEFLECTOR WITHIN 24 HOURS OF INSPECTION.
3. BELT SHALL BE REPLACED WHEN WORN AND NO LONGER EFFECTIVE.
4. MAXIMUM SPACING OF DEFLECTORS SHALL BE AS SHOWN IN TABLE.

WATER DEFLECTOR

NOT TO SCALE



NOT TO SCALE



LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME $\frac{1}{2}$ FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%. CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE GAB TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.



CONSTRUCT DAMS WITH SAND BAGS, JERSEY BARRIERS OR SIMILAR MATERIAL WITH AN IMPERVIOUS LINER EXTENDED TO THE STREAM BOTTOM AND SECURED WITH SANDBAGS MAINTAINING AMBIENT DOWNSTREAM FLOW RATES.



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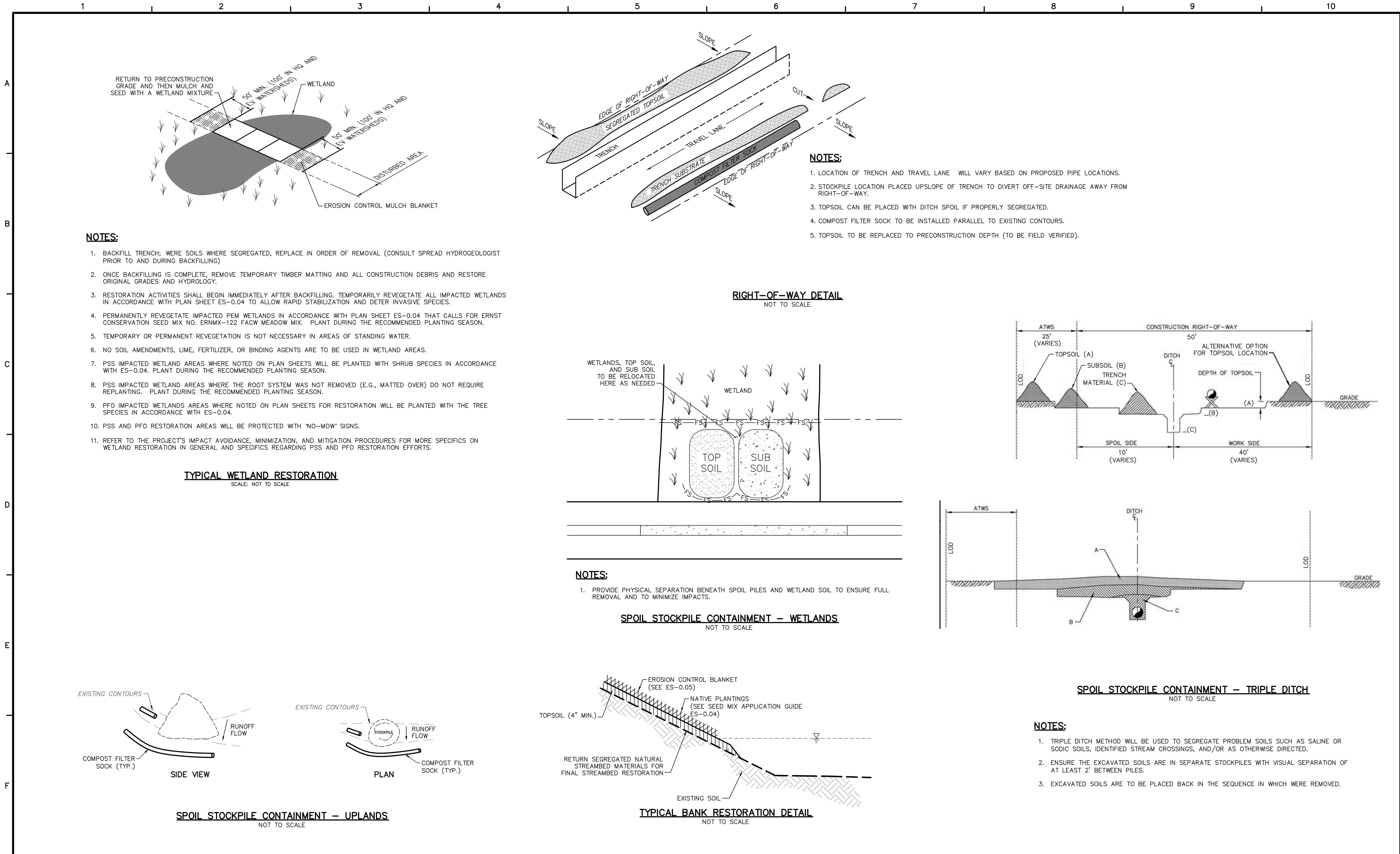
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ENGINEER
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1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES

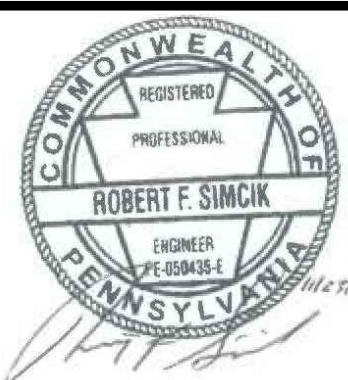
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EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
NOTES & DETAILS

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SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4

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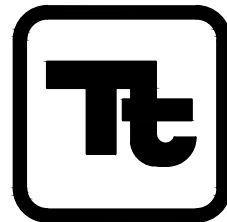
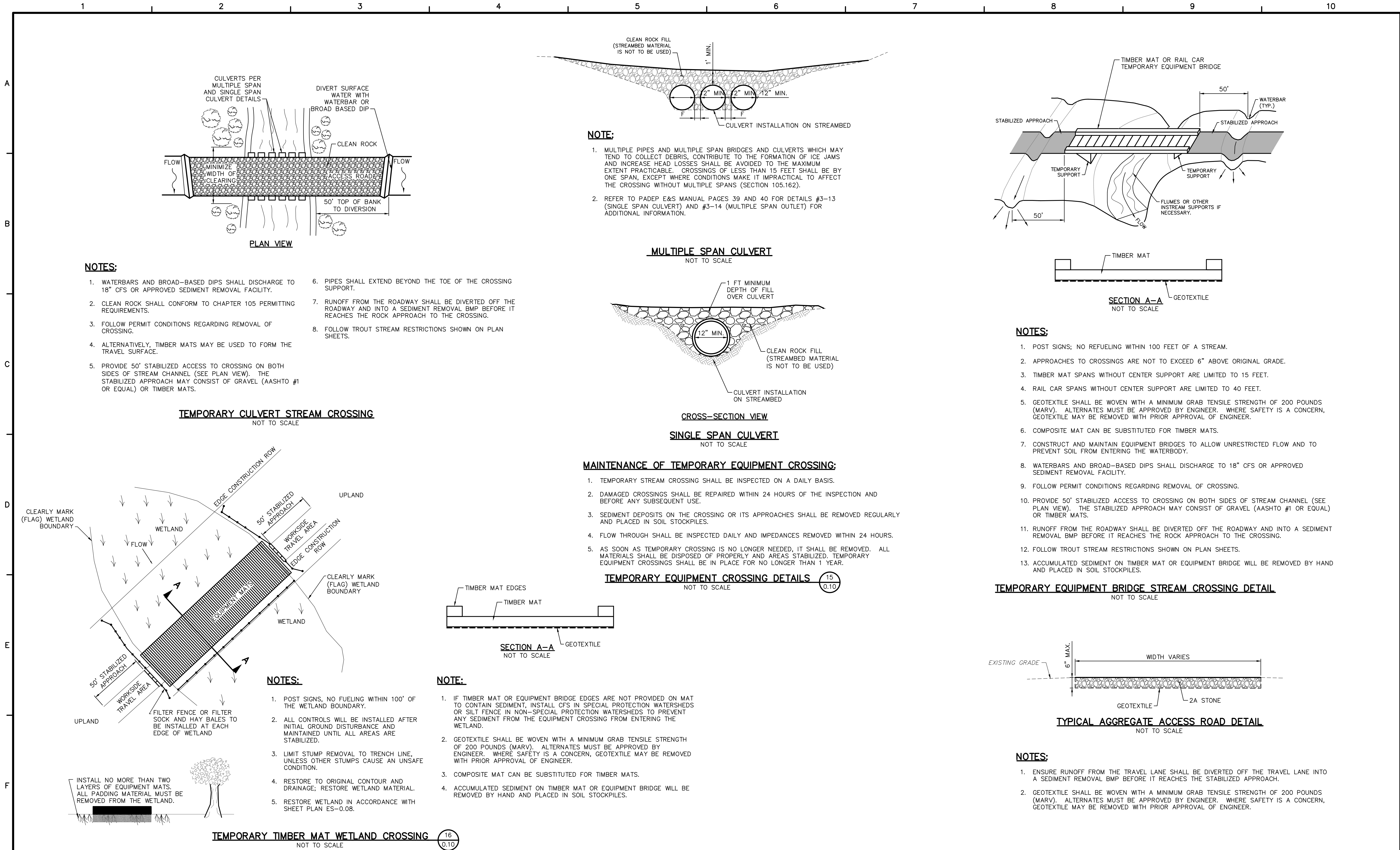
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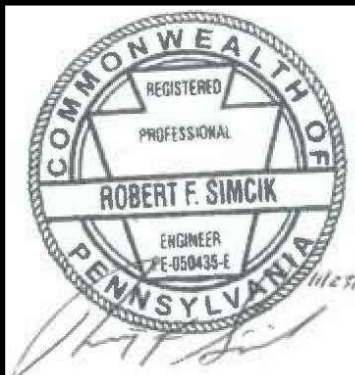
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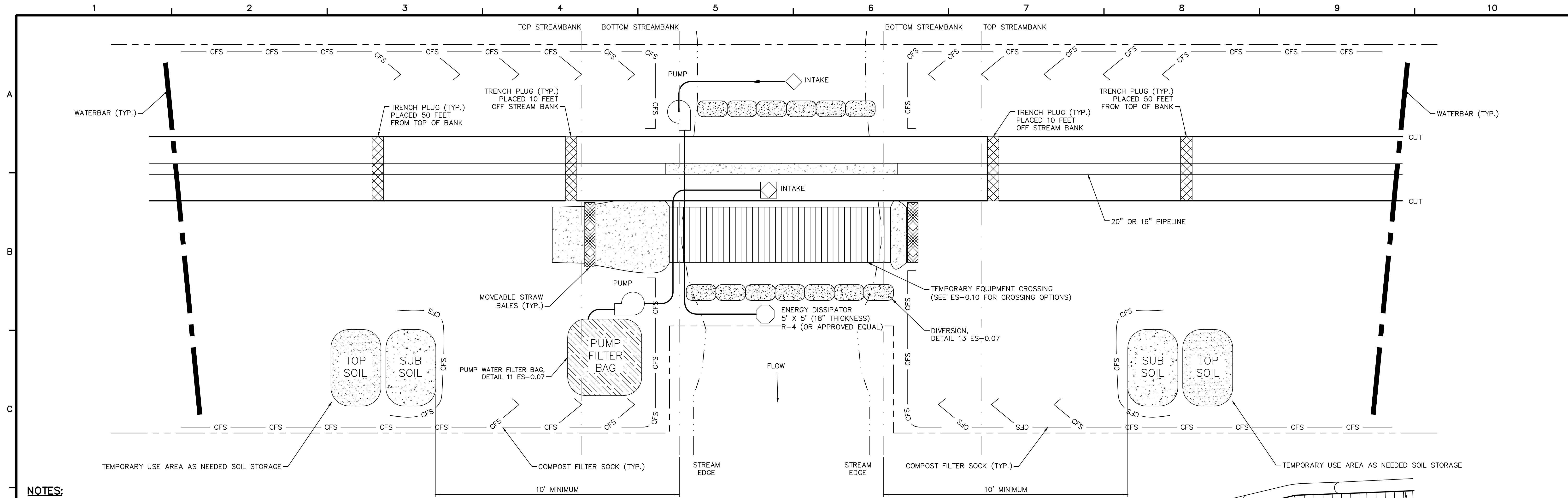
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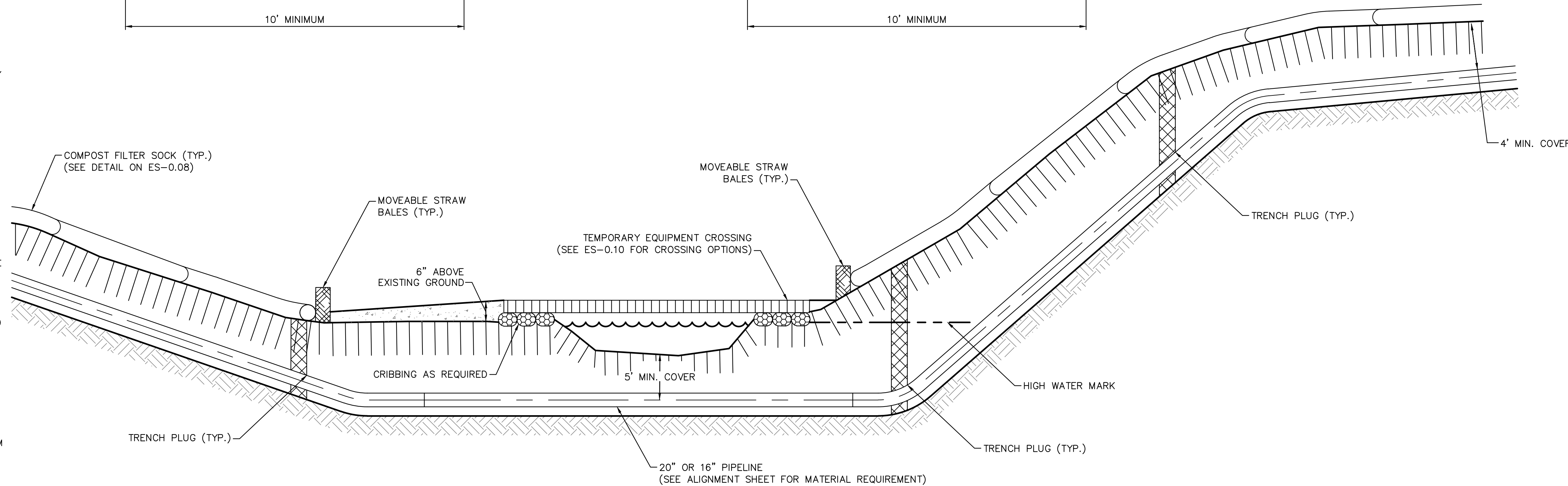
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NOTES:

1. SEE PLAN SHEETS FOR FLOODWAY AND FLOODPLAIN LOCATIONS AND FOR REFERENCE TO SITE-SPECIFIC STREAM CROSSING DRAWINGS.
2. CONSTRUCT WATERBODY CROSSINGS AS PERPENDICULAR TO THE AXIS OF THE WATERBODY CHANNEL AS ENGINEERING AND ROUTING CONDITIONS ALLOW.
3. SETUP PUMP AND HOSE AS SHOWN, OR USE OTHER PRACTICAL ALTERNATIVES. PUMP SHOULD HAVE TWICE THE PUMPING CAPACITY OF ANTICIPATED FLOW.
4. CONTRACTOR TO ENSURE A SUFFICIENT NUMBER OF ACTIVE AND BACKUP PUMPS TO MAINTAIN TWICE THE PUMPING CAPACITY OF ANTICIPATED FLOW ARE AVAILABLE AT THE SITE DURING THE INSTALLATION.
5. INSTALL UPSTREAM DAM, THEN DOWNSTREAM DAM. KEEP PUMP RUNNING TO MAINTAIN STREAM FLOW, DETAIL 13 ES-0.07.
6. BYPASS PUMP INTAKES SHALL BE SCREENED AND MAINTAINED A SUFFICIENT DISTANCE FROM THE STREAM BOTTOM TO PREVENT PUMPING OF CHANNEL BOTTOM MATERIALS AND AQUATIC LIFE.
7. AN ENERGY DISSIPATOR IS REQUIRED AT THE DISCHARGE OF THE BYPASS PUMPS.
8. WATERBARS ARE TO BE PLACED 50 FEET FROM TOP OF BANK EXCEPT AS NOTED ON SITE SPECIFIC PLAN DRAWINGS.
9. MARK THE TOP OF STREAMBANK WITH HIGH VISIBLE FLAGGING AND POST RESOURCE AND NO REFUELING SIGNS WITHIN 100 FEET OF TOP OF STREAMBANK;
10. HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM TOP OF STREAMBANK;
11. GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP OF BANK PRIOR TO STREAM INSTALLATION WITH THE EXCEPTION OF THE TRAVEL LANE UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION;
12. CONSTRUCT DAMS WITH SAND BAGS, JERSEY BARRIERS OR SIMILAR MATERIAL WITH AN IMPERVIOUS LINER EXTENDED TO THE STREAM BOTTOM AND SECURED WITH SANDBAGS (SEE ES-0.07) MAINTAINING AMBIENT DOWNSTREAM FLOW RATES;
13. NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION. EXCAVATION PORTION OF NATIVE STREAM BEDS COMPRISED OF ROCK, COBBLE, OR GRAVEL ARE TO BE STRIPPED AND SEGREGATED AND USED DURING STREAM RESTORATION.
14. REMOVE ALL CONSTRUCTION MATERIAL AND STRUCTURES FROM THE WATERBODY AFTER CONSTRUCTION;
15. RESTORE STREAM CHANNELS AND BOTTOMS TO THEIR PRECONSTRUCTION CONTOURS OR BETTER, AND STABILIZING THE STREAM CHANNEL PRIOR TO REESTABLISHING FLOW.
16. ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE STREAM FLOODWAY PRIOR TO PERMANENTLY STABILIZING STREAM BANKS; AND,
17. ALL DISTURBED AREAS WITHIN 50 FEET OF TOP OF BANK AND 100 FEET IN SPECIAL PROTECTION WATERSHEDS SHOULD BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAM BANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.
18. KEEP LIME AND FERTILIZERS OUT OF STREAM.
19. TEMPORARY CROSSINGS WILL STAY IN PLACE FOR NO GREATER THAN ONE YEAR.

