PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

CHESTER COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL AND SITE RESTORATION PLAN

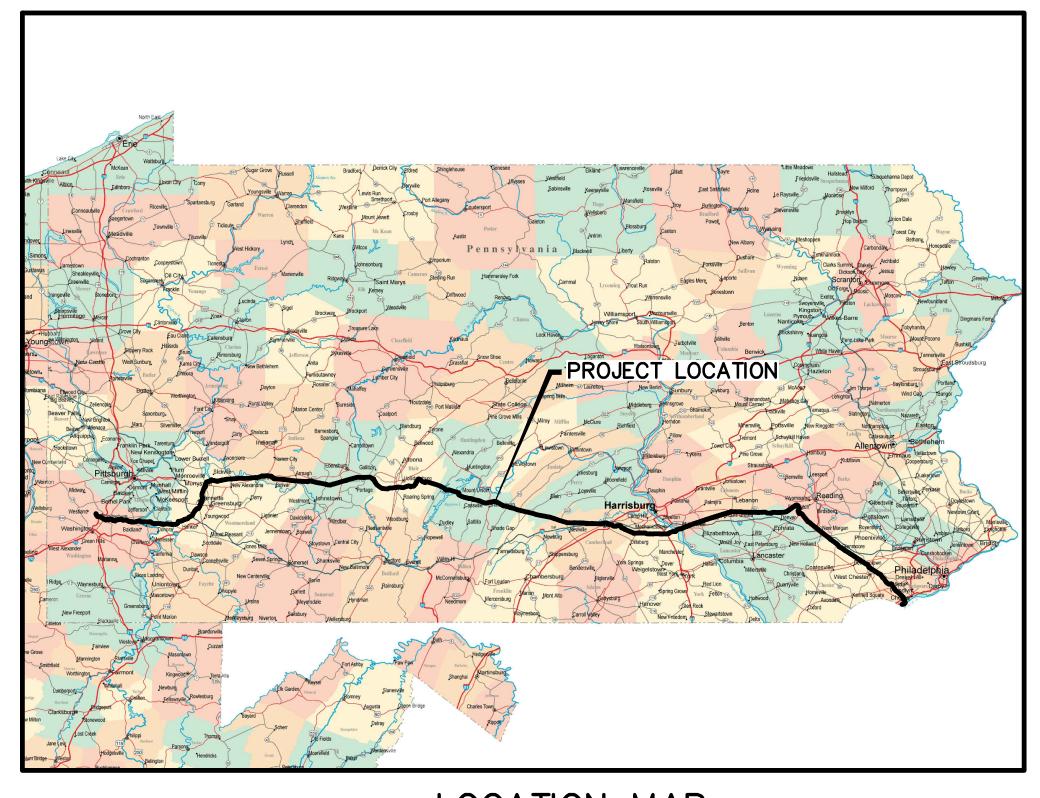
FEBRUARY 2017

DRAWING INDEX						
SHEET No.	DRAWING TITLE					
ES-0.01 TO ES-0.23	EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES AND DETAILS					
ES-0.24 TO ES-0.25	KEY PLAN					
ES-6.01 TO ES-6.74	EROSION & SEDIMENT CONTROL & SITE RESTORATION PLANS					



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





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

LEGEND

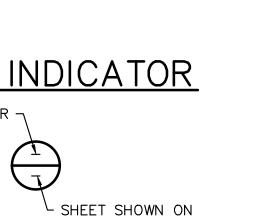
GENERAL EROSION & SEDIMENT CONTROL PLAN NOTES:

- TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.
- 2. THE PROJECT TAKES PLACE WITHIN CHESTER COUNTY, PENNSYLVANIA.
- TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU.
- 100-YEAR FEMA FLOODPLAINS TAKEN FROM WWW.PASDA.PSU.EDU.
- SEE SHEET ES-0.02 FOR STREAM AND WETLAND CROSSING TABLE.
- 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 STRORMWATER 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				
	ELVERSON BOROUGH	ES-6.01 TO ES-6.03				
	WEST NANTMEAL	ES-6.03 TO ES-6.14				
	EAST NANTMEAL	ES-6.09 TO ES-6.12				
	WALLACE	ES-6.14 TO ES-6.23				
	UPPER UWCHLAN	ES-6.23 TO ES-6.34				
CHESTER	UWCHLAN	ES-6.34 TO ES-6.43				
	WEST WHITELAND	ES-6.43 TO ES-6.54				
	WEST GOSHEN	ES-6.54 TO ES-6.58				
	EAST GOSHEN	ES-6.58 TO ES-6.69				
	WESTTOWN	ES-6.69 TO ES-6.74				

LIMIT OF DISTURBANCE/PROJECT AREA TABLE							
	LIMIT OF DISTURBANCE	PROJECT AREA					
CHESTER COUNTY	171 ACRES	171 ACRES					

DETAIL INDICATOR DETAIL NUMBER SHEET SHOWN ON



OUTFALL FLOW DIRECTION ARROW SUNOCO PIPELINE L.P.

