FALCON ETHANE PIPELINE SYSTEM

EROSION AND SEDIMENT CONTROL PLAN

WASHINGTON, ALLEGHENY, AND BEAVER COUNTIES, PA

PREPARED FOR:

SHELL PIPELINE COMPANY LP
150 N DAIRY ASHFORD RD
HOUSTON, TX 77079

DECEMBER, 2017

LOCATION COORDINATES
PROJECT BEGINS:
LATITUDE: 40°15'51.17"N LONGITUDE: 80°15'39.21"W
PROJECT ENDS:
LATITUDE: 40°39'45.97"N LONGITUDE: 80°20'22.08"W

*BASED ON UTM ZONE 17F

GENERAL DESCRIPTION
THE FALCON ETHANE PIPELINE SYSTEM (PROJECT) IS AN APPROXIMATELY 98-MILE PIPELINE THAT WILL TRANSPORT ETHANE FROM SOURCES IN SCIO AND CADIZ, OH AND HOUSTON, PA TO SHELL'S PETROCHEMICAL FACILITY LOCATED IN MONACA, PA. APPROXIMATELY 45.5 MILES OF PIPELINE ARE PROPOSED FOR THE PENNSYLVANIA PORTION OF THIS PROJECT. THE PORTION CROSSING THROUGH WASHINGTON COUNTY, PA, WILL CONSISTS OF 12-INCH DIAMETER STEEL PIPELINE, WITHIN A SINGLE RIGHT-OF-WAY OF APPROXIMATELY 14.0 MILES IN LENGTH, AND APPROXIMATELY 192.5 ACRES OF DISTURBANCE. THE PORTION OF THE PROJECT CROSSING THROUGH ALLEGHENY COUNTY, PA, ALSO CONSISTS OF 12-INCH DIAMETER STEEL PIPELINE, WITHIN A SINGLE RIGHT-OF-WAY OF APPROXIMATELY 8.6 MILES IN LENGTH, AND APPROXIMATELY 110 ACRES OF DISTURBANCE. THE PORTION OF THE PROJECT CROSSING THROUGH BEAVER COUNTY, PA, WILL ALSO CONSIST OF 12-INCH DIAMETER STEEL PIPELINE, WITHIN TWO RIGHT-OF-WAYS TOTALING APPROXIMATELY 19.2 MILES IN LENGTH, AND 16-INCH DIAMETER STEEL PIPELINE, WITHIN ONE RIGHT-OF-WAY TOTALING APPROXIMATELY 3.7 MILES IN LENGTH, TOTALING APPROXIMATELY 305 ACRES OF DISTURBANCE. THE PROJECT WILL ALSO INCLUDE VARIOUS TEMPORARY AND PERMANENT ACCESS ROADS TO PROVIDE THE CONTRACTOR TO ACCESS ALL NECESSARY LOCATIONS ALONG THE CORRIDOR.

LAYDOWN AREAS AND TEMPORARY WORKSPACES WILL BE UTILIZED ALONG THE ROW DURING CONSTRUCTION. THIS PROJECT WILL INVOLVE OPEN CUTTING, CONVENTIONALLY BORING, AND/OR HORIZONTAL DIRECTIONAL DRILL (HDD) TO INSTALL THE PIPELINE. ONCE THE PIPELINE IS INSTALLED, THE LOD WILL BE RESTORED TO ORIGINAL TOPOGRAPHIC CONDITIONS. BEST MANAGEMENT PRACTICES (BMPS) WILL BE USED DURING ALL PHASES OF CONSTRUCTION.

FLOODPLAIN NOTE
THE PROPOSED SITE IS NOT LOCATED IN THE 1% ANNUAL CHANCE FLOOD HAZARD ZONE

PA ONE CALL STATEMENT
PA ONE CALL WILL BE CONTACTED BY THE CONTRACTOR AT LEAST 3 DAYS PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

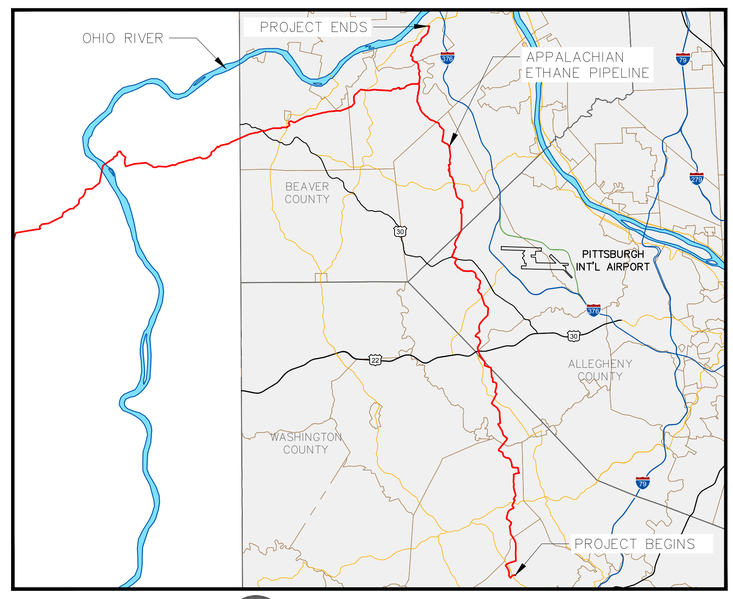
ENTRANCE PERMIT
HIGHWAY OCCUPANCY PERMITS [HOP] WILL BE OBTAINED FROM [PENNDOT/LOCAL ROAD SUPERVISOR] PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

WATERSHED NAME: SEE PLAN NARRATIVE
RECEIVING STREAM (USGS BLUE LINE): SEE PLAN NARRATIVE

ENGINEER
AECOM
681 ANDERSEN DRIVE, SUITE 400
PITTSBURGH, PA 15220-2749
OFFICE: (412) 503-4700
FAX: (412) 503-4701

TOPOGRAPHIC BASEFILE: PERCHERON, LLC
USACE SURVEY

REFERENCE (ALL SHEETS)
1. SOILS INFORMATION FROM NATIONAL RESOURCES CONSERVATION SERVICE. JULY 2017. SOIL SURVEY GEOGRAPHIC DATABASE FOR BEAVER, ALLEGHENY, AND WASHINGTON COUNTIES, PENNSYLVANIA.
2. TOPOGRAPHY AND BACKGROUND IMAGES:
   U.S. GEOLOGICAL SURVEY, 2016. ALIQUIPPA, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. BEAVER, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. CLINTON, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. EAST LIVERPOOL SOUTH, OH-WV-PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. HOOKSTOWN, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. MIDLAND, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
   U.S. GEOLOGICAL SURVEY, 2016. MIDWAY, PA, 7.5-MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAP.
3. PROPERTY BOUNDARIES, TOPOGRAPHIC SURVEY, AND PLANIMETRIC DATA PROVIDED BY PERCHERON LLC, 2016-2017.
4. WETLAND INVESTIGATION WAS COMPLETED BY AECOM FROM FEBRUARY 2016 TO MAY 2017.
5. HORIZONTAL DATUM IS UTM83-17F. VERTICAL DATUM IS NAVD1988.
6. BATHYMETRIC SURVEY OF THE OHIO RIVER PROVIDED BY THE U.S. ARMY CORPS OF ENGINEERS ON 1/15/2016.
7. DEPTH OF COVER IS STANDARD 4 FEET EXCEPT FOR WETLANDS, STREAMS, ROADS AND RAILROAD CROSSINGS. WETLAND AND STREAM DEPTHS ARE A MINIMUM OF 5' BELOW RESOURCES; 5 FEET MINIMUM BELOW ROAD SURFACE.
8. PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL. MARCH 2012.
9. NATIONAL WETLAND INVENTORY MAP(S): http://www.mapwv.gov/flood/
10. AERIAL IMAGES WERE PROVIDED FROM GOOGLE EARTH, AUGUST 2017.



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LOCATION MAP
SCALE: 1" = 20,000'
USGS QUADS: ALIQUIPPA, PA; BEAVER, PA; CLINTON, PA; EAST LIVERPOOL SOUTH, OH-WV-PA; HOOKSTOWN, PA; MIDLAND, PA; MIDWAY, PA

NOT ALL UTILITIESARE SHOWN
THE LOCATION OF ALL UTILITIES(ABOVE OR BELOW GROUND) SHOWN ON THESE DRAWINGS ARE APPROXIMATE & WERE OBTAINED FROM USGS TOPO MAPS AND/OR UTILITY OWNERS. AECOM DOESNOT GUARANTEE THAT LOCATION SHOWN ON THE DRAWINGS ARE CORRECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE LOCATIONS OF EXISTING UTILITIES(ABOVE OR BELOW GROUND) & TO NOTIFY THE RESPECTIVE UTILITY OWNERS BEFORE BEGINNING CONSTRUCTION.

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE
AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL
PENNSYLVANIA ONE CALL SYSTEM INC.
1-800-242-1776

PA ONE CALL DESIGN SERIAL NUMBERS:

LEGEND

EXISTING:
- 1550 — EXISTING CONTOURS (INDEX)
- EXISTING CONTOURS (INTERMEDIATE)
- EXISTING PROPERTY LINE
- EXISTING STREAM
- EXISTING WETLAND
- OPEN-ENDED WETLAND
- MrB2 — SOIL TYPE AND SOIL BOUNDARY
- X — FENCE LINE
- E — ELECTRIC UTILITY
- G — GAS LINE
- CULVERT
- TREE / BRUSH LINE
- UTILITY POLE, GAS LINE MAKER

PROPOSED:
- STUDY — ENVIRONMENTAL STUDY BOUNDARY
- ACCESS ROAD CENTERLINE
- PROPOSED PIPELINE
- LIMIT OF DISTURBANCE/PERMIT BOUNDARY
- ACCESS ROAD CENTERLINE
- PROPOSED SILT FENCE (BY TYPE)
- PROPOSED COMPOST FILTER SOCK (BY SIZE)
- PROPOSED WATERBAR
- PROPOSED TRENCH PLUG
- X — PROPOSED ORANGE SAFETY FENCE
- PROPOSED TIMBER MAT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED STONE CONSTRUCTION ENTRANCE AND STONE STOCKPILE AREA
- CFS — WATERBAR DISSIPATER

PREPARED BY:

AECOM

FOSTER PLAZA 6
681 ANDERSEN DRIVE
SUITE 400
PITTSBURGH, PA 15220
PHONE: (412) 503-4700
FAX: (412) 503-4701

STREAM TYPES:
- EPH – EPHEMERAL
- INT – INTERMITTENT
- PER – PERENNIAL

WETLAND TYPES:
- PEM – PALUSTRINE EMERGENT
- PSS – PALUSTRINE SCRUB SHRUB
- PFO – PALUSTRINE FORESTED
- PUB – PALUSTRINE UNCONSOLIDATED BOTTOM

- 1550 — EXISTING CONTOURS (INDEX)
- EXISTING CONTOURS (INTERMEDIATE)
- EXISTING PROPERTY LINE
- EXISTING STREAM
- ASSUMED FLOODWAY (50 FEET)
- STREAM BUFFER (100 FEET)
- EXISTING WETLAND
- TREE/BRUSH LINE
- PROPOSED PIPELINE
- LIMIT OF DISTURBANCE/PERMIT BOUNDARY
- ACCESS ROAD CENTERLINE
- PROPOSED SILT FENCE (BY TYPE)
- PROPOSED COMPOST FILTER SOCK
- PROPOSED RIGHT OF WAY DIVERSION
- PROPOSED TRENCH PLUG
- OSF — PROPOSED ORANGE SAFETY FENCE
- PROPOSED TIMBER MAT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED STONE CONSTRUCTION ENTRANCE
- 100-YEAR FLOODPLAIN
- WATERSHED BOUNDARY
- MrB2 — SOIL TYPE BOUNDARY AND SOIL BOUNDARY
- MFL — LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION AND SEDIMENT CONTROL PLAN
COVER
WASHINGTON, ALLEGHENY, AND BEAVER CO. PENNSYLVANIA
MULTIPLE TOWNSHIPS

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119860	REVISION
DRAWN	IMM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\COVER_PA-ES.DWG
Last Saved by: LINCOLN.SCHAEFER (1/2/2017 4:07 PM) Last Plotted: 2018-01-02 (1/2/2018 10:15 AM)

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1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
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PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
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GENERAL NOTES:

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FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION AND SEDIMENT CONTROL PLANS
INDEX00
WASHINGTON, ALLEGHENY, AND BEAVER CO. PENNSYLVANIA
MULTIPLE TOWNSHIPS

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119864	REVISION
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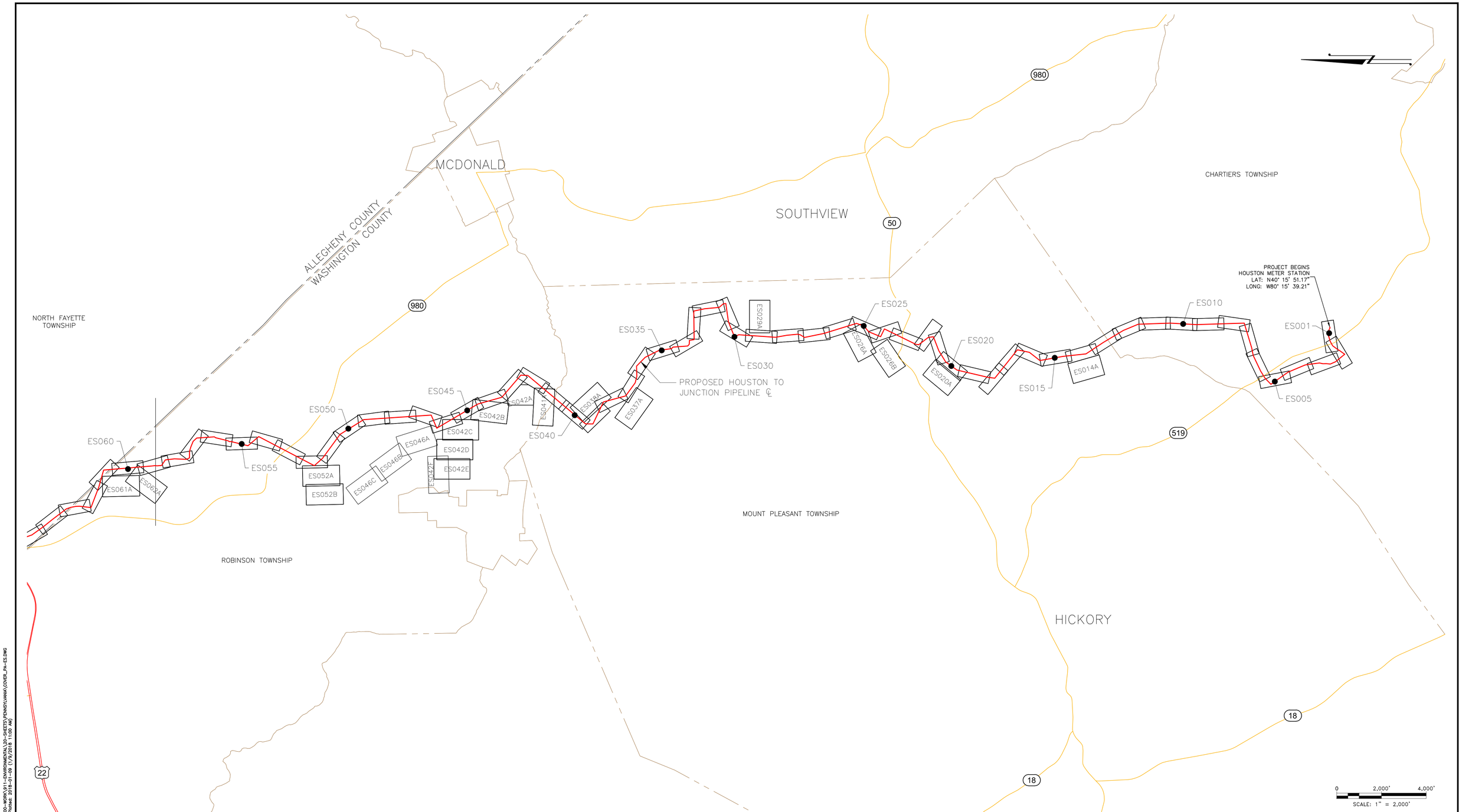

USGS QUADS: MIDWAY, PA; CLINTON, PA

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EROSION AND SEDIMENT CONTROL PLANS
INDEX01
WASHINGTON, ALLEGHENY, AND BEAVER CO. PENNSYLVANIA
MULTIPLE TOWNSHIPS

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119861	REVISION
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PITTSBURGH INTERNATIONAL AIRPORT

IMPERIAL

NORTH FAYETTE TOWNSHIP

CLINTON

FINDLAY TOWNSHIP

ALLEGHENY COUNTY
BEAVER COUNTY

INDEPENDENCE TOWNSHIP

ROBINSON TOWNSHIP

ALLEGHENY COUNTY
WASHINGTON COUNTY

376 151 30 22 576 980

ES060 ES061A ES062A ES065 ES070 ES071A ES073A ES073B ES075 ES077A ES079A ES080 ES084A ES084B ES085 ES088A ES090 ES095 ES098A ES098B ES100 ES101A ES103A ES105 ES105A ES109A ES110 ES110A ES112A ES114A ES114B ES115 ES120

PROPOSED HOUSTON TO JUNCTION PIPELINE ℄

0 2,000' 4,000'
SCALE: 1" = 2,000'

USGS QUADS: ALIQUIPPA, PA; CLINTON, PA

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
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SHELL PIPELINE COMPANY LP

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EROSION AND SEDIMENT CONTROL PLANS INDEX02

WASHINGTON, ALLEGHENY, AND BEAVER CO. PENNSYLVANIA
MULTIPLE TOWNSHIPS

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119862	REVISION
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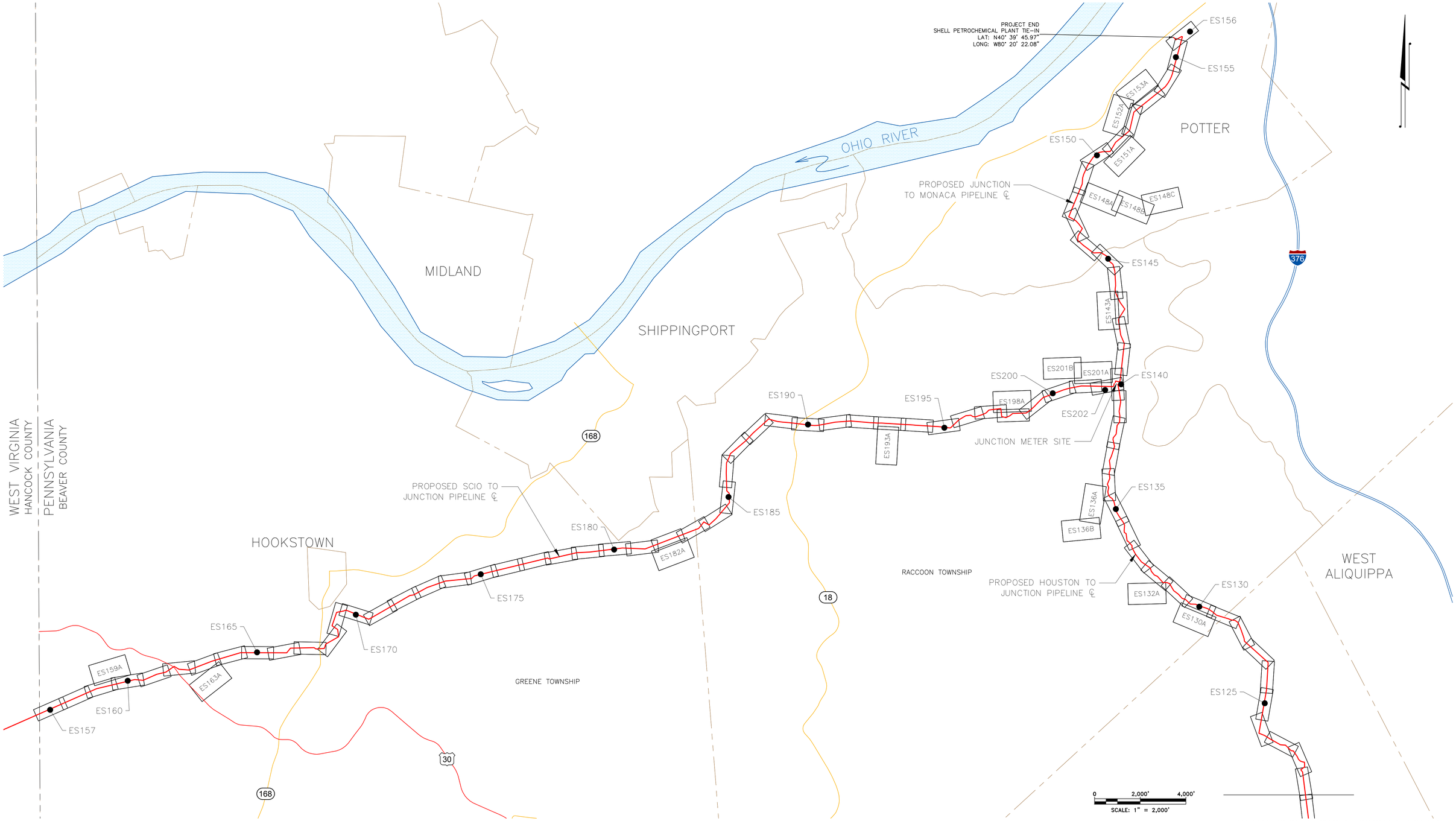

USGS QUADS: ALIQUIPPA, PA; BEAVER, PA; HOOKSTOWN, PA; MIDLAND, PA

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	EXISTING PROPERTY LINE
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

SHELL PIPELINE COMPANY LP

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EROSION AND SEDIMENT CONTROL PLANS
INDEX03

WASHINGTON, ALLEGHENY, AND BEAVER CO. PENNSYLVANIA
MULTIPLE TOWNSHIPS

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119863	REVISION
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Item	1. Non-Agricultural Land Mix[2,4] (Utility ROW & Unmowed Slopes/Banks)			
Permanent Seed (80 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Perennial Ryegrass	20% by Species	98	90
Seed1	Orchard Grass	20% by Species	95	85
Seed1	Creeping Red Fescue	10% by Species	97	85
Seed1	Ladino Clover	10% by Species	99	90
Seed1	Tall Fescue (endophyte fungus free)	10% by Species	98	85
Seed1	Red Top	5% by Species	98	90
Seed1	Birdsfoot Trefoil - upright variety (Inoculated)	25% by Species	98	80
Mulch	Feed quality hay or straw	3 tons/acre	N/A	N/A

Item	2. Hayfield, Pastureland, and Cropland Mix[2,4]			
Permanent Seed (60 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Orchard Grass	40% by Species	95	85
Seed1	Timothy	40% by Species	99	90
Seed1	Birdsfoot Trefoil (Inoculated)	10% by Species	98	80
Seed1	Ladino Clover	10% by Species	99	90
Mulch	Feed quality hay or straw	3 tons/acre	N/A	N/A

Item	3. Residential Mix4 (Utility ROW in and around Mowed Yards)			
Permanent Seed (250 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Kentucky Bluegrass	25% by Species	98	85
Seed1	Creeping Red Fescue	30% by Species	97	85
Seed1	Fiji Perennial Ryegrass	15% by Species	98	90
Seed1	ASP 6006 Perennial Ryegrass	15% by Species	98	90
Seed1	ASP 6004 Perennial Ryegrass	15% by Species	98	90
Mulch	Weed free straw	3 tons/acre	N/A	N/A

Item	4. Wetland/Stream Crossing Mix5 (Ernst Conservation Seed Mix ERNMX #154)			
Permanent Seed (20 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Virginia Wildrye, PA Ecotype	25% by Species	99	96
Seed1	Big Bluestem, "Niagara"	19% by Species	99	96
Seed1	Switchgrass, "Shawnee"	15% by Species	99	68
Seed1	Lurid (Shallow) Sedge, PA Ecotype	12% by Species	99	84
Seed1	Fox Sedge, PA Ecotype	10% by Species	99	84
Seed1	Blue Vervain, PA Ecotype	4% by Species	99	93
Seed1	Soft Rush	3% by Species	99	77
Seed1	Boneset, PA Ecotype	2% by Species	66	78
Seed1	Oxeye Sunflower, PA Ecotype	2% by Species	99	80
Seed1	Showy Ticktrefoil, PA Ecotype (inoculated)	2% by Species	99	90
Seed1	Swamp Milkweed, PA Ecotype	2% by Species	90	90
Seed1	Wild Bergamot, PA Ecotype	1.5% by Species	97	90
Seed1	Joe Pye Weed, PA Ecotype	1.5% by Species	99	95
Seed1	Great Blue Lobelia, PA Ecotype	0.5% by Species	87	57
Seed1	Narrowleaf Blue Eyed Grass	0.5% by Species	99	95

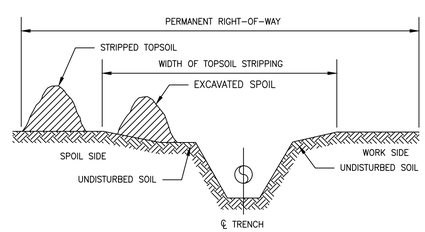
Item	5. Droughty Sites Mix2,4 (Areas where rock is blasted or dug. Usually in forested areas with acid soils.)			
Permanent Seed (100 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Hard Fescue	15% by Species	98	85
Seed1	Sheep Fescue	15% by Species	98	85
Seed1	Chewing Fescue	15% by Species	98	85
Seed1	Creeping Red Fescue	15% by Species	97	85
Seed1	Orchard Grass	20% by Species	95	85
Seed1	White Clover	20% by Species	99	90
Mulch	Grass hay or cereal straw	3 tons/acre	N/A	N/A

Item	6. Strip Mined or Other Mined/Quarried Site Mix2,4 for Sites Lacking Pre-SMCRA Reclamation Standards (Areas where coal or rock was previously mined with acid soils or conditions with an acidifying			
Permanent Seed (100 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1	Hard Fescue	7% by Species	98	85
Seed1	Tall Fescue (Fawn Variety)	25% by Species	98	85
Seed1	Chewings Fescue	11% by Species	98	85
Seed1	Creeping Red Fescue	10% by Species	97	85
Seed1	Orchard Grass	12% by Species	95	85
Seed1	Deer Tongue Grass	13% by Species	99	90
Seed1	Alsike Clover	7% by Species	99	90
Seed1	Birdsfoot Trefoil (Inoculated)	13% by Species	99	90
Seed1	Red Top	2% by Species	98	90
Mulch	Grass hay or cereal straw	3 tons/acre	N/A	N/A

Item	7. Temporary Stabilization Mix3,6			
Temporary Seed (50 pounds/acre) and Mulch Application Rates			% Purity	Total Germination %
Seed1,4	Cereal Ryegrass (Aroostook variety after October 15th)	100% by Species	95	85
Mulch	Weed free straw	3 tons/acre	N/A	N/A

Notes:

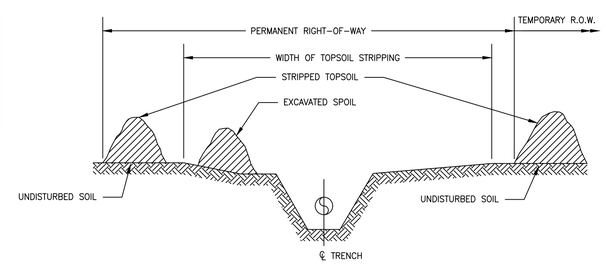
1. All seed is pure live seed. Seeding dates are flexible, but ideal during spring through early fall.
2. The Food Plot Mix is no longer an option in 2014+, unless it is specified by lease stipulation. Shell's seed mixes have plant species used in food plots. Chicory, clovers, and other perennial herbs can be utilized as may be required.
3. All cereal ryegrass applied after October 15th will be Aroostook variety.
4. Optimal Seeding Months – April, May and August.
5. Optimal Seeding Months – October through May in full sun or partial shade.
6. Temporary Stabilization applies to projects which have had a cessation of construction activities in excess of four days and/or projects that have not achieved "final grade" between October 15th and April 30th.



R.O.W. TOPSOIL SEGREGATION TECHNIQUES NOTES:

1. WETLAND TOPSOIL SHOULD BE STOCKPILED SEPARATELY FROM SUBSOIL.

1 DET01 TOPSOIL SEGREGATION



R.O.W. TOPSOIL SEGREGATION TECHNIQUES NOTES:

1. TOPSOIL MAY BE STORED IN LOCATIONS AS SHOWN ABOVE, OR AT OTHER APPROVED LOCATIONS WITHIN THE CONSTRUCTION R.O.W.
2. LEAVE GAPS IN TOPSOIL AND SPOIL PILES FOR WATER RUN-OFF VIA WATERBARS.
3. STOCKPILES SHOULD BE STABILIZED AFTER 4 DAYS.
4. MAXIMUM HEIGHT FOR TOPSOIL STOCKPILE MUST NOT EXCEED 20'.
5. WETLAND TOPSOIL SHOULD BE STOCKPILED SEPARATELY FROM SUBSOIL.

2 DET01 R.O.W. TOPSOIL STRIPPING

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
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EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
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FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET01
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119685	REVISION
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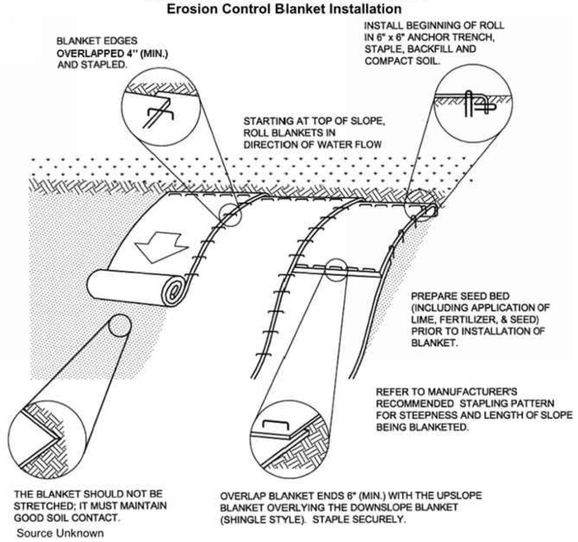
STANDARD CONSTRUCTION DETAIL # 11-1
Erosion Control Blanket Installation



Source Unknown

Seed and soil amendments shall be applied according to the rates in the plan drawings prior to installing the blanket.

Provide anchor trench at toe of slope in similar fashion as at top of slope.

Slope surface shall be free of rocks, clods, sticks, and grass.

Blanket shall have good continuous contact with underlying soil throughout entire length. Lay blanket loosely and stake or staple to maintain direct contact with soil. Do not stretch blanket.

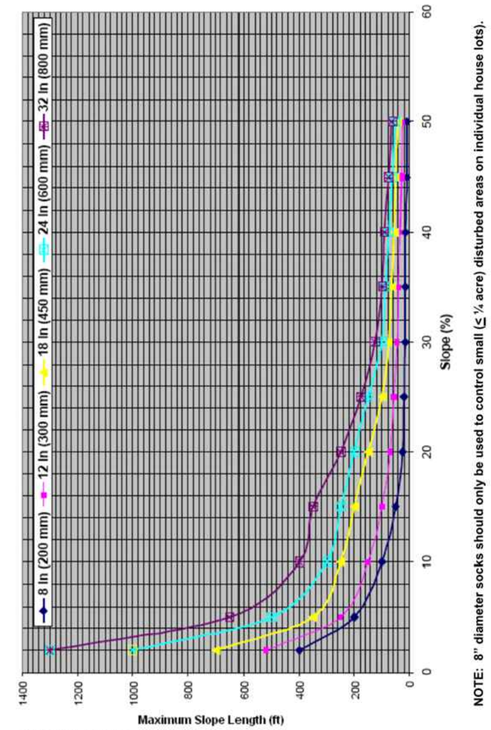
The blanket shall be stapled in accordance with the manufacturer's recommendations.

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.

Source: PaDEP, E&S Pollution Control Manual, March 2012

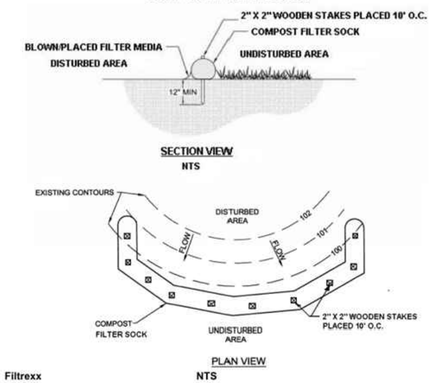
Note: Contractor to use single mat straw fiber matrix for all slopes 3:1 and flatter. Use double mat straw fiber matrix on all slopes greater than 3:1.
Hydraulically applied erosion control blankets may be used in lieu of erosion control blankets.

FIGURE 4.2
MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS



Adapted from Filtrexx
Source: PaDEP, E&S Pollution Control Manual, March 2012

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK



Filtrexx

Sock fabric shall meet standards of Table 4.1. Compost shall meet the standards of Table 4.2.

Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment (Figure 4.1). Maximum slope length above any sock shall not exceed that shown on Figure 4.2. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.

Traffic shall not be permitted to cross filter socks.

Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.

Socks 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.

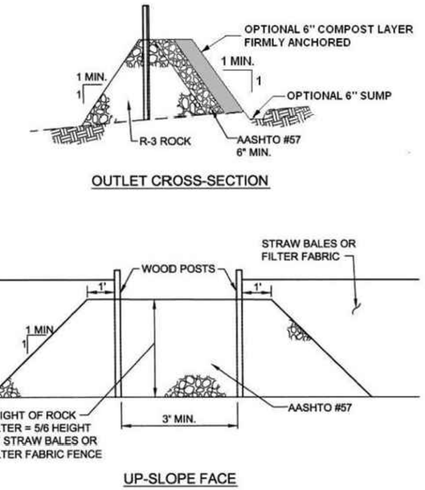
Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.

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.

Source: PaDEP, E&S Pollution Control Manual, March 2012

2 DET02 COMPOST FILTER SOCK

STANDARD CONSTRUCTION DETAIL # 4-6
Rock Filter Outlet



PA DEP

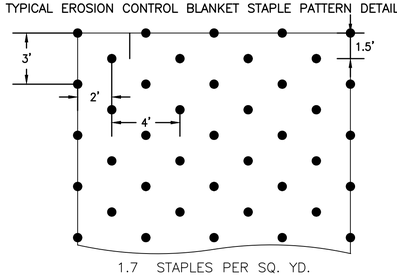
A rock filter outlet shall be installed where failure of a silt fence or straw bale barrier has occurred due to concentrated flow. Anchored compost layer shall be used on upslope face in HQ and EV watersheds.

Sediment shall be removed when accumulations reach 1/3 the height of the outlet.

Source: PaDEP, E&S Pollution Control Manual, March 2012

4 DET02 ROCK FILTER OUTLET

TYPICAL EROSION CONTROL BLANKET STAPLE PATTERN DETAIL

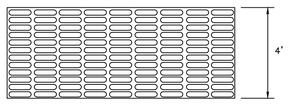


1 DET02 EROSION CONTROL BLANKET

MAXIMUM SLOPE LENGTHS FOR COMPOST FILTER SOCK (FT)

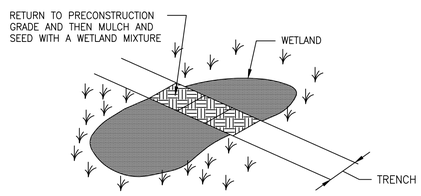
% SLOPE	12" DIAMETER	18" DIAMETER	24" DIAMETER
2 (OR LESS)	150	500	1000
5	100	250	550
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50

ORANGE CONSTRUCTION FENCE DETAIL



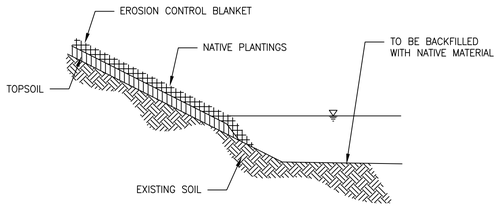
NOTES:
1. POST SELECTION SHOULD BE BASED ON EXPECTED STRENGTH NEEDS AND THE LENGTH OF TIME THE FENCE WILL BE IN PLACE. FLEXIBLE FIBERGLASS ROD POSTS ARE RECOMMENDED FOR PARKS, ATHLETIC EVENTS AND CROWN CONTROL INSTALLATIONS. METAL "T" POSTS OR TREATED WOOD POSTS ARE TYPICALLY USED FOR CONSTRUCTION.
2. POSTS SHOULD BE DRIVEN INTO THE GROUND TO A DEPTH OF 1/3 OF THE HEIGHT OF THE POST. FOR EXAMPLE A 6 FOOT POST SHOULD BE AT LEAST 2 FEET IN THE GROUND.
3. SPACE POSTS EVERY 6 TO 8 FEET.
4. SECURE FENCING TO POSTS WITH NYLON CABLE TIES. WOOD STRIPS MAY ALSO BE USED TO PROVIDE ADDITIONAL SUPPORT AND PROTECTION BETWEEN TIES AND POSTS.

3 DET02 ORANGE CONSTRUCTION FENCE



TYPICAL WETLAND RESTORATION
SCALE: N.T.S.

5 DET02 WETLAND RESTORATION TYP.



BANK RESTORATION DETAIL
SCALE: N.T.S.

6 DET02 BANK RESTORATION

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET02
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119686	REVISION
DRAWN	JWR	12/05/17		1

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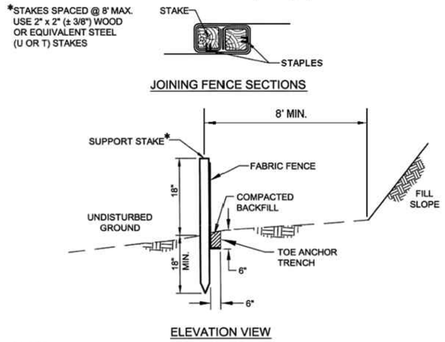
Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:37 AM)

STANDARD CONSTRUCTION DETAIL # 4-7
Standard Silt Fence (18" High)



PA DEP

Fabric shall have the minimum properties as shown in Table 4.3.

Fabric width shall be 30" minimum. Stakes shall be hardwood or equivalent steel (U or T) stakes.

Silt fence shall be placed at level existing grade. Both ends of the fence shall be extended at least 8 feet up slope at 45 degrees to the main fence alignment (see Figure 4.1).

Sediment shall be removed when accumulations reach half the aboveground height of the fence.

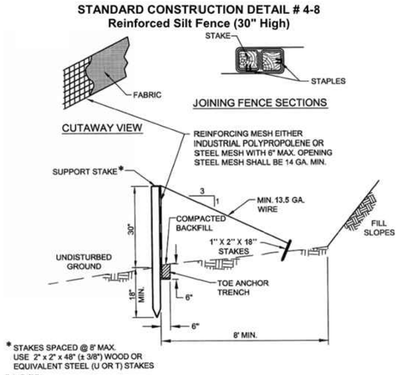
Any section of silt fence which has been undermined or topped shall be immediately replaced with a rock filter outlet (Standard Construction Detail # 4-6).

Fence shall be removed and properly disposed of when tributary area is permanently stabilized.

Source: PaDEP, E&S Pollution Control Manual, March 2012

1 / DET03 — **SILT FENCE**

STANDARD CONSTRUCTION DETAIL # 4-8
Reinforced Silt Fence (30" High)



PA DEP

Fabric shall have the minimum properties as shown in Table 4.3.

Fabric width shall be 42" minimum. Stakes shall be hardwood or equivalent steel (U or T) stakes. An 18" support stake shall be driven 12" minimum into undisturbed ground.

Silt fence shall be installed at existing level grade. Both ends of each fence section shall be extended at least 8 feet upslope at 45 degrees to the main fence alignment (Figure 4.1).

Sediment shall be removed where accumulations reach half the aboveground height of the fence.

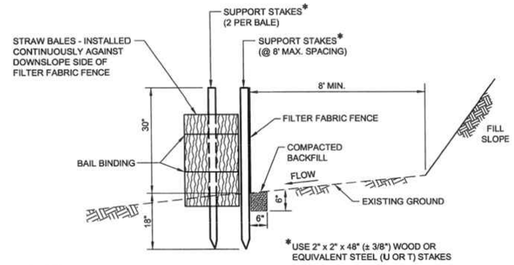
Any section of silt fence which has been undermined or topped shall be immediately replaced with a rock filter outlet (Standard Construction Detail # 4-6).

Fence shall be removed and properly disposed of when tributary area is permanently stabilized.

Source: PaDEP, E&S Pollution Control Manual, March 2012

2 / DET03 — **REINFORCED SILT FENCE**

STANDARD CONSTRUCTION DETAIL # 4-9
Silt Fence Reinforced by Staked Straw Bales



PA DEP

Fabric shall have the minimum properties as shown in Table 4.3.

This BMP is not suitable for projects lasting longer than 3 months unless bales are replaced quarterly.

Fabric width shall be 42" minimum. Stakes shall be hardwood or equivalent steel (U or T) stakes.

Silt fence shall be installed at existing level grade. Both ends of each fence section shall be extended at least 8 feet upslope at 45 degrees to the main fence alignment (Figure 4.1).

Sediment shall be removed where accumulations reach half the aboveground height of the fence.

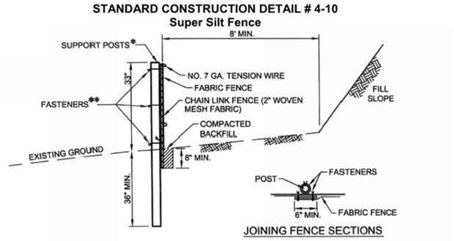
Any fence section which has been undermined or topped shall be immediately replaced with a rock filter outlet (Standard Construction Detail # 4-6).

Fence shall be removed and properly disposed of when tributary area is permanently stabilized.

Source: PaDEP, E&S Pollution Control Manual, March 2012

3 / DET03 — SILT FENCE REINFORCED BY STRAW

STANDARD CONSTRUCTION DETAIL # 4-10
Super Silt Fence



*POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. HEAVY DUTY GALVANIZED OR ALUMINUM POSTS.

**CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE NO. 9 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL PRE-FORMED CLIPS. CHAIN LINK TO TENSION WIRE FASTENERS SPACED @ 60" MAX. USE NO. 13.5 GA. GALVANIZED STEEL WIRE. FABRIC TO CHAIN FASTENERS SPACED @ 24" MAX C. TO C.

PA DEP

Fabric shall have the minimum properties as shown in Table 4.3.

Filter fabric width shall be 42" minimum.

Posts shall be installed using a posthole drill.

Chain link shall be galvanized No. 11.5 Ga. steel wire with 2 ¼" opening, No. 11 Ga. aluminum coated steel wire in accordance with ASTM-A-491, or galvanized No. 9 Ga. steel wire top and bottom with galvanized No. 11 Ga. steel intermediate wires. No. 7 gage tension wire to be installed horizontally through holes at top and bottom of chain-link fence or attached with hog rings at 5' (max.) centers.

Silt fence shall be placed at existing level grade. Both ends of the fence shall be extended at least 8 feet upslope at 45 degrees to main barrier alignment (Figure 4.1).

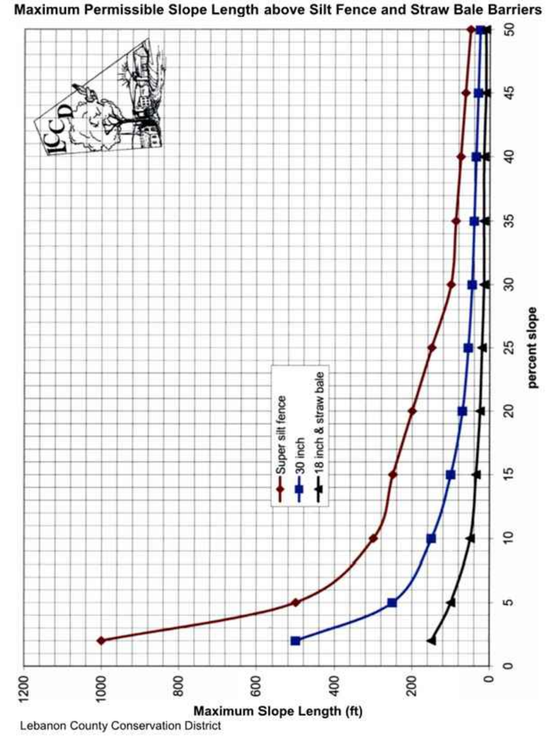
Sediment shall be removed when accumulations reach half the aboveground height of the fence.

Fence shall be removed and properly disposed of when tributary area is permanently stabilized.

Source: PaDEP, E&S Pollution Control Manual, March 2012

4 / DET03 — **SUPER SILT FENCE**

FIGURE 4.3
Maximum Permissible Slope Length above Silt Fence and Straw Bale Barriers



Lebanon County Conservation District

Source: PaDEP, E&S Pollution Control Manual, March 2012

TABLE 4.3
Fabric Properties for Silt Fence

Fabric Property	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lb)	120	ASTM D1682
Elongation at Failure (%)	20% Max.	ASTM D1682
Mullen Burst Strength (psi)	200	ASTM D 3786
Trapezoidal Tear Strength (lb)	50	
Puncture Strength (lb)	40	ASTM D 751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	ASTM 5141
Equivalent Opening Size	30	US Std. Sieve CW-02215
Ultraviolet Radiation Stability (%)	80	ASTM G-26

Adapted from New York DEC and PennDOT Pub 408

Source: PaDEP, E&S Pollution Control Manual, March 2012

TABLE 4.4
Maximum Slope Length for Silt Fence

Slope - Percent	Maximum Slope Length (ft) Above Fence		
	Standard (18" High) Silt Fence	Reinforced (30" High) Silt Fence	Super Silt Fence
2 (or less)	150	500	1000
5	100	250	550
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50

PA DEP

Source: PaDEP, E&S Pollution Control Manual, March 2012

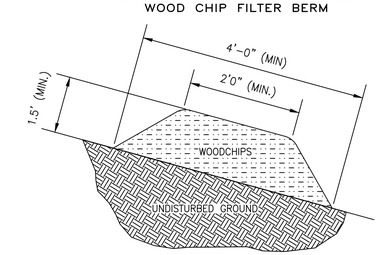
TABLE 4.5
Maximum Slope Length for Straw Bale Barriers and Wood Chip Filter Berms

Slope - Percent	Maximum Slope Length (ft) Above Barrier
2 (or less)	150
5	100
10	50
15	35
20	25
25	20
30	15
35	15
40	15
45	10
50	10
> 50	Not Permitted

PA DEP

Source: PaDEP, E&S Pollution Control Manual, March 2012

MODIFIED CONSTRUCTION DETAIL
WOOD CHIP FILTER BERM



ADAPTED FROM LEBANON COUNTY CONSERVATION DISTRICT

WOOD CHIP FILTER BERMS MAY BE USED IN PLACE OF SILT FENCE IN FLAT AREAS AND 50 FEET AWAY FROM WETLANDS AND STREAMS.

WOOD CHIP FILTER BERMS MAY BE USED ON WOODED OR ROCKY SLOPES WHERE STAKING AND TRENCHING OF OTHER BMP'S IS VERY DIFFICULT OR IMPOSSIBLE.

PRIOR TO PLACEMENT OF THE BERM, OBSTRUCTIONS SUCH AS TREE LIMBS, LARGE ROCKS, ETC. SHALL BE REMOVED.

WOOD CHIP FILTER BERM SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BERM SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BERM ALIGNMENT. WOOD CHIP BERMS SHALL NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW OR USED TO CONSTRUCT SEDIMENT TRAPS OR OTHER IMPOUNDMENTS.

A 6" THICK LAYER OF COMPOST SHALL BE ADDED TO THE UPSLOPE SIDE OF ANY WOOD CHIP FILTER BERM LOCATED IN AN HQ WATERSHED. THIS BMP SHALL NOT BE ROUTINELY USED IN EV WATERSHEDS.

BERMS SHALL BE INSPECTED PERIODICALLY. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE HEIGHT OF THE BERM. DAMAGED OR DETERIORATED PORTIONS OF THE BERM SHALL BE REPLACED IMMEDIATELY UPON INSPECTION.

BERMS MAY BE LEVELED WHEN THE TRIBUTARY AREA HAS BEEN PERMANENTLY STABILIZED OR LEFT IN PLACE.

SOURCE: Adapted from PA DEP, E&S Pollution Control Manual, March 2012.

5 / DET03 — WOOD CHIP FILTER BERM

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JOSEPH W. RYAN — PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET03
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119687	REVISION
DRAWN	JWR	12/05/17		1

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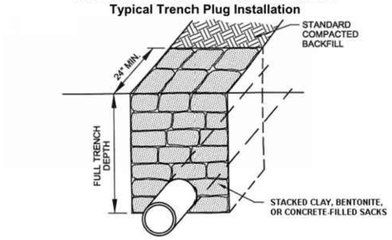
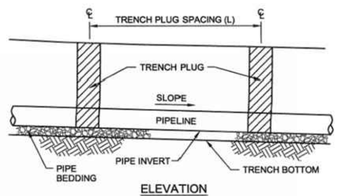
STANDARD CONSTRUCTION DETAIL # 13-4
Typical Trench Plug Installation



SECTION VIEW



ELEVATION

PA DEP

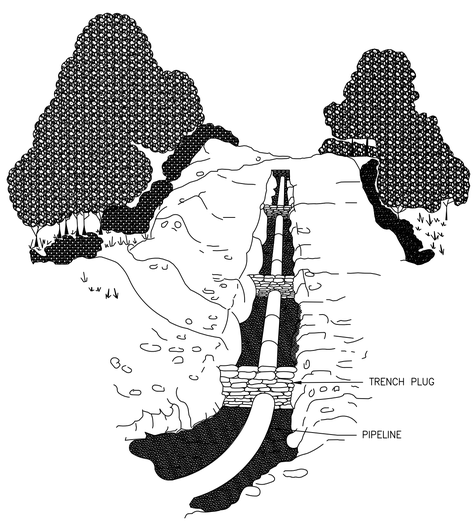
TABLE 13.1
Maximum Spacing and Materials for Trench Plugs

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 Filled Bags (Wetted) or Mortared Stone

***TOPSOIL MAY NOT BE USED TO FILL SACKS.**

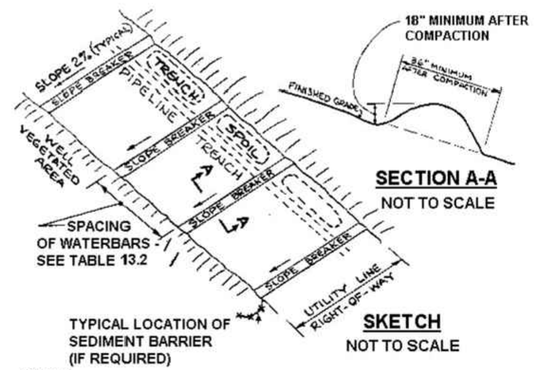
Impervious trench plugs are required for all stream, river, wetland, or other water body crossings.

Source: PaDEP, E&S Pollution Control Manual, March 2012



1 DET04 TRENCH PLUG

FIGURE 13.1
Waterbar Installation on a Utility Line Right-of-way

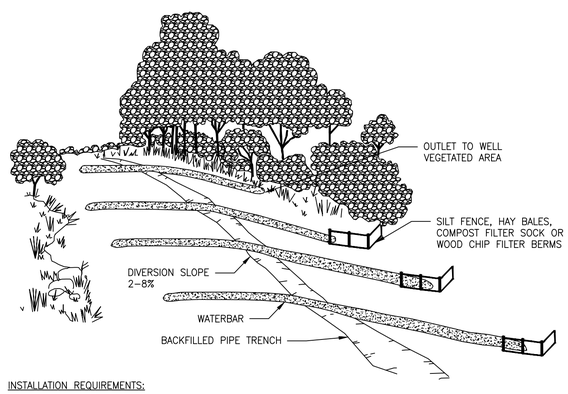


PA DEP

TABLE 13.2
Maximum Spacing for Permanent Waterbars on a Utility Line Right-of-way

Percent Slope	Spacing (FT)
< 5	250
5 - 15	150
15 - 30	100
> 30	50

Source: PaDEP, E&S Pollution Control Manual, March 2012



INSTALLATION REQUIREMENTS:

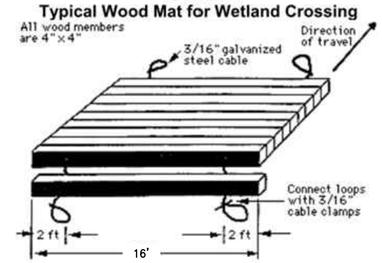
- INSTALL PERMANENT WATERBARS IN ALL AREAS EXCEPT RESIDENTIAL OR AGRICULTURAL AS NECESSARY TO AVOID EXCESSIVE EROSION (UNLESS AUTHORIZED BY LANDOWNER OR LAND MANAGING AGENCY IN AGRICULTURAL OR RESIDENTIAL AREA.)
- MUST BE INSTALLED ON SLOPES GREATER THAN 5% WHERE THE BASE OF THE SLOPE IS LESS THAN 50 FEET FROM A WATERBODY, WETLAND OR ROAD CROSSING AT THE FOLLOWING MINIMUM SPACING.
- POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
- FILTER RUN-OFF WATER BY CONSTRUCTING THE OUTLET IN A WELL VEGETATED STABLE AREA, OR BY USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, HAY BALES, COMPOST FILTER SOCK, OR WOOD CHIP FILTER BERMS).

MAINTENANCE REQUIREMENTS:

- INSPECT DURING CONSTRUCTION AND REGRADE IF NECESSARY.
- KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
- SEED AND MULCH PERMANENT WATERBARS FOLLOWING CONSTRUCTION.

2 DET04 WATERBAR INSTALLATION AND MAINTENANCE

FIGURE 3.7
Typical Wood Mat for Wetland Crossing



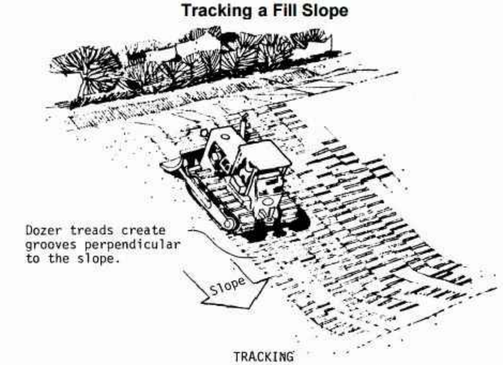
University of Minnesota FS 07009

A geotextile underlayment shall be used under the wood mat.

Source: PaDEP, E&S Pollution Control Manual, March 2012

3 DET04 WETLAND CROSSING TYP.

FIGURE 11.3
Tracking a Fill Slope



TRACKING

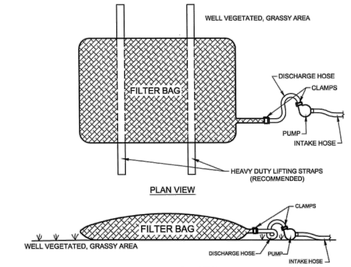
Michigan Soil Erosion and Sedimentation Control Guidebook

INSTALLATION REQUIREMENTS:

- TRACKING SLOPES IS DONE BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR.
- NOTE: IF A BULLDOZER IS USED, THE BLADE SHOULD BE UP.

5 DET04 SLOPE TRACKING

STANDARD CONSTRUCTION DETAIL # 3-16
Pumped Water Filter Bag



PA DEP

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-4751	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 not possible, a geotextile underlayment and flow path shall be provided. Bags may be placed on filter stone to increase discharge capacity. Bags shall not be placed on slopes greater than 5%. For slopes exceeding 5%, clean rock or other non-erodible and non-polluting material may be placed under the bag 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.

SOURCE: PaDEP, E&S POLLUTION CONTROL MANUAL, 2012

4 DET04 PUMPED WATER FILTER BAG

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET04
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119688	REVISION
DRAWN	JWR	12/05/17		1

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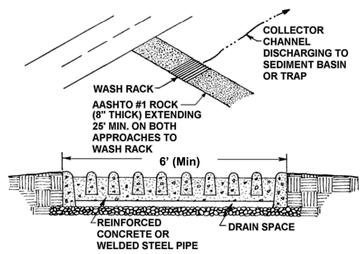
STANDARD CONSTRUCTION DETAIL # 3-2
Rock Construction Entrance with Wash Rack



Modified from Smith Cattleguard Company

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.

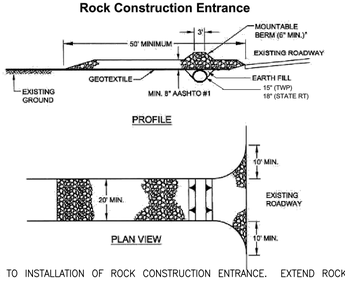
A water supply shall be made available to wash the wheels of all vehicles exiting the site.

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.

Vacuum trucks may be used in lieu of wash racks. If vacuum trucks are used, the RCE must be 100 ft. long.

Source PaDEP, E&S Pollution Control Manual, March 2012

STANDARD CONSTRUCTION DETAIL # 3-1
Rock Construction Entrance



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 OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED.
THE CULVERT PIPE SHALL BE SIZED TO A LARGER DIAMETER TO ACCOMMODATE STREAM FLOW IN DITCHES AND STREAMS THAT EXCEED THE FULL FLOW CAPACITY OF A 15 INCH OR 18 INCH DIAMETER PIPE AT A 1% SLOPE; CALCULATE THE PEAK FLOW CONDITION FOR A 2 YEAR – FIVE MINUTE STORM INTENSITY FOR THE CONTRIBUTING RUNOFF AREA. PROVIDE THE PERMIT MANAGER AND THE ROADWAY ENGINEER WITH SUPPORTING CALCULATIONS. OVERTOPPING FLOW IS NOT PERMITTED.
CULVERT PIPE MATERIAL – HDPE; CONCRETE; CORRUGATED STEEL; STEEL; PROVIDE AND INSTALL THE CULVERT PIPE IN THE DITCH FLOWLINE, EXCAVATE THE DITCHLINE TO ACCOMMODATE THE PIPE DIAMETER, WIDEN THE DITCHLINE UPSTREAM AND DOWNSTREAM TO ACCOMMODATE THE PIPE DIAMETER AND PROVIDE COVER OVER THE PIPE TO PROTECT FROM VEHICLE TRAFFIC. CONTACT THE ROADWAY ENGINEER FOR APPROVAL PRIOR TO SUBSTITUTING MULTIPLE PIPES AND DIFFERING PIPE DIAMETERS TO PROVIDE ADEQUATE FLOW CAPACITY. REPLACE ANY DAMAGED CULVERT PIPE WITHIN 8 HOURS OF DISCOVERY. DAMAGED CULVERT PIPE INCLUDES; CRUSHED ENDS, OUT OF ROUND PIPE, SEPARATION, CRACKS AND VOIDS IN THE PIPE.

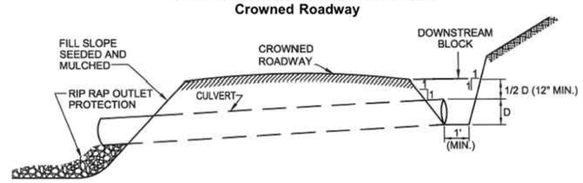
INSPECT THE CULVERT PIPE ONCE PER WEEK AND RECORD THE CONDITION IN THE DAILY LOGS.
MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS 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.

WASH RACKS OR VACUUM TRUCKS MUST BE USED ON ABACT PROJECTS.

SOURCE: Adapted from PA DEP, E&S Pollution Control Manual, March 2012.

1 / DET05 ROCK CONSTRUCTION ENTRANCE

MODIFIED CONSTRUCTION DETAIL # 3-3
Crowned Roadway



Source: Adapted from Pa DEP, E&S Pollution Control Manual, March 2012.

CROWNED ROADWAY NOTES:

CUT AND FILL SLOPES SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF ROADWAY GRADING. THESE AREAS SHALL BE BLANKETED WHEREVER THEY ARE LOCATED WITH 50 FEET OF A SURFACE WATER OR WITHIN 100 FEET OF AN HQ OR EV SURFACE WATER OR WHERE A SUITABLE VEGETATIVE FILTER STRIP DOES NOT EXIST.

A TOP DRESSING COMPOSED OF HARD, DURABLE STONE SHALL BE PROVIDED FOR SOILS HAVING LOW STRENGTH.

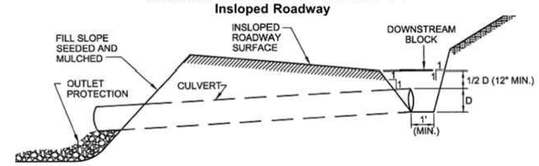
ROADSIDE DITCHES SHALL BE PROVIDED WITH ADEQUATE PROTECTIVE LINING WHEREVER RUNOFF CANNOT SHEET FLOW AWAY FROM THE ROADWAY.

ADEQUATELY SIZED CULVERTS OR OTHER SUITABLE CROSS DRAINS SHALL BE PROVIDED AT ALL SEEPS, SPRINGS, AND DRAINAGE COURSES. DITCH RELIEF CULVERTS OR TURNOUTS SHALL BE PROVIDED AT THE INTERVALS INDICATED ON THIS SHEET FOR THE ROADSIDE DITCHES. TRANSITION MAT, OR RIP RAP OUTLET PROTECTION TO BE SIZED ACCORDING TO ANTICIPATED DISCHARGE VELOCITY.

ROADWAY WILL BE INSPECTED ANNUALLY. DAMAGED ROADWAYS, DITCHES, OR CROSS DRAINS SHALL BE REPAIRED IMMEDIATELY.

2 / DET05 CROWNED ROADWAY

MODIFIED CONSTRUCTION DETAIL # 3-4
Insloped Roadway



Source: Adapted from Pa DEP, E&S Pollution Control Manual, March 2012.

INSLOPED ROADWAY NOTES:

CUT AND FILL SLOPES SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF ROADWAY GRADING. THESE AREAS SHALL BE BLANKETED WHEREVER THEY ARE LOCATED WITH 50 FEET OF A SURFACE WATER OR WITHIN 100 FEET OF AN HQ OR EV SURFACE WATER OR WHERE A SUITABLE VEGETATIVE FILTER STRIP DOES NOT EXIST.

A TOP DRESSING COMPOSED OF HARD, DURABLE STONE SHALL BE PROVIDED FOR SOILS HAVING LOW STRENGTH.

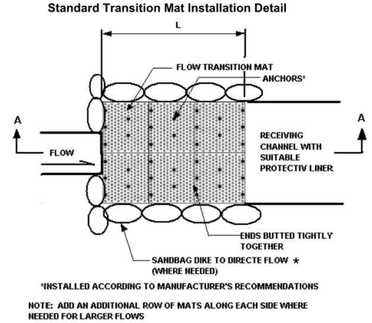
ROADSIDE DITCHES SHALL BE PROVIDED WITH ADEQUATE PROTECTIVE LINING.

ADEQUATELY SIZED CULVERTS OR OTHER SUITABLE CROSS DRAINS SHALL BE PROVIDED AT ALL SEEPS, SPRINGS, AND DRAINAGE COURSES. DITCH RELIEF CULVERTS OR TURNOUTS SHALL BE PROVIDED AT THE INTERVALS INDICATED ON THIS SHEET FOR THE ROADSIDE DITCHES. TRANSITION MAT, OR RIP RAP OUTLET PROTECTION TO BE SIZED ACCORDING TO ANTICIPATED DISCHARGE VELOCITY.

ROADWAY WILL BE INSPECTED ANNUALLY. DAMAGED ROADWAYS, DITCHES, OR CROSS DRAINS SHALL BE REPAIRED IMMEDIATELY.

3 / DET05 INSLOPED ROADWAY

Standard Transition Mat Installation Detail



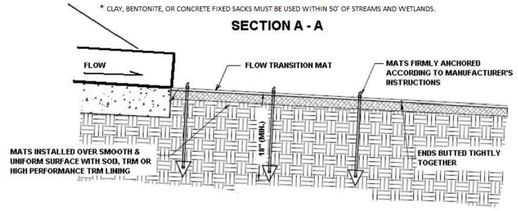
*INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS

NOTE: ADD AN ADDITIONAL ROW OF MATS ALONG EACH SIDE WHERE NEEDED FOR LARGER FLOWS

PLAN VIEW

★ CLAY, BENTONITE, OR CONCRETE FIXED SACKS MUST BE USED WITHIN 50' OF STREAMS AND WETLANDS.

SECTION A - A



Source: Adapted from Scour Stop

NOTE: For permanent installations, replace sandbags with concrete or rock.

4 / DET05 TRANSITION MAT (OUTLET PROTECTION)

PIPE DIAMETER	DISCHARGE (CFS)	SCOURSTOP WIDTH X LENGTH
15"	14	4' X 4'
18"	19	4' X 6'
24"	30	4' X 8'
36"	75	8' X 12'
48"	100	12' X 16'
60"	150	12' X 20'

Source: Adapted from Data Interrupted

TRANSITION MAT SIZING TABLE

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
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COMMONWEALTH OF PENNSYLVANIA
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET05

ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119689	REVISION
DRAWN	JWR	12/05/17		1

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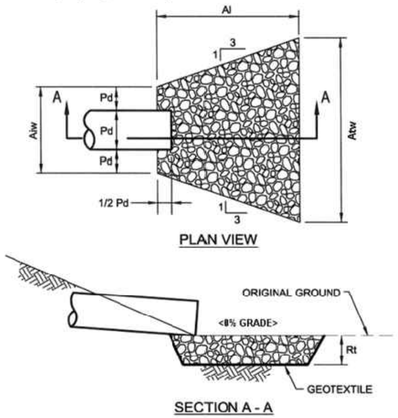
MODIFIED CONSTRUCTION DETAIL # 9-2
Riprap Apron at Pipe Outlet without Flared Endwall



Adapted from USDOT, FHA HEC-14

NOTE: This table is intentionally blank and should be filled in by the plan preparer.*

OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		
		SIZE (R-)	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)

All aprons shall be constructed to the dimensions shown. Terminal widths shall be adjusted as necessary to match receiving channels.

All aprons shall be inspected at least weekly and after each runoff event. Displaced riprap within the apron shall be replaced immediately. **

Extend riprap on back side of apron to at least ½ depth of pipe on both sides to prevent scour around the pipe.

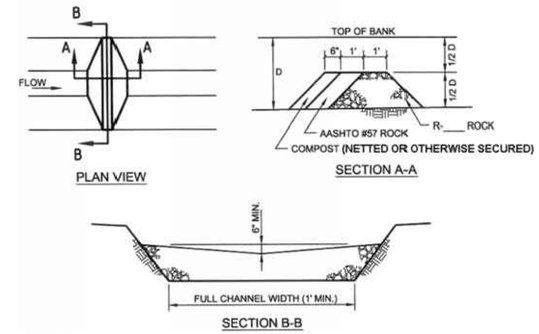
* **Table completed for permitting as applicable.**

** **For permanent installations inspections shall be performed periodically. Maintainance shall be performed immediately upon inspection.**

Source: Adapted from PA DEP, E&S Pollution Control Manual, March 2012

2 DET06 RIPRAP APRON

STANDARD CONSTRUCTION DETAIL # 4-14
Rock Filter



PA DEP

FOR 3' ≤ D USE R-4
FOR 2' ≤ D < 3' USE R-3
NOT APPLICABLE FOR D < 2'

NOTE: This table is intentionally blank and should be filled in by the plan preparer.

ROCK FILTER NO.	LOCATION	D (FT.)	RIPRAP SIZE

Sediment shall be removed when accumulations reach 1/2 the height of the filter.

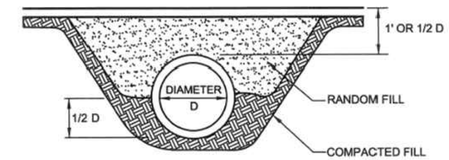
Immediately upon stabilization of each channel, installer shall remove accumulated sediment, remove rock filter, and stabilize disturbed areas.

Table completed for permitting as applicable.

Source: PaDEP, E&S Pollution Control Manual, March 2012

3 DET06 ROCK FILTER

MODIFIED CONSTRUCTION DETAIL #3-10
Ditch Relief Culvert



USDA Forest Service

DITCH RELIEF CULVERT NOTES:

1. MINIMUM DIAMETER FOR ANY CULVERT IS 18"; OTHERWISE CULVERT SHALL BE SIZED FOR ANTICIPATED PEAK FLOW. PLACE CULVERT SO BOTTOM IS AT SAME LEVEL AS BOTTOM OF DITCH OR ADJOINING SLOPE. CULVERTS SHALL BE PLACED WITH A SLOPE OF 2 TO 4%. LOWER END SHALL BE AT LEAST 2" BELOW UPPER END.
2. EXTEND CULVERT 12" BEYOND BASE OF ROAD FILL ON BOTH SIDES. FIRMLY PACK FILL AROUND CULVERT, ESPECIALLY THE BOTTOM HALF. MINIMUM LENGTH OF CULVERT IS 45'.
3. PROVIDE SUITABLE OUTLET PROTECTION* AND, WHERE APPROPRIATE, INLET PROTECTION. CULVERTS WILL BE INSPECTED ANNUALLY. ANY BUILD UP WILL BE REMOVED UPON DISCOVERY AND ADDITIONAL MAINTENANCE WILL BE PERFORMED AS NEEDED.
4. THIS DETAIL MAY BE USED FOR DITCH RELIEF CULVERTS AND FOR CROSSINGS OF ROADSIDE DITCHES. IT IS NOT APPROPRIATE FOR STREAM CROSSINGS.
5. CULVERTS WILL BE INSPECTED ANNUALLY. ANY BUILD UP WILL BE REMOVED UPON DISCOVERY AND ADDITIONAL MAINTENANCE WILL BE PERFORMED AS NEEDED.

*FOR STEEP SLOPE (≥2H:1V) OUTFALLS, A MINIMUM 20 FOOT LONG R-5 APRON IS RECOMMENDED FOR TEMPORARY ACCESS ROADS WHERE THE RECOMMENDED CULVERT SPACING IS USED. FOR PERMANENT ACCESS ROADS, A MINIMUM R-6 ROCK SIZE IS RECOMMENDED

Source: Adapted from PA DEP, E&S Pollution Control Manual, March 2012.

TABLE 3.3 - Sizing and Spacing of Ditch Relief Culverts for Temporary Access Roads

Road Grade (%)	Culvert Spacing* (ft)	Length of Upslope Drainage (ft)				
		< 300	300 - 400	400 - 500	500 - 600	>600
		Minimum Culvert Size (in)				
2	300	12	15	15	15	18
3	235	12	15	15	15	18
4	200	12	15	15	15	18
5	180	12	12	15	15	15
6	165	12	12	12	15	15
7	155	12	12	12	12	15
8	150	12	12	12	12	15
9	145	12	12	12	12	15
10	140	12	12	12	12	15
12	135	12	12	12	12	15

Adapted from Maryland DOE

***Culvert spacing may be adjusted slightly to take advantage of natural drainage courses.**

Source: PaDEP, E&S Pollution Control Manual, March 2012

TABLE 3.4 - Recommended Maximum Spacing of Ditch Relief Culverts (18" dia. CMP) For Permanent Access Roads

Road Grade Percent	Soil Type in Ditch				
	Gravels, Sandy Gravels, Aggregate Surfacing	Silty Gravels, Clayey Gravels	Plastic and Nonplastic Inorganic Clays	Inorganic Silts, Silty or Clayey Sands	Sands, Silty Sands, and Gravelly Sands
	Culvert Spacing Feet*				
2	390	315	245	170	95
4	335	275	210	145	85
6	285	230	180	125	75
8	240	195	150	105	65
10	200	160	125	90	55
12	160	130	105	75	45
14	135	110	85	60	35

Adapted from USDA Forest Service

***Culvert spacing may be adjusted slightly to take advantage of natural drainage courses.**

Source: PaDEP, E&S Pollution Control Manual, March 2012

4 DET06 DITCH RELIEF CULVERT

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EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
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GENERAL NOTES:

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1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
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EROSION & SEDIMENT CONTROL DETAILS – DET06
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119690	REVISION
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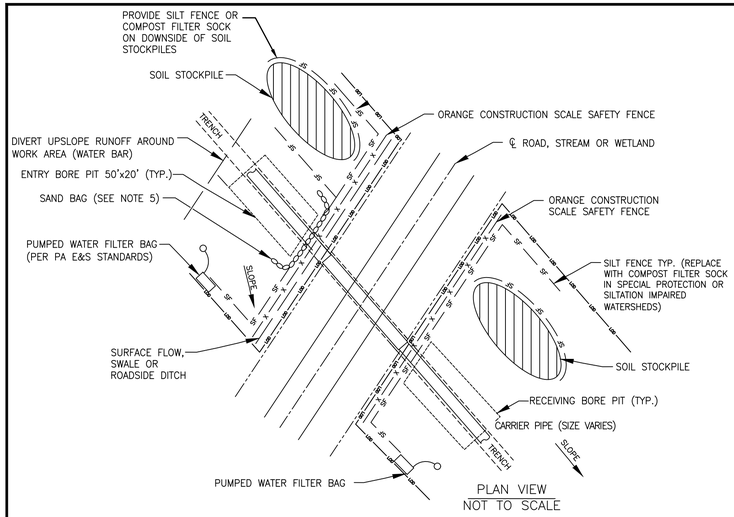
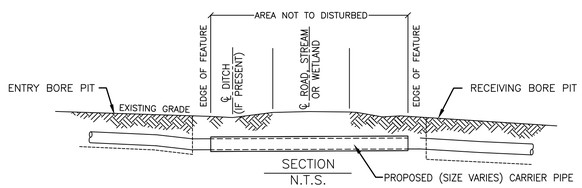


PLAN VIEW
NOT TO SCALE



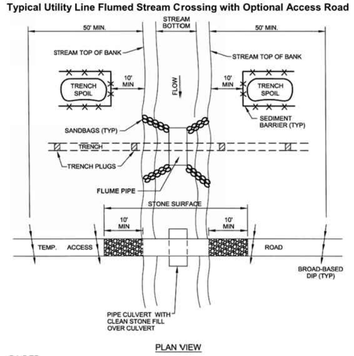
SECTION
N.T.S.

OPEN CUT & CONVENTIONAL BORE GENERAL NOTES:

1. ONLY TEMPORARY ROAD CLOSURES ARE ANTICIPATED.
2. THE PERMITTEE SHALL NOTIFY PA ONE CALL AT (800) 242–1776. THE PERMITTEE SHALL ALSO NOTIFY PENNDOT OR THE LOCAL ROADING AUTHORITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF THE ROADWAY CROSSING.
3. FOR EMERGENCY OR OTHER UNANTICIPATED WORK WHICH CANNOT BE IDENTIFIED ON THE SCHEDULE AND WHICH INVOLVES EXCAVATION OF ANY PORTION OF THE PUBLIC RIGHT–OF–WAY, THE PERMITTEE SHALL PROMPTLY NOTIFY PENNDOT OF THE IMPENDING WORK BY THE END OF THE FIRST BUSINESS DAY AFTER THE UNANTICIPATED WORK IS PERFORMED.
4. TEMPORARY PIPE CULVERT 12" MINIMUM DIAMETER NOT REQUIRED IF SWALE/DITCH IS RESTORED THE SAME DAY THAT IT IS DISTURBED OR IF NO SWALE/DITCH IS PRESENT.
5. RUNOFF FROM ROADWAY DITCHES OR SURFACE FEATURES MUST BE DIVERTED AROUND BORING PITS (SAND BAG, DIKE, ETC.) OR OVER BORING PITS (PIPE CULVERT WITH SAND BAGS TO CHANNELIZE FLOW).
6. INSTALL ROCK CONSTRUCTION ENTRANCES PER THE PLANS.
7. BORE PITS WILL BE LOCATED WITHIN THE PERMITTED LIMIT OF DISTURBANCE.

1 / DET07 — CONVENTIONAL BORE

STANDARD CONSTRUCTION DETAIL #13-1
Typical Utility Line Flumed Stream Crossing with Optional Access Road



PLAN VIEW

PA DEP

Grubbing shall not take place within 50 feet of top-of-bank until all materials required to complete crossing are on site and pipe is ready for installation.

Pipe culvert for access road and flume pipe may be one continuous pipe.

Trench plugs shall be installed within the trench on both sides of the stream channel (Standard Construction Detail #13-4).

Water accumulating within the work area shall be pumped to a pumped water filter bag or sediment trap prior to discharging into any surface water.

Hazardous or pollutant material storage areas shall be located at least 100 feet back from the top of streambank.

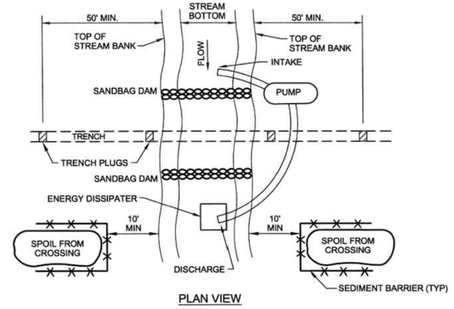
All excess excavated material shall be immediately removed from the stream crossing area.

All disturbed areas within 50 feet of top-of-bank shall be blanketed or matted within 24 hours of initial disturbance for minor streams or 48 hours of initial disturbance for major streams unless otherwise authorized. Appropriate streambank protection shall be provided within the channel.

Source: PaDEP, E&S Pollution Control Manual, March 2012

2 / DET07 — FLUMED STREAM CROSSING

STANDARD CONSTRUCTION DETAIL #13-2
Typical Utility Line Stream Crossing with Pump Bypass



PLAN VIEW

PA DEP

Grubbing shall not take place within 50 feet of top-of-bank until all materials required to complete crossing are on site and pipe is ready for installation.

Bypass pump intake shall be maintained a sufficient distance from the bottom to prevent pumping of channel bottom materials.

Trench plugs shall be installed within the trench on both sides of the stream channel (Standard Construction Detail #13-4).

Water accumulating within the work area shall be pumped to a pumped water filter bag or sediment trap prior to discharging into any receiving surface water.

Hazardous or pollutant material storage areas shall be located at least 100 feet back from the top of streambank.

All excess excavated material shall be immediately removed from the stream crossing area.

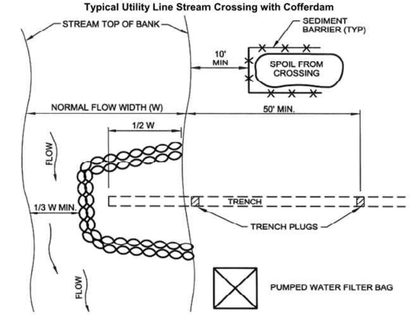
All disturbed areas within 50 feet of top-of-bank shall be blanketed or matted within 24 hours of initial disturbance for minor streams or 48 hours of initial disturbance for major streams unless otherwise authorized.

Appropriate streambank protection shall be provided within the channel.

Source: PaDEP, E&S Pollution Control Manual, March 2012

3 / DET07 — STREAM CROSSING WITH PUMP BYPASS

STANDARD CONSTRUCTION DETAIL #13-3
Typical Utility Line Stream Crossing with Cofferdam



PLAN VIEW

PA DEP

Grubbing shall not take place within 50 feet of top-of-bank until all materials required to complete crossing are on site and pipe is ready for installation.

Trench plugs shall be installed within the trench on both sides of the stream channel (Standard Construction Detail #13-4).

Water accumulating within the work area shall be pumped to a pumped water filter bag or sediment trap prior to discharging into any receiving surface water.

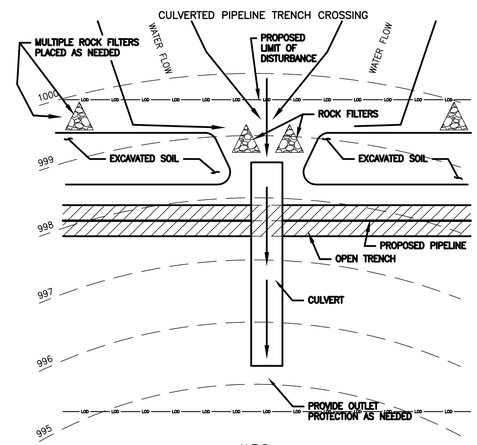
Hazardous or pollutant material storage areas shall be located at least 100 feet back from the top of streambank.

All excess excavated material shall be immediately removed from the stream crossing area.

All disturbed areas within 50 feet of top-of-bank shall be blanketed or matted within 24 hours of initial disturbance for minor streams or 48 hours of initial disturbance for major streams unless otherwise authorized.

Source: PaDEP, E&S Pollution Control Manual, March 2012

4 / DET07 — STREAM CROSSING WITH COFFERDAM



N.T.S

NOTES:

1. TO BE USED WHERE THE CONTRACTOR DEEMS NECESSARY IN AREAS OF DEPRESSION WHERE CONCENTRATED WATER ERODES TRENCH STOCKPILED SOILS.
2. CULVERT SIZING TO BE FIELD DETERMINED BY CONTRACTOR AND OUTLET PROTECTION PLACED AS NEEDED.
3. MULTIPLE ROCK FILTERS MAY BE PLACED ALONG TRENCH STOCKPILED SOILS TO CONTROL VELOCITY OF CONCENTRATED WATER AS NEEDED.

5 / DET07 — CULVERTED PIPELINE TRENCH CROSSING

Temporary Erosion and Sediment Controls - Inspection and Maintenance Schedule

BMP	Inspection Frequency	Maintenance to be Performed
Rock Filters	Weekly and After Runoff Events	Sediment will be removed when accumulations reach one–third the height of rock filter outlets or rock filters.
Waterbars	Weekly and After Runoff Events	Accumulated sediment shall be removed from waterbars. Worn and ineffective waterbars shall be replaced.
Sediment Barriers (Compost Filter Sock, Silt Fence, Wood Chip Filter Berm etc.)	Weekly and After Runoff Events	• Sediment must be removed from sediment barriers once accumulation reaches one–half the above ground height of the barrier. Repair all undercutting of erosion of the toe anchor with compacted backfill material. Adhere to the manufacturer's recommendations for replacing Sediment barriers due to weathering. • Any portion of the sediment barrier that is undermined or overtopped will be immediately repaired. If the section continues to be overtopped or undermined, a rock filter outlet will be installed to replace the section. • Sediment removed from sediment barriers shall be mixed in with the other waste soil on the construction site and properly disposed. • Damaged or deteriorated portions of the wood chip filter berm shall be replaced immediately upon inspection.
Filter Bags	Daily	When the filter bag is one half full of sediment, it will be disposed of as outlined in the ESCP.
Rock Construction Entrance (RCE) or RCE With Wash Rack or RCE with Vacuum Truck	Constantly Maintained	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. Replace any damaged culvert pipe within 8 hours of discovery. Damaged culvert pipe includes; crushed ends, out of round pipe, separation, cracks and voids in the pipe. Drain space under the wash rack will be kept open at all times. Damage to the wash rack shall be repaired prior to further use of the rack. A vacuum truck may be used in lieu of wash racks from the months of November to February. If a vacuum truck is used, the RCE is required to be 100 feet in length. Vacuum trucks are required to clean public roads after vehicles exit the site.
Erosion Control Blankets	Weekly and After Runoff Events	When encountering blanket movement or a wash–out (i.e., visible riling/gullies) of erosion control blankets and hydraulically applied erosion control blankets used on slopes, these areas will be regraded, reseeded, and remulched per manufacturer's specifications within 4 calendar days of inspection.
Revegetated Areas	Weekly and After Runoff Events	Revegetated areas shall be inspected for bare spots, washouts, and healthy growth during the construction and operation and maintance for the life of the project. Identified bare spots and washouts shall be repaired as soon as practical.
	Notes: 1. Damaged BMPs will be repaired or replaced as soon as practicable, but no more than 72 hours after discovering the damage and a written report must be submitted to the permit manager with corrective action. 2. Inspection reports and punch list must be emailed to the permitting manager at the end of the work day. 3. Logs of sediment control inspection must be kept with the inspectors construction records and include date, time, and condition of BMPs and any necessary maintenance. 4. Permit managers must contact PaDEP to report any compliance issues.	

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JOSEPH W. RYAN — PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET07
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC–GOM–AE–SD119691	REVISION
DRAWN	JWR	12/05/17		1

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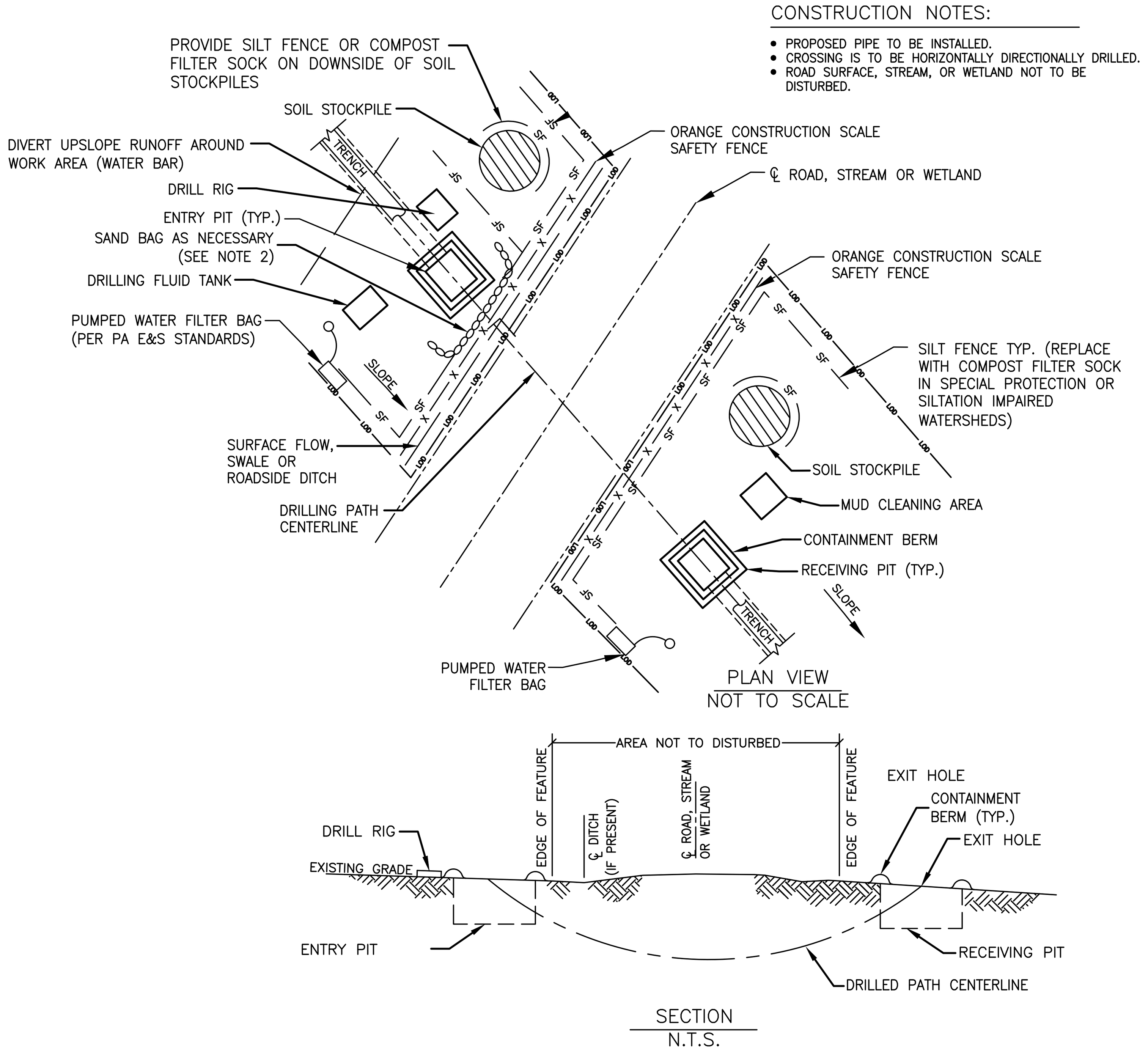
HORIZONTAL DIRECTIONAL DRILLING

CONSTRUCTION NOTES:

- PROPOSED PIPE TO BE INSTALLED.
- CROSSING IS TO BE HORIZONTALLY DIRECTIONALLY DRILLED.
- ROAD SURFACE, STREAM, OR WETLAND NOT TO BE DISTURBED.

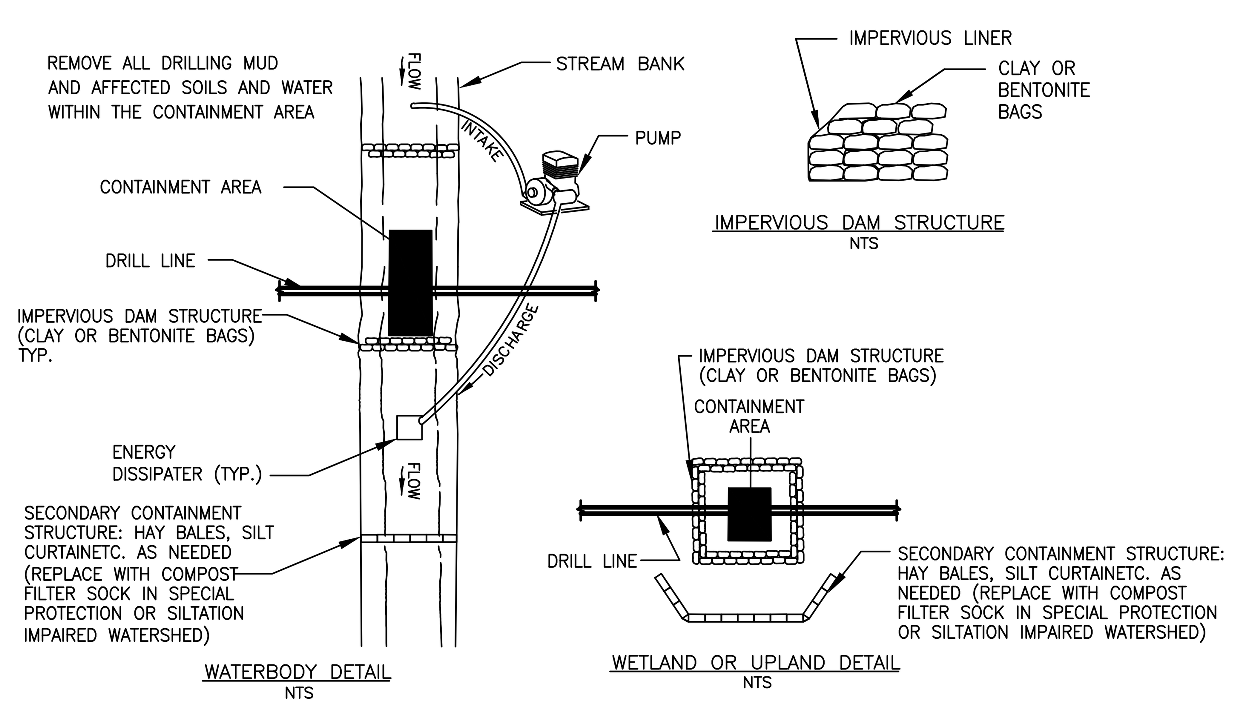


HDD GENERAL NOTES:

1. TEMPORARY PIPE CULVERT 12" MINIMUM DIAMETER NOT REQUIRED IF SWALE/DITCH IS RESTORED THE SAME DAY THAT IT IS DISTURBED OR IF NO SWALE/DITCH IS PRESENT.
2. RUNOFF FROM ROADWAY DITCHES OR SURFACE FEATURES MUST BE DIVERTED AROUND ENTRY EXIT PITS (SAND BAG, DIKE, ETC.) OR OVER PITS (PIPE CULVERT WITH SAND BAGS TO CHANNELIZE FLOW).
3. INSTALL ROCK CONSTRUCTION ENTRANCES PER THE PLANS.
4. THE CONTRACTOR WILL AVOID PLACING BORE PITS WITHIN WETLANDS UNLESS ALL OTHER OPTIONS ARE EXHAUSTED. IF NO OTHER OPTION IS AVAILABLE THE BORE PITS WILL BE PERMITTED AS DISTURBANCE AND WETLAND IMPACTS UNDER CHAPTER 102 AND 105. ALL STOCKPILES, MUD CLEANING AREAS, AND OTHER WORK NOT REQUIRED WITHIN THE BORE PIT VICINITY WILL BE LOCATED AT LEAST 10 FEET AWAY FROM ALL WETLANDS.

1 / DET09 — HDD

CONTINGENCY PLAN DETAILS FOR WATERBODY, WETLAND, & UPLAND INADVERTENT RETURNS



2 / DET09 — CONTINGENCY PLAN DETAILS

SHELL PIPELINE HDD PROCEDURE

INTRODUCTION

THE CONSTRUCTION OF THE PROJECT WILL INVOLVE THE USE OF THE HORIZONTAL DIRECTIONAL DRILLING ("HDD") INSTALLATION TECHNIQUE FOR AVOIDING ENVIRONMENTALLY SENSITIVE RESOURCES OR OBSTRUCTIONS THAT OCCUR ALONG THE PROJECT PIPELINE ROUTE. THIS BEST DRILLING PRACTICES PLAN ("PLAN") HAS BEEN DEVELOPED TO MINIMIZE OR QUICKLY RESOLVE POSSIBLE INADVERTENT EFFECTS BY IDENTIFYING APPROPRIATE CORRECTIVE ACTIONS FOR VARIOUS POTENTIAL SCENARIOS THAT MAY BE ENCOUNTERED DURING HDD OPERATIONS. THE PURPOSE OF THIS DOCUMENT IS TO PROVIDE A DESCRIPTION OF PROPOSED HDD WORK ACTIVITIES, THE HDD WORKING PROCEDURES, MONITORING OF INADVERTENT RETURNS OF DRILLING FLUID (INCLUDING TRAINING AND REPORTING), RESPONSE TO HDD OPERATIONS, AND PROPOSED CLEANUP TECHNIQUES IF INADVERTENT RETURNS OCCUR DURING HDD ACTIVITIES ON THE PROJECT. THE FOLLOWING SECTIONS OF THIS PLAN PROVIDE THE PROCESSES AND PROCEDURES TO BE IMPLEMENTED IN THE CASE OF INADVERTENT RETURNS OR RETURNS OF DRILLING FLUID DURING HDD ACTIVITIES.

DESCRIPTION OF WORK

THE HDD METHOD REQUIRES ESTABLISHING STAGING AREAS AT BOTH ENDS OF THE PROPOSED CROSSING, TYPICALLY KNOWN AS THE ENTRY AND EXIT POINTS, OR WORKSPACES. THE PROCESS COMMENCES WITH THE DRILLING OF A PILOT HOLE ALONG A PREDETERMINED PATH BENEATH THE OBSTRUCTION, WETLAND OR WATERBODY. ONCE THE PILOT HOLE HAS BEEN COMPLETED, THE DRILLED HOLE IS ENLARGED WITH ONE OR MORE PASSES OF A REAMER UNTIL THE DIAMETER OF THE HOLE IS ADEQUATE TO COMPLETE THE PULL-BACK (INSTALLATION) OF THE PIPELINE. ONCE THE REAMING PASS(S) ARE COMPLETED, PREFABRICATED PIPE SEGMENTS ARE THEN PULLED THROUGH THE HOLE TO COMPLETE THE INSTALLATION. ADDITIONAL WELDING TO JOIN THE PREFABRICATED SEGMENTS MAY BE REQUIRED DURING THE PULLBACK PROCESS. WHILE THE HDD METHOD IS A COMMONLY USED, PROVEN TECHNOLOGY, THERE IS THE POTENTIAL FOR UNINTENDED EFFECTS THAT COULD OCCUR AS A RESULT OF THE DRILLING.

DRILLING FLUIDS

THE HDD PROCESS USES ENGINEERED DRILLING FLUIDS TO FACILITATE MANY OF THE HDD OPERATIONS. DRILLING FLUID IS A SLURRY COMPOSED PRIMARILY OF WATER AND BENTONITE CLAY (TYPICALLY 95 PERCENT WATER). BENTONITE (SODIUM MONTMORILLONITE) IS NATURALLY OCCURRING CLAY, USUALLY MINED IN WYOMING, WHICH IS EXTREMELY HYDROPHILIC AND CAN ABSORB UP TO TEN TIMES ITS WEIGHT IN WATER. BENTONITE IS NOT CONSIDERED A HAZARDOUS MATERIAL, AS DEFINED BY THE ENVIRONMENTAL PROTECTION AGENCY. IT IS NON-TOXIC TO THE AQUATIC ENVIRONMENT. THE COMPOSITION OF THE DRILLING FLUIDS AND ITS ENGINEERING PROPERTIES TESTED TO ENSURE THEIR SUITABILITY FOR THE GIVEN SUBSURFACE CONDITIONS ENCOUNTERED ALONG THE ALIGNMENT AND AT EACH INDIVIDUAL HDD LOCATION
THE SLURRY IS DESIGNED TO:

- STABILIZE THE HOLE AGAINST COLLAPSE;
- LUBRICATE, COOL, AND CLEAN THE CUTTERS;
- TRANSPORT CUTTINGS BY SUSPENSION AND FLOW TO ENTRY AND EXIT POINTS; AND REDUCE SOIL FRICTION AND REQUIRED PULL LOADS DURING PILOT HOLE, REAMING, AND CARRIER PIPE INSTALLATION.

DEPENDING ON SUBSURFACE CONDITIONS ENCOUNTERED, CERTAIN LOST CIRCULATION MATERIALS (LCMS) AND SPECIAL POLYMERS MAY ALSO BE INTRODUCED IN THE DRILLING FLUID MIXTURE. LOST CIRCULATION MATERIALS MAY BE USED DURING INADVERTENT RETURN EVENTS AND/OR IN CERTAIN CASES WHEN DRILLING FLUID CIRCULATION SEEMS TO BE DIMINISHING. IN THE EVENT THAT EXISTING FLOW PATHS (FAULTS, FRACTURES, VOIDS, ETC.) INTERSECT THE HDD PATH, LCMS MAY BE USED IN AN ATTEMPT TO SEAL AROUND THE BOREHOLE AND PREVENT DRILLING FLUID FROM ESCAPING INTO THE FORMATION AND ALLOW FOR THE REESTABLISHMENT OF DRILLING FLUID RETURNS TO THE ENTRY AND/OR EXIT PITS. MANY TYPES OF LCMS ARE AVAILABLE FOR USE DURING HDD OPERATIONS THAT ARE INERT AND ENVIRONMENTALLY BENIGN.

SHELL IS IN THE EARLY PHASES OF SELECTING PIPELINE AND HDD CONSTRUCTION CONTRACTORS. THEREFORE, AT THIS TIME, SHELL IS UNABLE TO IDENTIFY THE SPECIFIC LCMS AND POLYMERS THAT MAY BE USED ON THE PROJECT. FOR EXAMPLE, DRILLING FLUID ADDITIVES THAT MAY BE USED IN CLAY WILL NOT LIKELY BE BENEFICIAL IN ROCK. CONSIDERATION IS ALSO GIVEN TO THE VARYING GEOLOGICAL FORMATIONS THE PROJECT TRAVERSE.

AFTER HDD CONTRACTOR SELECTION IS COMPLETED AND PRIOR TO THE START OF CONSTRUCTION, THE HDD CONTRACTORS WILL BE REQUIRED TO SUBMIT A LIST OF DRILLING FLUID ADDITIVES (E.G., POLYMERS, LCM, ETC.) PROPOSED FOR USE ON THE PROJECT TO SHELL FOR REVIEW AND APPROVAL. SHELL WILL EVALUATE THE CONTACTOR'S LIST OF PROPOSED POLYMERS, DETERMINE WHICH OF THE PROPOSED PRODUCTS WILL BE AUTHORIZED FOR PROJECT USE AND PROVIDE THAT LIST TO REGULATORY AUTHORITIES STAFF. SHELL WILL INITIALLY DETERMINE THE PRODUCTS WILL BE AUTHORIZED FOR PROJECT USE BASED ON COMPLIANCE WITH NSF 60 STANDARDS. NSF 60 IS A STANDARD THAT ESTABLISHES HEALTH AND SAFETY CRITERIA FOR THE CHEMICAL TREATMENT OF DRINKING WATER AND CONSEQUENTLY, DRINKING WATER WELL DEVELOPMENT ("NSF/ANSI STANDARD 60"). IN ADDITION TO NSF 60 CRITERIA, ANY OTHER APPLICABLE FEDERAL OR STATE REQUIREMENTS WILL ALSO BE CONSIDERED DURING THE REVIEW PROCESS. AFTER THIS PROCESS HAS BEEN COMPLETED, SHELL WILL SUBMIT TO REGULATORY AUTHORITIES A LIST OF SPECIFIC ADDITIVES PLANNED TO BE USED ON THE PROJECT.
IN LIEU OF SPECIFIC POLYMER IDENTIFICATION, AT THIS TIME, SHELL OFFERS THE FOLLOWING INFORMATION ON CATEGORIES OF POLYMERS THAT MAY BE USED DURING HDD OPERATIONS:

- BOREHOLE STABILIZERS/VISCOSIFIERS: POLYMERS USED TO INCREASE VISCOSITY AND GEL STRENGTH OF WATER/BENTONITE DRILLING FLUIDS.
- LOST CIRCULATION MATERIALS: CAN BE POLYMERS BUT SOMETIMES OTHER BIO-DEGRADABLE MATERIALS ARE USED AS LCMS (I.E. WALNUT SHELLS, PAPER ETC.).

MOST DRILLING FLUIDS, DRILLING FLUID ADDITIVES AND POLYMERS USED IN THE HDD INDUSTRY ARE NSF 60 COMPLIANT, AS THESE PRODUCTS ARE ALSO USED IN OTHER ROTARY DRILLING APPLICATIONS SUCH AS WATER WELL DRILLING AND COMPLETION. THEREFORE, IF NSF 60 COMPLAINT PRODUCTS ARE USED THERE WILL BE NO EFFECTS ON WATER QUALITY. INFORMATION ON TYPICAL DRILLING FLUID ADDITIVES IS FOUND IN APPENDIX A. PLEASE NOTE THESE OR OTHER SIMILAR PRODUCTS MAY BE USED ON THE PROJECT.

HDD WORKING PROCEDURES

PRIOR TO STARTING ANY HDD DRILLING THE HI AND EI WILL VERIFY THAT ALL ENVIRONMENTAL CONTROLS ARE IN PLACE.
THERE WILL BE THE POTENTIAL FOR INADVERTENT RETURNS OR LOSS OF DRILLING FLUIDS FROM THE BORED HOLE. HOWEVER, DRILLING FLUIDS THAT ARE RETURNED WILL LIKELY CONTAIN A LOWER CONCENTRATION OF BENTONITE WHEN THEY SURFACE BECAUSE THE MIXTURE MAY BE FILTERED AND SOMEWHAT DILUTED AS IT PASSES THROUGH EXISTING SEDIMENTS OF VARIOUS TYPES.
INADVERTENT RETURNS MAY OCCUR AS A RESULT OF ROCK FRACTURES, LOW DENSITY/LOW STRENGTH SOILS, AND UNCONSOLIDATED GEOLOGY, WHICH WERE NOT FORESEEN DURING THE DESIGN PHASE. INADVERTENT RETURNS ARE READILY DETECTED AT THE SURFACE AS SEEPAGE (POOLING OF DRILLING MUD AT THE SURFACE) OR A LOSS OF CIRCULATION OF THE DRILLING FLUID. WHEN THE OPERATOR OBSERVES A LOSS OF DRILLING FLUID RETURNING, IT IS AN INDICATOR THAT SEEPAGE MAY BE OCCURRING OUTSIDE OF THE HOLE. LOSS OF DRILLING FLUID RETURNS IS ONLY AN INDICATOR AS SOME LOSS OF DRILLING FLUID IS EXPECTED, SUCH AS WHERE LOOSE SEDIMENTS ARE ENCOUNTERED AND MORE DRILLING FLUID IS REQUIRED TO BE ADDED TO FILL THE VOIDS.
PRIOR TO THE START OF DRILLING OPERATIONS, SITE-SPECIFIC HDD PROCEDURES WILL BE REVIEWED WITH THE HDD CONTRACTOR. AT A MINIMUM, THE HDD PROCEDURES WILL ADDRESS THE FOLLOWING:

MONITORING ANNULAR PRESSURE

INADVERTENT RETURNS MAY OCCUR WHEN THE PRESSURE OF THE DRILLING FLUID IN THE BORED HOLE EXCEEDS THE LIMITING STRENGTH OF THE SOILS. EACH PILOT HOLE WILL INCORPORATE "PRESSURE WHILE DRILLING" (PWD) INSTRUMENTATION. THE PWD TOOL MEASURE THE FLUID PRESSURE NEAR THE DRILL BIT. PRESSURES MAY INCREASE WHEN THERE IS AN OBSTRUCTION TO ANNULAR FLOW SOMEWHERE BETWEEN THE BIT AND THE ENTRY AT GROUND SURFACE. IF PRESSURES RISE OR SPIKE, THE DRILLER CAN INITIATE REMEDIAL ACTIONS (SEE BELOW) PRIOR TO SEEING ANY INADVERTENT RETURN AT THE SURFACE.

RETURN CIRCULATION

ONCE IT IS INDICATED TO THE DRILLER THAT DRILLING FLUID CIRCULATION IS DISSIPATING OR THAT A RETURN HAS OCCURRED, THE DRILLER HAS THE FOLLOWING OPTIONS (OR ANY COMBINATION OF THESE OPTIONS):

- DECREASE PUMP PRESSURE;
- DECREASE PENETRATION RATE;
- RETRACT THE DRILL STRING A DISTANCE TO RESTORE CIRCULATION ("SWAB" THE HOLE);
- INTRODUCE ADDITIONAL DRILLING FLUID FLOW ALONG THE HOLE USING "WEEPER" SUBS; AND
- INTRODUCE LOST CIRCULATION ADDITIVES TO THE DRILLED HOLE.

INADVERTENT RETURNS AT ACCESSIBLE LOCATIONS

IF INADVERTENT RETURNS ARE OBSERVED ON THE GROUND SURFACE ALONG PORTIONS OF THE ALIGNMENT THAT ARE ACCESSIBLE, CONTAINMENT AND RECOVERY OPERATIONS WILL BE COMPLETED IN ACCORDANCE WITH THE PROCEDURES DISCUSSED THIS PLAN. ONCE THE INADVERTENT RETURN IS CONTAINED, DRILLING OPERATIONS WILL RESUME.

INADVERTENT RETURNS AT IN-ACCESSIBLE LOCATIONS

IF INADVERTENT RETURNS ARE OBSERVED ON THE GROUND SURFACE ALONG PORTIONS OF THE ALIGNMENT THAT ARE INACCESSIBLE; THE FOLLOWING PROCEDURES WILL BE FOLLOWED:

- CONTRACTOR WILL ENSURE ALL REASONABLE MEASURES WITHIN THE LIMITATIONS OF CURRENT TECHNOLOGY HAVE BEEN TAKEN TO RE-ESTABLISH CIRCULATION; AND
- CONTINUE DRILLING UTILIZING A MINIMAL AMOUNT OF DRILLING FLUID AS REQUIRED TO PENETRATE THE FORMATION OR TO MAINTAIN A SUCCESSFUL CARRIER PIPE PULL BACK.

MONITORING AND REPORTING OF INADVERTENT RETURNS

PERSONNEL AND RESPONSIBILITIES THE ACTIONS IN THIS PLAN ARE TO BE IMPLEMENTED BY THE FOLLOWING PERSONNEL:

HDD INSPECTOR

SHELL WILL DESIGNATE A HDD (HI) INSPECTOR FOR THE PROJECT. THE HI WILL HAVE OVERALL AUTHORITY FOR CONSTRUCTION ACTIVITIES THAT OCCUR ON THEIR DESIGNATED HDD OF THE PROJECT. THE HDD INSPECTORS WILL REPORT TO A CHIEF INSPECTOR (CI) THAT IS IN CHARGE OF THE OVERALL PROJECT.
THE HI HAS THE TOTAL RESPONSIBILITY TO VERIFY THAT ALL HDD PROCEDURES ARE FOLLOWED. IF ANY HDD PROCEDURE IS NOT BEING FOLLOWED THE HDD WILL BE STOPPED AND THE CI WILL BE NOTIFIED. THE PROCEDURE WILL BE REVIEWED AGAIN WITH THE HDD CONTRACTORS MANAGEMENT TEAM TO MAKE SURE THAT ALL PROCEDURES ARE BEING FOLLOWED.

ENVIRONMENTAL INSPECTOR

TWO ENVIRONMENTAL INSPECTORS (EI) WILL BE DESIGNATED BY SHELL TO EACH SPREAD THIS INCLUDES THE HDD ACTIVITIES. THE EI WILL HAVE PEER STATUS WITH ALL OTHER CRAFT INSPECTORS AND WILL REPORT DIRECTLY TO THE CI WHO HAS OVERALL AUTHORITY. THE EI, ALONG WITH ALL OTHER INSPECTORS AND INSPECTION PERSONNEL, WILL HAVE THE AUTHORITY TO STOP ACTIVITIES THAT VIOLATE THE ENVIRONMENTAL CONDITIONS OF THE REGULATORY AUTHORITIES CERTIFICATE (IF APPLICABLE), OTHER FEDERAL AND STATE PERMITS, OR LANDOWNER REQUIREMENTS, AND TO ORDER CORRECTIVE ACTION.

HDD SUPERINTENDENT

THE HDD SUPERINTENDENT IS THE SENIOR ON-SITE REPRESENTATIVE OF THE HDD CONTRACTOR. THE HDD SUPERINTENDENT HAS OVERALL RESPONSIBILITY FOR IMPLEMENTING THIS PLAN ON BEHALF OF THE HDD CONTRACTOR. THE HDD SUPERINTENDENT WILL BE FAMILIAR WITH THE ASPECTS OF THE DRILLING ACTIVITY, THE CONTENTS OF THE PLAN AND THE CONDITIONS OF APPROVAL UNDER WHICH THE ACTIVITY IS PERMITTED TO TAKE PLACE. THE HDD SUPERINTENDENT WILL MAKE AVAILABLE A COPY OF THIS PLAN TO THE APPROPRIATE CONSTRUCTION PERSONNEL. THE HDD SUPERINTENDENT WILL ENSURE THAT WORKERS ARE PROPERLY TRAINED AND FAMILIAR WITH THE NECESSARY PROCEDURES FOR RESPONSE TO AN INADVERTENT RETURN.

HDD OPERATOR

THE HDD OPERATOR IS THE HDD CONTRACTOR'S DRILLER OPERATING THE DRILLING RIG AND MUD PUMPS. THE HDD OPERATOR IS RESPONSIBLE FOR MONITORING CIRCULATION BACK TO THE ENTRY AND EXIT LOCATIONS. IN THE EVENT OF LOSS OF CIRCULATION, THE HDD OPERATOR MUST COMMUNICATE THE EVENT TO THE HDD SUPERINTENDENT AND HDD CONTRACTOR FIELD CREWS. THE HDD OPERATOR IS RESPONSIBLE FOR STOPPAGE OR CHANGES TO THE DRILLING PROGRAM IN THE EVENT OF OBSERVED INADVERTENT RETURNS.

HDD CONTRACTOR PERSONNEL

DURING HDD INSTALLATION, FIELD CREWS WILL BE RESPONSIBLE FOR MONITORING THE HDD ALIGNMENT ALONG WITH SHELL'S FIELD REPRESENTATIVES'. FIELD CREWS, IN COORDINATION WITH THE EI, ARE RESPONSIBLE FOR TIMELY NOTIFICATIONS AND RESPONSES TO OBSERVED RETURNS TO THE CI AND APPROPRIATE AGENCIES, IN ACCORDANCE WITH THIS PLAN. THE EI AND CI ULTIMATELY MUST APPROVE THE ACTION PLAN FOR MITIGATING THE RETURN.
THE HDD CONTRACTOR WILL HAVE PERSONAL THAT IS ASSIGNED TO MONITOR THE HDD PATH. THEIR RESPONSIBILITY IS TO MONITOR THE HDD PATH DURING THE HDD PROCESS UNTIL THE PIPE IS PULLED INTO THE HDD HOLE. THERE WILL BE GOOD RADIO COMMUNICATION WITH THE HDD AND THE GROUND PERSONAL ON THE HDD PATH. IF ANY INADVERTENT RELEASES IS DISCOVERED THE HDD WILL BE STOPPED UNTIL THE RELEASE IS CONTAINED AND SHELL GIVE THE HDD CONTRACTOR PERMISSION TO START THE HDD PROCESS WORK AGAIN.

TRAINING

PRIOR TO DRILLING, THE HDD SUPERINTENDENT, HI, AND THE EI WILL VERIFY THAT THE HDD OPERATOR AND FIELD CREW RECEIVE THE FOLLOWING SITE-SPECIFIC TRAINING, BUT NOT LIMITED TO:

- PRIOR TO THE START OF EACH HDD EACH PERSON INVOLVED WITH THE HDD WILL BE REQUIRED TO GO THROUGH TRAINING. THIS TRAINING WILL DISCUSS THE HDD PROCEDURES INCLUDING ANY INADVERTENT RETURNS REPORTING.
- PROJECT SPECIFIC SAFETY AND ENVIRONMENTAL TRAINING;
- REVIEW PROVISIONS OF THIS PLAN AND SITE-SPECIFIC PERMIT REQUIREMENTS;
- REVIEW LOCATION OF SENSITIVE ENVIRONMENTAL RESOURCES AT THE SITE;
- REVIEW DRILLING PROCEDURES FOR RETURN PREVENTION;
- REVIEW THE SITE-SPECIFIC MONITORING REQUIREMENTS;
- REVIEW THE LOCATION AND OPERATION OF RETURN CONTROL EQUIPMENT AND MATERIALS; AND
- REVIEW PROTOCOLS FOR REPORTING OBSERVED INADVERTENT RETURNS.

MONITORING & REPORTING

THE HDD ALIGNMENT WILL BE "WALKED" AND OBSERVED FOR INADVERTENT RETURNS AT LEAST FOUR TIMES PER SHIFT. EACH INSPECTION WILL BE NOTED IN THE HDD CONTRACTOR'S DAILY REPORT AND THE SPLC CHECK LIST. THIS PROCESS WILL BE EVALUATED FOR EACH DRILL. SOME HDD WILL REQUIRE MORE WALKED AND OBSERVED PROCESS. THE TIMING FOR THE INSPECTION WALKS WILL BE AGREED TO BY THE HDD CONTRACTOR AND SPLC HI BEFORE THE HDD STARTS. THE TIMING WILL BE RECORDED IN BOTH THE DAILY LOGS FOR BOTH HDD CONTRACTOR AND SPLC HI.

IF THE HDD OPERATOR OBSERVES A LOSS OF CIRCULATION, THE OPERATOR WILL NOTIFY THE HDD SUPERINTENDENT, HI AND FIELD CREWS OF THE EVENT AND APPROXIMATE POSITION OF THE CUTTING HEAD. WHERE PRACTICAL, A MEMBER OF THE FIELD CREW WILL VISUALLY INSPECT THE GROUND SURFACE NEAR THE POSITION OF THE CUTTING HEAD. SURFACE WATERS, WELLS, AND MAPPED SPRINGS WITHIN 2,000 FEET OF THE HDD SITE WILL ALSO BE VISUALLY INSPECTED.

TYPICALLY, INADVERTENT RETURNS ARE MOST OFTEN DETECTED IN THE AREA NEAR THE ENTRY OR EXIT POINTS (APPROXIMATELY 200-FEET) OF THE DRILL ALIGNMENT WHERE THE HDD PATH IS AT SHALLOW DEPTHS, ABOVE BEDROCK, AND IN PERMEABLE/POROUS SOILS. IN THESE OCCURRENCES THE HDD SUPERINTENDENT, EI, AND CI WILL DETERMINE AN ESTIMATED VOLUME AND THE BEST METHODS FOR CONTAINMENT.

IF AN INADVERTENT RETURN IS OBSERVED SOMEWHERE BEYOND:

- FIELD CREW WILL NOTIFY (VIA HAND-HELD RADIO OR CELL PHONE) THE HDD OPERATOR AND CI.
- THE HDD OPERATOR WILL TEMPORARILY CEASE PUMPING OF THE DRILLING FLUID AND NOTIFY THE HDD SUPERINTENDENT AND CI. THE HDD SUPERINTENDENT WILL ASSESS THE DRILLING PARAMETERS (DEPTH, TYPE OF FORMATION, FLUID FLOW RATE, AND DRILLING FLUID CHARACTERISTICS) AND PROPOSE APPROPRIATE CHANGES.
- THE HI WILL NOTIFY AND COORDINATE A RESPONSE WITH THE EI. THEY WILL ALSO ASSESS THE POTENTIAL OF THE RETURN TO REACH ADJACENT WATERBODIES, WETLANDS, OR OTHER TYPES OF INFRASTRUCTURE (E.G., WELLS).
- THE EI, IN COORDINATION WITH THE HDD SUPERINTENDENT AND HI WILL DETERMINE WHEN DRILLING OPERATIONS CAN RESUME. THE DRILLING PROCESS WILL NOT BE ALLOWED TO RESUME UNTIL A SHELL REPRESENTATIVE APPROVES THE HDD DRILLING TO RESUME. SPLC CONSTRUCTION MANAGER WILL HAVE TO APPROVE THE HDD DRILLING TO RESUME THE DRILLING BEFORE THE HDD DRILLING CAN PROCEED.
- THE SHELL REPRESENTATIVE WILL NOTIFY REGULATORY AUTHORITIES AND THE APPROPRIATE PERMITTING AUTHORITIES AS NECESSARY OF THE EVENT AND PROPOSED RESPONSE AND PROVIDE REQUIRED DOCUMENTATION WITHIN 24 HOURS.
- THE CI WILL PREPARE A REPORT THAT SUMMARIZES THE INCIDENT.

RESPONSE TO INADVERTENT RETURNS

THE HDD SUPERINTENDENT, EI, AND HI WILL COORDINATE INSTALLATION OF APPROPRIATE CONTAINMENT STRUCTURES. SITE TOPOGRAPHY IN CONJUNCTION WITH ACCESS FOR PERSONNEL AND EQUIPMENT TO THE RETURN SITE ARE MAJOR FACTORS IN DETERMINING THE METHODS USED FOR CONTAINMENT AND DISPOSAL. TYPICALLY, CONTAINMENT IS ACHIEVED BY EXCAVATING A SMALL SUMP PIT (APPROXIMATELY 5-CUBIC YARDS) AT THE SITE OF THE RETURN AND/OR SURROUNDING THE RETURN WITH FILTER SOCK AND/OR SAND BAGS. ONCE CONTAINED, THE DRILLING FLUID IS EITHER COLLECTED BY VACUUM TRUCKS OR PUMPED TO A LOCATION WHERE VACUUM TRUCKS CAN BE ACCESSED. THE FLUIDS ARE THEN TRANSPORTED EITHER BACK TO THE HDD DRILLING RIG OR TO A DISPOSAL SITE.

THE HDD CONTRACTOR WILL HAVE ON-SITE, PRIOR TO DRILLING, AN APPROPRIATE INVENTORY OF MATERIALS AND EQUIPMENT TO CONTAIN INADVERTENT RETURNS. THIS EQUIPMENT WILL BE ON STAND BY FOR THE ENTIRETY OF THE DRILLING PROCESS. THE MATERIALS AND EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO:

- COMPOST FILTER SOCK (12-INCH TO 36-INCH IN ADDITION TO THE PERIMETER CONTROLS SHOWN ON THE DRAWINGS)
- SAND BAGS
- HAND TOOLS (SHOVELS, RAKES, ETC.)
- PUMPS AND HOSES (THREE, 3-INCH TRASH PUMPS WITH 300 FEET OF DISCHARGE HOSES AT EACH HDD LOCATION)
- PUMPED WATER FILTER BAGS
- VACUUM TRUCK(S) (60 BBL OR GREATER CAPACITY)
- BACKHOE
- EQUIPMENT MATS
- AQUA BARRIERS/TURBIDITY CURTAINS
- PERMANENT SEEDING RESTORATION (PER E&S PLAN)

THE SITE-SPECIFIC RESPONSE WILL FOLLOW THE GUIDELINES PROVIDED IN THE FOLLOWING SECTIONS.

UPLAND LOCATIONS

- EVALUATE THE AMOUNT OF RETURNS TO DETERMINE IF CONTAINMENT STRUCTURES ARE WARRANTED AND IF THEY WILL EFFECTIVELY CONTAIN THE RETURN.
- PROMPTLY IMPLEMENT APPROPRIATE CONTAINMENT MEASURES AS NEEDED TO CONTAIN AND RECOVER THE SLURRY.
- IF THE RETURN IS WITHIN 100-FEET OF A WETLAND OR WATERBODY, COMPOST FILTER SOCK WILL BE INSTALLED BETWEEN THE RETURN SITE AND THE WETLAND OR WATERBODY.
- IF THE RETURN CANNOT BE CONTAINED, THEN THE OPERATOR MUST SUSPEND DRILLING OPERATIONS UNTIL APPROPRIATE CONTAINMENT IS IN PLACE.
- REMOVE THE FLUIDS USING EITHER A VACUUM TRUCK OR BY PUMPING TO A LOCATION WHERE A VACUUM TRUCK IS ACCESSIBLE.
- RESTORE UPLAND AREA WITH PERMANENT SEEDING, MULCH AND SOIL SUPPLEMENTS PER THE APPROVED E&SCP.

WETLAND AND MINOR WATERBODY LOCATIONS

- EVALUATE THE AMOUNT OF RETURN TO DETERMINE IF CONTAINMENT STRUCTURES ARE WARRANTED AND IF THEY WILL EFFECTIVELY CONTAIN THE RETURN.
- PROMPTLY IMPLEMENT APPROPRIATE CONTAINMENT MEASURES TO CONTAIN AND RECOVER THE SLURRY. EFFORTS TO CONTAIN AND RECOVER SLURRY IN WETLANDS OR STREAM MAY RESULT IN FURTHER DISTURBANCE BY EQUIPMENT AND PERSONNEL, AND POSSIBLY OFFSET THE BENEFIT GAINED IN REMOVING THE SLURRY.
- IF THE RETURN CANNOT BE CONTROLLED OR CONTAINED, IMMEDIATELY SUSPEND DRILLING OPERATIONS UNTIL APPROPRIATE CONTROLS CAN BE IMPLEMENTED AND THE ASSESSMENT OF THE IMPACT TO THE WETLAND IS COMPLETED BY THE EI AND THE GOVERNING AGENCY. DRILLING MAY COMMENCE WHEN APPROVED MEASURES ARE IN PLACE AND INSPECTED BY THE EI. THE SPLC CONSTRUCTION MANAGER MUST APPROVE THE HDD DRILLING TO RESUME.

MAJOR WATERBODY LOCATIONS

SHELL'S PROPOSED HDDS ARE BEING DESIGNED TO MINIMIZE THE POTENTIAL FOR INADVERTENT RETURNS. SHELL'S CONTRACTOR(S) MAY ALSO EMPLOY THE TECHNIQUES DESCRIBED BELOW TO REDUCE THE POSSIBILITY OF INADVERTENT RETURNS.

SURFACE CASING

IF DEEMED NECESSARY, SURFACE CASING MAY BE INSTALLED IN CERTAIN INSTANCES. SURFACE CASING PROVIDES A CONDUIT TO ALLOW DRILLING FLUIDS TO RETURN FROM THE DRILL PATH BACK TO THE SURFACE. ADDITIONALLY, SURFACE CASING HELPS ISOLATE THE DRILL PATH FROM REGIONS OF UNSTABLE OVERBURDEN MATERIAL.

INTERSECT METHOD

SHELL'S CONTRACTOR(S) MAY DRILL SOME OF THE PILOT HOLES FROM BOTH SIDES OF THE CROSSING AND PERFORM AND INTERSECT NEAR A PREDETERMINED POINT, USUALLY NEAR THE MIDDLE OF THE CROSSING. THE INTERSECT METHOD IS WIDELY USED IN LONG, LARGE DIAMETER HDDS. THE INTERSECT METHOD REDUCES THE LENGTH THAT MUST BE DRILLED FROM EACH END AND THEREBY DECREASES THE DISTANCE THAT DRILLING FLUIDS NEED TO BE PUMPED IN ORDER TO RETURN TO SURFACE AT THE ENTRY/EXIT POINTS. UTILIZATION OF THIS METHOD IS PARTICULARLY ADVANTAGEOUS IN LONGER CROSSINGS BECAUSE THE REDUCED DISTANCE THAT DRILLING FLUID MUST BE PUMPED SUBSEQUENTLY DECREASES THE FLUID PRESSURE REQUIRED FOR THE DRILLING FLUID TO TRAVEL BACK TO THE ENTRY/EXIT POINTS.

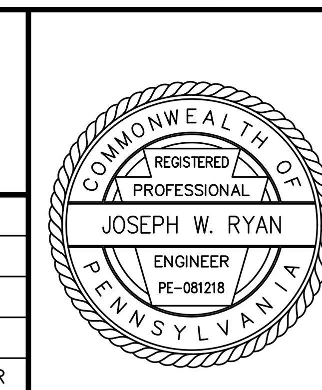
IN THE EVENT OF AN INADVERTENT RETURN IN A FLOWING WATERBODY, THE FOLLOWING APPROACH WILL GENERALLY BE FOLLOWED AFTER THE INADVERTENT RETURN HAS BEEN ISOLATED AND THE FLOW HAS STOPPED. DUE TO THE UNPREDICTABLE NATURE OF THE LOCATIONS AND ENVIRONMENT IN WHICH INADVERTENT RETURNS MAY APPEAR, THIS DESCRIPTION CANNOT ENCOMPASS ALL POSSIBLE APPROACHES TO CLEAN-UP UNDER ALL CONDITIONS. AGENCY STAFF AND OTHER EXPERTS WILL BE CONSULTED TO THE EXTENT PRACTICABLE IN THE DEVELOPMENT OF REMEDIAL CLEAN UP TECHNIQUES, AS REQUIRED.
THE FOLLOWING ARE STANDARD RESPONSE TECHNIQUES THAT MAY BE APPLIED:

- IF THE BENTONITE MATERIAL FLOWS OVERLAND PRIOR TO ENTERING THE WATERBODY, INSTALLATION OF COMPOST FILTER SOCK OR SANDBAG DAMS AT THE POINT OF ENTRY WILL BE USED TO REDUCE OR STOP THE FLOW; IF THE VENT IS DIRECTLY INTO THE WATERBODY, OTHER MEANS TO ISOLATE THE VENT SITE FROM THE FLOWING WATERBODY WILL BE USED.
- USING A VACUUM TRUCK OR PUMP(S), WITH A SUFFICIENT HOSE, PERSONNEL WILL REMOVE THE BENTONITE, WORKING FROM DOWNSTREAM TO UPSTREAM, TO ALLOW MAXIMUM VISIBILITY. HAND TOOLS MAY BE USED TO SCARIFY THE SEDIMENTS AND ENSURE REMOVAL TO THE MAXIMUM EXTENT PRACTICABLE. IF PUMPS ARE USED, DISCHARGED
- WATER SHALL BE TO AN IMPERMEABLE STRUCTURE OR TO FILTERING DEVICES SUCH AS A COMPOST FILTER SOCK SUMP OR PUMPED WATER FILTER BAGS.
- IF NECESSARY, WATER MAY BE DIVERTED USING TEMPORARY BARRIERS TO ISOLATE THE IMPACT AREA. ONLY A PORTION OF THE STREAM WILL BE DIVERTED TO MINIMIZE DEWATERING IMPACTS. WATER WILL BE ABLE TO PASS THROUGH THE SITE IN ITS NATURAL CONDITION.
- IF IT IS IMPRACTICABLE TO REMOVE THE DRILL FLUID FROM THE SURFACE WATER, A CLEAR WRITTEN EXPLANATION WILL BE SUBMITTED TO THE APPLICABLE REGULATORY AGENCIES.
- ANY DISTURBED SOILS WILL BE STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING, SEEDING AND SOIL SUPPLEMENTS, OR RIPRAP, DEPENDING ON THE SITE CONDITIONS.
- EXPOSED SOILS WILL HAVE TEMPORARY EROSION CONTROL MEASURES ESTABLISHED AS SOON AS PRACTICAL WITH PERMANENT EROSION CONTROLS ESTABLISHED AS SOON AS POSSIBLE AS DESCRIBED IN THE PROJECT E&SCP.
- DISTURBANCE OF VEGETATION WILL BE KEPT TO A MINIMUM AND ALL DISTURBED VEGETATION WILL BE RESTORED.

1550 (line)	EXISTING CONTOURS (INDEX)
dashed line	EXISTING CONTOURS (INTERMEDIATE)
dash line	EXISTING PROPERTY LINE
blue line	EXISTING STREAM
purple line	ASSUMED FLOODWAY (50 FEET)
green line	STREAM BUFFER (100 FEET)
shaded box	EXISTING WETLAND
scalloped line	TREE/BRUSH LINE
red line	PROPOSED PIPELINE
heavy dashed line	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
dash line	ACCESS ROAD CENTERLINE
cyan line	PROPOSED SILT FENCE (BY TYPE)
magenta line	PROPOSED COMPOST FILTER SOCK
red arrow	PROPOSED RIGHT OF WAY DIVERSION
black block	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
hatched box	PROPOSED TIMBER MAT
yellow hatch	PROPOSED EROSION CONTROL BLANKET
stone pattern	PROPOSED STONE CONSTRUCTION ENTRANCE
dashed box	100-YEAR FLOODPLAIN
yellow line	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR



FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CONTROL DETAILS – DET08
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119692	REVISION
DRAWN	JWR	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:37 AM)

SHELL PIPELINE HDD PROCEDURE (CONTINUED)

CLEAN UP

AFTER COMPLETION OF THE HDD INSTALLATION, THE CI AND THE HDD SUPERINTENDENT WILL DEVELOP SITE-SPECIFIC CLEAN-UP MEASURES FOR APPROVAL BY THE EI. POTENTIAL FOR SECONDARY IMPACT FROM THE CLEAN-UP PROCESS WILL BE EVALUATED, AS WELL AS THE BENEFITS OF CLEAN-UP ACTIVITIES.

THE FOLLOWING MEASURES MAY BE USED:

- DRILLING MUD WILL BE CLEANED UP BY HAND USING HAND SHOVELS, BUCKETS AND SOFT BRISTLED BROOMS MINIMIZING DAMAGE TO EXISTING VEGETATION.
- FRESH WATER WASHES MAY BE EMPLOYED IF DEEMED BENEFICIAL AND FEASIBLE.
- CONTAINMENT STRUCTURES WILL BE PUMPED OUT AND THE GROUND SURFACE SCRAPED TO BARE TOPSOIL MINIMIZING LOSS OF TOPSOIL OR DAMAGE TO ADJACENT VEGETATION.
- THE RECOVERED DRILLING FLUID WILL BE RECYCLED OR DISPOSED OF AT AN APPROVED UPLAND LOCATION OR DISPOSAL FACILITY. RECOVERED DRILLING FLUID WILL NOT BE DISPOSED OF IN STREAMS OR STORM DRAINS.
- ALL CONTAINMENT STRUCTURES WILL BE REMOVED.
- RECOVERED MATERIALS WILL BE COLLECTED IN CONTAINERS FOR TEMPORARY STORAGE PRIOR TO REMOVAL FROM THE SITE.

HDD CONTINGENCY PLANS

IN THE UNLIKELY EVENT THE HDD CROSSING CANNOT BE COMPLETED ON THE FIRST ATTEMPT, THE APPROVED CONSTRUCTION WORKSPACE AND RIGHTS OF WAY ARE SUFFICIENT TO ALLOW MULTIPLE ATTEMPTS TO INSTALL THE HDD. ANY ABANDONED HDD BORE HOLES WILL BE FILLED WITH GROUT IN THEIR ENTIRETY. IN MOST CASES, SEVERAL ATTEMPTS CAN BE MADE WITHIN THE PERMITTED WORKSPACE BY SLIGHTLY MODIFYING THE HDD GEOMETRY TO ADJUST EITHER THE DEPTH OF THE DRILL PROFILE AND/OR THE HORIZONTAL ALIGNMENT. ADJUSTMENTS IN THE ALIGNMENT AND PROFILE DEPTH CAN, OFTEN TIMES, MINIMIZE CONTACT WITH OR COMPLETELY AVOID LOCALIZED PROBLEMATIC FORMATIONAL ZONES.

IF PROBLEMS PERSIST ALONG THE ORIGINAL DRILL ALIGNMENT, INCLUDING AT ALTERNATE DEPTHS FROM THE FIRST ATTEMPT, THE HDD RIG CAN BE OFFSET LEFT OR RIGHT AND A SECOND PILOT HOLE CAN BE INITIATED ALONG A NEW ALIGNMENT DESIGNED WITH DATA COLLECTED DURING THE FIRST ATTEMPT. THE DRILLING DATA COLLECTED ALONG THE FIRST ALIGNMENT WILL BE UTILIZED TO CREATE A NEW DESIGN THAT WILL, TO THE EXTENT PRACTICAL, MINIMIZE CONTACT WITH PROBLEMATIC FORMATIONAL ZONES ENCOUNTERED DURING THE INITIAL ATTEMPT. IF A FIRST ATTEMPT ALONG THE NEW ALIGNMENT IS NOT SUCCESSFUL, AS DESCRIBED ABOVE, SEVERAL ATTEMPTS CAN BE MADE AT VARIOUS DEPTHS ALONG THE NEW ALIGNMENT.

IF ALL ATTEMPTS FAIL ALONG THIS NEW ALIGNMENT, THE HDD RIG AND EQUIPMENT CAN AGAIN BE MOVED LEFT OR RIGHT WITHIN THE WORKSPACE AND A THIRD NEW PILOT HOLE INITIATED ALONG A NEW DESIGN ALIGNMENT THAT MINIMIZES CONTACT WITH PROBLEMATIC FORMATIONAL ZONES ENCOUNTERED ALONG BOTH THE INITIAL AND SECONDARY ATTEMPTS. IF A FIRST ATTEMPT AT THIS LOCATION ALSO PROVES UNSUCCESSFUL, AS DESCRIBED ABOVE, SEVERAL ATTEMPTS CAN BE MADE AT VARIOUS DEPTHS ALONG THIS ALIGNMENT. IN SUMMARY, THE CONSTRUCTION WORKSPACE CONTAINS SUFFICIENT ROOM TO ALLOW NUMEROUS HDD ATTEMPTS; THEREFORE THESE TECHNIQUES CAN BE UTILIZED UNTIL EITHER THE HDD IS SUCCESSFULLY INSTALLED OR ALL POSSIBILITIES OF A SUCCESSFUL HDD INSTALLATION HAVE BEEN EXHAUSTED.
IN THE VERY UNLIKELY EVENT THAT AN HDD CANNOT BE SUCCESSFULLY INSTALLED, THE METHODS PRESENTED BELOW AND THE ASSOCIATED REQUIRED ACTIVITIES CAN BE CONSIDERED AS POTENTIAL OPTIONS.

REROUTE PIPELINE TO ATTEMPT HDD AT AN ALTERNATE LOCATION OUTSIDE OF THE PROPOSED PIPELINE CONSTRUCTION ROW

- PIPELINE ALIGNMENT WILL BE ALTERED AND A NEW HDD CROSSING WILL BE DESIGNED AT A LOCATION THAT POTENTIALLY WILL POSE LESSER INSTALLATION CHALLENGES.
- THE PROPOSED CHANGE IN LOCATION WILL BE SELECTED VIA DESKTOP ANALYSIS USING EXISTING AERIAL PHOTOGRAPHY AND OTHER AVAILABLE DATA.
- SURVEY PERMISSION WILL BE REQUIRED BEFORE THE REQUIRED CIVIL, ENVIRONMENTAL AND CULTURAL SURVEYS CAN BE PERFORMED. ONCE SURVEY PERMISSION HAS BEEN OBTAINED AND THE AREA IS DETERMINED TO BE ACCEPTABLE FROM A CULTURAL AND ENVIRONMENTAL PERSPECTIVE, GEOTECHNICAL AND GEOPHYSICAL INVESTIGATIONS WILL BE INITIATED TO SUPPORT DESIGN OF A HDD AT THE NEW LOCATION.
- APPROVALS FROM REGULATORY AUTHORITIES, USACE AND STATE AGENCIES WILL BE REQUIRED BEFORE THE HDD IS ATTEMPTED AT THE NEW LOCATION.

OPEN CUT CROSSING;

- THIS METHOD INVOLVES THE EXCAVATION OF A TRENCH THROUGH THE WETLAND OR STREAM.
- ADDITIONAL ARMORING OF THE PIPE IN THE RIVER BOTTOM COULD BE REQUIRED TO PROTECT THE INTEGRITY OF THE PIPE.
- EQUIPMENT WOULD HAVE TO WORK IN THE WETLAND OR STREAMS AND STATE MANDATED TURBIDITY LIMITS WOULD APPLY.
- APPROVALS FROM REGULATORY AUTHORITIES, USACE AND STATE AGENCIES WILL BE REQUIRED BEFORE THE CONSTRUCTION BEGINS
- THIS TYPE OF CROSSING WOULD ALSO ONLY BE CONSIDERED AS LAST RESORT IN THE CASE WHEN ALL OTHER ALTERNATIVES PROVE TO BE UNFEASIBLE.

NOISE

SHELL WILL EMPLOY AN INDEPENDENT NOISE CONSULTANT TO MEASURE AMBIENT (PRECONSTRUCTION) NOISE LEVELS AT EACH HDD ENTRY AND EXIT LOCATION. THE NOISE CONSULTANT WILL ALSO MEASURE AMBIENT NOISE LEVELS AT NEARBY NOISE SENSITIVE AREAS (NSA). THE CONSULTANT WILL RECOMMEND NOISE MITIGATION MEASURES TO MEET LOCAL CODES AND ORDINANCES.

THE HDD CONTRACTOR SHALL EMPLOY MITIGATION MEASURES TO ACHIEVE AN HDD EQUIPMENT GENERATED NOISE LEVEL AT OR BELOW THE DESIGNATED DBA SET BY THE INDEPENDENT NOISE CONSULTANT AT THE NEAREST NOISE SENSITIVE AREA (NSA). A MAP OF THE IDENTIFIED NSA'S WILL BE PROVIDED BY THE COMPANY.

Pipeline and Operator Information and Phone Numbers	Key Emergency Phone Numbers
Pipeline Name: Falcon Ethane Pipeline System **Pipeline Location**: Begin Latitude: 40°15'51.17" N Begin Longitude: 80°15'39.21"W End Latitude: 40°39'45.97" N End Longitude: 80°20'22.08"W **Operator**: Shell Pipeline Company LP **On-Site Drilling Specialist**: TBD **Primary**: Charles Rolston, Construction Manager Cell: 817-343.0121 **Secondary**: Mary Gerschefski, HSSE Manager Office: 281-799-5385 **Spill Response Contractor**: SUNPRO 800-488-0910 REACT Environmental Services 800-746-4850 Rapid Response, Inc. (EWMI) 484-275-6900 **Chief Inspector**: TBD (Add phone number)	**Note**: Some cell phones do not support 911 calls. Phone should be tested on location prior to operations. **Pennsylvania Department of Environmental Protection Southwest Regional Office**: 412-442-4000 **USCG/National Response Center (NRC)**: 800-424-8802 **Allegheny County Emergency Management Agency**: 412-473-1000 **Beaver County Emergency Management Agency**: 724-775-0800 **Washington County Emergency Management Agency**: 724-228-6911 **Fire , Ambulance, Police**:9-1-1 **The Pennsylvania Emergency Management Agency**: 800-424-7362 or 717-651-2001 **Pennsylvania Game Commission**: 570-398-4744 **Pennsylvania Fish and Boat Commission**: 717-477-5717 **Chemical Transport Emergency Center**: 800-424-9300 **Regional Poison Information Center**: 800-222-1222

PERSONS RESPONSIBLE FOR CONSTRUCTION AND OFF-SITE DISPOSAL REQUIREMENTS

IT WILL BE THE RESPONSIBILITY OF THE PERMITTEE TO PROVIDE SATISFACTORY SOIL E&SC AND TO INTERFACE WITH APPLICABLE REGULATORY AGENCIES.

THE NEED FOR OFF-SITE BORROW IS NOT ANTICIPATED. THE PERMITTEE IS RESPONSIBLE FOR HAVING AN APPROVED E&SCP AND FOR CONFIRMING THAT AN ACTIVE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT EXISTS FOR ANY OFF-SITE BORROW AREA LOCATIONS. IF OFF-SITE DISPOSAL IS REQUIRED, DISPOSAL MUST OCCUR AT A SITE APPROVED BY THE PADEP. PROOF OF THESE PERMISSIONS WILL BE PROVIDED TO THE APPLICABLE REGULATORY AGENCIES PRIOR TO USE. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH THE PADEP'S POLICY "MANAGEMENT OF FILL" DOCUMENT NUMBER 258_2182_773. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.

IN THE EVENT THE PERMITTEE WISHES TO MODIFY THE E&SCP, MINOR CHANGES WILL BE RECORDED AND A MARKED UP COPY OF THE APPROVED PLAN MUST BE KEPT ON-SITE. NO EARTH DISTURBANCE ACTIVITIES SHALL OCCUR OUTSIDE OF THE LOD.

CONSTRUCTION TECHNIQUES OR SPECIAL CONSIDERATIONS TO ADDRESS LIMITATIONS

SEE TABLE 1 AND ESC DRAWINGS FOR SOIL SERIES AND LIMITATIONS CROSSED BY THE PROJECT.

IN MOST SITUATIONS, TYPICAL PIPELINE CONSTRUCTION EQUIPMENT AND BMPS WILL BE SUFFICIENT TO MANAGE THE PROPOSED WORK. AT A MINIMUM, TRENCH PLUGS AND ROW DIVERSIONS (WATERBARS) WILL BE INSTALLED WHERE INDICATED ON THE PLANS AND ON SLOPES IN ORDER TO PREVENT STORMWATER-RELATED EROSION PROBLEMS DURING CONSTRUCTION AND AFTER BACKFILLING.

SEVERE EROSION HAZARD LIMITATIONS SHALL BE IMMEDIATELY REDUCED BY THE INSTALLATION AND MAINTENANCE OF TRENCH PLUGS, ROW DIVERSIONS, SEDIMENT BARRIERS, AND SEED AND MULCH. PROPOSED PERMANENT ACCESS ROADS WILL BE GRADED TO DIRECT STORMWATER INTO POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) BMPS PERMANENT CONTROLS SUCH AS PERMANENT SEEDING AND MULCHING SHALL REDUCE THE LONG-TERM POTENTIAL FOR EROSION.

IF WETNESS IS ENCOUNTERED DURING CONSTRUCTION PUMPS, HOSES, AND PUMPED WATER FILTER BAGS WILL BE USED AT THE CONSTRUCTION SITE IN ORDER TO DEWATER THE EXCAVATION. WATER WILL BE DISCHARGED INTO A WELL-VEGETATED UPLAND AREA WITH A SEDIMENT FILTER DEVICE AT THE DISCHARGE AREA PER THE PROVIDED STANDARD DETAIL SHEETS. TRENCH PLUGS WILL BE PLACED IN THE TRENCH AROUND THE PIPE, PER THE PERMIT DRAWINGS AND STANDARD DETAIL SHEETS, AND AT THE BOUNDARY OF WATERS OF THE COMMONWEALTH, PRIOR TO BACKFILLING TO PREVENT CONVEYANCE OF WATER UNDERGROUND ALONG THE PIPELINE AND TO PREVENT MOVEMENT OF THE PIPELINE.

SOILS DISTURBED DURING CONSTRUCTION ACTIVITIES WILL BE REPLACED WITHIN THE TRENCH ONCE WORK ACTIVITIES ARE COMPLETE, AND THE AREA WILL BE REVEGETATED AND STABILIZED. IN AREAS CLASSIFIED AS SPECIAL-PROTECTION WATERS AND/OR WETLANDS AFFECTED BY THIS PROJECT, VEGETATIVE STABILIZATION WILL OCCUR IMMEDIATELY. SPECIAL MEASURES TO BE IMPLEMENTED DURING EARTH DISTURBANCE ACTIVITIES ASSOCIATED WITH CONSTRUCTION WILL INCLUDE THE SEGREGATION OF TOPSOIL AND THE USE OF TEMPORARY OR PERMANENT WATERBARS.

EARTH DISTURBANCE

A PERSON PROPOSING OR CONDUCTING AN EARTH DISTURBANCE ACTIVITY SHALL OBTAIN THE OTHER NECESSARY PERMITS AND AUTHORIZATIONS FROM THE DEPARTMENT OR CONSERVATION DISTRICT, RELATED TO THE EARTH DISTURBANCE ACTIVITY, BEFORE COMMENCING THE EARTH DISTURBANCE ACTIVITY. THE PENNSYLVANIA PORTION OF THIS PROJECT AREA CONTAINED WITHIN THE LOD INCLUDING PIPELINE AND ADDITIONAL WORK SPACES IS APPROXIMATELY 608 ACRES AND IS SHOWN ON THE PERMIT DRAWINGS.

SURFACE WATER CLASSIFICATION

AECOM COMPLETED A WETLAND AND WATERCOURSE INVESTIGATION OF THE PROJECT AREA. A FULL REPORT CONTAINING THE FINDINGS OF THIS INVESTIGATION IS INCLUDED IN THE CORRESPONDING PA CHAPTER 105 PERMIT APPLICATION. IF THE FULL WETLAND AND WATERCOURSE REPORT IS NEEDED FOR ESCGP-2 REVIEW, PLEASE CONTACT AECOM.

THE PROJECT IS LOCATED IN SEVERAL WATERSHEDS ACROSS THE THREE COUNTIES. SEE BELOW FOR A SUMMARY. THE RECEIVING WATERS ARE DESIGNATED AS CHAPTER 93 DESIGNATIONS: EXAMPLE: WARM WATER FISHES (WWF), COLD WATER FISHES (CWF, TROUT STOCKED FISHES, AND HIGH QUALITY (HQ), UNDER PA CODE 25 CHAPTER 93.

WASHINGTON COUNTY: MILLERS RUN (WWF); ROBINSON RUN (WWF); LITTLE RACCOON CREEK (WWF); WESTLAND RUN (WWF); POTATO GARDEN RUN (WWF); AND CHARTIERS RUN (WWF)
ALLEGHENY COUNTY: MILLERS RUN (WWF); RAREDON RUN (WWF); LITTLE RACCOON CREEK (WWF); POTATO GARDEN RUN (WWF); AND RACCOON CREEK (WWF)
BEAVER COUNTY: HADEN RUN (WWF); RAREDON RUN (WWF); RACCOON CREEK (WWF); GUMS (WWF); FRAMES RUN (WWF); FISHPOT RUN (WWF); PEGGS RUN (WWF) SIXMILE RUN (WWF);
SERVICE CREEK, SOURCE TO J.C. BACON DAM (HQ-CWF); NORTH FORK TOMLINSON CREEK (WWF); AND MILL CREEK (WWF);

THE PORTION OF THE PROJECT LOCATED WITHIN THE SERVICE CREEK; SOURCE TO J.C. BACON DAM (HQ-CWF) A SPECIAL PROTECTION AND/OR SILTATION IMPAIRED WATERSHED, AND/OR HAS EXCEPTIONAL VALUE (EV) WETLANDS, AND THEREFORE REQUIRES THE USE OF ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT) E&SCS. E&SCS ARE DISCUSSED IN SECTION 8.0 BELOW.

BMPS DESCRIPTION NARRATIVE

THE CONTROL MEASURES SHOWN ON THE E&SC DRAWINGS ARE THE MINIMUM CONTROLS NECESSARY TO PROTECT OFF-SITE AREAS FROM SEDIMENT-LADEN RUNOFF GENERATED WITHIN THE LOD. ADDITIONAL CONTROLS MAY BE REQUIRED DEPENDING ON THE PROGRESS OF CONSTRUCTION AND VARYING CONDITIONS ENCOUNTERED.

TEMPORARY CONTROLS THAT WILL BE USED OR MAY BE USED BASED ON FIELD CONDITIONS ARE DESCRIBED BELOW. OTHER STRUCTURAL CONTROLS AS DESCRIBED BELOW MAY ALSO BE USED AS DEEMED NECESSARY BASED ON CONDITIONS ENCOUNTERED IN THE FIELD. INSTALLATION GUIDELINES AND LOCATIONS FOR THE ABOVE DEVICES ARE AS SHOWN ON THE PERMIT DRAWINGS AND STANDARD DETAIL SHEETS. THE TEMPORARY CONTROL MEASURES THAT WILL BE UTILIZED ON THIS PROJECT INCLUDE, BUT ARE NOT LIMITED TO:

TEMPORARY STRUCTURAL PRACTICES

ROCK CONSTRUCTION ENTRANCES: IN ORDER TO PREVENT THE TRACKING OF MUD ONTO PAVED ROADWAYS, ROCK CONSTRUCTION ENTRANCES (RCES) SHALL BE INSTALLED FROM ANY PUBLIC ROAD, AS SHOWN ON THE PERMIT DRAWINGS AND STANDARD DETAIL SHEETS. THE CONTRACTOR MAY DEVIATE FROM THE LOCATIONS SHOWN ON THE PLAN WITHIN THE LOD, BUT MUST OBTAIN APPROVAL FROM THE PERMITTEE AND SEALING ESCGP-2 ENGINEER. UPON SITE STABILIZATION, THE RCES SHALL BE REMOVED ALONG WITH ANY UNSUITABLE MATERIAL, AND THE AREA RESTORED ACCORDING TO SECTION 8.3 OF THIS PLAN. ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED BY THE CONTRACTOR IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE. GRAVEL WILL BE USED TO LIMIT DUST AND ERODABILITY. FOR AREAS LOCATED WITHIN HIGH QUALITY WATERSHEDS, THE ROCK CONSTRUCTION ENTRANCES WILL BE EXTENDED FROM 50 FEET TO 100 FEET.

TARPAULIN COVERS: TARPAULIN COVERS MAY BE USED, AS NECESSARY, TO PROTECT TOPSOIL STORAGE STOCKPILES FROM WIND AND PRECIPITATION EROSION. STOCKPILE SLOPES WILL BE 2:1 OR LESS.

TEMPORARY WATERBARS: WATERBARS WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAIL ON THE DRAWINGS TO REDUCE THE VELOCITY OF WATER FLOW DURING RAIN EVENTS. WATERBARS SHOULD BE CONSTRUCTED AT A SLOPE OF 2 PERCENT AND DISCHARGE TO A WELL-VEGETATED AREA. WATERBARS SHOULD NOT DISCHARGE INTO AN OPEN TRENCH. WATERBARS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK ONTO THE ROW. OBSTRUCTIONS (E.G., SEDIMENT BARRIERS, ETC.) SHOULD NOT BE PLACED IN ANY WATERBARS. THEY SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE WATERBAR. ONLY TEMPORARY WATERBARS WILL BE USED IN AGRICULTURAL AND RESIDENTIAL AREAS.

BROAD BASED DIPS: BROAD BASED DIPS MAY BE USED TO DIRECT RUNOFF FROM ACTIVE ACCESS ROADS TO WELL VEGETATED AREAS OR SEDIMENT REMOVAL BMPS. BROAD BASED DIPS, UNLIKE WATERBARS, ARE EASILY TRAVERSED BY CONSTRUCTION EQUIPMENT AND TYPICALLY REQUIRE LESS MAINTENANCE TO ENSURE THEIR INTEGRITY. DUE TO THE NATURE OF BROAD-BASED DIPS, THEY SHOULD NOT BE CONSTRUCTED ON ROADS WITH GRADES EXCEEDING 10 PERCENT. WHERE ACCESS ROADS MUST EXCEED 10 PERCENT GRADIENTS, INSLOPING SHOULD BE USED TO CONTROL RUNOFF.

ROCK FILTER OUTLETS: ROCK FILTER OUTLETS MAY BE USED TO CONTROL RUNOFF; THEY MAY ALSO BE USED BELOW CONSTRUCTION WORK WHILE FLOW IS BEING DIVERTED PAST THE WORK AREA. ROCK FILTER OUTLETS MAY BE USED TO CONTROL SEDIMENT EITHER DURING CONSTRUCTION OR DURING TEMPORARY DISTURBANCE. ROCK FILTER OUTLETS SHOULD BE CONSTRUCTED ACCORDING TO THE SPECIFICATIONS SHOWN IN THE STANDARD DETAIL SHEETS. ANCHORED COMPOST LAYER SHALL BE USED ON THE UPSLOPE FACE IN EV AND HQ WATERSHEDS.

TRENCH PLUGS: TRENCH PLUGS WILL BE PLACED IN THE TRENCH AROUND THE PIPE, PER THE PERMIT DRAWINGS AND STANDARD DETAIL SHEETS, PRIOR TO BACKFILLING TO PREVENT CONVEYANCE OF WATER UNDERGROUND ALONG THE PIPELINE AND TO PREVENT MOVEMENT OF THE PIPELINE. TRENCH PLUGS ARE TO BE PLACED AT ALL BOUNDARIES OF THE COMMONWEALTH, INCLUDING BETWEEN WATER TYPES (I.E. BETWEEN STREAMS AND WETLANDS).

PUMPED WATER FILTER BAG: IF REQUIRED, SEDIMENT LADEN WATER THAT COLLECTS DURING EXCAVATION SHALL BE PUMPED INTO A SEDIMENT FILTER BAG. THE MEANS AND METHODS OF CONSTRUCTION BY THE CONTRACTOR WILL DICTATE THE LOCATION AND PLACEMENT OF THIS CONTROL, BUT THE CONTRACTOR MUST CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS FOR USE. THIS DEVICE IS NOT AN ABACT FOR SPECIAL PROTECTION WATERSHEDS UNLESS SURROUNDED BY A CFS RING OR OPERATED IN CONJUNCTION WITH A SUMP PIT.

COMPOST FILTER SOCK (CFS): CFS IS A SEDIMENT BARRIER CONSISTING OF A MESH SOCK AND COARSE COMPOST. CFS WILL BE PLACED TO CONTROL RUNOFF AND COLLECT SEDIMENTATION. CFS IS AN ABACT CONTROL FOR EV AND HQ WATERSHEDS. CFS WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS. CFS LOCATIONS ARE CLEARLY DEPICTED ON THE PLAN DRAWINGS.

SILT FENCE: SILT FENCE, REINFORCED SILT FENCE AND SUPER SILT FENCE (SF, RSF, AND SSF) ARE SEDIMENT BARRIERS CONSTRUCTED FROM FILTER FABRIC ATTACHED TO SUPPORT STAKES OR POLES. SILT FENCE WILL BE INSTALLED TO CONTROL RUNOFF FROM SMALL DISTURBED AREAS WHEN IT IS IN THE FORM OF SHEET FLOW, IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS.

WOOD CHIP FILTER BERMS: WOOD CHIP FILTER BERMS MAY BE USED ON WOODED OR ROCKY SLOPES WHERE STAKING AND TRENCHING OF SF AND CFS IS VERY DIFFICULT OR IMPOSSIBLE AND WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS. THEY ARE NOT TO BE USED WITHIN 50 FEET OF STREAMS AND WETLANDS. WOOD CHIP FILTER BERMS ARE ABACT FOR HQ WATERSHEDS IF A 6-INCH THICK LAYER OF COMPOST IS ADDED TO THE UPSLOPE SIDE. WOOD CHIP FILTER BERMS MAY BE USED IN PLACE OF CFS AND SF IN FLAT AREAS AND 50 FEET AWAY FROM WETLANDS AND STREAMS.

ORANGE SAFETY FENCE: ORANGE SAFETY FENCE SHALL BE INSTALLED AT THE BORDERS OF ALL STREAMS, WETLANDS, AND PUBLIC ROADS TO PROVIDE A VISIBLE BARRIER TO CONSTRUCTION EQUIPMENT AND ACTIVITIES.

EROSION CONTROL BLANKETS: SINGLE MAT STRAW FIBER MATRIX EROSION CONTROL BLANKETS SHALL BE INSTALLED AS SHOWN ON THE PERMIT DRAWINGS AND STANDARD DETAIL SHEETS. ANY AREAS WITHIN 50 FEET OF A STREAM OR WETLAND SHALL BE PROTECTED BY EROSION CONTROL BLANKETS. ANY AREAS WITHIN 100 FEET OF EV OR HQ STREAMS AND WETLANDS SHALL BE PROTECTED BY EROSION CONTROL BLANKETS. ANY AREAS WITHIN 50 FEET OF NON-SPECIAL PROTECTION STREAMS AND WETLANDS SHALL BE PROTECTED BY EROSION CONTROL BLANKETS. REVEGETATE THESE AREAS AS SOON AS POSSIBLE WITH PERMANENT SEEDING MEASURES, AS DESCRIBED IN TABLE 3. ADDITIONALLY, SLOPES GREATER THAN 3:1 WILL HAVE DOUBLE MAT STRAW FIBER MATRIX EROSION CONTROL BLANKETS INSTALLED, AS SHOWN ON THE PLANS. FOR SLOPES BETWEEN 3:1 AND 1:1 (H:V) USE EROSION CONTROL BLANKET SC 150 AS MANUFACTURED BY NORTH AMERICAN GREEN OR PERMITTEE APPROVED EQUAL MATERIAL OR EQUAL METHOD.

HYDRAULICALLY APPLIED EROSION CONTROL BLANKET: A BONDED FIBER MATRIX (BFM) CAN BE USED IN PLACE OF EROSION CONTROL BLANKETS WHERE NECESSARY. FOR SLOPES UP TO 3H:1V, THE BFM WILL BE APPLIED AT A RATE OF 3,000 POUNDS PER ACRE. SLOPES STEEPER THAN 3H:1V WILL NEED TO BE APPLIED AT A RATE OF 4,000 POUNDS PER ACRE. IN ANY CASE, MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

RESTORATION: ALL IMPROVED AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONTOURS AND REVEGETATED TO A MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER PER TABLE 2.

ADDITIONAL REQUIREMENTS: ANY ADDITIONAL REQUIREMENTS TO ADEQUATELY CONTROL E&S POLLUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION ACTIVITIES.

TEMPORARY STREAM CROSSINGS: NO VEHICULAR TRAFFIC WILL BE PERMITTED IN THE STREAMS AT ANY TIME DURING CONSTRUCTION. TEMPORARY STREAM CROSSINGS MUST BE PROVIDED WHEREVER CONSTRUCTION EQUIPMENT MUST CROSS AN EXISTING STREAM CHANNEL. TEMPORARY BRIDGES AND/OR CULVERT PIPES SHOULD BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS.

TEMPORARY WETLAND CROSSINGS: TEMPORARY WETLAND CROSSINGS SHOULD BE CONSTRUCTED FROM MATERIALS THAT CAN BE PLACED WITH A MINIMUM OF DISTURBANCE TO THE SOIL SURFACE AND COMPLETELY REMOVED WHEN NO LONGER NEEDED. STABILIZED CROSSING METHODS ARE SHOWN ON THE STANDARD DETAIL SHEETS. TIMBER MATS (OR EQUIVALENT) ARE REQUIRED FOR WETLAND CROSSINGS REGARDLESS IF THERE IS STANDING WATER OR SATURATED SOIL AT THE TIME OF CONSTRUCTION OR THE SOIL IS FIRM ENOUGH TO AVOID RUTTING.

ROCK FILTERS: ROCK FILTERS WILL BE INSTALLED AS SHOWN ON THE PERMIT DRAWINGS AND ACCORDING TO THE STANDARD DETAIL SHEETS. ROCK FILTERS HELP DISSIPATE ENERGY FROM THE CONCENTRATED FLOW IN ROADSIDE DITCHES AND CHANNELS TO PREVENT EROSION OF THE CHANNEL AND AT THE OUTLET. ROCK FILTERS MAY BE USED IN EV AND HQ WATERSHEDS IF A 6-INCH LAYER OF COMPOST IS LAYERED ON THE UPGRADIENT SIDE.

PERMANENT STRUCTURAL PRACTICES

PERMANENT WATERBARS WATERBARS WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS. NO PERMANENT WATERBARS ARE TO BE INSTALLED IN AGRICULTURAL OR RESIDENTIAL AREAS.

VEGETATED ROADSIDE DITCHES ROADSIDE DITCHES SHALL BE PLACED ALONG PERMANENT ACCESS ROADS IN ACCORDANCE WITH THE STANDARD DETAIL SHEETS. ROADSIDE DITCHES WILL PREVENT EXCESSIVE EROSION FROM PERMANENT ACCESS ROAD RUN OFF AND WILL OUTLET INTO DITCH RELIEF CULVERTS. GRASS WILL BE DENSELY PLANTED IN THE ROADSIDE DITCHES TO HELP ATTENUATE AND INFILTRATE STORMWATER RUNOFF VOLUME.

DITCH RELIEF CULVERTS. DITCH RELIEF CULVERTS MINIMIZE THE POTENTIAL FOR EROSION OF ROADSIDE DITCHES AND PREVENT ROADWAY FLOODING. CULVERTS WILL BE SPACED AS SHOWN ON THE PERMIT DRAWINGS. CULVERT SPACING FOR VARIOUS SLOPES IS PROVIDED IN THE TABLE ON THE STANDARD DETAIL SHEETS. SUITABLE OUTLET PROTECTION WILL BE PROVIDED AT EACH CULVERT OUTLET.

INFILTRATION BERMS/BASIN: INFILTRATION BERMS AND BASINS WILL BE INSTALLED AS SHOWN ON PERMIT DRAWINGS AND ACCORDING TO THE STANDARD DETAIL SHEETS. INFILTRATION BERMS MITIGATE INCREASED RUNOFF DUE TO INCREASED IMPERVIOUS AREAS ADDED TO THE PROJECT BY THE PROPOSED PERMANENT ACCESS ROAD. DISTURBANCE TO PROPOSED INFILTRATION BERM CONSTRUCTION AREAS WILL BE MINIMIZED TO THE EXTENT PRACTICABLE DURING CONSTRUCTION OF THE PIPELINE/FACILITIES. INFILTRATION BERMS AND BASINS WILL BE MAINTAINED TO THEIR FULL DIMENSION AND INFILTRATION CAPACITY FOR THE LIFE OF THE PROJECT. REFER TO THE PCSM/SR PLAN NARRATIVE FOR PCSM/SR BMP SECTION 8.0 FOR PCSM/SR INSTALLATION SEQUENCE.

TRANSITION MAT AND OUTLET PROTECTION OUTLET PROTECTION SHALL BE INSTALLED AS SHOWN ON PERMIT DRAWINGS AND ACCORDING TO THE STANDARD DETAIL SHEETS. OUTLET PROTECTION WILL HELP DISSIPATE ENERGY FROM FLOW CONCENTRATED THROUGH CULVERTS.

PERMANENT AND TEMPORARY VEGETATIVE PRACTICES

PERMANENT VEGETATIVE STABILIZATION IMMEDIATELY UPON COMPLETION OF FINAL GRADING, DISTURBED AREAS WILL RECEIVE TOPSOIL AND PERMANENT VEGETATIVE STABILIZATION, DEFINED AS A MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER. THE DISTURBED AREAS WILL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH TABLE 2. FOR DISTURBED AREAS, THE TOPSOIL WILL BE SEGREGATED AND REPLACED FOLLOWING CONSTRUCTION. THE VEGETATIVE RESTORATION METHOD WILL BE DETERMINED WITH CONSULTATION WITH THE LANDOWNER IN CULTIVATED OR ROTATED CROPLAND. PLEASE NOTE SPECIALIZED SEED MIX FOR NORTHERN HARRIER AND SHORT EARED OWL TO MEET RESTORATION RECOMMENDATIONS FROM THE PENNSYLVANIA GAME COMMISSION.

TEMPORARY VEGETATIVE PRACTICES (INTERIM STABILIZATION) UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED E&S PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY TO BE CONSIDERED TEMPORARILY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH 1 OF THE FOLLOWING: A MINIMUM UNIFORM COVERAGE OF MULCH AND SEED, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED E&S, OR AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED E&S. TEMPORARY STABILIZATION WILL NOT OCCUR ON ACTIVE VEHICULAR TRAVEL WAYS, STOCKPILES, AND DITCH SPOIL AREAS UNLESS EARTH DISTURBANCE ACTIVITIES ARE CEASED IN AREAS FOR FOUR DAYS OR MORE. REFER TO TABLE 2 FOR TEMPORARY SEEDING SPECIFICATIONS.

MULCHING 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, SEDIMENT TRAPS OR CRITICAL AREA PLANTING. ON SEDIMENT PRODUCING AREAS WHERE THE PERIOD OF EXPOSURE IS LESS THAN 2 MONTHS, MULCH MATERIALS SHALL BE APPLIED ACCORDING TO THE FOLLOWING GUIDELINES:

1. STRAW MULCH SHALL BE APPLIED AT THE RATE OF 3 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 1 OF THE FOLLOWING METHODS.
   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 1,000 SQUARE FEET.
   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 WEEKLY 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.

FERTILIZING PRACTICES

1. FERTILIZATION RATES: FOR PERMANENT STABILIZATION APPLY 10-20-20 AT 1,000 POUNDS PER ACRE AND FOR TEMPORARY STABILIZATION APPLY 10-10-10 AT 500 POUNDS PER ACRE, UNLESS THE SOIL TEST DETERMINES THAT THE RATE CAN BE LESS THAN THESE MINIMUMS. SOIL TESTING WILL OCCUR ON EACH PROPERTY AND LAND TYPE TO OBTAIN SITE SPECIFIC FERTILIZATION RATES. RESULTS WILL BE PROVIDED TO CONSTRUCTION CONTRACTORS AND ENVIRONMENTAL INSPECTORS AT TIME OF RESTORATION.
2. FERTILIZER AND LIME ARE NOT TO BE USED IN STREAM OR WETLAND AREAS.

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CNTRL NARRATIVE – DET09
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119693	REVISION
DRAWN	JWR	12/05/17		1

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Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:37 AM)

BMP INSTALLATION SEQUENCE NARRATIVE

GENERAL

A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY. PADEP AND COUNTY CONSERVATION DISTRICT(S) (CCD) MUST BE INVITED TO THIS MEETING, WITH A MINIMUM OF SEVEN (7) DAYS ADVANCE NOTICE.

A COPY OF THE APPROVED ESCGP-2, APPLICATION PACKAGE, AND OTHER REQUIRED PERMITS (STAMPED, SIGNED, AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. PER SHELL'S STANDARD PRACTICE, THESE DOCUMENTS SHALL BE PLACED IN A CONTAINER LOCATED AT STATION 0+00, OR THE PROJECT TRAILER, OR THE FIRST ROAD CROSSING.
PIPELINE CONSTRUCTION IS ACCOMPLISHED THROUGH A SET OF SEQUENTIAL OPERATIONS: SURVEYING; INSTALLATION OF BMPS; CLEARING AND GRUBBING; GRADING; TRENCHING; PIPE STRINGING, ASSEMBLY AND WELDING; LOWERING-IN; TRENCH BACKFILL; HYDROSTATIC TESTING AND FINAL TIE-IN; FINAL GRADING; AND PERMANENT STABILIZATION. THE CONSTRUCTION SPREAD SHALL PROCEED ALONG THE PIPELINE RIGHT-OF-WAY TO COMPLETE THESE ACTIVITIES AS ONE CONTINUOUS OPERATION IN ORDER TO MINIMIZE THE DURATION OF EARTH DISTURBANCE. THE FULL SEQUENCE OF CONSTRUCTION ACTIVITIES FOR THIS PROJECT, FROM INITIAL CLEARING THROUGH PERMANENT STABILIZATION (WITH SEED AND MULCH), IS NOT ANTICIPATED TO EXCEED 24 MONTHS, WEATHER PERMITTING. IF MECHANICAL COMPLETION OCCURS IN THE LATE FALL OR WINTER, THE RIGHT-OF-WAY SHALL BE STABILIZED FOR THE WINTER AS OUTLINED IN THE SEQUENCE BELOW. PERMANENT STABILIZATION SHALL COMMENCE AT THE BEGINNING OF THE NEXT AVAILABLE GROWING PERIOD.

CONSTRUCTION SEQUENCE

1. INVITE PADEP AND LOCAL COUNTY CONSERVATION DISTRICTS TO A PRE-CONSTRUCTION MEETING(S) WITH A MINIMUM NOTICE OF SEVEN DAYS. SEE PADEP AND CCD CONTACT INFORMATION BELOW.
   a. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, SOUTHWEST REGIONAL OFFICE, OIL & GAS; 412-442-4024
   b. BEAVER COUNTY CONSERVATION DISTRICT; 724-378-1701
   c. ALLEGHENY COUNTY CONSERVATION DISTRICT; 412-241-7645
   d. WASHINGTON COUNTY CONSERVATION DISTRICT; 724-705-7098

2. PRE-CONSTRUCTION ACTIVITIES: PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES OR ANY EARTH DISTURBANCE ACTIVITY, LOCATE AND CLEARLY MARK (STAKE, FLAG) THE PIPELINE CENTERLINE, THE AUTHORIZED LIMITS OF DISTURBANCE (LOD), APPROVED ACCESS ROADS AND CONSTRUCTION ENTRANCES, AND SENSITIVE AREAS SUCH AS WETLANDS, STREAMS, AND AREAS PROPOSED FOR INFILTRATION.

3. SITE ACCESS: PRIOR TO INITIATING CONSTRUCTION ACTIVITIES, ROCK CONSTRUCTION ENTRANCES (RCE) AND THE ASSOCIATED BMPS SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THIS E&S PLAN. WASH RACK AND/OR VACUUM TRUCKS SHALL BE USED IN HQ/EV AREAS. SEE PLAN DRAWINGS FOR SPECIFIC LOCATIONS.