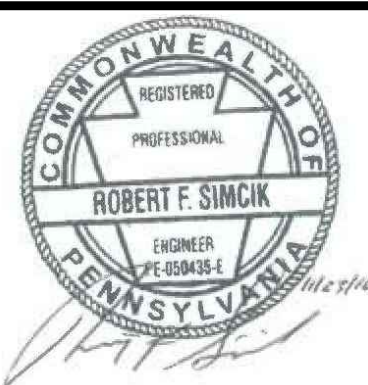


TYPICAL PIPELINE INSTALLATION STREAM CROSSING -
PUMP BYPASS DETAIL
NOT TO SCALE



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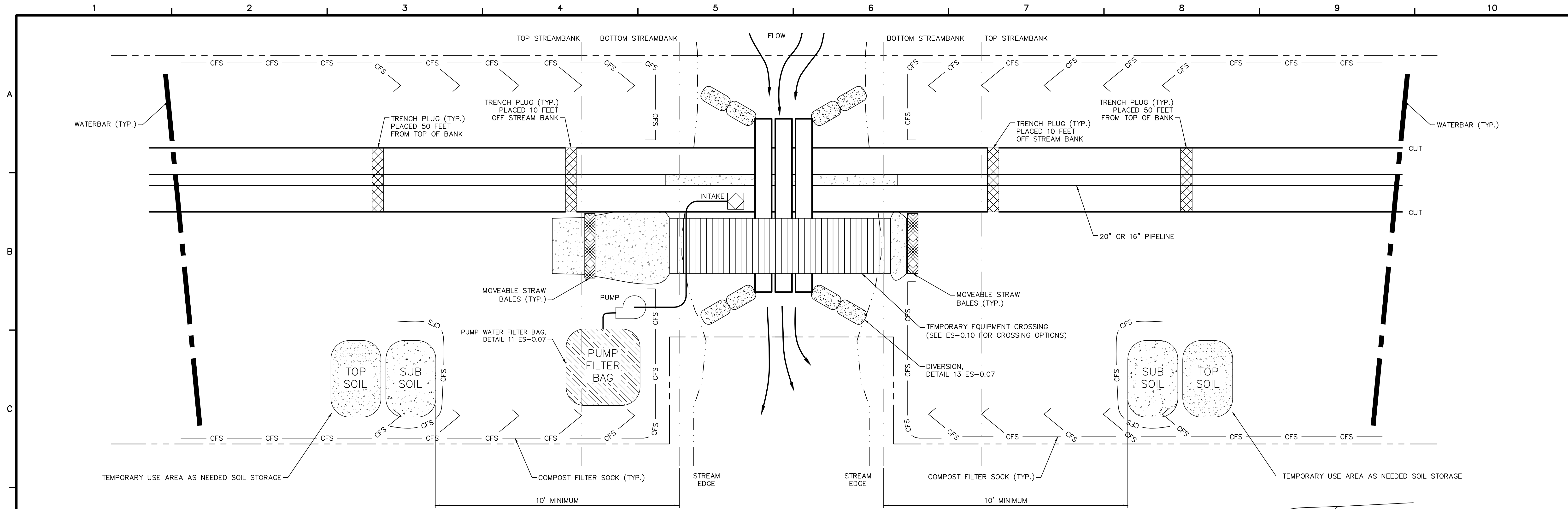
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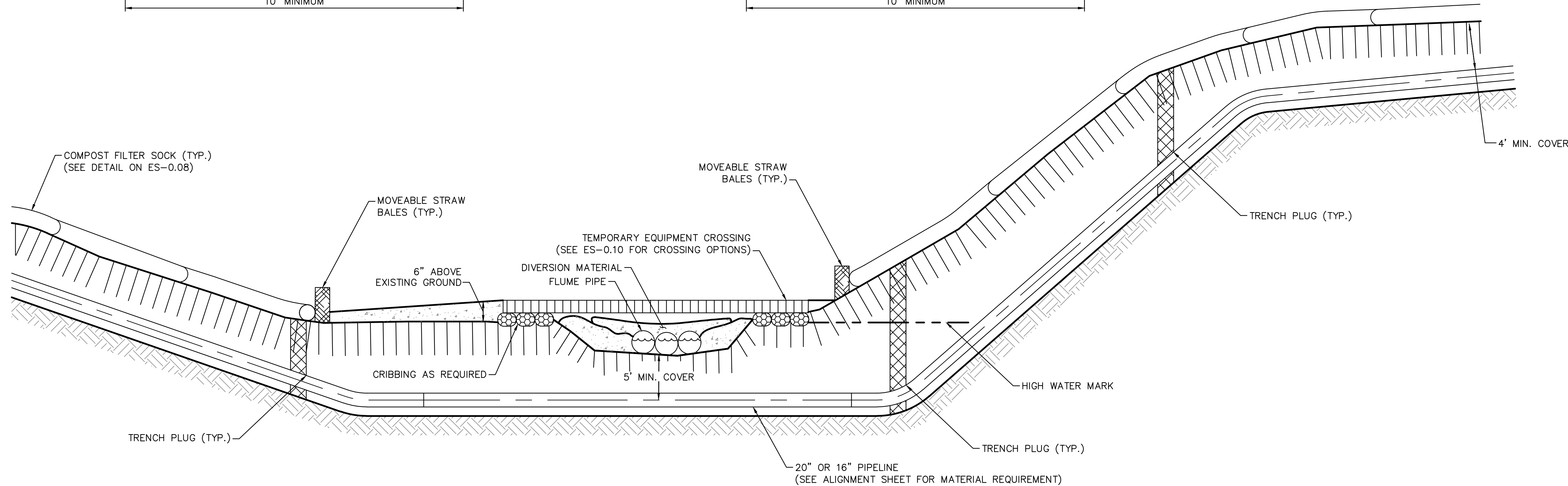
SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4

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- NOTES:**
1. SEE PLAN SHEETS FOR FLOODWAY AND FLOODPLAIN LOCATIONS AND FOR REFERENCE TO SITE-SPECIFIC STREAM CORRRING DRAWINGS.
 2. THE FLUME SHOULD BE OF SUFFICIENT SIZE TO CONVEY NORMAL STREAM FLOW OVER THE OPEN TRENCH (MINIMUM SIZE OF 12 INCHES);
 3. FLUME PIPE MUST BE ONE CONTINUOUS PIPE LONG ENOUGH TO ACCOUNT FOR THE POSSIBILITY OF THE TRENCH WIDENING UNEXPECTEDLY DURING THE EXCAVATION (DUE TO SLOUGHING);
 4. FLUME SHALL BE INSTALLED PRIOR TO TRENCH EXCAVATION AT THAT LOCATION; AND,
 5. AN EFFECTIVE SEAL MUST BE CREATED AROUND THE FLUME(S). ONCE IN PLACE, THE FLUMES ARE NOT REMOVED UNTIL THE PIPELINE HAS BEEN INSTALLED AND THE STREAMBED AND BANKS HAVE BEEN RESTORED.
 6. WATERBARS ARE TO BE PLACED 50 FEET FROM TOP OF BANK EXCEPT AS NOTED ON SITE SPECIFIC PLAN DRAWINGS.
 7. MARK THE TOP OF STREAMBANK WITH HIGH VISIBLE FLAGGING AND POST RESOURCE AND NO REFUELING SIGNS WITHIN 100 FEET OF TOP OF STREAMBANK;
 8. HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM TOP OF STREAMBANK;
 9. GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP OF BANK PRIOR TO STREAM INSTALLATION WITH THE EXCEPTION OF THE TRAVEL LANE UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION;
 10. CONSTRUCT DAMS WITH SAND BAGS, JERSEY BARRIERS OR SIMILAR MATERIAL WITH AN IMPERVIOUS LINER EXTENDED TO THE STREAM BOTTOM AND SECURED WITH SANDBAGS (SEE ES-0.07) MAINTAINING AMBIENT DOWNSTREAM FLOW RATES;
 11. NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION. EXCAVATION PORTION OF NATIVE STREAM BEDS COMPRISED OF ROCK, COBBLE, OR GRAVEL ARE TO BE STRIPPED AND SEGREGATED AND USED DURING STREAM RESTORATION.
 12. REMOVE ALL CONSTRUCTION MATERIAL AND STRUCTURES FROM THE WATERBODY AFTER CONSTRUCTION;
 13. RESTORE STREAM CHANNELS AND BOTTOMS TO THEIR PRECONSTRUCTION CONTOURS OR BETTER, AND STABILIZING THE STREAM CHANNEL PRIOR TO REESTABLISHING FLOW.
 14. ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE STREAM FLOODWAY PRIOR TO PERMANENTLY STABILIZING STREAM BANKS; AND,
 15. ALL DISTURBED AREAS WITHIN 50 FEET OF TOP OF BANK AND 100 FEET IN SPECIAL PROTECTION WATERSHEDS SHOULD BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAM BANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.
 16. KEEP LIME AND FERTILIZERS OUT OF STREAM.
 17. TEMPORARY CROSSINGS WILL STAY IN PLACE FOR NO GREATER THAN ONE YEAR.

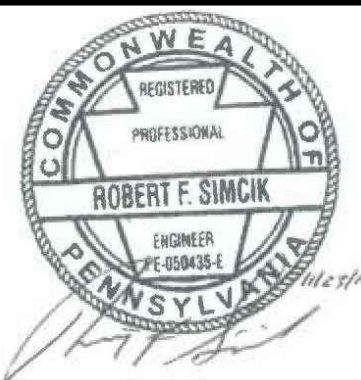


**TYPICAL PIPELINE INSTALLATION STREAM CROSSING -
DRY FLUME DETAIL**
NOT TO SCALE



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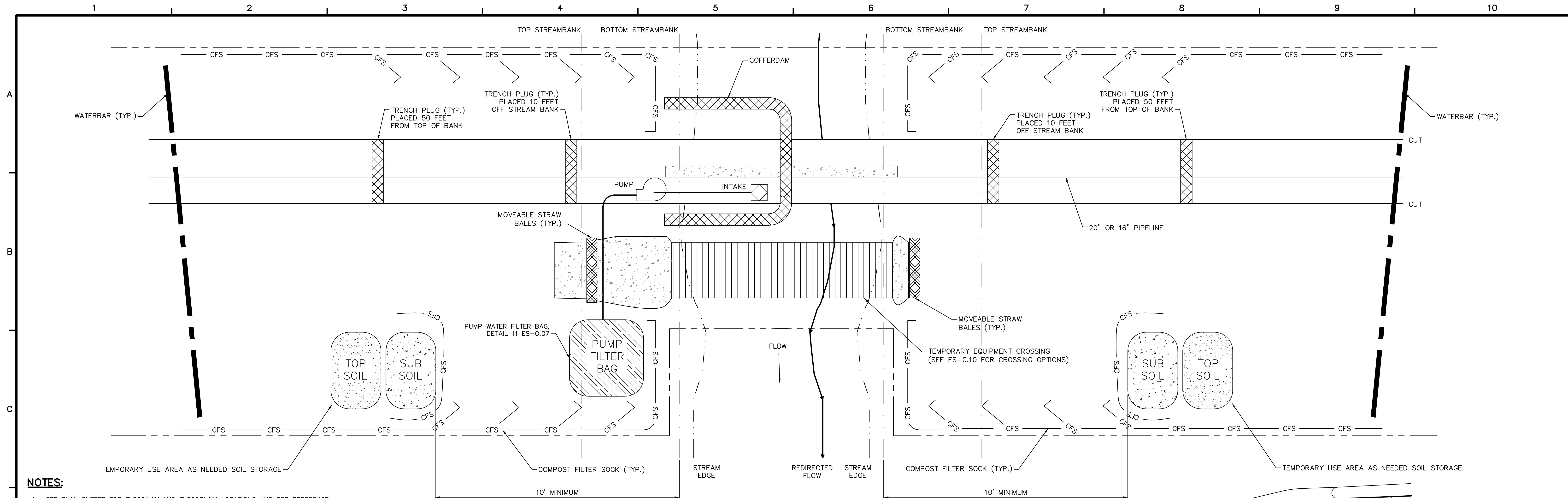
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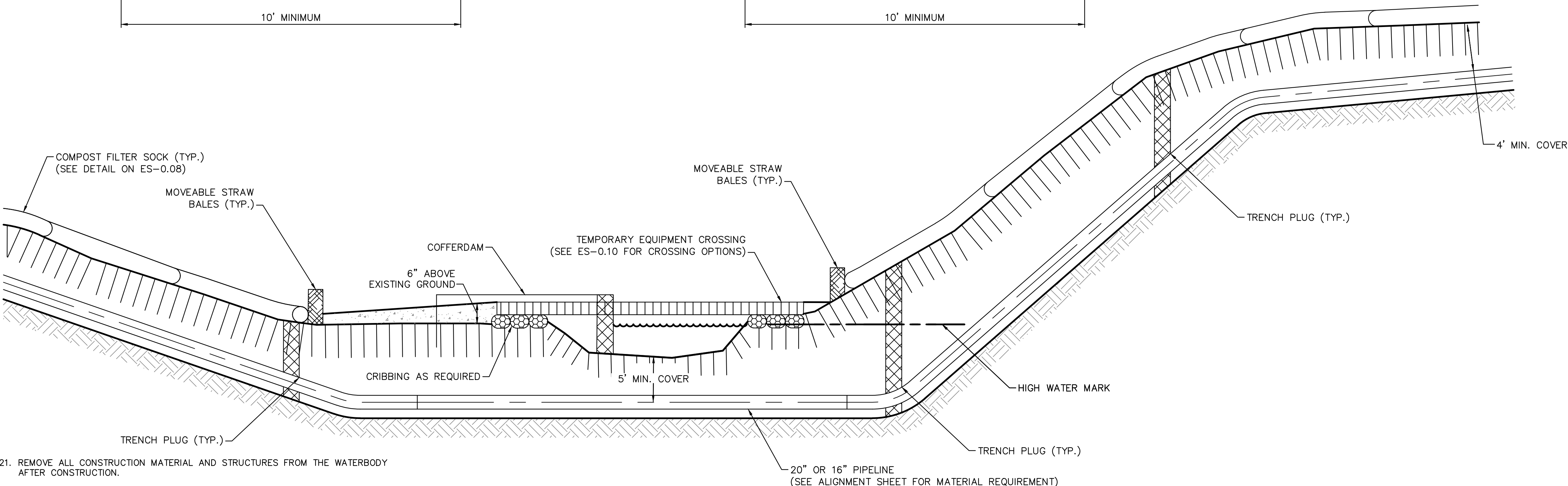
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SINKING SPRING, PENNSYLVANIA
**PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4**

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
**YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
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- NOTES:**
- SEE PLAN SHEETS FOR FLOODWAY AND FLOODPLAIN LOCATIONS AND FOR REFERENCE TO SITE-SPECIFIC STREAM CROSSING DRAWINGS.
 - MAINTAIN ADEQUATE IN-STREAM PASSAGE OF WATER (MIN 1/3 THE DISTANCE OF THE CROSSING) AT ALL TIMES TO CONVEY NORMAL STREAM FLOW WITHOUT CREATING ACCELERATED BANK EROSION;
 - PREPARE STREAM BED FOR CONSTRUCTION OF COFFERDAM BY REMOVING LARGE BOULDERS AND OTHER OBJECTS THAT MAY PREVENT AN ADEQUATE DAM SEAL;
 - DRAW DOWN WATER WITHIN COFFERDAM STRUCTURE AND PUMP INTO WATERBODY;
 - PREPARE SMALL TRENCH OR BERM AROUND INTERIOR OF COFFERDAM AND LOCATE SUMP AS DEPICTED FOR CONTINUOUS PUMPING OF ANY ADDITIONAL WATER INFILTRATION INTO COFFERDAM STRUCTURE SPACE AND TRENCH. CONTINUED PUMPING DURING CONSTRUCTION ACTIVITIES SHALL BE DIRECTED TO A DEWATERING STRUCTURE.
 - INSTALL TIMBER MATS ALONG CONSTRUCTION TRAVEL LANE, IF REQUIRED.
 - EXCAVATE THE PIPELINE TRENCH AS NECESSARY.
 - DEWATER TRENCH TO ENSURE THAT IT IS SUITABLE FOR WORKER ENTRANCE TO COMPLETE A TIE-IN WELD. SHOULD THE TRENCH FAIL AND PROVE TO BE UNSAFE FOR WORKERS, DISCUSS OPTIONS WITH AGENCIES.
 - INSTALL CROSSING PIPE AND SANDBAGS OR PREFABRICATED CONCRETE WALL ADJACENT TO THE WELD CAP WHICH WILL FORM A BARRIER TO PREVENT MOVEMENT OF RE-INSTALLED TRENCH SPOIL WHILE THE EAST SIDE OF THE CROSSING IS CONSTRUCTED.
 - RETURN TRENCH SPOIL TO TRENCH AND COVER PIPELINE. RESTORE RIVER BED WITH SEGREGATED RIVER BED SEDIMENT AND ROCK MATERIAL.
 - PUMP RIVER WATER INTO COFFERDAM STRUCTURE AND ALLOW ALL SEDIMENTATION TO SETTLE.
 - DISASSEMBLE COFFERDAM STRUCTURE;
 - RESTORE RIVER BANK PRECONSTRUCTION CONTOURS TO A STABLE ANGLE OF REPOSE.
 - REPEAT STEPS ON OPPOSITE SIDE OF WATERBODY.
 - WATERBARS ARE TO BE PLACED 50 FEET FROM TOP OF BANK EXCEPT AS NOTED ON SITE SPECIFIC PLAN DRAWINGS.
 - MARK THE TOP OF STREAMBANK WITH HIGH VISIBLE FLAGGING AND POST RESOURCE AND NO REFUELING SIGNS WITHIN 100 FEET OF TOP OF STREAMBANK;
 - HAZARDOUS OR POLLUTANT MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET BACK FROM TOP OF STREAMBANK;
 - GRUBBING SHALL NOT TAKE PLACE WITHIN 50 FEET OF TOP OF BANK PRIOR TO STREAM INSTALLATION WITH THE EXCEPTION OF THE TRAVEL LANE UNTIL ALL MATERIALS REQUIRED TO COMPLETE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION;
 - CONSTRUCT DAMS WITH SAND BAGS, JERSEY BARRIERS OR SIMILAR MATERIAL WITH AN IMPERVIOUS LINER EXTENDED TO THE STREAM BOTTOM AND SECURED WITH SANDBAGS (SEE ES-0.07) MAINTAINING AMBIENT DOWNSTREAM FLOW RATES;
 - NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION. EXCAVATION PORTION OF NATIVE STREAM BEDS COMPRISED OF ROCK, COBBLE, OR GRAVEL ARE TO BE STRIPPED AND SEGREGATED AND USED DURING STREAM RESTORATION.

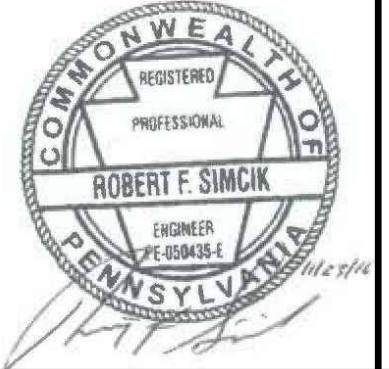


TYPICAL PIPELINE INSTALLATION STREAM CROSSING – COFFERDAM DETAIL
NOT TO SCALE

- REMOVE ALL CONSTRUCTION MATERIAL AND STRUCTURES FROM THE WATERBODY AFTER CONSTRUCTION.
- RESTORE STREAM CHANNELS AND BOTTOMS TO THEIR PRECONSTRUCTION CONTOURS OR BETTER, AND STABILIZING THE STREAM CHANNEL PRIOR TO REESTABLISHING FLOW.
- ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE STREAM FLOODWAY PRIOR TO PERMANENTLY STABILIZING STREAM BANKS; AND,
- ALL DISTURBED AREAS WITHIN 50 FEET OF TOP OF BANK AND 100 FEET IN SPECIAL PROTECTION WATERSHEDS SHOULD BE BLANKETED OR MATTED WITHIN 24 HOURS OF INITIAL DISTURBANCE FOR MINOR STREAMS OR 48 HOURS OF INITIAL DISTURBANCE FOR MAJOR STREAMS UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAM BANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.
- KEEP LIME AND FERTILIZER OUT OF STREAM.
- TEMPORARY CROSSINGS WILL STAY IN PLACE FOR NO GREATER THAN ONE YEAR.