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

SINKING SPRING, PENNSYLVANIA

SPECIFIC PLAN SUPERSEDES E&S PLAN IN THESE AREAS. 1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

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

DATE:	2/4/17
PROJECT NO.:	112C05958
DESIGNED BY:	JB
DRAWN BY:	BH
CHECKED BY:	RS
COPYRIGHT TETRA	TECH INC.
ES-0	.01

1 <i>320</i>	EXISTING 10' CONTOUR		LIMIT OF DISTURBANCE (ESCGP-2 PERMIT BOUNDARY)/ AREA TO BE RESTORED
	EXISTING 2' CONTOUR		ROCK CONSTRUCTION ENTRANCE (0.05)
~~~~~~	EXISTING TREE LINE		ROCK CONSTRUCTION ENTRANCE
x x x	EXISTING FENCELINE		AGGREGATE STOCKPILE
	EXISTING STREAM WITH FLOW DIRECTION		PERMANENT WATER BAR
OVH	EXISTING ELECTRIC OVERHEAD		TEMPORARY WATER BAR — (2)0.05
——— UE ———	EXISTING ELECTRIC UNDERGROUND		EROSION CONTROL BLANKET (0.05)
⇔	EXISTING LIGHT POLE	-1212121212-	12" COMPOST FILTER SOCK
——— W ———	EXISTING WATER LINE	—18 ——18 ——18 ——18 —	18" COMPOST FILTER SOCK 0.05
—— GAS ——	EXISTING GAS LINE	-24242424-	24" COMPOST FILTER SOCK
DOMN	EXISTING DOMINION GAS LINE	— CT— CT—	COMPOST SOCK SEDIMENT TRAP
SAN	EXISTING SANITARY SEWER LINE	0	TRENCH PLUGS - 10 0.07
	EXISTING BUILDING		TEMPORARY TIMBER MAT
	PROPERTY LINE		TEMPORARY EQUIPMENT CROSSING (0.10)
	COUNTY BOUNDARY	<b>─</b>	WATER DEFLECTOR — 13 0.07
	TOWNSHIP BOUNDARY		SPOIL STOCKPILE
	100-YEAR FLOODWAY	AREA TO BE BORED	HORIZONTAL DIRECTIONAL DRILL
	100-YEAR FEMA FLOODWAY	AREA TO BE BORED	CONVENTIONAL BORE
	100-YEAR FEMA FLOODPLAIN		
	WATERSHED BOUNDARY		ROW — TRAVEL AND CLEARING LOD  ROW — TRAVEL LOD
	ORANGE CONSTRUCTION FENCE	]]-	TEMPORARY UPSLOPE DIVERSION BERM
	EXISTING PEM WETLAND	SP SP	TEMPORARY SLOPE PIPE
	EXISTING PFO WETLAND		TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN OCT-DEC
	EXISTING PSS WETLAND	B	TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN OCT-APR
—— G——	PROPOSED PIPE LOCATION	$\Diamond$	TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN MAR-JUN & OCT-DEC
	PROPOSED PERMANENT RIGHT-OF-WAY	, <b>(</b>	TROUT STREAM RESTRICTION - NO IN-STREAM WORK BETWEEN MAR-JUN
	PROPOSED TEMPORARY RIGHT-OF-WAY	PFO	SPECIAL RESTORATION AREA — PFO TO PFO; SEE PFO RESTORATION PLANTING NOTES
		PSS	SPECIAL RESTORATION AREA - PSS TO PSS; SEE PSS RESTORATION NOTES
	PROPOSED TEMPORARY WORKSPACE		SITE SPECIFIC PLAN DRAWING AREA. SITE SPECIFIC TOPOGRAPHIC
300000	RIPARIAN FOREST BUFFER		SURVEY CONDUCTED IN THIS APPROXIMATE AREA. E&S CONTROL LAYOUT ON E&S PLAN MAY DIFFER FROM THE SITE SPECIFIC PLANDUE ADDITIONAL SURVEY CONDUCTED IN THESE AREAS. SITE

**TETRA TECH** www.tetratech.com

661 ANDERSEN DRIVE - FOSTER PLAZA 7

PITTSBURGH, PA 15220

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**REVISIONS** NO. BY DATE REMARKS ROBERT F. SIMCIK ENGINEER PE-050435-F

# STREAM & WETLANDS CROSSING TABLES

									S-C92	UNT to Marsh Creek	40.0726, -75.6972	Ephemeral	2.5	HDD	n/a	No	ES - 6.31
Stream ID	Stream Name	Coordinates	Flow Regime	Bank to Bank Width (feet)	Crossing Method	PAFBC Stream Designation	Siltation Impaired	E&S Plan Sheet Number	S-C93	UNT to Marsh Creek	40.0752, -75.7028	Intermittent	2.5	Dry Crossing	n/a	No	ES - 6.30
									S-C94	UNT to Marsh Creek	40.0753, -75.7025	Ephemeral	2	Dry Crossing	n/a	No	ES - 6.30
S-A66	UNT to South Branch French Creek	40.1470, -75.8274	Ephemeral	3	Open Cut Floodw ay	n/a	No	ES - 6.04	S-C96	UNT to Marsh Creek	40.0779, -75.7076	Perennial	6	Dry Crossing/Temporary Bridge	n/a	No	ES - 6.29
		40.1375,							S-C97	UNT to Marsh Creek	40.0769,	Perennial	4	Open Cut Floodway	n/a	No	ES - 6.29, 6.30
S-A68	UNT to South Branch French Creek	-75.8106	Ephemeral	3	Open Cut Floodw ay	n/a	No	ES - 6.07	S-C98	UNT to Marsh Creek	-75.7062 40.0770,	Intermittent	3	Open Cut Floodway	n/a	No	ES - 6.30
S-A70	UNT to Marsh Creek	40.1329, -75.8028	Ephemeral	4	Dry Crossing	n/a	No	ES - 6.09	S-H2	UNT to Shamona Creek	-75.7055 40.0653,	Ephemeral	3	HDD	n/a	Yes	ES - 6.34
S-A71	Marsh Creek	40.1310, -75.8001	Perennial	8	Dry Crossing	n/a	No	ES - 6.09, 6.10	S-H3	UNT to Shamona Creek	-75.6841 40.0642,	Perennial	10	HDD	n/a	Yes	ES - 6.34
S-B14	South Branch French Creek	40.1436,	Perennial	11	Dry Crossing	n/a	No	ES - 6.05	S-H4	UNT to Shamona Creek	-75.6824 40.0644,	Ephemeral			n/a	Yes	ES - 6.34
0.545		-75.8209 40.1246,			5 0 .	,		52.044	C LIE	Chamana Craak	-75.6825 40.0615,	Perannial	12				ES - 6.35
S-B15	UNT to Marsh Creek	-75.7923 40.1029,	Perennial	6	Dry Crossing	n/a	No	ES - 6.11	S-H5	Shamona Creek	-75.6776 40.0616	Perennial	12	HDD	n/a	Yes	
S-B18	UNT to Marsh Creek	-75.7571	Perennial	5	Dry Crossing	n/a	No	ES - 6.19	S-H6	UNT to Shamona Creek	-75.6773 40.1002,	Ephemeral	1	HDD Floodw ay	n/a	Yes	ES - 6.35
S-B19	UNT to Marsh Creek	40.1027, -75.7575	Intermittent	2	Dry Crossing	n/a	No	ES - 6.19	S-H9	UNT to Marsh Creek	-75.7524	Perennial	8	Dry Crossing	n/a	No	ES - 6.20
S-B20	UNT to Marsh Creek	40.1032, -75.7568	Intermittent	2.5	Open Cut Floodw ay	n/a	No	ES - 6.19	S-H10	UNT to Marsh Creek	40.0794, -75.7103	Intermittent	3	HDD	n/a	No	ES - 6.29
S-B34	UNT to Chester Creek	39.9525, -75.5128	Intermittent	2	HDD	Drains to STS, ATW	Yes	ES - 6.73	S-H11	UNT to Marsh Creek	40.0793, -75.7105	Intermittent	1.5	HDD	n/a	No	ES - 6.29
S-B35	UNT to Chester Creek	39.9514, -75.5117	Ephemeral	3	HDD	Drains to STS, ATW	Yes	ES - 6.73	S-H30	Chester Creek	40.0088, -75.5921	Perennial	10	HDD	ATW	Yes	ES - 6.54
S-B79	UNT to Valley Creek	40.0297, -75.6187	Perennial	7	HDD	Drains to ATW	Yes	ES - 6.47, 6.48	S-H31	UNT to Chester Creek	40.0068, -75.5918	Perennial	3	HDD Floodw ay	Drains to STS, ATW	Yes	ES - 6.54
S-B80	UNT to Valley Creek	40.0307, -75.6198	Ephemeral	3	HDD	Drains to STS, ATW	Yes	ES - 6.47	S-H32	UNT to Chester Creek	40.0085, -75.5917	Intermittent	7	HDD Floodw ay	Drains to STS, ATW	Yes	ES - 6.54
S-B81	Valley Creek	40.0314,	Perennial	12	HDD	ATW, Drains to STS	Yes	ES - 6.47	S-H33	UNT to Chester Creek	40.0086, -75.5915	Ephemeral	4	HDD Floodw ay	Drains to STS, ATW	Yes	ES - 6.54
		-75.62 40.1392,							S-H52	Marsh Creek	40.0916, -75.7322	Perennial	20	Dry Crossing	n/a	No	ES - 6.24
S-C56	UNT to South Branch French Creek	40.1392, -75.8135	Perennial	6	Dry Crossing	n/a	No	ES - 6.07	S-Q81	UNT to Marsh Creek	40.0923, -75.7323	Intermittent	5	Open Cut Floodw ay	n/a	No	ES - 6.24
S-C57	UNT to South Branch	40.1390,	Ephemeral	3	Open Cut Floodw ay	n/a	No	ES - 6.07	S-Q200	UNT to Marsh Creek	40.0927, -75.733	Intermittent	4	Open Cut Floodw ay	n/a	No	ES - 6.24
3-637	French Creek	-75.8136	фисиега	J	Open cut i loodw ay	IVa	NO	L3 - 0.07	S-Q61	UNT to Ridley Creek	40.0053, -75.5798	Ephemeral	3	Dry Crossing	Drains to ATW and STS	No	ES - 6.57
S-C58	UNT to South Branch French Creek	40.1384,	Perennial	4	Dry Crossing	n/a	No	ES - 6.07	S-Q82	UNT to Marsh Creek	40.0913 -75.7296	Unknow n	4	Open Cut Floodw ay	n/a	No	ES - 6.25
		-75.8126 40.0379,	_						S-Q83	UNT to Marsh Creek	40.0908, -75.7287	Perennial	5	HDD	n/a	No	ES - 6.25
S-C59	UNT to Valley Creek	-75.6328	Perennial	8	HDD	Drains to STS, ATW	Yes	ES - 6.44, 6.45	S-Q84	UNT to Marsh Creek	40.0909, -75.7285	Intermittent	2	HDD	n/a	No No	ES - 6.25
S-C60	UNT to Valley Creek	40.0376, -75.6326	Ephemeral	3	HDD	Drains to STS, ATW	Yes	ES - 6.45	S-Q85	UNT to Marsh Creek	40.0893, -75.7271	Intermittent	5	HDD	n/a	No	ES - 6.25
S-C61	UNT to Valley Creek	40.0381, -75.6339	Perennial	9	Dry Crossing	Drains to STS, ATW	Yes	ES - 6.44	S-Q86	UNT to Marsh Creek	40.0896, -75.7271	Ephemeral	7	HDD	n/a	No	ES - 6.25
S-C62	UNT to Valley Creek	40.0385, -75.6338	Intermittent	6	Open Cut Floodw ay	Drains to STS, ATW	Yes	ES - 6.44		1	. 52	1	1	65 Streams			
S-C63	UNT to Valley Creek	40.0477, -75.6503	Perennial	8	HDD	Drains to STS, ATW	Yes	ES - 6.41	W. //	USFWS Cowardin	1 Coordi		sing Method	Evcentional Value F	&S Plan Sheet Number		

ES - 6.40

ES - 6.40

ES - 6.45

ES - 6.35

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ES - 6.35

ES - 6.27

ES - 6.26

ES - 6.26

ES - 6.31, 6.32

ES - 6.32

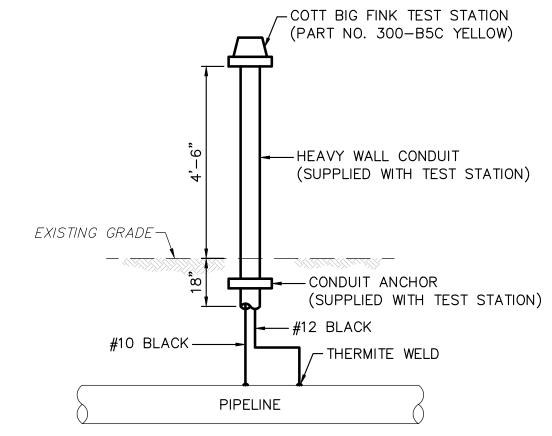
ES - 6.32

ES - 6.31

ES - 6.31

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Wetland ID	USFWS Cowardin Classification	Coordinates	Crossing Method	Exceptional Value	E&S Plan Sheet Numbe
A46	₽ <del>B</del> M	40.1472, -75.8272	Open Cut	n/a	ES - 6.04
B12	PEM	40.1436, -75.8217	Open Cut	EV-Stream	ES - 6.05
B13	PBM	40.1437, -75.8212	Open Cut	EV-Stream	ES - 6.05
B14	PEM	40.1437, -75.8204	Open Cut	EV-Stream	ES - 6.05
B15	PEM	40.1246, -75.7921	Open Cut	n/a	ES - 6.11
B19	PEM	40.1029,-75.7571	Open Cut	n/a	ES - 6.19
B71	PFO	40.0306, -75.6195	HDD	n/a	ES - 6.47, 6.48
C33	PEM	40.1392, -75.8135	Open Cut	n/a	ES - 6.07
C34	PBM	40.1390, -75.8127	Open Cut	n/a	ES - 6.07
C35	PBM	40.1387, -75.8125	Open Cut	n/a	ES - 6.07
C27	PBM	40.0635, -75.6809	HDD	Bog Turtle	ES - 6.35
C37	PSS	40.0633, -75.6809	HDD	Bog Turtle	ES - 6.35
C38	PBM	40.0845, -75.7211	Open Cut/ Temp Matting	Wild Trout-Trib	ES - 6.27
C40	PBM	40.0845, -75.7227	Open Cut/ Temp Matting	Wild Trout	ES - 6.27
C42	PEM	40.0705, -75.6936	Open Cut	n/a	ES - 6.32
C42	PEM	40.0721, -75.6963	HDD	Bog Turtle	ES - 6.31, 6.32
C43	PFO	40.0719, -75.6966	HDD	Bog Turtle	ES - 6.31, 6.32
C47	PEM	40.0775, -75.7068	Open Cut/Temporary Matting	n/a	ES - 6.29, 6.30
C48	PBM	40.0786, -75.7087	Open Cut/Temporary Matting	n/a	ES - 6.29
C49	PBM	40.1089, -75.7676	Open Cut	n/a	ES - 6.17
LIAE	PBM	40.0995, -75.7505	Open Cut	n/a	ES - 6.20
H15	PFO	40.0996, -75.7509	Open Cut	n/a	ES - 6.20
H16	PBM	40.1003, -75.7522	Open Cut	n/a	ES - 6.20
H17	PBM	40.0794, -75.7104	HDD	n/a	ES - 6.29
K21	₽⊞M	40.0222, -75.6132	HDD	n/a	ES - 6.50
Q75	PFO	40.0925, -75.7324	Bore/ Open Cut	Wild Trout	ES - 6.24
Q76	PSS	40.0909, -75.7290	HDD	Wild Trout	ES - 6.25
Q77	₽⊞M	40.0898, -75.7275	HDD	Wild Trout	ES - 6.25



# NOTES:

- 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.

# TYPICAL CATHODIC PROTECTION TEST STATION NOT TO SCALE

# AVOIDANCE MEASURES TABLE

Species or Area	Agency	I Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post- Construction Activity	Clearance Letter	Conservation Plan
Bog turtle	USFWS	All	AII	NA	Construction, Restoration	10/31/16	Bog Turtle Conservation Plan (April 2016)
Bog turtle	USFWS	AII	AII	NA	Construction, Restoration	10/31/16	Bog Turtle Conservation Plan (April 2016)

TETRA TECH

661 ANDERSEN DRIVE - FOSTER PLAZA 7

PITTSBURGH, PA 15220

T: (412) 921-7090 | F: (412) 921-4040

-75.6503 40.0496,

-75.6557

-75.6288

_____

-75.6803

-75.7203

-75.7227

-75.7223

40.0720,

-75.6973

40.0634,

Ephemeral

⊟phemeral

Perennial

⊑phemeral

·------

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·**-----**

INT to Valley Creek

JNT to Valley Creek

JNT to Valley Creek

UNT to Shamona Creek

INT to Shamona Creek

JNT to Shamona Creek

UNT to Black Horse

Blackhorse Creek

UNT to Marsh Creek

INT to Marsh Creek

JNT to Marsh Creek

INT to Marsh Creek

JNT to Marsh Creek

S-C65

S-C66

S-C67

S-C69

S-C72

S-C73

S-C74

S-C88

S-C90

S-C91

NO. BY DATE REMARKS

I DATE REMARKS

I DATE REMARKS

Drains to STS, ATW

Drains to STS, ATW

Drains to STS, ATW

Drains to TNR

Drains to TNR

n/a

Floodw ay Crossing

Dry Crossing/Temporar

HDD

HDD

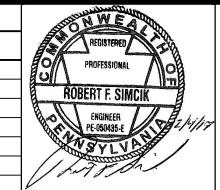
Dry Crossing

Dry Crossing

Floodw ay Only

HDD

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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

DATE:	2/4/17	
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# <u>STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:</u>

PUMPED WATER FILTER BAGS

ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING, CUTS, FILLS, TRENCHING, AND TEMPORARY ROAD CONSTRUCTION OR IMPROVEMENT, SHALL BE DONE IN ACCORDANCE WITH AN APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.

PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME

UNTIL THE PROBLEM IS CORRECTED

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- 4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND/OR FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER. SEGREGATION OF TOPSOIL SHALL OCCUR WHERE TOPSOIL EXISTS WITHIN THE WORK AREA.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- 10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- 12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