4. BMP INSTALLATION: INSTALL PERIMETER BMPS AS SPECIFIED IN THIS E&S PLAN IMMEDIATELY FOLLOWING SITE ACCESS AND PRIOR TO INITIATING MECHANIZED LAND CLEARING, GRUBBING OR ANY OTHER EARTH DISTURBANCE ACTIVITIES. THE CLEARING AND GRUBBING ASSOCIATED WITH BMP INSTALLATION SHALL BE LIMITED TO THE MINIMUM NECESSARY TO COMPLETE INSTALLATION OF THESE BMPS.

5. CLEARING AND GRUBBING: PERIMETER BMPS SHALL BE INSTALLED AND FUNCTIONING PRIOR TO INITIATING MECHANIZED LAND CLEARING AND GRUBBING, OR ANY OTHER EARTH DISTURBANCE ACTIVITY. CLEARING AND GRUBBING OPERATIONS SHALL BE LIMITED TO THE EXTENT PRACTICAL AND SHALL NOT EXTEND BEYOND THE AUTHORIZED LOD. LOGS SHALL BE PLACED IN DESIGNATED AREAS AS AUTHORIZED BY LANDOWNER AGREEMENTS OR HAULED OFFSITE. PROGRESSIVE CLEARING AND GRUBBING OPERATIONS, BEGINNING IN THE LOCATION OF BMPS AND SUPPORT AREAS, MAY PROCEED AS LONG AS INSTALLATION OF BMPS KEEPS PACE WITH CLEARING AND GRUBBING ACTIVITIES.

6. ACCESS ROADS: TEMPORARY ACCESS ROADS WILL BE INSTALLED AND COURSE BASE AGGREGATE WILL BE PLACED UP TO 75% OF FINAL GRADE, BMPS WILL BE PLACED ALONG THE ACCESS ROAD AND DISCHARGE LOCATION POINTS ALONG WITH OTHER CONTROLS AS NEEDED TO PREVENT EROSION AND RUNOFF FROM LEAVING THE SITE WHILE CONSTRUCTION IS ACTIVE ON THE RIGHT OF WAY. PREVIOUSLY EXISTING E&S/PCSM BMPS WILL BE REPLACED/MAINTAINED AS NECESSARY (PERTAINING TO THEIR CONTINUED OPERATION AND MAINTENANCE).

7. TOPSOIL SEGREGATION: STRIP AND STOCKPILE TOPSOIL WITHIN THE LOD, TYPICALLY ON THE NON-WORKING SIDE OF THE LOD. MAINTAIN TEMPORARY SOIL STOCKPILES WITHIN EXISTING BMPS. TOPSOIL STOCKPILES SHALL BE IMMEDIATELY STABILIZED WITH TEMPORARY SEED AND MULCH IN ACCORDANCE WITH THE SEED MIXTURES AND MULCH FOR REVEGETATION TABLE PROVIDED IN THIS E&S PLAN. TOPSOIL STOCKPILES THAT WILL REMAIN IN PLACE FOR OVER THIRTY DAYS (30) SHALL BE PERMANENTLY STABILIZED PER THE SEED MIXTURES AND MULCH FOR REVEGETATION TABLE PROVIDED IN THIS E&S PLAN.

8. GRADING: SITE GRADING SHALL PROCEED IN AREAS WHERE BMPS HAVE BEEN INSTALLED AS SPECIFIED IN THIS E&S PLAN AND ARE FUNCTIONING PROPERLY. INSTALLATION OF DIVERSION MEASURES, INCLUDING WATERBARS OR OTHER PADEP-APPROVED DIVERSIONS, SHALL BE COMPLETED DURING THE INITIAL PHASES OF THE GRADING OPERATIONS. THE SPACING OF WATERBARS SHALL CONFORM TO THE DETAILS PROVIDED IN THIS E&S PLAN. THE CONTRACTOR SHALL INSTALL WATERBARS AND OTHER BMPS AT THE END OF EACH WORKING DAY.

9. TEMPORARY STABILIZATION: UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE ACTIVITY OR ANY PHASE OF AN ACTIVITY WHERE THE CESSATION OF EARTH DISTURBANCE ACTIVITIES WILL EXCEED FOUR (4) CALENDAR DAYS, THE SITE SHALL BE TEMPORARILY STABILIZED WITH SEED AND MULCH (PER THE SEED MIXTURES AND MULCH FOR REVEGETATION TABLE) OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. AREAS WITH SLOPES EXCEEDING 3:1 SHALL BE TEMPORARILY STABILIZED WITH HYDRAULICALLY APPLIED MULCH, OR EQUIVALENT.

10. PIPELINE INSTALLATION: PIPELINE INSTALLATION, INCLUDING TRENCHING, STRINGING, PIPE ASSEMBLY AND WELDING, LOWERING-IN, AND BACKFILLING, SHALL PROCEED ONLY IN AREAS WHERE THE REQUIRED BMPS HAVE BEEN INSTALLED AND ARE FUNCTIONING PROPERLY. TRENCH BREAKERS SHALL BE INSTALLED PER STANDARD SPACING SPECIFICATION ON E&S PLANS ONCE THE PIPELINE IS LOWERED INTO PLACE. WORK SHALL BE PLANNED TO MINIMIZE THE DURATION OF OPEN TRENCH AND EARTH DISTURBANCE. WHEN POSSIBLE, TRENCH SPOIL SHALL BE PLACED ON THE UPSLOPE SIDE OF THE RIGHT-OF-WAY AND SERVE AS A TEMPORARY DIVERSION FOR UPSLOPE RUNOFF DURING PIPELINE INSTALLATION. MAINTAIN, REPAIR AND RE-INSTALL BMPS AS NECESSARY FOR THE DURATION OF PIPELINE CONSTRUCTION.

11. HYDROSTATIC TESTING AND FINAL TIE-IN: HYDROSTATIC TESTING PROCESS SHALL BE INITIATED AFTER COMPLETION OF BACKFILLING OPERATIONS, OR PRIOR TO THE INSTALLATION OF THE HDD PULLBACK SECTION. NOTIFICATION SHALL BE SUBMITTED TO PADEP IN ACCORDANCE WITH PAG-10 PERMIT CONDITIONS AT LEAST 15 DAYS PRIOR TO DISCHARGING HYDROSTATIC TEST WATER. THE FINAL TIE-INS SHALL BE COMPLETED AND BACKFILLED WITHIN FIVE (5) CALENDAR DAYS AFTER SUCCESSFUL COMPLETION OF HYDROSTATIC TESTING, WEATHER CONDITIONS PERMITTING.

12. FINAL GRADING AND PERMANENT STABILIZATION: INITIATE FINAL GRADING IMMEDIATELY FOLLOWING COMPLETION OF HYDROSTATIC TESTING AND FINAL TIE-INS. THE LOD SHALL BE RETURNED AS CLOSE TO PRE-CONSTRUCTION GRADE AND CONTOURS AS PRACTICAL. PERMANENT STABILIZATION SHALL PROCEED UPON COMPLETION OF FINAL GRADING. PERMANENT STABILIZATION INCLUDES INSTALLATION OF PERMANENT BMPS (I.E., WATER BARS), AMENDING TOPSOIL (AS NECESSARY), SEEDING AND MULCHING. AREAS WITH SLOPES EXCEEDING 3:1 SHALL BE PERMANENTLY STABILIZED WITH EROSION CONTROL BLANKET (ECB) OR HYDRAULICALLY APPLIED MULCH. AGRICULTURAL LANDS SHALL BE RESTORED IN ACCORDANCE WITH THE LANDOWNER'S SPECIFICATIONS. ECB AND PERMANENT WATERBARS SHALL NOT BE INSTALLED ON AGRICULTURAL OR PASTURE LAND. PERMANENT STABILIZATION IS ESTIMATED TO BE COMPLETE WITHIN 60 CALENDAR DAYS WEATHER PERMITTING.

    WINTER STABILIZATION: IF PIPELINE INSTALLATION IS COMPLETED DURING THE LATE FALL OR WINTER, THE SITE SHALL BE TEMPORARILY STABILIZED WITH SEED AND MULCH (PER THE SEED MIXTURES AND MULCH FOR REVEGETATION TABLE). IN GENERAL, PERMANENT STABILIZATION WILL NOT BE CONDUCTED PAST OCTOBER 15. PERMANENT STABILIZATION MAY OCCUR LATER THAN OCTOBER 15 IF WEATHER CONDITIONS ARE FAVORABLE. IF WINTER STABILIZATION IS REQUIRED, PERMANENT STABILIZATION AND PLANTINGS SHALL COMMENCE AT THE BEGINNING OF THE NEXT AVAILABLE GROWING PERIOD.

13. INSTALL PERMANENT ACCESS ROADS AND ASSOCIATED STORMWATER BMPS IN ACCORDANCE WITH THE POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLANS.

14. POST-CONSTRUCTION: REMOVE TEMPORARY BMPS IN AREAS WHERE 70% UNIFORM, VEGETATIVE COVER HAS BEEN ACHIEVED AND THE SITE HAS BEEN STABILIZED IN ACCORDANCE WITH THIS E&S PLAN AND APPLICABLE PERMIT CONDITIONS. IMMEDIATELY STABILIZE ANY DISTURBANCE ASSOCIATED WITH REMOVAL OF BMPS.

MAINTENANCE PROGRAM

TEMPORARY AND PERMANENT BMPS WILL BE USED DURING CONSTRUCTION ACTIVITIES TO AVOID AND/OR MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS OF CONSTRUCTION ACTIVITIES.

INSPECTION AND MAINTENANCE BMPS

E&S BMP INSPECTION WILL OCCUR ON A WEEKLY BASIS AND AFTER EACH STORMWATER EVENT. UNTIL THE SITE IS STABILIZED, E&SC BMPS MUST BE MAINTAINED PROPERLY. PREVENTATIVE AND CORRECTIVE MAINTENANCE WORK, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING MUST BE PERFORMED. IF E&SC BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS TO THOSE INSTALLED WILL BE REQUIRED.

THE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN E&SCS ON-SITE. AFTER CONSTRUCTION IS COMPLETED AND SITE HAS REACHED FINAL GRADE AND A MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER HAS BEEN ACHIEVED, ALL TEMPORARY BMPS WILL BE REMOVED AND ANY LAND DISTURBED BY REMOVAL WILL BE PERMANENTLY STABILIZED.

- MAINTENANCE AND INSPECTION OF SEDIMENT CONTROL FACILITIES SHALL CONFORM TO PA CODE CHAPTER 102 AND 105 REGULATIONS.
- THE CONTRACTOR SHALL MAKE CERTAIN THAT ALL RUNOFF IS DIRECTED TO THE SEDIMENT CONTROL DEVICES.
- E&SC MEASURES WILL BE IN-PLACE AND INSPECTED AT THE END OF THE WORKDAY IN ACTIVE CONSTRUCTION AREAS. E&SC MEASURES WILL ALSO BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DISCHARGE LOCATIONS SHALL BE INSPECTED TO ASCERTAIN EFFECTIVENESS OF CONTROLS. REPAIR, MAINTENANCE, AND ADDITIONAL CONTROL MEASURES WILL BE IMPLEMENTED IMMEDIATELY.
- INSPECTION REPORTS AND PUNCH LIST MUST BE EMAILED TO THE SHELL COMPLIANCE MANAGER AT THE END OF EACH WORK DAY.
- LOGS OF SEDIMENT CONTROL INSPECTION MUST BE KEPT WITH INSPECTORS' CONSTRUCTION RECORDS AND INCLUDE DATE, TIME, AND CONDITION OF BMPS AND ANY NECESSARY MAINTENANCE.
- INSPECTIONS OF ALL E&S BMPS SHALL BE CONDUCTED WEEKLY AND AFTER EACH MEASURABLE RAIN EVENT. DAMAGED BMPS WILL BE REPAIRED OR REPLACED IMMEDIATELY UPON DISCOVERING THE DAMAGE AND A WRITTEN REPORT MUST BE SUBMITTED TO THE COMPLIANCE MANAGER WITH CORRECTIVE ACTION.
- COMPLIANCE MANAGERS MUST CONTACT COUNTY CONSERVATION DISTRICT IMMEDIATELY TO REPORT ANY COMPLIANCE ISSUES.
- UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE ENVIRONMENTAL INSPECTOR WILL REQUEST IMPLEMENTATION OF APPROPRIATE BMPS TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. ESCGP-2 PLAN SHEETS SHALL BE REDLINED TO RECORD ALL BMP MODIFICATIONS AND KEPT ON-SITE.
- IF E&S BMPS ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, THE CCD SHOULD BE CONTACTED WITHIN 24 HOURS, FOLLOWED BY THE SUBMISSION OF A WRITTEN NONCOMPLIANCE REPORT TO THE CCD WITHIN 5 DAYS OF THE INITIAL INSPECTION.
- AREAS NOT IDENTIFIED AS HAVING MAINTAINED PERMANENT STABILIZATION (MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER) WILL REQUIRE ACTION TO BE TAKEN, SUCH AS RESEEDING, REMOVAL OF EXCESSIVE MULCH, OR OTHER STABILIZATION METHODS. THESE AREAS SHALL BE MONITORED UNTIL PERMANENT STABILIZATION HAS BECOME ESTABLISHED.
- IF DURING CONSTRUCTION, CONCENTRATED FLOW AREAS FORM DUE TO ANY STORM EVENT AND ANY AREA BECOMES UNSTABLE, THE AREA WILL BE STABILIZED BY INSTALLING ROCK FILTERS OR ADDITIONAL BMPS IN THE CONCENTRATED FLOW AREAS. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE WITHIN 72 HOURS.
- WATERBARS ARE TO BE INSPECTED WEEKLY AND AFTER RUNOFF EVENTS. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM WATERBARS. WORN AND INEFFECTIVE WATERBARS SHALL BE REPLACED IMMEDIATELY AFTER DISCOVERING THE DAMAGE.
- SEDIMENT MUST BE REMOVED FROM SEDIMENT BARRIERS ONCE ACCUMULATION REACHES ONE-HALF THE ABOVE GROUND HEIGHT OF THE BARRIER. REPAIR ALL UNDERCUTTING OR EROSION OF THE TOE ANCHOR WITH COMPACTED BACKFILL MATERIAL. ADHERE TO THE MANUFACTURER'S RECOMMENDATIONS FOR REPLACING SEDIMENT BARRIERS DUE TO WEATHERING.
- ANY PORTION OF THE SEDIMENT BARRIER THAT IS UNDERMINED OR OVERTOPPED WILL BE IMMEDIATELY REPAIRED. IF THE SECTION CONTINUES TO BE OVERTOPPED OR UNDERMINED, A ROCK FILTER OUTLET WILL BE INSTALLED TO REPLACE THE SECTION.
- SEDIMENT REMOVED FROM SEDIMENT BARRIERS SHALL BE MIXED IN WITH THE OTHER WASTE SOIL ON THE CONSTRUCTION SITE AND PROPERLY DISPOSED.
- ROCK FILTERS AND ROCK FILTER OUTLETS SHOULD BE INSPECTED WEEKLY AND AFTER RUNOFF EVENTS. NEEDED REPAIRS SHOULD BE INITIATED IMMEDIATELY AFTER INSPECTION. SEDIMENT WILL BE REMOVED WHEN ACCUMULATIONS REACH ONE-THIRD THE HEIGHT OF ROCK FILTER OUTLETS OR ROCK FILTERS.
- THE PUMPING RATE TO FILTER BAGS (IF REQUIRED) FOR PUMPED WATER SHALL BE ONE-HALF THE MAXIMUM PUMPING RATE RECOMMENDED BY THE MANUFACTURER. FILTER BAGS WILL BE INSPECTED DAILY. WHEN THE FILTER BAG IS ONE_HALF FULL OF SEDIMENT, IT WILL BE DISPOSED OF AS OUTLINED SECTION IN 13.1.
- ALL SITE ENTRANCE AND EXIT POINTS WILL BE INSPECTED ON A DAILY BASIS FOR EVIDENCE OF OFF-SITE TRACKING OF MUD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN STREETS AND ROADS OF MUD AND/OR DUST AND TAKE WHATEVER STEPS ARE NECESSARY TO KEEP THE STREETS AND ROADS IN A CLEAN AND DUST-FREE CONDITION.
- ACCESS ROAD GRAVEL THICKNESS SHALL BE CONSISTENTLY MAINTAINED. A STOCKPILE SHALL BE MAINTAINED ON-SITE FOR THIS PURPOSE.
- RCE THICKNESS SHALL BE CONSISTENTLY MAINTAINED TO THE SPECIFIED DIMENSIONS. 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 RCE 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. REPORT ANY DAMAGED CULVERT PIPE WITHIN 8 HOURS OF DISCOVERY AND DETERMINE THE APPROPRIATE REPAIR OR REPLACEMENT WITH THE GOVERNING AGENCY. DAMAGED CULVERT PIPE INCLUDES; CRUSHED ENDS, OUT OF ROUND PIPE, SEPARATION, CRACKS AND VOIDS IN THE PIPE.
- WHEN ENCOUNTERING BLANKET MOVEMENT OR A WASH-OUT (I.E., VISIBLE RILING/GULLIES) OF EROSION CONTROL BLANKETS AND HYDRAULICALLY APPLIED EROSION CONTROL BLANKETS USED ON SLOPES, THESE AREAS WILL BE REGRADED, RESEEDED, AND REMULCHED PER MANUFACTURER'S SPECIFICATIONS WITHIN 4 CALENDAR DAYS OF INSPECTION.
- REVEGETATED AREAS SHALL BE INSPECTED WEEKLY AND AFTER RUNOFF EVENTS FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH DURING CONSTRUCTION. IDENTIFIED BARE SPOTS AND WASHOUTS SHALL BE REPAIRED WITHIN 24 HOURS UPON INSPECTION, WEATHER PERMITTING.
- ALL SOIL STOCKPILES THAT ARE TO REMAIN MORE THAN 4 DAYS SHALL BE SEEDED WITH TEMPORARY GRASS AND MULCHED, AS NOTED IN THE SEEDING SPECIFICATION ON THE CONSTRUCTION DRAWINGS. IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET (WHICH IS TO BE STABILIZED BY VEGETATION) REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED.
- ALL SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREAS ARE STABILIZED AND A MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER IS ESTABLISHED.
- BROAD-BASED DIPS ARE TO BE INSPECTED WEEKLY AND AFTER RUNOFF EVENTS. DAMAGED OR NON-FUNCTIONING DIPS SHALL BE REPAIRED BY THE END OF THE WORKDAY.
- VEGETATED ROADSIDE DITCHES ARE TO BE INSPECTED PERIODICALLY FOR SEDIMENT, BUILD-UP, EROSION DEBRIS, AND DAMAGE DUE TO TRAFFIC. DITCHES SHOULD BE MAINTAINED TO ENSURE THAT THE SPECIFIED DESIGN DIMENSIONS AND VEGETATIVE LINING ARE AVAILABLE AT ALL TIMES. A DITCH SHOULD BE CLEANED WHENEVER TOTAL DEPTH IS REDUCED BY 25 PERCENT AT ANY LOCATION. NO MORE THAN ONE-THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.
- ALL RIPRAP APRONS WILL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.
- TRANSITION MATS ARE TO BE INSPECTED PERIODICALLY. FAILURE OF A TRANSITION MAT HAS OCCURRED WHEN A RILL FORMS UNDER THE MAT. WHEREVER THAT OCCURS, THE MAT SHOULD BE REMOVED, THE RILL GRADED, AND A HIGHER FORM OF PROTECTION PROVIDED.
- ANY SLOPE ON THE PROJECT SITE THAT APPEARS SUSPECT TO SLOPE SLIPPAGE REQUIRES A GEOTECHNICAL SPECIALIST TO INSPECT THE AREA IMMEDIATELY. IF CONDITIONS WARRANT, MITIGATING GEOTECHNICAL DESIGN FEATURES CAN BE EMPLOYED AT THE DISCRETION OF THE CONSTRUCTION MANAGER. SLIP PRONE SLOPES HAVE BEEN IDENTIFIED PRIOR TO CONSTRUCTION, SEE GEOTECHNICAL REPORT.
- IN ORDER TO FACILITATE RESTORATION OF NATIVE VEGETATION, GRADING AND STUMP REMOVAL CONDUCTED DURING CONSTRUCTION SHALL BE LIMITED TO THE TRENCHLINE THROUGH WETLAND AND RIPARIAN AREAS, EXCEPT AS REQUIRED TO CREATE A SAFE AND LEVEL WORKSPACE.
- ROUTINE VEGETATION MOWING OR CLEARING OF THE PERMANENT RIGHT-OF-WAY IN WETLANDS SHOULD NOT EXCEED A WIDTH OF 50 FEET, CENTERED ON THE PIPELINE. TO FACILITATE PERIODIC INSPECTION AND MAINTENANCE ACTIVITIES, A MAXIMUM 75-FOOT-WIDE CORRIDOR CENTERED ON THE PIPELINE MAY BE CLEARED AT A FREQUENCY NECESSARY TO MAINTAIN THE 50-FOOT CORRIDOR IN AN HERBACEOUS STATE. IN ADDITION, TREES WITHIN 25 FEET OF THE PIPELINE WITH ROOTS THAT COULD COMPROMISE THE INTEGRITY OF PIPELINE COATING MAY BE SELECTIVELY CUT AND REMOVED FROM THE PERMANENT RIGHT-OF-WAY. THE REMAINING PORTION OF THE RIGHT-OF-WAY SHALL BE ALLOWED TO PERMANENTLY RE-VEGETATE WITH NATIVE PLANT SPECIES. DO NOT CONDUCT ANY ROUTINE VEGETATION MOWING OR CLEARING IN WETLANDS OR RIPARIAN BUFFERS LOCATED BETWEEN HDD ENTRY AND EXIT POINTS.

MATERIAL RECYCLING AND DISPOSAL

MATERIAL WASTE HANDLING AND RECYCLING

EXCESS MATERIAL BROUGHT INTO THE SITE AREAS TO FACILITATE CONSTRUCTION ACCESS WILL BE COMPLETELY REMOVED PRIOR TO ROUGH GRADING AND FINAL SURFACE STABILIZATION. EXPECTED CONSTRUCTION WASTES WILL CONSIST OF PACKAGING MATERIAL AND SEDIMENT CLEANED FROM BMPS. PACKAGING FROM THE MATERIALS BROUGHT ON SITE WILL BE DISPOSED OF BY A LICENSED HAULER. SEDIMENT REMOVED FROM BMPS WILL EITHER BE SPREAD IN A PROTECTED AREA TO DRY AND THEN RECYCLED AS FILL MATERIAL OR DISPOSED OF OFF-SITE. GARBAGE MUST BE PROPERLY DISPOSED OF AT A PERMITTED FACILITY. THE SCRAP MATERIAL MUST BE REMOVED FROM THE SITE AND DISPOSED OF OR RECYCLED AT A PROPERLY LICENSED/PERMITTED FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASSURE THAT ALL MATERIALS ARE HANDLED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS, RULES, AND REGULATIONS, INCLUDING, BUT NOT LIMITED TO, THOSE ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY, PADEP, LOCAL COUNTY CONSERVATION DISTRICT, AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

OFF-SITE SPOIL AND/OR BORROW SITES GREATER THAN 1-ACRE MUST BE OPERATED UNDER A CURRENT NPDES PERMIT.

A PREPAREDNESS, PREVENTION, AND CONTINGENCY (PPC) PLAN FOR CONSTRUCTION ACTIVITIES HAS BEEN CREATED FOR THIS PROJECT. SEE APPENDIX A OF THE NOI APPLICATION PACKAGE.

E&S PLAN AND PCSM/SR PLAN CONSISTENCY

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 PRE-CONSTRUCTION DRAINAGE PATTERNS. TEMPORARILY DISTURBED AREAS SHALL BE RESTORED TO A VEGETATED CONDITION IN THE POST-CONSTRUCTION PHASE. INCREASED RUNOFF FROM THE PERMANENT ACCESS ROAD AND GRAVEL METER SITE WILL BE MITIGATED BY AN INFILTRATION BASIN TO BE PLACED AS SHOWN ON PERMIT DRAWINGS AND ACCORDING TO THE STANDARD DETAIL SHEETS. LONG-TERM MAINTENANCE OF THE AREAS TO BE RESTORED IS NOT EXPECTED; HOWEVER, AREAS NOT ACHIEVING A MINIMUM UNIFORM 70 PERCENT PERENNIAL VEGETATIVE COVER WILL BE CORRECTED (I.E., ADDITIONAL AMENDMENTS, RESEEDING, ETC.) AS NEEDED WITHIN THE PERMIT PERIOD. SEDIMENT COLLECTED BY E&SCS DURING SITE RESTORATION ACTIVITIES WILL BE SPREAD IN A PROTECTED AREA, ALLOWED TO DRY, AND RECYCLED ON-SITE.

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CNTRL NARRATIVE – DET10
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119694	REVISION
DRAWN	JWR	12/15/17		1

Filename: Y:\PROJECTS\1747\SHELL\60459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPHLRYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:37 AM)

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LE
001-A	12	STA: 0+00 LEFT	1.1%	18
001-B	12	STA: 0+00 LEFT	0.9%	23
001-C	12	STA: 0+41 LEFT	1.0%	19
001-D	12	STA: 1+18 LEFT	1.0%	19
001-E	12	STA: 2+04 LEFT	1.0%	19
001-F	12	STA: 5+52 LEFT	16.7%	5
001-G	12	STA: 6+78 LEFT	23.5%	17
001-H	24	STA: 6+78 RIGHT	28.7%	18
002-A	12	STA: 10+79 RIGHT	4.9%	8
002-B	12	STA: 11+32 RIGHT	3.9%	7
002-C	12	STA: 19+74 RIGHT	5.6%	7
003-A	12	STA: 20+27 RIGHT	1.9%	10
003-B	12	STA: 21+41 RIGHT	6.6%	10
003-C	18	STA: 22+10 RIGHT	24.8%	11
003-D	32	STA: 23+91 RIGHT	43.9%	9
003-E	32	STA: 24+57 RIGHT	43.8%	10
003-F	32	STA: 26+02 RIGHT	39.6%	9
003-G	24	STA: 27+57 RIGHT	31.4%	11
003-H	24	STA: 30+12 RIGHT	27.9%	10
003-I	18	STA: 32+48 RIGHT	22.6%	10
004-A	12	STA: 34+52 RIGHT	24.0%	10
004-B	12	STA: 37+31 RIGHT	24.2%	9
004-C	12	STA: 38+76 RIGHT	17.9%	11
004-D	12	STA: 39+21 RIGHT	18.0%	10
004-E	12	STA: 39+65 RIGHT	22.2%	9
004-F	12	STA: 40+76 RIGHT	20.4%	9
004-G	12	STA: 41+85 RIGHT	22.5%	10
004-H	12	STA: 42+31 RIGHT	23.5%	10
004-I	12	STA: 42+97 RIGHT	20.2%	10
004-J	12	STA: 43+18 RIGHT	12.8%	12
004-K	12	STA: 44+17 RIGHT	9.3%	17
005-A	12	STA: 45+83 RIGHT	11.3%	9
005-B	12	STA: 47+50 RIGHT	10.2%	9
005-C	12	STA: 49+49 RIGHT	12.2%	9
005-D	12	STA: 51+10 RIGHT	7.6%	13
005-E	12	STA: 51+89 RIGHT	15.2%	11
005-F	12	STA: 55+01 RIGHT	1.4%	14
005-G	12	STA: 55+85 LEFT	1.0%	6
005-H	12	STA: 56+18 LEFT	8.8%	6
005-I	12	STA: 56+10 RIGHT	9.4%	13
005-J	12	STA: 56+58 RIGHT	11.0%	9
005-K	12	STA: 56+76 LEFT	11.6%	6
006-A	12	STA: 57+93 LEFT	6.7%	28
006-B	12	STA: 57+95 RIGHT	6.5%	10
006-C	12	STA: 60+06 LEFT	5.7%	5
006-D	12	STA: 63+65 RIGHT	11.6%	12
006-E	12	STA: 64+31 RIGHT	13.0%	11
006-F	12	STA:64+93 RIGHT	17.2%	9
006-G	12	STA: 65+80 RIGHT	15.2%	9
006-H	12	STA: 67+95 RIGHT	15.0%	10
006-I	12	STA: 68+51 RIGHT	7.0%	11
007-A	12	STA: 69+23 LEFT	28.1%	11
007-B	12	STA: 69+47 LEFT	6.5%	13
007-C	12	STA: 69+66 LEFT	5.3%	18
007-D	12	STA: 69+41 RIGHT	8.3%	16
007-E	12	STA: 79+20 RIGHT	11.2%	9
007-F	12	STA: 80+38 RIGHT	20.0%	9
008-A	12	STA: 81+21 RIGHT	19.0%	12
009-A	12	STA: 93+75 LEFT	15.2%	13
009-B	12	STA: 94:24 LEFT	14.0%	8
009-C	12	STA: 94+80 LEFT	18.1%	12
009-D	12	STA: 94+97 LEFT	21.3%	7
009-E	12	STA: 94+54 RIGHT	16.9%	6
009-F	12	STA: 94+61 RIGHT	26.3%	3
009-G	12	STA: 95+85 LEFT	12.1%	9
009-H	12	STA: 96+76 LEFT	15.1%	9
009-I	12	STA: 98+21 LEFT	16.9%	8
009-J	12	STA: 99+12 LEFT	18.1%	7
009-K	12	STA: 99+84 LEFT	21.8%	7
009-L	12	STA: 99+87 LEFT	32.6%	4
009-M	12	STA: 99+98 RIGHT	28.0%	5
009-N	18	STA: 100+03 RIGHT	23.5%	15
010-A	12	STA: 106+68 LEFT	12.5%	12
010-B	12	STA: 107+85 LEFT	24.5%	9
010-C	18	STA: 108+72 LEFT	25.5%	10
010-D	18	STA: 109+57 LEFT	23.4%	10
010-E	12	STA: 110+54 LEFT	23.8%	10
010-F	12	STA: 111+46 LEFT	15.5%	11
010-G	12	STA: 112+14 LEFT	6.6%	12
010-H	12	STA: 116+51 LEFT	5.2%	13
011-A	12	STA: 118+34 LEFT	7.8%	10
011-B	12	STA: 126+70 LEFT	17.4%	14
011-C	12	STA: 127+53 LEFT	32.0%	2
011-D	12	STA: 127+58 LEFT	23.1%	7
011-E	18	STA: 127+30 RIGHT	24.8%	13
011-F	12	STA: 127+36 RIGHT	38.9%	3
011-G	12	STA: 128+65 LEFT	16.5%	9

12.0%
30.0%
7.4%

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CNTRL NARRATIVE – DET11
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119695	REVISION
DRAWN	JWR	12/05/17		1

Filename: Y:\PROJECTS\7747\SHELL\60459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPH.RYAN (12/7/2018 11:27 AM) Last Plotted: 2018-02-01 (12/7/2018 11:37 AM)

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
059-D	12	STA: 682+97 RIGHT	9.2%	120
059-E	12	STA: 683+47 RIGHT	8.0%	125
059-F	12	STA: 685+02 RIGHT	7.0%	115
059-G	12	STA: 685+77 RIGHT	10.8%	166
059-H	12	STA: 685+64 LEFT	9.1%	197
059-I	12	STA: 687+07 LEFT	13.0%	131
059-J	12	STA: 688+10 LEFT	12.4%	97
059-K	12	STA: 689+32 LEFT	13.5%	89
059-L	12	STA: 690+47 LEFT	14.4%	111
059-M	12	STA: 691+25 LEFT	13.3%	120
059-N	12	STA: 691+93 LEFT	13.2%	121
059-O	12	STA: 692+63 LEFT	13.6%	125
060-A	12	STA: 693+48 LEFT	12.9%	116
060-B	12	STA: 694+04 LEFT	12.5%	120
060-C	12	STA: 694+66 LEFT	5.0%	101
060-D	12	STA: 695+16 LEFT	18.0%	133
060-E	12	STA: 695+62 LEFT	19.5%	123
060-F	12	STA: 696+36 LEFT	20.0%	125
060-G	18	STA: 697+16 LEFT	23.1%	117
060-H	18	STA: 697+95 LEFT	23.1%	117
060-I	12	STA: 698+76 LEFT	22.4%	107
060-J	18	STA: 699+56 LEFT	24.6%	118
060-K	18	STA: 700+42 LEFT	27.8%	108
060-L	18	STA: 701+36 LEFT	26.8%	97
060-M	18	STA: 702+73 LEFT	26.3%	95
060-N	18	STA: 704+06 LEFT	25.5%	94
061-A	18	STA: 705+44 LEFT	25.5%	98
061-B	18	STA: 707+12 LEFT	24.2%	120
061-C	12	STA: 707+86 LEFT	21.9%	114
061-D	12	STA: 708+49 LEFT	19.7%	117
061-E	12	STA: 708+98 LEFT	20.6%	102
061-F	24	STA: 710+67 LEFT	27.6%	123
061-G	24	STA: 711+46 LEFT	26.9%	145
061-H	32	STA: 712+47 LEFT	29.3%	140
061-I	32	STA: 713+27 LEFT	28.2%	142
061-J	32	STA: 713+98 LEFT	32.4%	142
061-K	32	STA: 714+65 LEFT	29.5%	149
061-I	24	STA: 715+34 LEFT	24.8%	165
062-A	12	STA: 717+71 LEFT	17.7%	124
062-B	12	STA: 719+01 LEFT	10.3%	116
062-C	12	STA: 720+59 LEFT	3.0%	133
062-D	12	STA: 722+28 LEFT	3.3%	121
062-E	24	STA: 726+28 LEFT	21.1%	227
062-F	24	STA: 726+18 RIGHT	24.2%	165
062-G	12	STA: 726+56 RIGHT	16.4%	134
062-H	12	STA: 726+95 RIGHT	22.9%	105
063-A	12	STA: 731+15 RIGHT	7.4%	94
063-B	12	STA: 732+32 RIGHT	8.6%	81
063-C	12	STA: 732+82 RIGHT	21.4%	14
063-D	12	STA: 732+99 RIGHT	16.7%	42
063-E	12	STA: 732+96 LEFT	12.0%	25
063-F	12	STA: 733+08 LEFT	12.0%	25
063-G	12	STA: 733+05 RIGHT	6.9%	58
063-H	12	STA: 733+00 RIGHT	5.6%	89
063-I	12	STA: 733+72 RIGHT	7.1%	85
063-J	12	STA: 734+54 RIGHT	5.0%	121
063-K	12	STA: 735+26 RIGHT	4.1%	121
063-L	12	STA: 736+19 RIGHT	3.7%	136
064-A	12	STA: 741+86 LEFT	2.1%	146
064-B	12	STA: 741+86 RIGHT	4.7%	43
064-C	12	STA: 743+20 LEFT	1.7%	173
064-D	12	STA: 743+13 RIGHT	2.5%	121
064-E	12	STA: 744+78 LEFT	1.4%	141
064-F	12	STA: 744+35 RIGHT	2.5%	122
064-G	12	STA: 746+30 LEFT	5.2%	77
064-H	12	STA: 747+38 LEFT	3.4%	119
064-I	12	STA: 749+35 LEFT	2.7%	110
064-J	12	STA: 750+80 LEFT	2.9%	175
064-K	12	STA: 752+41 LEFT	3.3%	153
065-A	12	STA: 755+05 LEFT	3.2%	95
065-B	12	STA: 756+48 LEFT	5.8%	52
065-C	12	STA: 757+75 LEFT	6.1%	33
065-D	12	STA: 756+85 RIGHT	12.5%	112
067-A	12	STA: 777+00 RIGHT	6.9%	189
067-B	12	STA: 778+49 RIGHT	2.6%	229
067-C	12	STA: 781+45 LEFT	17.5%	97
067-D	12	STA: 781+94 LEFT	16.5%	97
067-E	12	STA: 782+62 LEFT	12.9%	101
067-F	12	STA: 783+67 LEFT	9.7%	93
067-G	12	STA: 786+37 LEFT	3.8%	105
067-H	12	STA: 786+69 LEFT	13.0%	46
067-I	12	STA: 786+88 RIGHT	6.3%	32
067-J	12	STA: 787+14 RIGHT	13.9%	108
068-A	12	STA: 789+48 RIGHT	20.4%	93
068-B	12	STA: 789+95 RIGHT	21.8%	87
068-C	12	STA: 791+16 RIGHT	16.9%	65
068-D	12	STA: 790+95 LEFT	17.8%	45

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
068-E	12	STA: 791+62 LEFT	25.9%	27
068-F	12	STA: 791+86 RIGHT	14.8%	88
068-G	12	STA: 793+69 RIGHT	14.5%	110
068-H	12	STA: 796+38 RIGHT	16.3%	129
068-I	12	STA: 798+03 RIGHT	24.0%	96
068-J	12	STA: 799+38 RIGHT	21.4%	98
068-K	12	STA: 800+56 RIGHT	22.4%	125
069-A	12	STA: 801+22 RIGHT	18.6%	102
069-B	12	STA: 802+05 RIGHT	16.7%	108
069-C	12	STA: 802+97 RIGHT	12.1%	107
069-D	12	STA: 804+14 RIGHT	11.5%	104
069-E	12	STA: 806+73 RIGHT	17.3%	98
069-F	12	STA: 808+34 RIGHT	15.6%	96
069-G	12	STA: 809+16 RIGHT	15.7%	108
069-H	18	STA: 810+06 RIGHT	6.3%	382
069-I	12	STA: 810+73 RIGHT	7.8%	64
069-J	12	STA: 811+37 RIGHT	8.5%	47
069-K	12	STA: 811+80 RIGHT	12.1%	33
069-L	12	STA: 812+44 RIGHT	6.0%	50
069-M	12	STA: 811+17 LEFT	21.8%	55
069-N	12	STA: 811+94 LEFT	6.9%	173
070-A	12	STA: 814+82 RIGHT	13.1%	122
070-B	12	STA: 815+28 RIGHT	16.7%	120
070-C	12	STA: 816+15 RIGHT	20.9%	110
070-D	12	STA: 817+42 RIGHT	20.4%	98
070-E	12	STA: 818+47 RIGHT	21.4%	103
070-F	18	STA: 823+04 LEFT	33.3%	69
070-G	12	STA: 823+62 LEFT	18.1%	116
070-H	12	STA: 823+89 RIGHT	16.5%	103
070-I	12	STA: 823+41 LEFT	23.0%	61
070-J	18	STA: 823+89 LEFT	28.0%	82
070-K	18	STA: 824+36 RIGHT	26.4%	91
071-A	12	STA: 825+62 RIGHT	19.1%	94
071-B	12	STA: 826+36 RIGHT	15.0%	127
071-C	12	STA: 826+62 LEFT	16.5%	91
071-D	12	STA: 826+73 LEFT	19.0%	21
071-E	12	STA: 826+79 LEFT	18.4%	49
071-F	12	STA: 826+71 LEFT	16.0%	125
071-G	12	STA: 826+88 RIGHT	15.6%	160
071-H	12	STA: 827+62 RIGHT	18.8%	144
071-I	12	STA: 828+34 RIGHT	19.1%	131
071-J	12	STA: 829+05 RIGHT	18.4%	114
071-K	12	STA: 829+89 RIGHT	22.9%	96
071-L	18	STA: 830+49 RIGHT	20.3%	138
071-M	18	STA: 831+05 RIGHT	23.6%	127
071-N	18	STA: 831+58 RIGHT	25.5%	141
071-O	32	STA: 832+09 RIGHT	25.3%	178
071-P	24	STA: 832+63 RIGHT	24.6%	171
071-Q	18	STA: 833+14 RIGHT	26.1%	134
071-R	12	STA: 833+75 RIGHT	23.2%	99
071-S	12	STA: 834+40 RIGHT	8.2%	110
071-T	18	STA: 835+10 RIGHT	25.3%	99
071-U	12	STA: 835+25 RIGHT	13.5%	133
071-V	12	STA: 834+44 RIGHT	16.8%	95
074-A	32	STA: 816+88 RIGHT	8.4%	466
074-B	12	STA: 861+97 LEFT	9.1%	22
074-C	12	STA: 862+16 LEFT	16.0%	25
074-D	18	STA: 863+57 RIGHT	7.7%	297
074-E	18	STA: 863+63 LEFT	7.6%	353
074-F	12	STA: 865+23 RIGHT	7.1%	156
074-G	18	STA: 864+97 LEFT	7.0%	286
074-H	12	STA: 866+16 RIGHT	6.7%	75
074-I	18	STA: 866+05 LEFT	5.3%	339
075-A	12	STA: 878+03 LEFT	12.6%	95
076-A	12	STA: 885+77 RIGHT	19.4%	98
076-B	12	STA: 887+12 RIGHT	14.7%	95
076-C	12	STA: 888+28 RIGHT	12.5%	96
076-D	12	STA: 888+89 RIGHT	6.4%	140
076-E	12	STA: 889+39 RIGHT	8.2%	159
076-F	12	STA: 889+80 RIGHT	10.7%	187
076-G	12	STA: 890+33 RIGHT	17.9%	106
076-H	12	STA: 890+81 RIGHT	19.8%	106
076-I	12	STA: 891+35 RIGHT	17.5%	126
076-J	12	STA: 892+19 RIGHT	11.6%	138
076-K	12	STA: 892+94 RIGHT	14.4%	97
076-L	12	STA: 893+63 RIGHT	13.0%	69
076-M	12	STA: 894+59 RIGHT	5.9%	85
076-N	12	STA: 893+53 LEFT	25.0%	16
076-O	12	STA: 894+42 LEFT	20.0%	20
076-P	12	STA: 896+17 LEFT	16.1%	143
076-Q	12	STA: 896+78 LEFT	18.3%	104
077-A	12	STA: 897+31 LEFT	17.8%	107
077-B	12	STA: 898+46 LEFT	18.1%	105
077-C	12	STA: 899+46 LEFT	21.9%	105
077-D	12	STA: 900+40 LEFT	21.3%	122
077-E	12	STA: 901+36 LEFT	16.7%	138
077-F	12	STA: 902+35 LEFT	14.7%	143

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
077-G	12	STA: 903+38 LEFT	9.4%	160
077-H	12	STA: 904+30 LEFT	9.2%	141
077-I	12	STA: 905+10 LEFT	7.8%	154
077-J	12	STA: 906+05 LEFT	11.0%	173
077-K	12	STA: 906+84 LEFT	14.9%	134
077-L	12	STA: 907+49 LEFT	15.3%	137
077-M	12	STA: 908+42 RIGHT	16.1%	93
078-A	12	STA: 908+77 RIGHT	17.3%	98
078-B	12	STA: 908+65 RIGHT	14.9%	141
078-C	12	STA: 908+83 LEFT	13.4%	187
078-D	12	STA: 911+74 LEFT	9.6%	114
078-E	12	STA: 914+47 LEFT	7.5%	107
078-F	12	STA: 916+67 LEFT	4.0%	202
078-G	12	STA: 918+46 LEFT	5.9%	119
079-A	12	STA: 921+29 LEFT	3.2%	342
079-B	12	STA: 922+55 LEFT	7.4%	163
079-C	12	STA: 923+49 LEFT	11.0%	91
079-D	12	STA: 924+67 LEFT	13.7%	95
079-E	12	STA: 925+95 LEFT	10.7%	150
079-F	12	STA: 926+81 LEFT	17.7%	130
079-G	12	STA: 927+66 LEFT	13.2%	129
079-H	12	STA: 928+54 LEFT	12.1%	107
079-I	32	STA: 932+33 LEFT	26.6%	403
079-J	32	STA: 932+39 CENTER	33.8%	293
079-K	32	STA: 932+ 40 RIGHT	31.0%	306
079-L	12	STA: 931+93 RIGHT	14.7%	34
079-M	12	STA: 931+92 RIGHT	26.3%	19
081-A	32	STA: 950+95 RIGHT	28.8%	243
081-B	32	STA: 951+24 RIGHT	44.1%	195
081-C	32	STA: 952+06 RIGHT	29.9%	167
081-D	24	STA: 951+68 RIGHT	27.0%	126
081-E	12	STA: 952+10 RIGHT	20.0%	50
081-F	12	STA: 952+64 RIGHT	16.7%	126
081-G	12	STA: 953+20 RIGHT	14.5%	166
081-H	12	STA: 953+96 RIGHT	16.4%	140
081-I	12	STA: 954+46 RIGHT	13.4%	97
081-J	12	STA: 955+18 RIGHT	8.8%	113
081-K	18	STA: 955+82 RIGHT	38.3%	47
081-L	12	STA: 956+24 RIGHT	38.5%	26
081-M	18	STA: 956+74 RIGHT	27.3%	66
082-A	12	STA: 957+67 RIGHT	18.3%	120
082-B	12	STA: 958+73 RIGHT	18.3%	120
082-C	12	STA: 959+14 RIGHT	7.0%	100
082-D	12	STA: 959+79 RIGHT	6.0%	116
082-E	12	STA: 959+48 LEFT	15.5%	116
082-F	12	STA: 961+48 LEFT	20.0%	100
082-G	12	STA: 962+92 LEFT	13.2%	106
082-H	12	STA: 964+46 LEFT	7.3%	232
082-I	12	STA: 965+56 LEFT	13.8%	29
082-J	12	STA: 967+43 LEFT	8.1%	37
082-K	12	STA: 965+11 LEFT	6.7%	180
082-L	12	STA: 965+36 LEFT	11.1%	45
082-M	12	STA: 965+48 LEFT	10.3%	29
082-N	12	STA: 965+85 RIGHT	8.2%	49
082-O	12	STA: 966+46 RIGHT	7.5%	40
082-P	12	STA: 967+39 RIGHT	23.1%	39
082-Q	12	STA: 967+97 RIGHT	19.5%	41
082-R	12	STA: 968+16 RIGHT	8.3%	36
082-S	12	STA: 967+17 RIGHT	14.3%	14
082-T	12	STA: 966+22 RIGHT	15.4%	13
082-U	12	STA: 965+05 RIGHT	6.0%	183
083-A	12	STA: 971+48 RIGHT	7.7%	91
083-B	12	STA: 972+55 RIGHT	17.9%	67
083-C	12	STA: 972+11 LEFT	15.6%	77
083-D	12	STA: 972+20 LEFT	13.2%	91
083-E	12	STA: 976+23 LEFT	10.7%	75
084-A	18	STA: 981+33 LEFT	32.0%	75
084-B	12	STA: 982+30 LEFT	17.2%	99
084-C	12	STA: 982+69 LEFT	16.3%	98
084-D	12	STA: 983+75 LEFT	15.2%	105
084-E	12	STA: 985+09 LEFT	23.5%	34
084-F	12	STA: 985+09 RIGHT	20.5%	78
084-G	12	STA: 986+21 RIGHT	15.2%	105
084-H	12	STA: 986+60 RIGHT	2.9%	139
084-I	12	STA: 987+10 RIGHT	6.7%	164
084-J	12	STA: 988+05 RIGHT	7.0%	114
084-K	12	STA: 989+91 RIGHT	4.4%	91
084-L	12	STA: 991+87 RIGHT	5.5%	128
084-M	12	STA: 992+50 RIGHT	3.8%	106
085-A	12	STA: 999+70 LEFT	30.4%	23
085-B	18	STA: 999+85 RIGHT	21.1%	161
085-C	12	STA: 1000+51 RIGHT	14.3%	35
085-D	18	STA: 1000+94 RIGHT	21.5%	144
085-E	12	STA: 1001+24 RIGHT	16.2%	37
085-F	12	STA: 1001+20 RIGHT	23.7%	59
085-G	12	STA: 1001+50 RIGHT	19.2%	73
085-H	12	STA: 1002+36 RIGHT	17.7%	96

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
085-I	12	STA: 1003+33 RIGHT	14.4%	97
085-J	12	STA: 1004+04 RIGHT	15.7%	108
085-K	12	STA: 1004+64 RIGHT	16.5%	103
086-A	12	STA: 1005+74 RIGHT	16.4%	128
086-B	18	STA: 1006+66 RIGHT	15.0%	240
086-C	18	STA: 1008+81 RIGHT	25.2%	139
086-D	18	STA: 1009+17 RIGHT	25.3%	158
086-E	18	STA: 1009+32 LEFT	21.1%	185
086-F	12	STA: 1009+96 LEFT	8.5%	82
086-G	12	STA: 1009+99 LEFT	22.4%	58
086-H	32	STA: 1010+37 LEFT	74.2%	31
086-I	32	STA: 1010+16 LEFT	66.7%	3
086-J	12	STA: 1010+18 RIGHT	7.0%	43
086-K	12	STA: 1010+32 RIGHT	6.7%	15
086-L	12	STA: 1011+25 RIGHT	9.0%	78
086-M	12	STA: 1011+42 RIGHT	1.5%	135
086-N	12	STA: 1012+89 RIGHT	1.4%	69
086-O	12	STA: 1013+11 LEFT	21.6%	51
086-P	12	STA: 1013+26 LEFT	20.8%	48
086-Q	18	STA: 1013+65 RIGHT	24.2%	120
086-R	18	STA: 1014+40 RIGHT	27.1%	118
086-S	18	STA: 1014+80 RIGHT	27.1%	118
086-T	18	STA: 1015+28 RIGHT	24.6%	114
086-U	12	STA: 1015+76 RIGHT	21.7%	106
086-V	12	STA: 1016+58 RIGHT	20.0%	95
087-A	12	STA: 1017+55 RIGHT	16.3%	98
087-B	12	STA: 1018+31 RIGHT	15.4%	104
087-C	12	STA: 1018+86 RIGHT	17.3%	104
087-D	12	STA: 1019+09 LEFT	18.6%	86
087-E	12	STA: 1019+35 LEFT	17.3%	52
087-F	12	STA: 1019+48 LEFT	18.3%	202
087-G	18	STA: 1019+19 LEFT	20.5%	146
087-H	18	STA: 1019+06 RIGHT	20.0%	160
087-I	18	STA: 1020+29 LEFT	16.3%	178
087-J	18	STA: 1020+75 LEFT	19.6%	148
087-K	12	STA: 1021+64 LEFT	16.7%	138
087-L	12	STA: 1022+28 LEFT	17.9%	117
087-M	12	STA: 1022+91 LEFT	17.2%	116
087-N	12	STA: 1024+59 LEFT	14.9%	101
087-O	18	STA: 1026+17 LEFT	35.1%	74
088-A	12	STA: 1031+41 LEFT	3.8%	79
088-B	12	STA: 1035+65 RIGHT	3.7%	108
088-C	12	STA: 1036+23 RIGHT	19.1%	110
088-D	12	STA: 1038+14 RIGHT	11.8%	144
088-E	12	STA: 1038+92 RIGHT	11.1%	180
088-F	12	STA: 1039+51 RIGHT	11.7%	197
088-G	12	STA: 1040+19 RIGHT	10.8%	204
088-H	12	STA: 1040+79 RIGHT	11.1%	226
089-A	12	STA: 1041+33 LEFT	15.9%	44
089-B	12	STA: 1041+91 LEFT	21.2%	52
089-C	12	STA: 1042+10 LEFT	17.9%	39
089-D	12	STA: 1042+68 LEFT	31.3%	16
089-E	12	STA: 1042+48 RIGHT	23.6%	89
089-F	32	STA: 1043+27 RIGHT	68.8%	32
089-G	18	STA: 1044+04 RIGHT	23.3%	120
089-H	12	STA: 1044+73 RIGHT	18.4%	114
089-I	12	STA: 1045+50 RIGHT	13.8%	138
089-J	12	STA: 1046+98 LEFT	18.6%	43
089-K	12	STA: 1047+44 LEFT	30.8%	39
089-L	12	STA: 1047+39 LEFT	14.6%	192
089-M	18	STA: 1047+52 RIGHT	12.1%	257
089-N	12	STA: 1047+61 RIGHT	9.1%	44
089-O	12	STA: 1047+71 LEFT	8.2%	61
089-P	12	STA: 1047+78 LEFT	6.0%	83
089-Q	12	STA: 1048+25 LEFT	6.2%	81
089-R	12	STA: 1048+30 LEFT	9.1%	44
089-S	12	STA: 1048+87 LEFT	8.1%	86
089-T	12	STA: 1049+80 LEFT	8.1%	86
089-U	12	STA: 1050+61 LEFT	25.3%	75
089-V	12	STA: 1051+29 LEFT	20.5%	78
089-W	12	STA: 1051+43 LEFT	16.9%	77
089-X	12	STA: 1052+64 LEFT	11.2%	98
089-Y	12	STA: 1052+44 RIGHT	9.2%	87
089-Z	12	STA: 1052+55 RIGHT	13.9%	36
089-AA	12	STA: 1052+82 LEFT	11.1%	81
090-A	32	STA: 1053+38 RIGHT	36.8%	95
090-B	32	STA: 1054+54 RIGHT	33.3%	78
090-C	12	STA: 1055+38 RIGHT	21.1%	76
090-D	12	STA: 1056+02 LEFT	14.7%	95
090-E	12	STA: 1056+13 LEFT	19.5%	77
090-F	12	STA: 1055+93 RIGHT	18.8%	128
090-G	12	STA: 1056+54 RIGHT	10.4%	231
090-H	12	STA: 1057+01 RIGHT	7.5%	280
090-I	12	STA: 1060+78 LEFT	9.4%	32
091-A	12	STA: 1065+27 LEFT	7.8%	64
091-B	12	STA: 1065+29 LEFT	8.5%	235
091-C	12	STA: 1068+33 LEFT	4.9%	123

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
091-D	12	STA: 1068+82 LEFT	5.1%	98
091-E	12	STA: 1069+81 LEFT	5.9%	153
091-F	12	STA: 1071+11 LEFT	18.8%	48
091-G	12	STA: 1071+45 LEFT	15.5%	71
091-H	12	STA: 1072+16 LEFT	7.9%	240
091-I	12	STA: 1072+90 LEFT	8.6%	140
091-J	12	STA: 1074+26 LEFT	8.3%	96
091-K	12	STA: 1075+32 LEFT	9.3%	129
091-L	12	STA: 1075+84 LEFT	14.4%	97
091-M	12	STA: 1076+52 LEFT	13.6%	103
091-N	12	STA: 1076+98 LEFT	14.7%	109
092-A	18	STA: 1079+07 LEFT	11.1%	270
092-B	18	STA: 1083+71 RIGHT	15.5%	239
092-C	24	STA: 1084+04 LEFT	17.3%	260
092-D	12	STA: 1084+77 LEFT	13.6%	118
092-E	12	STA: 1084+77 RIGHT	10.0%	50
092-F	12	STA: 108+55 LEFT	11.5%	26
092-G	12	STA: 1085+97 RIGHT	26.3%	19
092-H	12	STA: 1086+45 RIGHT	30.0%	20
092-I	18	STA: 1087+15 RIGHT	27.4%	113
092-J	12	STA: 1088+69 RIGHT	27.3%	99
093-A	24	STA: 1090+28 RIGHT	29.2%	96
093-B	18	STA: 1091+18 RIGHT	28.2%	103
093-C	12	STA: 1092+00 RIGHT	17.8%	101
093-D	12	STA: 1093+30 RIGHT	11.3%	124
093-E	12	STA: 1097+03 RIGHT	6.1%	163
093-F	12	STA: 1098+59 LEFT	9.5%	126
093-G	18	STA: 1099+05 LEFT	7.1%	296
094-A	12	STA: 1102+72 LEFT	8.3%	108
094-B	12	STA: 1103+46 LEFT	9.3%	118
094-C	12	STA: 1104+90 LEFT	9.5%	95
094-D	12	STA: 1106+32 LEFT	7.6%	132
094-E	12	STA: 1107+06 RIGHT	6.6%	151
094-F	12	STA: 1108+29 RIGHT	8.1%	161
094-G	12	STA: 1109+50 RIGHT	10.1%	217
094-H	12	STA: 1110+77 RIGHT	6.8%	219
095-A	12	STA: 1112+18 RIGHT	4.6%	108
095-B	12	STA: 1112+80 RIGHT	4.1%	145
095-C	12	STA: 1117+65 LEFT	8.6%	116
095-D	12	STA: 1118+92 LEFT	11.0%	82
095-E	12	STA: 1121+71 LEFT	9.5%	116
095-F	12	STA: 1122+18 LEFT	11.0%	109
095-G	12	STA: 1122+70 LEFT	11.9%	118
095-H	12	STA: 1123+41 LEFT	11.3%	106
095-I	12	STA: 1124+15 LEFT	7.1%	112
096-A	12	STA: 1127+14 LEFT	8.1%	235
096-B	12	STA: 1127+65 LEFT	8.5%	258
096-C	12	STA: 1128+87 LEFT	13.1%	84
096-D	12	STA: 1129+58 LEFT	6.9%	102
096-E	12	STA: 1130+31 LEFT	7.1%	99
096-F	12	STA: 1131+49 LEFT	7.0%	143
096-G	12	STA: 1132+03 LEFT	5.4%	352
096-H	12	STA: 1132+74 LEFT	5.3%	281
096-I	12	1133+44 LEFT	4.3%	210
097-A	12	STA: 1147+32 LEFT	3.4%	88
097-B	12	STA: 1138+31 LEFT	2.2%	134
097-C	12	STA: 1139+06 LEFT	9.6%	125
097-D	12	STA: 1139+37 LEFT	14.9%	101
097-E	12	STA: 1145+81 LEFT	33.3%	51
097-F	32	STA: 1145+92 LEFT	37.6%	133
097-G	32	STA: 1145+87 RIGHT	46.1%	76
097-H	32	STA: 1146+08 RIGHT	27.3%	198
097-I	12	STA: 1146+37 LEFT	31.6%	38
097-J	32	STA: 1146+28 LEFT	26.8%	164
097-K	32	STA: 1146+52 LEFT	31.0%	158
097-L	32	STA: 1147+23 LEFT	30.6%	170
098-A	12	STA: 1150+63 RIGHT	10.4%	183
098-B	12	STA: 1152+29 RIGHT	5.6%	177
098-C	32	STA: 1156+56 LEFT	28.4%	229
098-D	12	STA: 1157+27 LEFT	26.8%	71
098-E	32	STA: 1157+25 LEFT	26.5%	309
098-F	32	STA: 1157+39 RIGHT	23.8%	369
098-G	32	STA: 1157+40 LEFT	28.0%	250
098-H	32	STA: 1157+98 LEFT	26.4%	163
099-A	12	STA: 1165+89 RIGHT	7.8%	102
099-B	12	STA: 1166+73 RIGHT	17.6%	136
099-C	12	STA: 1167+15 RIGHT	14.4%	118
099-D	32	STA: 1171+29 RIGHT	30.4%	339
099-E	32	STA: 1171+45 LEFT	46.3%	123
099-F	32	STA: 1171+49 LEFT	57.7%	52
099-G	32	STA: 1171+44 LEFT	31.2%	109
100-A	32	STA: 1182+55 RIGHT	30.9%	223
100-B	18	STA: 1182+99 LEFT	38.9%	54
100-C	32	STA: 1183+27 RIGHT	37.5%	152
101-A	12	STA: 1187+97 RIGHT	10.0%	40
101-B	12	STA: 1189+16 RIGHT	5.1%	99
101-C	12	STA: 1190+36 RIGHT	5.7%	105

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
101-D	12	STA: 1191+09 RIGHT	5.9%	118
101-E	12	STA: 1191+68 RIGHT	5.3%	132
101-F	12	STA: 1192+43 RIGHT	5.1%	117
101-G	12	STA: 1192+74 RIGHT	7.0%	115
101-H	12	STA: 1194+21 RIGHT	5.9%	204
101-I	18	STA: 1195+73 RIGHT	14.0%	235
103-A	12	STA: 1218+67 LEFT	24.5%	49
103-B	32	STA: 1218+68 LEFT	29.2%	144
103-C	18	STA: 1219+02 LEFT	43.3%	60
103-D	32	STA: 1218+92 RIGHT	28.2%	333
103-E	18	STA: 1219+37 RIGHT	25.5%	149
103-F	12	STA: 1220+47 RIGHT	9.7%	124
104-A	32	STA: 1223+58 RIGHT	40.0%	115
104-B	24	STA: 1223+98 LEFT	40.5%	84
104-C	12	STA: 1233+77 RIGHT	27.3%	44
104-D	24	STA: 1224+18 LEFT	30.9%	97
105-A	12	STA: 1233+64 RIGHT	12.3%	130
105-B	12	STA: 1234+38 RIGHT	19.8%	96
105-C	12	STA: 1235+07 RIGHT	22.0%	109
105-D	18	STA: 1235+48 RIGHT	24.3%	115
105-E	18	STA: 1235+90 RIGHT	21.2%	146
105-F	12	STA: 1236+45 RIGHT	21.4%	112
105-G	12	STA: 1236+96 RIGHT	18.1%	105
105-H	12	STA: 1237+39 RIGHT	17.0%	100
105-I	12	STA: 1238+04 RIGHT	18.3%	115
105-J	18	STA: 1239+19 RIGHT	23.7%	139
105-K	12	STA: 1242+77 RIGHT	19.2%	130
105-L	12	STA: 1243+36 RIGHT	5.6%	124
106-A	12	STA: 1249+24 RIGHT	7.5%	133
106-B	12	STA: 1249+93 RIGHT	13.1%	122
106-C	12	STA: 1250+34 RIGHT	14.5%	152
106-D	12	STA: 1251+10 RIGHT	15.0%	153
106-E	12	STA: 1251+49 RIGHT	16.2%	136
106-F	12	STA: 1253+52 RIGHT	18.8%	101
106-G	18	STA: 1255+51 RIGHT	19.9%	146
106-H	12	STA: 1255+93 RIGHT	13.2%	152
106-I	12	STA: 1256+38 RIGHT	9.6%	114
106-J	12	STA: 1256+89 RIGHT	8.7%	103
107-A	12	STA: 1257+61 RIGHT	13.3%	105
107-B	12	STA: 1262+12 LEFT	31.7%	41
107-C	32	STA: 1263+04 RIGHT	39.3%	107
107-D	12	STA: 1263+12 RIGHT	23.1%	117
107-E	32	STA: 1263+26 LEFT	48.9%	47
107-F	32	STA: 1263+33 LEFT	37.8%	312
107-G	32	STA: 1263+36 LEFT	36.5%	271
108-A	12	STA: 1269+72 LEFT	14.0%	114
108-B	12	STA: 1270+90 LEFT	8.4%	95
108-C	12	STA: 1272+17 LEFT	11.7%	120
108-D	12	STA: 1272+74 LEFT	14.6%	123
108-E	12	STA: 1273+31 LEFT	17.1%	117
108-F	12	STA: 1274+88 LEFT	10.2%	108
108-G	12	STA: 1276+10 LEFT	12.1%	132
108-H	12	STA: 1277+11 LEFT	6.3%	96
108-I	12	STA: 1278+10 LEFT	8.3%	144
108-J	12	STA: 1278+95 LEFT	16.8%	191
108-K	12	STA: 1280+11 LEFT	9.6%	104
109-A	24	STA: 1285+30 RIGHT	10.9%	266
109-B	18	STA: 1286+10 LEFT	15.9%	157
109-C	18	STA: 1288+80 RIGHT	16.0%	119
109-D	18	STA: 1290+50 RIGHT	25.8%	62
110-A	32	STA: 1294+30 RIGHT	22.1%	280
110-B	24	STA: 1290+70 LEFT	30.6%	72
110-C	18	STA: 1290+60 LEFT	11.7%	145
111-A	24	STA: 1307+00 LEFT	30.2%	106
111-B	24	STA: 1308+00 LEFT	15.6%	192
111-C	24	STA: 1309+00 LEFT	15.7%	230
111-D	24	STA: 1316+20 RIGHT	19.8%	192
111-E	18	STA: 1316+60 LEFT	45.5%	33
111-F	18	STA: 1316+70 LEFT	38.2%	34
111-G	18	STA: 1316+90 RIGHT	24.2%	99
112-A	12	STA: 1317+70 RIGHT	13.2%	76
112-B	12	STA: 1318+40 RIGHT	12.1%	58
112-C	24	STA: 1319+10 RIGHT	12.9%	240
113-D	32	STA: 1320+10 RIGHT	13.1%	289
113-E	32	STA: 1321+00 RIGHT	19.0%	316
113-F	24	STA: 1322+00 RIGHT	11.7%	273
113-G	18	S W-9A-151014-MRK-001	8.9%	192
113-H	18	N W-9A-151014-MRK-001	9.5%	220
113-I	32	STA: 1322+50 RIGHT	10.5%	306
113-J	18	STA 1325+20 RIGHT	10.1%	189
113-K	12	STA 1325+60 RIGHT	9.0%	89
113-L	12	E SIDE OF HOU-PAR-08	18.2%	22
113-A	18	STA: 1338+47 LEFT	8.5%	305
113-B	12	STA: 1338+86 RIGHT	10.0%	5
113-C	18	STA: 1339+50 LEFT	8.2%	316
114-A	12	STA: 1342+44 RIGHT	25.6%	82
114-B	32	STA: 1342+52 LEFT	35.1%	171

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CNTRL NARRATIVE – DET12
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE: AS SHOWN | DATE: 12/05/17 | DRAWN: JWR
SPLC-GOM-AE-SD119696 | REVISION 1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:38 AM)

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
114-C	32	STA: 1342+79 LEFT	34.0%	250
114-D	32	STA: 1345+26 LEFT	39.2%	255
114-E	24	STA: 1348+25 LEFT	27.2%	114
114-F	18	STA: 1349+15 LEFT	26.0%	100
114-G	12	STA: 1351+37 LEFT	16.8%	113
114-H	12	STA: 1351+95 LEFT	13.2%	129
114-I	12	STA: 1352+41 LEFT	13.3%	105
115-A	12	STA: 1353+89 LEFT	13.8%	94
115-B	12	STA: 1355+45 LEFT	8.2%	122
115-C	12	STA: 1356+60 LEFT	3.0%	134
115-D	12	STA: 1357+81 LEFT	4.2%	142
115-E	12	STA: 1358+83 LEFT	2.5%	120
115-F	12	STA: 1362+62 RIGHT	8.3%	96
116-A	12	STA: 1663+27 RIGHT	6.4%	125
116-B	12	STA: 1364+28 RIGHT	2.9%	278
116-C	12	STA: 1368+58 LEFT	3.5%	115
116-D	12	STA: 1368+50 LEFT	8.1%	258
116-E	12	STA: 1369+25 LEFT	9.5%	95
117-A	12	STA: 1384+19 LEFT	4.3%	235
117-B	12	STA: 1385+40 RIGHT	3.1%	129
117-C	12	STA: 1385+51 LEFT	3.3%	269
117-D	12	STA: 1387+23 RIGHT	1.7%	180
117-E	12	STA: 1387+24 LEFT	9.2%	87
117-F	12	STA: 1387+92 LEFT	3.3%	120
118-A	32	STA: 1391+94 RIGHT	32.7%	165
118-B	32	STA: 1392+24 RIGHT	32.3%	189
118-C	32	STA: 1392+50 RIGHT	34.6%	179
118-D	32	STA: 1392+61 RIGHT	30.5%	141
118-E	32	STA: 1392+99 RIGHT	30.0%	100
118-F	24	STA: 1394+10 RIGHT	28.0%	100
118-G	18	STA: 1395+81 RIGHT	19.5%	174
118-H	18	STA: 1396+36 RIGHT	22.9%	170
118-I	24	STA: 1397+00 RIGHT	25.3%	166
118-J	12	STA: 1398+00 RIGHT	20.6%	97
118-K	12	STA: 1399+27 RIGHT	19.0%	100
118-L	12	STA: 1400+34 RIGHT	18.6%	97
119-A	32	STA: 1402+34 RIGHT	30.5%	151
119-B	32	STA: 1403+12 RIGHT	28.0%	193
119-C	18	STA:1403+53 RIGHT	27.8%	108
119-D	12	STA: 1404+23 RIGHT	14.4%	125
119-E	24	STA: 1404+87 RIGHT	24.7%	170
119-F	32	STA: 1405+40 RIGHT	24.8%	226
119-G	12	STA: 1406+23 RIGHT	21.9%	105
119-H	12	STA: 1406+05 LEFT	21.4%	42
119-I	12	STA: 1406+29 RGHT	28.9%	38
119-J	12	STA: 1406+74 RIGHT	22.4%	98
119-K	12	STA: 1407+26 RIGHT	25.7%	101
119-L	12	STA: 1407+96 RIGHT	27.4%	124
119-M	24	STA: 1408+65 RIGHT	28.4%	116
119-N	18	STA: 1409+59 RIGHT	25.4%	114
119-O	12	STA: 1410+73 RIGHT	18.8%	96
119-P	12	STA: 1411+97 RIGHT	6.4%	110
120-A	32	STA: 1415+34 LEFT	30.2%	232
120-B	12	STA: 1415+43 LEFT	4.4%	45
120-C	32	STA: 1415+63 RIGHT	38.9%	95
120-D	12	STA: 1415+73 RIGHT	21.5%	93
120-E	32	STA: 1418+67 RIGHT	34.4%	96
120-F	12	STA: 1418+77 RIGHT	22.5%	111
120-G	12	STA: 1419+02 LEFT	29.0%	31
120-H	12	STA: 1419+05 LEFT	28.8%	52
120-I	12	STA: 1419+96 RIGHT	29.1%	86
120-J	32	STA: 1420+03 RIGHT	39.8%	161
120-K	32	STA: 1420+11 LEFT	59.1%	22
120-L	32	STA: 1420+16 LEFT	40.0%	70
121-A	18	STA: 1428+00 RIGHT	17.6%	131
121-B	18	STA: 1428+50 RIGHT	15.4%	117
121-C	18	STA: 1429+00 RIGHT	15.0%	107
121-D	12	STA: 1430+00 RIGHT	12.8%	109
121-E	18	STA: 1431+00 RIGHT	15.3%	118
121-F	18	STA: 1431+60 RIGHT	20.5%	73
121-G	12	STA: 1431+95 RIGHT	14.9%	74
121-H	12	STA: 1431+95 LEFT	15.8%	19
121-I	12	STA: 1432+10 RIGHT	13.5%	74
121-J	12	STA: 1432+10 LEFT	15.8%	19
121-K	18	STA: 1432+50 RIGHT	18.6%	129
121-L	24	STA: 1433+20 RIGHT	25.2%	127
121-M	24	STA: 1433+60 RIGHT	25.8%	132
121-N	32	STA: 1434+20 RIGHT	28.8%	153
121-O	32	STA: 1435+00 RIGHT	37.7%	138
121-P	32	STA: 1435+60 RIGHT	35.5%	124
122-A	32	STA: 1435+90 RIGHT	34.0%	97
122-B	18	STA:1436+95 LEFT	17.3%	104
122-C	18	STA:1437+80 RIGHT	12.3%	130
122-D	18	STA:1439+00 RIGHT	7.9%	178
122-E	12	STA: 1443+00 RIGHT	6.4%	125
122-F	12	STA: 1445+00 RIGHT	8.5%	106
122-G	12	STA: 1446+50 RIGHT	8.3%	96

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
122-H	12	STA: 1448+00 RIGHT	8.7%	103
123-A	24	STA: 1454+00 RIGHT	22.1%	172
123-B	18	STA: 1455+00 RIGHT	15.1%	139
124-A	18	STA: 14466+20 LEFT	15.7%	108
124-B	12	STA: 1466+55 LEFT	11.5%	130
124-C	18	STA: 1467+00 LEFT	13.3%	135
124-D	18	STA: 1468+00 LEFT	13.8%	138
125-A	12	STA: 1476+00 LEFT	15.8%	76
126-A	32	STA: 1485+20 LEFT	15.1%	531
126-B	32	STA: 1485+20 RIGHT	14.2%	571
126-C	32	STA: 1486+50 RIGHT	16.6%	483
127-A	18	STA:1497+40 RIGHT	16.5%	109
127-B	18	STA:1497+80 RIGHT	16.5%	103
127-C	12	STA:1498+50 RIGHT	14.1%	99
127-D	12	STA:1499+50 RIGHT	10.0%	100
127-E	12	STA:1500+60 RIGHT	4.9%	142
127-F	12	STA:1503+40 RIGHT	11.6%	69
127-G	12	STA:1504+70 RIGHT	3.8%	78
127-H	12	STA:1506+10 RIGHT	5.6%	142
127-I	18	STA:1507+00 RIGHT	15.8%	101
127-J	24	STA:1507+60 RIGHT	25.7%	101
127-K	32	STA:1508+00 RIGHT	30.6%	111
127-L	32	STA:1508+50 RIGHT	32.1%	106
128-A	32	STA: 1509+40 RIGHT	38.0%	100
128-B	32	STA: 1510+00 RIGHT	41.7%	96
128-C	32	STA: 1511+00 RIGHT	37.3%	102
128-D	32	STA: 1512+50 RIGHT	43.9%	123
128-E	32	STA: 1513+20 RIGHT	39.3%	122
128-F	32	STA: 1518+00 LEFT	33.9%	124
128-G	32	STA: 1518+50 RIGHT	54.5%	66
128-H	18	STA: 1518+20 LEFT	41.4%	29
128-I	32	STA: 1518+60 RIGHT	47.8%	67
128-J	18	STA: 1518+80 LEFT	41.0%	39
129-A	18	STA: 1521+50 RIGHT	16.9%	142
129-B	18	STA: 1522+00 RIGHT	18.6%	129
129-C	18	STA: 1522+60 RIGHT	18.8%	96
129-D	12	STA: 1523+70 RIGHT	16.7%	96
129-E	12	STA: 1525+60 RIGHT	10.4%	134
129-F	18	STA: 1525+60 RIGHT	8.9%	180
129-G	18	STA: 1527+90 RIGHT	48.6%	35
129-H	18	STA: 1527+90 LEFT	57.1%	35
129-I	18	STA: 1528+10 RIGHT	48.1%	27
129-J	18	STA: 1528+10 LEFT	60.0%	20
129-K	12	STA: 1529+70 RIGHT	13.0%	77
129-L	32	STA: 1531+70 RIGHT	32.9%	85
129-M	32	STA: 1532+40 LEFT	12.8%	234
129-N	32	STA: 1531+75 RIGHT	39.4%	66
130-A	12	STA: 1153+91 RIGHT	10.6%	123
130-B	18	STA: 1535+36 RIGHT	15.1%	106
130-C	18	STA: 1537+06 RIGHT	15.7%	108
130-D	18	STA: 1538+31 RIGHT	11.1%	117
130-E	18	STA: 1539+25 RIGHT	20.0%	130
130-F	18	STA: 1539+41 RIGHT	19.0%	84
130-G	12	STA: 1539+59 LEFT	16.7%	24
130-H	12	STA: 1539+87 LEFT	7.4%	81
130-I	12	STA: 1541+26 RIGHT	14.5%	55
130-J	18	STA: 1541+36 RIGHT	15.9%	113
130-K	18	STA: 1544+70 RIGHT	12.6%	119
130-L	12	STA: 1544+68 LEFT	17.1%	35
130-M	12	STA: 1544+89 RIGHT	11.1%	72
130-N	12	STA: 1544+73 LEFT	21.4%	28
131-A	12	STA: 1545+18 RIGHT	12.5%	48
131-B	12	STA: 1545+77 LEFT	21.7%	23
131-C	18	STA: 1548+99 RIGHT	10.2%	205
131-D	12	STA: 1549+07 LEFT	14.3%	42
131-E	24	STA: 1549+11 RIGHT	10.1%	257
131-F	18	STA: 1549+14 LEFT	10.3%	195
131-G	18	STA: 1550+30 RIGHT	8.5%	164
131-H	12	STA: 1550+87 RIGHT	12.5%	104
131-I	12	STA: 1551+34 RIGHT	9.1%	132
131-J	18	STA: 1552+01 RIGHT	11.7%	154
131-K	18	STA: 1553+05 RIGHT	13.4%	119
131-L	18	STA: 1553+87 RIGHT	15.8%	95
131-M	18	STA: 1554+54 RIGHT	16.2%	99
131-N	18	STA: 1555+25 RIGHT	17.0%	100
131-O	18	STA: 1555+86 RIGHT	16.0%	150
131-P	18	STA: 1556+50 RIGHT	15.6%	135
132-A	12	STA: 1537+38 RIGHT	15.4%	39
132-B	12	STA: 1557+92 RIGHT	19.7%	66
132-C	18	STA: 1558+47 RIGHT	22.0%	100
132-D	18	STA: 1559+56 RIGHT	19.5%	118
132-E	18	STA: 1560+28 RIGHT	16.1%	112
132-F	18	STA: 1560+97 RIGHT	15.6%	122
132-G	18	STA: 1561+64 RIGHT	17.0%	100
132-H	18	STA: 1562+23 RIGHT	18.3%	104
132-I	12	STA: 1563+18 RIGHT	10.6%	104
132-J	12	STA: 1564+28 RIGHT	11.1%	90

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
132-K	12	STA: 1565+47 RIGHT	7.1%	98
132-L	18	STA: 1567+10 RIGHT	14.8%	115
132-M	18	STA: 1566+87 LEFT	12.8%	141
132-N	12	STA: 1567+22 RIGHT	18.8%	32
132-O	12	STA: 1566+94 LEFT	20.0%	45
132-P	24	STA: 1567+40 RIGHT	22.6%	62
132-Q	24	STA: 1567+97 LEFT	16.7%	198
133-A	24	STA: 1572+61 RIGHT	23.4%	141
133-B	18	STA: 1573+23 RIGHT	22.4%	107
133-C	18	STA: 1574+09 RIGHT	19.6%	97
133-D	18	STA: 1574+86 RIGHT	18.2%	99
133-E	18	STA: 1575+61 RIGHT	18.2%	99
133-F	18	STA: 1576+36 RIGHT	17.5%	97
133-G	18	STA: 1577+25 RIGHT	18.8%	101
133-H	18	STA: 1577+77 RIGHT	20.0%	110
133-I	18	STA: 1578+30 RIGHT	19.8%	111
133-J	18	STA: 1578+78 RIGHT	20.2%	104
133-K	18	STA: 1579+47 RIGHT	18.8%	96
134-A	18	STA: 1580+39 RIGHT	16.5%	109
134-B	12	STA: 1581+91 RIGHT	12.0%	108
134-C	12	STA: 1582+32 LEFT	15.9%	44
134-D	12	STA: 1582+47 LEFT	17.4%	92
134-E	18	STA: 1582+00 RIGHT	16.7%	132
134-F	18	STA: 1582+74 LEFT	18.9%	111
134-G	18	STA: 1583+20 LEFT	21.5%	93
134-H	32	STA: 1587+57 RIGHT	23.6%	229
134-I	12	STA: 1591+44 LEFT	43.8%	32
134-J	32	STA: 1591+51 RIGHT	29.1%	179
134-K	32	STA: 1591+53 LEFT	32.0%	169
134-L	32	STA: 1591+65 RIGHT	37.9%	132
134-M	32	STA: 1591+74 RIGHT	40.3%	119
134-N	32	STA: 1591+63 LEFT	58.3%	72
135-A	32	STA: 1598+18 RIGHT	8.3%	144
135-B	18	STA: 1594+26 LEFT	21.8%	55
135-C	32	STA: 1594+30 RIGHT	10.6%	113
135-D	32	STA: 1594+32 LEFT	19.4%	62
135-E	18	STA: 1596+23 LEFT	14.0%	86
135-F	12	STA: 1596+71 LEFT	63.2%	19
135-G	32	STA: 1596+78 RIGHT	8.5%	142
135-H	32	STA: 1596+88 RIGHT	13.3%	90
135-I	18	STA: 1596+95 LEFT	31.6%	38
135-J	32	STA: 1599+40 LEFT	9.0%	134
135-K	18	STA: 1599+99 LEFT	17.4%	69
135-L	32	STA: 1600+55 RIGHT	29.0%	62
135-O	32	STA: 1600+62 LEFT	37.5%	32
135-M	18	STA: 1600+70 RIGHT	36.4%	25
135-N	12	STA: 1601+10 LEFT	16.7%	72
136-A	18	STA: 1605+69 RIGHT	11.2%	107
136-B	18	STA: 1607+39 RIGHT	11.8%	102
136-C	12	STA: 1608+51 RIGHT	11.3%	106
136-D	18	STA: 1610+12 RIGHT	9.1%	197
136-E	12	STA: 1611+90 RIGHT	23.9%	134
136-F	12	STA: 1612+00 LEFT	43.8%	73
136-G	12	STA: 1612+75 LEFT	22.9%	140
136-H	12	STA: 1613+18 LEFT	16.6%	193
136-I	18	STA: 1613+68 LEFT	12.8%	250
136-J	18	STA: 1614+11 LEFT	6.7%	268
136-K	24	STA: 1614+72 LEFT	6.8%	351
136-L	24	STA: 1615+47 LEFT	4.5%	397
136-M	12	STA: 1616+30 LEFT	9.4%	128
136B-A	12	HOU-TAR-49	2.0%	10
137-A	12	STA: 1619+88 RIGHT	4.1%	291
137-B	12	STA: 1621+87 RIGHT	3.4%	351
138-A	32	STA: 1629+25 RIGHT	5.9%	202
138-B	24	STA: 1629+21 LEFT	21.7%	83
138-C	32	STA: 1629+74 RIGHT	8.3%	217
138-D	32	STA: 1629+79 LEFT	9.6%	187
138-E	32	STA: 1630+00 RIGHT	14.0%	229
138-F	32	STA: 1630+03 LEFT	9.3%	194
138-G	32	STA: 1630+52 LEFT	12.7%	142
138-H	32	STA: 1631+36 RIGHT	13.0%	138
138-I	32	STA: 1631+98 RIGHT	10.1%	119
138-J	32	STA: 1632+96 LEFT	15.2%	79
138-K	32	STA: 1633+49 RIGHT	7.6%	157
138-L	32	STA: 1633+63 LEFT	7.9%	152
138-M	32	STA: 1633+59 RIGHT	8.3%	144
138-N	32	STA: 1633+69 LEFT	7.2%	167
138-O	32	STA: 1634+28 LEFT	5.8%	208
139-A	12	STA: 1642+48 RIGHT	5.8%	207
139-B	12	STA: 1644+09 RIGHT	12.8%	94
139-C	12	STA: 1644+99 RIGHT	10.0%	120
139-D	12	STA: 1645+50 RIGHT	20.4%	157
139-E	18	STA: 1646+62 RIGHT	5.9%	204
139-F	12	STA: 1647+99 RIGHT	9.9%	121
139-G	12	STA: 1649+32 RIGHT	7.7%	156
139-H	12	STA: 1650+07 RIGHT	9.6%	125
139-I	12	STA: 1650+75 RIGHT	12.0%	100

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
139-J	24	STA: 1651+85 RIGHT	11.0%	109
139-K	12	STA: 1651+72 LEFT	42.9%	28
139-L	32	STA: 1652+05 RIGHT	4.4%	273
139-M	32	STA: 1652+15 LEFT	3.8%	312
140-A	12	STA: 3+44 LEFT	21.8%	55
142-A	12	STA: 19+14 RIGHT	16.7%	6
142-B	12	STA: 19+80 RIGHT	4.1%	49
142-C	12	STA: 20+30 RIGHT	6.8%	161
142-D	18	STA: 21+00 RIGHT	11.6%	251
142-E	18	STA: 21+46 RIGHT	22.3%	251
142-F	32	STA: 21+84 RIGHT	24.9%	209
142-G	32	STA: 22+06 RIGHT	25.8%	178
142-H	18	STA: 22+94 RIGHT	27.0%	122
142-I	12	STA: 23+83 RIGHT	20.1%	134
142-J	18	STA: 24+69 RIGHT	22.7%	128
142-K	12	STA: 25+71 LEFT	26.7%	15
142-L	12	STA: 25+82 LEFT	23.5%	17
142-M	12	STA: 25+51 RIGHT	25.4%	71
142-N	12	STA: 26+00 RIGHT	21.1%	76
142-O	18	STA: 26+49 RIGHT	23.4%	128
142-P	18	STA: 27+16 RIGHT	24.6%	126
142-Q	18	STA: 27+89 RIGHT	26.0%	131
142-R	24	STA: 28+72 RIGHT	27.1%	129
142-S	24	STA: 29+49 RIGHT	28.4%	109
143-A	18	STA: 30+45 RIGHT	31.8%	85
143-B	24	STA: 31+06 RIGHT	31.6%	95
143-C	24	STA: 31+48 RIGHT	32.7%	107
143-D	32	STA: 31+94 RIGHT	33.3%	120
143-E	18	STA: 33+10 RIGHT	24.1%	166
143-F	24	STA: 35+06 RIGHT	21.7%	203
143-G	32	STA: 40+33 LEFT	52.6%	95
143-H	12	STA: 40+75 LEFT	5.9%	205
143-I	12	STA: 41+62 RIGHT	6.3%	206
144-A	12	STA: 42+16 RIGHT	6.3%	206
144-B	12	STA: 43+28 RIGHT	9.9%	71
144-C	12	STA: 44+76 RIGHT	9.7%	72
144-D	12	STA: 45+95 RIGHT	8.1%	74
144-E	12	STA: 47+00 RIGHT	9.6%	73
144-F	12	STA: 47+78 RIGHT	10.8%	83
145-A	12	STA: 60+00 LEFT	12.9%	85
145-B	12	STA: 61+45 LEFT	15.3%	118
145-C	12	STA: 61+63 LEFT	15.2%	138
145-D	12	STA: 64+28 RIGHT	17.1%	152
145-E	18	STA: 64+41 RIGHT	38.5%	65
145-F	12	STA: 64+17 LEFT	20.6%	126
145-G	32	STA: 64+53 LEFT	40.0%	250
146-A	12	STA: 74+46 RIGHT	4.5%	134
146-B	12	STA: 75+34 RIGHT	8.8%	160
146-C	12	STA: 75+81 RIGHT	12.9%	194
146-D	12	STA: 77+19 RIGHT	28.9%	38
146-E	18	STA: 77+74 RIGHT	22.1%	122
147-A	32	STA: 78+67 RIGHT	30.8%	120
147-B	32	STA: 79+44 RIGHT	35.6%	118
147-C	32	STA: 80+14 RIGHT	37.7%	122
147-D	32	STA: 80+78 RIGHT	35.3%	139
147-E	32	STA: 81+38 RIGHT	27.5%	149
147-F	18	STA: 81+70 RIGHT	23.1%	160
147-G	24	STA: 82+03 RIGHT	24.4%	168
147-H	18	STA: 82+05 RIGHT	24.3%	111
147-I	12	STA: 82+25 RIGHT	18.4%	98
147-J	12	STA: 82+64 RIGHT	15.8%	101
147-K	12	STA: 83+67 RIGHT	14.2%	106
147-L	12	STA: 83+97 LEFT	18.2%	22
147-M	12	STA: 84+27 LEFT	12.5%	24
147-N	18	STA: 84+27 RIGHT	15.4%	201
147-O	18	STA: 84+97 RIGHT	18.0%	194
147-P	18	STA: 85+50 RIGHT	17.8%	197
147-Q	32	STA: 85+88 RIGHT	28.6%	192
147-R	18	STA: 86+29 RIGHT	17.8%	191
147-S	18	STA: 86+59 RIGHT	16.6%	187
147-T	18	STA: 87+06 RIGHT	15.6%	179
147-U	12	STA: 87+73 RIGHT	17.2%	151
147-V	12	STA: 89+26 RIGHT	12.9%	31
147-W	12	STA: 89+79 LEFT	22.7%	75
147-X	12	STA: 89+97 LEFT	19.2%	52
147-Y	12	STA: 90+00 LEFT	11.8%	34
147-Z	12	STA: 90+00 LEFT	10.3%	87
147-AA	12	STA: 90+21 RIGHT	12.5%	104
147-AB	12	STA: 90+43 RIGHT	4.3%	70
147-AC	12	STA: 90+48 LEFT	4.0%	126
147-AD	12	STA: 90+64 LEFT	14.3%	42
147-AE	32	STA: 90+89 RIGHT	58.8%	17
149-A	12	STA: 105+38 LEFT	19.0%	84
149-B	12	STA: 105+92 LEFT	25.0%	60
149-C	12	STA: 106+15 LEFT	33.3%	42
149-D	12	STA: 106+30 LEFT	19.4%	103
149-E	12	STA: 107+27 RIGHT	8.8%	159

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
149-F	12	STA: 107+98 RIGHT	13.2%	136
149-G	12	STA: 108+17 RIGHT	22.2%	126
149-H	12	STA: 110+08 RIGHT	22.5%	120
149-I	12	STA: 112+06 RIGHT	31.3%	16
149-J	12	STA: 112+36 RIGHT	16.9%	124
149-K	12	STA: 113+60 RIGHT	13.7%	124
150-A	32	STA: 120+82 RIGHT	30.3%	198
150-B	32	STA: 124+80 RIGHT	37.0%	108
150-C	32	STA: 125+24 RIGHT	35.9%	117
150-D	32	STA: 125+73 RIGHT	36.4%	107
150-E	32	STA: 125+96 RIGHT	45.1%	122
151-A	32	STA: 126+28 RIGHT	45.1%	122
151-B	32	STA: 126+33 RIGHT	44.2%	265
151A-A	12	HOU-TAR-54	8.3%	36
152-A	12	STA: 138+44 RIGHT	15.6%	77
152-B	12	STA: 138+82 LEFT	11.0%	173
152-C	12	STA: 139+23 RIGHT	16.4%	61
152-D	12	STA: 142+17 LEFT	12.9%	85
152-E	12	STA: 142+28 RIGHT	11.4%	176
152-F	12	STA: 142+89 LEFT	2.4%	250
152-G	12	STA: 148+04 CENTER	3.2%	308
152-H	12	STA: 147+82 LEFT	2.2%	272
154-A	12	STA: 162+72 LEFT	14.7%	102
154-B	12	STA: 163+18 LEFT	16.3%	129
154-C	12	STA: 163+43 LEFT	18.8%	133
154-D	12	STA: 163+92 LEFT	15.3%	98
154-E	24	STA: 164+34 LEFT	12.9%	286
154-F	24	STA: 164+84 LEFT	11.5%	269
154-G	12	STA: 165+56 LEFT	10.4%	202
154-H	12	STA: 166+14 LEFT	7.1%	155
154-I	12	STA: 167+43 LEFT	5.6%	126
154-J	12	STA: 167+45 RIGHT	2.3%	44
156-A	12	STA: 188+34 RIGHT	0.7%	282
156-B	12	STA: 188+49 RIGHT	1.0%	191
156-C	12	STA: 188+71 LEFT	1.1%	189
156-D	12	STA: 190+25 LEFT	1.5%	197
156-E	12	STA: 191+98 LEFT	2.2%	35
156-F	12	STA: 192+85 LEFT	3.1%	96
156-G	12	STA: 193+19 LEFT	3.1%	97
157-A	18	STA: 2177+49 RIGHT	15.4%	227
157-B	12	STA: 2177+68 LEFT	12.8%	164
157-C	12	STA: 2177+85 LEFT	6.7%	45
157-D	12	STA: 2178+58 RIGHT	10.4%	77
157-E	12	STA: 2179+79 LEFT	10.7%	28
157-F	12	STA: 2179+99 RIGHT	17.1%	41
157-G	12	STA: 2180+39 LEFT	11.1%	36
157-H	12	STA: 2180+93 LEFT	13.5%	89
157-I	12	STA: 2181+33 LEFT	13.5%	96
157-J	12	STA: 2181+98 LEFT	9.8%	82
157-K	12	STA: 2182+74 LEFT	11.0%	82
157-L	12	STA: 2183+70 LEFT	10.1%	89
157-M	12	STA: 2184+56 LEFT	10.1%	89
157-N	18	STA: 2184+63 LEFT	9.7%	300
157-O	12	STA: 2184+87 RIGHT	14.3%	28
157-P	12	STA: 2185+95 RIGHT	11.2%	214
157-Q	18	STA: 2185+20 LEFT	9.9%	262
157-R	12	STA: 2186+02 LEFT	9.3%	227
157-S	12	STA: 2186+17 LEFT	9.4%	223
158-A	12	STA: 2186+75 LEFT	10.0%	209
158-B	12	STA: 2187+61 LEFT	10.0%	201
158-C	12	STA: 2188+89 LEFT	9.3%	182
158-D	12	STA: 2189+06 LEFT	9.3%	86
158-E	12	STA: 2190+02 LEFT	10.7%	177
158-F	12	STA: 2190+81 LEFT	11.5%	78
158-G	12	STA: 2191+58 LEFT	12.5%	144
158-H	12	STA: 2192+38 LEFT	13.8%	116
158-I	12	STA: 2195+38 LEFT	18.6%	97
158-J	12	STA: 2197+34 LEFT	8.4%	83
159-A	24	STA: 2204+90 LEFT	17.7%	277
159-B	32	STA: 2205+43 LEFT	20.8%	279
159-C	12	STA: 2206+86 LEFT	16.8%	149
159-D	12	STA: 2206+91 LEFT	16.7%	24
159-E	12	STA: 2206+37 RIGHT	19.0%	21
159-F	12	STA: 2206+94 RIGHT	18.2%	132
159-G	18	STA: 2207+97 LEFT	22.2%	126
159-H	12	STA: 2207+86 LEFT	21.1%	109
159-I	12	STA: 2208+64 LEFT	21.4%	103
159-J	12	STA: 2209+84 LEFT	21.4%	103
159-K	12	STA: 2210+45 LEFT	24.2%	95
160-A	12	STA: 2211+25 LEFT	24.2%	95
160-B	12	STA: 2212+53 LEFT	9.2%	98
160-C	12	STA: 2213+13 LEFT	11.2%	143
160-D	12	STA: 2213+64 LEFT	14.0%	171
160-E	12	STA: 2215+00 LEFT	22.9%	105
160-F	18	STA: 2215+06 LEFT	23.6%	110
160-G	12	STA: 2215+62 LEFT	22.5%	111
160-H	12	STA: 2217+15 LEFT	18.9%	90

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
160-I	12	STA: 2218+73 LEFT	13.7%	95
160-J	12	STA: 2219+68 LEFT	12.3%	81
160-K	12	STA: 2210+18 LEFT	14.9%	74
160-L	12	STA: 2221+72 LEFT	14.9%	94
161-A	12	STA: 2222+73 LEFT	14.9%	94
161-B	12	STA: 2223+85 LEFT	13.3%	113
161-C	12	STA: 2224+81 LEFT	11.2%	152
161-D	12	STA: 2225+56 LEFT	11.3%	204
161-E	12	STA: 2227+12 LEFT	4.1%	98
161-F	12	STA: 2228+13 LEFT	8.0%	163
161-G	12	STA: 2229+07 LEFT	10.5%	237
161-H	18	STA: 2229+71 LEFT	12.5%	281
161-I	18	STA: 2230+17 LEFT	14.5%	221
161-J	12	STA: 2230+80 LEFT	16.0%	181
161-K	12	STA: 2231+69 LEFT	13.6%	147
161-L	12	STA: 2232+33 LEFT	14.5%	131
161-M	12	STA: 2232+99 LEFT	15.7%	140
161-N	12	STA: 2233+53 LEFT	18.1%	144
161-O	18	STA: 2234+37 LEFT	19.5%	149
162-A	18	STA: 2234+66 LEFT	19.4%	160
162-B	12	STA: 2235+13 LEFT	17.7%	175
162-C	12	STA: 2235+61 LEFT	1.5%	199
162-D	18	STA: 2235+76 LEFT	37.0%	54
162-E	18	STA: 2235+59 RIGHT	33.9%	59
162-F	12	STA: 2236+29 RIGHT	6.0%	50
162-G	12	STA: 2237+04 LEFT	1.7%	175
162-H	12	STA: 2238+13 LEFT	16.3%	98
162-I	12	STA: 2239+15 RIGHT	24.7%	81
162-J	12	STA: 2240+36 RIGHT	11.8%	93
162-K	12	STA: 2241+08 RIGHT	10.0%	110
162-L	12	STA: 2241+78 RIGHT	9.5%	126
162-M	12	STA: 2243+25 RIGHT	9.1%	121
162-N	12	STA: 2244+74 RIGHT	8.6%	245
162-O	12	STA: 2245+38 RIGHT	5.9%	170
162-P	12	STA: 2246+13 RIGHT	6.3%	95
163-A	12	STA: 2247+10 RIGHT	6.3%	95
163-B	12	STA: 2248+03 RIGHT	7.0%	172
163-C	12	STA: 2249+80 RIGHT	15.5%	97
163-D	12	STA: 2250+93 RIGHT	15.7%	115
163-E	12	STA: 2252+42 RIGHT	11.6%	95
163-F	12	STA: 2254+51 RIGHT	10.5%	95
163-G	12	STA: 2256+19 RIGHT	14.3%	112
163-H	12	STA: 2257+24 RIGHT	12.2%	98
164-A	12	STA: 2263+01 LEFT	9.8%	82
164-B	12	STA: 2263+34 LEFT	21.1%	38
164-C	12	STA: 2263+67 LEFT	9.3%	118
164-D	12	STA: 2265+86 LEFT	7.6%	145
164-E	12	STA: 2266+63 LEFT	7.7%	169
164-F	12	STA: 2267+47 LEFT	9.5%	211
164-G	12	STA: 2268+31 LEFT	8.5%	94
164-H	12	STA: 2263+17 RIGHT	15.7%	70
165-A	12	STA: 2267+22 LEFT	7.3%	164
165-B	12	STA: 2273+72 LEFT	8.5%	224
165-C	18	STA: 2274+39 LEFT	9.1%	276
165-D	24	STA: 2275+05 LEFT	9.5%	347
165-E	32	STA: 2275+89 LEFT	10.3%	418
165-F	24	STA: 2277+32 LEFT	17.5%	229
165-G	18	STA: 2277+77 LEFT	17.6%	205
165-H	24	STA: 2278+34 LEFT	19.8%	217
165-I	18	STA: 2279+15 LEFT	21.5%	177
165-J	12	STA: 2280+34 LEFT	12.0%	150
165-K	12	STA: 2281+82 LEFT	6.2%	178
165-L	12	STA: 2282+57 LEFT	5.2%	155
165-M	12	STA: 2282+71 LEFT	11.9%	84
165-N	12	STA: 2281+70 RIGHT	9.4%	53
165-O	12	STA: 2281+70 RIGHT	9.4%	53
165-P	12	STA: 2282+03 RIGHT	24.0%	25
166-A	12	STA: 2283+17 LEFT	10.7%	84
166-B	12	STA: 2283+64 LEFT	10.8%	74
166-C	12	STA: 2285+97 LEFT	7.6%	105
166-D	12	STA: 2284+64 LEFT	7.2%	111
166-E	12	STA: 2289+83 LEFT	7.2%	125
166-F	12	STA: 2290+63 LEFT	7.1%	182
166-G	12	STA: 2290+73 LEFT	12.0%	25
166-H	12	STA: 2291+15 RIGHT	7.4%	176
166-I	12	STA: 2292+83 RIGHT	4.4%	68
167-A	12	STA: 2305+10 LEFT	12.1%	116
167-B	12	STA: 2305+15 LEFT	15.0%	60
167-C	12	STA: 2305+67 LEFT	7.4%	81
167-D	18	STA: 2306+18 LEFT	13.9%	252
167-E	12	STA: 2305+79 RIGHT	13.6%	44
167-F	12	STA: 2306+45 RIGHT	10.0%	40
168-A	12	STA: 2306+80 RIGHT	5.5%	73
168-B	18	STA: 2307+15 LEFT	15.1%	232
168-C	18	STA: 2307+51 RIGHT	13.5%	252
168-D	12	STA: 2308+42 RIGHT	15.4%	156
168-E	12	STA: 2309+32 RIGHT	15.2%	132

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SHELL PIPELINE COMPANY LP

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EROSION & SEDIMENT CNTRL NARRATIVE – DET13
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE: AS SHOWN | DATE: 12/05/17 | DRAWN: JWR | SPLC-GOM-AE-SD119697 | REVISION: 1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:38 AM)

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
168-F	12	STA: 2309+69 RIGHT	17.0%	106
168-G	12	STA: 2310+81 RIGHT	18.6%	97
168-H	18	STA: 2312+80 LEFT	14.4%	195
168-I	12	STA: 2313+35 LEFT	14.5%	166
168-J	12	STA: 2313+90 LEFT	24.4%	78
168-K	12	STA: 2314+51 LEFT	8.7%	149
168-L	12	STA: 2315+03 RIGHT	6.8%	44
169-A	12	STA: 2319+05 RIGHT	12.8%	149
169-B	12	STA: 2319+44 RIGHT	13.2%	151
169-C	12	STA: 2319+73 RIGHT	16.4%	146
169-D	12	STA: 2320+03 RIGHT	15.4%	136
169-E	12	STA: 2320+28 RIGHT	21.5%	135
169-F	18	STA: 2320+59 RIGHT	22.4%	134
169-G	18	STA: 2320+84 RIGHT	23.7%	131
169-H	18	STA: 2321+09 RIGHT	25.2%	123
169-I	18	STA: 2321+32 RIGHT	25.2%	127
169-J	12	STA: 2322+09 RIGHT	23.8%	21
169-K	12	STA: 2321+61 LEFT	25.7%	74
169-L	12	STA: 2322+10 LEFT	26.2%	145
169-M	12	STA: 2322+15 LEFT	25.0%	96
169-N	32	STA: 2322+15 RIGHT	78.1%	32
169-O	12	STA: 2322+76 LEFT	21.0%	105
169-P	12	STA: 2324+18 LEFT	18.1%	105
169-Q	12	STA: 2324+71 LEFT	23.7%	76
169-R	12	STA: 2325+04 RIGHT	18.8%	32
169-S	32	STA: 2325+12 RIGHT	22.2%	338
169-T	32	STA: 2324+77 LEFT	22.3%	368
169-U	32	STA: 2325+22 LEFT	38.1%	97
169-V	12	STA: 2327+10 RIGHT	8.7%	183
169-W	12	STA: 2328+20 RIGHT	7.0%	158
169-X	12	STA: 2328+50 RIGHT	5.9%	118
169-Y	12	STA: 2329+62 RIGHT	7.7%	91
169-Z	12	STA: 2330+21 RIGHT	10.8%	102
169-AA	12	STA: 2330+47 RIGHT	13.2%	114
170-A	12	STA: 2330+50 RIGHT	13.2%	114
170-B	12	STA: 2330+80 RIGHT	14.9%	134
170-C	12	STA: 2331+29 RIGHT	15.5%	71
170-D	12	STA: 2331+18 RIGHT	25.9%	27
170-E	12	STA: 2331+28 LEFT	17.1%	41
170-F	12	STA: 2331+62 LEFT	12.8%	47
170-G	12	STA: 2331+61 RIGHT	5.2%	211
170-H	12	STA: 2333+64 LEFT	5.7%	53
170-I	12	STA: 2336+20 LEFT	6.5%	184
170-J	12	STA: 2336+85 LEFT	7.3%	165
170-K	12	STA: 2337+37 LEFT	7.5%	161
170-L	12	STA: 2337+89 LEFT	9.1%	132
170-M	12	STA: 2338+60 LEFT	9.3%	129
170-N	12	STA: 2339+37 LEFT	19.1%	94
170-O	12	STA: 2340+11 LEFT	10.8%	166
171-A	18	STA: 2342+85 RIGHT	6.9%	289
171-B	12	STA: 2344+03 RIGHT	5.9%	119
171-C	12	STA: 2345+48 RIGHT	5.0%	140
171-D	12	STA: 2346+92 RIGHT	6.3%	64
171-E	12	STA: 2350+78 RIGHT	6.4%	109
171-F	12	STA: 2352+74 RIGHT	9.2%	109
172-A	12	STA: 2359+26 LEFT	19.1%	173
172-B	32	STA: 2360+27 LEFT	17.0%	657
172-C	32	STA: 2360+23 RIGHT	18.1%	535
172-D	12	STA: 2360+70 LEFT	12.0%	25
172-E	12	STA: 2361+03 RIGHT	2.7%	75
172-F	12	STA: 2361+36 RIGHT	20.0%	15
172-G	12	STA: 2361+61 LEFT	6.3%	32
172-H	24	STA: 2361+46 RIGHT	40.0%	80
172-I	12	STA: 2361+67 LEFT	50.0%	16
172-J	18	STA: 2361+86 LEFT	42.9%	63
172-K	32	STA: 2363+58 LEFT	9.4%	524
172-L	32	STA: 2364+18 LEFT	8.3%	445
172-M	24	STA: 2364+45 LEFT	6.9%	378
172-N	18	STA: 2365+58 LEFT	6.3%	315
172-O	12	STA: 2366+27 LEFT	5.5%	237
173-A	12	STA: 2368+84 RIGHT	3.2%	158
173-B	12	STA: 2371+11 RIGHT	6.4%	94
173-C	12	STA: 2374+91 LEFT	3.4%	149
173-D	12	STA: 2376+14 LEFT	7.1%	98
173-E	12	STA: 2377+38 LEFT	9.2%	98
173-F	12	STA: 2378+30 LEFT	11.0%	219
174-A	12	STA: 2378+73 LEFT	11.0%	219
174-B	12	STA: 2379+17 LEFT	10.7%	178
174-C	12	STA: 2379+45 RIGHT	18.2%	66
174-D	12	STA: 2379+81 RIGHT	9.1%	66
174-E	12	STA: 2380+02 LEFT	9.2%	120
175-A	12	STA: 2397+95 LEFT	13.4%	134
175-B	12	STA: 2398+78 LEFT	13.6%	154
175-C	12	STA: 2399+96 LEFT	16.5%	103
175-D	12	STA: 2400+88 LEFT	16.1%	124
176-A	32	STA: 2412+03 LEFT	17.9%	1070
176-B	18	STA: 2412+88 LEFT	18.0%	194

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
176-C	12	STA: 2412+49 RIGHT	14.4%	97
176-D	18	STA: 2412+65 RIGHT	25.0%	88
176-E	32	STA: 2412+99 LEFT	54.5%	44
176-F	32	STA: 2413+38 LEFT	28.7%	527
177-A	12	STA: 2420+57 RIGHT	15.4%	117
177-B	12	STA: 2424+99 RIGHT	14.4%	104
177-C	12	STA: 2425+68 RIGHT	9.2%	142
177-D	12	STA: 2426+81 RIGHT	16.0%	163
178-A	12	STA: 2427+25 RIGHT	16.0%	163
178-B	12	STA: 2427+63 RIGHT	13.8%	116
178-C	12	STA: 2428+54 RIGHT	16.5%	97
178-D	12	STA: 2430+16 RIGHT	12.0%	125
178-E	12	STA: 2430+98 RIGHT	18.2%	99
178-F	12	STA: 2431+20 RIGHT	15.4%	39
178-G	12	STA: 2431+23 RIGHT	15.0%	127
178-H	18	STA: 2431+37 LEFT	47.4%	38
178-I	12	STA: 2431+74 RIGHT	9.2%	76
178-J	12	STA: 2432+99 LEFT	13.7%	102
178-K	12	STA: 2434+13 LEFT	12.1%	99
178-L	12	STA: 2435+36 LEFT	12.0%	100
178-M	12	STA: 2436+10 LEFT	12.0%	117
178-N	12	STA: 2436+78 LEFT	14.7%	129
178-O	12	STA: 2437+52 LEFT	23.8%	105
178-P	12	STA: 2438+46 LEFT	23.7%	97
179-A	12	STA: 2439+35 LEFT	19.6%	97
179-B	12	STA: 2441+20 LEFT	21.4%	98
179-C	12	STA: 2441+85 LEFT	20.0%	105
179-D	12	STA: 2442+61 LEFT	16.7%	102
179-E	12	STA: 2443+65 LEFT	16.8%	101
179-F	12	STA: 2444+47 LEFT	15.2%	112
179-G	12	STA: 2445+20 LEFT	12.1%	124
179-H	18	STA: 2446+02 LEFT	23.5%	132
179-I	18	STA: 2446+59 LEFT	25.2%	135
179-J	18	STA: 2447+25 LEFT	23.3%	150
179-K	24	STA: 2447+69 LEFT	26.9%	130
179-L	18	STA: 2448+15 LEFT	24.6%	122
179-M	18	STA: 2448+61 LEFT	26.2%	107
179-N	18	STA: 2449+32 LEFT	25.7%	113
179-O	18	STA: 2450+11 LEFT	26.5%	98
180-A	12	STA: 2451+11 LEFT	20.6%	97
180-B	12	STA: 2452+97 LEFT	11.6%	112
180-C	12	STA: 2454+80 LEFT	17.2%	99
180-D	12	STA: 2455+31 LEFT	11.9%	135
180-E	12	STA: 2459+50 LEFT	3.0%	164
180-F	12	STA: 2461+02 RIGHT	16.8%	161
180-G	12	STA: 2461+65 RIGHT	18.4%	152
180-H	12	STA: 2462+13 RIGHT	21.8%	142
181-A	18	STA: 2462+82 RIGHT	23.7%	131
181-B	18	STA: 2463+38 RIGHT	24.6%	134
181-C	18	STA: 2463+91 RIGHT	24.2%	124
181-D	12	STA: 2464+44 RIGHT	21.5%	107
181-E	12	STA: 2465+13 RIGHT	22.4%	76
181-F	12	STA: 2465+90 RIGHT	9.1%	132
181-G	12	STA: 2469+72 RIGHT	10.6%	104
181-H	18	STA: 2470+31 RIGHT	26.7%	90
181-I	12	STA: 2470+95 RIGHT	25.3%	75
181-J	12	STA: 2471+65 RIGHT	18.0%	128
181-K	12	STA: 2472+82 RIGHT	11.6%	86
181-L	12	STA: 2473+97 RIGHT	12.9%	85
182-A	24	STA: 2481+67 LEFT	17.9%	262
182-B	32	STA: 2482+18 RIGHT	51.2%	217
182-C	32	STA: 2482+ 18 RIGHT	69.6%	102
182A-A	12	SCIO-TAR-35	10.0%	20
182A-B	12	SCIO-TAR-35	11.1%	18
182A-C	12	SCIO-TAR-35	33.3%	18
182A-D	12	SCIO-TAR-35	35.3%	17
183-A	12	STA: 2486+64 LEFT	20.3%	128
183-B	12	STA: 2487+08 LEFT	17.4%	115
183-C	12	STA: 2487+57 LEFT	19.2%	104
183-D	12	STA: 2488+36 LEFT	13.1%	99
183-E	12	STA: 2488+79 LEFT	12.4%	97
183-F	12	STA: 2493+26 LEFT	7.1%	197
183-G	12	STA: 2494+28 LEFT	9.9%	142
183-H	12	STA: 2495+76 LEFT	11.5%	87
183-I	12	STA: 2497+19 LEFT	14.9%	87
183-J	12	STA: 2497+99 LEFT	7.3%	109
184-A	12	STA: 2498+41 LEFT	7.3%	109
184-B	12	STA: 2499+93 RIGHT	13.3%	98
184-C	12	STA: 2500+56 LEFT	23.3%	103
184-D	12	STA: 2500+85 LEFT	20.6%	63
184-E	12	STA: 2501+97 LEFT	17.4%	23
184-F	12	STA: 2501+51 LEFT	13.3%	75
184-G	12	STA: 2501+48 RIGHT	15.0%	20
184-H	12	STA: 2504+58 LEFT	16.8%	101
184-I	12	STA: 2506+17 LEFT	16.7%	102
184-J	12	STA: 2506+98 LEFT	16.0%	106
184-K	12	STA: 2507+53 LEFT	16.7%	114

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
184-L	12	STA: 2508+12 LEFT	16.1%	118
184-M	12	STA: 2508+65 LEFT	15.5%	116
184-N	12	STA: 2509+23 LEFT	16.0%	125
184-O	12	STA: 2509+87 LEFT	16.7%	120
184-P	12	STA: 2510+44 LEFT	21.4%	112
185-A	12	STA: 2510+61 LEFT	21.4%	112
185-B	18	STA: 2511+12 LEFT	21.2%	137
185-C	18	STA: 2514+22 RIGHT	4.7%	386
185-D	12	STA: 2515+02 RIGHT	5.8%	274
185-E	12	STA: 2515+39 RIGHT	5.8%	240
185-F	12	STA: 2516+11 RIGHT	6.2%	193
185-G	12	STA: 2517+97 RIGHT	7.1%	98
185-H	12	STA: 2518+87 RIGHT	3.5%	143
185-I	12	STA: 2519+63 LEFT	5.0%	181
185-J	12	STA: 2520+24 LEFT	5.9%	289
185-K	12	STA: 2521+13 LEFT	6.2%	373
185-L	12	STA: 2521+92 LEFT	9.5%	137
185-M	12	STA: 2522+44 LEFT	8.2%	208
186-A	12	STA: 2522+72 LEFT	8.2%	208
186-B	12	STA: 2523+70 LEFT	6.3%	301
186-C	12	STA: 2528+97 LEFT	16.3%	49
186-D	12	STA:2529+33 RIGHT	17.8%	101
186-E	12	STA: 2529+54 RIGHT	22.5%	40
186-F	12	STA: 2529+98 RIGHT	6.0%	166
186-G	18	STA: 2529+80 LEFT	46.2%	39
186-H	12	STA: 2529+20 LEFT	7.6%	119
186-I	12	STA: 2530+60 LEFT	17.5%	166
186-J	32	STA: 2530+40 LEFT	29.3%	167
186-K	18	STA: 2530+27 RIGHT	28.0%	100
186-L	12	STA: 2529+67 RIGHT	26.0%	50
186-M	12	STA: 2529+96 RIGHT	26.0%	50
186-N	32	STA: 2534+10 RIGHT	34.4%	343
187-A	18	STA: 2535+20 RIGHT	26.9%	108
187-B	12	STA: 2536+55 LEFT	11.6%	172
187-C	32	STA: 2536+57 LEFT	40.1%	352
187-D	32	STA: 2536+68 RIGHT	41.8%	337
187-E	32	STA: 2537+79 RIGHT	49.3%	203
187-F	32	STA: 2537+77 LEFT	49.3%	73
187-G	24	STA: 2544+88 RIGHT	0.0%	107
187-H	24	STA: 2545+30 RIGHT	0.0%	100
187-I	24	STA: 2546+04 RIGHT	0.0%	103
188-A	12	STA: 2546+63 RIGHT	22.6%	106
188-B	18	STA: 2547+14 RIGHT	23.0%	126
188-C	24	STA: 2547+46 RIGHT	26.7%	146
188-D	24	STA: 2547+93 RIGHT	28.3%	159
188-E	12	STA: 2550+65 RIGHT	29.8%	47
188-F	32	STA: 2551+80 RIGHT	22.5%	271
188-G	12	STA: 2552+03 LEFT	19.7%	71
188-H	12	STA: 2551+96 RIGHT	24.0%	25
188-I	12	STA: 2552+33 LEFT	25.7%	70
188-J	12	STA: 2553+13 LEFT	16.7%	60
188-K	12	STA: 2553+48 RIGHT	32.3%	31
188-L	18	STA: 2553+63 RIGHT	21.4%	196
189-A	12	STA: 2562+28 LEFT	5.3%	151
189-B	12	STA: 2563+36 LEFT	7.2%	97
189-C	12	STA: 2564+28 LEFT	11.3%	133
189-D	12	STA: 2564+88 LEFT	18.3%	109
189-E	12	STA: 2565+61 LEFT	9.4%	96
189-F	12	STA: 2566+27 LEFT	16.6%	151
189-G	12	STA: 2566+85 LEFT	22.0%	109
189-H	18	STA: 2567+68 LEFT	9.9%	252
189-I	18	STA: 2567+84 LEFT	13.4%	231
189-J	24	STA: 2568+02 LEFT	9.7%	329
191-A	12	STA: 2585+84 LEFT	0.0%	124
191-B	12	STA: 2586+56 LEFT	0.0%	151
191-C	12	STA: 2587+34 LEFT	0.0%	49
191-D	12	STA: 2587+82 LEFT	0.0%	93
191-E	12	STA: 2589+45 LEFT	0.0%	137
191-F	12	STA: 2590+02 LEFT	0.0%	216
191-G	12	STA: 2590+76 LEFT	0.0%	169
191-H	12	STA: 2591+16 LEFT	0.0%	39
191-I	12	STA: 2591+75 LEFT	0.0%	48
191-J	12	STA: 2592+21 LEFT	0.0%	130
191-K	12	STA: 2592+01 RIGHT	0.0%	63
191-L	12	STA: 2592+70 LEFT	0.0%	118
191-M	12	STA: 2592+17 RIGHT	0.0%	52
191-N	12	STA: 2593+22 LEFT	0.0%	110
191-O	12	STA: 2593+74 LEFT	0.0%	103
192-A	12	STA: 2594+99 LEFT	13.3%	113
192-B	12	STA: 2595+79 LEFT	12.4%	145
192-C	12	STA: 2596+54 LEFT	13.3%	113
192-D	12	STA: 2597+33 LEFT	12.9%	139
192-E	12	STA: 2598+09 LEFT	22.0%	109
192-F	12	STA: 2598+86 LEFT	18.0%	150
192-G	12	STA: 2600+52 LEFT	8.3%	265
192-H	12	STA: 2602+00 LEFT	13.7%	139
192-I	12	STA: 2602+44 LEFT	20.8%	120

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
192-J	12	STA: 2602+96 LEFT	7.1%	28
192-K	32	STA: 2603+36 RIGHT	35.4%	198
192-L	12	STA: 2603+72 RIGHT	16.5%	164
192-M	18	STA: 2603+58 LEFT	45.8%	59
193-A	32	STA: 2608+73 RIGHT	22.4%	228
193-B	32	STA: 2608+54 RIGHT	22.7%	207
193-C	24	STA: 2608+82 LEFT	23.7%	169
193-D	12	STA: 2608+96 RIGHT	19.1%	47
193-E	32	STA: 2609+16 LEFT	20.5%	297
193-F	12	STA: 2611+70 LEFT	8.8%	171
193-G	12	STA: 2612+71 LEFT	7.8%	115
193-H	12	STA: 2613+92 LEFT	4.3%	185
193-I	12	STA: 2614+91 LEFT	4.1%	244
193-J	12	STA: 2615+74 LEFT	2.9%	103
193-K	12	STA: 2615+68 LEFT	2.7%	113
193-L	12	STA: 2617+46 LEFT	1.9%	107
194-A	12	STA: 2621+11 LEFT	5.4%	185
194-B	12	STA: 2621+62 LEFT	9.4%	32
194-C	12	STA: 2622+02 LEFT	10.1%	179
194-D	12	STA: 2622+45 LEFT	9.1%	232
194-E	12	STA: 2622+87 LEFT	8.9%	269
194-F	12	STA: 2623+17 LEFT	16.1%	56
194-G	12	STA: 2624+76 LEFT	9.3%	140
194-H	12	STA: 2625+91 LEFT	15.6%	109
194-I	12	STA: 2627+11 LEFT	14.4%	167
194-J	12	STA: 2627+81 LEFT	13.8%	116
194-K	18	STA: 2628+54 LEFT	20.7%	150
194-L	24	STA: 2629+07 LEFT	22.2%	189
194-M	32	STA: 2629+88 LEFT	27.2%	162
194-N	12	STA: 2630+37 RIGHT	21.5%	65
195-A	12	STA: 2630+82 LEFT	28.6%	42
195-B	12	STA: 2630+94 RIGHT	33.3%	18
195-C	32	STA: 2631+03 RIGHT	30.7%	140
195-D	12	STA: 2633+32 RIGHT	5.0%	100
195-E	12	STA: 2633+88 RIGHT	11.7%	145
195-F	24	STA: 2635+30 RIGHT	23.0%	174
195-G	24	STA: 2635+43 LEFT	30.0%	100
195-H	12	STA: 2635+92 LEFT	37.5%	48
195-I	12	STA: 2635+95 RIGHT	21.9%	32
195-J	12	STA: 2640+93 LEFT	7.8%	115
196-A	12	STA: 2642+95 RIGHT	3.7%	109
196-B	12	STA: 2643+98 RIGHT	5.4%	130
196-C	12	STA: 2644+13 RIGHT	7.8%	115
196-D	12	STA: 2645+05 RIGHT	11.3%	97
196-E	12	STA: 2646+00 RIGHT	2.4%	123
196-F	12	STA: 2646+04 LEFT	8.1%	62
196-G	12	STA: 2646+13 LEFT	4.3%	116
196-H	12	STA: 2646+10 RIGHT	4.0%	125
196-I	12	STA: 2647+43 RIGHT	5.9%	169
196-J	12	STA: 2648+19 RIGHT	10.9%	129
196-K	12	STA: 2648+48 RIGHT	8.5%	129
196-L	12	STA: 2648+97 RIGHT	7.6%	118
196-M	12	STA: 2649+32 RIGHT	4.9%	144
196-N	12	STA: 2649+58 RIGHT	7.0%	143
196-O	12	STA: 2650+44 RIGHT	6.3%	143
196-P	12	STA: 2651+11 RIGHT	12.2%	41
196-Q	12	STA: 2652+30 RIGHT	9.2%	76
196-R	12	STA: 2653+57 RIGHT	5.2%	96
197-A	12	STA: 2654+98 RIGHT	5.2%	97
197-B	12	STA: 2655+78 RIGHT	4.5%	111
197-C	12	STA+ 2656+60 RIGHT	5.2%	96
197-D	12	STA: 2657+60 RIGHT	3.0%	167
197-E	12	STA: 2659+56 LEFT	6.6%	137
197-F	12	STA: 2659+56 RIGHT	4.6%	194
197-G	12	STA: 2659+89 LEFT	9.4%	171
197-H	12	STA: 2659+89 RIGHT	10.6%	141
197-I	12	STA: 2661+56 RIGHT	12.5%	24
197-J	12	STA: 2661+52 LEFT	9.6%	166
197-K	12	STA: 2661+98 RIGHT	9.0%	156
197-L	12	STA: 2661+98 LEFT	10.3%	29
197-M	12	STA: 2662+08 RIGHT	8.8%	34
197-N	12	STA: 2662+62 RIGHT	8.9%	192
197-O	12	STA: 2665+44 RIGHT	9.5%	105
197-P	12	STA: 2666+22 RIGHT	8.7%	115
198-A	12	STA: 2667+89 RIGHT	19.6%	189
198-B	18	STA: 2668+76 RIGHT	25.0%	96
198-C	12	STA: 2669+67 RIGHT	14.2%	141
198-D	12	STA: 2670+30 RIGHT	11.9%	109
198-E	12	STA: 2670+95 RIGHT	9.0%	111
198-F	12	STA: 2671+57 RIGHT	8.3%	133
198-G	12	STA: 2672+40 RIGHT	5.9%	152
198-H	12	STA: 2674+01 RIGHT	5.3%	94
198-I	12	STA: 2676+37 RIGHT	4.4%	136
199-A	12	STA: 2682+39 LEFT	6.3%	159
199-B	18	STA: 2683+20 LEFT	4.6%	388
199-C	32	STA: 2688+24 LEFT	31.2%	551
199-D	12	STA: 2688+59 RIGHT	25.0%	40

SOCK NO.	DIA. (in)	LOCATION	SLOPE (%) [1]	SLOPE LENGTH
199-E	12	STA: 2688+32 LEFT	28.6%	49
199-F	12	STA: 2688+16 RIGHT	37.2%	43
199-G	12	STA: 2681+20 LEFT	37.9%	29
199-H	32	STA: 2681+21 RIGHT	38.9%	380
199-I	32	STA: 2689+79 LEFT	37.9%	346
199-J	32	STA: 2690+12 LEFT	38.0%	305
200-A	12	STA: 2700+07 RIGHT	5.2%	173
200-B	12	STA: 2700+60 RIGHT	5.4%	184
200-C	12	STA: 2700+97 RIGHT	6.8%	147
200-D	12	STA: 2701+43 RIGHT	12.8%	117
200-E	12	STA: 2701+72 RIGHT	8.3%	96
200-F	12	STA: 2702+23 RIGHT	8.4%	191
201-A	12	STA: 2703+04 RIGHT	4.4%	114
201-B	12	STA: 2704+09 RIGHT	3.1%	96
201-C	12	STA: 2705+46 RIGHT	1.8%	163
201-D	12	STA: 2707+05 RIGHT	5.3%	225
201-E	24	STA: 2708+35 RIGHT	10.0%	290
201-F	12	STA: 2708+20 LEFT	16.7%	42
201-G	12	STA: 2708+28 LEFT	13.8%	29
201-H	12	STA: 2708+52 RIGHT	11.8%	76
201-I	12	STA: 2709+20 RIGHT	12.6%	103
201-J	12	STA: 2710+13 RIGHT	7.1%	98
201A-A	12	HOU-TAR-50	5.6%	18
201A-B	12	HOU-TAR-50	5.6%	18
201A-C	12	HOU-TAR-50	15.8%	19
201A-D	12	HOU-TAR-50	15.8%	19
201B-A	12	HOU-TAR-50	15.0%	20
201B-B	12	HOU-TAR-50	15.0%	20
202-A	12	STA: 2714+98 LEFT	9.7%	31

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SHELL PIPELINE COMPANY LP

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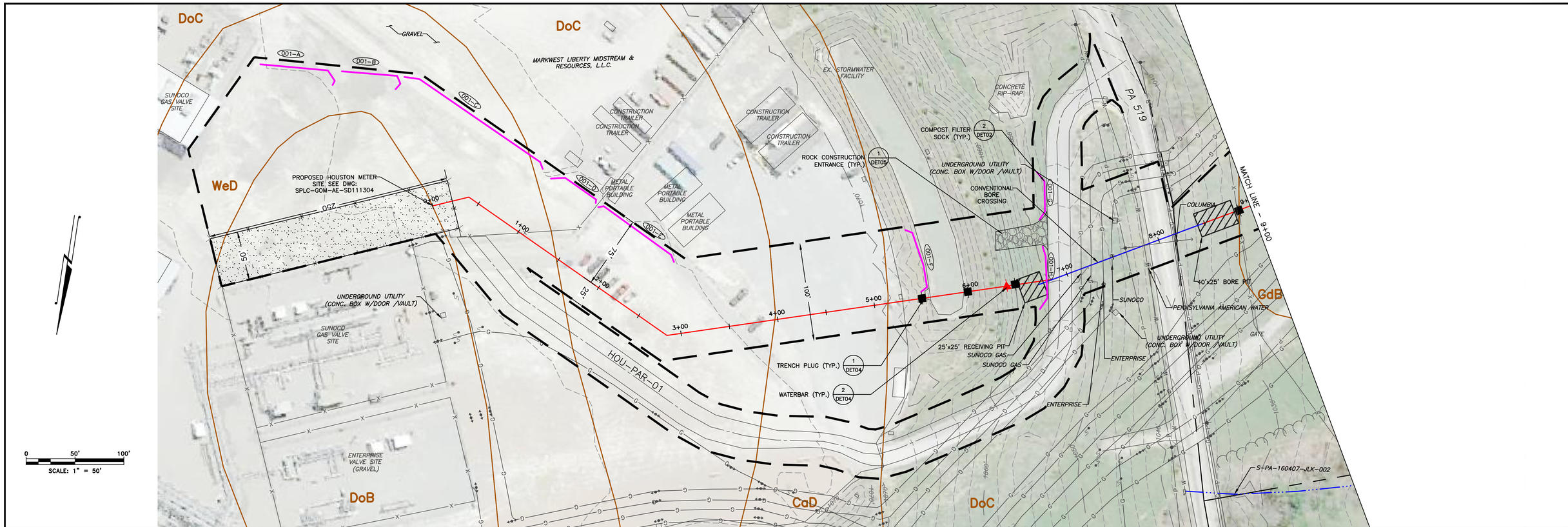
EROSION & SEDIMENT CNTRL NARRATIVE – DET14

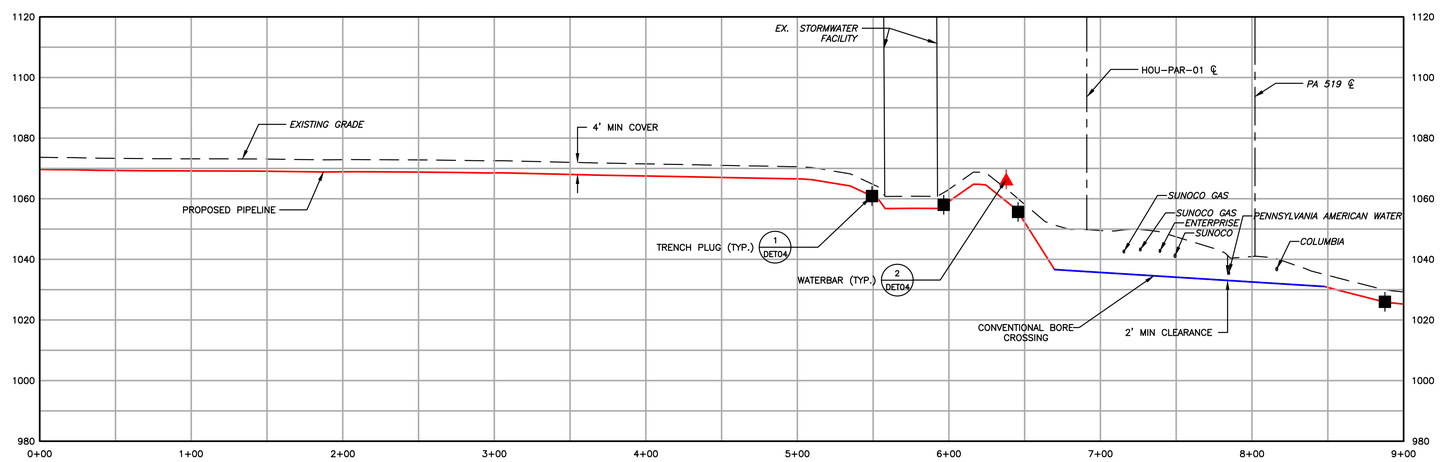
ALLEGHENY, BEAVER, AND WASHINGTON COUNTIES

SCALE	AS SHOWN	DATE	SPLC-GOM-AE-SD119698	REVISION
DRAWN	JWR	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\DETAILS.DWG
Last saved by: JOSEPH.RYAN (2/1/2018 11:27 AM) Last Plotted: 2018-02-01 (2/1/2018 11:38 AM)



LAND USE	GRAVEL	FIELD	POND	FIELD	ROAD	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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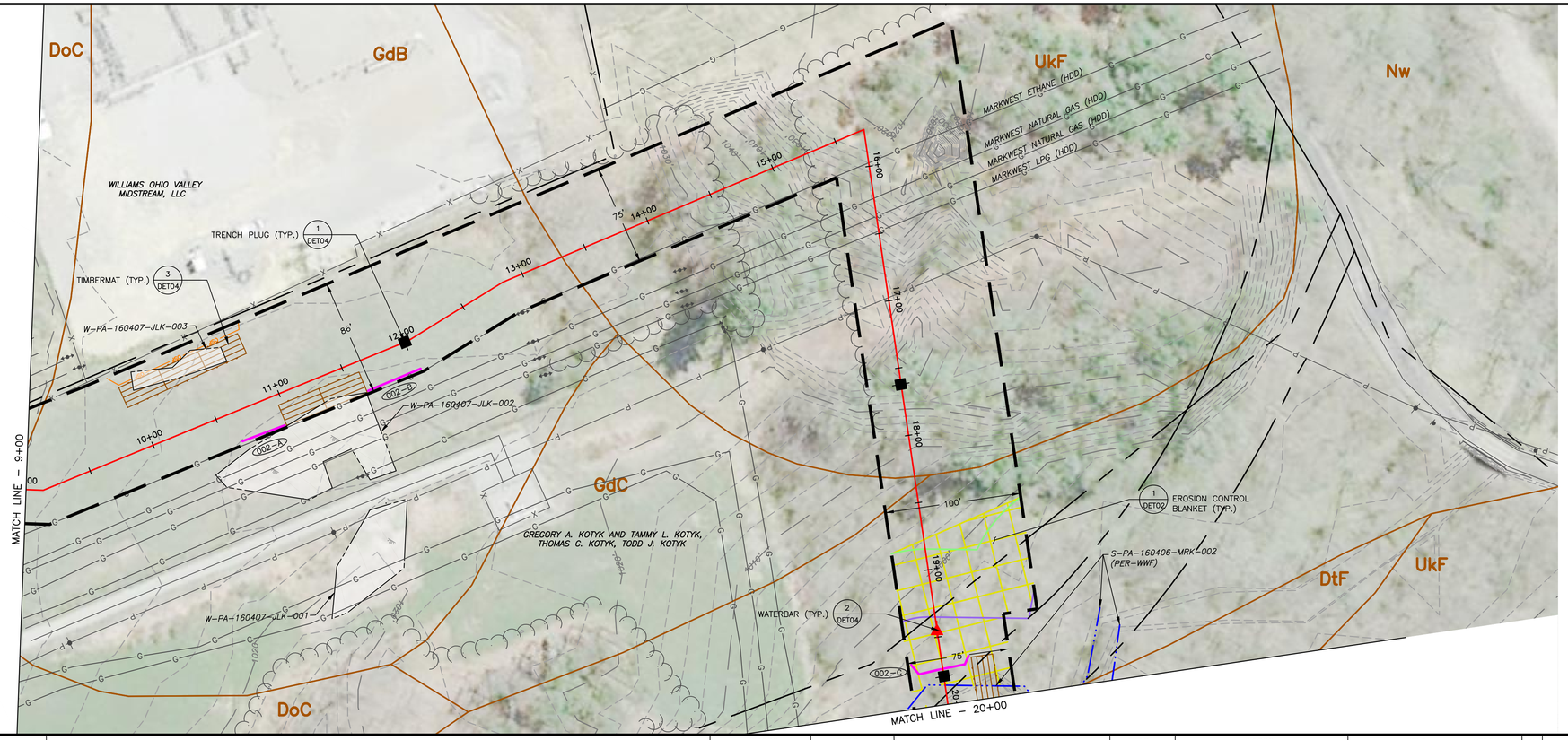
EROSION AND SEDIMENT CONTROL PLAN
ES001 – (STA. 0+00 TO STA. 9+00)

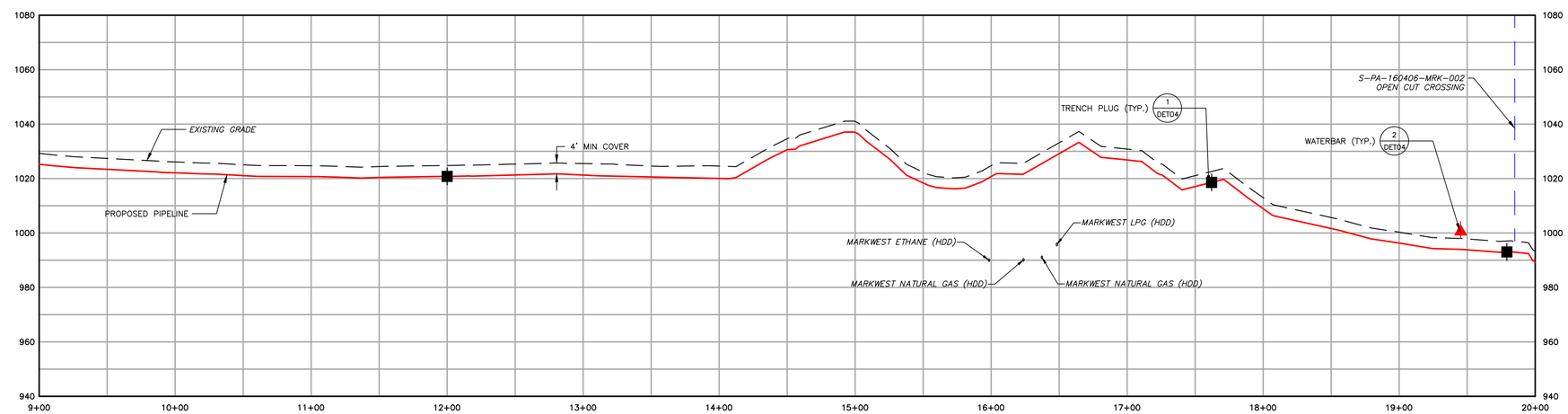
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119285	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\00458850 – FALCON\GO-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN001.DWG
Last saved by: IAN.MAROME (7/23/2018 4:04 PM) Last Plotted: 2018-07-23 (7/23/2018 4:22 PM)



LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD	WOODS	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'							5'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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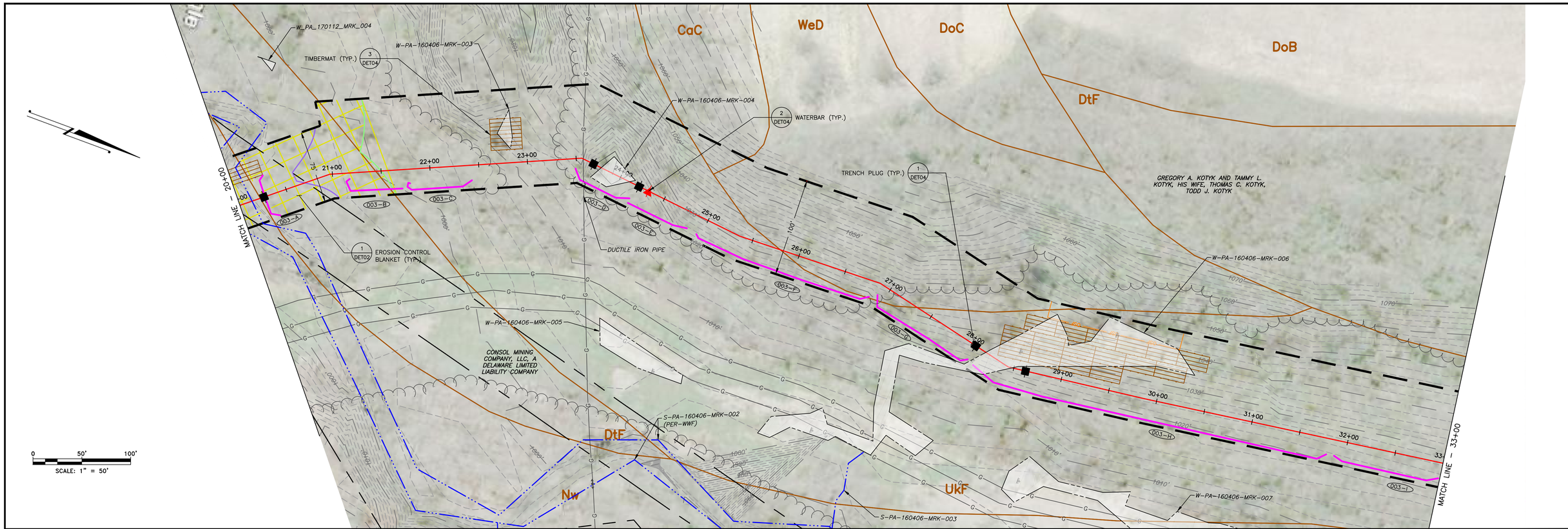
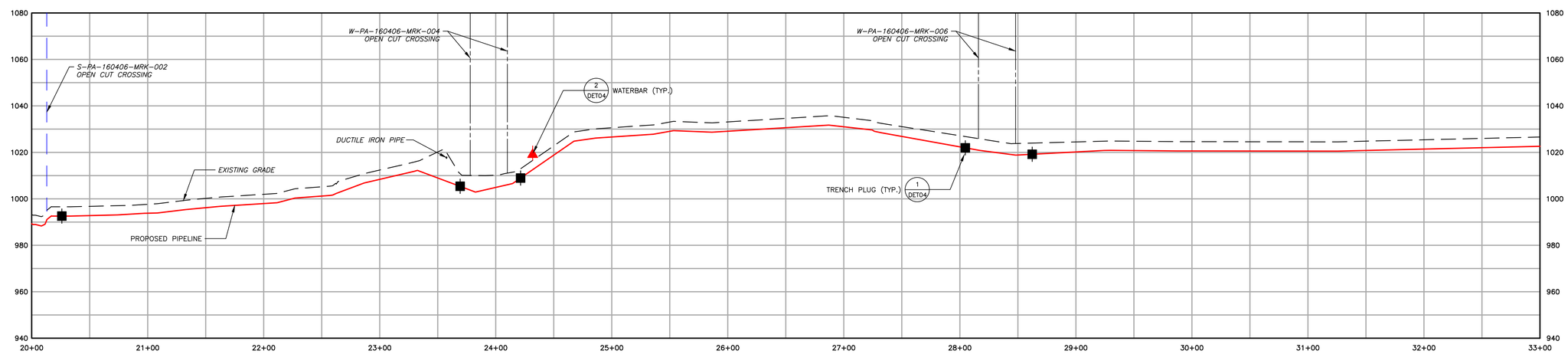
EROSION AND SEDIMENT CONTROL PLAN
ES002 – (STA. 9+00 TO STA. 20+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119286	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\9248985 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN002.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 3:39 PM) Last Plotted: 2018-01-02 (1/4/2018 11:02 AM)



LAND USE	STREAM	FIELD	WOODS	FIELD	WOODS	WETLAND	WOODS	FIELD	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	FIELD – 4'	5'	4'			5'	4'		5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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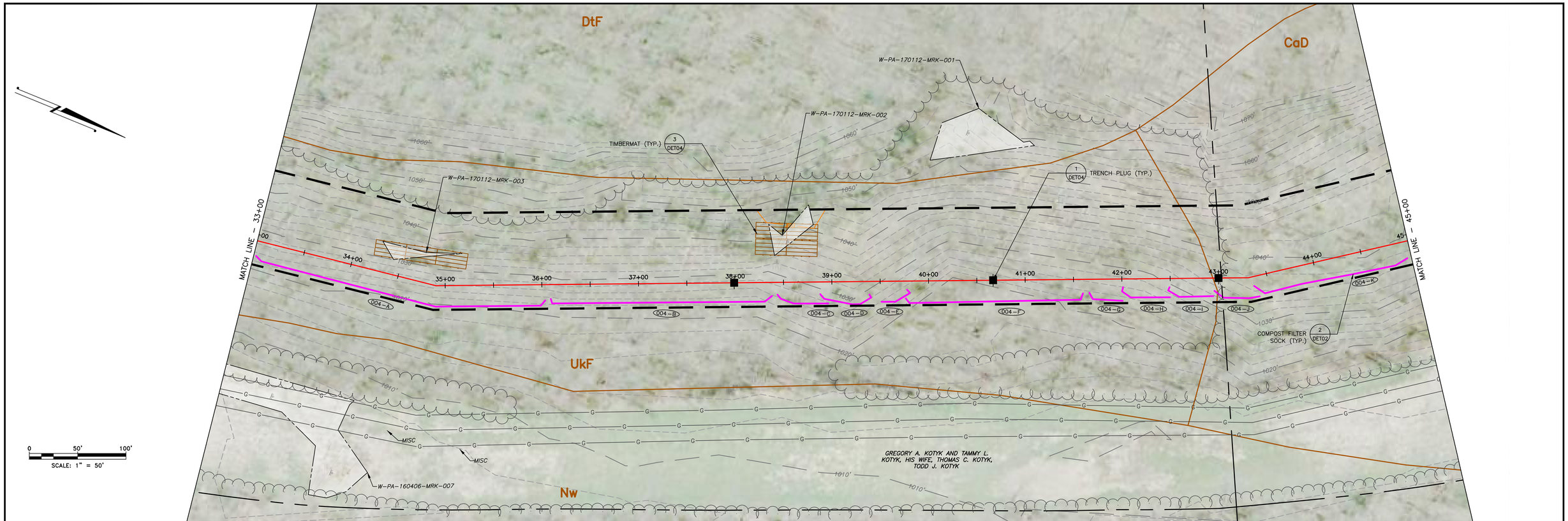
EROSION AND SEDIMENT CONTROL PLAN
ES003 – (STA. 20+00 TO STA. 33+00)

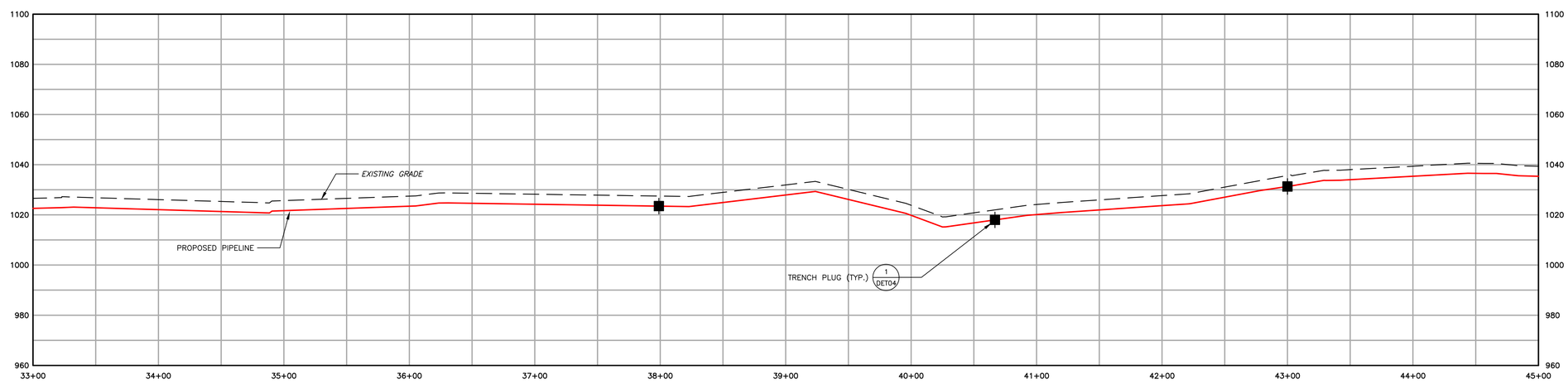
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119287	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN003.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 3:38 PM) Last Plotted: 2018-01-02 (1/2/2018 11:53 AM)



LAND USE	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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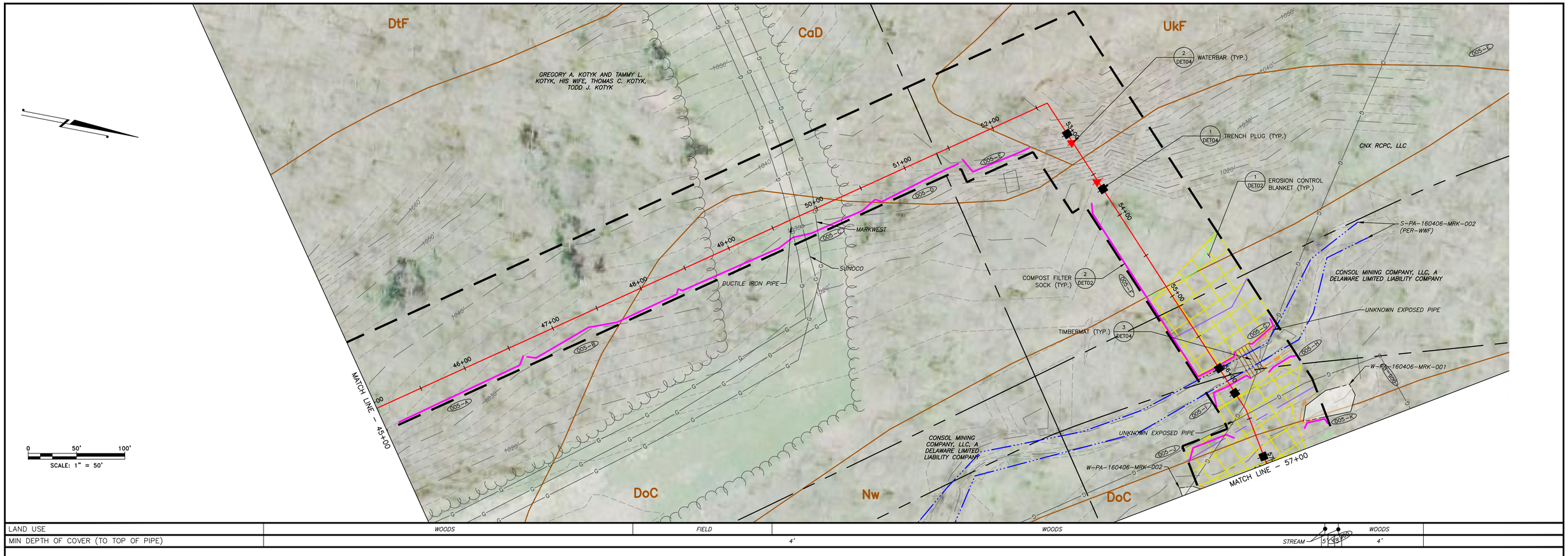
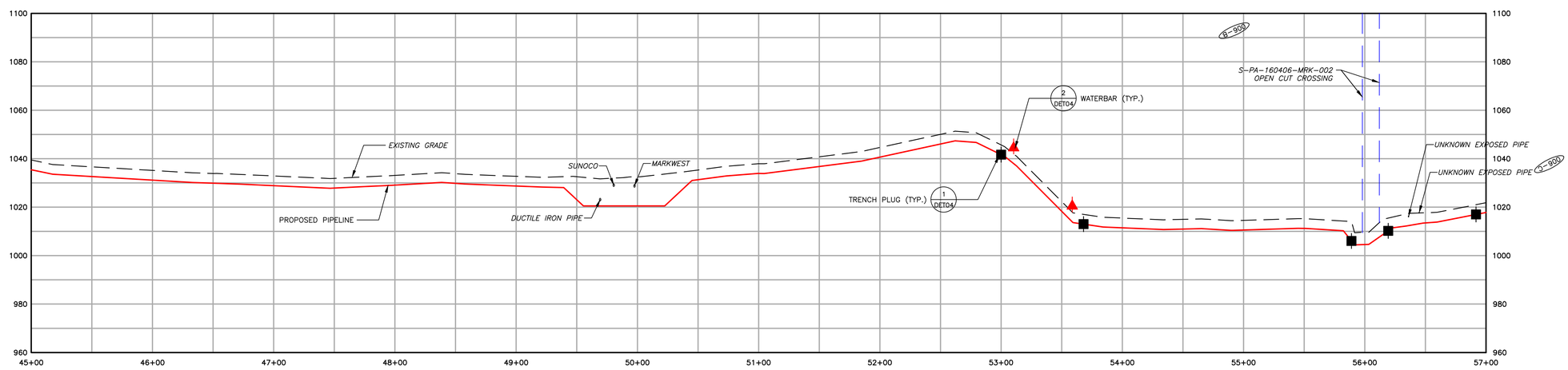
EROSION AND SEDIMENT CONTROL PLAN
ES004 – (STA. 33+00 TO STA. 45+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119288	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN004.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 3:50 PM) Last Plotted: 2018-01-02 (1/4/2018 11:54 AM)



LAND USE	WOODS	FIELD	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	STREAM 5 45°	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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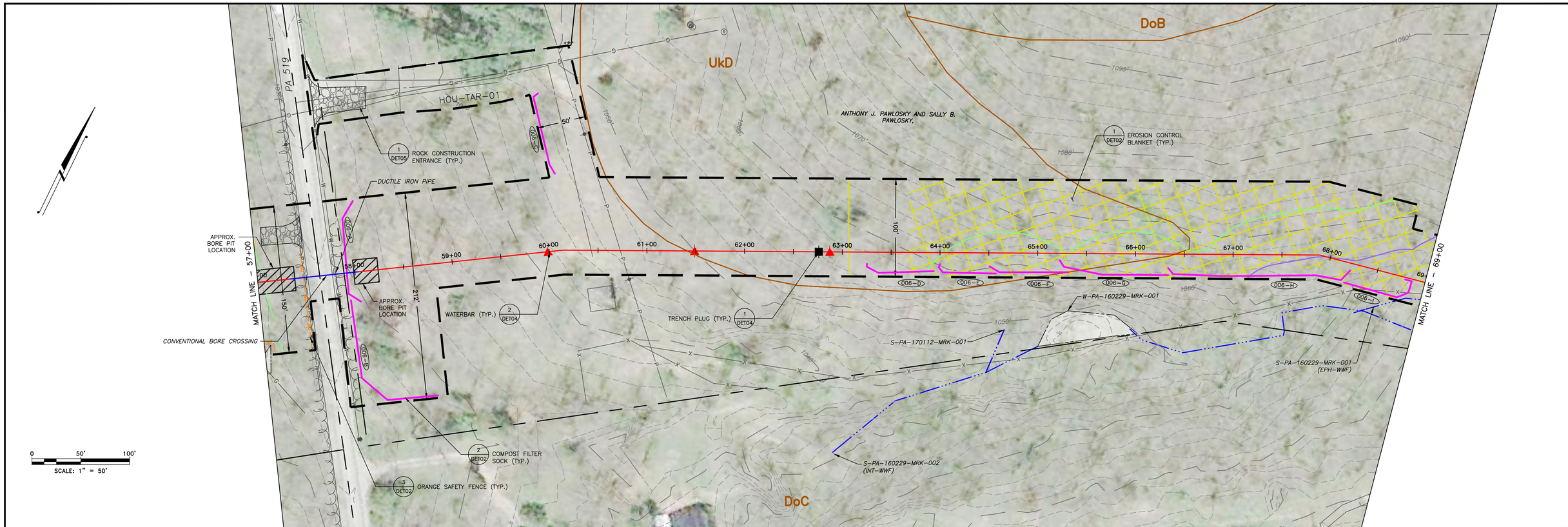
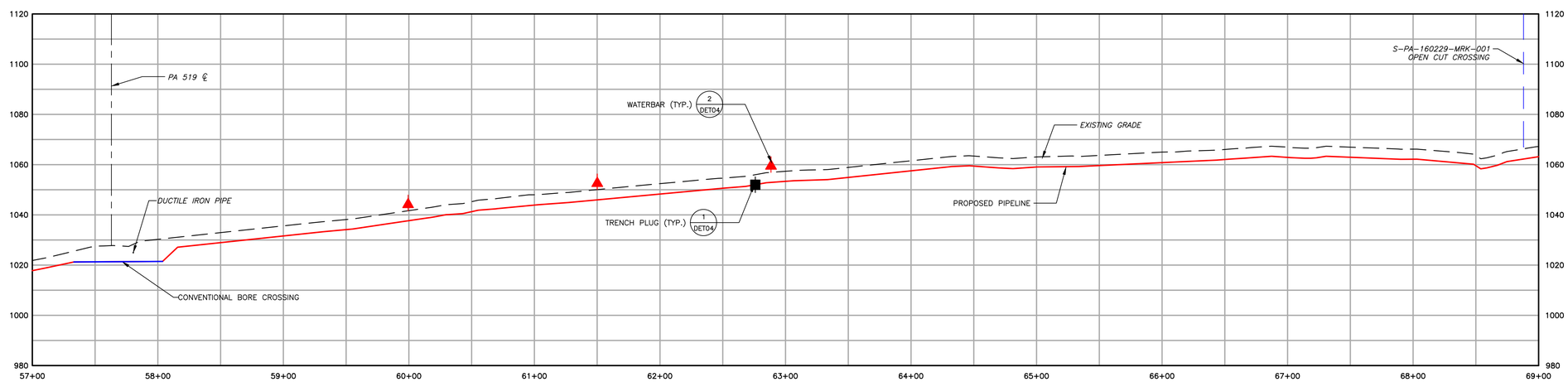
EROSION AND SEDIMENT CONTROL PLAN
ES005 – (STA. 45+00 TO STA. 57+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119289	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\92458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN005.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 3:57 PM) Last Plotted: 2018-01-02 (1/4/2018 11:55 AM)



LAND USE	WOODS	ROAD	WOODS	STREAM
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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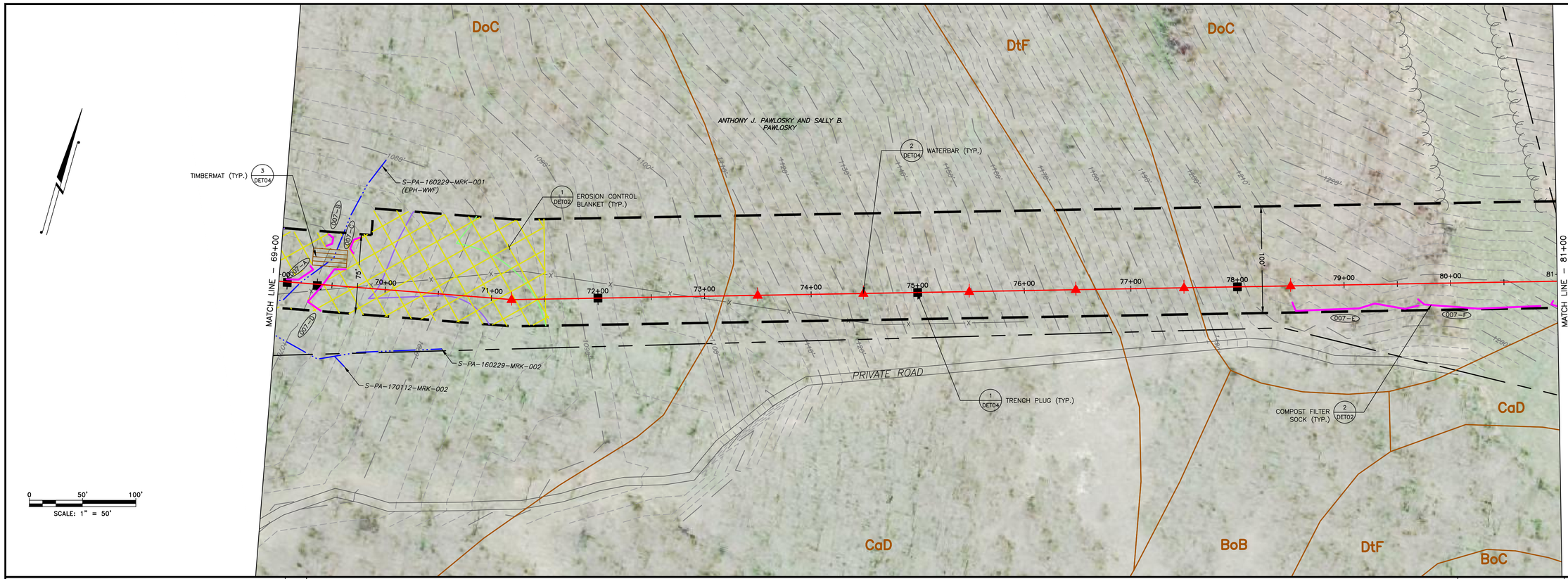
EROSION AND SEDIMENT CONTROL PLAN
ES006 – (STA. 57+00 TO STA. 69+00)

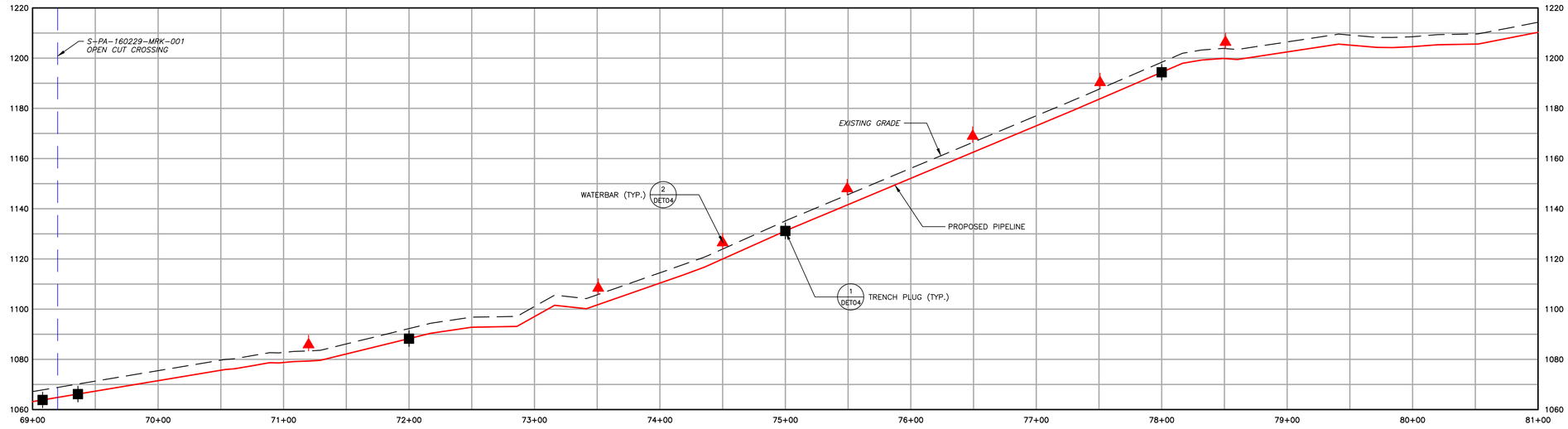
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119290	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN006.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 4:04 PM) Last Plotted: 2018-01-02 (1/4/2018 11:56 AM)



LAND USE	WOODS — STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4' 5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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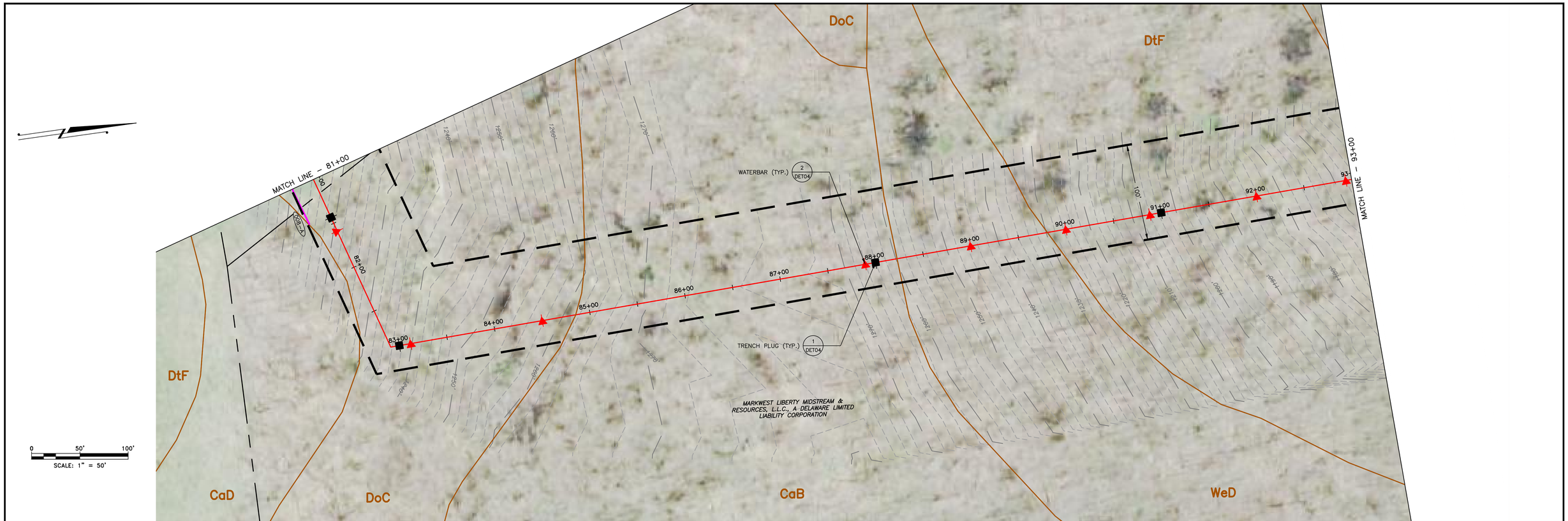
EROSION AND SEDIMENT CONTROL PLAN
ES007 – (STA. 69+00 TO STA. 81+00)

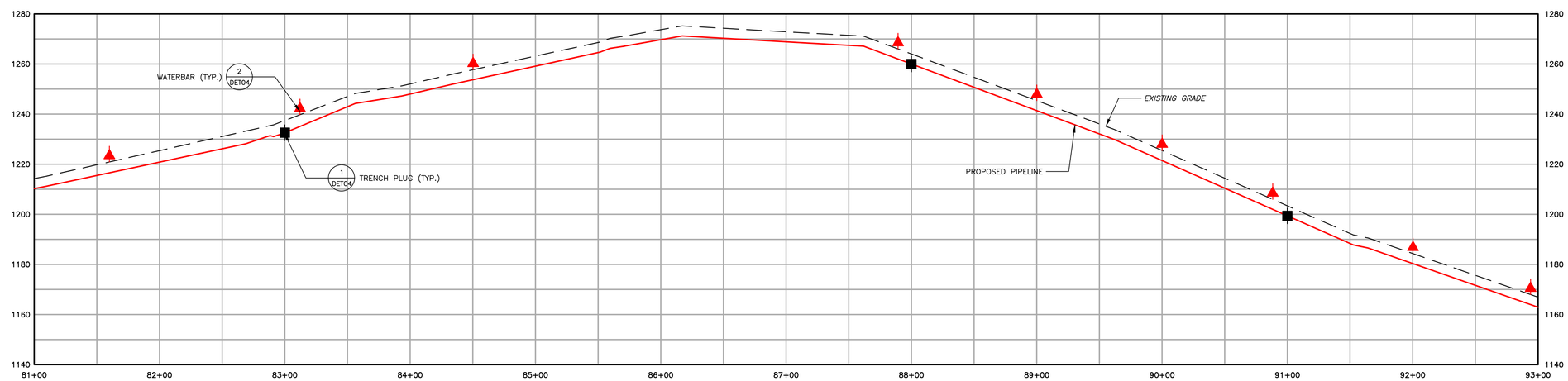
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119291	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\92458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN007.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 4:19 PM) Last Plotted: 2018-01-02 (1/4/2018 11:07 AM)



LAND USE	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)		4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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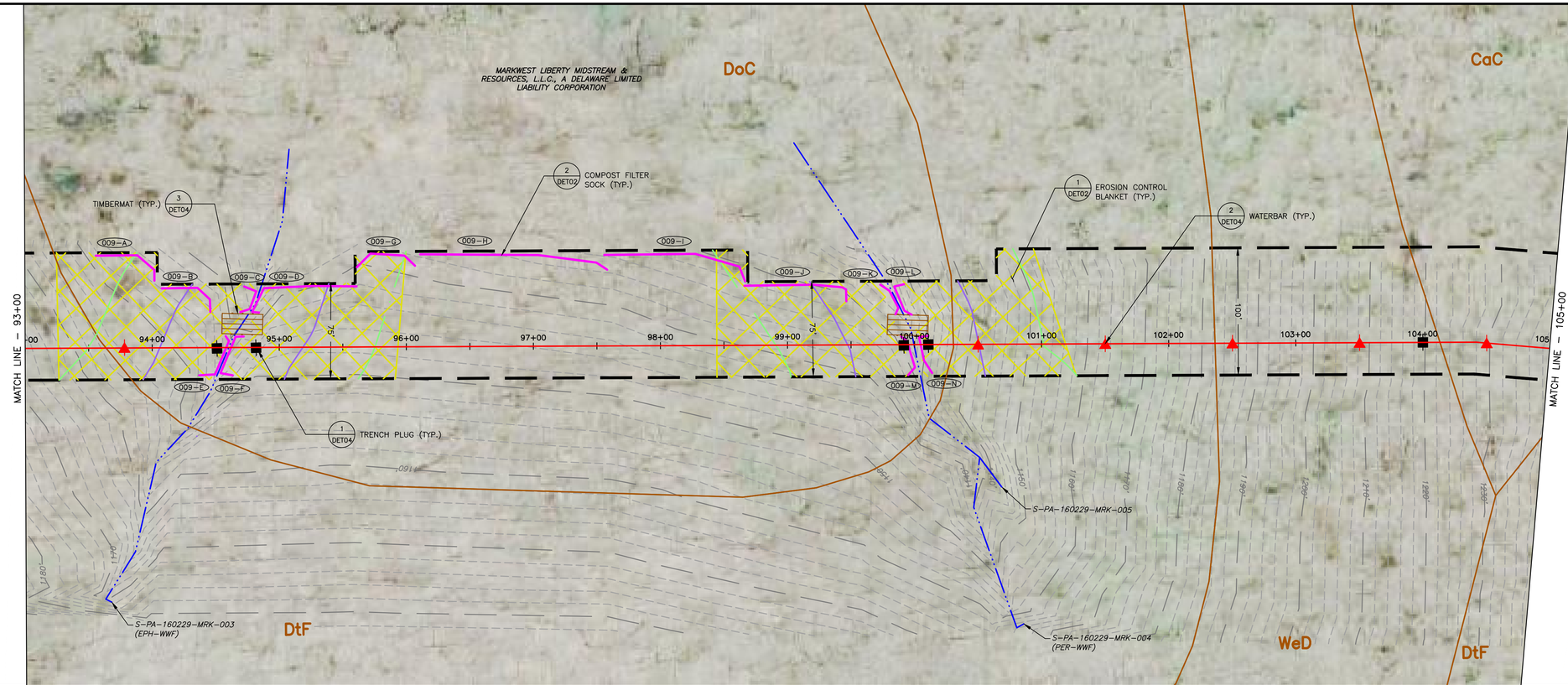
EROSION AND SEDIMENT CONTROL PLAN
ES008 – (STA. 81+00 TO STA. 93+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