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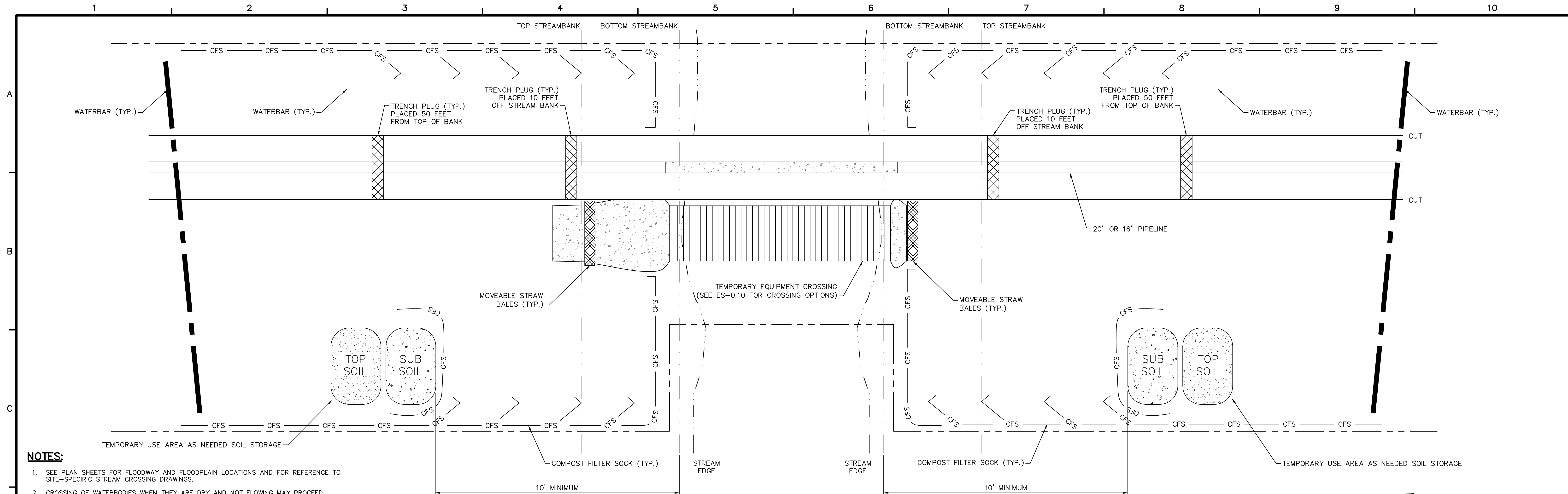
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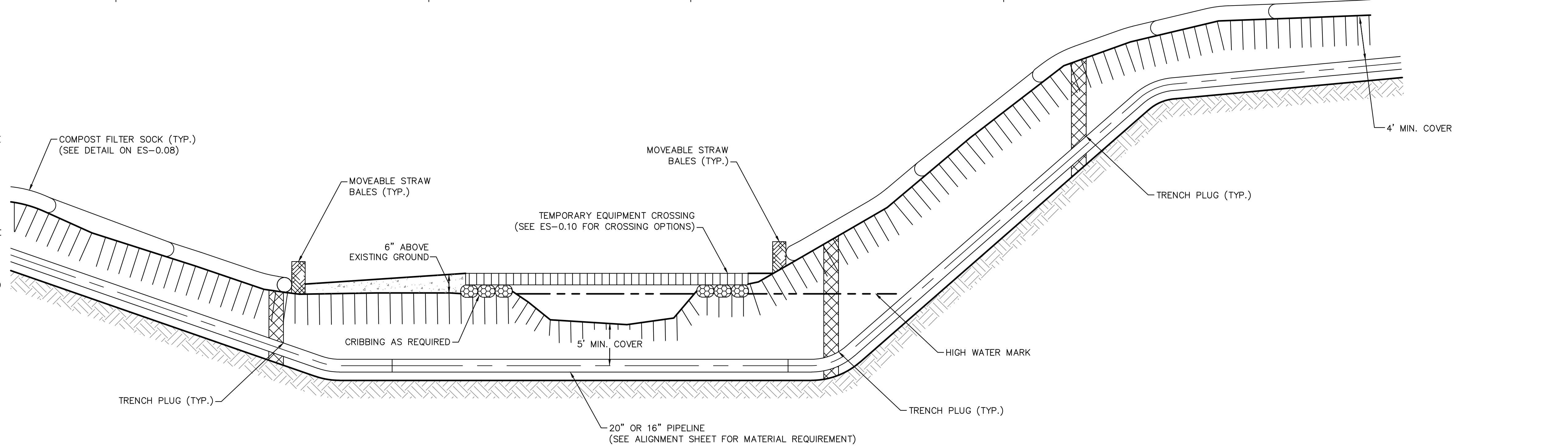
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CONSTRUCTION SPREAD 4**

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- NOTES:**
- SEE PLAN SHEETS FOR FLOODWAY AND FLOODPLAIN LOCATIONS AND FOR REFERENCE TO SITE-SPECIFIC STREAM CROSSING DRAWINGS.
 - CROSSING OF WATERBODIES WHEN THEY ARE DRY AND NOT FLOWING MAY PROCEED WITHOUT USE OF THE DRY PUMP BYPASS OR A DRY FLUME PROVIDED THAT THE ENVIRONMENTAL INSPECTOR VERIFIES THAT WATER IS UNLIKELY TO FLOW BETWEEN INITIAL DISTURBANCE AND FINAL STABILIZATION OF THE FEATURE.
 - WORK ON THE CROSSING MUST BE CONTINUOUS AND THE CROSSING MUST BE ATTENDED AT ALL TIMES.
 - IN THE EVENT PERCEPTIBLE FLOW IS ANTICIPATED OR IF THE CREW IS NOT IN ATTENDANCE AT THE CROSSING ALL OF THE REQUIREMENTS FOR A PUMP BYPASS OR DRY FLUME MUST BE MET.
 - EQUIPMENT AND SUPPLIES TO IMPLEMENT DRY PUMP BYPASS OR DRY FLUME CROSSING WILL BE ON-SITE IF STREAM-FLOW OCCURS DURING IMPLEMENTATION.
 - OPEN CUT CROSSING METHOD IS ONLY PERMITTED DURING TIMES OF NO STREAM FLOW OR RUNOFF EXISTS. DO NOT EXCAVATE TRENCH IN STREAM UNTIL THE PIPE SEGMENT IS ASSEMBLED AND READY FOR LOWERING IN. TRENCH DEWATERING SHALL USE A FILTER BAG WHEREVER FEASIBLE, TO AVOID UNCONTROLLED DOWNSTREAM SEDIMENTATION. LIMIT LENGTH OF TIME TO COMPLETE AND RESTORE STREAM CROSSING TO THE MINIMUM PRACTICABLE, E.G., LESS THAN 24 HOURS. IF FLOW AND SUBSTRATE CONDITIONS ARE SUCH THAT USE OF THIS CROSSING METHOD WOULD RESULT IN SIGNIFICANT UNCONTROLLED SEDIMENT TRANSPORT TO DOWNSTREAM AREAS, CONSIDER USING A DRY PUMP BYPASS OR DRY FLUME METHOD INSTEAD OF OPEN CUT.
 - WATERBARS ARE TO BE PLACED 50 FEET FROM TOP OF BANK EXCEPT AS NOTED ON SITE SPECIFIC PLAN DRAWINGS.
 - MARK THE TOP OF STREAMBANK WITH HIGH VISIBLE FLAGGING AND POST RESOURCE AND NO REFUELING SIGNS WITHIN 100 FEET OF TOP OF STREAMBANK.
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 - REMOVE ALL CONSTRUCTION MATERIAL AND STRUCTURES FROM THE WATERBODY AFTER CONSTRUCTION.
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 - KEEP LIME AND FERTILIZER OUT OF STREAM.
 - TEMPORARY CROSSINGS WILL STAY IN PLACE FOR NO GREATER THAN ONE YEAR.

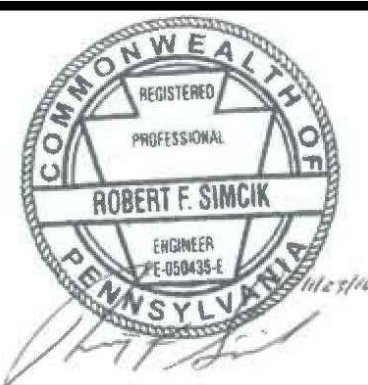


TYPICAL PIPELINE INSTALLATION STREAM CROSSING – DRY OPEN CUT DETAIL
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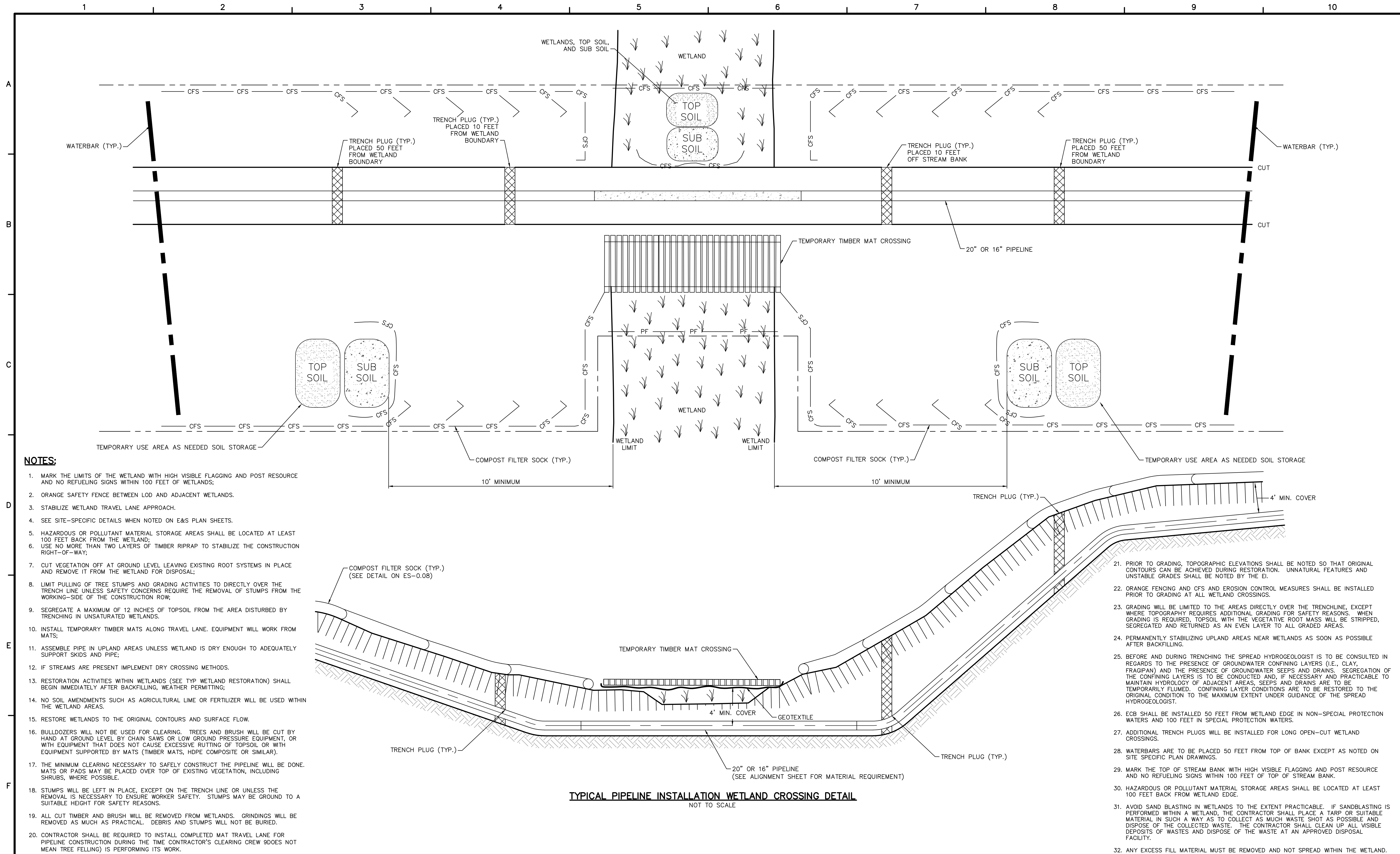
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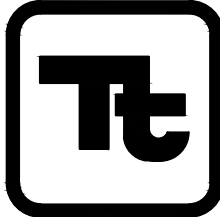
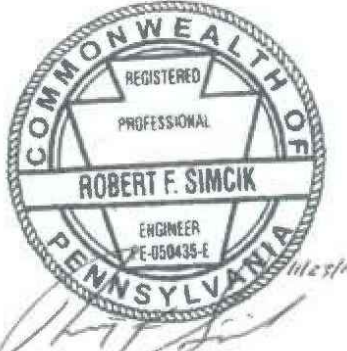
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**PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4**

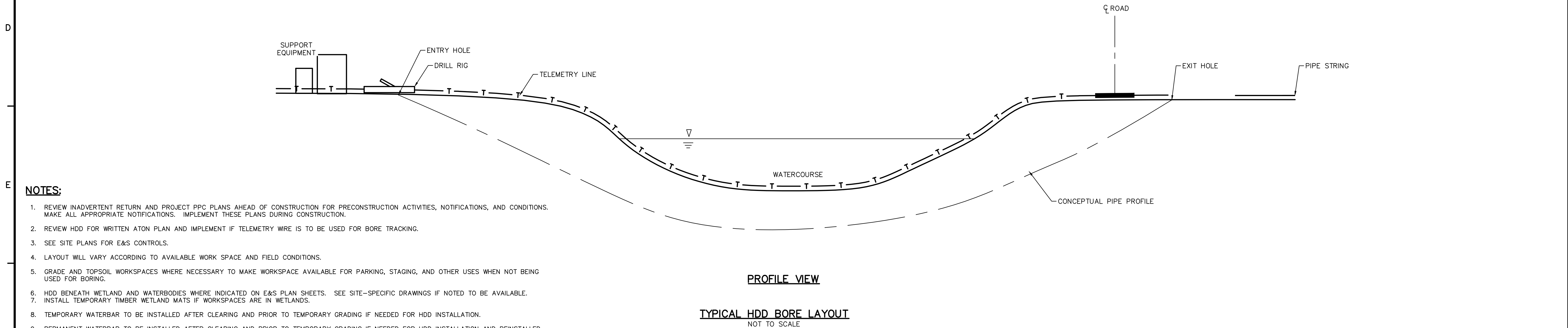
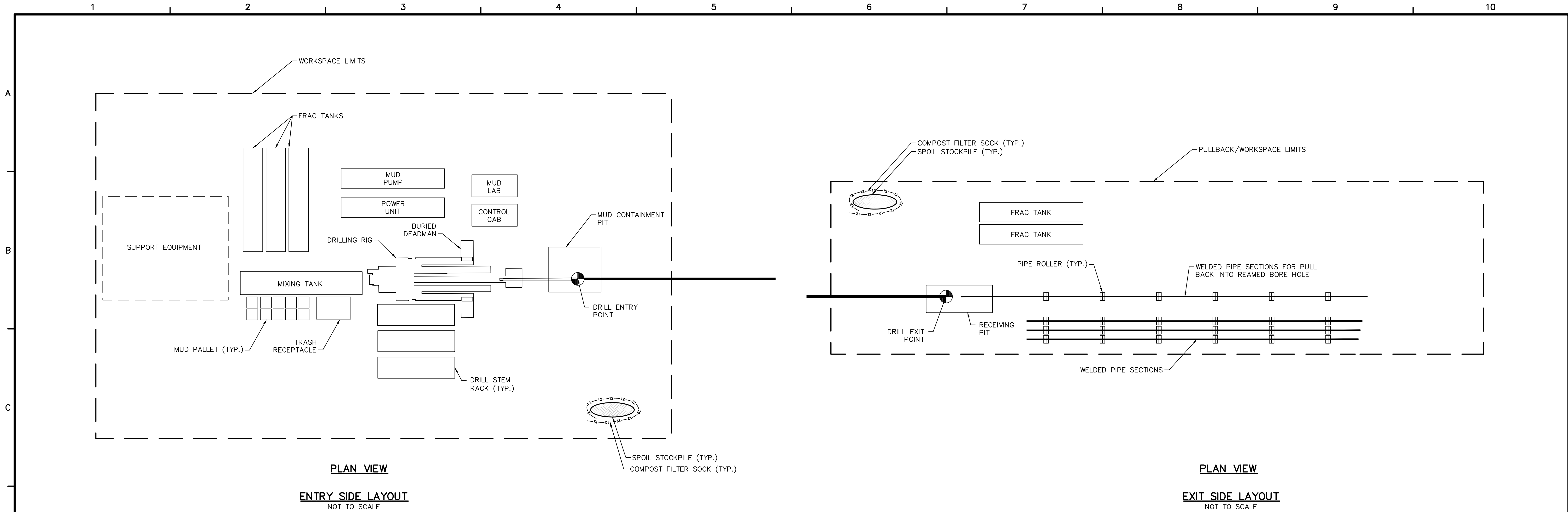
1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
**YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
NOTES & DETAILS**

DATE:	NOVEMBER 2016
PROJECT NO.:	112IC05958
DESIGNED BY:	JB
DRAWN BY:	BH
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SHEET 0.14 OF 44	



TYPICAL PIPELINE INSTALLATION WETLAND CROSSING DETAIL
NOT TO SCALE

 TETRA TECH www.tetrattech.com 661 ANDERSEN DRIVE - FOSTER PLAZA 7 PITTSBURGH, PA 15220 T: (412) 921-7090 F: (412) 921-4040	REVISIONS			SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 4	1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES YORK COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS	DATE: NOVEMBER 2016
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- NOTES:**
1. REVIEW INADVERTENT RETURN AND PROJECT PPC PLANS AHEAD OF CONSTRUCTION FOR PRECONSTRUCTION ACTIVITIES, NOTIFICATIONS, AND CONDITIONS. MAKE ALL APPROPRIATE NOTIFICATIONS. IMPLEMENT THESE PLANS DURING CONSTRUCTION.
 2. REVIEW HDD FOR WRITTEN ATON PLAN AND IMPLEMENT IF TELEMETRY WIRE IS TO BE USED FOR BORE TRACKING.
 3. SEE SITE PLANS FOR E&S CONTROLS.
 4. LAYOUT WILL VARY ACCORDING TO AVAILABLE WORK SPACE AND FIELD CONDITIONS.
 5. GRADE AND TOPSOIL WORKSPACES WHERE NECESSARY TO MAKE WORKSPACE AVAILABLE FOR PARKING, STAGING, AND OTHER USES WHEN NOT BEING USED FOR BORING.
 6. HDD BENEATH WETLAND AND WATERBODIES WHERE INDICATED ON E&S PLAN SHEETS. SEE SITE-SPECIFIC DRAWINGS IF NOTED TO BE AVAILABLE.
 7. INSTALL TEMPORARY TIMBER WETLAND MATS IF WORKSPACES ARE IN WETLANDS.
 8. TEMPORARY WATERBAR TO BE INSTALLED AFTER CLEARING AND PRIOR TO TEMPORARY GRADING IF NEEDED FOR HDD INSTALLATION.
 9. PERMANENT WATERBAR TO BE INSTALLED AFTER CLEARING AND PRIOR TO TEMPORARY GRADING IF NEEDED FOR HDD INSTALLATION AND REINSTALLED ONCE FINAL GRADING ESTABLISHED.
 10. TELEMETRY WIRE WILL BE STRUNG FROM ENTRY TO EXIT POINTS.
 11. INSTALL COMPOST FILTER SOCKS/SILT FENCE ALONG THE DOWN GRADIENT PERIMETERS OF THE HDD BORE PIT.
 12. EXCAVATION OF THE DRILL ENTRY AND EXIT LOCATIONS WILL BE NECESSARY TO CONTAIN DRILLING FLUIDS DURING ALL PHASES OF INSTALLATION. THESE FLUIDS AND CUTTINGS MUST BE DISPOSED OF IN AN APPROVED MANNER PERIODICALLY OR AT THE COMPLETE CROSSING INSTALLATION.
 13. THE CROSSING LENGTH AND CROSS SECTIONAL GEOMETRY IS DEPENDENT UPON THE PIPELINE DESIGN PARAMETERS, THE OBSTACLE CROSSED, AND THE SUBSURFACE CONDITIONS.