- 13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.

# STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES (CONTINUED):

- 14. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN 5. INSTALL ROCK CONSTRUCTION ENTRANCES AS NEEDED. REFER TO THE ROCK CONSTRUCTION ENTRANCE DETAIL ON PLAN SHEET ES-0.05. OUT. REPAIR. REPLACEMENT. REGRADING. RESEEDING. RE-MULCH AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- 15. NO SOIL AMENDMENTS SUCH AS AGRICULTURAL LIME, FERTILIZER, ETC. WILL BE USED WITHIN WETLAND AREAS.
- 16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- 17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE AT THE END OF EACH DAY, OR AS NEEDED, OR AS DIRECTED BY THE CONSERVATION DISTRICT OR LOCAL MUNICIPALITY, AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE
- 18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 19. IN AREAS OF TOPSOIL SEGREGATION THE TOPSOIL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES -- 6 TO 12 INCHES ON COMPACTED SOILS -- PRIOR TO THE RESTORATION OF THE TOPSOIL. AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILLOUT SLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL
- 20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- 21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.
- 22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY
- 23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED 17. INTO FILLS.
- 24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- 25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- 26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 100 FEET OF A SPECIAL PROTECTION SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- 27. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE CESSATION OF EARTH DISTURBANCE ACTIVITIES IN NON-SPECIAL PROTECTION WATERSHEDS WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM PROTECTION WATERSHEDS TEMPORARY STABILIZATION SHALL BE IMMEDIATE.
- 28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS
- 29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- 30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS
- 31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE 7. REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORM WATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- 32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- 33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING 1. THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE. CIVIL. AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO\$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
- 34. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- 35. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- 36. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR GREATER AND ALL AREAS, 3. REGARDLESS OF SLOPE WITHIN 50 FEET OF NON-SPECIAL PROTECTION AND 100 FEET OF A SPECIAL PROTECTION SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- 37. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY IN A SPECIAL PROTECTION WATERSHED, THAT PORTION OF THE PROJECT SITE TRIBUTARY TO THE SPECIAL PROTECTION WATERS MUST BE IMMEDIATELY STABILIZED.
- 38. IF COAL OR OTHER ACID-PRODUCING ROCK IS ENCOUNTERED AT THE PROJECT SITE, THE ACID PRODUCING ROCK WILL EITHER BE REMOVED FROM THE SITE OR HANDLED ONSITE. IF COAL OR OTHER ACID-PRODUCING ROCK MUST BE HANDLED ON SITE IS SHOULD BE SAMPLED AND ANALYZED FOR TOTAL PERCENT SULFUR IN ACCORDANCE WITH PADEPS GUIDANCE. ON-SITE HANDLING METHODS SHOULD BE BASED ON TESTING AND PADEP GUIDANCE.
- 39. IF A SINKHOLE IS ENCOUNTERED, REPAIR SHOULD BE DONE UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER. SITE SPECIFIC SINKHOLE REPAIRS SHOULD BE DEVELOPED ON A CASE BY CASE BASIS.
- 40. IN-STREAM WORK TO OCCUR IN MINOR WATER BODIES (>10 FEET WIDE) WITHIN 24 HOURS, AND IN MAJOR WATER BODIES (10 TO 100 FEET WIDE) WITHIN 48 HOURS UNLESS APPROVED IN WRITING BY THE DEPARTMENT.

# **CONSTRUCTION SEQUENCE:**

REFER TO THE E&SC PLAN DRAWINGS FOR THE LOCATION OF THE PROPOSED WORK AND THE ASSOCIATED BMPS. A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROLS. NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW DETAILED INFORMATION ON METHODS AND MATERIALS. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED IN THE FIELD.

- MAKE ALL APPROPRIATE NOTIFICATIONS AS INDICATED IN GENERAL NOTES ON PLAN SHEET ES-0.01.
- FLAG OR FENCE PROJECT LIMITS OF DISTURBANCE AND APPROVED ACCESS. SIGN AND FLAG WETLAND BOUNDARIES AND STREAMS.

- ORANGE CONSTRUCTION FENCE WILL BE PROVIDED AND INSTALLED AT WETLAND AREAS ADJACENT TO THE LOD AND NOT PLANNED TO BE IMPACTED TO IDENTIFY AND DETER CONSTRUCTION EQUIPMENT, VEHICLES AND PERSONNEL FROM ENTERING WETLAND.
- LOCATE STAGING AREAS AND ACCESS POINTS INCLUDING CONSTRUCTION ENTRANCES. INSTALL COMPOST FILTER SOCKS DOWN SLOPE OF THESE AREAS.
- CONSTRUCT THE PROPOSED ACCESS ROADS AND IMPLEMENT TEMPORARY IMPROVEMENTS AS IDENTIFIED IN ACCESS ROAD SUMMARY TABLE AND DETAILED ON THE PLAN SHEETS.
- INSTALL COMPOST FILTER SOCKS AS SHOWN ON THE CONSTRUCTION DRAWINGS. INSTALLATIONS SIZING, AND SPACING MUST CONFORM TO THE CHART AND DETAILS PROVIDED ON PLAN SHEET ES-0.05. APPROPRIATELY SIZED SILT FENCE IS AN APPROVED ALTERNATIVE IN AREAS THAT ARE NOT SPECIAL PROTECTION WATERSHEDS AND MUST CONFORM TO THE CHART AND DETAILS
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL COMMENCE ALONG THE PIPELINE ROUTE AND BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN. FOR CLEARING, GRUBBING, AND TOPSOIL REMOVAL IN ALL STREAM, RIVER, WETLAND OF OTHER WATER BODY CROSSINGS, REFER TO CONSTRUCTION SEQUENCE NOTES BELOW. TOPSOIL WILL BE SEGREGATED AT LOCATIONS THROUGHOUT THE PROJECT WHERE TOPSOIL EXISTS.
- TEMPORARY WATERBARS OR APPROVED INTERCEPTOR DYKES WILL BE INSTALLED ALONG THE ALIGNMENT PRIOR TO PIPE INSTALLATION AT THE END OF EACH WORK DAY. DURING THE PERIODS OF TIME WHERE PIPE TRENCH IS OPEN CONTRACTORS WILL PROVIDE POSITIVE CONTROL OF ALL STORM WATER ON SITE, TEMPORARY WATERBARS WILL BE CONSTRUCTED BY THE END THE WORK
- DAY, OR DURING EACH WORK DAY IF REQUIRED CONTRACTOR WILL INSTALL SILT FENCE TO CONTROL EROSION UNTIL 70% VEGETATION GROWTH HAS BEEN ACHIEVED MINIMIZE TOTAL AREA OF DISTURBANCE. MAINTAIN TEMPORARY SOIL STOCKPILES WITHIN EXISTING SOIL EROSION AND SEDIMENT CONTROLS. SHOULD EXCAVATION ENTER STREAMS, FOLLOW SPECIFIC DETAILS FOR THESE AREAS SHOWN ON THE DRAWINGS AND INCLUDE THE STEPS DETAILED IN THE SPECIFIC SECTIONS BELOW. PULLBACK AREAS FOR HDDS WILL BE CLEARED AND
- INSTALL PIPE AND TRENCH PLUGS IN ACCORDANCE WITH DETAILS ON PLAN SHEET ES-0.07. WHEN OPEN CUTTING DRIVEWAYS AND ACCESS ROADS, CONTRACTOR SHALL HAVE ROAD PLATES AVAILABLE TO MAINTAIN ACCESS FOR LANDOWNERS. THE 20-INCH PIPELINE WILL BE INSTALLED FIRST, FOLLOWED BY THE 16-INCH LINE. ANY TEMPORARY STABILIZATION REQUIRED BETWEEN THE TWO INSTALLATIONS WILL BE IMPLEMENTED IN ACCORDANCE WITH THIS E&S PLAN. BOTH PIPELINES WILL BE INSTALLED WITHIN THE SAME LIMIT OF DISTURBANCE AND IN THE SAME
- 12. FOR OPEN-CUT AREAS, THE LENGTH OF TIME REQUIRED TO CLEAR AND GRADE THE AREA, EXCAVATE THE TRENCH, INSTALL THE PIPELINES, BACKFILL THE TRENCH AND BEGIN STABILIZATION OF DISTURBED AREAS WILL NOT EXCEED 30 CALENDAR DAYS FOR MOST INSTALLATIONS. LONGER TIME PERIODS MAY BE APPROVED ON A CASE-BY-CASE BASIS.

PREPARED AS NEEDED TO SUPPORT STAGING, WELDING AND TESTING OF THE HDD PIPE SECTIONS. AREAS NOT UTILIZED FOR CONSTRUCTION ACTIVITIES SHOULD BE AVOIDED TO MINIMIZE

- BACKFILL EXCAVATED AREA AND COVER WITH TOPSOIL (WHERE TOPSOIL WAS SEGREGATED).
- BEFORE RESTORATION OF GRADE, THE SECOND 16-INCH PIPELINE WILL BE INSTALLED. ALL TEMPORARY BMPS WILL BE IMPLEMENTED BETWEEN THE TWO INSTALLATIONS IN ACCORDANCE WITH THE NOTES AND DETAILS FOR TEMPORARY SEEDING AND COVER.
- RESTORE GRADE TO ORIGINAL SURFACE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF INSTALLATION OF PIPES. INSTALL PERMANENT WATERBARS IN ACCORDANCE WITH
- PLAN SHEET ES-0.08. IMMEDIATELY SEED AND MULCH DISTURBED AREAS OR PREPARE FOR PAVING IN ROADWAY AREAS. 16. INSTALL EROSION CONTROL BLANKET ON ALL SLOPES 3:1 OR GREATER AND ALL AREAS, REGARDLESS OF SLOPE AND WITHIN 100 FEET OF SPECIAL PROTECTION WATERS OR 50 FEET OF
- NON-SPECIAL PROTECTION SURFACE WATERS. LOCATIONS ARE SHOWN ON PLAN SHEETS IN AREAS THAT USED STONE OR TIMBER MATS FOR TEMPORARY STABILIZATION AND/OR ACCESS, THE STONE OR MATS WILL BE REMOVED AND, IF NEEDED, THE SOIL WILL BE SCARIFIED OR RIPPED TO A DEPTH OF 8-12 INCHES TO DE-COMPACT THE SOIL. AFTER REESTABLISHING PRECONSTRUCTION CONTOURS, TOPSOIL WILL BE REPLACED TO A MINIMUM DEPTH OF 4-8 INCHES
- AND SEEDED AND MULCHED. VEHICULAR TRAFFIC AFTER RESTORATION SHOULD BE RESTRICTED FROM AREAS TO PREVENT SOIL COMPACTION. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED. REMOVE SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% PERENNIAL VEGETATIVE COVERAGE OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED
- DURING THE REMOVAL OF THE SOIL EROSION AND SEDIMENT CONTROLS. AS PART OF THE ONGOING STORM WATER BMP INSPECTION AND MAINTENANCE PROGRAM ANY STRUCTURAL BMP RECORDED ON THIS PROJECT WILL BE INSPECTED MAINTAINED, AND REPAIRED IN ACCORDANCE WITH THE PLAN FILED WITH THE DEED.
- IN ACCORDANCE WITH 25 PA CODE 102.7, UPON COMPLETION OF ALL CONSTRUCTION ACTIVITIES, A NOTICE OF TERMINATION FORM WILL BE SUBMITTED TO TERMINATE THE AUTHORIZATION OF COVERAGE INDICATING ALL ACTIVITIES UNDER THIS PERMIT HAVE BEEN COMPLETED.
- FOR ALL EV WETLAND AND STREAM CROSSINGS, SPLP WILL INSTALL THE SECOND PIPELINE IMMEDIATELY FOLLOWING THE INSTALLATION OF THE FIRST PIPELINE, AS LONG AS NO UNANTICIPATED, EXTRANEOUS CIRCUMSTANCES OR SAFETY ISSUES ARE ENCOUNTERED. THE TWO PIPES WILL BE INSTALLED IN A SINGLE DISTURBANCE THAT WILL NOT REQUIRE INTERIM TEMPORARY STABILIZATION/RESTORATION.

# ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES IN A SPECIAL FOR STREAM, RIVER, WETLANDS OR OTHER WATER BODY UTILITY CROSSINGS THAT WILL BE OPEN CUT:

- NO WORK SHALL COMMENCE THROUGH A STREAM, RIVER, WETLANDS OR OTHER WATER BODY DURING INCLEMENT WEATHER.
- A UTILITY LINE CROSSING OF A STREAM CHANNEL 10 FEET IN BOTTOM WIDTH OR LESS SHALL BE COMPLETED WITHIN 24 HOURS FROM START TO FINISH INCLUDING TRENCH BACKFILL, STABILIZATION OF STREAM BANKS AND STABILIZATION OF THE AREA 50 FEET BACK FROM THE TOP OF EACH STREAM BANK.
- A UTILITY LINE CROSSING OF A STREAM CHANNEL BETWEEN 10 FEET AND 100 FEET IN BOTTOM WIDTH SHALL BE COMPLETED WITHIN 48 HOURS FROM START TO FINISH INCLUDING TRENCH BACKFILL, STABILIZATION OF STREAM BANKS AND STABILIZATION OF THE AREA 50 FEET BACK FROM THE TOP OF EACH STREAM BANK.
- WETLAND CROSSINGS ARE TO BE COMPLETED ALONG WITH THE MAINLINE INSTALLATION AND WILL BE DEPENDENT UPON THE LENGTH OF THE CROSSING.
- 5. FACILITIES FOR REMOVING SEDIMENT FROM PUMPED WATER SHOULD BE AVAILABLE AT THE STREAM CROSSING SITE BEFORE TRENCHING COMMENCES AND MAINTAINED UNTIL TRENCH BACKFILLING IS COMPLETED. ASSEMBLY AREAS, TEMPORARY EQUIPMENT AND NON-HAZARDOUS MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 50 FEET BACK FROM THE TOP OF ANY BANK.
- 6. INSTALL TEMPORARY EQUIPMENT CROSSINGS AT STREAMS AND TEMPORARY TIMBER MATS AT WETLAND CROSSINGS IN ACCORDANCE WITH NOTES AND DETAILS.
- FOR DRY STREAM CROSSINGS INSTALL PUMP BYPASS, DRY FLUME, OR COFFERDAM IN ACCORDANCE WITH NOTES AND DETAILS.
- DEWATERING WORK AREA. WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT FILTER BAG. WHERE POSSIBLE, EXCAVATION SHALL BE FROM THE TOP OF THE STREAM BANK, WHERE TECHNICALLY FEASIBLE.
- STABILIZE CHANNEL EXCAVATION AND STREAM BANKS PRIOR TO REDIRECTING STREAM FLOW

# FOR CONVENTIONAL AND HDD BORE CROSSINGS:

# CONVENTIONAL BORES

- CONVENTIONAL BORES WILL BE CONDUCTED ALONG WITH MAIN LINE INSTALLATION TO LIMIT THE TIME OF DISTURBANCE IN THOSE AREAS.
- INSTALL COMPOST FILTER SOCKS DOWNGRADIENT OF THE BORE AND RECEIVING PITS.
- 3. EXCAVATE PITS AS SHOWN IN THE TYPICAL STREAM CROSSING DETAIL ON PLAN SHEET ES-0.17 BORE BENEATH STREAMS WHERE INDICATED ON THE CONSTRUCTION DRAWINGS.
- 5. WATER FROM THE BORE PITS AND WORK AREAS SHALL BE PUMPED TO A PUMPED WATER FILTER BAG IN ACCORDANCE WITH DETAIL ON PLAN SHEET ES-0.07.