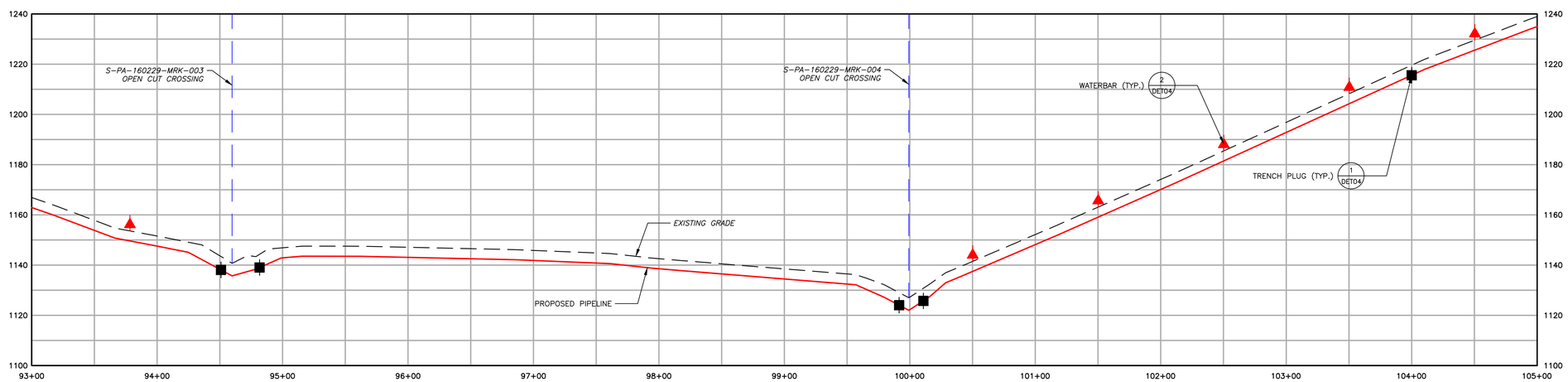
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119292	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0458985 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN008.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 4:23 PM) Last Plotted: 2018-01-02 (1/4/2018 11:58 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	STREAM	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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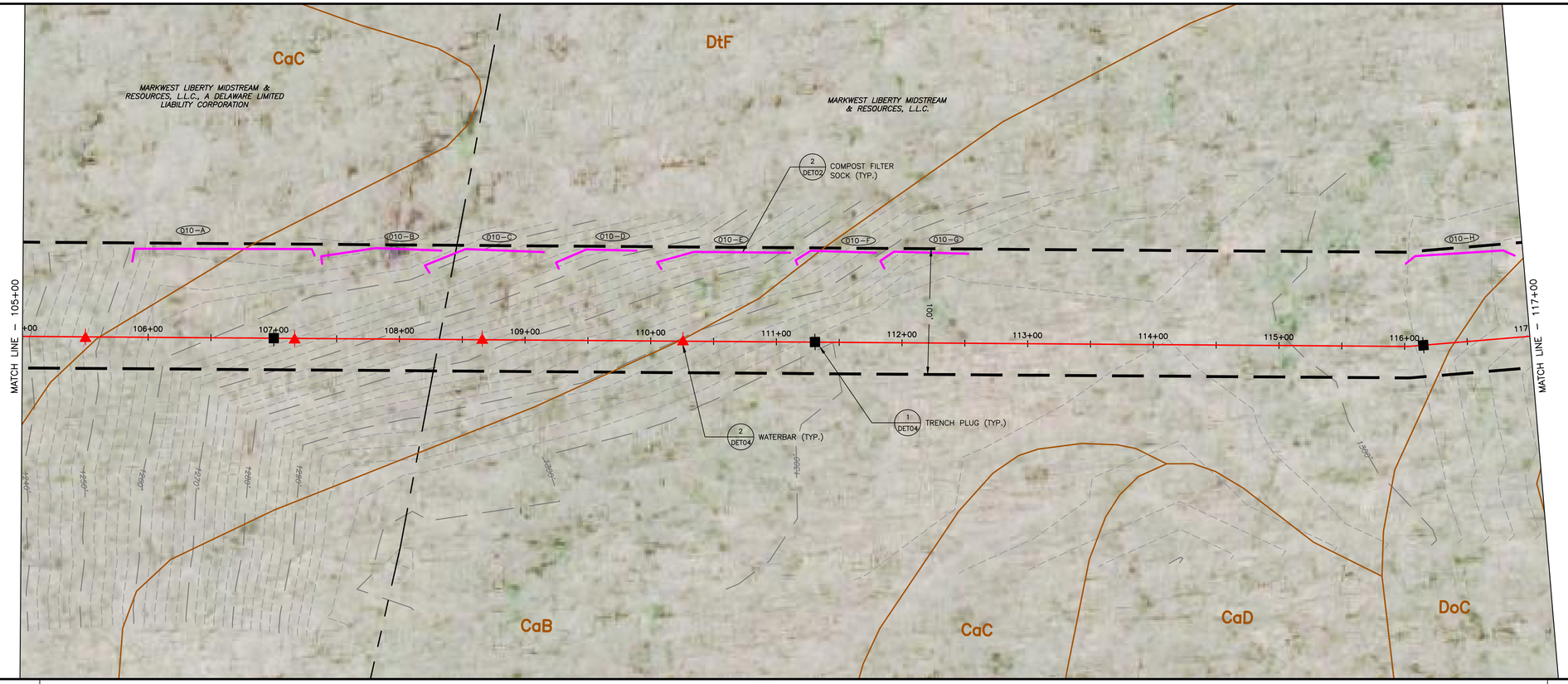
EROSION AND SEDIMENT CONTROL PLAN
ES009 – (STA. 93+00 TO STA. 105+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

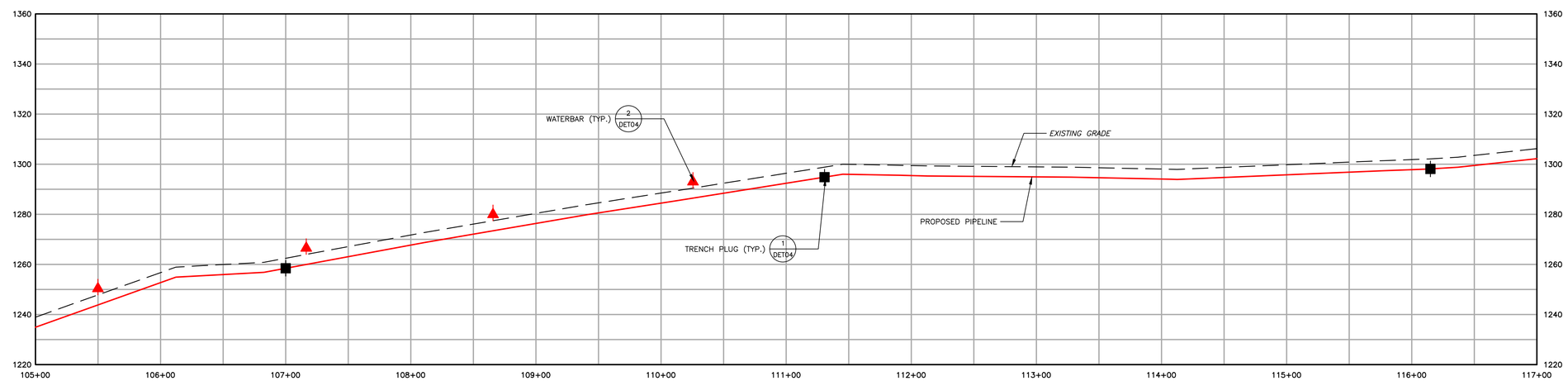
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119293	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\92458985 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN009.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 4:45 PM) Last Plotted: 2018-01-02 (1/2/2018 11:10 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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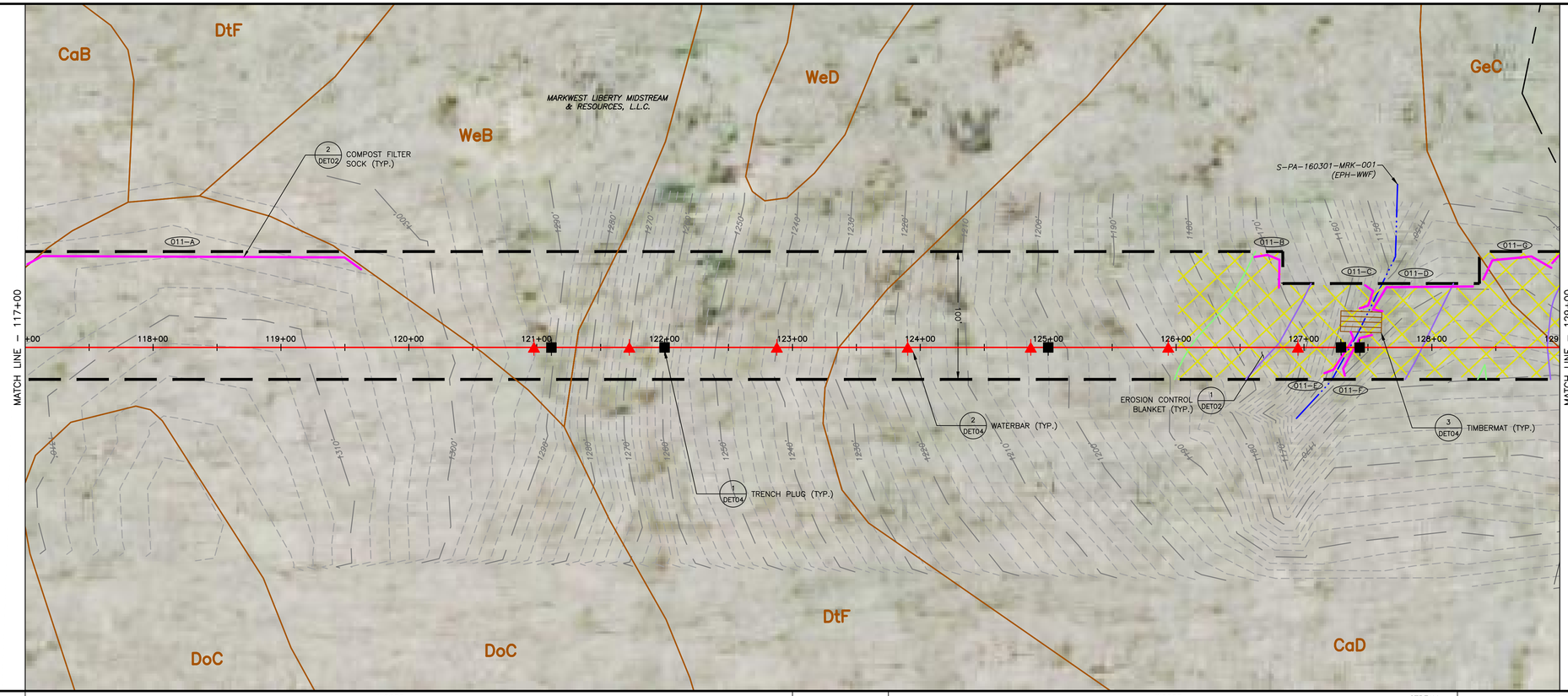
EROSION AND SEDIMENT CONTROL PLAN
ES010 – (STA. 105+00 TO STA. 117+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

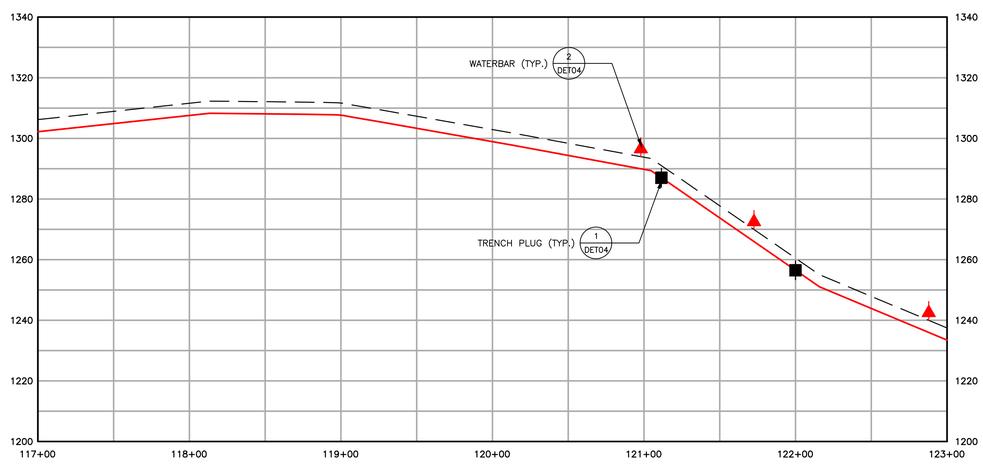
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119294	REVISION
DRAWN	TLM	12/05/17		1

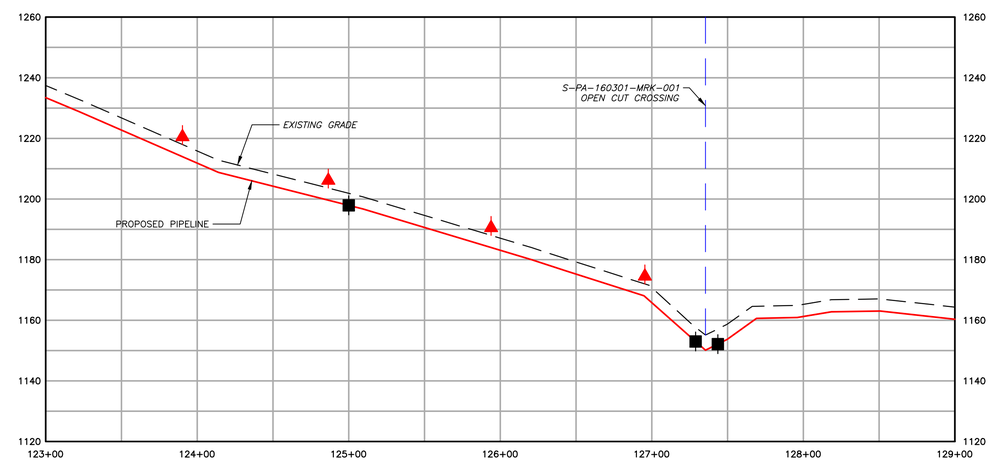
Filename: Y:\PROJECTS\1747\SHELL\10458985 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN010.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 4:46 PM) Last Plotted: 2018-01-02 (1/2/2018 11:11 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS		WOODS	STREAM	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	5'	4'	





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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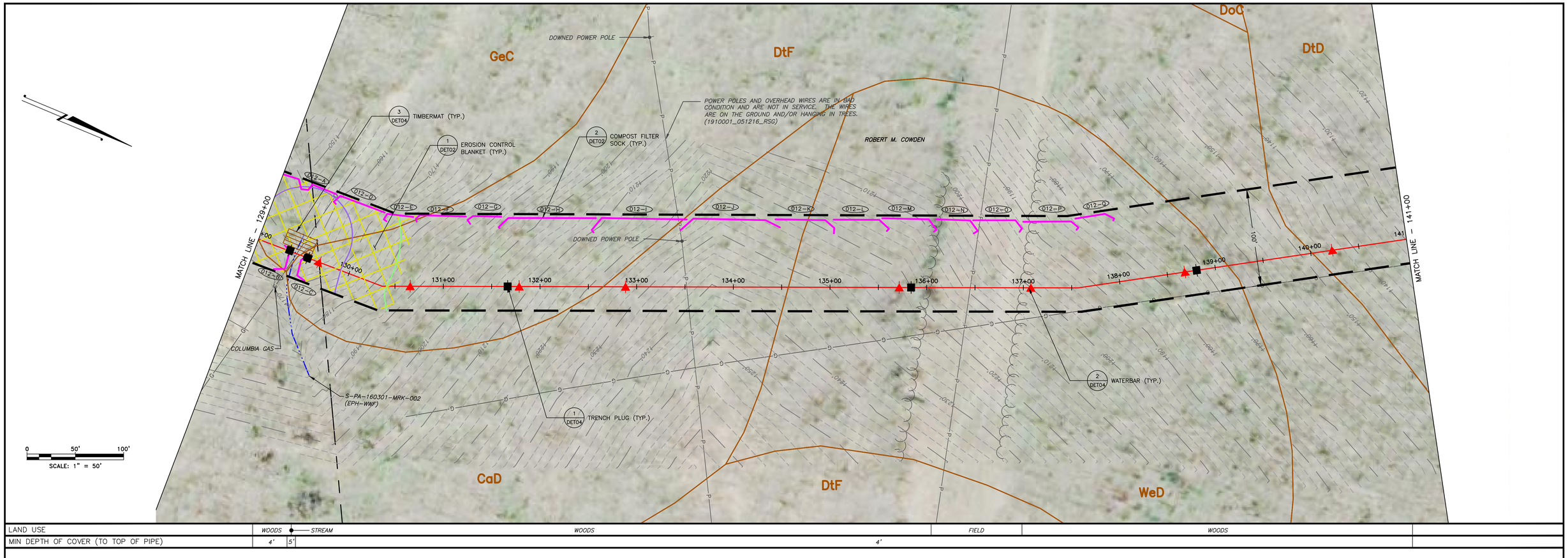
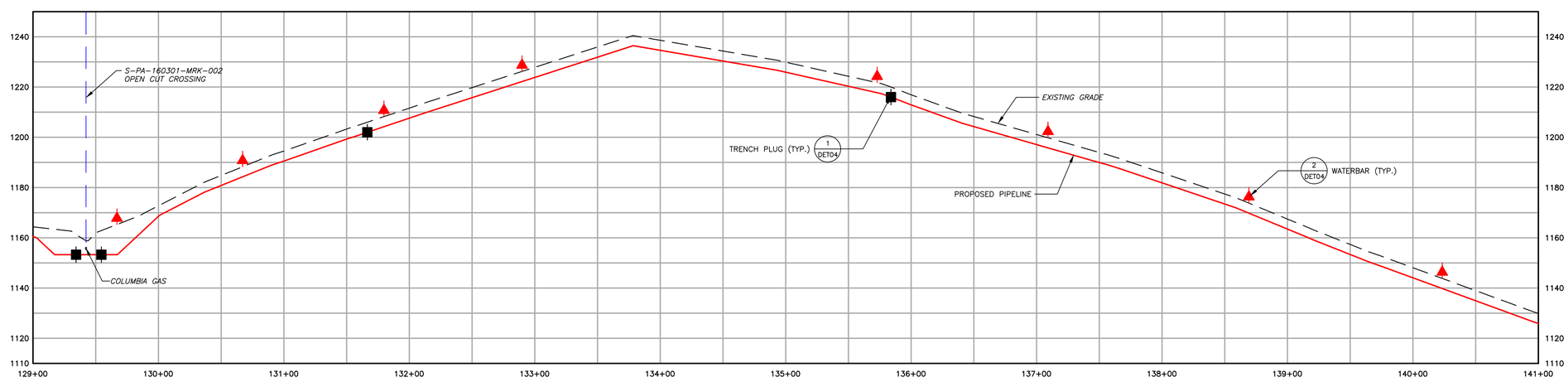
EROSION AND SEDIMENT CONTROL PLAN
ES011 – (STA. 117+00 TO STA. 129+00)
WASHINGTON COUNTY CHARTIERS TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119295	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN011.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 1:28 PM) Last Plotted: 2018-01-02 (1/4/2018 11:12 AM)



LAND USE	WOODS	STREAM	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'		



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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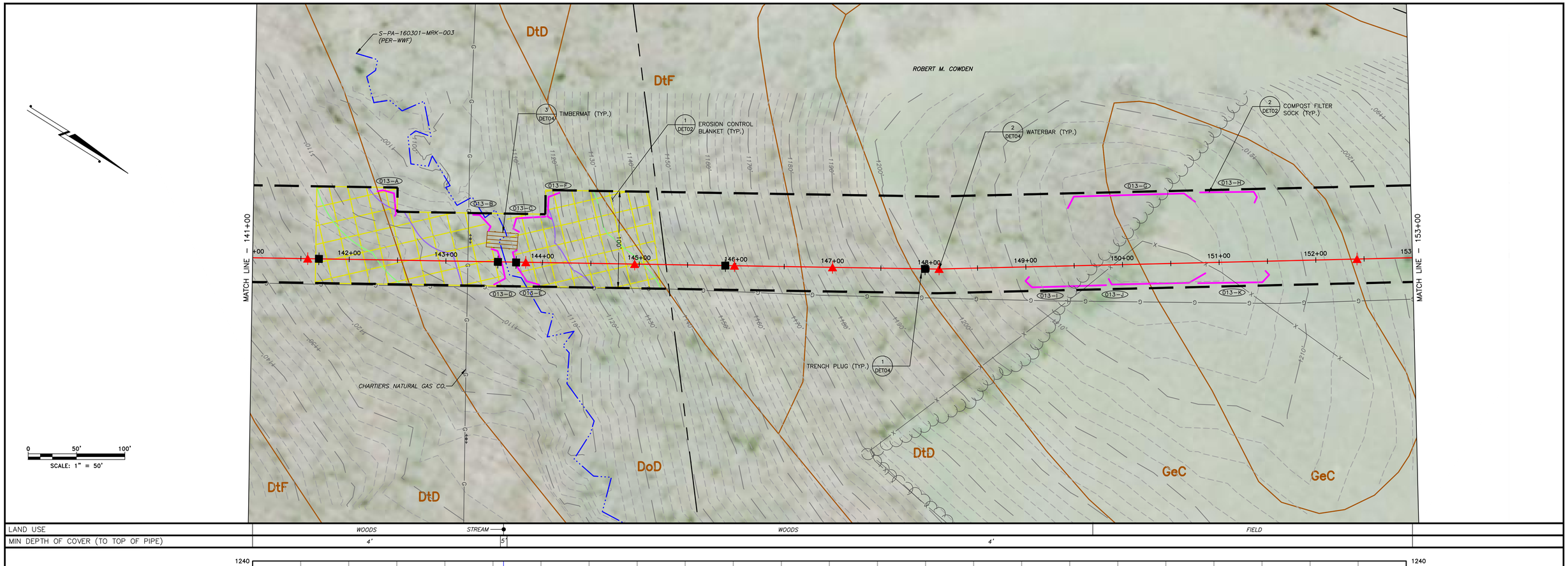
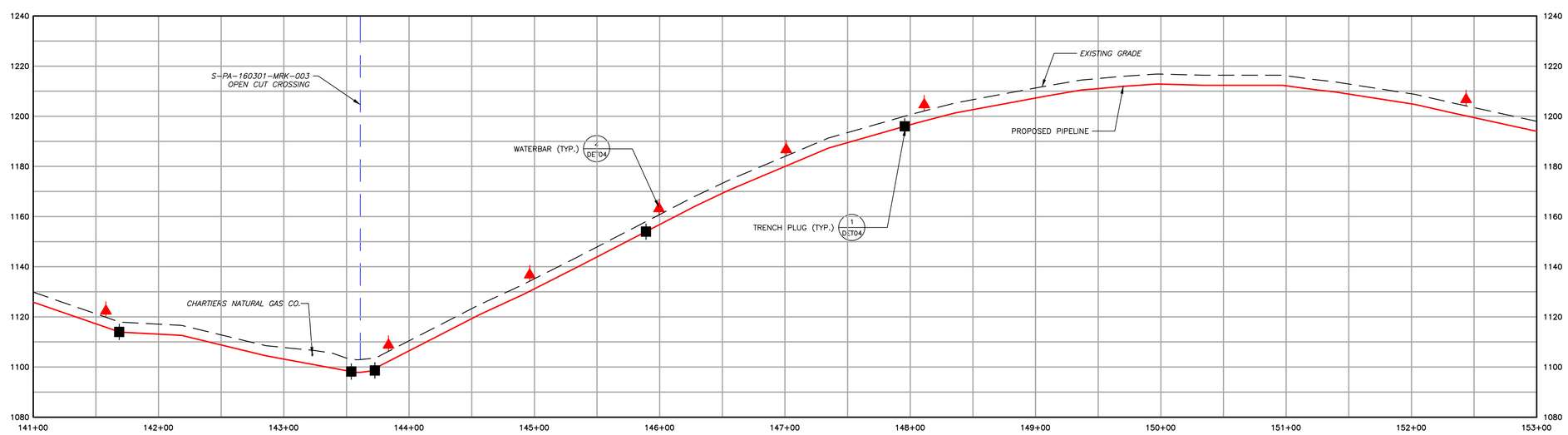
EROSION AND SEDIMENT CONTROL PLAN
ES012 – (STA. 129+00 TO STA. 141+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119296	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN012.DWG
Last saved by: UNCOUN.SCHAFER (12/19/2017 11:50 AM) Last Plotted: 2018-01-02 (1/2/2018 11:13 AM)



LAND USE	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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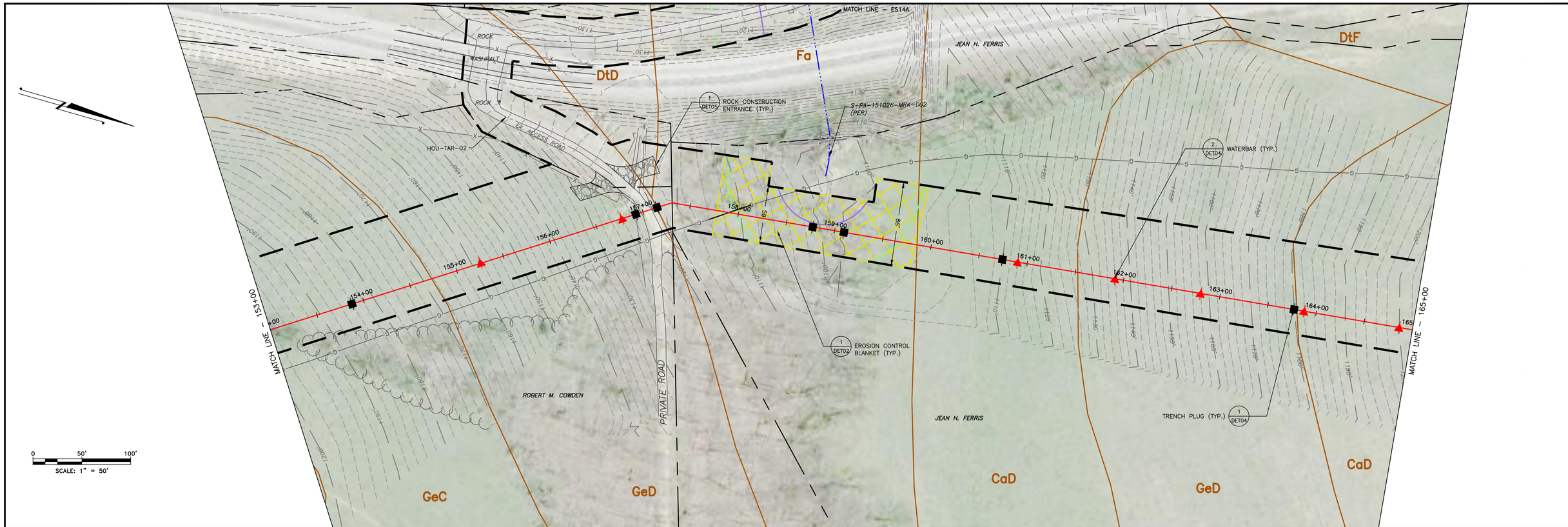
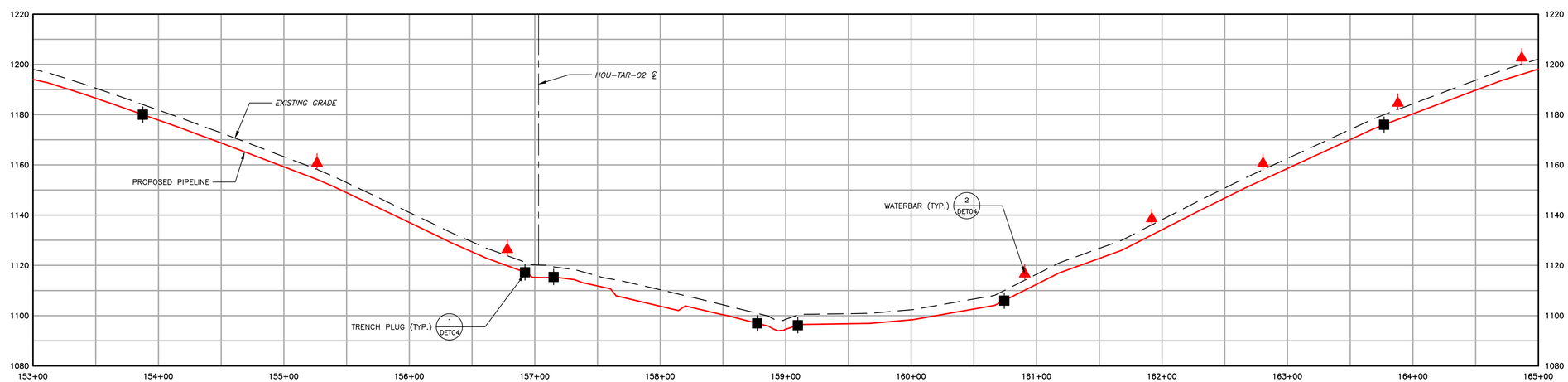
EROSION AND SEDIMENT CONTROL PLAN
ES013 – (STA. 141+00 TO STA. 153+00)
WASHINGTON COUNTY PENNSYLVANIA
CHARTIERS AND MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119297	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN013.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 7:43 AM) Last Plotted: 2018-01-02 (1/2/2018 11:14 AM)



LAND USE	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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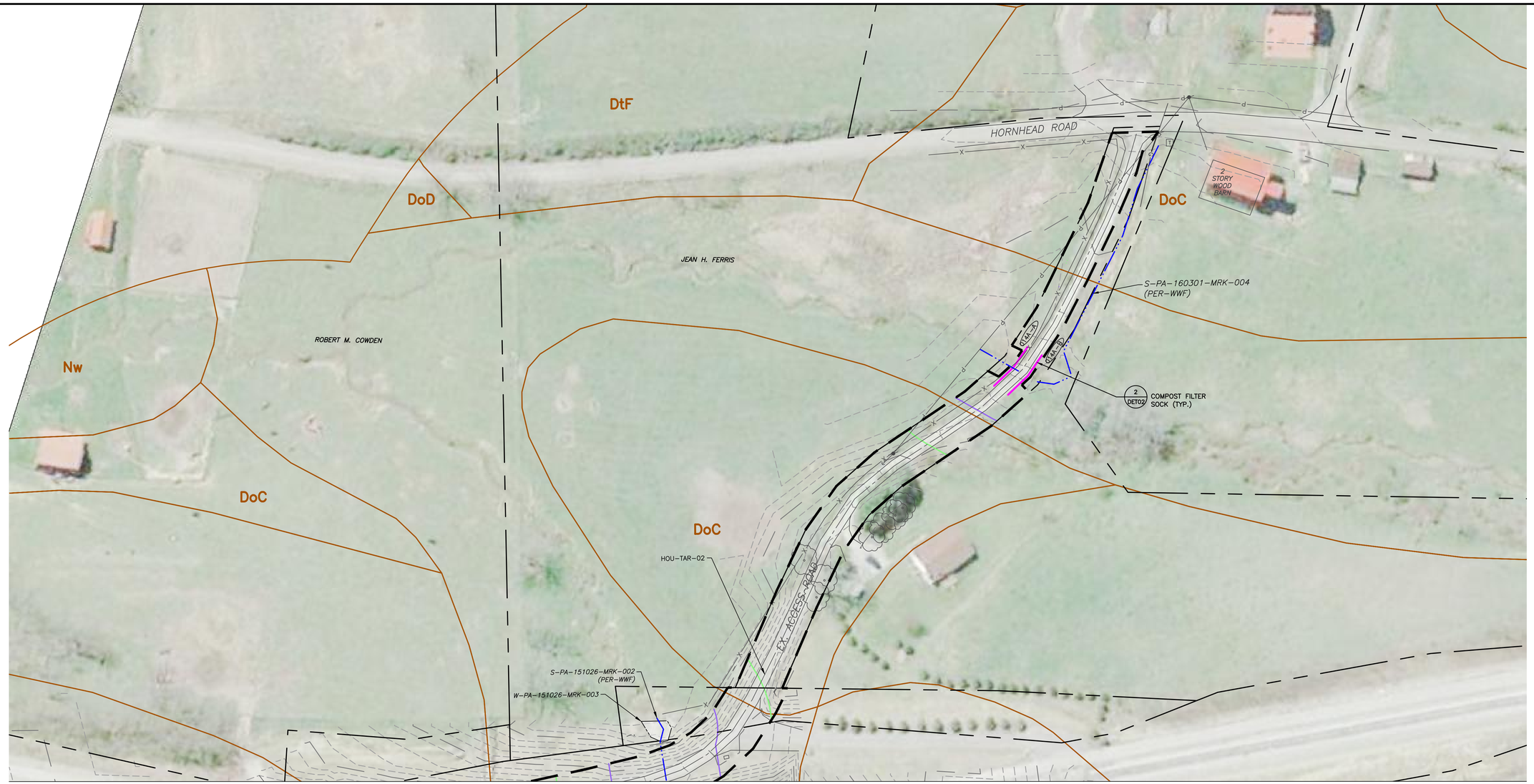
EROSION AND SEDIMENT CONTROL PLAN
ES014 – (STA. 153+00 TO STA. 165+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119298	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\92458885 – FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN014.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 5:14 PM) Last Plotted: 2018-01-02 (1/4/2018 11:15 AM)



MATCH LINE – SEE ES014

0 50' 100'
SCALE: 1" = 50'

150	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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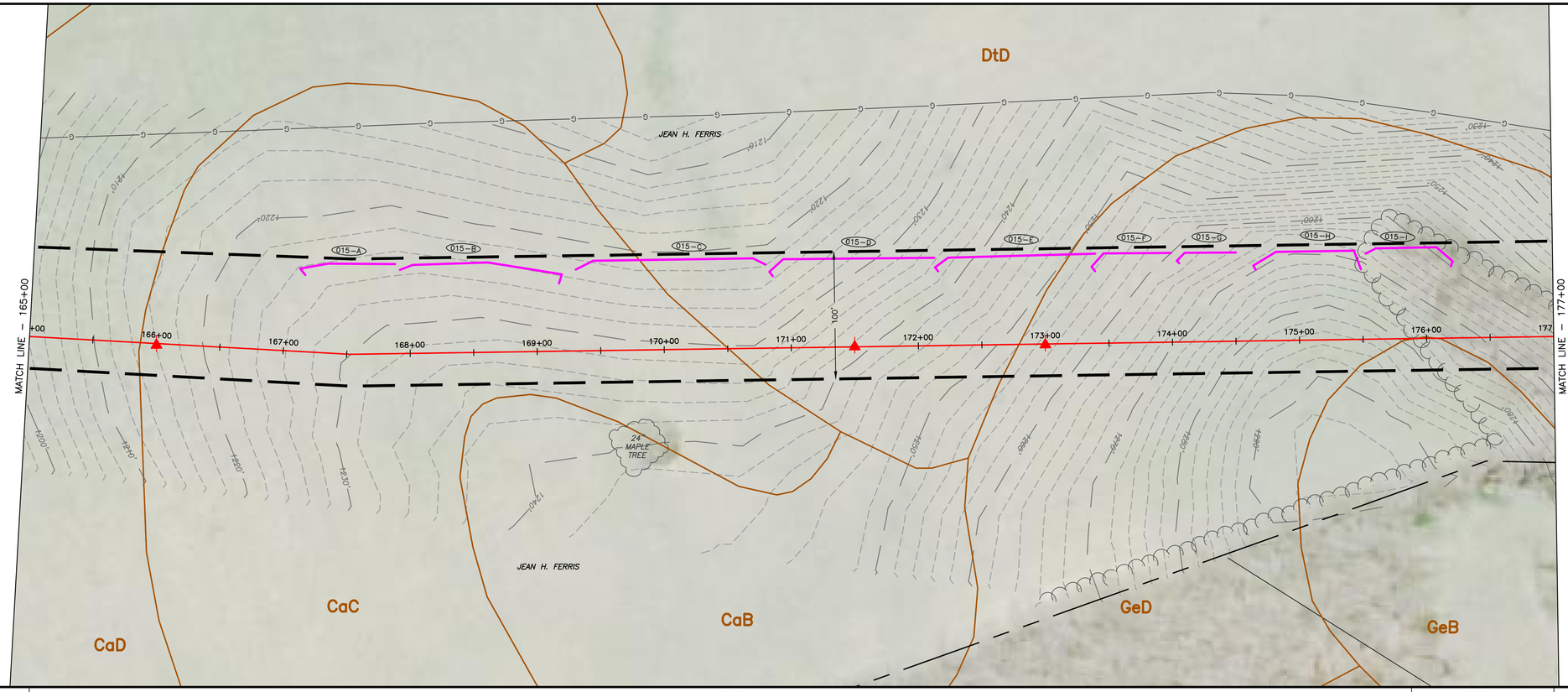
EROSION AND SEDIMENT CONTROL PLAN
ES014A – (HOU-TAR-02)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

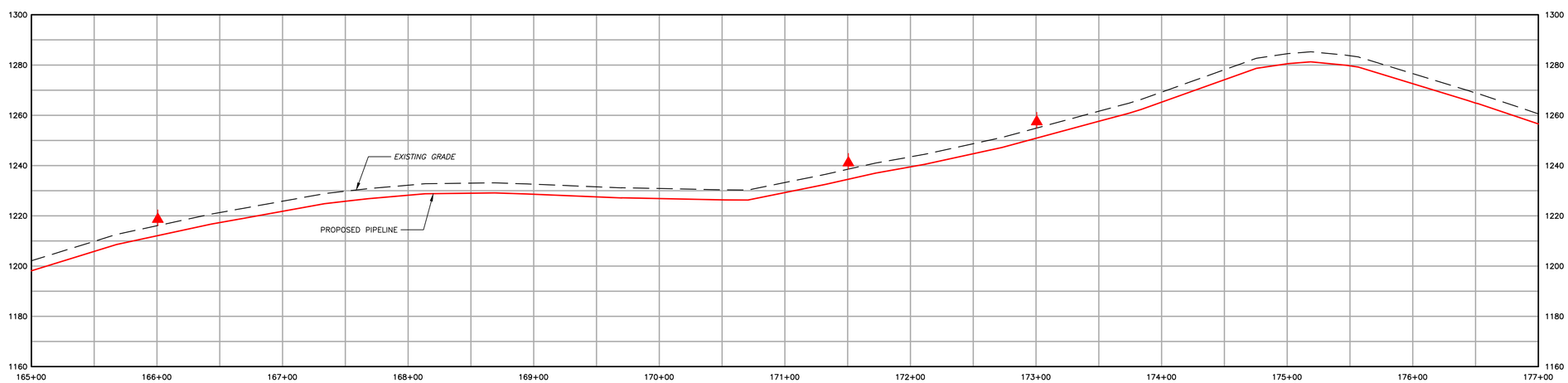
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119740	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459859 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN014A.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 1:50 PM) Last Plotted: 2018-01-02 (1/2/2018 11:16 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



- 1550 EXISTING CONTOURS (INDEX)
- EXISTING CONTOURS (INTERMEDIATE)
- EXISTING PROPERTY LINE
- EXISTING STREAM
- ASSUMED FLOODWAY (50 FEET)
- STREAM BUFFER (100 FEET)
- EXISTING WETLAND
- TREE/BRUSH LINE
- PROPOSED PIPELINE
- LIMIT OF DISTURBANCE/PERMIT BOUNDARY
- ACCESS ROAD CENTERLINE
- PROPOSED SILT FENCE (BY TYPE)
- PROPOSED COMPOST FILTER SOCK
- PROPOSED RIGHT OF WAY DIVERSION
- PROPOSED TRENCH PLUG
- OSF PROPOSED ORANGE SAFETY FENCE
- PROPOSED TIMBER MAT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED STONE CONSTRUCTION ENTRANCE
- 100-YEAR FLOODPLAIN
- WATERSHED BOUNDARY
- MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
- MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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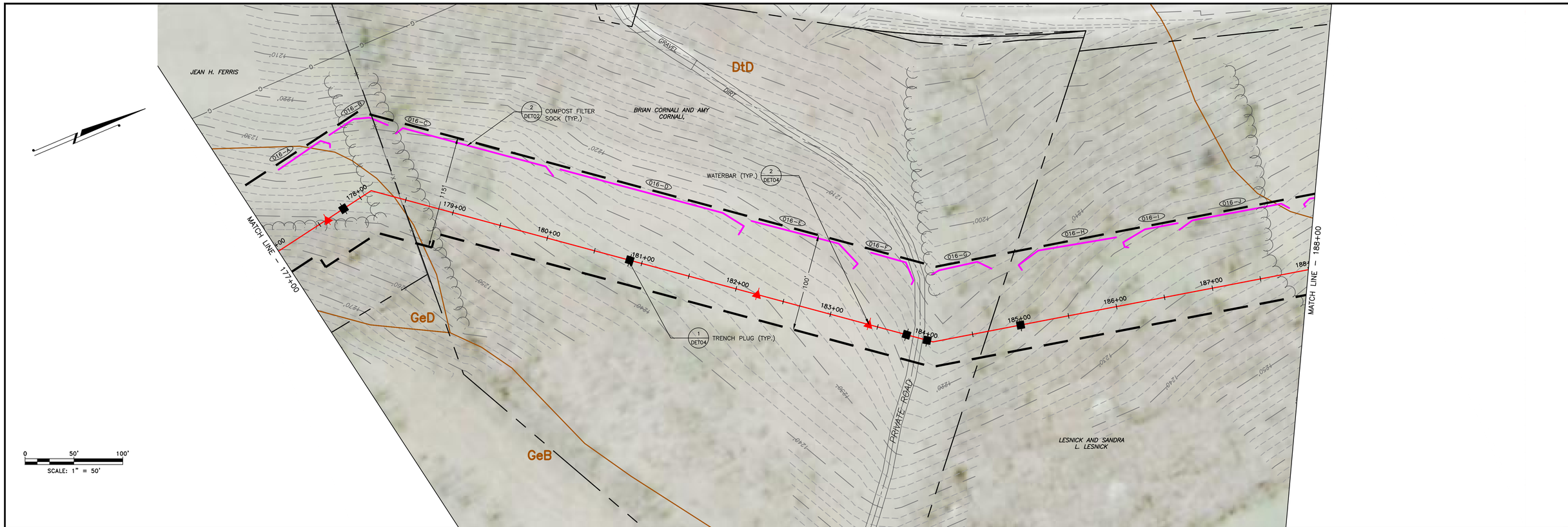
EROSION AND SEDIMENT CONTROL PLAN
ES015 – (STA. 165+00 TO STA. 177+00)

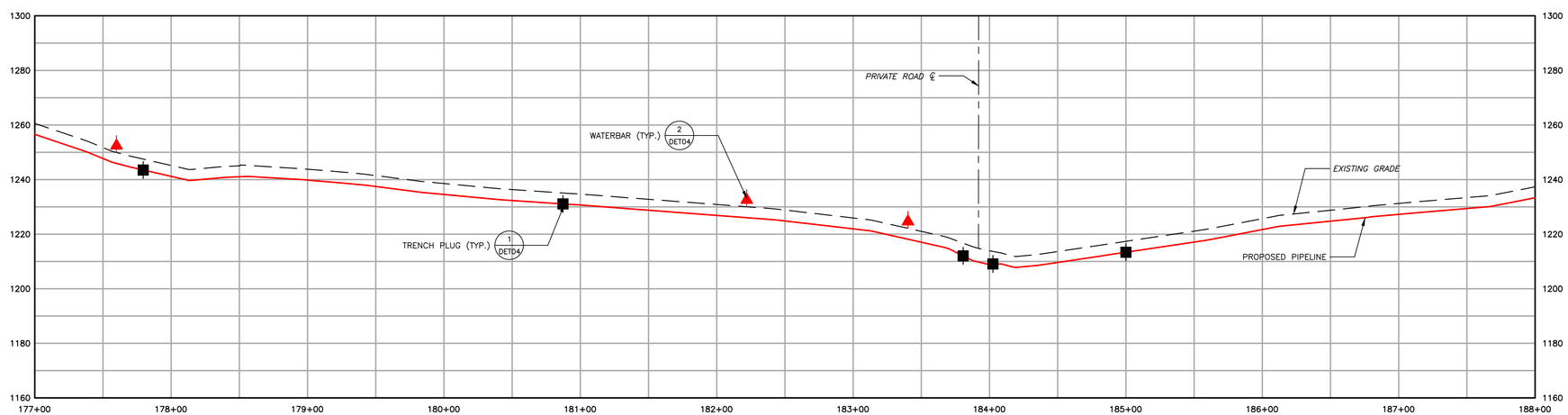
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119299	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN015.DWG
Last saved by: JOSEPH.RYAN (12/26/2017 5:30 PM) Last Plotted: 2018-01-02 (1/4/2018 11:17 AM)



LAND USE	WOODS	FIELD	WOODS	FIELD	RD	FIELD	WOODS	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'				5'		4'		



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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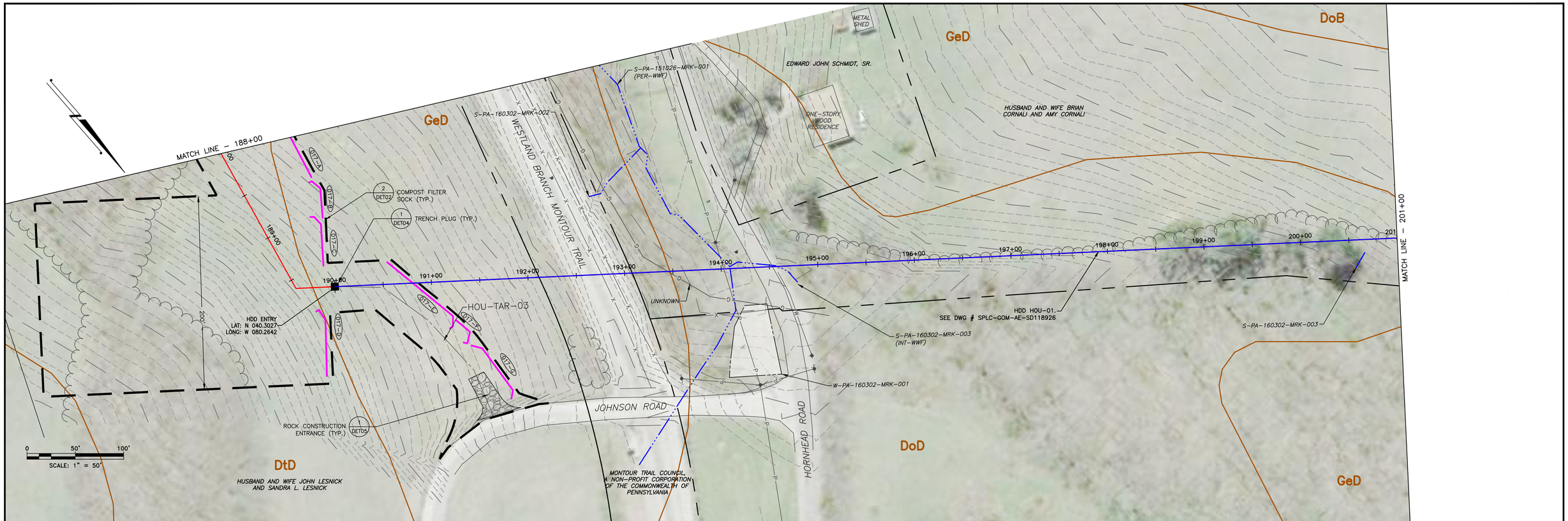
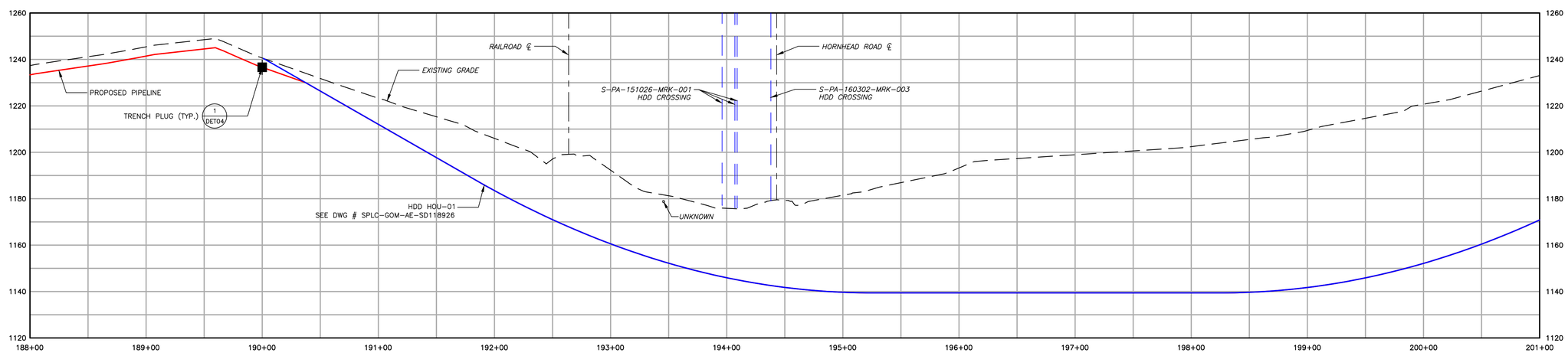
EROSION AND SEDIMENT CONTROL PLAN
ES016 – (STA. 177+00 TO STA. 188+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119300	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN016.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 2:34 PM) Last Plotted: 2018-01-02 (1/4/2018 11:16 AM)



LAND USE	FIELD	GRAVEL	FIELD	FIELD	ROAD	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	10'	4' STREAM	4'	5'		4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES017 – (STA. 188+00 TO STA. 201+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119301	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\9248885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN017.DWG
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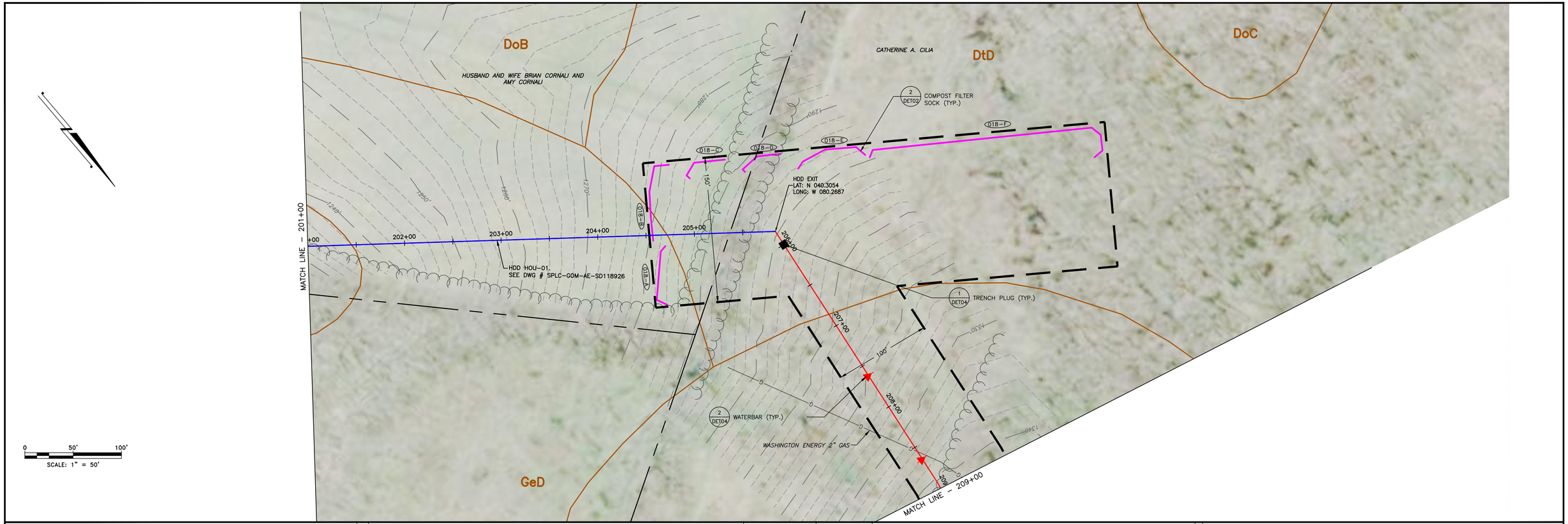
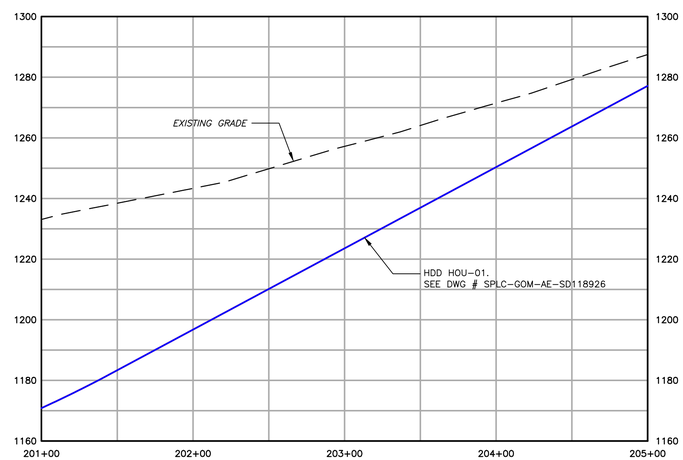
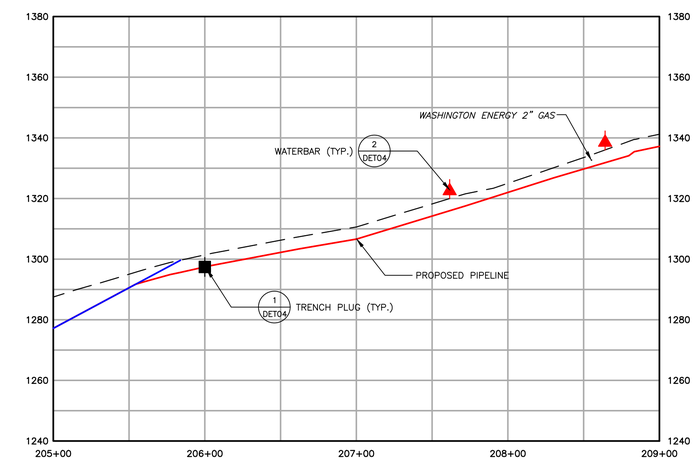


LAND USE	WOODS	FIELD	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)		4'		4'	





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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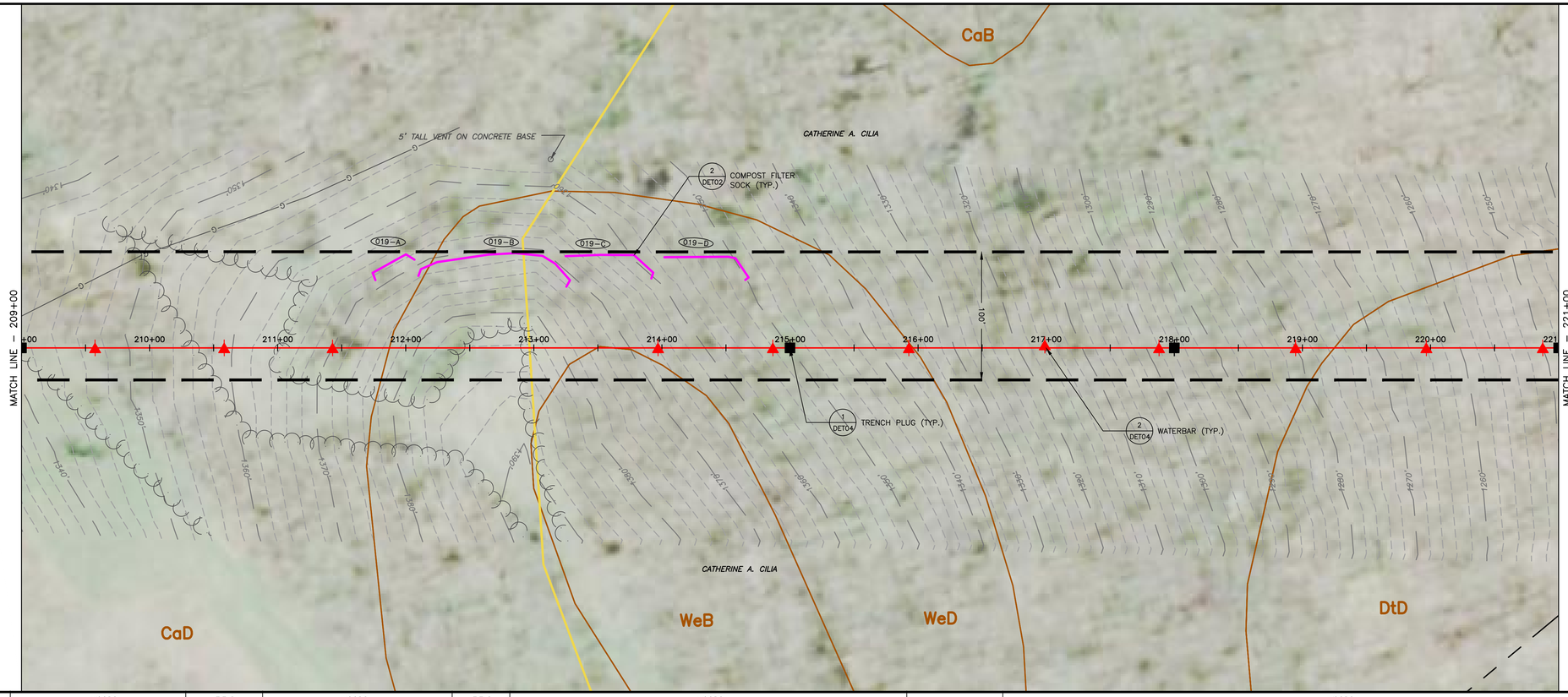
EROSION AND SEDIMENT CONTROL PLAN
ES018 – (STA. 201+00 TO STA. 209+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

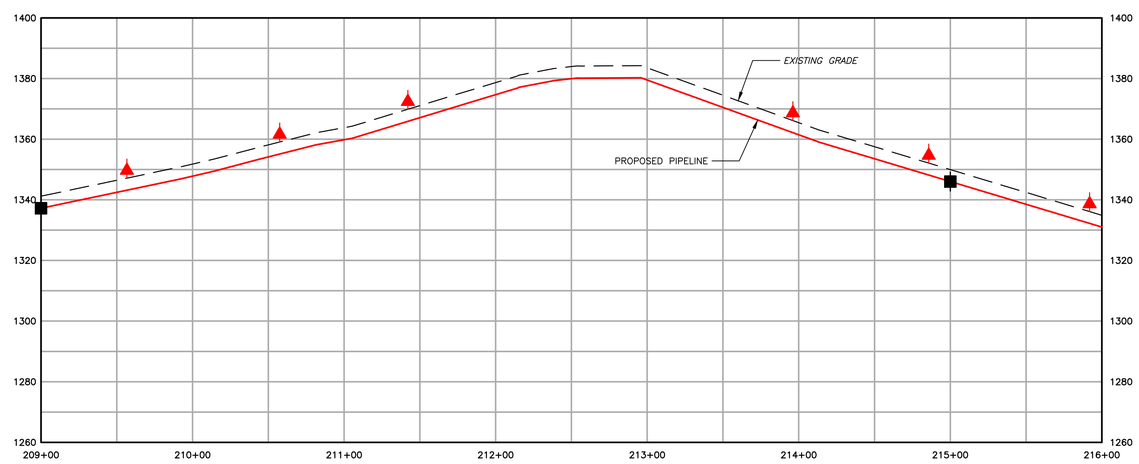
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119302	REVISION 1
DRAWN	TLM				

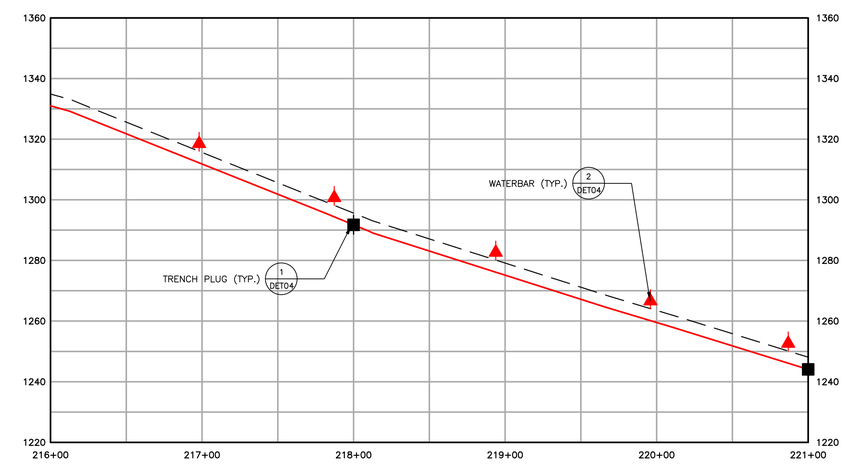
Filename: Y:\PROJECTS\1747\SHELL\0049885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN018.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 2:43 PM) Last Plotted: 2018-01-02 (1/4/2018 11:20 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	FIELD	WOODS	FIELD	WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'						4'	





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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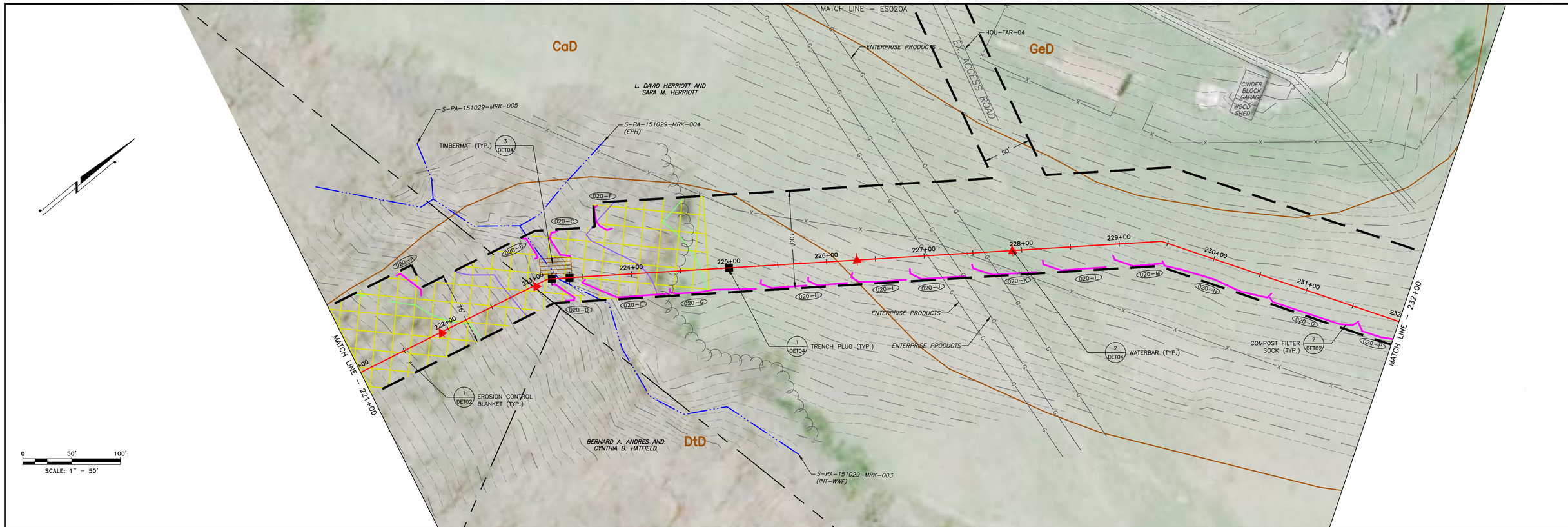
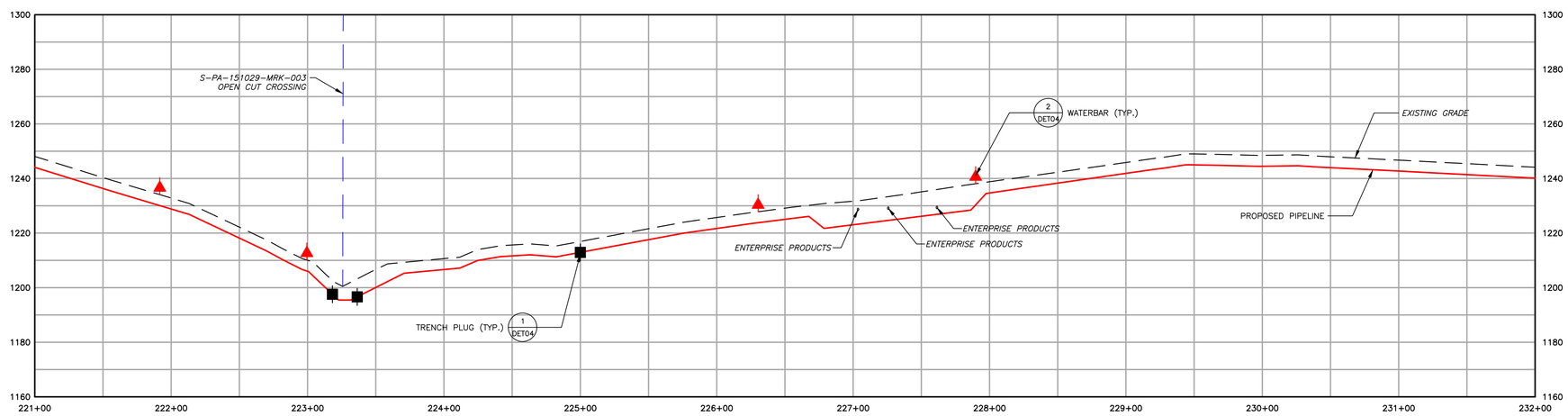
EROSION AND SEDIMENT CONTROL PLAN
ES019 – (STA. 209+00 TO STA. 221+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119303	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0049885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN019.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 2:47 PM) Last Plotted: 2018-01-02 (1/2/2018 11:21 AM)



LAND USE	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'		4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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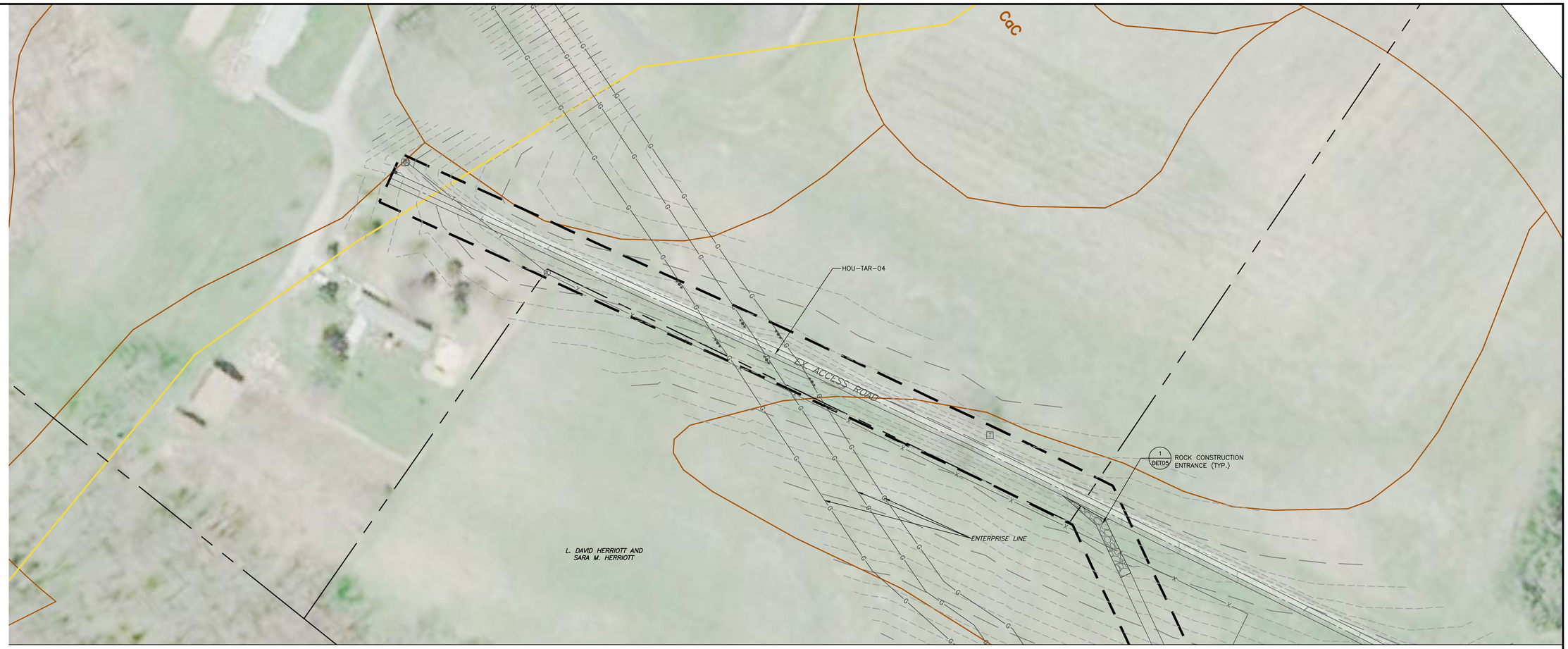
EROSION AND SEDIMENT CONTROL PLAN
ES020 – (STA. 221+00 TO STA. 232+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119304	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50495895 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN020.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 7:50 AM) Last Plotted: 2018-01-02 (1/2/2018 11:22 AM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE	
	PROPOSED TIMBER MAT	
	PROPOSED EROSION CONTROL BLANKET	
	PROPOSED STONE CONSTRUCTION ENTRANCE	
	100-YEAR FLOODPLAIN	
	WATERSHED BOUNDARY	
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY	
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY	

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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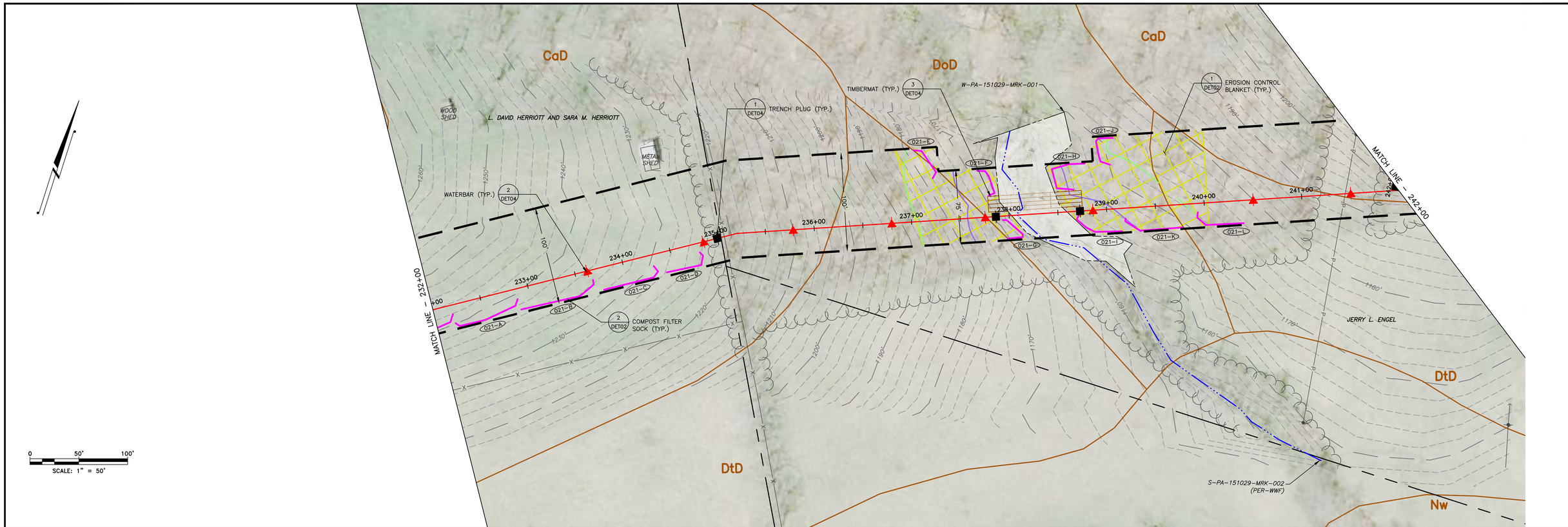
EROSION AND SEDIMENT CONTROL PLAN
ES020A – (HOU-TAR-04)

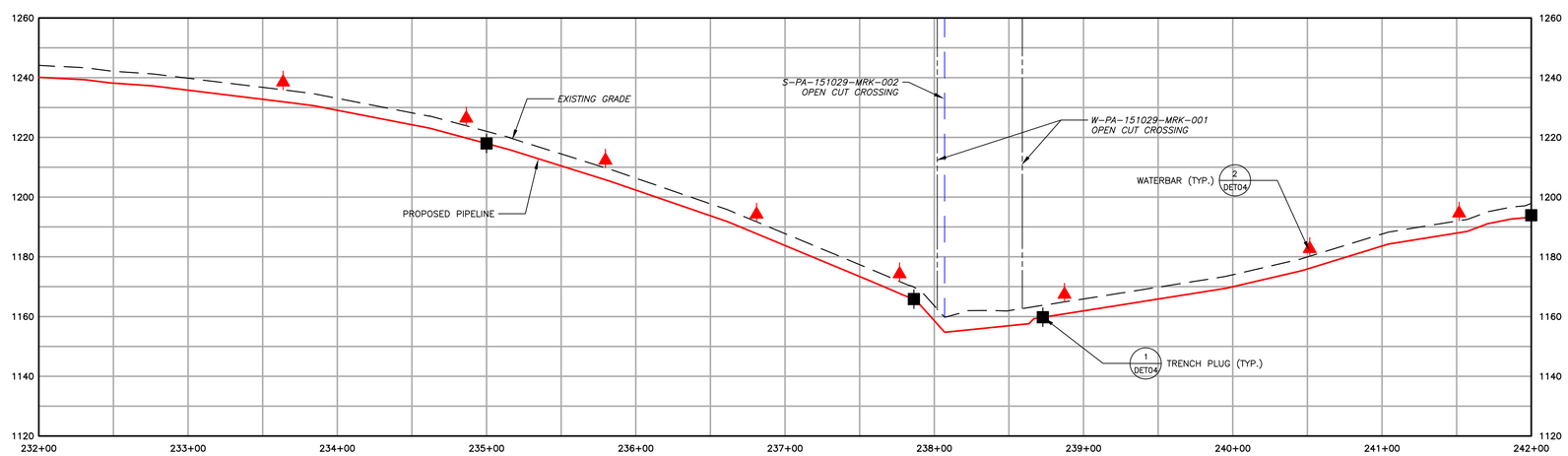
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119741	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6498985 - FALCON\00-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN020A.DWG
Last Saved by: JOSEPH.RYAN (12/27/2017 3:24 PM) Last Plotted: 2018-01-02 (1/2/2018 11:23 AM)



LAND USE	FIELD	WOODS	STREAM / WETLAND	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		5'	4'		



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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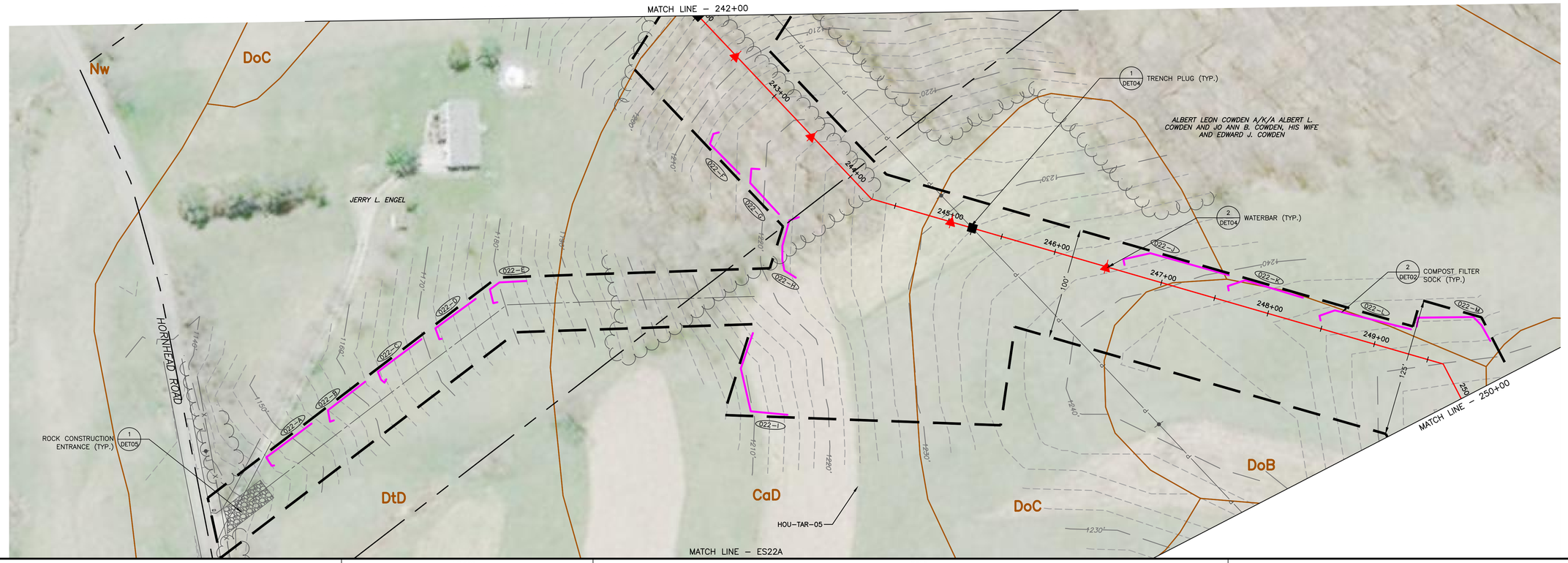
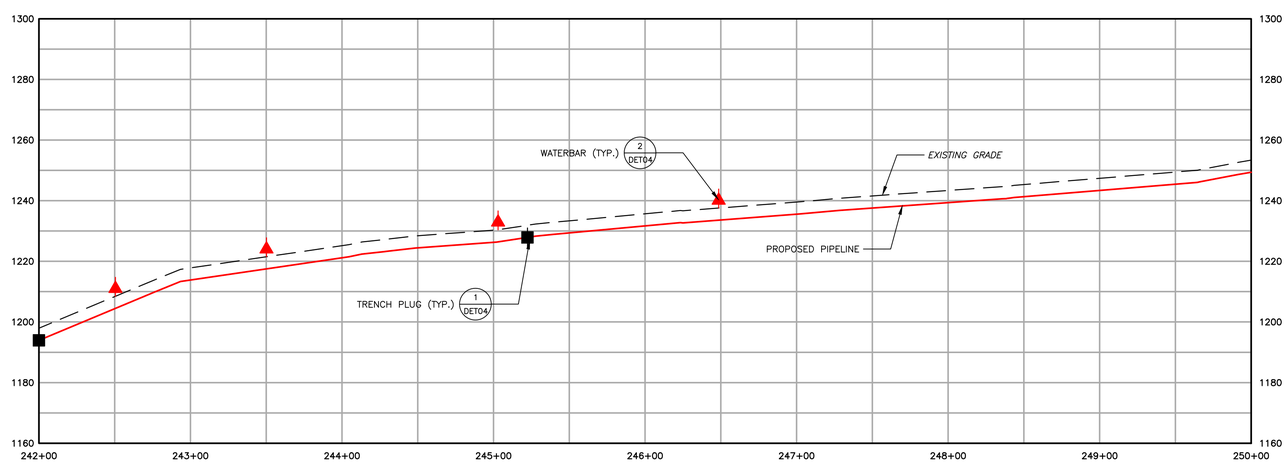
EROSION AND SEDIMENT CONTROL PLAN
ES021 – (STA. 232+00 TO STA. 242+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119305	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN021.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 3:48 PM) Last Plotted: 2018-01-02 (1/4/2018 11:55 AM)



LAND USE	WOODS	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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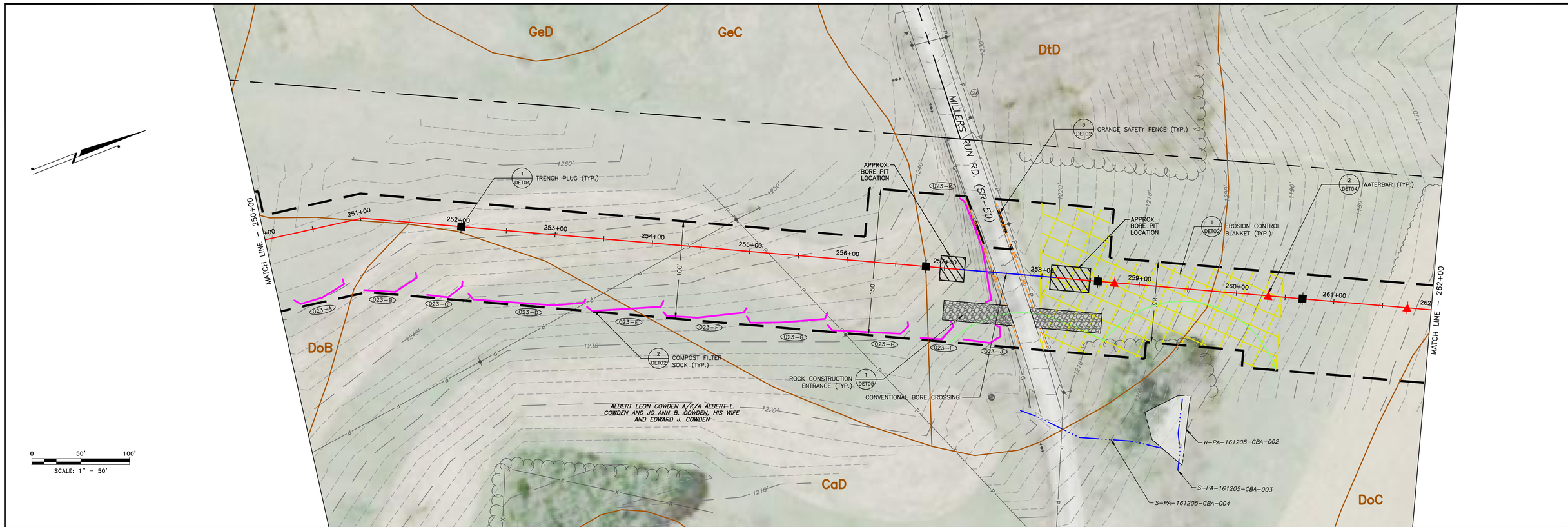
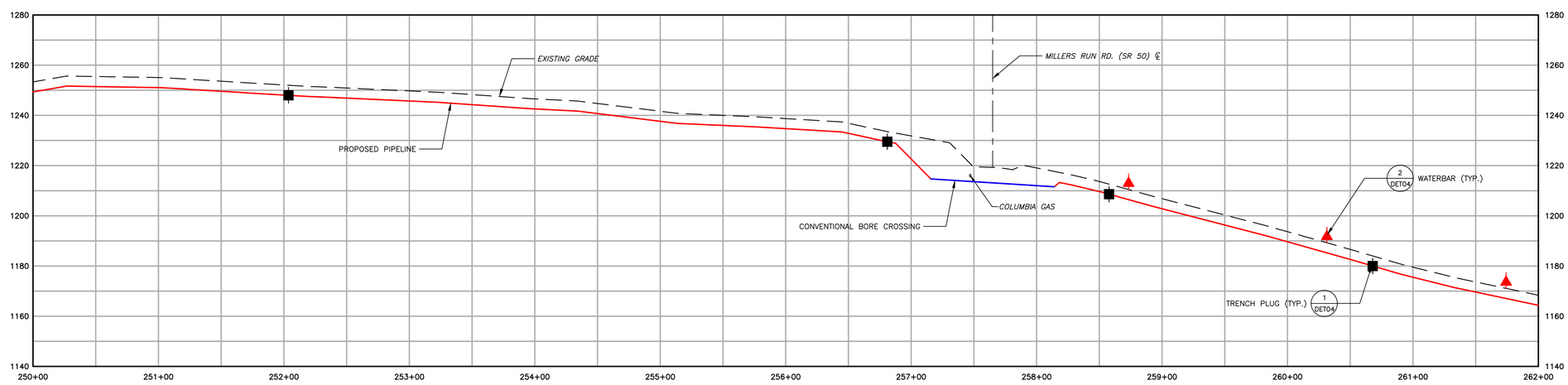
EROSION AND SEDIMENT CONTROL PLAN
ES022 – (STA. 242+00 TO STA. 250+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119306	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0245885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN022.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 4:01 PM) Last Plotted: 2018-01-02 (1/4/2018 11:59 AM)



LAND USE	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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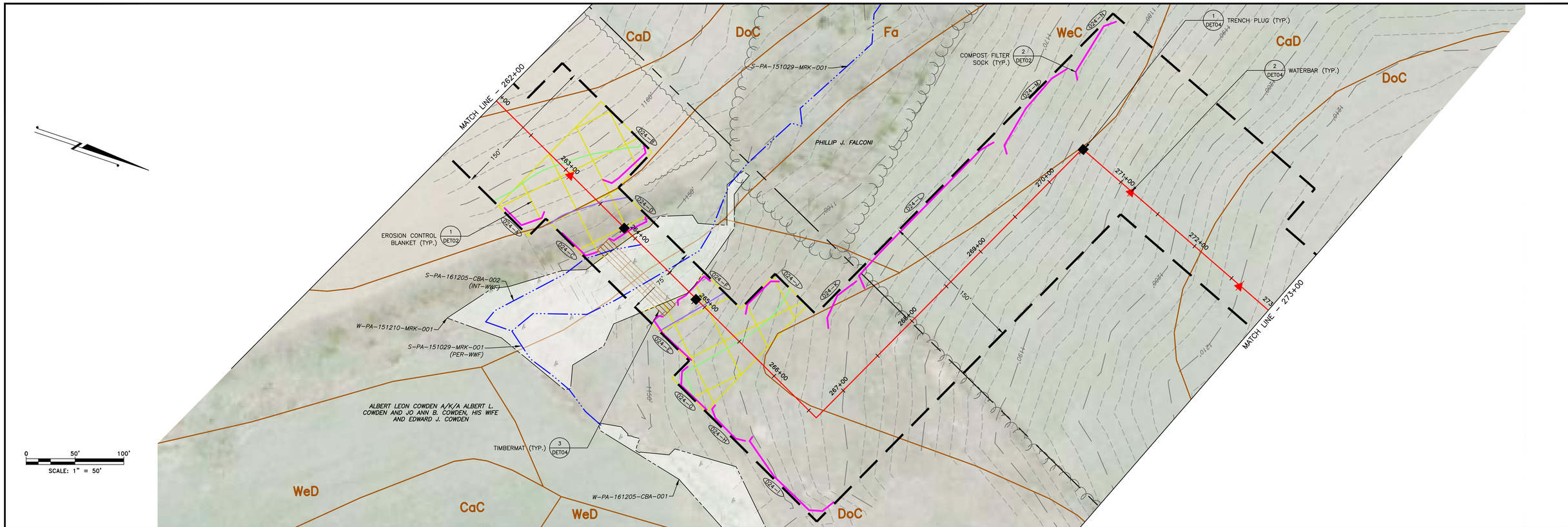
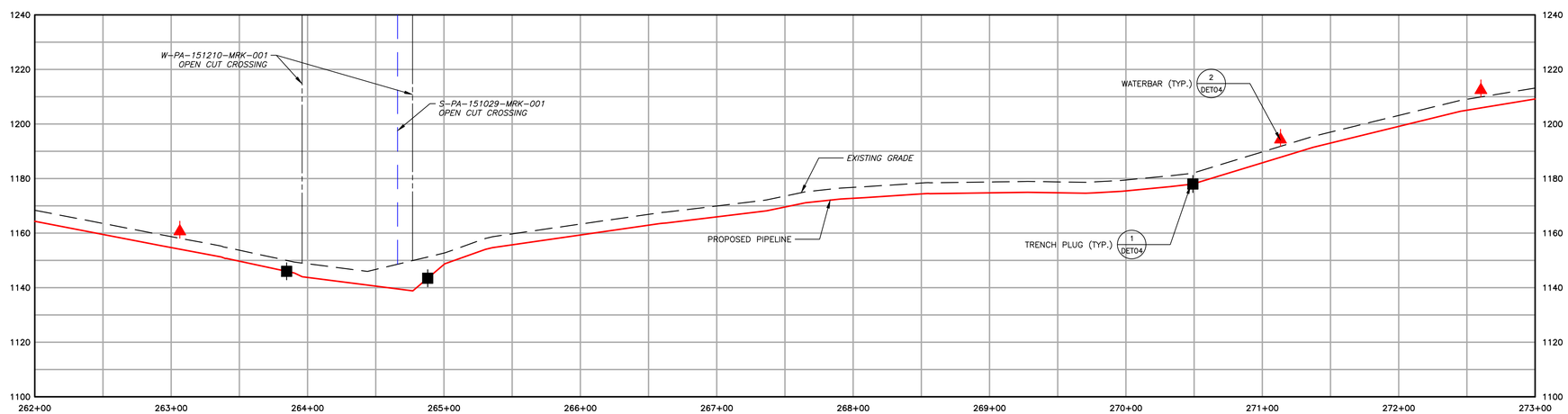
EROSION AND SEDIMENT CONTROL PLAN
ES023 – (STA. 250+00 TO STA. 262+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119307	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN023.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 4:08 PM) Last Plotted: 2018-01-02 (1/4/2018 12:50 PM)



LAND USE	FIELD	WOODS	WETLAND	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		5'		4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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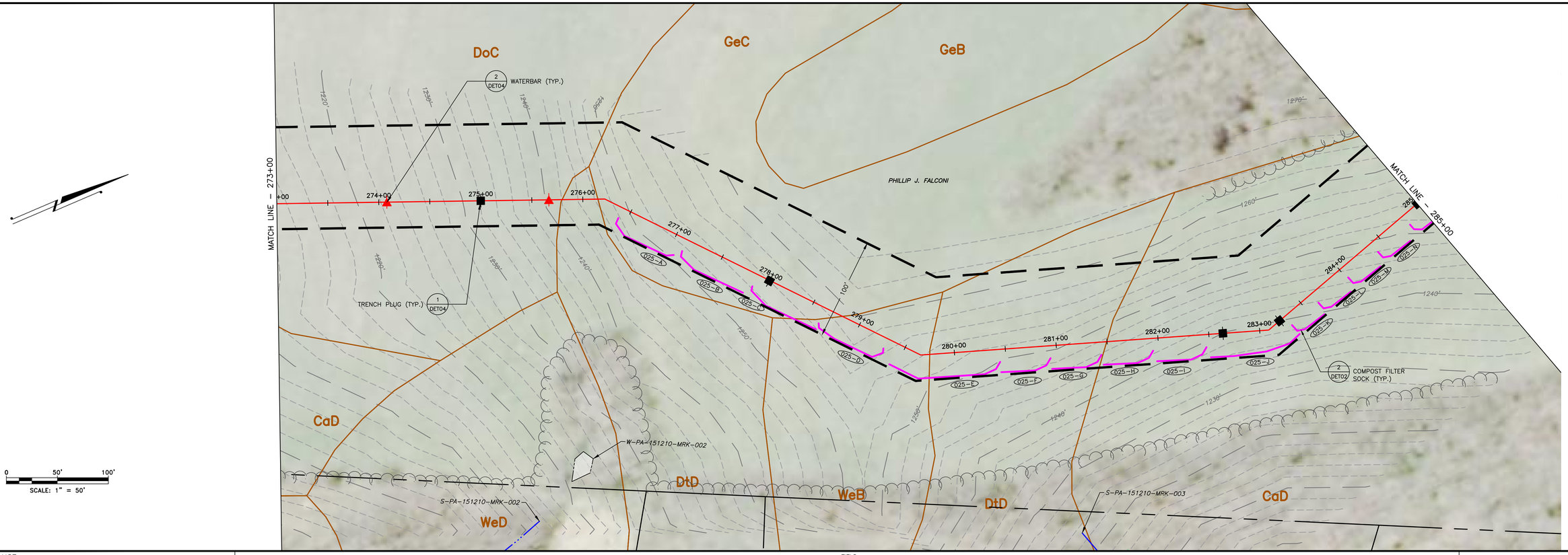
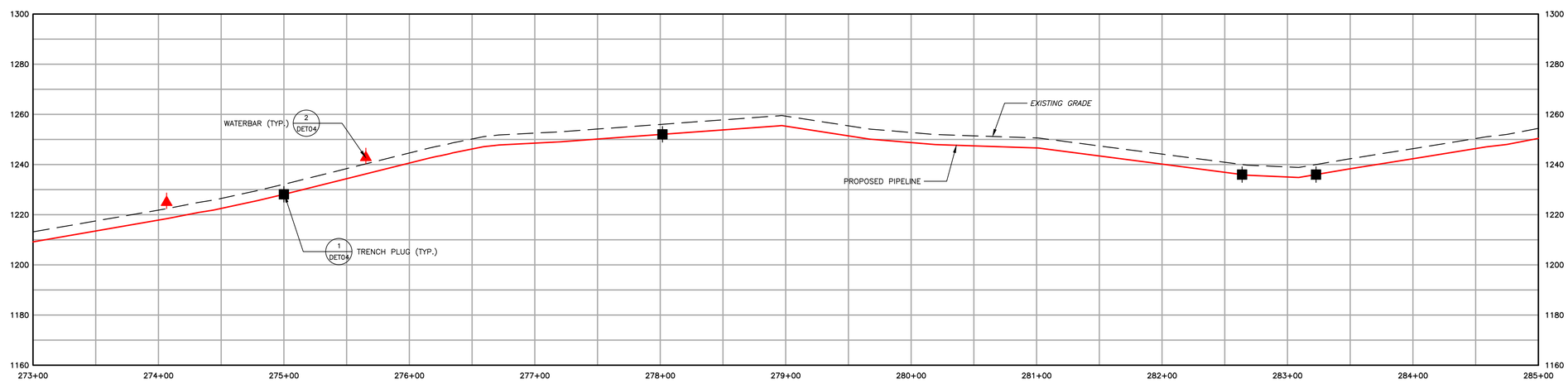
EROSION AND SEDIMENT CONTROL PLAN
ES024 – (STA. 262+00 TO STA. 273+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119308	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0245885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN024.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 4:17 PM) Last Plotted: 2018-01-02 (1/4/2018 12:51 PM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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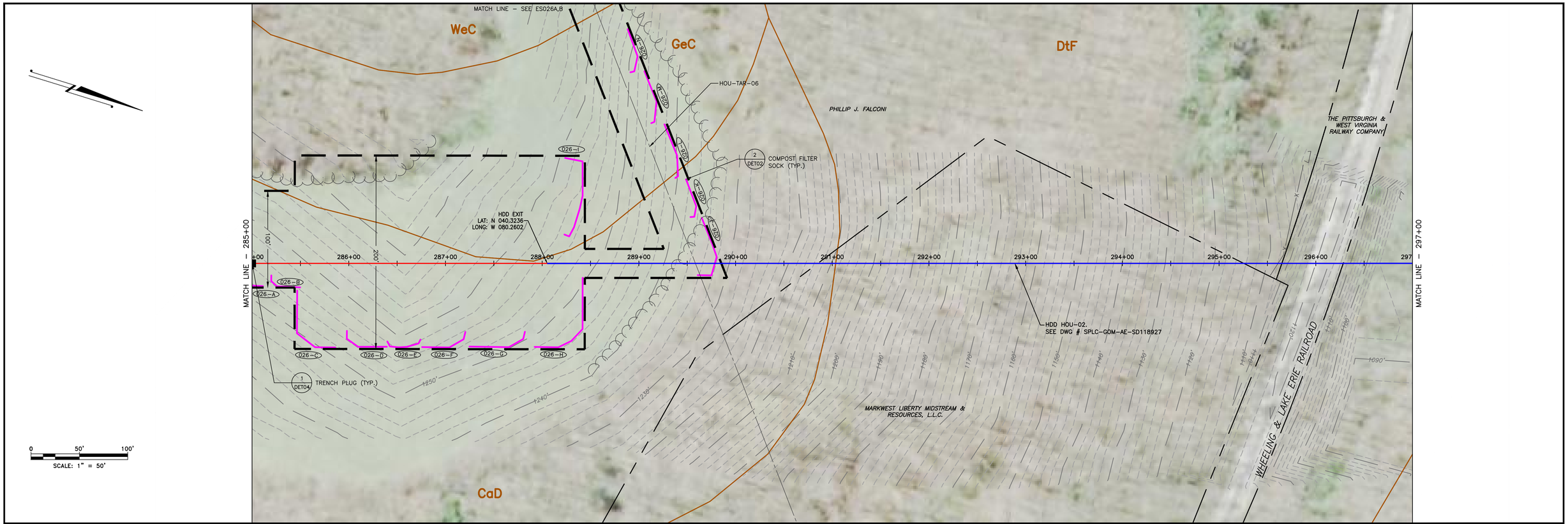
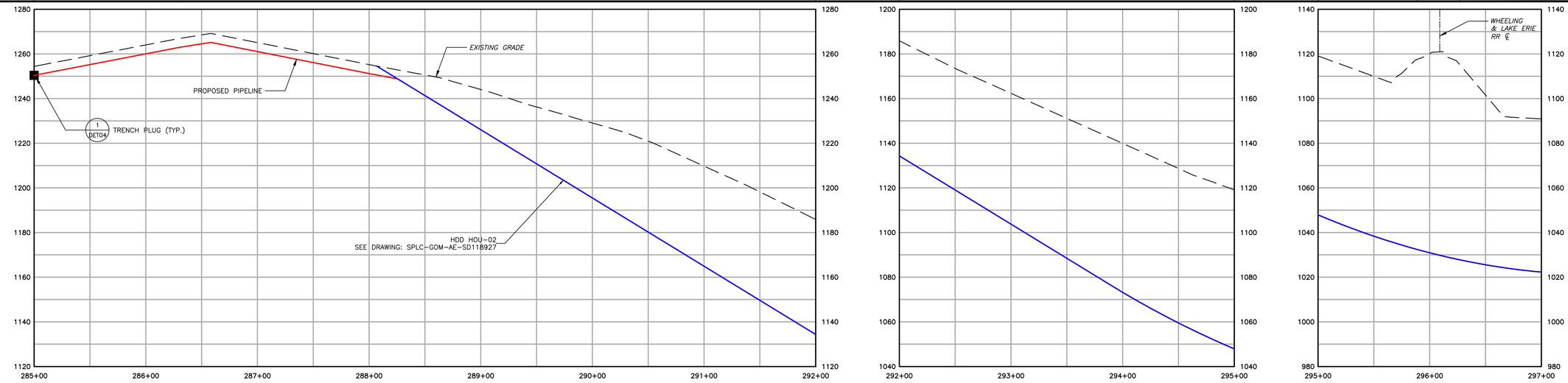
EROSION AND SEDIMENT CONTROL PLAN
ES025 – (STA. 273+00 TO STA. 285+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119309	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0245885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN025.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 4:22 PM) Last Plotted: 2018-01-02 (1/4/2018 12:02 PM)



LAND USE	FIELD	WOODS		WOODS		WOODS	RR	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'			4'		4'	10'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES026 – (STA. 285+00 TO STA. 297+00)

WASHINGTON COUNTY MOUNT PLEASANT TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119310	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN026.DWG
Last saved by: JOSEPH.RYAN (12/27/2017 4:35 PM) Last Plotted: 2018-01-02 (1/2/2018 12:53 PM)

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES026A - (HOU-TAR-06)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119742	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN026A.DWG
Last Saved by: JOSEPH.RYAN (12/27/2017 7:58 PM) Last Plotted: 2018-01-02 (1/2/2018 12:34 PM)

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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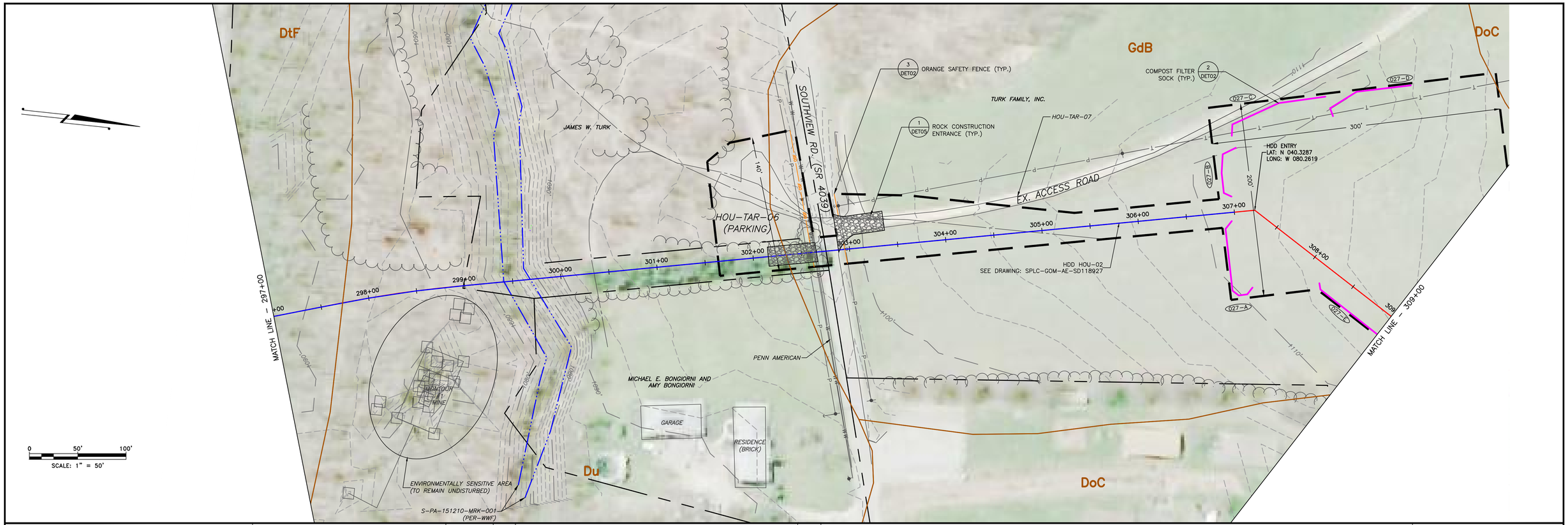
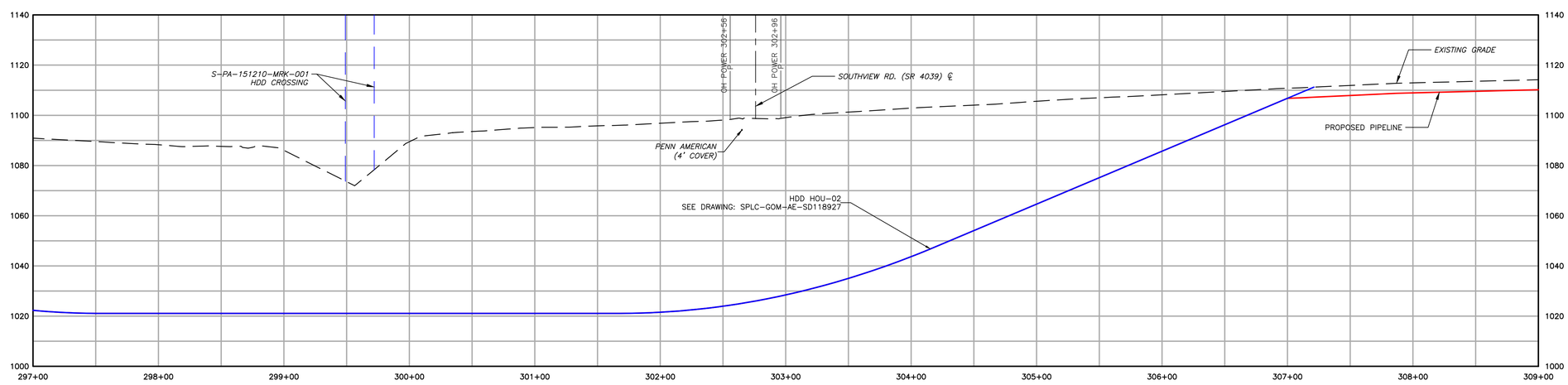
EROSION AND SEDIMENT CONTROL PLAN
ES026B - (HOU-TAR-06)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119743	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6468585 - FALCON\00-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN026B.DWG
Last Saved by: JOSEPH.RYAN (12/27/2017 4:45 PM) Last Plotted: 2018-01-02 (1/2/2018 12:05 PM)



LAND USE	FIELD	WOODS	WOODS	STREAM	WOODS	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	STREAM 5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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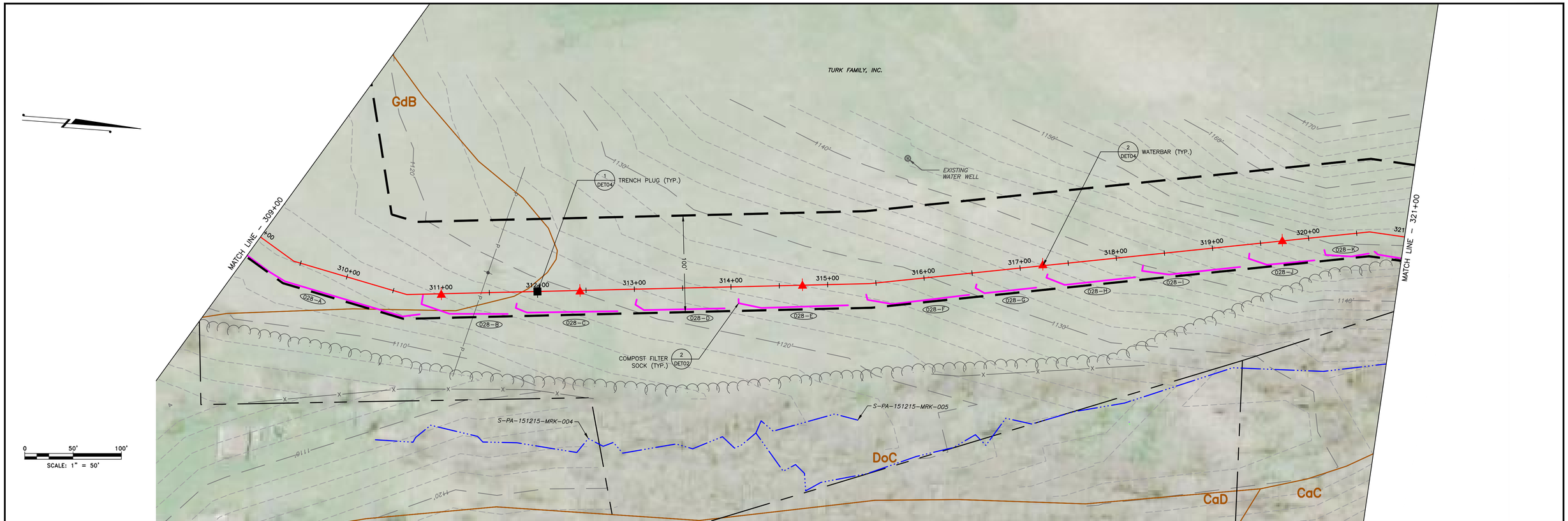
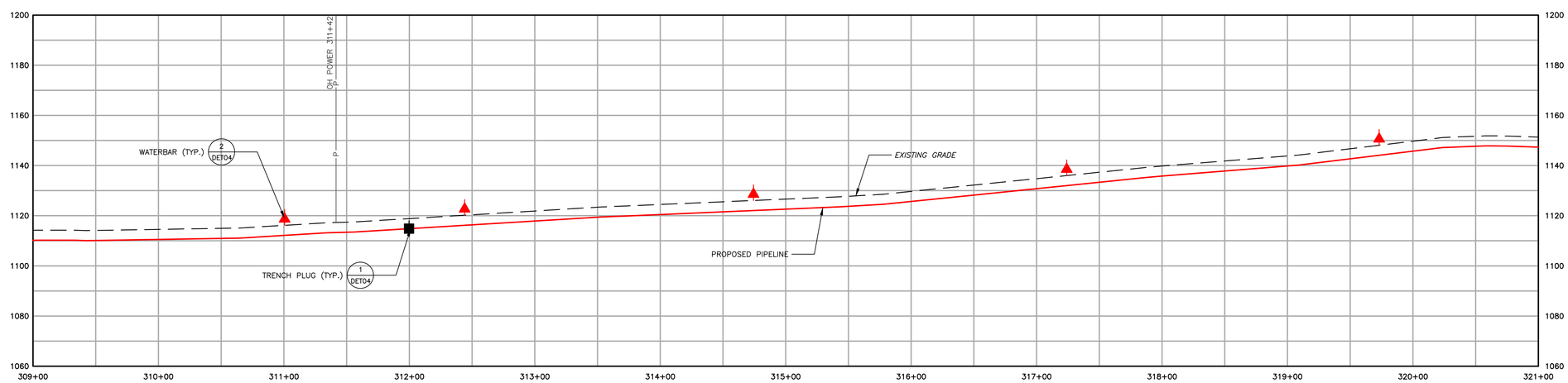
EROSION AND SEDIMENT CONTROL PLAN
ES027 – (STA. 297+00 TO STA. 309+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119311	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\92458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN027.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 11:07 AM) Last Plotted: 2018-01-02 (1/2/2018 12:06 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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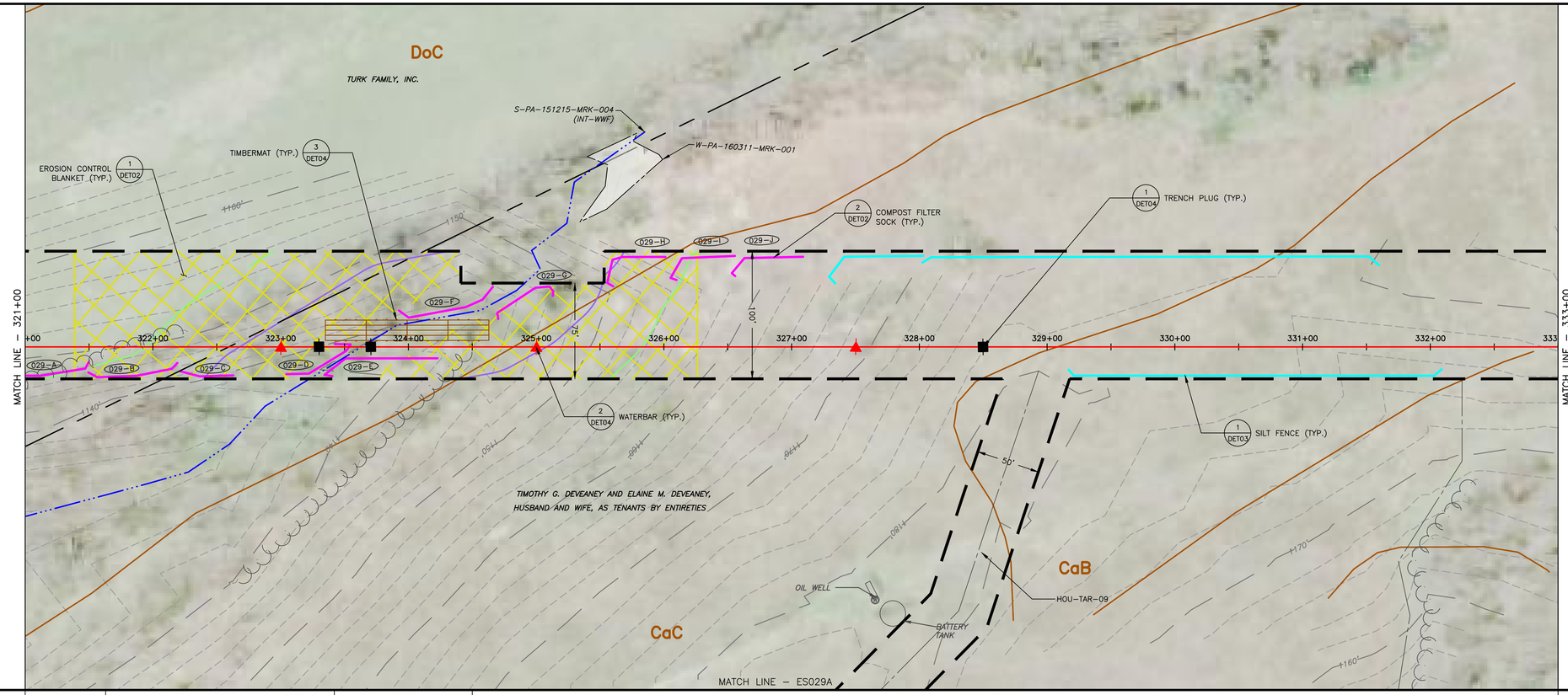
EROSION AND SEDIMENT CONTROL PLAN
ES028 – (STA. 309+00 TO STA. 321+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

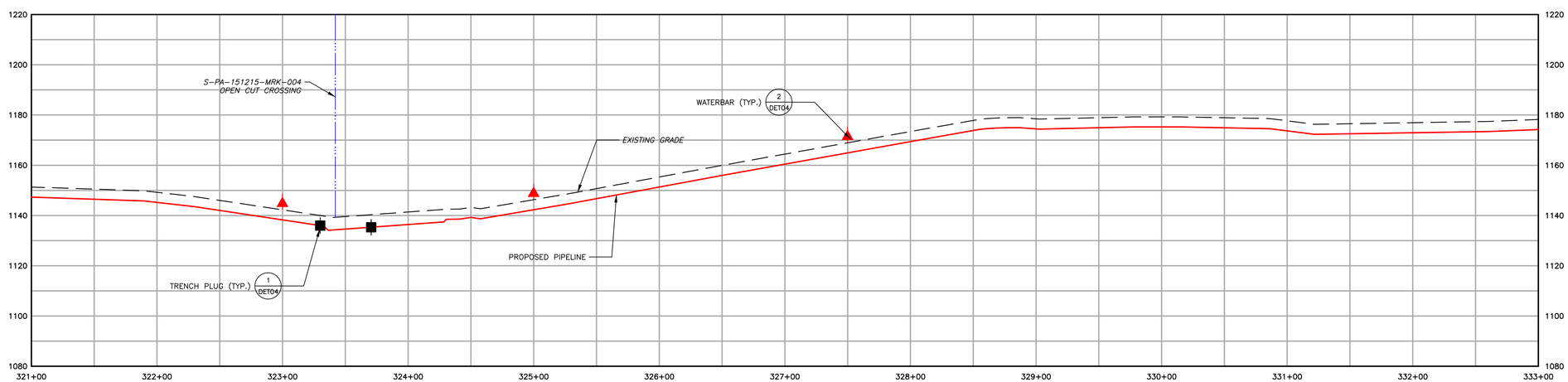
SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119312	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN028.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 4:52 PM) Last Plotted: 2018–01–02 (1/4/2018 12:07 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		5'	4'	



1550	EXISTING CONTOURS (INDEX)		
	EXISTING CONTOURS (INTERMEDIATE)		
	EXISTING PROPERTY LINE		
	EXISTING STREAM		
	ASSUMED FLOODWAY (50 FEET)		
	STREAM BUFFER (100 FEET)		
	EXISTING WETLAND		
	TREE/BRUSH LINE		
	PROPOSED PIPELINE	OSF	PROPOSED ORANGE SAFETY FENCE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY		PROPOSED TIMBER MAT
	ACCESS ROAD CENTERLINE		PROPOSED EROSION CONTROL BLANKET
	PROPOSED SILT FENCE (BY TYPE)		PROPOSED STONE CONSTRUCTION ENTRANCE
	PROPOSED COMPOST FILTER SOCK		100-YEAR FLOODPLAIN
	PROPOSED RIGHT OF WAY DIVERSION		WATERSHED BOUNDARY
	PROPOSED TRENCH PLUG	MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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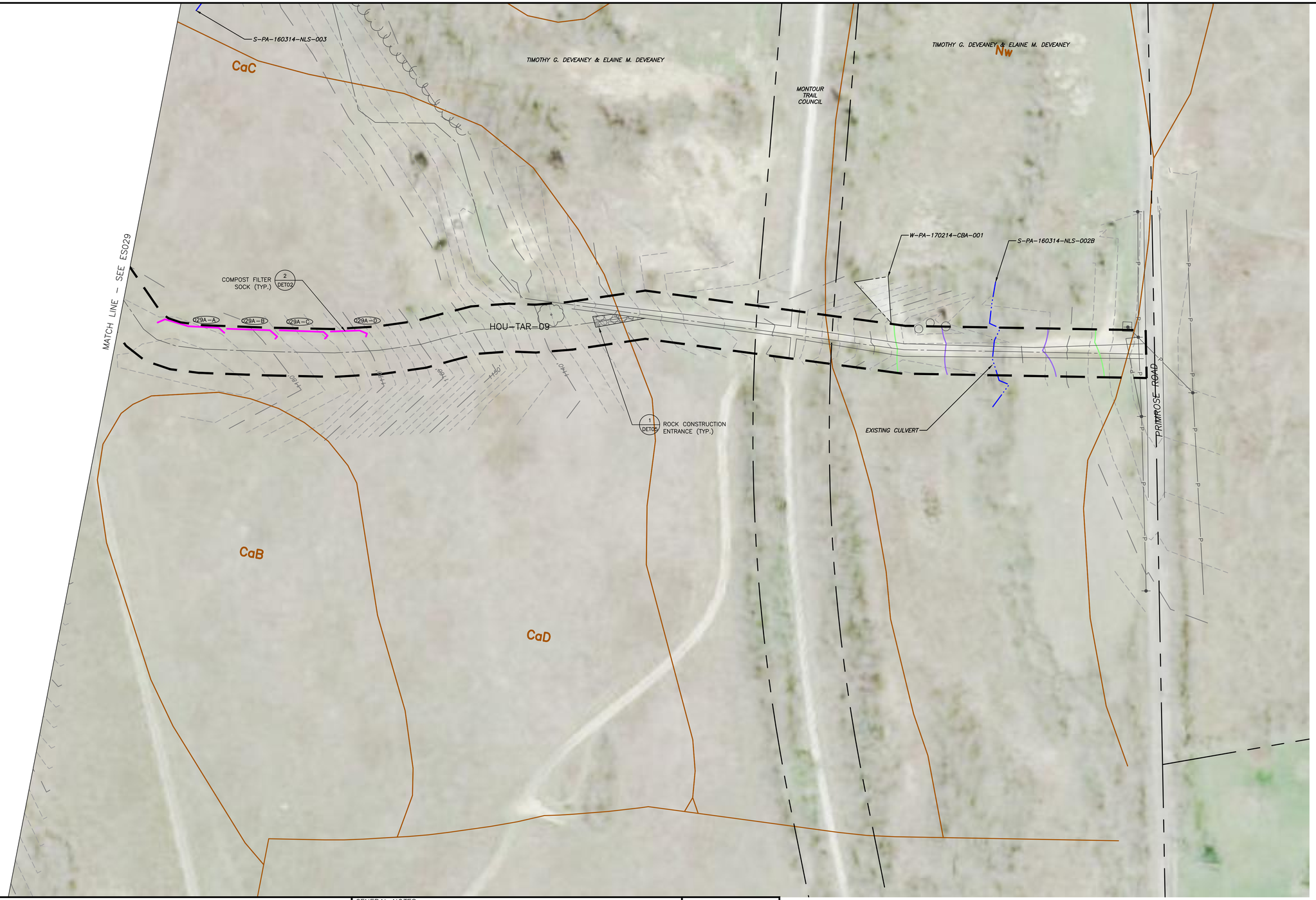
EROSION AND SEDIMENT CONTROL PLAN
ES029 - (STA. 321+00 TO STA. 333+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119313	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50458885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN029.DWG
Last saved by: ALEXANDER.CURTICE (1/4/2018 9:22 AM) Last Plotted: 2018-01-05 (1/9/2018 9:29 AM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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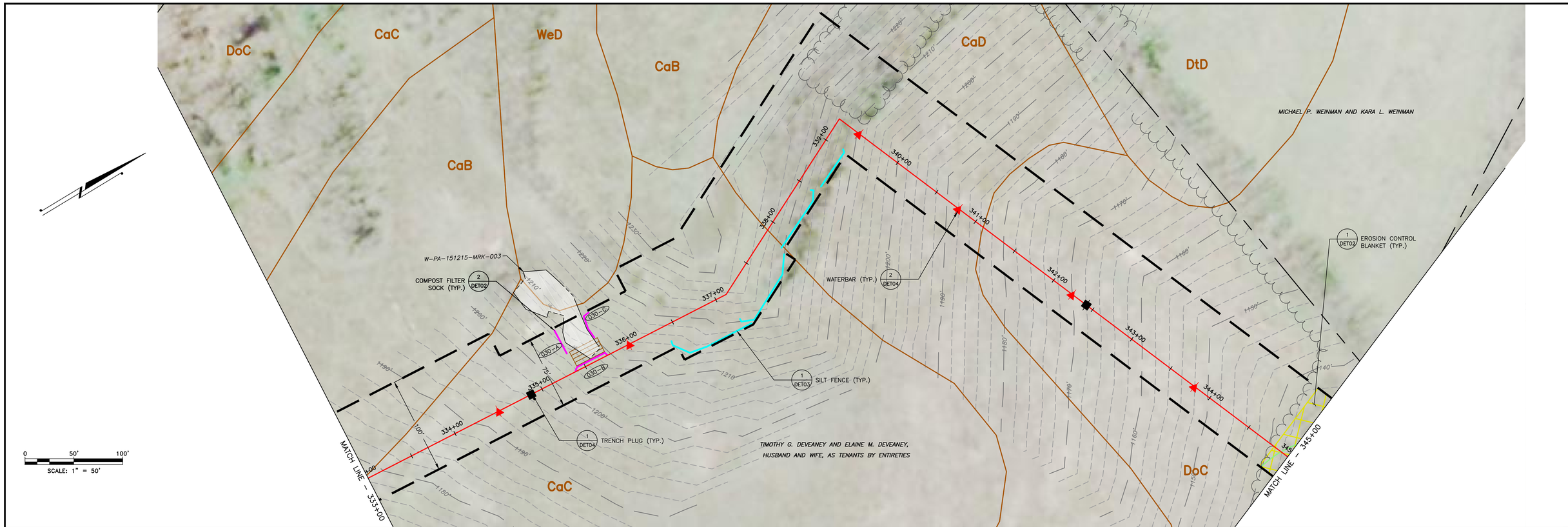
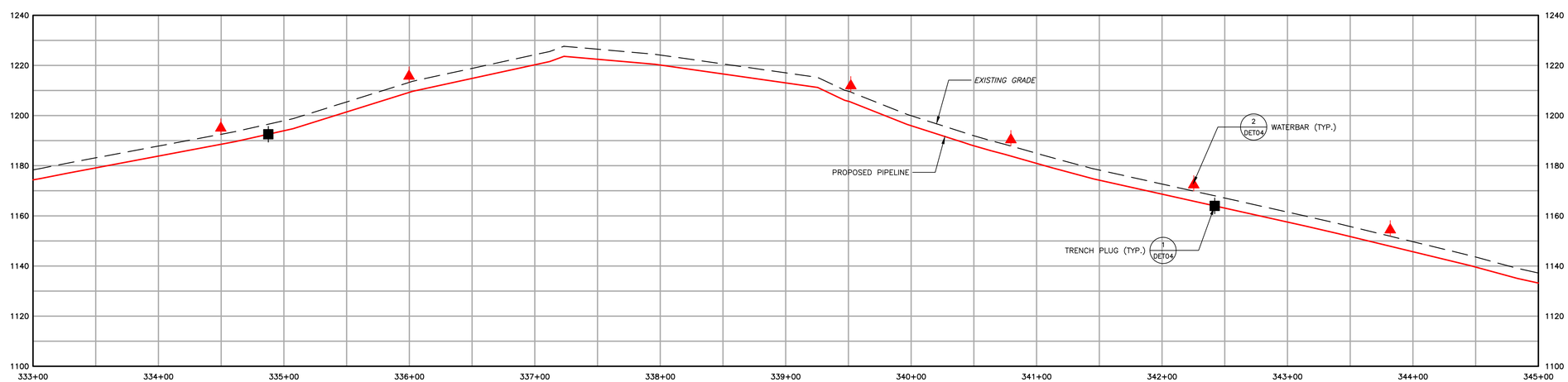
EROSION AND SEDIMENT CONTROL PLAN
ES029A - (HOU-TAR-09)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119744	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60499885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN029A.DWG
Last saved by: LINCOLN.SCHAFER (1/29/2017 8:12 AM) Last Plotted: 2018-01-02 (1/2/2018 12:09 PM)



LAND USE	WOODS	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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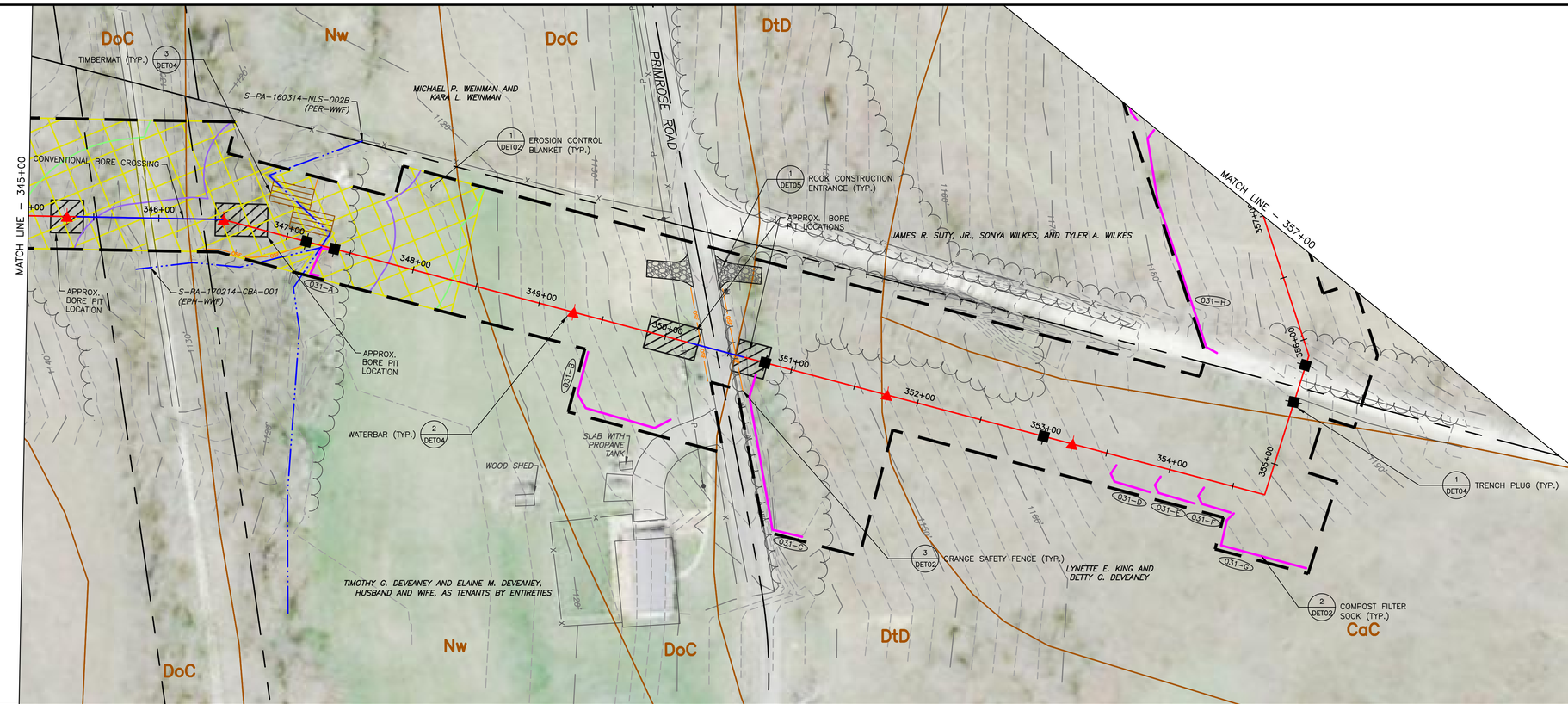
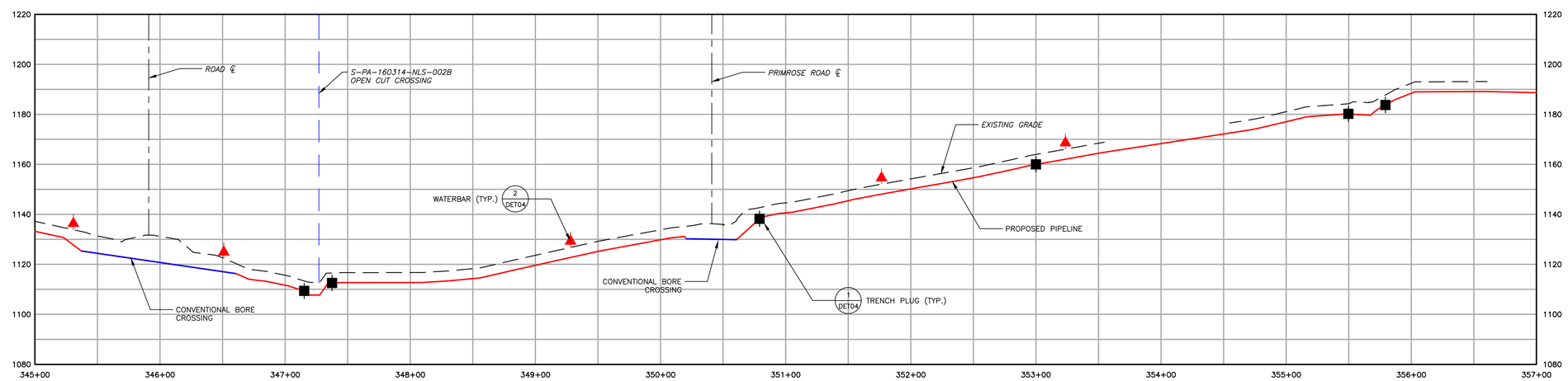
EROSION AND SEDIMENT CONTROL PLAN
ES030 - (STA. 333+00 TO STA. 345+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119314	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0045885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN\ES0.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 5:21 PM) Last Plotted: 2018-01-02 (1/4/2018 12:10 PM)



LAND USE	WOODS	ROAD	WOODS	STREAM	WOODS	FIELD	ROAD	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'		5'	4'	5'		4'		



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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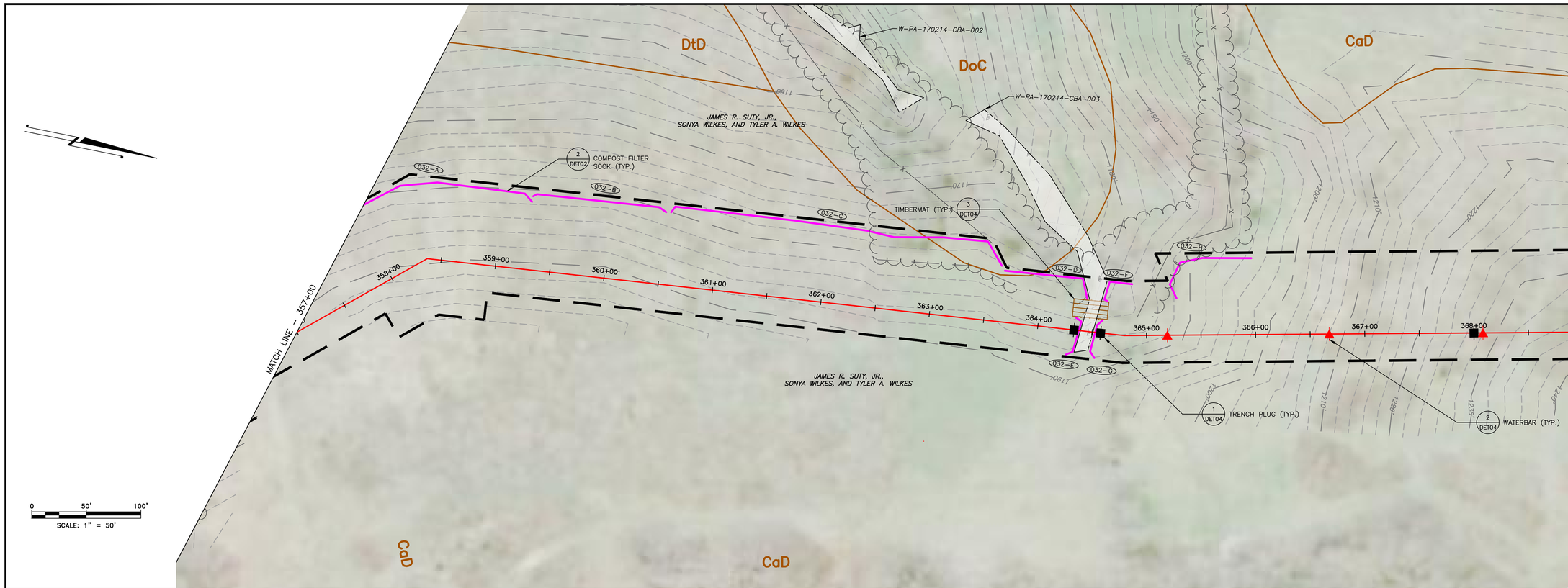
EROSION AND SEDIMENT CONTROL PLAN
ES031 – (STA. 345+00 TO STA. 357+00)

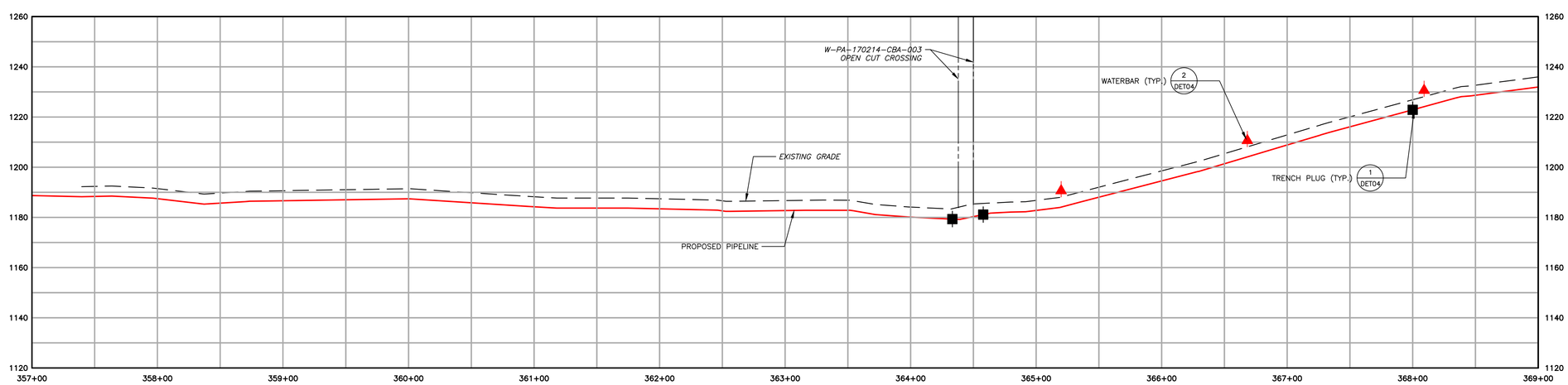
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119315	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN031.DWG
Last saved by: JOSEPH.RYAN (12/7/2017 6:28 PM) Last Plotted: 2018-01-02 (1/2/2018 12:11 PM)



LAND USE	FIELD	WETLAND	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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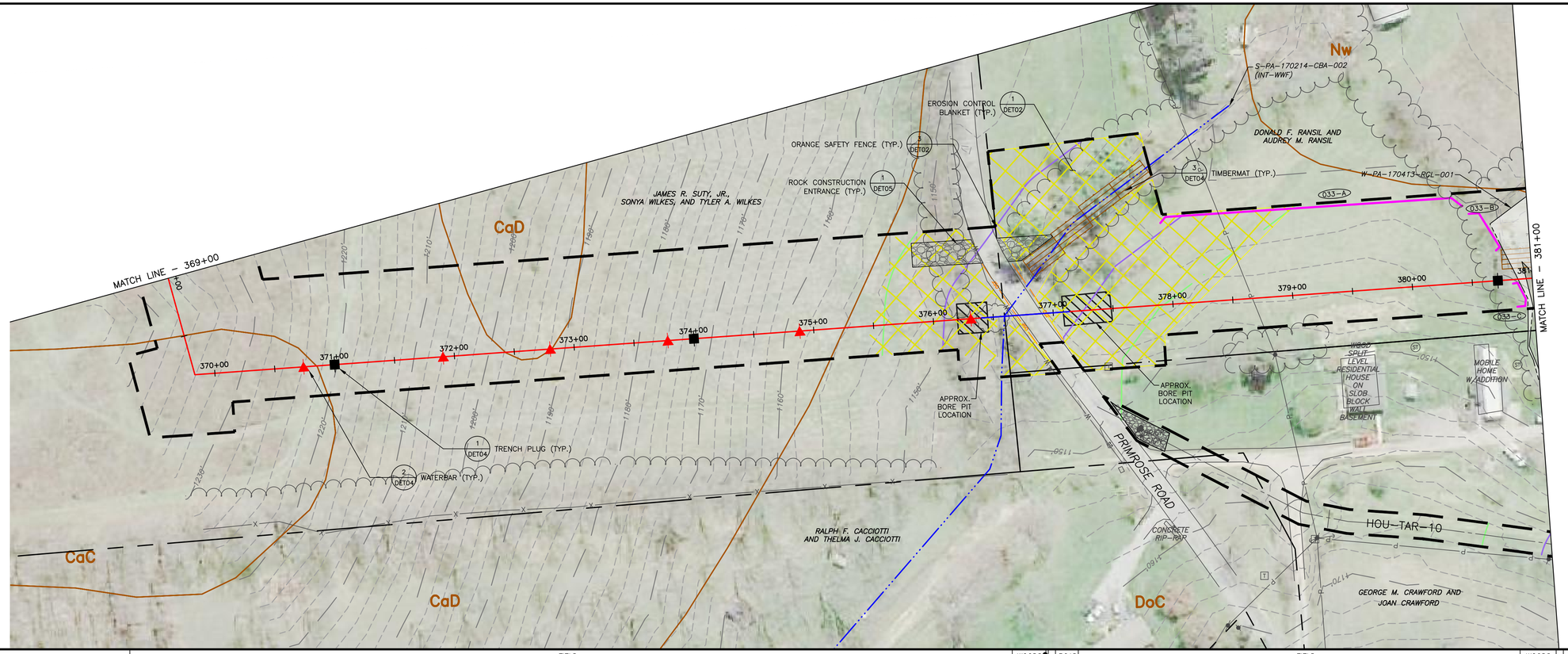
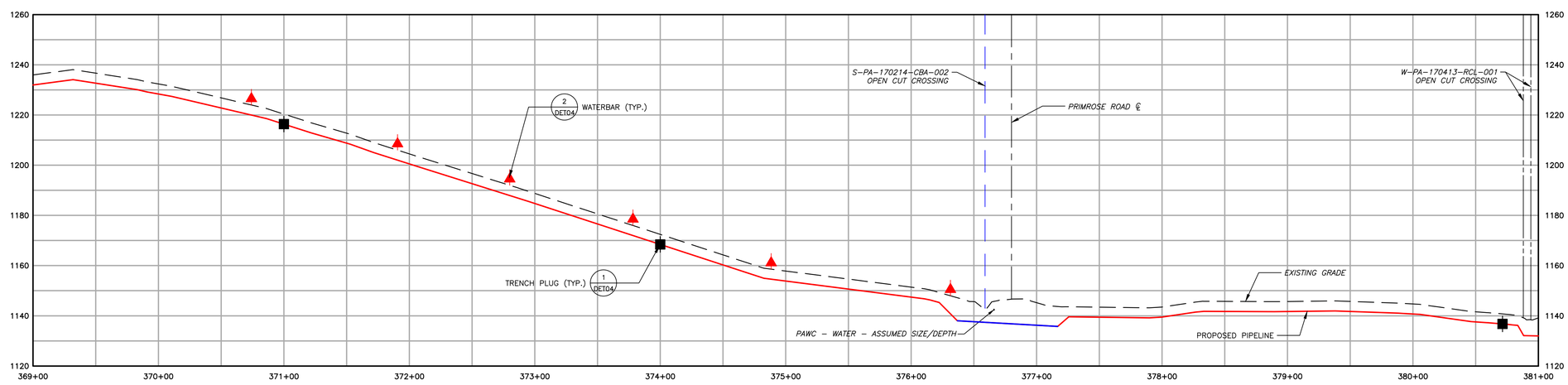
EROSION AND SEDIMENT CONTROL PLAN
ES032 – (STA. 357+00 TO STA. 369+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119316	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174T\SHELL\60489885 – FALCON\000-WORK\011-ENVIRONMENTAL\05-SHEETS\PENNSYLVANIA\PLAN032.DWG
Last saved by: JOSEPH.RYAN (12/7/2017 8:32 PM) Last Plotted: 2018-01-02 (1/2/2018 12:12 PM)



LAND USE	FIELD	WOODS	ROAD	FIELD	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	FIELD / STREAM	5'	4'	WETLAND	5' 4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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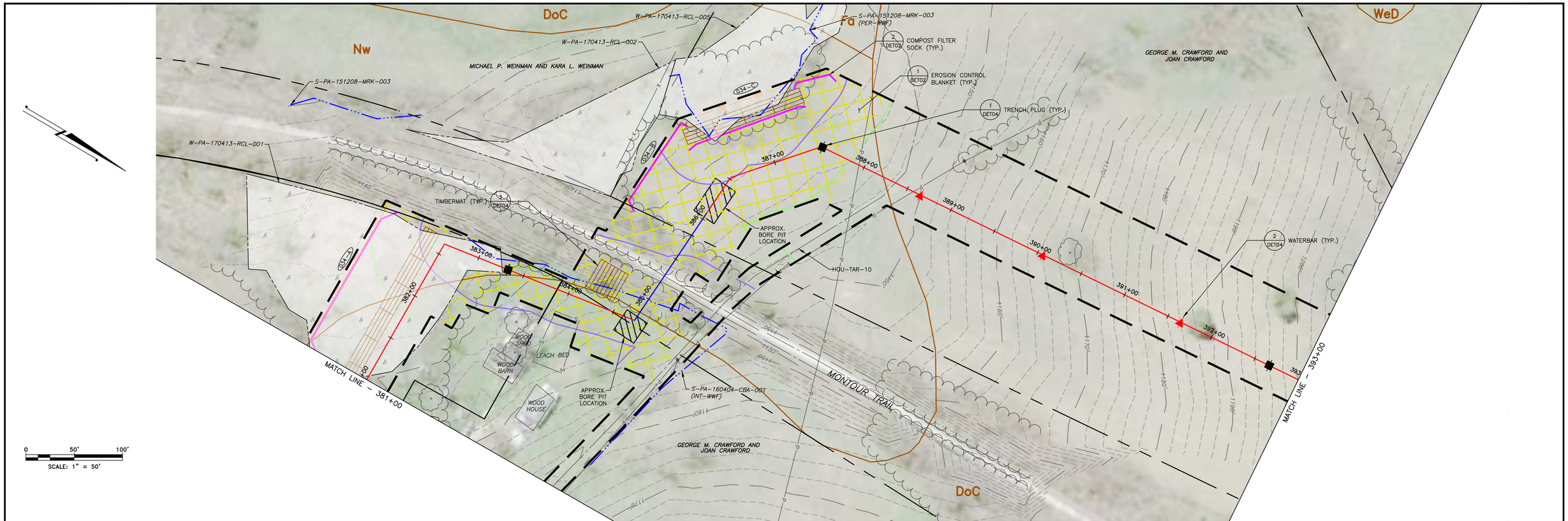
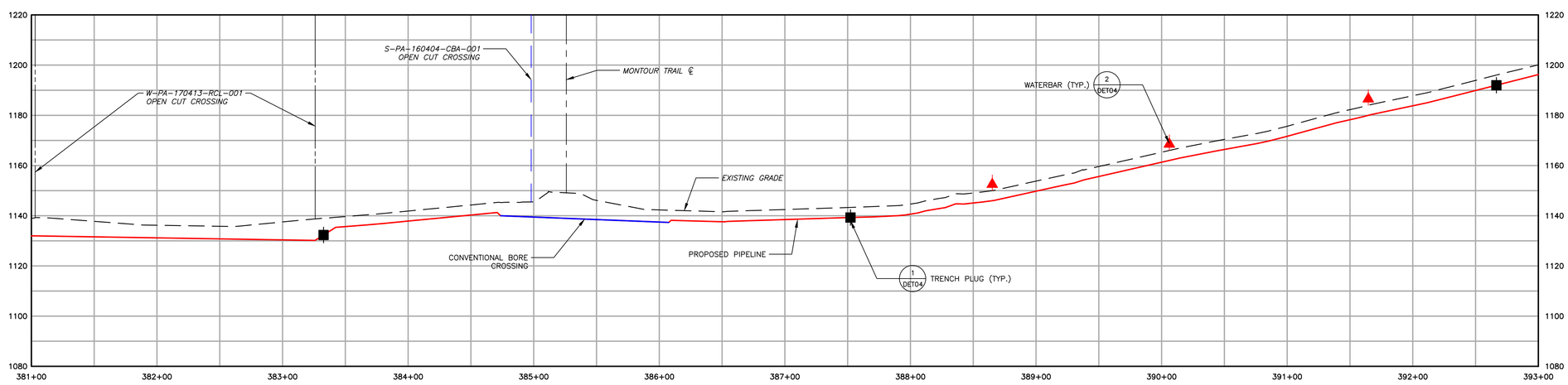
EROSION AND SEDIMENT CONTROL PLAN
ES033 – (STA. 369+00 TO STA. 381+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119317	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 – FALCON\90–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN033.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 6:43 PM) Last Plotted: 2018–01–02 (1/4/2018 12:13 PM)



LAND USE	WOODS	WETLAND	WOODS	FIELD	WOODS	STREAM	WOODS	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'		4'	5'	4'	5' ROAD		4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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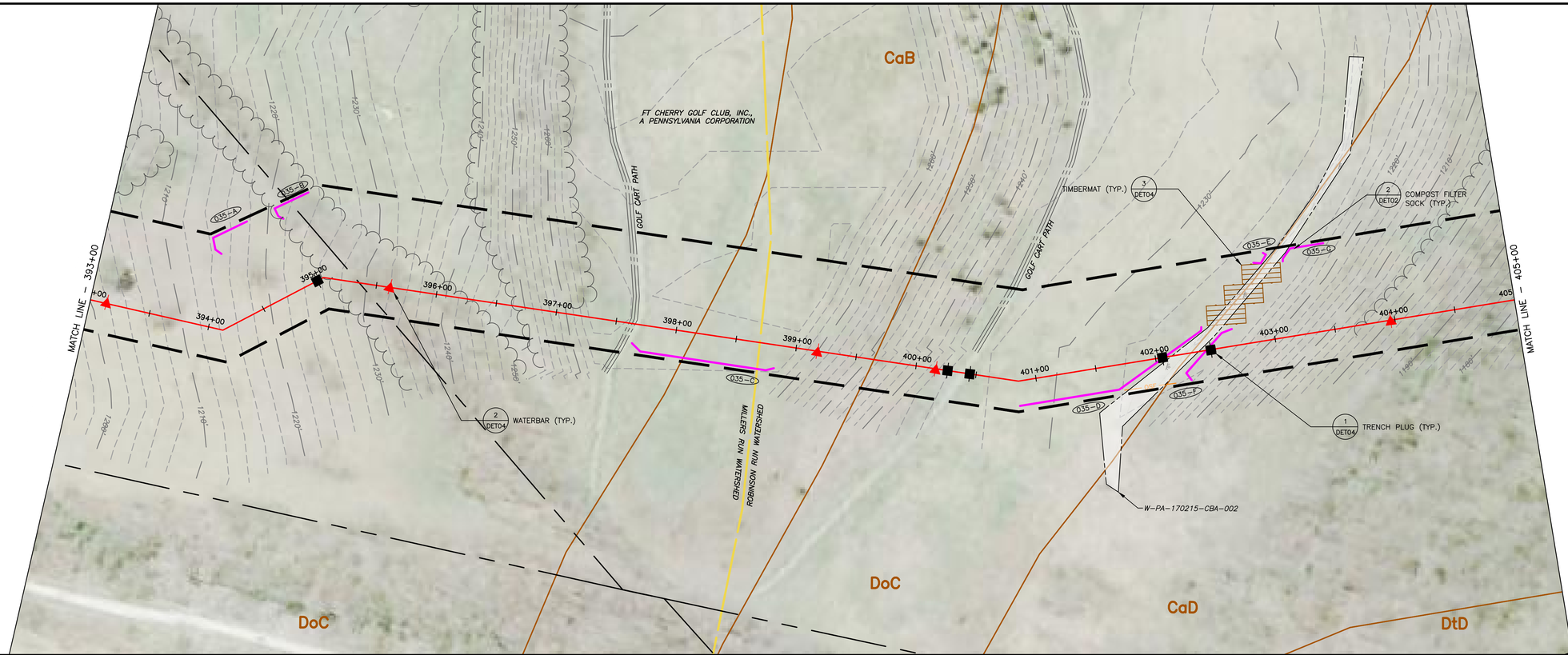
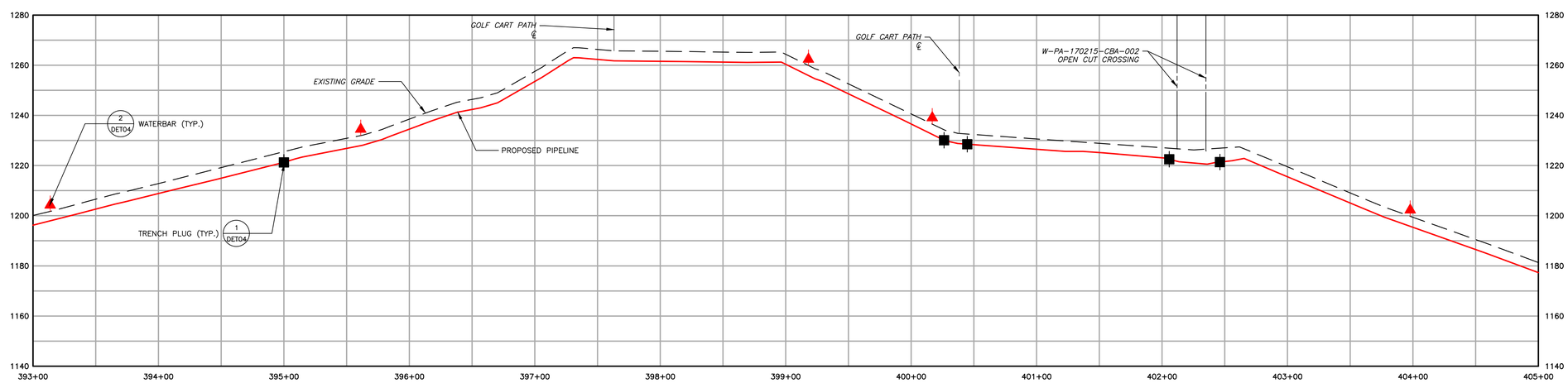
EROSION AND SEDIMENT CONTROL PLAN
ES034 – (STA. 381+00 TO STA. 393+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119318	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN034.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 6:54 PM) Last Plotted: 2018-01-02 (1/4/2018 12:14 PM)



LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD	WETLAND	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'					5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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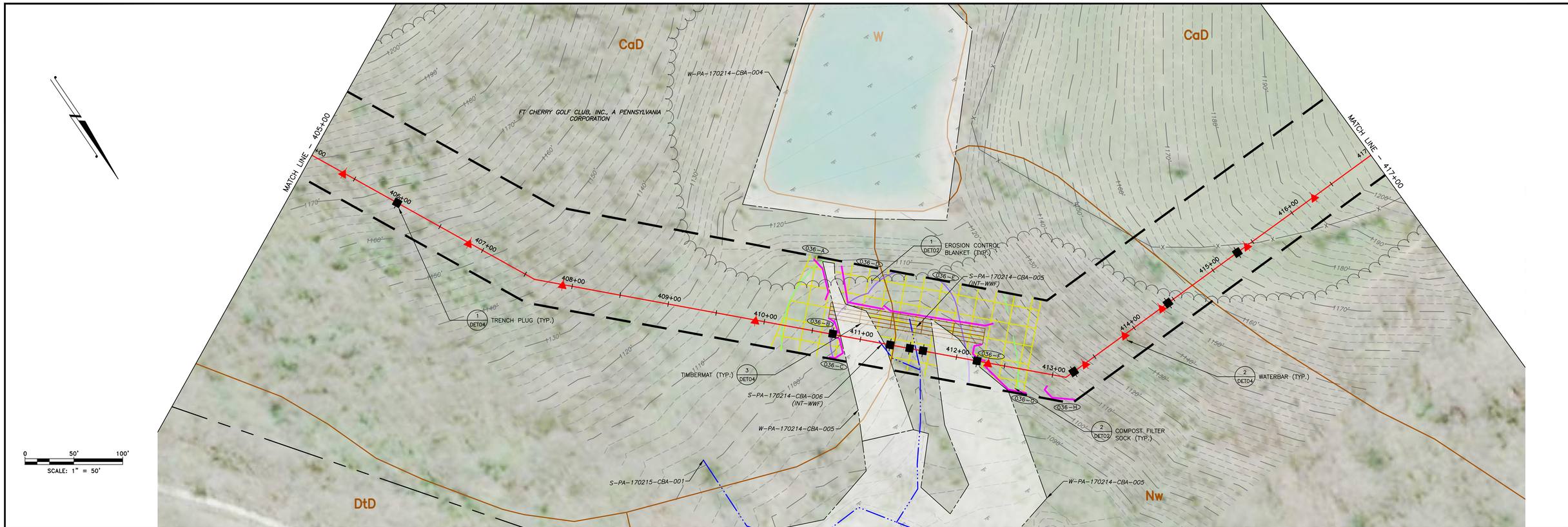
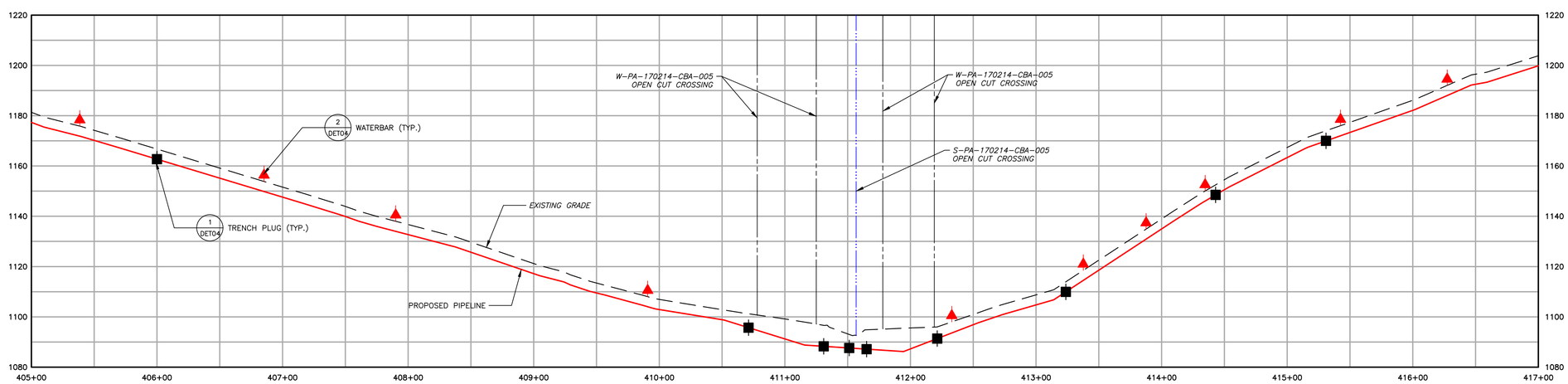
EROSION AND SEDIMENT CONTROL PLAN
ES035 – (STA. 393+00 TO STA. 405+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119319	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0458885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN035.DWG
Last saved by: JOSEPH.RYAN (12/21/2017 6:57 PM) Last Plotted: 2018-01-02 (1/4/2018 12:15 PM)



LAND USE	WOODS	WETLAND	WOODS	WETLAND	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5' STREAM 5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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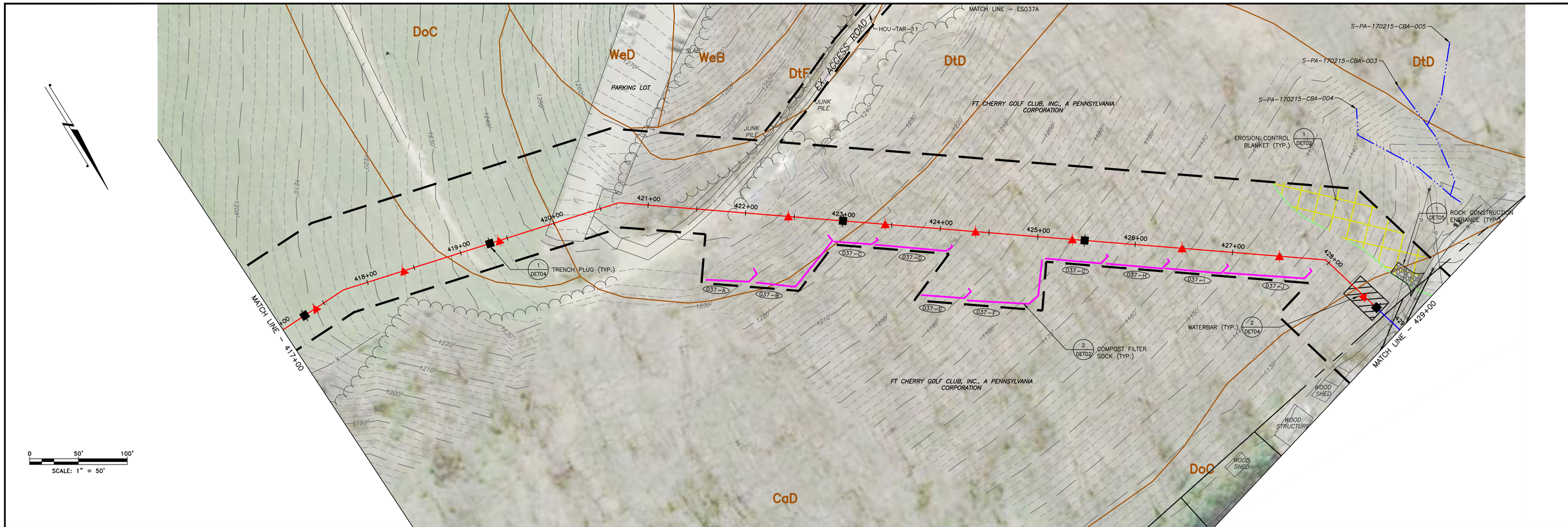
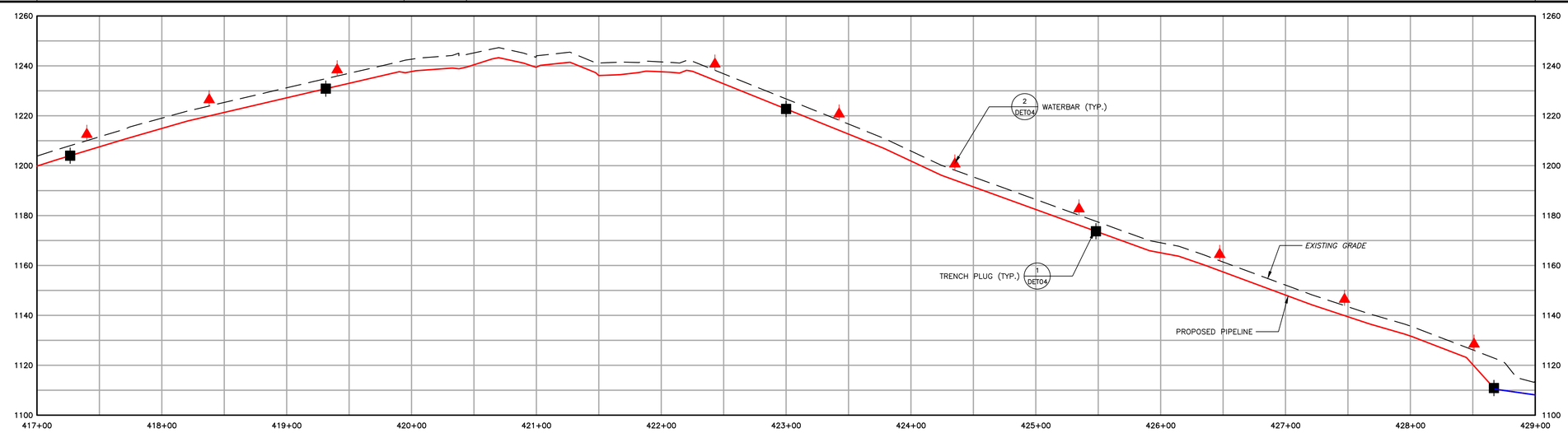
EROSION AND SEDIMENT CONTROL PLAN
ES036 – (STA. 405+00 TO STA. 417+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119320	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0249885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN036.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 7:50 AM) Last Plotted: 2018-01-05 (1/3/2018 10:26 AM)



LAND USE	FIELD	PARKING LOT	FIELD	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'			



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES037 – (STA. 417+00 TO STA. 429+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119321	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\92458985 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN037.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 7:55 AM) Last Plotted: 2018-01-02 (1/4/2018 12:17 PM)

CaB

WeC

FT. CHERRY GOLF CLUB

METAL MAINTENANCE BUILDING ON CONCRETE

FUEL

EX. ACCESS ROAD

HOU-TAR-11

METAL MAINTENANCE BUILDING ON CONCRETE

FT. CHERRY GOLF CLUB

SLAB

1290'
1280'
1270'
1260'
1250'
1240'
1230'
1220'
1210'
1200'
1190'
1180'
1170'
1160'
1150'

MATCH LINE – SEE ES037

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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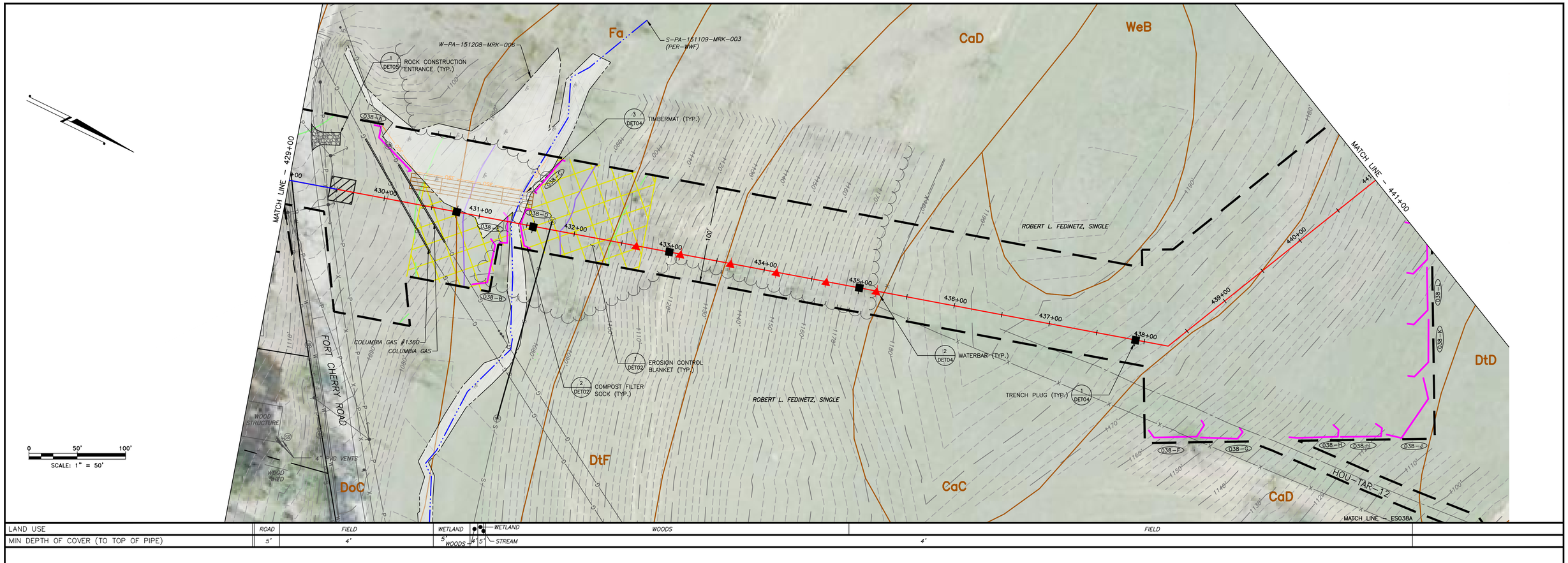
EROSION AND SEDIMENT CONTROL PLAN
ES037A – (HOU-TAR-11)

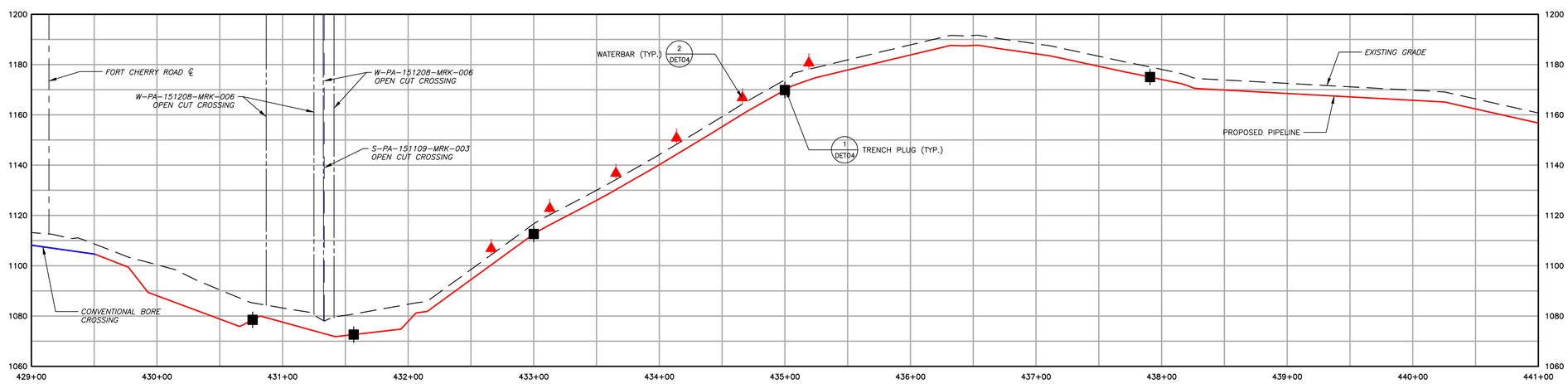
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119745	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6489885 – FALCON\RPO-WORK\911-ENVIRONMENTAL\30-SHEETS\PENNSYLVANIA\PLAN037A.DWG
Last saved by: JOSEPH.RYAN (12/05/2017 8:08 AM) Last Plotted: 2018-01-02 (1/2/2018 12:18 PM)



LAND USE	ROAD	FIELD	WETLAND	WETLAND	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'	5' WOODS 4	5' STREAM	4'	



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF — PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 — SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL — LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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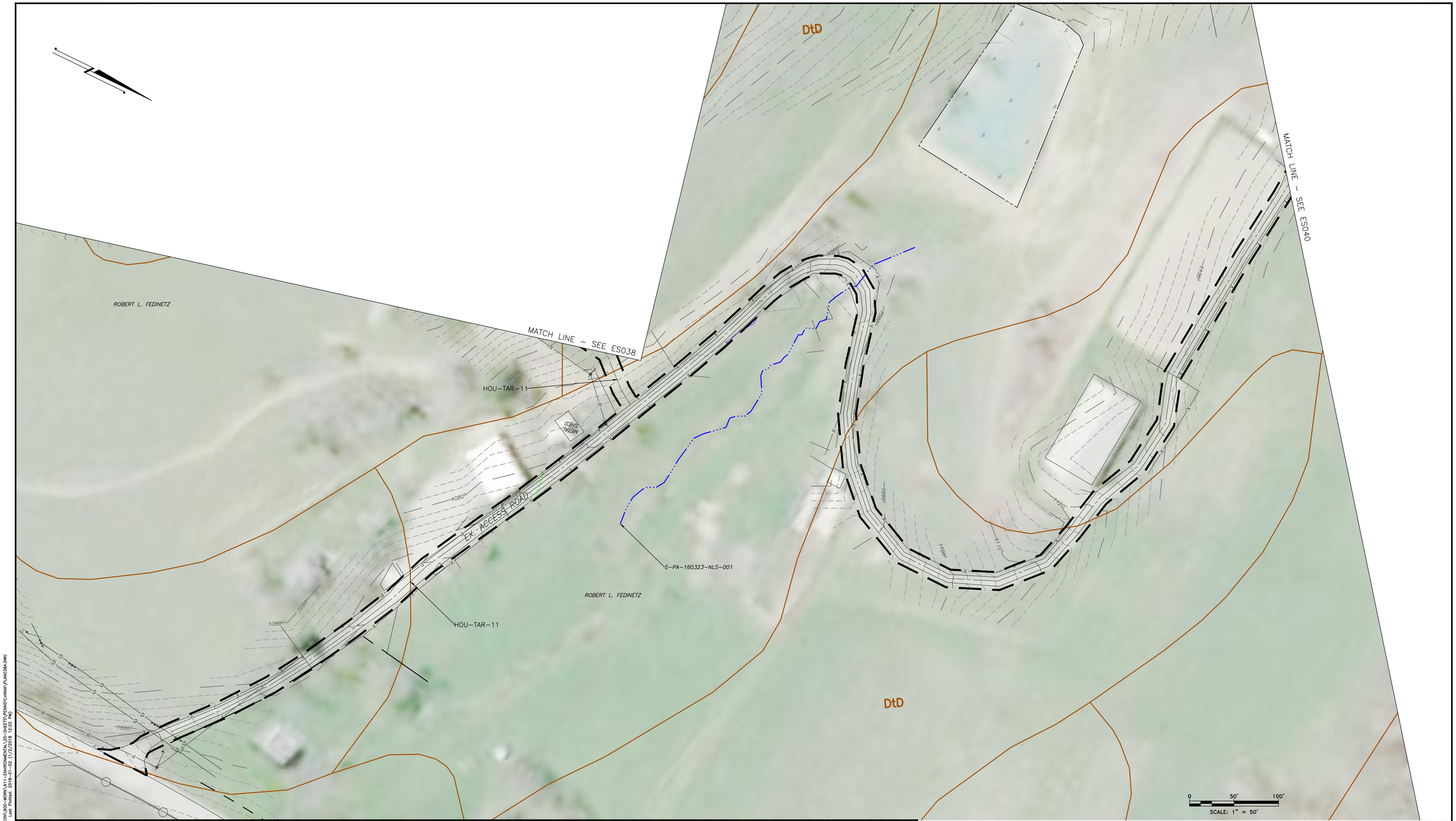
EROSION AND SEDIMENT CONTROL PLAN
ES038 – (STA. 429+00 TO STA. 441+00)

WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119322	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN038.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 8:15 AM) Last Plotted: 2018-01-02 (1/4/2018 12:19 PM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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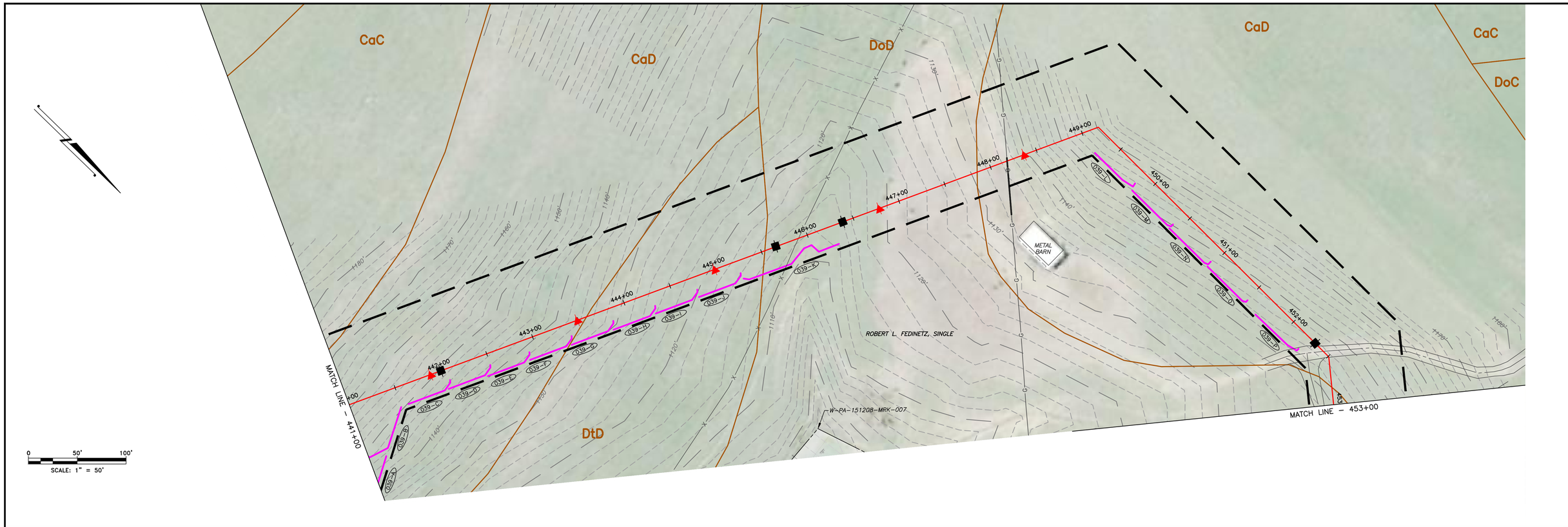
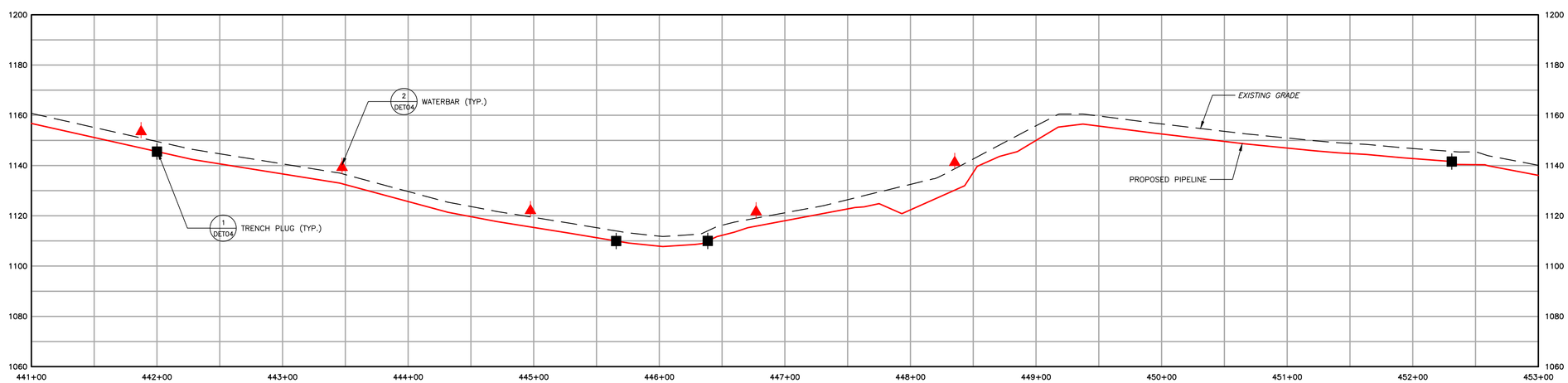
EROSION AND SEDIMENT CONTROL PLAN
ES038A – (HOU–TAR–12)
WASHINGTON COUNTY MOUNT PLEASANT TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119746	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6948985 – FALCON\00–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN\38A.DWG
Last Saved by: JOSEPH.RYAN (12/28/2017 8:21 AM) Last Plotted: 2018–01–02 (1/2/2018 12:20 PM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100–YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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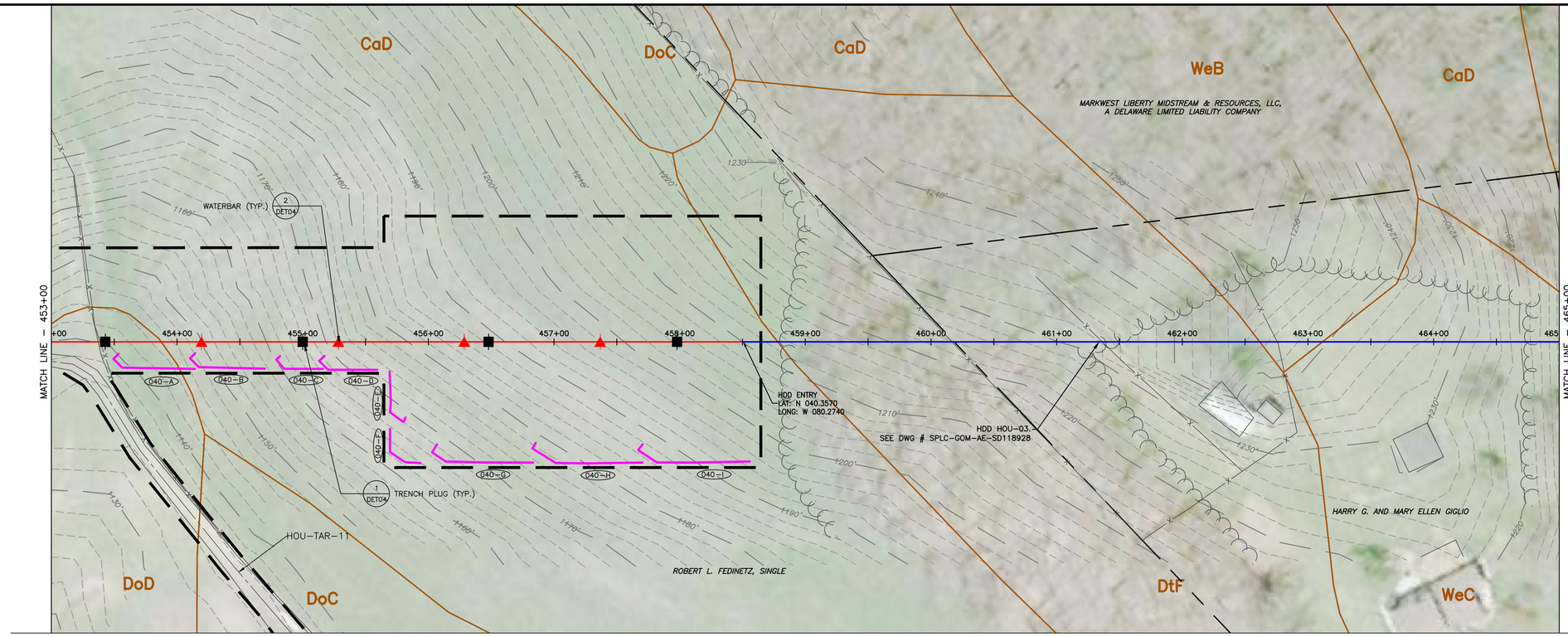
EROSION AND SEDIMENT CONTROL PLAN
ES039 – (STA. 441+00 TO STA. 453+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

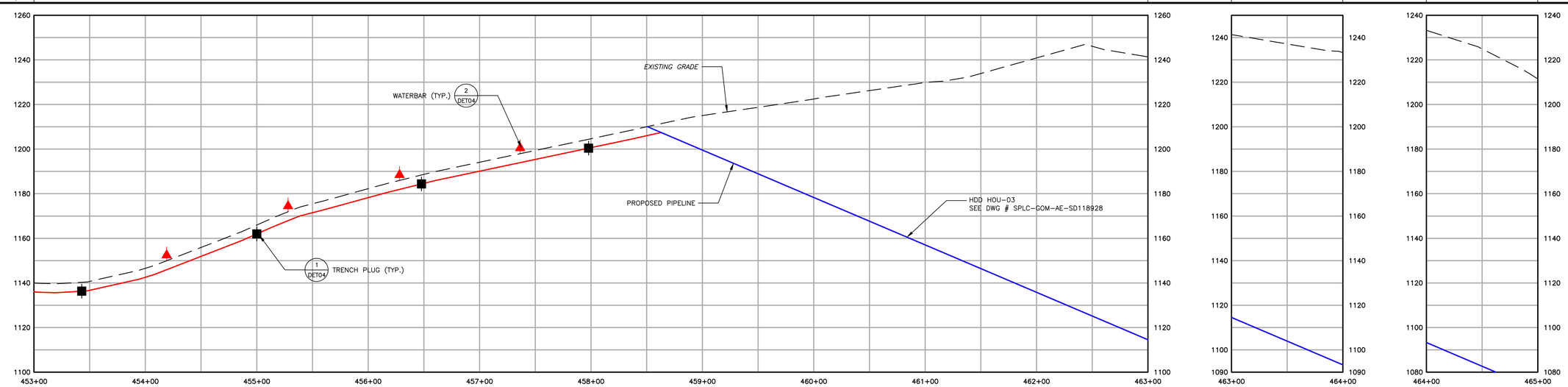
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119323	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174T\SHELL\60489885 – FALCON\ORD–WORK\911–ENVIRONMENTAL\JD–SHEETS\PENNSYLVANIA\PLAN039.DWG
Last saved by: JOSEPH.RYAN (12/20/2017 8:25 AM) Last Plotted: 2018-01-02 (1/2/2018 12:21 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WOODS	FIELD		FIELD		FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'				4'		4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE–081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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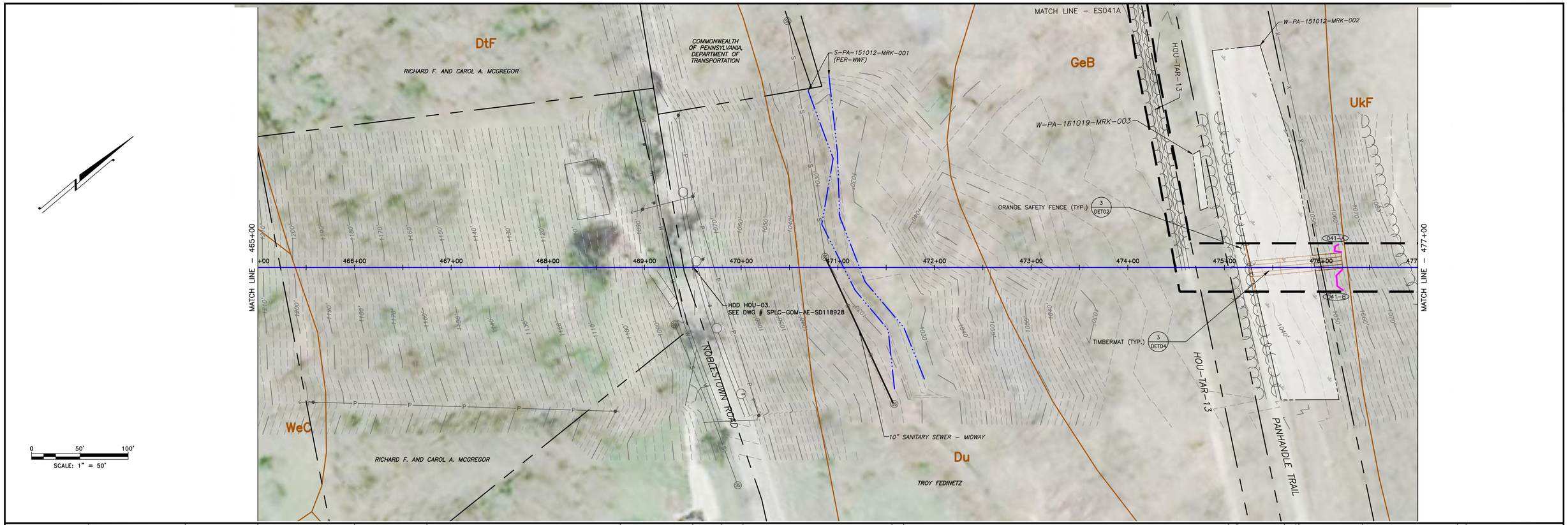
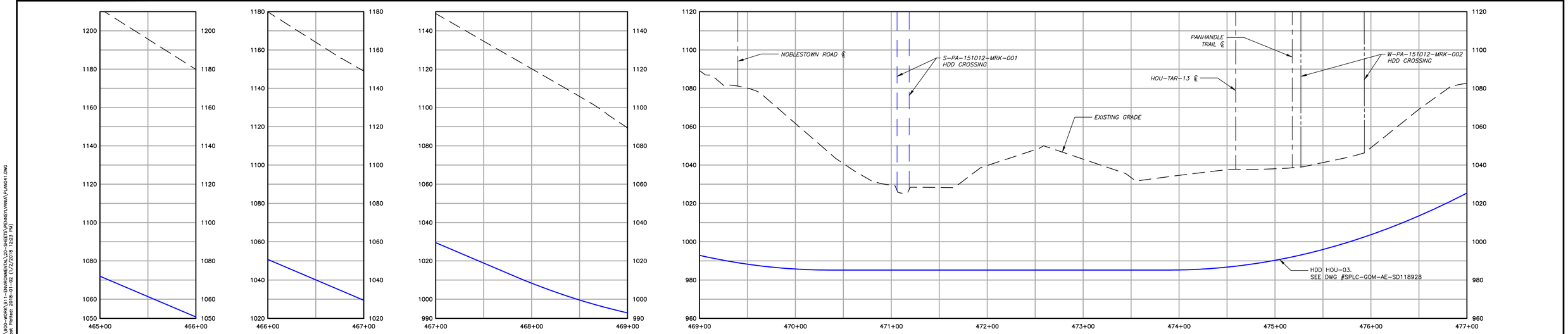
EROSION AND SEDIMENT CONTROL PLAN
ES040 – (STA. 453+00 TO STA. 465+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119324	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174T\SHELL\6049885 – FALCON\IPD–WORK\911–ENVIRONMENTAL\3D–SHEETS\PENNSYLVANIA\PLAN040.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 8:29 AM) Last Plotted: 2018–01–02 (1/2/2018 12:22 PM)



LAND USE	WOODS	WOODS	WOODS	WOODS	ROAD	FIELD	STREAM	STREAM	FIELD	RD	WETLAND	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)		4'	4'	4'	5'	4'	5'	5'	4'	5'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES041 – (STA. 465+00 TO STA. 477+00)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT AND ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119325	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0245885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN041.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 8:41 AM) Last Plotted: 2018-01-02 (1/4/2018 12:23 PM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES041A - (HOU-TAR-13)
WASHINGTON COUNTY PENNSYLVANIA
MOUNT PLEASANT AND ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119747	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6449885 - FALCON\900-WORK\911-ENVIROMENTAL\20-SHEETS\PENNSYLVANIA\PLAN041A.DWG
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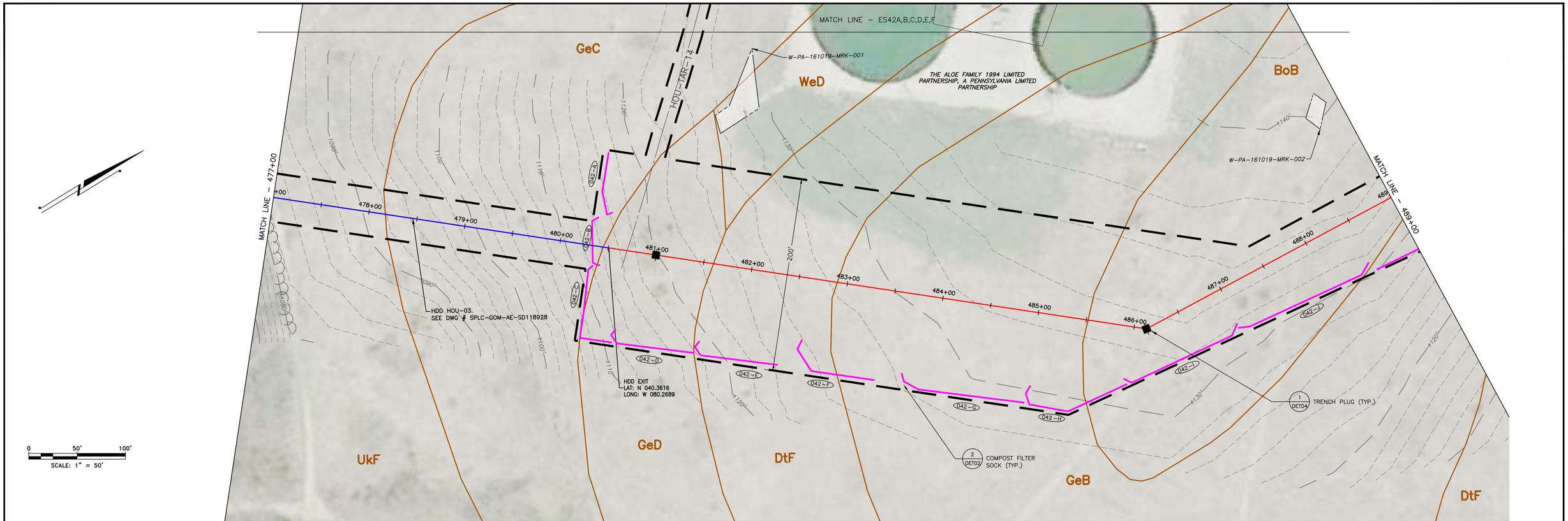
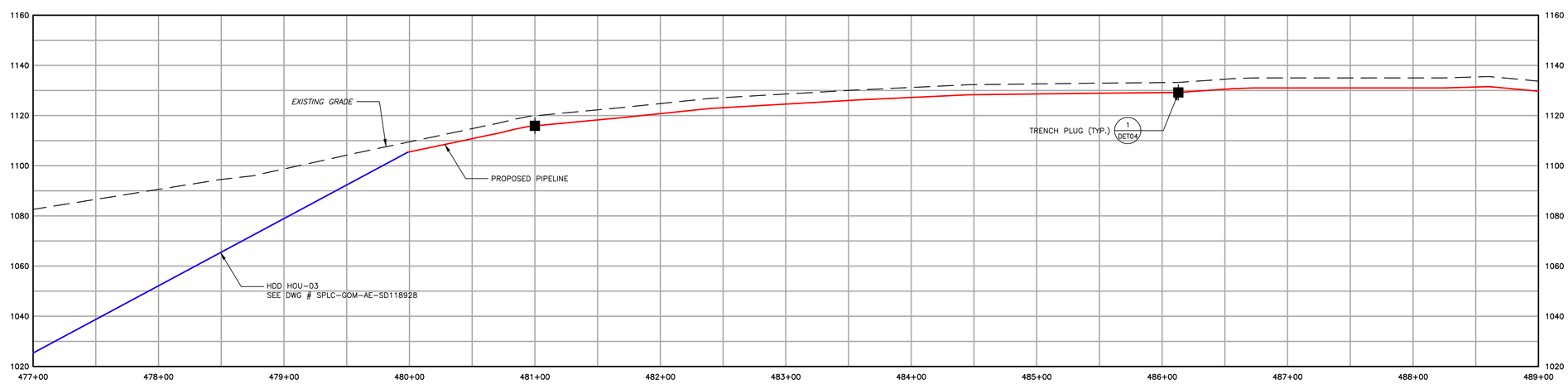


LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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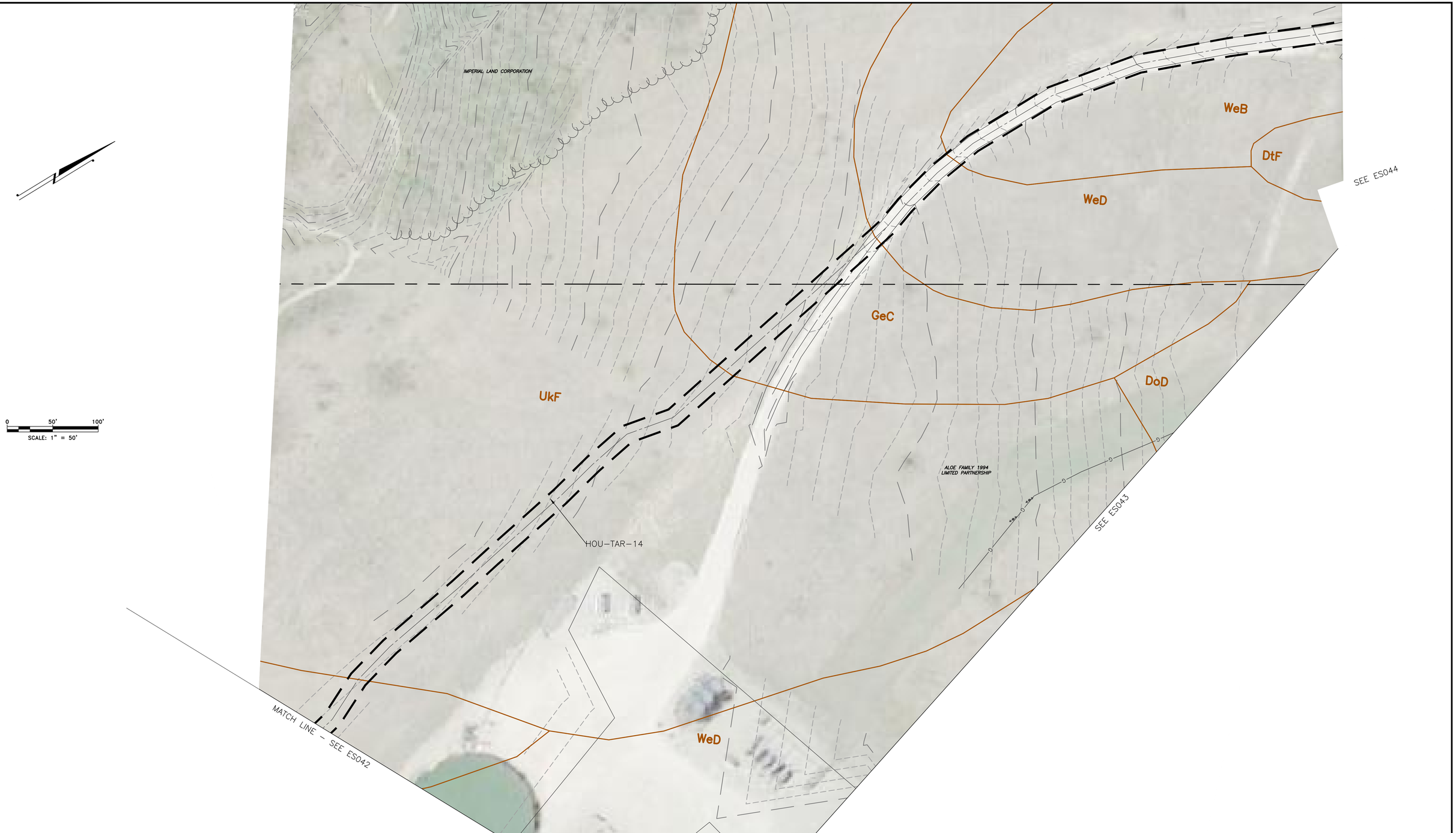
EROSION AND SEDIMENT CONTROL PLAN
ES042 – (STA. 477+00 TO STA. 489+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119326	REVISION
DRAWN	TLM	12/05/2017		1

Filename: \\PROJECTS\1747\SHELL\60498885 – FALCON\006-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN042.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 12:58 PM) Last Plotted: 2018-01-02 (1/2/2018 12:24 PM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES042A - (HOU-TAR-14)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119748	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0649885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN042A.DWG
Last Saved by: ALEXANDER.CURTICE (12/28/2017 10:14 AM) Last Plotted: 2018-01-02 (1/2/2018 12:25 PM)

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	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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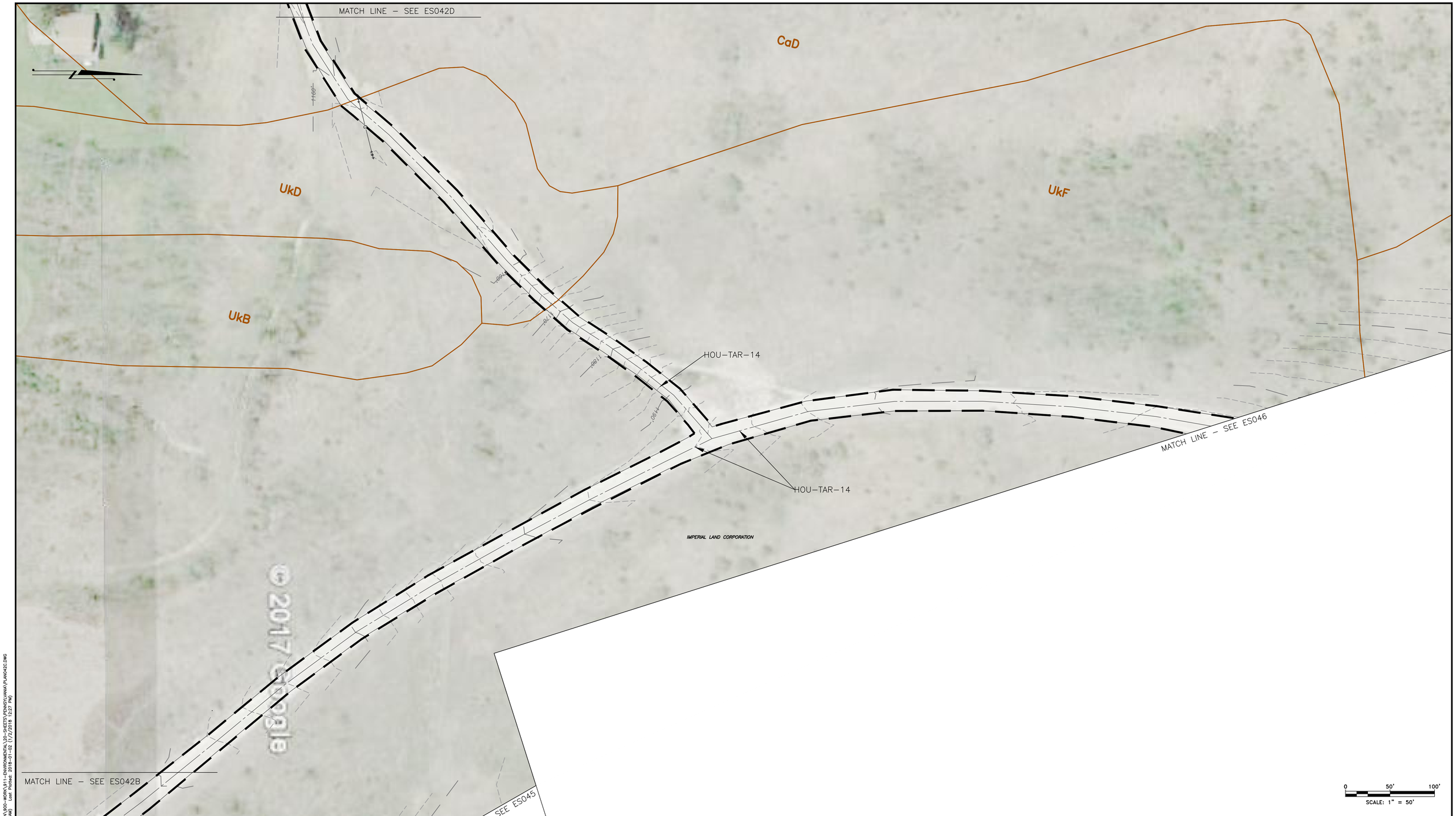
EROSION AND SEDIMENT CONTROL PLAN
ES042B - (HOU-TAR-14)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119749	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\08489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNDY\ANA\PLAN042B.DWG
Last saved by: ALEXANDER.CURTICE (12/28/2017 10:13 AM) Last Plotted: 2018-01-02 (1/2/2018 12:28 PM)



0 50' 100'
SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrBZ SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES042C – (HOU–TAR–14)
WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119750	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENN21\ANA\PLAN042C.DWG
Last saved by: ALEXANDER.CURTIS (12/28/2017 10:13 AM) Last Plotted: 2018-01-02 (1/2/2018 12:27 PM)

MATCH LINE – SEE ES042E

HOU–TAR–15

CaC

IMPERIAL LAND CORPORATION

DoB

MATCH LINE – SEE ES042C

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES042D – (HOU–TAR–15)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119751	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174X\SHELL\6489885 - FALCON\800-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN042D.DWG
Last saved by: JMCDANSCHAFER (12/28/2017 12:03 PM) Last Plotted: 2018-01-02 (1/2/2018 12:28 PM)

GdB

UkD

UkD

HOU–TAR–15

IMPERIAL LAND CORPORATION

MATCH LINE – SEE ES042D

MATCH LINE – SEE ES042F

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

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1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES042E – (HOU–TAR–15)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119752	REVISION
DRAWN	TLM	12/05/2017		1

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Last saved by: ESSARGA (1/2/2018 3:46 PM) Last Plotted: 2018–01–05 (1/2/2018 9:13 AM)

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
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PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
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GENERAL NOTES:

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES042F - (HOU-TAR-15)
WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119753	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN042F.DWG
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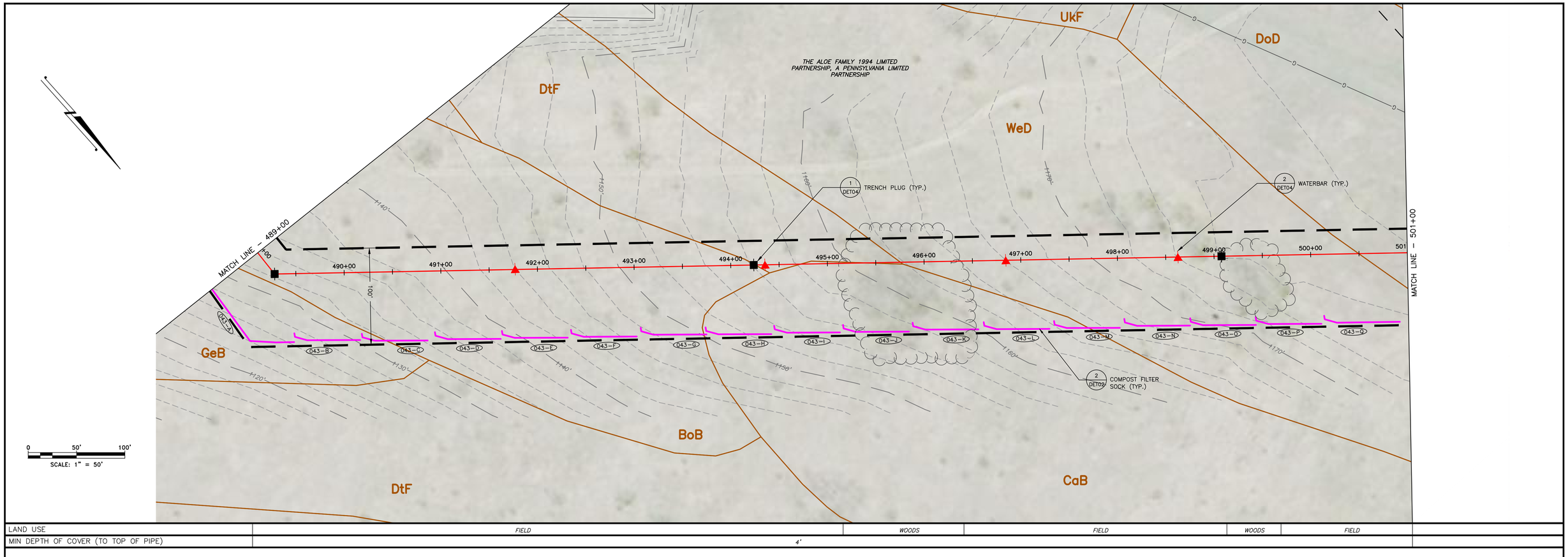
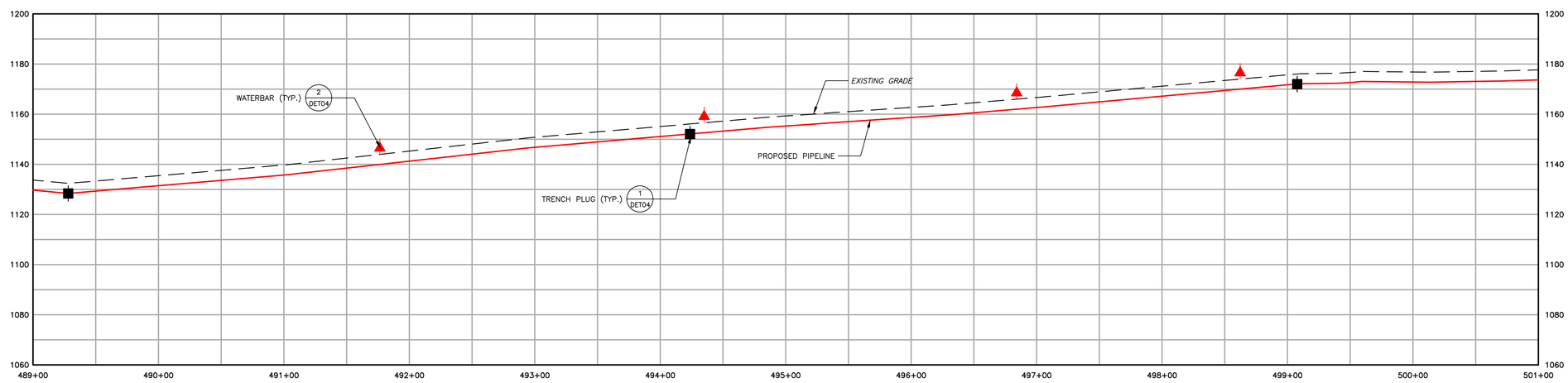


LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'				



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
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MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
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PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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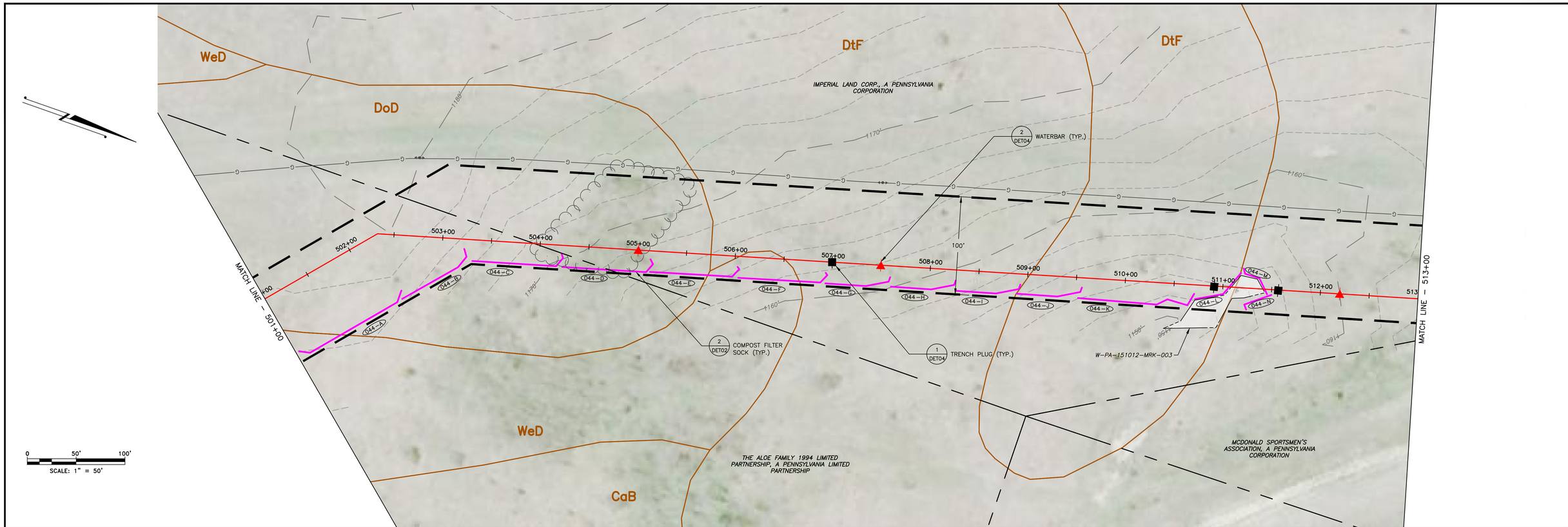
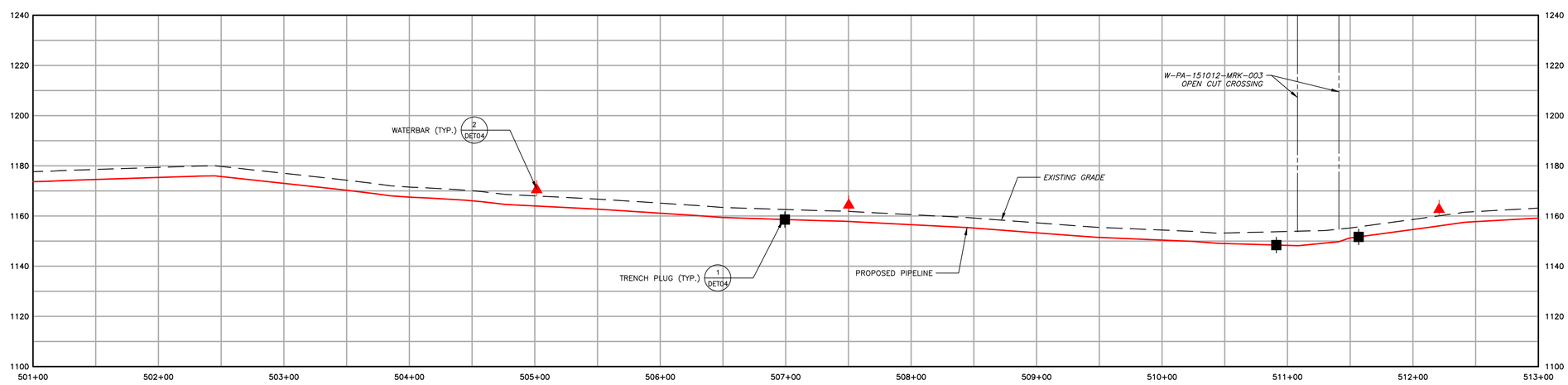
EROSION AND SEDIMENT CONTROL PLAN
ES043 – (STA. 489+00 TO STA. 501+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119327	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN043.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:14 AM) Last Plotted: 2018-01-02 (1/4/2018 12:30 PM)



LAND USE	FIELD	WOODS	FIELD	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'			5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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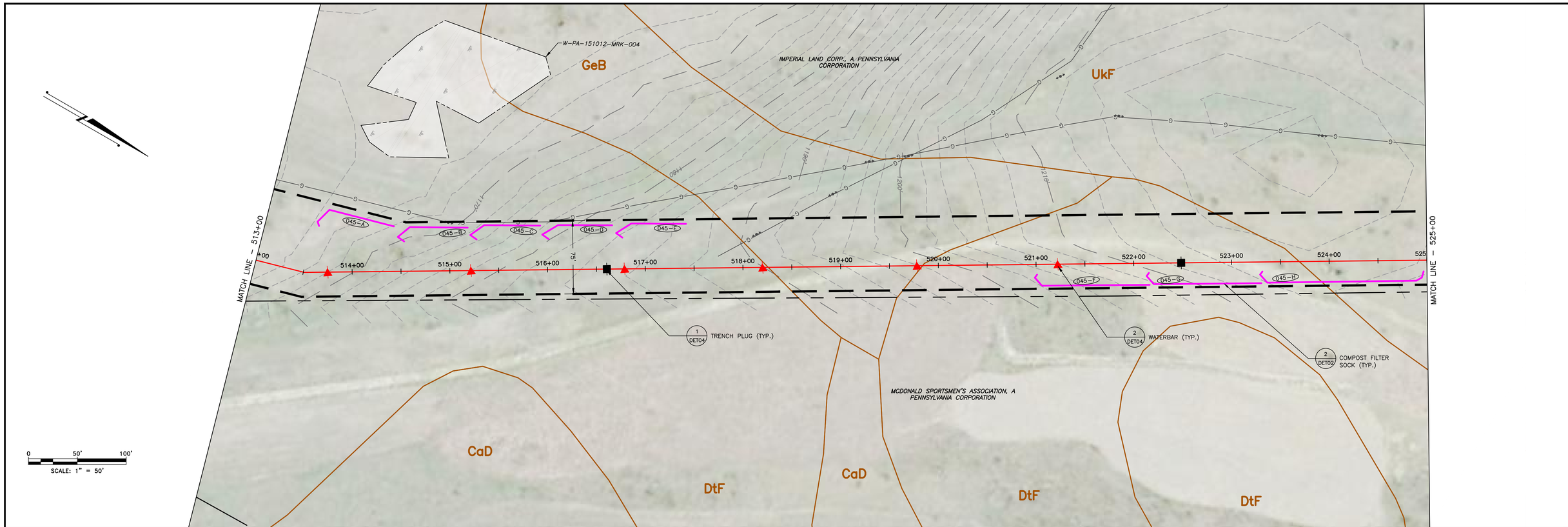
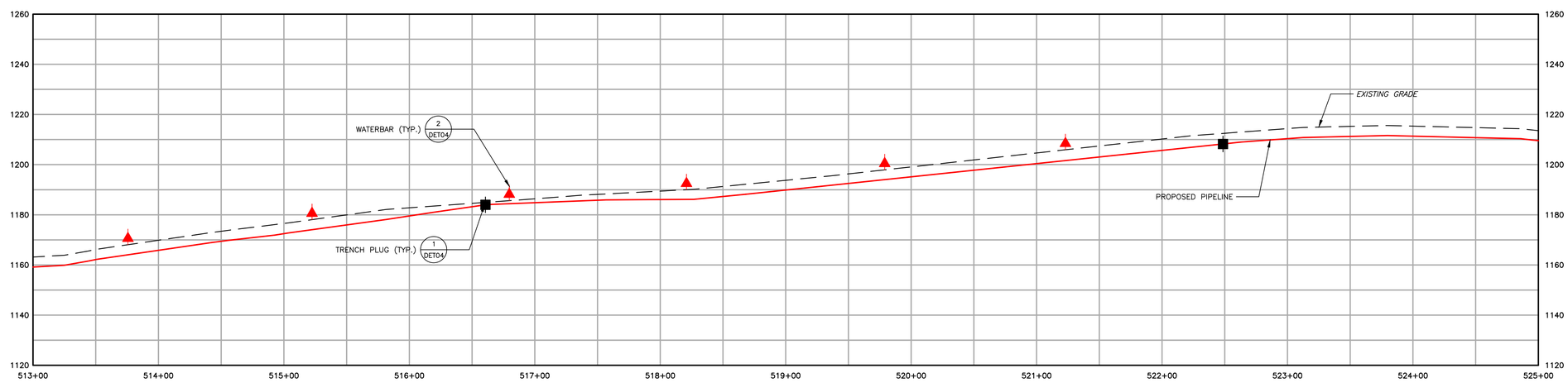
EROSION AND SEDIMENT CONTROL PLAN
ES044 – (STA. 501+00 TO STA. 513+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119328	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN044.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:21 AM) Last Plotted: 2018-01-02 (1/4/2018 12:31 PM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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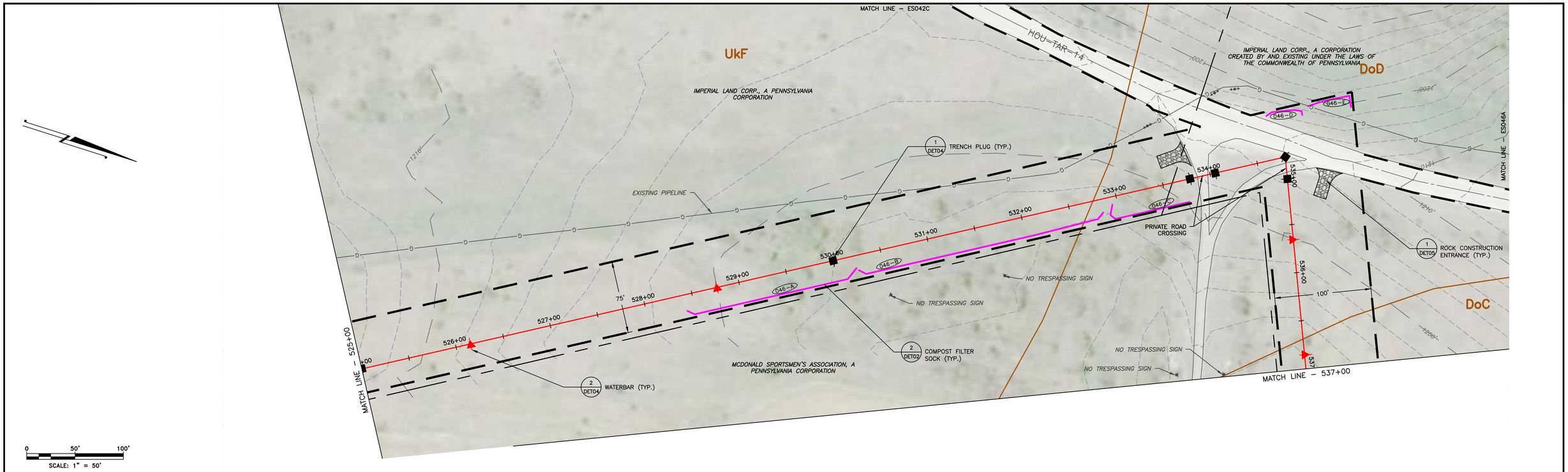
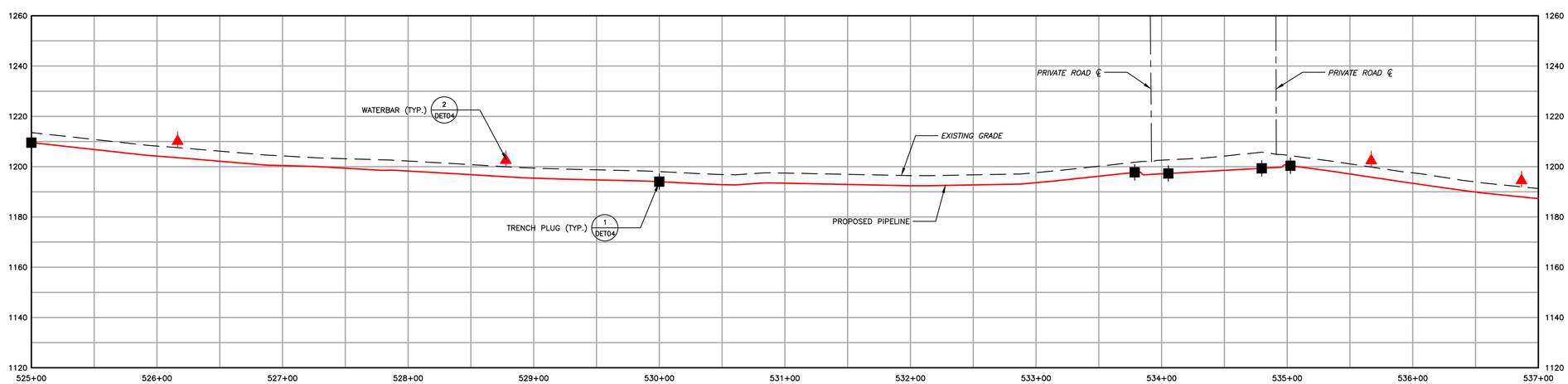
EROSION AND SEDIMENT CONTROL PLAN
ES045 - (STA. 513+00 TO STA. 525+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119329	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0245885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN045.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:32 AM) Last Plotted: 2018-01-02 (1/4/2018 12:32 PM)



LAND USE	FIELD	RD	FIELD	RD	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES046 – (STA. 525+00 TO STA. 537+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119330	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174T\SHELL\6449885 – FALCON\100-WORK\311-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN046.DWG
Last saved by: JOSEPH.RYAN (1/9/2018 10:25 AM) Last Plotted: 2018-01-09 (1/9/2018 10:52 AM)

IMPERIAL LAND CORP., A PENNSYLVANIA CORPORATION

CaB

IMPERIAL LAND CORP., A PENNSYLVANIA CORPORATION

MARKWEST LIBERTY MIDSTREAM AND RESOURCES, L.L.C.

MATCH LINE – SEE ES046B

HOU-TAR-14

1240'

1230'

1220'

BoC

BoB

DtF

MATCH LINE – SEE ES046

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES046A – (HOU-TAR-14)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119798	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\65489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN046A.DWG
Last saved by: MAUMOORE (1/9/2018 12:14 PM) Last Plotted: 2018-01-09 (1/9/2018 12:15 PM)

IMPERIAL LAND CORP., A PENNSYLVANIA CORPORATION

HOU-TAR-14

MARKWEST LIBERTY MIDSTREAM AND RESOURCES, L.L.C.

MATCH LINE – SEE ES046A

MATCH LINE – SEE ES046C

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES046B – (HOU-TAR-14)

WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119799	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\25-SHEETS\PENNSYLVANIA\PLAN0468.DWG
Last saved by: MALAKJORE (1/9/2018 12:14 PM) Last Plotted: 2018-01-09 (1/9/2018 12:16 PM)

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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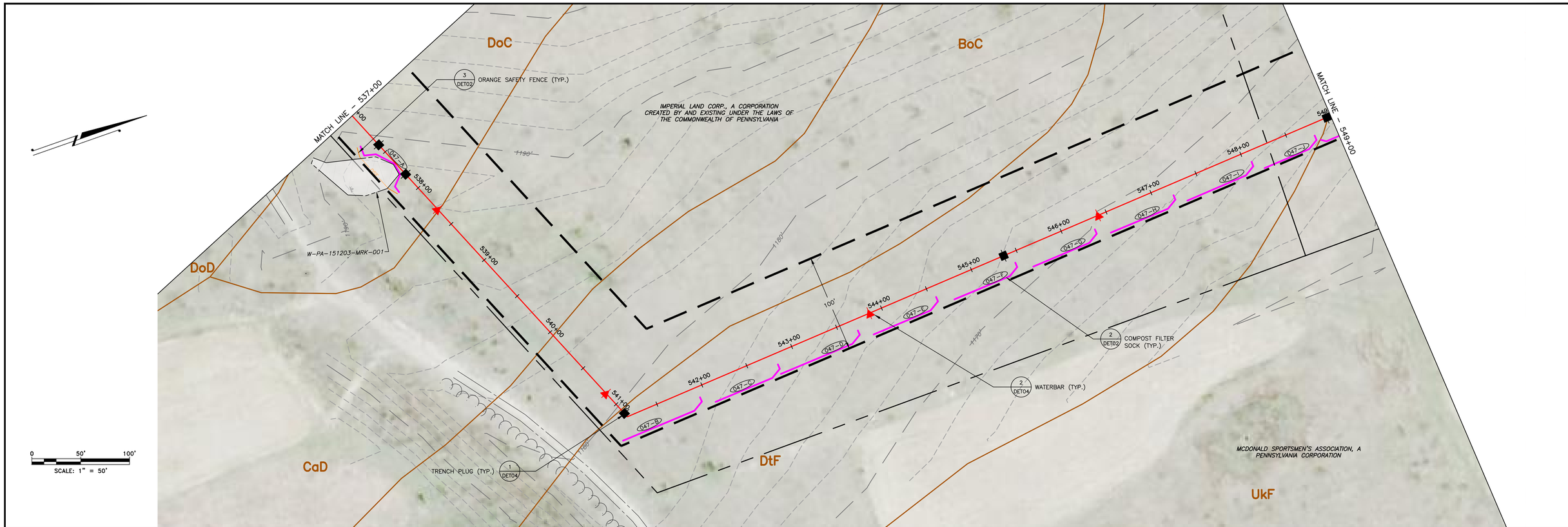
EROSION AND SEDIMENT CONTROL PLAN
ES046C – (HOU-TAR-14)

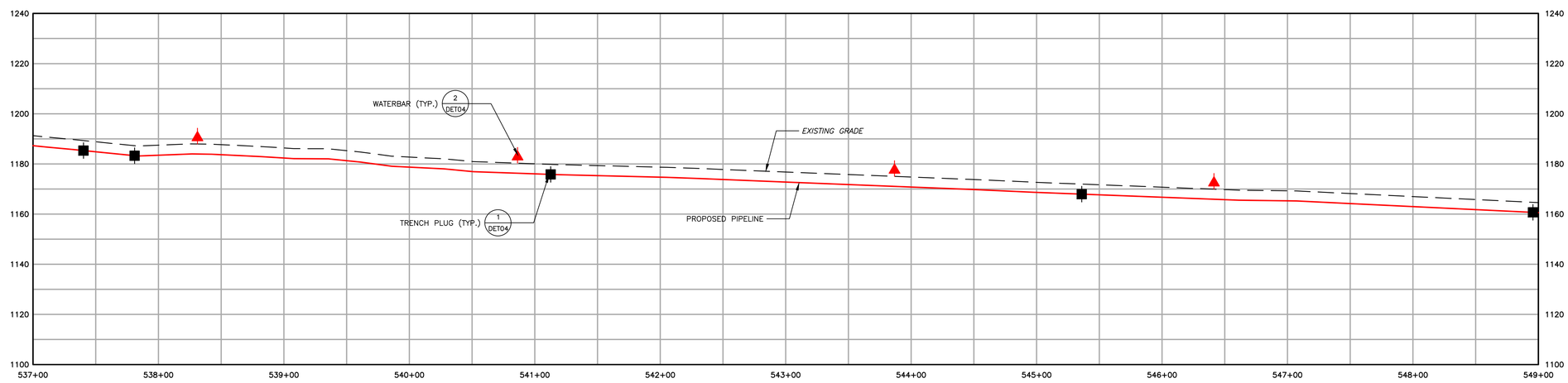
WASHINGTON COUNTY
ROBINSON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119800	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6468985 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN046C.DWG
Last Saved by: MAMMOORE (1/9/2018 1:38 PM) Last Plotted: 2018-01-09 (1/9/2018 1:39 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
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LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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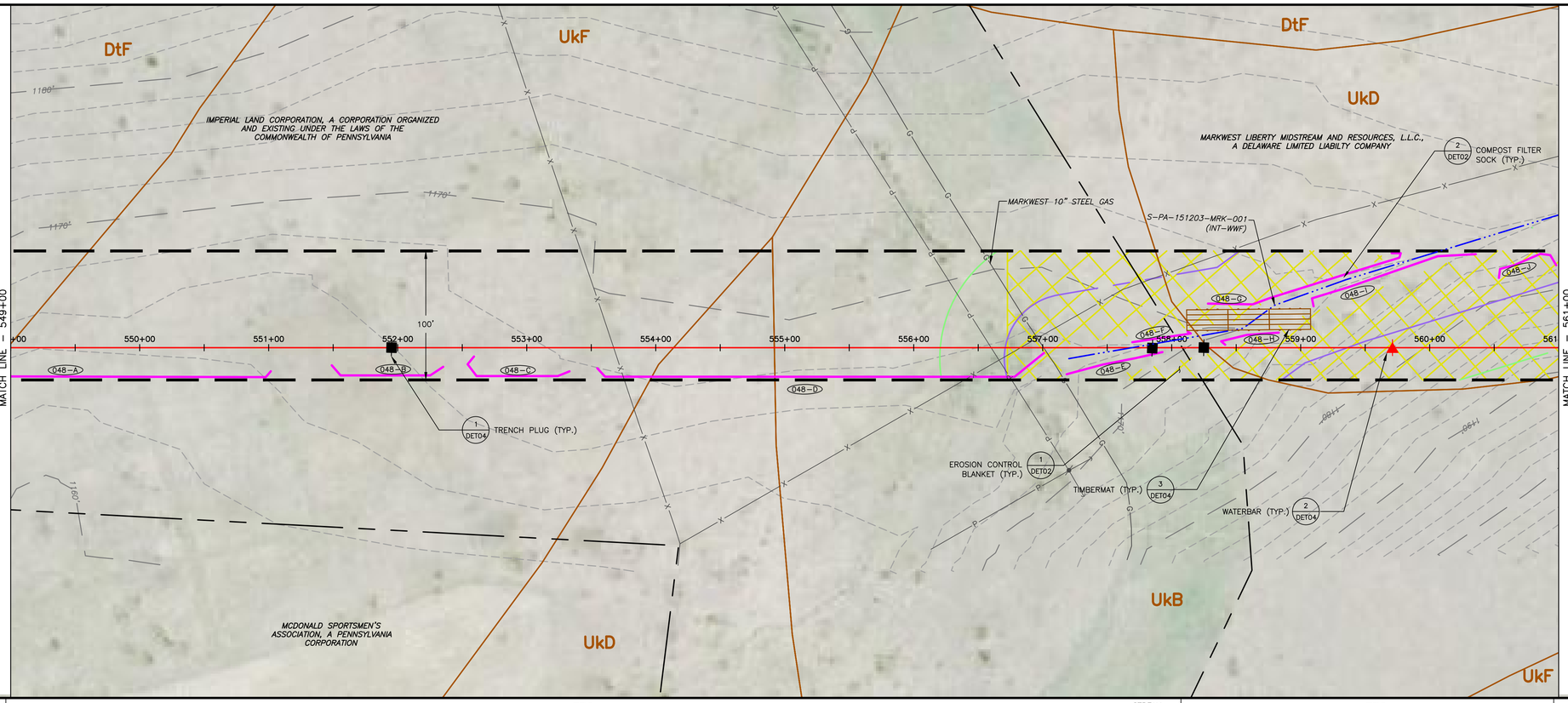
EROSION AND SEDIMENT CONTROL PLAN
ES047 – (STA. 537+00 TO STA. 549+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

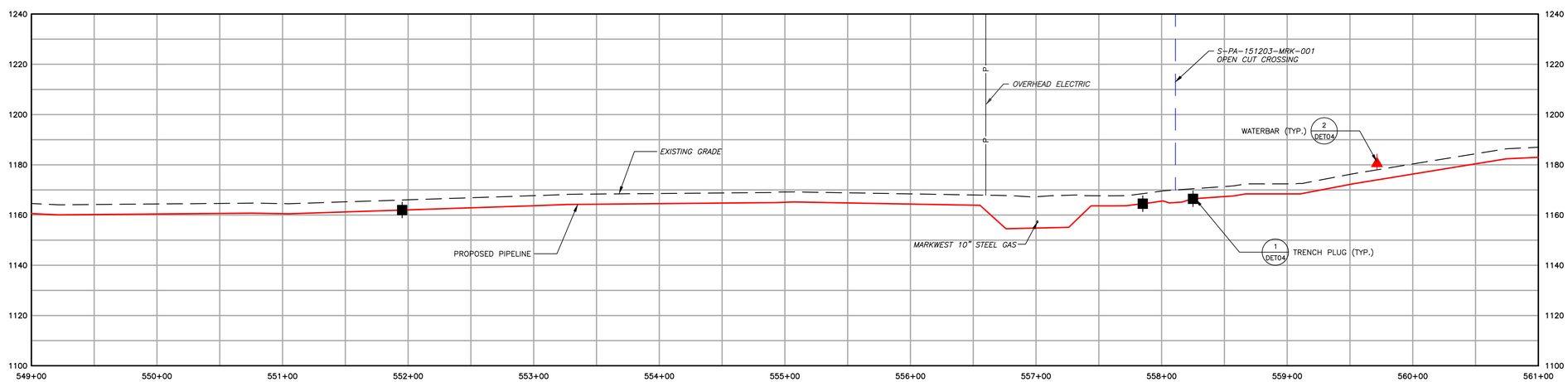
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119331	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0245885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN047.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:44 AM) Last Plotted: 2018-01-02 (1/4/2018 12:34 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	STREAM	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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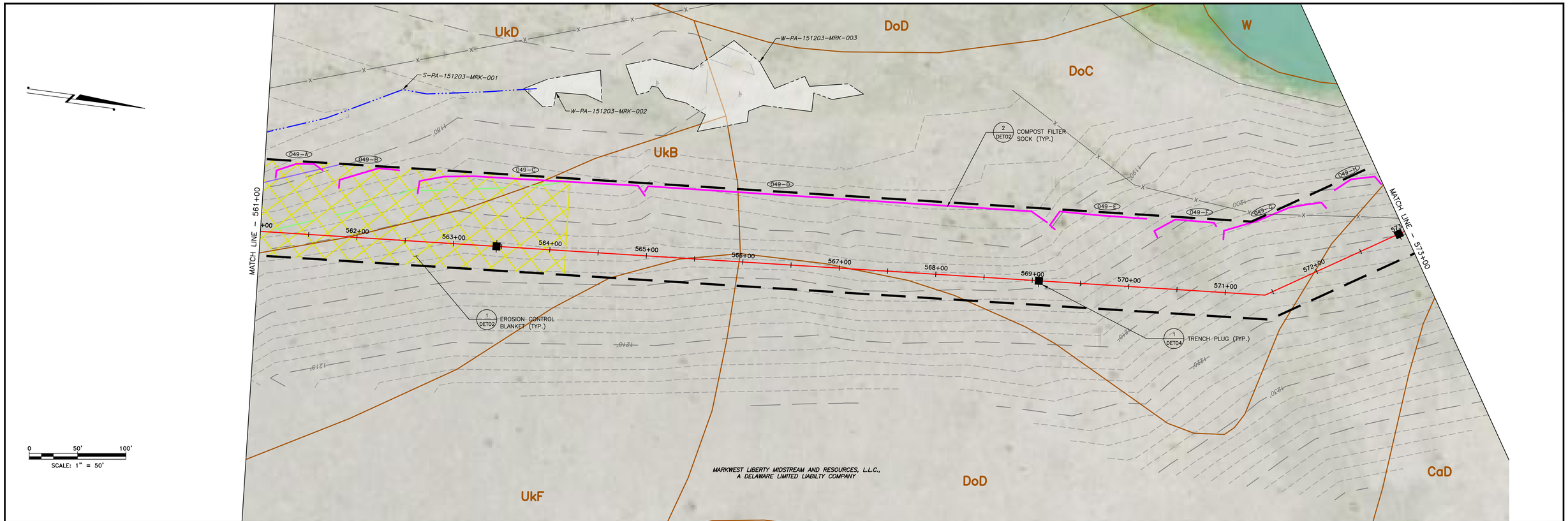
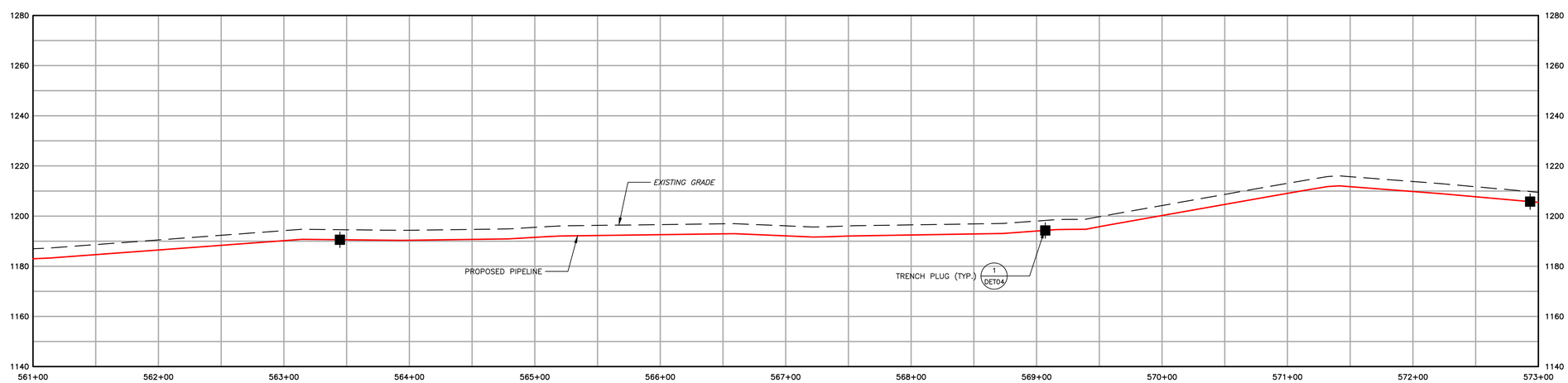
EROSION AND SEDIMENT CONTROL PLAN
ES048 – (STA. 549+00 TO STA. 561+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119332	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0048988B – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN048.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:51 AM) Last Plotted: 2018-01-02 (1/4/2018 12:35 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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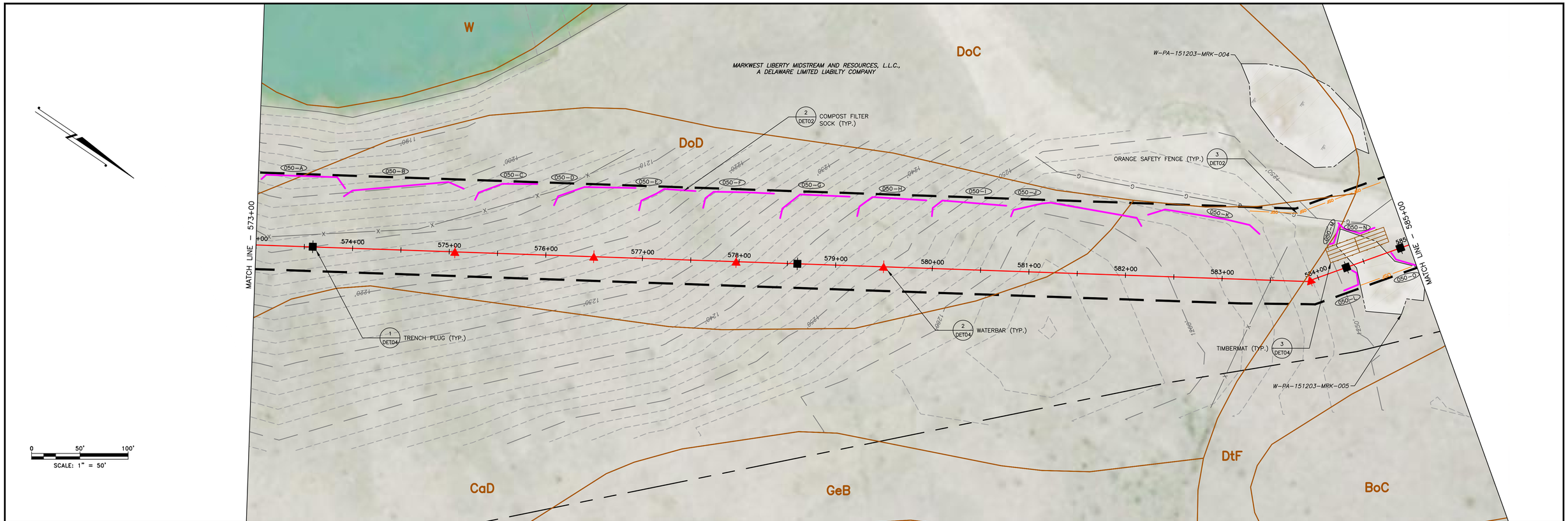
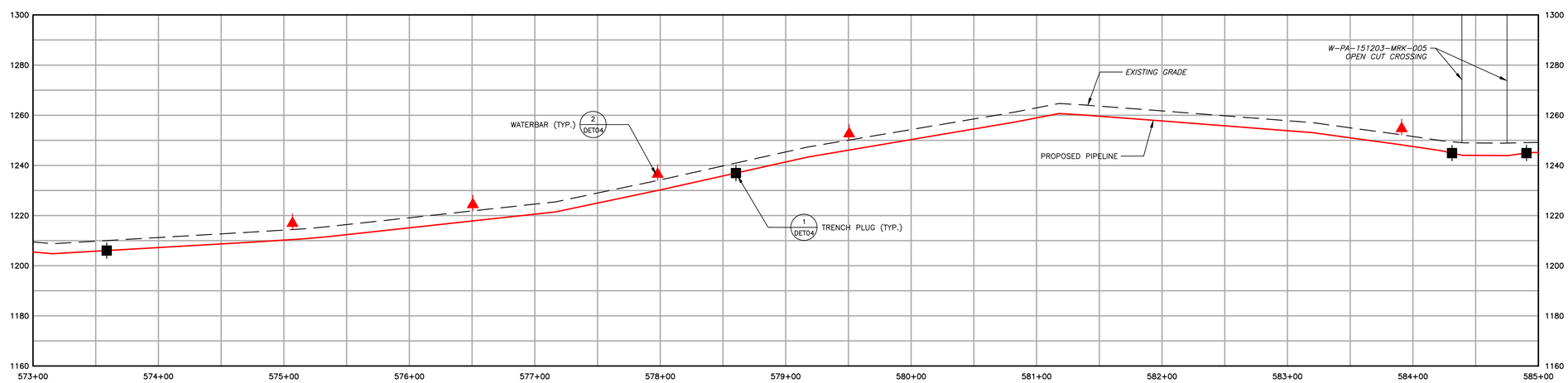
EROSION AND SEDIMENT CONTROL PLAN
ES049 – (STA. 561+00 TO STA. 573+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119333	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0049885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN049.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 9:59 AM) Last Plotted: 2018-01-02 (1/4/2018 12:36 PM)



LAND USE	FIELD	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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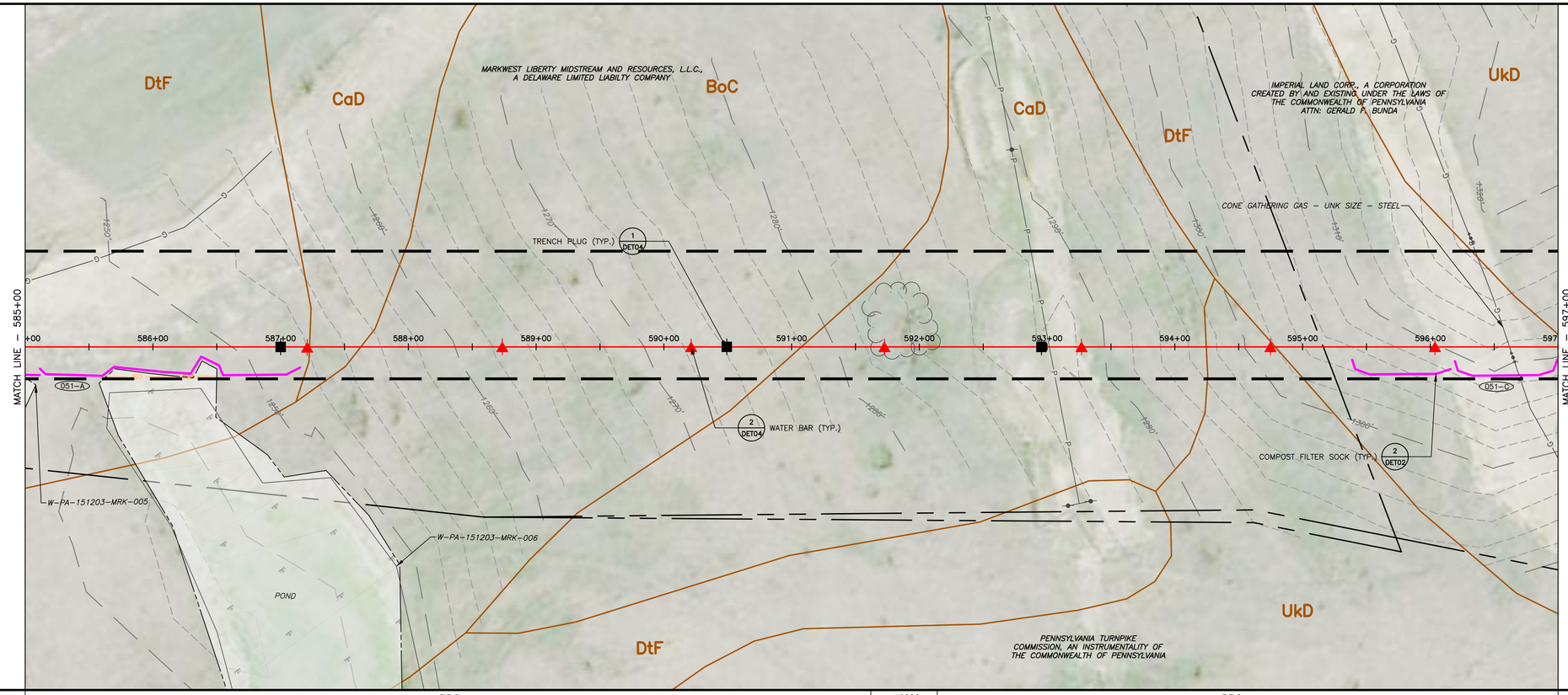
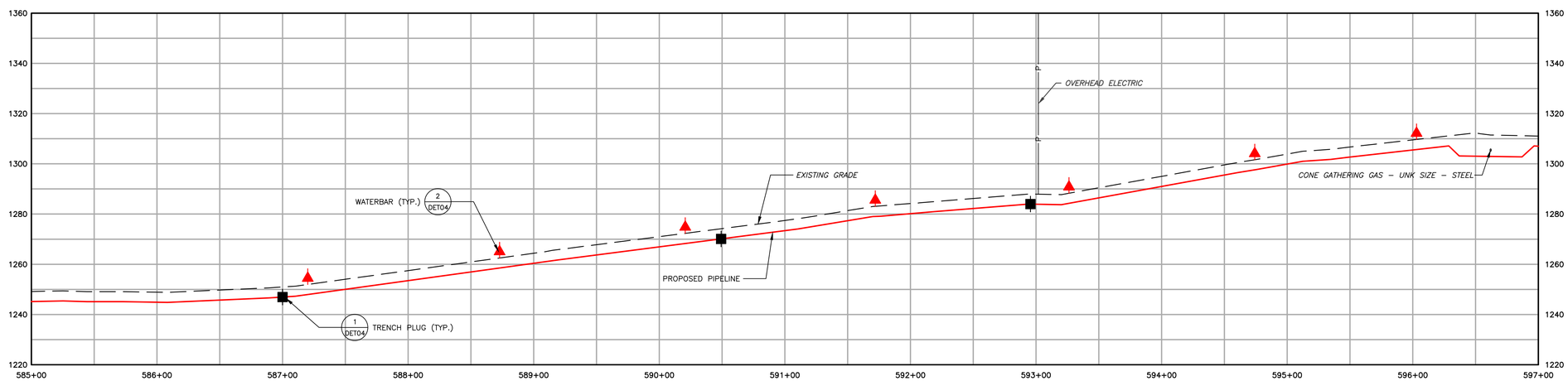
EROSION AND SEDIMENT CONTROL PLAN
ES050 – (STA. 573+00 TO STA. 585+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119334	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\92458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN050.DWG
Last saved by: JOSEPH.RYAN (12/28/2017 11:22 AM) Last Plotted: 2018-01-02 (1/2/2018 12:37 PM)



LAND USE	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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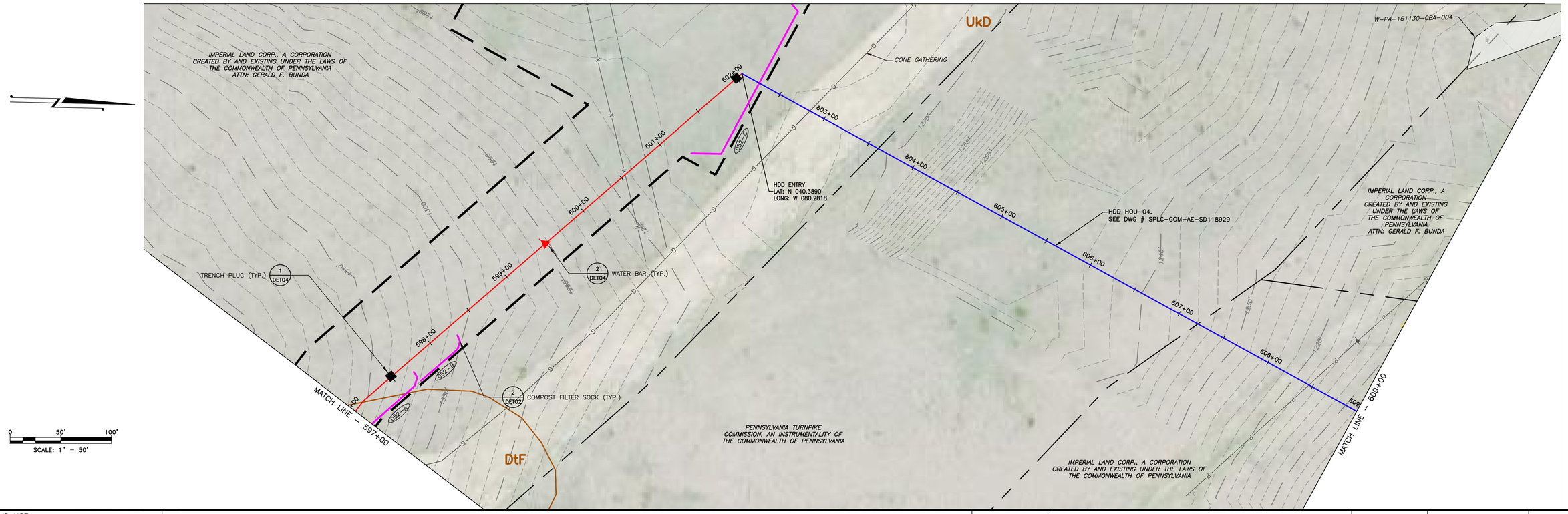
EROSION AND SEDIMENT CONTROL PLAN
ES051 – (STA. 585+00 TO STA. 597+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

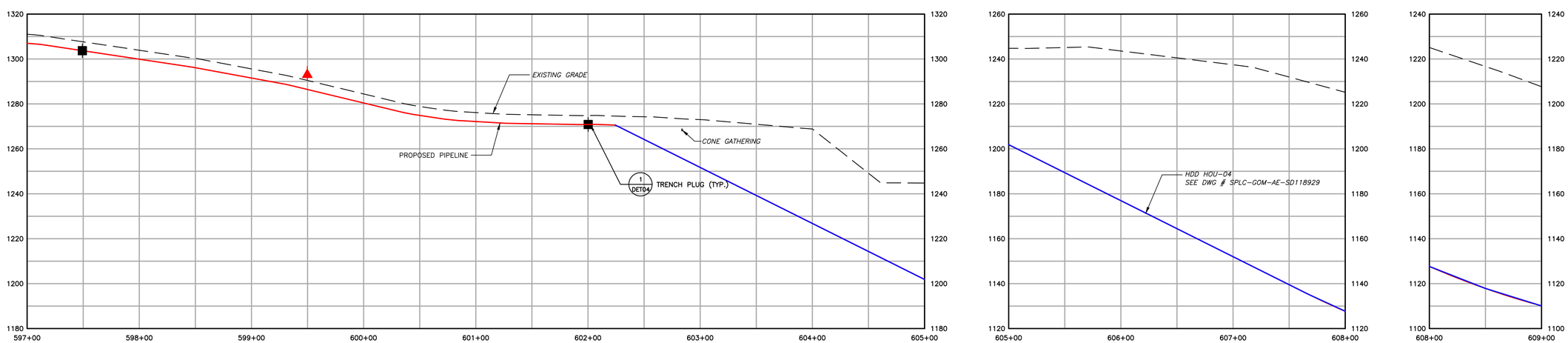
SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119335	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN051.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 7:59 AM) Last Plotted: 2018–01–02 (1/2/2018 12:59 PM)

MATCH LINE – ES052A,B



LAND USE	FIELD		FIELD		FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES052 – (STA. 597+00 TO STA. 609+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119336	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0485885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN052.DWG
Last saved by: UNCOUN.SCHAEFER (12/29/2017 8:54 AM) Last Plotted: 2018-01-02 (1/2/2018 1:03 PM)

MATCH LINE – SEE ES052B

GdB

UkD

IMPERIAL LAND CORPORATION

HOU–TAR–16

MATCH LINE – SEE ES052

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES052A – (HOU–TAR–16)

WASHINGTON COUNTY
ROBINSON TOWNSHIP

PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119754	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6548988S – FALCON\00–WORK\01–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN052A.DWG
Last Saved by: JOSEPH.RYAN (12/28/2017 3:56 PM) Last Plotted: 2018–01–02 (1/2/2018 1:01 PM)

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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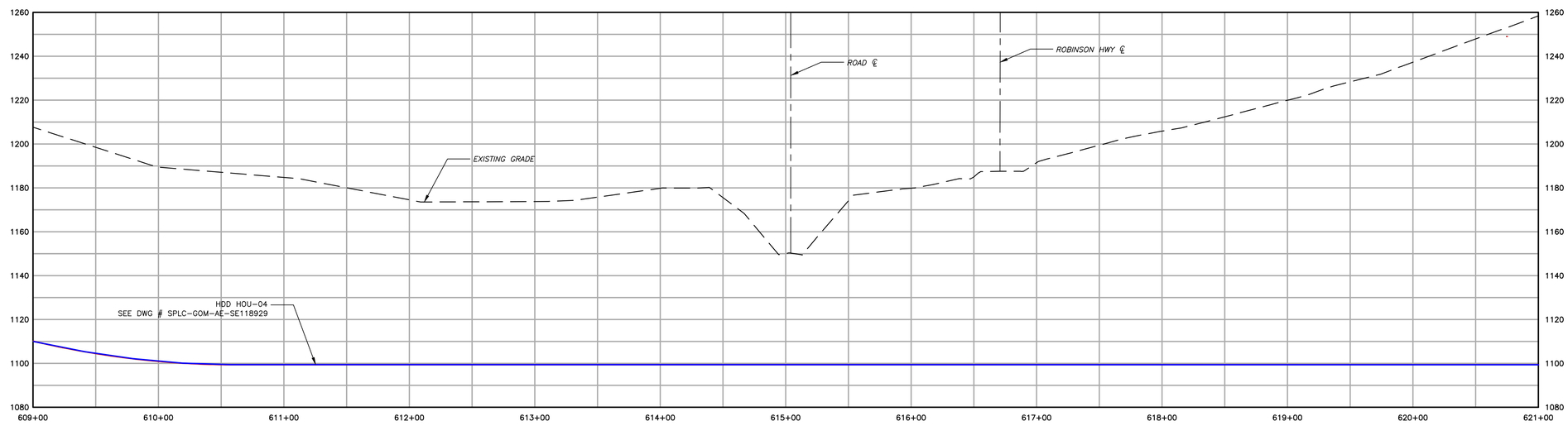
EROSION AND SEDIMENT CONTROL PLAN
ES052B – (HOU-TAR-16)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119755	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN052B.DWG
Last saved by: JOSEPH.RYAN (12/20/2017 3:56 PM) Last Plotted: 2018-01-02 (1/2/2018 1:02 PM)

LAND USE	FIELD	WOODS	RD	WOODS	FIELD	ROAD	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		5'	4'		5'		4'		



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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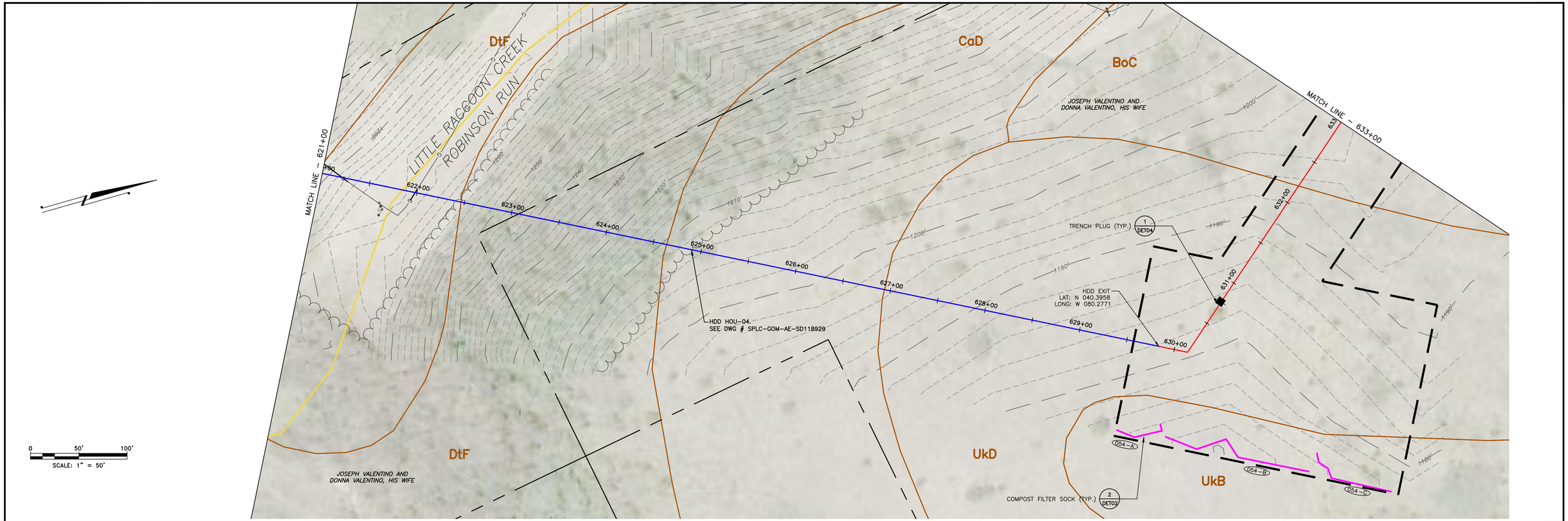
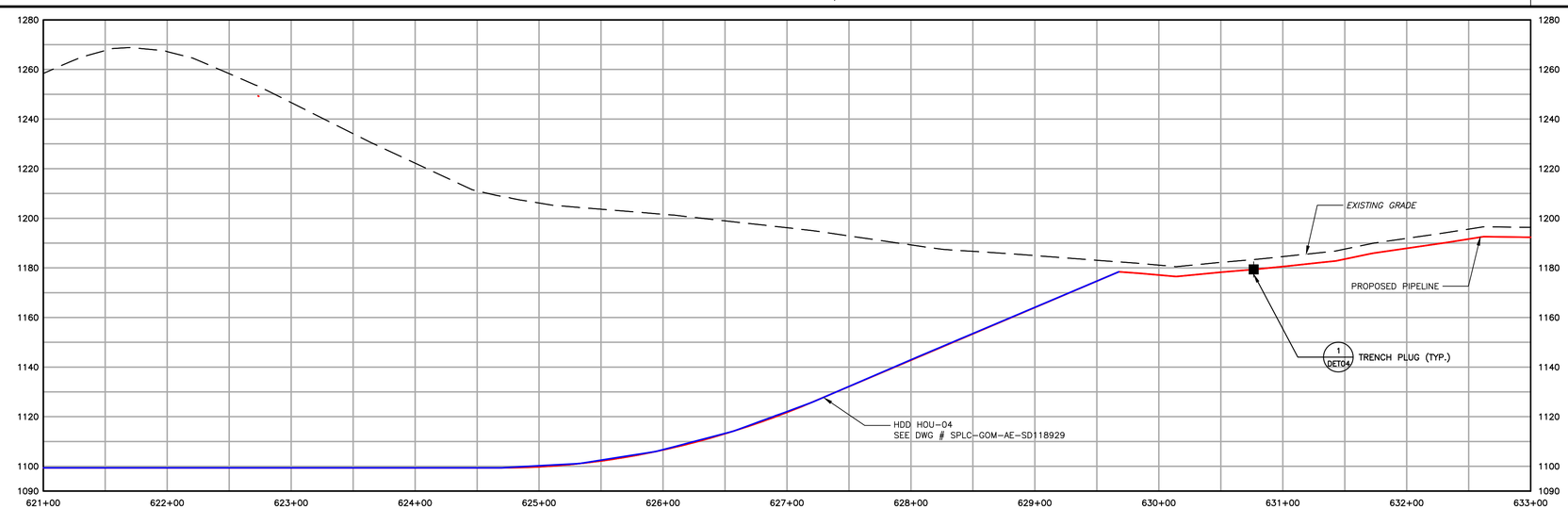
EROSION AND SEDIMENT CONTROL PLAN
ES053 - (STA. 609+00 TO STA. 621+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119337	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN053.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:16 AM) Last Plotted: 2018-01-02 (1/2/2018 1:03 PM)



LAND USE	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)		4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
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	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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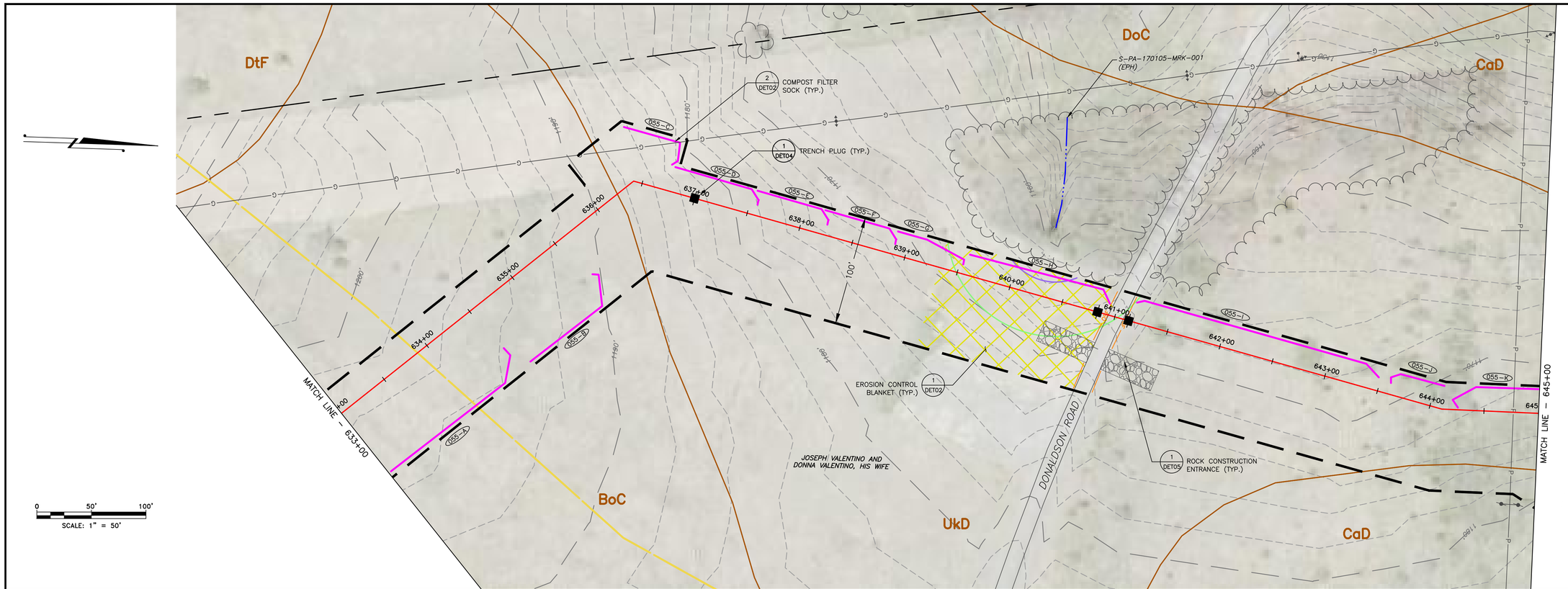
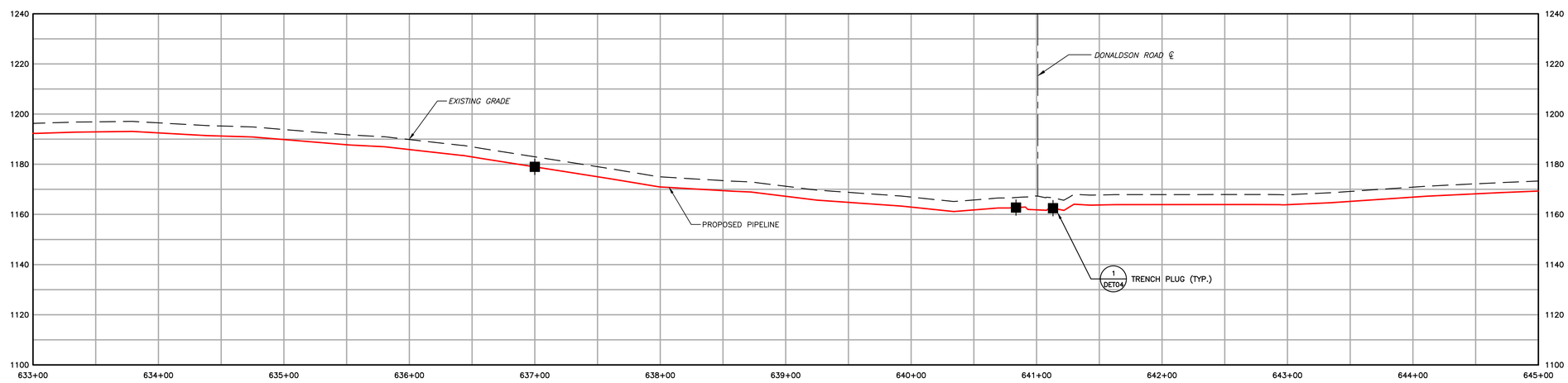
EROSION AND SEDIMENT CONTROL PLAN
ES054 – (STA. 621+00 TO STA. 633+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119338	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174X\SHELL\6489885 – FALCON\WO-WORK\911-ENVIRONMENTAL\SD-SHEETS\PENNSYLVANIA\PLAN054.DWG
Last saved by: UNCOLA3CHAPTER (12/28/2017 8:18 AM) Last Plotted: 2018-01-02 (1/2/2018 1:54 PM)



LAND USE	FIELD	RD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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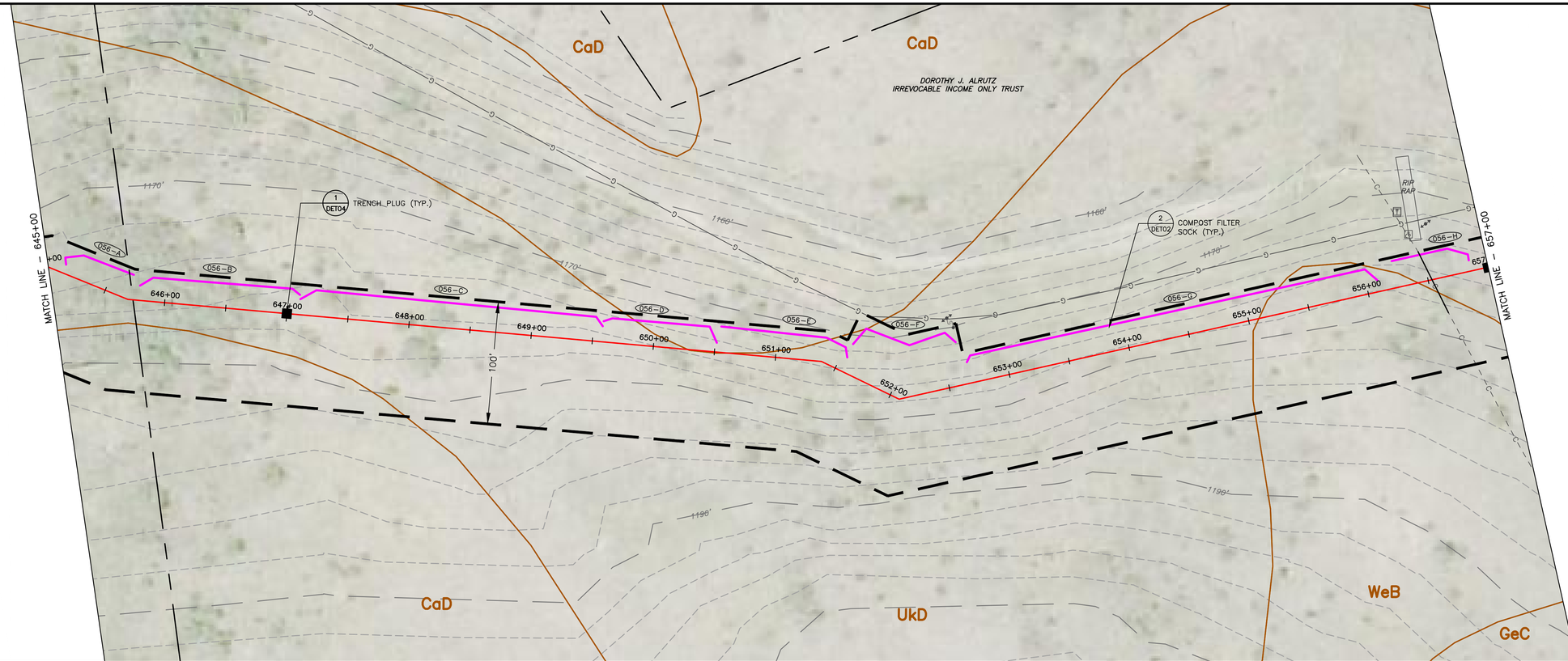
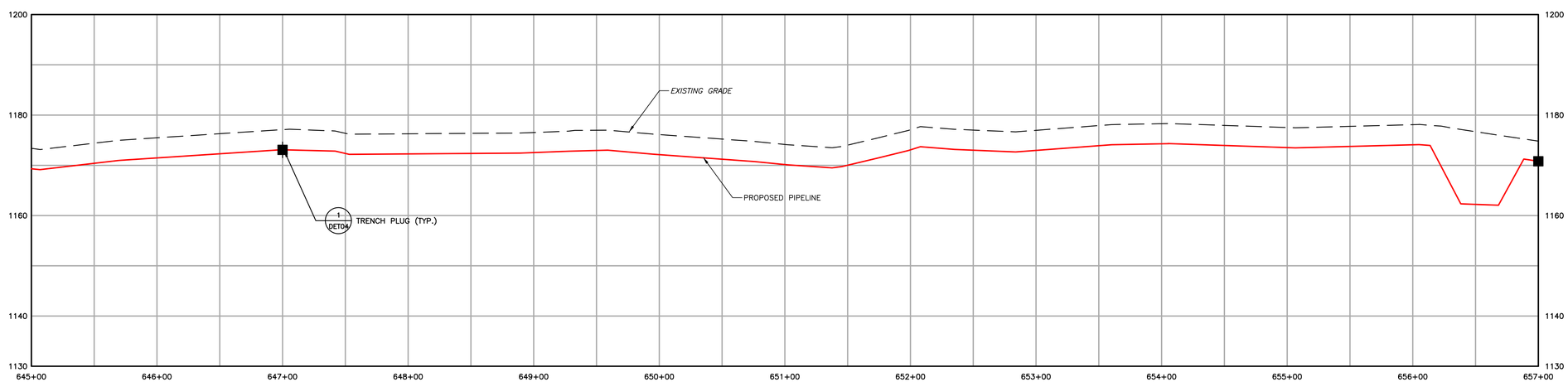
EROSION AND SEDIMENT CONTROL PLAN
ES055 – (STA. 633+00 TO STA. 645+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119339	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN055.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:20 AM) Last Plotted: 2018-01-02 (1/2/2018 1:05 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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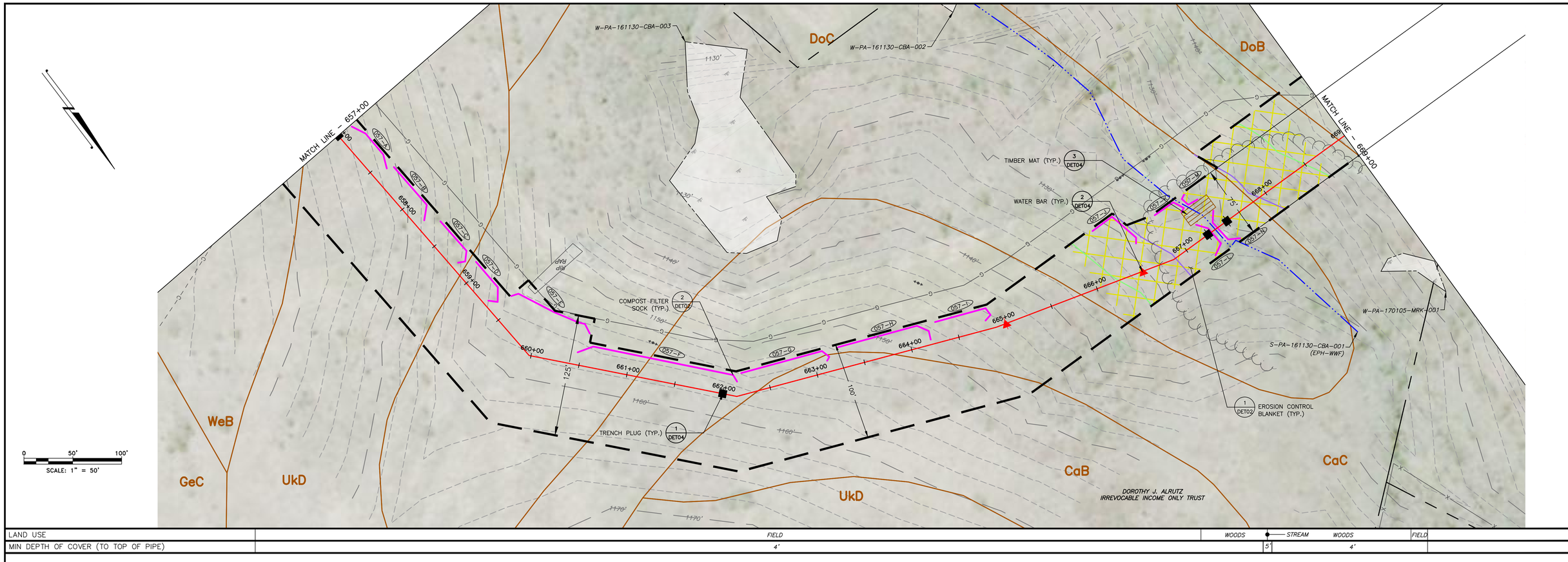
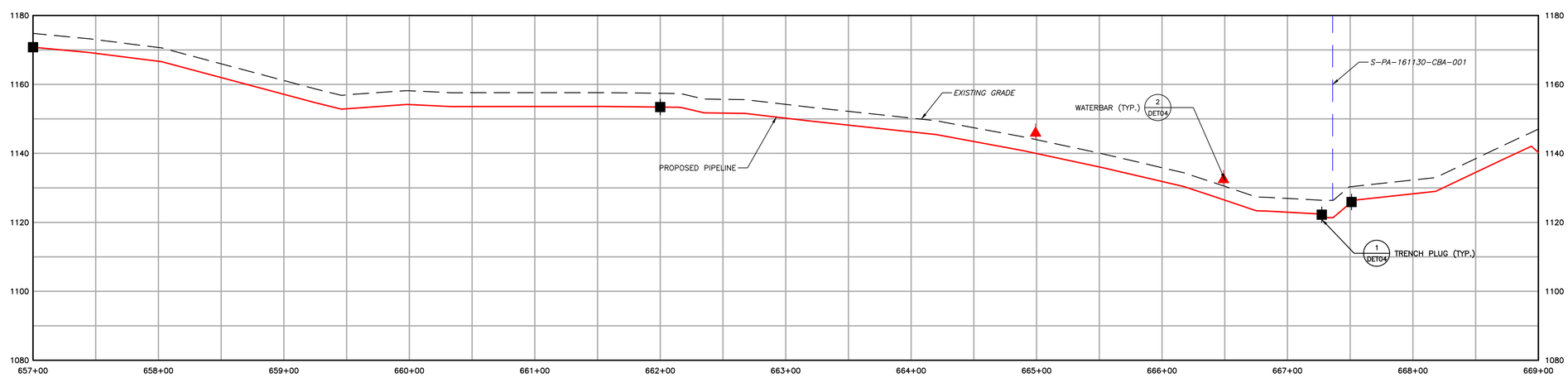
EROSION AND SEDIMENT CONTROL PLAN
ES056 – (STA. 645+00 TO STA. 657+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119340	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN056.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:22 AM) Last Plotted: 2018-01-02 (1/2/2018 1:05 PM)



LAND USE	FIELD	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'		4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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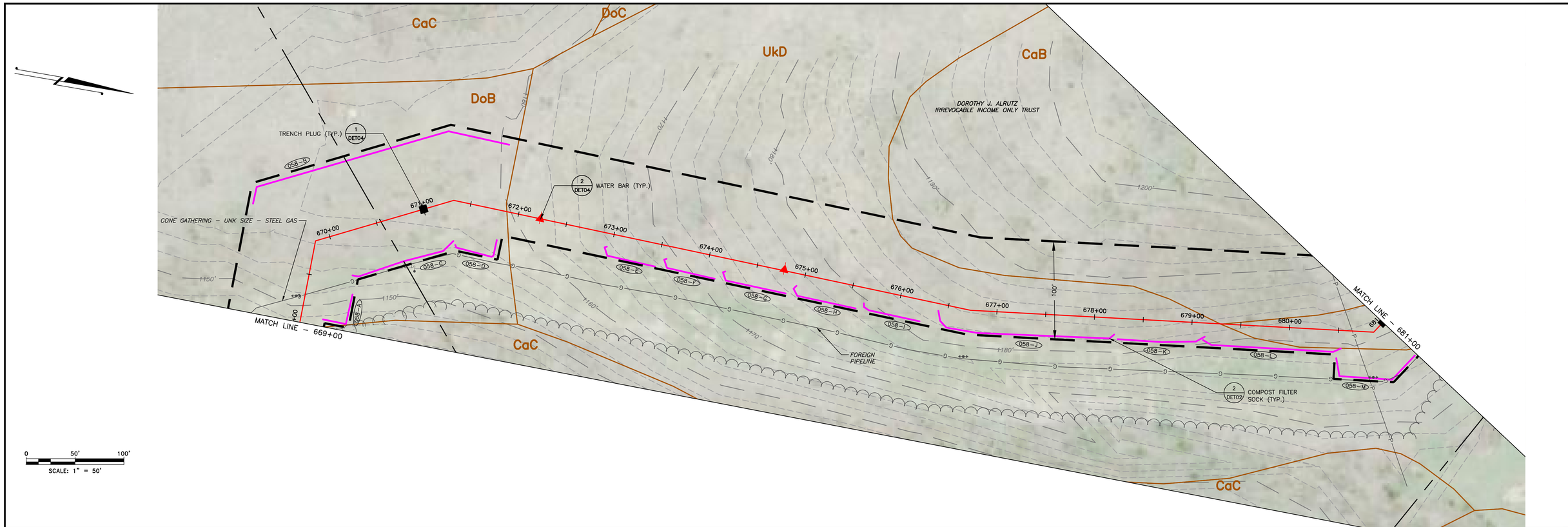
EROSION AND SEDIMENT CONTROL PLAN
ES057 – (STA. 657+00 TO STA. 669+00)

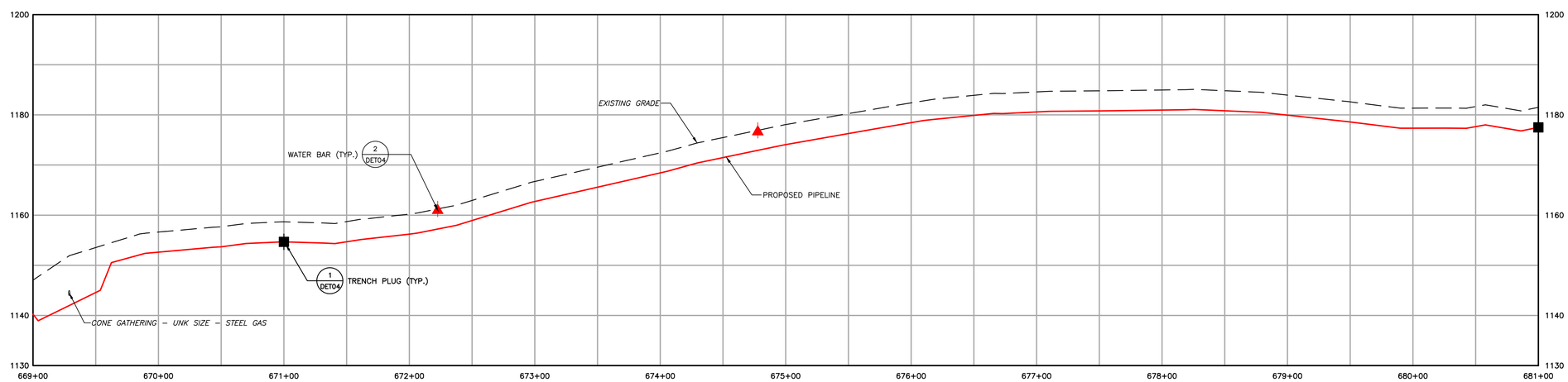
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119341	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN057.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:24 AM) Last Plotted: 2018-01-02 (1/2/2018 1:07 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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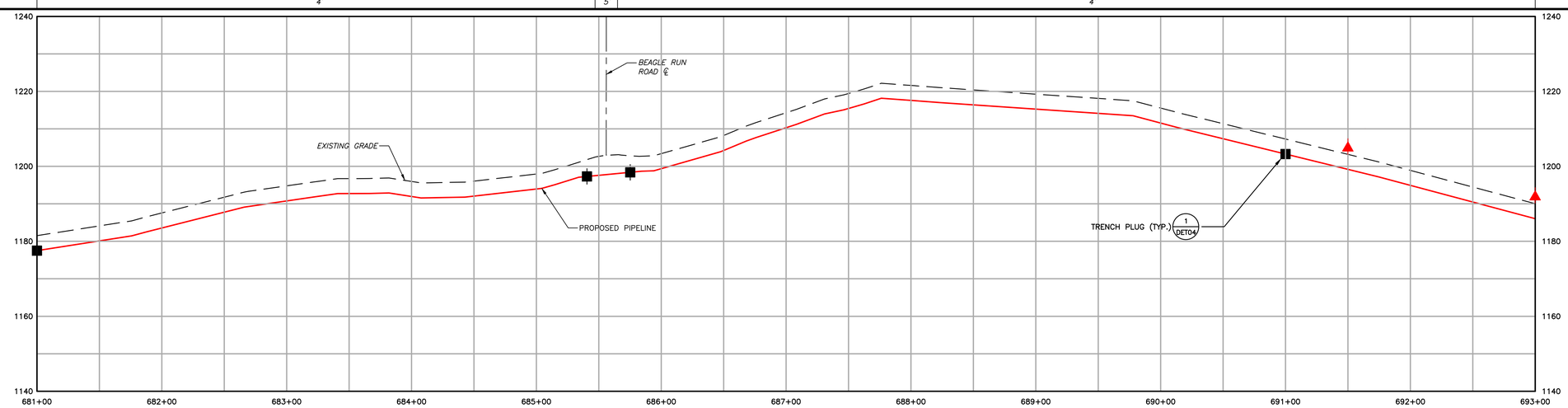
EROSION AND SEDIMENT CONTROL PLAN
ES058 – (STA. 669+00 TO STA. 681+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119342	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN058.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:25 AM) Last Plotted: 2018–01–02 (1/2/2018 1:08 PM)

LAND USE	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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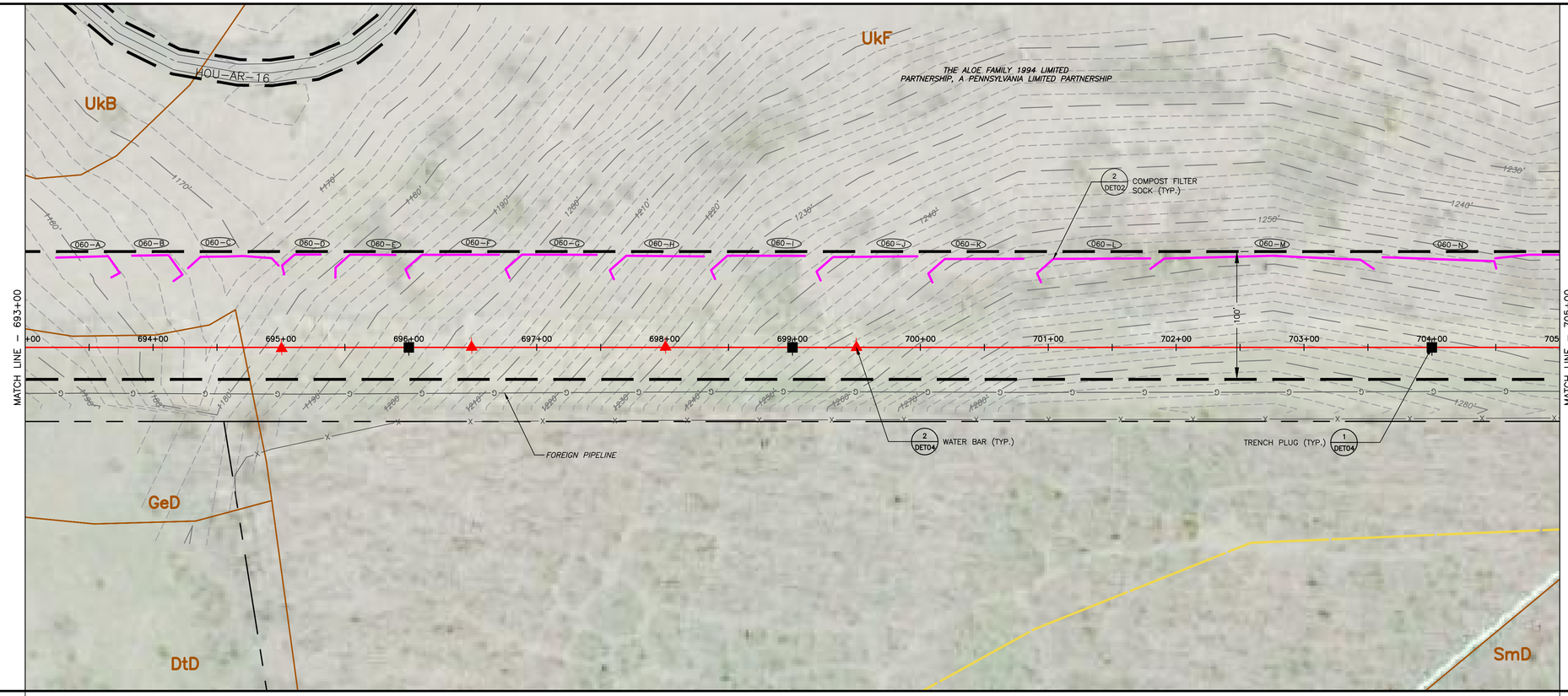
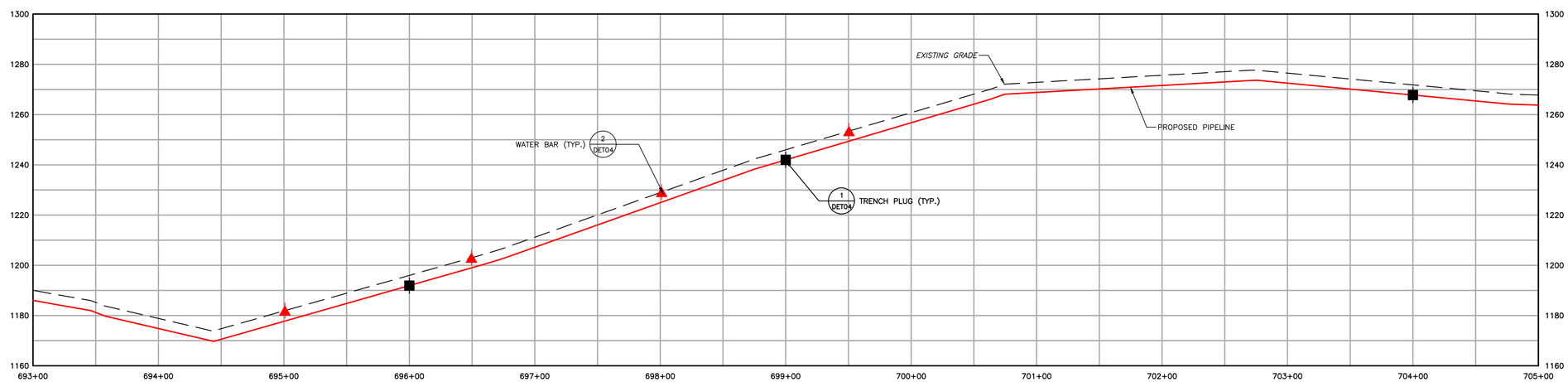
EROSION AND SEDIMENT CONTROL PLAN
ES059 – (STA. 681+00 TO STA. 693+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON TOWNSHIP

SCALE	1"=50'	DATE	12/05/2017	SPLC-GOM-AE-SD119343	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN059.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:27 AM) Last Plotted: 2018-01-02 (1/2/2018 1:09 PM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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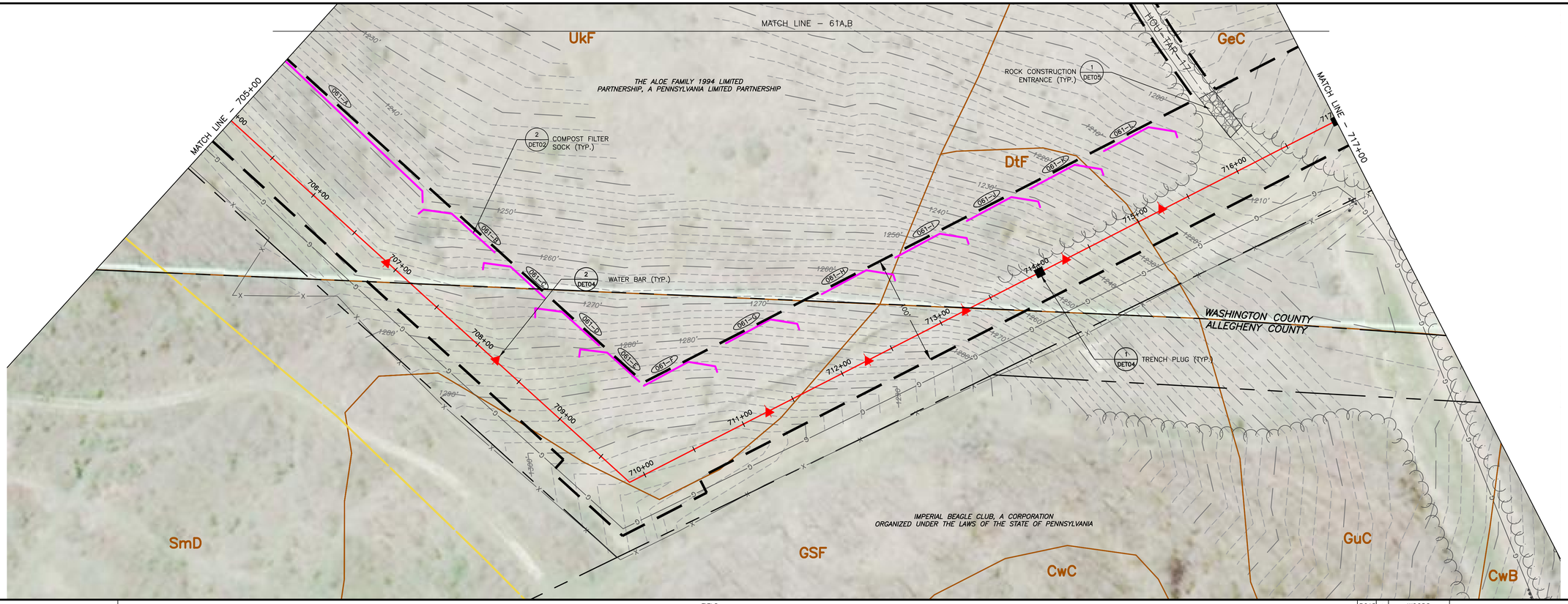
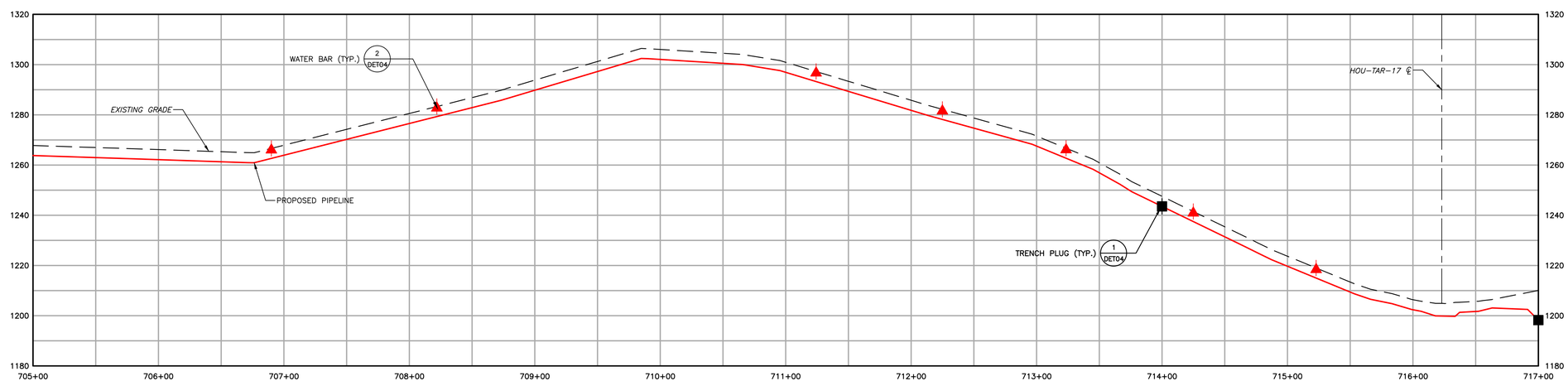
EROSION AND SEDIMENT CONTROL PLAN
ES060 – (STA. 693+00 TO STA. 705+00)
WASHINGTON COUNTY PENNSYLVANIA
ROBINSON AND FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119344	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN060.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:28 AM) Last Plotted: 2018-01-02 (1/2/2018 1:10 PM)



LAND USE	FIELD	ROAD / WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	FIELD 4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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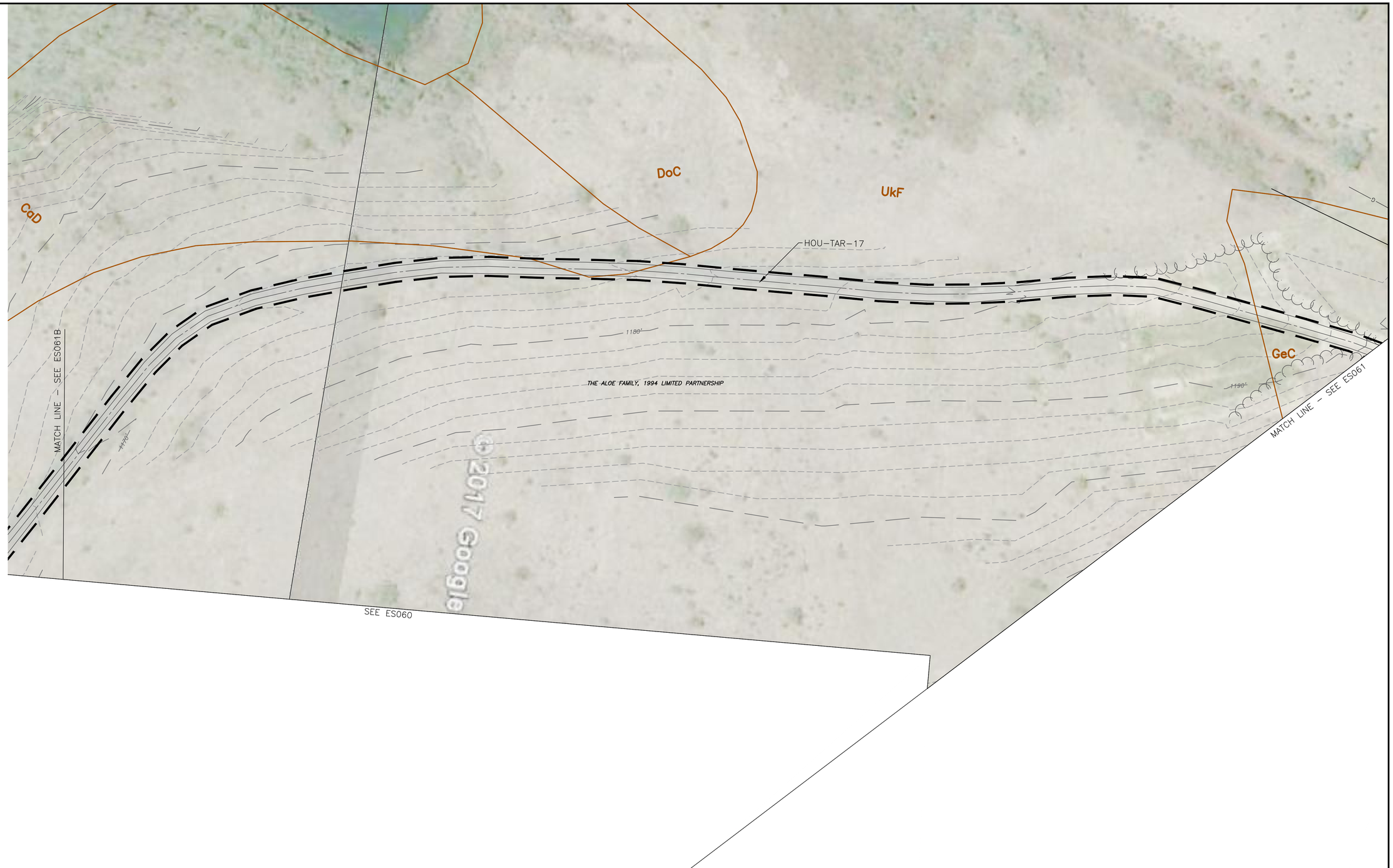
EROSION AND SEDIMENT CONTROL PLAN
ES061 – (STA. 705+00 TO STA. 717+00)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	12/05/2017	SPLC-GOM-AE-SD119345	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN061.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:53 AM) Last Plotted: 2018-01-02 (1/2/2018 1:11 PM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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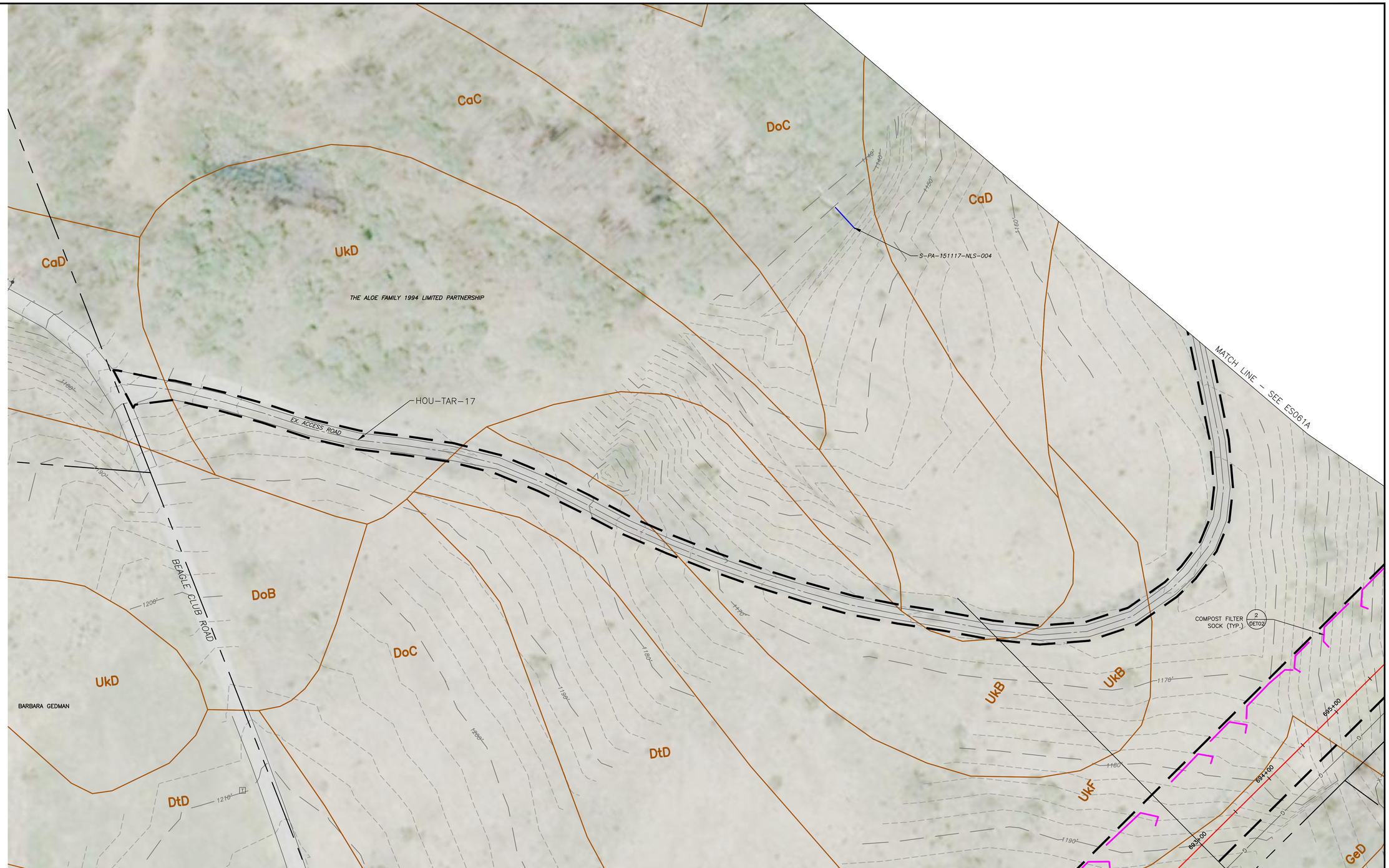
EROSION AND SEDIMENT CONTROL PLAN
ES061A - (HOU-TAR-17)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119756	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174X\SHELL\69489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN061A.DWG
Last saved by: JACOLA.SCHAFER (12/28/2017 5:27 PM) Last Plotted: 2018-01-05 (1/5/2018 9:26 AM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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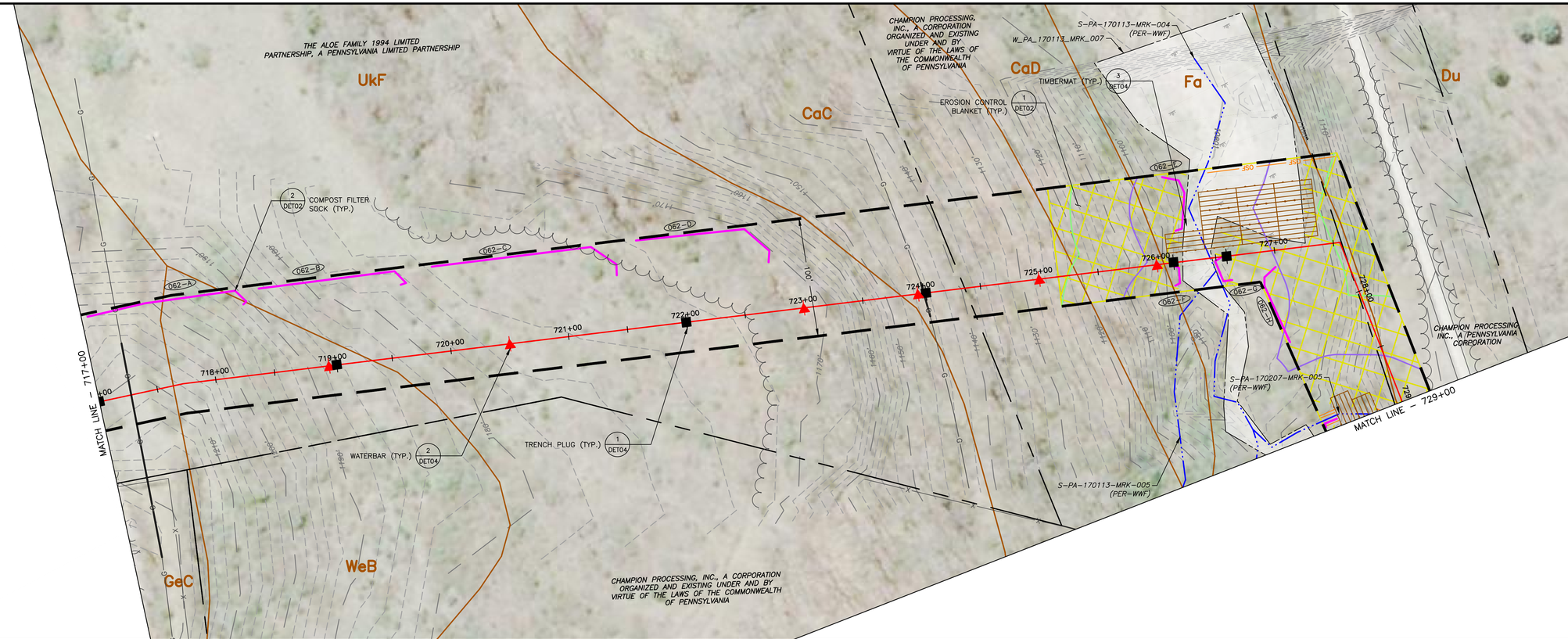
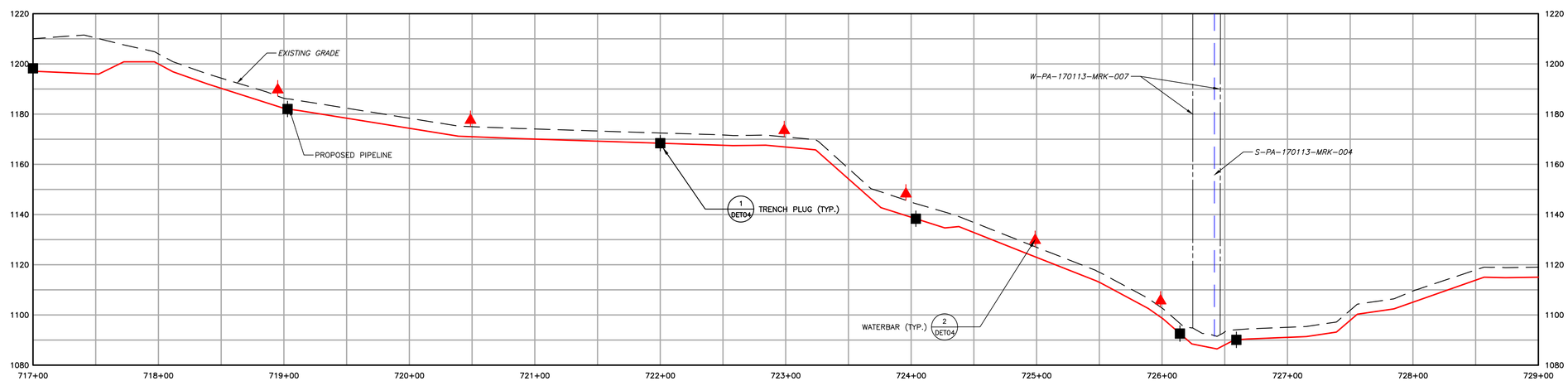
EROSION AND SEDIMENT CONTROL PLAN
ES061B - (HOU-TAR-17)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119757	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174X\SHELL\6948985 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN061B.DWG
Last saved by: JACOLA.SCHAFER (12/28/2017 5:29 PM) Last Plotted: 2018-01-05 (1/5/2018 9:25 AM)



LAND USE	FIELD	WOODS	WETLAND	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		5' STREAM	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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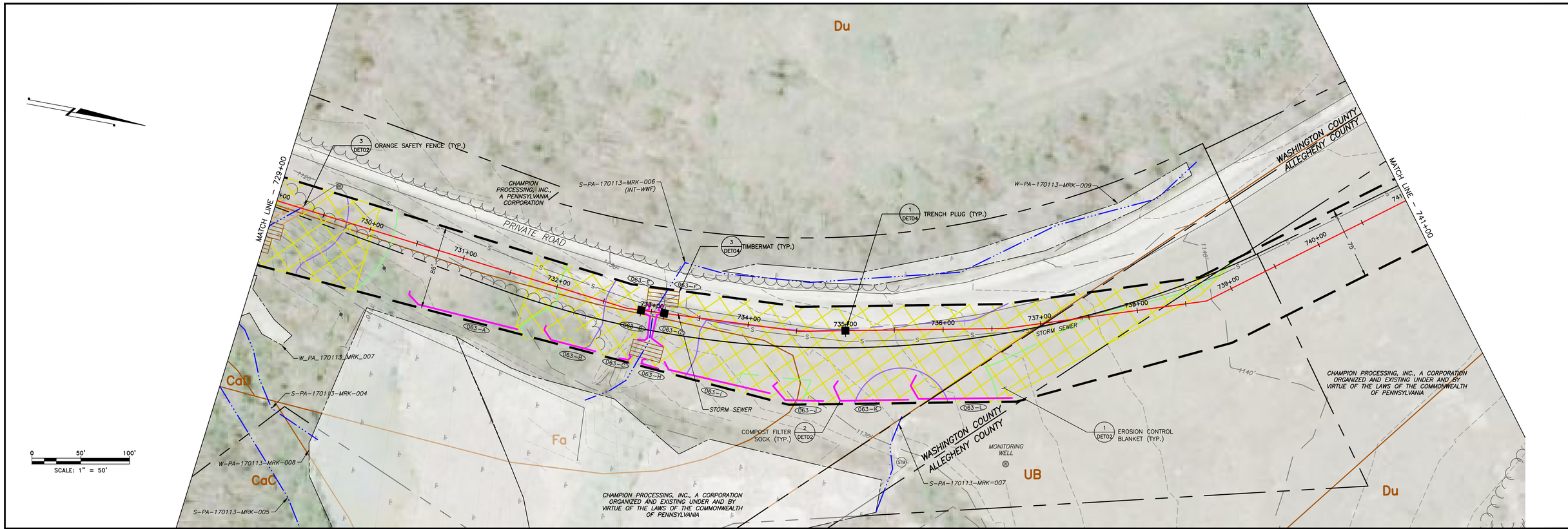
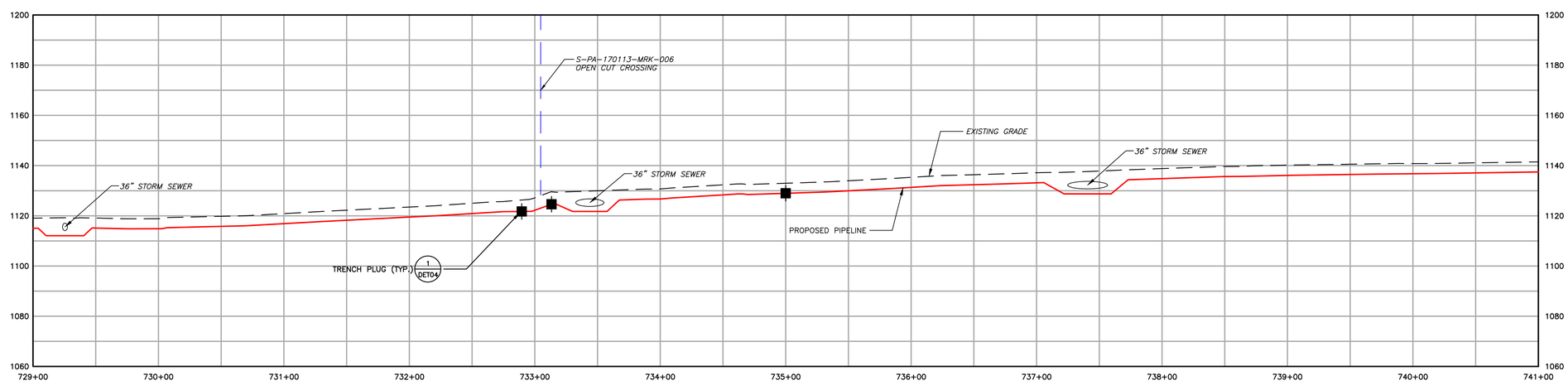
EROSION AND SEDIMENT CONTROL PLAN
ES062 – (STA. 717+00 TO STA. 729+00)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119346	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN062.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:39 AM) Last Plotted: 2018-01-02 (1/2/2018 1:13 PM)



LAND USE	WOODS	FIELD	STREAM	FIELD	RD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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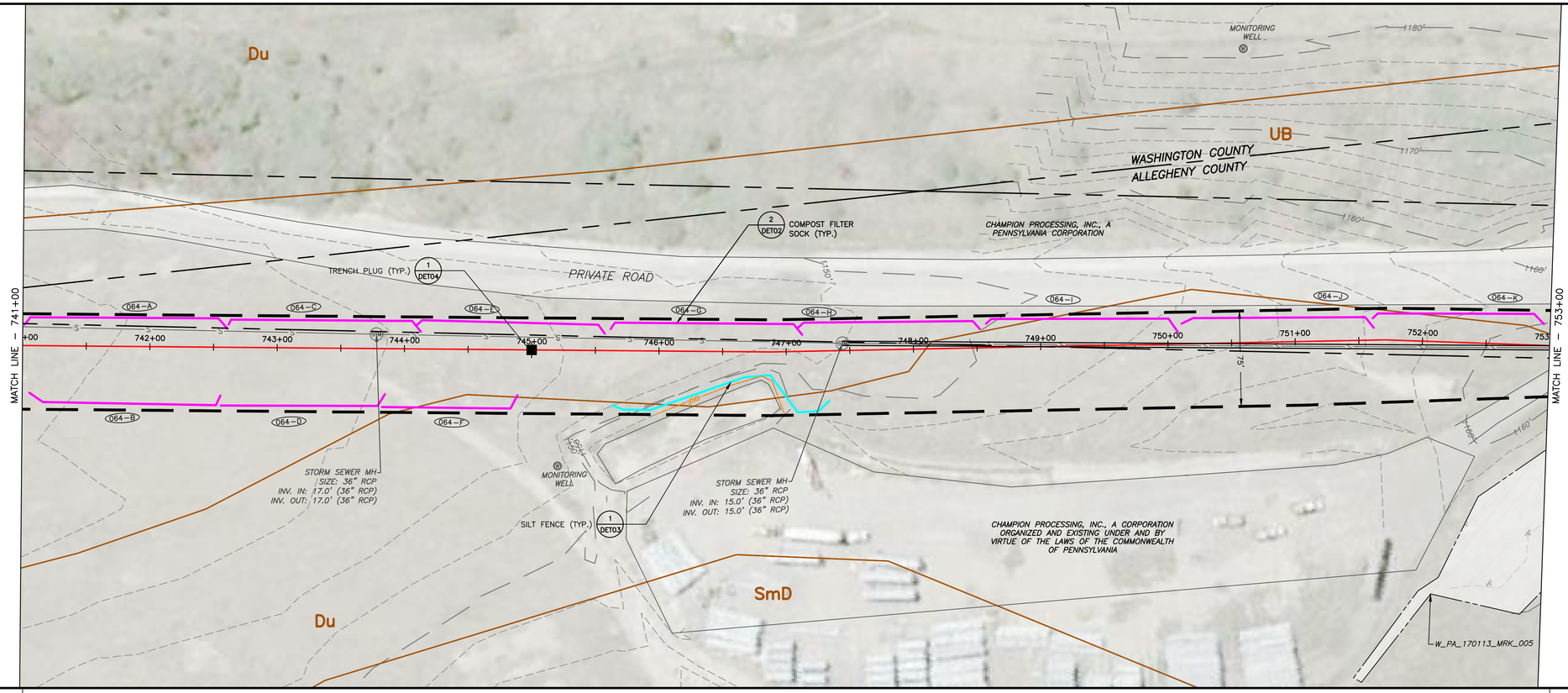
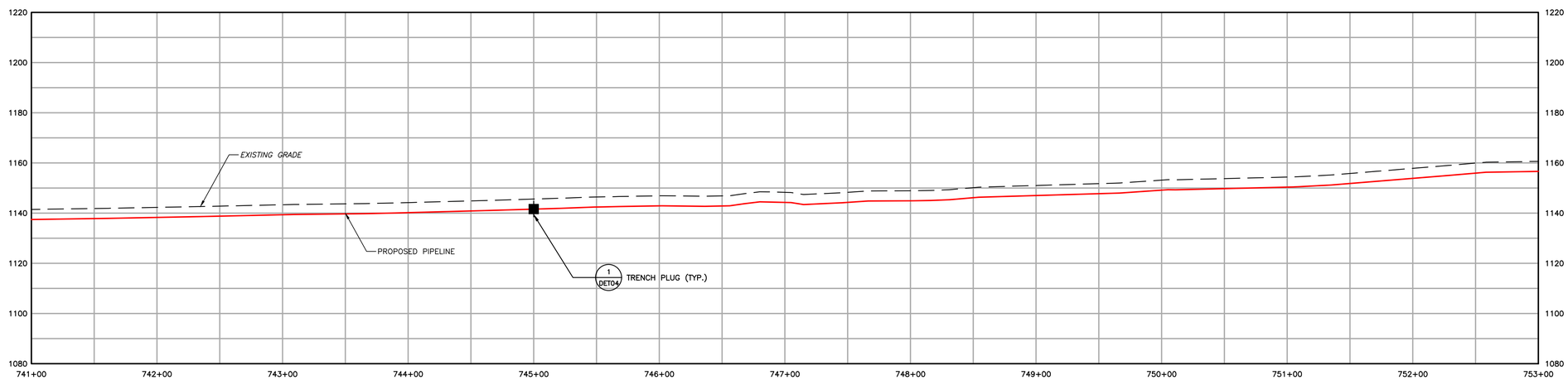
EROSION AND SEDIMENT CONTROL PLAN
ES063 – (STA. 729+00 TO STA. 741+00)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	12/05/2017	SPLC–GOM–AE–SD119347	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459895 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN063.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:40 AM) Last Plotted: 2018–01–02 (1/2/2018 1:14 PM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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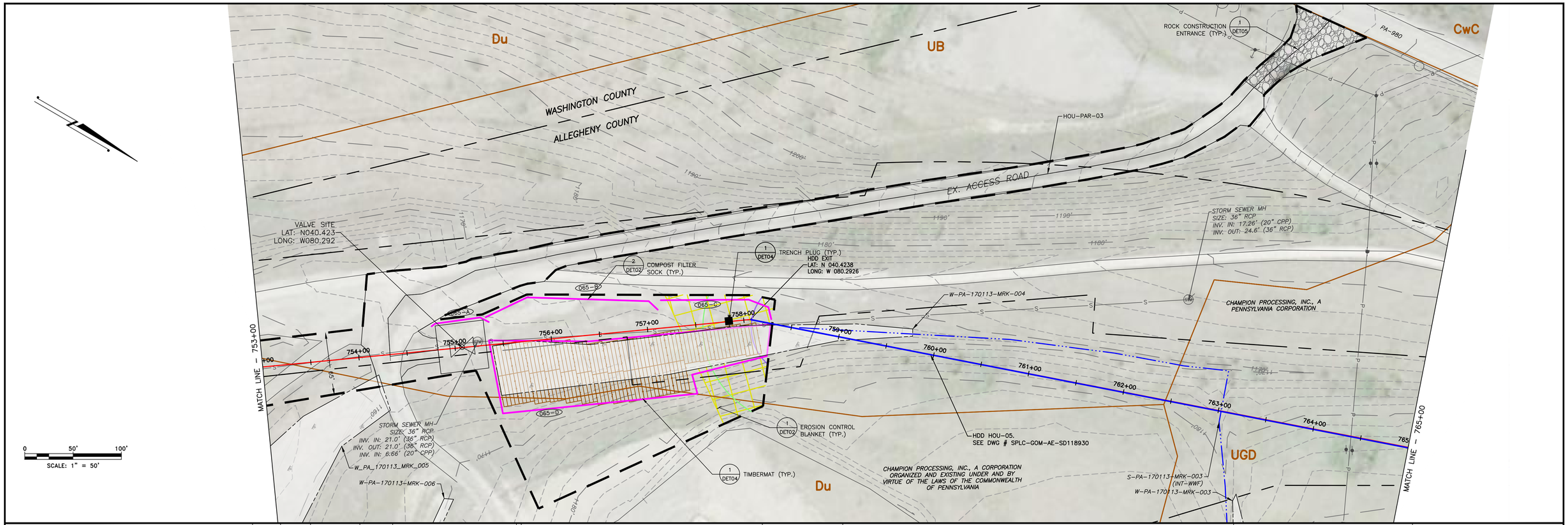
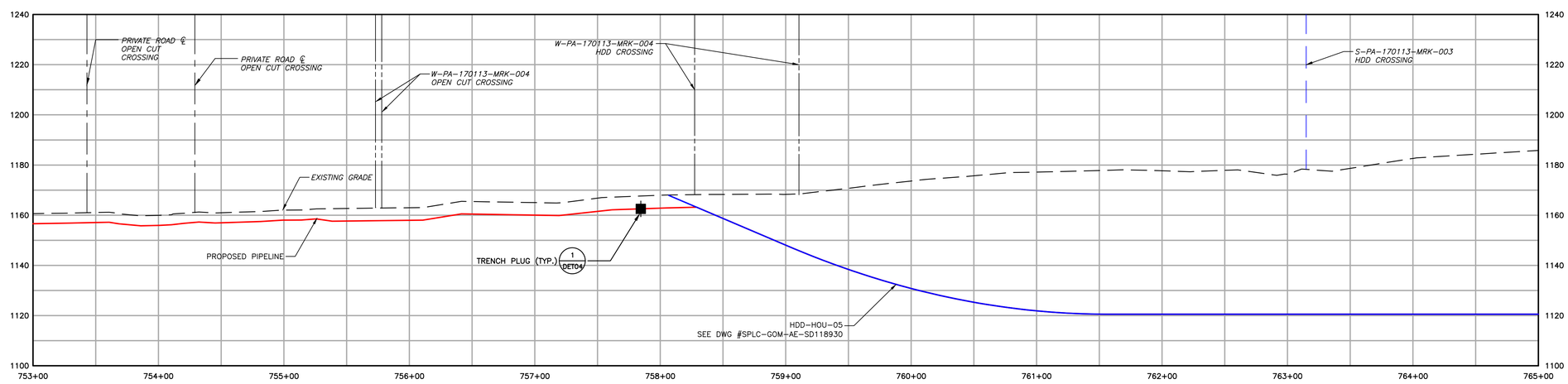
EROSION AND SEDIMENT CONTROL PLAN
ES064 – (STA. 741+00 TO STA. 753+00)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119348	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN064.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:44 AM) Last Plotted: 2018-01-02 (1/2/2018 1:15 PM)



LAND USE	FIELD	ROAD	FIELD	ROAD	FIELD	WETLAND	FIELD	WETLAND	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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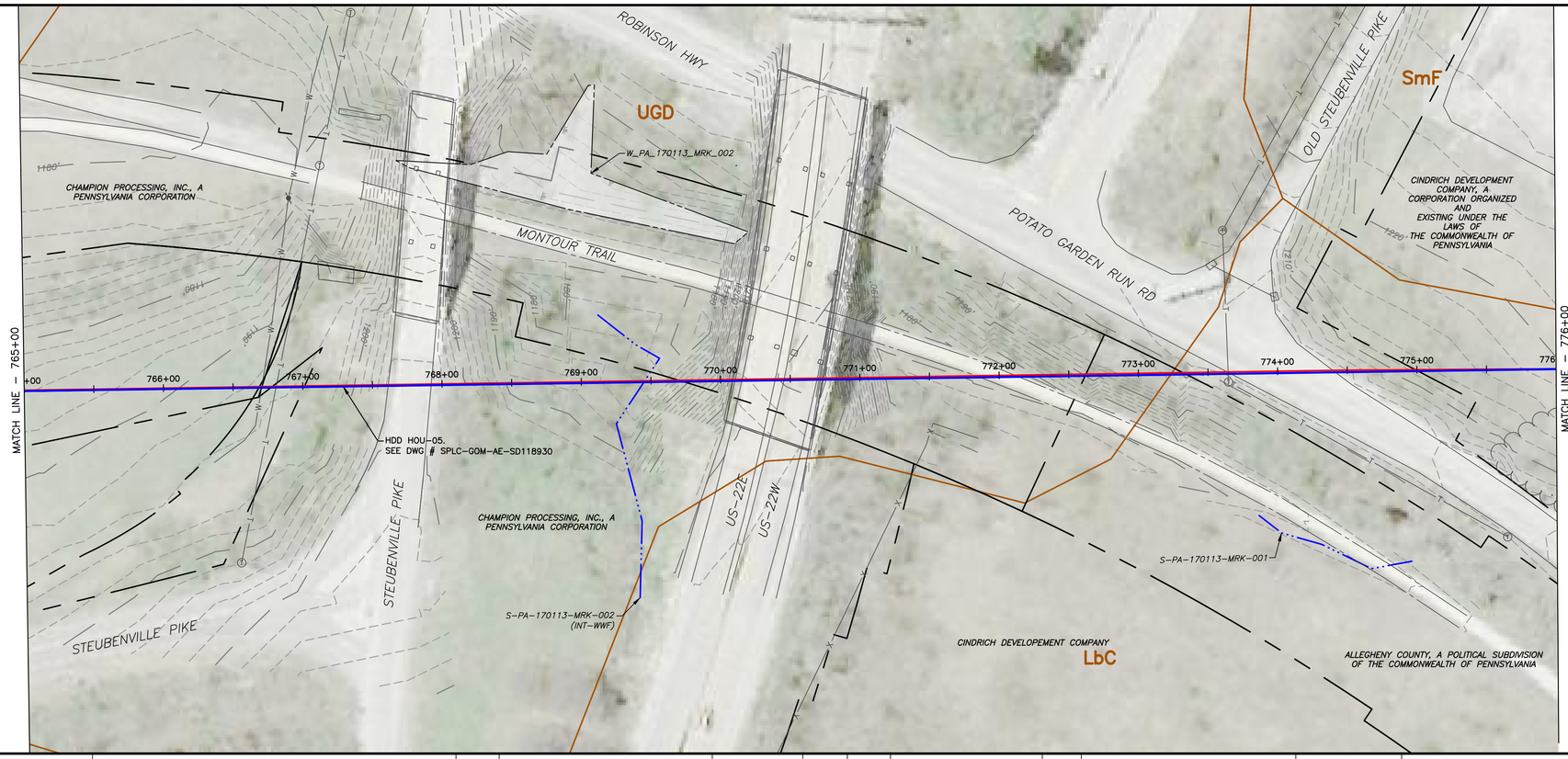
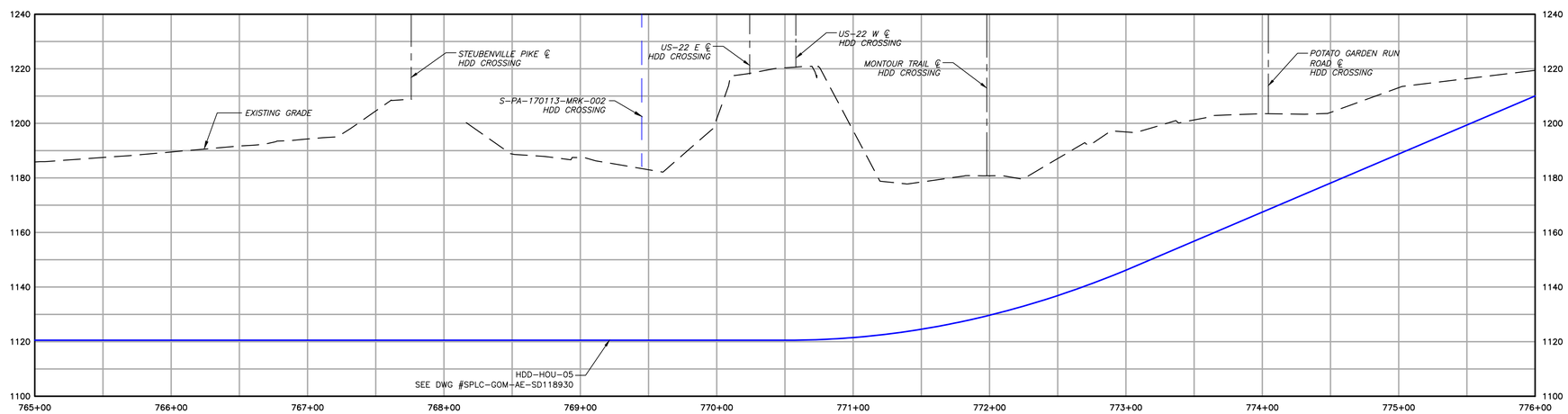
EROSION AND SEDIMENT CONTROL PLAN
ES065 – (STA. 753+00 TO STA. 765+00)
WASHINGTON AND ALLEGHENY COUNTY PENNSYLVANIA
ROBINSON AND NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119349	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0458889 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN065.DWG
Last saved by: CESARGA (12/26/2017 12:14 PM) Last Plotted: 2018-01-02 (1/2/2018 1:17 PM)



LAND USE	FIELD	ROAD	FIELD	STREAM	FIELD	ROAD	ROAD	FIELD	ROAD	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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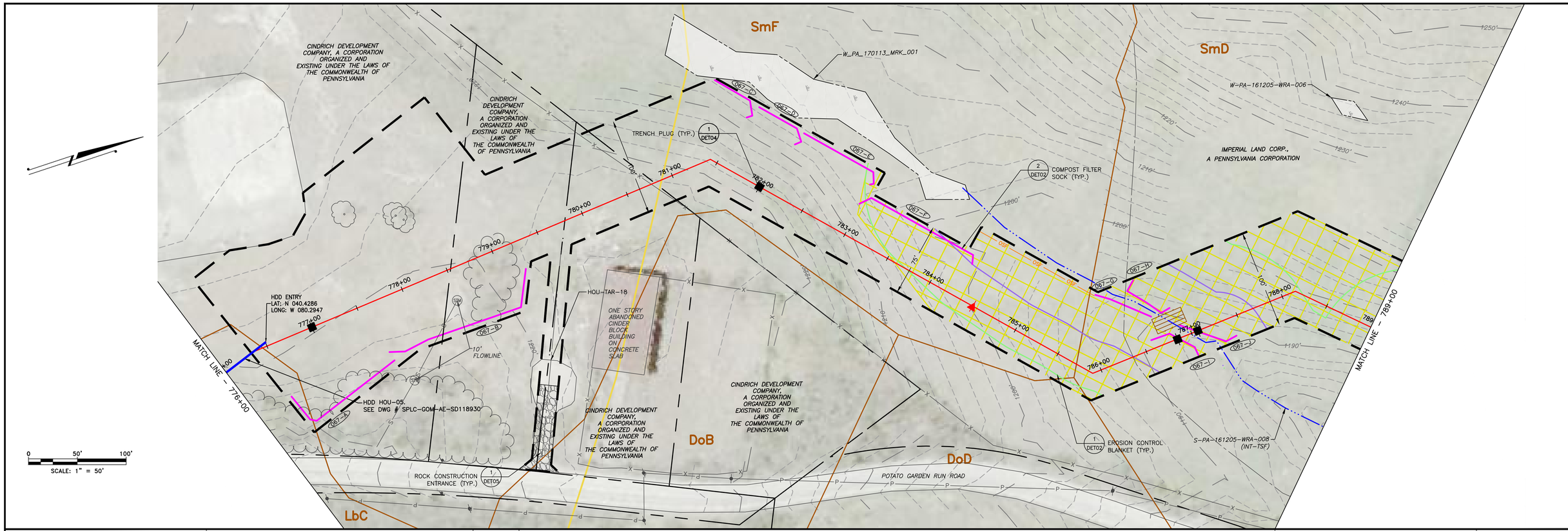
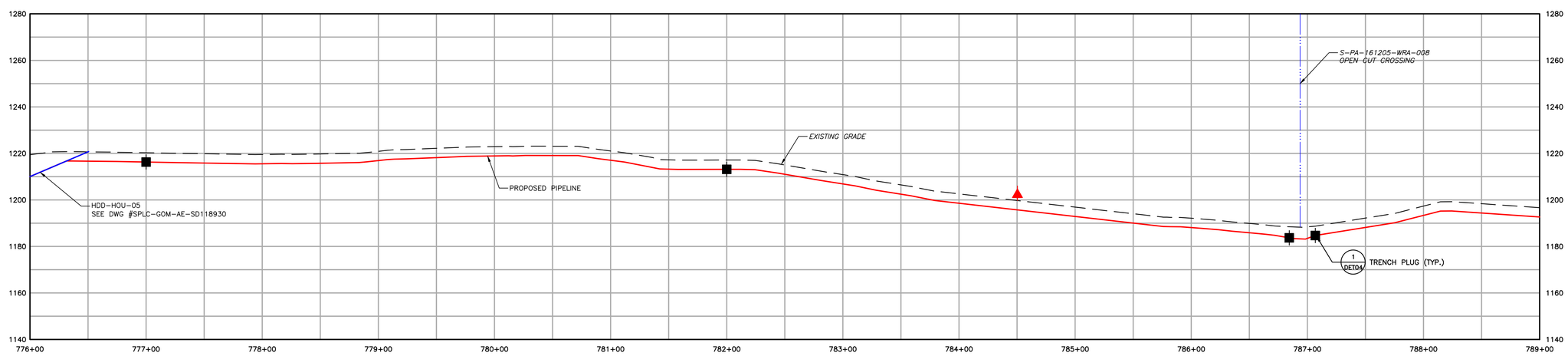
EROSION AND SEDIMENT CONTROL PLAN
ES066 – (STA. 765+00 TO STA. 776+00)
ALLEGHENY COUNTY PENNSYLVANIA
NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119350	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN066.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:48 AM) Last Plotted: 2018-01-02 (1/2/2018 1:18 PM)



LAND USE	FIELD	WOODS	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'			5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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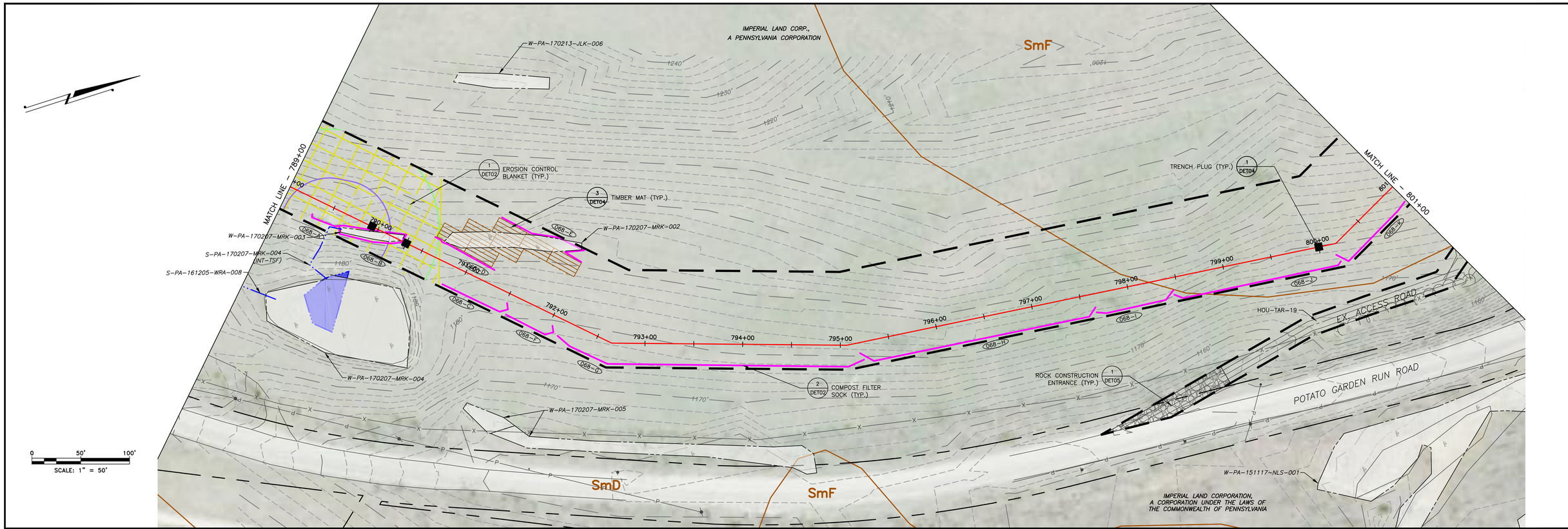
EROSION AND SEDIMENT CONTROL PLAN
ES067 – (STA. 776+00 TO STA. 789+00)

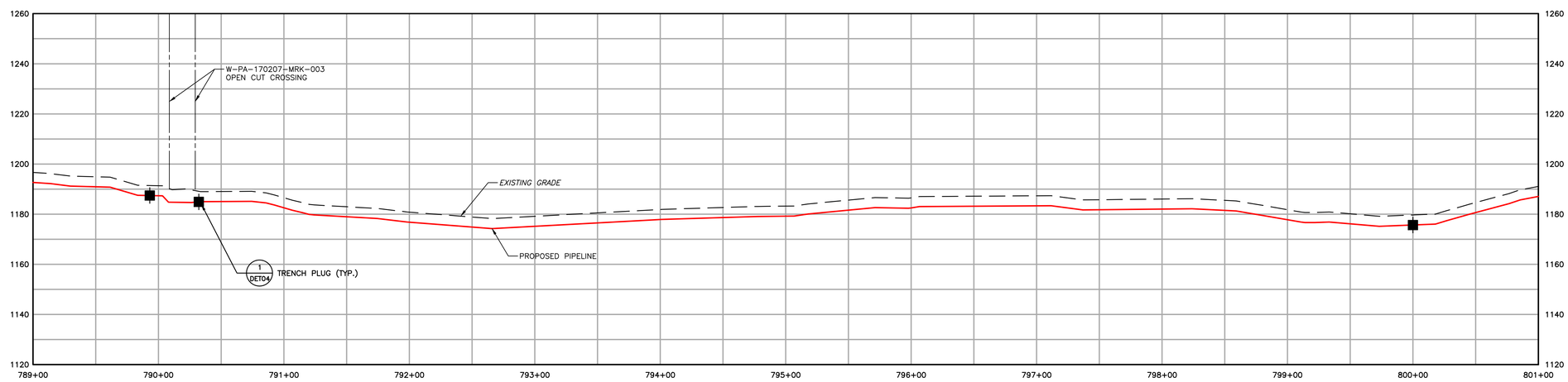
ALLEGHENY COUNTY PENNSYLVANIA
NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119351	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN067.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:49 AM) Last Plotted: 2018-01-05 (1/5/2018 10:32 AM)