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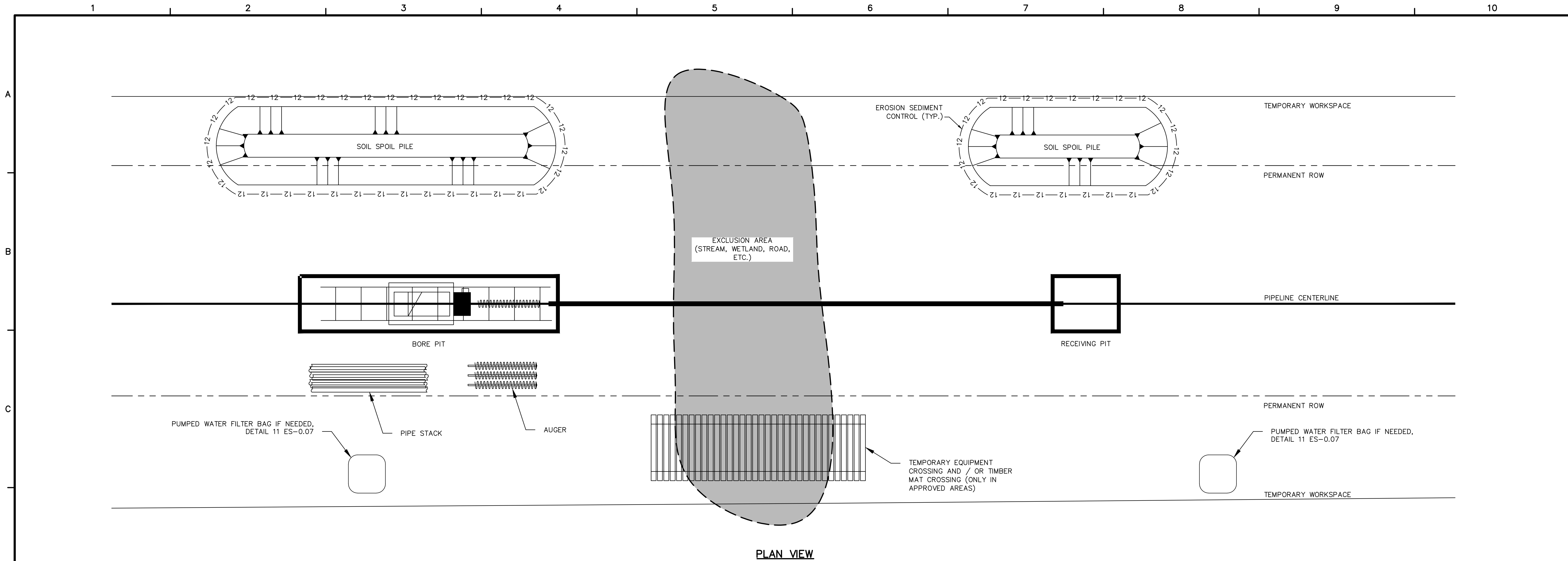
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NO.	BY	DATE		



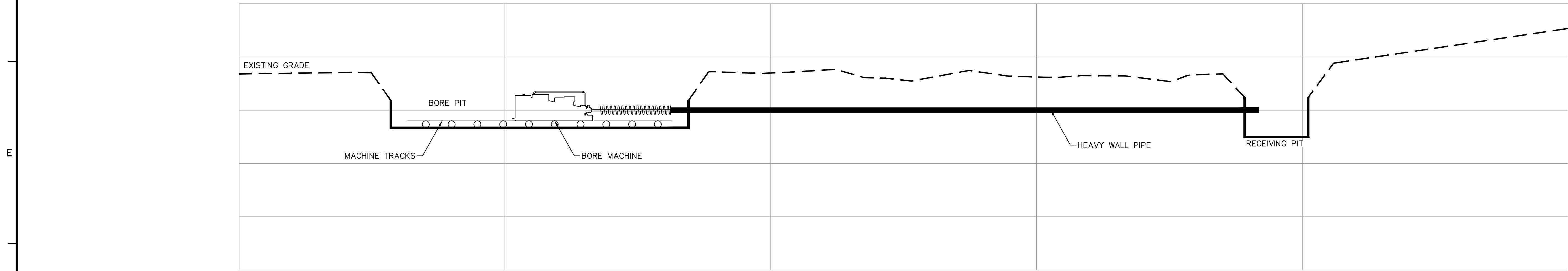
SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
**PENNSYLVANIA PIPELINE PROJECT
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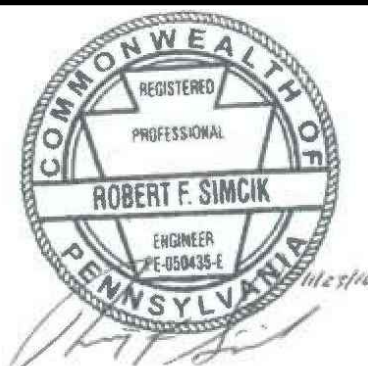
PLAN VIEW



PROFILE VIEW

TYPICAL CONVENTIONAL BORE CROSSING LAYOUT
NOT TO SCALE

- NOTES:**
- LAYOUT WILL VARY ACCORDING TO AVAILABLE WORK SPACE AND FIELD CONDITIONS.
 - WORKSPACE AVAILABLE FOR PARKING, STAGING, AND OTHER USES WHEN NOT BEING USED FOR BORING.
 - INSTALL COMPOST FILTER SOCKS/SILT FENCE ALONG THE DOWN GRADIENT PERIMETERS OF THE BORE PITS. SEE SITE PLANS FOR E&S CONTROLS.
 - EXCAVATE BORE PITS IN ACCORDANCE WITH SITE-SPECIFIC PLANS AND SEGREGATE TOP SOIL IN ACCORDANCE WITH STANDARD E&S PLAN NOTES. POSITION BORE PITS A MINIMUM OF 50 FEET FROM THE NEAREST TOP OF BANK, WHERE TECHNICALLY FEASIBLE.
 - THE CROSSING LENGTH IS DEPENDENT UPON THE OBSTACLE TO BE CROSSED, AND THE SURFACE AND SUBSURFACE CONDITIONS.

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NOTE:
DETAIL NOT REQUIRED IN YORK COUNTY.

HYDROSTATIC TESTING WATER
DIRECT DISCHARGE DETAIL

NOT TO SCALE

17
0.18

OUTFALL NO.	LATITUDE			LONGITUDE			HDD NUMBER	YORK COUNTY HDD TESTING DISCHARGE LOCATION INFORMATION				RECEIVING WATER NAME	CH. 93 EXISTING USE	PAFBC DESIGNATION	DRAINS TO EV WETLANDS?
	DEGREES	MINUTES	SECONDS	DEGREES	MINUTES	SECONDS		ANTICIPATED DISCHARGE EVENTS							
								MAXIMUM FLOW (GPM)	DURATION (HRS)	VOLUME (GAL)*	NO./YEAR				
032	40	11	31.74	-76	54	32.29	S2-0250	2,000	1.82	218,032	1	YELLOW BREECHES CREEK	CWF	ATW, STS	NO
033	40	11	33.20	-76	53	36.56	S2-0260	2,000	0.881	105,716	1	UNT TO YELLOW BREECHES CREEK	CWF	DRAINS TO ATW, STS	NO
034	40	11	32.14	-76	50	56.19	S2-0270	2,000	0.973	116,718	1	UNT TO MARSH RUN	WWF	N/A	NO
035	40	11	51.58	-76	48	15.20	S2-0280	2,000	4.64	556,800	1	UNT TO SUSQUEHANNA RIVER	WWF	N/A	NO

* VOLUME DISPLAYS MAXIMUM POSSIBLE DISCHARGE VOLUME FOR EACH DISCHARGE LOCATION. NOT ALL DISCHARGE LOCATIONS WILL BE USED.

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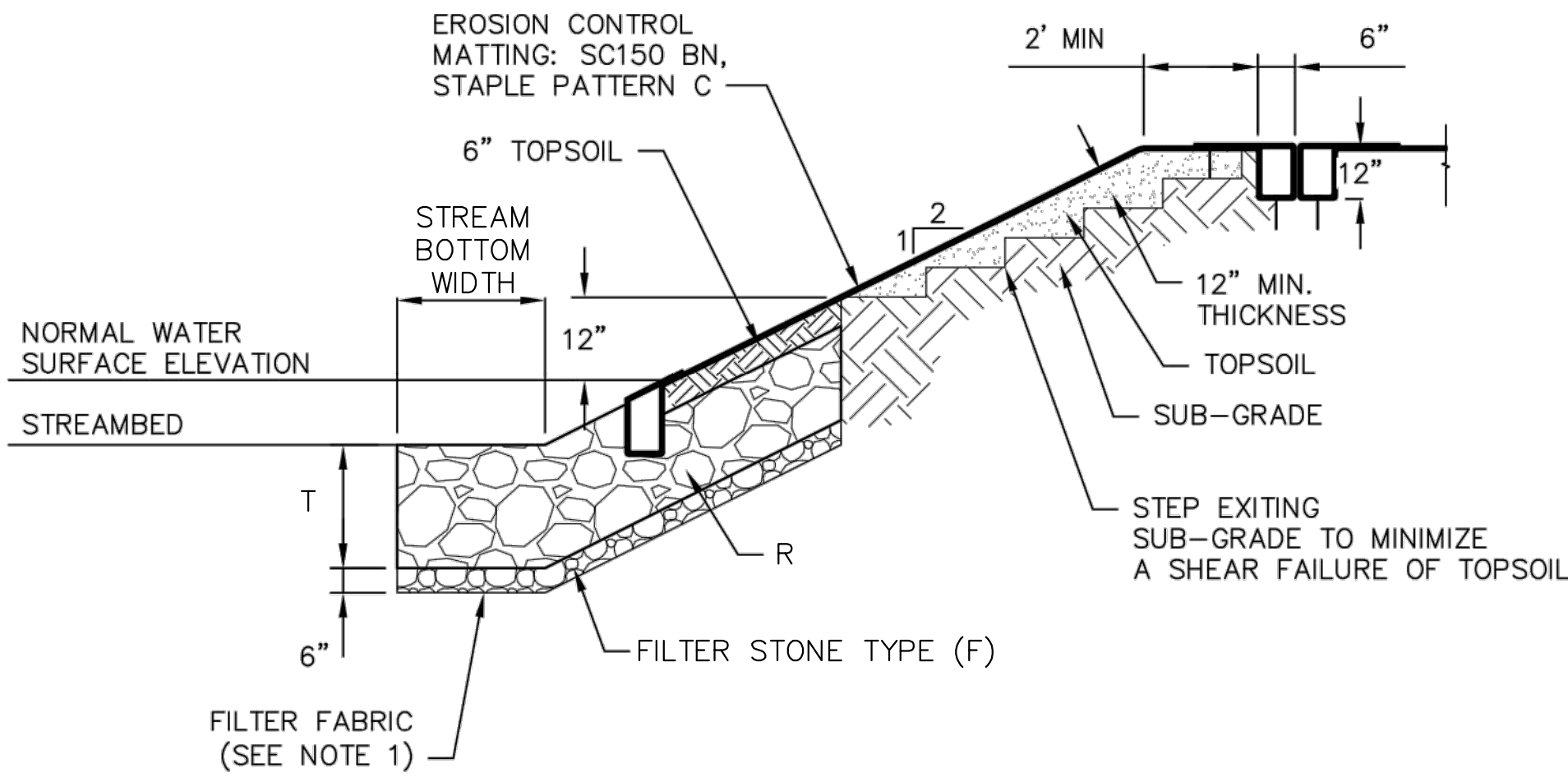
YORK COUNTY HDD TESTING
DISCHARGE LOCATION INFORMATION

NOT TO SCALE

19
0.18

STREAMBANK STABILIZATION

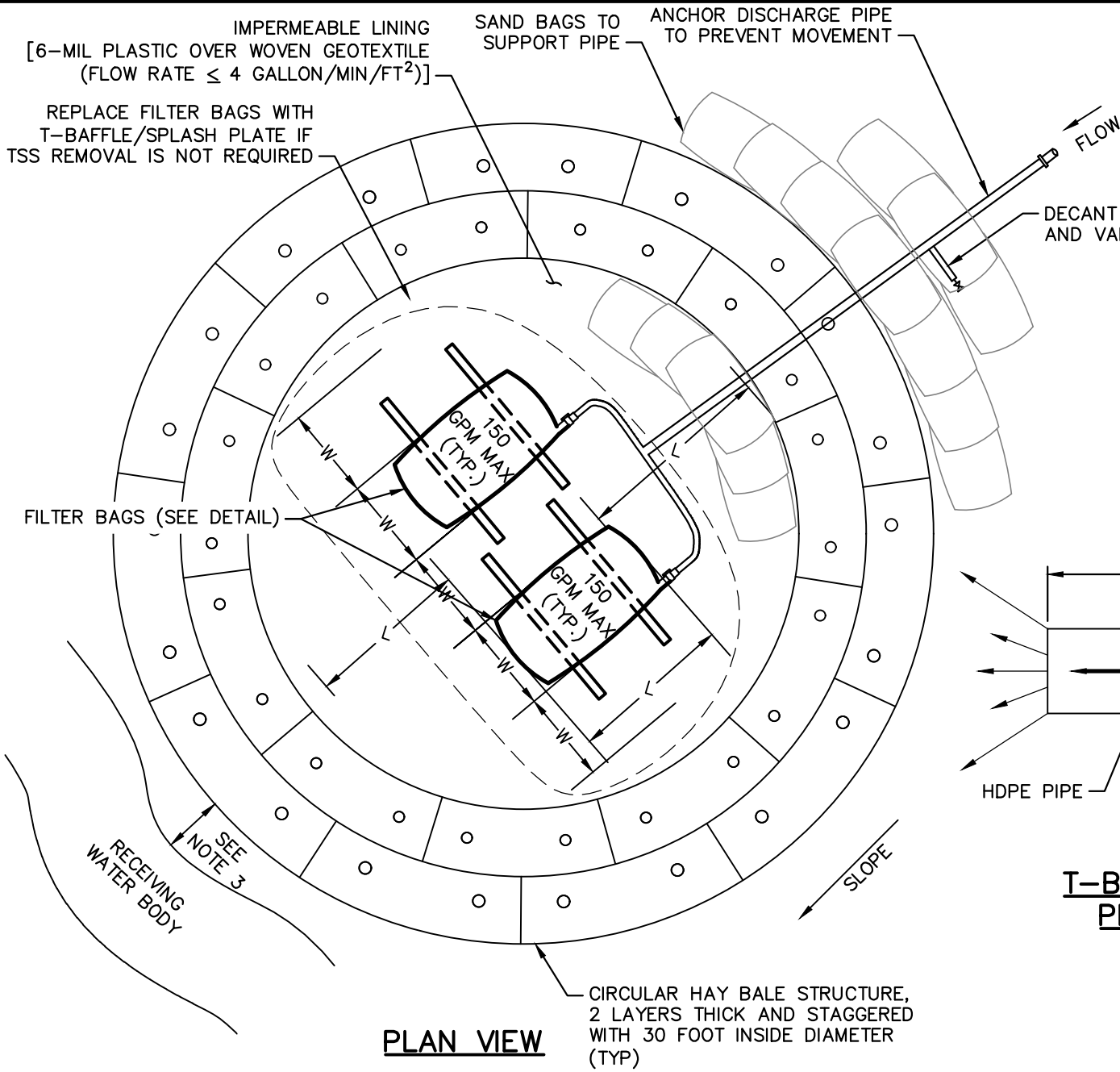
SOUTHCENTRAL REGION												
COUNTY	STREAM	SPECIAL PROTECTION WATER	NORMAL DEPTH (ft)	SLOPE (ft/ft)	VELOCITY (ft/sec)	SHEAR STRESS (lb/sf)	SHEAR STRESS LESS THAN 0.25?	SHEAR STRESS OF NATIVE SOIL (lb/sf)	RIP RAP REQUIRED	IF "RIP RAP" REQ'D, SIZE (Table 6.6)	THICKNESS (IN) OF RIP RAP (Table 6.6)	FILTER STONE TYPE
York	S-H56		1.29	0.17	13.86	13.68	no		yes	R-7	45	AASHTO #1
York	S-BB118		1.27	0.015	4.21	1.19	no		yes	R-3	9	AASHTO #57



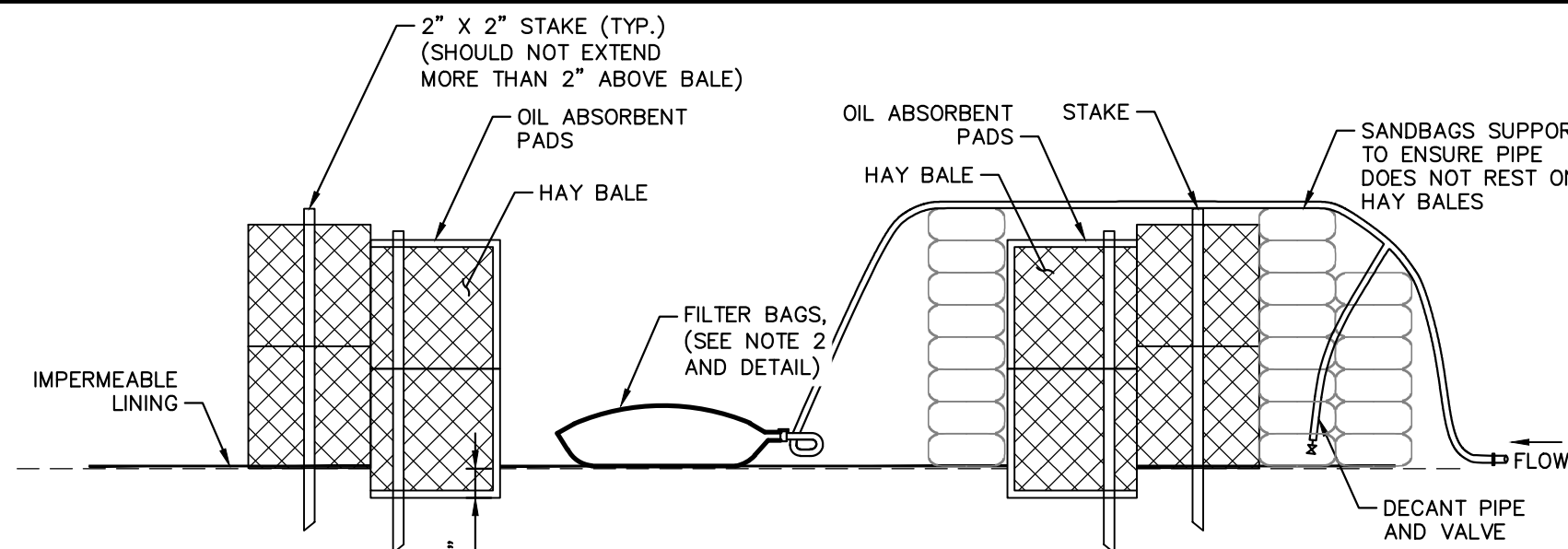
RIP-RAP BANK STABILIZATION DETAIL

NO SCALE

- SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT MUST BE USED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
- REFER TO EROSION CONTROL BLANKET DETAIL, ES-0.06.
- MATting WILL EXTEND FROM TOP OF BANK 50' PERPENDICULARLY AWAY FROM TOP OF BANK FOR NON SPECIAL PROTECTION STREAMS AND 100' PERPENDICULARLY AWAY FROM TOP OF BANK FOR SPECIAL PROTECTION STREAMS.
- SEE TABLE