- 6. UPON COMPLETION, BACKFILL ALL PITS.

# <u>HDD BORES</u>

- INSTALL COMPOST FILTER SOCKS AT STAGING AND PULLBACK AREAS IN ACCORDANCE WITH E&S PLAN SHEETS. WHERE APPLICABLE TEMPORARY GRADING OF STAGING AREAS IS PROVIDED ON PLAN SHEETS.
- BORE AND PULLBACK AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET BACK FROM EACH TOP OF STREAM BANK UNLESS AUTHORIZED BY PADEP.
- THE HDD BORE ALIGNMENT SHALL BE MONITORED FOR INADVERTENT RETURNS. AN INADVERTENT RETURN PLAN HAS BEEN DEVELOPED FOR THIS PROJECT. THIS PLAN IS TO BE REVIEWED, ONSITE, AND IMPLEMENTED FOR EACH DRILL CONDUCTED.
- 4. UPON COMPLETION OF HDD BORE, RESTORE BORE AND PULLBACK AREAS TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH E&S PLANS AND DETAILS.

# FOR WORKING WITHIN A WETLAND AREA:

- LOCATE STAGING AREAS AND ACCESS POINTS. STAGING AREAS SHOULD BE LOCATED AT LEAST 50 FEET FROM THE EDGE OF THE WETLAND. INSTALL SEDIMENT BARRIERS DOWN SLOPE OF
- 2. INSTALL ROCK CONSTRUCTION ENTRANCE AS NEEDED. REFER TO THE ROCK CONSTRUCTION ENTRANCE DETAIL ON DRAWINGS FOR SUGGESTED DIMENSIONS.
- INSTALL ORANGE FLAGGING AROUND PERIMETER OF WETLAND AND SEDIMENT BARRIERS ALONG THE PERIMETERS OF THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- MATS, PADS, OR SIMILAR DEVICES SHALL BE USED DURING THE CROSSINGS OF WETLANDS. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD ON-SITE.
- SOIL EXCAVATED FROM WETLAND AREAS SHALL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND SURFACE RESTITUTION.
- DEWATER WORK AREA; WATER FROM THE EXCAVATION SHALL BE PUMPED TO A SEDIMENT TRAP OR A FILTER BAG.
- 7. INSTALL PIPE.
- 8. INSTALL TRENCH PLUGS IN WETLAND AREAS TO PREVENT THE TRENCH FROM DRAINING THE WETLAND OR CHANGING ITS HYDROLOGY.
- 9. BACKFILL PIPE TRENCH. BACKFILL THE TOP 12—INCHES OF THE EXCAVATED TRENCH WITH THE STOCKPILED WETLAND SOIL TO MATCH ORIGINAL SURFACE GRADES.
- 10. NO SOIL AMENDMENTS SUCH AS AGRICULTURAL LIME, FERTILIZER, ETC. WILL BE USED WITHIN WETLAND AREAS.
- COMPACT BACKFILL AND GRADE THE SURFACE OF THE TRENCH AREA TO ALLOW FOR POSITIVE DRAINAGE TO SOIL EROSION AND SEDIMENT CONTROLS AND TO PREPARE DISTURBED AREAS FOR PERMANENT TRENCH RESTORATION.
- 12. MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- 13. REMOVE ALL SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE SOIL EROSION AND SEDIMENT CONTROLS.

# FOR TEMPORARY EQUIPMENT STREAM AND WETLAND CROSSINGS:

- 1. INSTALL TEMPORARY EQUIPMENT CROSSINGS AND TEMPORARY TIMBER MAT WETLAND CROSSINGS IN ACCORDANCE WITH PLAN SHEETS ES-0.10.
- 2. TEMPORARY STREAM CROSSINGS SHALL BE INSPECTED ON A DAILY BASIS. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION AND BEFORE ANY SUBSEQUENT USE. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF THE INSPECTION.
- AS SOON AS THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE TEMPORARY CROSSING. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY AND DISTURBED AREAS STABILIZED. REMOVE ALL SOIL AND EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATION COVER OVER THE DISTURBED AREA.

**REVISIONS** NO. BY DATE REMARKS TETRA TECH www.tetratech.com 661 ANDERSEN DRIVE - FOSTER PLAZA 7 PITTSBURGH, PA 15220 T: (412) 921-7090 | F: (412) 921-4040

SINKING SPRING, PENNSYLVANIA PROFESSIONAL ROBERT F. SIMCIK ENGINEER PE-050435-E PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

SUNOCO PIPELINE L.P.

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

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

2/4/1 PROJECT NO.: 112C0595 DESIGNED BY: DRAWN BY: CHECKED BY: COPYRIGHT TETRA TECH INC. ES-0.03

SHEET 0.03 OF 99

R: _Marcellus Shale Projects\Sunoco\5958 — Penn Pipeline Project\17 — Chester\E&S\5958ES000.03.dwg PIT NICHOLE.NAJESKI 2/4/2017 4:32:33

TEMPORARY GRASS COVER SHALL BE ESTABLISHED IN THE FOLLOWING AREAS:

- 1. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE CESSATION OF EARTH DISTURBANCE ACTIVITIES IN NON-SPECIAL PROTECTION WATERSHEDS WILL EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. IN A SPECIAL PROTECTION WATERSHED TEMPORARY STABILIZATION SHALL BE IMMEDIATE.
- WHERE SOIL STOCKPILES ARE TO BE EXPOSED FOR A PERIOD GREATER THAN FOUR (4) DAYS, THE STOCKPILE SHALL BE SEEDED.
- WHERE VEGETATIVE FILTERS MUST BE ESTABLISHED BELOW FILTER BAGS, A MINIMUM DISTANCE OF 10 FT SHALL BE SEEDED DOWN SLOPE OF THE TRAP OUTLET.
- 4. SEED MIXTURE FOR TEMPORARY COVER SHALL CONSIST OF 100% ANNUAL RYEGRASS. SEED SHALL BE APPLIED AT THE RATE OF 40 LB/ACRE OR AS RECOMMENDED BY A LOCAL RECOGNIZED SEED SUPPLIER APPROVED BY THE OWNER'S REPRESENTATIVE. UNLESS EXPLICITLY RESTRICTED (E.G., WETLANDS) PRIOR TO SEEDING, APPLY 1 TON OF AGRICULTURAL GRADE LIMESTONE PER ACRE PLUS 10-10-10 FERTILIZER AT THE RATE OF 500 LB. PER ACRE AND WORK INTO SOIL.
- 5. TEMPORARY REVEGETATION CAN ALSO BE USED DURING UNFAVORABLE GROWING SEASON FOR PERMANENT MIXES. APPLY PERMANENT SEEDING DURING FIRST FAVORABLE GROWING SEASON.

# <u>MULCHING</u>

THE PURPOSE OF MULCH IS TO REDUCE RUNOFF AND EROSION, PREVENT SURFACE COMPACTION OR CRUSTING, CONSERVE MOISTURE, AID IN ESTABLISHING PLANT COVER, AND CONTROL WEEDS. MULCH SHALL BE APPLIED ON ANY AREA SUBJECT TO EROSION, OR WHICH HAS UNFAVORABLE CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. THE PRACTICE MAY BE USED ALONE OR IN CONJUNCTION WITH OTHER STRUCTURAL AND VEGETATIVE CONSERVATION PRACTICES, SUCH AS WATERWAYS, PONDS, SEDIMENTATION TRAPS OR CRITICAL AREA PLANTING. ON SEDIMENT PRODUCING AREAS WHERE THE PERIOD OF EXPOSURE IS LESS THAN TWO (2) MONTHS, MULCH MATERIALS SHALL BE APPLIED ACCORDING TO THE FOLLOWING GUIDELINES:

- STRAW MULCH SHALL BE APPLIED AT THE RATE OF THREE TONS PER ACRE. CHEMICALLY TREATED OR SALTED STRAW IS NOT ACCEPTABLE AS MULCH.
- 2. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION BY AT LEAST ONE OF THE FOLLOWING
  - a. "CRIMPED" INTO THE SOIL USING TRACTOR DRAWN EQUIPMENT (STRAIGHT BLADED COULTER OR SIMILAR). THIS METHOD IS LIMITED TO SLOPES NO STEEPER THAN 3:1. MACHINERY SHOULD BE OPERATED ON THE CONTOUR. (CRIMPING OF HAY OR STRAW BY RUNNING IT OVER WITH TRACKED MACHINERY IS NOT RECOMMENDED)
  - b. ASPHALT, EITHER EMULSIFIED OR CUT-BACK, CONTAINING NO SOLVENTS OR OTHER DILUTING AGENTS TOXIC TO PLANT OR ANIMAL LIFE, UNIFORMLY APPLIED AT THE RATE OF 31 GALLONS PER 1000 FT2.
  - c. SYNTHETIC BINDERS (CHEMICAL BINDERS) MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THAT IT IS NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
- d. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND AFTER EACH RUNOFF EVENT (E.G. RAIN, SNOWMELT, ETC.) FOR DAMAGE UNTIL THE DESIRED PURPOSE OF THE MULCHING IS ACHIEVED. DAMAGED PORTIONS OF THE MULCH OR TIE-DOWN MATERIAL SHALL BE REPAIRED UPON DISCOVERY.

# PERMANENT REVEGETATION

# SEEDING MIXTURES

FOLLOW WITH RECOMMENDED SEED MIXTURE TABLE AND NOTES, THEN PENNDOT FORMULA, THEN WETLAND, THEN APPLICATION GUIDANCE, THEN RATES, THEN NOTES. LIMING RATES

MINIMUM 6 TONS PER ACRE AT 100% EFFECTIVE NEUTRALIZING VALUE (%ENV), UNLESS THE SOIL TEST DETERMINES THAT A LESSER AMOUNT IS NEEDED. TO DETERMINE THE ACTUAL AMOUNT OF REGULAR LIME TO APPLY, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE %ENV FOR THE PRODUCT USED. FOR EXAMPLE, IF 6 TONS PER ACRE IS NEEDED AND THE %ENV FOR THE LIME USED IS 88%, DIVIDE 6 BY 0.88 RESULTING IN 6.8 TONS NEEDING TO BE APPLIED. FOR DOLOMITIC LIME, WHICH HAS A SIGNIFICANT AMOUNT OF MAGNESIUM IN IT, DIVIDE THE AMOUNT CALLED FOR BY THE SOIL TEST BY THE % CALCIUM CARBONATE EQUIVALENT (%CCE) LISTED FOR THE PRODUCT INSTEAD OF THE %ENV. THE %CCE MAY BE ABOVE 100% WHICH ACCOUNTS FOR THE FACT THAT MAGNESIUM HAS A GREATER EFFECT PER POUND THAN THE CALCIUM IN REGULAR LIME.

NOTE: WHEN A SOIL TEST REQUIRES MORE THAN 8,000 POUNDS OF LIME PER ACRE, THE LIME MUST BE MIXED INTO THE TOP 6 INCHES OF SOIL.

# FERTILIZATION RATES

APPLY 10-20-20 AT 600 POUNDS/ACRE, IF TOP DRESSED OR 1,000 POUNDS/AC, IF INCORPORATED, UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS.

SOIL AMENDMENT APPLICATION RATE EQUIVALENTS								
SOIL AMENDMENT	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YDS.	NOTES				
		PERMANENT SEED	ING APPLICATION RATE					
AGRICULTURAL LIME	6 TONS	240 LBS.	2,480 LBS.	OR AS PER SOIL TEST; MAY NOT BE				
				REQUIRED IN AGRICULTURAL FIELDS				
10-20-20 FERTILIZER	1,000 LBS.	25 LBS.	210 LBS.	OR AS PER SOIL TEST; MAY NOT BE				
				REQUIRED IN AGRICULTURAL FIELDS				

MULCH APPLICATION RATES								
	AP	PLICATION RATE (MIN	NIMUM)					
MULCH TABLE	PER ACRE	PER 1,000 SQ. FT.	PER 1,000 SQ. YDS.	NOTES				
STRAW	3 TONS	140 LBS.	1,240 LBS.	EITHER WHEAT OR OAT STRAW, FREE				
				OF WEEDS, NOT CHOPPED OR FINELY BROKEN				
HAY	3 TONS	140 LBS.	1,240 LBS.	TIMOTHY, MIXED CLOVER AND TIMOTHY OR				
				OTHER NATIVE FORAGE GRASSES				
WOODCHIPS	4 TO 6 TONS	185 TO 275 LBS.	1,650 TO 2,500 LBS.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES				
HYDROMULCH	1 TON	47 LBS.	415 LBS.	SEE LIMITATIONS ABOVE				

NO. BY DATE

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**REVISIONS** 

REMARKS

	RECOMMENDED SEED MIXTURES							
	2052152	SEEDING RAT	TES - PLS(1)					
MIXTURE NO.	SPECIES	MOST SITES	ADVERSE SITES					
1 (2)	SPRING OATS (SPRING), OR 64 96	64	96					
	ANNUAL RYEGRASS (SPRING OR FALL), OR	10	15					
	WINTER WHEAT (FALL), OR	90	120					
	WINTER RYE (FALL)	56	112					
2 (3)	TALL FESCUE, OR 75	60	75					
	FINE FESCUE, OR 40	35	40					
	KENTUCKY BLUEGRASS, PLUS 25 30	25	30					
	REDTOP(4), OR	3	3					
	PERENNIAL RYEGRASS	15	20					
3	BIRDSFOOT TREFOIL, PLUS 6 10	6	10					
	TALL FESCUE	30	35					
4	BIRDSFOOT TREFOIL, PLUS	6	10					
	REED CANARYGRASS	10	15					
5 (5)	BIG BLUESTEM, PLUS	10	15					
	TALL FESCUE, OR	20	25					
	PERENNIAL RYEGRASS	20	25					
6 (5,6)	BIG BLUESTEM, PLUS	10	15					
	ANNUAL RYEGRASS	20	25					
7 (5)	BIRDSFOOT TREFOIL, PLUS	20	30					
	BIG BLUESTEM, PLUS	20	30					
	TALL FESCUE	20	25					
8	FLATPEA, PLUS	20	30					
	TALL FESCUE, OR	20	30					
	PERENNIAL RYEGRASS	20	25					
9 (7)	SERECIA LESPEDEZA, PLUS	10	20					
	TALL FESCUE, PLUS	20	25					
	REDTOP(4)	3	3					
10	TALL FESCUE, PLUS	40	60					
	FINE FESCUE	10	15					
11	DEERTONGUE, PLUS	15	20					
	BIRDSFOOT TREFOIL	6	10					
12(8)	SWITCHGRASS, OR	15	20					
, ,	BIG BLUESTEM, PLUS	15	20					
	BIRDSFOOT TREFOIL	6	10					
13	ORCHARDGRASS, OR	20	30					
	SMOOTH BROMEGRASS, PLUS	25	35					
	BIRDSFOOT TREFOIL	6	10					

# NOTES:

- 1. PURE LIVE SEED (PLS) IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. FOR EXAMPLE, TO SECURE THE ACTUAL PLANTING RATE FOR SWITCHGRASS, DIVIDE 12 POUNDS PLS SHOWN ON THE SEED TAG. THUS, IF THE PLS CONTENT OF A GIVEN SEED LOT IS 35 PERCENT, DIVIDE 12 PLS BY 0.35 TO OBTAIN 34.3 POUNDS OF SEED REQUIRED TO PLANT ONE-ACRE. ALL MIXTURES IN THIS TABLE ARE SHOWN IN TERMS OF PLS.
- 2. IF HIGH-QUALITY SEED IS USED, FOR MOST SITES SEED SPRING OATS AT A RATE OF TWO BUSHELS PER ACRE, WINTER WHEAT AT 11.5 BUSHELS PER ACRE, AND WINTER RYE AT ONE BUSHEL PER ACRE. IF GERMINATION IS BELOW 90 PERCENT, INCREASE THESE SUGGESTED SEEDING RATES BY 0.5 BUSHEL PER ACRE.
- 3. THIS MIXTURE IS SUITABLE FOR FREQUENT MOWING. DO NOT CUT SHORTER THAN FOUR INCHES.
- 4. KEEP SEEDING RATE TO THAT RECOMMENDED IN TABLE. THESE SPECIES HAVE MANY SEEDS PER POUND AND ARE VERY COMPETITIVE. TO SEED SMALL QUANTITIES OF SMALL SEEDS SUCH AS WEEPING LOVEGRASS AND REDTOP, DILUTE WITH DRY SAWDUST, SAND, RICE HULLS, BUCKWHEAT HULLS, ETC.
- 5. USE FOR HIGHWAY SLOPES AND SIMILAR SITES WHERE THE DESIRED SPECIES AFTER ESTABLISHMENT IS BIG
- 6. USE ONLY IN EXTREME SOUTHEASTERN OR EXTREME SOUTHWESTERN PA. SERECIA LESPEDEZA IS NOT WELL ADAPTED TO MOST OF PA.
- 7. DO NOT MOW SHORTER THAN NINE TO 10 INCHES.

PENN DOT FORMULA B				
SEEDING RATE		3 LBS PER 1,000 SQ FT		
SPECIES	% BY WT.	% BY WT. PURITY % MIN. % GERMINATION MAX. % WEED SEED		
KENTUCKY BLUEGRASS	50	98	80	0.20
PERENNIAL RYE	20	98	90	0.15
RED FESCUE	30	98	85	0.15

SEED MIX APPLICATION GUIDE			
SITE CONDITIONS	NURSE CROP	SEED MIXTURE (SELECT ONE MIXTURE)	
SLOPES AND BANKS (NOT MOWED)			
WELL-DRAINED	1 PLUS	3, 5, 8, OR 12 (1)	
VARIABLE DRAINAGE	1 PLUS	3 OR 7	