LAND USE	FIELD	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF — PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 — SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL — LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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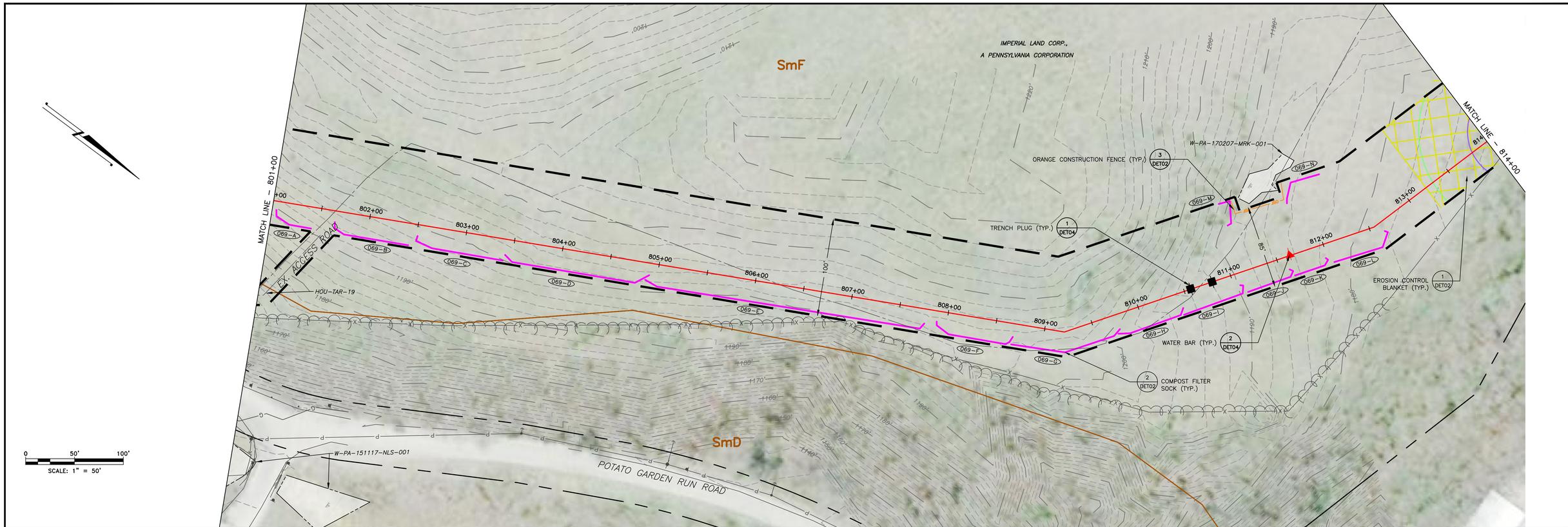
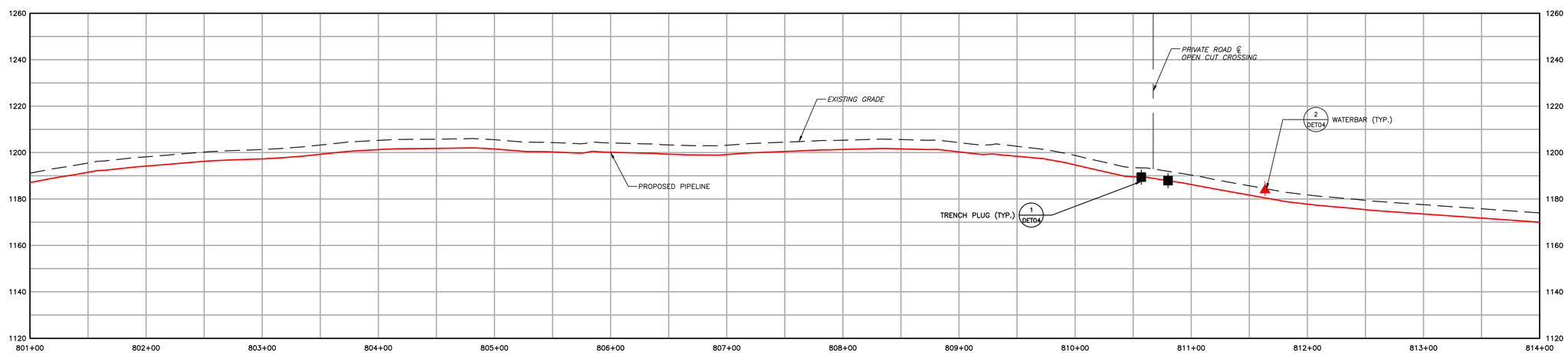
EROSION AND SEDIMENT CONTROL PLAN
ES068 – (STA. 789+00 TO STA. 801+00)
ALLEGHENY COUNTY PENNSYLVANIA
NORTH FAYETTE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119352	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN068.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:51 AM) Last Plotted: 2018-01-02 (1/2/2018 1:23 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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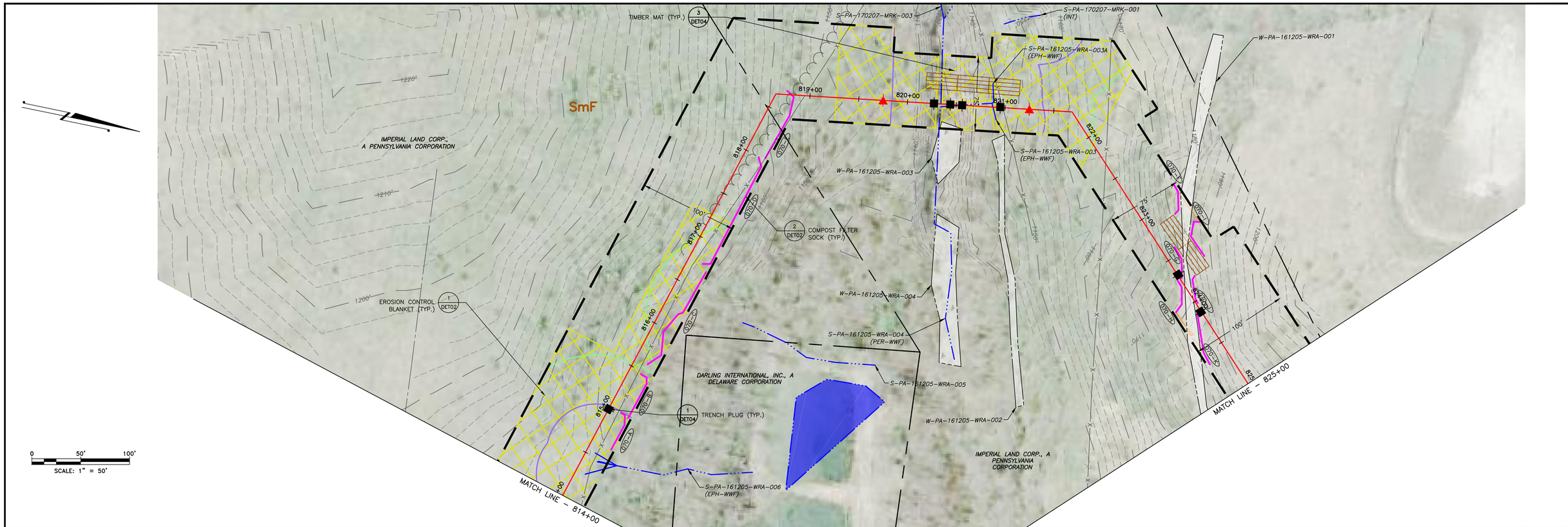
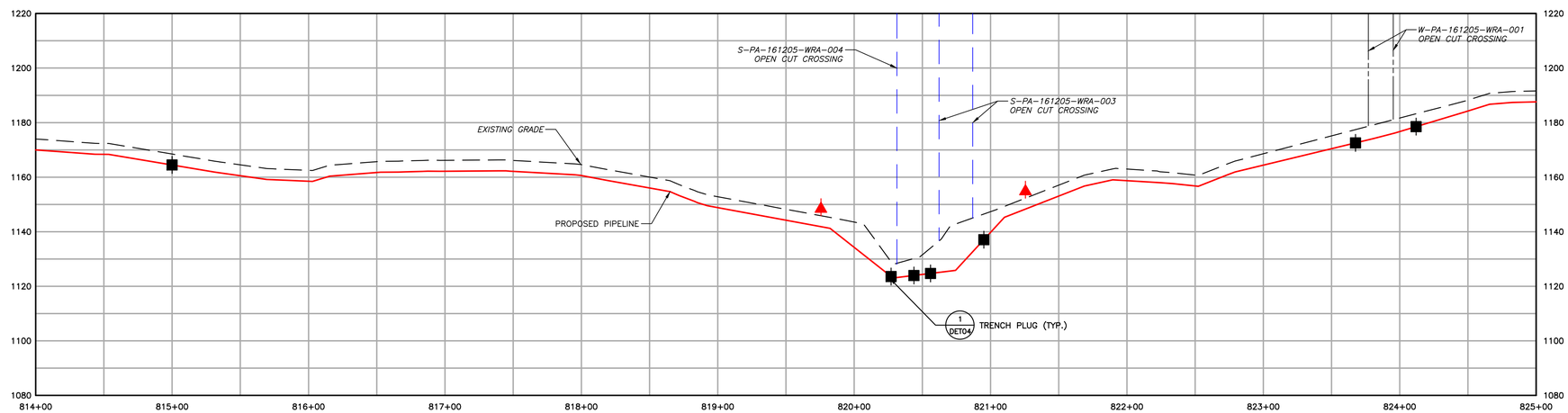
EROSION AND SEDIMENT CONTROL PLAN
ES069 – (STA. 801+00 TO STA. 814+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119353	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459895 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN069.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:52 AM) Last Plotted: 2018-01-02 (1/2/2018 1:21 PM)



LAND USE	FIELD	WOODS	FIELD	WOODS	STREAM	WOODS	WOODS	STREAM	WOODS	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'				5' 4'	5' 4'	7' 5'	STREAM 4'		5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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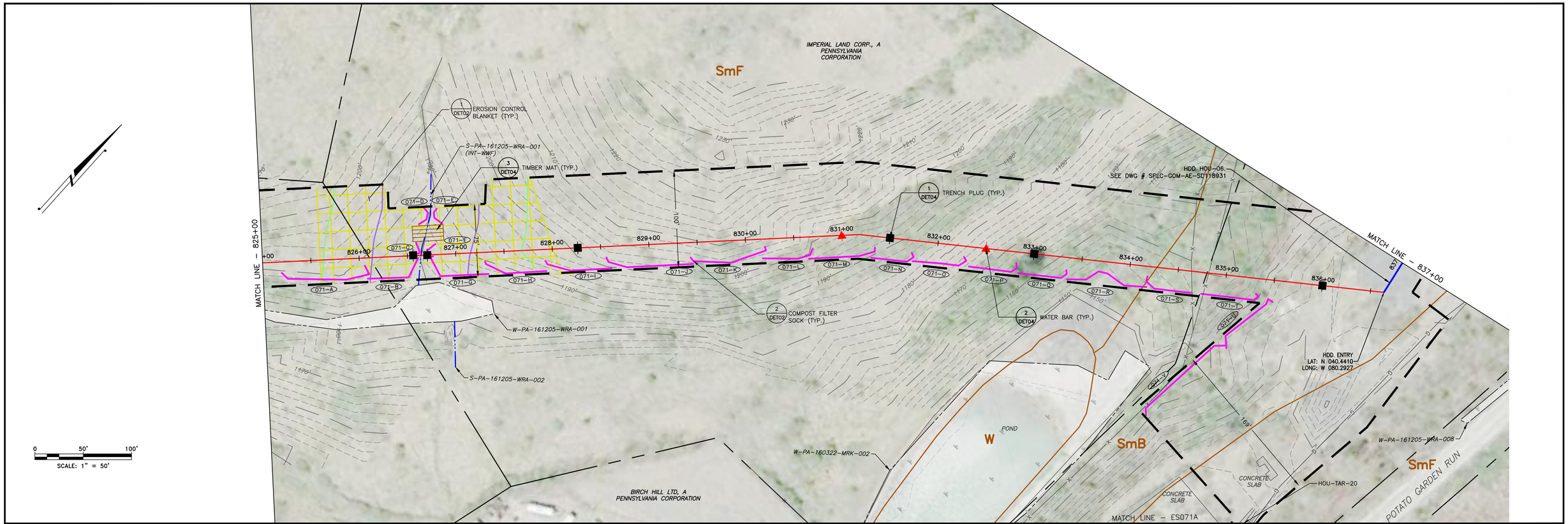
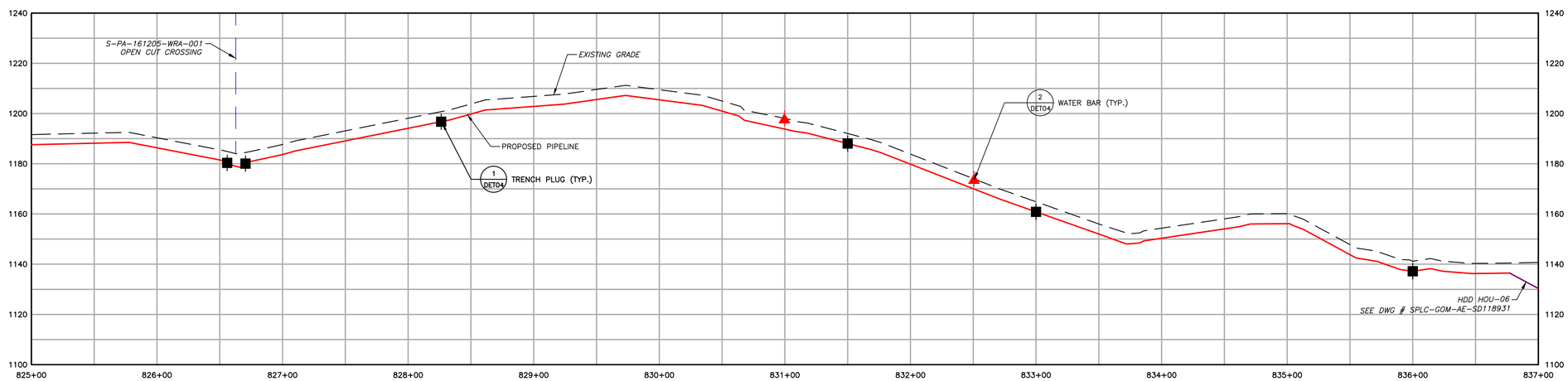
EROSION AND SEDIMENT CONTROL PLAN
ES070 – (STA. 814+00 TO STA. 825+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119354	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN070.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 8:54 AM) Last Plotted: 2018-01-02 (1/2/2018 1:22 PM)



LAND USE	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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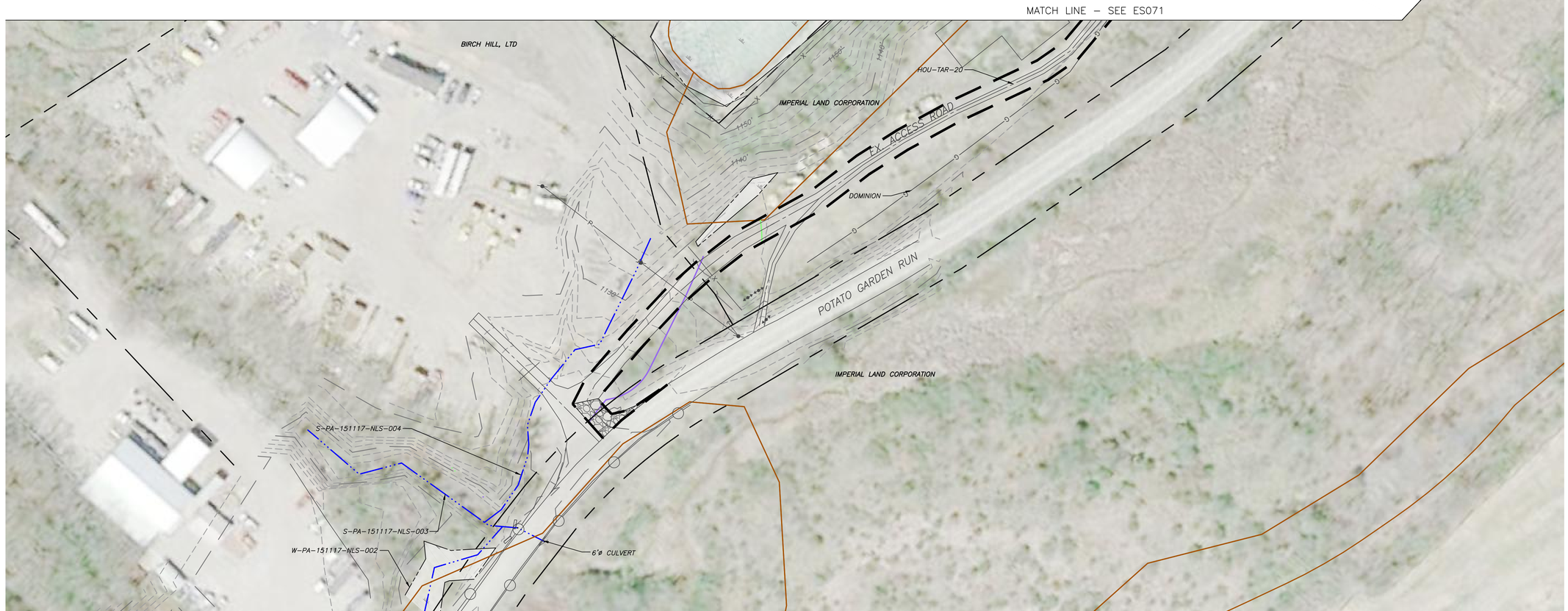
EROSION AND SEDIMENT CONTROL PLAN
ES071 - (STA. 825+00 TO STA. 837+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119355	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN071.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 8:56 AM) Last Plotted: 2018-01-02 (1/2/2018 1:23 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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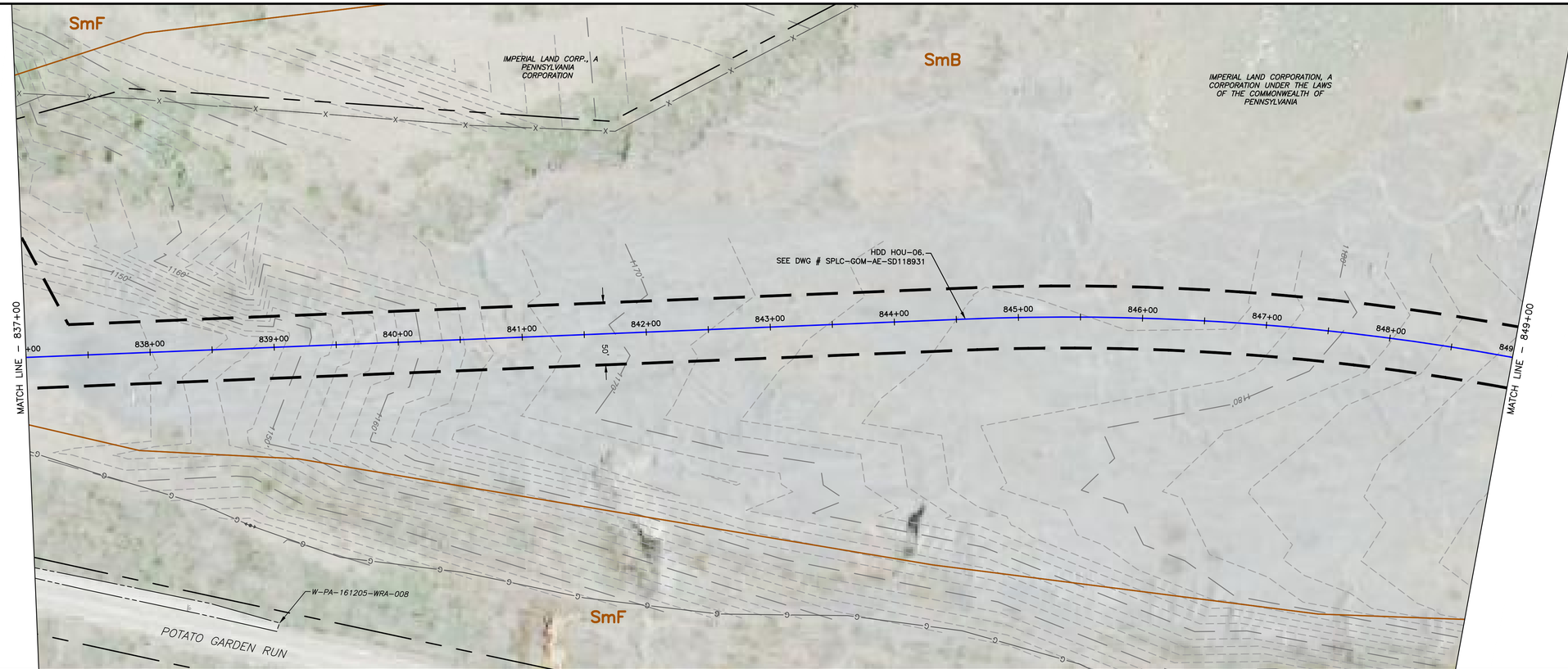
EROSION AND SEDIMENT CONTROL PLAN
ES071A – (HOU-TAR-20)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

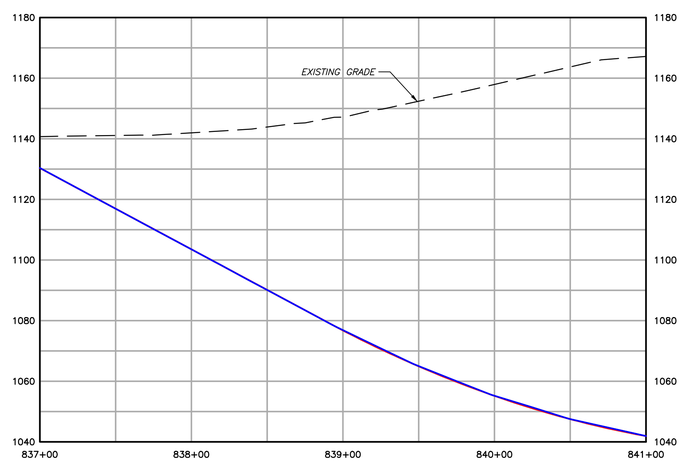
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119758	REVISION
DRAWN	TLM	12/05/17		1

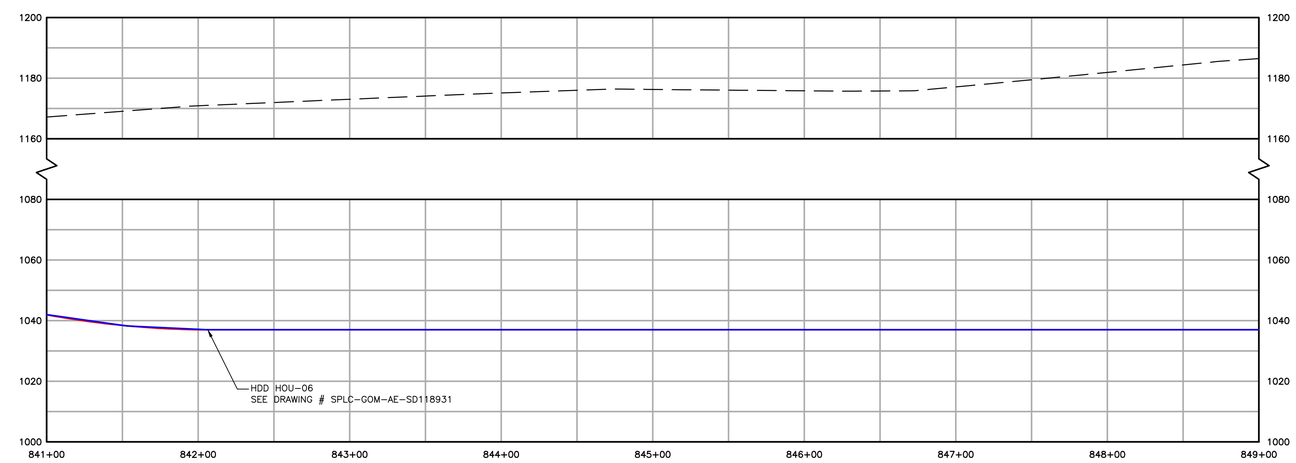
Filename: Y:\PROJECTS\174\SHELL\69489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN071A.DWG
Last saved by: JACOLA.SCHAFER (12/28/2017 2:20 PM) Last Plotted: 2018-01-02 (1/2/2018 1:23 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD		FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	





1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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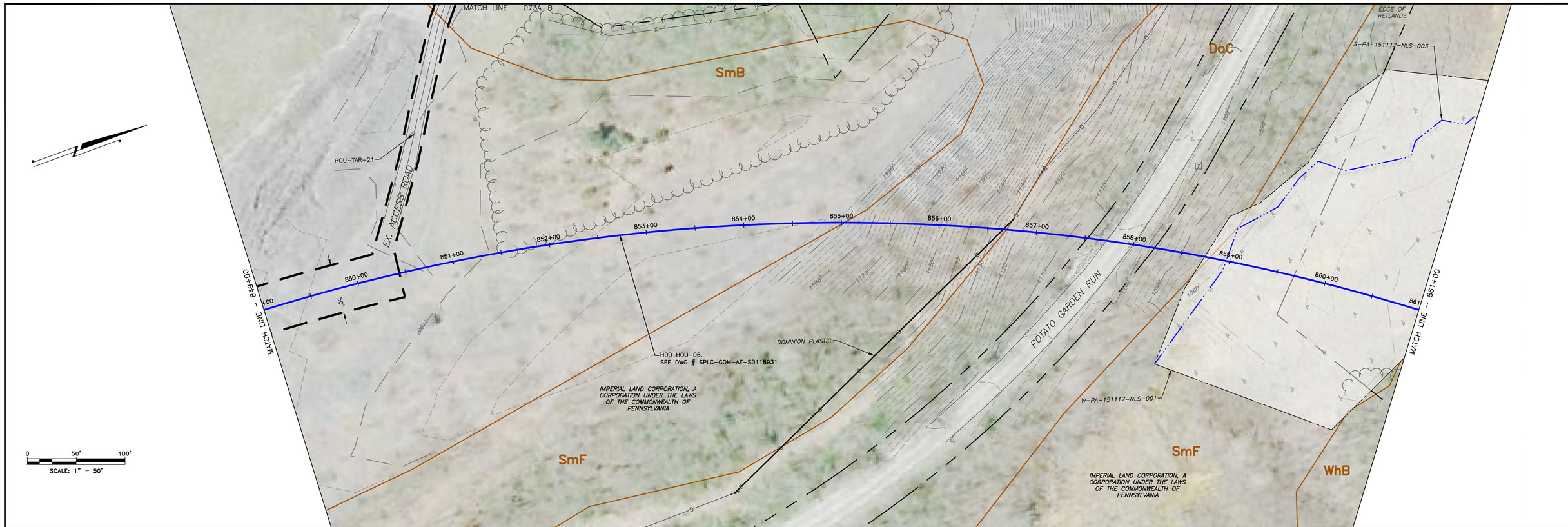
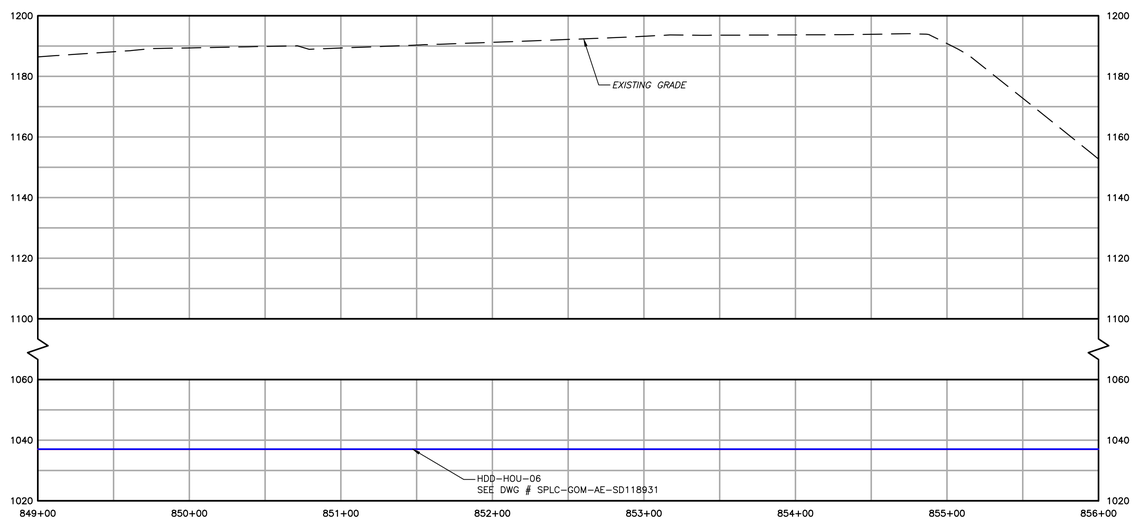
EROSION AND SEDIMENT CONTROL PLAN
ES072 – (STA. 837+00 TO STA. 849+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

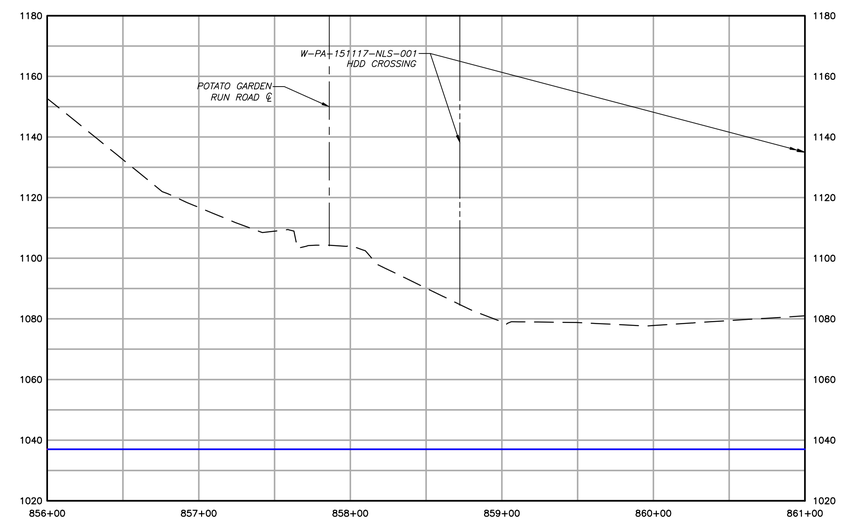
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119356	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN072.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:50 AM) Last Plotted: 2018-01-02 (1/2/2018 1:25 PM)



LAND USE	FIELD	WOODS	FIELD		FIELD	ROAD	FIELD	WETLAND	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'				4'	5'	4'	5'	





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE–081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES073 – (STA. 849+00 TO STA. 861+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119357	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN073.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:02 AM) Last Plotted: 2018–01–02 (1/2/2018 1:26 PM)

0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
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ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES073A – (STA. 849+00 TO STA. 861+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119759	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\6489885 - FALCON\100-WORK\11-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN073A.DWG
Last Saved by: LINCOLN.SCHAEFER (12/28/2017 2:21 PM) Last Plotted: 2018-01-02 (1/2/2018 1:26 PM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
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GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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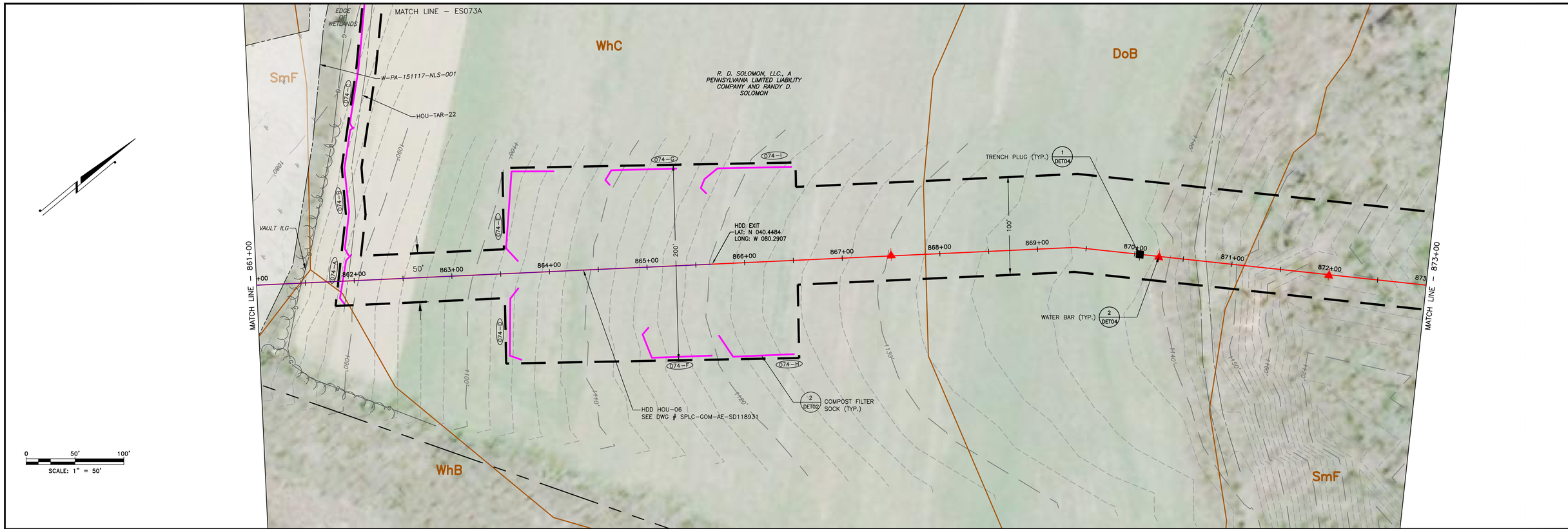
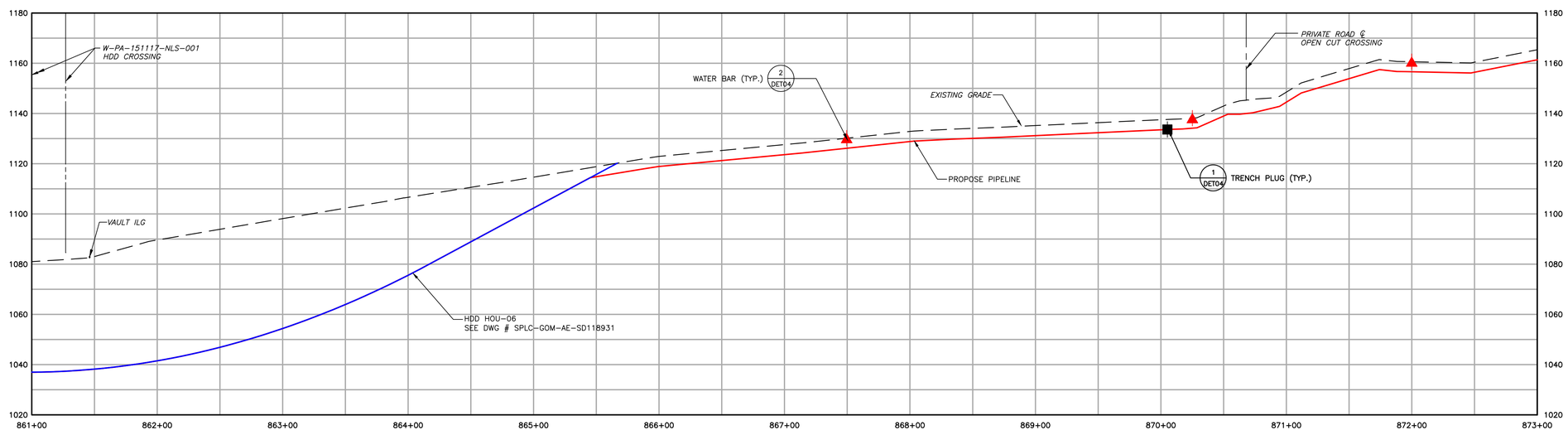
EROSION AND SEDIMENT CONTROL PLAN
ES073B – (STA. 849+00 TO STA. 861+00)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119760	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\747\SHELL\6489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN073B.DWG
Last saved by: UNCLA3CSMUTER (12/28/2017 2:22 PM) Last Plotted: 2018-01-02 (1/2/2018 1:27 PM)



LAND USE	WETLAND	WOODS	FIELD	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
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	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
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MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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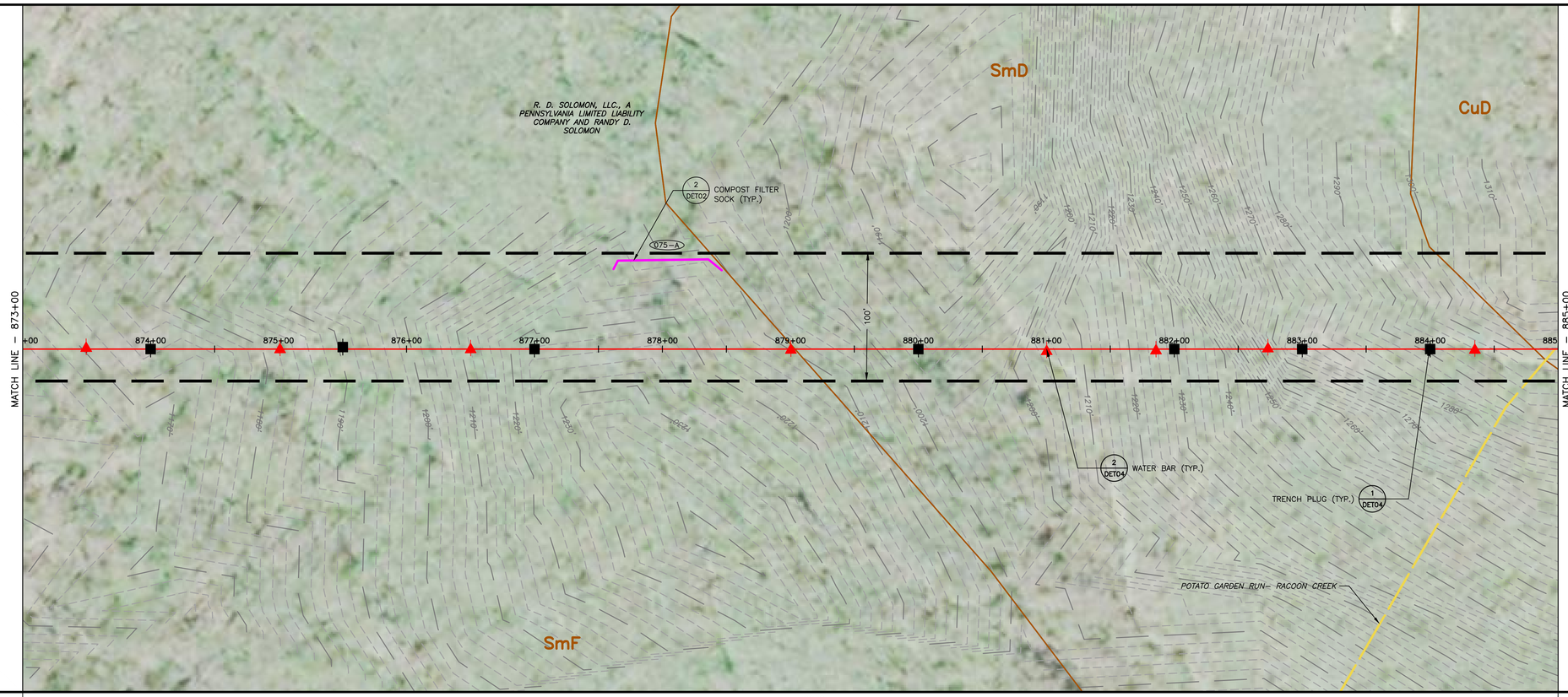
EROSION AND SEDIMENT CONTROL PLAN
ES074 – (STA. 861+00 TO STA. 873+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

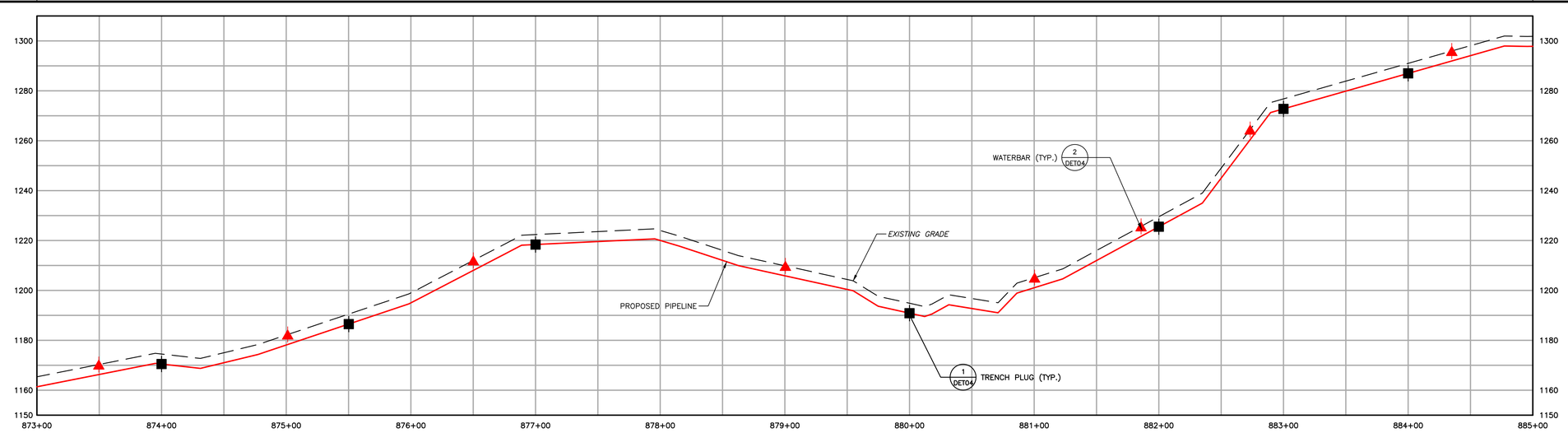
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119358	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN074.DWG
Last saved by: UNCOUN.SCHAEFER (12/29/2017 9:07 AM) Last Plotted: 2018-01-02 (1/2/2018 1:28 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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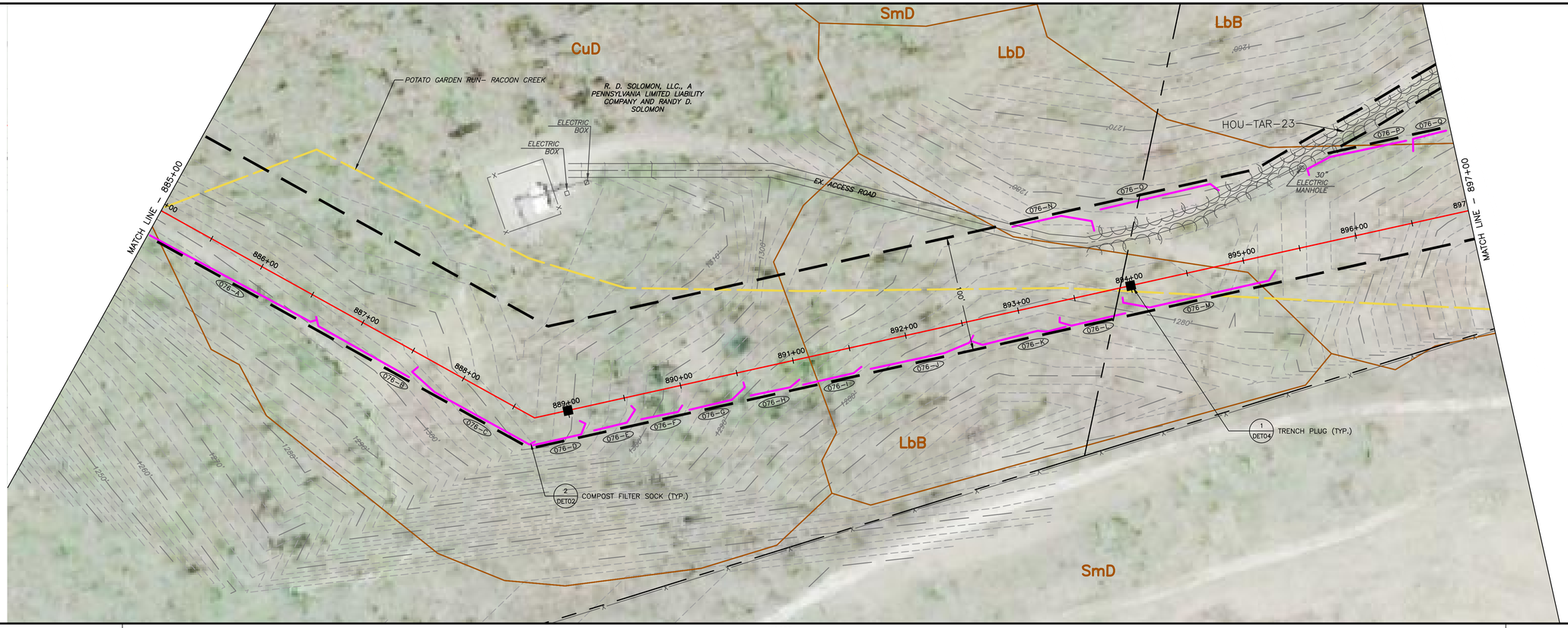
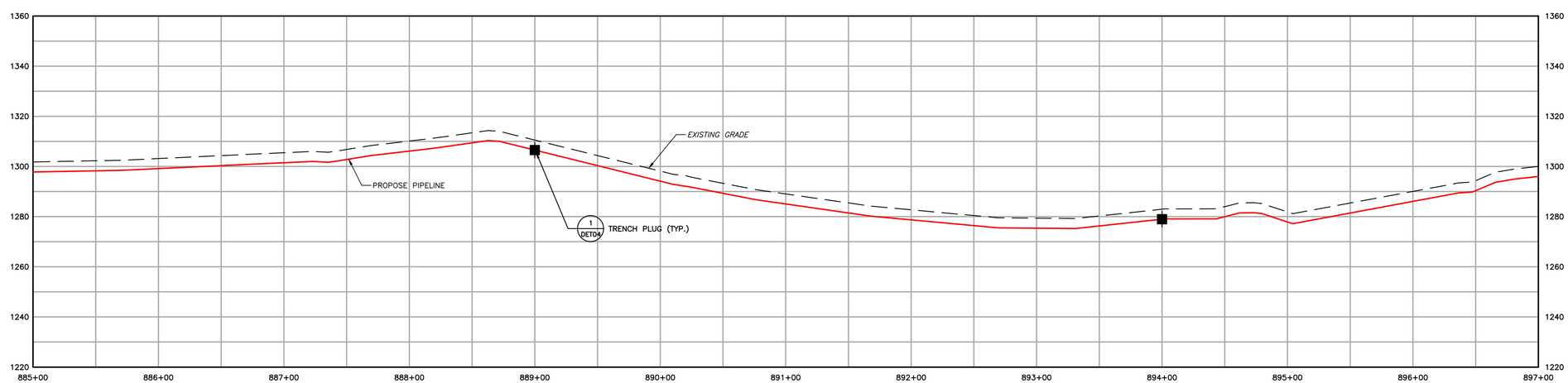
EROSION AND SEDIMENT CONTROL PLAN
ES075 – (STA. 873+00 TO STA. 885+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119359	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN075.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:10 AM) Last Plotted: 2018-01-02 (1/2/2018 1:29 PM)



LAND USE	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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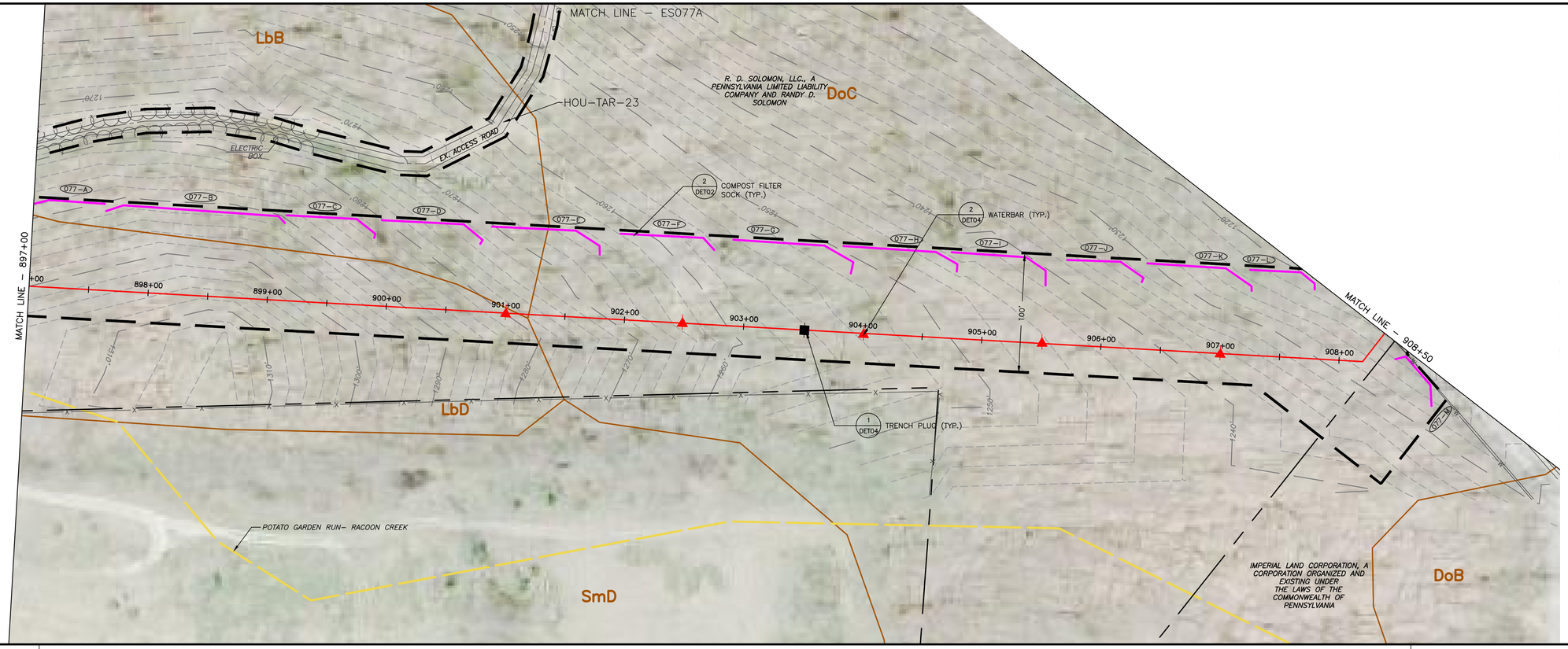
EROSION AND SEDIMENT CONTROL PLAN
ES076 – (STA. 885+00 TO STA. 897+00)

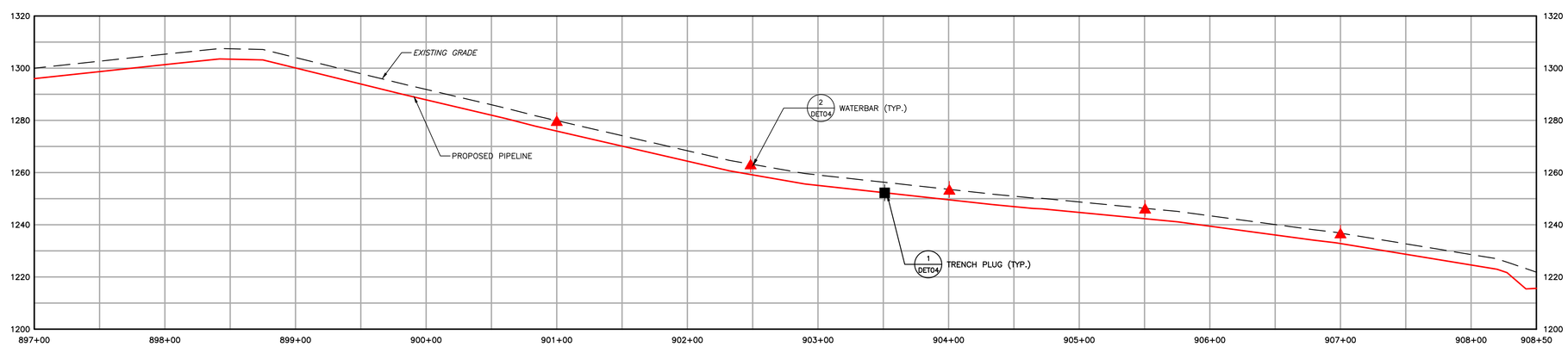
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119360	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHEILL\0489885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN076.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:11 AM) Last Plotted: 2018–01–02 (1/2/2018 1:35 PM)



LAND USE	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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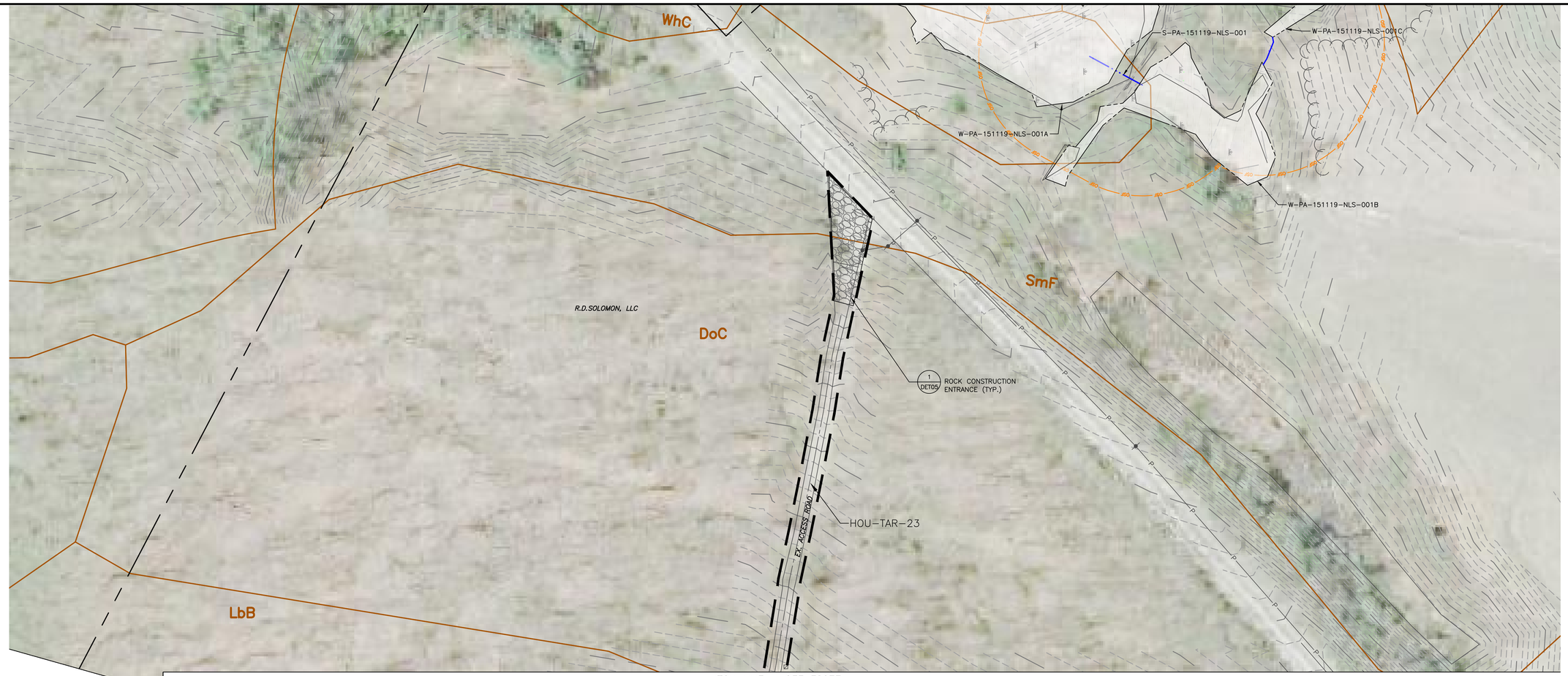
EROSION AND SEDIMENT CONTROL PLAN
ES077 – (STA. 897+00 TO STA. 908+50)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119361	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0485885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN077.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:13 AM) Last Plotted: 2018-01-02 (1/2/2018 1:31 PM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
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	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
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GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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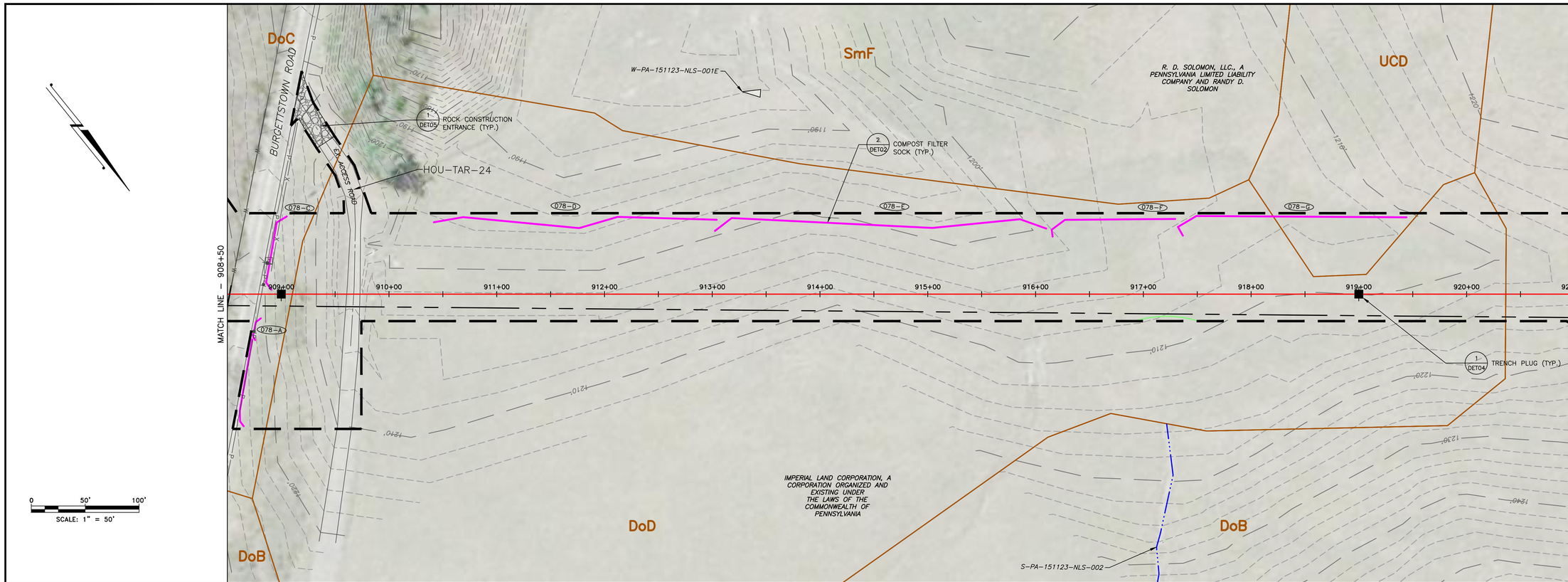
EROSION AND SEDIMENT CONTROL PLAN
ES077A – (HOU-TAR-23)

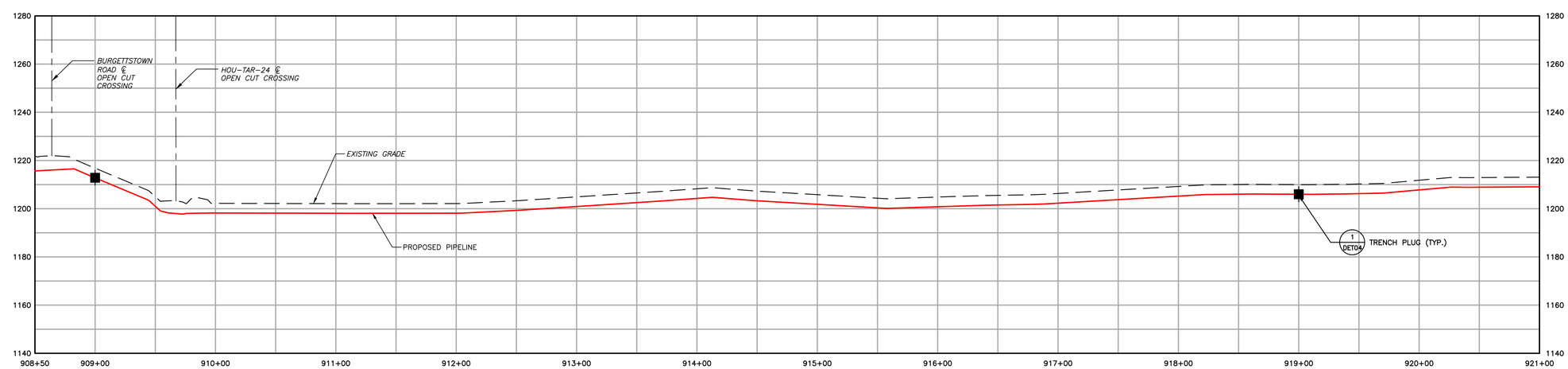
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119761	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174X\SHELL\6948985 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN077A.DWG
Last saved by: JACOLA.SCHAFER (12/28/2017 2:23 PM) Last Plotted: 2018-01-02 (1/2/2018 1:32 PM)



LAND USE	WOODS	ROAD	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)		5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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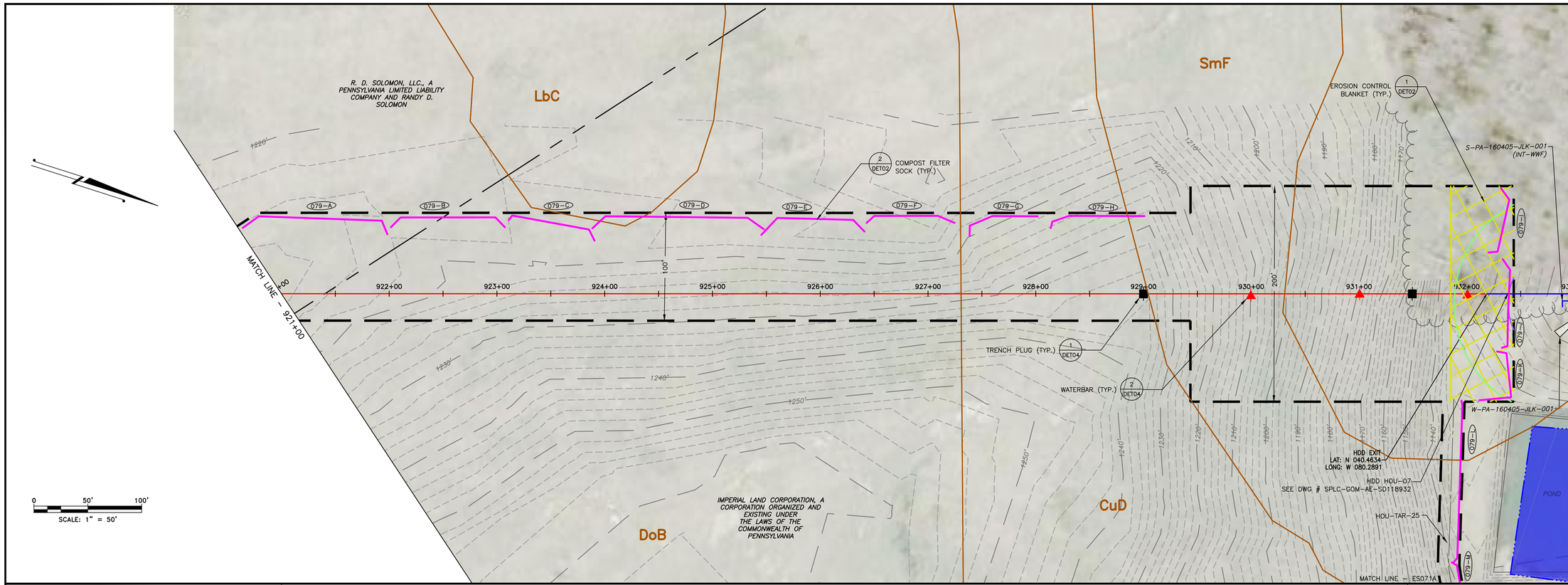
EROSION AND SEDIMENT CONTROL PLAN
ES078 – (STA. 908+50 TO STA. 921+00)

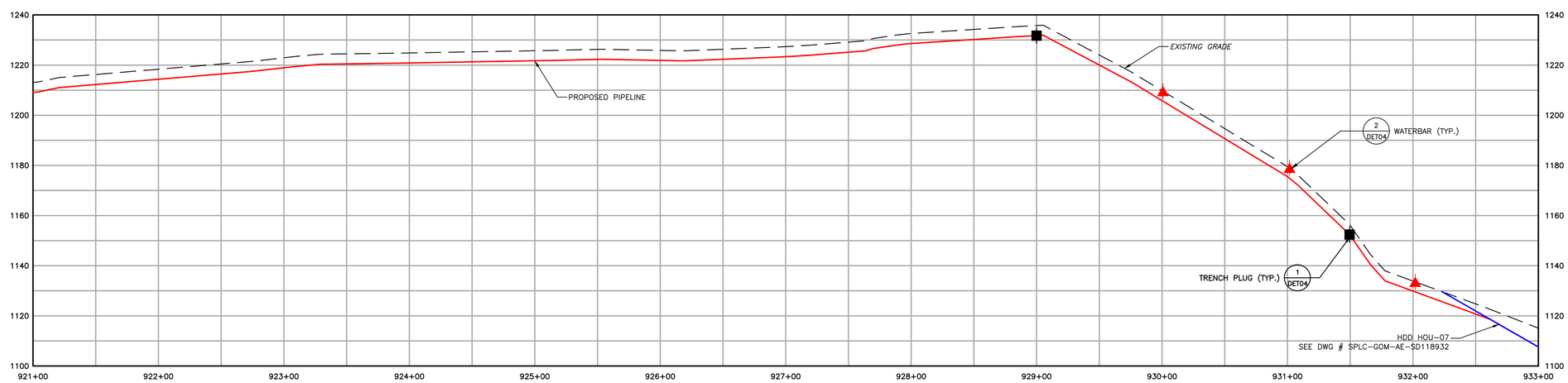
ALLEGHENY COUNTY
FINDLEY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119362	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN078.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:15 AM) Last Plotted: 2018-01-02 (1/2/2018 1:33 PM)



LAND USE	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE	
	PROPOSED TIMBER MAT	
	PROPOSED EROSION CONTROL BLANKET	
	PROPOSED STONE CONSTRUCTION ENTRANCE	
	100-YEAR FLOODPLAIN	
	WATERSHED BOUNDARY	
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY	
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY	

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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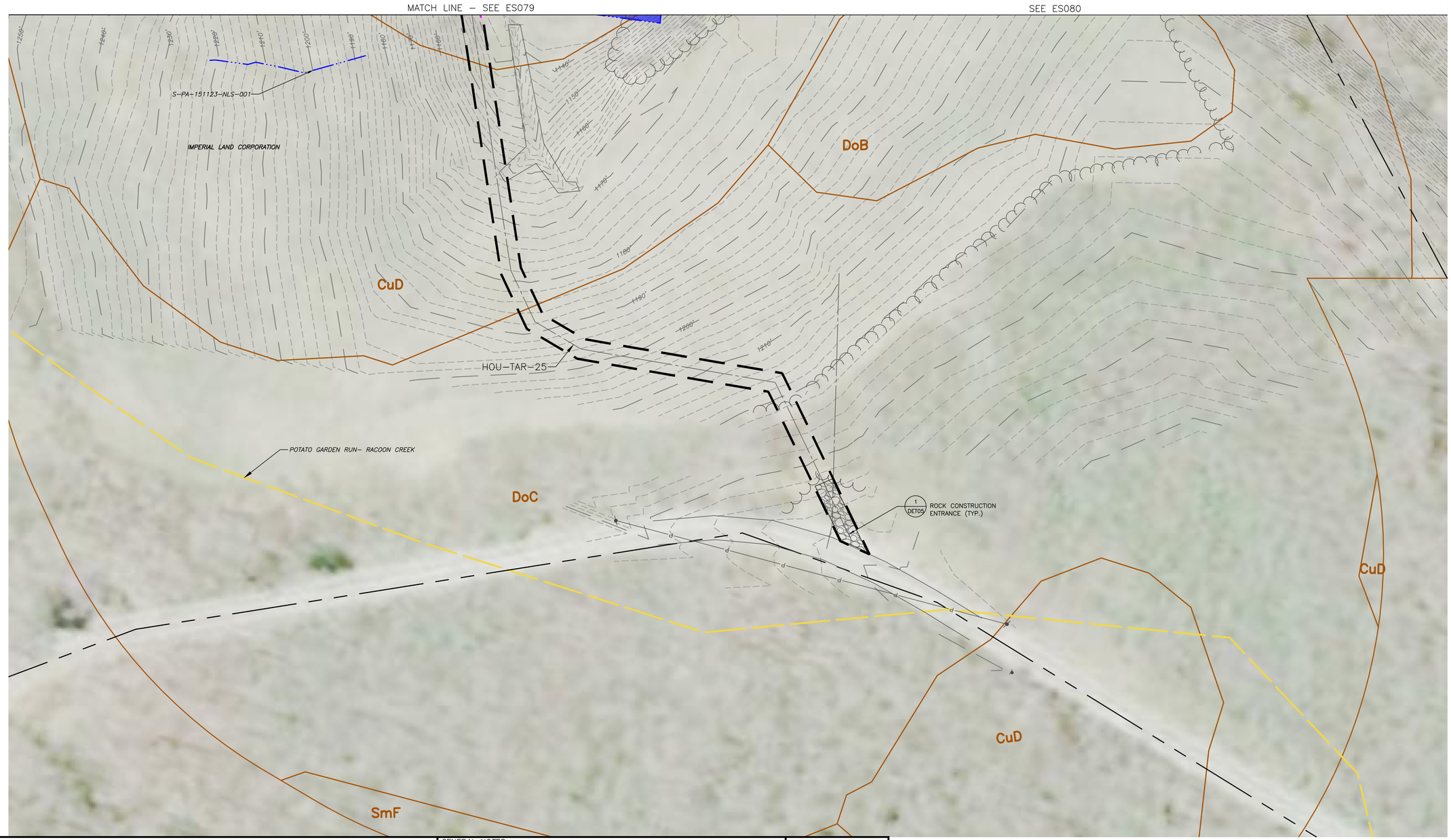
EROSION AND SEDIMENT CONTROL PLAN
ES079 – (STA. 921+00 TO STA. 933+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119363	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN079.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:17 AM) Last Plotted: 2018-01-02 (1/2/2018 1:34 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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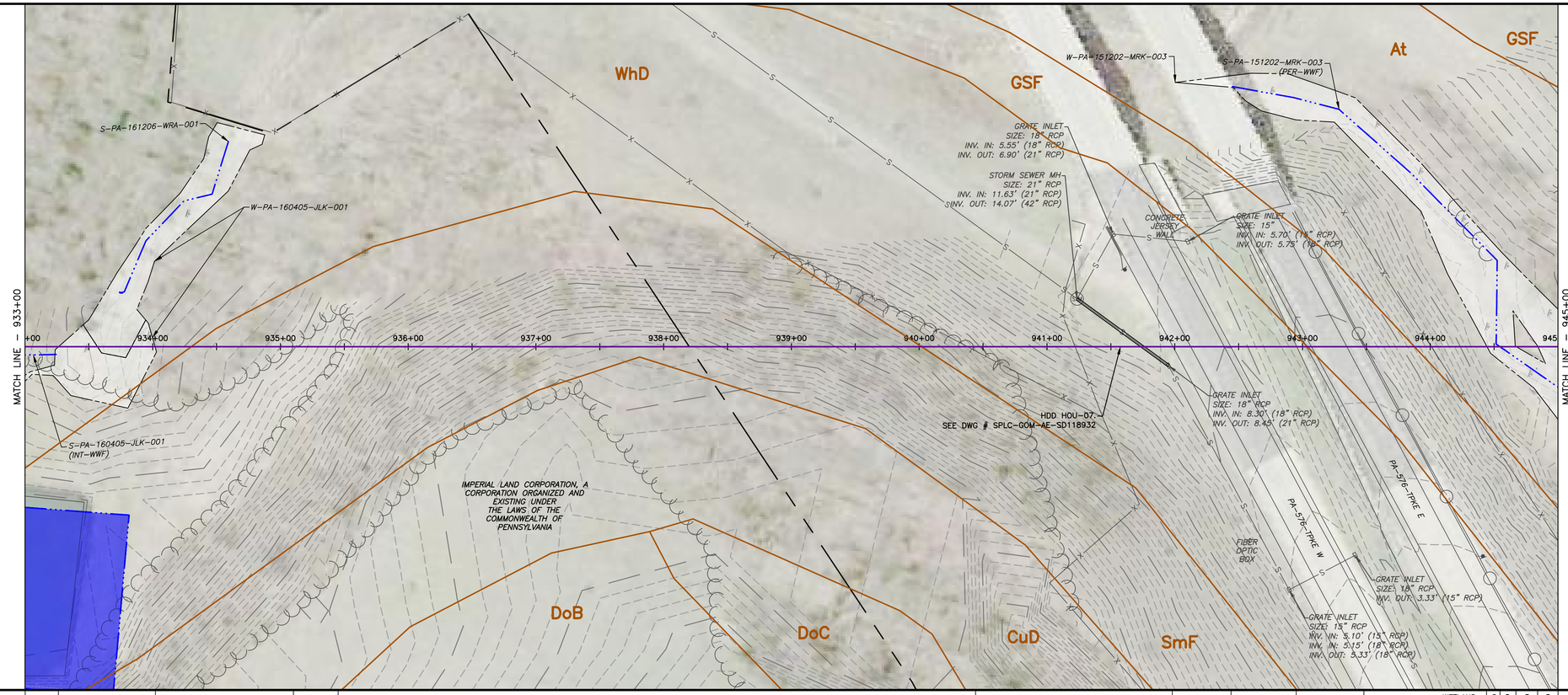
EROSION AND SEDIMENT CONTROL PLAN
ES079A – (HOU-TAR-25)

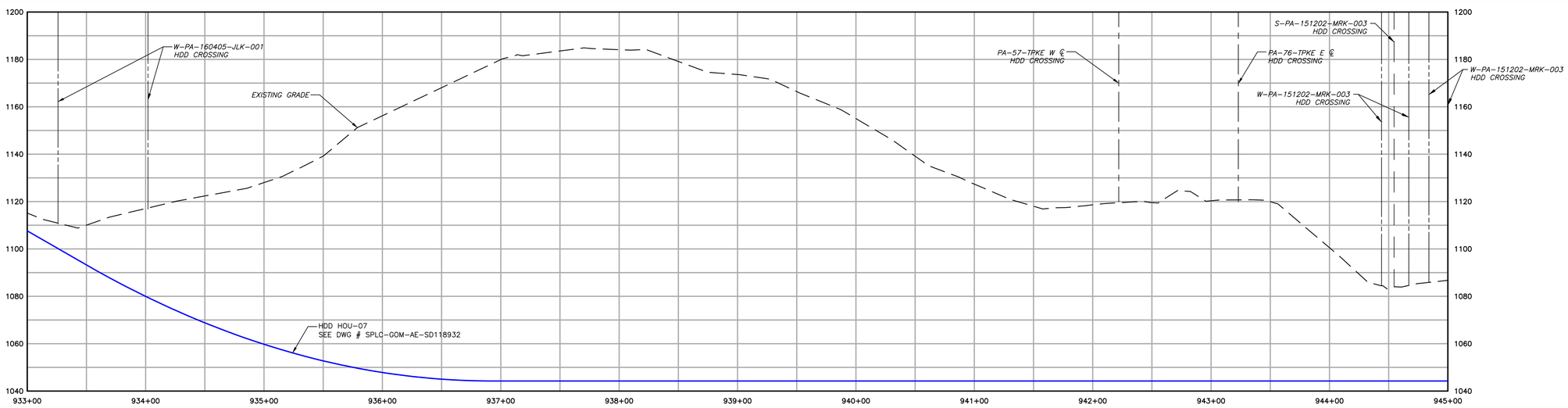
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119762	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60489893 – FALCON\950-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN079A.DWG
Last saved by: LINCOLN.SCHAFER (12/28/2017 2:23 PM) Last Plotted: 2018-01-02 (1/2/2018 1:35 PM)



LAND USE	WOODS	WETLAND	WOODS	FIELD	WOODS	FIELD	ROAD	FIELD	ROAD	FIELD	WETLAND	WETLAND
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'			4'		5'	4'	5'	4'	5' 5' 4' 5'	FIELD



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
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PROPOSED TRENCH PLUG

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PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
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GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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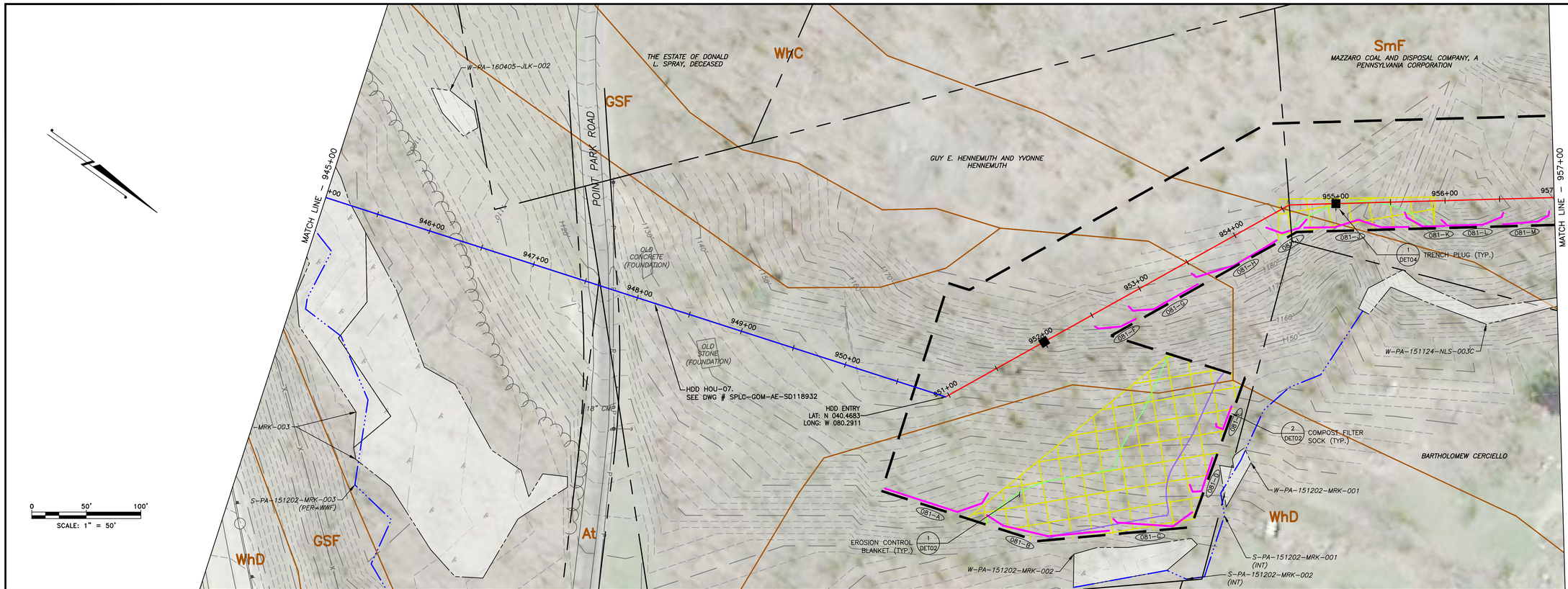
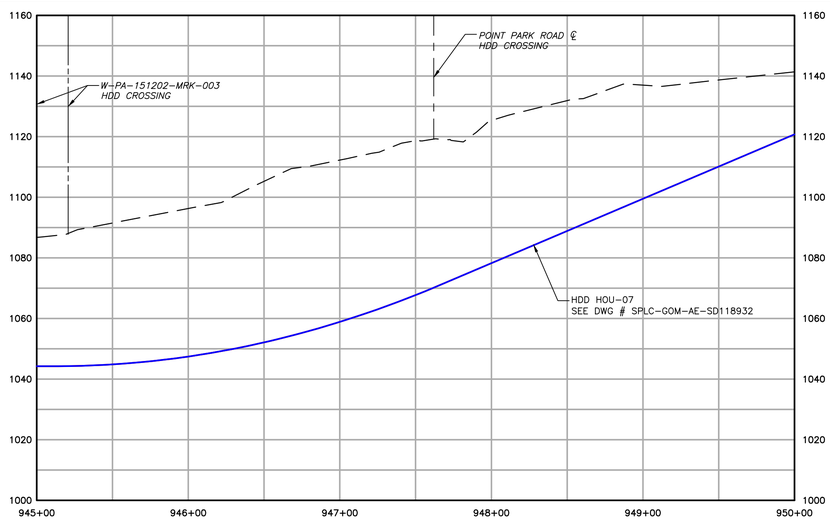
EROSION AND SEDIMENT CONTROL PLAN
ES080 – STA. (933+00 TO STA. 945+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

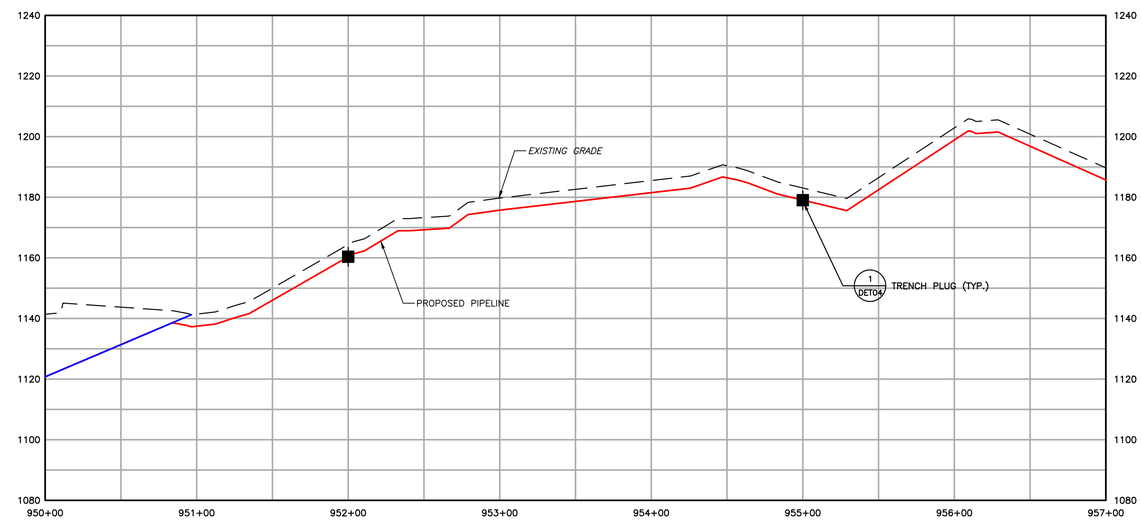
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119364	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN080.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:20 AM) Last Plotted: 2018-01-02 (1/2/2018 1:36 PM)



LAND USE	WETLAND	WOODS	FIELD	ROAD	WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'		5'	4'		4'	





EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
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PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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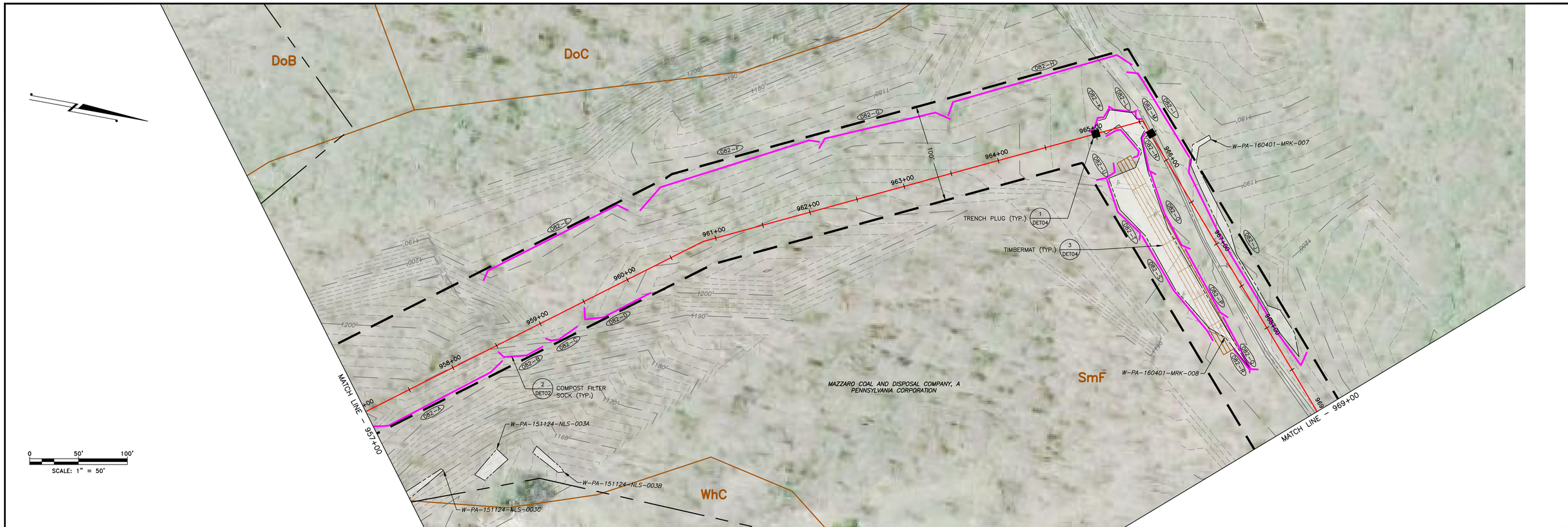
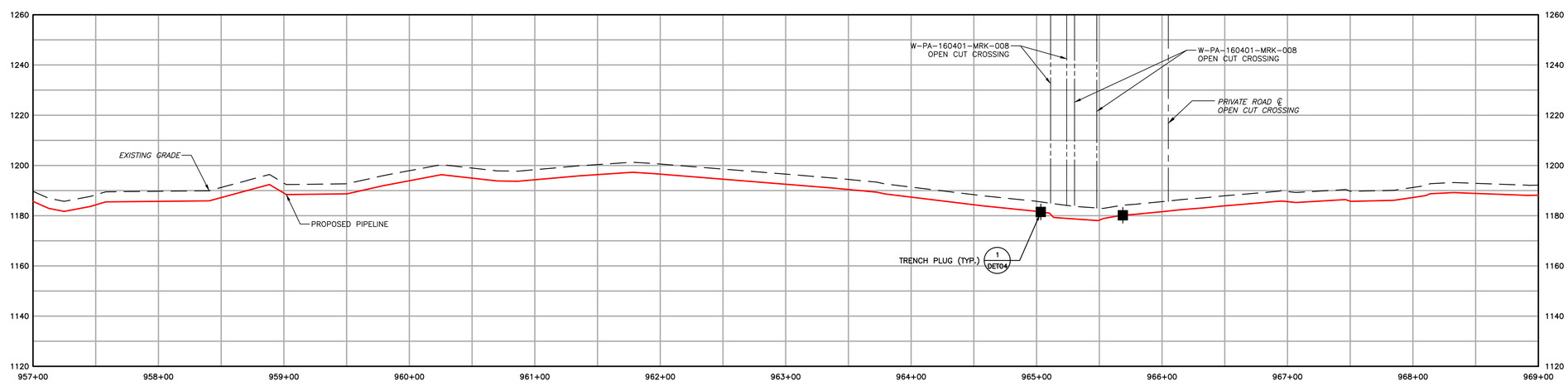
EROSION AND SEDIMENT CONTROL PLAN
ES081 – (STA. 945+00 TO STA. 957+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119365	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN081.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:21 AM) Last Plotted: 2018-01-02 (1/2/2018 1:37 PM)



LAND USE	WOODS	WETLAND		FIELD	ROAD	FIELD		
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	WETLAND	5'	5'	4'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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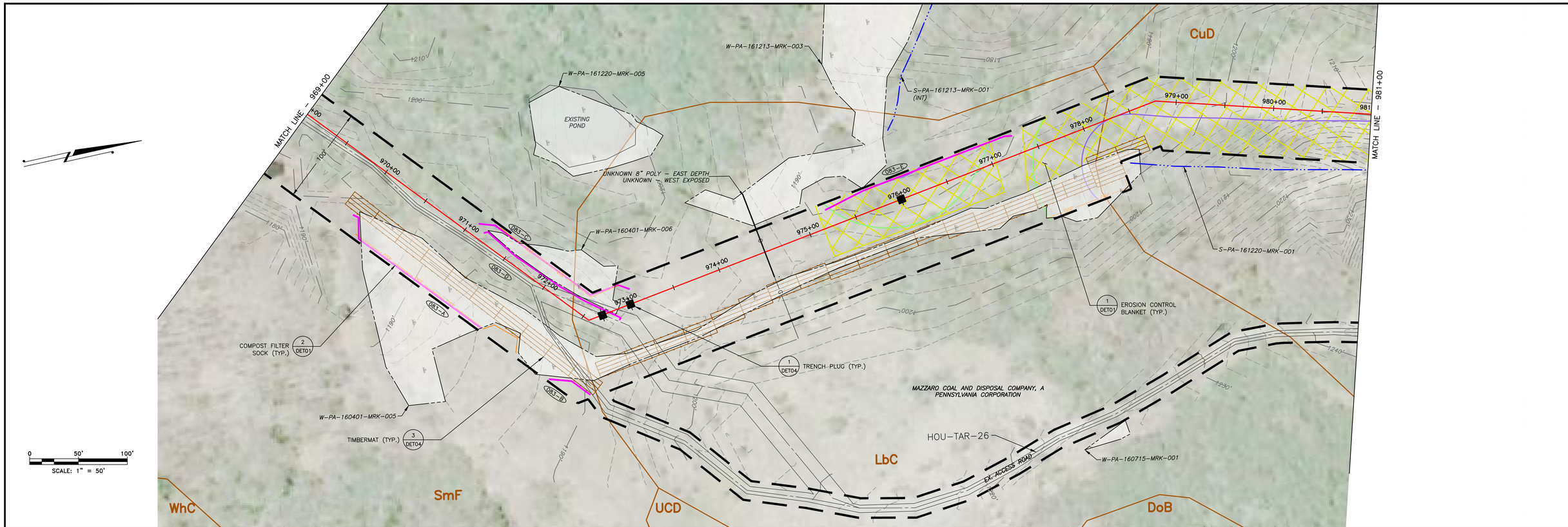
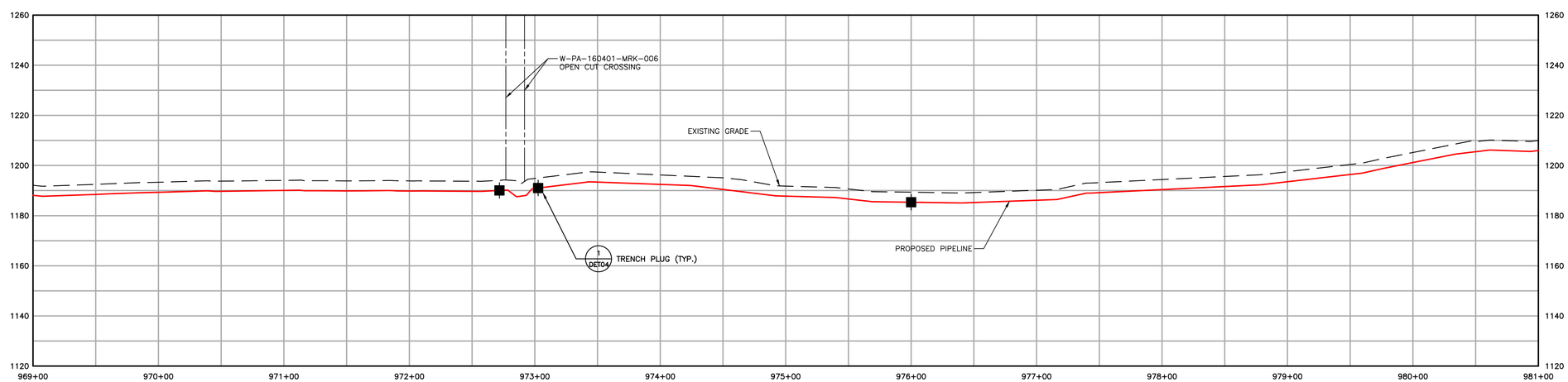
EROSION AND SEDIMENT CONTROL PLAN
ES082 – (STA. 957+00 TO STA. 969+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119366	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN082.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 4:51 PM) Last Plotted: 2018-01-02 (1/2/2018 1:38 PM)



LAND USE	WOODS	WETLAND	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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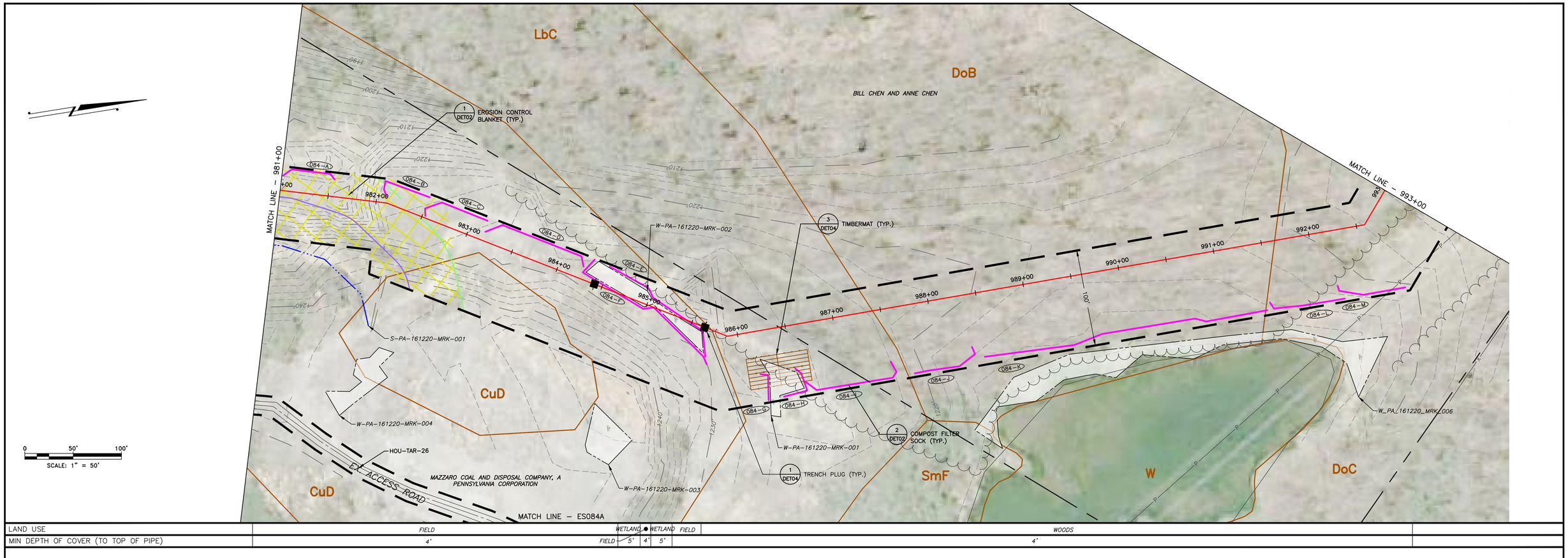
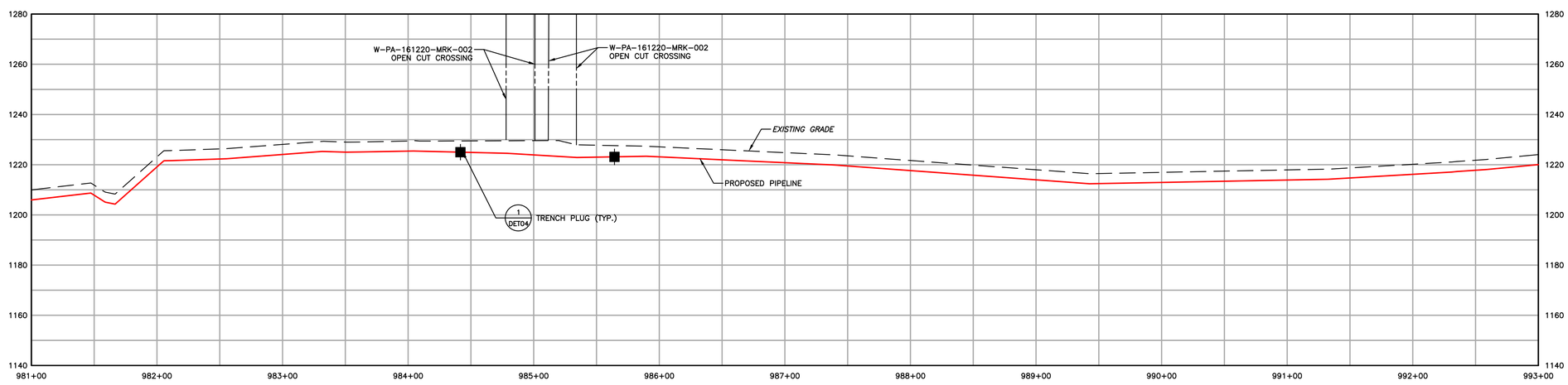
EROSION AND SEDIMENT CONTROL PLAN
ES083 – (STA. 969+00 TO STA. 981+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119367	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN083.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:26 AM) Last Plotted: 2018-01-02 (1/2/2018 1:39 PM)



LAND USE	FIELD	WETLAND	WETLAND	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	FIELD 5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES084 – (STA. 981+00 TO STA. 993+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119368	REVISION
DRAWN	TLM	12/05/17		1

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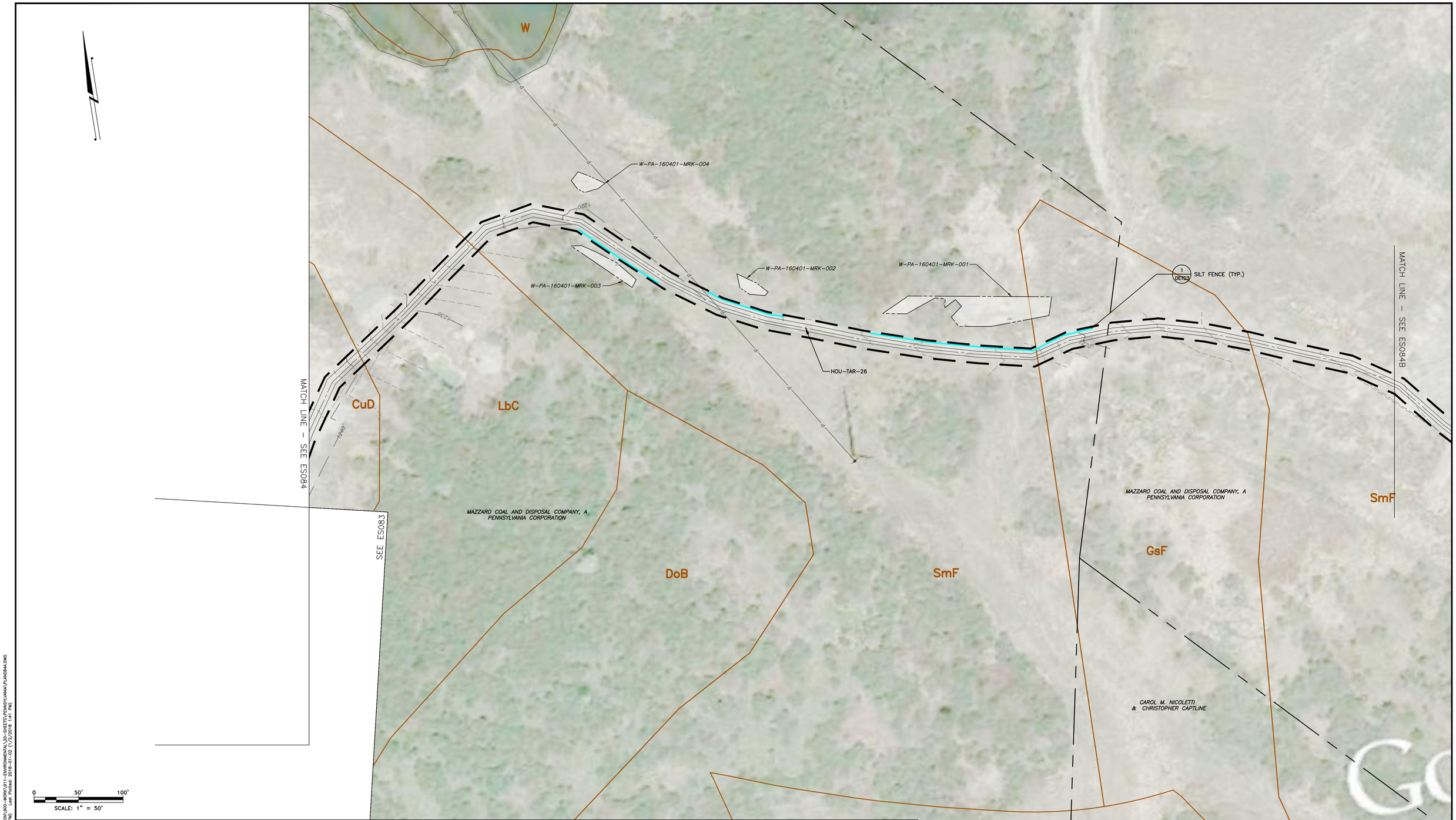

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES084A – (HOU–TAR–26)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119763	REVISION
DRAWN	TLM	12/05/17		1

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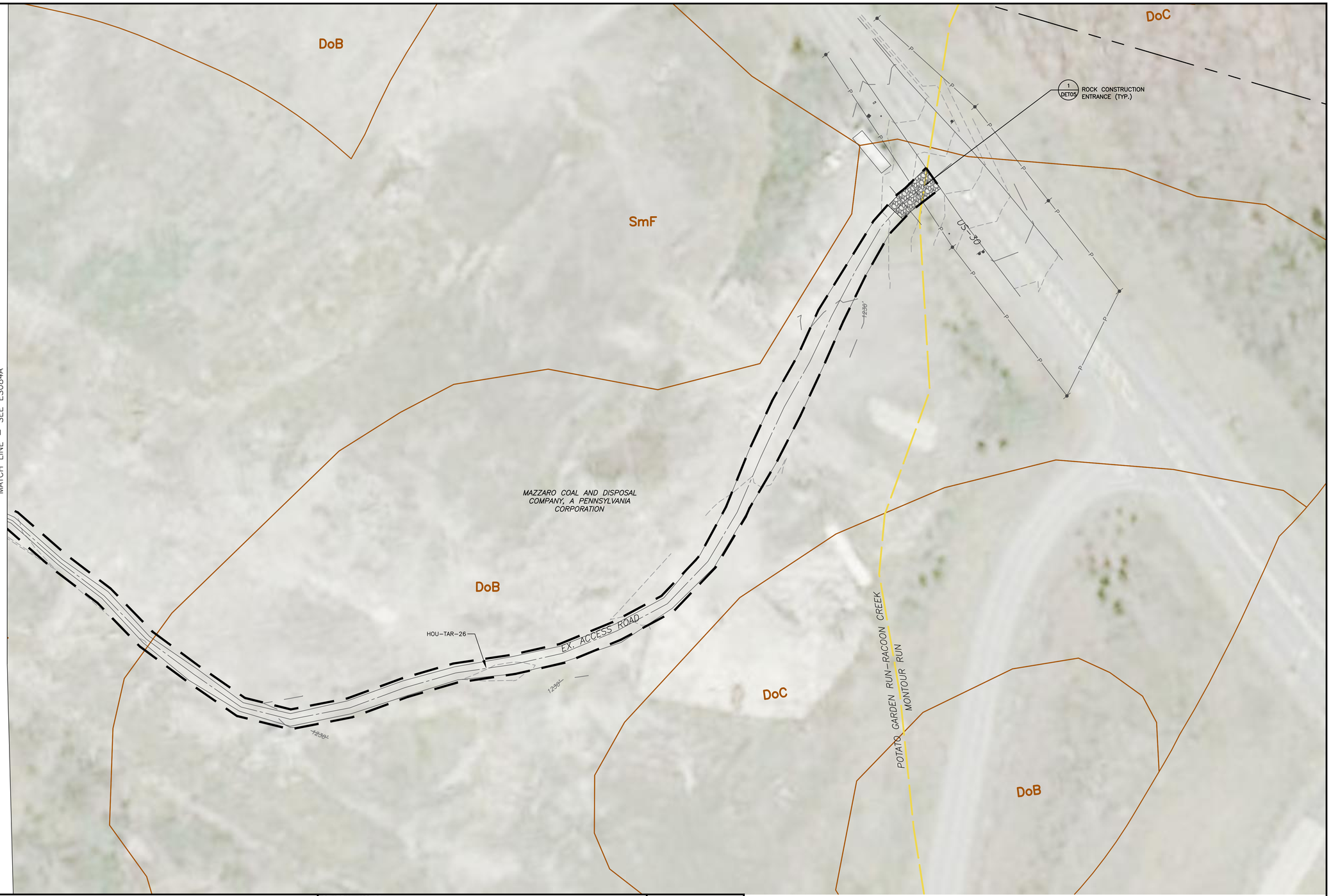

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES084B – (HOU-TAR-26)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119764	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN0848.DWG
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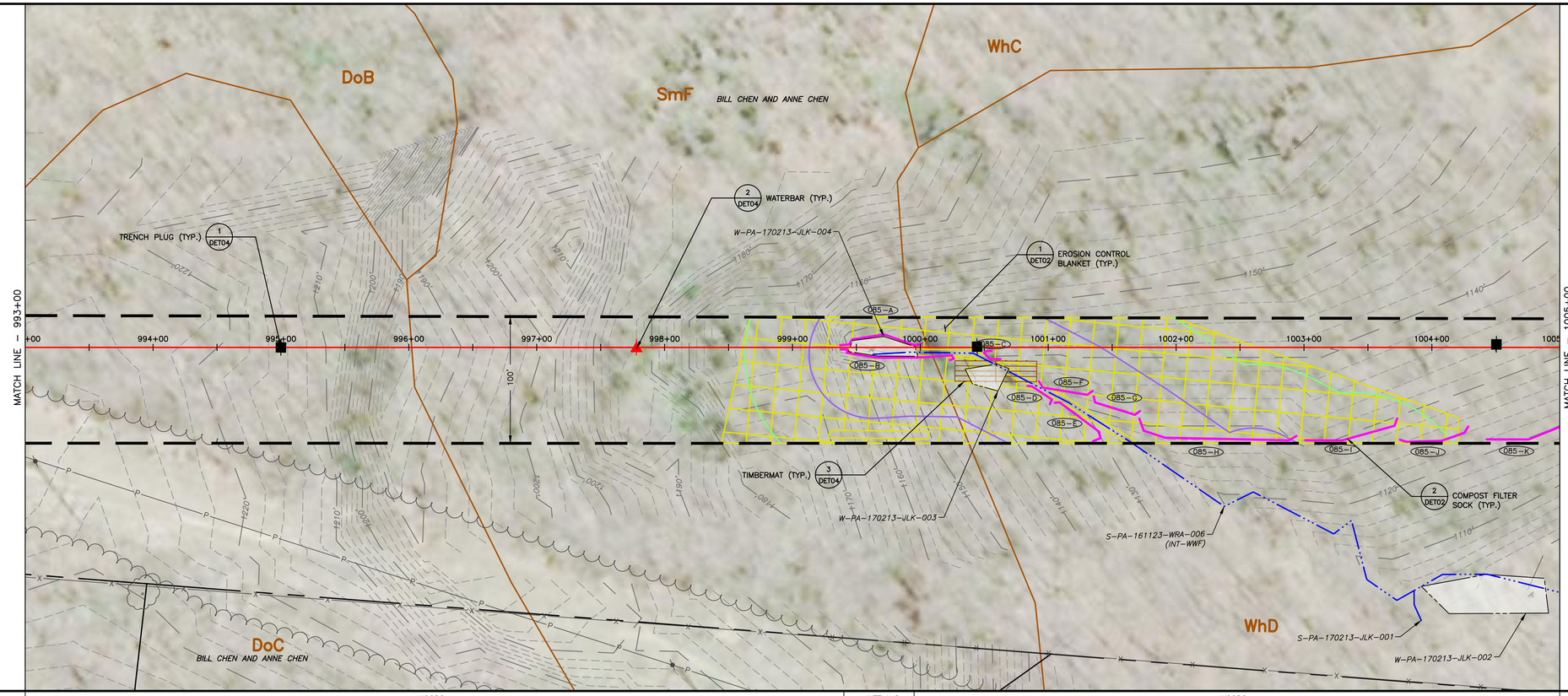
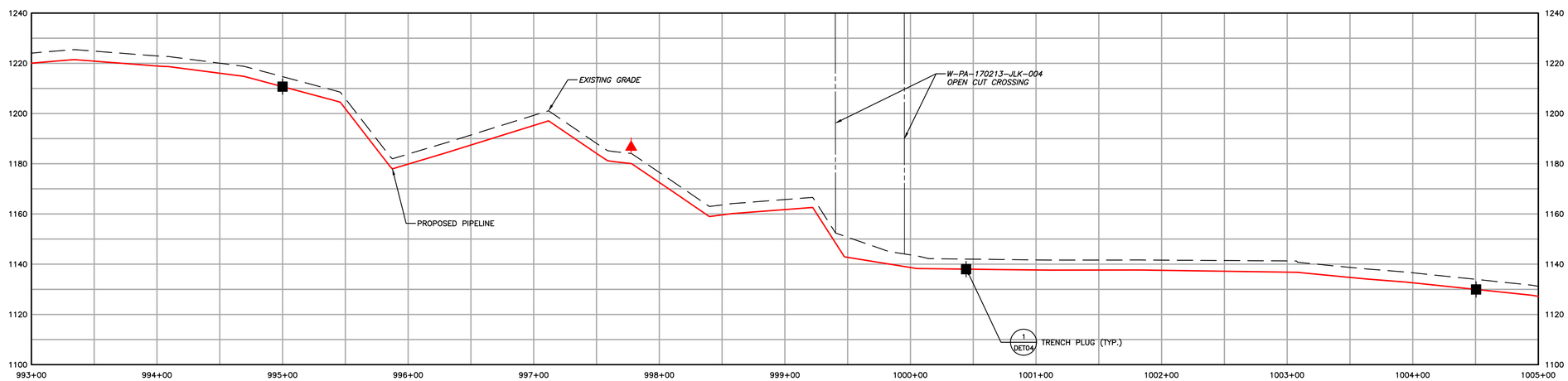


LAND USE	WOODS	WETLAND	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
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PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
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100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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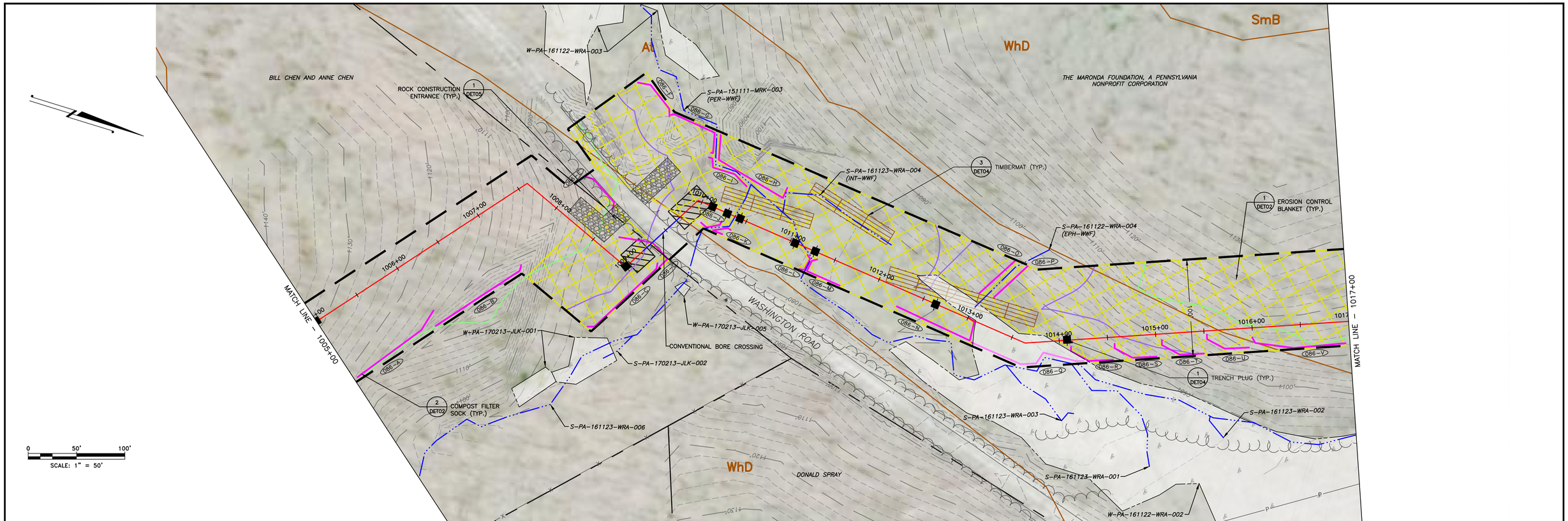
EROSION AND SEDIMENT CONTROL PLAN
ES085 – (STA. 993+00 TO STA. 1005+00)

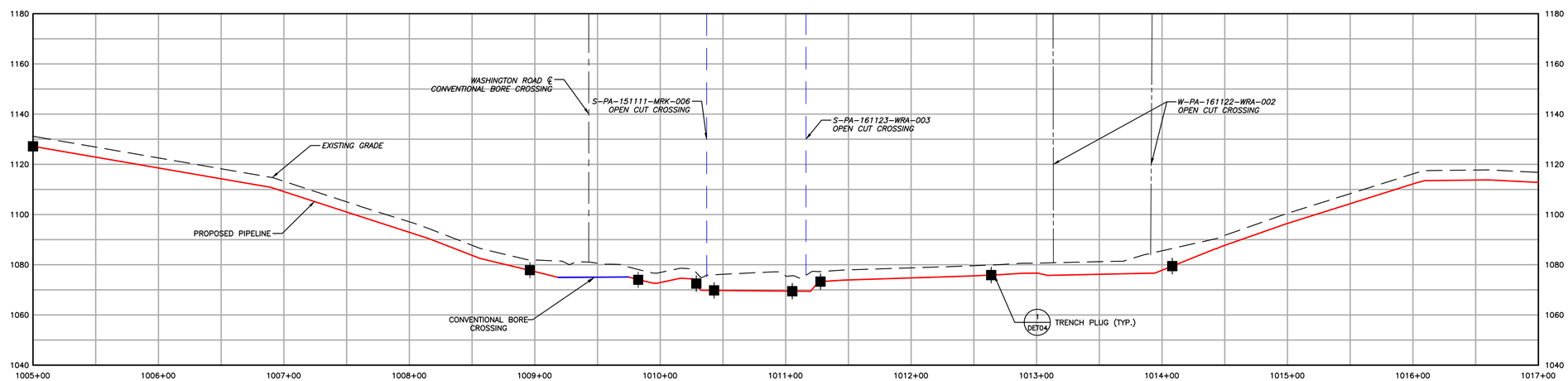
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119369	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN085.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:38 AM) Last Plotted: 2018-01-02 (1/2/2018 1:43 PM)



LAND USE	WOODS	ROAD	WOODS	STREAM	WOODS	STREAM	WOODS	WETLAND	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4' STREAM	5'	4'	5'	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
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LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
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100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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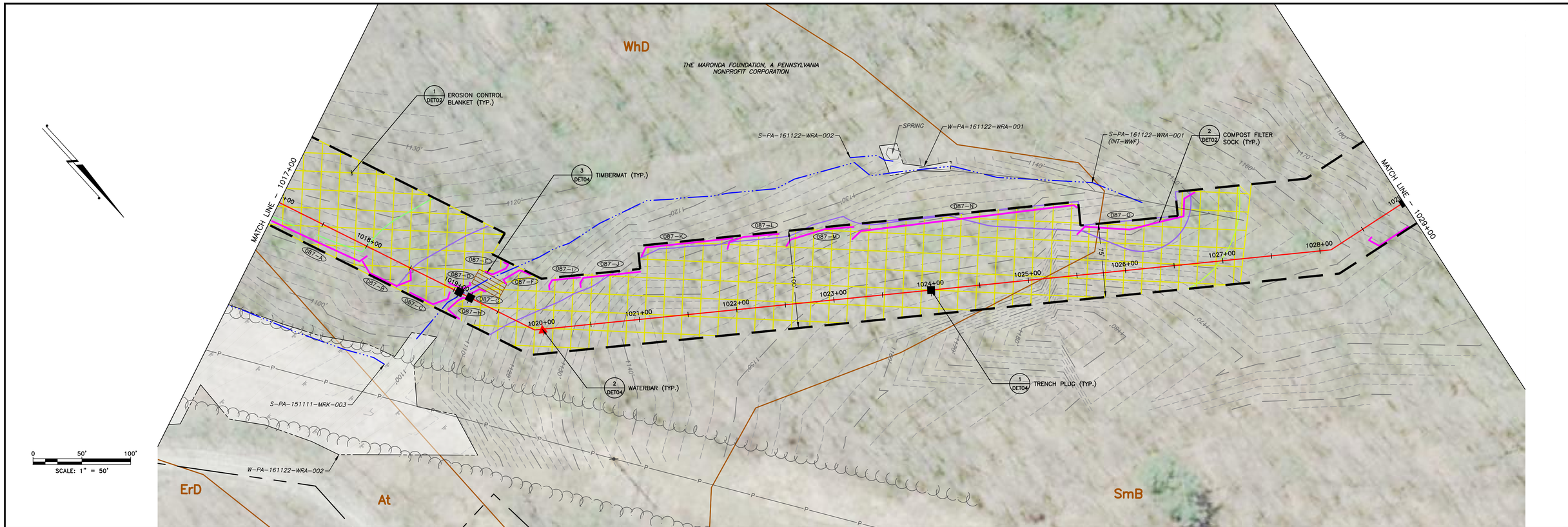
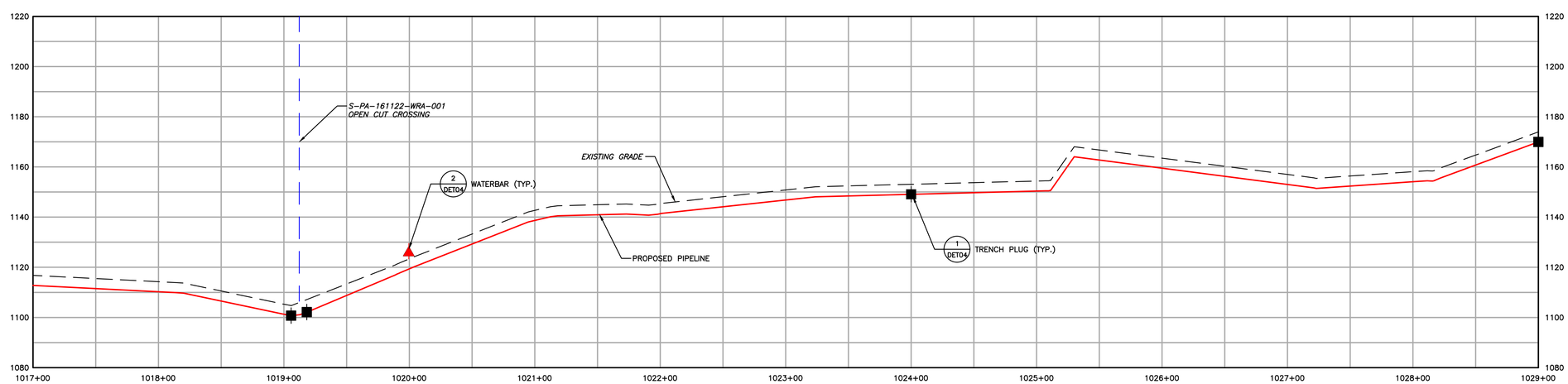
EROSION AND SEDIMENT CONTROL PLAN
ES086 – (STA. 1005+00 TO STA. 1017+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119370	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459895 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN086.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:40 AM) Last Plotted: 2018-01-02 (1/2/2018 1:44 PM)



LAND USE	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
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LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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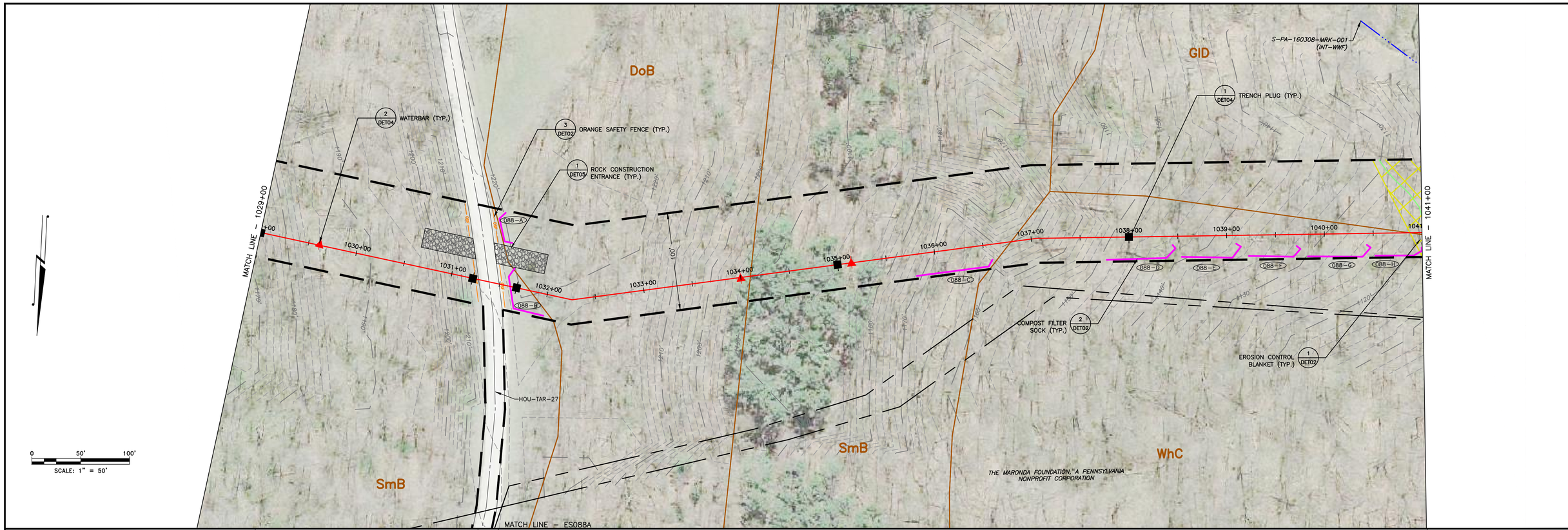
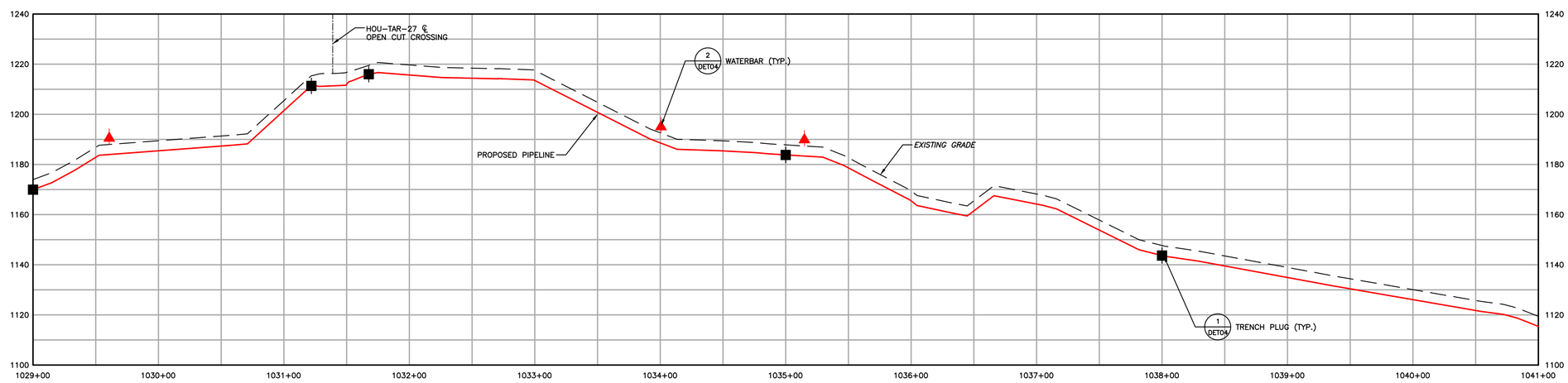
EROSION AND SEDIMENT CONTROL PLAN
ES087 - (STA. 1017+00 TO STA. 1029+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119371	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN087.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:41 AM) Last Plotted: 2018-01-02 (1/2/2018 1:45 PM)



LAND USE	WOODS	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES088 – (STA. 1029+00 TO STA. 1041+00)

ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119372	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN088.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:42 AM) Last Plotted: 2018-01-02 (1/2/2018 1:46 PM)

0 50' 100'
SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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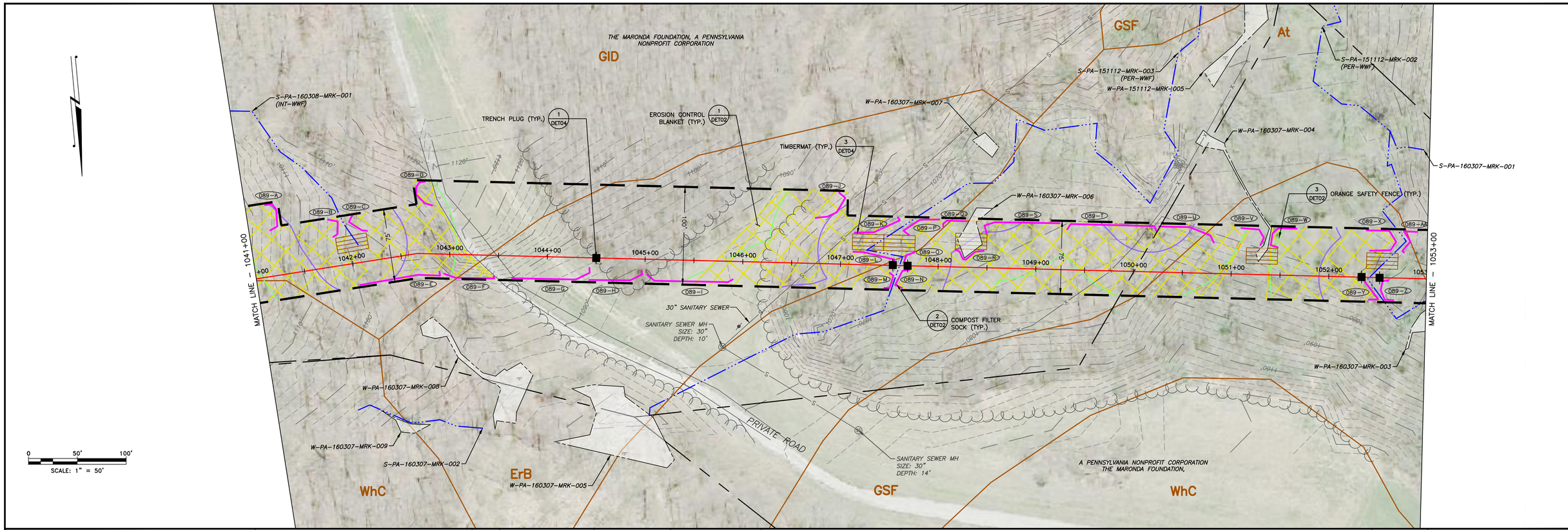
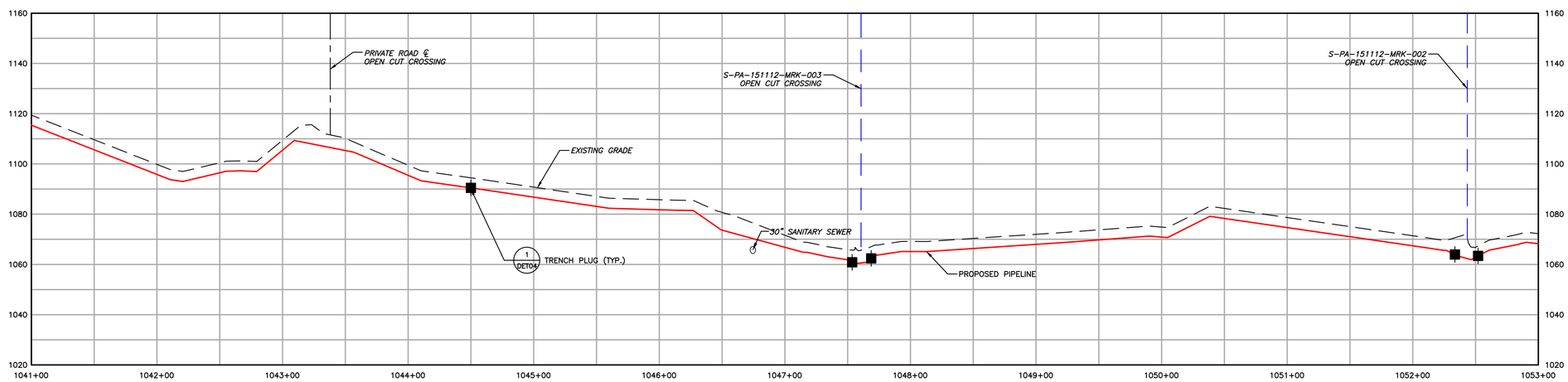
EROSION AND SEDIMENT CONTROL PLAN
ES088A - (HOU-TAR-27)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119765	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN088A.DWG
Last saved by: UNCOUN,SCHAFER (12/29/2017 2:26 PM) Last Plotted: 2018-01-02 (1/2/2018 1:47 PM)



LAND USE	WOODS	ROAD	FIELD	WOODS	FIELD	WOODS	STREAM	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'				5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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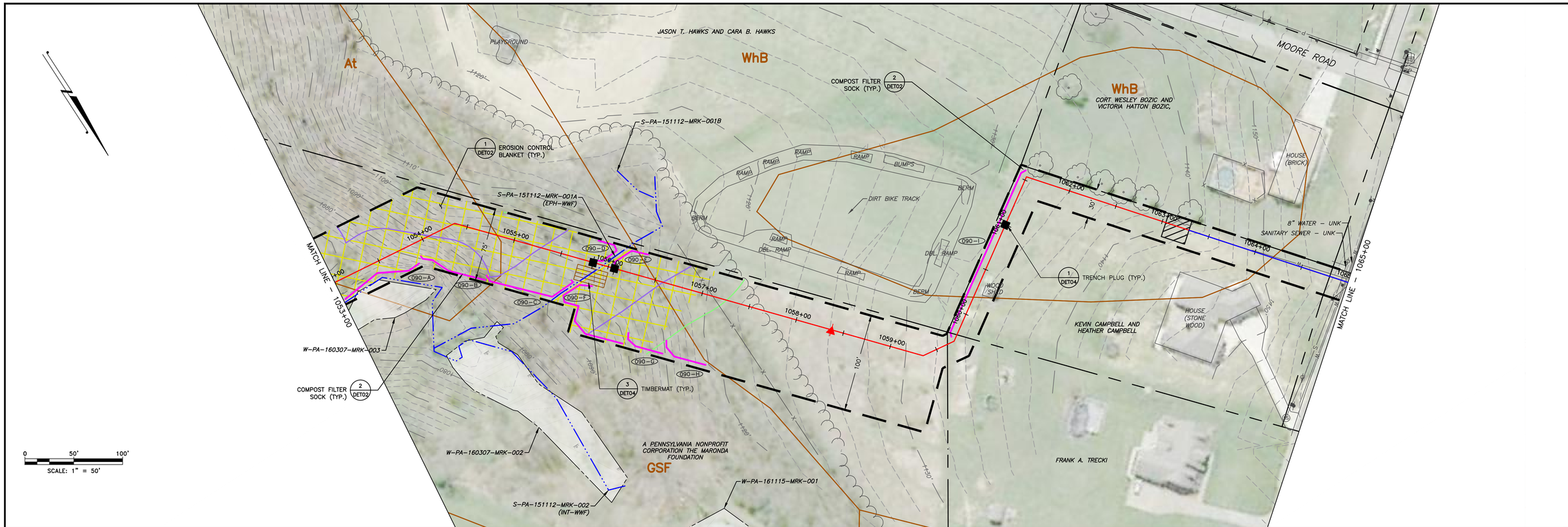
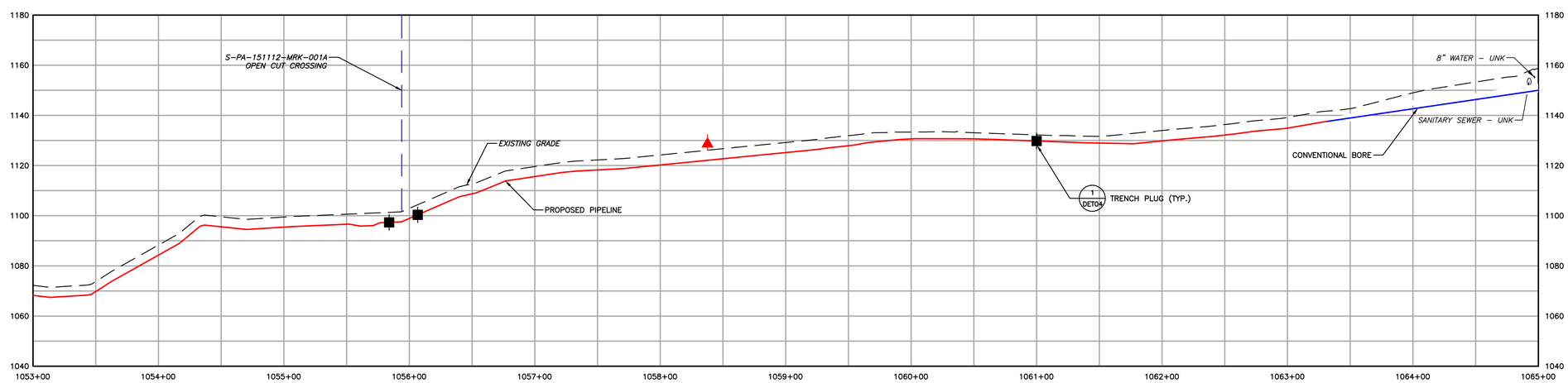
EROSION AND SEDIMENT CONTROL PLAN
ES089 – (STA. 1041+00 TO STA. 1053+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119373	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN089.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:45 AM) Last Plotted: 2018-01-02 (1/2/2018 1:48 PM)



LAND USE	WOODS	STREAM	WOODS	FIELD	ROAD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'		3'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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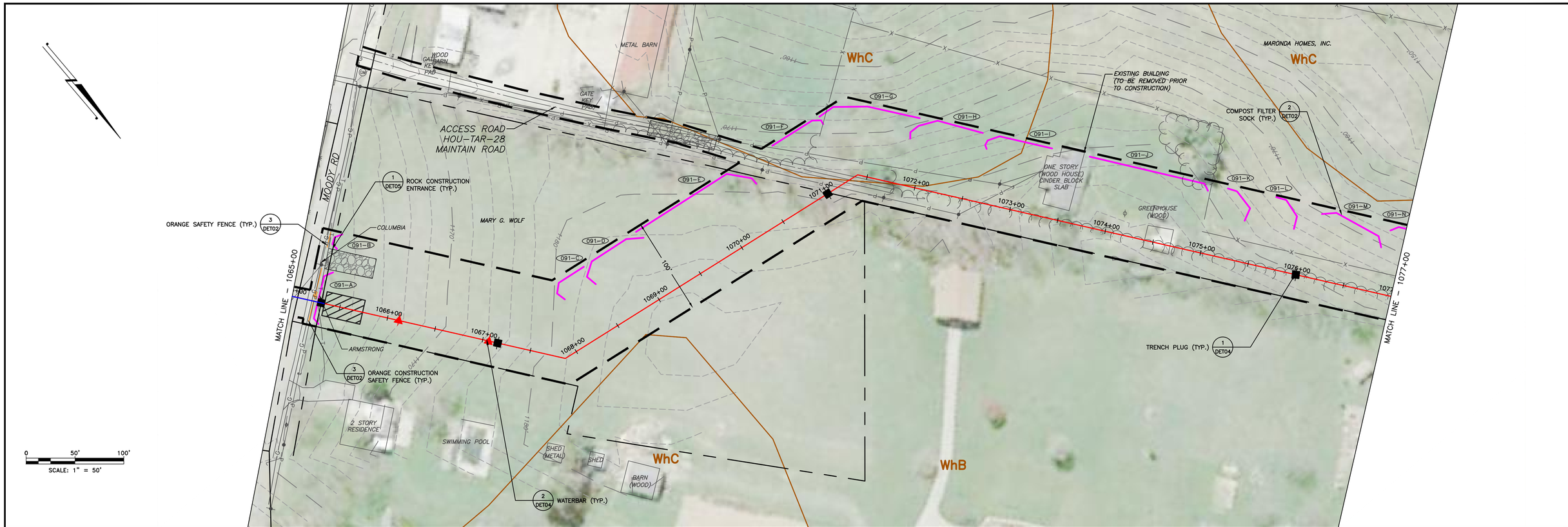
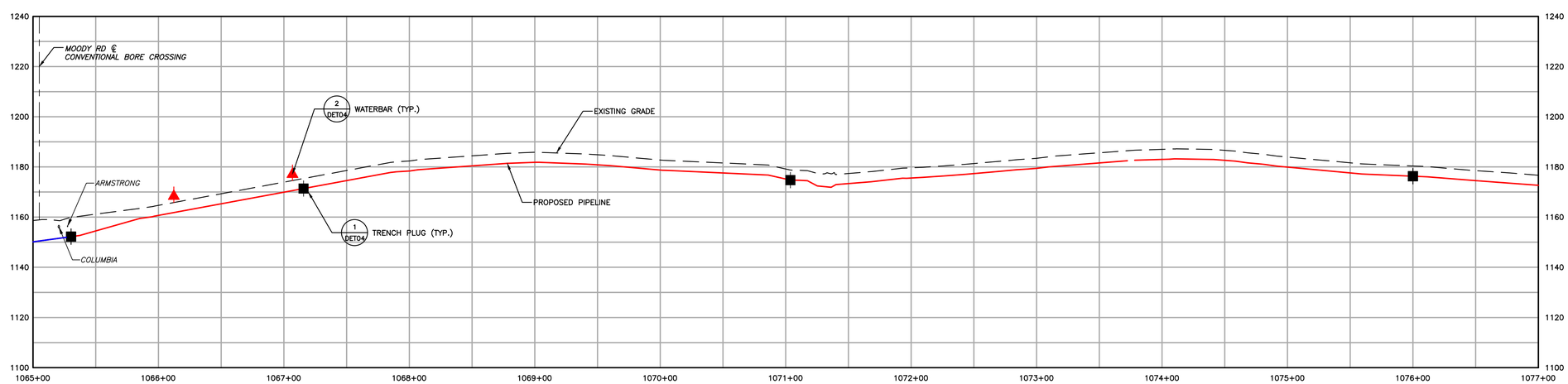
EROSION AND SEDIMENT CONTROL PLAN
ES090 - (STA. 1053+00 TO STA. 1065+00)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119374	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN090.DWG
Last saved by: LINCOLN.SCHAEFER (12/29/2017 9:46 AM) Last Plotted: 2018-01-02 (1/2/2018 1:49 PM)



LAND USE	ROAD	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'	



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF — PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 — SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL — LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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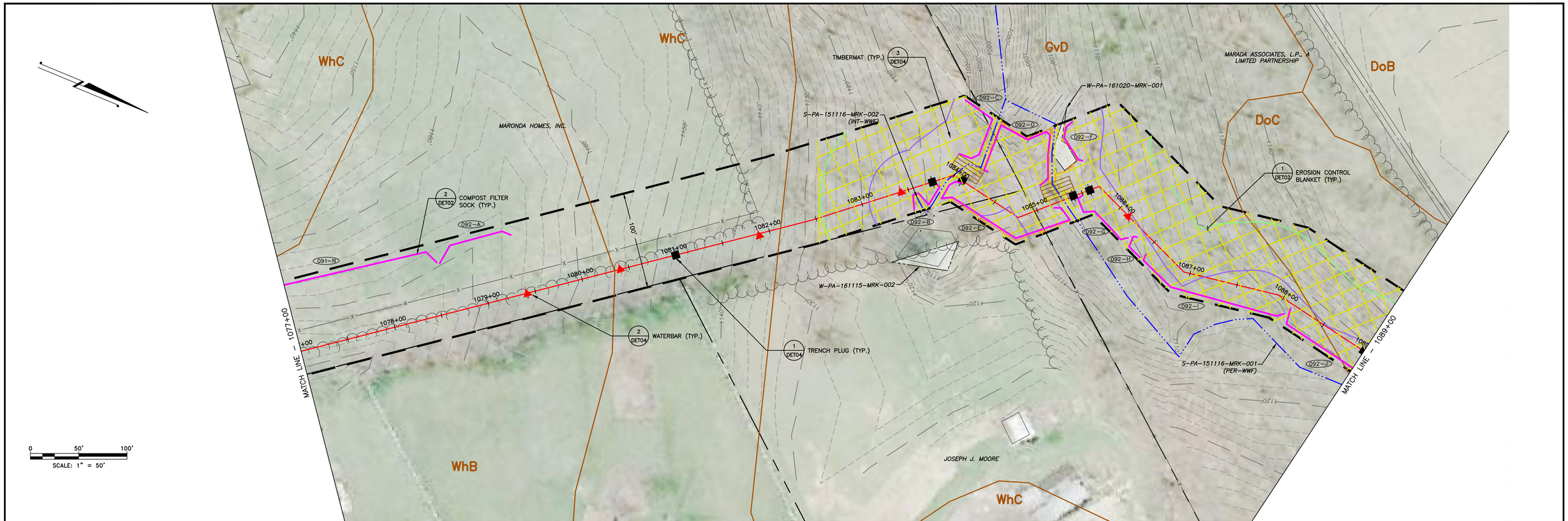
EROSION AND SEDIMENT CONTROL PLAN
ES091 – (STA. 1065+00 TO STA. 1077+00)

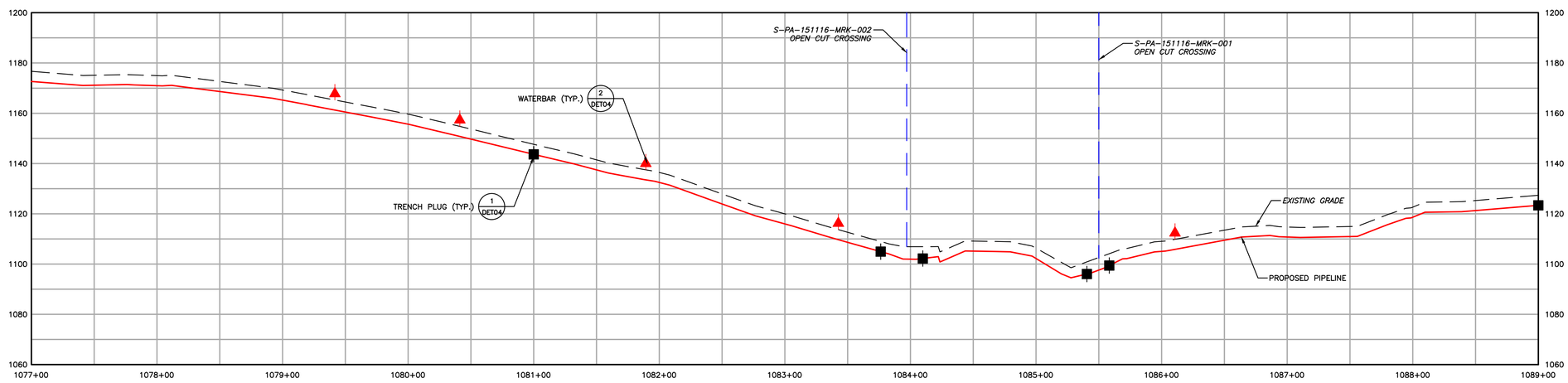
ALLEGHENY COUNTY — PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119375	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN091.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:47 AM) Last Plotted: 2018-01-02 (1/2/2018 1:50 PM)



LAND USE	WOODS	STREAM	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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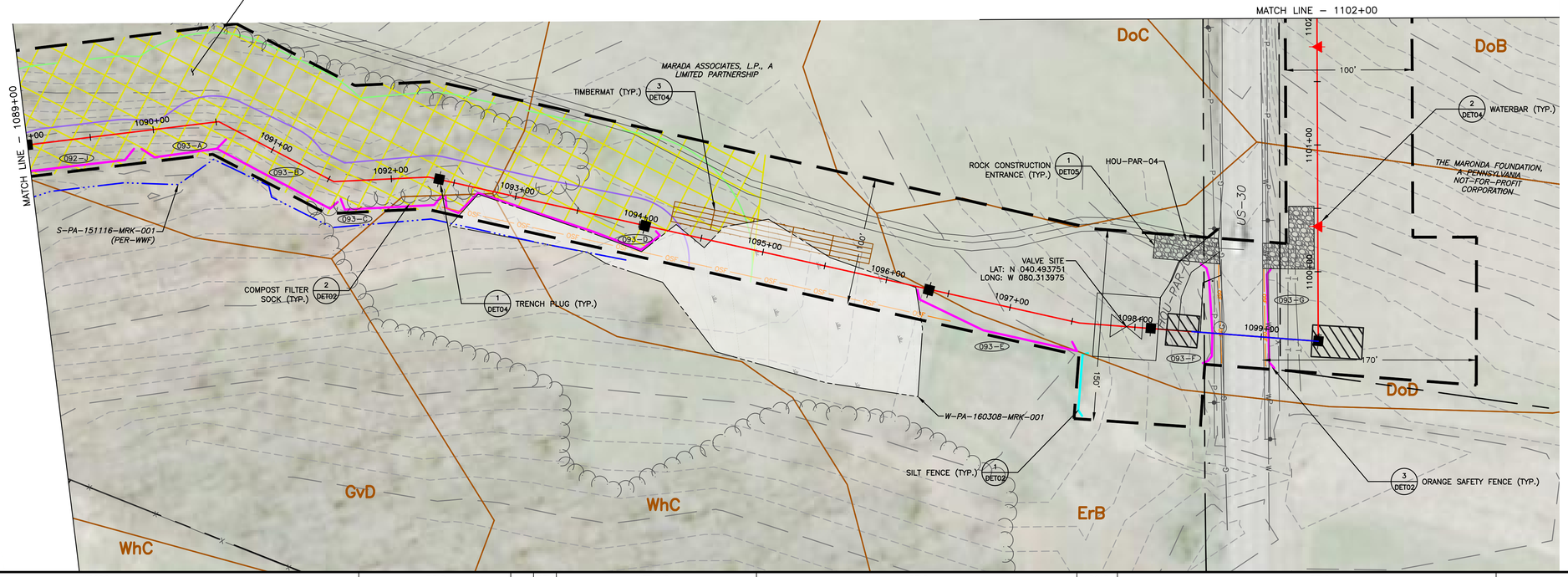
EROSION AND SEDIMENT CONTROL PLAN
ES092 – (STA. 1077+00 TO STA. 1089+00)

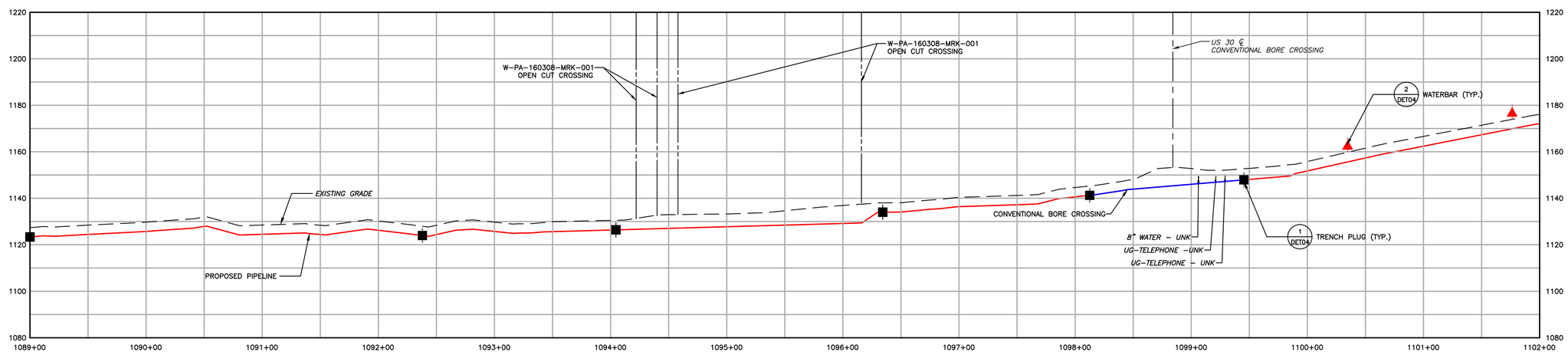
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119376	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN092.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:49 AM) Last Plotted: 2018-01-02 (1/2/2018 1:51 PM)



LAND USE	WOODS	FIELD	WETLAND	FIELD	WETLAND	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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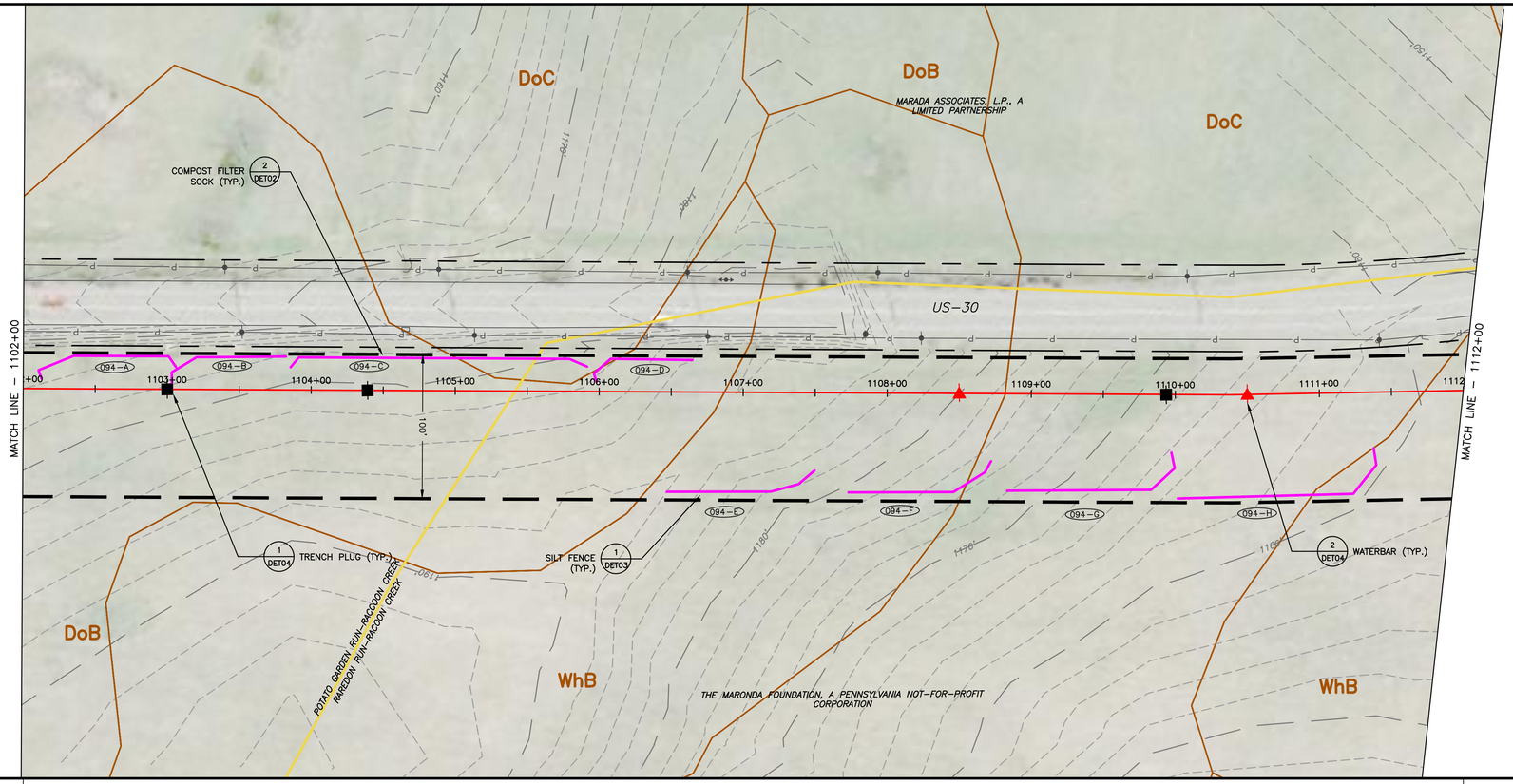
EROSION AND SEDIMENT CONTROL PLAN
ES093 – (STA. 1089+00 TO STA. 1102+00)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

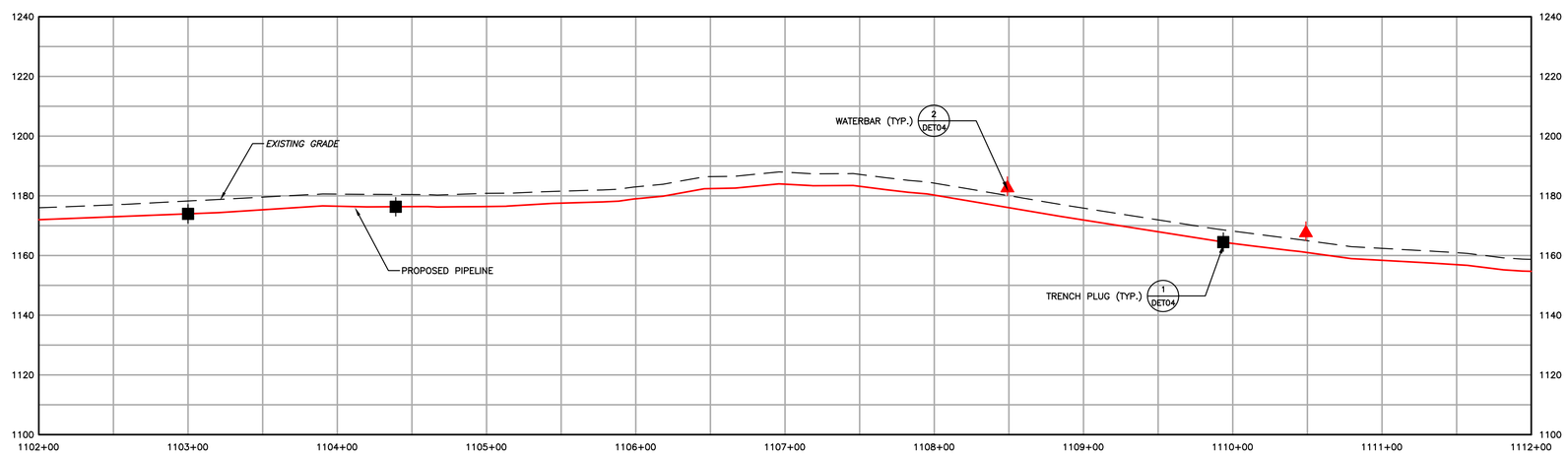
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119378	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN093.DWG
Last saved by: UNCOUN.SCHAFER (12/29/2017 9:51 AM) Last Plotted: 2018-01-02 (1/2/2018 1:52 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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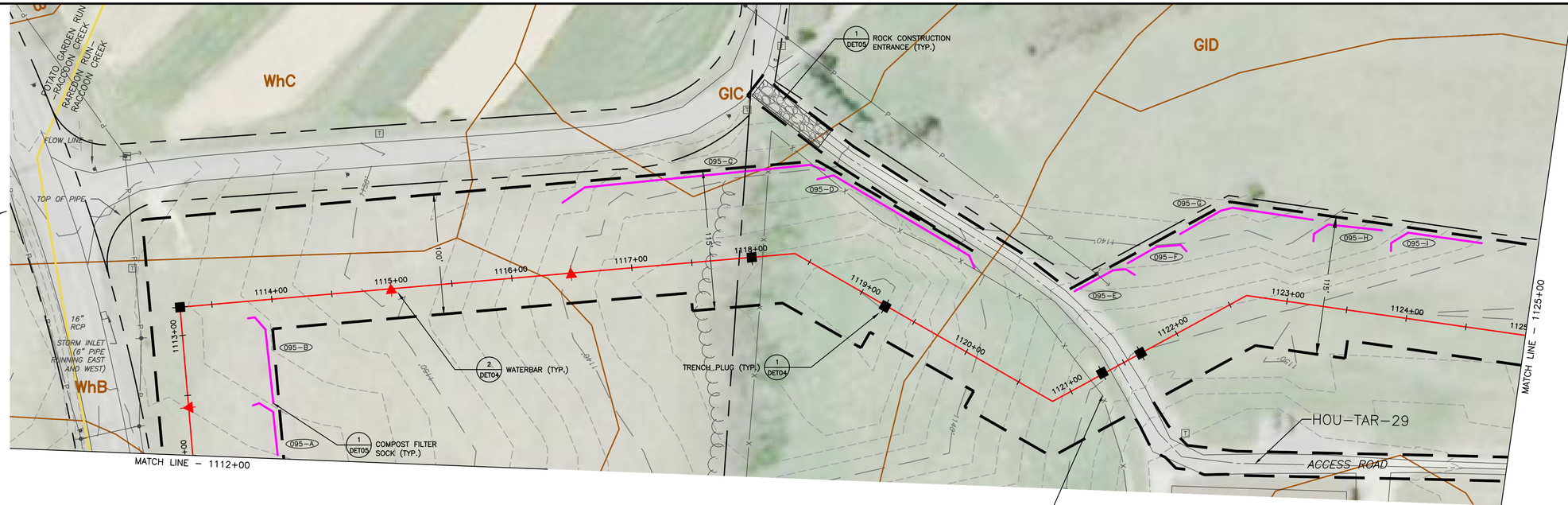
EROSION AND SEDIMENT CONTROL PLAN
ES094 – STA. 1102+00 TO STA. 1112+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

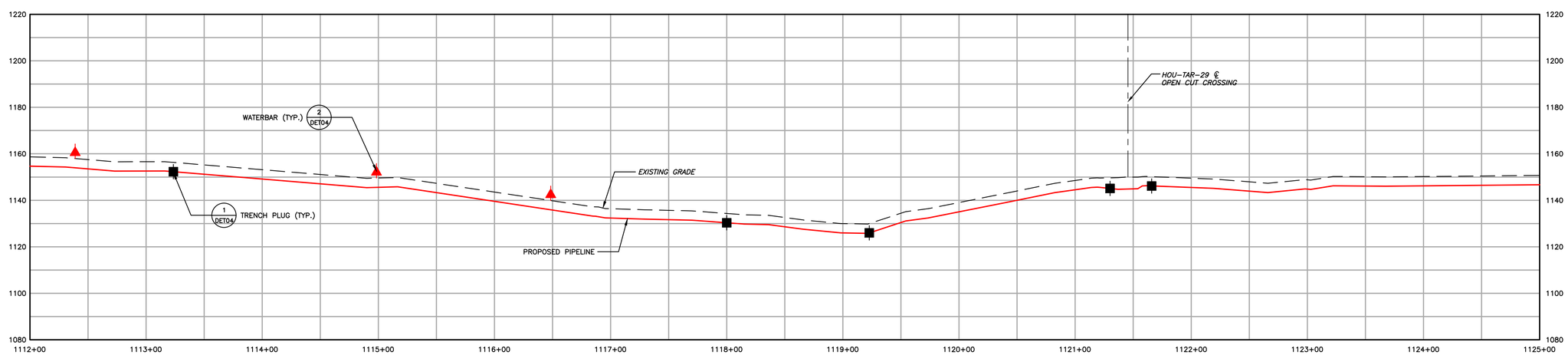
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119379	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN094.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:54 AM) Last Plotted: 2018-01-02 (1/2/2018 1:53 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WOODS	FIELD	RD	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'			5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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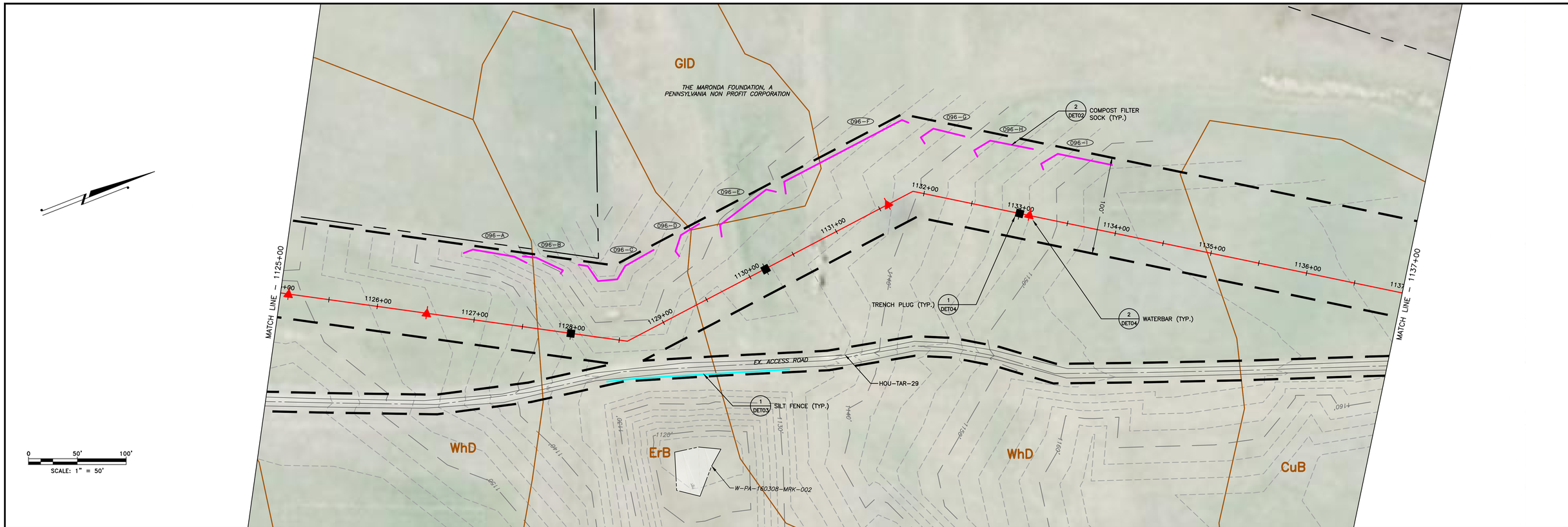
EROSION AND SEDIMENT CONTROL PLAN
ES095 – (STA. 1112+00 TO STA. 1125+00)

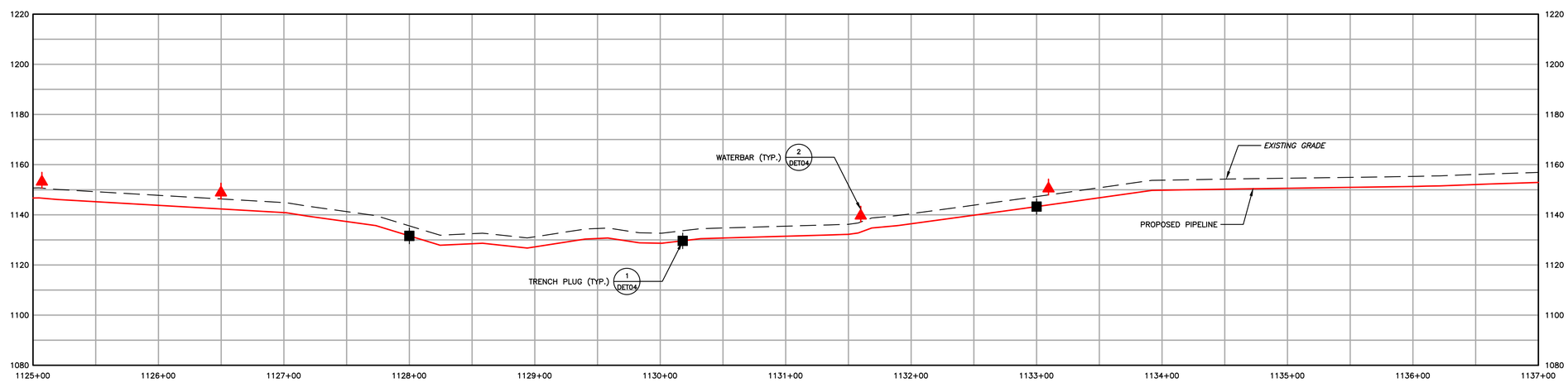
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119380	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN095.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:55 AM) Last Plotted: 2018-01-02 (1/2/2018 1:54 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES096 – (STA. 1125+00 TO STA. 1137+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119381	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0458889 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN096.DWG
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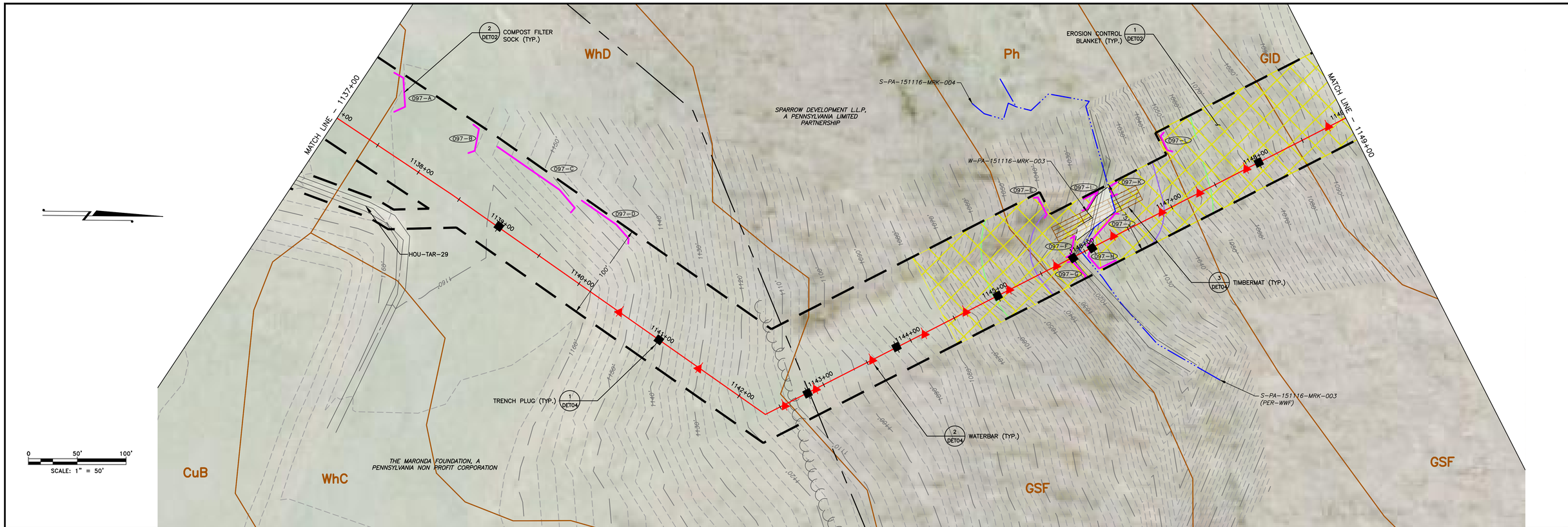
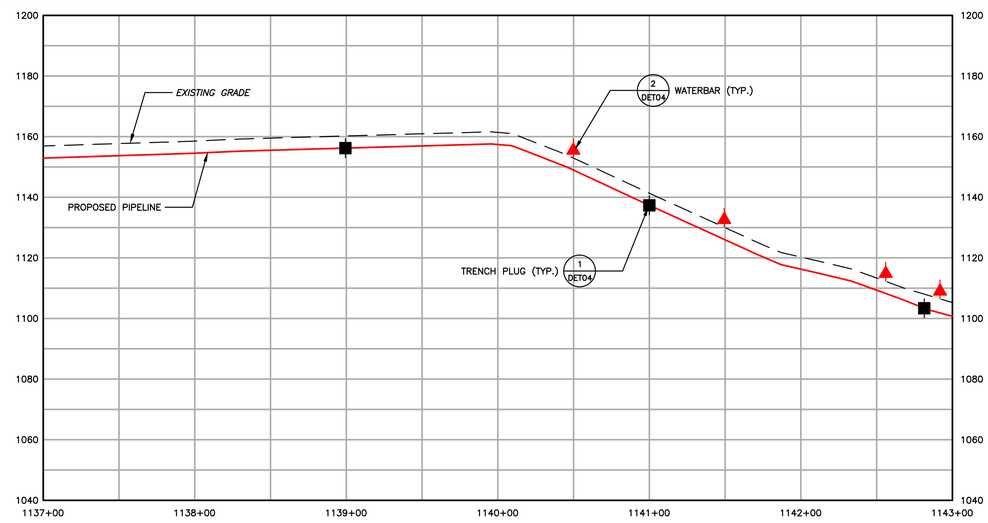
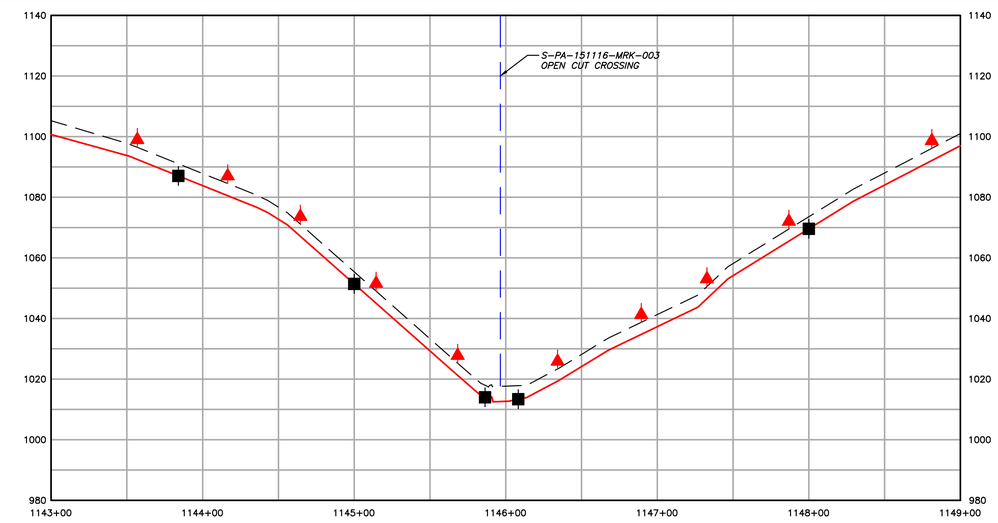


LAND USE	FIELD	WOODS	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	5'	4'