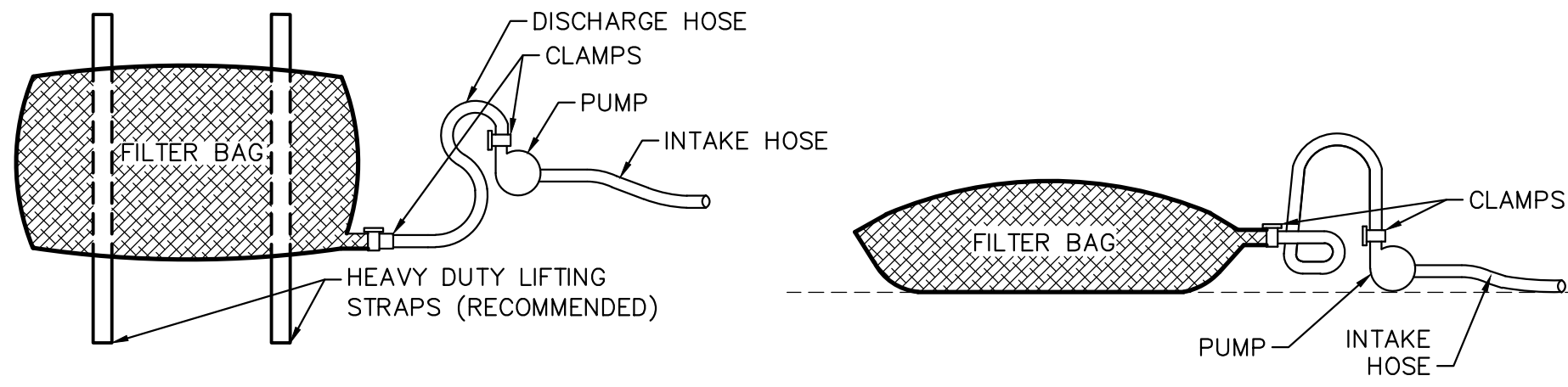
PLAN VIEW



PROFILE VIEW

NOTES:

- NOTICE OF INTENT MUST BE SUBMITTED AND NOTIFICATION OF PERMIT COVERAGE RECEIVED PRIOR TO DISCHARGING HYDROSTATIC TEST WATER.
- HYDROSTATIC TEST WATER DISCHARGE STRUCTURE WILL BE LOCATED WITHIN THE PROJECT RIGHT-OF-WAY OR OTHER ESTABLISHED RIGHT-OF-WAY APPROVED BY SUNOCO AND LANING. INCREASE SIZE OF DISCHARGE STRUCTURE AND NUMBER OF FILTER BAGS TO MATCH REQUIRED DISCHARGE RATE AND TSS REMOVAL AS LONG AS REQUIRED LAND IS AVAILABLE. ADD ADDITIONAL SMALLER DISCHARGE STRUCTURES IF SPACE IS LIMITED. ELIMINATE FILTER BAG(S) IF TSS REMOVAL NOT REQUIRED AND REPLACE WITH T-BAFFLE/ SPLASH PLATE.
- HYDROSTATIC WATER DISCHARGE STRUCTURE WILL BE LOCATED AT LEAST 100 FEET FROM THE EDGE OF A DELINEATED WETLAND, AND 50 FEET OR THE CHANNEL WIDTH, WHICHEVER IS GREATER, FROM THE TOP OF BANK OF A RECEIVING STREAM.
- HYDROSTATIC WATER DISCHARGE STRUCTURE WILL BE LOCATED SUCH THAT IT DRAINS TO A WELL-VEGETATED AREA WITH SLOPES BETWEEN 1% AND 5% TOWARD THE RECEIVING WATERBODY.
- HYDROSTATIC TEST WATER MUST BE SAMPLED AND ANALYZED TO CONFIRM COMPLIANCE WITH PARAMETERS IDENTIFIED IN PADEP PAG-10 GENERAL PERMIT FOR DISCHARGE FROM HYDROSTATIC TESTING OF TANKS AND PIPELINES AND THE APPROVED SAMPLING AND ANALYSIS PROGRAM FOR HYDROSTATIC TEST WATERS FOR PPP IN PENNSYLVANIA.
- THE DISCHARGE RATE TO THE STRUCTURE SHOULD BE LIMITED TO THE LOWEST POSSIBLE RATE TO MINIMIZE ANY POTENTIAL IMPACT ON AQUATIC LIFE AND TO REDUCE THE POTENTIAL FOR EROSION (E.G., 150 GPM).
- IF MUNICIPAL WATER IS USED FOR TESTING, HOLD THE WATER IN THE PIPE FOR AT LEAST 24 HOURS PRIOR TO DISCHARGE TO MEET TOTAL RESIDUAL CHLORINE LIMITS.
- IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROLS AS REQUIRED IN PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT CONTROL PROGRAM MANUAL, TECHNICAL GUIDANCE NUMBER 363-2134-008, MARCH 2012.
- DO NOT DISCHARGE HYDROSTATIC TEST WATER TO EV OR HQ WATERS.
- DO NOT DISCHARGE HYDROSTATIC TEST WATER TO TROUT STOCKED STREAMS FROM MARCH 1 TO JUNE 15. THE LISTING OF TROUT STOCKED STREAMS CAN BE FOUND ON THE PENNSYLVANIA FISH AND BOAT COMMISSION'S WEBSITE: WWW.FISH.STATE.PA.US.
- A PREPAREDNESS, PREVENTION, AND CONTINGENCY (PPC) PLAN MUST BE DEVELOPED IN ACCORDANCE WITH PA DEP'S "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS" (DEP ID 400-2200-001) AND ITS NPDES-SPECIFIC ADDENDUM. THE PPC PLAN MUST BE MAINTAINED ON-SITE AND BE MADE AVAILABLE UPON REQUEST.



PLAN VIEW

ELEVATION VIEW

NOTE:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-3751	80 SIEVE

FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

FILTER BAG DETAIL USE IN HAY BALE
DISCHARGE STRUCTURE

NOT TO SCALE

DISCHARGE STRUCTURES TO BE USED
FOR HYDROSTATIC TEST WATER

NOT TO SCALE

18
0.18



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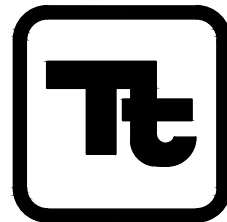
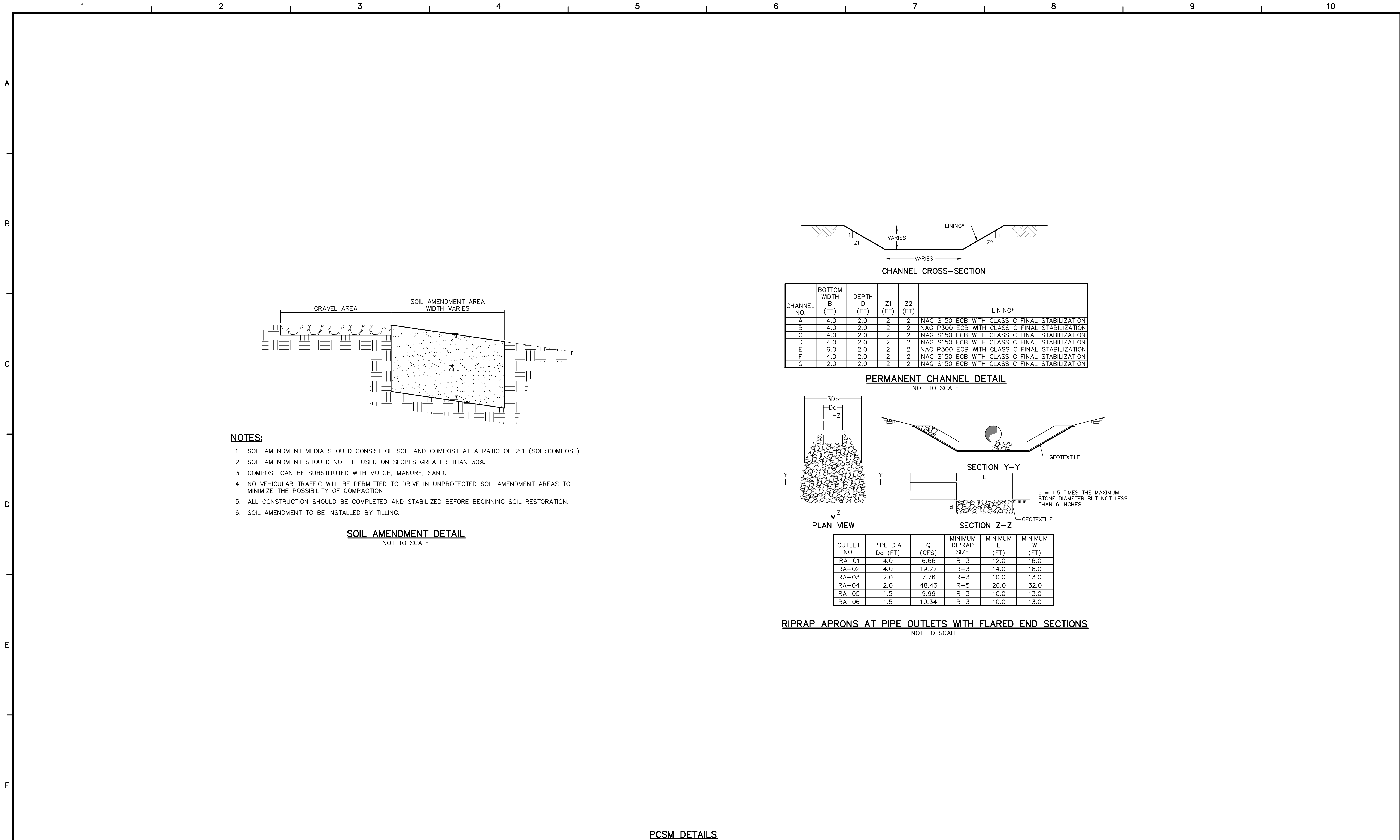
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A	SITE RESTORATION GENERAL NOTES:																																																												
	1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU. 2. THE PROJECT TAKES PLACE WITHIN YORK COUNTY, PENNSYLVANIA. 3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU. 4. 100-YEAR FEMA FLOODPLAINS TAKEN FROM WWW.PASDA.PSU.EDU. 5. SEE SHEET ES-0.02 FOR STREAM AND WETLAND CROSSING TABLE. 6. PIPELINE LOCATION AND RIGHT-OF-WAY FROM SUNOCO PIPELINE L.P. 7. USE COMPOST FILTER SOCK AS REQUIRED TO PREVENT RUNOFF FROM SPOIL AREA. 8. AT ALL STREAM CROSSINGS, RUNOFF MUST BE DIRECTED TO A SEDIMENT REMOVAL AREA (I.E. COMPOST FILTER SOCKS). 9. THE RIGHTS-OF-WAYS AND EASEMENTS SHOWN ON THIS PLAN ARE THE RESPONSIBILITY OF SUNOCO PIPELINE L.P. TO SECURE WITH THE INDIVIDUAL PROPERTY OWNER. THE RIGHTS-OF-WAY AND EASEMENTS SHOWN ON THIS PERMIT DRAWING REPRESENT THE BEST AVAILABLE PROPERTY INFORMATION AS PROVIDED TO TETRA TECH, INC. BY SUNOCO PIPELINE L.P. THE RIGHTS-OF-WAY AND EASEMENTS SHALL BE VERIFIED AND LOCATED IN THE FIELD BY SUNOCO PIPELINE L.P. 10. PAST AND PRESENT LAND USE CONSISTS OF AGRICULTURAL, FORESTED AND RESIDENTIAL AREAS. POST CONSTRUCTION LAND USE WILL BE A MAINTAINED, VEGETATED RIGHT-OF-WAY. 11. DRAWINGS REPRESENT THE FINAL PLAN FOR CONSTRUCTION. 12. THE EROSION & SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN, INSPECTION REPORTS, AND MONITORING REPORTS MUST BE AVAILABLE AT THE PROJECT SITE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR CONSERVATION DISTRICT.																																																												
B	SITE RESTORATION SCHEDULE:																																																												
	1. AGRICULTURAL LIME APPLICATION RATES WILL BE DETERMINED BY FIELD PH TESTING. TESTING WILL BE PERFORMED AT A RATE OF 1 TEST/ACRE (MIN). IN ABSENCE OF FIELD TESTING, APPLY AT 6 TONS/ACRE. 2. APPLY 10-20-20 FERTILIZER AT THE RATE OF 1,000 LB/ACRE, OR AT A RATE DETERMINED BY FIELD TESTING. 3. WORK IN LIME AND FERTILIZER TO A DEPTH OF 4 IN. USING SUITABLE EQUIPMENT. 4. SEED PER PERMANENT SEED MIXTURE. 5. STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.																																																												
C	SITE RESTORATION:																																																												
	FOLLOWING COMPLETION OF PIPELINE INSTALLATION AND TRENCH BACKFILLING, THE AREA SHALL BE RETURNED TO GENERAL PRECONSTRUCTION GRADES PRESENT PRIOR TO PIPELINE INSTALLATION IN ORDER TO MAINTAIN PRECONSTRUCTION DRAINAGE PATTERNS. GROUNDS DISTURBED BY ANY OF THE OPERATIONS NECESSARY TO COMPLETE THE WORK FOR THIS PROJECT ARE TO BE PERMANENTLY SEEDED, OR IF SPECIFIED, SODDED, UNLESS OCCUPIED BY STRUCTURES, PAVED, OR DESIGNATED AS A PERMANENT ACCESS ROAD. A TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITIES THAT LASTS FOUR DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION. DISTURBED AREAS, WHICH ARE AT FINAL GRADE, SHALL BE SEEDED AND MULCHED IMMEDIATELY, WITH THE EXCEPTION OF THE PERMANENT ACCESS ROADS. IF SEEDING CANNOT BE COMPLETED IMMEDIATELY AFTER THE AREA REACHES FINAL GRADE DUE TO WEATHER CONDITIONS, THE DISTURBED AREA SHALL BE STABILIZED AND MULCHED WITH STRAW AT THE RATE OF THREE TONS PER ACRE. THIS STRAW SHALL BE ANCHORED USING A METHOD DESCRIBED UNDER MULCHING OF THIS NARRATIVE. TEMPORARY ACCESS ROADS WILL BE RESTORED TO A VEGETATED CONDITION FOLLOWING CONSTRUCTION. THE PROPOSED PERMANENT ACCESS ROADS WILL REMAIN IN PLACE FOLLOWING CONSTRUCTION.																																																												
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Tt TETRA TECH www.tetratech.com 661 ANDERSEN DRIVE - FOSTER PLAZA 7 PITTSBURGH, PA 15220 T: (412) 921-7090 F: (412) 921-4040	REVISIONS			COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ROBERT F. SIMCICK PE 000514 12/12/2016	SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 4	1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES YORK COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS	DATE: NOVEMBER 2016																																																						
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							DRAWN BY: BH	CHECKED BY: RS																																																					
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1. GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION.
2. IN THE DESIGNATED SOIL AMENDMENT AREA, TILL THE GROUND AND MIX IN THE COMPOST AT A RATIO OF 2:1 (SOIL:COMPOST) TO A DEPTH OF 24 INCHES.
3. IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE.
4. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

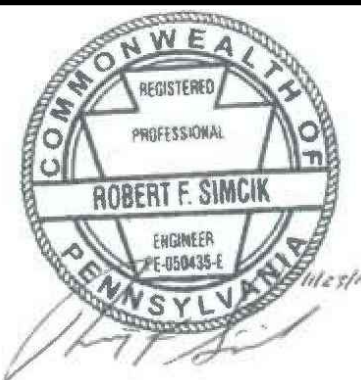


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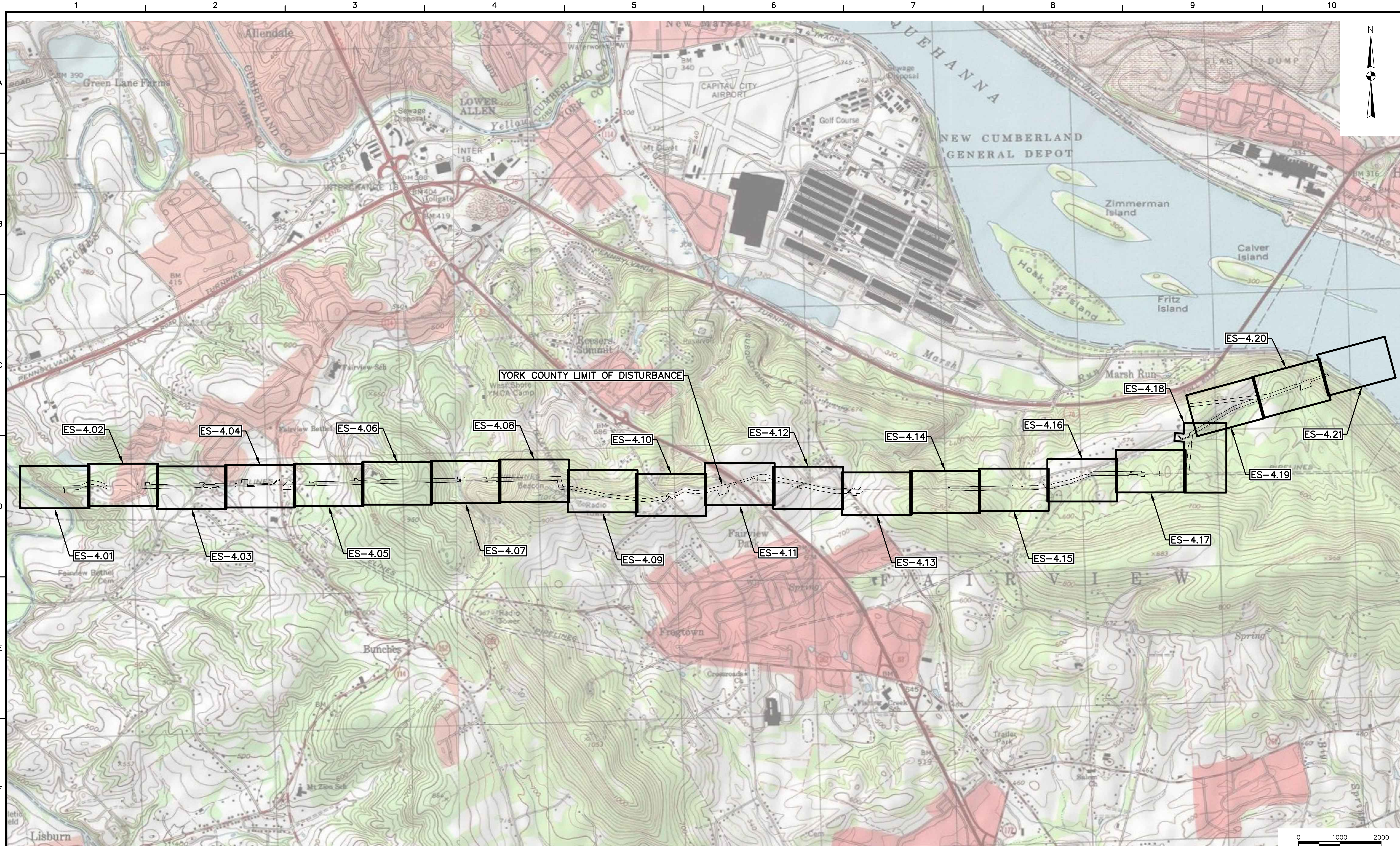
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**PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4**