SLOPES AND BANKS (MOWED)			
WELL-DRAINED	1 PLUS	2 OR 10	
SLOPES AND BANKS (GRAZED/HAY)			
WELL-DRAINED	1 PLUS	2,3, OR 13	
GULLIES AND ERODED AREAS	1 PLUS	3, 5, 7, OR 12 (1)	
EROSION CONTROL FACILITIES (BMPS)			
SOD WATERWAYS, SPILLWAYS, FREQUENT WATER FLOW AREAS	1 PLUS	2, 3, OR 4	
DRAINAGE DITCHES			
SHALLOW, LESS THAN THREE FEET DEEP	1 PLUS	2, 3, OR 4	
DEEP, NOT MOWED	1 PLUS	5 OR 7	
POND BANKS, DIKES, LEVEES, DAMS, DIVERSION CHANNELS,			
AND OCCASIONAL WATER FLOW AREAS			
MOWED AREAS	1 PLUS	2 OR 3	
NON-MOWED AREAS	1 PLUS	5 OR 7	
FOR HAY OR SILAGE ON DIVERSION CHANNELS AND			
OCCASIONAL WATER FLOW AREAS	1 PLUS	3 OR 13	
HIGHWAYS (2)			
NON-MOWED AREAS			
WELL-DRAINED	1 PLUS	5, 7, 8, 9, OR 10	
VARIABLE DRAINED	1 PLUS	3 OR 7	
POORLY DRAINED	1 PLUS	3 OR 9	
AREAS MOWED SEVERAL TIMES PER YEAR	1 PLUS	2, 3, OR 10	
UTILITY ROW	4 51116	5 0 00 40 (4)	
WELL-DRAINED	1 PLUS	5, 8, OR 12 (1)	
VARIABLE DRAINED	1 PLUS	3 OR 7	
WELL-DRAINED AREAS FOR GRAZING/HAY	1 PLUS	2, 3, OR 13	
EFFLUENT DISPOSAL AREAS	1 PLUS	3 OR 4	
SANITARY LANDFILLS	1 PLUS	3, 5, 7, 11 (1), OR 12 (1)	
SURFACE MINES	1 01110	7	
SPOILS, MINE WASTES, FLY ASH, SLAG, SETTLING BASIN	1 PLUS	3, 4, 5, 7, 8, 9,11 (1) OR 12(1)	
RESIDUES AND OTHER SEVERELY DISTURBED AREAS (LIME TO SOIL TEST)			
SEVERELY DISTURBED AREAS FOR GRAZING/HAY	1 PLUS	3 OR 13	
SEVENCET DISTURDED AREAS FOR GRAZING/ HAT	NONE	WETLAND SEED MIX	
WETLAND	1 PLUS	SEE WETLAND SEED MIX	
RESIDENTIAL/LAWN	1 PLUS	PENN DOT FORMULA B	
NESIDER HAL/ LATIN	I FLUS	FLININ DOT FUNNULA D	

# NOTES:

- 1. FOR SEED MIXTURES 11 AND 12, ONLY USE SPRING OATS OR WEEPING LOVEGRASS (INCLUDED IN MIX) AS NURSE CROP.
- 2. CONTACT THE PA DEPARTMENT OF TRANSPORTATION DISTRICT ROADSIDE SPECIALIST FOR SPECIFIC SUGGESTIONS ON TREATMENT TECHNIQUES AND MANAGEMENT PRACTICES.
- 3. SEED TYPICAL WETLAND RESTORATION DETAIL ON PLAN SHEET ES-0.15 FOR ADDITIONAL NOTES, DETAIL, AND SPECIAL AREA RESTORATIONS.
- 4. DO NOT LIME OR FERTILIZE IN WETLAND.

	F	PEM WETLA	ND SEED MIX	
	ERNST CONSERVATION SEED MIX NO. ERNMX-122 FACW MEADOW MIX			
SEEDING RATE	20 LB PER ACRE, OR 1/2 LB PER 1,000 SQ FT	SEEDING RATE	20 LB PER ACRE, OR 1/2 LB PER 1,000 SQ FT	
%	SPECIES LIST	%	SPECIES LIST	
31%	FOX SEDGE (CAREX VULPINOIDEA)	1%	SWAMP MILKWEED (ASCLEPIAS INCARNATA)	
20%	VIRGINIA WILDRYE (ELYMUS VIRGINICUS)	1%	NEW ENGLAND ASTER (ASTER NOVAE-ANGLIAE (SYMPHYOTRICHUM N.))	
14%	LURID (SHALLOW) SEDGE (CAREX LURIDA)	1%	FLAT TOPPED WHITE ASTER (ASTER UMBELLATUS (DOELLINGERIA UMBELLATE))	
5%	GREEN BULRUSH (SCIPUS ATROVIRENS)	0.5%	JOE PYE WEED (EUPATORIUM FISTULOSUM)	
4%	BLUE VERVAIN (VERBENA HASTATE)	0.5%	BONESET (EUPATORIUM PERFOLIATUM)	
3.5%	WOOD REEDGRASS (CINNA ARUNDINACEA)	0.5%	DITCH STONECROP (PENTHORUM SEDOIDES)	
3%	SOFT RUSH (JUNCUS EFFUSES)	0.5%	NARROWLEAF BLUE EYED GRASS (SISYRINCHLUM ANGUSTIFOLIUM)	
3%	BLUNT BROOM SEDGE (CAREX SCOPARIA)	0.5%	SEEDBOX (LUDWIGIA ALTERNIFOLIA)	
3%	HOP SEDGE (CAREX LUPUTINA)	0.5%	GREAT BLUE LOBELIA (LOBELIA SIPHILITICA)	
2%	SENSITIVE FERN (ONOCLEA SENSIBILIS)	0.5%	MUD PLANTAIN (WATER PLANTAIN) (ALISMA SUBCORDATUM (A. PLANTAGO-AQUATICA))	
2%	OXEYE SUNFLOWER (HELIOPSIS HELIANTHOIDES)	0.5%	SQUARE STEMMED MONKEYFLOWER (MIMULUS RINGENS)	
1%	RATTLESNAKE GRASS (GLYCERIA CANADENSIS)	0.4%	BLADDER (STAR) SEDGE (CAREX INTUMESCENS)	
1%	WOOLGRASS (SCIRPUS CYPERINUS)	0.1%	SLENDER MOUNTAINMINT (PYCNANTHEMUM TENUIFOLIUM)	
,		TOTAL: 100%		

PLANTING	PLANTING SPECIFICATIONS FOR PFO OR PSS WETLAND RESTORATION AREAS (SEE ES-0.08 FOR RESTORATION DETAIL)			
VEGETATION PLANTING TYPE	SIZE	SPE	CIES ^A	WETLAND STATUS ^B
		ALNUS SERRULATA	SMOOTH ALDER	OBL
CLIDLID CDEOLEC	TWO TO THREE—FOOT WHIP	CORNUS AMONUM	SILKY DOGWOOD	FACW
SHRUB SPECIES		LINDERA BENZOIN	SPICEBUSH	FAC
		VIBURNUM DENTATUM	NORTHERN ARROW-WOOD	FAC
	TREE SPECIES CONTAINERIZED (1-INCH DBH) ^c	ACER RUBRUM	RED MAPLE	FAC
		BETULA ALLEGHANIENSIS	YELLOW BIRCH	FAC
TREE SPECIES		PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	FACW
		QUERCUS BICOLOR	SWAMP WHITE OAK	FACW
		SALIX NIGRA	BLACK WILLOW	OBL

# NOTES:

- 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.

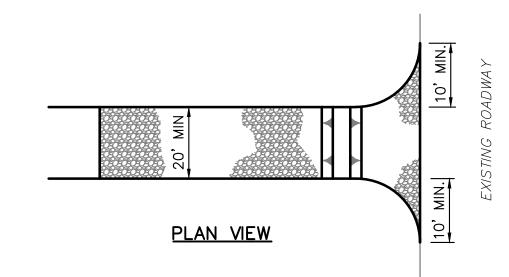
SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA ROBERT F. SIMCIK ENGINEER PE-050435-E PE-050435-E PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

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**PROFILE** 

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE IF NEEDED.

### NOTES:

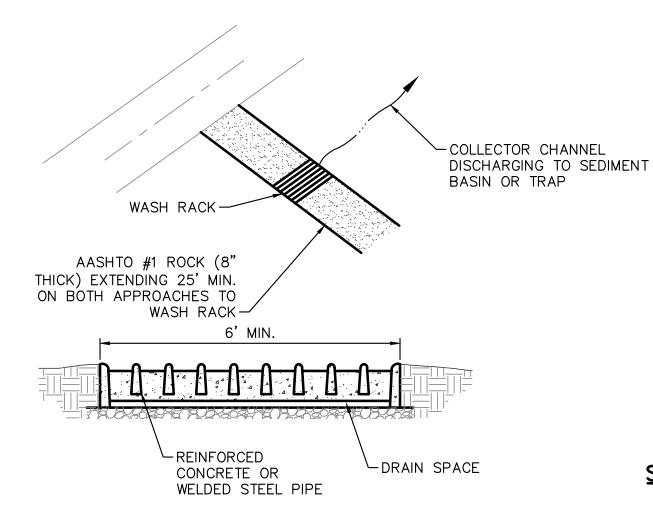
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTION CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THE PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.





# NOTES:

WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ENTRANCE WITH WASH RACK (3)

NO. BY DATE

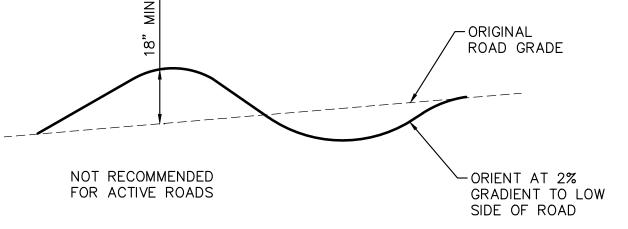
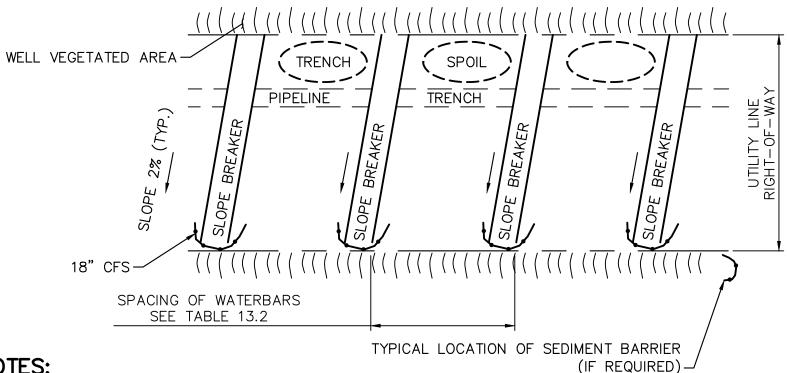


	TABLE 13.2		
	MAXIMUM FOR PERI WATERBARS C LINE RIGHT	MANENT ON A UTILITY	
	PERCENT SLOPE	SPACING (FT)	
	<5	250	
	5-15	150	
_OW	15-30	100	
	>30	50	



# **NOTES:**

ACHIEVED.

WATERBARS SHALL DISCHARGE TO A STABLE AREA.

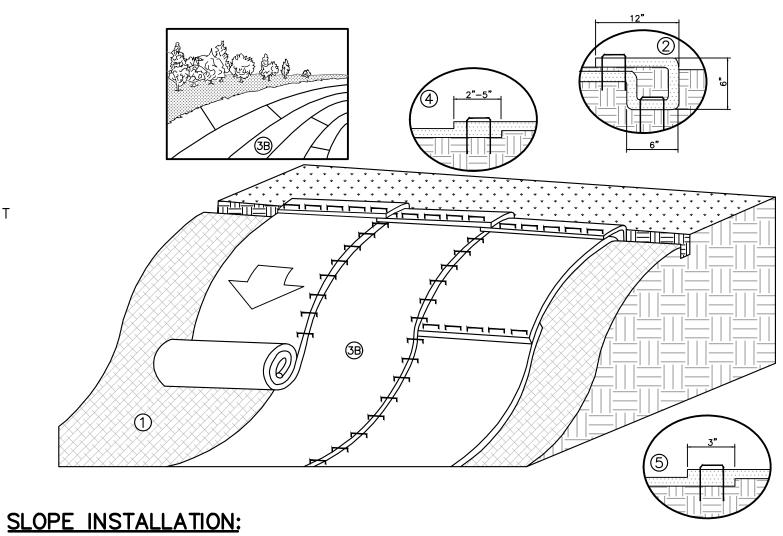
WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.

MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT—OF—WAY HAS ACHIEVED PERMANENT STABILIZATION. WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN

SEE TABLE 13.2 ABOVE FOR WATERBAR SPACING.

PERMANENT WATERBARS ARE REQUIRED AT ALL STREAM, RIVER, AND OTHER WATER-BODY CROSSINGS AS WELL AS UPSLOPE FROM ROADWAY AND RAILROAD CUT SLOPES.



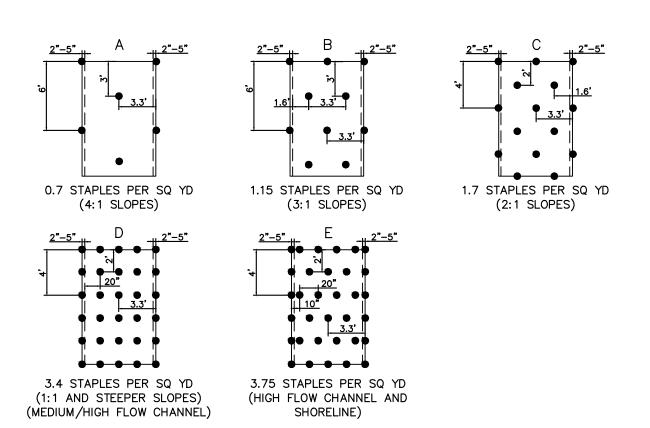


**REVISIONS** 

REMARKS

- 1. PREPARE SOIL BEFORE INSTALLING RECPS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
- 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6 IN. DEEP X 6 IN. WIDE TRENCH WITH APPROXIMATELY 12 IN. OF RECPS EXTENDED BEYOND THE UPSLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12 IN. APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12 IN. PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12 IN. APART ACROSS THE WIDTH OF THE RECPs.
- 3. ROLL THE RECPS (3A) DOWN OR (3B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY REPLACING STAPLES/STAKES
- IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. 4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH AN APPROXIMATELY 2 IN. - 5 IN. OVERLAP DEPENDING ON THE
- 5. CONSECUTIVE RECP SPLICED DOWN THE SLOPE MUST BE END-OVER-END (SHINGLE STYLE) WITH AN APPROXIMATE 3 IN. OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12 IN. APART ACROSS ENTIRE RECPS WIDTH.

# STAPLE PATTERN GUIDE



# NOTES:

- 1. FOR SLOPES BETWEEN 3:1 AND 1:1, USE NORTH AMERICAN GREEN ERONET SC 150 OR
- OWNER APPROVED EQUAL MATERIAL/METHOD. 2. IN AREAS WHERE LIVESTOCK ARE KEPT, USE NORTH AMERICAN GREEN BIONET SC 150 BN OR OWNER APPROVED EQUAL MATERIAL/METHOD.
- DRAWINGS PRIOR TO INSTALLING THE BLANKET.

3. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN

- 4. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE
- 6. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE PROJECT LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
- 7. THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS,

5. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

8. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

### MAXIMUM SLOPE LENGTHS FOR COMPOST FILTER SOCK DIAMETER DIAMETER 700 1000 340 500 250 300 200 250 140 200 100 140

60

50

40

SLOPE

2 (OR LESS)

40

DIAMETER

520

250

150

100

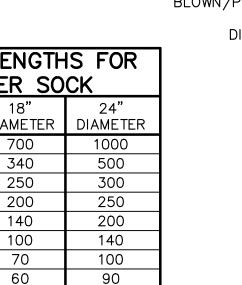
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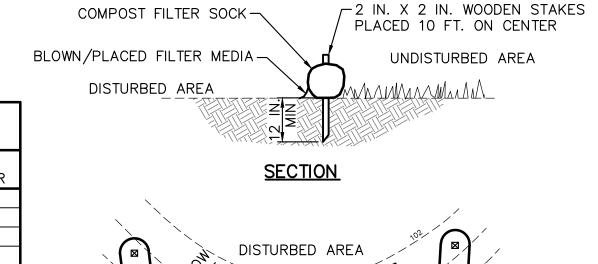
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# -EXISTING CONTOURS COMPOST IN. X 2 IN. WOODEN FILTER SOCK-STAKES PLACED 10 FT.

# PLAN VIEW

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

UNDISTURBED AREA ON CENTER

COMPOST FILTER SOCK SHALL BE PLACED AT EXITING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCK SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

### TABLE 4.1

COMPO	COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS					
MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)	
MATERIAL CHARACTERISTICS	PHOTO— DEGRADABLE	PHOTO- DEGRADABLE	BIO- DEGRADABLE	PHOTO— DEGRADABLE	PHOTO— DEGRADABLE	
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"	
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI	
ULTAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.	
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS	
		TWO-F	PLY SYSTEMS			
				HDPE BIAXIAL N	IET	
INNER C	ONTAINMENT I	NETTING		CONTINUOUSLY WOUND		
				SION-WELDED JUN		
	3/4" X 3/4" MAX. APERTURE SIZE  COMPOSITE POLYPROPYLENE FABRIC					
OUTER	OUTER FILTRATION MESH			SITE POLYPROPYL AYER AND NON—Y ALLY FUSED VIA N	WOVEN FLEECE	
				16" MAX. APERTU		
SOCK FABRICS CO	SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS.					

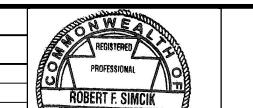
# TABLE 4.2

COMPOST STANDARDS		
ORGANIC MATTER CONTENT	25%-100% (DRY WEIGHT BASIS)	
ORGANIC PORTION	FIBROUS AND ELONGATED	
PH	5.5-8.5	
MOISTURE CONTENT	30%-60%	
PARTICLE SIZE	30%-50% PASS THROUGH 3/8" SIEVE	
SOLUBLE SALT CONCENTRATION	5.0 DS/M (MMHOS/XM) MAXIMUM	

COMPOST FILTER SOCK

# EROSION CONTROL BLANKET - SLOPE INSTALLATION (4)

NOT TO SCALE



SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

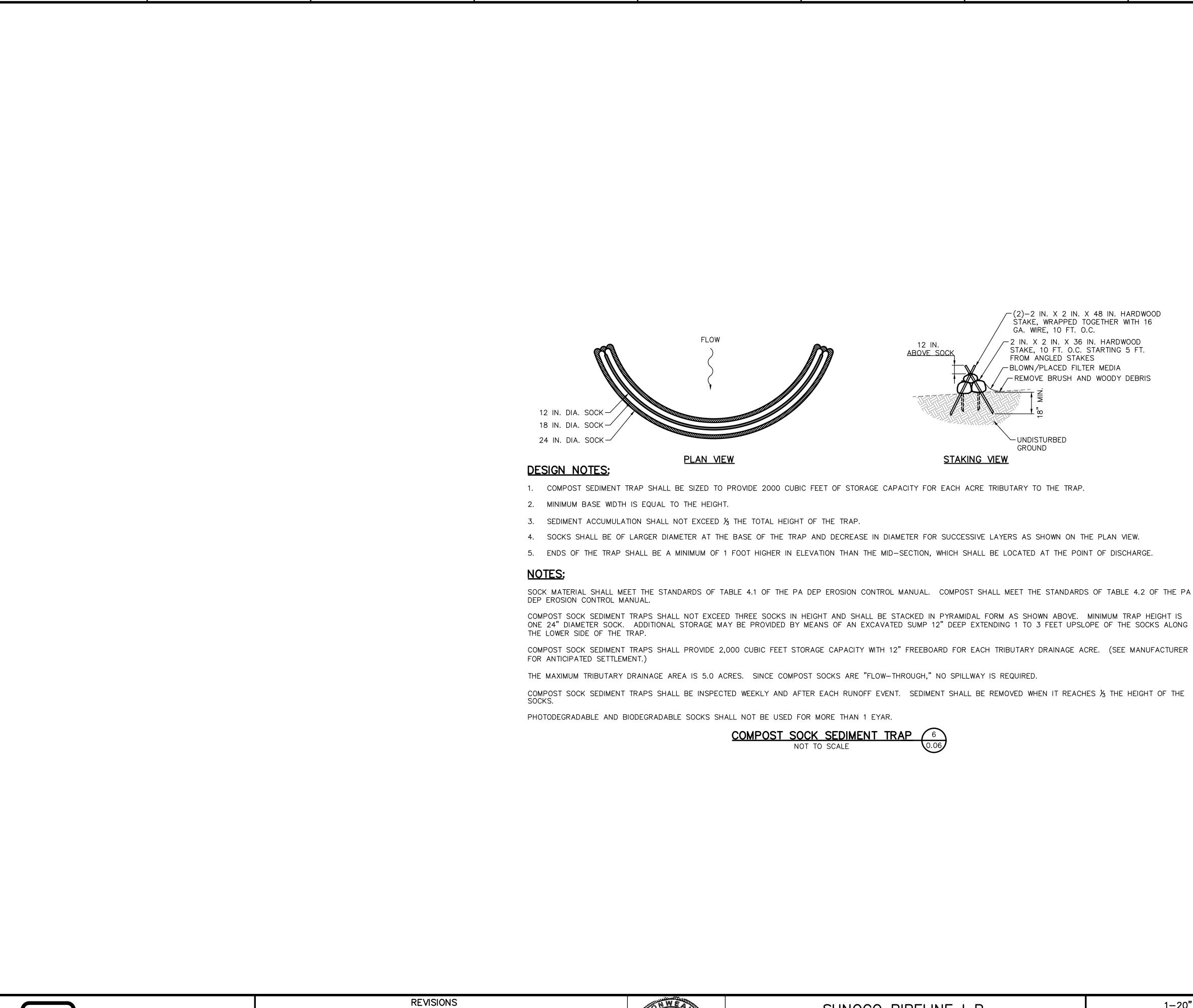
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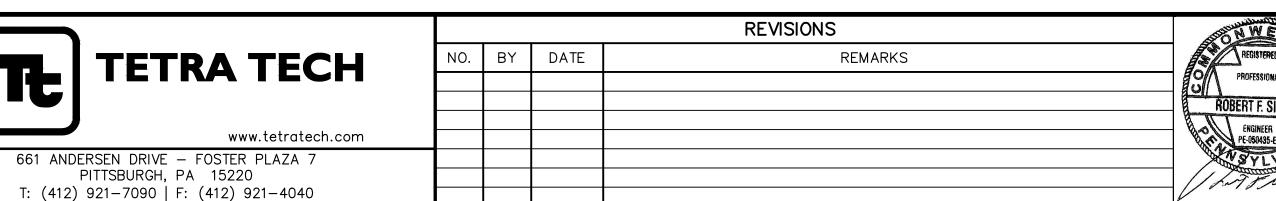
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ROBERT F. SIMCIK
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PE-050435-E
P2/4//7

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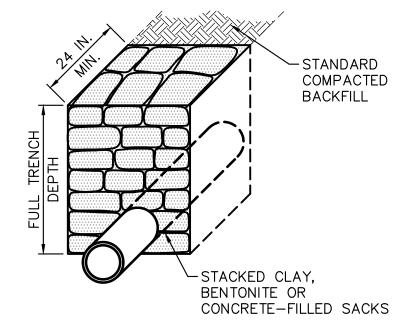
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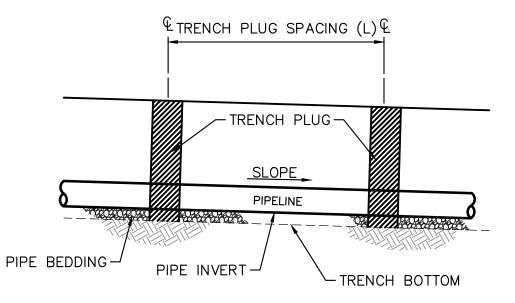
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SECTION VIEW

**ELEVATION** 

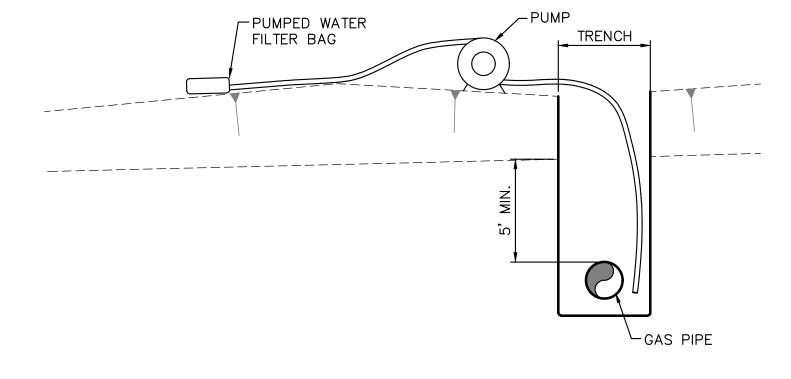
REQUIRE	REQUIRED SPACING & MATERIALS FOR TRENCH PLUGS		
TRENCH SLOPE (%)	SPACING L (FT)	PLUG MATERIAL	
<5	1,000	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS	
5-15	500	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS	
15-25	300	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS	
25-35	200	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS	
35-100	100	* CLAY, BENTONITE OR CONCRETE-FILLED SACKS	
>100	50	CEMENT BAGS (WETTED) OR MORTARED STONE	

* TOP SOIL MAY NOT BE USED TO FILL SACKS

# NOTES:

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

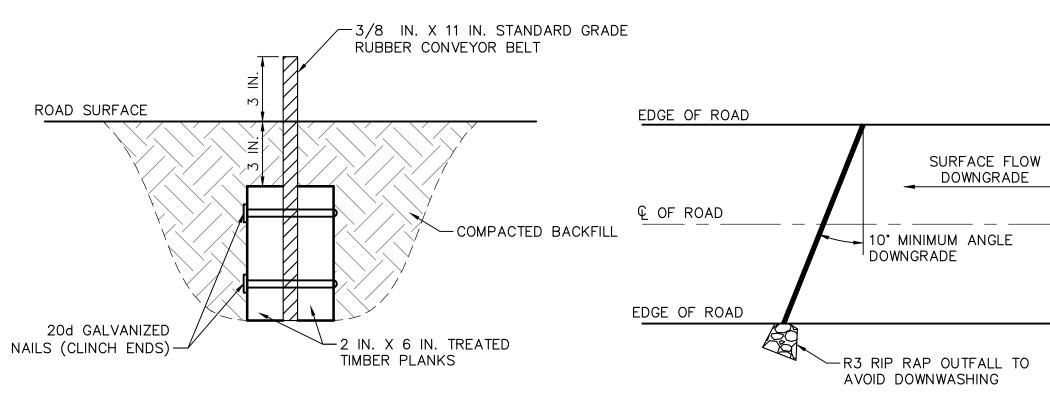




TRENCH DEWATERING DETAIL

NOT TO SCALE

ROBERT F. SIMCIK



NOTE:

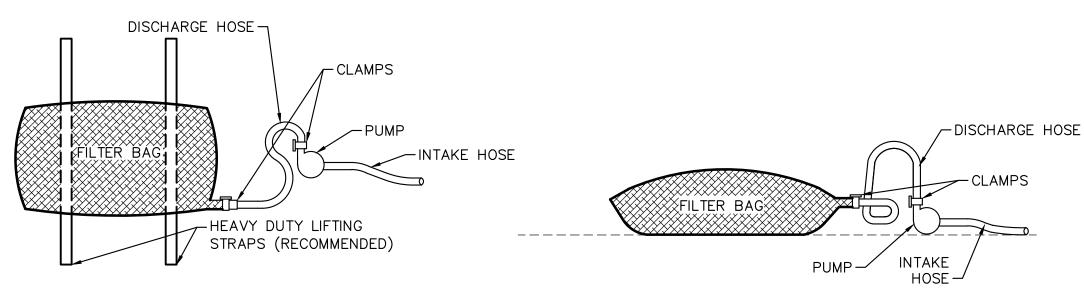
- 1. DEFLECTOR SHALL BE INSPECTED WEEKLY AND
- AFTER EACH RUNOFF EVENT.
- DEFLECTOR WITHIN 24 HOURS OF INSPECTION.

2. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM

- 3. BELT SHALL BE REPLACED WHEN WORN AND NO LONGER EFFECTIVE.
- 4. MAXIMUM SPACING OF DEFLECTORS SHALL BE AS SHOWN IN TABLE.

ROAD GRADE (PERCENT)	SPACING BETWEEN DIPS, CULVERTS,OR DEFLECTORS (FEET)
<2	300
3	235
4	200
5	180
6	165
7	155
8	150
9	145
10	140





**ELEVATION VIEW** 

# PLAN VIEW

### **NOTES:**

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

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME ½ 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 NO POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACE DON 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 PLACE UNDER THE GAB TO REDUCE SLOPE STEEPNESS.

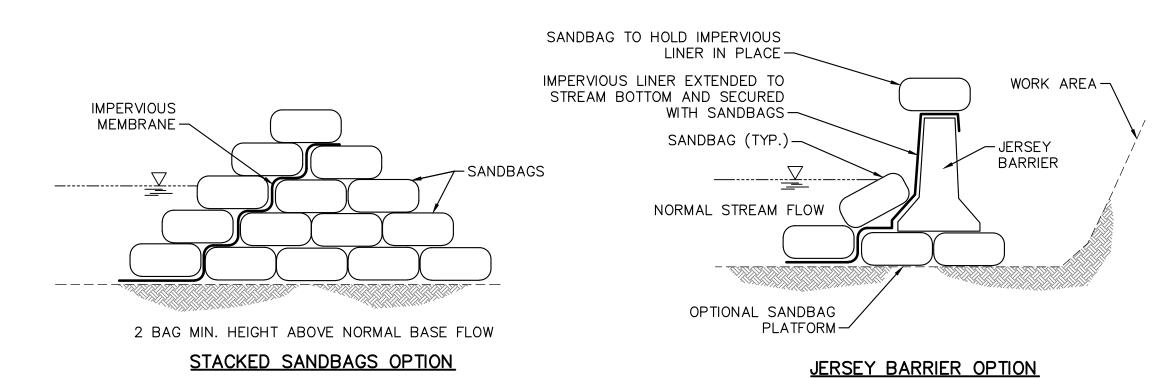
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

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 ½ 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.





# NOTES:

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.

# SANDBAG OR DIVERSION DAM NOT TO SCALE 13 0.07

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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

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# NOTES:

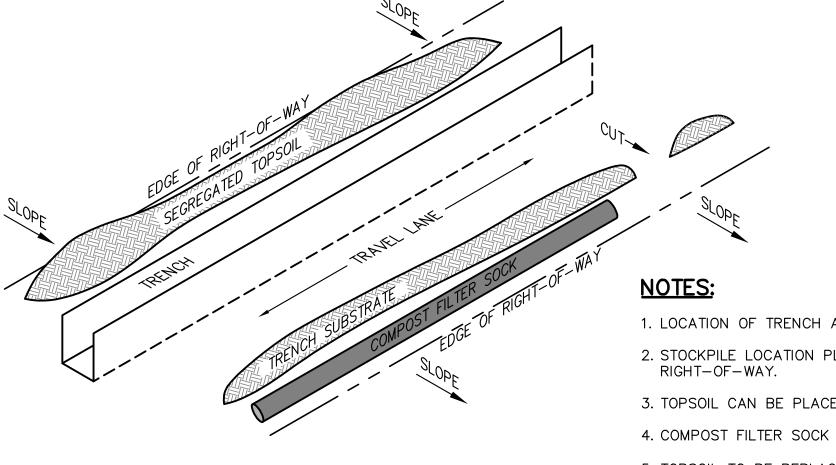
EXISTING CONTOURS -

COMPOST FILTER-

SOCK (TYP.)

- 1. BACKFILL TRENCH; WERE SOILS WHERE SEGREGATED, REPLACE IN ORDER OF REMOVAL (CONSULT SPREAD HYDROGEOLOGIST PRIOR TO AND DURING BACKFILLING)