1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
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GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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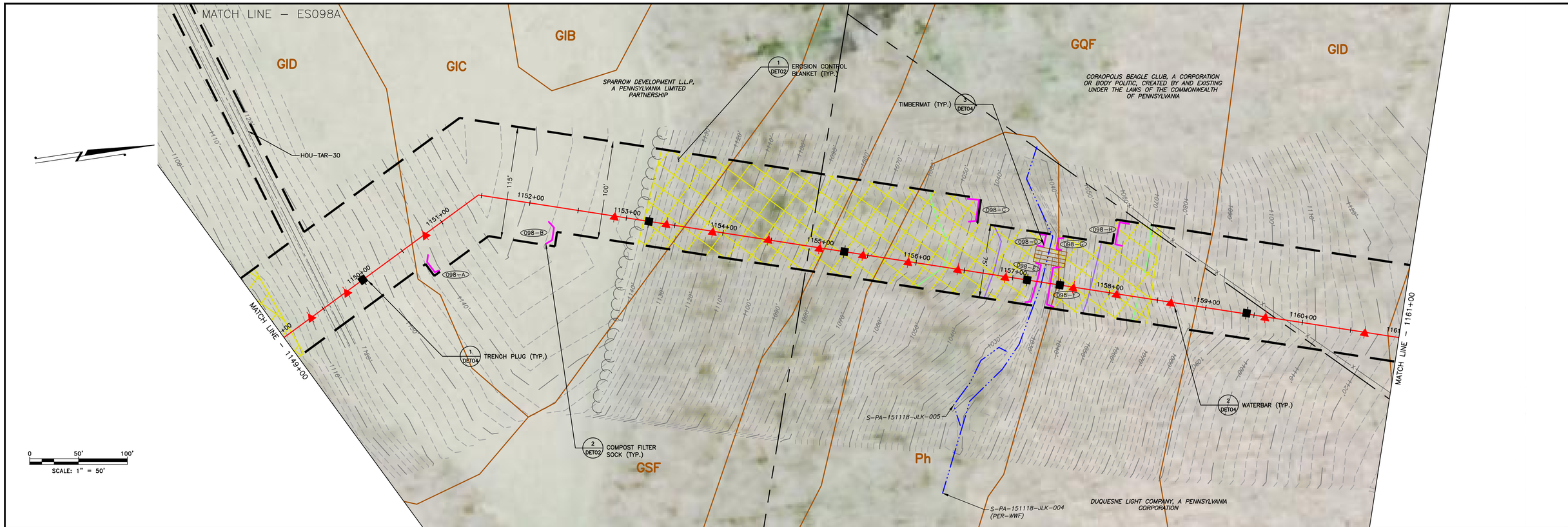
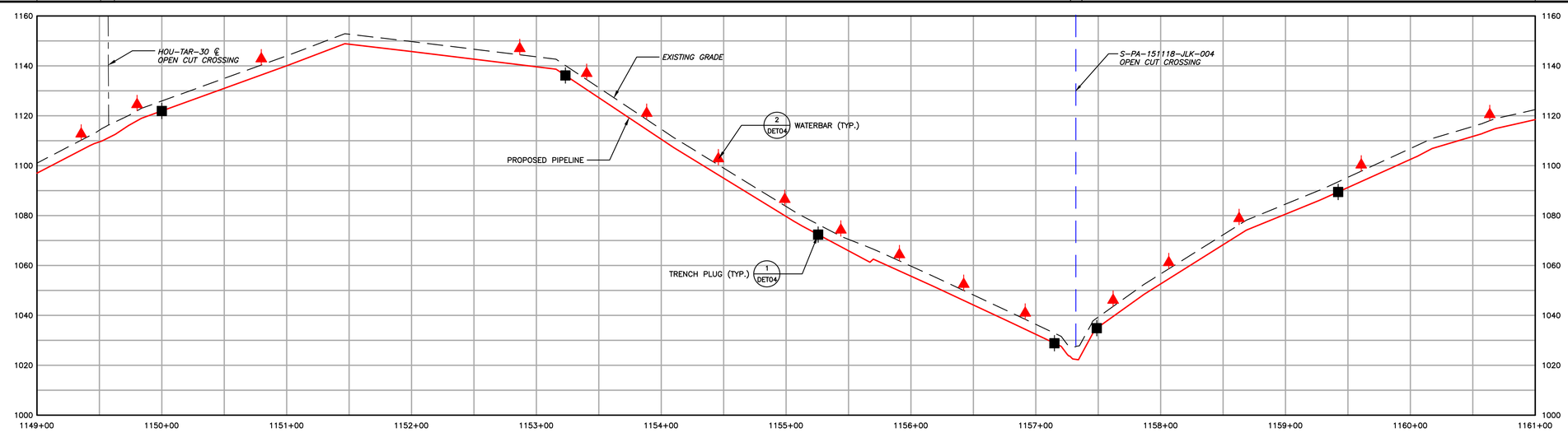
EROSION AND SEDIMENT CONTROL PLAN
ES097 – (STA. 1137+00 TO STA. 1149+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119382	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN097.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 9:55 AM) Last Plotted: 2018-01-02 (1/2/2018 1:35 PM)



LAND USE	FIELD	RD	FIELD	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'		4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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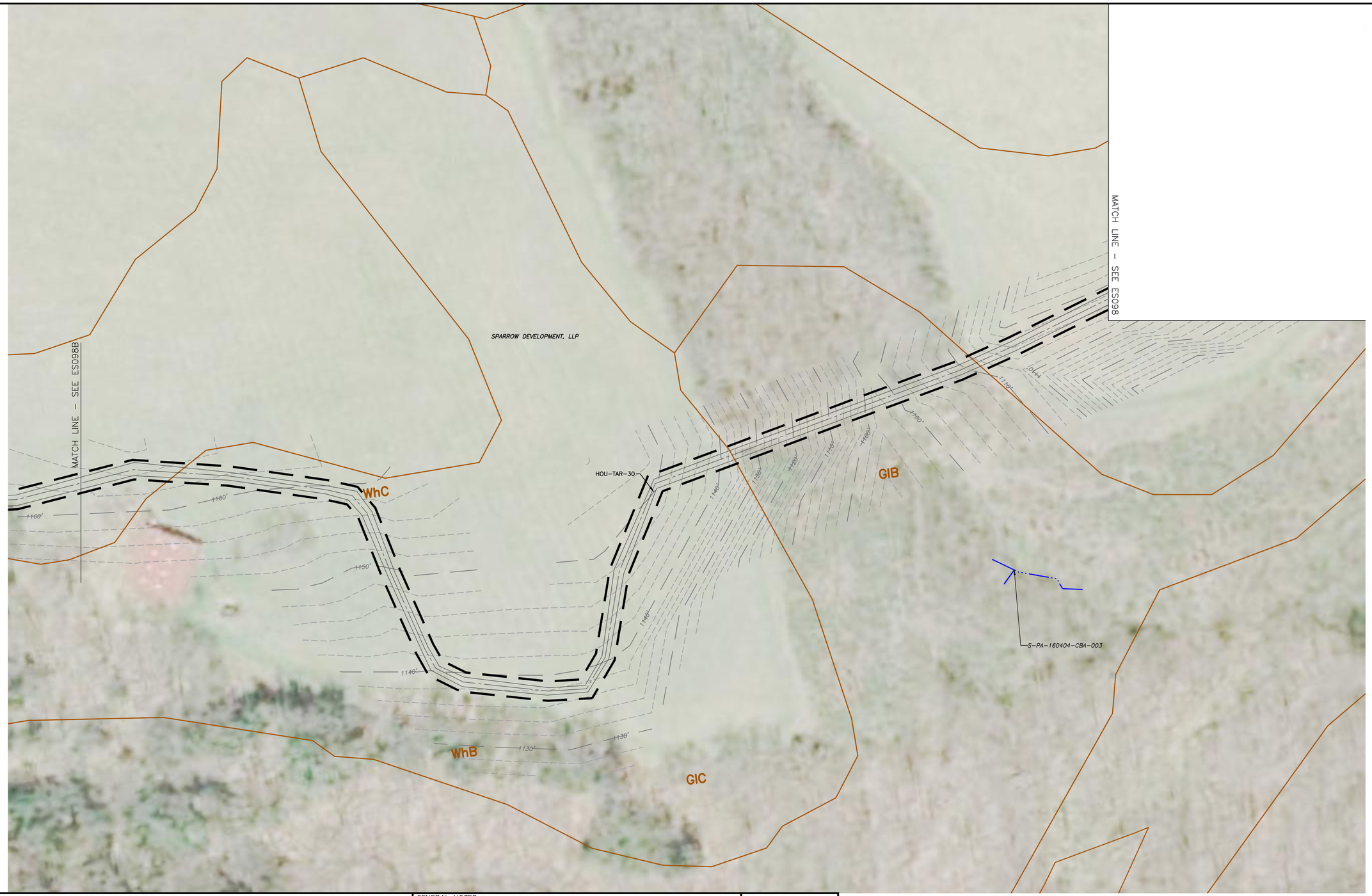
EROSION AND SEDIMENT CONTROL PLAN
ES098 – (STA. 1149+00 TO STA. 1161+00)

ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119383	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5498885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN098.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 7:34 PM) Last Plotted: 2018-01-02 (1/2/2018 1:57 PM)



0 50' 100'
SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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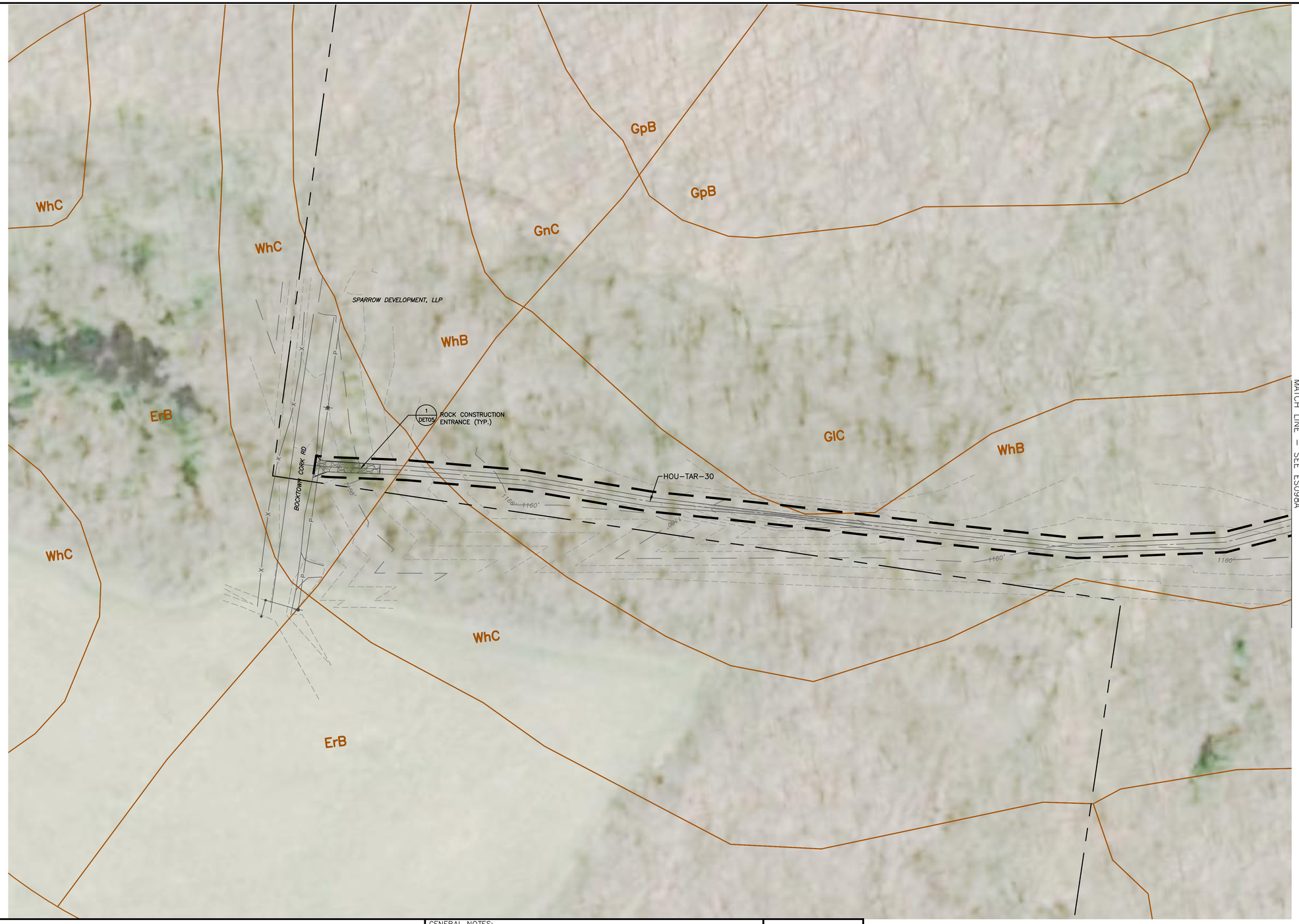
EROSION AND SEDIMENT CONTROL PLAN
ES098A – (HOU-TAR-30)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119766	REVISION
DRAWN	TLM	09/14/2017		0

Filename: Y:\PROJECTS\1747\SHELL\60498885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN\ES98A.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:01 AM) Last Plotted: 2018-01-02 (1/2/2018 1:58 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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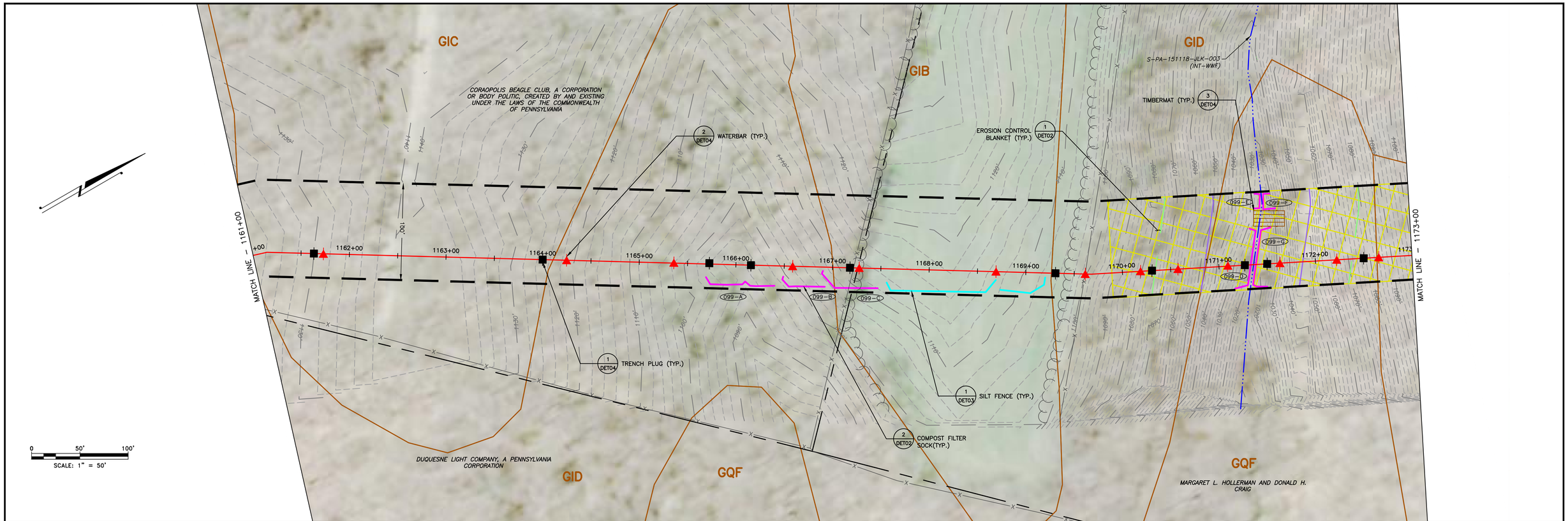
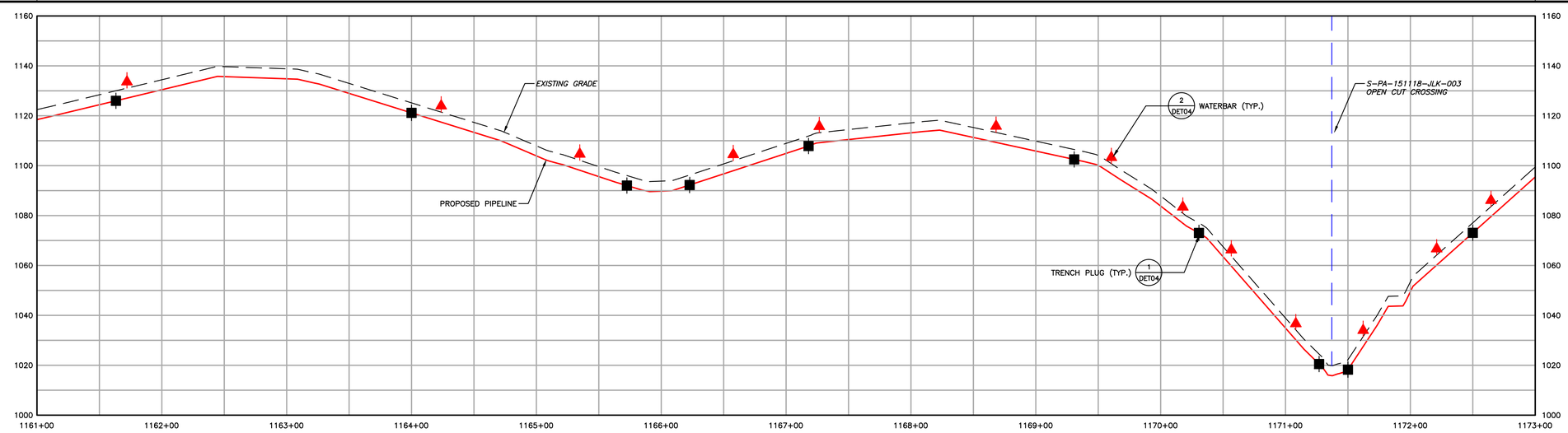
EROSION AND SEDIMENT CONTROL PLAN
ES098B – (HOU-TAR-30)
ALLEGHENY COUNTY
FINDLAY TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119767	REVISION
DRAWN	TLM	09/14/2017		0

Filename: Y:\PROJECTS\1747\SHELL\64898855 – FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN098B.DWG
Last saved by: UNCOLN.SCHAFER (12/29/2017 10:02 AM) Last Plotted: 2018-01-02 (1/2/2018 1:59 PM)



LAND USE	WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'			



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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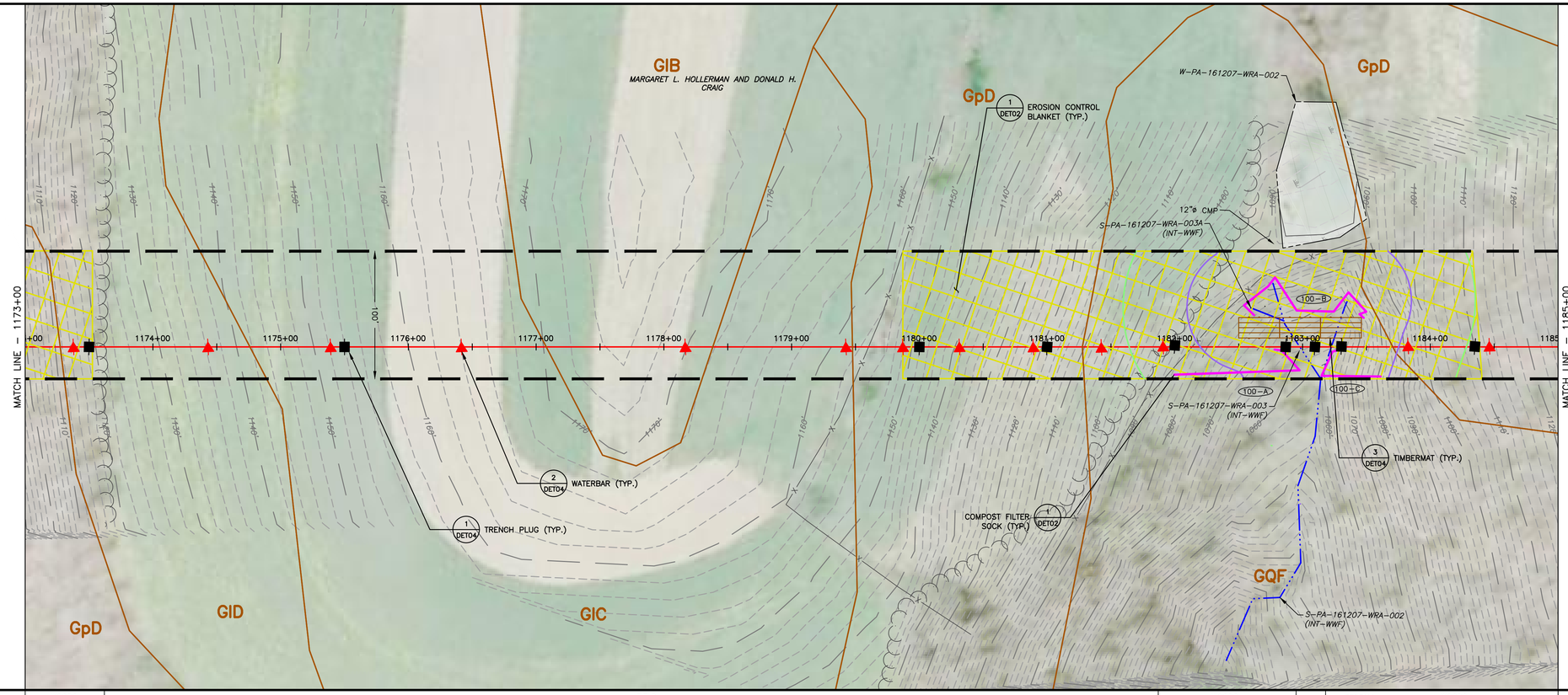
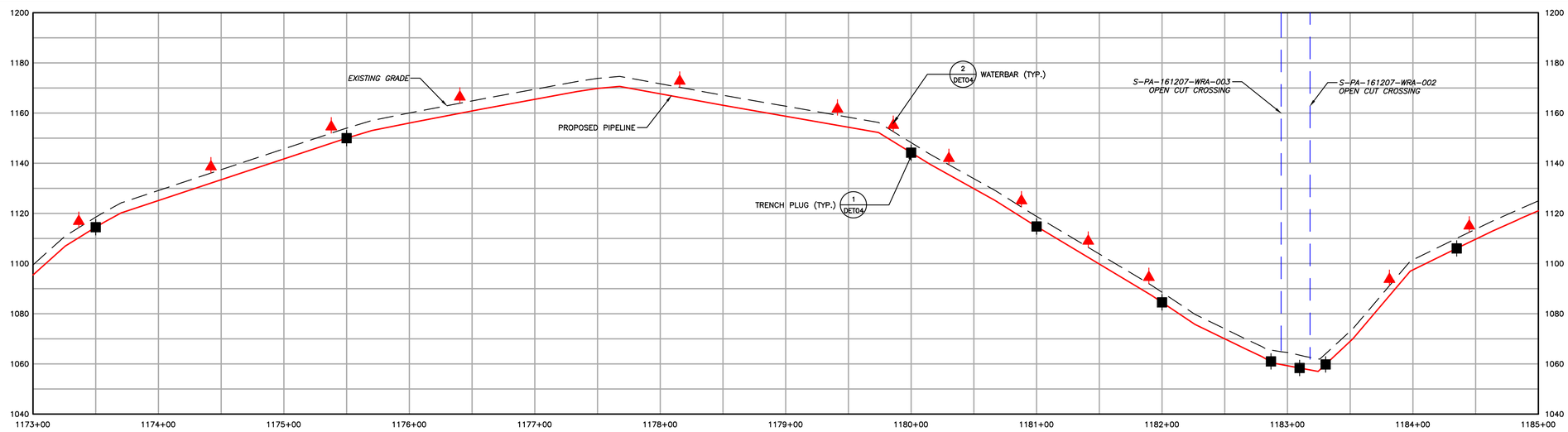
EROSION AND SEDIMENT CONTROL PLAN
ES099 – (STA. 1161+00 TO STA. 1173+00)
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119384	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN099.DWG
Last saved by: LINCOLN.SCHAFER (12/28/2017 10:53 AM) Last Plotted: 2018-01-02 (1/2/2018 2:30 PM)



LAND USE	WOODS	FIELD	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	STREAM 5'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
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MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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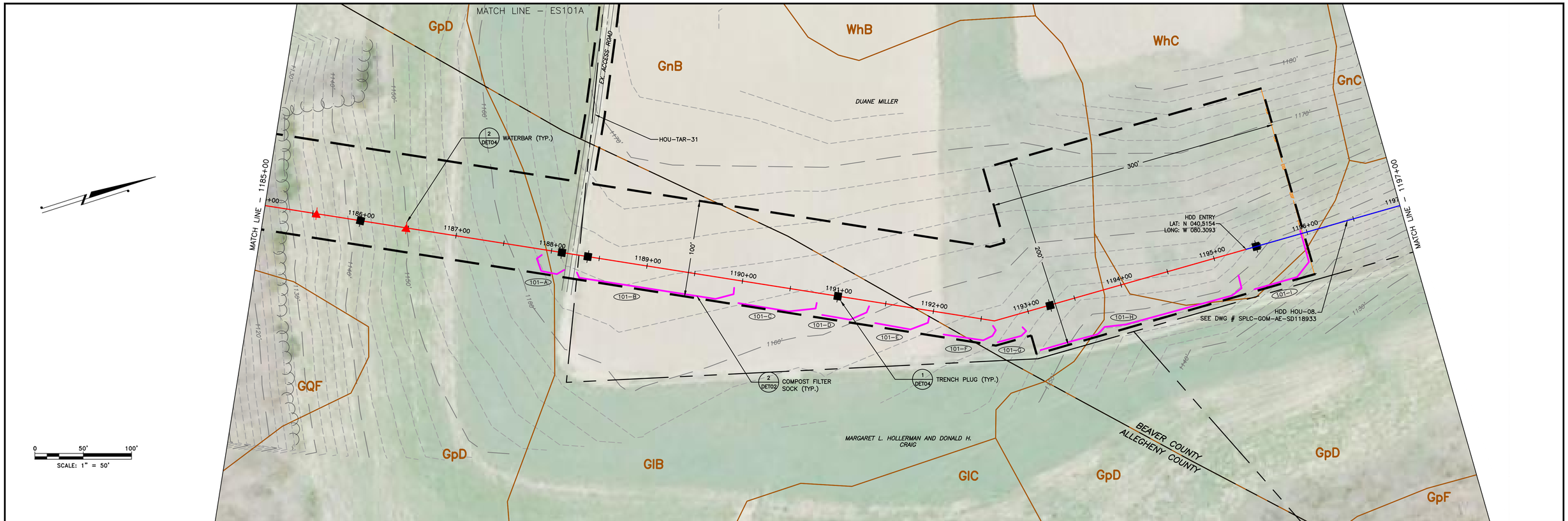
EROSION AND SEDIMENT CONTROL PLAN
ES100 – (STA. 1173+00 TO STA. 1185+00)

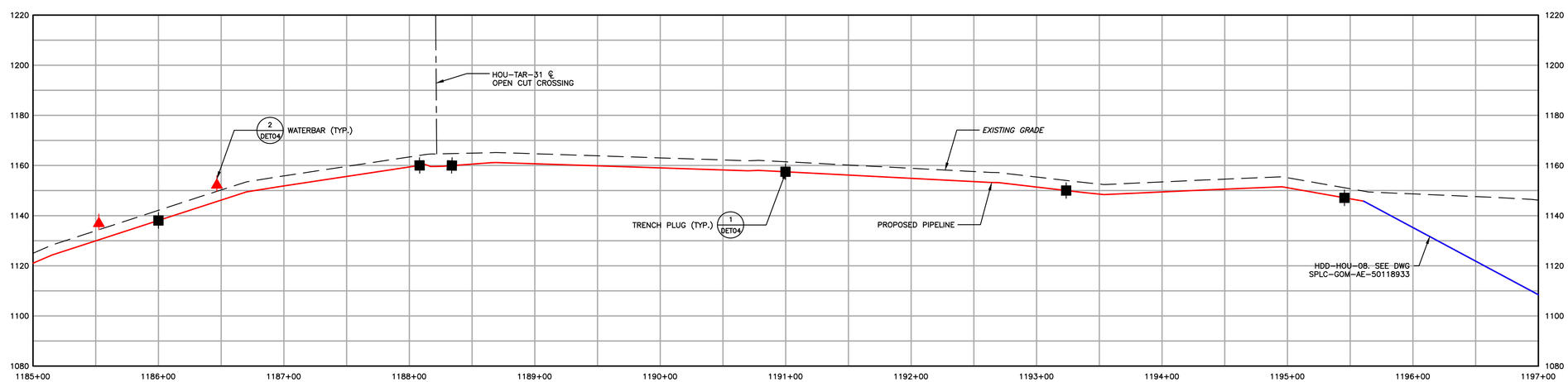
ALLEGHENY COUNTY PENNSYLVANIA
FINDLAY AND INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119385	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN100.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:59 AM) Last Plotted: 2018-01-02 (1/2/2018 2:01 PM)



LAND USE	WOODS	FIELD	RD	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)		4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES101 – (STA. 1185+00 TO STA. 1197+00)

ALLEGHENY AND BEAVER COUNTY PENNSYLVANIA
FINDLAY AND INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119386	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN101.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:57 AM) Last Plotted: 2018-01-02 (1/2/2018 2:44 PM)

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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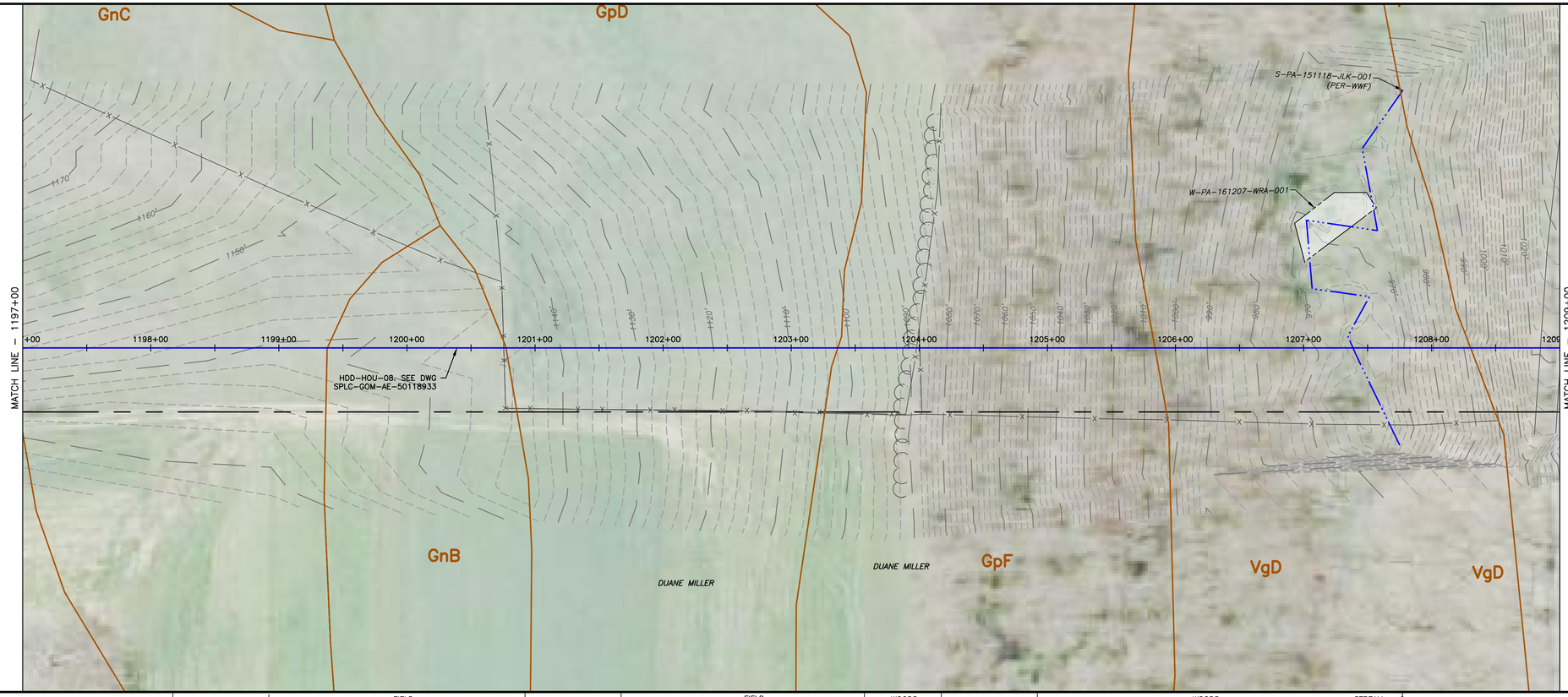
EROSION AND SEDIMENT CONTROL PLAN
ES101A - (HOU-TAR-31)

BEAVER COUNTY PENNSYLVANIA
FINDLAY AND INDEPENDENCE TOWNSHIP

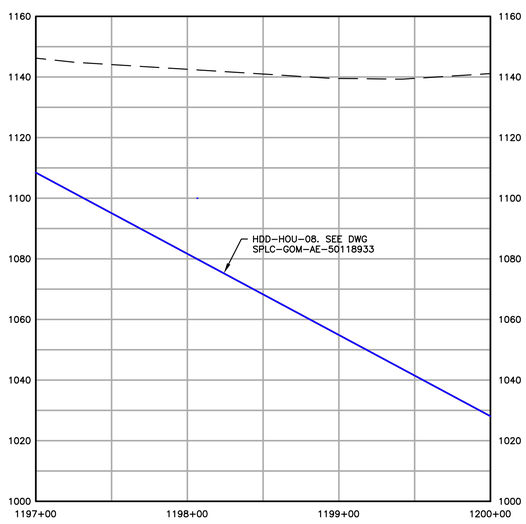
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119793	REVISION
DRAWN	TLM	09/14/2017		0

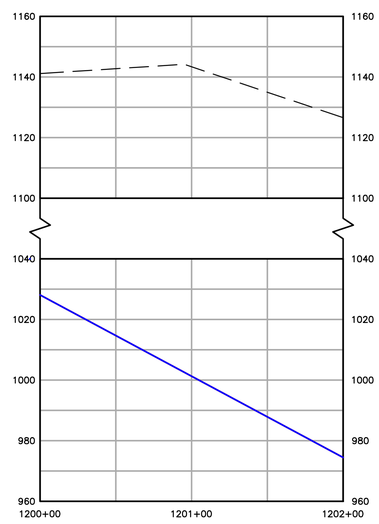
Filename: Y:\PROJECTS\174T\SHELL\6489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN101A.DWG
Last saved by: ALEXANDER,CHRIS (12/28/2017 8:37 AM) Last Plotted: 2018-01-02 (1/2/2018 2:45 PM)

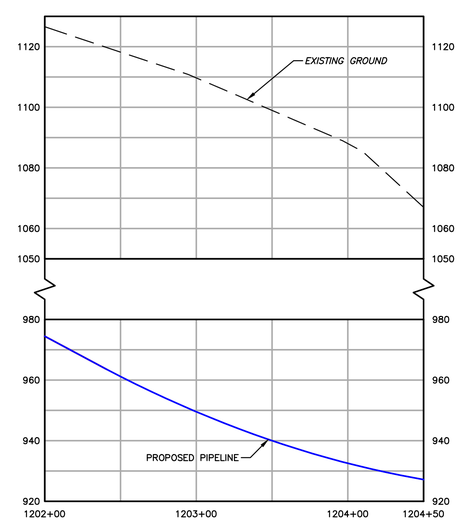


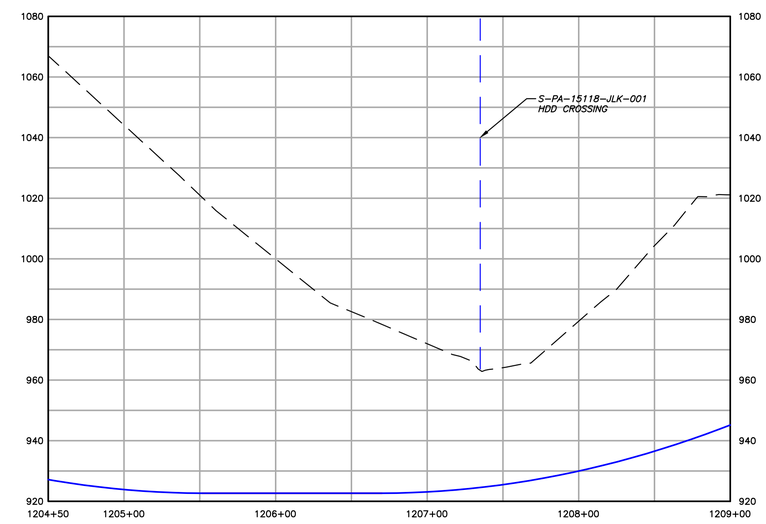
0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	FIELD	FIELD	WOODS	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'	5'	4'









1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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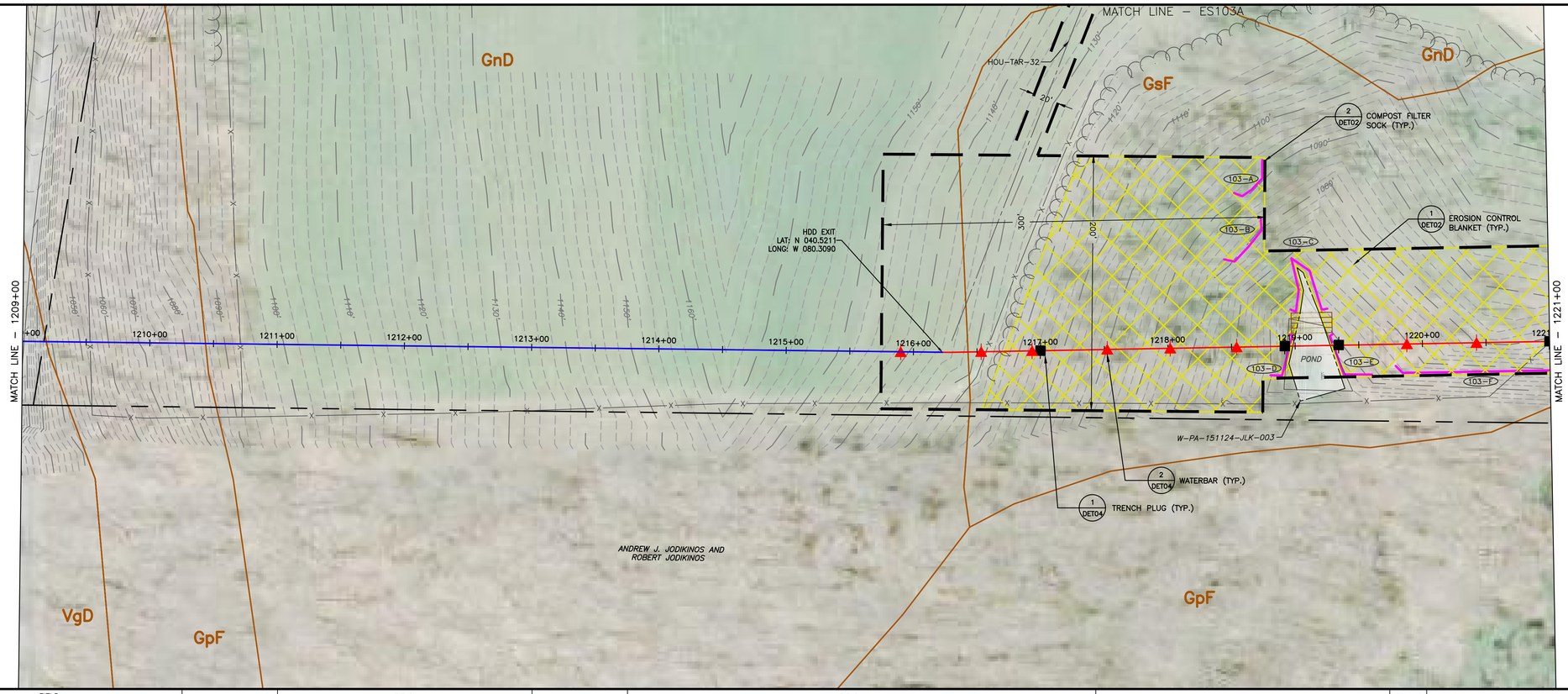
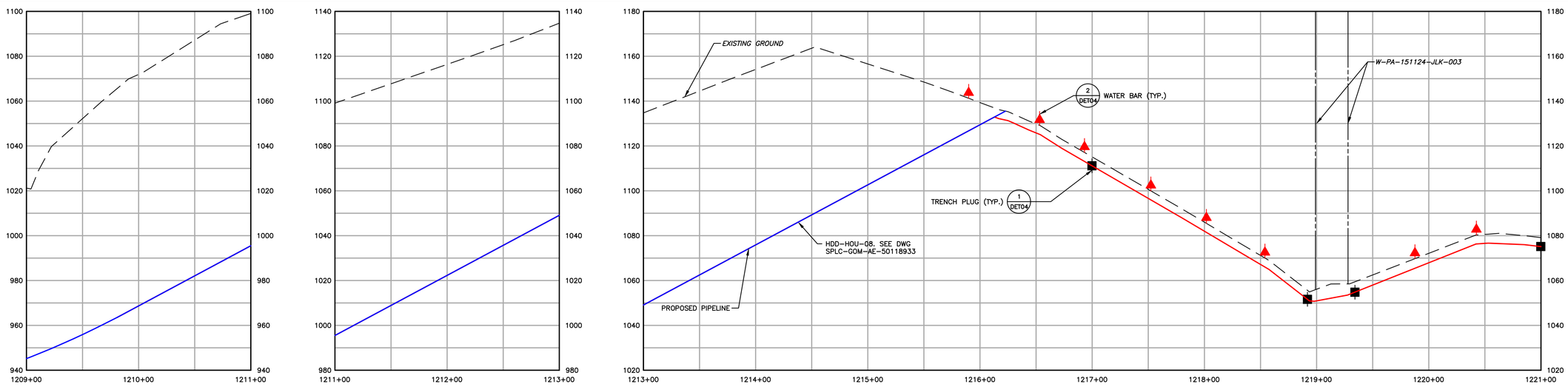
EROSION AND SEDIMENT CONTROL PLAN
ES102 – (STA. 1197+00 TO STA. 1209+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119387	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN102.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:37 AM) Last Plotted: 2018-01-02 (1/2/2018 2:46 PM)



LAND USE	FIELD		FIELD		FIELD	WOODS	WETLANDS	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		4'	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES103 – (STA. 1209+00 TO STA. 1221+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119388	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN103.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:37 AM) Last Plotted: 2018-01-02 (1/2/2018 2:47 PM)

0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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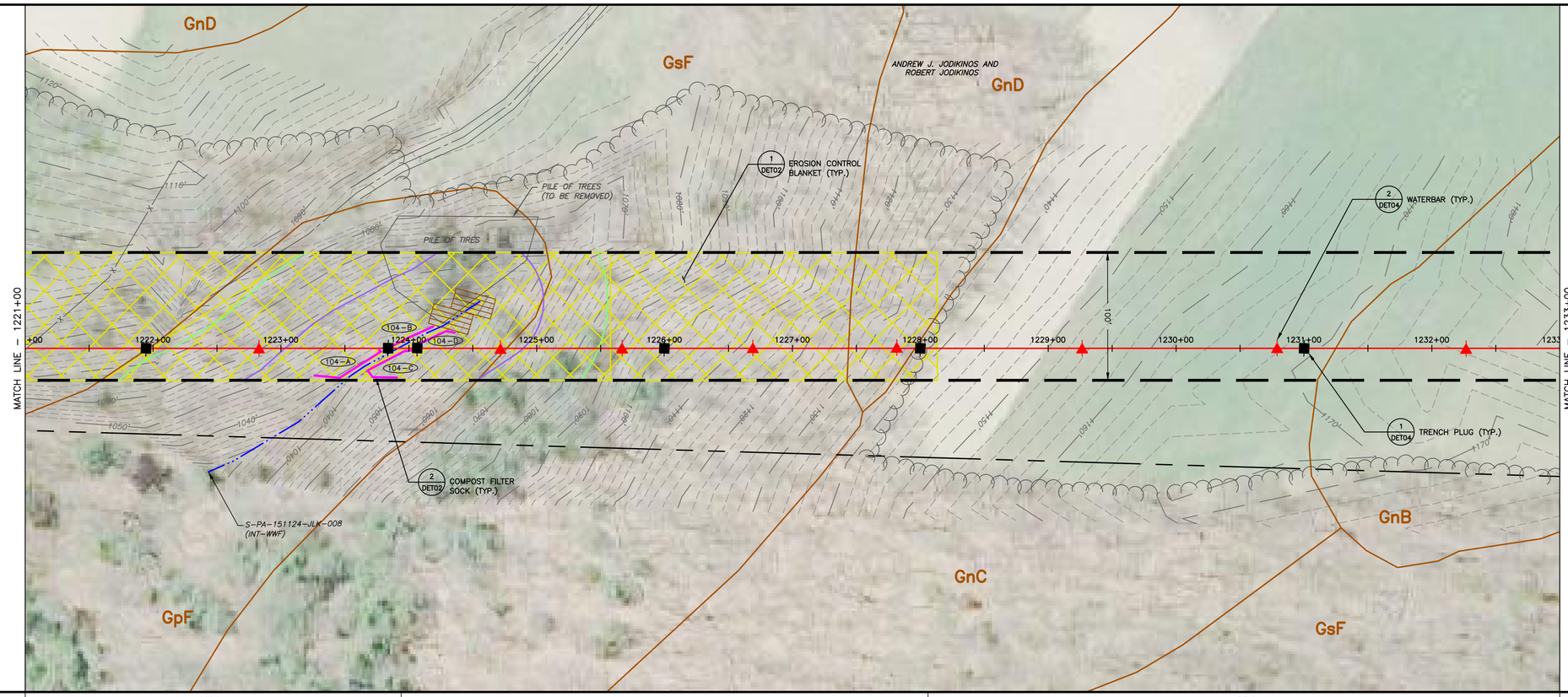
EROSION AND SEDIMENT CONTROL PLAN
ES103A – (HOU-TAR-32)

BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

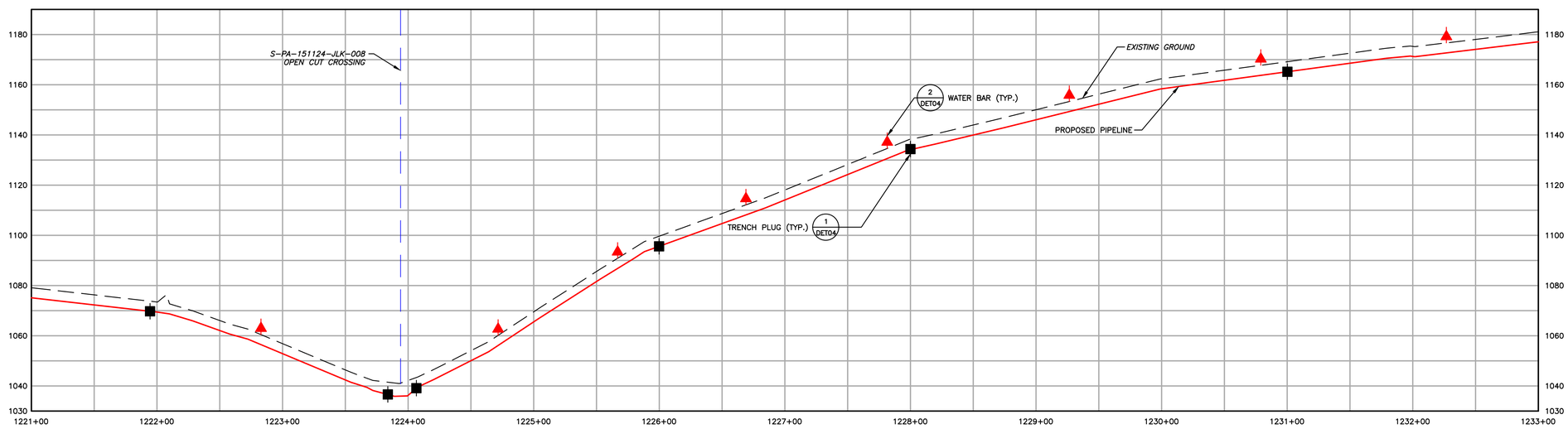
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119792	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\6489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN103A.DWG
Last saved by: ALEXANDER.CORTEZ (12/29/2017 8:39 AM) Last Plotted: 2018-01-02 (1/2/2018 2:48 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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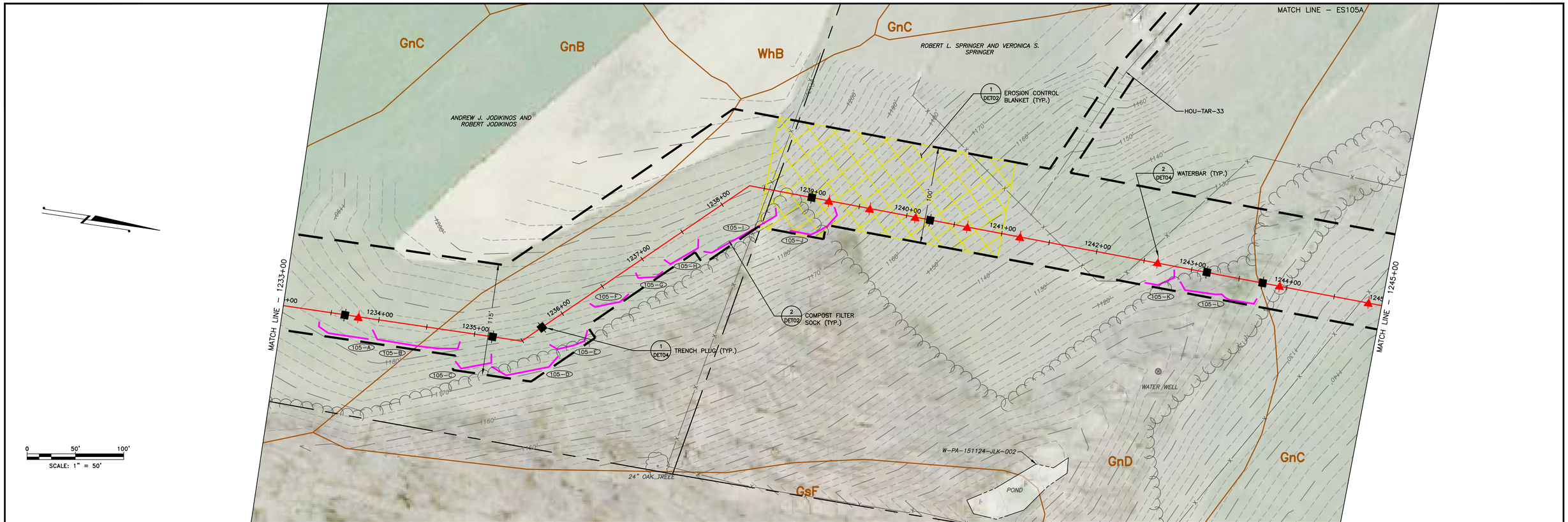
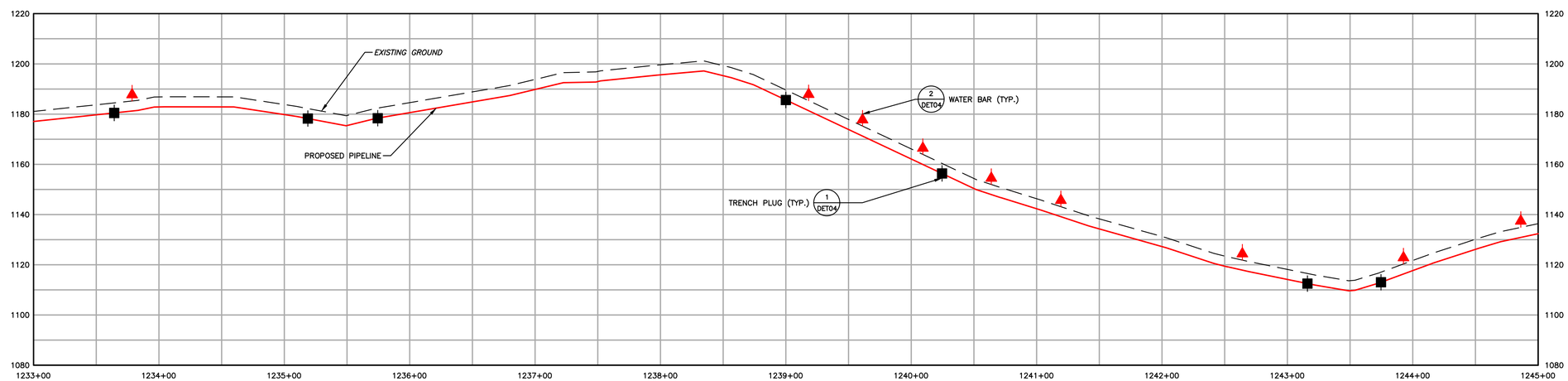
EROSION AND SEDIMENT CONTROL PLAN
ES104 – (STA. 1221+00 TO STA. 1233+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119389	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\100–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN104.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:55 AM) Last Plotted: 2018–01–02 (1/2/2018 2:49 PM)



LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES105 – (STA. 1233+00 TO STA. 1245+00)

BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119390	REVISION
DRAWN	TLM	12/05/17		1

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Last saved by: ALEXANDER.CURTICE (12/28/2017 8:34 AM) Last Plotted: 2018-01-02 (1/2/2018 2:50 PM)

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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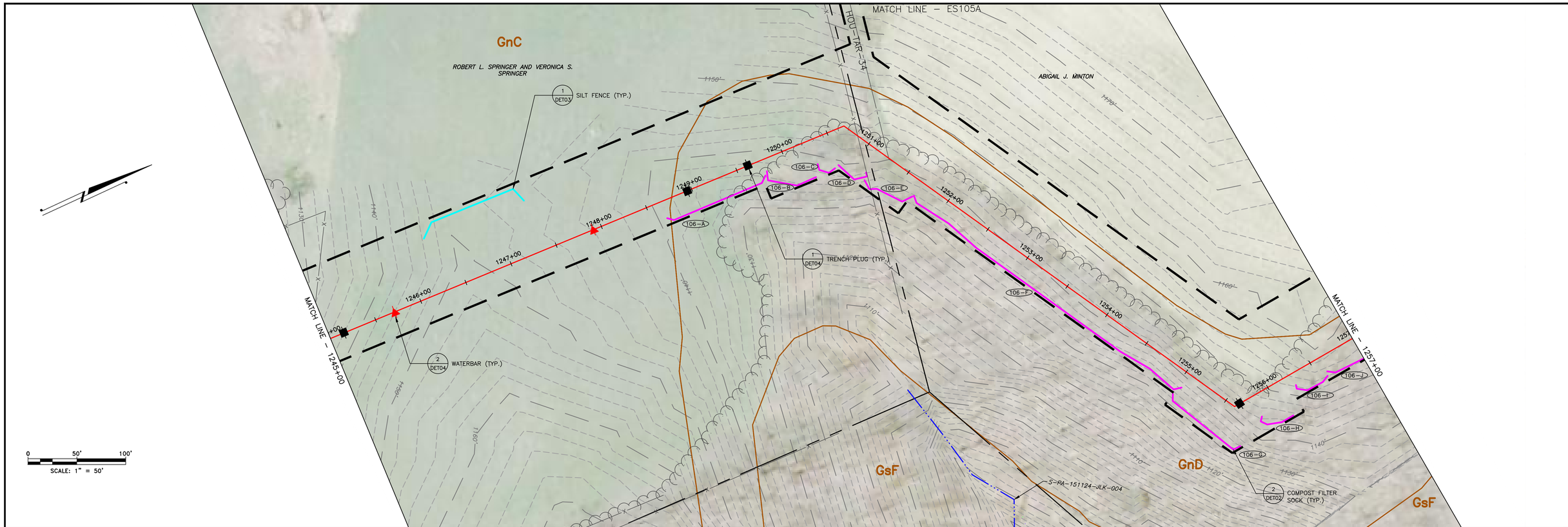
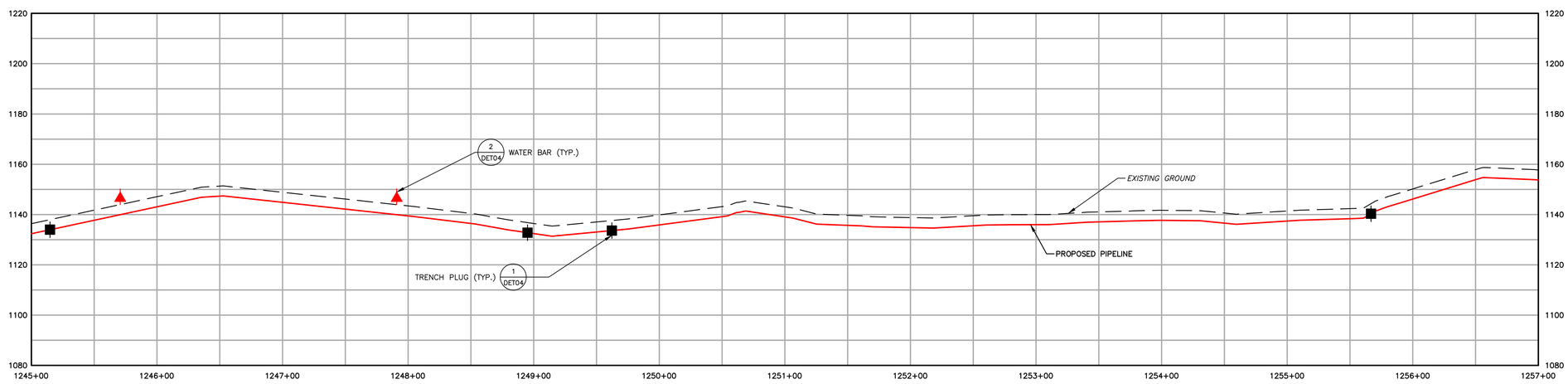
EROSION AND SEDIMENT CONTROL PLAN
ES105A - (HOU-TAR-33)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119791	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\6948985 - FALCON\800-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN105A.DWG
Last saved by: ALEXANDER.CURTICE (12/26/2017 8:34 AM) Last Plotted: 2018-01-02 (1/4/2018 2:51 PM)



LAND USE	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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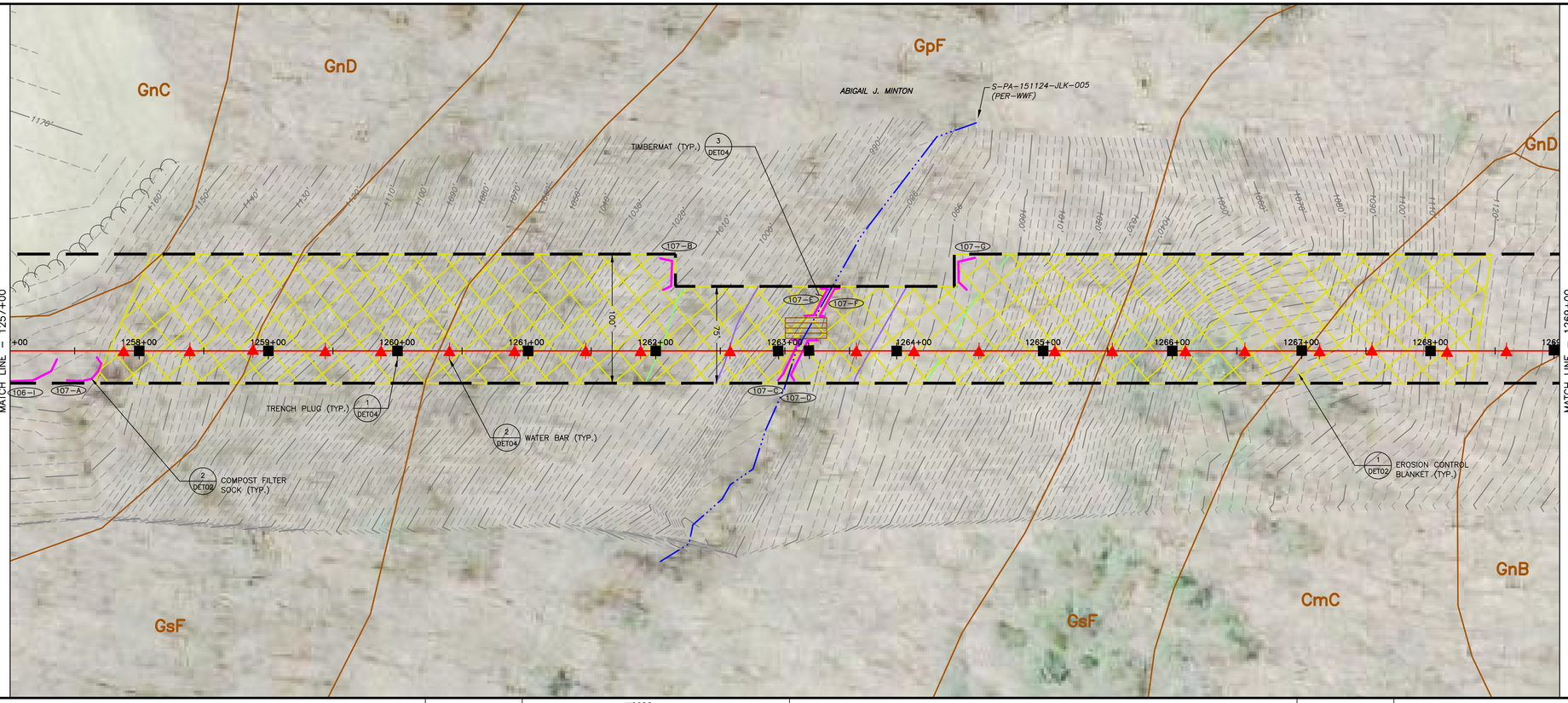
EROSION AND SEDIMENT CONTROL PLAN
ES106 – (STA. 1245+00 TO STA. 1257+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

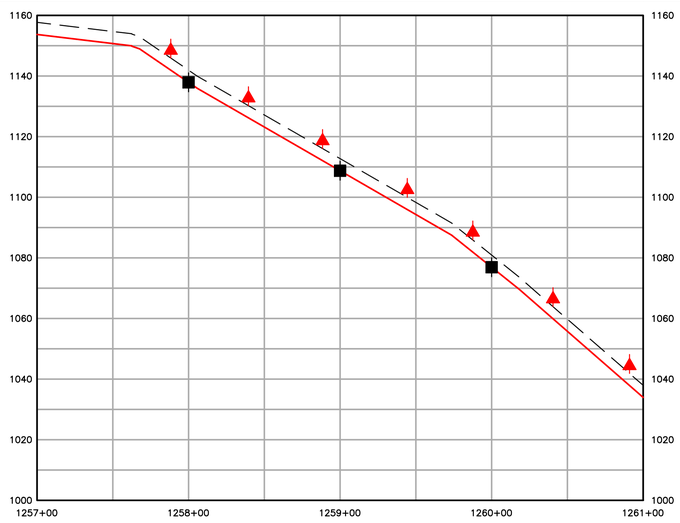
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119391	REVISION 1
DRAWN	TLM				

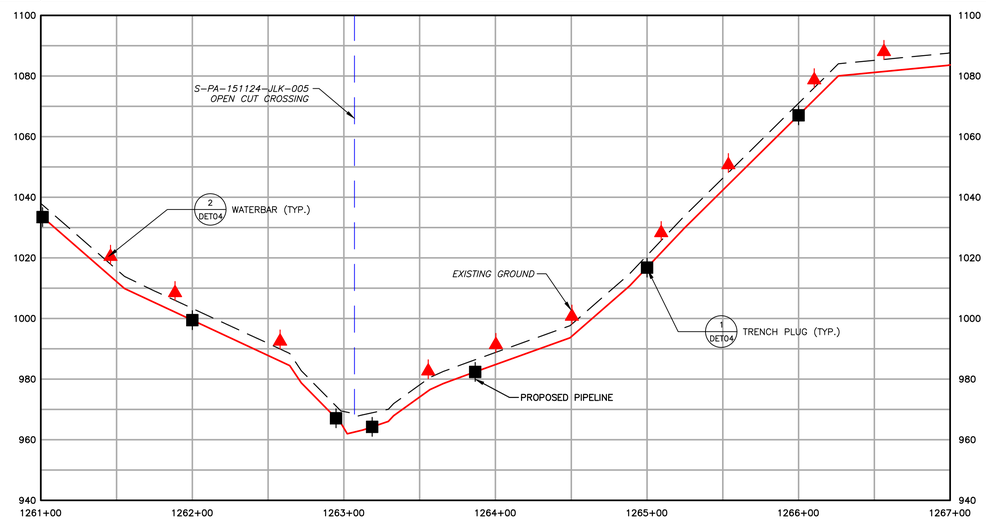
Filename: Y:\PROJECTS\1747\SHELL\10458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN106.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:53 AM) Last Plotted: 2018-01-02 (1/2/2018 2:52 PM)

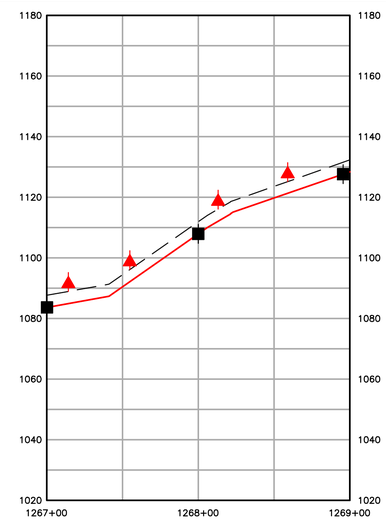


0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS		WOODS STREAM	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4' 5'	4'	4'







1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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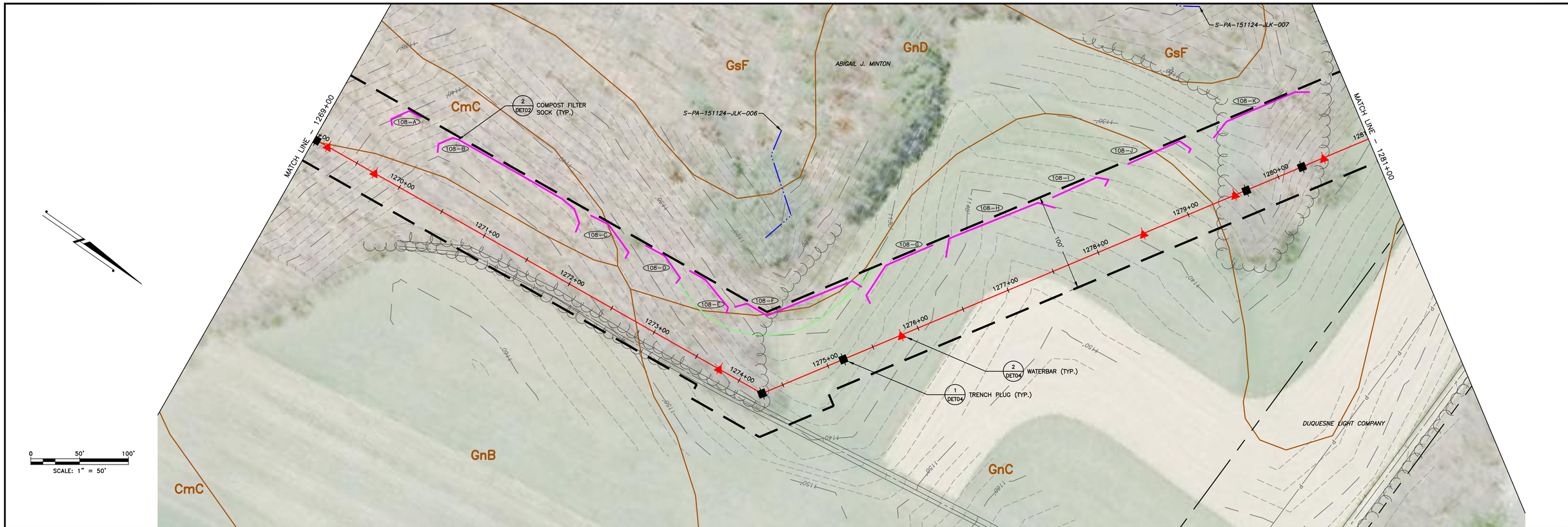
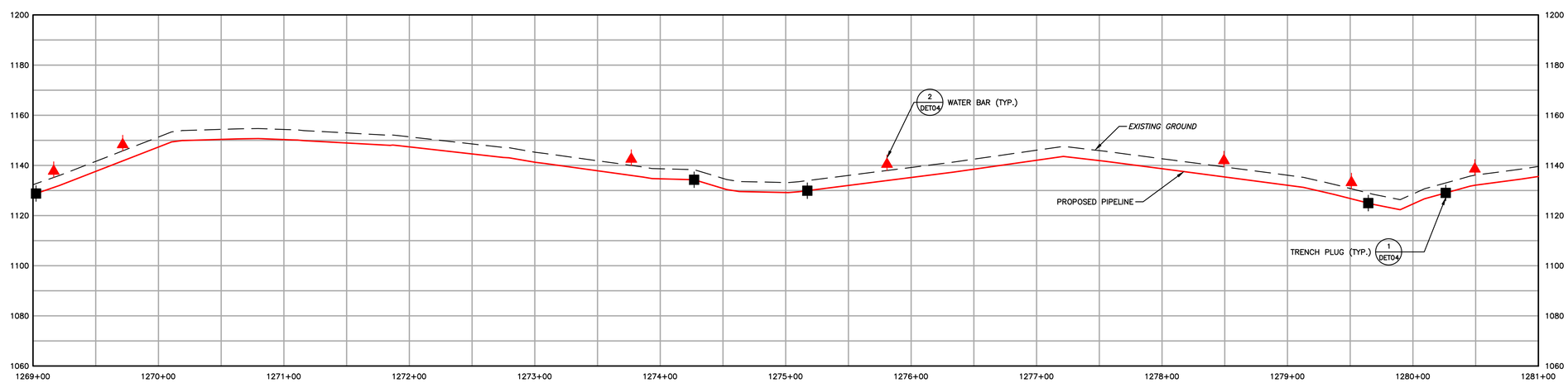
EROSION AND SEDIMENT CONTROL PLAN
ES107 - (STA. 1257+00 TO STA. 1269+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119392	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 - FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN107.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:53 AM) Last Plotted: 2018-01-02 (1/2/2018 2:53 PM)



LAND USE	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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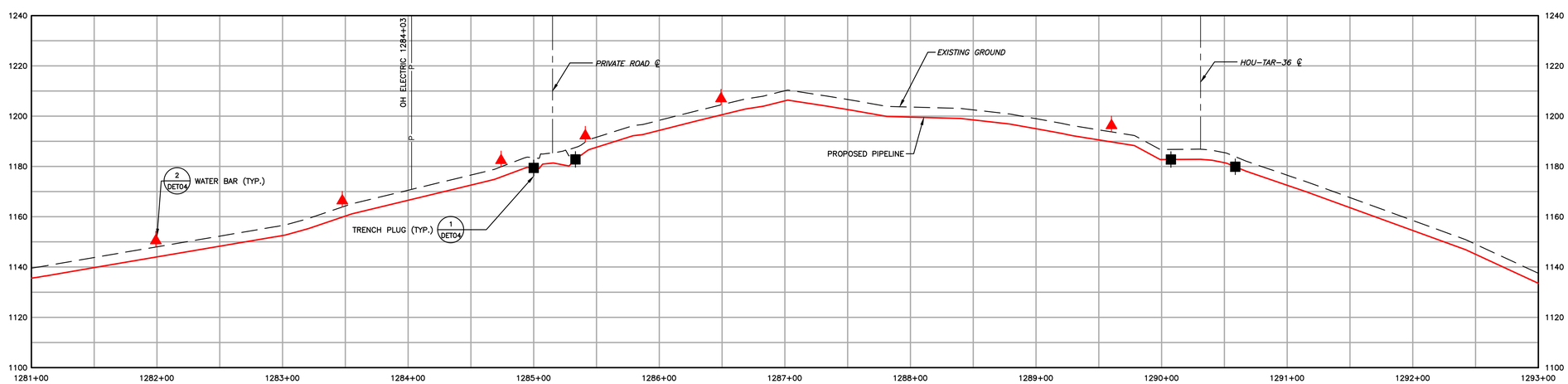
EROSION AND SEDIMENT CONTROL PLAN
ES108 – (STA. 1269+00 TO STA. 1281+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119393	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN108.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 8:53 AM) Last Plotted: 2018-01-02 (1/2/2018 2:54 PM)

LAND USE	FIELD	ROAD	WOODS	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES109 – (STA. 1281+00 TO STA. 1293+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119394	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN109.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:16 AM) Last Plotted: 2018-01-02 (1/2/2018 2:55 PM)

0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrBZ	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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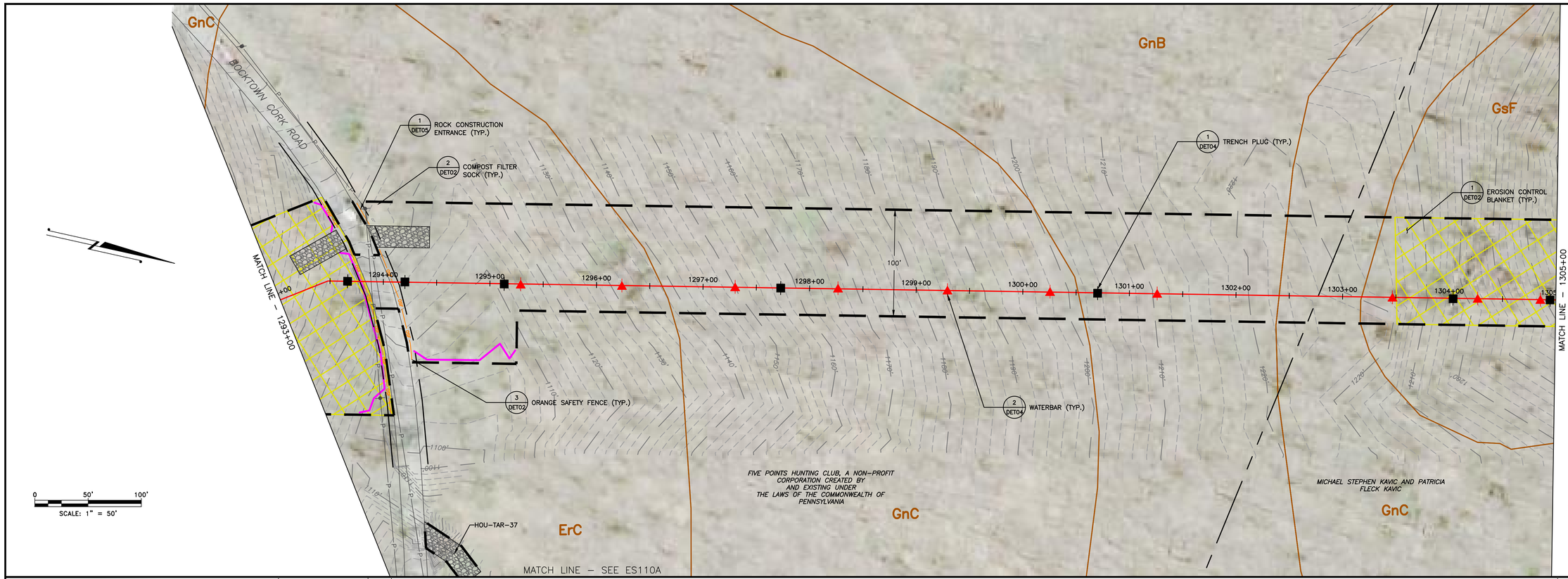
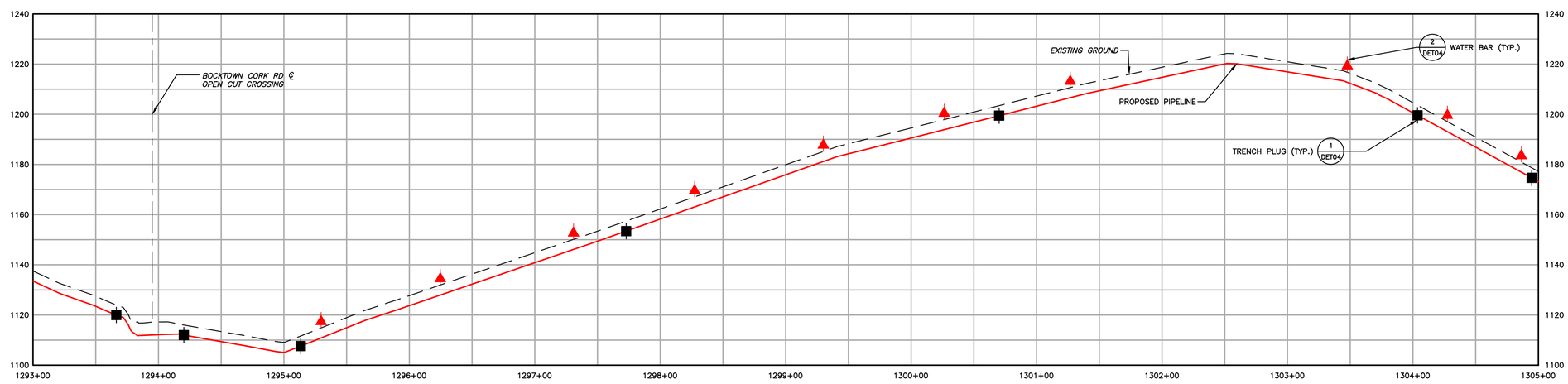
EROSION AND SEDIMENT CONTROL PLAN
ES109A – (HOU-TAR-35 HOU-TAR-36)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119790	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENN01\ANA\PLAN109A.DWG
Last saved by: ALEXANDER.CURTICE (12/28/2017 10:15 AM) Last Plotted: 2018-01-02 (1/2/2018 2:58 PM)



LAND USE	WOODS	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES110 – (STA. 1293+00 TO STA. 1305+00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119395	REVISION
DRAWN	TLM	12/05/2017		1

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Last saved by: ALEXANDER.CURTICE (12/29/2017 10:15 AM) Last Plotted: 2018-01-02 (1/2/2018 2:57 PM)

MATCH LINE – SEE ES110

MATCH LINE – SEE ES111

FIVE POINTS HUNTING CLUB, A NON-PROFIT CORPORATION CREATED BY AND EXISTING UNDER THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA

MICHAEL STEPHEN KAVIC AND PATRICIA FLECK KAVIC

MARILYN A. KAVIC

BOCKTOWN CORK ROAD

ErC

GnC

GnB

GsF

GpF

HOU-TAR-37

EQT GAS PIPELINE

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES110A – (HOU-TAR-37)

BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119789	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174T\SHELL\65489885 - FALCON\200-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN110A.DWG
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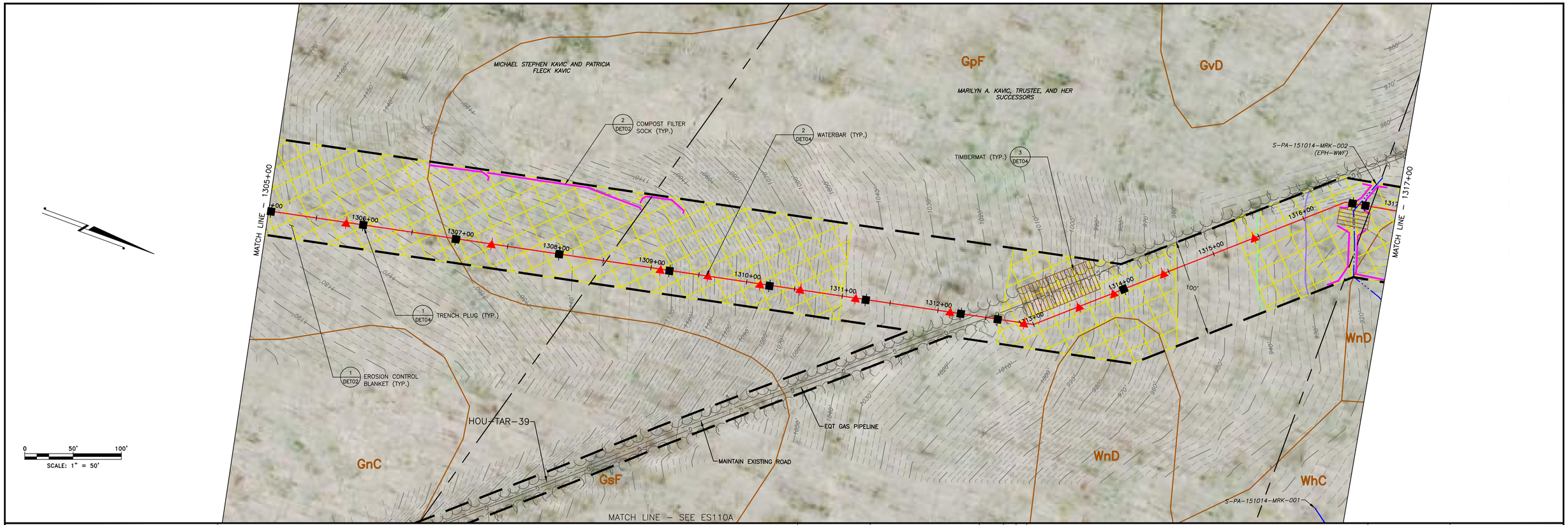
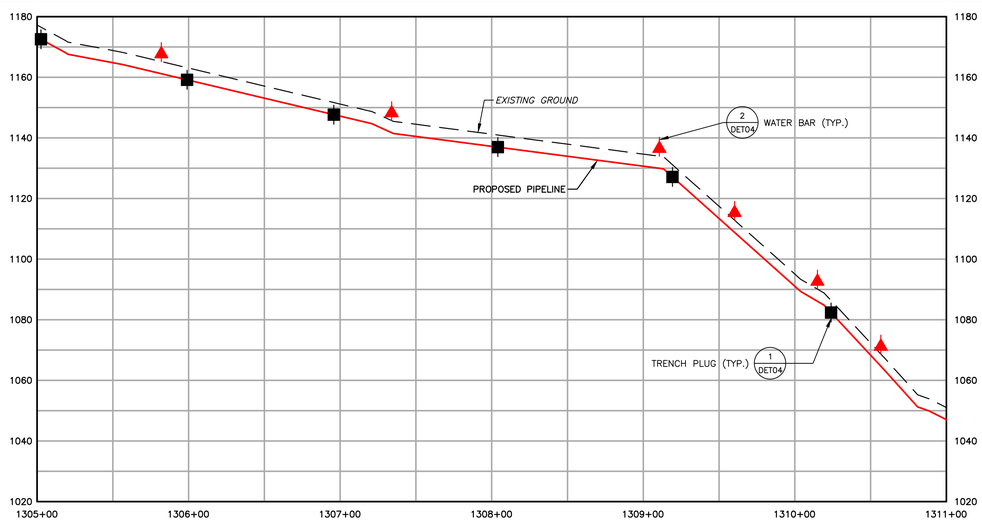
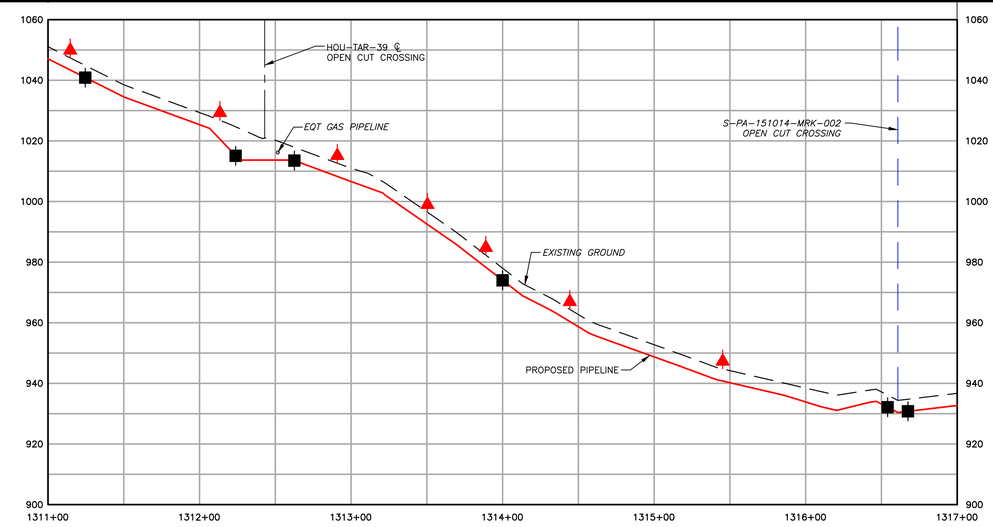


LAND USE	WOODS	WOODS	FIELD	RD	FIELD	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	5'	4'	5'	4'	





1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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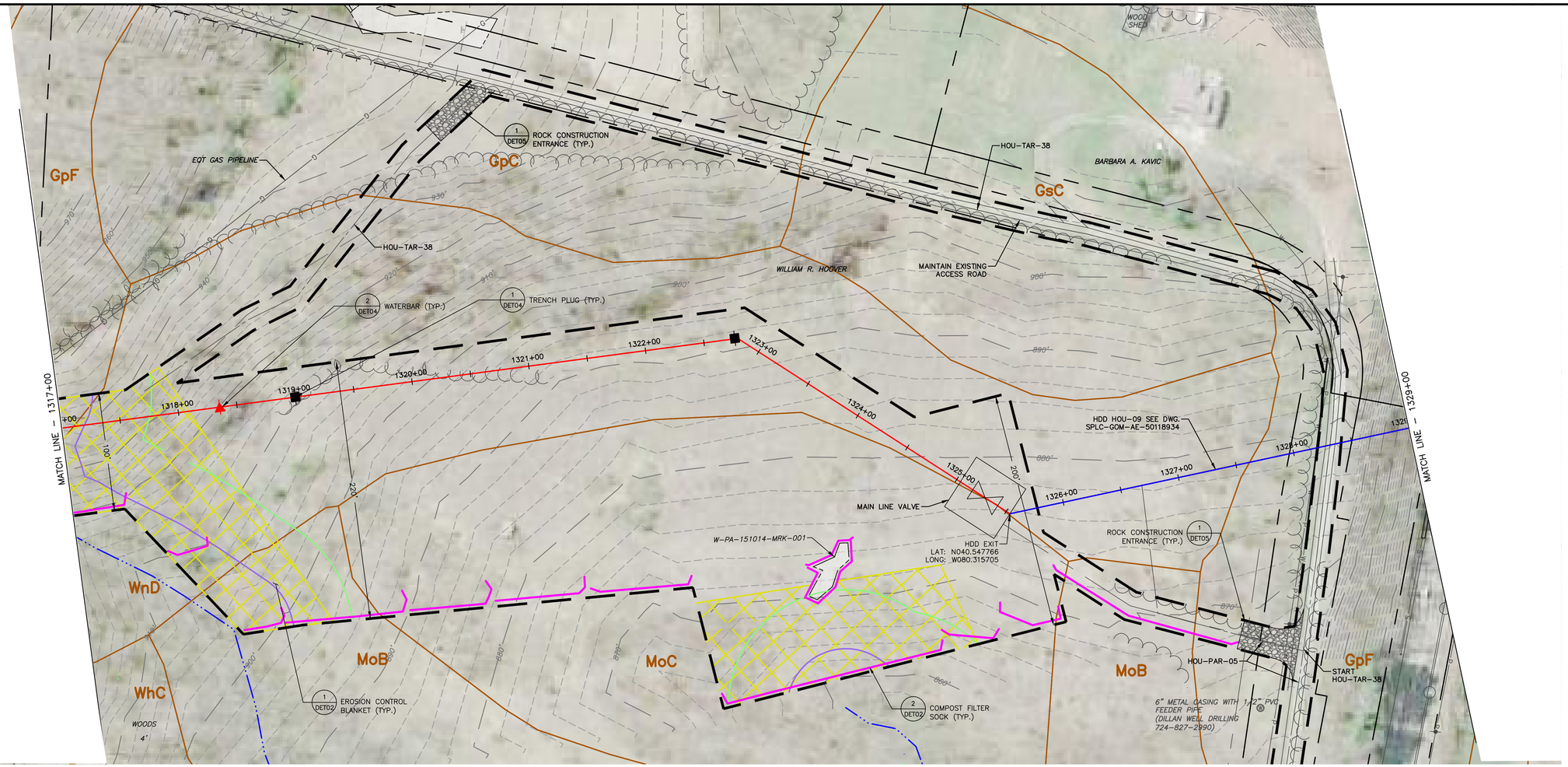
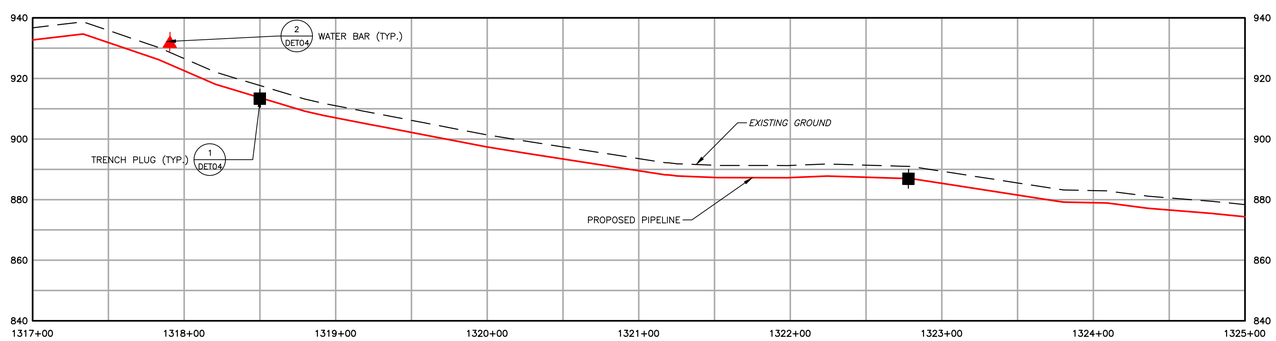
EROSION AND SEDIMENT CONTROL PLAN
ES111 – (STA. 1305+00 TO STA. 1317+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

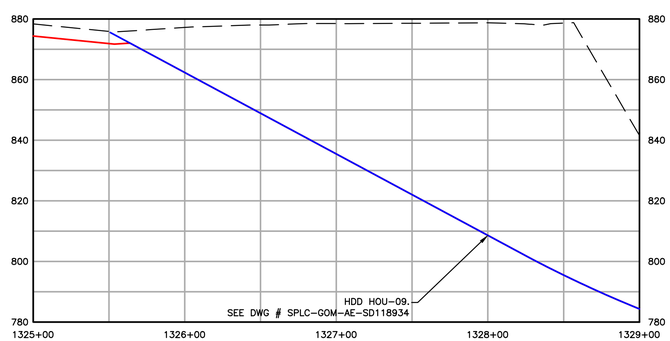
SCALE	1"=50'	DATE	09/14/2017	SPLC-GOM-AE-SD119396	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN111.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:15 AM) Last Plotted: 2018-01-02 (1/2/2018 2:58 PM)



LAND USE	WOODS	FIELD	WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'		4'	





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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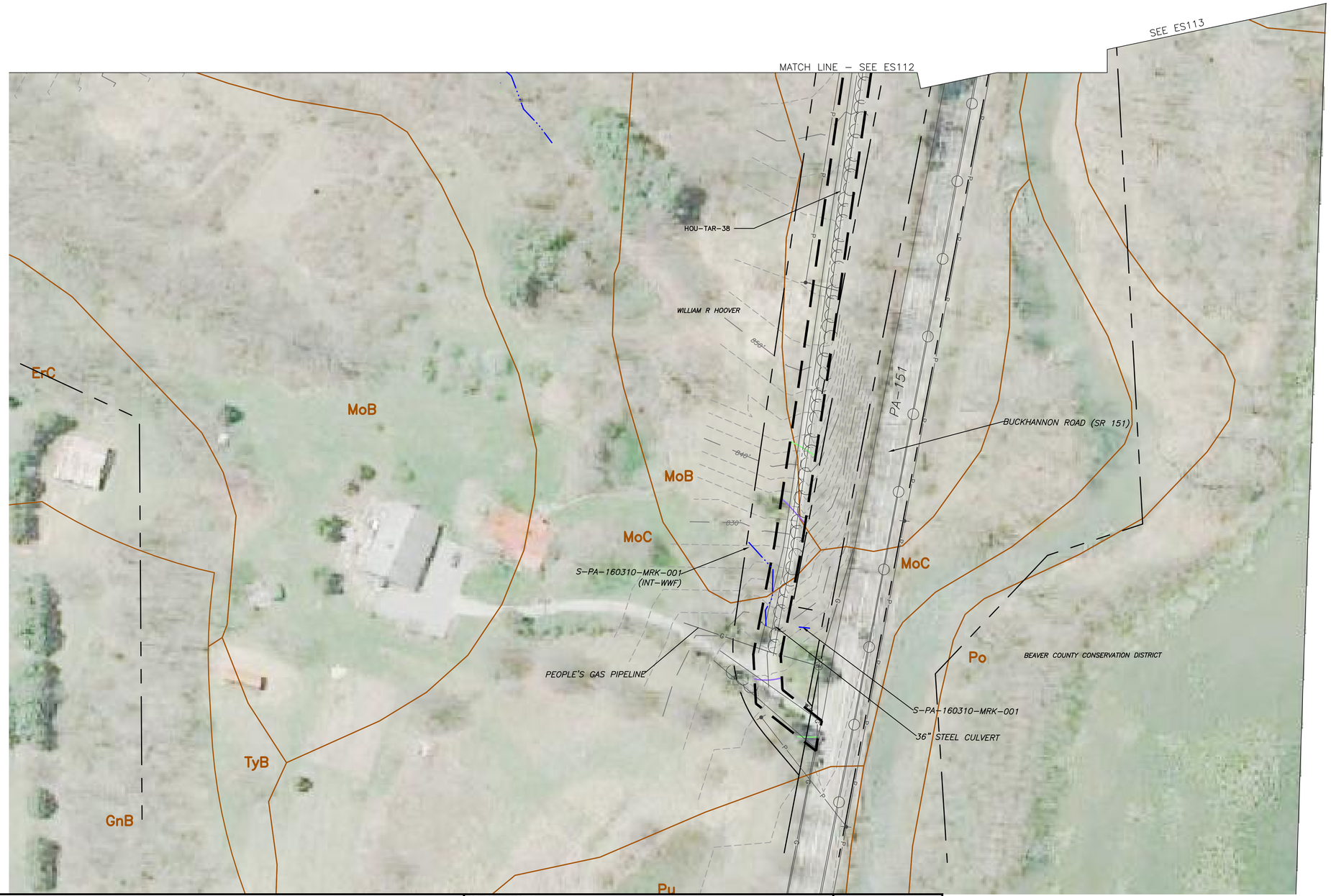
EROSION AND SEDIMENT CONTROL PLAN
ES112 – (STA. 1317+00 TO STA. 1329+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119397	REVISION
DRAWN	TLM	09/14/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 - FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN112.DWG
Last saved by: UNCGA3-SCHAFER (12/28/2017 7:11 PM) Last Plotted: 2018-01-02 (1/2/2018 2:39 PM)



0 50' 100'
SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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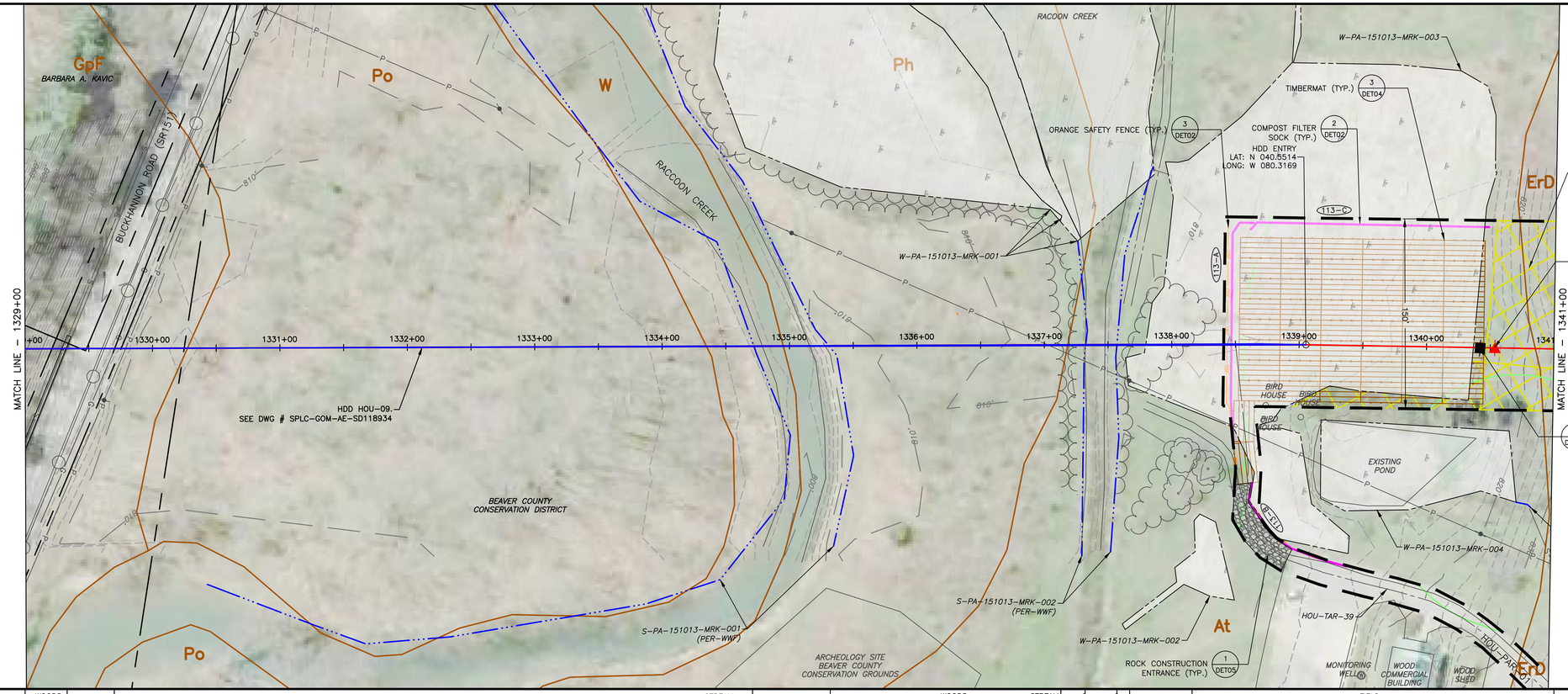
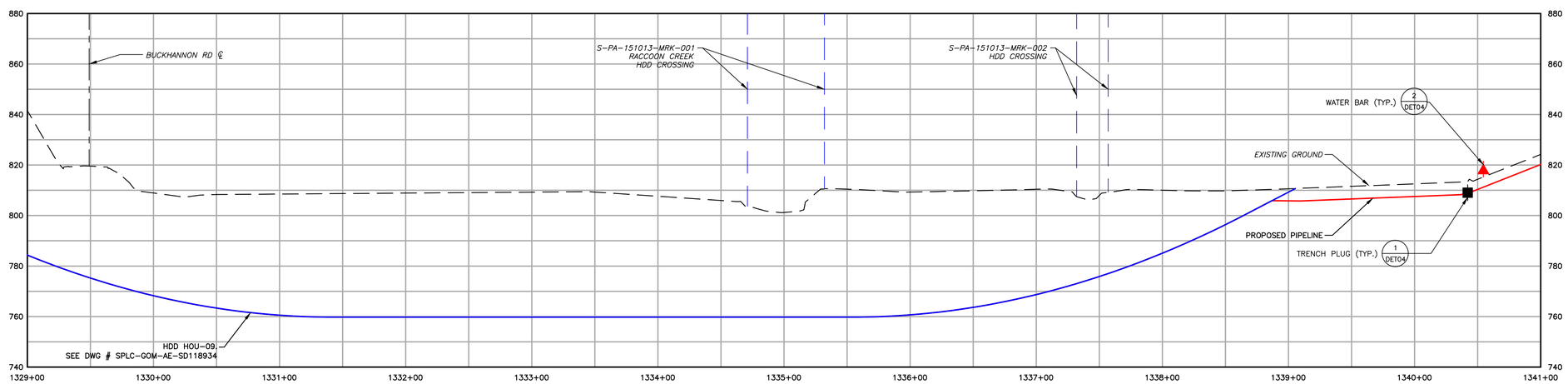
EROSION AND SEDIMENT CONTROL PLAN
ES112A– (HOU-TAR-38)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119788	REVISION
DRAWN	TLM	09/14/2017		1

Filename: Y:\PROJECTS\7475\SHELL\6489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\FENS01\ANA\PLAN112A.DWG
Last saved by: CESMIRA (12/29/2017 12:53 PM) Last Plotted: 2018-01-02 (1/2/2018 3:00 PM)



LAND USE	WOODS	ROAD	WOODS	STREAM	STREAM	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	5'	4'	FIELD 4' 5' 4' 5'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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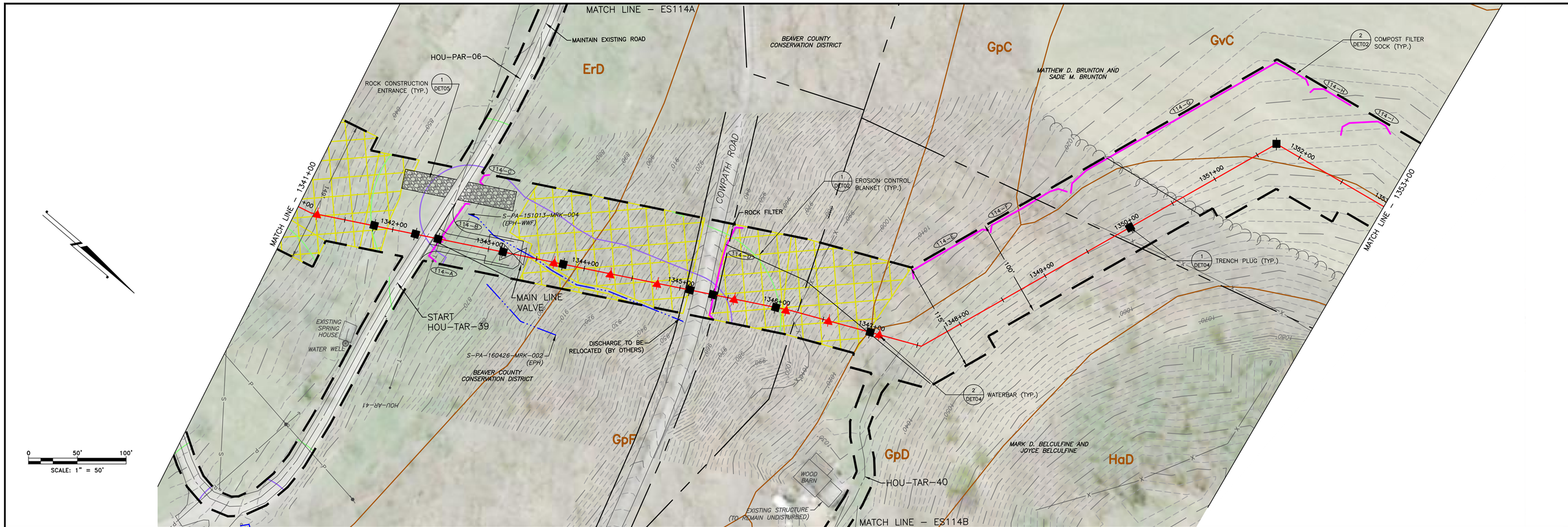
EROSION AND SEDIMENT CONTROL PLAN
ES113 – (STA. 1329+00 TO STA. 1341+00)

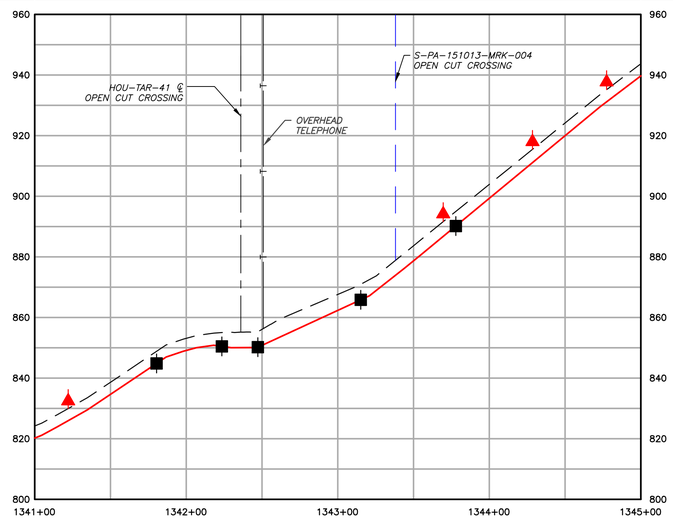
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

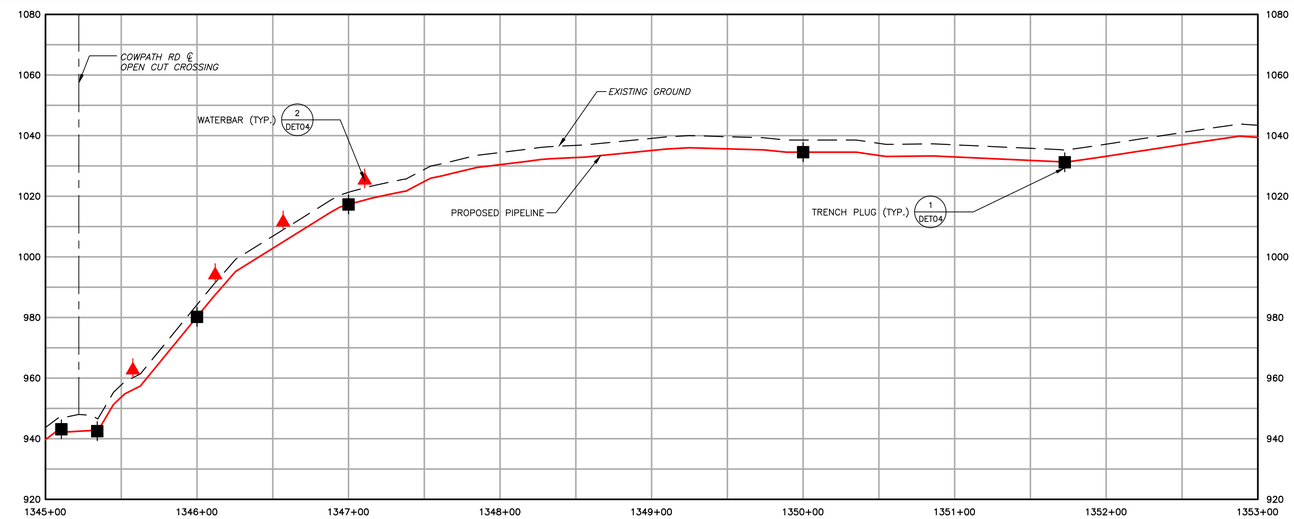
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119398	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN113.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:58 AM) Last Plotted: 2018-01-02 (1/2/2018 3:01 PM)



LAND USE	WOODS	ROAD	WOODS	STREAM	WOODS	WOODS	ROAD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	4'	5'	4'	4'





EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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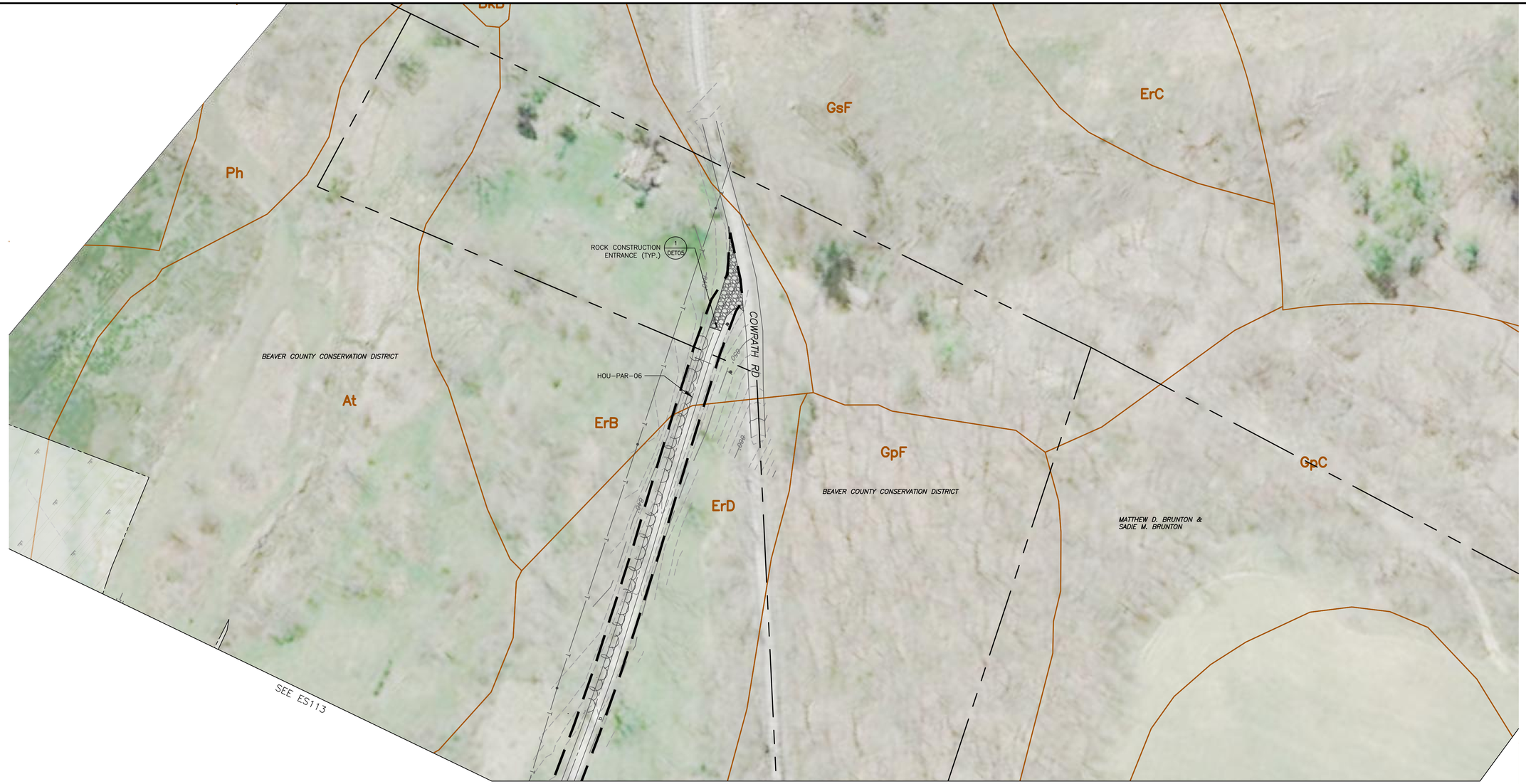
EROSION AND SEDIMENT CONTROL PLAN
ES114 – (STA. 1341+00 TO STA. 1353+00)

BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119399	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\60498885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN114.DWG
Last saved by: ALEXANDER.CURTICE (12/05/2017 9:49 AM) Last Plotted: 2018-01-02 (1/2/2018 3:02 PM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE		OSF	PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY			PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE			PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)			PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK			100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION			WATERSHED BOUNDARY
	EXISTING WETLAND		PROPOSED TRENCH PLUG		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE				MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES114A – (HOU-PAR-06)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119787	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENN01\VANIA\PLAN114A.DWG
Last saved by: ALEXANDER.CURTICE (12/28/2017 9:47 AM) Last Plotted: 2018-01-02 (1/2/2018 3:03 PM)

0 50' 100'
SCALE: 1" = 50'

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN114B.DWG
Last saved by: ALEXANDER.CURTICE (12/28/2017 9:46 AM) Last Plotted: 2018–01–02 (1/2/2018 3:04 PM)

Symbol	Description
1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE–081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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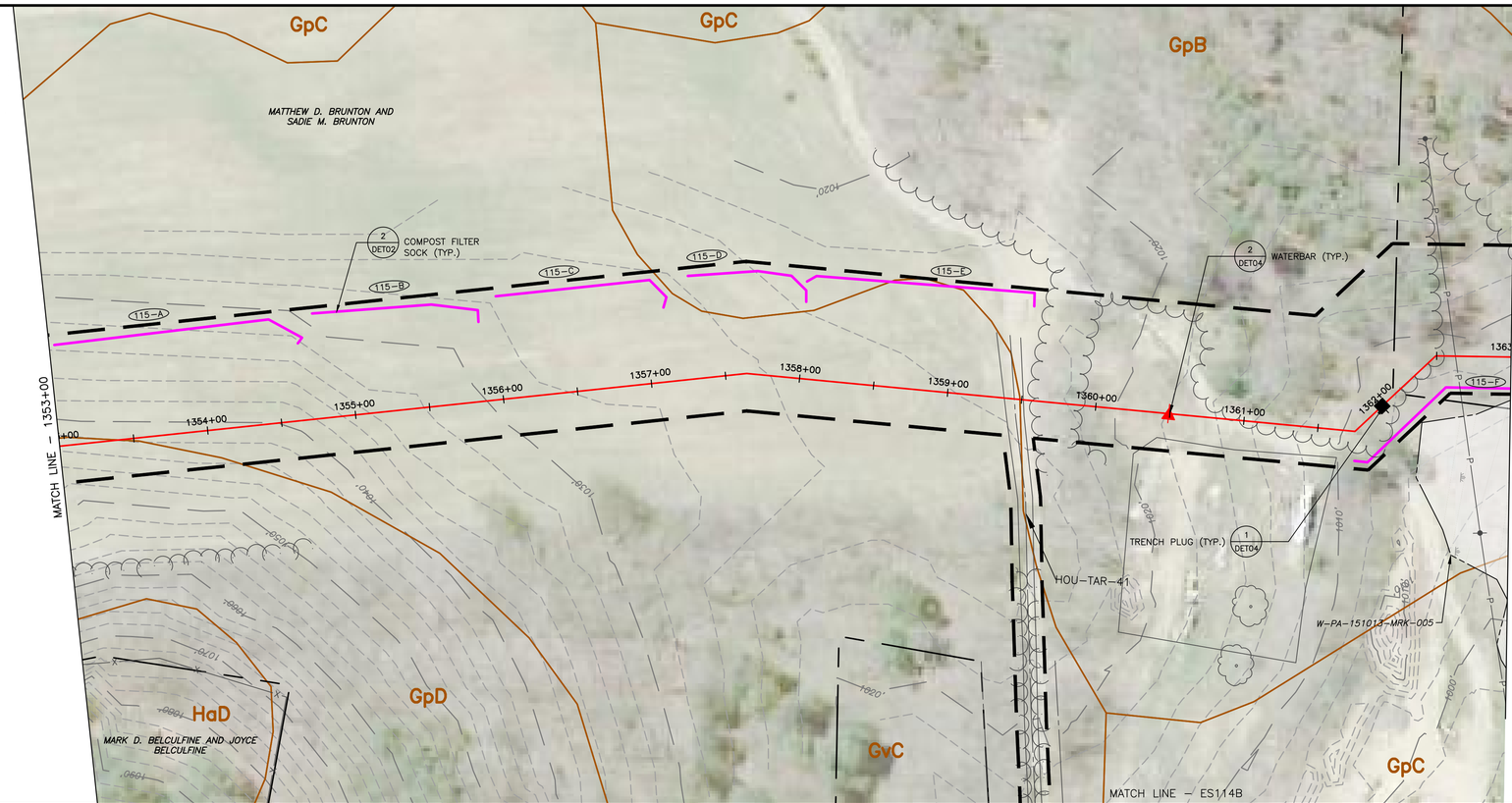
EROSION AND SEDIMENT CONTROL PLAN
ES114B – (HOU–TAR–40 HOU–TAR–41)

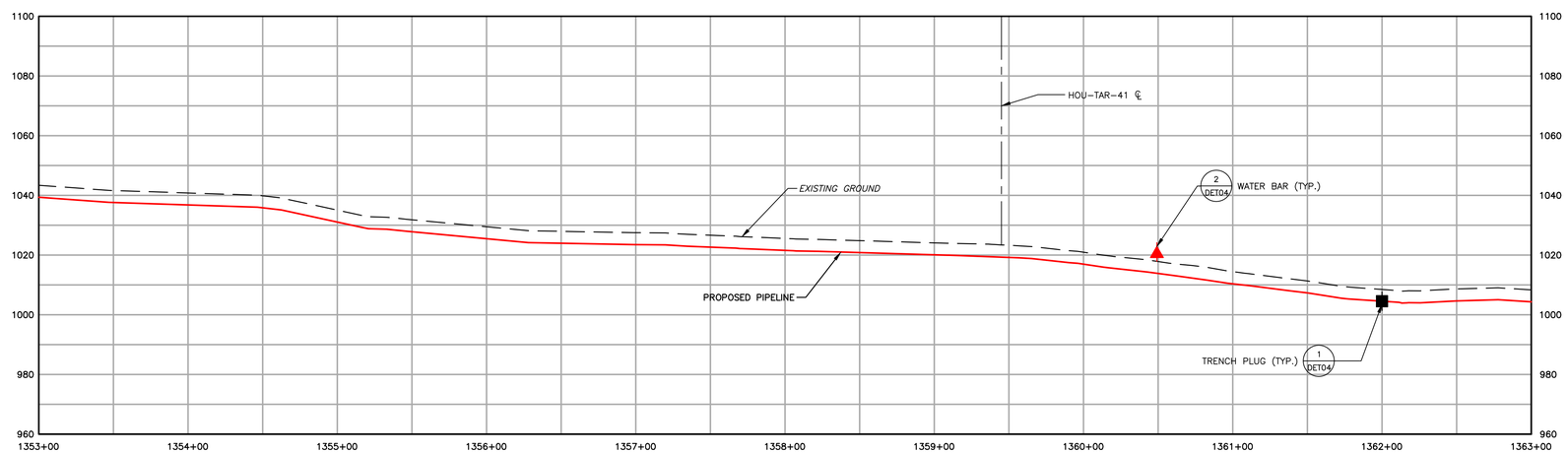
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119786	REVISION
DRAWN	TLM	12/05/17		1



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WETLAND	WOODS	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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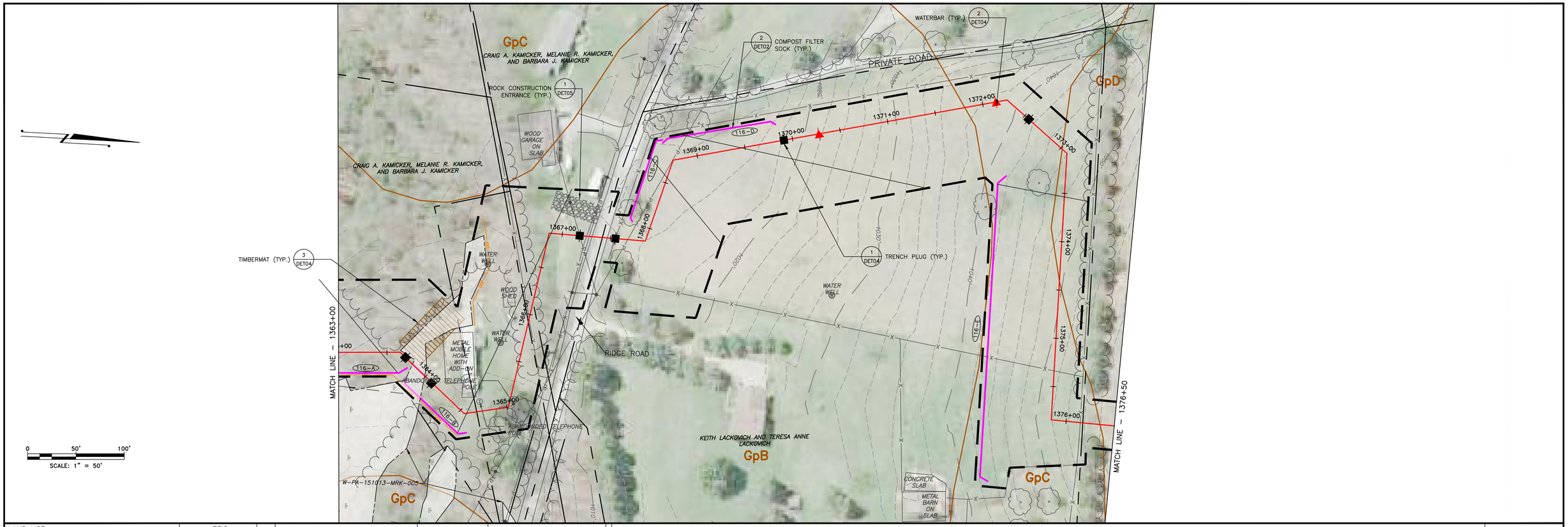
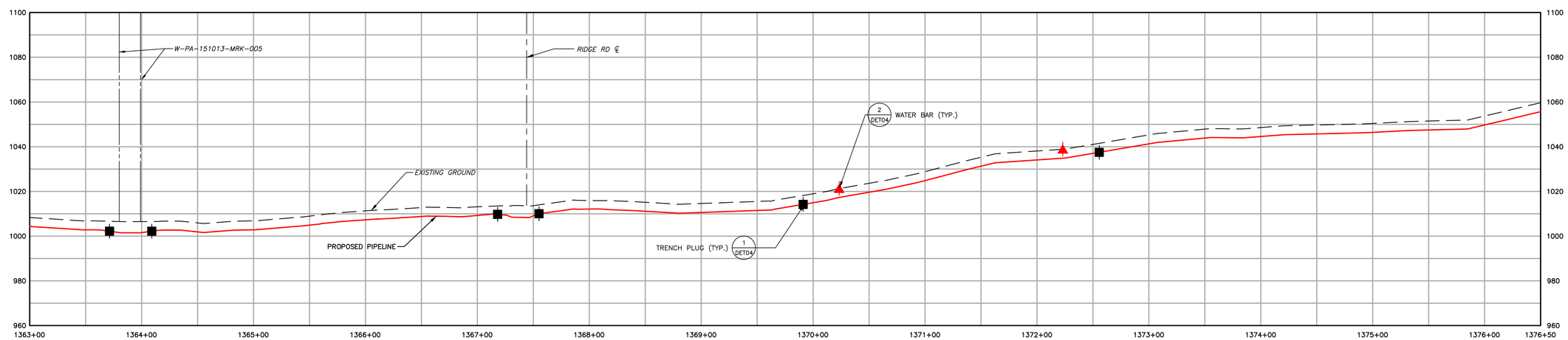
EROSION AND SEDIMENT CONTROL PLAN
ES115 – (STA. 1353+00 TO STA. 1363+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119400	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN115.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:45 AM) Last Plotted: 2018-01-02 (1/2/2018 3:05 PM)



LAND USE	FIELD	WETLAND	FIELD	WOODS	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	4'	5	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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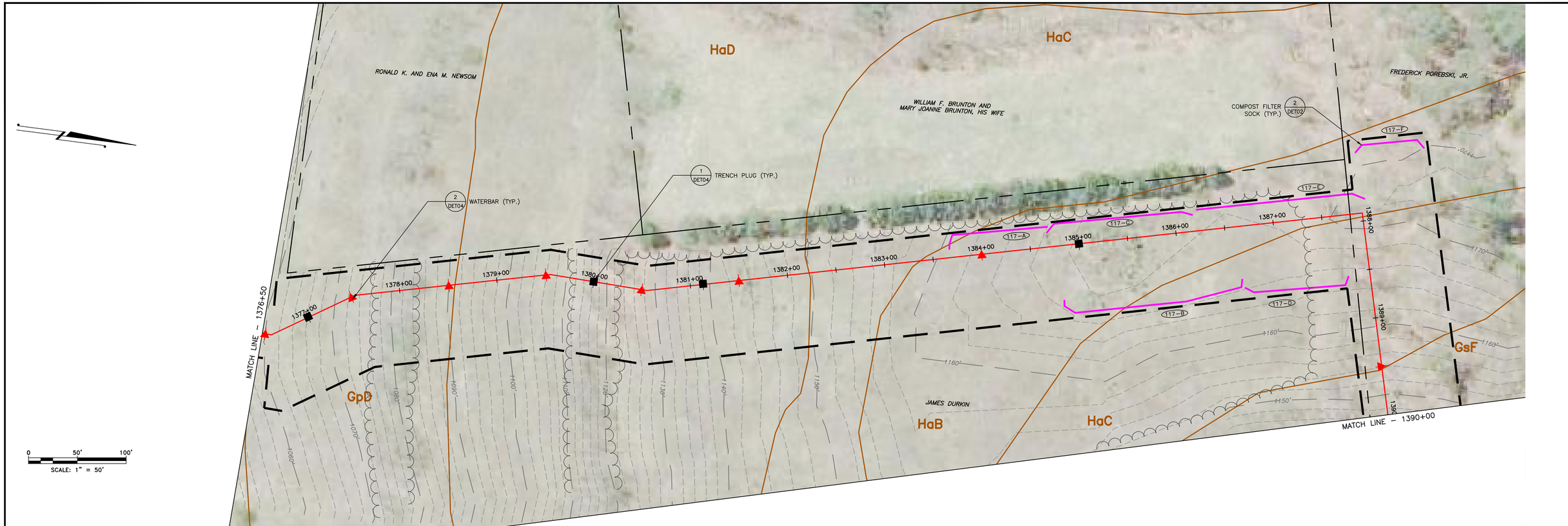
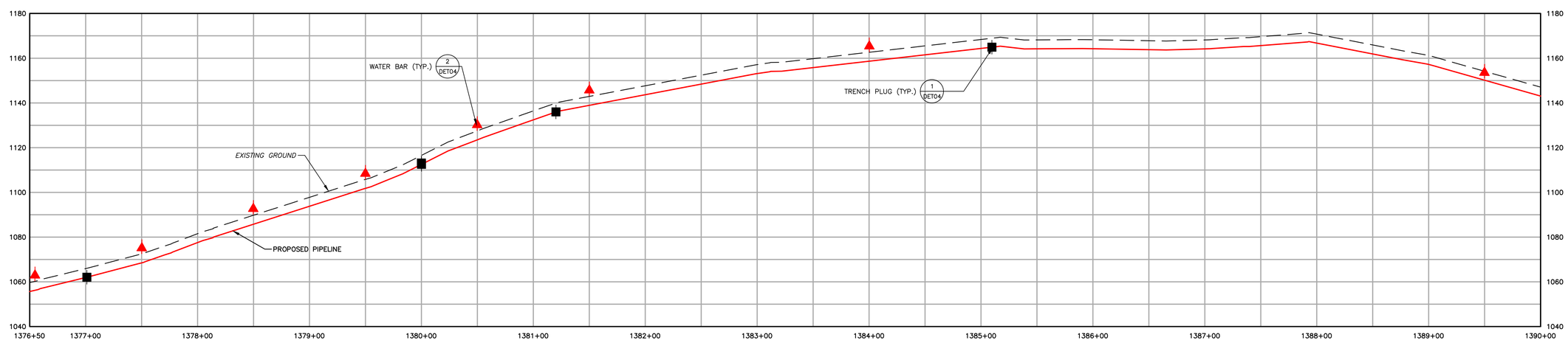
EROSION AND SEDIMENT CONTROL PLAN
ES116 – (STA. 1363+00 TO STA. 1376+50)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119401	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN116.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:44 AM) Last Plotted: 2018-01-02 (1/2/2018 3:06 PM)



LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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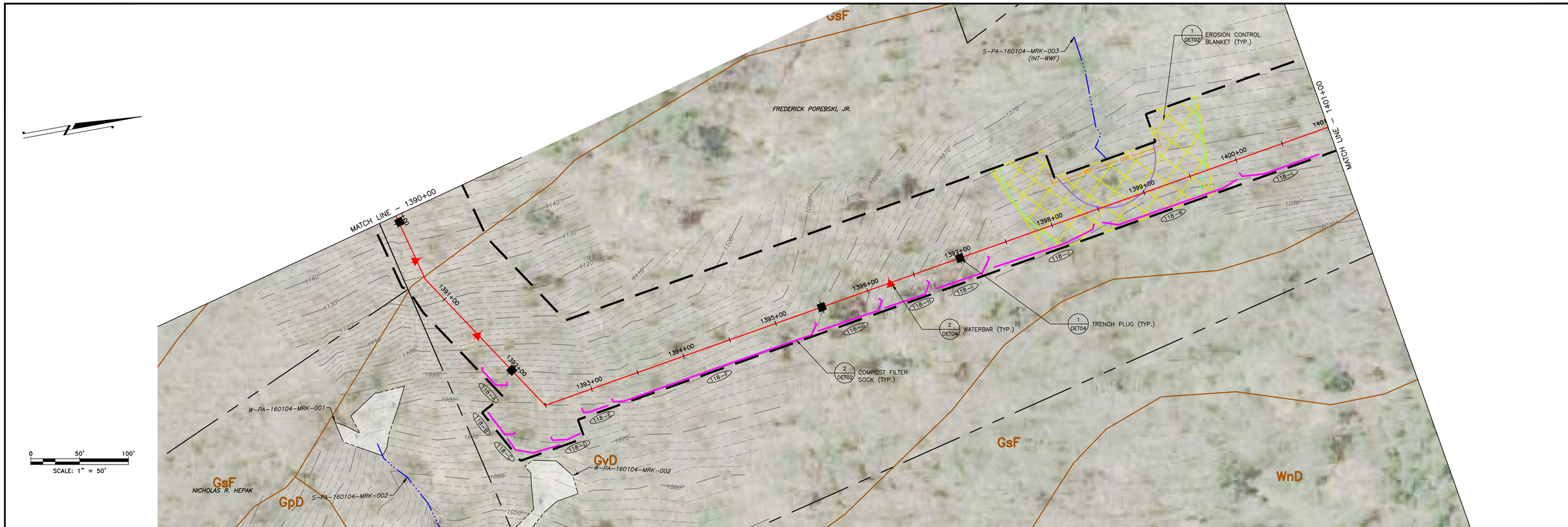
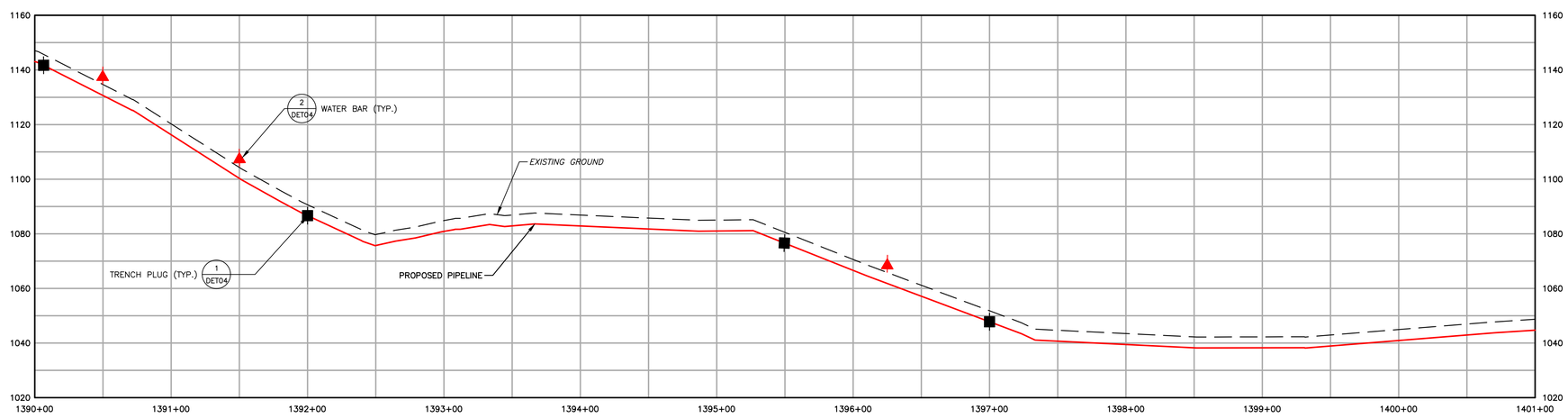
EROSION AND SEDIMENT CONTROL PLAN
ES117 – (STA. 1376+50 TO STA. 1390+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119402	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN117.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:43 AM) Last Plotted: 2018-01-02 (1/2/2018 3:07 PM)



LAND USE	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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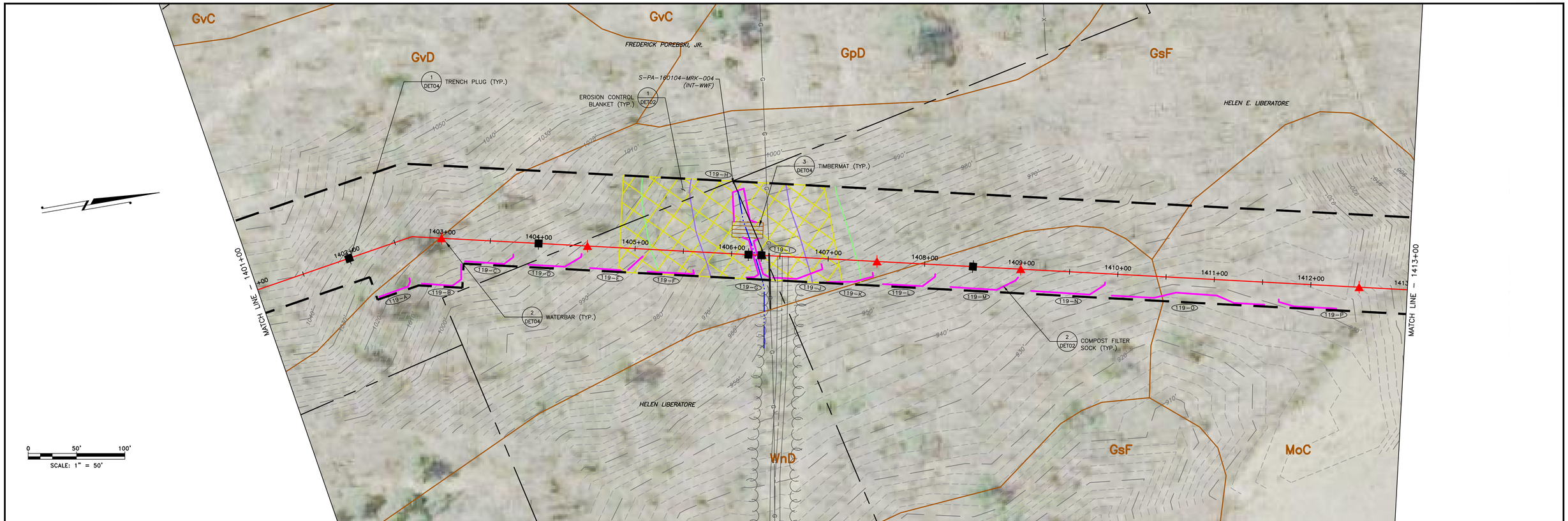
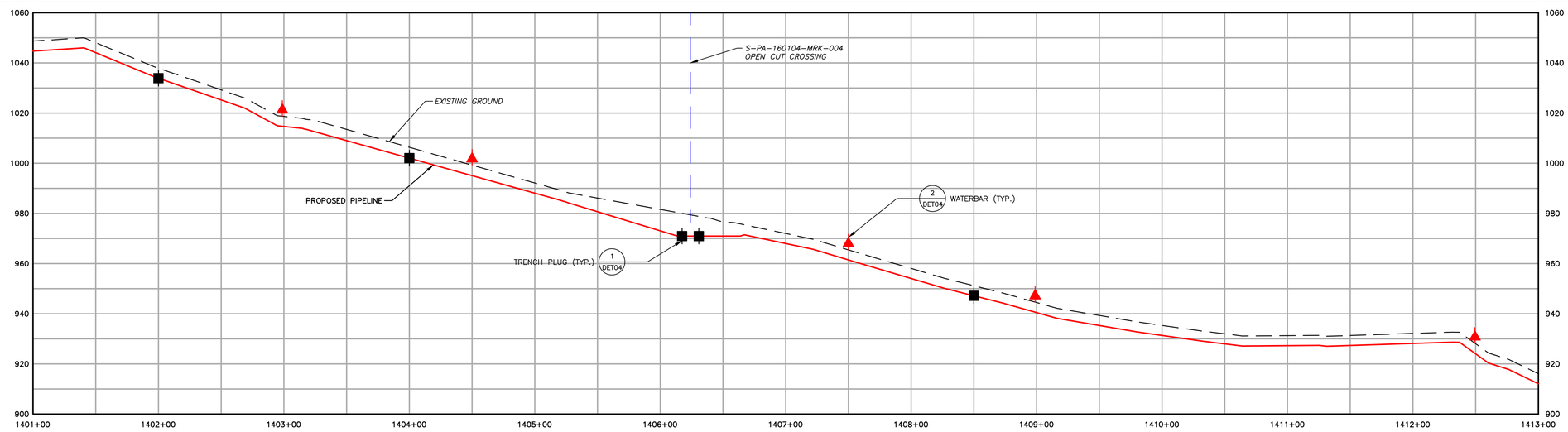
EROSION AND SEDIMENT CONTROL PLAN
ES118 - (STA. 1390+00 TO STA. 1401+00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119403	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN118.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:42 AM) Last Plotted: 2018-01-02 (1/2/2018 3:08 PM)



LAND USE	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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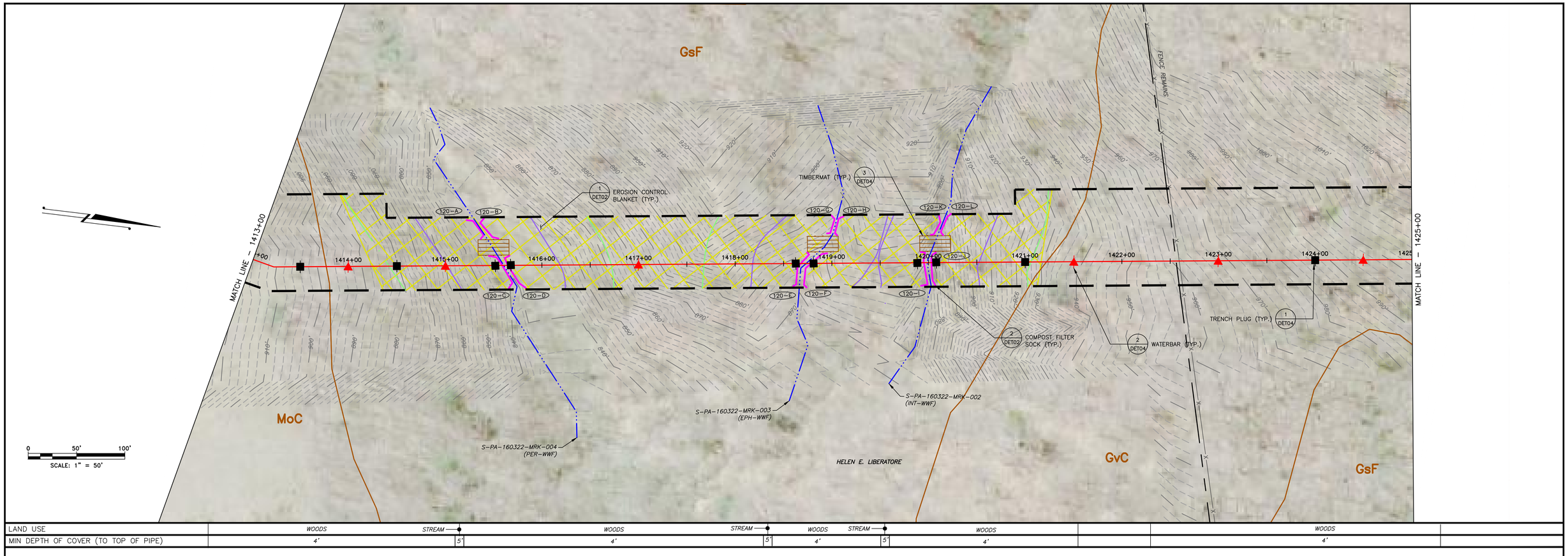
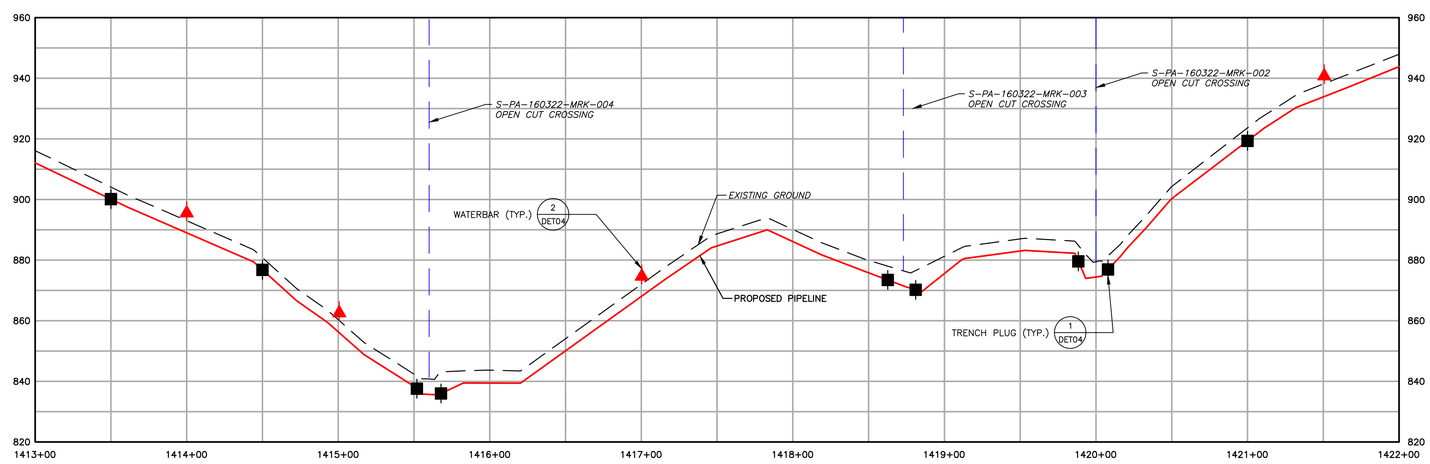
EROSION AND SEDIMENT CONTROL PLAN
ES119 – (STA. 1401+00.00 TO STA. 1413+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

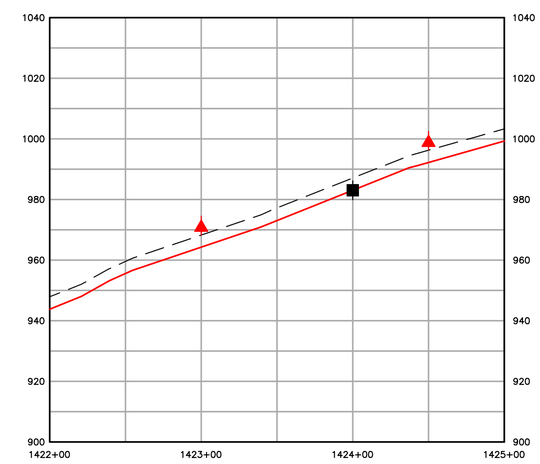
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119404	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0495885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN119.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:41 AM) Last Plotted: 2018-01-02 (1/2/2018 3:09 PM)



LAND USE	WOODS	STREAM	WOODS	STREAM	WOODS	STREAM	WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	4'		4'	





EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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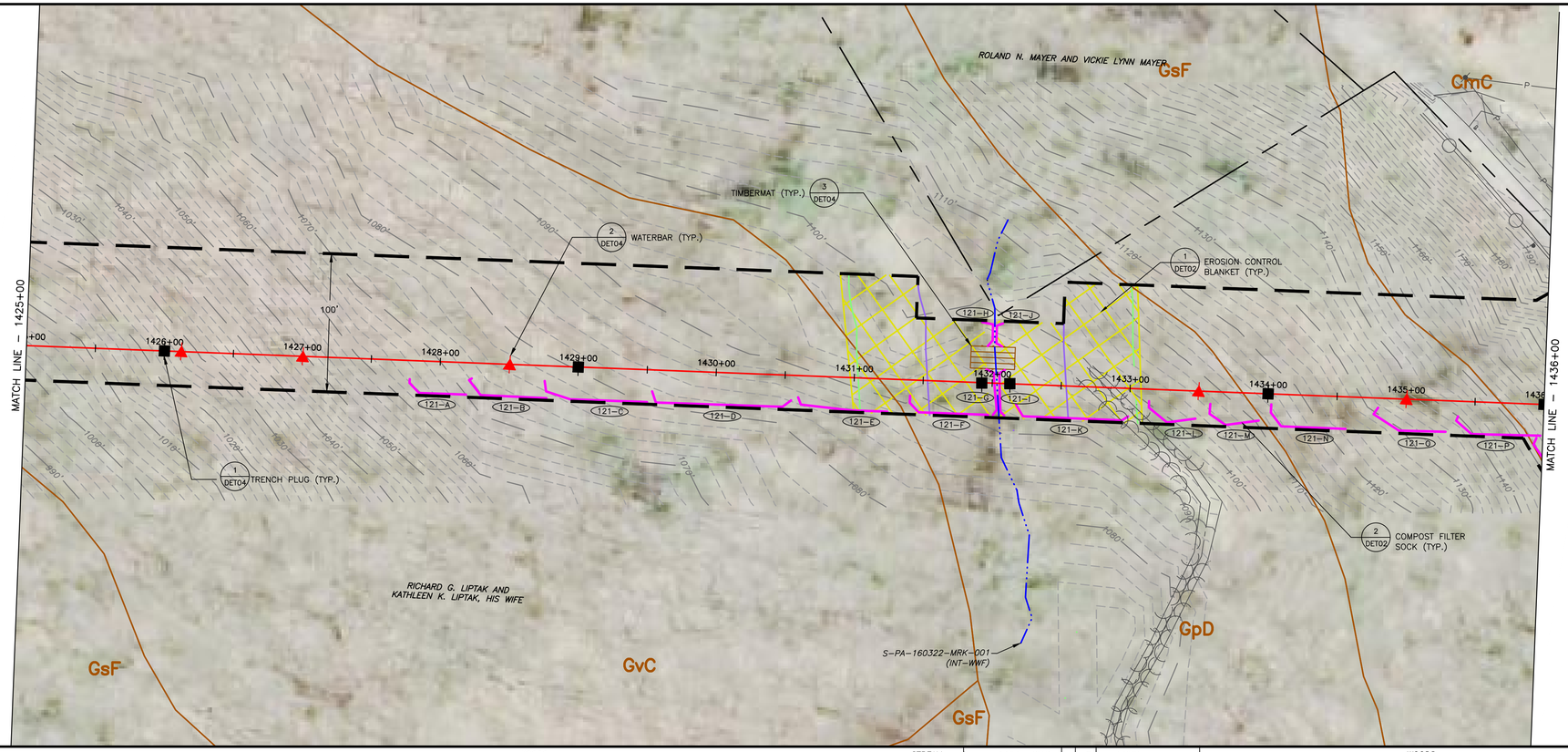
EROSION AND SEDIMENT CONTROL PLAN
ES120 – (STA. 1413+00.00 TO STA. 1425+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

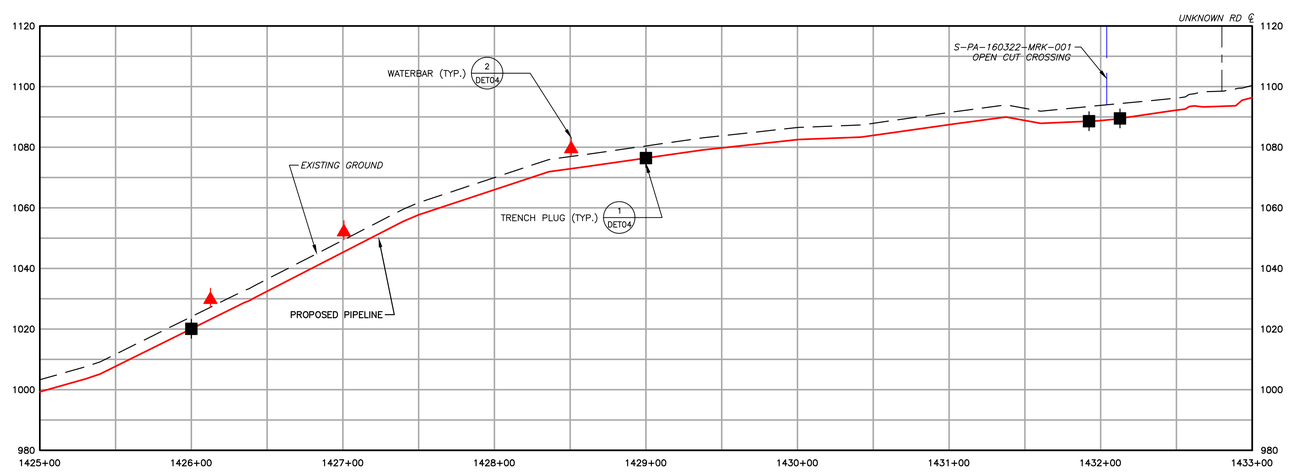
SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119405	REVISION 1
DRAWN	TLM				

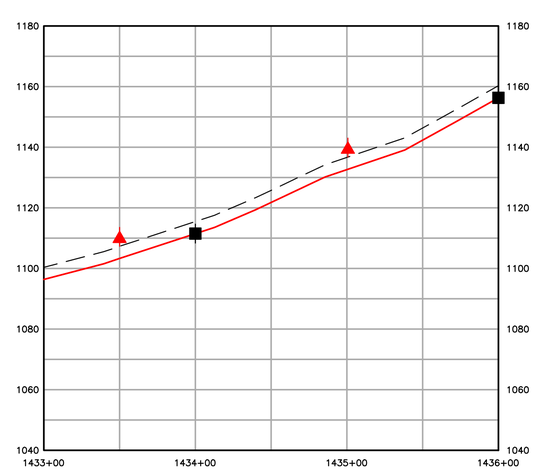
Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\90–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN120.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 9:41 AM) Last Plotted: 2018–01–02 (1/2/2018 3:11 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	STREAM	WOODS ROAD		WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'		4'	





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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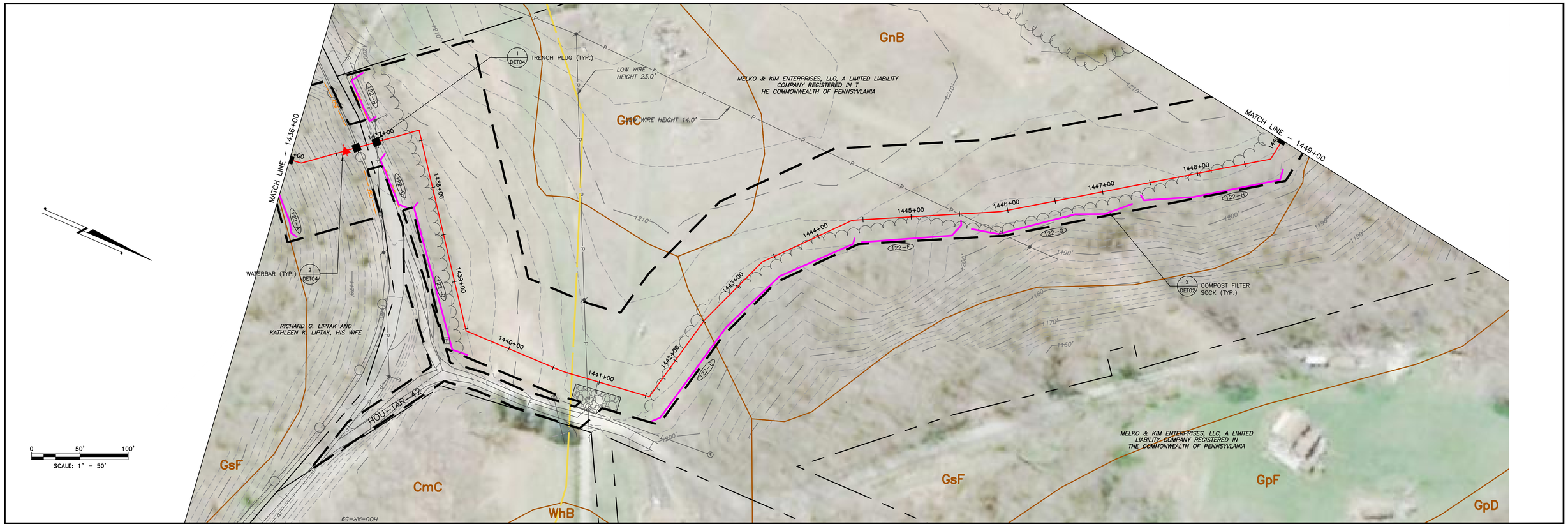
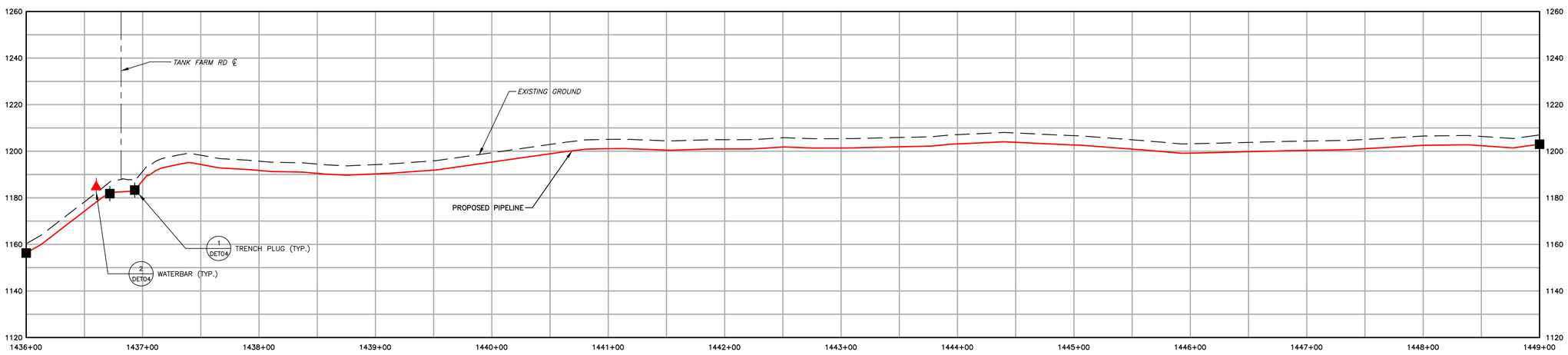
EROSION AND SEDIMENT CONTROL PLAN
ES121 – (STA. 1425+00.00 TO STA. 1436+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119406	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN121.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:52 PM) Last Plotted: 2018-01-02 (1/2/2018 3:12 PM)



LAND USE	WOODS	ROAD	WOODS	FIELD	WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	4'	4'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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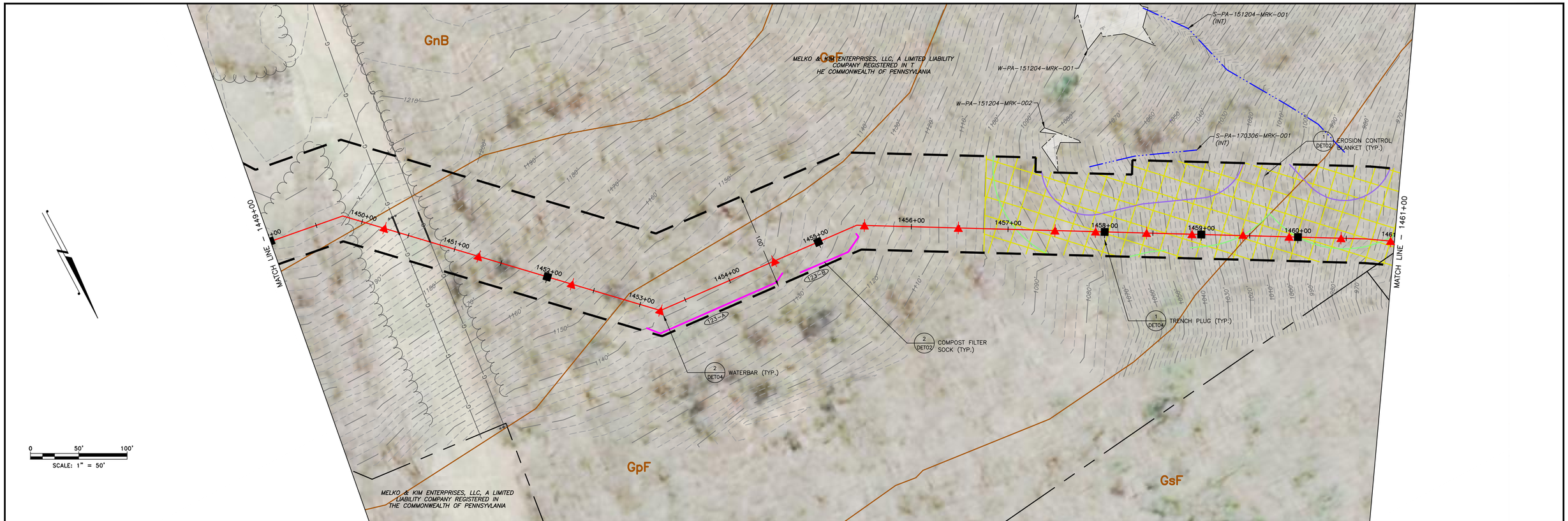
EROSION AND SEDIMENT CONTROL PLAN

ES122 – (STA. 1436+00.00 TO STA. 1449+00.00)

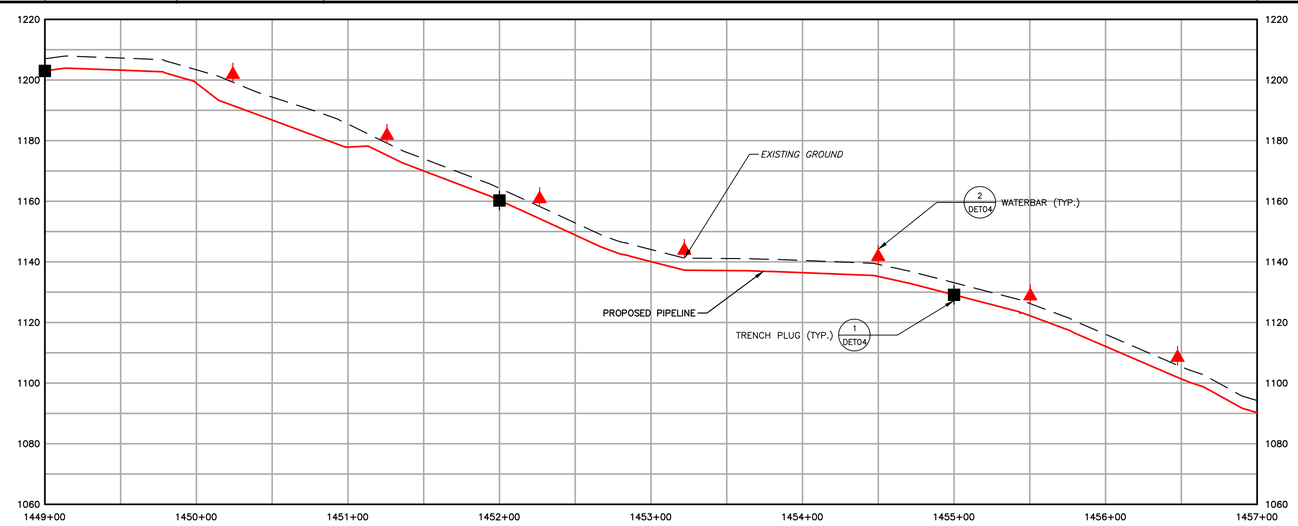
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

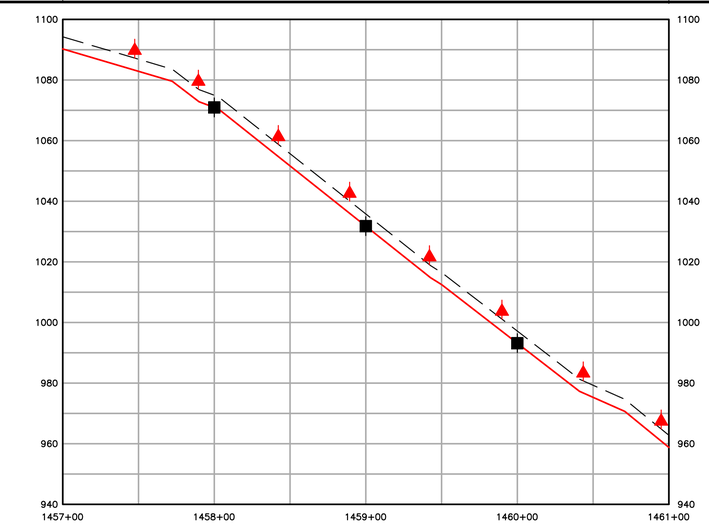
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119407	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN122.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:53 PM) Last Plotted: 2018-01-02 (1/2/2018 3:13 PM)



LAND USE	WOODS		WOODS		WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		4'





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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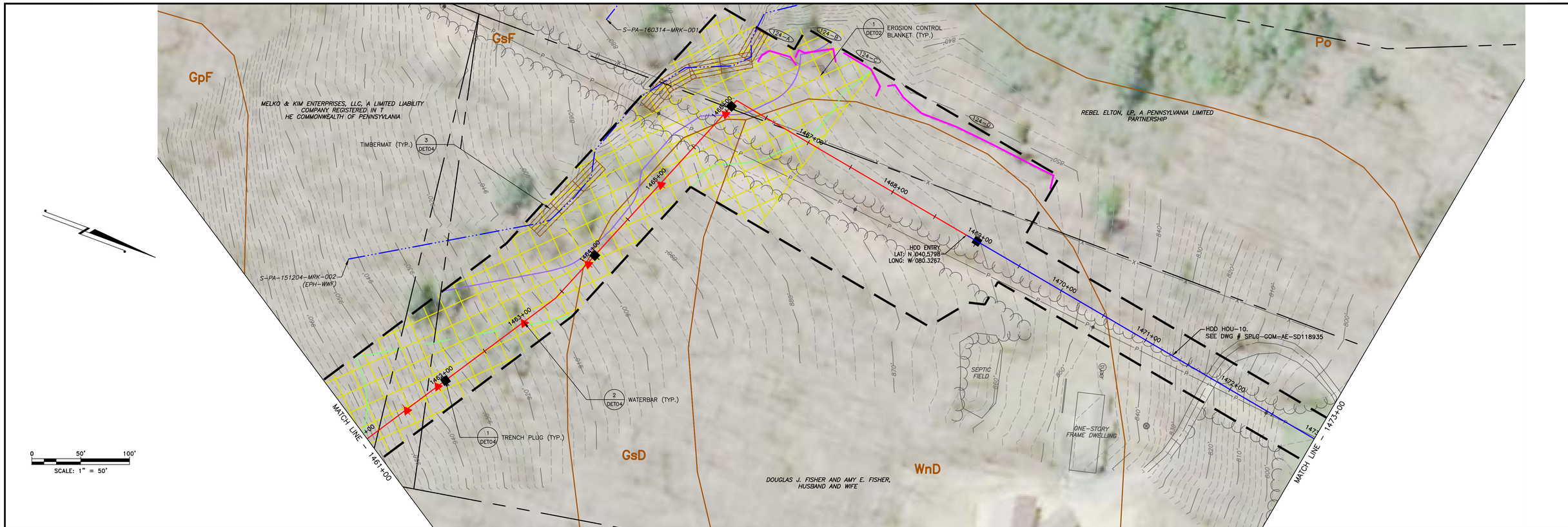
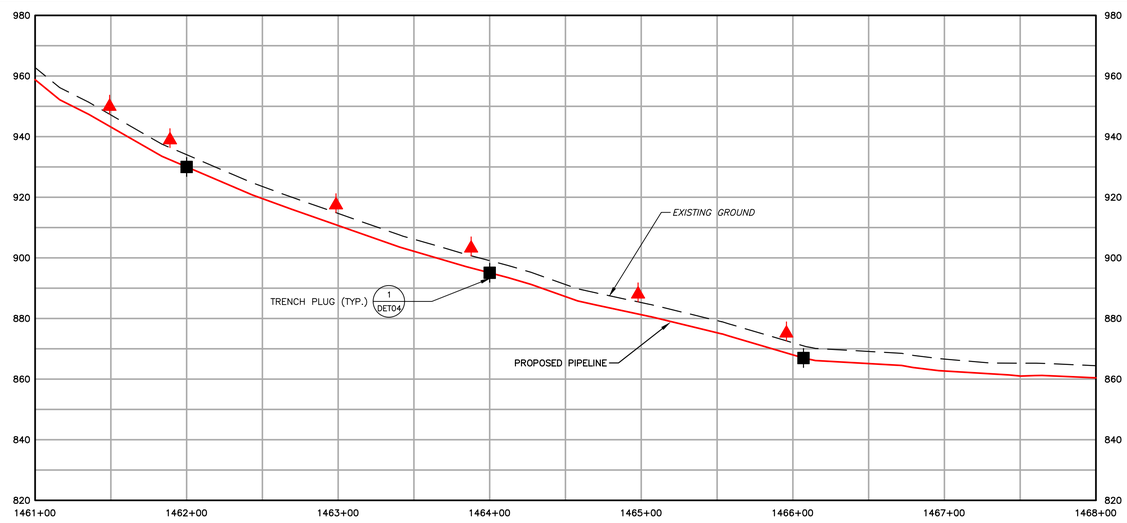
EROSION AND SEDIMENT CONTROL PLAN
ES123 – (STA. 1449+00.00 TO STA. 1461+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

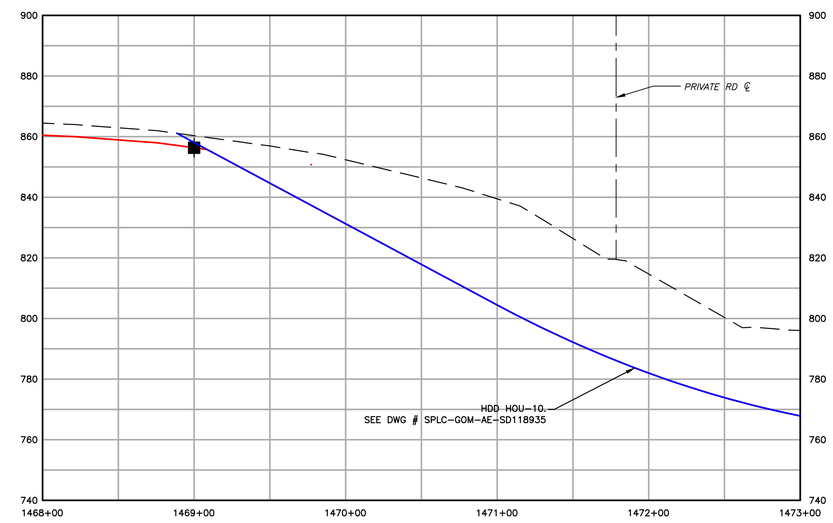
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119408	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN123.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 2:55 PM) Last Plotted: 2018-01-02 (1/2/2018 3:14 PM)



LAND USE	WOODS	FIELD	WOODS		WOODS	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'		4'	4'	5'	4'





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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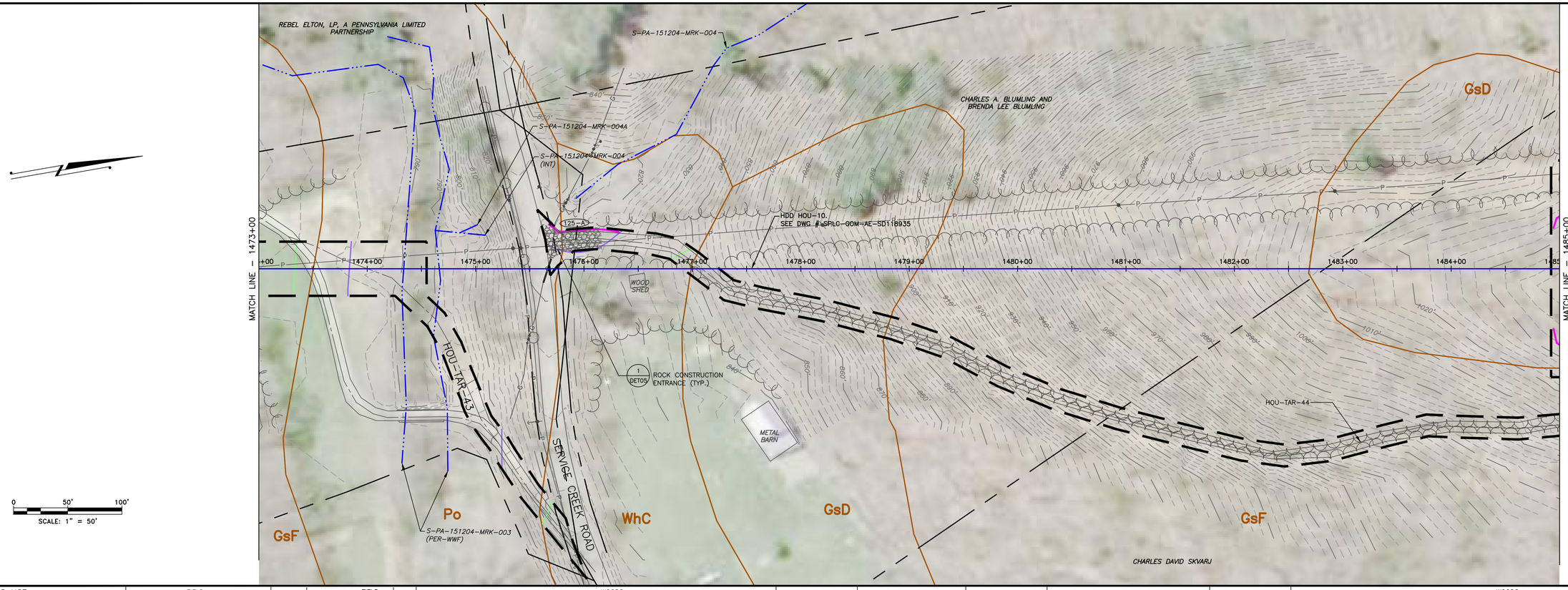
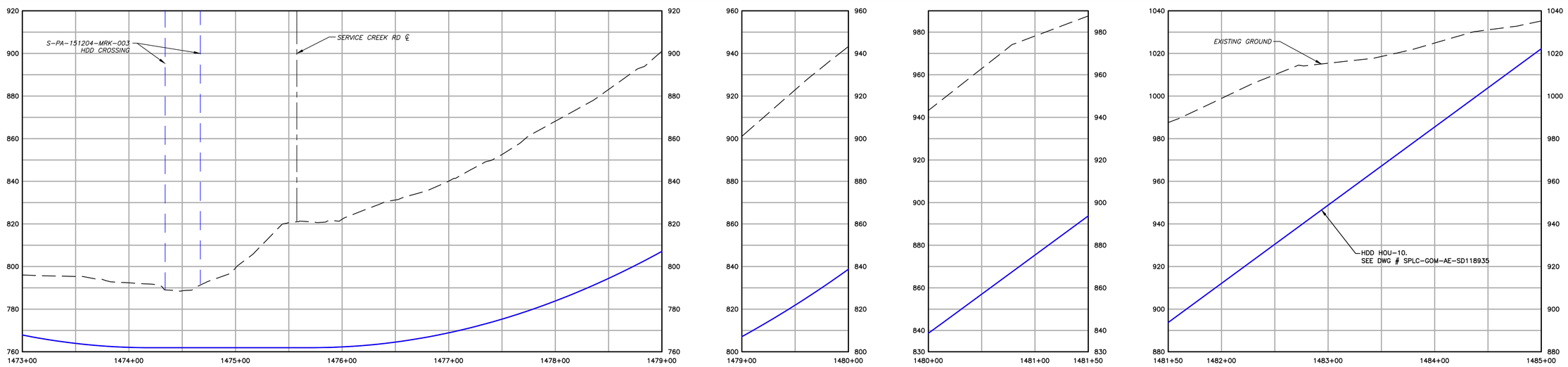
EROSION AND SEDIMENT CONTROL PLAN
ES124 – (STA. 1461+00.00 TO STA. 1473+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119409	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN124.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:56 PM) Last Plotted: 2018-01-02 (1/2/2018 3:15 PM)



LAND USE	FIELD	STREAM	FIELD	STREAM	FIELD	ROAD	WOODS	WOODS	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5' 4' 5'	4'		5'	4'	4'	4'	4'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

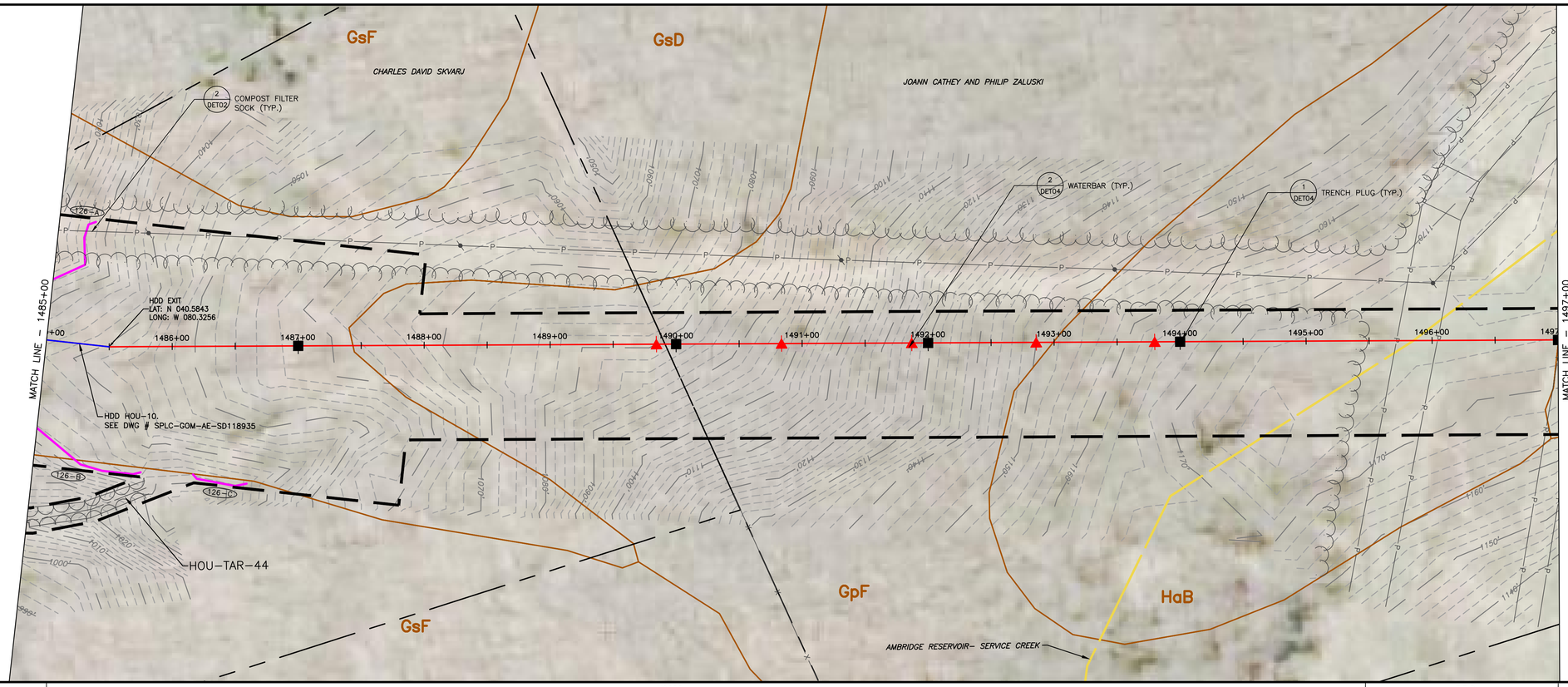
HOUSTON TO JUNCTION

THIS DOCUMENT IS CONFIDENTIAL AND IT SHALL NOT BE REPRODUCED OR REDISTRIBUTED WITHOUT PRIOR PERMISSION. NEITHER THE OPERATOR NOR THE OWNER MAKE ANY WARRANTY AS TO THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION CONTAINED ON THIS DRAWING, AND THE USER ASSUMES ALL RISK OF LOSS TO PERSONS AND PROPERTY AS A RESULT OF RELIANCE THEREON.