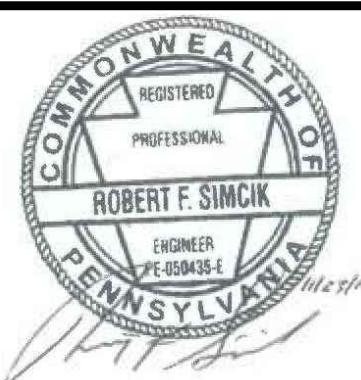
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**YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
NOTES & DETAILS**

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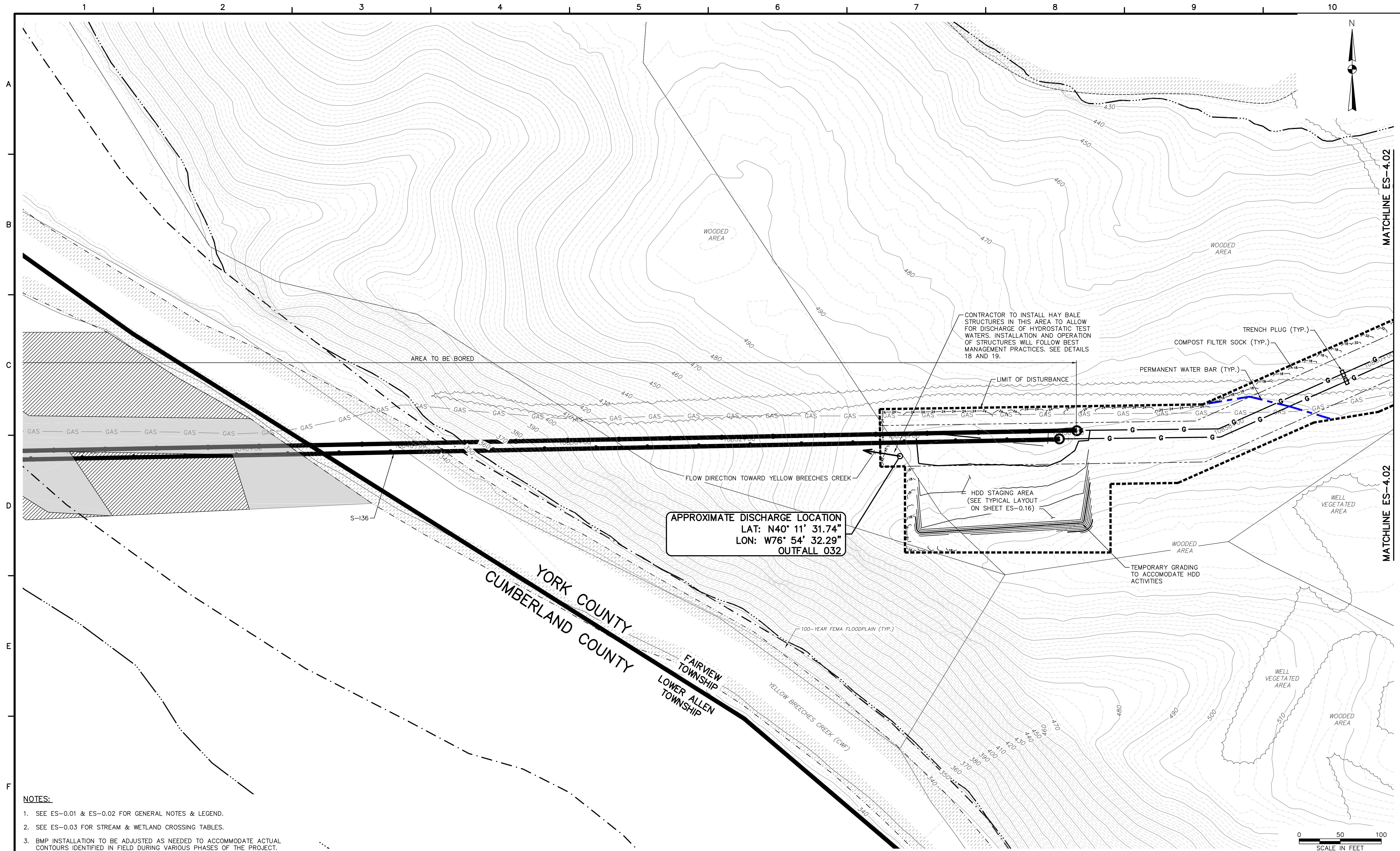
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SUNOCO PIPELINE L.P.
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PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
YORK COUNTY CONSERVATION DISTRICT
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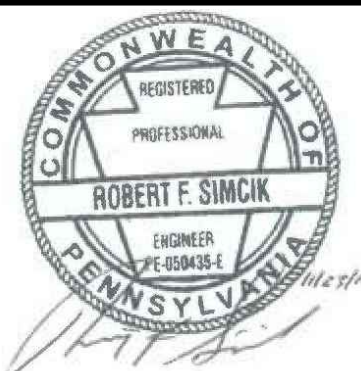
NOTES:

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2. SEE ES-0.03 FOR STREAM & WETLAND CROSSING TABLES.
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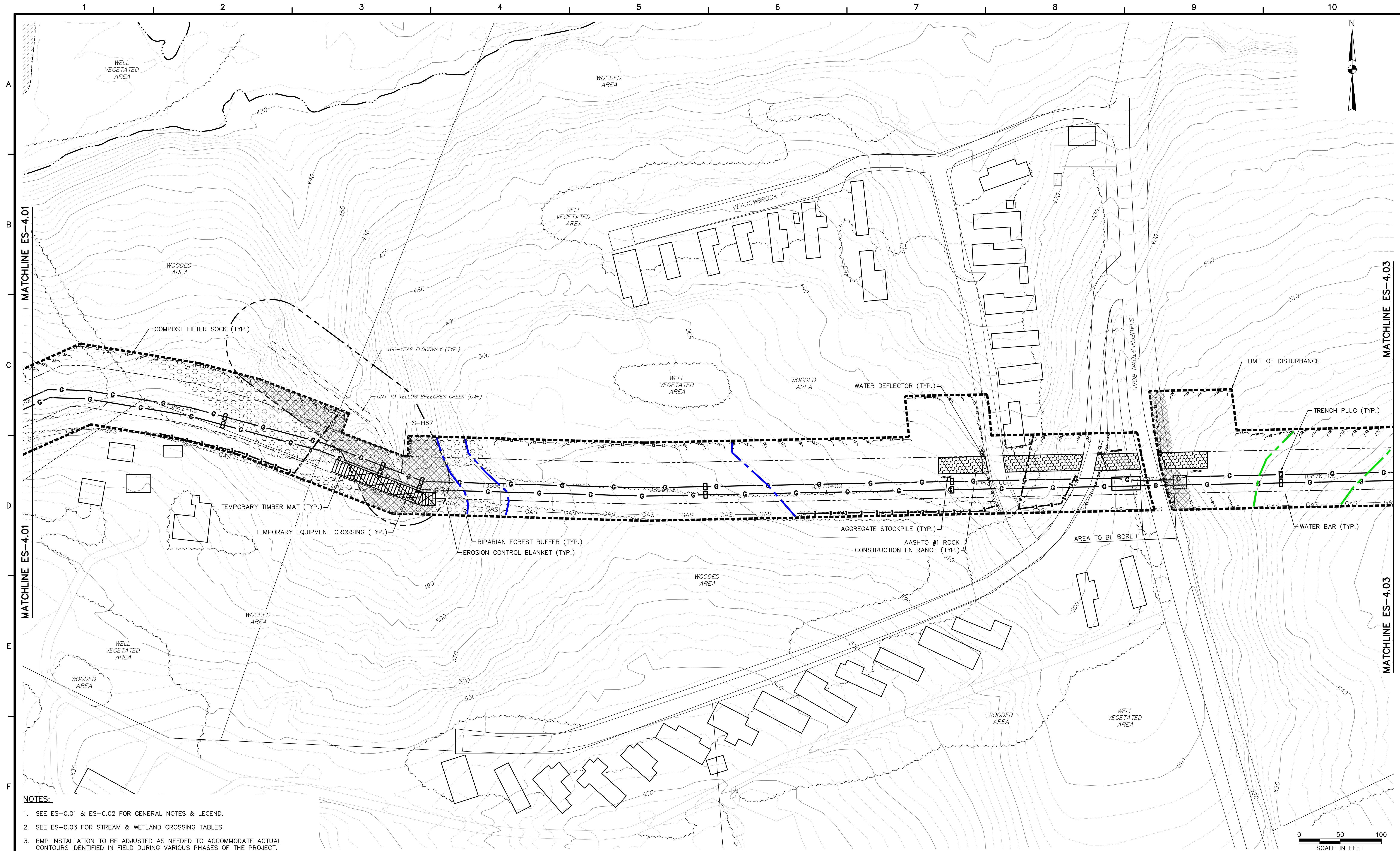
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CONSTRUCTION SPREAD 4

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EROSION & SEDIMENT CONTROL &
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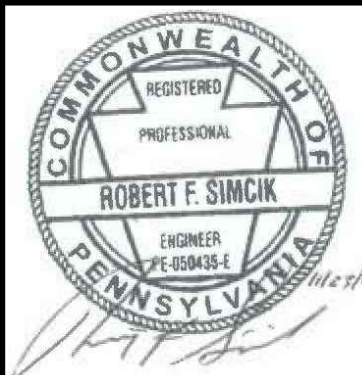


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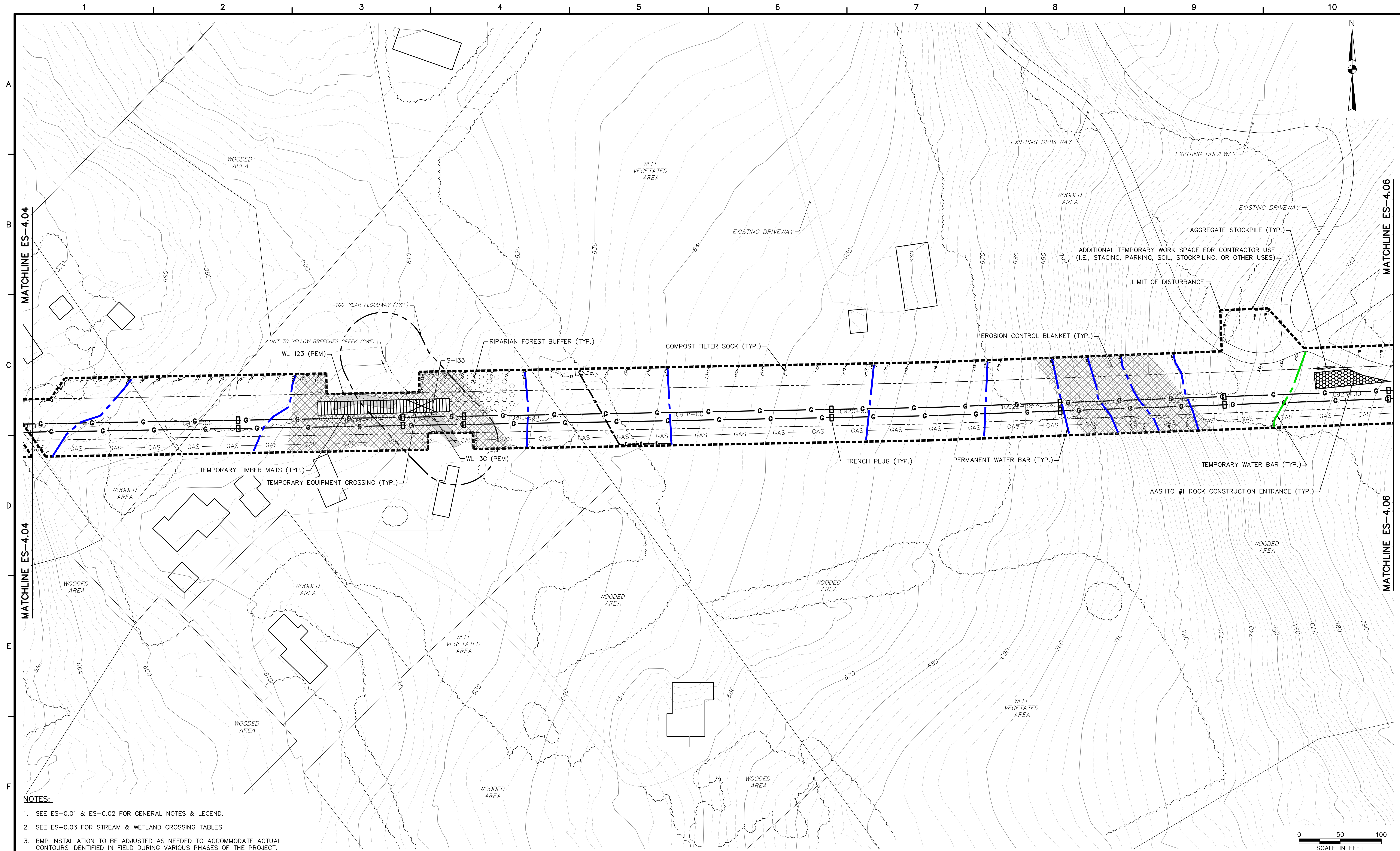
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CONSTRUCTION SPREAD 4

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
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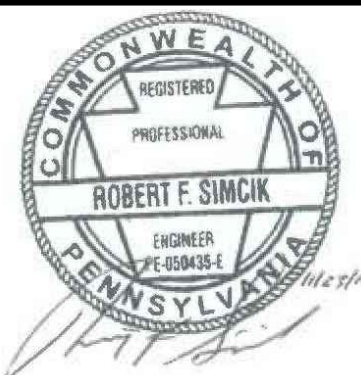


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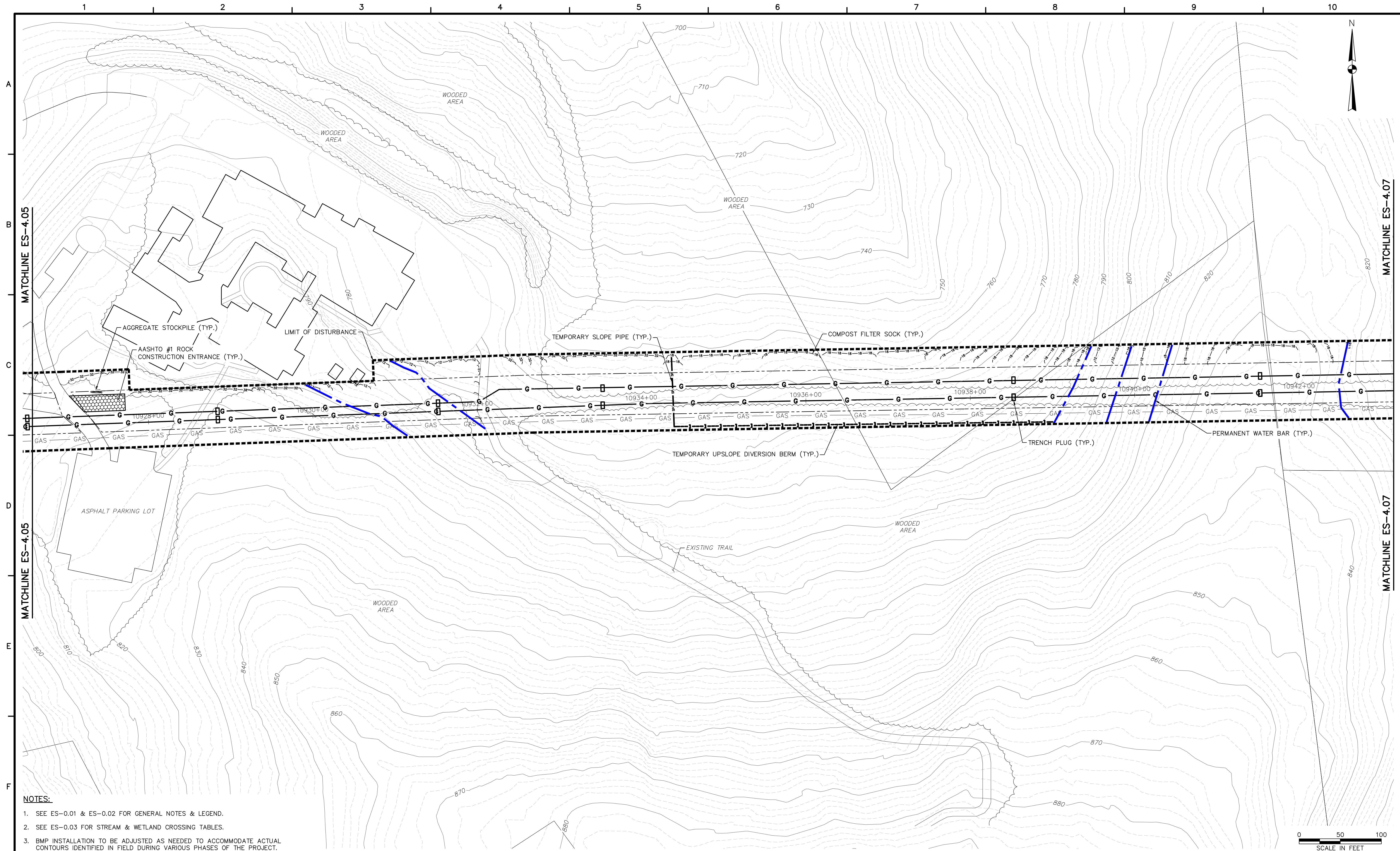
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CONSTRUCTION SPREAD 4

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YORK COUNTY CONSERVATION DISTRICT
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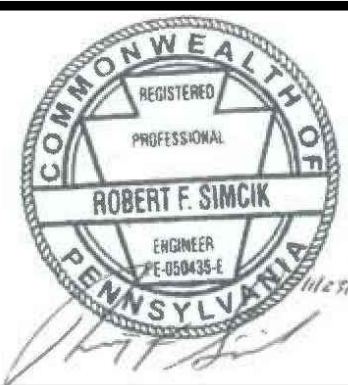