- 2. ONCE BACKFILLING IS COMPLETE, REMOVE TEMPORARY TIMBER MATTING AND ALL CONSTRUCTION DEBRIS AND RESTORE ORIGINAL GRADES AND HYDROLOGY.
- 3. RESTORATION ACTIVITIES SHALL BEGIN IMMEDIATELY AFTER BACKFILLING. TEMPORARILY REVEGETATE ALL IMPACTED WETLANDS IN ACCORDANCE WITH PLAN SHEET ES-0.05 TO ALLOW RAPID STABILIZATION AND DETER INVASIVE SPECIES.
- 4. PERMANENTLY REVEGETATE IMPACTED PEM WETLANDS IN ACCORDANCE WITH PLAN SHEET ES-0.05 THAT CALLS FOR ERNST CONSERVATION SEED MIX NO. ERNMX-122 FACW MEADOW MIX. PLANT DURING THE RECOMMENDED PLANTING SEASON.
- 5. TEMPORARY OR PERMANENT REVEGETATION IS NOT NECESSARY IN AREAS OF STANDING WATER.
- 6. NO SOIL AMENDMENTS, LIME, FERTILIZER, OR BINDING AGENTS ARE TO BE USED IN WETLAND AREAS.
- 7. PSS IMPACTED WETLAND AREAS WHERE NOTED ON PLAN SHEETS WILL BE PLANTED WITH SHRUB SPECIES IN ACCORDANCE WITH ES-0.04. PLANT DURING THE RECOMMENDED PLANTING SEASON.
- 8. PSS IMPACTED WETLAND AREAS WHERE THE ROOT SYSTEM WAS NOT REMOVED (E.G., MATTED OVER) DO NOT REQUIRE REPLANTING. PLANT DURING THE RECOMMENDED PLANTING SEASON.
- 9. PFO IMPACTED WETLANDS AREAS WHERE NOTED ON PLAN SHEETS FOR RESTORATION WILL BE PLANTED WITH THE TREE SPECIES IN ACCORDANCE WITH ES-0.04.
- 10. PSS AND PFO RESTORATION AREAS WILL BE PROTECTED WITH "NO-MOW" SIGNS.
- 11. REFER TO THE PROJECT'S IMPACT AVOIDANCE, MINIMIZATION, AND MITIGATION PROCEDURES FOR MORE SPECIFICS ON WETLAND RESTORATION IN GENERAL AND SPECIFICS REGARDING PSS AND PFO RESTORATION EFFORTS.

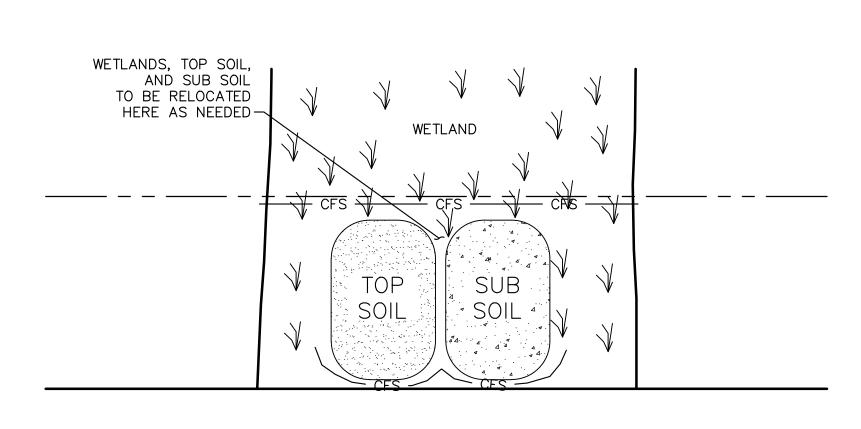
# TYPICAL WETLAND RESTORATION



# 1. LOCATION OF TRENCH AND TRAVEL LANE WILL VARY BASED ON PROPOSED PIPE LOCATIONS.

- 2. STOCKPILE LOCATION PLACED UPSLOPE OF TRENCH TO DIVERT OFF-SITE DRAINAGE AWAY FROM RIGHT-OF-WAY.
- 3. TOPSOIL CAN BE PLACED WITH DITCH SPOIL IF PROPERLY SEGREGATED.
- 4. COMPOST FILTER SOCK TO BE INSTALLED PARALLEL TO EXISTING CONTOURS.
- 5. TOPSOIL TO BE REPLACED TO PRECONSTRUCTION DEPTH (TO BE FIELD VERIFIED).

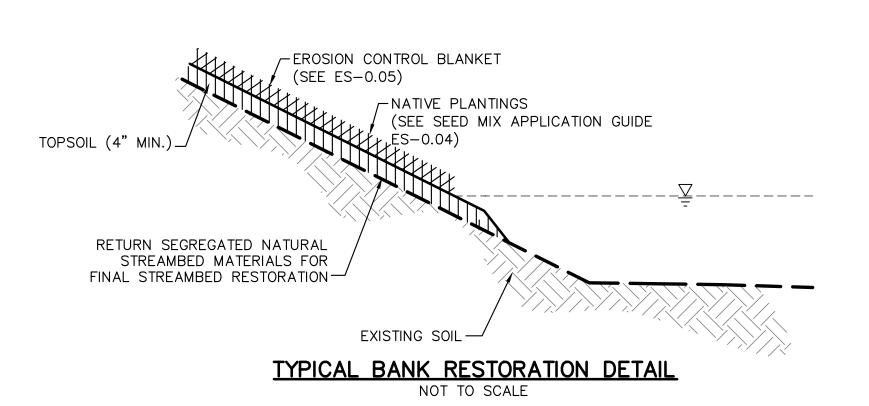
# RIGHT-OF-WAY DETAIL NOT TO SCALE

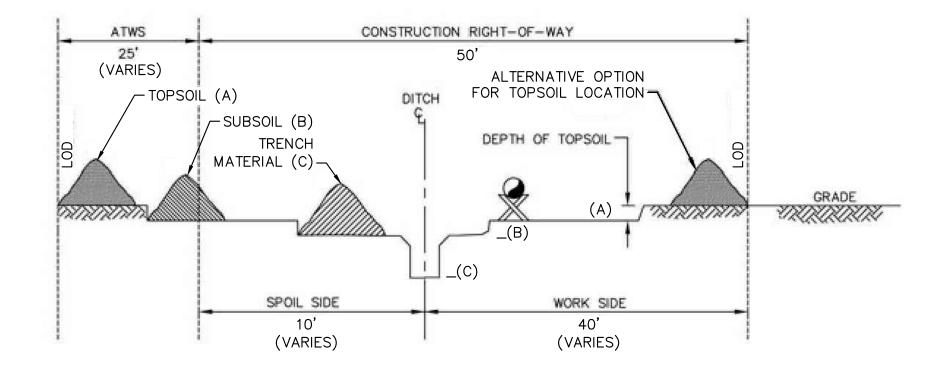


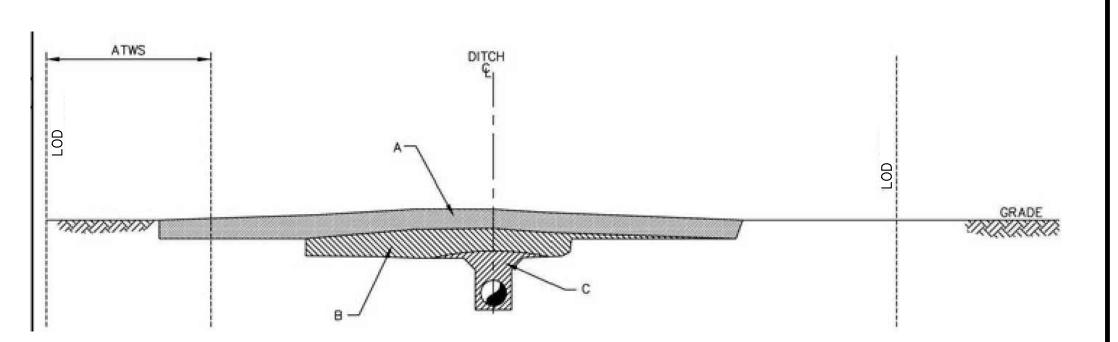
# NOTES:

1. PROVIDE PHYSICAL SEPARATION BENEATH SPOIL PILES AND WETLAND SOIL TO ENSURE FULL REMOVAL AND TO MINIMIZE IMPACTS

# SPOIL STOCKPILE CONTAINMENT - WETLANDS







# SPOIL STOCKPILE CONTAINMENT - TRIPLE DITCH NOT TO SCALE

# NOTES:

- 1. TRIPLE DITCH METHOD WILL BE USED TO SEGREGATE PROBLEM SOILS SUCH AS SALINE OR SODIC SOILS, IDENTIFIED STREAM CROSSINGS, AND/OR AS OTHERWISE DIRECTED.
- 2. ENSURE THE EXCAVATED SOILS ARE IN SEPARATE STOCKPILES WITH VISUAL SEPARATION OF AT LEAST 2' BETWEEN PILES.
- 3. EXCAVATED SOILS ARE TO BE PLACED BACK IN THE SEQUENCE IN WHICH WERE REMOVED.

# SPOIL STOCKPILE CONTAINMENT - UPLANDS

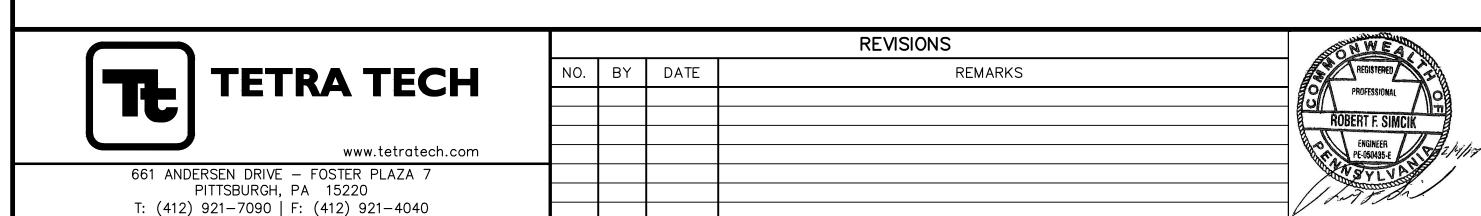
RUNOFF FLOW

SIDE VIEW

EXISTING CONTOURS -

SOCK (TYP.)

PLAN



SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

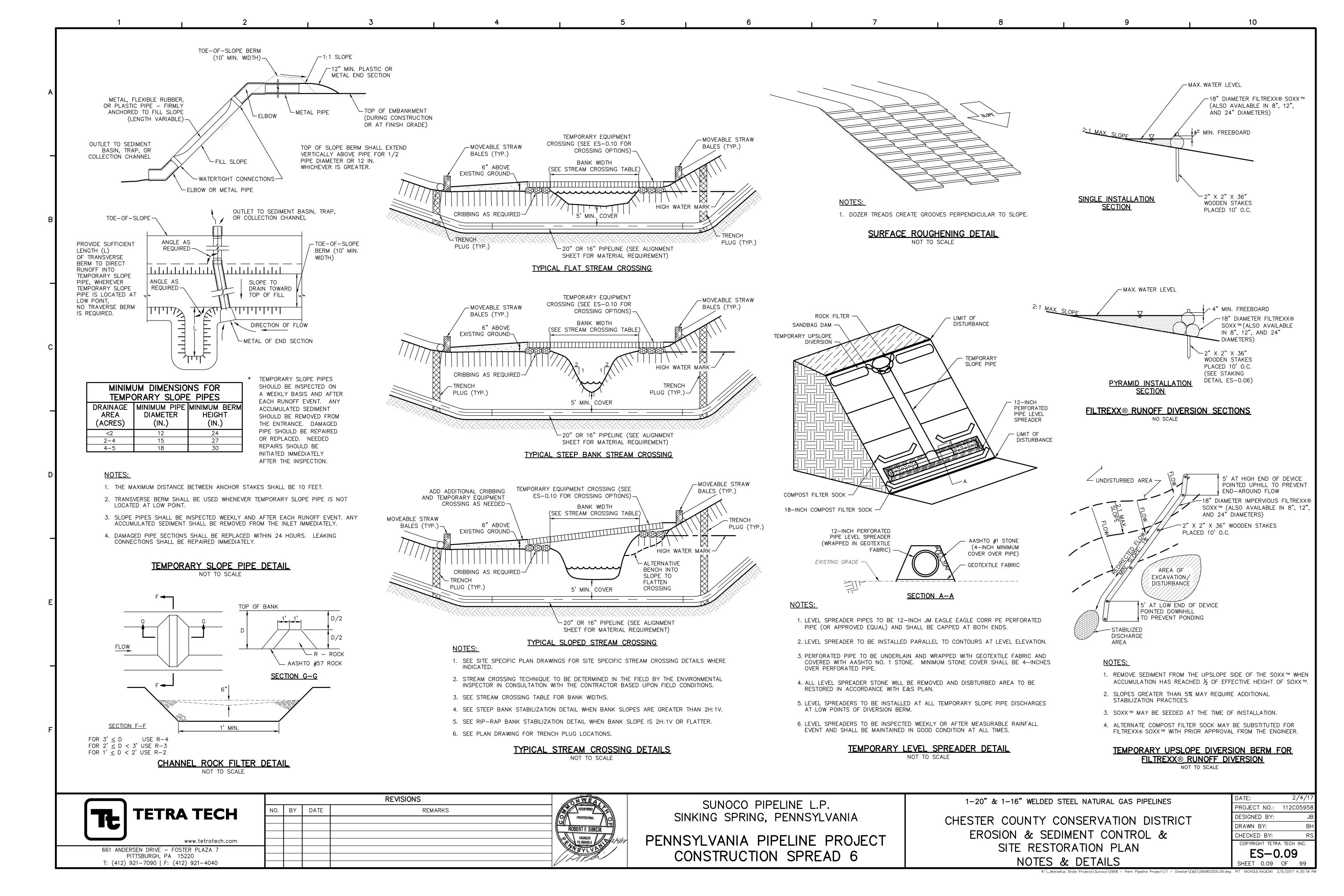
PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

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TO DIVERSION

CLEARLY MARK

1. POST SIGNS, NO FUELING WITHIN 100' OF

2. ALL CONTROLS WILL BE INSTALLED AFTER

INITIAL GROUND DISTURBANCE AND

MAINTAINED UNTIL ALL AREAS ARE

3. LIMIT STUMP REMOVAL TO TRENCH LINE,

4. RESTORE TO ORIGINAL CONTOUR AND

DRAINAGE; RESTORE WETLAND MATERIAL.

5. RESTORE WETLAND IN ACCORDANCE WITH

UNLESS OTHER STUMPS CAUSE AN UNSAFE

THE WETLAND BOUNDARY.

(FLAG) WETLAND

PLAN VIEW

TEMPORARY CULVERT STREAM CROSSING

NOT TO SCALE

WETLAND

NOTES:

STABILIZED.

CONDITION.

# NOTES:

CLEARLY MARK

BOUNDARY -

UPLAND

(FLAG) WETLAND

- 1. WATERBARS AND BROAD-BASED DIPS SHALL DISCHARGE TO 18" CFS OR APPROVED SEDIMENT REMOVAL FACILITY.
- CLEAN ROCK SHALL CONFORM TO CHAPTER 105 PERMITTING REQUIREMENTS.
- FOLLOW PERMIT CONDITIONS REGARDING REMOVAL OF CROSSING.

WETLAND

FILTER FENCE OR FILTER SOCK AND HAY BALES TO

BE INSTALLED AT EACH

EDGE OF WETLAND

 ${}^{
earrow}$  FLOW  ${}^{
earrow}$ 

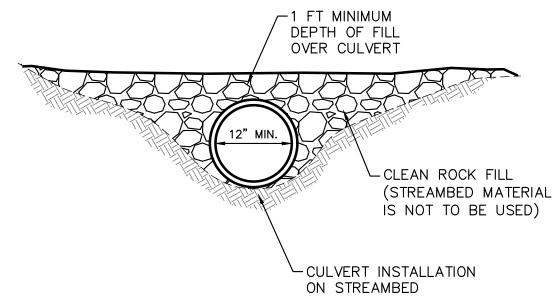
- 4. ALTERNATIVELY, TIMBER MATS MAY BE USED TO FORM THE TRAVEL SURFACE.
- 5. PROVIDE 50' STABILIZED ACCESS TO CROSSING ON BOTH SIDES OF STREAM CHANNEL (SEE PLAN VIEW). THE STABILIZED APPROACH MAY CONSIST OF GRAVEL (AASHTO #1 OR EQUAL) OR TIMBER MATS.
- 6. PIPES SHALL EXTEND BEYOND THE TOE OF THE CROSSING SUPPORT.
- 7. RUNOFF FROM THE ROADWAY SHALL BE DIVERTED OFF THE ROADWAY AND INTO A SEDIMENT REMOVAL BMP BEFORE IT REACHES THE ROCK APPROACH TO THE CROSSING.
- 8. FOLLOW TROUT STREAM RESTRICTIONS SHOWN ON PLAN

# MULTIPLE SPAN CULVERT NOT TO SCALE

ADDITIONAL INFORMATION.

CLEAN ROCK FILL (STREAMBED MATERIAL IS NOT TO BE USED) -

NOTE:



1. MULTIPLE PIPES AND MULTIPLE SPAN BRIDGES AND CULVERTS WHICH MAY

AND INCREASE HEAD LOSSES SHALL BE AVOIDED TO THE MAXIMUM

2. REFER TO PADEP E&S MANUAL PAGES 39 AND 40 FOR DETAILS #3-13

(SINGLE SPAN CULVERT) AND #3-14 (MULTIPLE SPAN OUTLET) FOR

THE CROSSING WITHOUT MULTIPLE SPANS (SECTION 105.162).

TEND TO COLLECT DEBRIS, CONTRIBUTE TO THE FORMATION OF ICE JAMS

EXTENT PRACTICABLE. CROSSINGS OF LESS THAN 15 FEET SHALL BE BY

ONE SPAN, EXCEPT WHERE CONDITIONS MAKE IT IMPRACTICAL TO AFFECT

CULVERT INSTALLATION ON STREAMBED

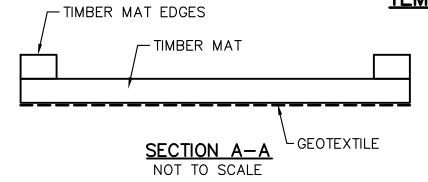
CROSS-SECTION VIEW

# SINGLE SPAN CULVERT NOT TO SCALE

# MAINTENANCE OF TEMPORARY EQUIPMENT CROSSING:

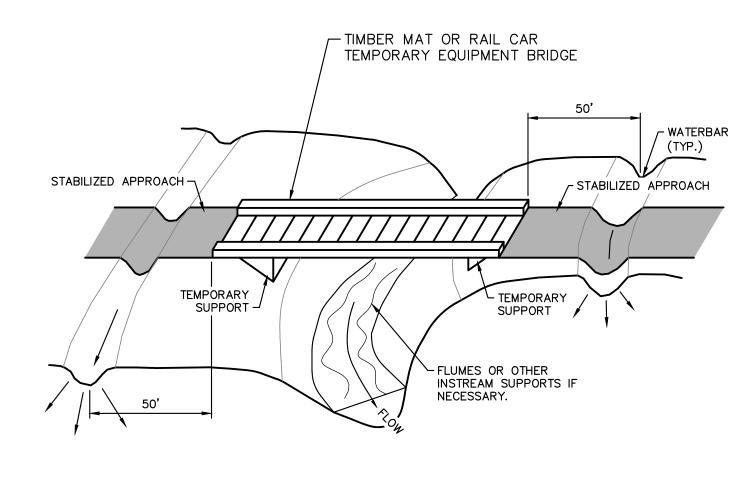
- 1. TEMPORARY STREAM CROSSING SHALL BE INSPECTED ON A DAILY BASIS.
- 2. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION AND BEFORE ANY SUBSEQUENT USE.
- 3. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED REGULARLY AND PLACED IN SOIL STOCKPILES.
- 4. FLOW THROUGH SHALL BE INSPECTED DAILY AND IMPEDANCES REMOVED WITHIN 24 HOURS.
- 5. AS SOON AS TEMPORARY CROSSING IS NO LONGER NEEDED, IT SHALL BE REMOVED. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY AND AREAS STABILIZED. TEMPORARY EQUIPMENT CROSSINGS SHALL REMAIN IN PLACE NO LONGER THAN 1 YEAR.

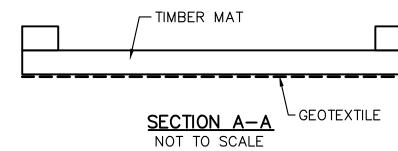
# TEMPORARY EQUIPMENT CROSSING DETAILS NOT TO SCALE 15 0.10



# NOTE:

- 1. IF TIMBER MAT OR EQUIPMENT BRIDGE EDGES ARE NOT PROVIDED ON MAT TO CONTAIN SEDIMENT, INSTALL CFS IN SPECIAL PROTECTION WATERSHEDS OR SILT FENCE IN NON—SPECIAL PROTECTION WATERSHEDS TO PREVENT ANY SEDIMENT FROM THE EQUIPMENT CROSSING FROM ENTERING THE WETLAND.
- 2. GEOTEXTILE SHALL BE WOVEN WITH A MINIMUM GRAB TENSILE STRENGTH OF 200 POUNDS (MARV). ALTERNATES MUST BE APPROVED BY ENGINEER. WHERE SAFETY IS A CONCERN, GEOTEXTILE MAY BE REMOVED WITH PRIOR APPROVAL OF ENGINEER.
- 3. COMPOSITE MAT CAN BE SUBSTITUTED FOR TIMBER MATS.
- 4. ACCUMULATED SEDIMENT ON TIMBER MAT OR EQUIPMENT BRIDGE WILL BE REMOVED BY HAND AND PLACED IN SOIL STOCKPILES.

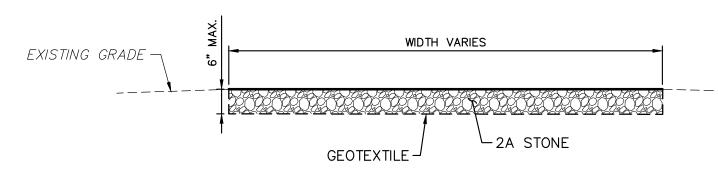




# NOTES:

- 1. POST SIGNS; NO REFUELING WITHIN 100 FEET OF A STREAM.
- 2. APPROACHES TO CROSSINGS ARE NOT TO EXCEED 6" ABOVE ORIGINAL GRADE.
- 3. TIMBER MAT SPANS WITHOUT CENTER SUPPORT ARE LIMITED TO 15 FEET.
- 4. RAIL CAR SPANS WITHOUT CENTER SUPPORT ARE LIMITED TO 40 FEET.
- 5. GEOTEXTILE SHALL BE WOVEN WITH A MINIMUM GRAB TENSILE STRENGTH OF 200 POUNDS (MARV). ALTERNATES MUST BE APPROVED BY ENGINEER. WHERE SAFETY IS A CONCERN, GEOTEXTILE MAY BE REMOVED WITH PRIOR APPROVAL OF ENGINEER.
- 6. COMPOSITE MAT CAN BE SUBSTITUTED FOR TIMBER MATS.
- 7. CONSTRUCT AND MAINTAIN EQUIPMENT BRIDGES TO ALLOW UNRESTRICTED FLOW AND TO PREVENT SOIL FROM ENTERING THE WATERBODY.
- 8. WATERBARS AND BROAD-BASED DIPS SHALL DISCHARGE TO 18" CFS OR APPROVED SEDIMENT REMOVAL FACILITY.
- 9. FOLLOW PERMIT CONDITIONS REGARDING REMOVAL OF CROSSING.
- 10. PROVIDE 50' STABILIZED ACCESS TO CROSSING ON BOTH SIDES OF STREAM CHANNEL (SEE PLAN VIEW). THE STABILIZED APPROACH MAY CONSIST OF GRAVEL (AASHTO #1 OR EQUAL) OR TIMBER MATS.
- 11. RUNOFF FROM THE ROADWAY SHALL BE DIVERTED OFF THE ROADWAY AND INTO A SEDIMENT REMOVAL BMP BEFORE IT REACHES THE ROCK APPROACH TO THE CROSSING.
- 12. FOLLOW TROUT STREAM RESTRICTIONS SHOWN ON PLAN SHEETS.
- 13. ACCUMULATED SEDIMENT ON TIMBER MAT OR EQUIPMENT BRIDGE WILL BE REMOVED BY HAND AND PLACED IN SOIL STOCKPILES.

# TEMPORARY EQUIPMENT BRIDGE STREAM CROSSING DETAIL NOT TO SCALE



TYPICAL AGGREGATE ACCESS ROAD DETAIL

NOT TO SCALE

# NOTES:

- 1. ENSURE RUNOFF FROM THE TRAVEL LANE SHALL BE DIVERTED OFF THE TRAVEL LANE INTO A SEDIMENT REMOVAL BMP BEFORE IT REACHES THE STABILIZED APPROACH.
- 2. GEOTEXTILE SHALL BE WOVEN WITH A MINIMUM GRAB TENSILE STRENGTH OF 200 POUNDS (MARV). ALTERNATES MUST BE APPROVED BY ENGINEER. WHERE SAFETY IS A CONCERN, GEOTEXTILE MAY BE REMOVED WITH PRIOR APPROVAL OF ENGINEER.

# TEMPORARY TIMBER MAT WETLAND CROSSING NOT TO SCALE 16 0.10

SHEET PLAN ES-0.08.

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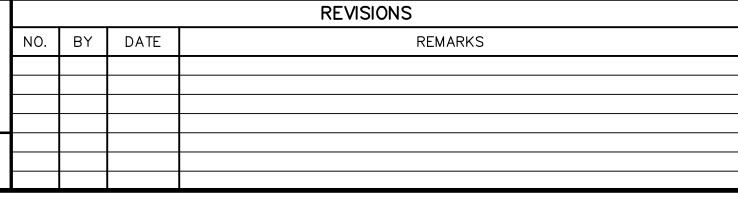
T: (412) 921-7090 | F: (412) 921-4040

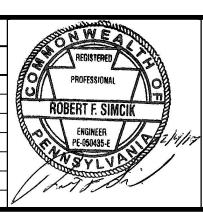
INSTALL NO MORE THAN TWO

LAYERS OF EQUIPMENT MATS.

REMOVED FROM THE WETLAND.

ALL PADDING MATERIAL MUST BE





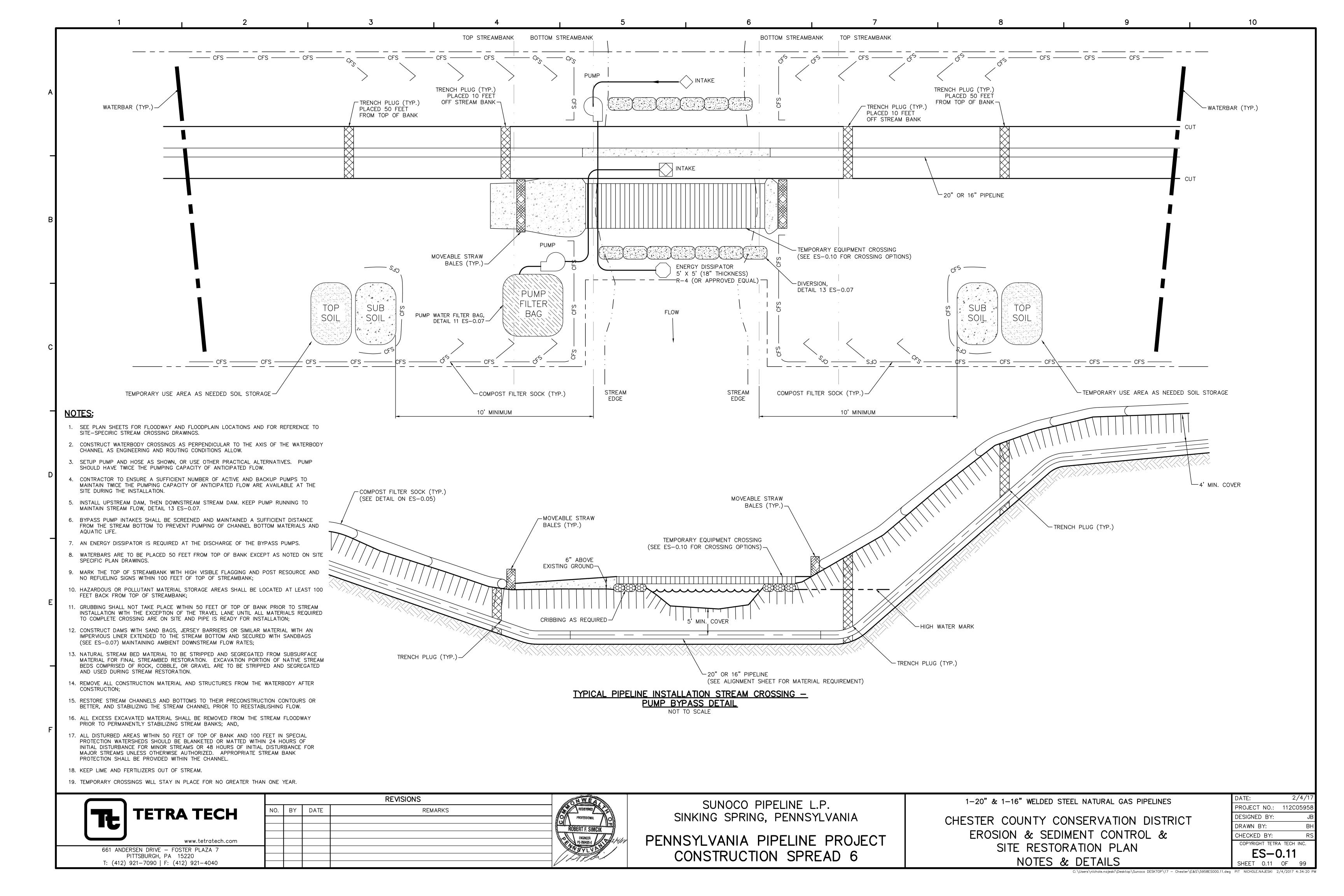
SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA

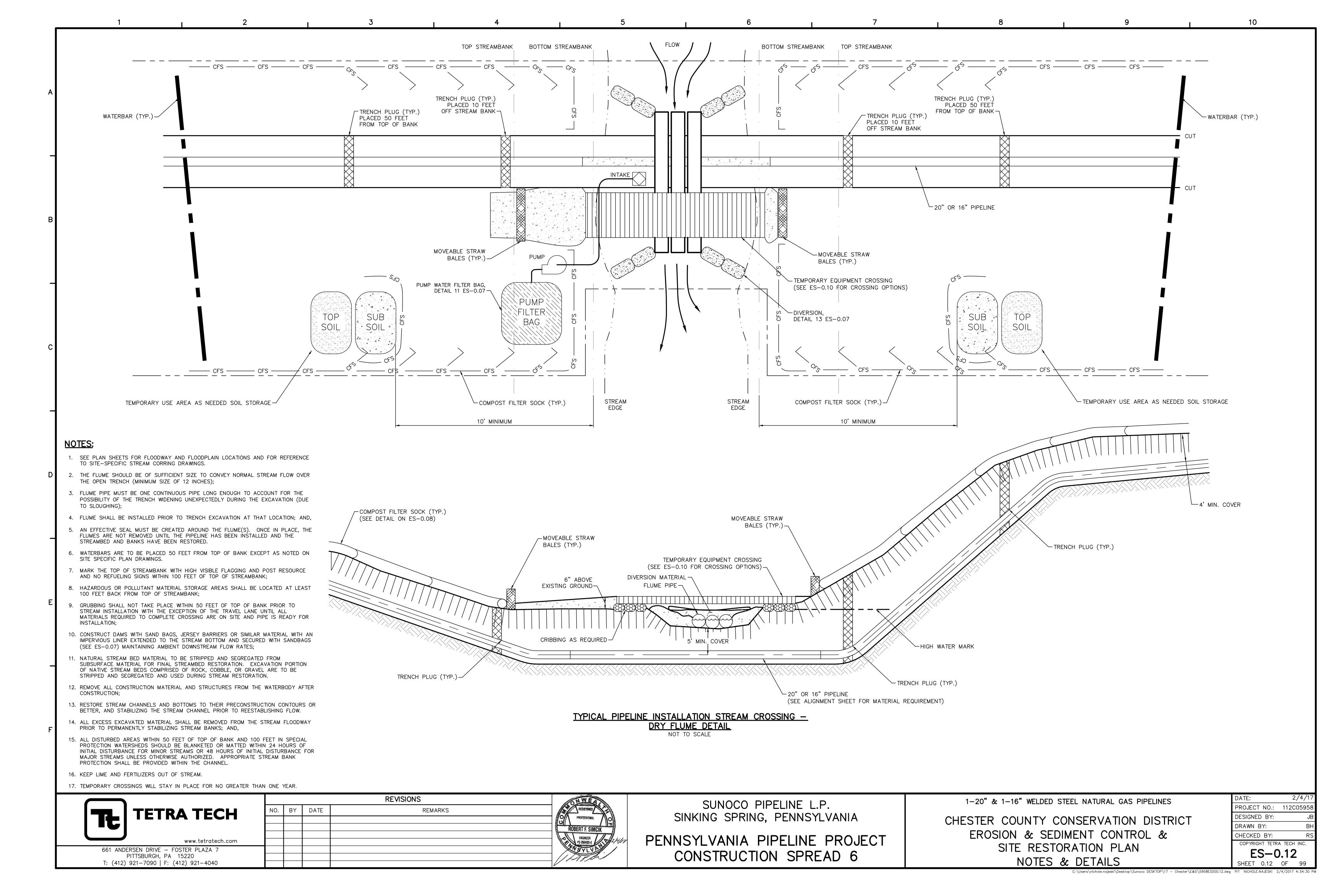
PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

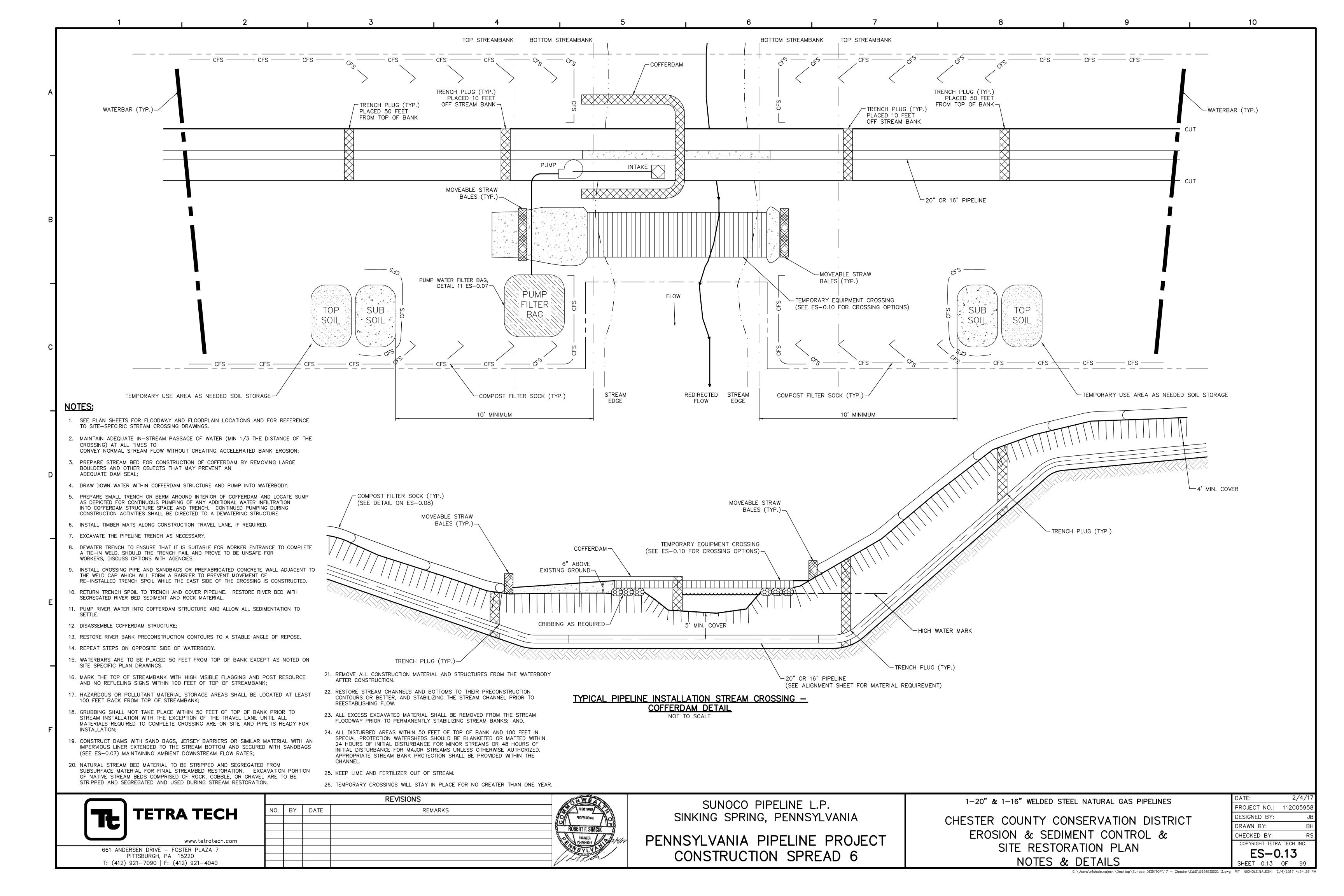
1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES

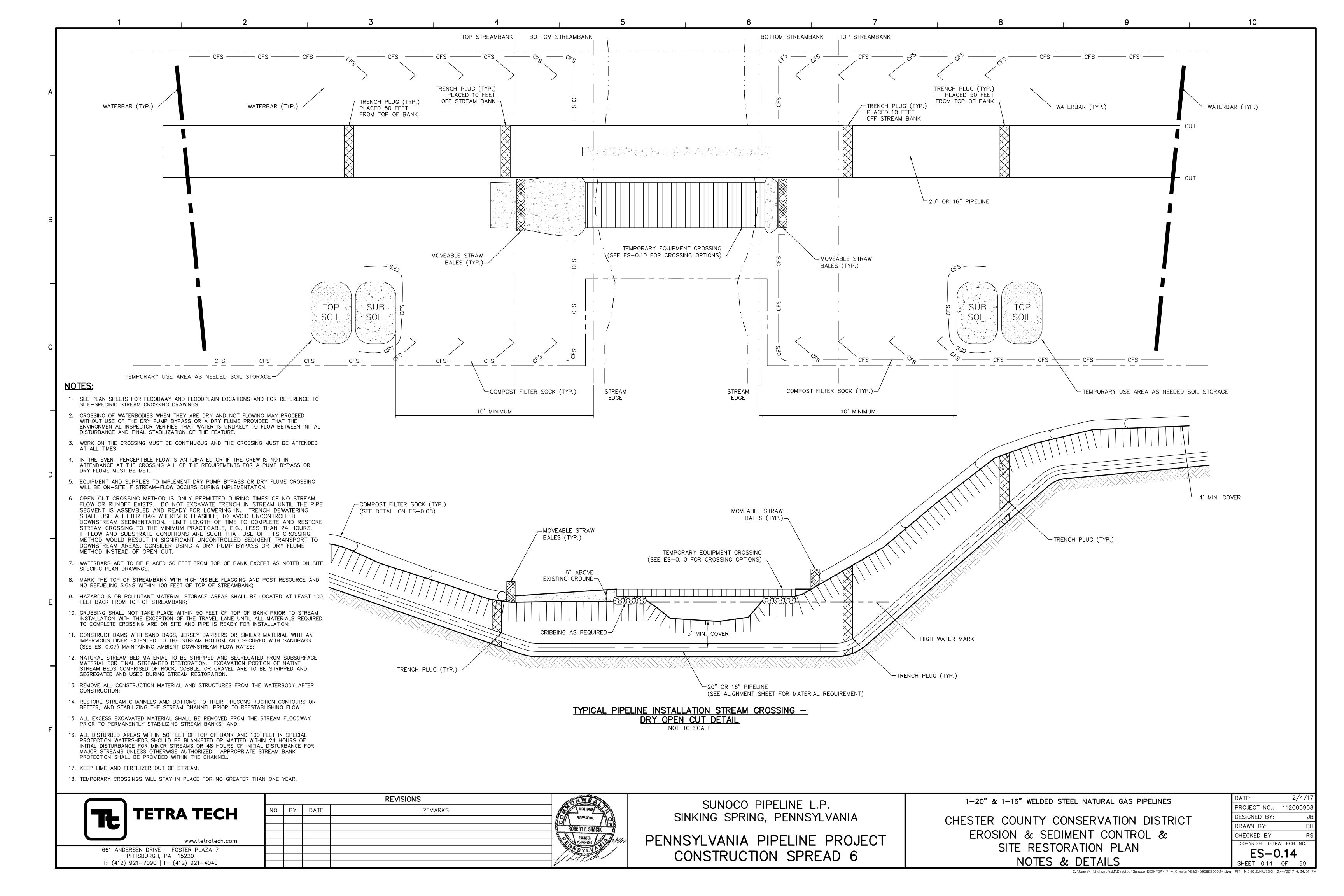
CHESTER COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS DATE: 2/4/17
PROJECT NO.: 112C05958
DESIGNED BY: JB
DRAWN BY: BH
CHECKED BY: RS
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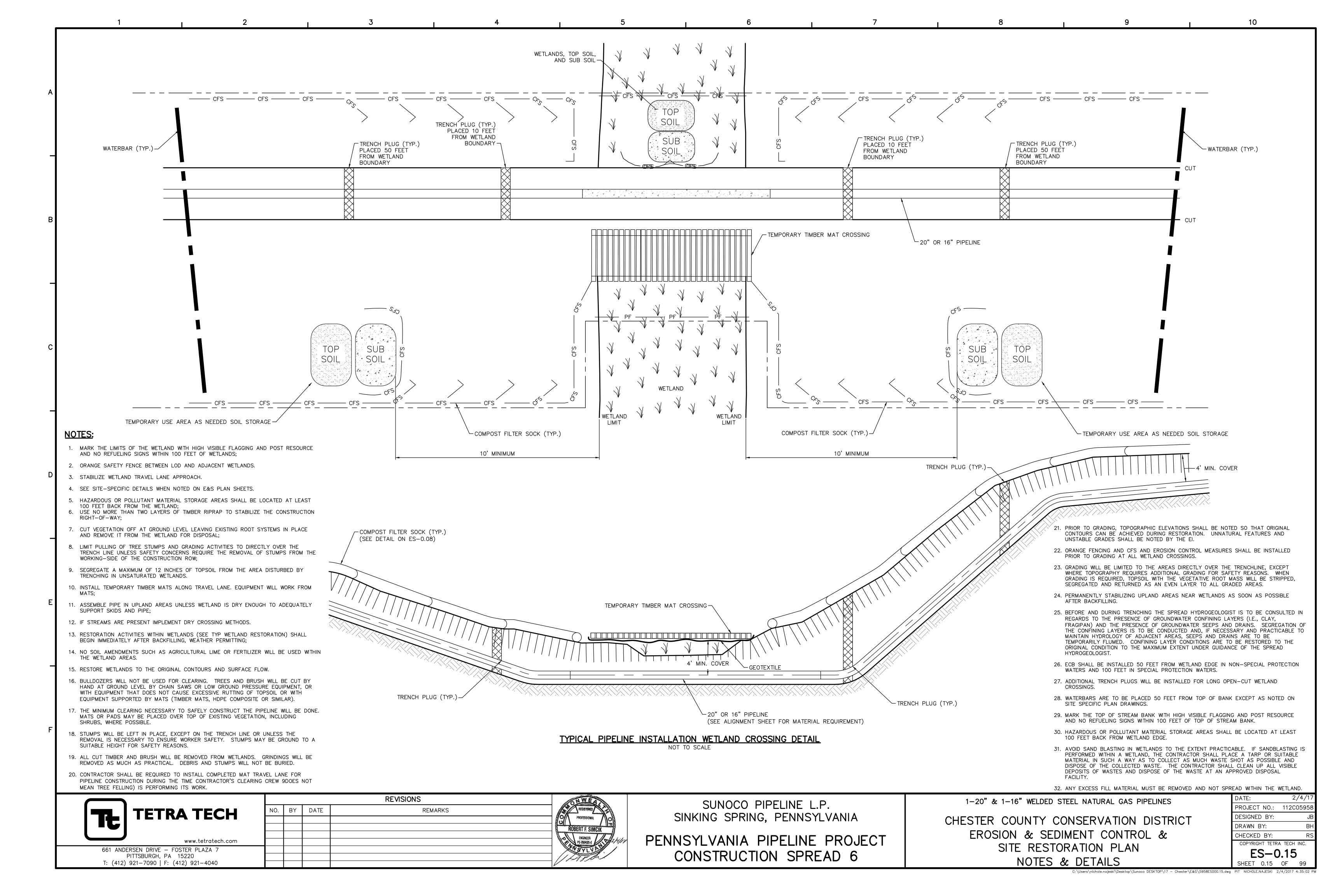
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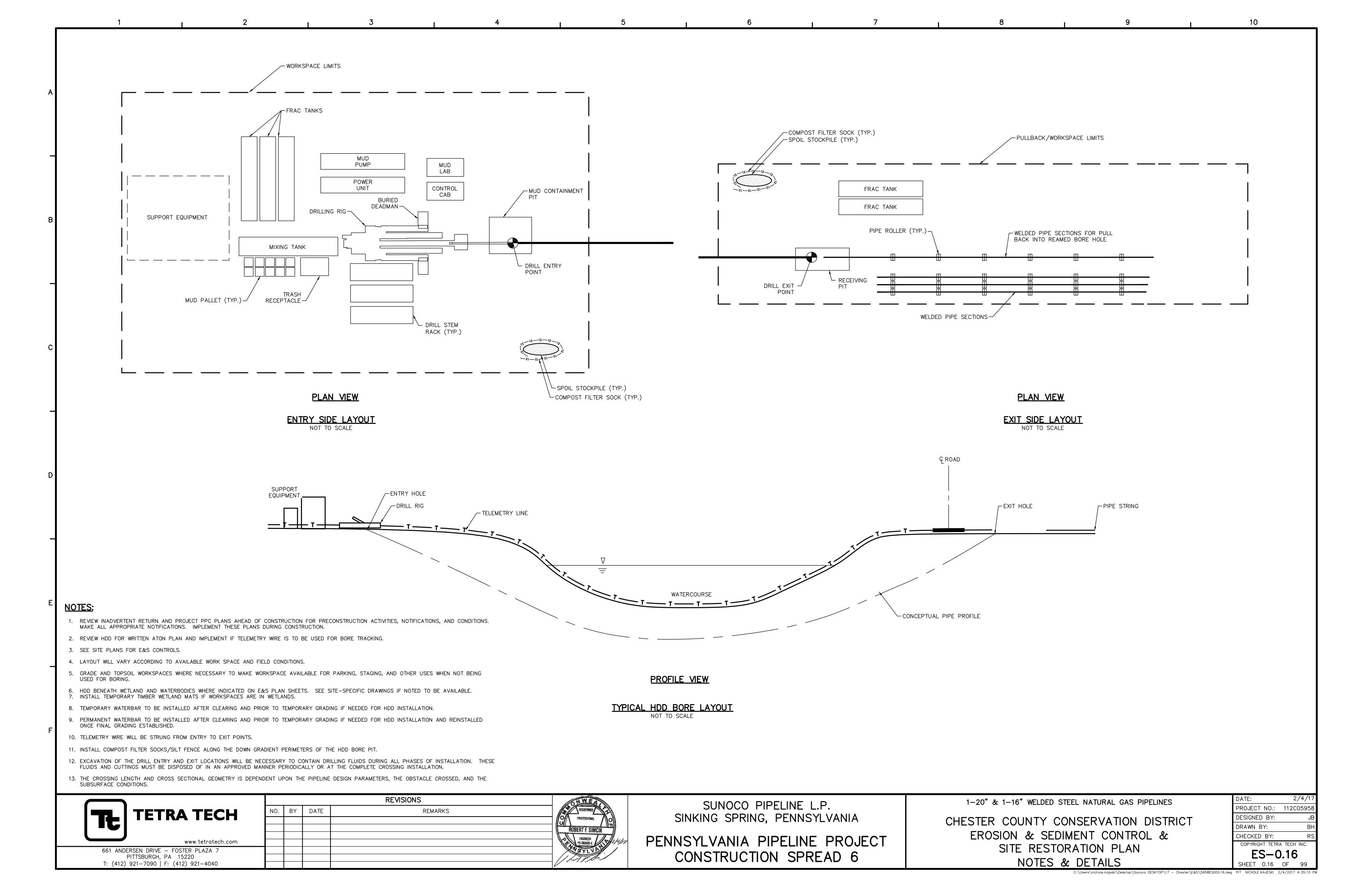


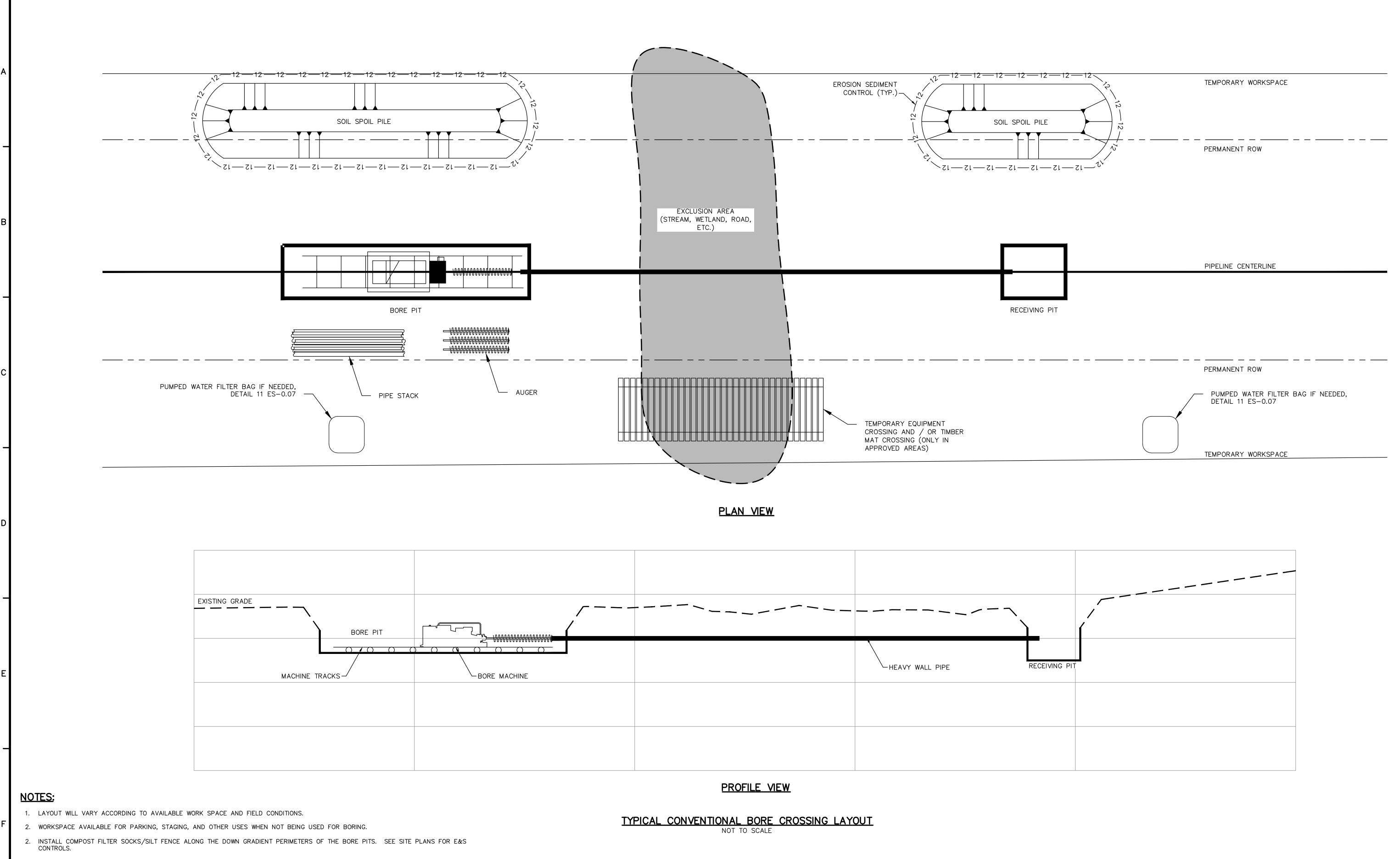






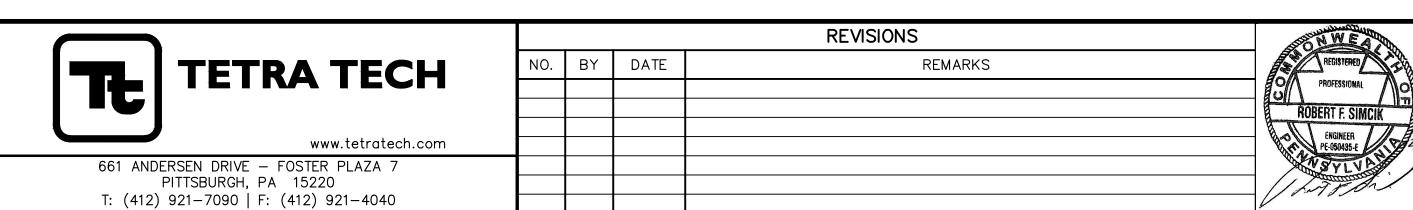






- 3. EXCAVATE BORE PITS IN ACCORDANCE WITH SITE—SPECIFIC PLANS AND SEGREGATE TOP SOIL IN ACCORDANCE WITH STANDARD E&SC PLAN NOTES. POSITION BORE PITS A MINIMUM OF 50 FEET FROM THE NEAREST TOP OF BANK, WHERE TECHNICALLY FEASIBLE.
- THE OPPOSITION FOR THE OPPOSITION THE OPPOSITION OF BRIDE, AND THE OURSELF AND OURSELF AND

4. THE CROSSING LENGTH IS DEPENDENT UPON THE OBSTACLE TO BE CROSSED, AND THE SURFACE AND SUBSURFACE CONDITIONS.



SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

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DETAIL NOT REQUIRED IN CHESTER COUNTY HYDROSTATIC TESTING WATER
DIRECT DISCHARGE DETAIL
NOT TO SCALE DETAIL NOT REQUIRED IN CHESTER COUNTY DISCHARGE STRUCTURES TO BE USED FOR HYDROSTATIC TEST WATER

NOT TO SCALE DETAIL NOT REQUIRED IN CHESTER COUNTY DETAIL NOT REQUIRED IN CHESTER COUNTY CHESTER COUNTY HDD TESTING CHESTER COUNTY MAINLINE TESTING DISCHARGE LOCATION INFORMATION

NOT TO SCALE 0.19 DISCHARGE LOCATION INFORMATION

NOT TO SCALE HYDROSTATIC DISCHARGE DETAILS REVISIONS 1-20" & 1-16" WELDED STEEL NATURAL GAS PIPELINES SUNOCO PIPELINE L.P. PROJECT NO.: 112C05958 NO. BY DATE **TETRA TECH** REMARKS SINKING SPRING, PENNSYLVANIA DESIGNED BY: CHESTER COUNTY CONSERVATION DISTRICT DRAWN BY: ROBERT F. SIMCIK

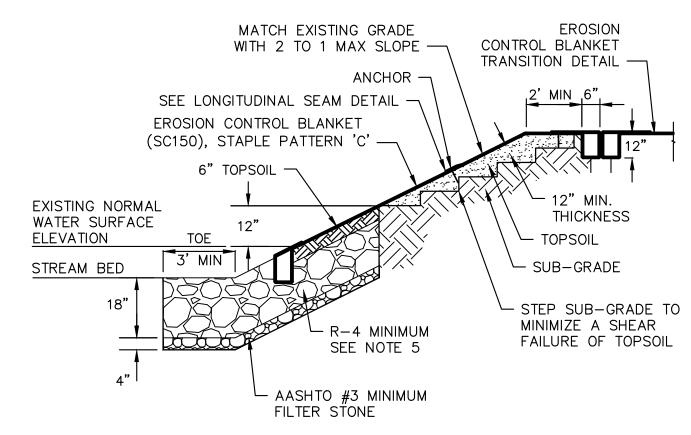
ENGINEER
PE-050435-E
PE-050435-E EROSION & SEDIMENT CONTROL & CHECKED BY: PENNSYLVANIA PIPELINE PROJECT www.tetratech.com COPYRIGHT TETRA TECH INC. SITE RESTORATION PLAN 661 ANDERSEN DRIVE — FOSTER PLAZA 7 PITTSBURGH, PA 15220 ES-0.18 CONSTRUCTION SPREAD 6 NOTES & DETAILS T: (412) 921-7090 | F: (412) 921-4040

# STREAMBANK STABILIZATION TABLE

# **SOUTHEAST REGION**

		SPECIAL				SHEAR	SHEAR		IF "RIP RAP"	THICKNESS (IN)	
		PROTECTION	NORMAL	SLOPE	VELOCITY	STRESS	STRESS LESS	RIP RAP	REQ'D, SIZE	OF RIP RAP	
COUNTY	STREAM	WATER	DEPTH (ft)	(ft/ft)	(ft/sec)	(lb/sf)	THAN 0.25?	REQUIRED	(Table 6.6)	(Table 6.6)	FILTER STONE TYPE
Chester	S-H52	yes	0.82	0.046	5.01	2.35	no	yes	R-3 (1)	9	AASHTO #57
Chester	S-C73	yes	6.36	0.015	10.79	5.95	no	yes	R-5	27	AASHTO #3
Chester	S-B15	yes	1.64	0.069	8.97	7.06	no	yes	R-4	18	AASHTO #3
Chester	S-B18	yes	1.45	0.007	3.07	0.63	no	yes	R-3(1)	9	AASHTO #57

(1) R-4 IS MINIMUM RIPRAP SIZE TO BE USED. IF CALCULATIONS IDENTIFIED SMALLER STONE SIZE WILL BE INCREASED TO R-4