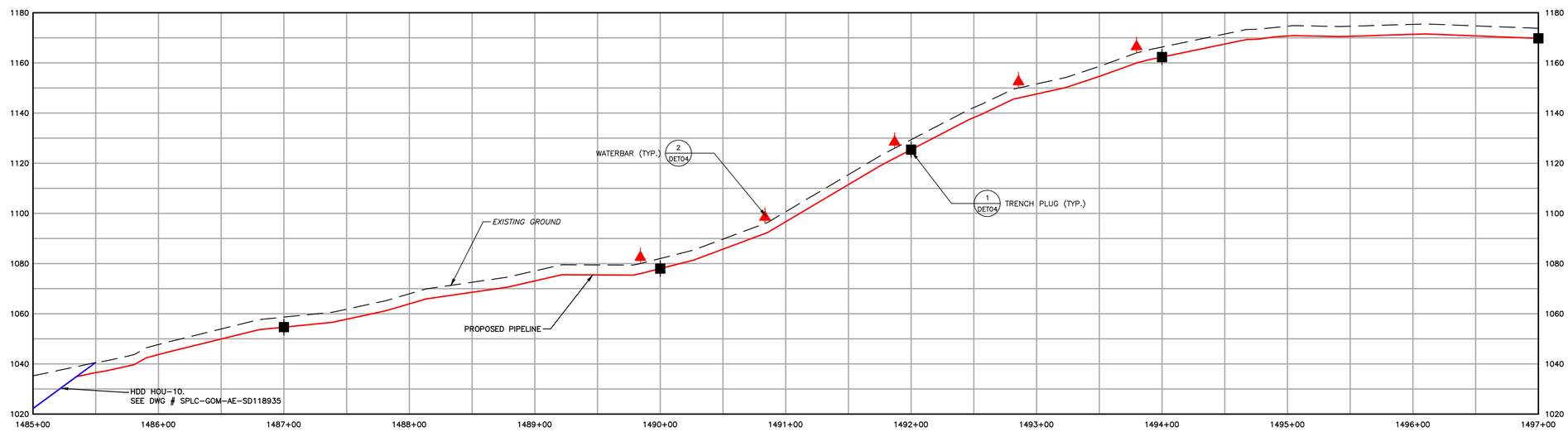
EROSION AND SEDIMENT CONTROL PLAN
ES125 – (STA. 1473+00.00 TO STA. 1485+00.00)
BEAVER COUNTY PENNSYLVANIA
INDEPENDENCE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119410	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN125.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:58 PM) Last Plotted: 2018-01-02 (1/2/2018 3:16 PM)



LAND USE	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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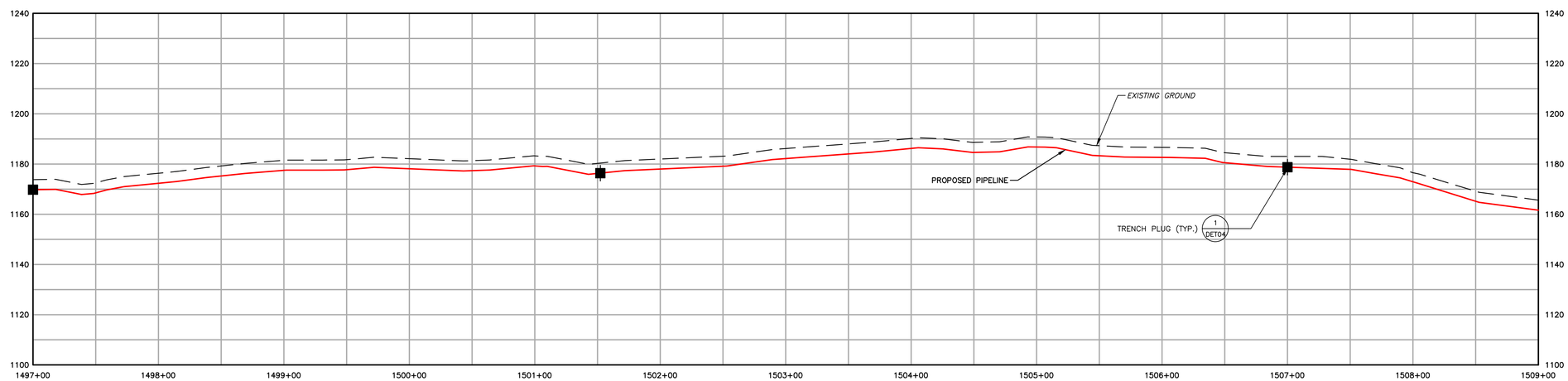
EROSION AND SEDIMENT CONTROL PLAN
ES126 – (STA. 1485+00.00 TO STA. 1497+00.00)

BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119411	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN126.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:59 PM) Last Plotted: 2018-01-02 (1/2/2018 3:17 PM)

LAND USE	FIELD	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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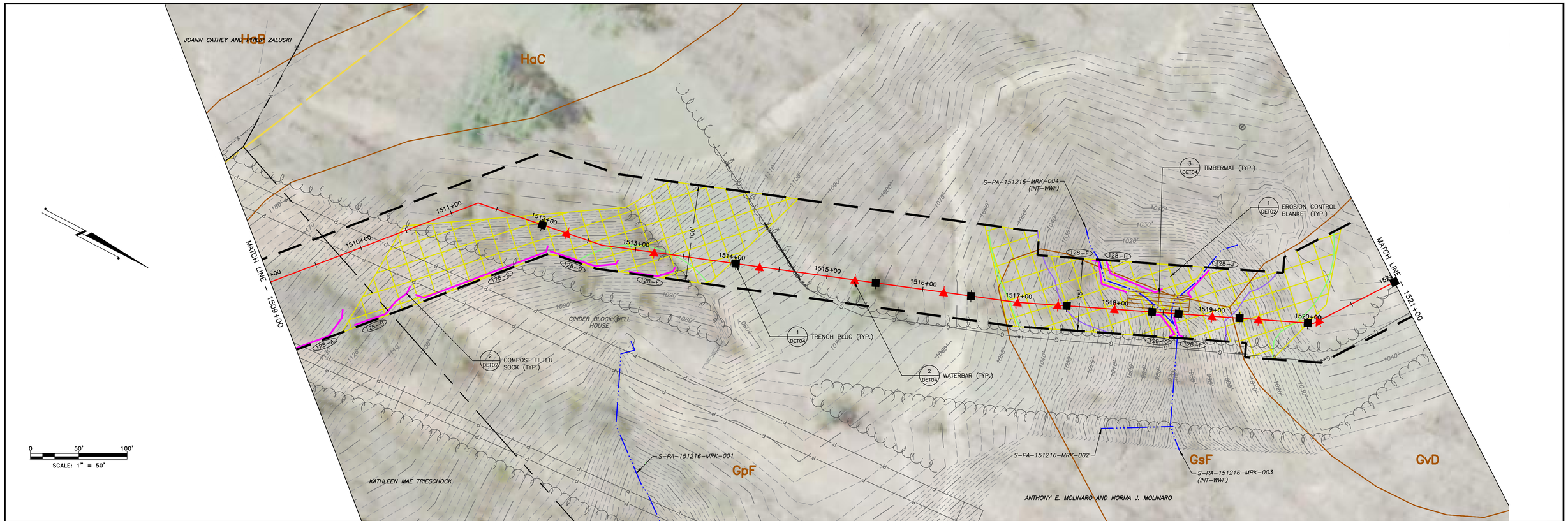
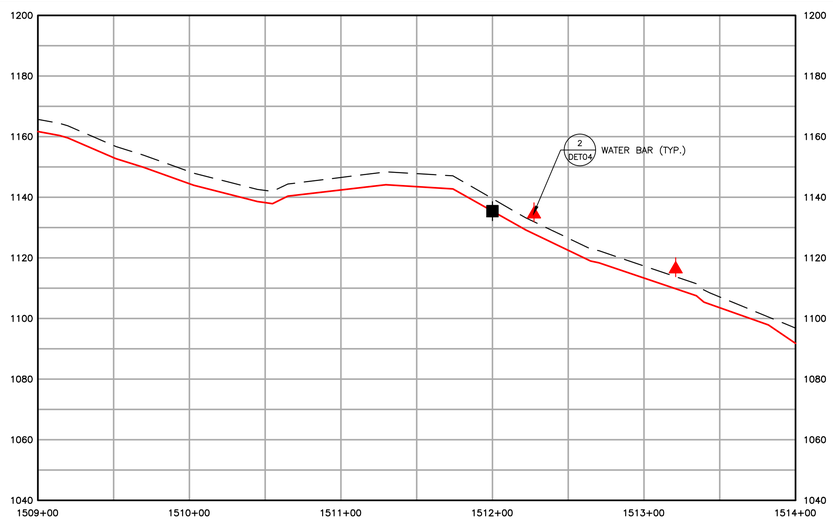
EROSION AND SEDIMENT CONTROL PLAN
ES127 – (STA. 1497+00.00 TO STA. 1509+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

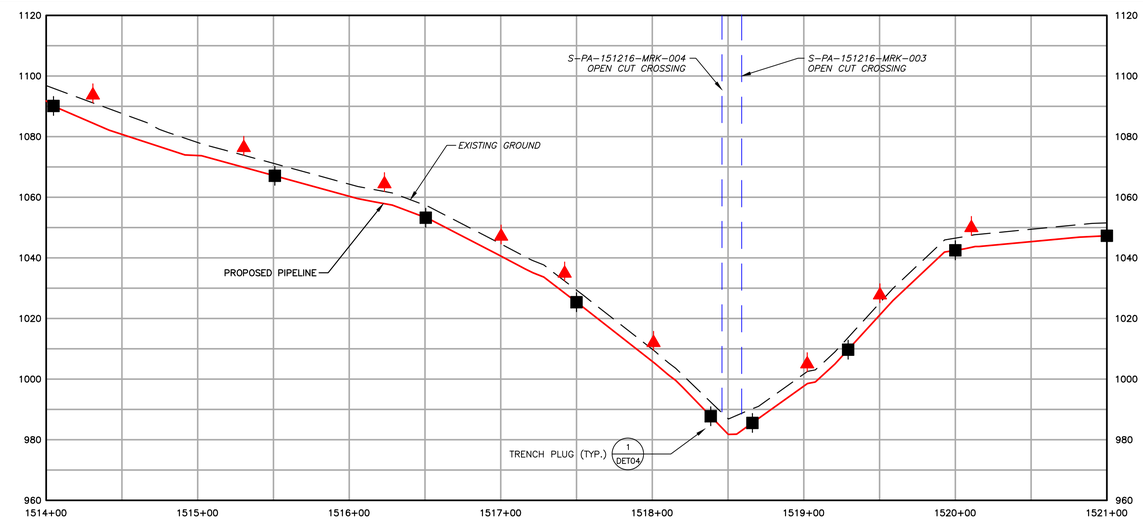
SCALE	1"=50'	DATE	12/05/2017	SPLC-GOM-AE-SD119412	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN127.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 2:40 PM) Last Plotted: 2018-01-02 (1/2/2018 3:18 PM)



LAND USE	FIELD	WOODS	FIELD	FIELD	WOODS	STREAM	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'	5'	5'	4'





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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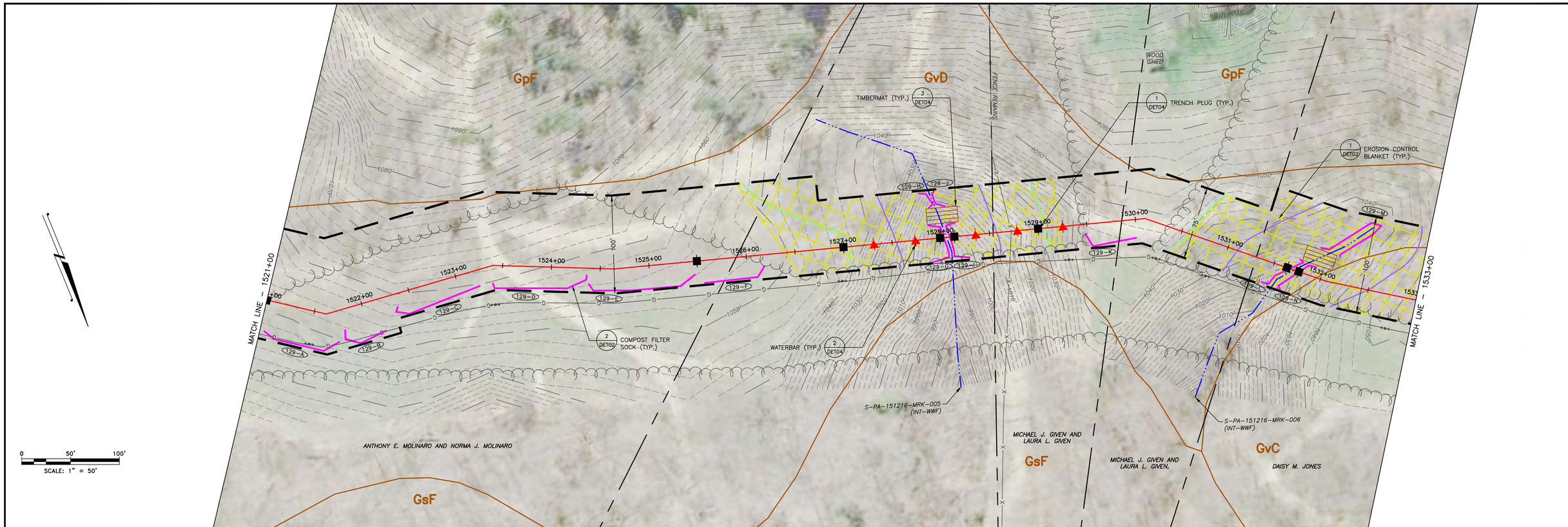
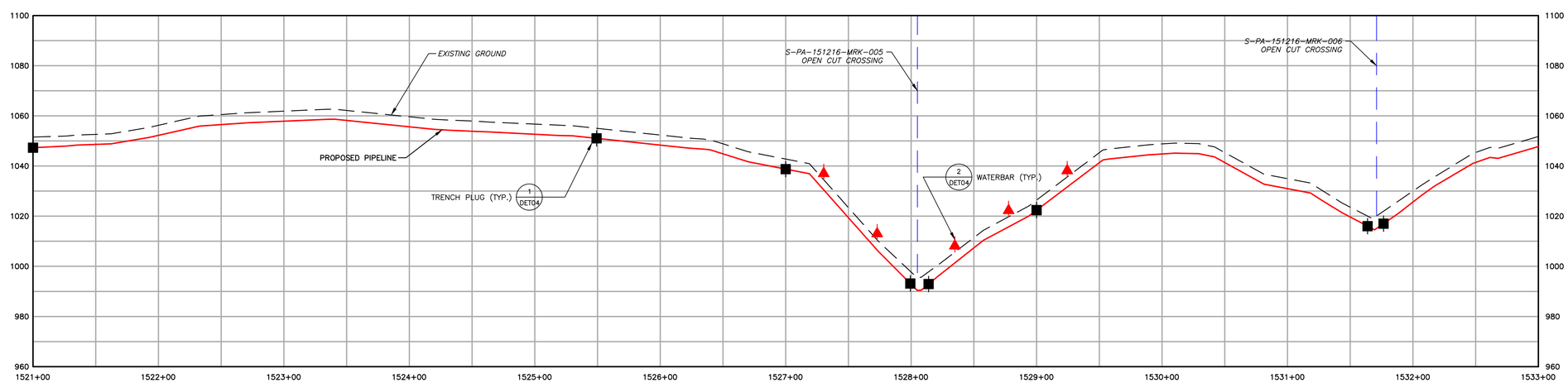
EROSION AND SEDIMENT CONTROL PLAN
ES128 – (STA. 1509+00.00 TO STA. 1521+00.00)
BEAVER COUNTY INDEPENDENCE TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119413	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN128.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:42 PM) Last Plotted: 2018-01-02 (1/2/2018 3:19 PM)



LAND USE	FIELD	WOODS	STREAM	WOODS	FIELD	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	5'	4'	4'	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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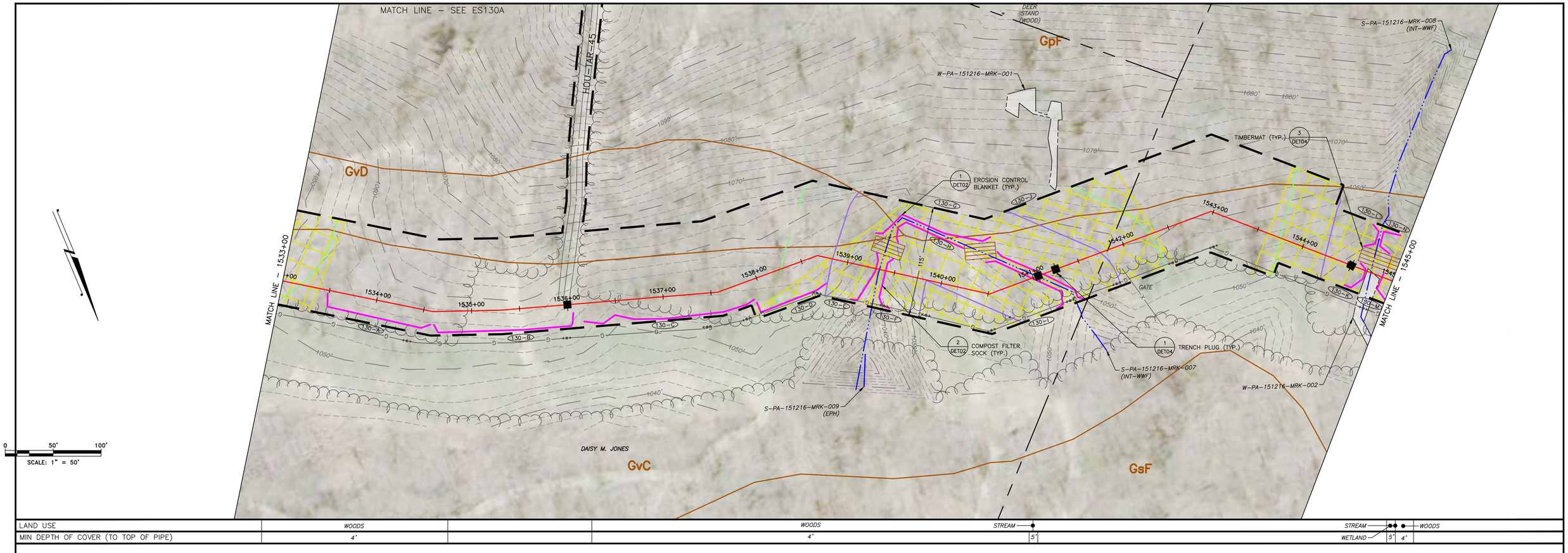
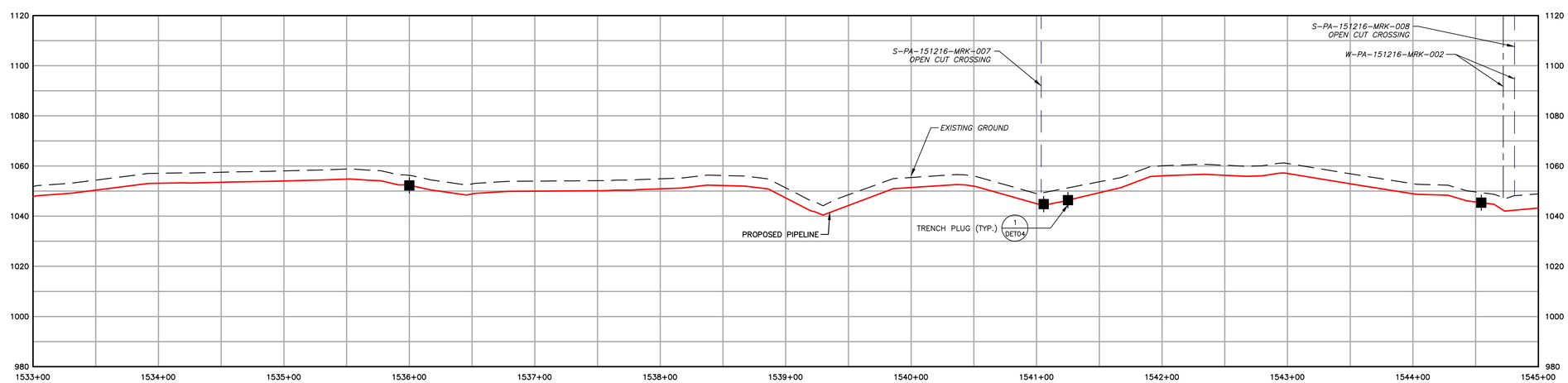
EROSION AND SEDIMENT CONTROL PLAN
ES129 – (STA. 1521+00.00 TO STA. 1533+00.00)
BEAVER COUNTY INDEPENDENCE / RACCOON TWP.PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119414	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN129.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:43 PM) Last Plotted: 2018–01–02 (1/2/2018 3:20 PM)



LAND USE	WOODS		WOODS	STREAM		STREAM		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		5'	WETLAND	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES130 – (STA. 1533+00.00 TO STA. 1545+00.00)
BEAVER COUNTY RACCOON TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119415	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN130.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 2:44 PM) Last Plotted: 2018-01-02 (1/2/2018 3:21 PM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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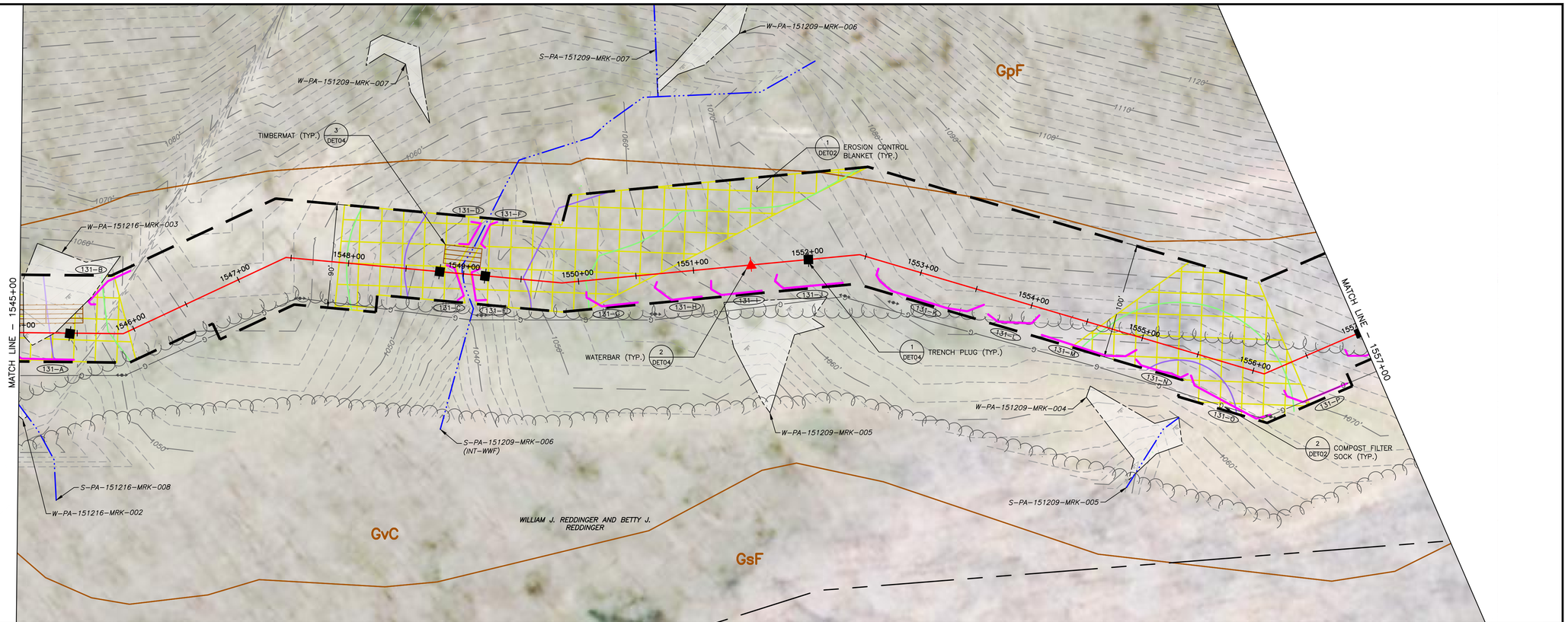
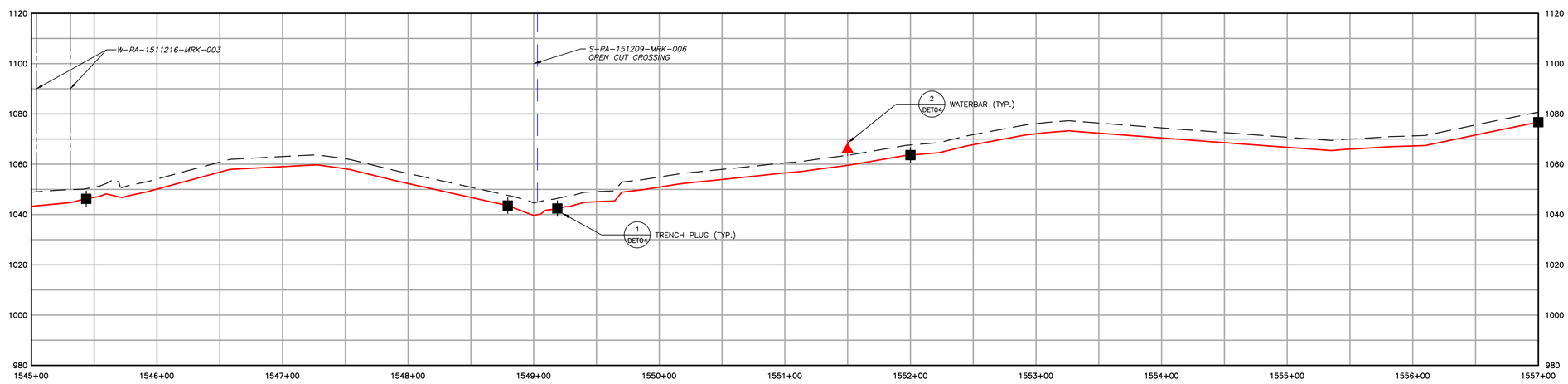
EROSION AND SEDIMENT CONTROL PLAN
ES130A – (HOU-TAR-45)
BEAVER COUNTY INDEPENDENCE/RACCOON TWP. PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119785	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174\SHELL\6948985 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN130A.DWG
Last saved by: JACOLA.SCHAFER (12/27/2017 2:59 PM) Last Plotted: 2018-01-02 (1/2/2018 3:21 PM)



LAND USE	WETLAND	WOODS	STREAM	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'	5'	4'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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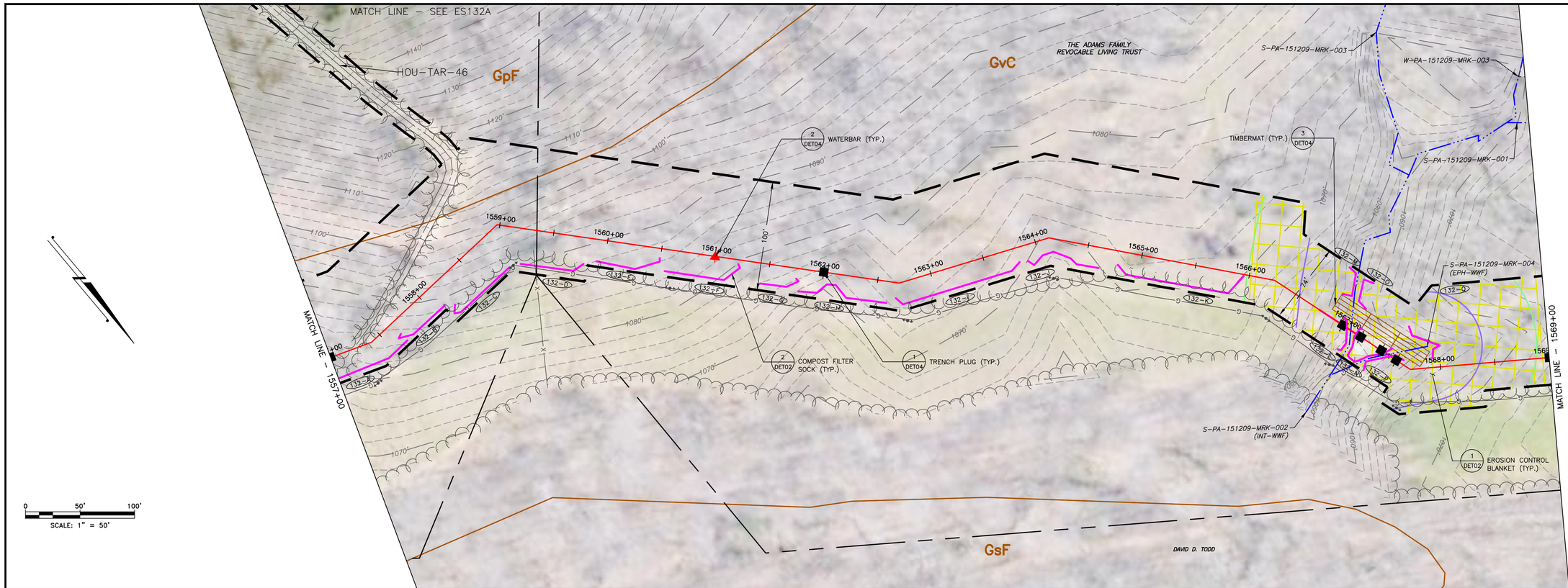
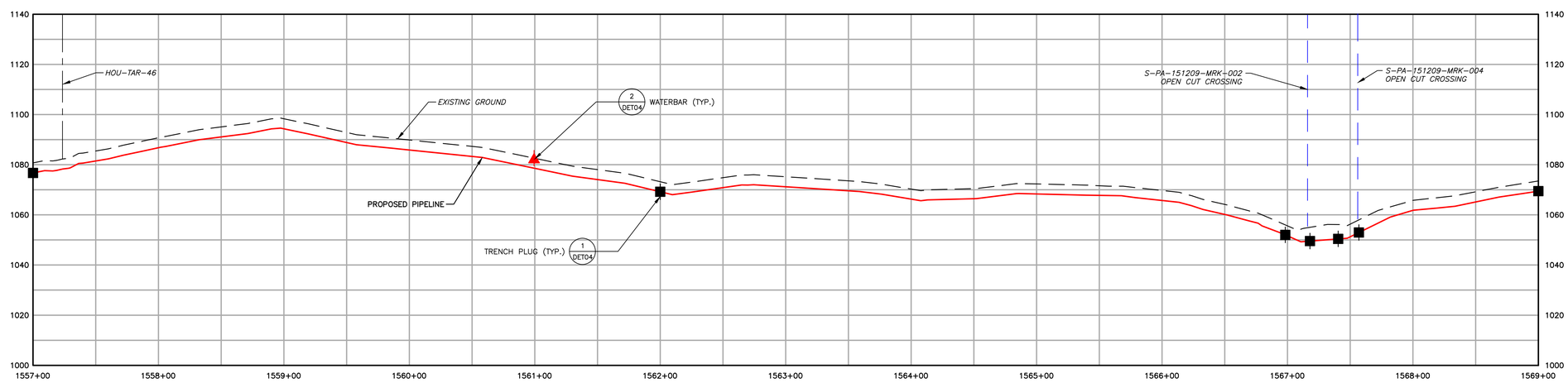
EROSION AND SEDIMENT CONTROL PLAN
ES131 – (STA. 1545+00.00 TO STA. 1557+00.00)
BEAVER COUNTY RACCOON TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119416	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN131.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:51 PM) Last Plotted: 2018-01-02 (1/2/2018 3:22 PM)



LAND USE	WOODS	ROAD	WOODS	STREAM	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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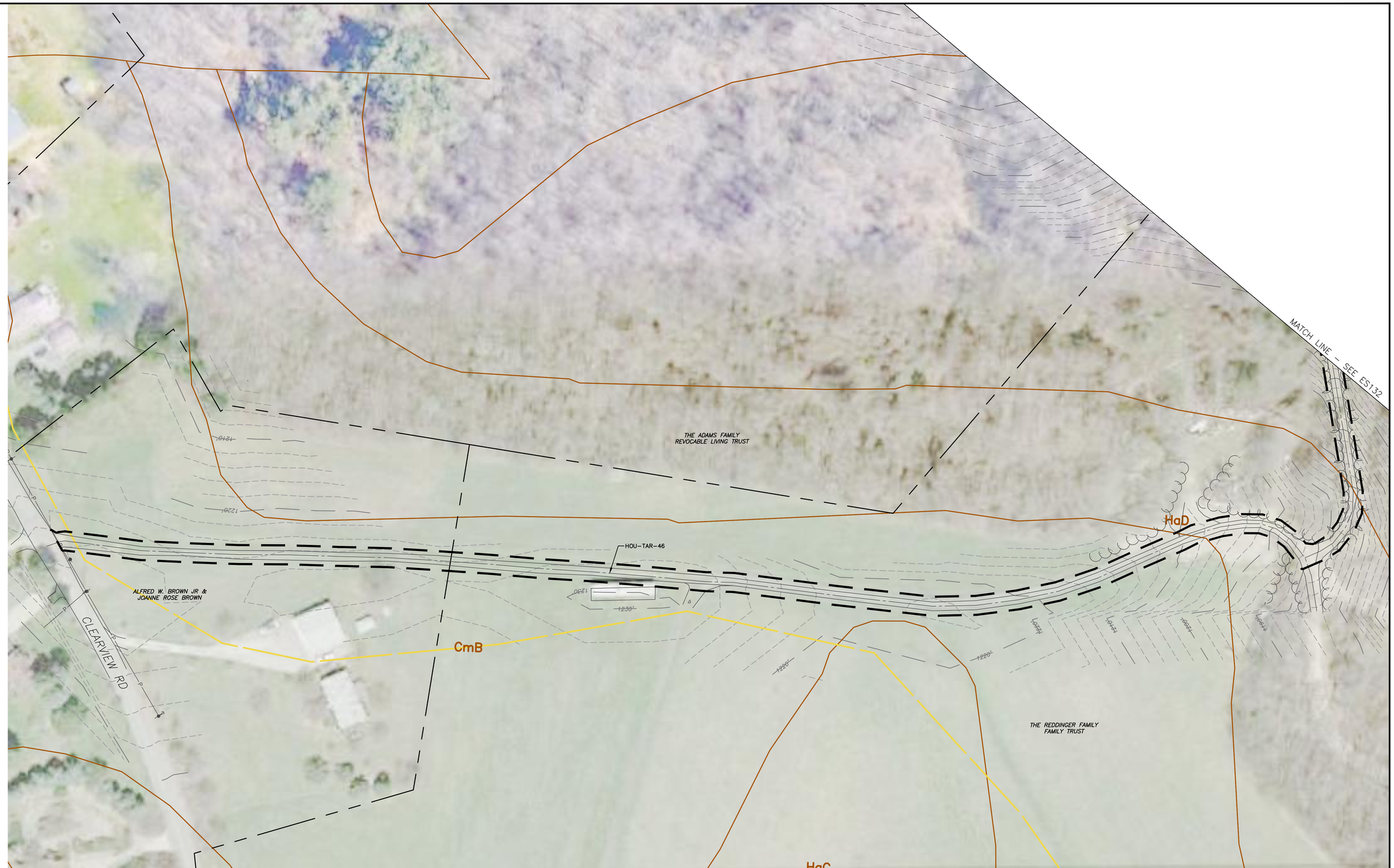
EROSION AND SEDIMENT CONTROL PLAN
ES132 – (STA. 1557+00.00 TO STA. 1569+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119417	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN132.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:53 PM) Last Plotted: 2018-01-02 (1/2/2018 3:23 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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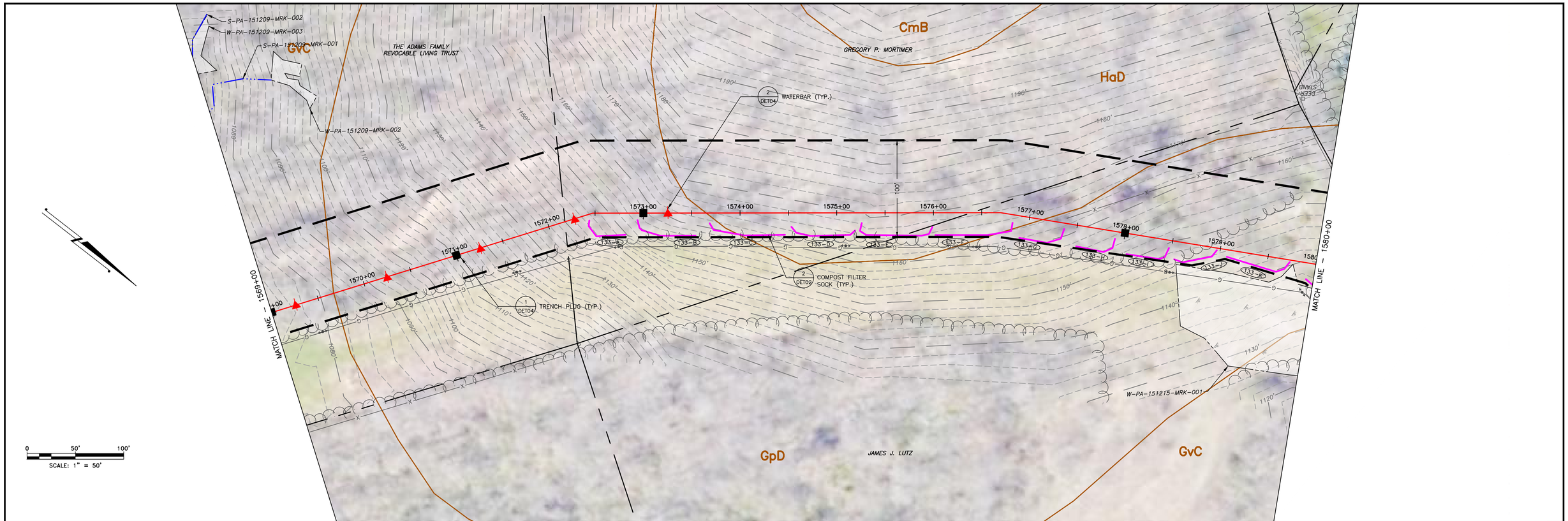
EROSION AND SEDIMENT CONTROL PLAN
ES132A – (HOU-TAR-46)

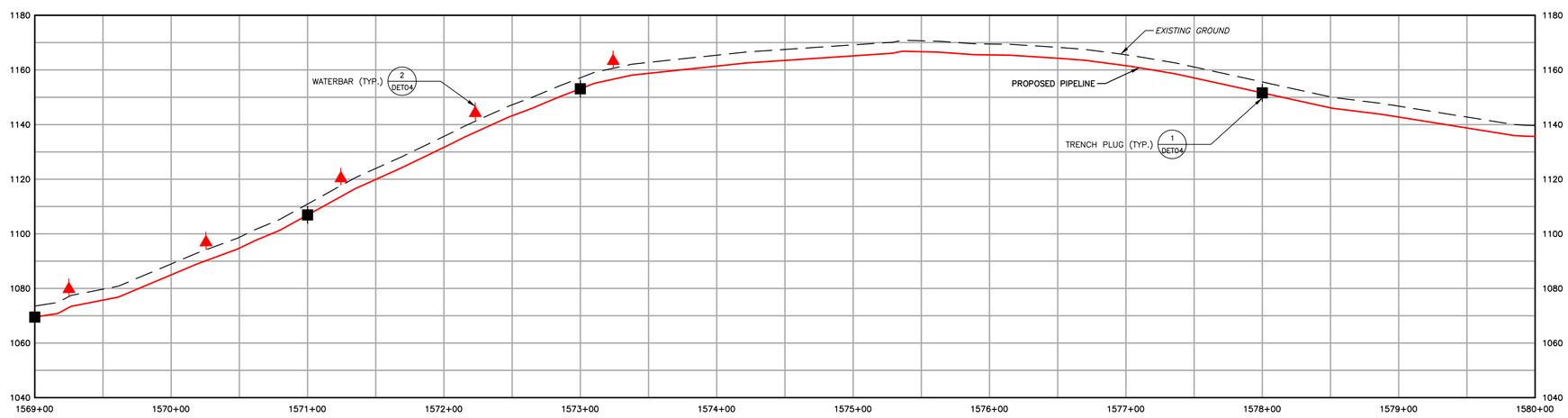
BEAVER COUNTY RACCOON TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119784	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6489885 – FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN132A.DWG
Last Saved by: LINCOLN.SCHAEFER (12/27/2017 2:59 PM) Last Plotted: 2018-01-02 (1/2/2018 3:24 PM)



LAND USE	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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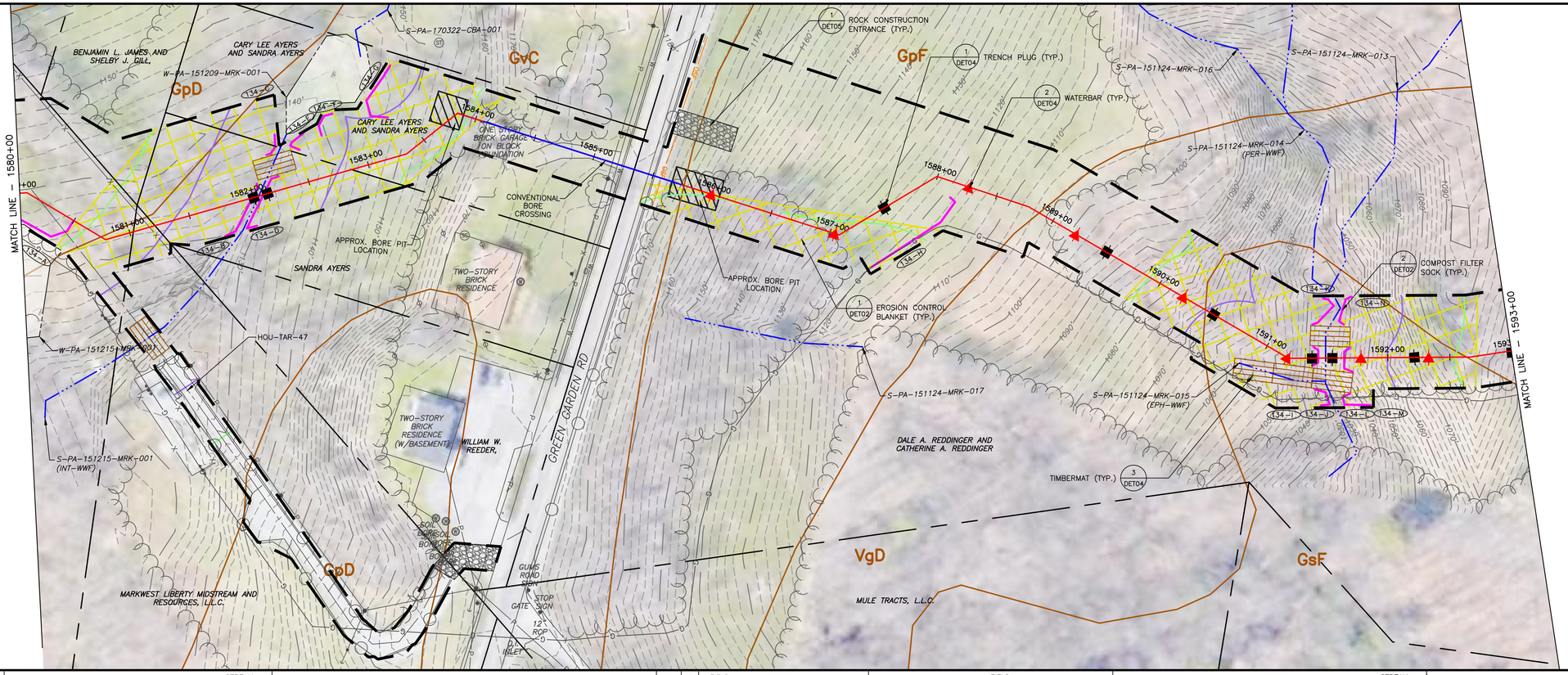
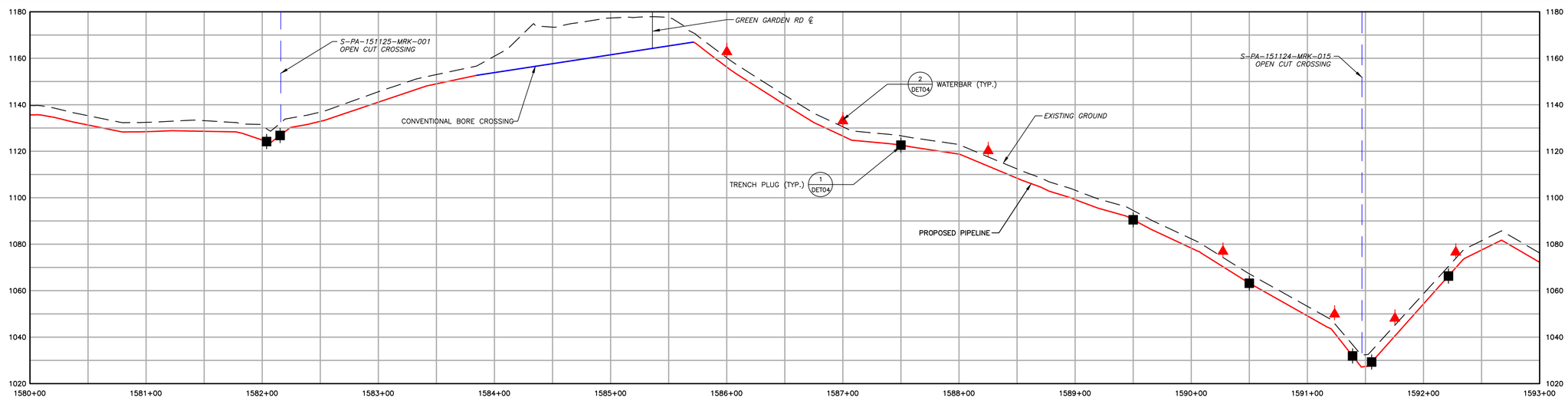
EROSION AND SEDIMENT CONTROL PLAN
ES133 – (STA. 1569+00.00 TO STA. 1580+00.00)
BEAVER COUNTY RACCOON TOWNSHIP PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119418	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN133.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 2:57 PM) Last Plotted: 2018-01-02 (1/2/2018 3:25 PM)



LAND USE	FIELD	STREAM	FIELD	ROAD	FIELD	WOODS	FIELD	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	4'	4'	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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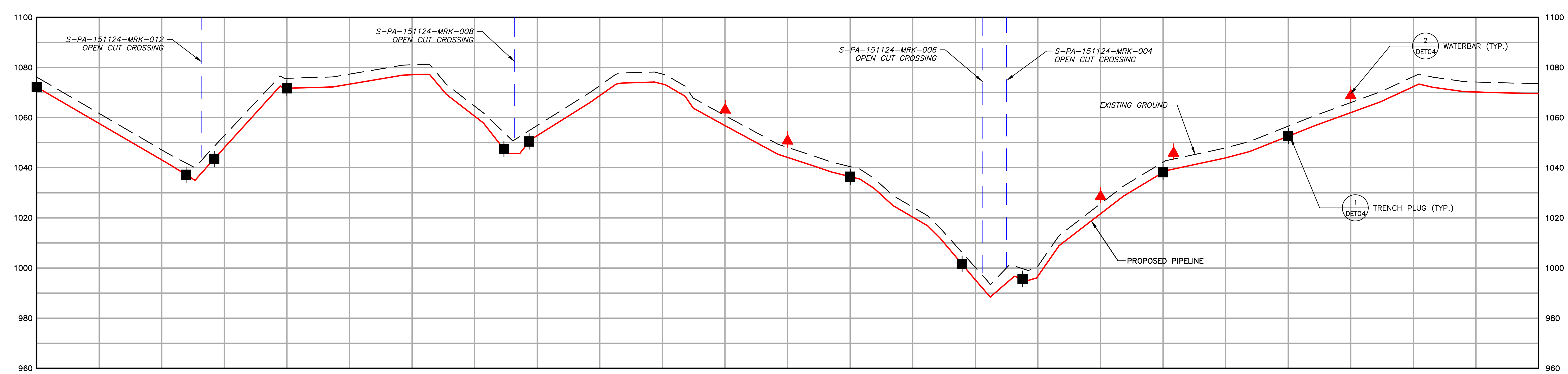
EROSION AND SEDIMENT CONTROL PLAN
ES134 – (STA. 1580+00.00 TO STA. 1593+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119419	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN134.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:00 PM) Last Plotted: 2018-01-02 (1/2/2018 3:26 PM)

LAND USE	WOODS	STREAM	WOODS	STREAM	WOODS	STREAM	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	5'	4'



- 1550 EXISTING CONTOURS (INDEX)
- EXISTING CONTOURS (INTERMEDIATE)
- EXISTING PROPERTY LINE
- EXISTING STREAM
- ASSUMED FLOODWAY (50 FEET)
- STREAM BUFFER (100 FEET)
- EXISTING WETLAND
- TREE/BRUSH LINE
- PROPOSED PIPELINE
- LIMIT OF DISTURBANCE/PERMIT BOUNDARY
- ACCESS ROAD CENTERLINE
- PROPOSED SILT FENCE (BY TYPE)
- PROPOSED COMPOST FILTER SOCK
- PROPOSED RIGHT OF WAY DIVERSION
- PROPOSED TRENCH PLUG
- OSF PROPOSED ORANGE SAFETY FENCE
- PROPOSED TIMBER MAT
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED STONE CONSTRUCTION ENTRANCE
- 100-YEAR FLOODPLAIN
- WATERSHED BOUNDARY
- MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
- MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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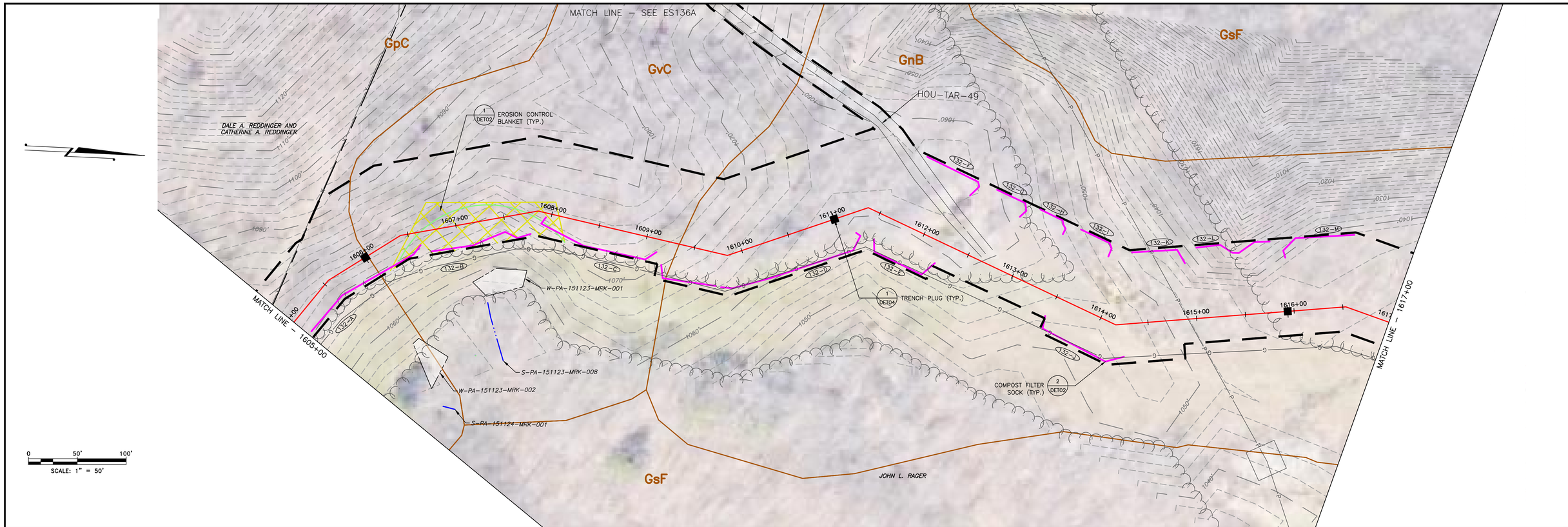
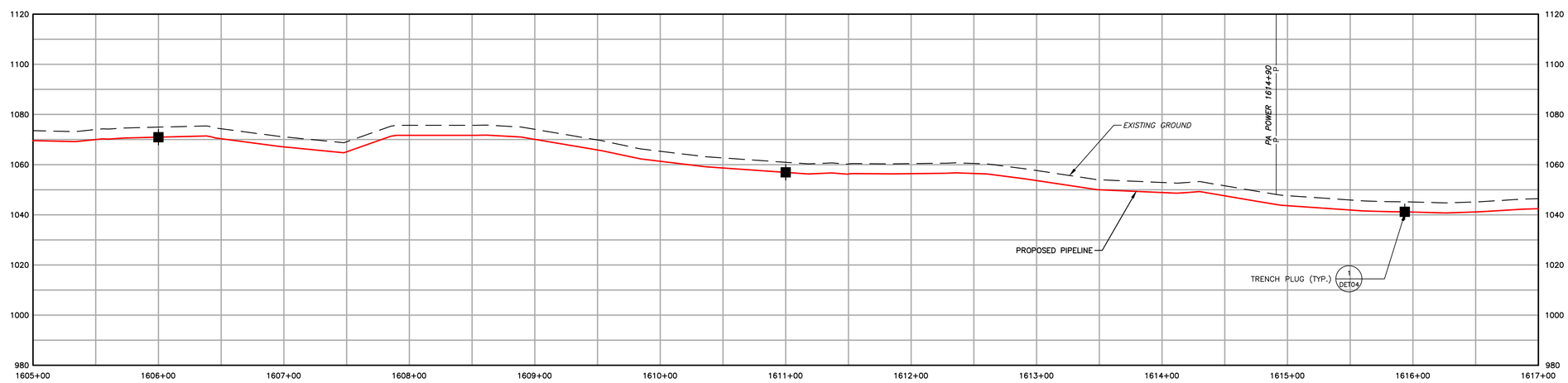
EROSION AND SEDIMENT CONTROL PLAN
ES135 – (STA. 1593+00.00 TO STA. 1605+00.00)
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119420	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN135.DWG
Last saved by: LINCOLN.SCHAEFER (12/27/2017 3:02 PM) Last Plotted: 2018-01-02 (1/2/2018 3:27 PM)



LAND USE	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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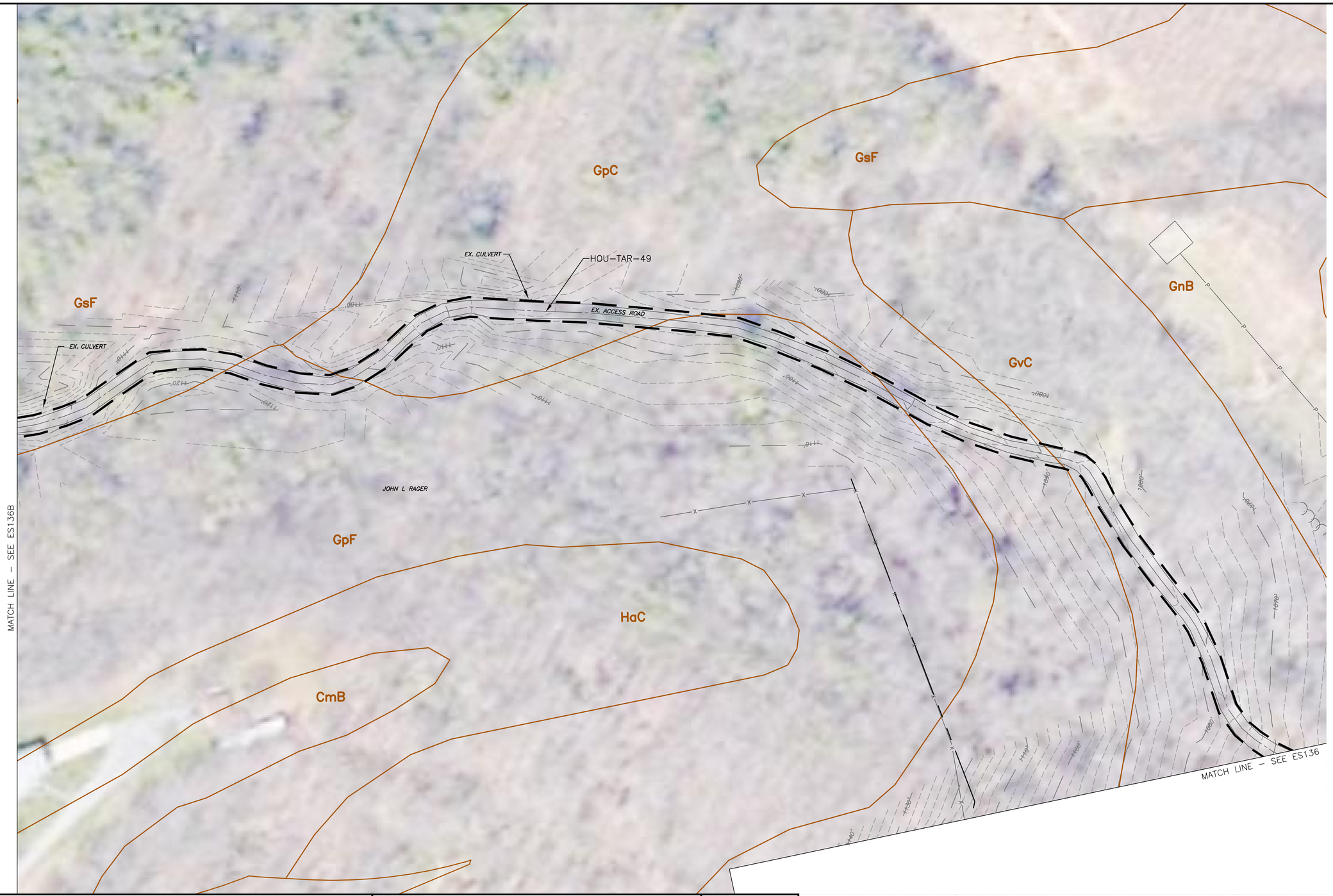
EROSION AND SEDIMENT CONTROL PLAN
ES136 – (STA. 1605+00.00 TO STA. 1617+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119421	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN136.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 3:34 PM) Last Plotted: 2018–01–02 (1/2/2018 3:28 PM)



0 50' 100'

SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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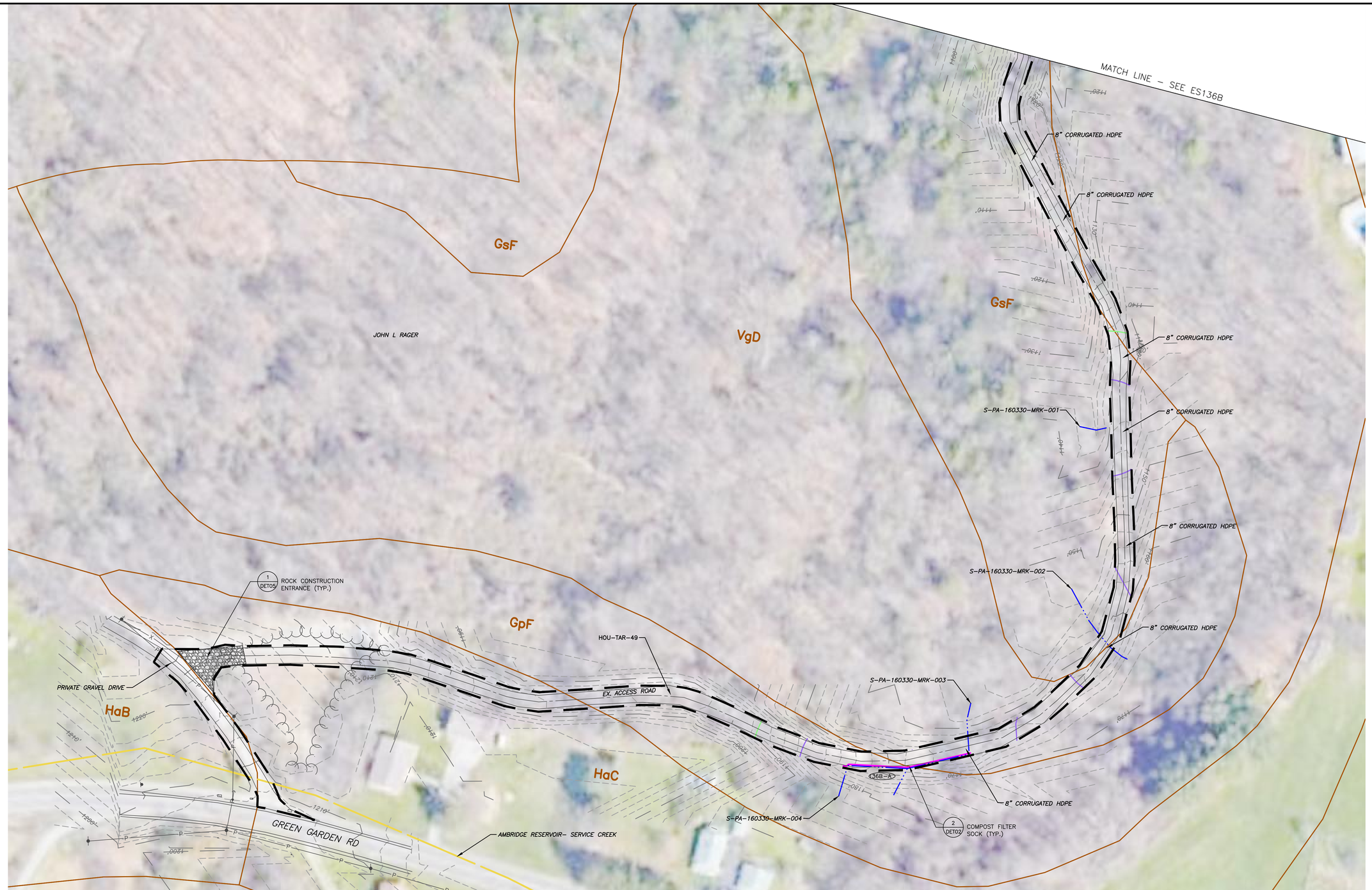
EROSION AND SEDIMENT CONTROL PLAN
ES136A - (HOU-TAR-49)

BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119783	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6459885 - FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN136A.DWG
Last saved by: LINCOLNJ2SHORTER (12/27/2017 3:05 PM) Last Plotted: 2018-01-02 (1/2/2018 3:29 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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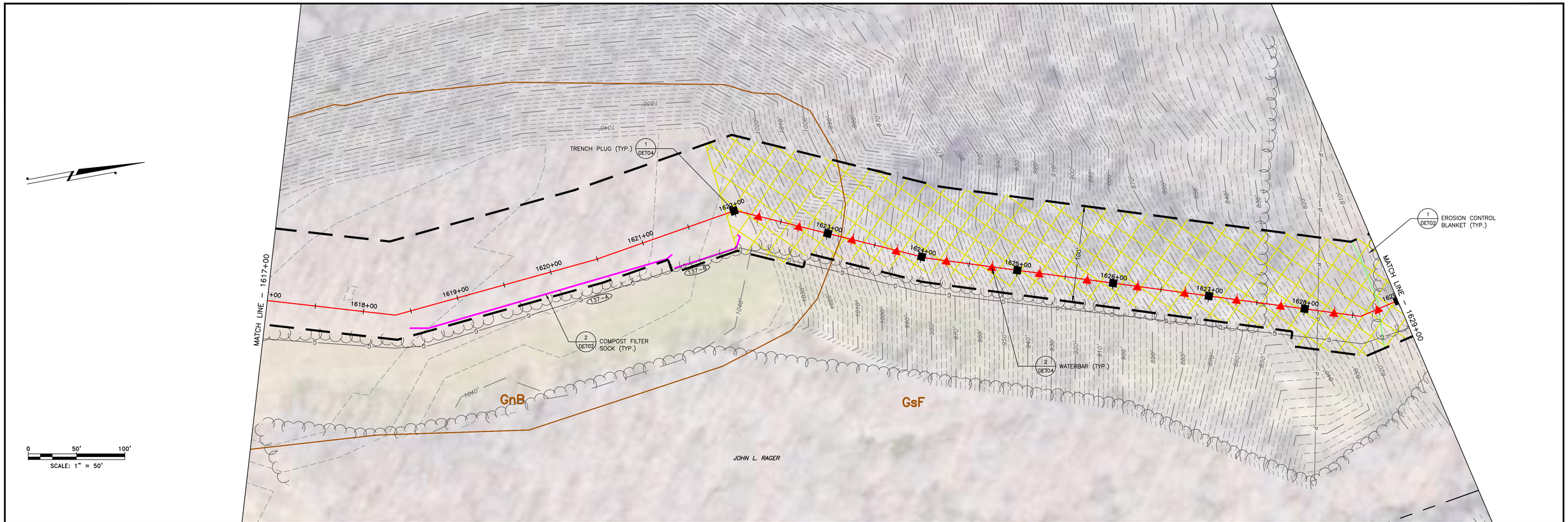
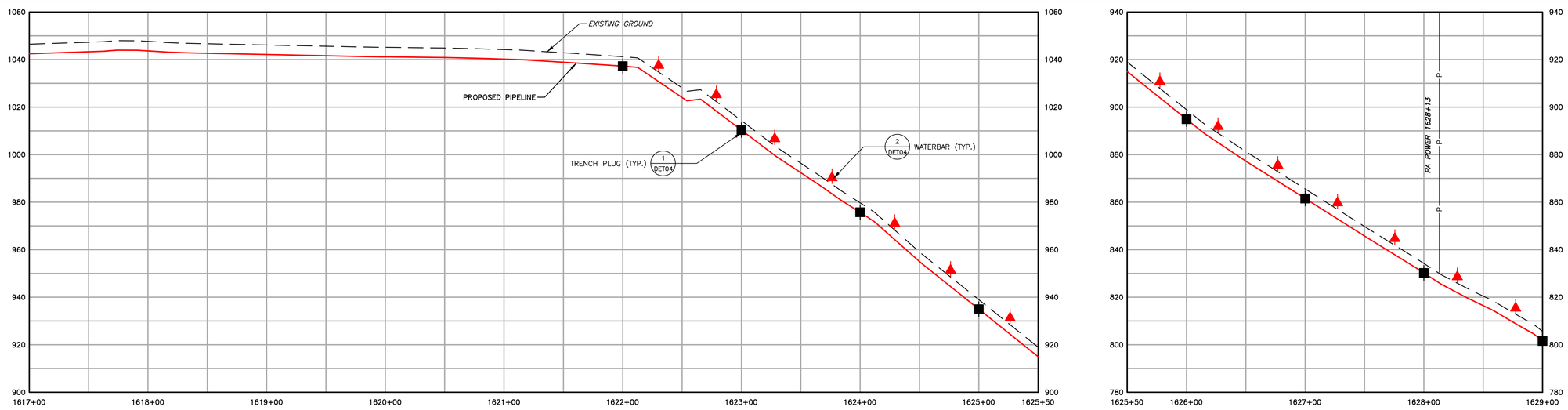
EROSION AND SEDIMENT CONTROL PLAN
ES136B – (HOU–TAR–49)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119782	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174X\SHELL\64495885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN\136B.DWG
Last saved by: UNCOLN3CHAFTER (12/21/2017 3:06 PM) Last Plotted: 2018–01–02 (1/2/2018 3:35 PM)



LAND USE	WOODS		WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	4'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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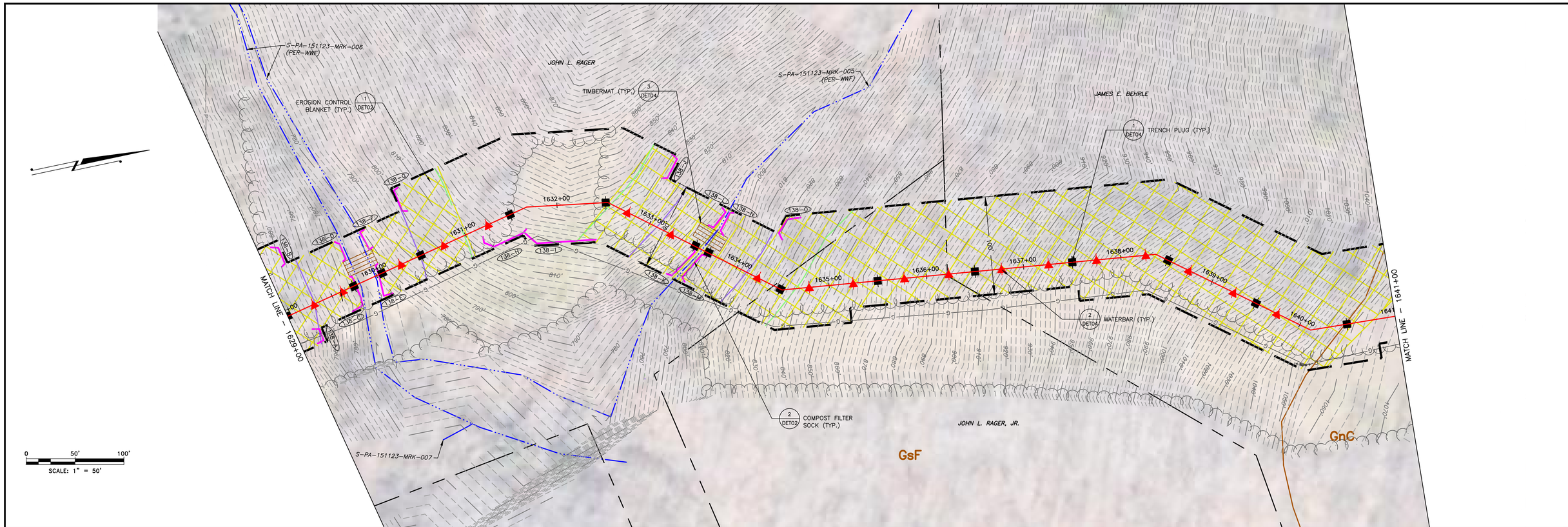
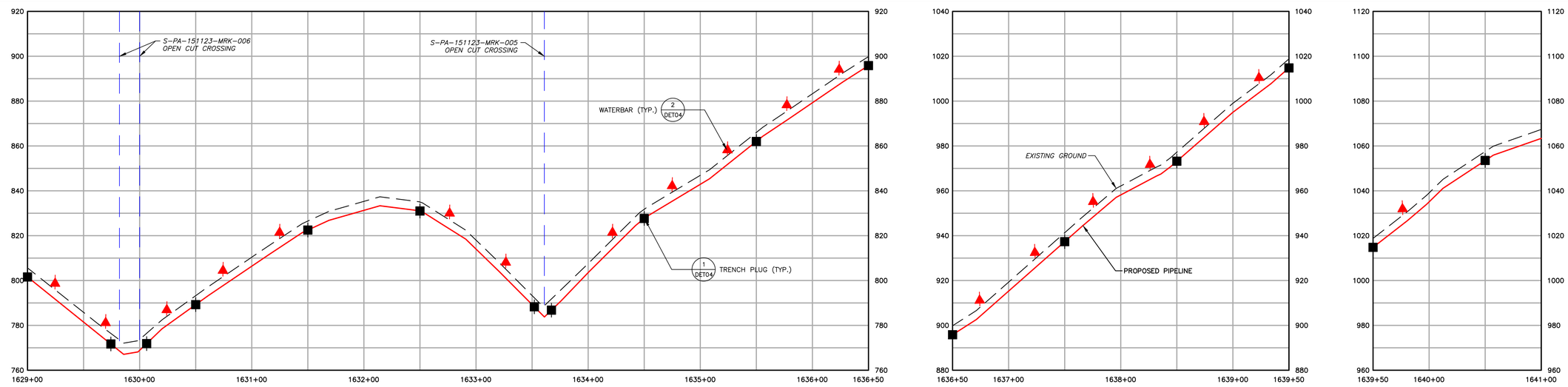
EROSION AND SEDIMENT CONTROL PLAN
ES137 – (STA. 1617+00.00 TO STA. 1629+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119422	REVISION
DRAWN	TLM	12/05/2017		1

Filename: V:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN137.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 3:07 PM) Last Plotted: 2018-01-02 (1/2/2018 3:31 PM)



LAND USE	WOODS	STREAM	STREAM	WOODS	FIELD	WOODS	STREAM	WOODS	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	5'	4'	4'	4'	5'	4'	4'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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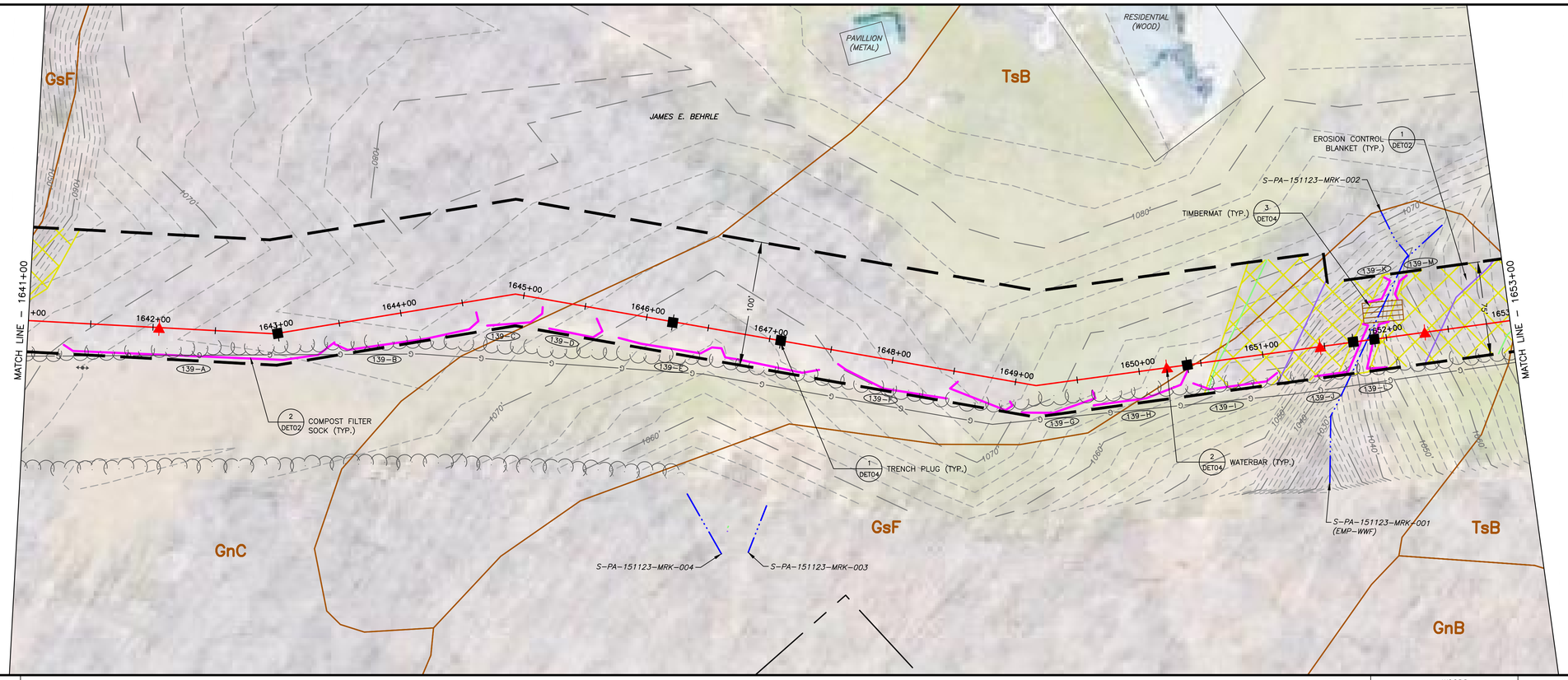
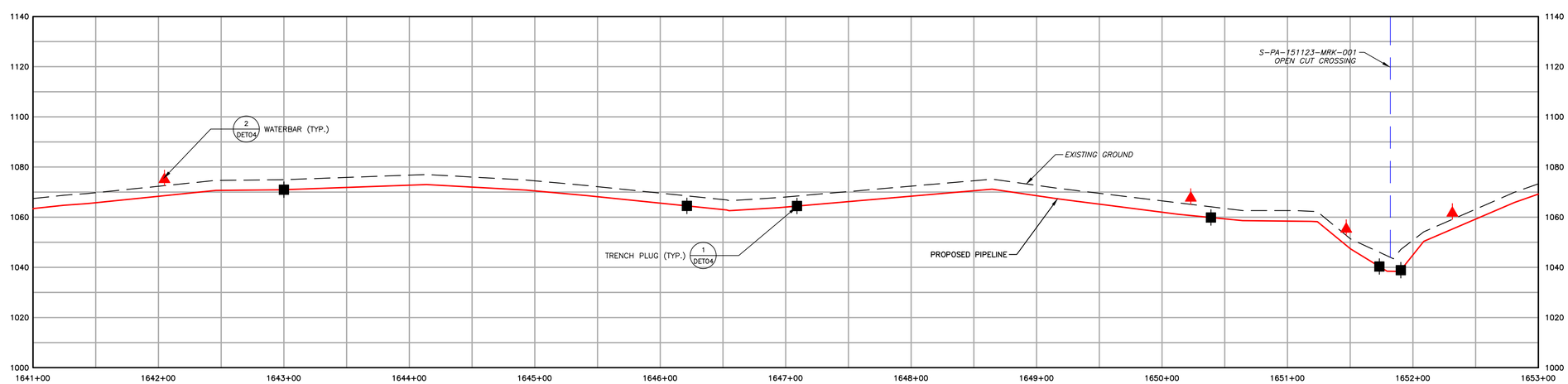
EROSION AND SEDIMENT CONTROL PLAN
ES138 – (STA. 1629+00.00 TO STA. 1641+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119423	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN138.DWG
Last saved by: LINCOLN.SCHAFER (12/22/2017 2:39 PM) Last Plotted: 2018-01-02 (1/2/2018 3:32 PM)



LAND USE	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
HOUSTON TO JUNCTION

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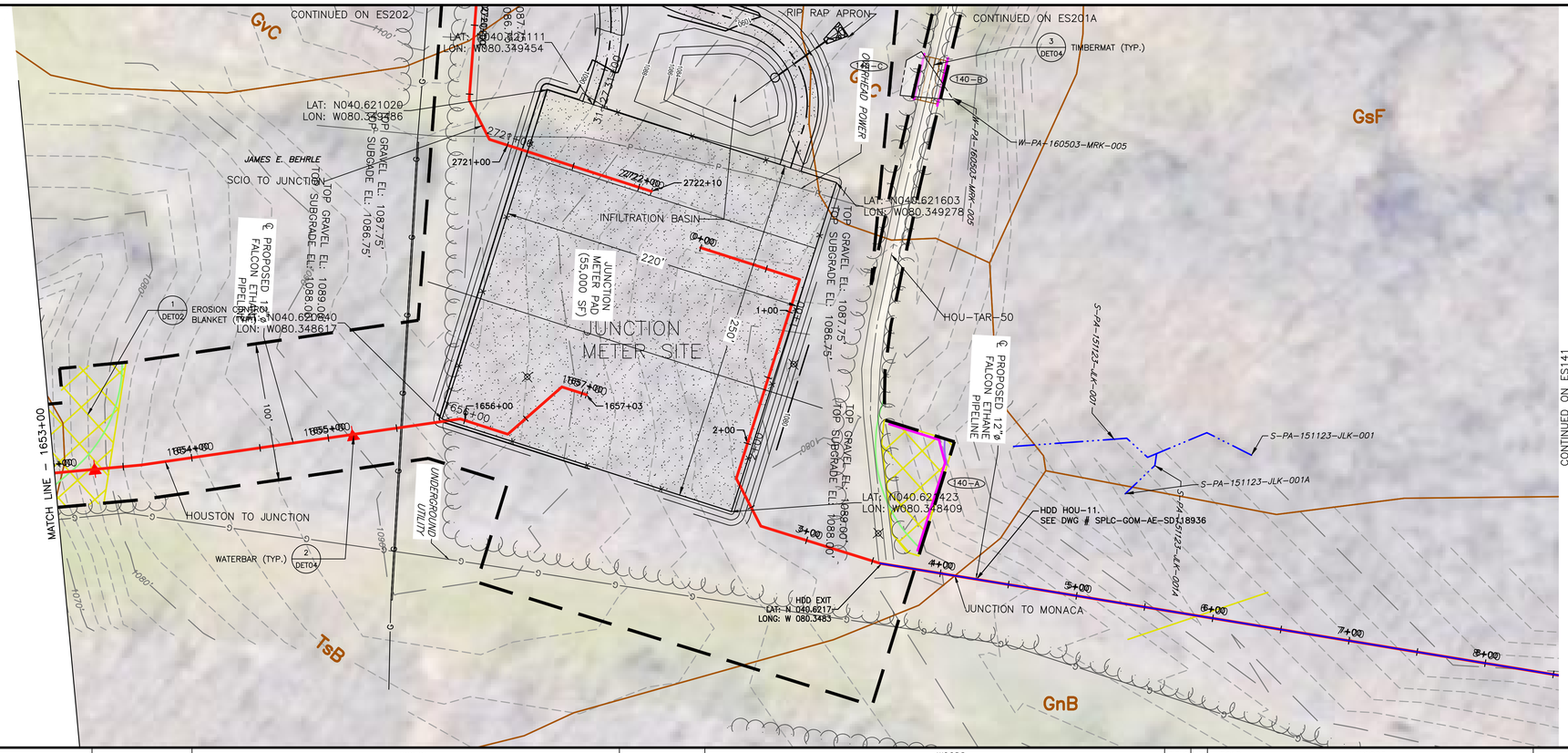
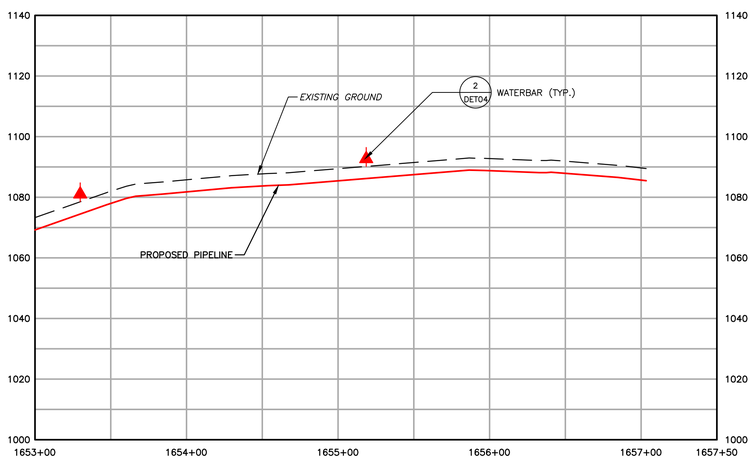
EROSION AND SEDIMENT CONTROL PLAN
ES139 – (STA. 1641+00.00 TO STA. 1653+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119424	REVISION
DRAWN	TLM	12/05/2017		1

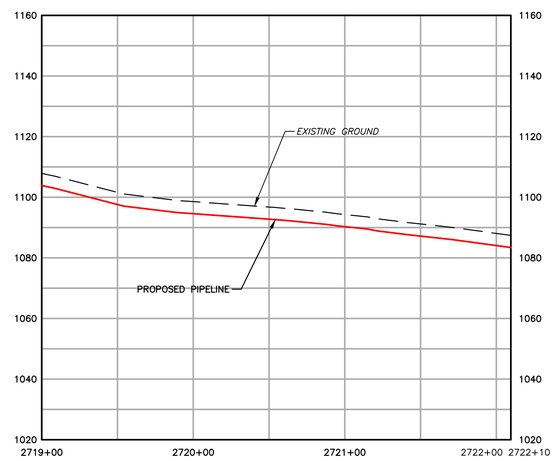
Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN139.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:09 PM) Last Plotted: 2018–01–02 (1/2/2018 3:33 PM)



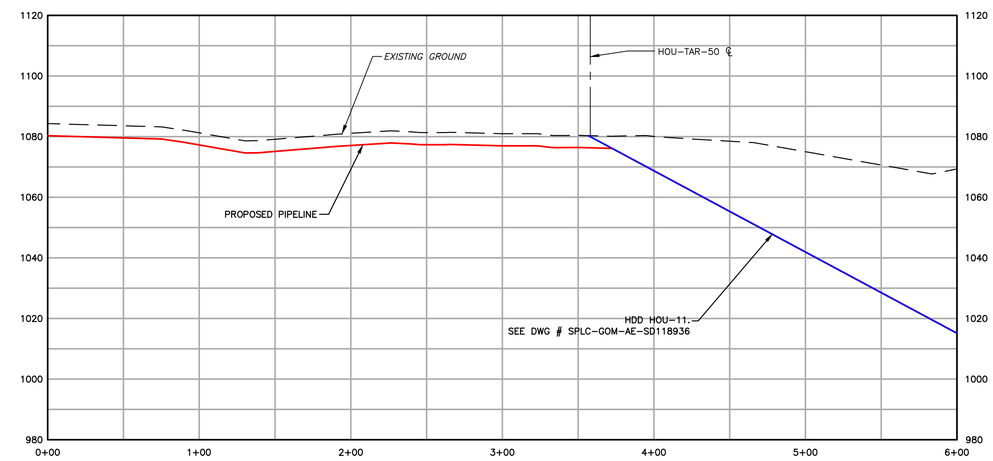
LAND USE	FIELD	WOODS		WOODS		WOODS	FIELD	ROAD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'		4'		4'	4'	5'	4'	



HOUSTON TO JUNCTION



SCIO TO JUNCTION



JUNCTION TO MONACA

EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNCTION

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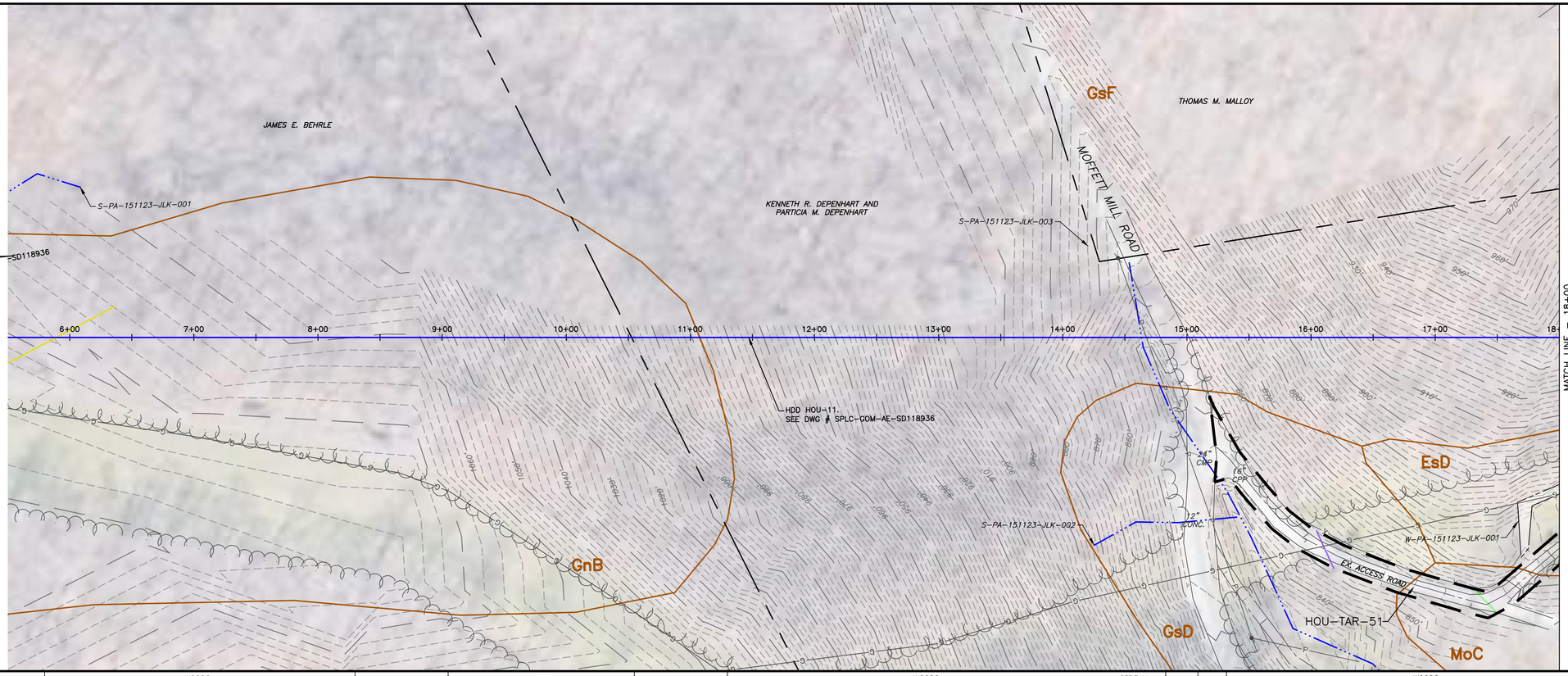
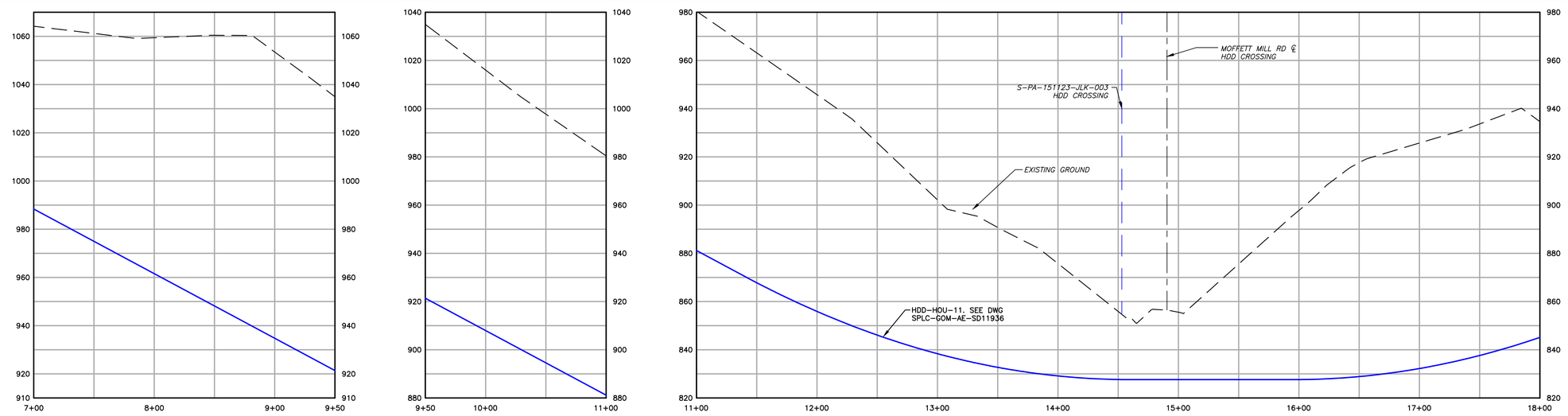
EROSION AND SEDIMENT CONTROL PLAN
ES140 – (STA. 1653+00.00 TO STA. 1657+14.36)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119425	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0449885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN140.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:16 PM) Last Plotted: 2018-01-02 (1/2/2018 3:58 PM)



LAND USE	WOODS		WOODS		WOODS	STREAM	ROAD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'		4'	5'	5'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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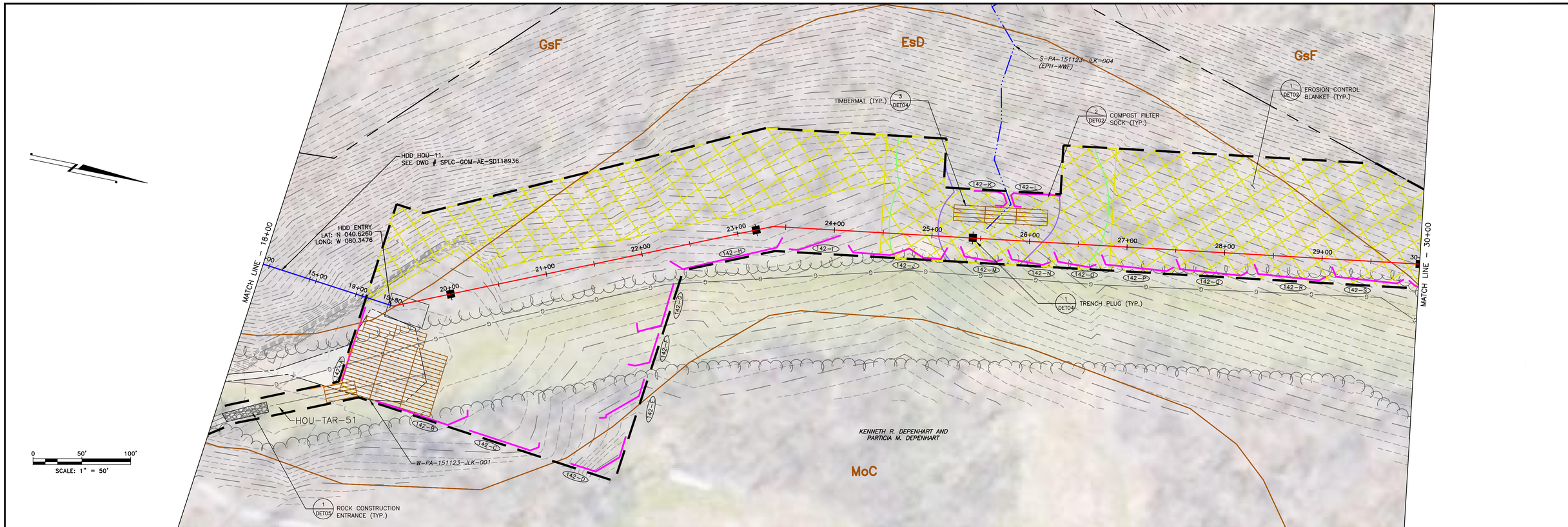
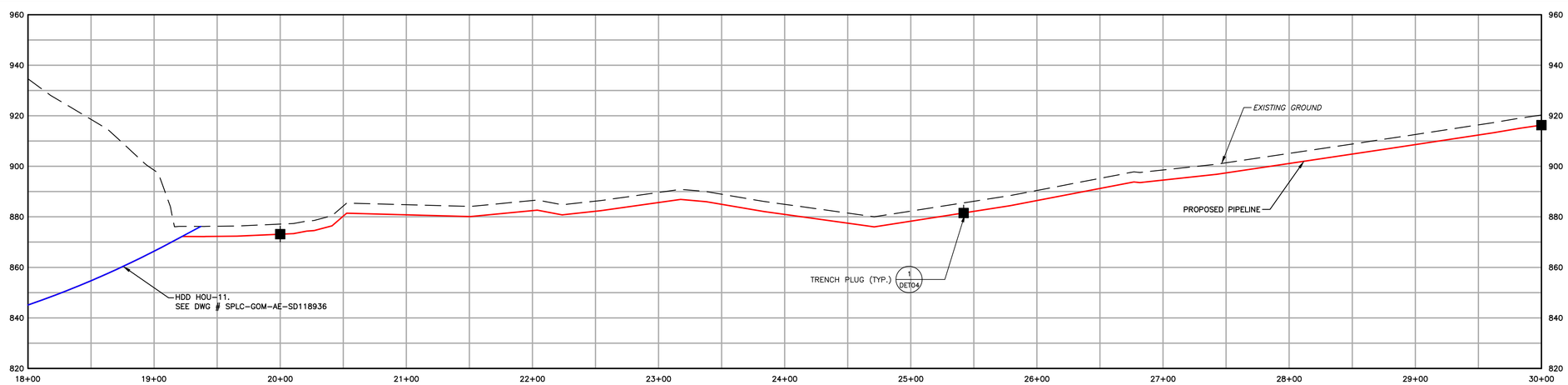
EROSION AND SEDIMENT CONTROL PLAN
ES141 – (STA. 7+00 TO STA. 18+00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119426	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN141.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:55 PM) Last Plotted: 2018-01-02 (1/2/2018 3:59 PM)



LAND USE	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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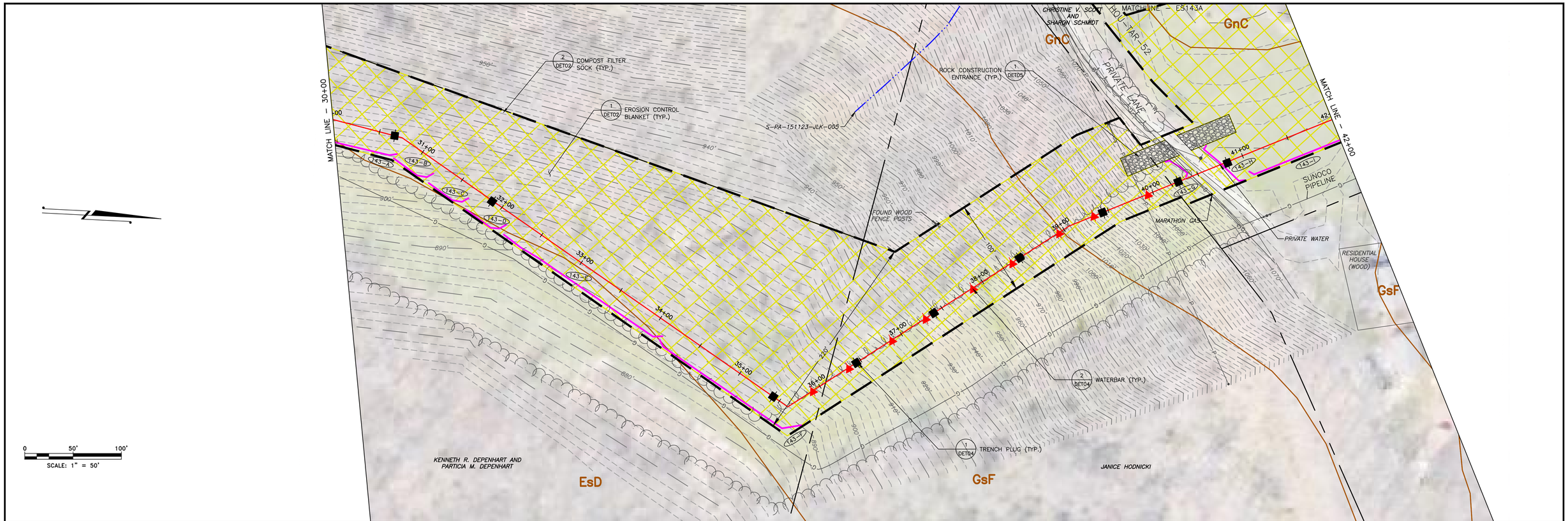
EROSION AND SEDIMENT CONTROL PLAN
ES142 – (STA. 18+00 TO STA. 30+00)

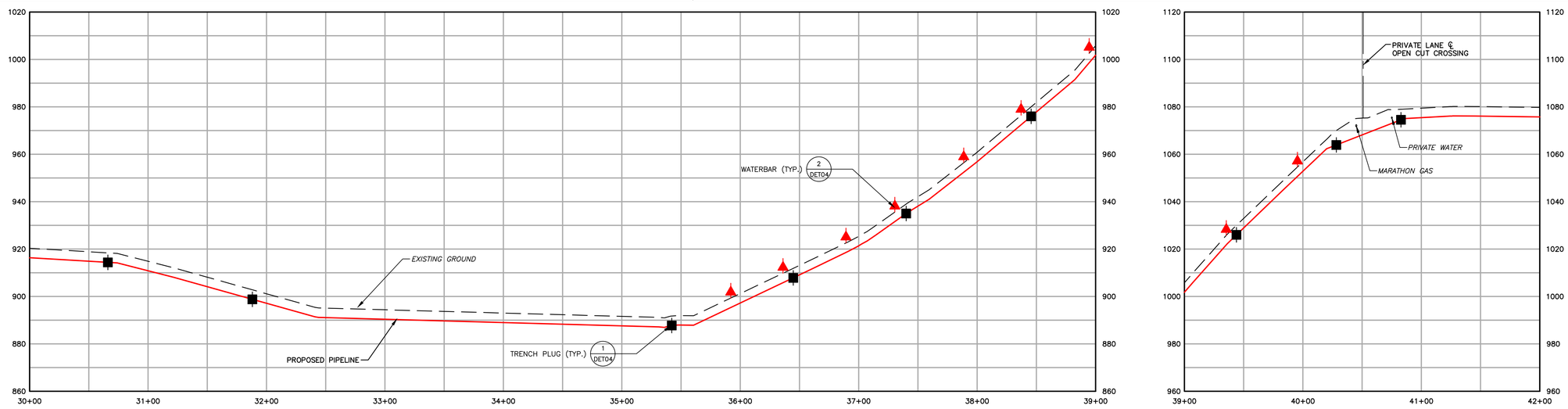
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119427	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN142.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:34 PM) Last Plotted: 2018-01-02 (1/2/2018 4:03 PM)



LAND USE	WOODS	FIELD		FIELD	ROAD	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'		4'	5'	4'	



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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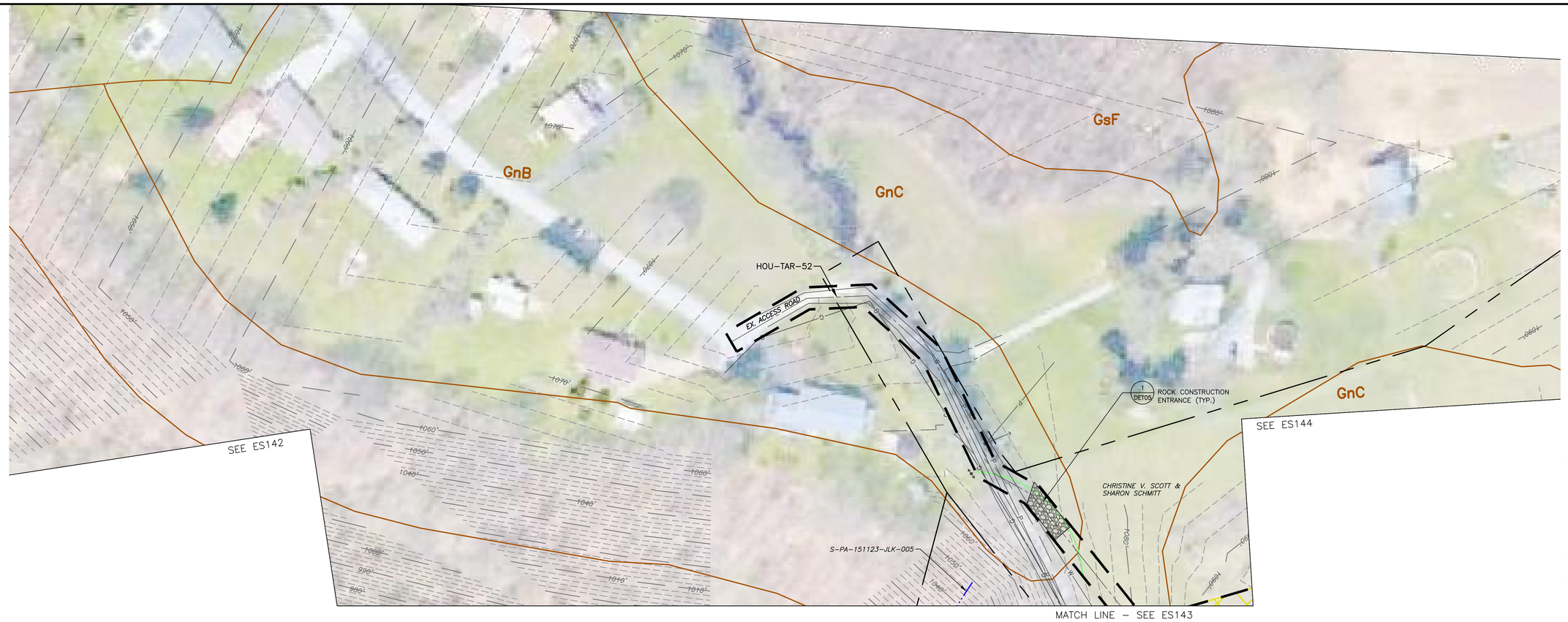
EROSION AND SEDIMENT CONTROL PLAN
ES143 – (STA. 30+00 TO STA. 42+00)
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119428	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5049885 – FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN143.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:32 PM) Last Plotted: 2018-01-02 (1/2/2018 4:01 PM)



0 50' 100'

SCALE: 1" = 50'

1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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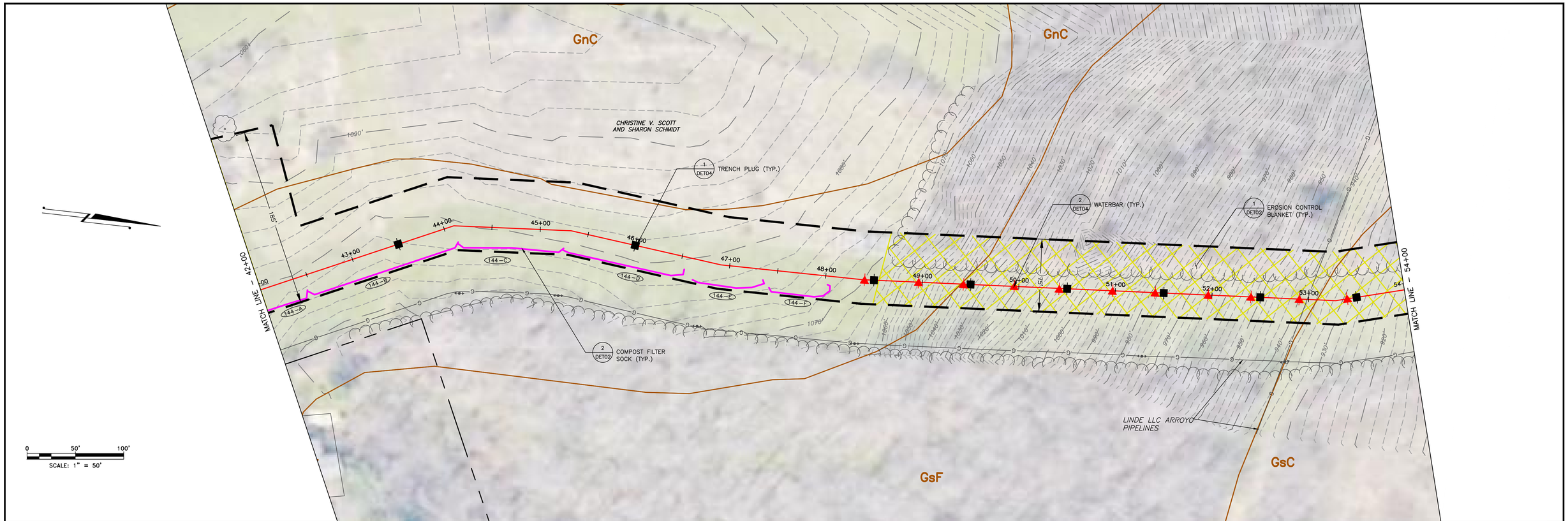
EROSION AND SEDIMENT CONTROL PLAN
ES143A - (HOU-TAR-52)

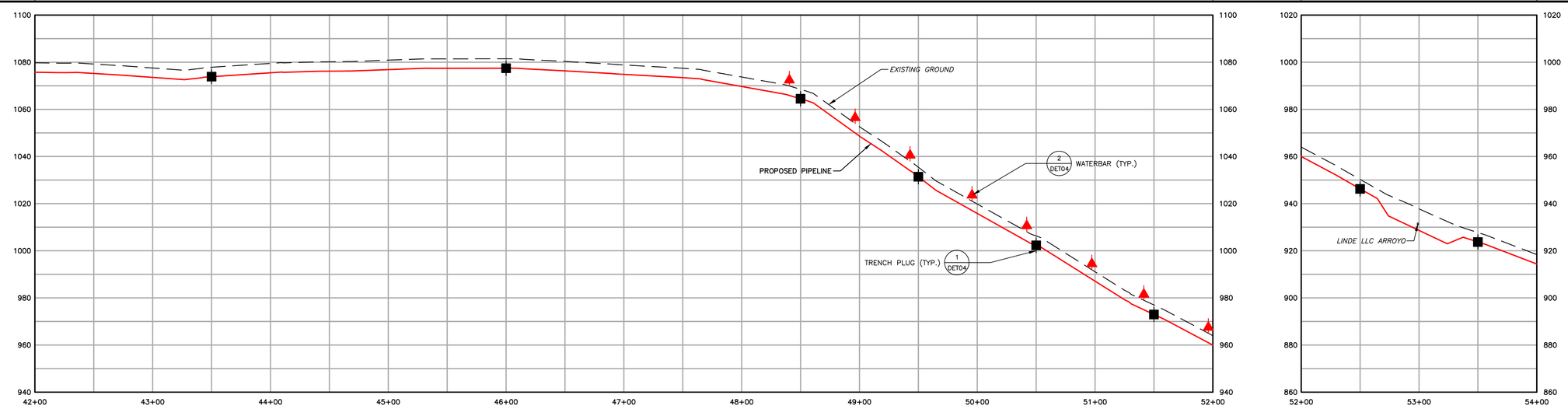
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119781	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6489889 - FALCON\950-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN143A.DWG
Last saved by: LINCOLNSCHAFER (12/27/2017 3:30 PM) Last Plotted: 2018-01-02 (1/2/2018 4:02 PM)



LAND USE	FIELD		FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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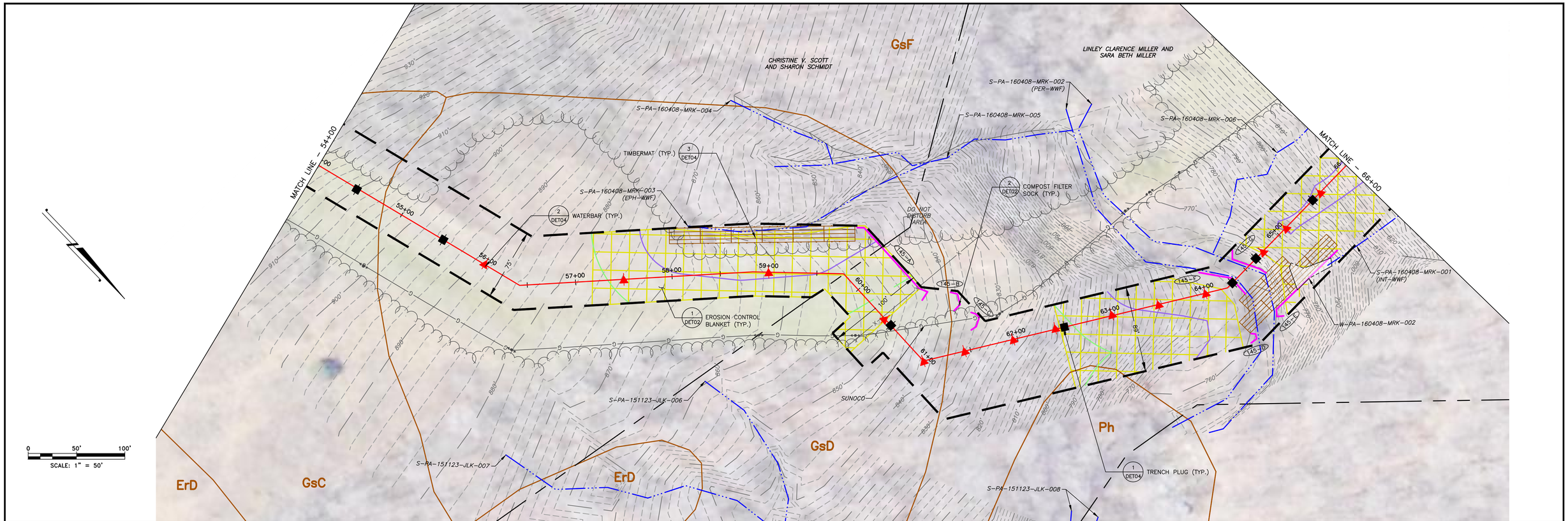
EROSION AND SEDIMENT CONTROL PLAN
ES144 – (STA. 42+00 TO STA. 54+00)

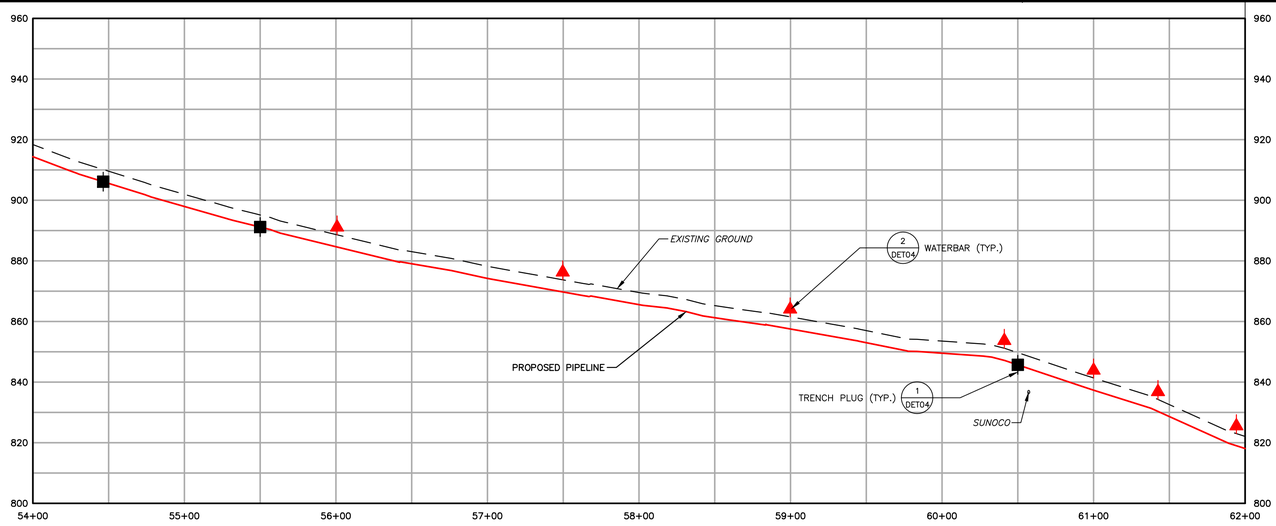
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

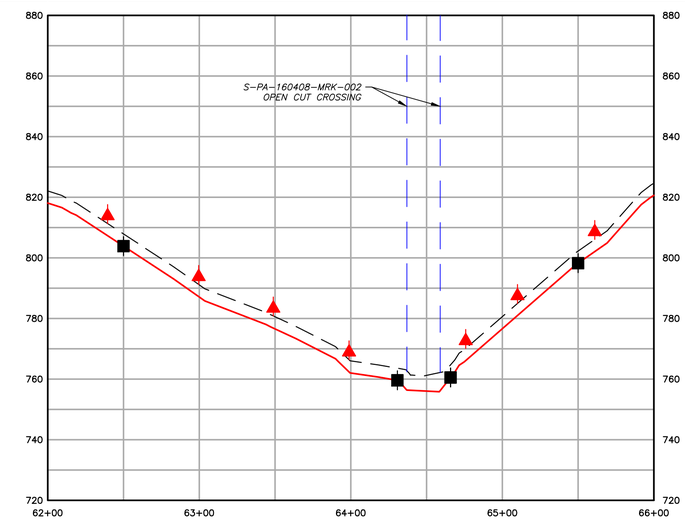
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119429	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN144.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:30 PM) Last Plotted: 2018-01-02 (1/2/2018 4:03 PM)



LAND USE	FIELD	WOODS	WOODS	STREAM	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	5'	5'	4'





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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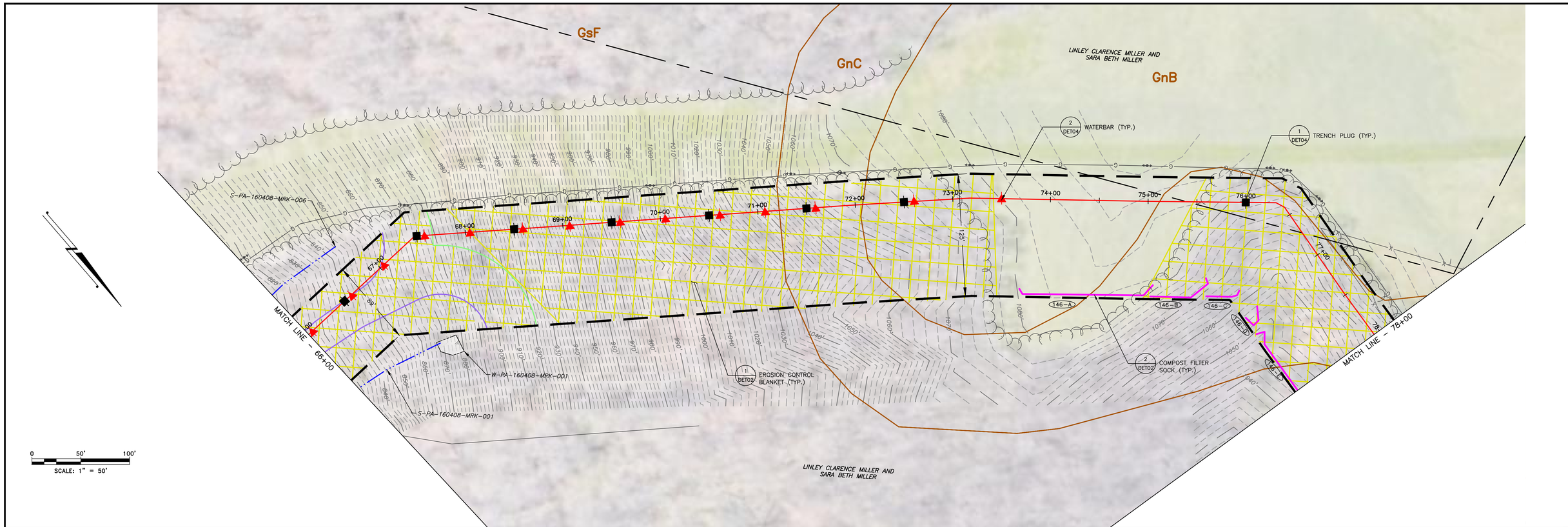
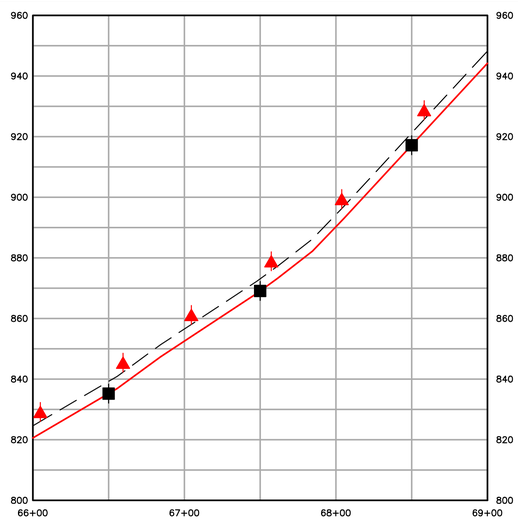
EROSION AND SEDIMENT CONTROL PLAN
ES145 – (STA. 54+00.00 TO STA. 66+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON AND POTTER TOWNSHIPS

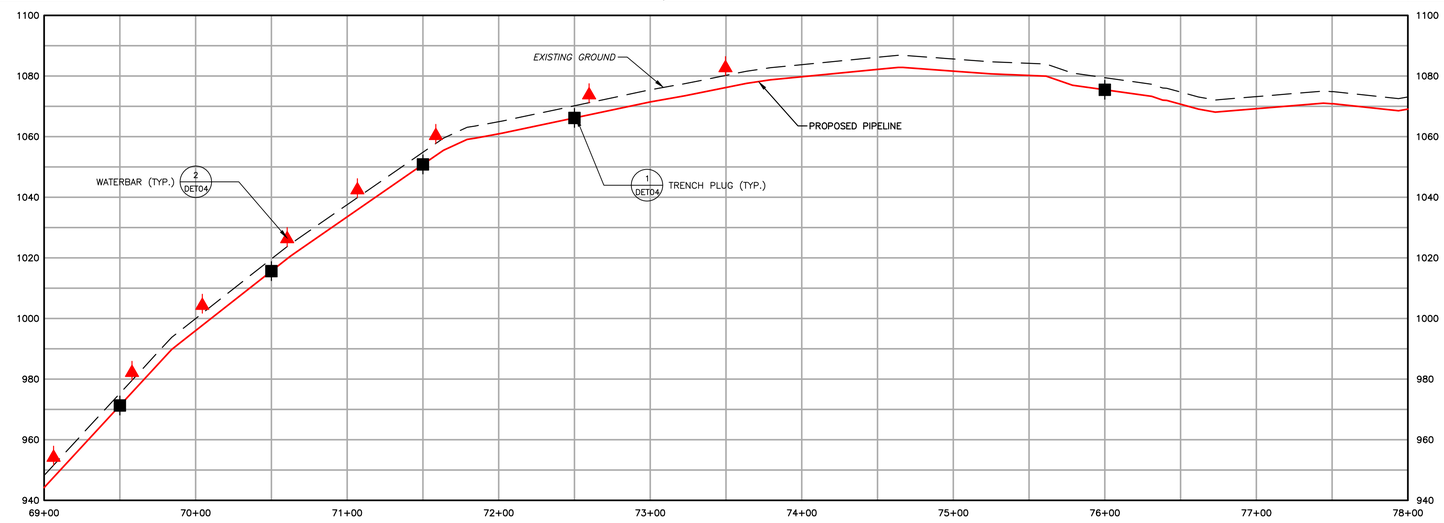
SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119430	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN145.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:29 PM) Last Plotted: 2018–01–02 (1/2/2018 4:24 PM)



LAND USE	WOODS		WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	4'	4'	





1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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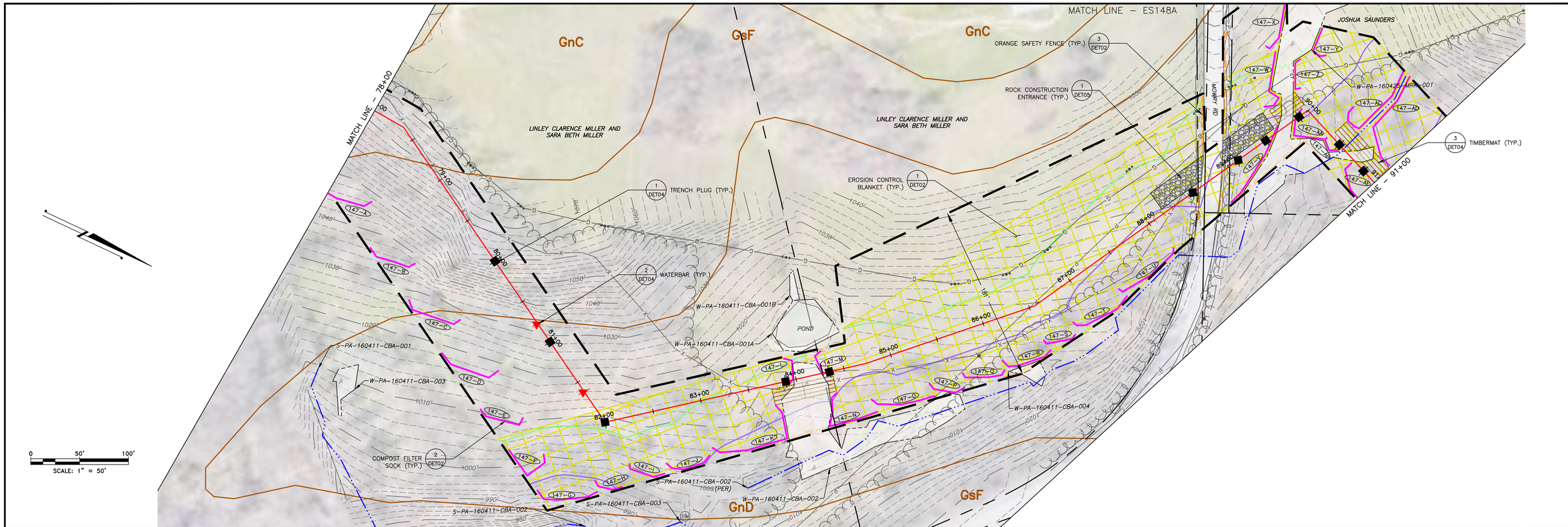
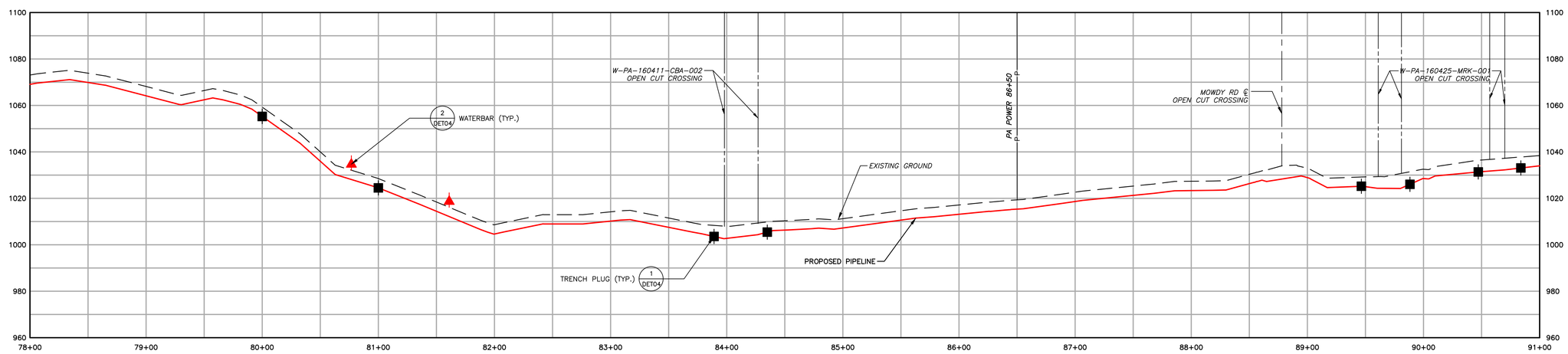
EROSION AND SEDIMENT CONTROL PLAN
ES146 – (STA. 66+00.00 TO STA. 78+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119431	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0485885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN146.DWG
Last saved by: LINCOLN.SCHAFER (12/27/2017 3:27 PM) Last Plotted: 2018-01-02 (1/2/2018 4:05 PM)



LAND USE	WOODS	FIELD	WETLAND	FIELD	WOODS	ROAD	WOODS WETLAND	WOODS WETLAND	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	5'	4'	4'	5'	4' 5'	4' 5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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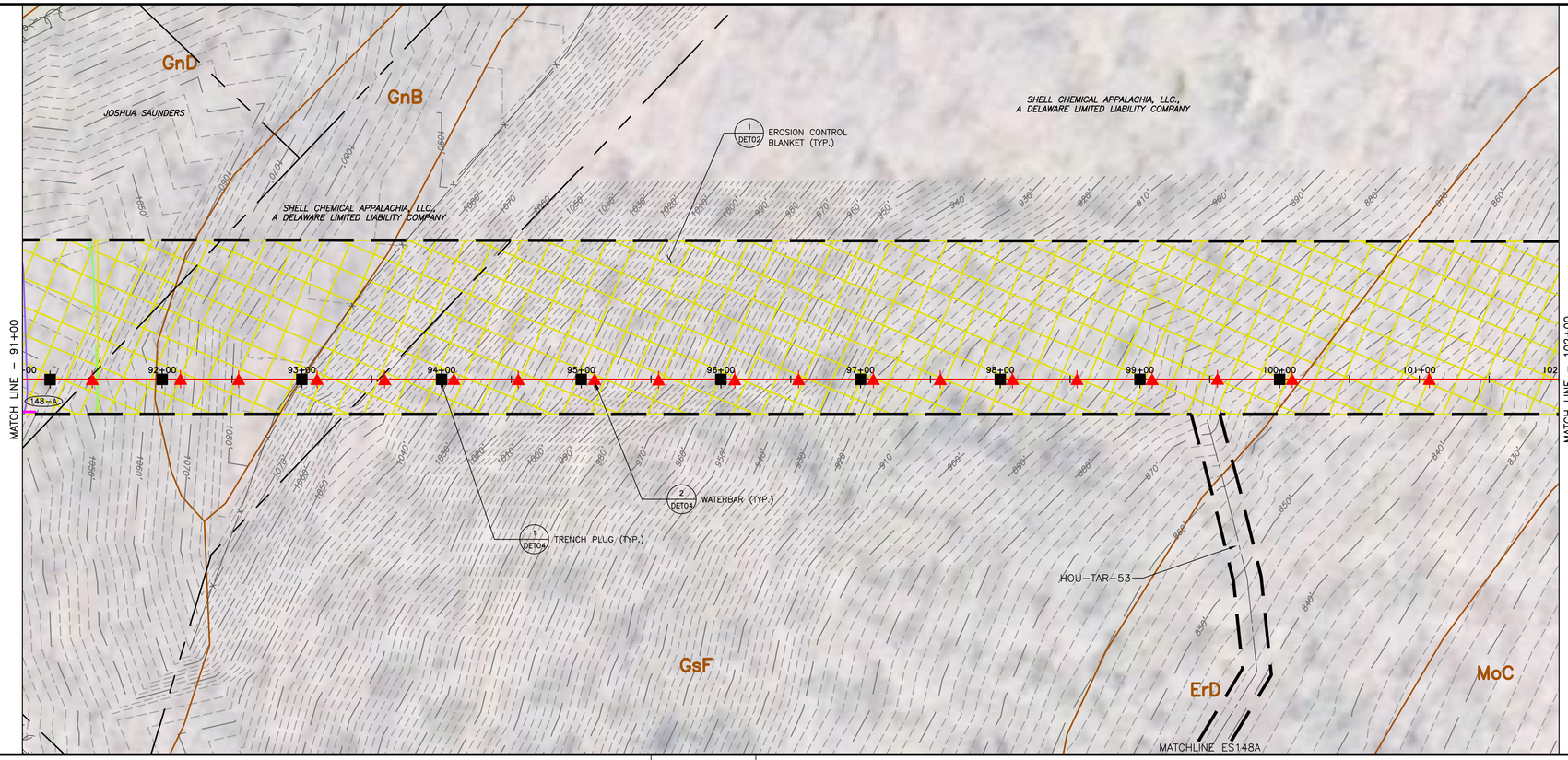
EROSION AND SEDIMENT CONTROL PLAN
ES147 – (STA. 78+00.00 TO STA. 91+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

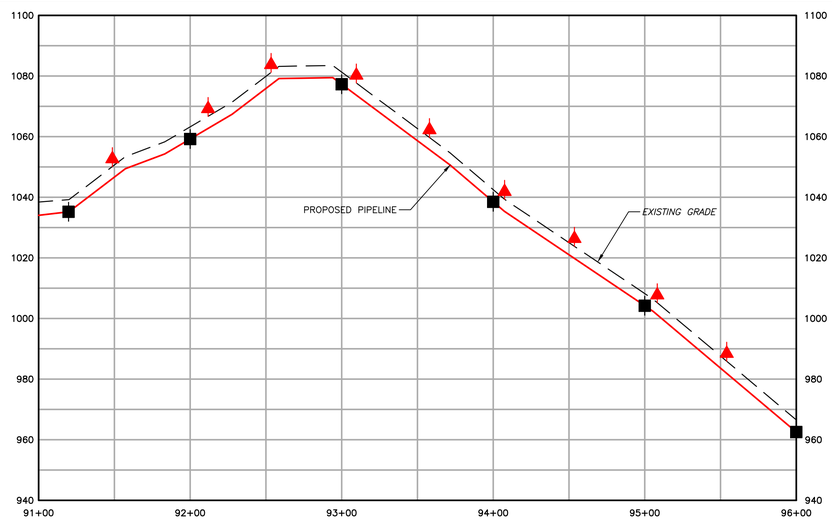
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119432	REVISION
DRAWN	TLM	12/05/2017		1

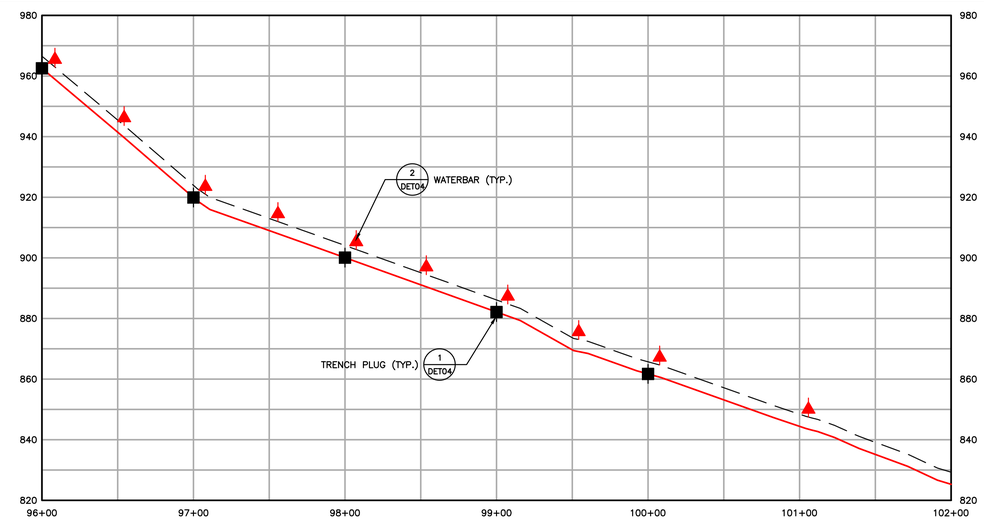
Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN147.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 3:26 PM) Last Plotted: 2018-01-02 (1/2/2018 4:06 PM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'





1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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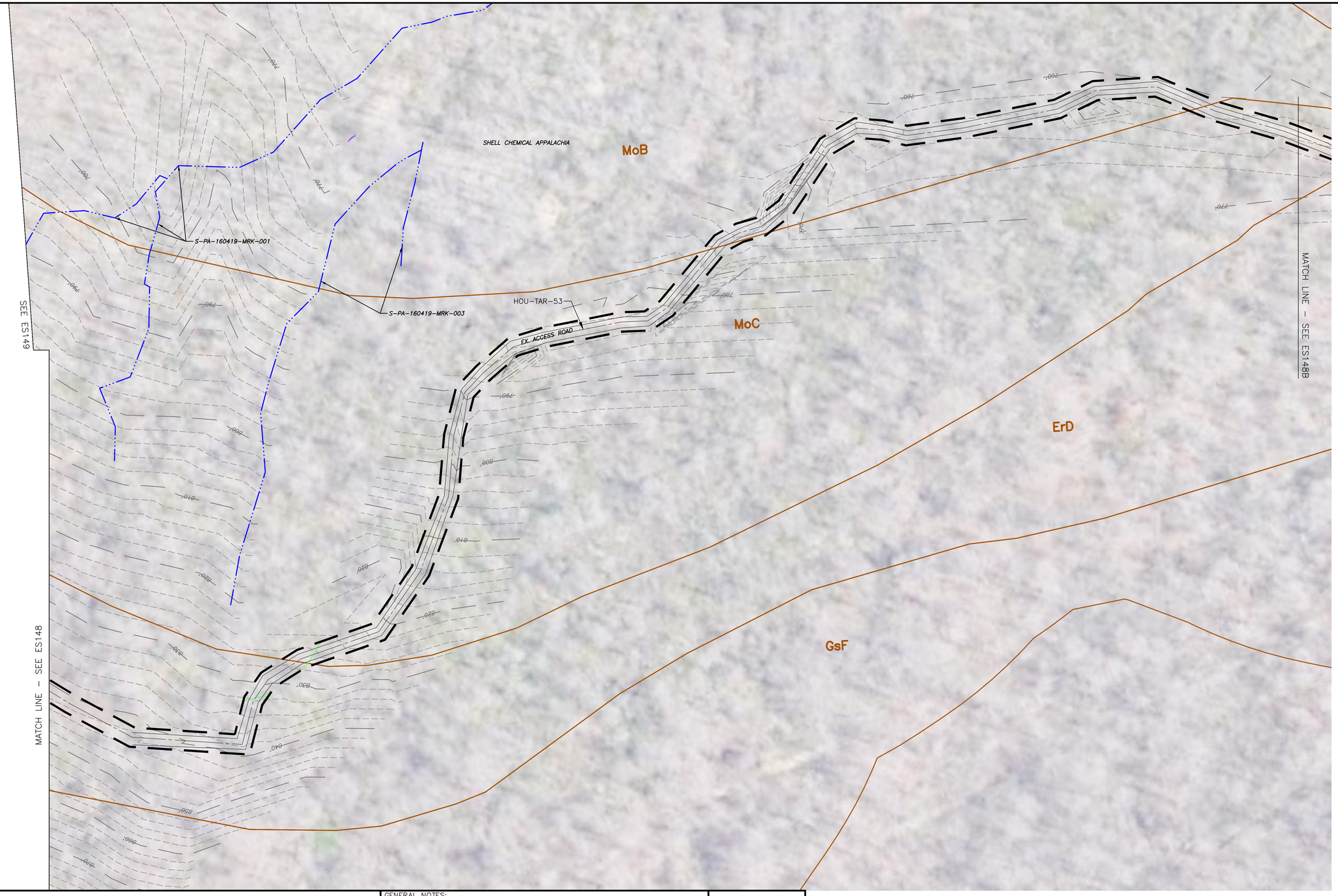
EROSION AND SEDIMENT CONTROL PLAN
ES148 – (STA. 91+00.00 TO STA. 102+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119433	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN148.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 3:24 PM) Last Plotted: 2018-01-02 (1/2/2018 4:07 PM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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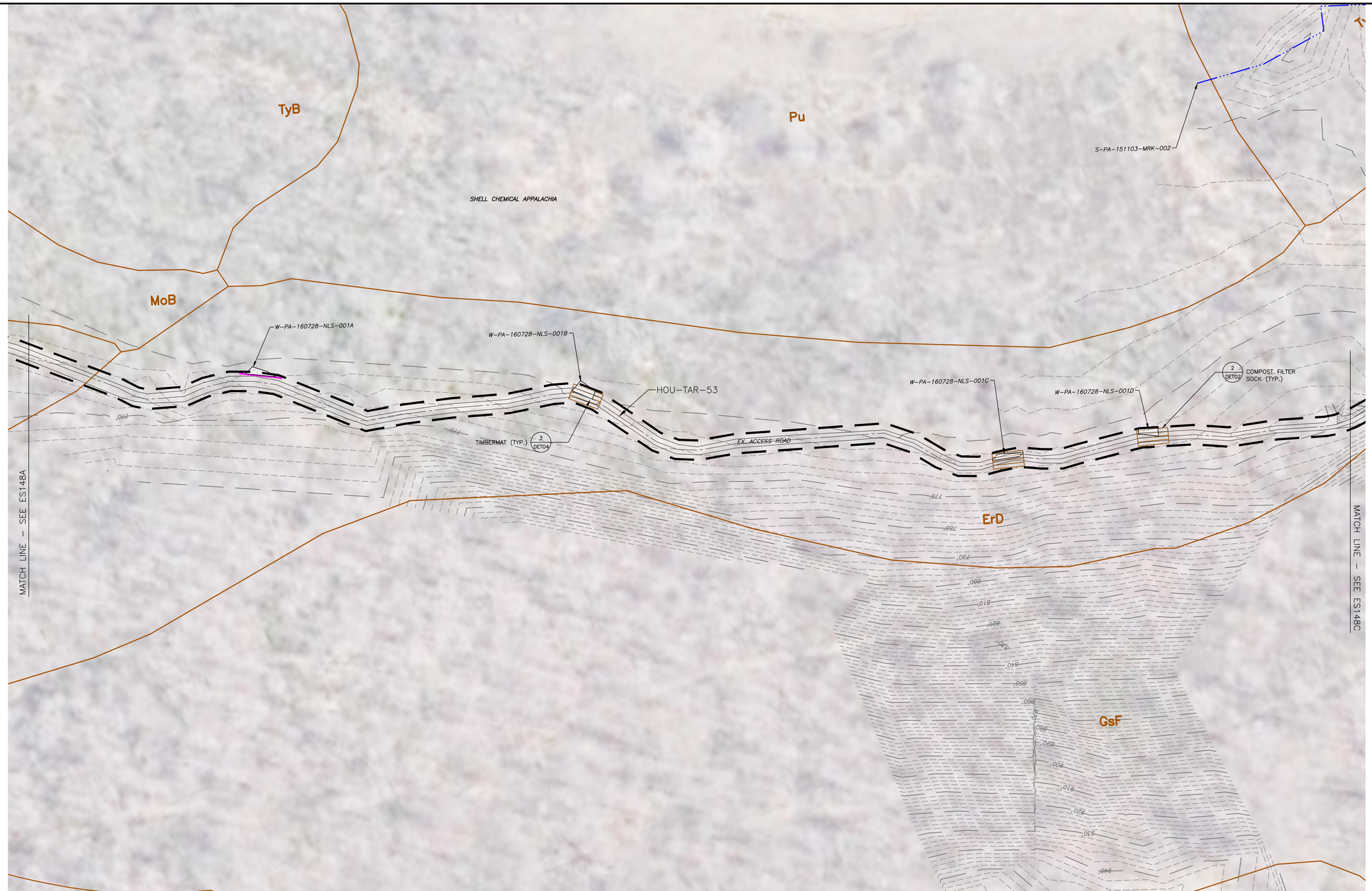
EROSION AND SEDIMENT CONTROL PLAN
ES148A - (HOU-TAR-53)

BEAVER COUNTY
POTTER TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119780	REVISION
DRAWN	TLM	09/14/2017		0

Filename: Y:\PROJECTS\174X\SHELL\6948985 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN148A.DWG
Last saved by: JACOLA.SCHAFER (12/27/2017 3:22 PM) Last Plotted: 2018-01-02 (1/2/2018 4:08 PM)



0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JUNIATA

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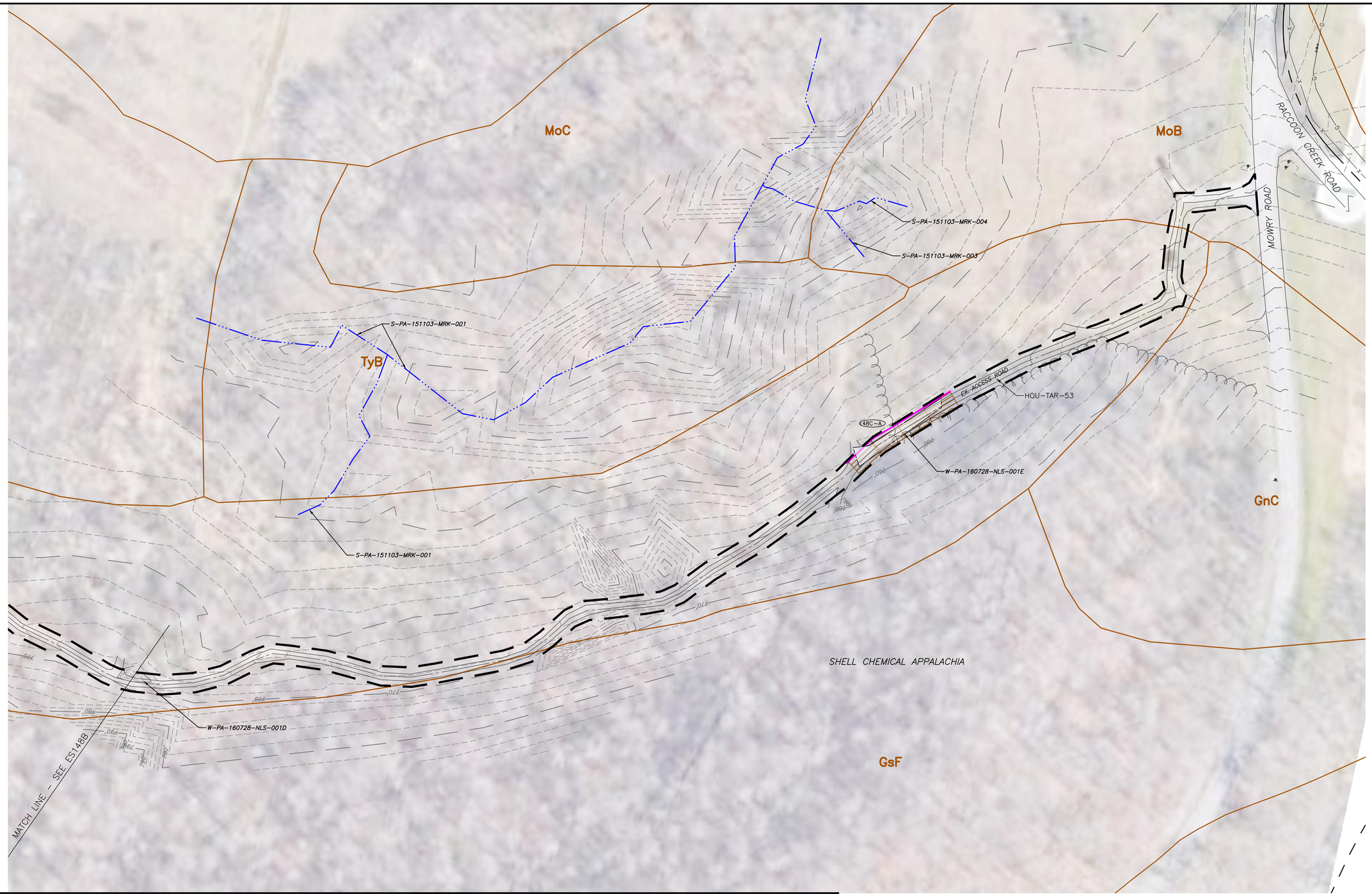
EROSION AND SEDIMENT CONTROL PLAN
ES148B - (HOU-TAR-53)

BEAVER COUNTY
POTTER TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119779	REVISION
DRAWN	TLM	09/14/2017		0

Filename: Y:\PROJECTS\174X\SHELL\60489885 - FALCON\900-WORK\911-ENVIRONMENTAL\25-SHEETS\PENNSYLVANIA\PLAN148B.DWG
Last saved by: UNCSA\SCHAFER (12/27/2017 3:20 PM) Last Plotted: 2018-01-02 (1/2/2018 4:58 PM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

HOUSTON TO JAMISON

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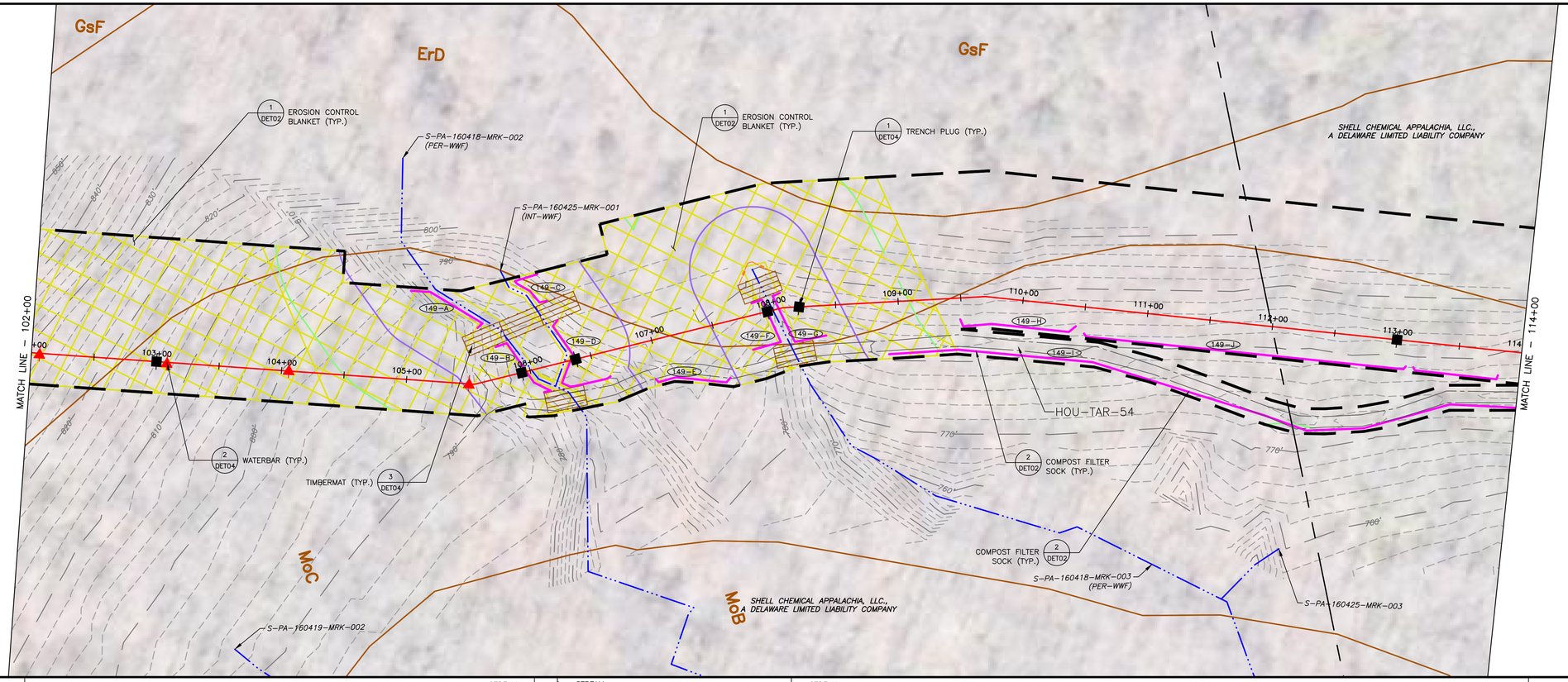
EROSION AND SEDIMENT CONTROL PLAN
ES148C - (HOU-TAR-53)

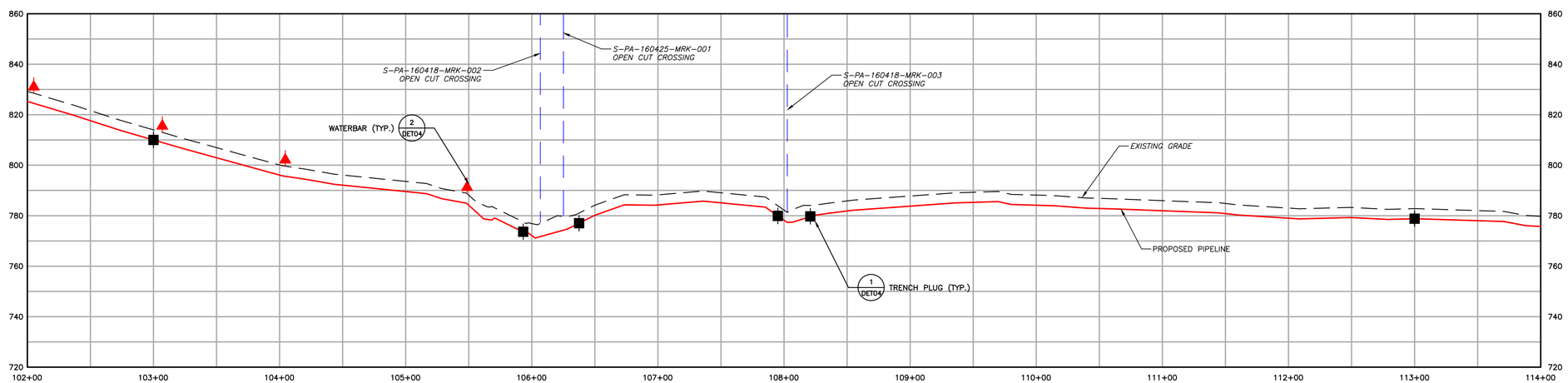
BEAVER COUNTY
POTTER TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119778	REVISION
DRAWN	TLM	09/14/2017		0

Filename: Y:\PROJECTS\1747\SHELL\50489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN148C.DWG
Last saved by: LMCGUIX-SCHAEFER (1/22/2017 3:19 PM) Last Plotted: 2018-01-02 (1/12/2018 4:09 PM)



LAND USE	WOODS	STREAM	STREAM	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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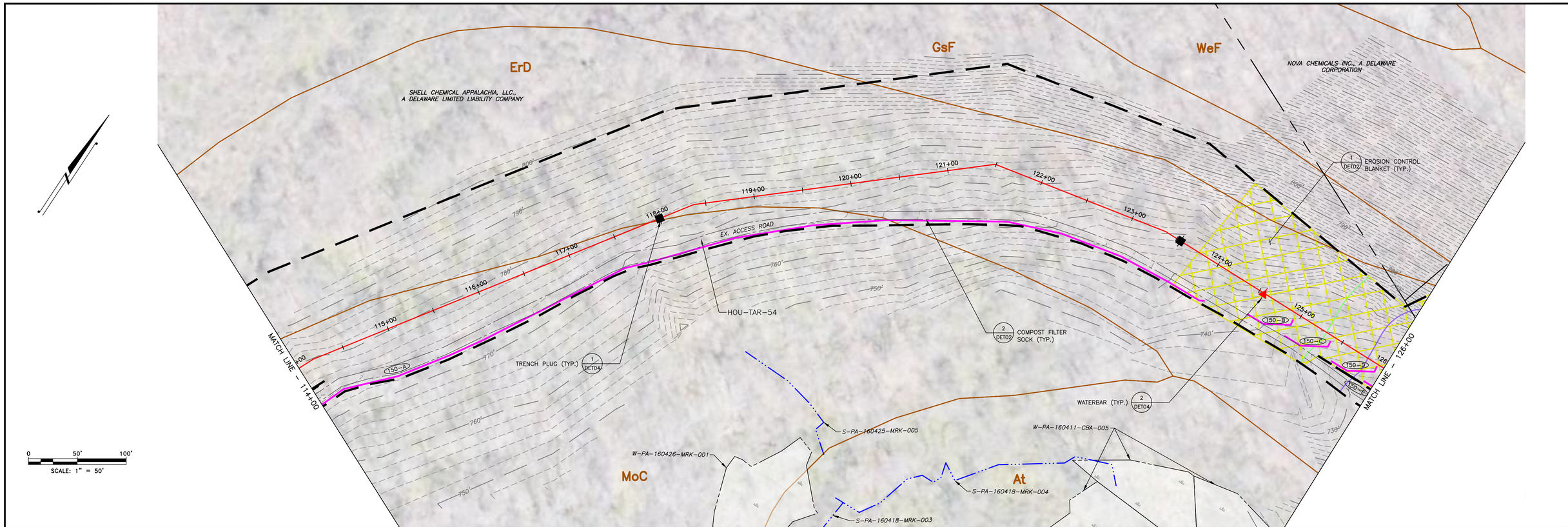
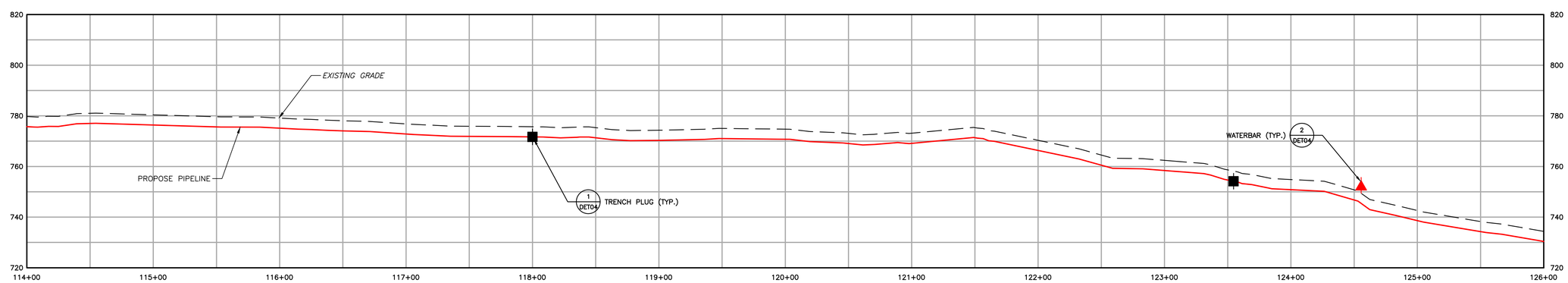
EROSION AND SEDIMENT CONTROL PLAN
ES149 – (STA. 102+00.00 TO STA. 114+00.00)'
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119434	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN149.DWG
Last saved by: UNCOUN.SCHAFER (12/27/2017 3:17 PM) Last Plotted: 2018-01-02 (1/2/2018 4:10 PM)



LAND USE	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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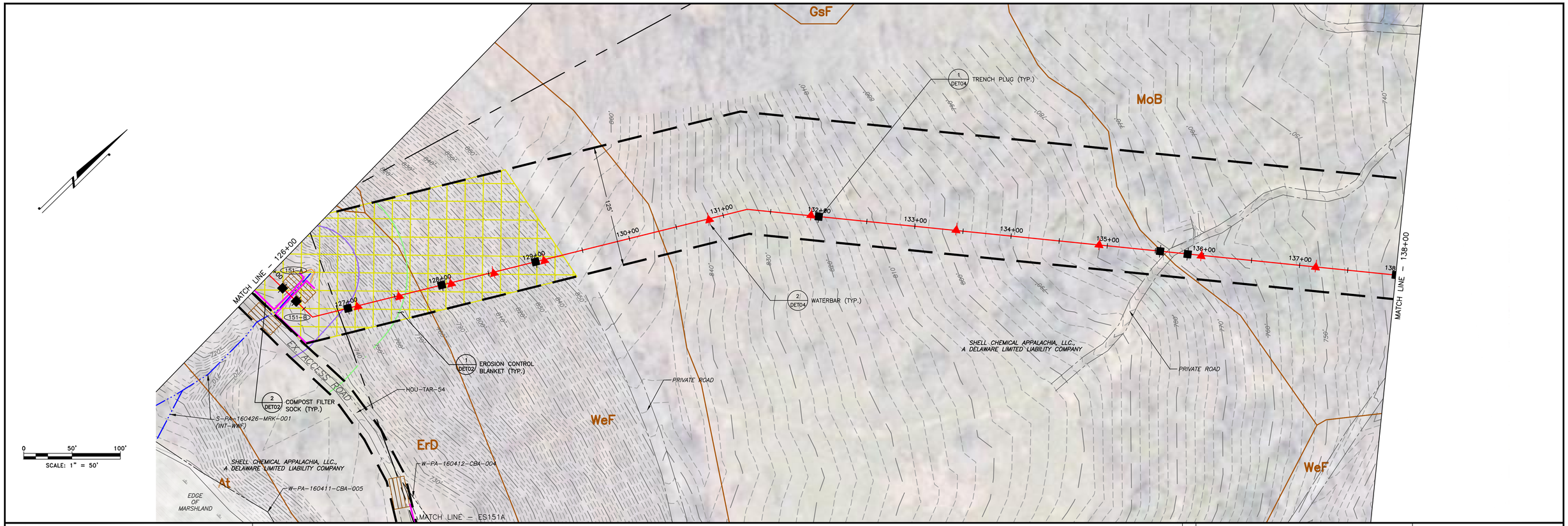
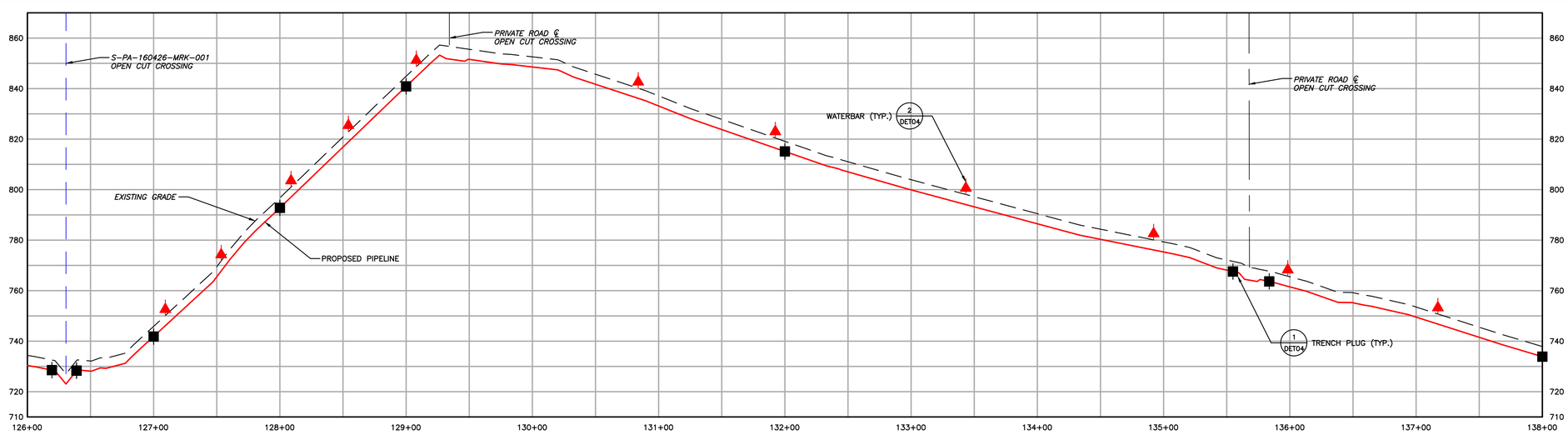
EROSION AND SEDIMENT CONTROL PLAN
ES150 – (STA. 114+00.00 TO STA. 126+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119435	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN150.DWG
Last saved by: LNCOLN.SCHAFER (12/27/2017 3:51 PM) Last Plotted: 2018-01-02 (1/2/2018 4:11 PM)



LAND USE	WOODS	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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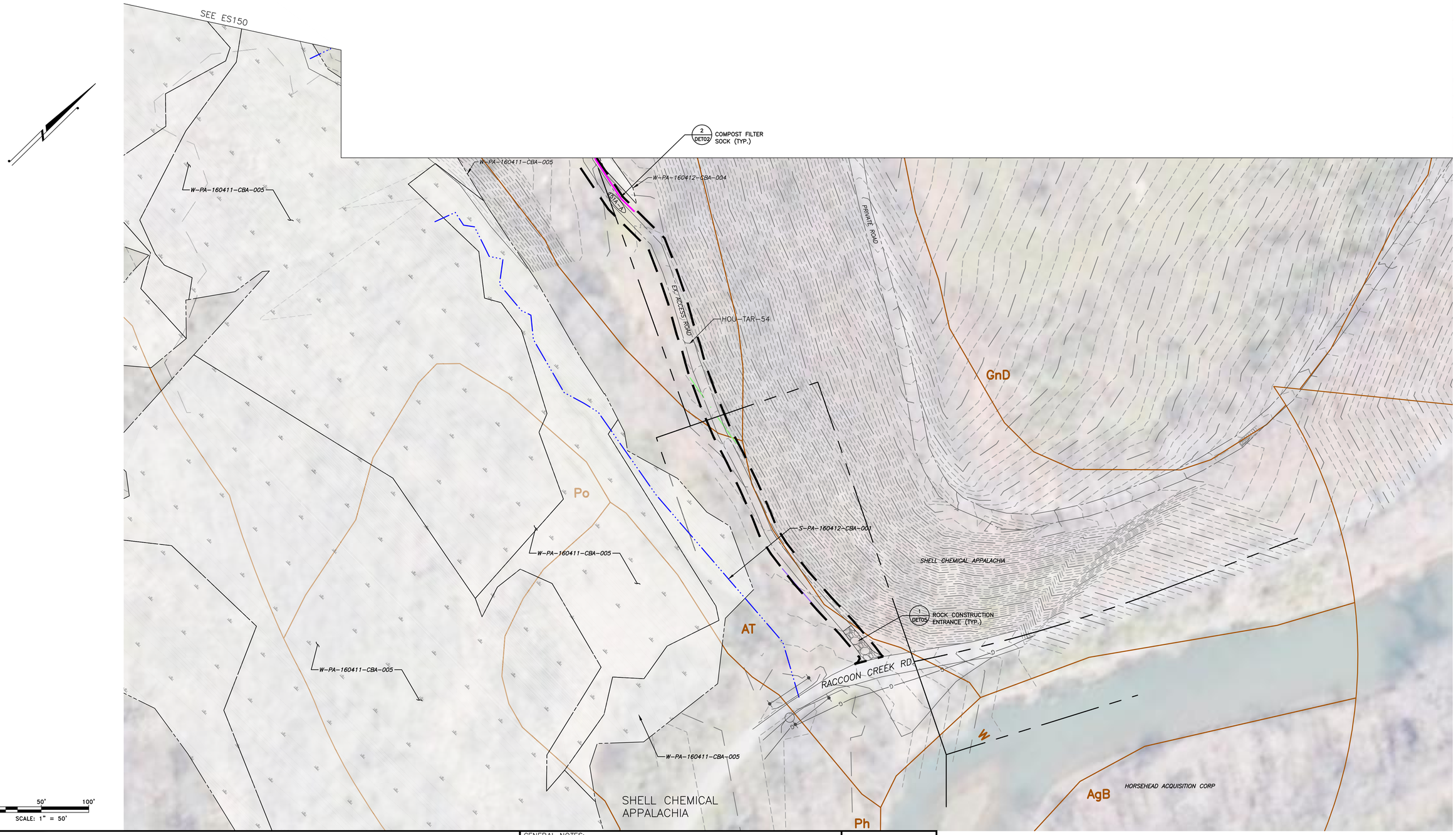
EROSION AND SEDIMENT CONTROL PLAN
ES151 – (STA. 126+00.00 TO STA. 138+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119436	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN151.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:46 AM) Last Plotted: 2018-01-02 (1/2/2018 4:59 PM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
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PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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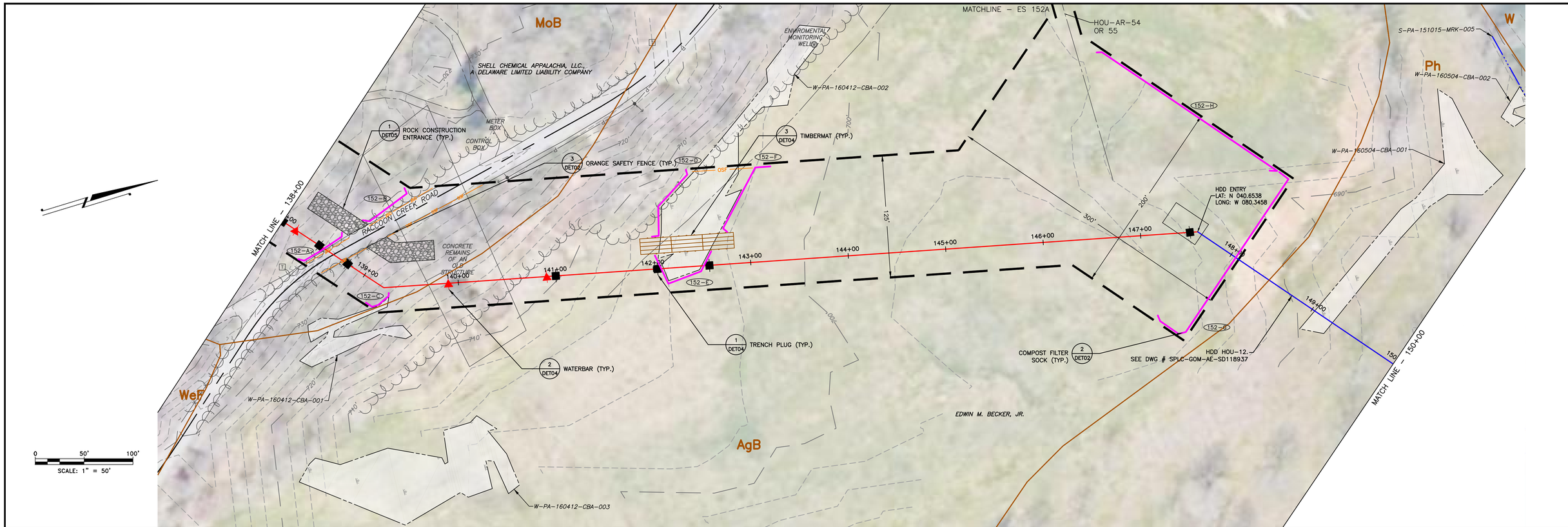
EROSION AND SEDIMENT CONTROL PLAN
ES151A – (HOU-TAR-54)