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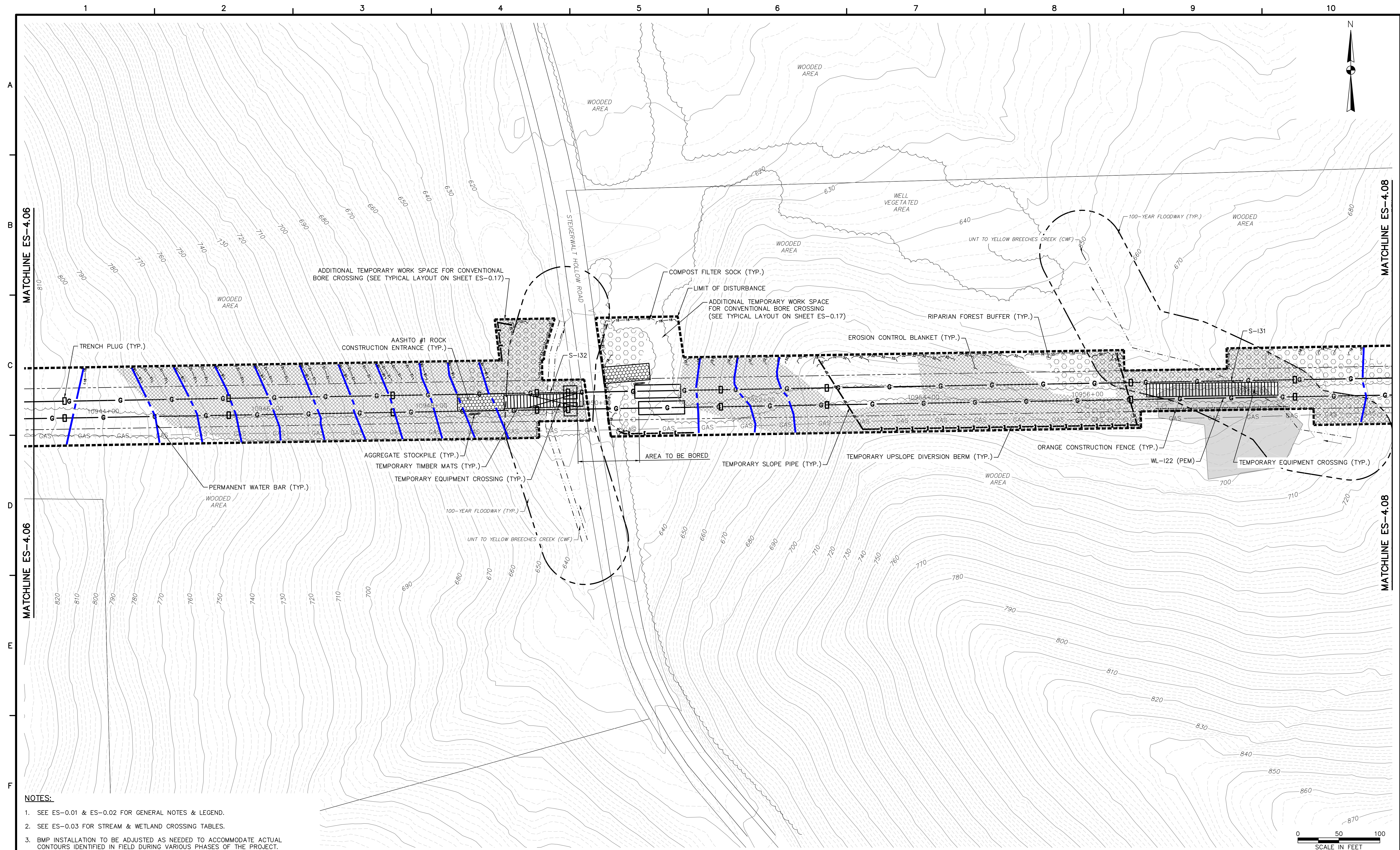


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**PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4**

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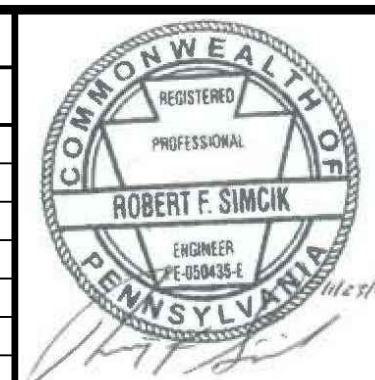


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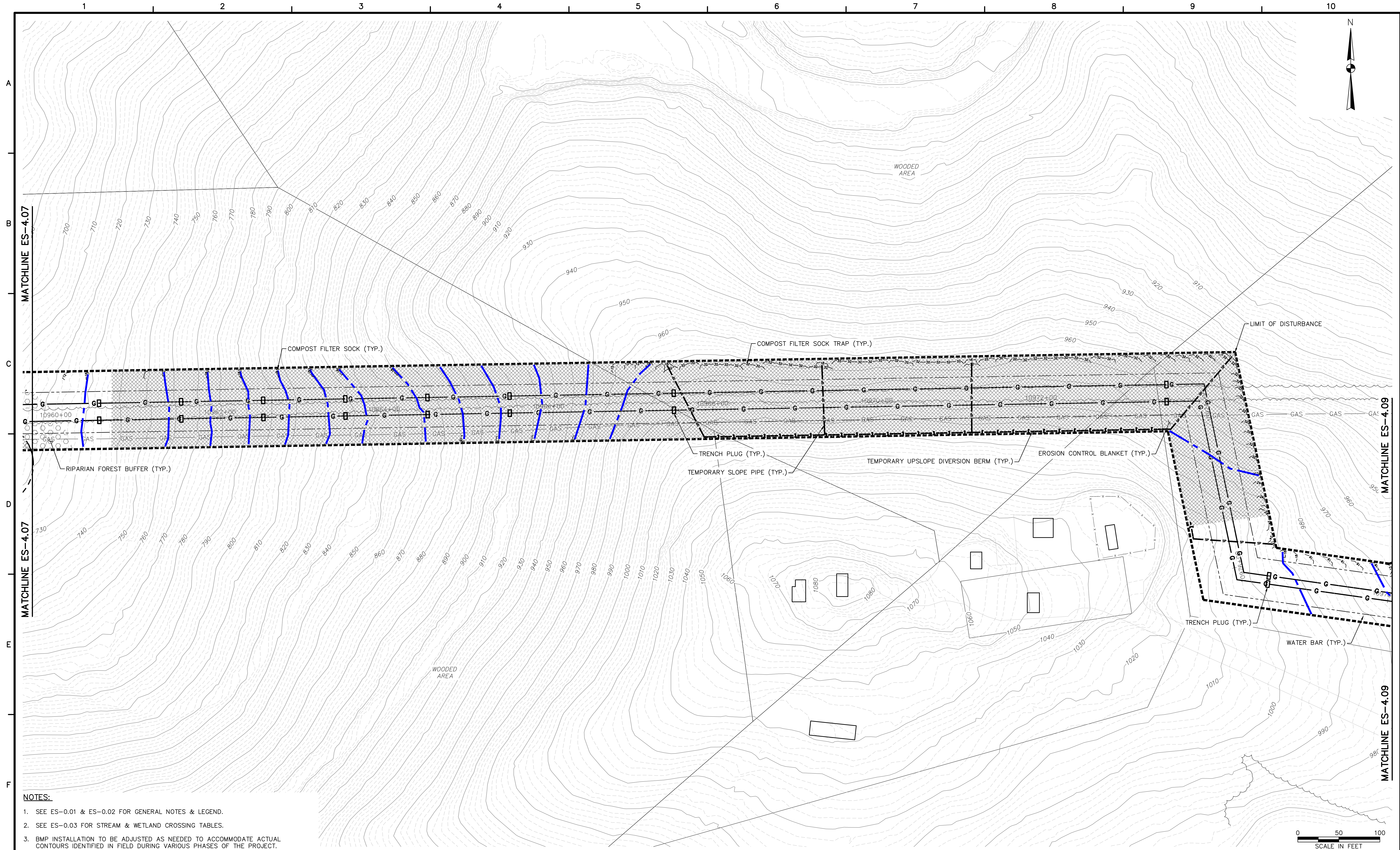
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PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4

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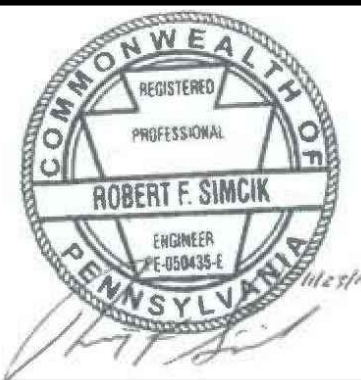


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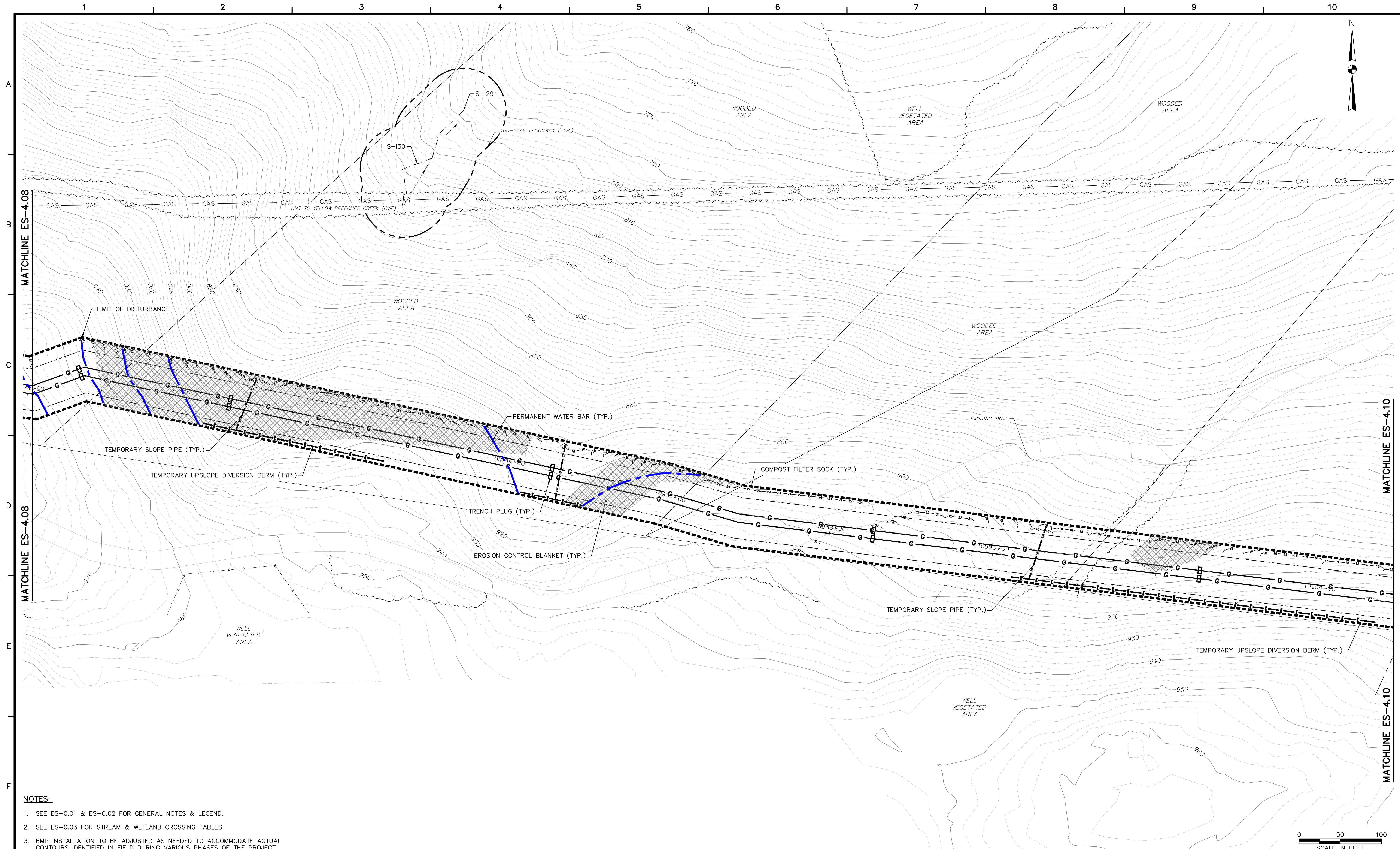
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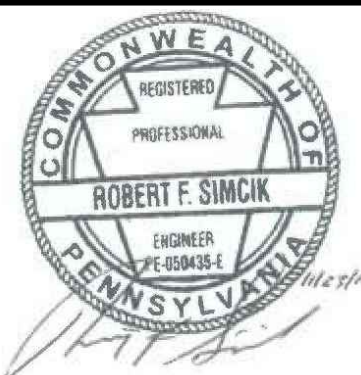


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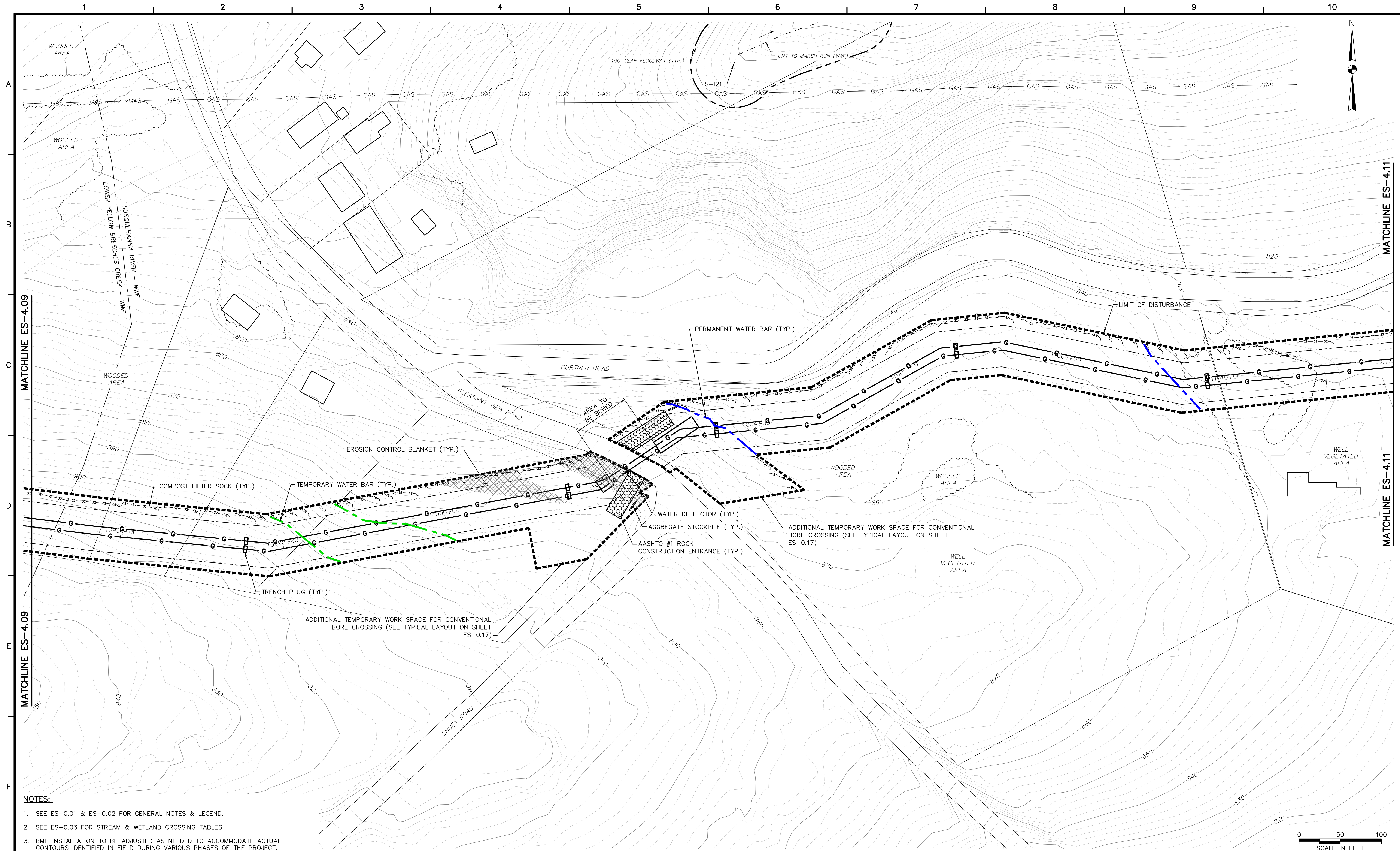
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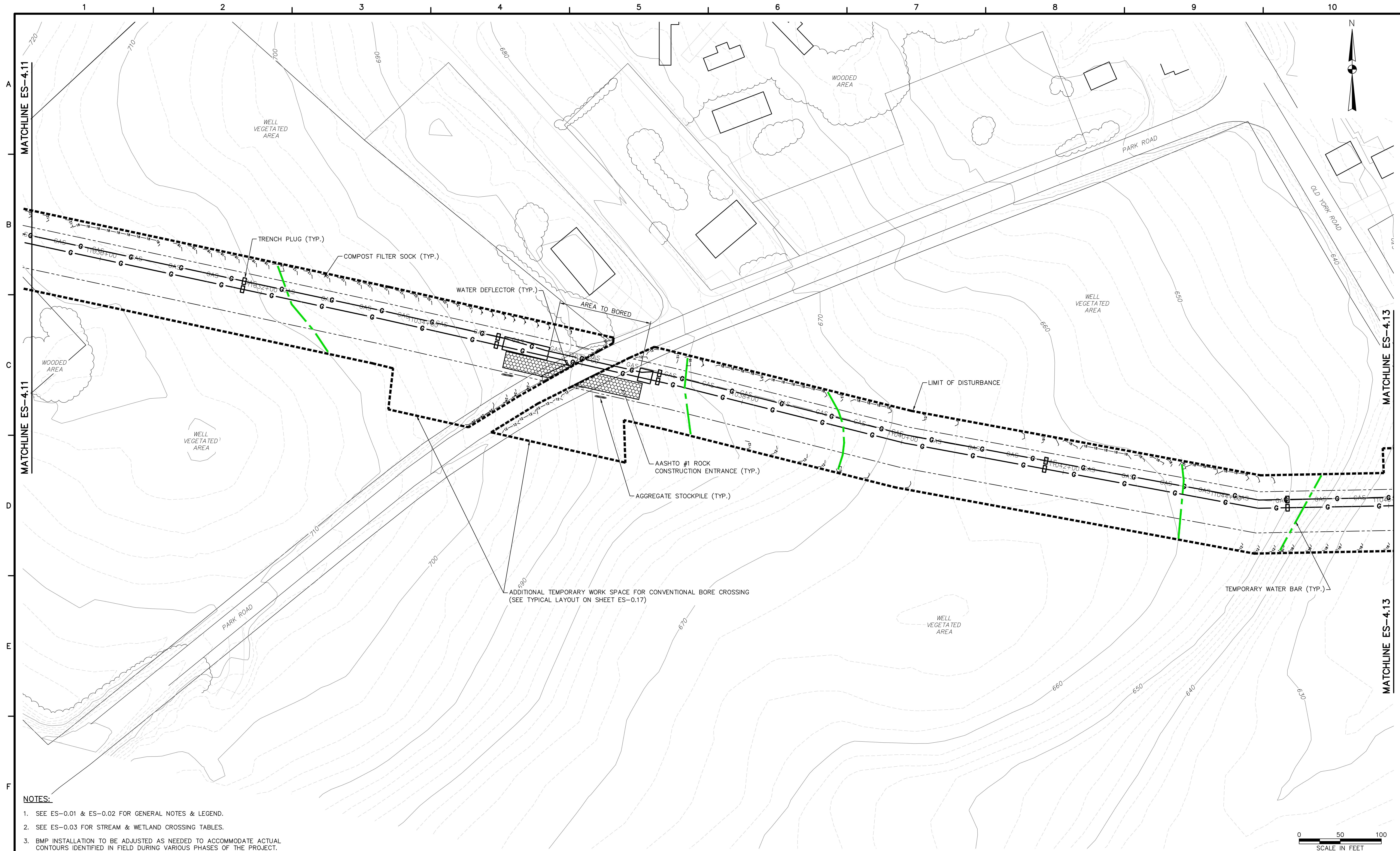
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CONSTRUCTION SPREAD 4