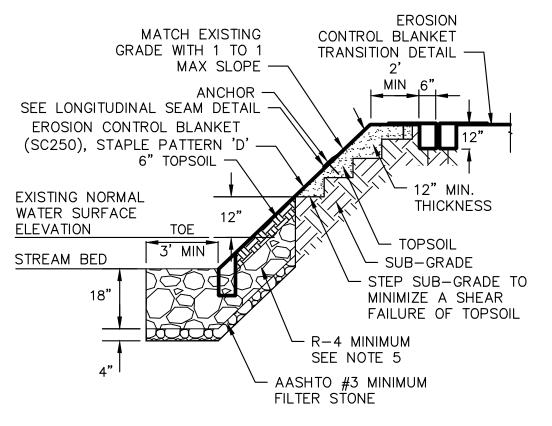


# NOTES:

- A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT MUST BE USED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
- 2. REFER TO NORTH AMERICAN GREEN DETAILS.
- 3. MATTING WILL EXTEND FROM TOP OF BANK 50' PERPENDICULARLY AWAY FROM TOP OF BANK OR 100' IN HQ/EV WATERSHEDS.
- 4. NATURAL STREAM BED MATERIAL TO BE STRIPPED AND SEGREGATED FROM SUBSURFACE MATERIAL FOR FINAL STREAMBED RESTORATION.
- 5. WHERE NATURAL STONE IS REMOVED FROM THE STREAM CROSSING, NATURAL STONE SHALL BE INSTALLED AS TOP 6 INCHES OF RIPRAP.

RIP-RAP BANK STABILIZATION DETAIL

NOT TO SCALE



# NOTES:

- A SUITABLE WOVEN OR NON-WOVEN GEOTEXTILE UNDERLAYMENT MUST BE USED IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
- 2. REFER TO NORTH AMERICAN GREEN DETAILS.
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- 5. WHERE NATURAL STONE IS REMOVED FROM THE STREAM CROSSING, NATURAL STONE SHALL BE INSTALLED AS TOP 6 INCHES OF RIPRAP.
- 6. FOR SLOPES GREATER THAN 1:1 REFER TO SITE SPECIFIC PLANS FOR APPROPRIATE CONTROLS.

STEEP BANK STABILIZATION DETAIL

NOT TO SCALE

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NO. BY DATE REMARKS

REGISTERED
PROFESSIONAL
PROBERT F. SIMCIK
ENGINEER
PE-050435-E
PE-05045-E
PE-0504-E
PE-0504-

SUNOCO PIPELINE L.P.
SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

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# SITE RESTORATION GENERAL NOTES:

- 1. TOPOGRAPHIC MAPPING AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU.
- 2. THE PROJECT TAKES PLACE WITHIN CHESTER 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.

# CONSTRUCTION SEQUENCE FOR POST CONSTRUCTION STORMWATER MANAGEMENT CONTROLS:

A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR RESTORATION AND POST—CONSTRUCTION STORMWATER MANAGEMENT OF THE SITE. NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED THAT THE DRAWINGS AND THIS REPORT SHOW DETAILED INFORMATION ON METHODS AND MATERIALS. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS LISTED IN THIS SECTION. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON EFFECTIVENESS OF CONTROLS OR DIFFERING CONDITIONS ENCOUNTERED IN THE FIELD.

A PRECONSTRUCTION MEETING IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY. THE PADEP OR APPLICABLE COUNTY CONSERVATION DISTRICT, CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, AND THE PLAN PREPARER MUST BE INVITED TO THIS MEETING AT LEAST SEVEN DAYS IN ADVANCE.

# INFILTRATION BERM

- 1. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL BMPS AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL.
- 2. COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERM WILL BE CONSTRUCTED; MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF SOIL) IN ORDER TO MAXIMIZE INFILTRATION.
- 3. LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
- 4. BRING IN FILL MATERIAL TO MAKE UP THE MAJOR PORTION OF THE BERM. SOIL SHOULD BE ADDED IN 8-INCH LIFTS AND COMPACTED PRIOR TO AND AFTER EACH CONSECUTIVE LIFT ACCORDING TO DESIGN SPECIFICATIONS. THE SLOPE AND SHAPE OF THE BERM SHOULD BE GRADED OUT AS SOIL IS ADDED.
- 5. PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION. IF COMPACTION OF THIS AREA DOES OCCUR, SCARIFY SOIL TO A DEPTH OF AT LEAST 8—INCHES.
- 6. 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.
- 7. PLANT BERM WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
- 8. MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.

# 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.

# LONG TERM INSPECTIONS AND MAINTENANCE FOR SITE RESTORATION AND PCSM CONTROLS:

LONG TERM MAINTENANCE OF THE PROJECT WILL INCLUDE PERIODIC VISUAL INSPECTIONS FOR SUFFICIENT VEGETATIVE GROWTH AND COVER. INSUFFICIENT VEGETATIVE COVER IS DEFINED AS ANY AREA NOT ACHIEVING A UNIFORM 70% PERENNIAL VEGETATIVE COVER. BARE SPOTS AND AREAS WITH INSUFFICIENT VEGETATIVE COVER WILL BE RESEEDED AND MULCHED WITHIN 24 HOURS OF DISCOVERY. RESTORATION AREAS WILL BE INSPECTED FOR SIGNS OF EROSION, ESPECIALLY ON STEEP SLOPES. CORRECTIVE MEASURES WILL BE TAKEN, AS NEEDED. IF THERE IS EVIDENCE OF TRENCH SETTLING, THE AREA WILL BE REGRADED TO MAINTAIN PRE—CONSTRUCTION DRAINAGE PATTERNS, THEN MULCHED, AND SEEDED.

THE PROPOSED, PERMANENT ACCESS ROAD WHICH WILL REMAIN AS A PERMANENT GRAVEL DRIVE SHALL BE INSPECTED PERIODICALLY. AGGREGATE WILL BE APPLIED TO THE PERMANENT ACCESS ROAD AS NEEDED TO MAINTAIN AN ADEQUATE THICKNESS. THE INFILTRATION BERM SHALL BE INSPECTED REGULARLY TO ENSURE IT IS INFILTRATING PROPERLY AND NOT CLOGGED WITH SEDIMENT. VEGETATION OVER THE BERM SHALL BE MAINTAINED AS NECESSARY, WHICH MAY REQUIRE ANNUAL MULCHING. ROUTINELY REMOVE ACCUMULATED DEBRIS AND INVASIVE PLANTS AS NEEDED. INSPECT FOR SIGNS OF FLOW CHANNELIZATION AND RESTORE LEVEL GRADIENT IMMEDIATELY AFTER ANY DEFICIENCIES ARE OBSERVED. THE SOIL AMENDMENT AREAS WILL BE INSPECTED BIANNUALLY TO VERIFY THEIR EFFECTIVENESS. TRAFFIC WILL NOT BE PERMITTED TO DRIVE OFF OF THE AGGREGATE ACCESS ROADS AND INTO THE SOIL AMENDMENT AREAS. IF THE AREAS APPEAR TO BE COMPACTED OR INEFFECTIVE DURING AN INSPECTION, ADDITIONAL SOIL AND COMPOST WILL BE APPLIED.

A WRITTEN REPORT IS REQUIRED FOR EACH INSPECTION AND FOR EACH REPAIR OR MAINTENANCE ACTIVITY, AND THE REPORT SHOULD SPECIFY HOW TO ACCESS THE SITE. SUNOCO PIPELINE L.P. IS RESPONSIBLE FOR MAINTAINING THE RIGHT OF WAY UNDER THE PROVISIONS OF THIS PERMIT.

# 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. THE ENTIRE RIGHT-OF-WAY WILL BE RESTORED BACK TO A MEADOW CONDITION OR LAWN IN ACCORDANCE WITH THE PERMANENT REVEGETATION PLAN ON ES-0.04. 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. AN INFILTRATION BERM OR SOIL AMENDMENTS WILL BE SHOWN ON THE PLAN SHEETS TO ACCOUNT FOR THE INCREASE IN STORM WATER RUNOFF. AS A RESULT OF APPLYING SOIL AMENDMENT OR INFILTRATION BERM THE ENTIRE THE RIGHT OF WAY WILL BE RESTORED BACK TO A MEADOW OR LAWN CONDITION. THERE WILL BE NO INCREASE IN STORM WATER RUNOFF RATES OR VOLUMES.

				REVISIONS	STOUN WE
TETRA TECH	NO.	BY	DATE	REMARKS	REGISTERED
					ROBERT F. SIM
www.tetratech.com					ENGINEER PE-050435-E
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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

CHESTER COUNTY CONSERVATION DISTRICT EROSION & SEDIMENT CONTROL & SITE RESTORATION PLAN NOTES & DETAILS DATE: 2/4/17
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3. TOWNSHIP BOUNDARIES TAKEN FROM WWW.PASDA.PSU.EDU

4. 100-YEAR FEMA FLOODPLAINS FROM WWW.PASDA.PSU.EDU

5. PIPELINE LOCATION AND RIGHT-OF-WAY FROM SUNOCO PIPELINE L.P.

6. USE COMPOST FILTER SOCK AS REQUIRED TO PREVENT RUNOFF FROM SPOIL AREA.

7. AT ALL STREAM CROSSINGS, RUNOFF MUST BE DIRECTED TO A SEDIMENT REMOVAL AREA (i.e. COMPOST FILTER SOCKS).

8. 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.

9. PAST AND PRESENT LAND USE CONSISTS OF AGRICULTURAL, FORESTED AND RESIDENTIAL AREAS. POST CONSTRUCTION LAND USE WILL BE A MAINTAINED,

VEGETATED RIGHT-OF-WAY. 10. DRAWINGS REPRESENT THE FINAL PLAN FOR CONSTRUCTION.

11. THE EROSION & SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN, INSPECTION REPORTS, AND MONITORING REPORTS MUST BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR CONSERVATION DISTRICT.

12. THE LICENSED PROFESSIONAL OR DESIGNEE SHALL BE PRESENT ON SITE FOR THE CONSTRUCTION OF THE INFILTRATION BERMS AND TRENCHES

13. A RECORDED INSTRUMENT WILL BE RECORDED AT THE RECORDER OF DEEDS TO PROVIDE FOR NECESSARY ACCESS FOR LONG TERM OPERATION AND MAINTENANCE FOR PCSM BMP'S. THE DEED WILL PROVIDE NOTICE THAT THE RESPONSIBILITY FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PCSM BMP'S IS A COVENANT THAT RUNS WITH THE LAND AND IS BINDING AND ENFORCEABLE BY SUBSEQUENT GRANTEES.

# 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.

### **SITE RESTORATION:**

FOLLOWING COMPLETION OF PIPELINE INSTALLATION AND TRENCH BACKFILLING, THE AREA SHALL BE RETURNED TO THE GENERAL GRADE 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. AN INFILTRATION BERM OR SOIL AMENDMENTS WILL BE SHOWN ON THE PLAN SHEETS TO ACCOUNT FOR THE INCREASE IN STORM WATER RUNOFF. AS A RESULT OF APPLYING THE SOIL AMENDMENT OR INFILTRATION BERM AND RESTORING THE RIGHT OF WAY TO A MEADOW CONDITION, THERE WILL BE NO INCREASE IN STORMWATER RUNOFF RATES OR VOLUMES.

# POST CONSTRUCTION STORMWATER MANAGEMENT CONSTRUCTION SEQUENCE

- GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION.
- 2. INSTALL POST CONSTRUCTION BMPS AFTER COMPLETION OF PIPELINE CONSTRUCTION

# INFILTRATION BERM

- 1. INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL BMPS AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL
- 2. INSTALL ORANGE CONSTRUCTION FENCING AROUND THE PONDING AREA OF THE INFILTRATION BERM AS SHOWN ON THE PCSM PLAN DRAWINGS. COMPLETE SITE GRADING AND STABILIZE WITHIN THE LIMIT OF DISTURBANCE EXCEPT WHERE THE INFILTRATION BERM WILL BE CONSTRUCTED AND THE EXTENT OF THE PONDING AREA: MAKE EVERY EFFORT TO MINIMIZE BERM FOOTPRINT AND NECESSARY ZONE OF DISTURBANCE (INCLUDING BOTH REMOVAL OF EXISTING VEGETATION AND DISTURBANCE OF EMPTY SOIL) IN ORDER TO MAXIMIZE INFILTRATION. IF EQUIPMENT MUST TRAVEL THROUGH THE PONDING AREA. TIMBER MATTING SHALL BE PLACED TO MINIMIZE COMPACTION, AND EQUIPMENT TRAFFIC SHALL BE MINIMIZED.
- 3. LIGHTLY SCARIFY THE SOIL IN THE AREA OF THE PROPOSED BERM BEFORE DELIVERING SOIL TO SITE.
- 4. 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.
- 5. PROTECT THE SURFACE PONDING AREA AT THE BASE OF THE BERM FROM COMPACTION.
- 6. 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.
- 7. PLANT BERM WITH TURF, MEADOW PLANTS, SHRUBS OR TREES, AS DESIRED.
- 8. MULCH PLANTED AND DISTURBED AREAS WITH COMPOST MULCH TO PREVENT EROSION WHILE PLANTS BECOME ESTABLISHED.

# INFILTRATION TRENCH

- 1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- 2. GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE.
- 3. PROTECT INFILTRATION TRENCH AREA FROM COMPACTION PRIOR TO INSTALLATION. INSTALL ORANGE CONSTRUCTION FENCE AROUND THE TRENCH AND, IF APPLICABLE, THE PONDING AREA OF THE DOWNSLOPE BERM.
- 4. IF POSSIBLE, INSTALL INFILTRATION TRENCH DURING LATER PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER INSTALLATION, PREVENT SEDIMENT LADEN WATER FROM ENTERING INLETS AND PIPES. IF IT IS NOT POSSIBLÉ TO INSTALL THE INFILTRATION TRENCH DURING THE LATER PHASES OF CONSTRUCTION, PLACE COMPOST FILTER SOCK UPSLOPE OF THE TRENCH TO PREVENT SEDIMENT FROM REACHING AND CLOGGING THE TRENCH.
- 5. EXCAVATE INFILTRATION TRENCH BOTTOM TO A UNIFORM, LEVEL UNCOMPACTED SUBGRADE FREE FROM ROCKS AND DEBRIS. DO NOT COMPACT SUBGRADE. THE CONSTRUCTION EQUIPMENT SHALL REMAIN OUTSIDE OF THE INFILTRATION TRENCH WHILE EXCAVATING IT.
- 6. PLACE NONWOVEN GEOTEXTILE ALONG BOTTOM AND SIDES OF TRENCH. NONWOVEN GEOTEXTILE ROLLS SHOULD OVERLAP BY A MINIMUM OF 16 INCHES WITHIN THE
- TRENCH. FOLD BACK AND SECURE EXCESS GEOTEXTILE DURING STONE PLACEMENT. 7. INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, ETC.
- 8. PLACE UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH. CARE SHALL BE TAKEN SO AS NOT TO COMPACT THE SUBGRADE.
- 9. INSTALL CONTINUOUSLY PERFORATED PIPE AS INDICATED ON PLANS. BACKFILL WITH UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH. CARE SHALL BE TAKEN SO AS NOT TO COMPACT THE SUBGRADE.
- 10. FOLD AND SECURE NONWOVEN GEOTEXTILE OVER INFILTRATION TRENCH, WITH MINIMUM OVERLAP OF 16— INCHES.
- 11. PLACE 6—INCH LIFT OF APPROVED TOPSOIL OVER INFILTRATION TRENCH, AS INDICATED ON PLANS.
- 12. SEED AND STABILIZE TOPSOIL. 13. ANY SEDIMENT THAT ENTERS INLETS DURING CONSTRUCTION IS TO BE REMOVED WITHIN 24 HOURS.
- 14. IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE.

NO. BY DATE

15. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

**REVISIONS** 

REMARKS

16. REMOVE EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT CONTROLS.

# POST CONSTRUCTION STORMWATER MANAGEMENT CONSTRUCTION SEQUENCE CONTINUED

### **GEOWEB CONSTRUCTION SEQUENCE**

- 1. GRADE SURFACE TO SUBGRADE ELEVATIONS AS SOON AS PRACTICABLE FOLLOWING COMPLETION OF PIPE INSTALLATION. DO NOT COMPACT.