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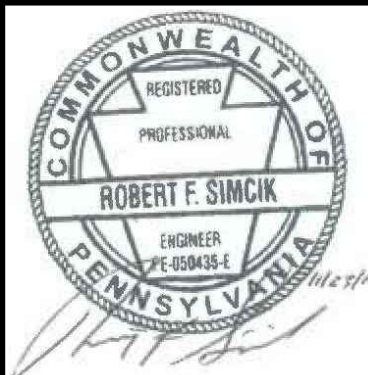


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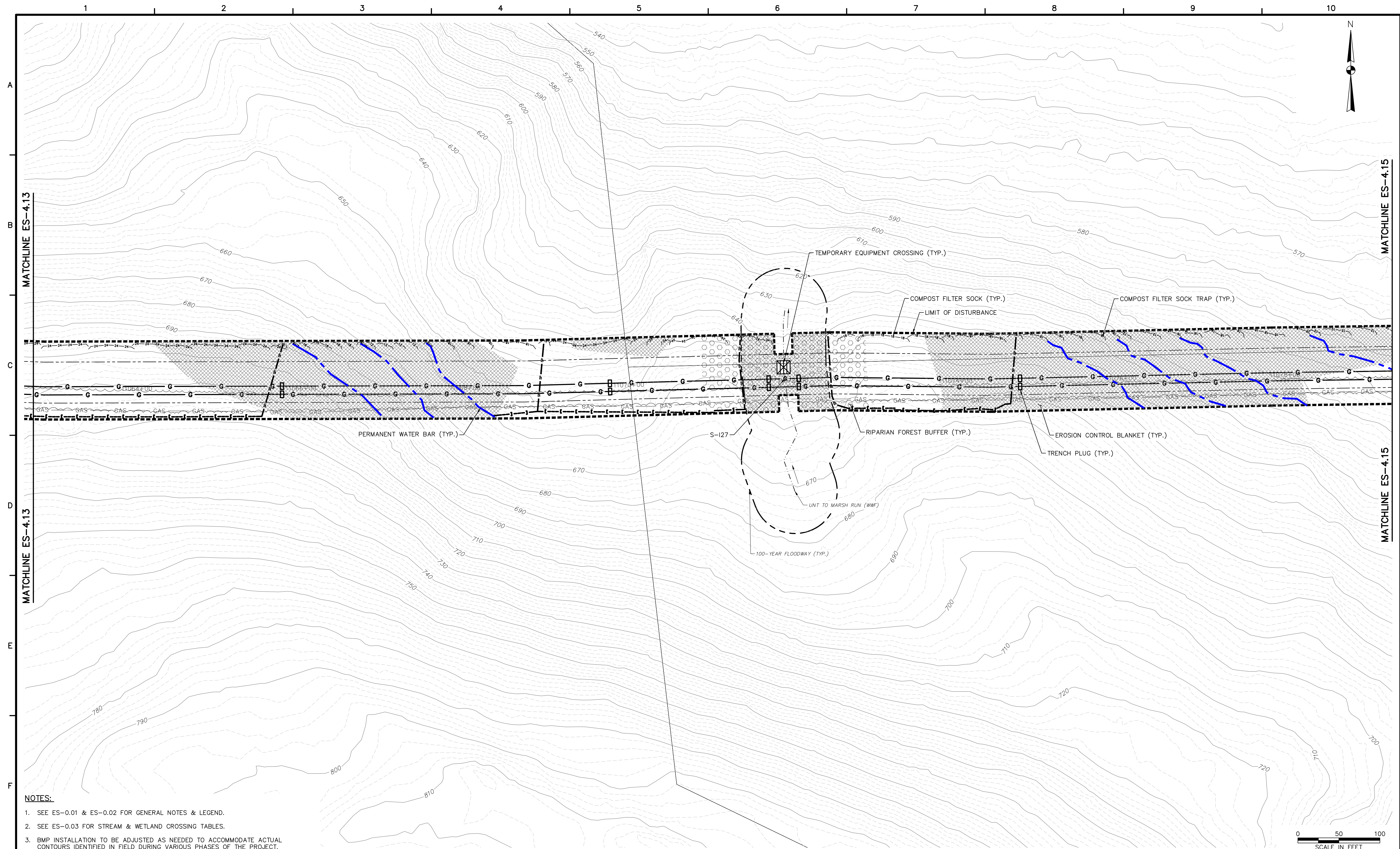
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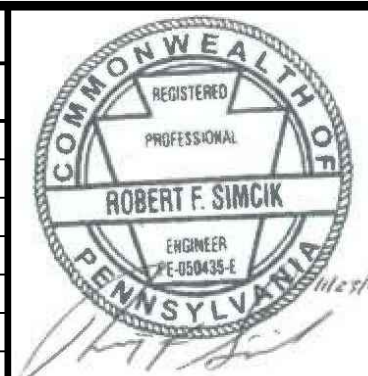


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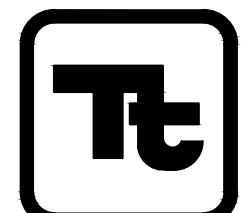
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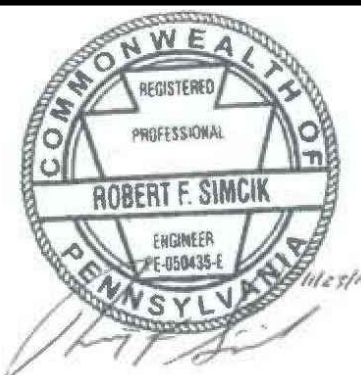


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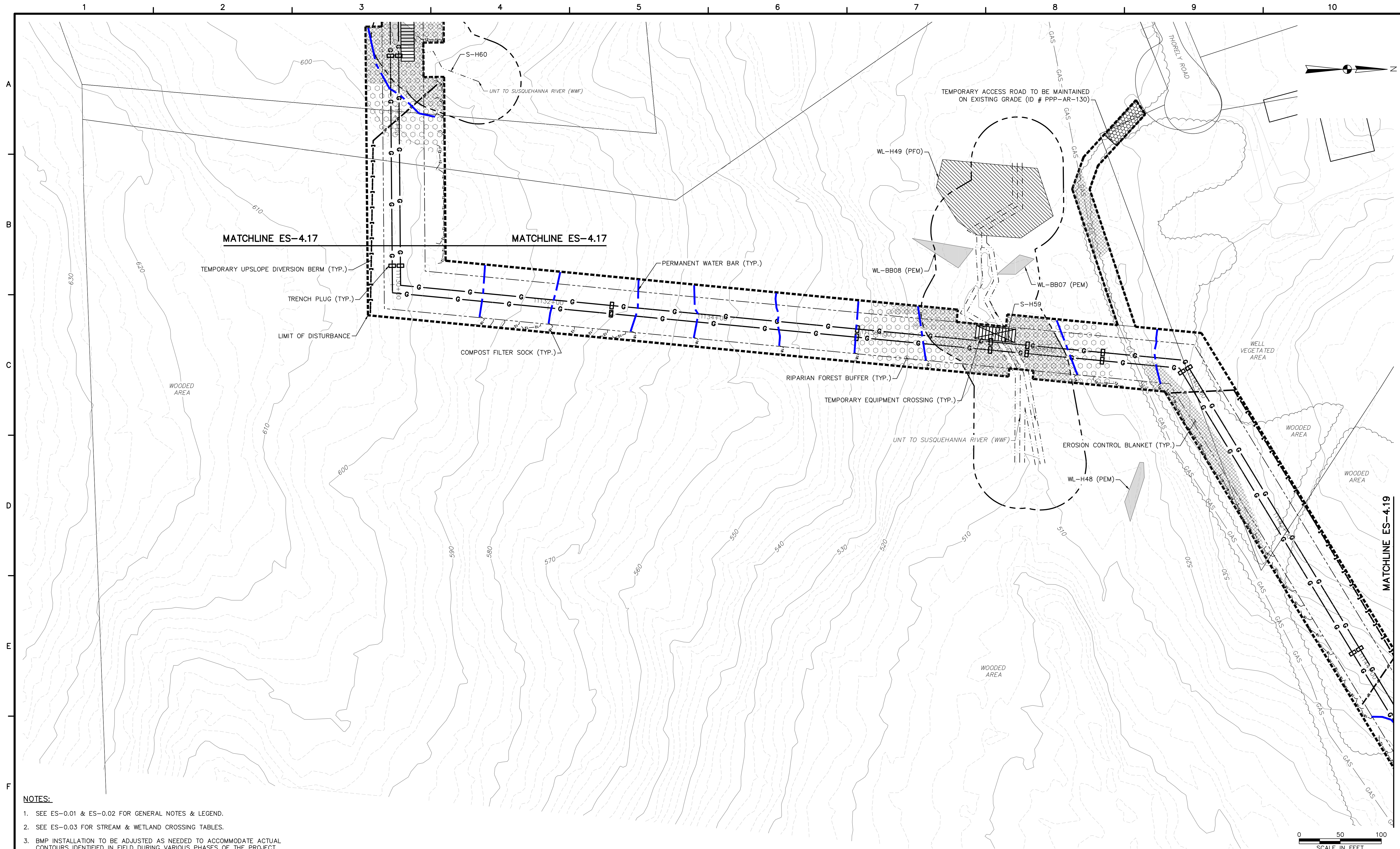
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CONSTRUCTION SPREAD 4

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
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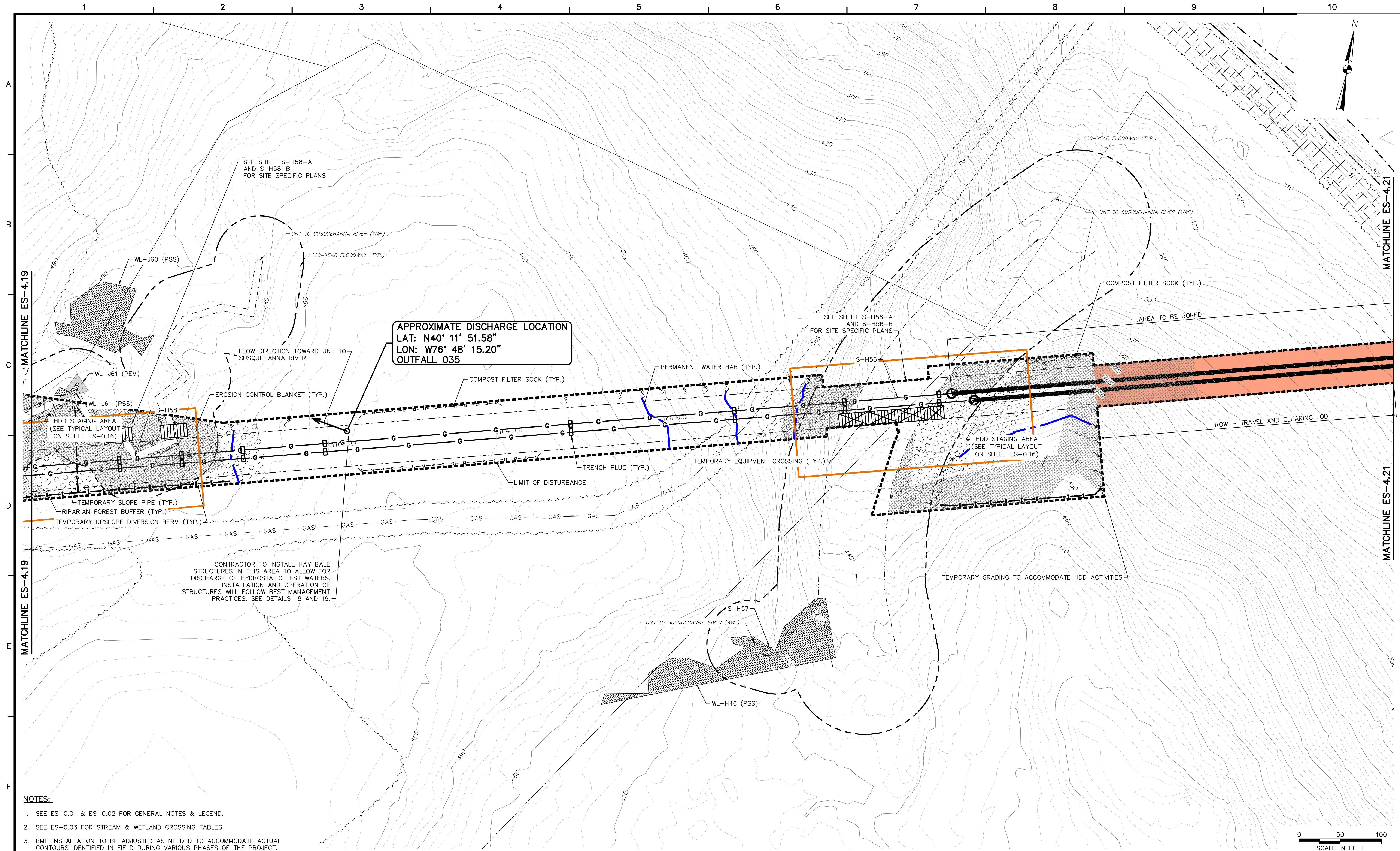
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1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES
YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
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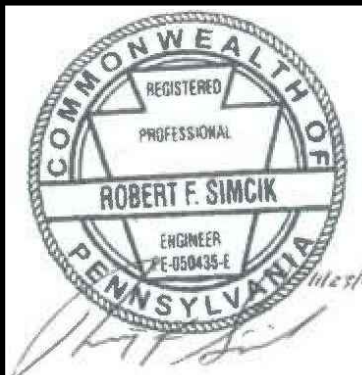


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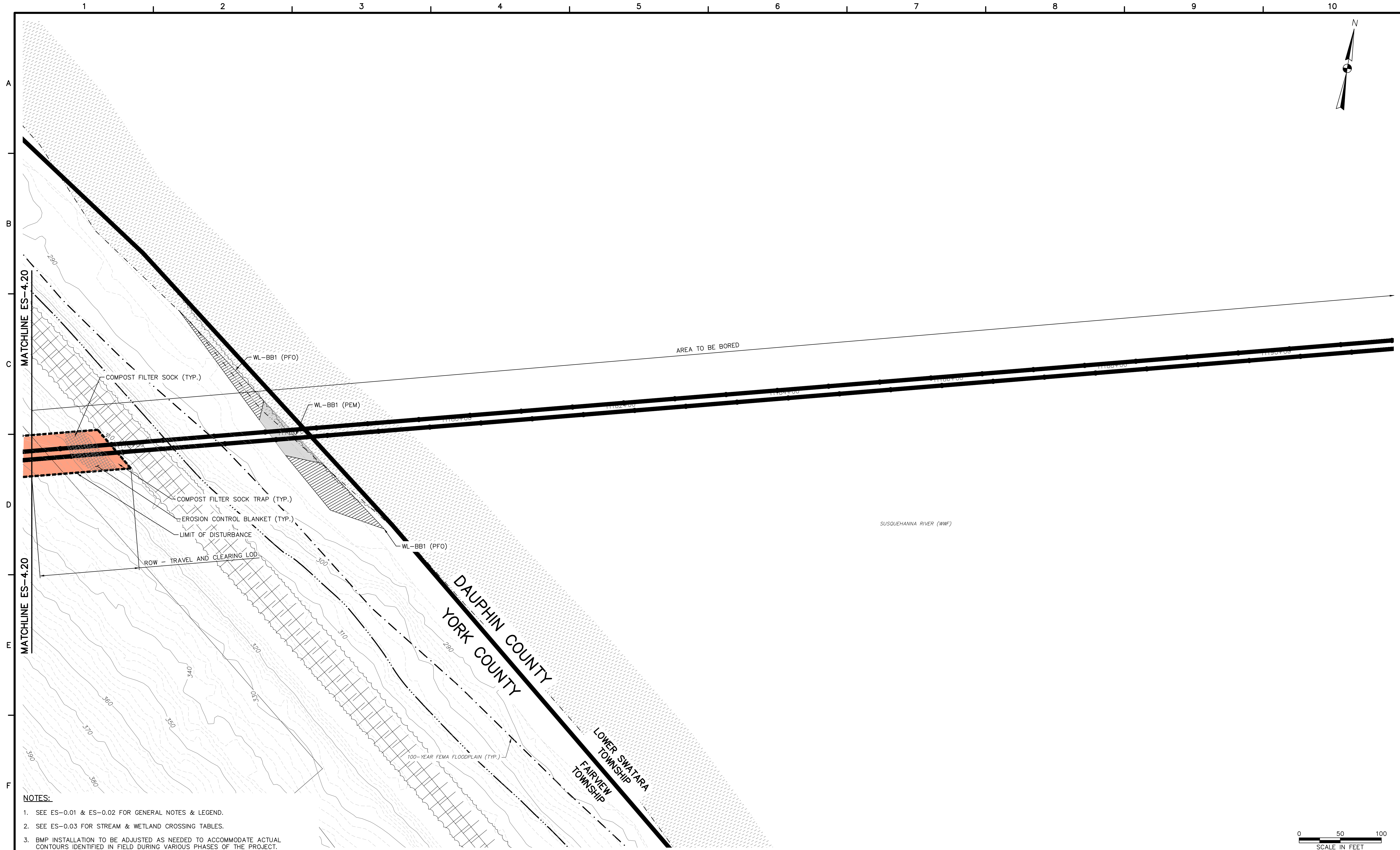
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ES-4.20	
SHEET 4.20 OF 44	

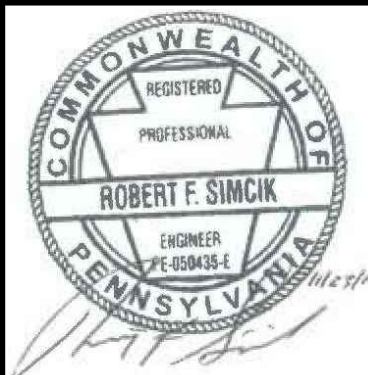


- NOTES:**
1. SEE ES-0.01 & ES-0.02 FOR GENERAL NOTES & LEGEND.
 2. SEE ES-0.03 FOR STREAM & WETLAND CROSSING TABLES.
 3. BMP INSTALLATION TO BE ADJUSTED AS NEEDED TO ACCOMMODATE ACTUAL CONTOURS IDENTIFIED IN FIELD DURING VARIOUS PHASES OF THE PROJECT.



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REVISIONS				REMARKS
NO.	BY	DATE		



SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA
**PENNSYLVANIA PIPELINE PROJECT
CONSTRUCTION SPREAD 4**

1-20" & 1-16" PROPOSED WELDED STEEL NATURAL GAS LIQUIDS PIPELINES

YORK COUNTY CONSERVATION DISTRICT
EROSION & SEDIMENT CONTROL &
SITE RESTORATION PLAN
SHEET 21 OF 21

DATE:	NOVEMBER 2016
PROJECT NO.:	112IC05958
DESIGNED BY:	JB
DRAWN BY:	BH
CHECKED BY:	RS
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ES-4.21	
SHEET	4.21 OF 44