- 2.IF NEEDED, SCARIFY THE SOIL OR PROVIDE ADDITIONAL ROUGHENING SUCH AS DEEP RIPPING OR CHISEL RIPPING TO RESTORE THE AREA TO A MINIMAL COMPACTED STATE.
- 3.INSTALL GEOTEXTILE SEPARATION LAYER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- 4.EXPAND GEOWEB TO REQUIRED DIMENSIONS AND ANCHOR EDGES WITH ATRA ANCHORS, IF NEEDED. JOIN ADJACENT SECTIONS WITH ATRA KEYS.
- 5.ANCHOR GEOWEB ON SLOPES GREATER THAT 5% WITH 24" ATRA ANCHORS PLACED ON A 3X8 CELL PATTERN.
- 6.MIX AND PLACE ENGINEERED INFILL MATERIAL (2/3 AASHTO #57 STONE AND 1/3 SCREENED TOPSOIL) INTO THE GEOWEB CELLS. INFILL MATERIAL SHALL BE FREE-FLOWING AND NOT FROZEN WHEN PLACED IN THE GEOWEB SECTIONS. LIMIT DROP HEIGHT TO 3 FEET TO AVOID DAMAGING OR DISPLACEMENT OF THE CELL WALL. SLIGHTLY OVERFILL THE CELLS AND LEVEL OFF MATERIAL ONCE SETTLEMENT IS NEGLIGIBLE. DO NOT COMPACT.
- 7.SEED AND MULCH FILLED SECTIONS IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE ONCE INFILL IS PLACED.
- 8.MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70-PERCENT PERENNIAL VEGETATIVE COVER IS ESTABLISHED.

# SOIL AMENDMENT AND RESTORATION

- 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
- 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.

# SLOW RELEASE TRENCH

- 1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- 2.GRADE SURFACE TO FINISHED GRADE ELEVATIONS AS SOON AS PRACTICABLE
- 3.IF POSSIBLE, INSTALL SLOW RELEASE TRENCH DURING LATER PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER INSTALLATION, PREVENT SEDIMENT LADEN WATER FROM ENTERING INLETS AND PIPES. IF IT IS NOT POSSIBLE TO INSTALL THE SLOW RELEASE TRENCH DURING THE LATER PHASES OF CONSTRUCTION, PLACE COMPOST FILTER SOCK UPSLOPE OF THE TRENCH TO PREVENT SEDIMENT FROM REACHING AND CLOGGING THE TRENCH.
- 4.EXCAVATE SLOW RELEASE TRENCH BOTTOM TO A UNIFORM, LEVEL SUBGRADE FREE FROM ROCKS AND DEBRIS.
- 5.INSTALL AN IMPERMEABLE LINER WITHIN THE SLOW RELEASE TRENCH. SECURE IMPERMEABLE LINER DURING STONE PLACEMENT WITH AN ANCHOR TRENCH. 6.INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, ETC.
- 7.PLACE UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8—INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE
- AGGREGATE WON'T SETTLE BELOW THE INTENDED TOP ELEVATION OF THE TRENCH. 8.INSTALL CONTINUOUSLY PERFORATED PIPE AND UNDERDRAIN OUTLET AS INDICATED ON PLANS. BACKFILL WITH UNIFORMLY GRADED, CLEAN—WASHED AGGREGATE IN 8-INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS. LIGHT COMPACTION SHALL ENSURE THE AGGREGATE WON'T SETTLE BELOW THE
- INTENDED TOP ELEVATION OF THE TRENCH. 9.PLACE 6-INCH LIFT OF APPROVED TOPSOIL OVER SLOW RELEASE TRENCH, AS INDICATED ON PLANS.
- 10. SEED AND STABILIZE TOPSOIL.
- 11. ANY SEDIMENT THAT ENTERS INLETS DURING CONSTRUCTION IS TO BE REMOVED WITHIN 24 HOURS.
- 12.IMMEDIATELY SEED AND MULCH DISTURBED AREAS ONCE FINAL GRADE IS ESTABLISHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE.
- 13. MAINTAIN EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL SITE WORK IS COMPLETE AND A UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- 14. REMOVE EROSION SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF A UNIFORM 70% VEGETATIVE COVER OVER THE DISTURBED AREA. RE-GRADE AND REVEGETATE AREAS DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT CONTROLS

# LEVEL SPREADER

- 1. THE UPHILL DEVELOPMENT SHALL BE STABILIZED BEFORE DIVERTING RUNOFF TO ANY DISPERSING FLOW TECHNIQUES.
- 2.ALL CONTRIBUTING STORMWATER ELEMENTS (INFILTRATION BERMS, INLETS, OUTLET CONTROL STRUCTURES, PIPES, ETC.) SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE LEVEL SPREADER.
- 3.HDPE PIPE SHALL BE INSTALLED ALONG A CONTOUR UPHILL OF THE LEVEL SPREADER, WITH CARE TAKEN TO CONSTRUCT A SLIGHTLY SLOPED BOTTOM.
- 4.IF NECESSARY, INSTALL EROSION CONTROL MATTING ALONG THE LENGTH OF THE LEVEL SPREADER AND TO A DISTANCE DOWNHILL, AS SPECIFIED BY THE MANUFACTURER/SUPPLIER.
- 5.A BERM SHALL BE INSTALLED ALONG THE OUTLET OF THE HDPE PIPE TO ENSURE STORMWATER RUNOFF IS ROUTED TO THE LEVEL SPREADER.

REGISTERED PROFESSIONAL ROBERT F. SIMCIK ENGINEER PE-050435-E

SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

PROJECT NO.: 112C0595 DESIGNED BY: DRAWN BY: CHECKED BY: COPYRIGHT TETRA TECH INC. ES-0.21

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LONG—TERM MAINTENANCE OF THE PIPELINE ROW WILL INCLUDE PERIODIC VISUAL INSPECTIONS FOR SUFFICIENT VEGETATIVE GROWTH AND COVER. INSUFFICIENT VEGETATIVE COVER IS DEFINED AS ANY AREA NOT ACHIEVING A UNIFORM 70—PERCENT PERENNIAL VEGETATIVE COVER. BARE SPOTS AND AREAS WITH INSUFFICIENT VEGETATIVE COVER WILL BE RESEEDED AND MULCHED WITHIN 24 HOURS OF DISCOVERY. THE RIGHT OF WAY WILL BE INSPECTED FOR SIGNS OF EROSION, ESPECIALLY ON STEEP SLOPES. CORRECTIVE MEASURES WILL BE TAKEN, AS NEEDED. IF THERE IS EVIDENCE OF TRENCH SETTLING, THE AREA WILL BE REGRADED TO MAINTAIN PRE—CONSTRUCTION DRAINAGE PATTERNS, MULCHED, AND SEEDED. A WRITTEN REPORT IS REQUIRED FOR EACH INSPECTION AND FOR EACH REPAIR OR MAINTENANCE ACTIVITY, AND THE REPORT SHOULD SPECIFY HOW TO ACCESS THE SITE. SPLP IS RESPONSIBLE FOR MAINTAINING THE ROW UNDER THE PROVISIONS OF THIS PERMIT.

PERMANENT PROPOSED ACCESS ROADS AND VALVE PADS WILL BE CONSTRUCTED AS PART OF THE PROJECT. THESE ACCESS ROADS WILL REMAIN AS A PERMANENT GRAVEL DRIVE AFTER CONSTRUCTION IS COMPLETE. THE ACCESS ROADS WILL BE INSPECTED PERIODICALLY, AND AGGREGATE WILL BE APPLIED TO THE PERMANENT ACCESS ROADS AS NEEDED TO MAINTAIN AN ADEQUATE THICKNESS.

INSPECTION AND MAINTENANCE PROCEDURES FOR PERMANENT POST—CONSTRUCTION STORMWATER MANAGEMENT FACILITIES AND STORMWATER CONVEYANCE BMPS ARE SUMMARIZED BELOW. IF ANY POST—CONSTRUCTION STORMWATER MANAGEMENT FACILITIES ARE CONSTRUCTED PRIOR TO STABILIZATION OF UPSLOPE CONTRIBUTORY DRAINAGE AREAS, INSPECTIONS SHALL OCCUR WEEKLY AND AFTER RUNOFF EVENTS UNTIL THE SURROUNDING AREA ACHIEVES STABILIZATION. SPECIFY WHERE WE HAVE TO DO POST—CONSTRUCTION INFILTRATION TESTING.

### INFILTRATION BERM

- THE INFILTRATION BERM SHALL BE INSPECTED AT LEAST 4 TIMES PER YEAR TO ENSURE IT IS INFILTRATING PROPERLY AND NOT CLOGGED WITH SEDIMENT.
- MONITOR DRAWDOWN TIME AFTER THE FIRST MAJOR STORM EVENT. THE BERM SHALL DEWATER WITHIN A MAXIMUM OF 72 HOURS. IF THE BERM IS NOT INFILTRATING WITHIN THE SPECIFIED TIMEFRAME, AMEND THE SOILS WITHIN THE PONDING AREA OF THE BERM (SEE SOIL AMENDMENT DETAIL IN PLANS).
- VEGETATION OVER THE BERM SHALL BE MAINTAINED AS NECESSARY, WHICH MAY REQUIRE ANNUAL MULCHING. ROUTINELY REMOVE ACCUMULATED DEBRIS AND INVASIVE PLANTS AS NEEDED.
- INSPECT FOR SIGNS OF FLOW CHANNELIZATION AND RESTORE LEVEL GRADIENT IMMEDIATELY AFTER ANY DEFICIENCIES ARE OBSERVED.

### INFILTRATION TRENCH

- CATCH BASINS AND INLETS FOR THE INFILTRATION TRENCH SHOULD BE INSPECTED AND CLEANED, AS NECESSARY, AT LEAST 4 TIMES PER YEAR.
- THE VEGETATION ALONG THE SURFACE OF THE INFILTRATION TRENCH SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
- VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON A VEGETATED INFILTRATION TRENCH, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.

### SOIL AMENDMENT AND RESTORATION

- THE SOIL RESTORATION PROCESS MAY NEED TO BE REPEATED OVER TIME, DUE TO COMPACTION BY USE AND/OR SETTLING.
- SOIL AMENDMENT AREAS SHALL BE INSPECTED AT LEAST 4 TIMES PER YEAR FOR SIGNS OF COMPACTION. TO REMEDY COMPACTION, TILL THE SOIL TO A DEPTH OF 24 INCHES AND MIX IN COMPOST AT A RATIO OF 2:1 (SOIL: COMPOST).

### SLOW RELEASE TRENCH

- INLETS AND OUTLETS FOR THE SLOW RELEASE TRENCH SHOULD BE INSPECTED AND CLEANED, AS NECESSARY, AT LEAST 4 TIMES PER YEAR.
- THE VEGETATION ALONG THE SURFACE OF THE SLOW RELEASE TRENCH SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
- VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON A SLOW RELEASE TRENCH.

### **CHANNEL**

- INSPECTIONS TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM EVENT (> 1 INCH RAINFALL DEPTH).
- O INSPECT AND CORRECT EROSIONS PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION (ADDRESS WHEN > 3 INCHES AT ANY SPOT OR COVERING VEGETATION).
- O FOR VEGETATED CHANNELS, INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES, CORRECT AS NEEDED.
- O INSPECT FOR POOLS OF STANDING WATER, DEWATER AND DISCHARGE TO AN APPROVED LOCATION AND RESTORE TO DESIGN GRADE.
- O FOR VEGETATED CHANNELS, MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION; DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY; MOW ONLY WHEN CHANNEL IS DRY TO AVOID RUTTING.
- O INSPECT FOR LITTER; REMOVE PRIOR TO MOWING.
- O INSPECT FOR UNIFORMITY IS CROSS-SECTION AND LONGITUDINAL SLOPE, CORRECT AS NEEDED.
- O INSPECT CHANNEL INLET (CURB CUTS, PIPES, ETC.) AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED.
- O REPLACE ANY DISPLACED RIPRAP FOR RIPRAP LINED CHANNELS.

### WATER DEFLECTOR

- INSPECTIONS TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM EVENT (> 1 INCH RAINFALL DEPTH).
- ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WATER DEFLECTOR. THE RUBBER BELT SHALL BE REPLACED WHEN IT IS WORN AND NO LONGER EFFECTIVE.

# LEVEL SPREADER

- INSPECTIONS TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM EVENT (> 1 INCH RAINFALL DEPTH).
- THE RECEIVING LAND SHALL BE IMMEDIATELY RESTORED TO DESIGN CONDITIONS AFTER ANY DISTURBANCE. VEGETATED AREAS SHALL BE SEEDED AND BLANKETED.
- IT IS CRITICAL THAT EVEN SHEET FLOW CONDITIONS ARE SUSTAINED THROUGHOUT THE LIFE OF THE LEVEL SPREADER, AS THEIR EFFECTIVENESS CAN DETERIORATE DUE TO LACK OF MAINTENANCE, INADEQUATE DESIGN/LOCATION, AND POOR VEGETATION COVER.
- O THE AREA BELOW THE LEVEL SPREADER SHALL BE INSPECTED FOR CLOGGING, DENSITY OF VEGETATION, DAMAGE BY FOOT OR VEHICULAR TRAFFIC, EXCESSIVE ACCUMULATIONS, AND CHANNELIZATION. INSPECTIONS SHALL BE MADE ON A QUARTERLY BASIS FOR THE FIRST TWO YEARS FOLLOWING INSTALLATION, AND THEN ON A SEMIANNUAL BASIS THEREAFTER. INSPECTIONS SHALL ALSO BE MADE AFTER EVERY STORM EVENT GREATER THAN 1—INCH.
- O SEDIMENT AND DEBRIS SHALL BE ROUTINELY REMOVED (BUT NEVER LESS THAN SEMIANNUALLY), OR UPON OBSERVATION, WHEN BUILDUP OCCURS IN THE CLEAN OUTS. REGRADING AND RESEEDING MAY BE NECESSARY IN THE AREAS BELOW THE LEVEL SPREADER. REGRADING MAY ALSO BE REQUIRED WHEN POOLS OF STANDING WATER ARE OBSERVED ALONG THE SLOPE. (IN NO CASE SHOULD STANDING WATER BE ALLOWED FOR LONGER THAN 72 HOURS).
- MAINTAINING A VIGOROUS VEGETATIVE COVER ON THE AREAS BELOW THE LEVEL SPREADER IS CRITICAL FOR MAXIMIZING POLLUTANT REMOVAL EFFICIENCY AND EROSION PREVENTION. IF VEGETATIVE COVER IS NOT FULLY ESTABLISHED WITHIN THE DESIGNATED TIME, IT MAY NEED TO BE REPLACED WITH AN ALTERNATIVE SPECIES. (IT IS STANDARD PRACTICE TO CONTRACTUALLY REQUIRE THE CONTRACTOR TO REPLACE DEAD VEGETATION.) UNWANTED OR INVASIVE GROWTH SHALL BE REMOVED ON AN ANNUAL BASIS. BIWEEKLY INSPECTIONS ARE RECOMMENDED FOR AT LEAST THE FIRST GROWING SEASON, OR UNTIL THE VEGETATION IS PERMANENTLY ESTABLISHED. ONCE THE VEGETATION IS ESTABLISHED, INSPECTIONS OF HEALTH, DIVERSITY, AND DENSITY SHALL BE PERFORMED AT LEAST TWICE A YEAR, DURING BOTH THE GROWING AND NON-GROWING SEASON. VEGETATIVE COVER SHALL BE SUSTAINED AT 85% AND REPLACED IF DAMAGE GREATER THAN 50% IS OBSERVED.

# DIVERSION BERM

- INSPECTIONS TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM EVENT (> 1 INCH RAINFALL DEPTH).
- MAINTAIN TURF GRASS AND OTHER VEGETATION BY MOWING AND RE-MULCHING.
- ROUTINELY REMOVE ACCUMULATED TRASH AND DEBRIS.
- REMOVE INVASIVE PLANTS AS NEEDED.
- INSPECT FOR SIGNS OF FLOW CHANNELIZATION; RESTORE LEVEL GRADIENT IMMEDIATELY AFTER DEFICIENCIES ARE OBSERVED.

				REVISIONS	AREA N. W. E.
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SUNOCO PIPELINE L.P. SINKING SPRING, PENNSYLVANIA

PENNSYLVANIA PIPELINE PROJECT CONSTRUCTION SPREAD 6

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

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

DATE:	2/4/17
PROJECT NO.:	112C05958
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CHECKED BY:	RS
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