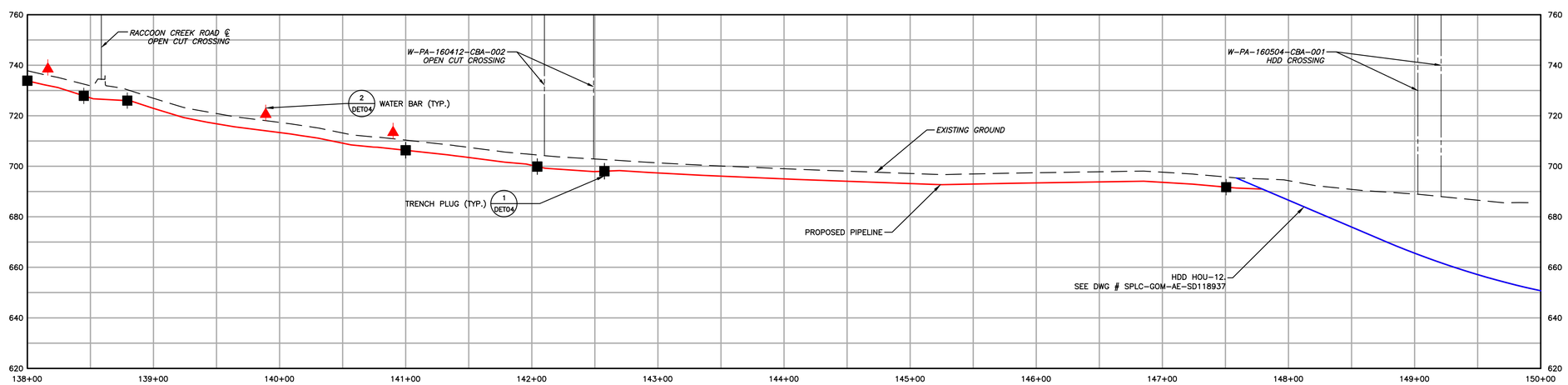
BEAVER COUNTY
POTTER TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119777	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174X\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN151A.DWG
Last saved by: LINCOLN.SCHAFFER (12/29/2017 7:18 PM) Last Plotted: 2018-01-02 (1/2/2018 3:00 PM)



LAND USE	WOODS	ROAD	WOODS	FIELD	WETLAND	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	OSF PROPOSED ORANGE SAFETY FENCE
	EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT
	EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET
	EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE
	ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN
	STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY
	EXISTING WETLAND	PROPOSED TRENCH PLUG	MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
	TREE/BRUSH LINE		MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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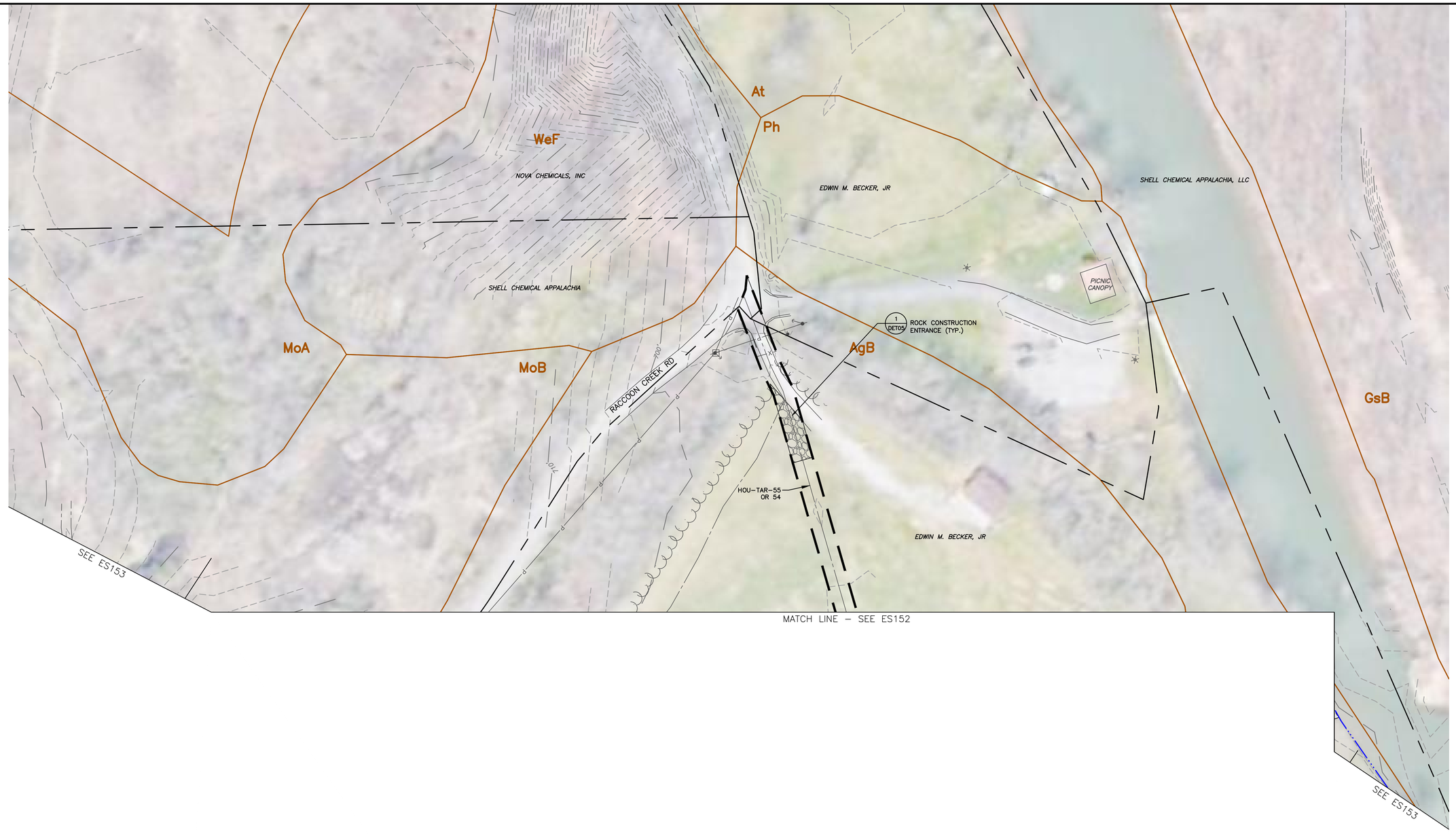
EROSION AND SEDIMENT CONTROL PLAN
ES152 – (STA. 138+00.00 TO STA. 150+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119437	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN152.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:49 AM) Last Plotted: 2018-01-02 (1/2/2018 5:01 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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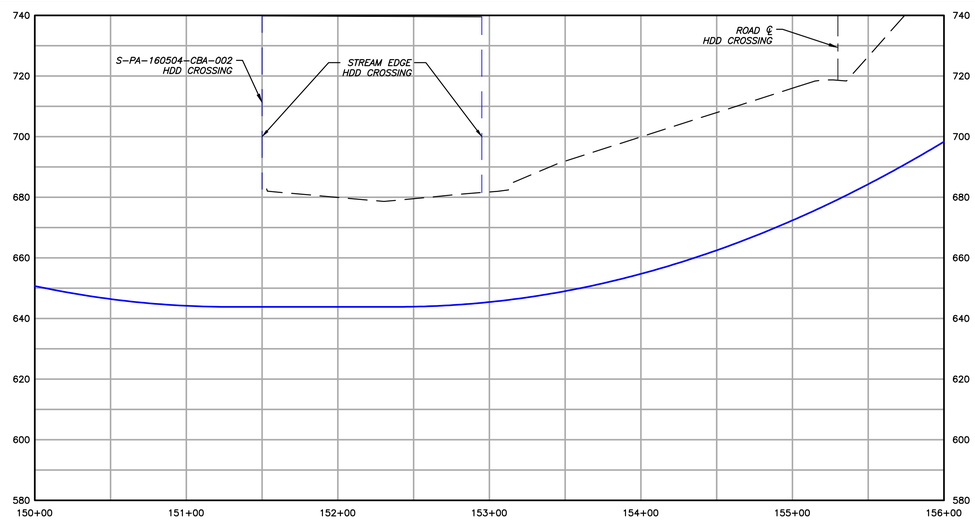
EROSION AND SEDIMENT CONTROL PLAN
ES152A – (HOU-TAR-55)

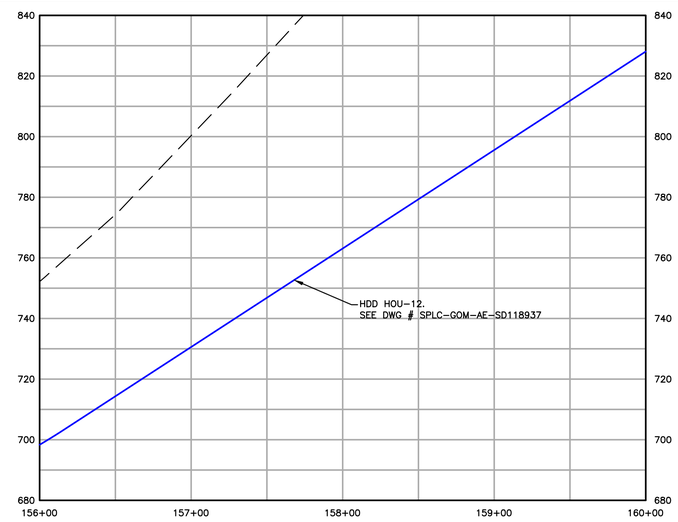
BEAVER COUNTY
POTTER TOWNSHIP
PENNSYLVANIA

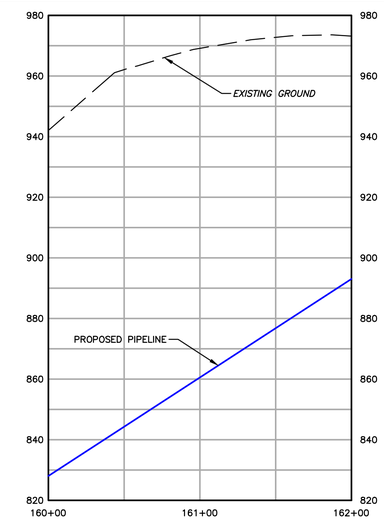
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119776	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174X\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\25-SHEETS\PENNSYLVANIA\PLAN152A.DWG
Last saved by: UNCOLN.SCHAFER (12/28/2017 7:11 PM) Last Plotted: 2018-01-02 (1/2/2018 5:02 PM)

LAND USE	WOODS	STREAM	STREAM	WOODS	ROAD	WOODS		WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	5'	4'	5'	4'		4'		4'	







1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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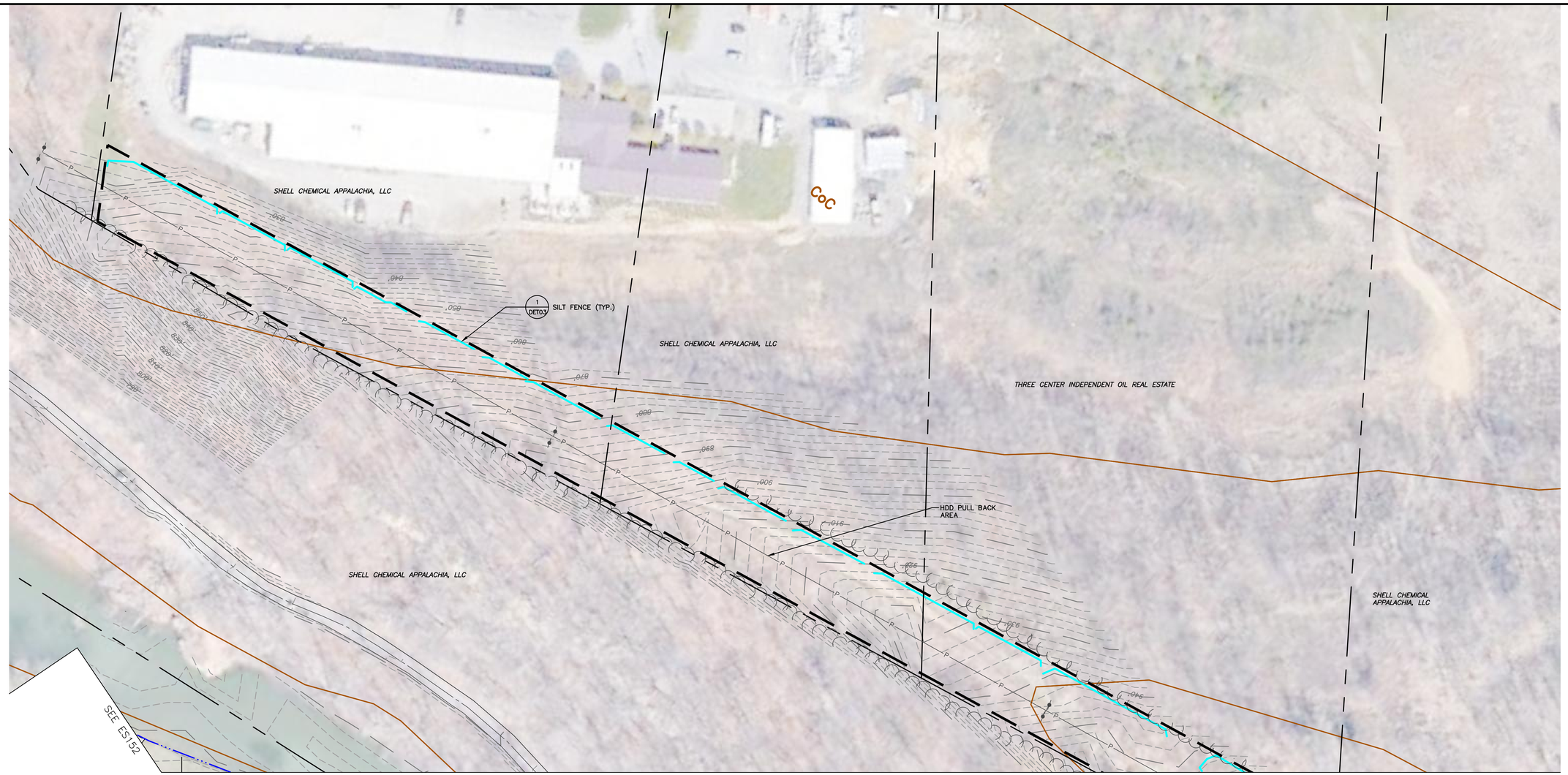
EROSION AND SEDIMENT CONTROL PLAN
ES153 – (STA. 150+00.00 TO STA. 162+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119438	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN153.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:52 AM) Last Plotted: 2018-01-02 (1/2/2018 5:33 PM)



0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

JUNCTION TO MONACA

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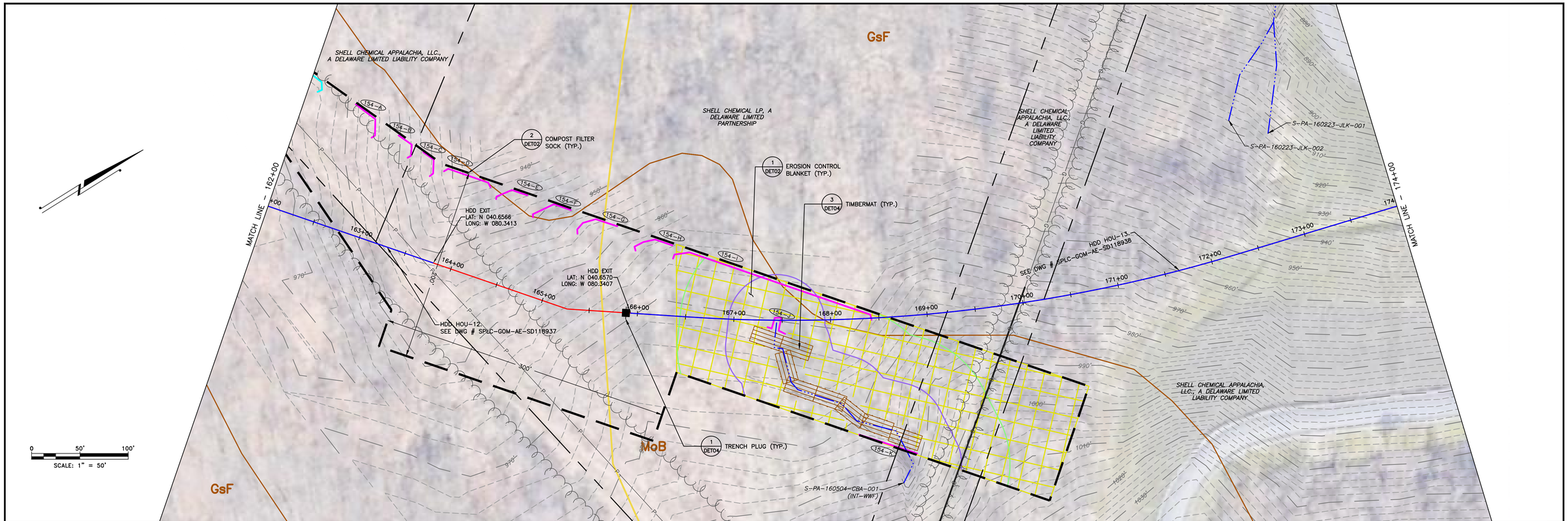
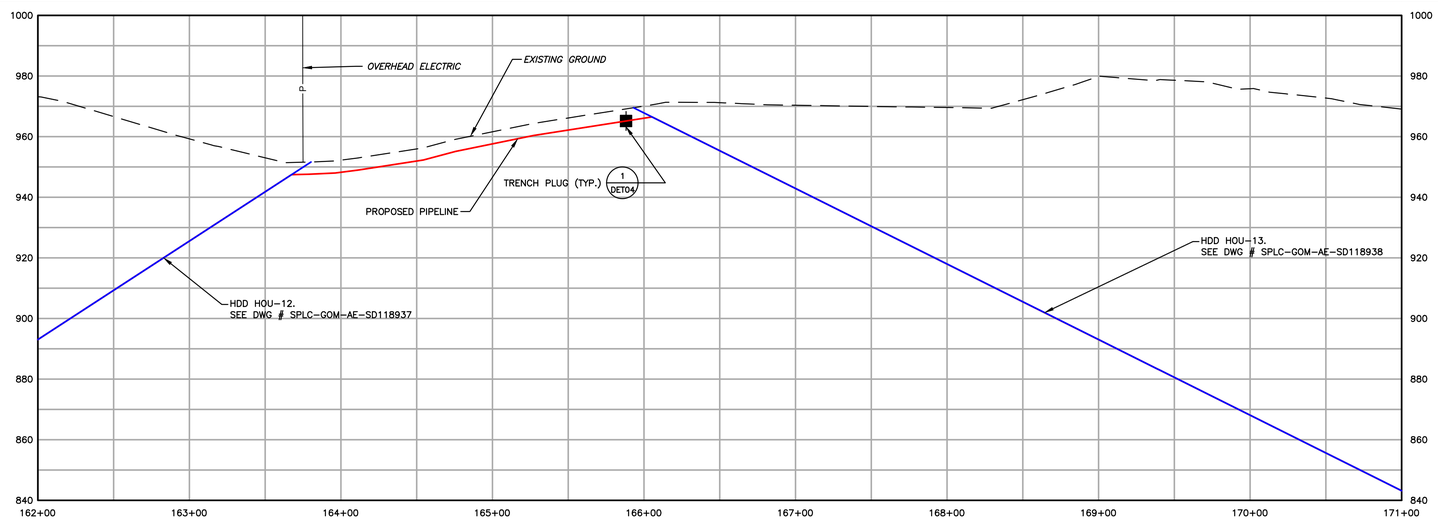
EROSION AND SEDIMENT CONTROL PLAN
ES153A – (PULLBACK WORKSPACE)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

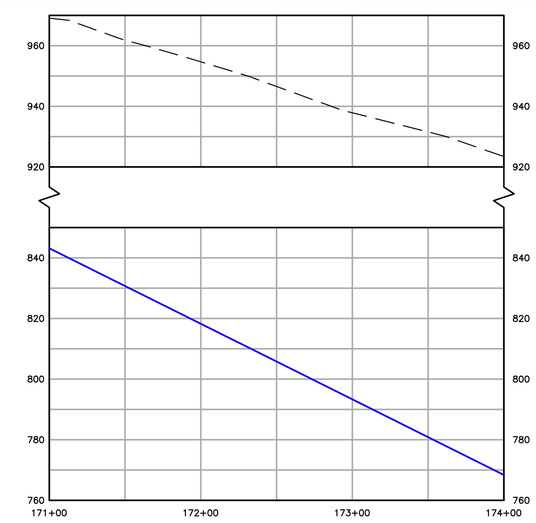
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119775	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\60498885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN153A.DWG
Last saved by: LINCOLN.SCHAFER (1/29/2017 12:56 PM) Last Plotted: 2018-01-02 (1/2/2018 5:04 PM)



LAND USE	WOODS	FIELD	WOODS	FIELD	WOODS		WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'		4'	4'





1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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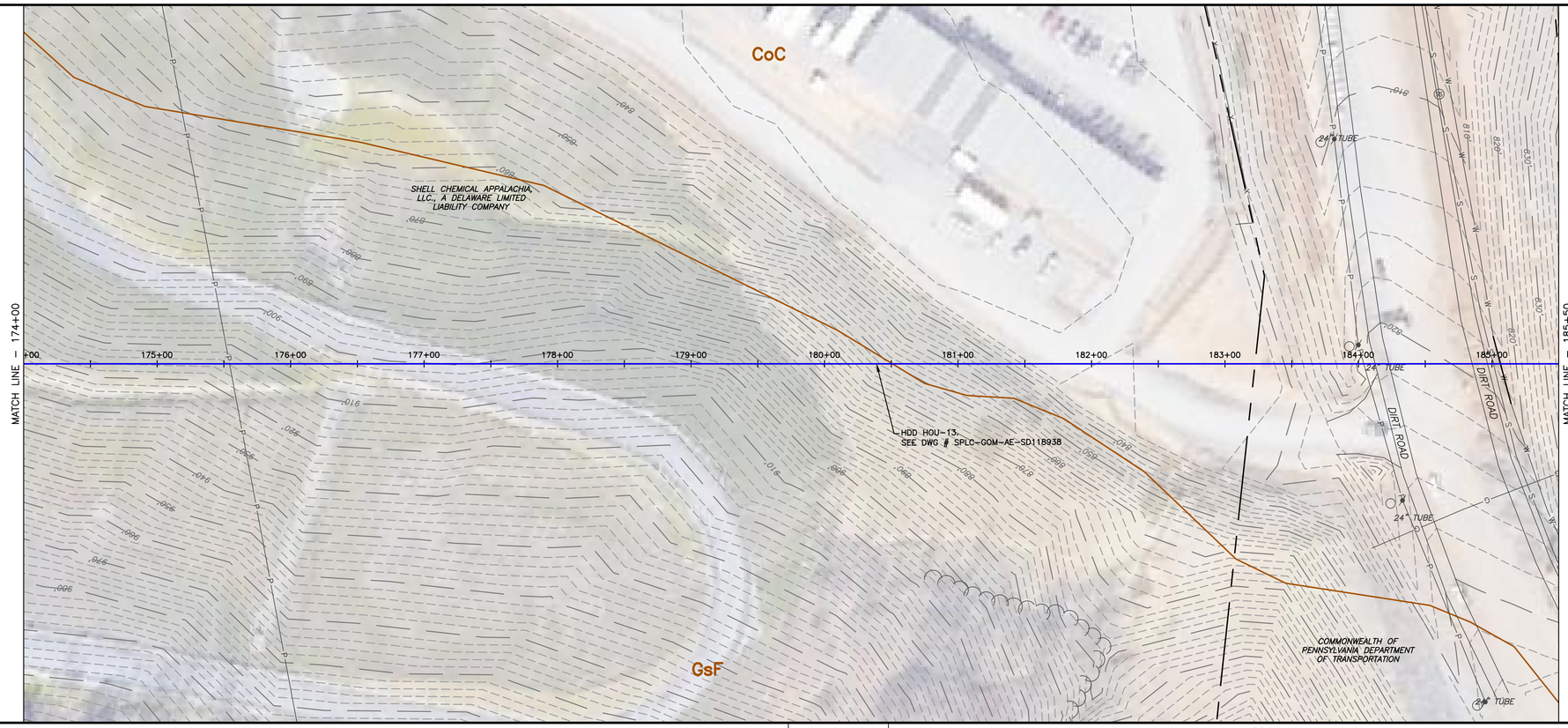
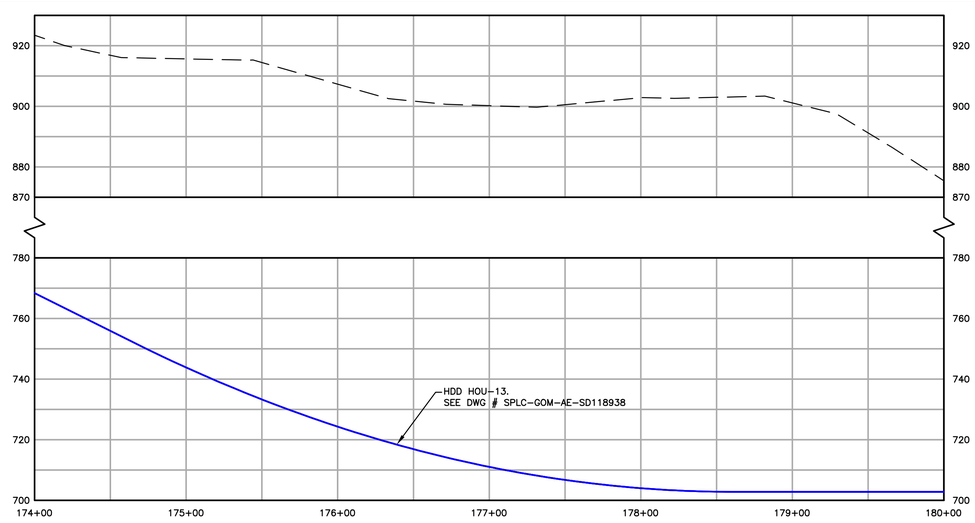
EROSION AND SEDIMENT CONTROL PLAN
ES154 – (STA. 162+00.00 TO STA. 174+00.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

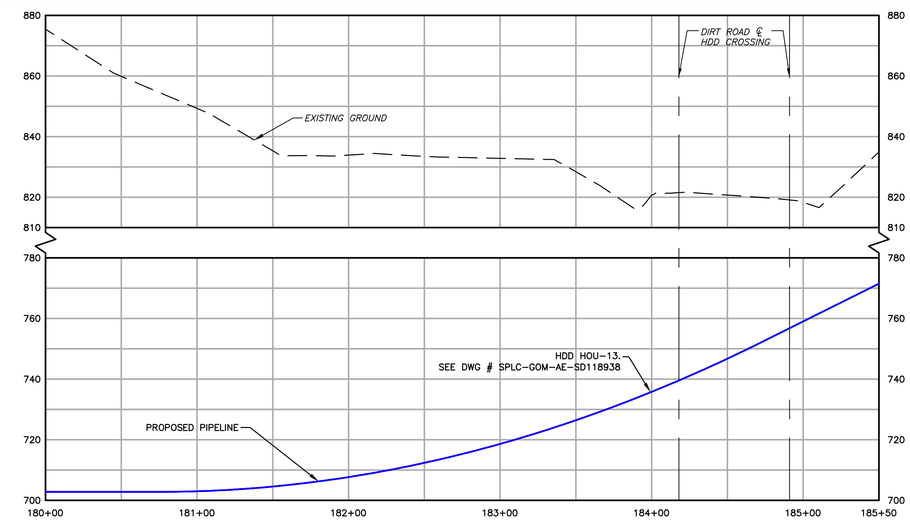
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119439	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495885 – FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN154.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:58 AM) Last Plotted: 2018-01-02 (1/2/2018 5:05 PM)



LAND USE	FIELD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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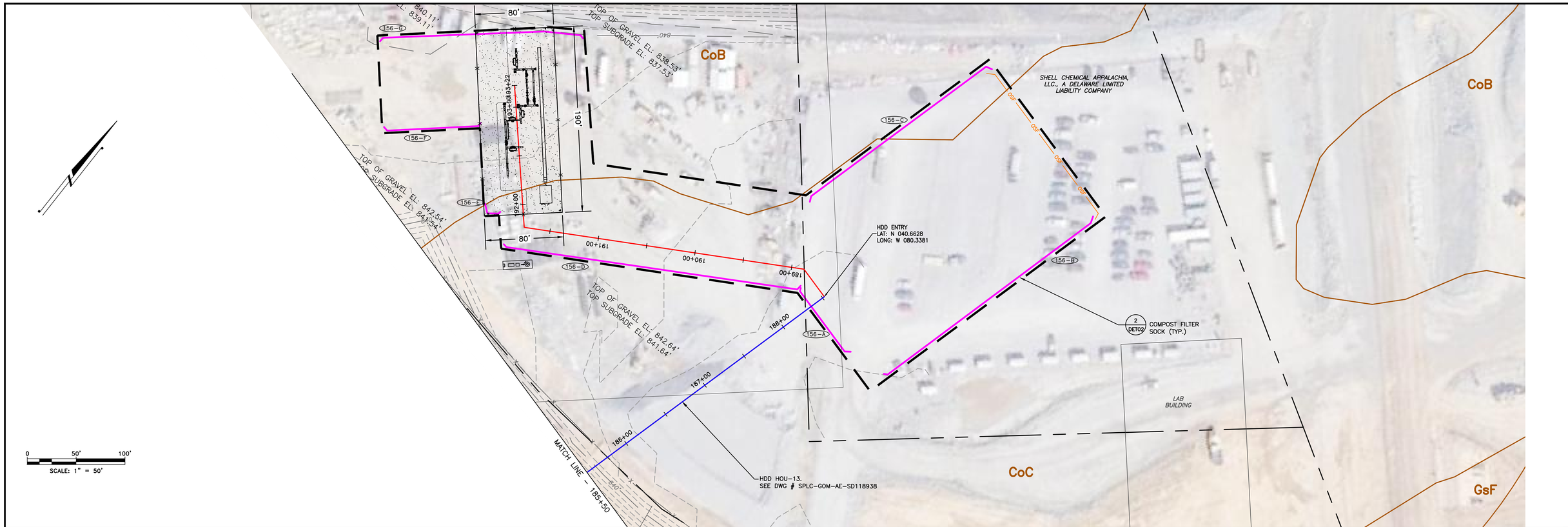
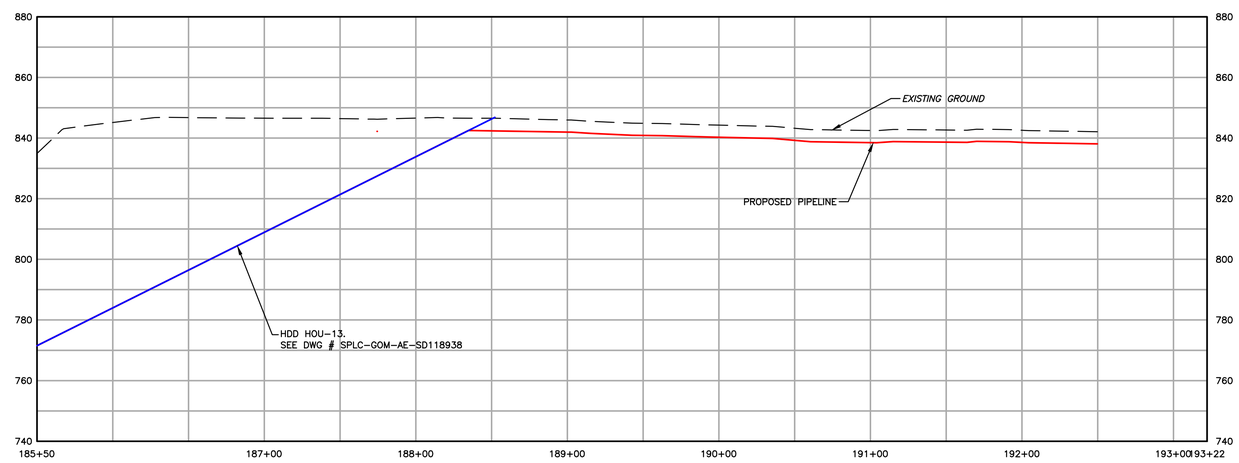
EROSION AND SEDIMENT CONTROL PLAN
ES155 – (STA. 174+00.00 TO STA. 185+50.00)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119440	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN155.DWG
Last saved by: LINCOLN.SCHAFER (12/28/2017 10:57 AM) Last Plotted: 2018-01-02 (1/2/2018 5:06 PM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
JUNCTION TO MONACA

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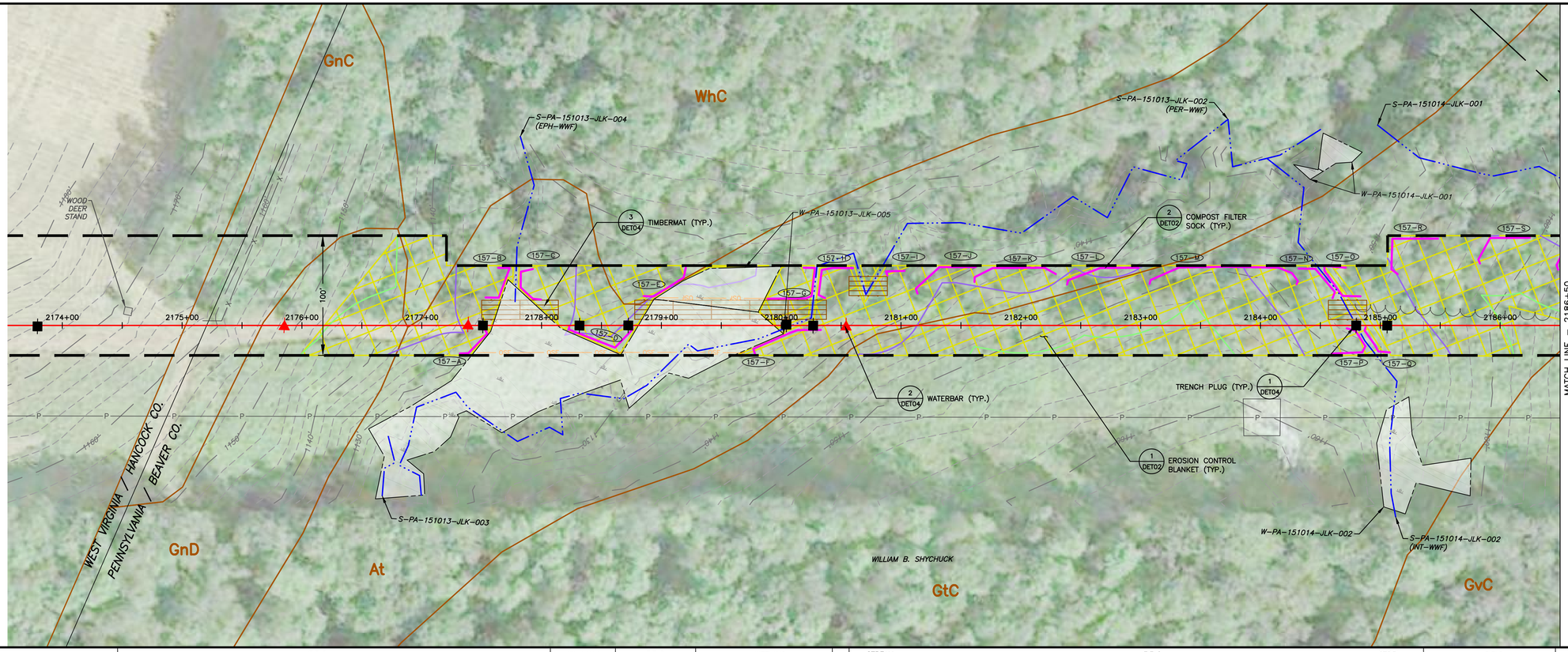
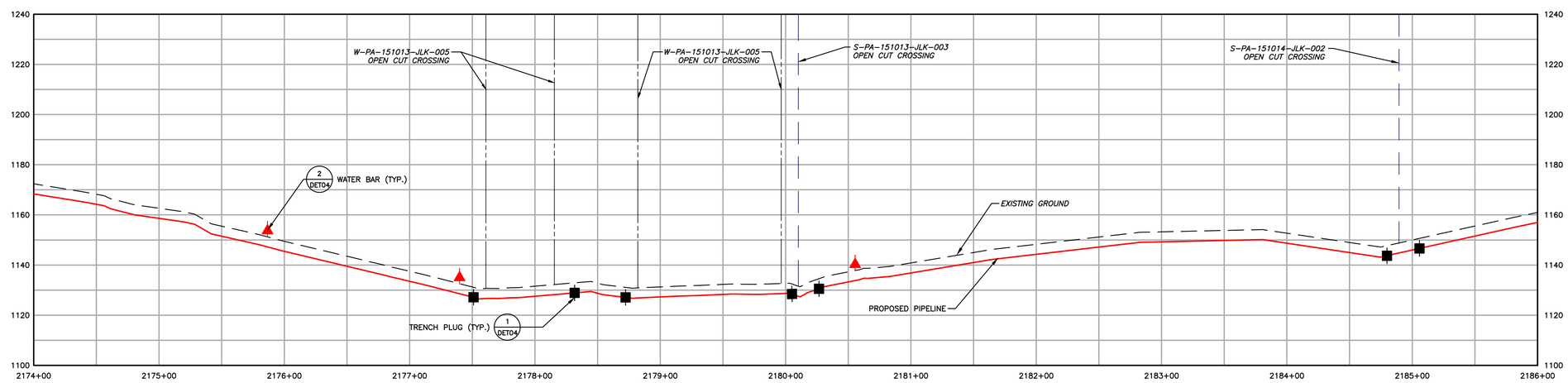
EROSION AND SEDIMENT CONTROL PLAN
ES156 – (STA. 185+50.00 TO STA. 193+22.14)
BEAVER COUNTY PENNSYLVANIA
POTTER TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119441	REVISION
DRAWN	TLM	12/05/2017		1

Filename: V:\PROJECTS\1747\SHELL\5489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN156.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:59 AM) Last Plotted: 2018-01-03 (1/5/2018 8:09 AM)



LAND USE	FIELD	WETLAND	FIELD	WETLAND	STREAM	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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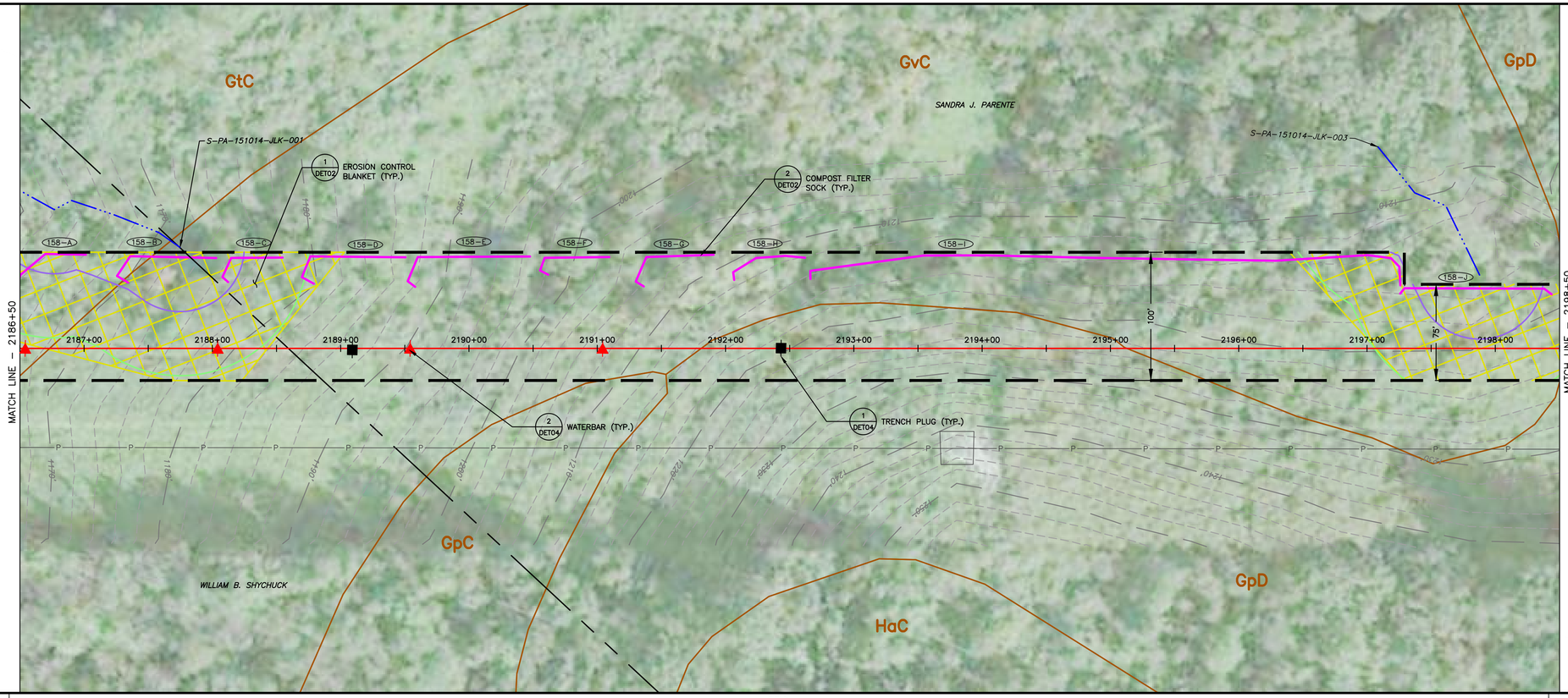
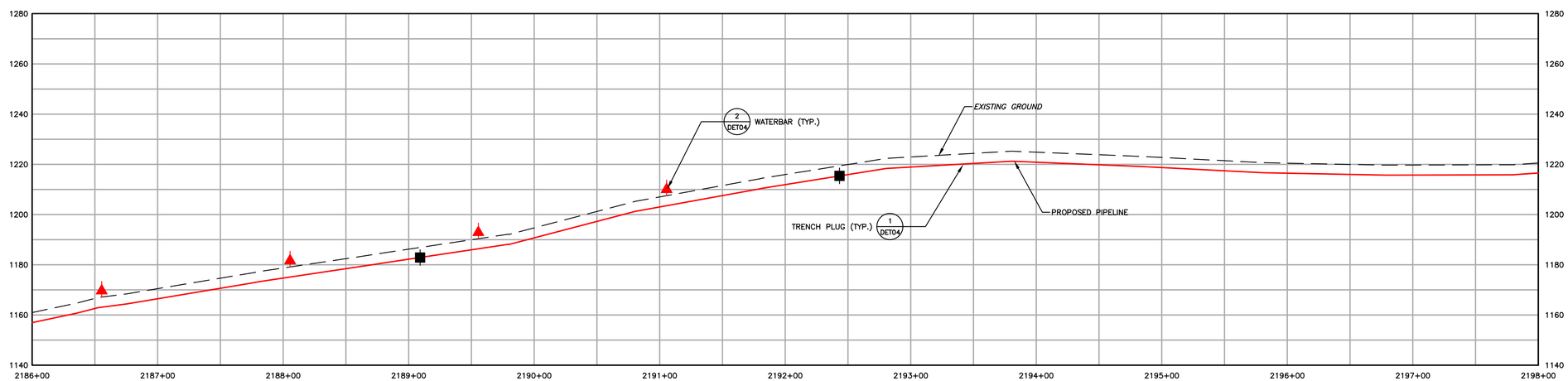
EROSION AND SEDIMENT CONTROL PLAN
ES157 – (STA. 2174+00.00 TO STA. 2186+00.00)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119442	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50489885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN157.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 11:53 AM) Last Plotted: 2018-01-03 (1/5/2018 8:11 AM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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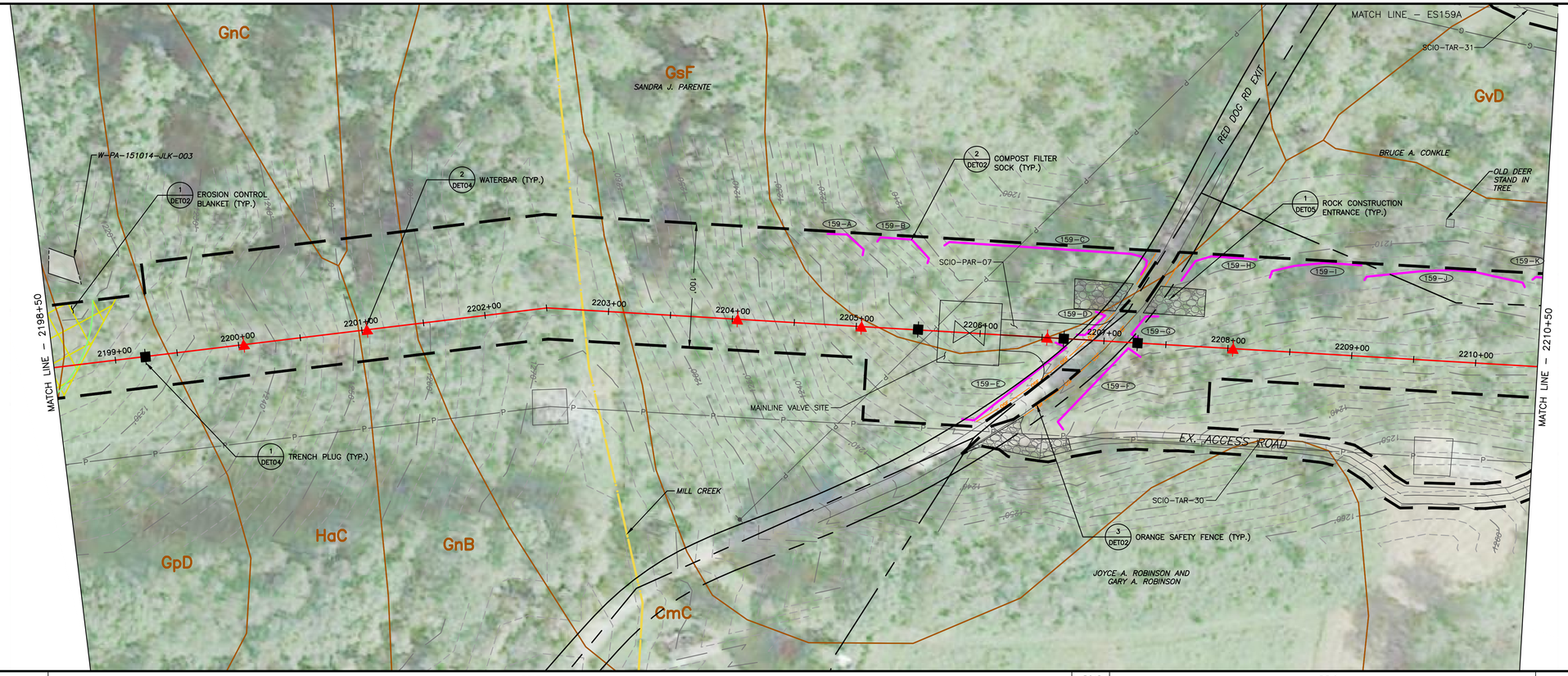
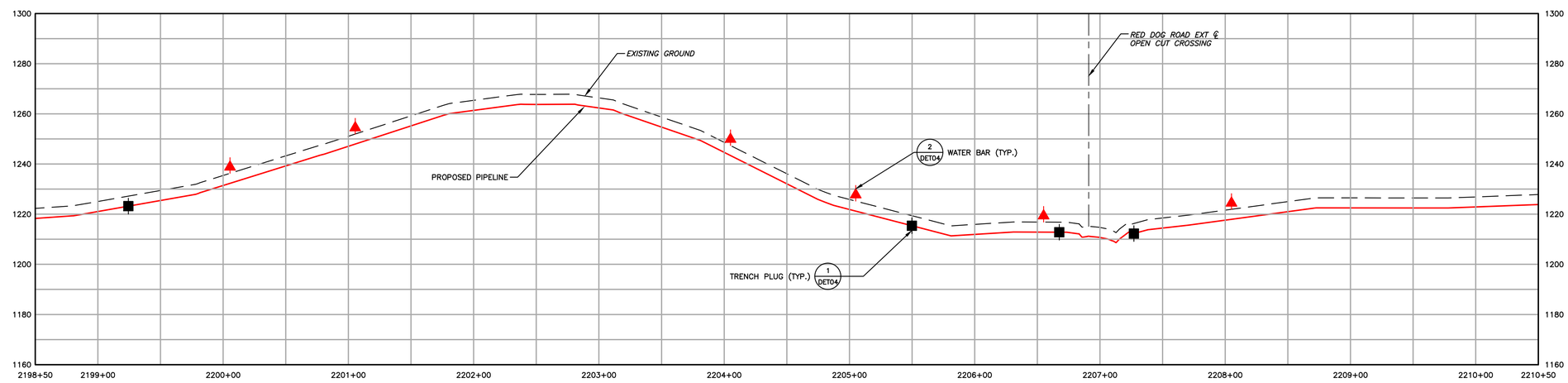
EROSION AND SEDIMENT CONTROL PLAN
ES158 – (STA. 2186+00.00 TO STA. 2198+00.00)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119443	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN158.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 1:57 AM) Last Plotted: 2018-01-03 (1/3/2018 8:12 AM)



LAND USE	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES159 – (STA. 2198+50 TO STA. 2210+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119444	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6458985 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN159.DWG
Last saved by: CESARGA (12/26/2017 1:21 PM) Last Plotted: 2018-01-03 (1/3/2018 8:14 AM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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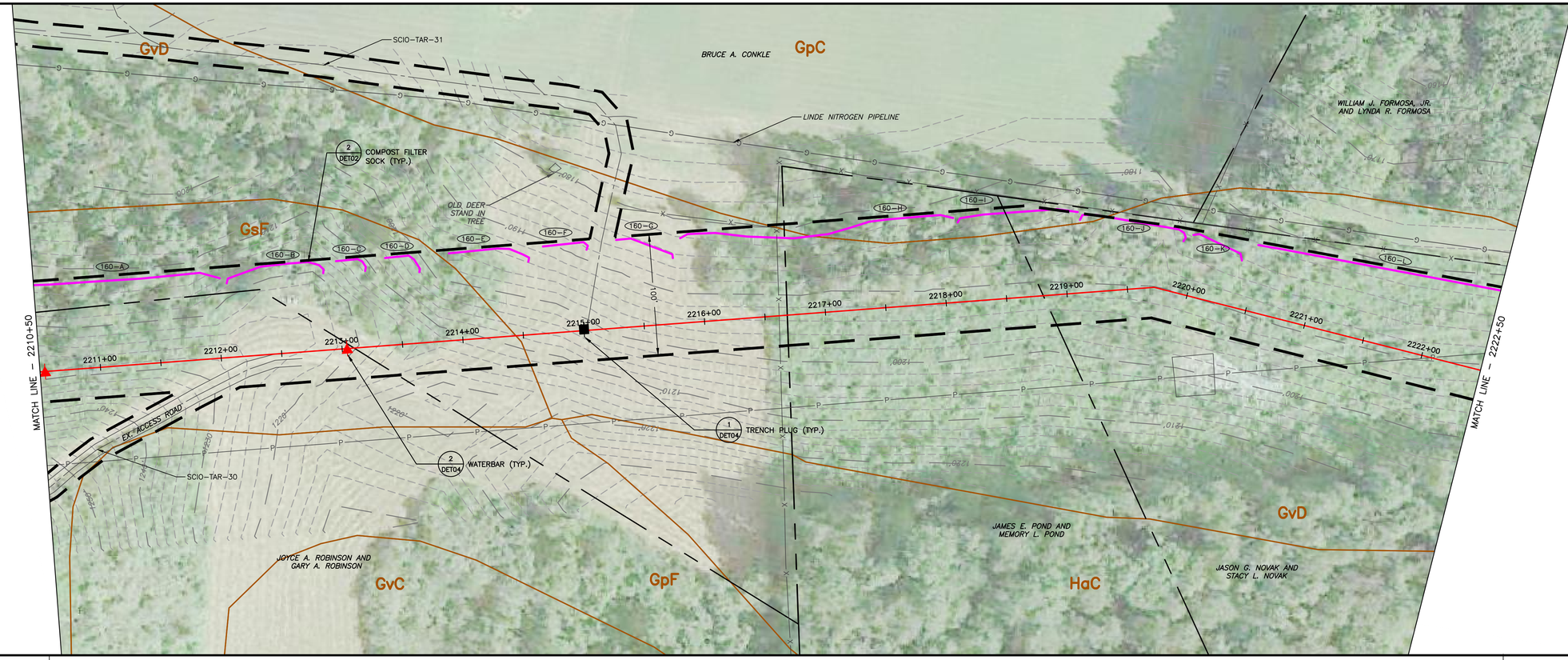
EROSION AND SEDIMENT CONTROL PLAN
ES159A - (SCIO-TAR-31)

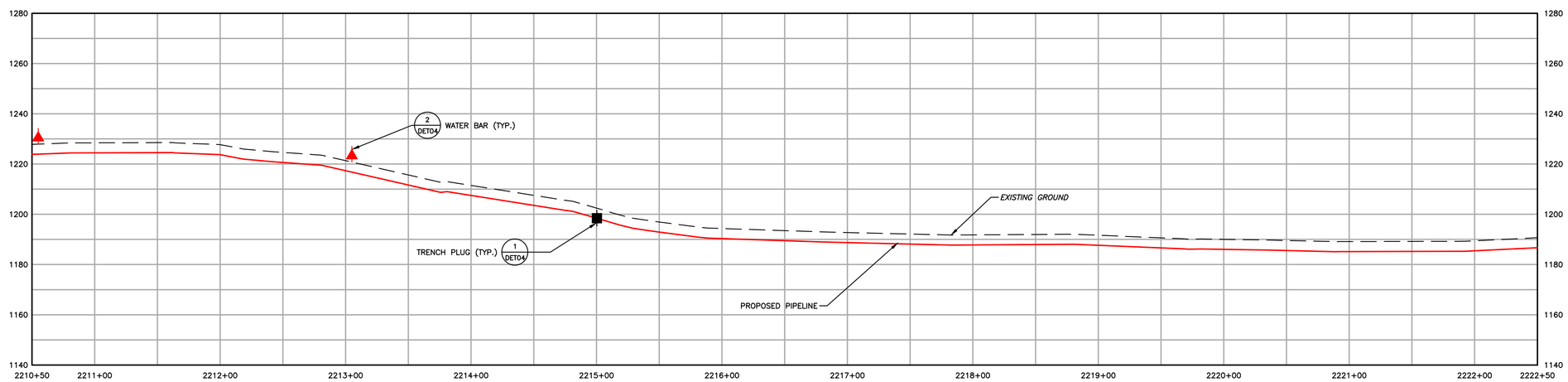
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119774	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174\SHELL\6948985 - FALCON\900-WORK\911-ENVIRONMENTAL\25-SHEETS\PENNSYLVANIA\PLAN159A.DWG
Last saved by: JACOLA.SCHAFER (12/28/2017 1:11:10 AM) Last Plotted: 2018-01-03 (1/3/2018 8:14 AM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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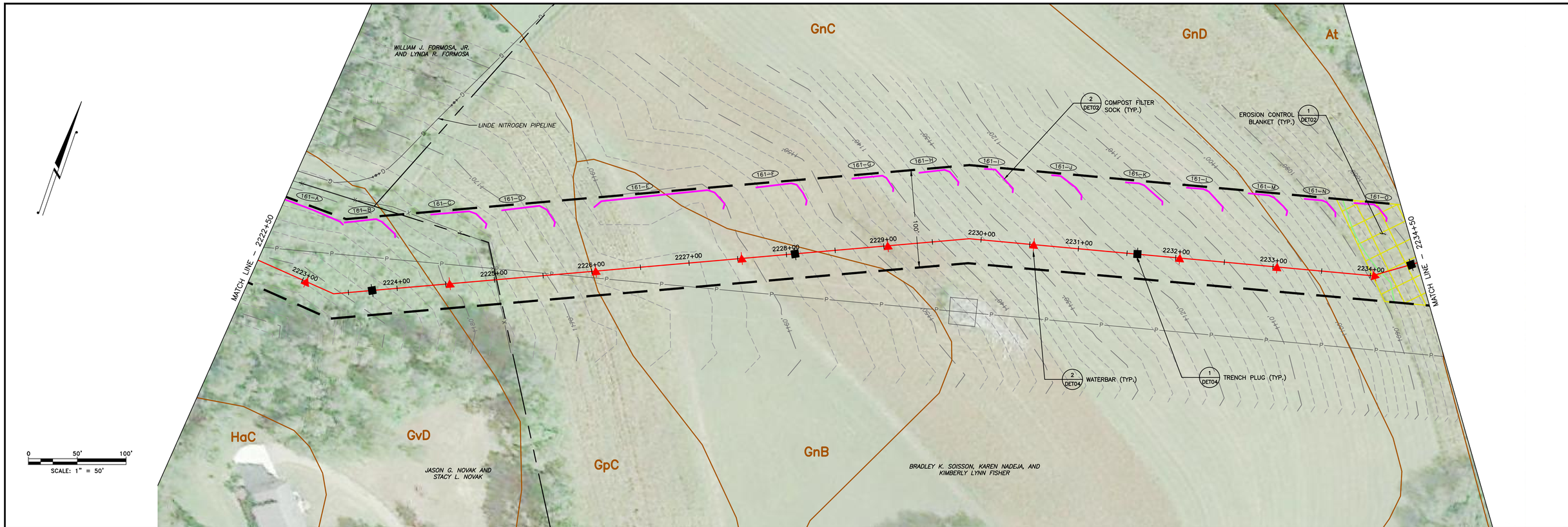
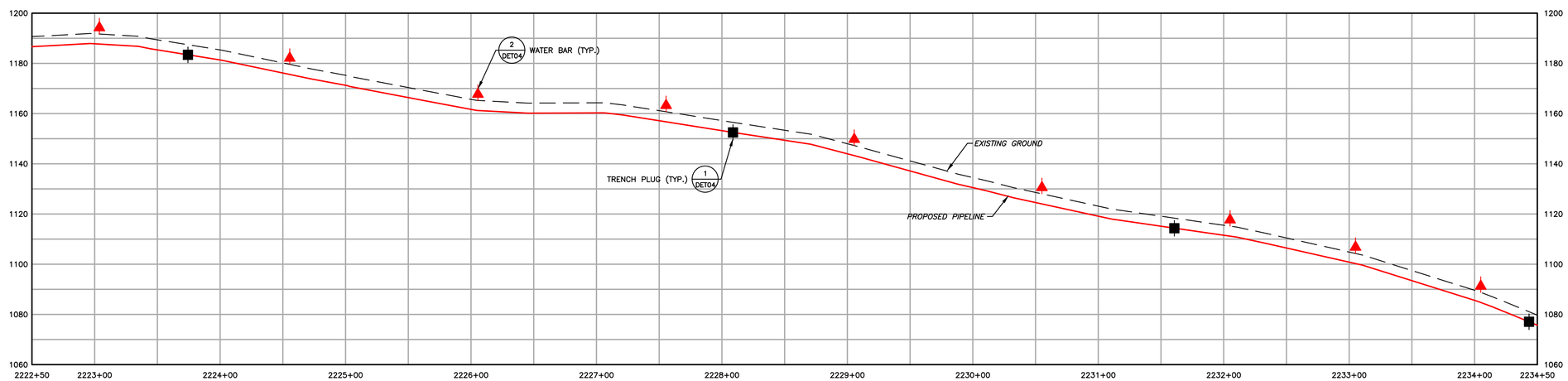
EROSION AND SEDIMENT CONTROL PLAN
ES160 – (STA. 2210+50 TO STA. 2222+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119445	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN160.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 11:12 AM) Last Plotted: 2018-01-03 (1/5/2018 8:15 AM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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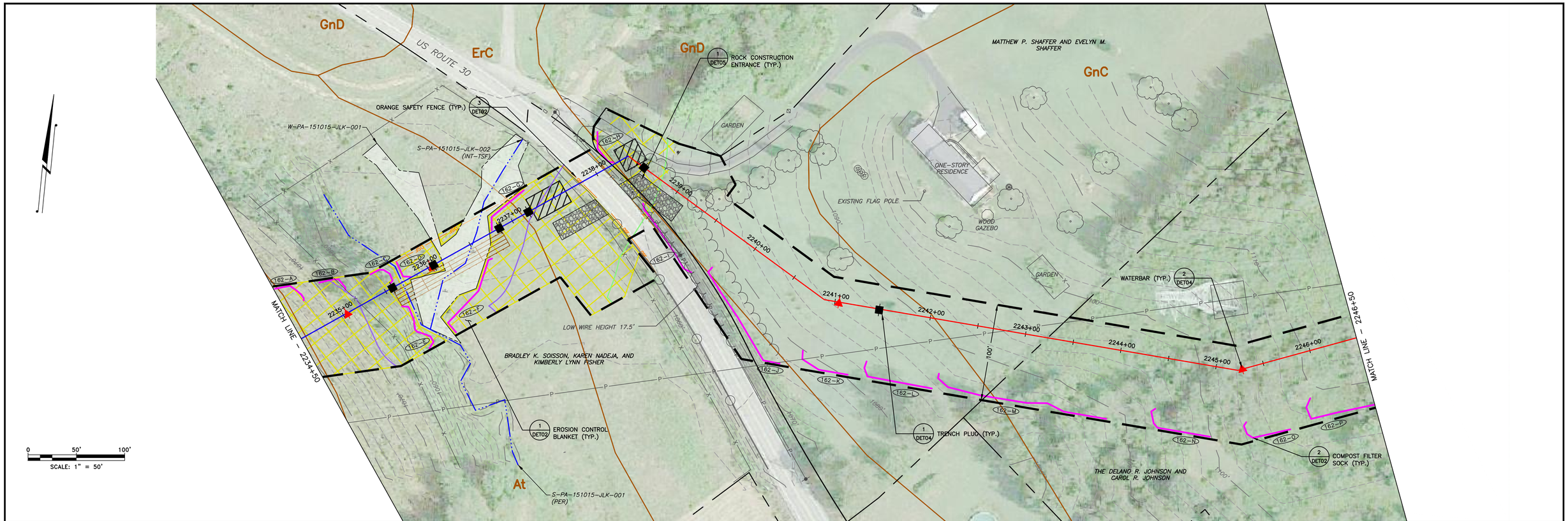
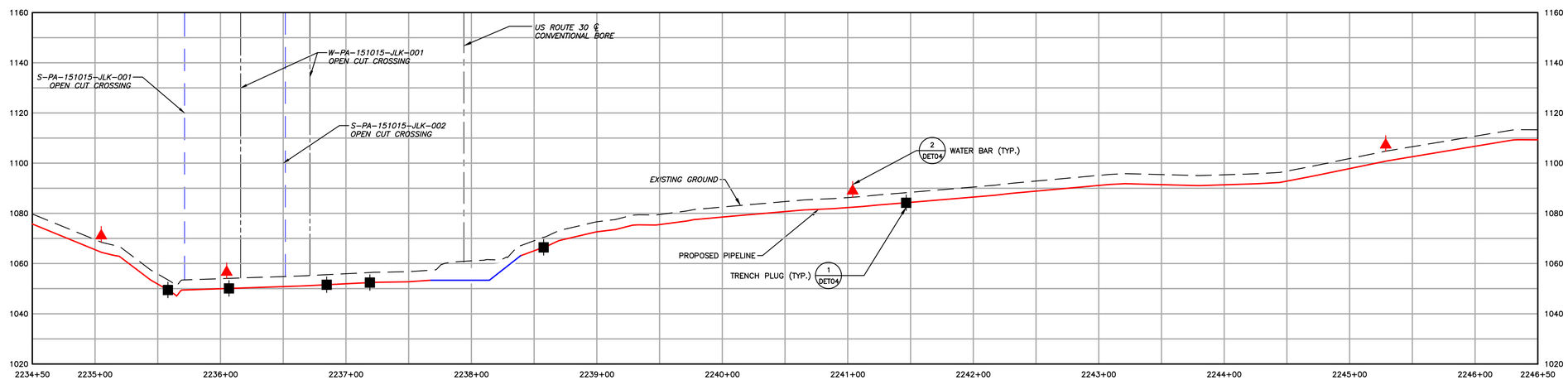
EROSION AND SEDIMENT CONTROL PLAN
ES161 – (STA. 2222+50 TO STA. 2234+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119446	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\0489885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN161.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:29 AM) Last Plotted: 2018-01-03 (1/5/2018 8:16 AM)



LAND USE	FIELD	STREAM	FIELD	WETLAND	STREAM	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'		4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
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0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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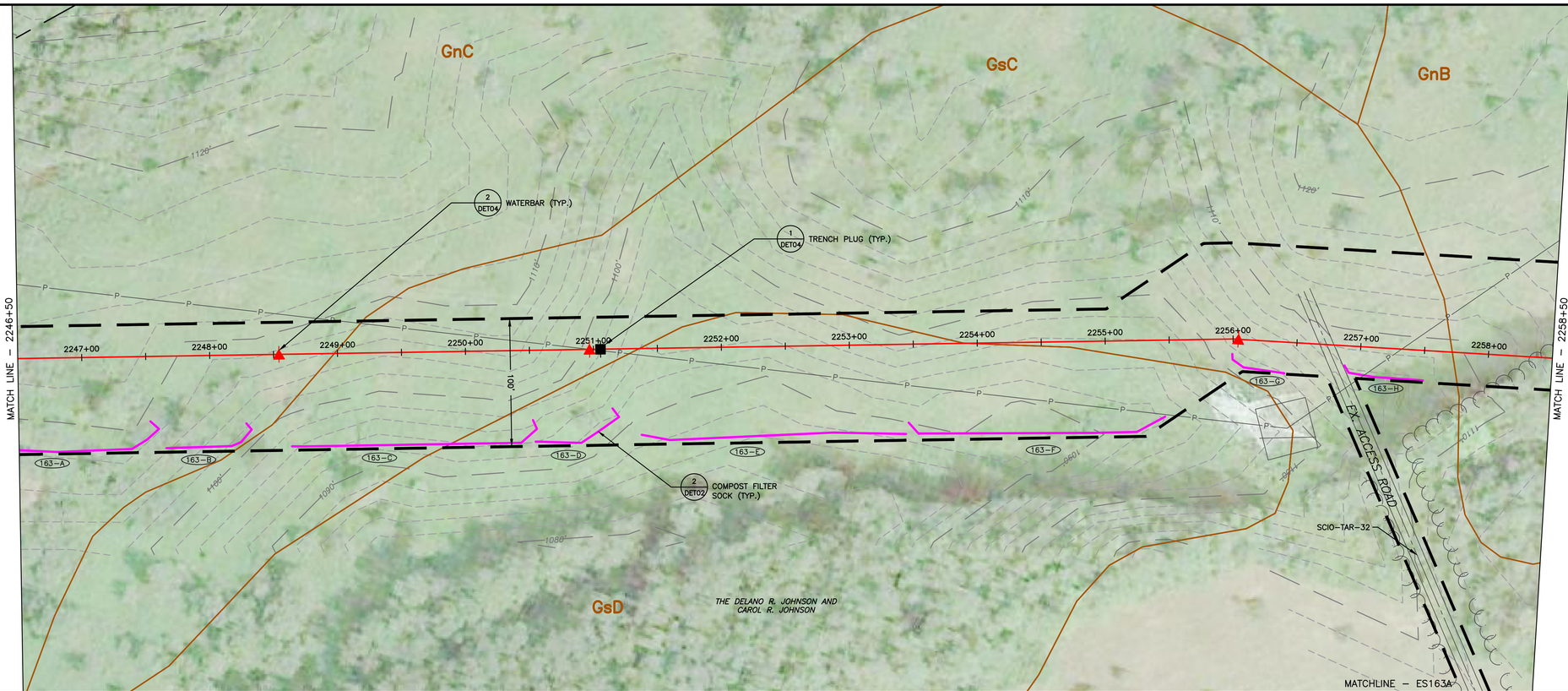
EROSION AND SEDIMENT CONTROL PLAN
ES162 – (STA. 2234+50 TO STA. 2246+50)

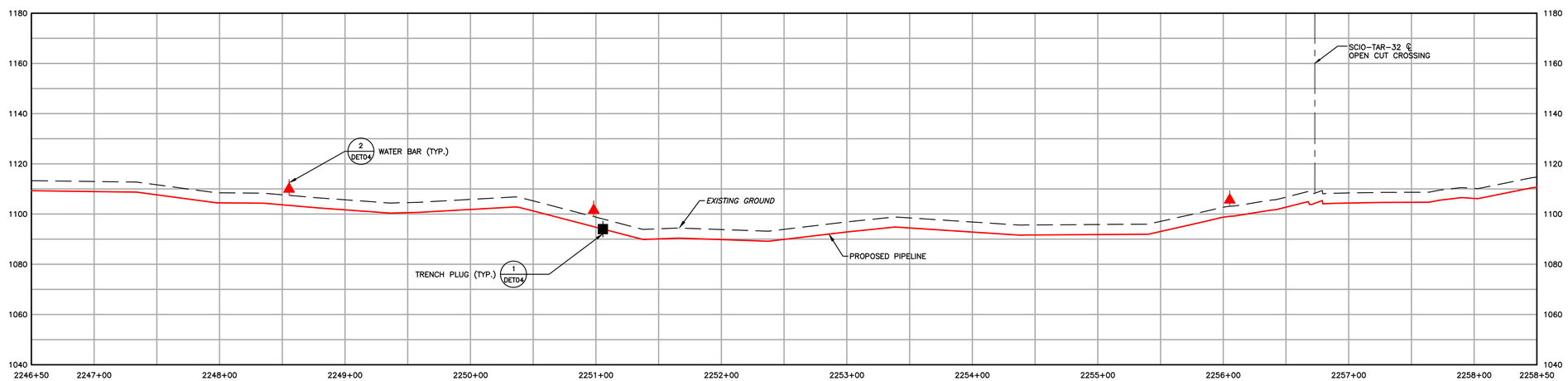
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119447	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN162.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:32 AM) Last Plotted: 2018-01-03 (1/3/2018 8:18 AM)



LAND USE	FIELD	ROAD	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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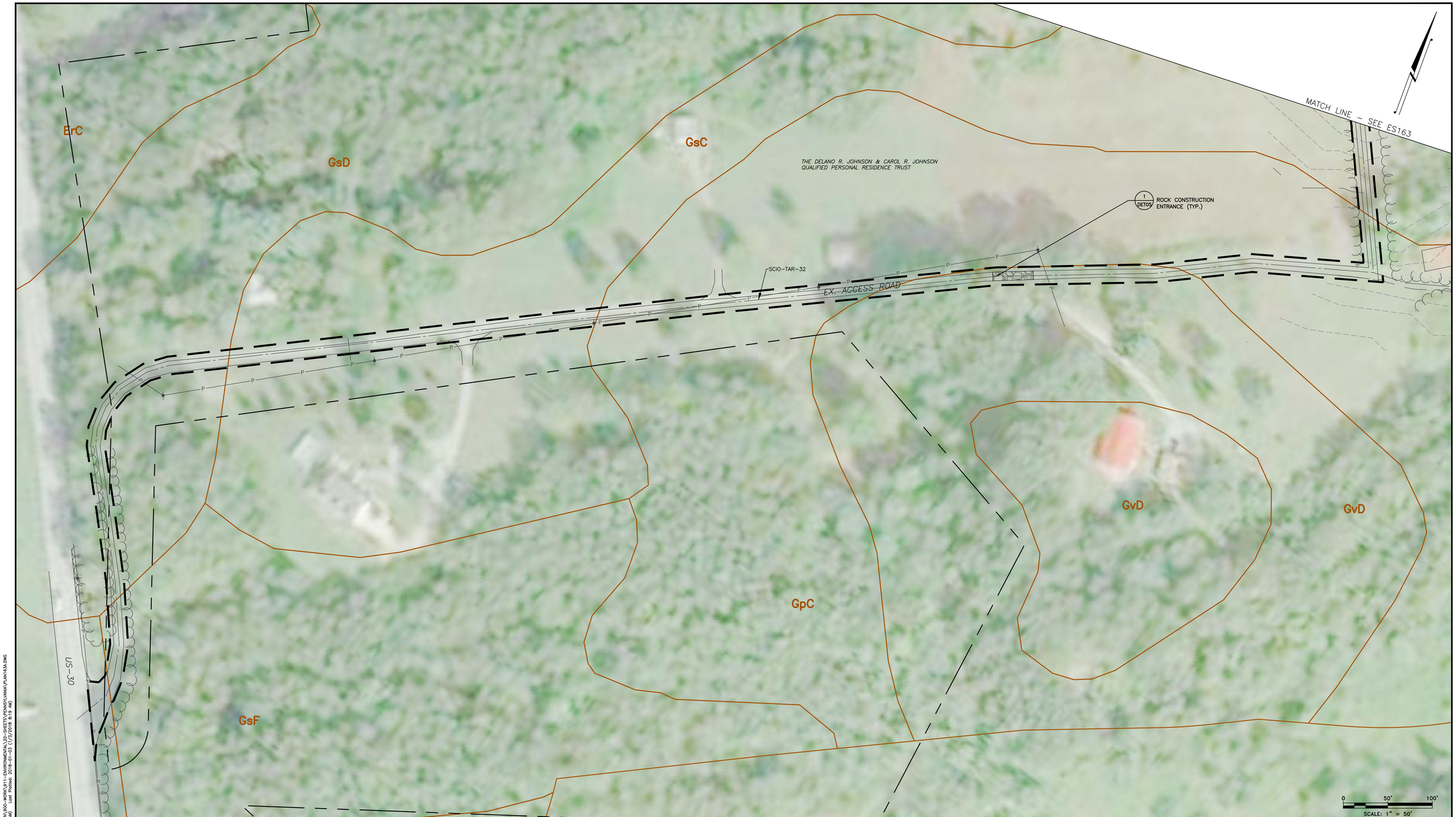
EROSION AND SEDIMENT CONTROL PLAN
ES163 – (STA. 2246+50 TO STA. 2258+50)

BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119448	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 – FALCON\90–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN163.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:32 AM) Last Plotted: 2018–01–03 (1/3/2018 8:19 AM)



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
RAL	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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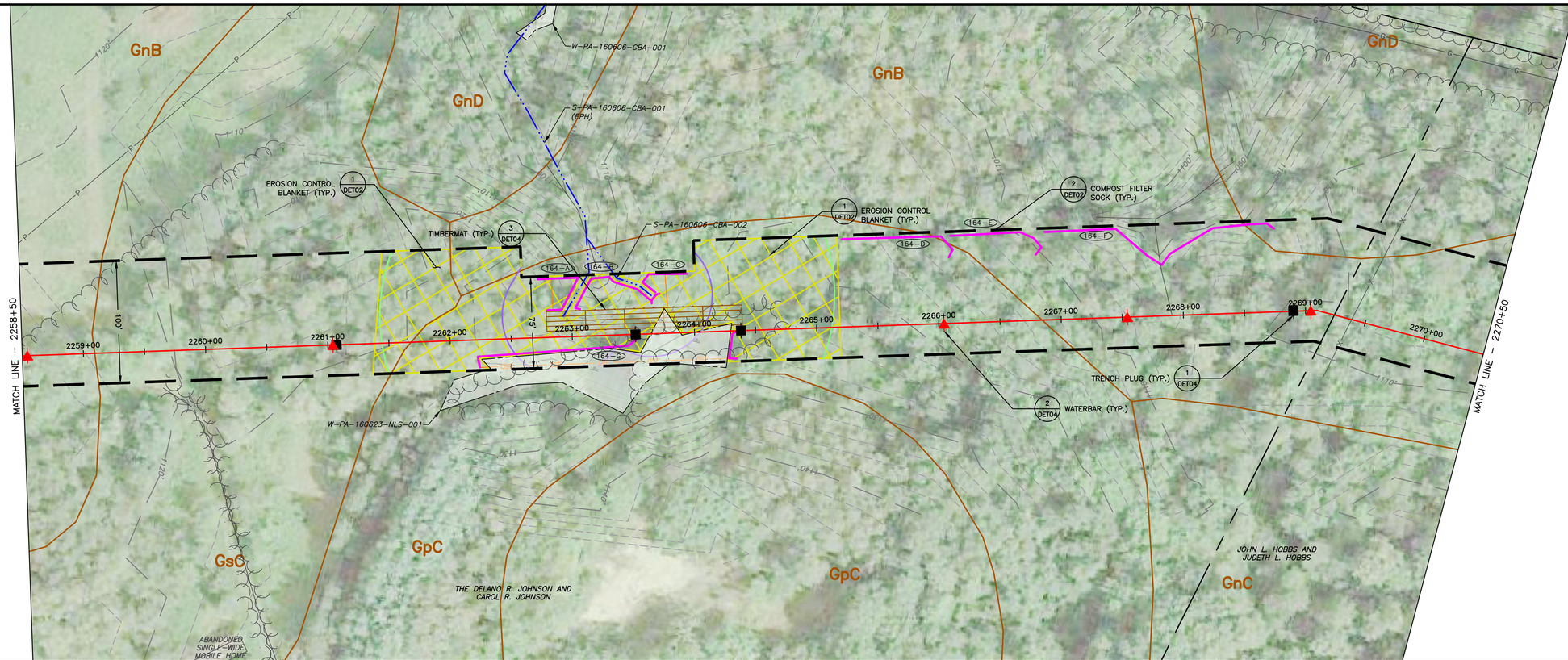
EROSION AND SEDIMENT CONTROL PLAN
ES163A – (SCIO-TAR-32)

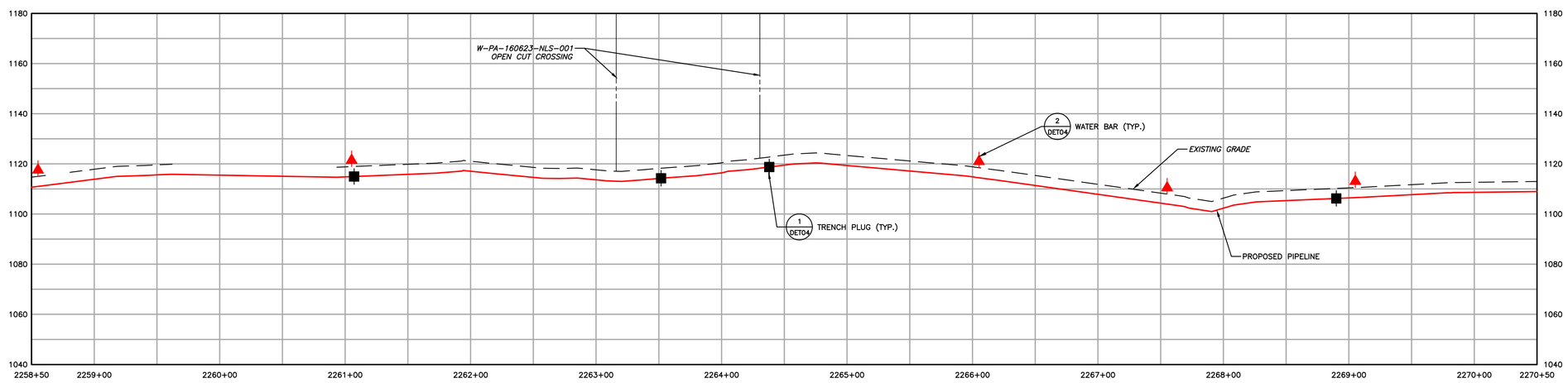
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119773	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\174X\SHELL\60489885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN163A.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:33 AM) Last Plotted: 2018-01-03 (1/3/2018 8:19 AM)



LAND USE	WOODS	WETLAND	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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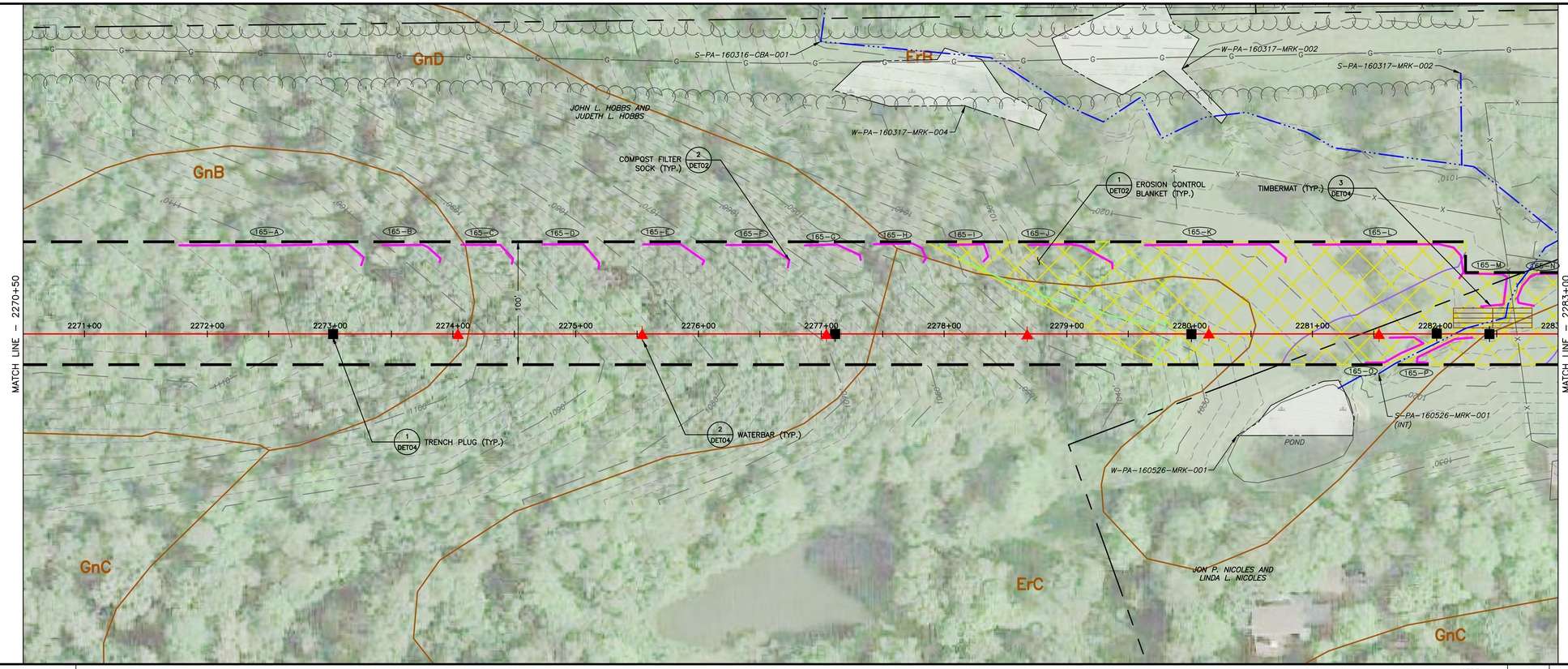
EROSION AND SEDIMENT CONTROL PLAN
ES164 – (STA. 2258+50 TO STA. 2270+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

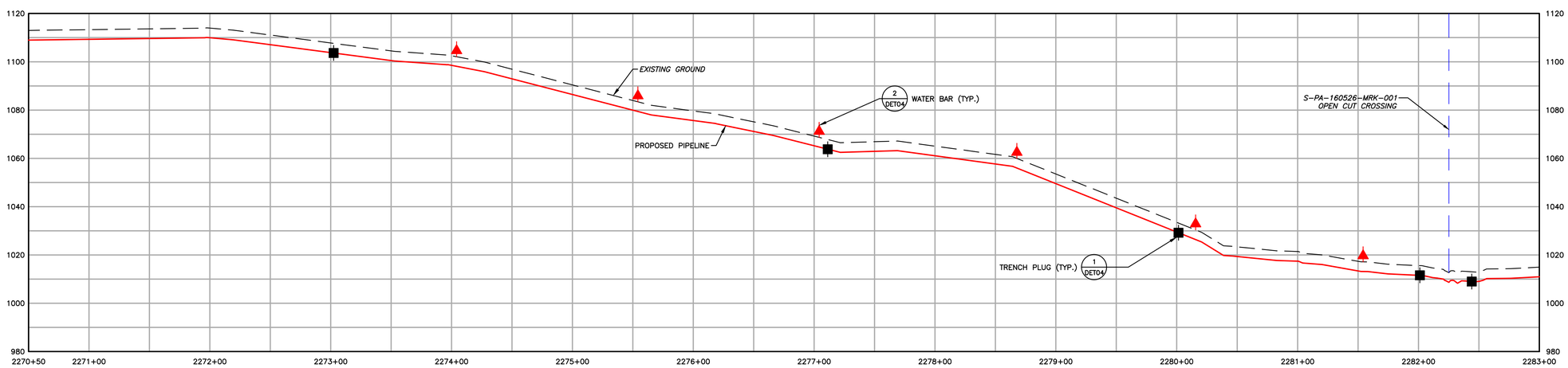
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119449	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN164.DWG
Last saved by: UNCOUN-SCHAFER (12/28/2017 10:33 AM) Last Plotted: 2018-01-03 (1/5/2018 8:20 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE		
	PROPOSED TIMBER MAT		
	PROPOSED EROSION CONTROL BLANKET		
	PROPOSED STONE CONSTRUCTION ENTRANCE		
	100-YEAR FLOODPLAIN		
	WATERSHED BOUNDARY		
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY		
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY		

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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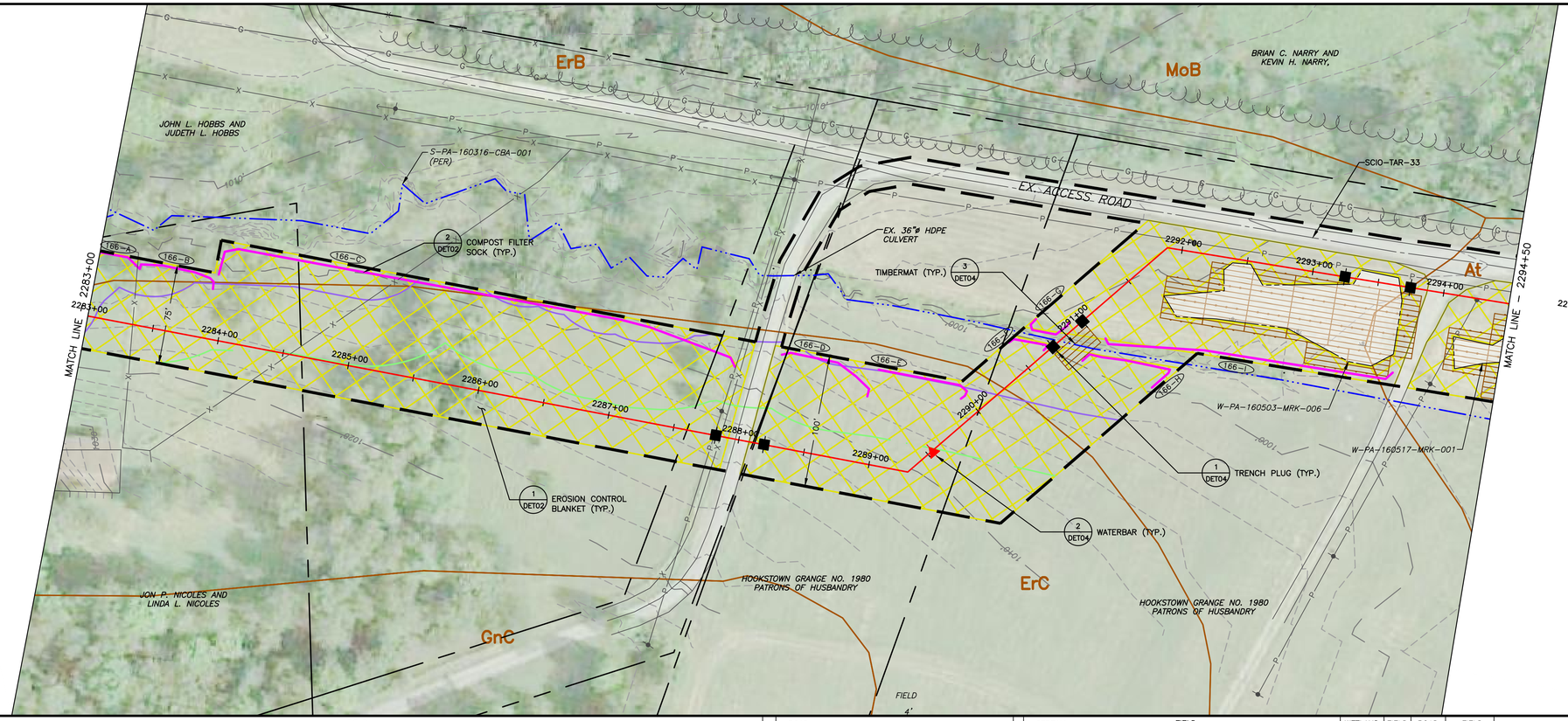
EROSION AND SEDIMENT CONTROL PLAN
ES165 – (STA. 2270+50 TO STA. 2283+00)

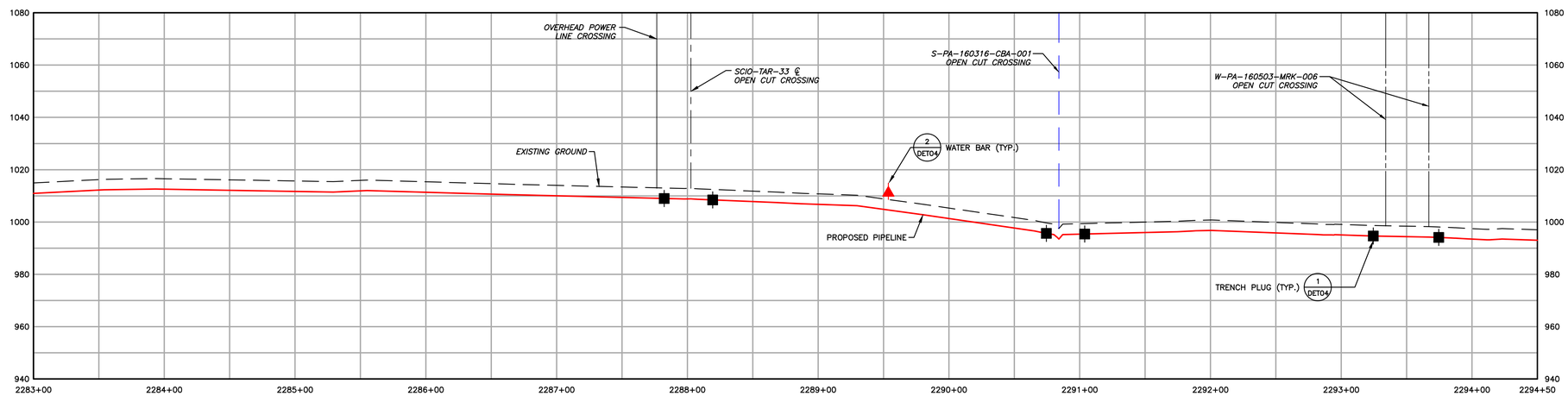
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119450	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5485885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN165.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:34 AM) Last Plotted: 2018-01-03 (1/3/2018 8:22 AM)



LAND USE	FIELD	ROAD	STREAM	FIELD	WETLAND	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	5'	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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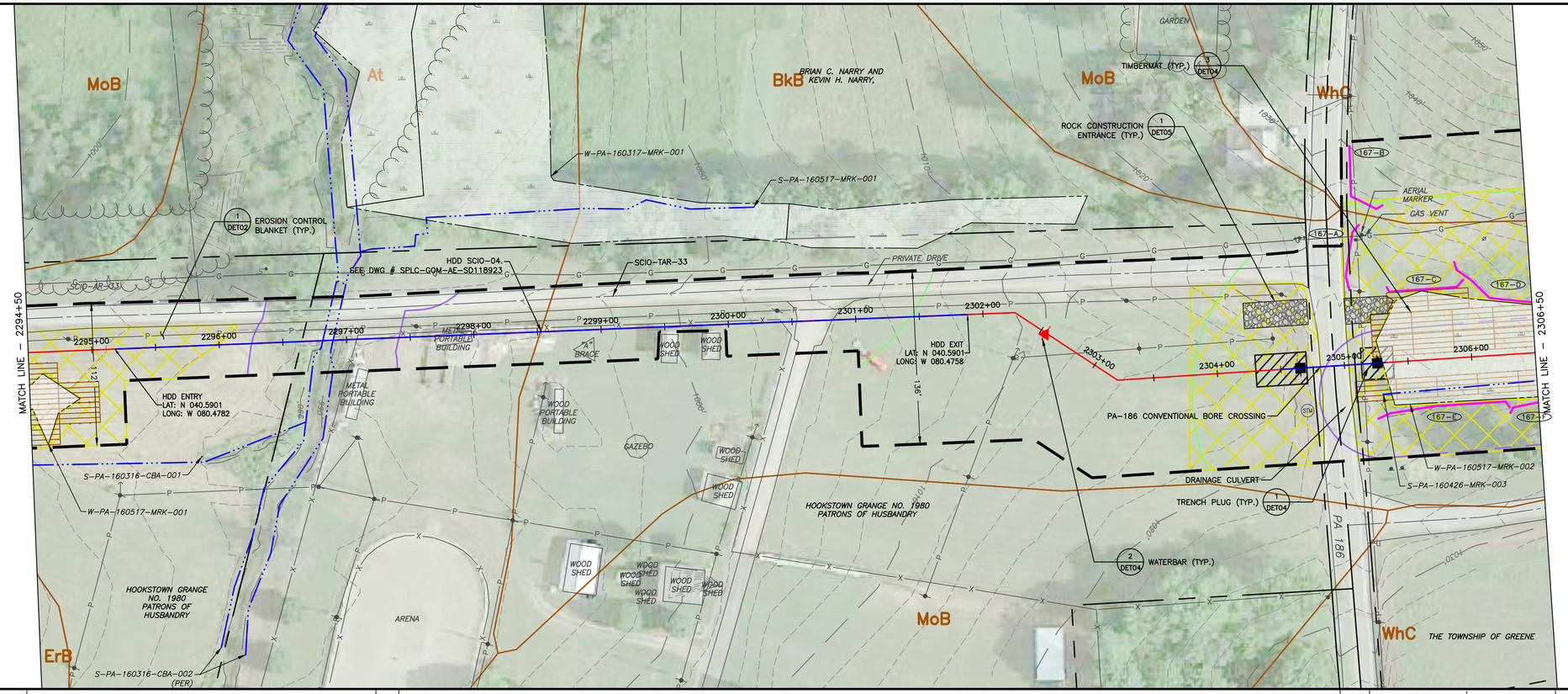
EROSION AND SEDIMENT CONTROL PLAN
ES166 – (STA. 2283+00 TO STA. 2294+50)

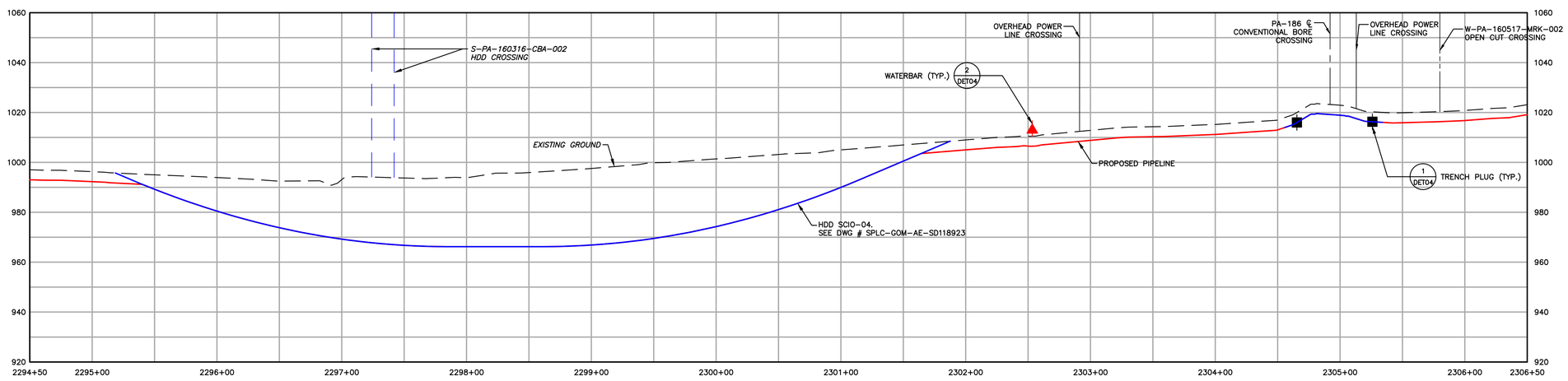
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119451	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50489885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN166.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:37 AM) Last Plotted: 2018-01-03 (1/3/2018 8:23 AM)



LAND USE	FIELD	STREAM	FIELD	ROAD	FIELD	WETLAND
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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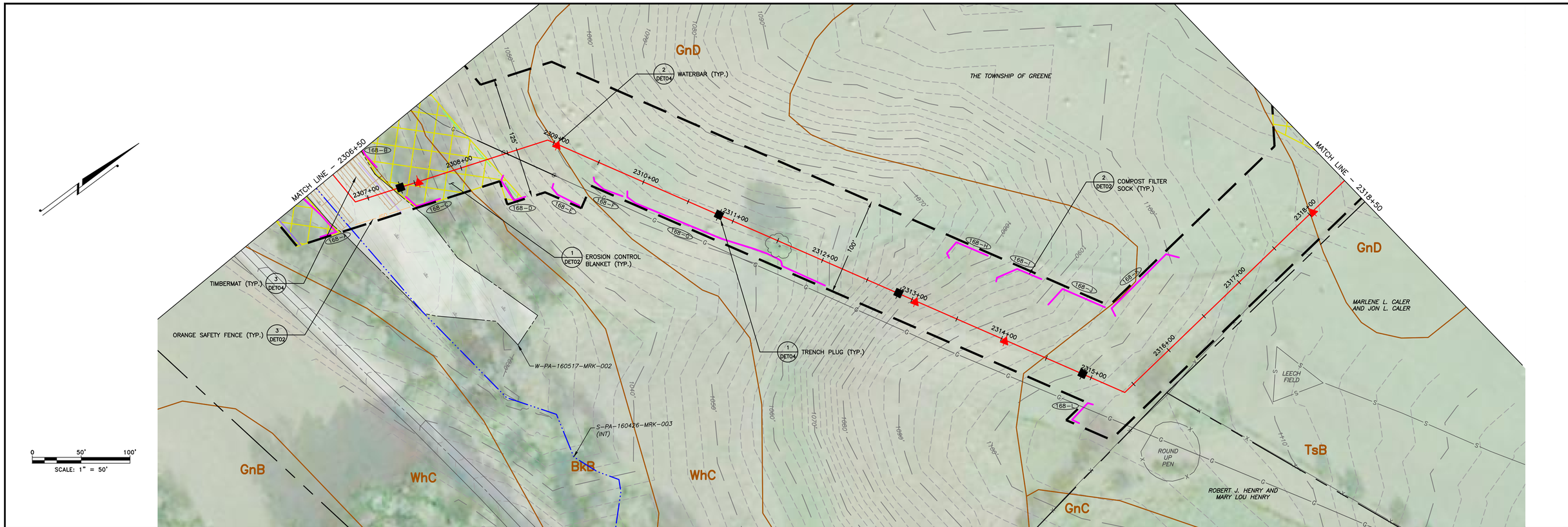
EROSION AND SEDIMENT CONTROL PLAN
ES167 – (STA. 2294+50 TO STA. 2306+50)

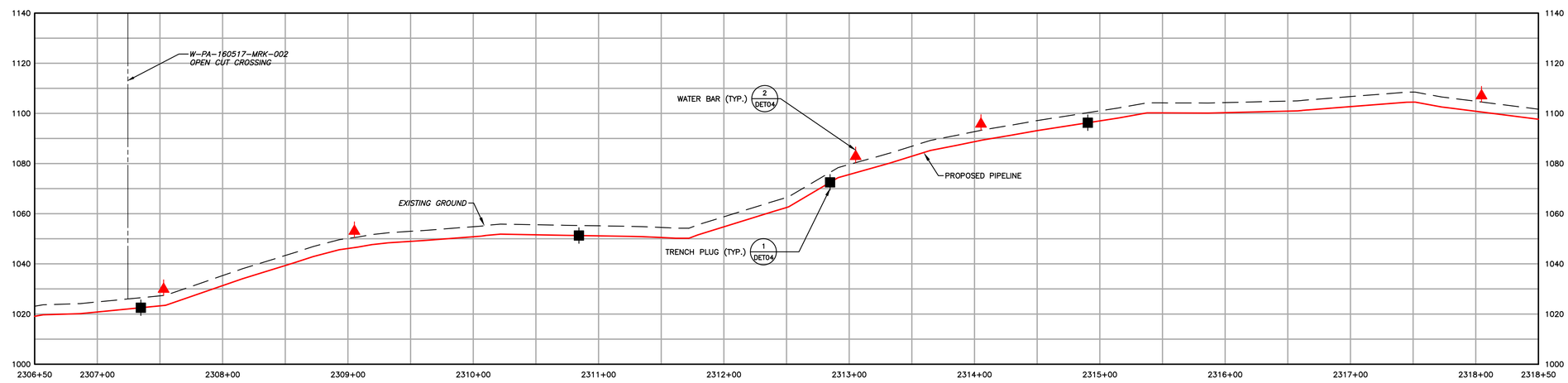
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119452	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50495895 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN167.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:39 AM) Last Plotted: 2018-01-03 (1/3/2018 8:24 AM)



LAND USE	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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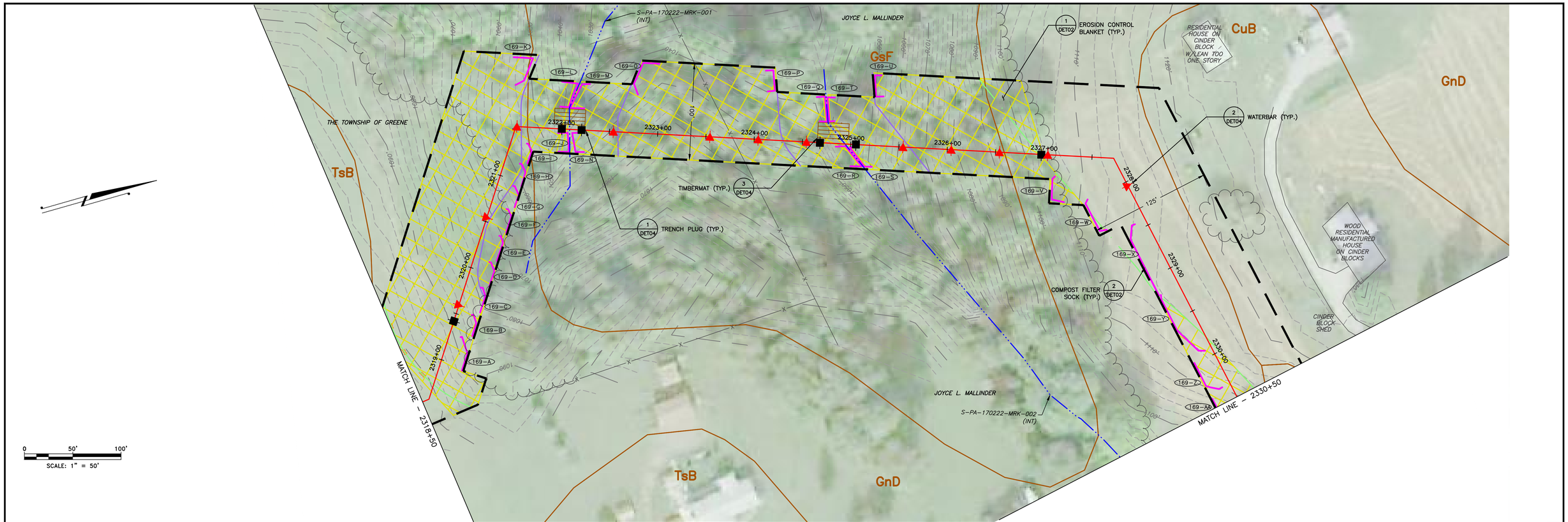
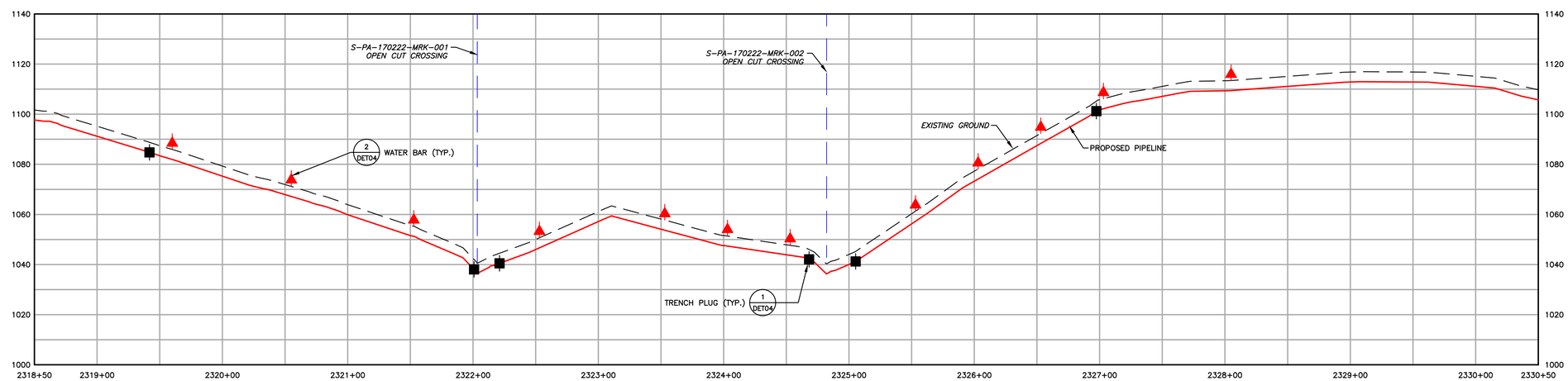
EROSION AND SEDIMENT CONTROL PLAN
ES168 - (STA. 2306+50 TO STA. 2318+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119453	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\50459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN168.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:42 AM) Last Plotted: 2018-01-05 (1/5/2018 10:55 AM)



LAND USE	FIELD	WOODS	STREAM	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	5'	4'	5'	4'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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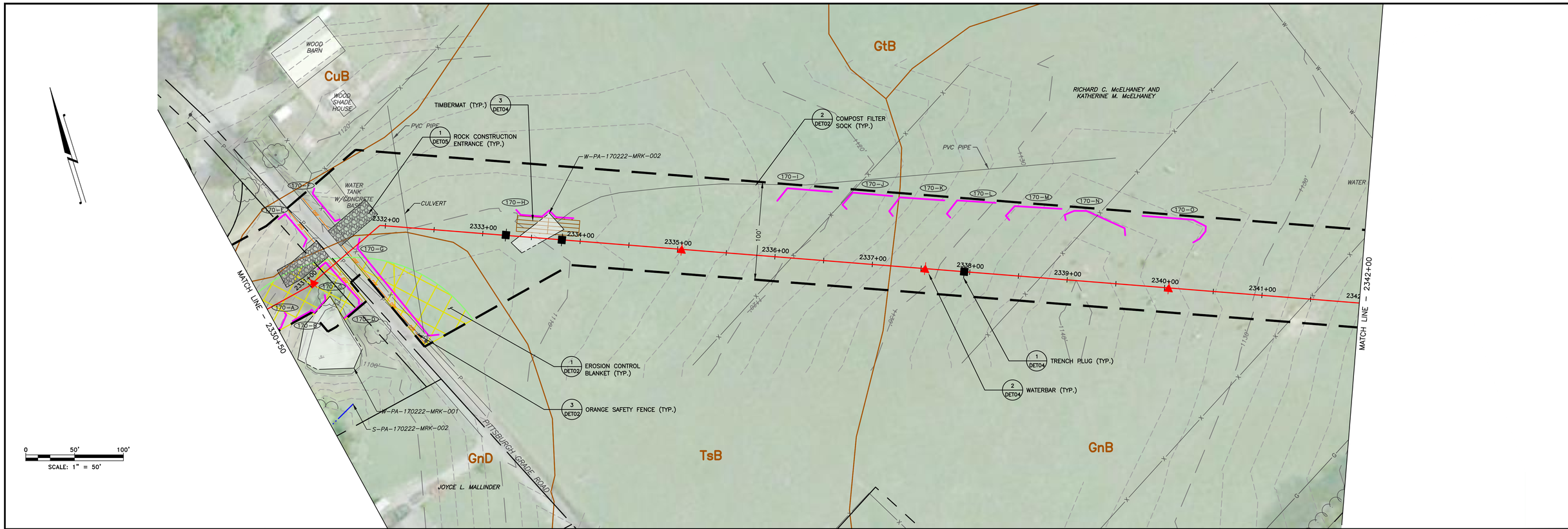
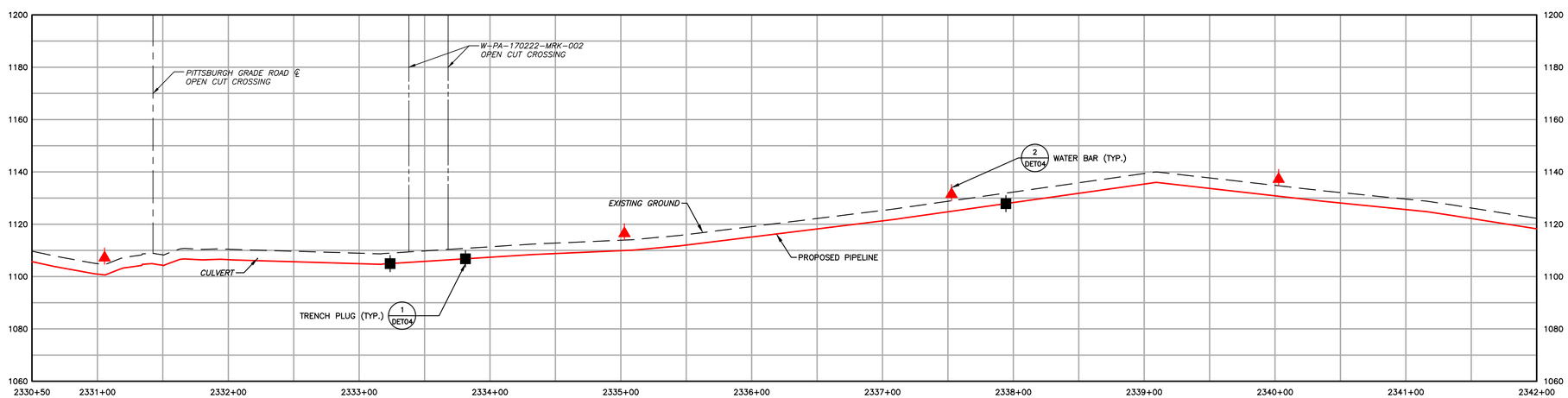
EROSION AND SEDIMENT CONTROL PLAN
ES169 - (STA. 2318+50 TO STA. 2330+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119454	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\7427\SHELL\60459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN169.DWG
Last saved by: LINCOLN.SCHAFER (1/29/2017 10:42 AM) Last Plotted: 2018-01-03 (1/3/2018 8:26 AM)



LAND USE	FIELD	ROAD	FIELD	WETLAND	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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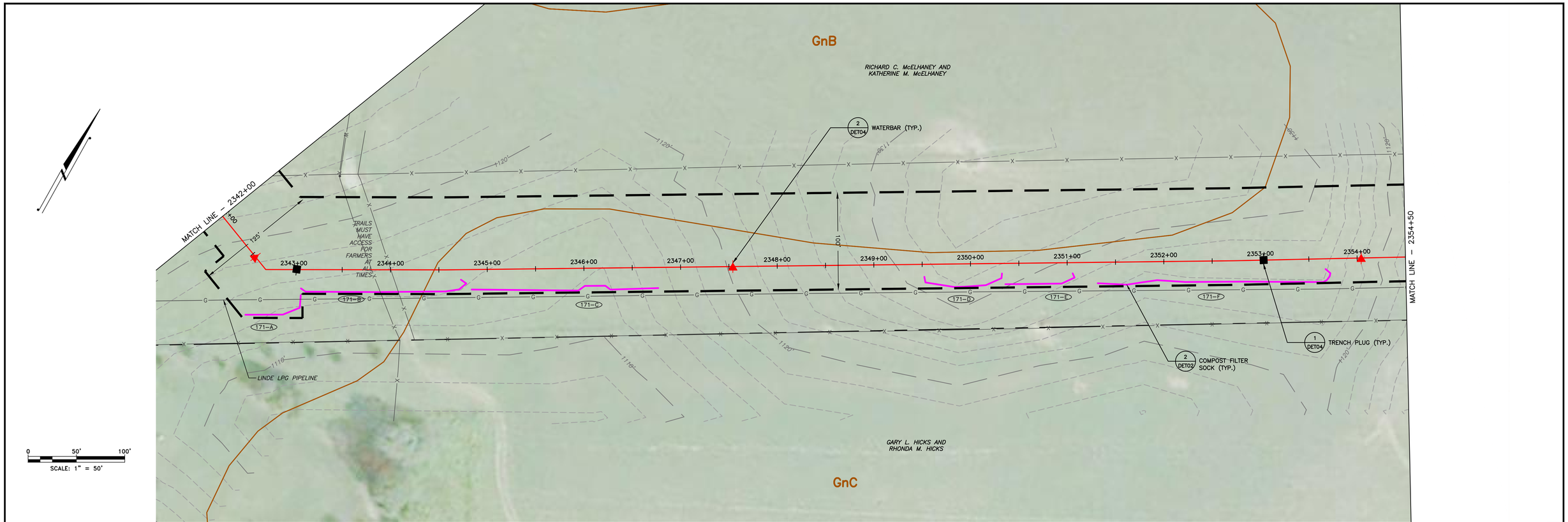
EROSION AND SEDIMENT CONTROL PLAN
ES170 – (STA. 2330+50 TO STA. 2342+00)

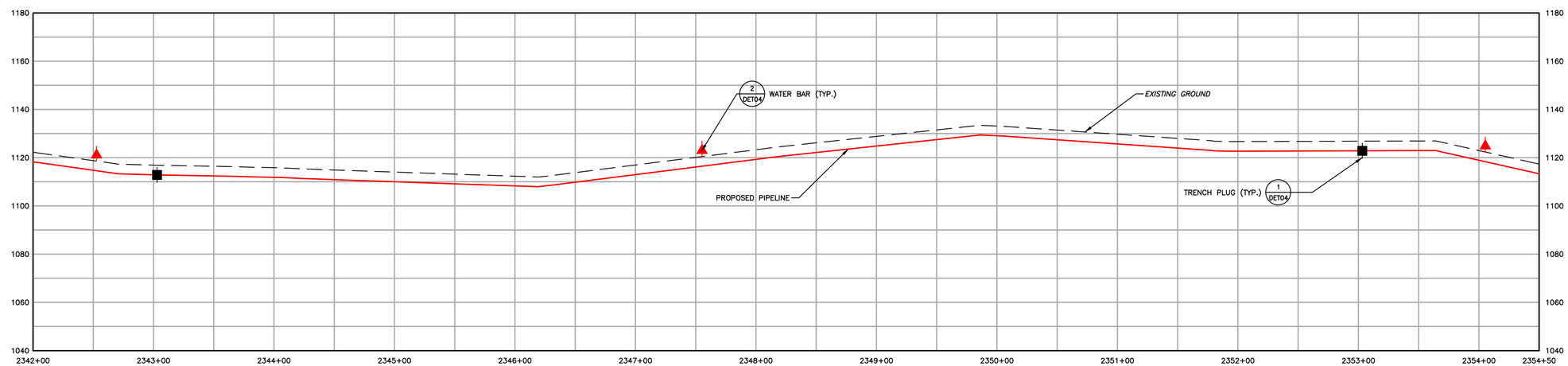
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119455	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\50459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN170.DWG
Last saved by: LINCOLN.SCHAFER (12/29/2017 10:44 AM) Last Plotted: 2018-01-03 (1/3/2018 8:27 AM)



LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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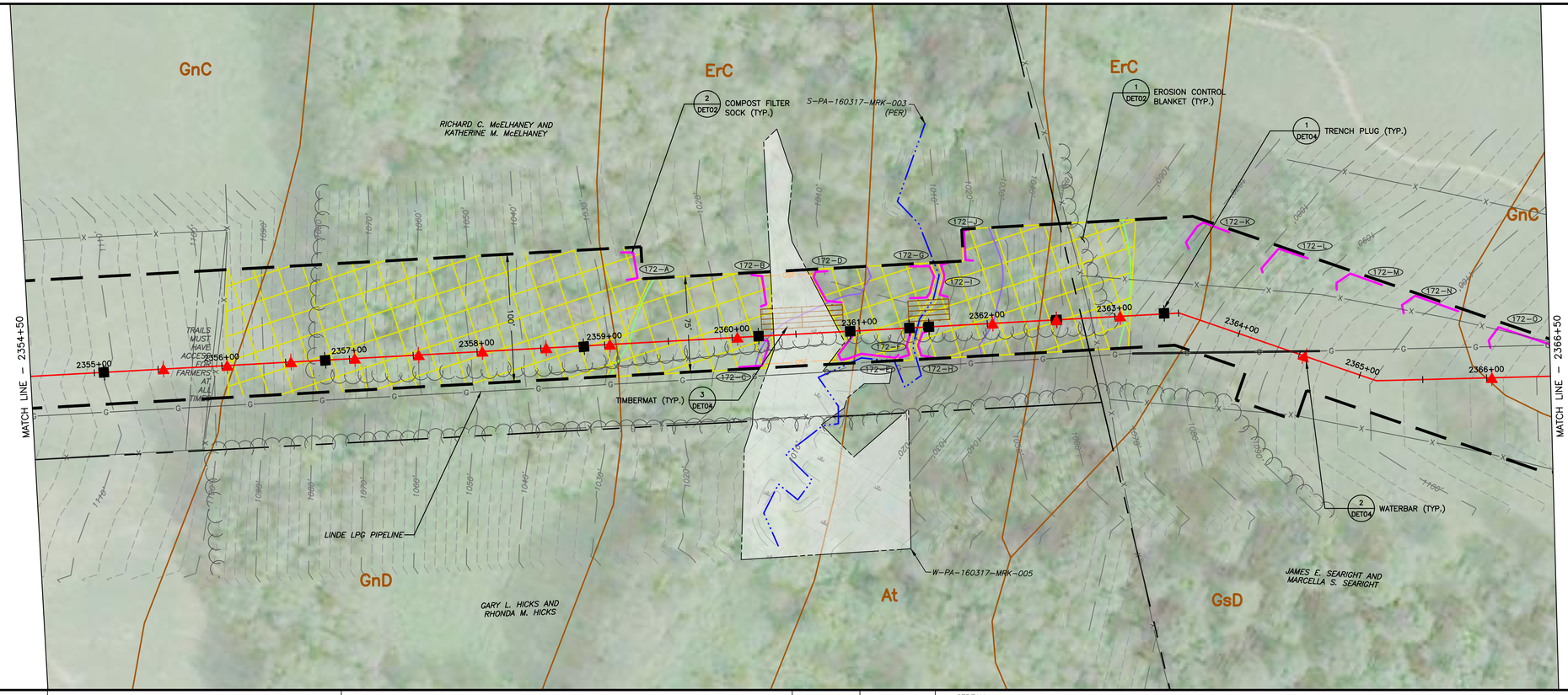
EROSION AND SEDIMENT CONTROL PLAN
ES171 – (STA. 2342+00 TO STA. 2354+50)

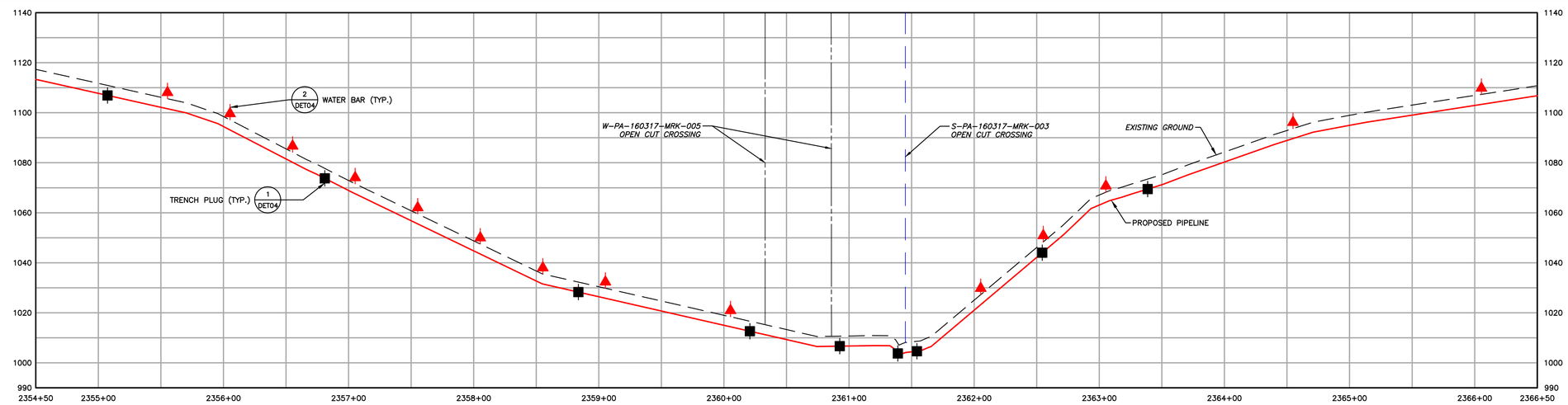
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119456	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\90–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN171.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:48 AM) Last Plotted: 2018–01–03 (1/3/2018 8:28 AM)



LAND USE	FIELD	WOODS	WETLAND	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	5'	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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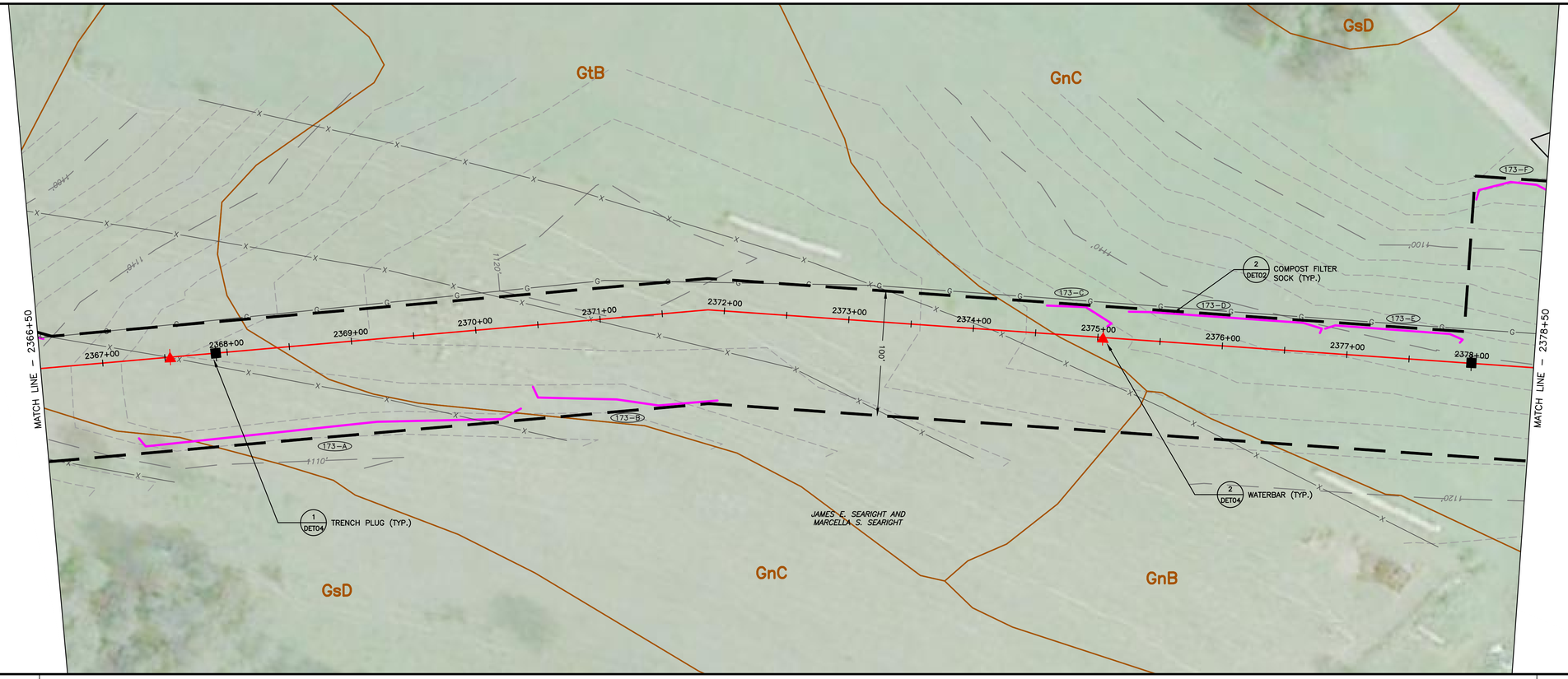
EROSION AND SEDIMENT CONTROL PLAN
ES172 – (STA. 2354+50 TO STA. 2366+50)

BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

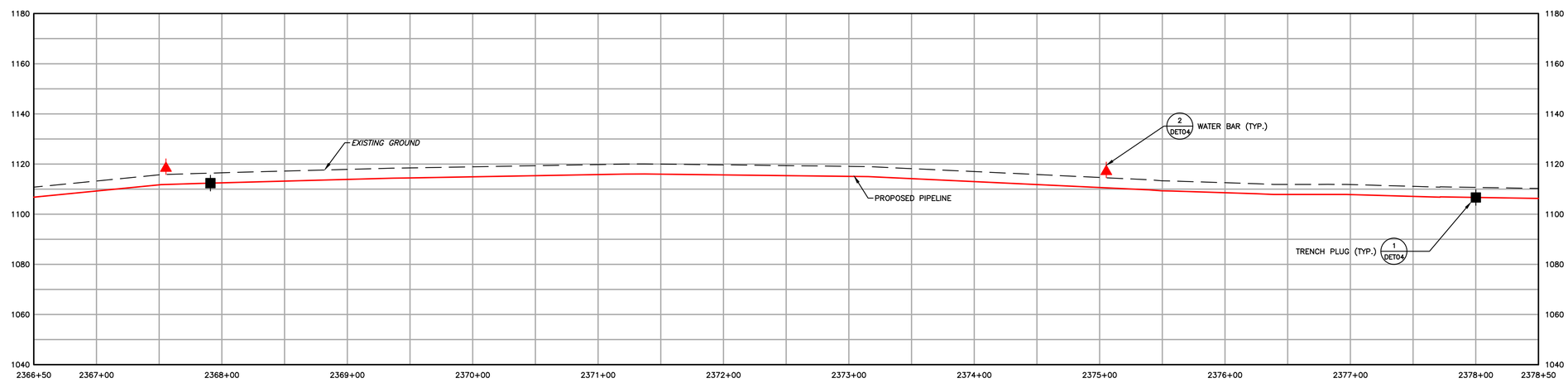
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119457	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN172.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:48 AM) Last Plotted: 2018-01-03 (1/3/2018 8:29 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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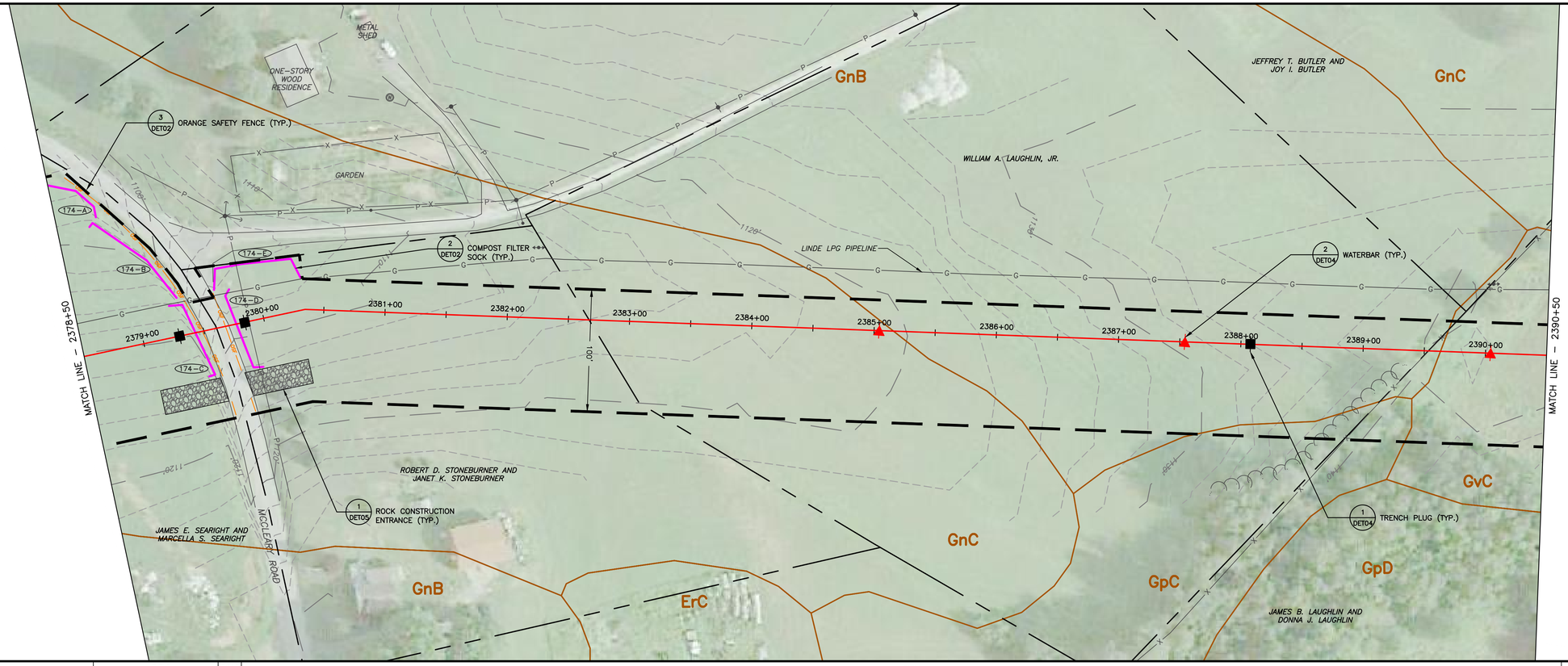
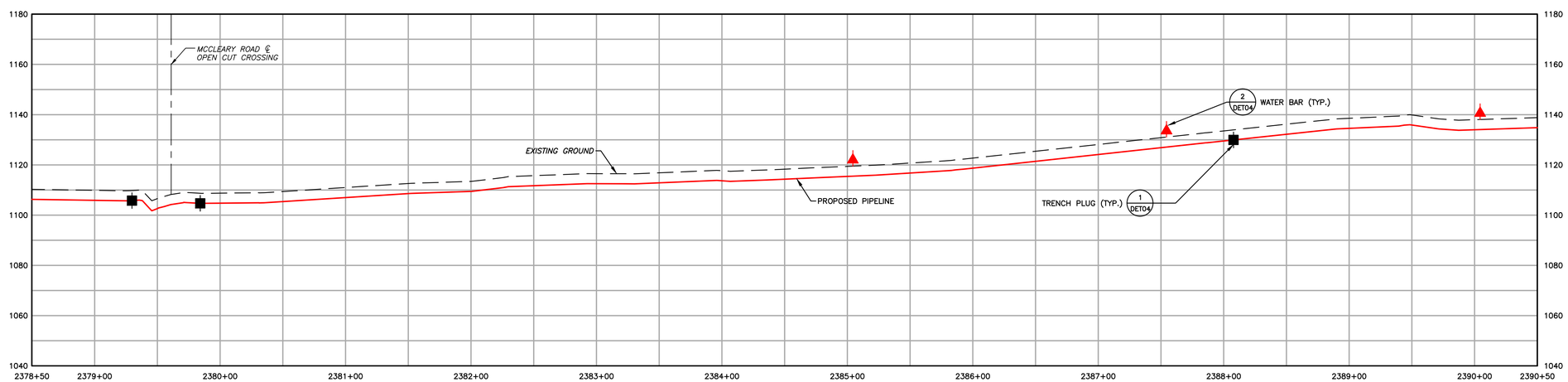
EROSION AND SEDIMENT CONTROL PLAN
ES173 – (STA. 2366+50 TO STA. 2378+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119458	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN173.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:48 AM) Last Plotted: 2018-01-03 (1/3/2018 8:30 AM)



LAND USE	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



EXISTING CONTOURS (INDEX)	PROPOSED PIPELINE	PROPOSED ORANGE SAFETY FENCE	
EXISTING CONTOURS (INTERMEDIATE)	LIMIT OF DISTURBANCE/PERMIT BOUNDARY	PROPOSED TIMBER MAT	
EXISTING PROPERTY LINE	ACCESS ROAD CENTERLINE	PROPOSED EROSION CONTROL BLANKET	
EXISTING STREAM	PROPOSED SILT FENCE (BY TYPE)	PROPOSED STONE CONSTRUCTION ENTRANCE	
ASSUMED FLOODWAY (50 FEET)	PROPOSED COMPOST FILTER SOCK	100-YEAR FLOODPLAIN	
STREAM BUFFER (100 FEET)	PROPOSED RIGHT OF WAY DIVERSION	WATERSHED BOUNDARY	
EXISTING WETLAND	PROPOSED TRENCH PLUG	SOIL TYPE BOUNDARY AND SOIL BOUNDARY	
TREE/BRUSH LINE		LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY	

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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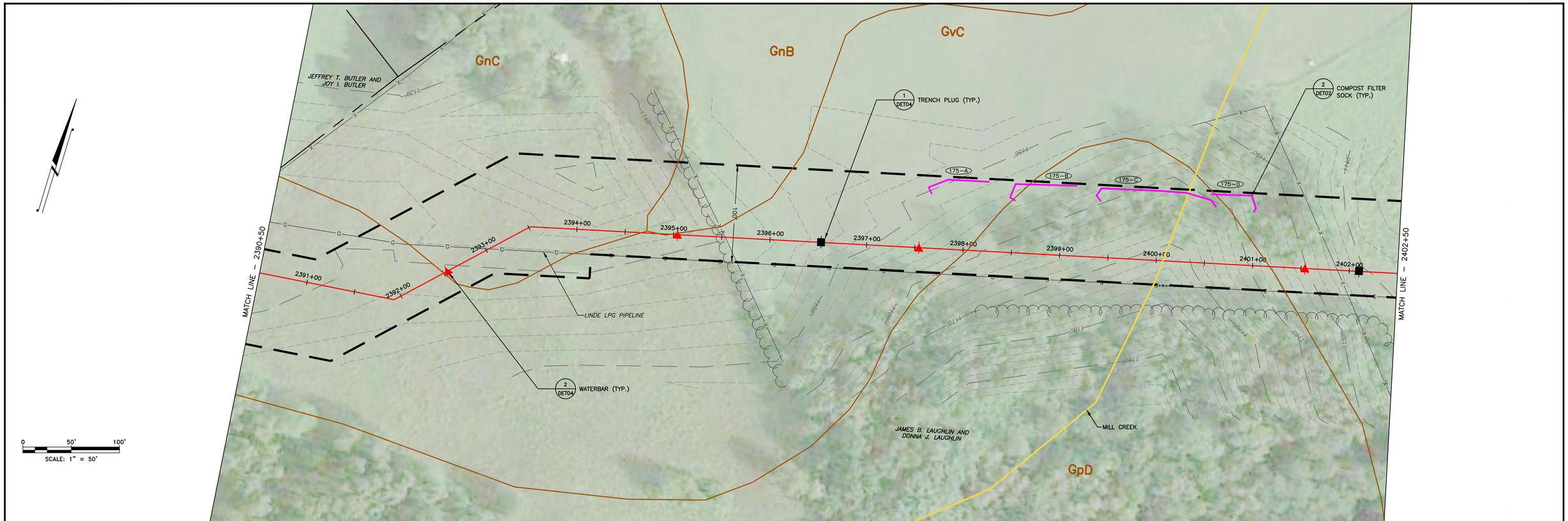
EROSION AND SEDIMENT CONTROL PLAN
ES174 – (STA. 2378+50 TO STA. 2390+50)

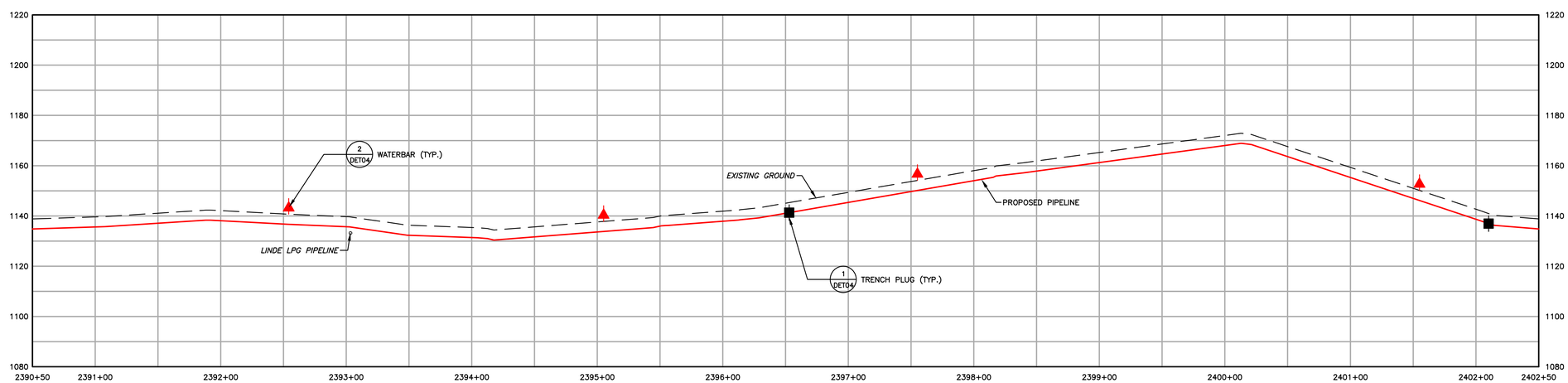
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119459	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN174.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:47 AM) Last Plotted: 2018-01-03 (1/3/2018 8:31 AM)



LAND USE	FIELD	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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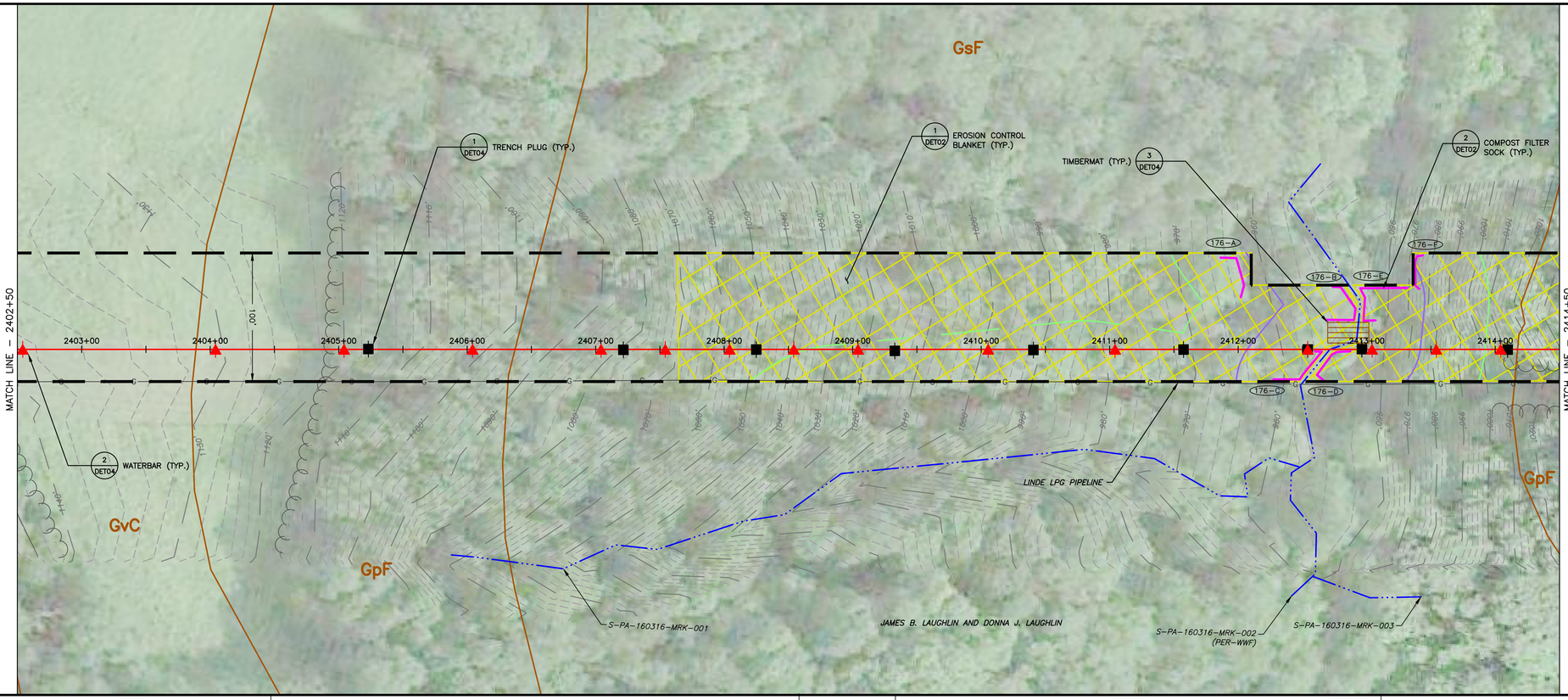
EROSION AND SEDIMENT CONTROL PLAN
ES175 – (STA. 2390+50 TO STA. 2402+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

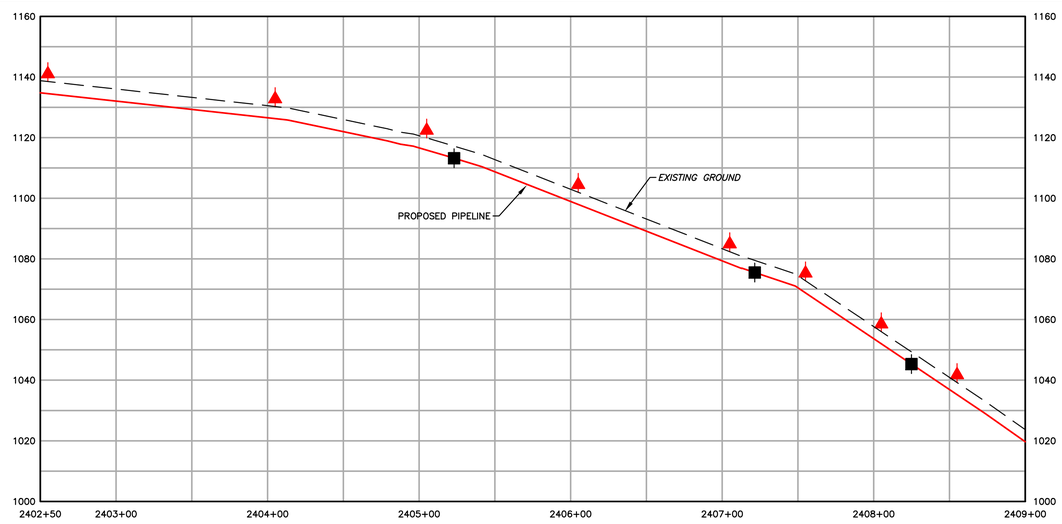
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119460	REVISION
DRAWN	TLM	12/05/17		1

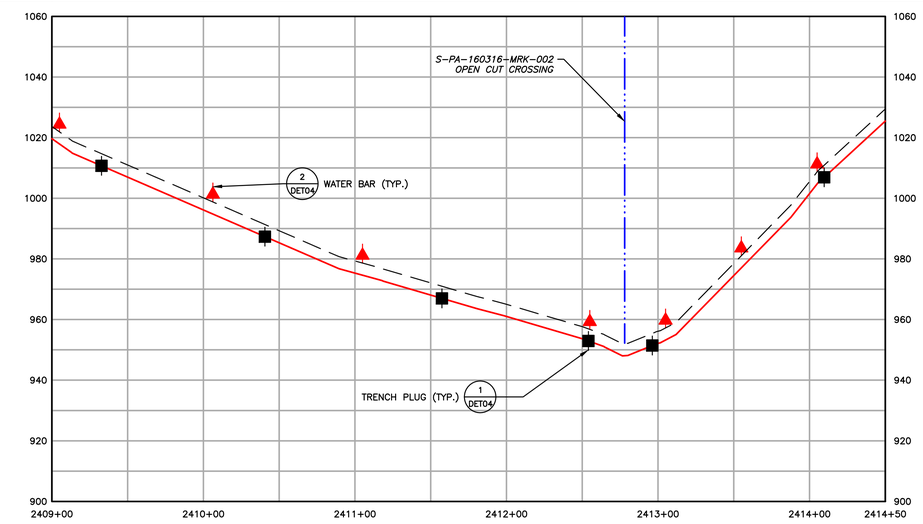
Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN175.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:47 AM) Last Plotted: 2018-01-03 (1/3/2018 8:32 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	WOODS		WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'		4'	5'	4'





1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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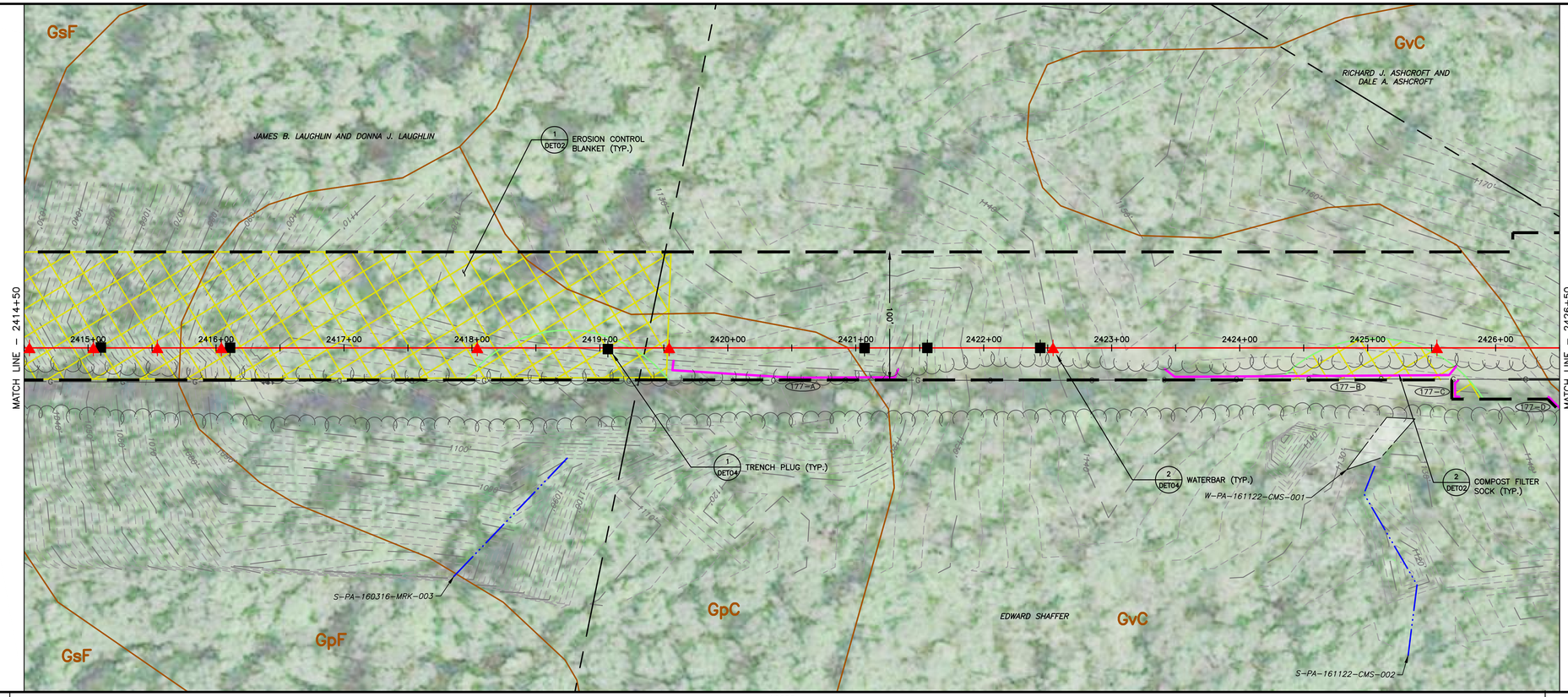
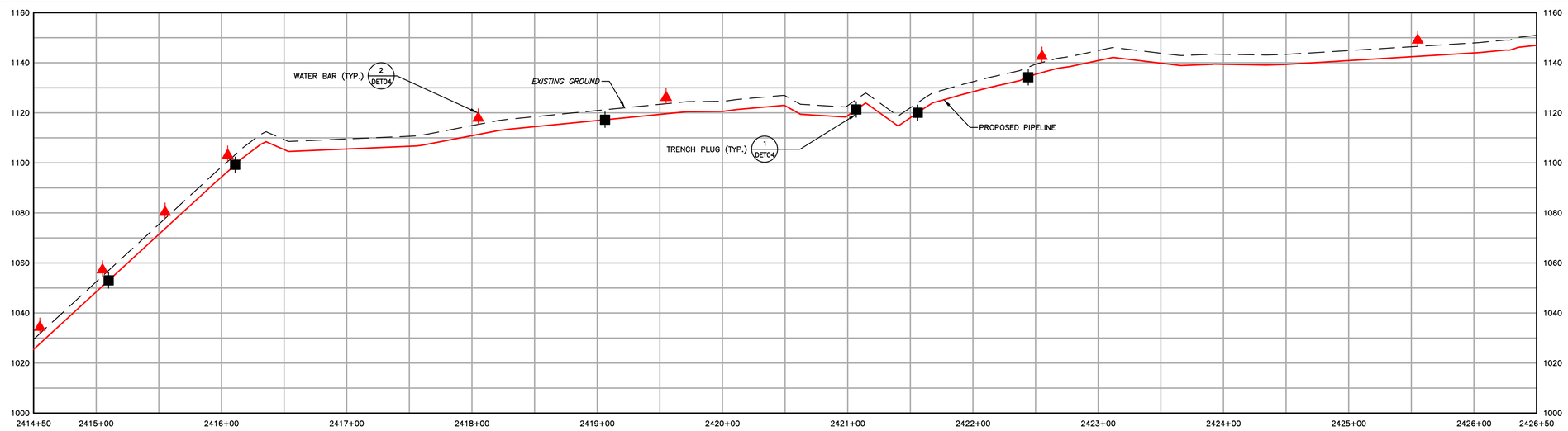
EROSION AND SEDIMENT CONTROL PLAN
ES176 – (STA. 2402+50 TO STA. 2414+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119461	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN176.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:47 AM) Last Plotted: 2018–01–03 (1/3/2018 8:33 AM)



LAND USE	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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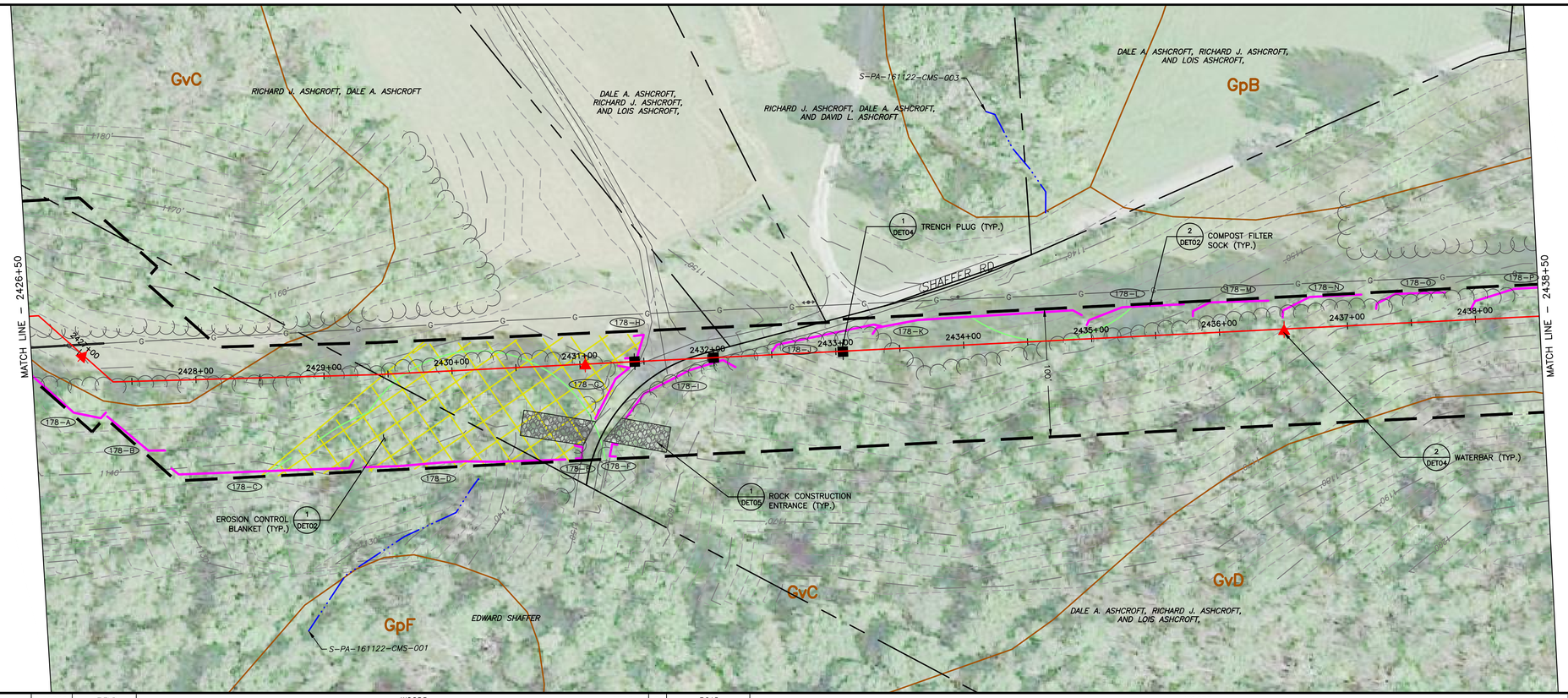
EROSION AND SEDIMENT CONTROL PLAN
ES177 – (STA. 2414+50 TO STA. 2426+50)

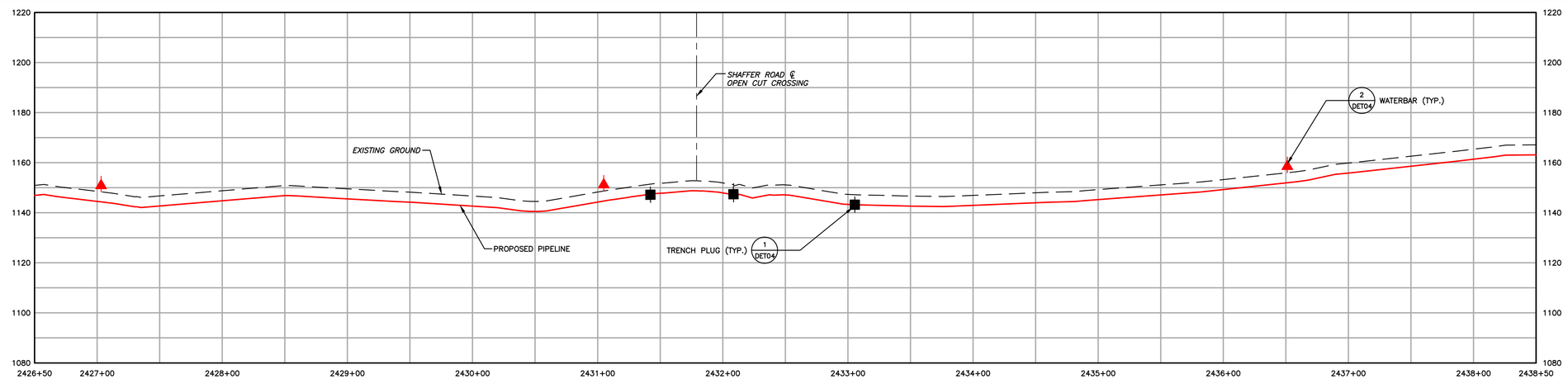
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119462	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0458885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN177.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:47 AM) Last Plotted: 2018-01-03 (1/3/2018 8:34 AM)



LAND USE	WOODS	FIELD	WOODS	FIELD	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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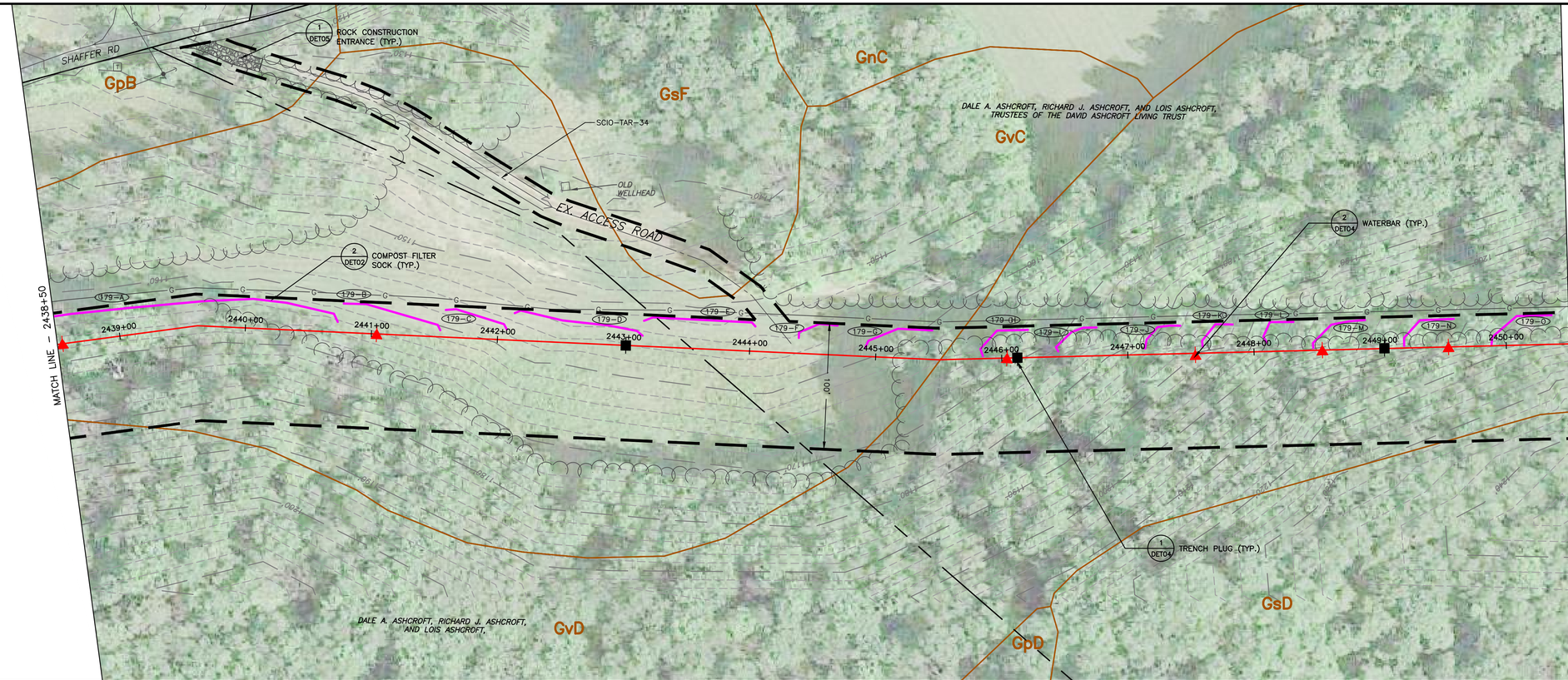
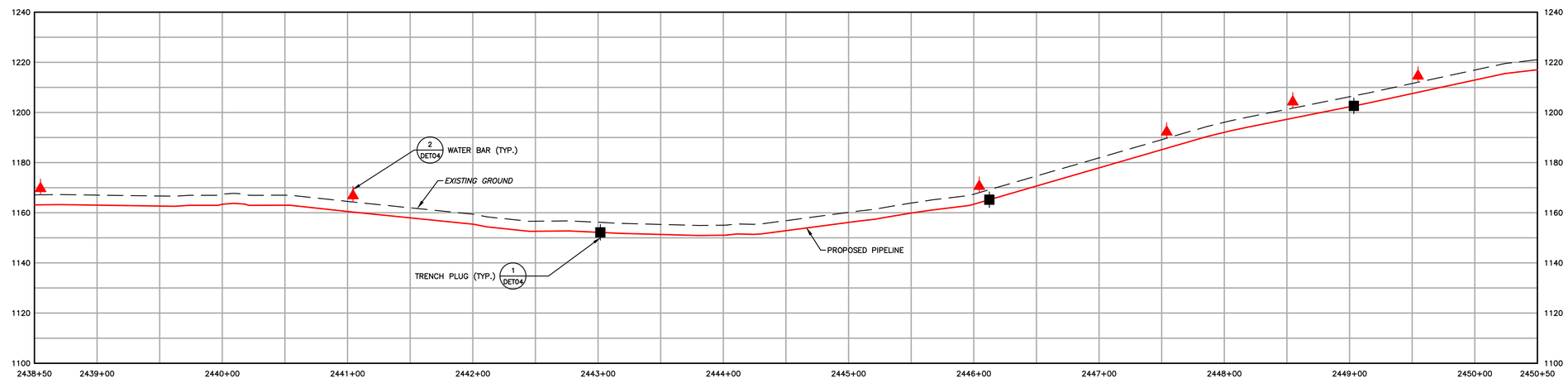
EROSION AND SEDIMENT CONTROL PLAN
ES178 – (STA. 2426+50 TO STA. 2438+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119463	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN178.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:46 AM) Last Plotted: 2018-01-03 (1/3/2018 8:38 AM)



LAND USE	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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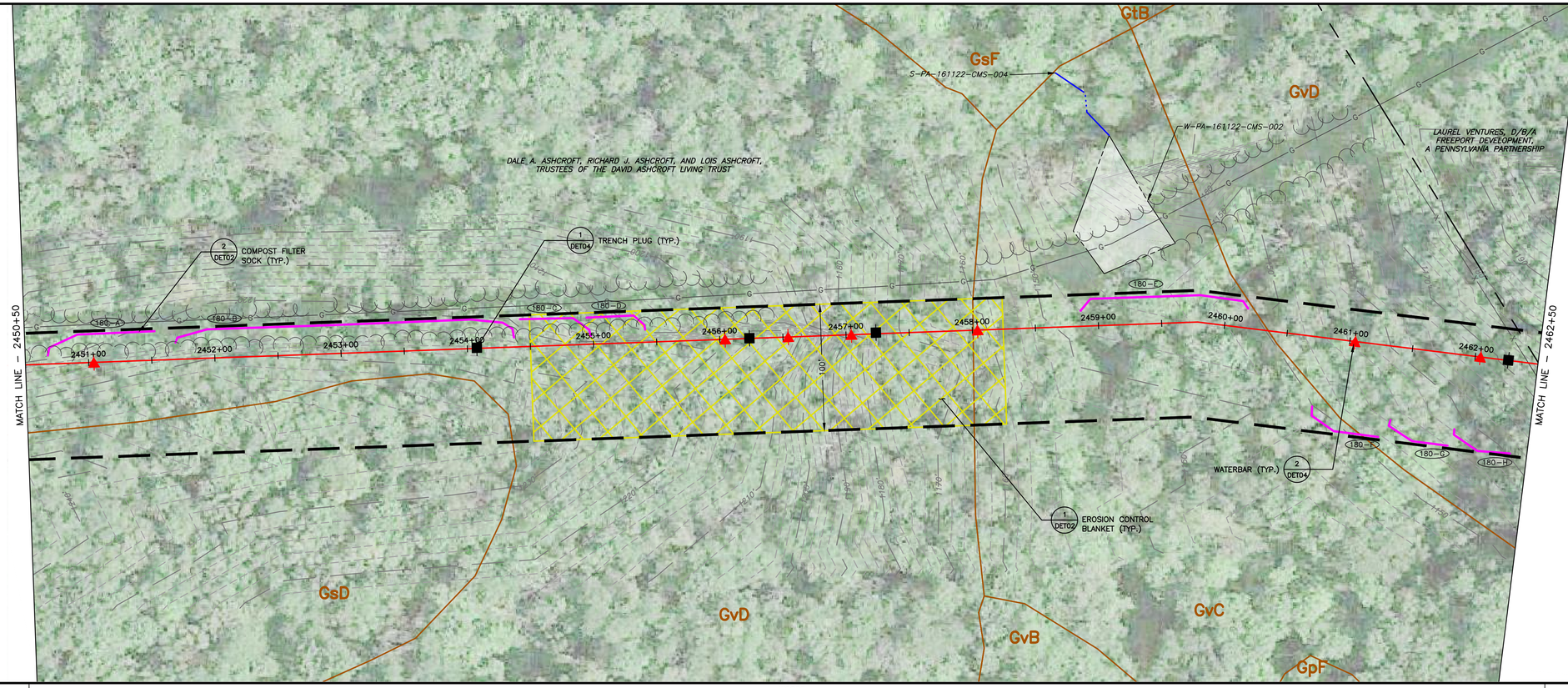
EROSION AND SEDIMENT CONTROL PLAN
ES179 – (STA. 2438+50 TO STA. 2450+50)

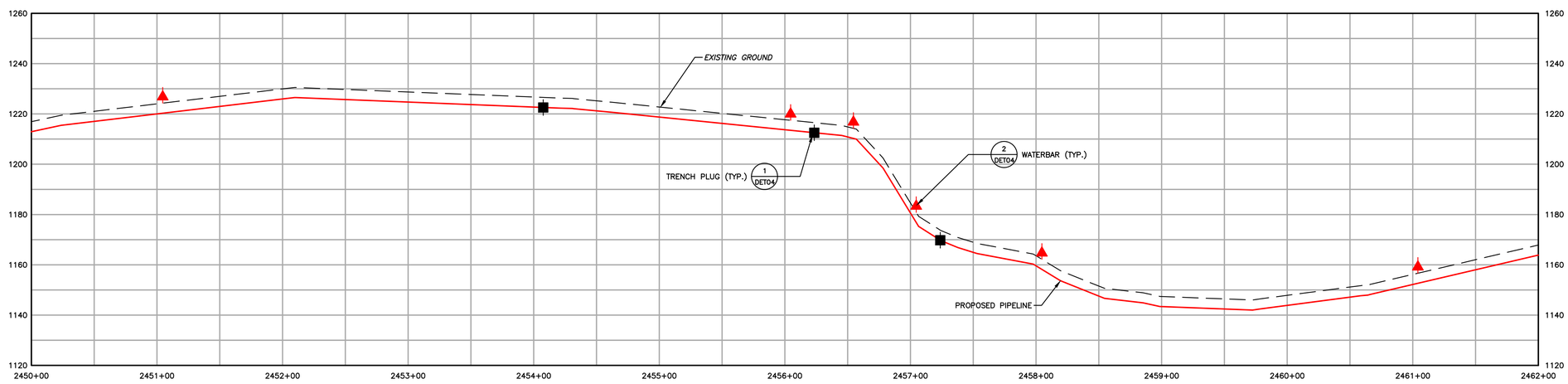
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119464	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN179.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:46 AM) Last Plotted: 2018-01-03 (1/3/2018 8:37 AM)



LAND USE	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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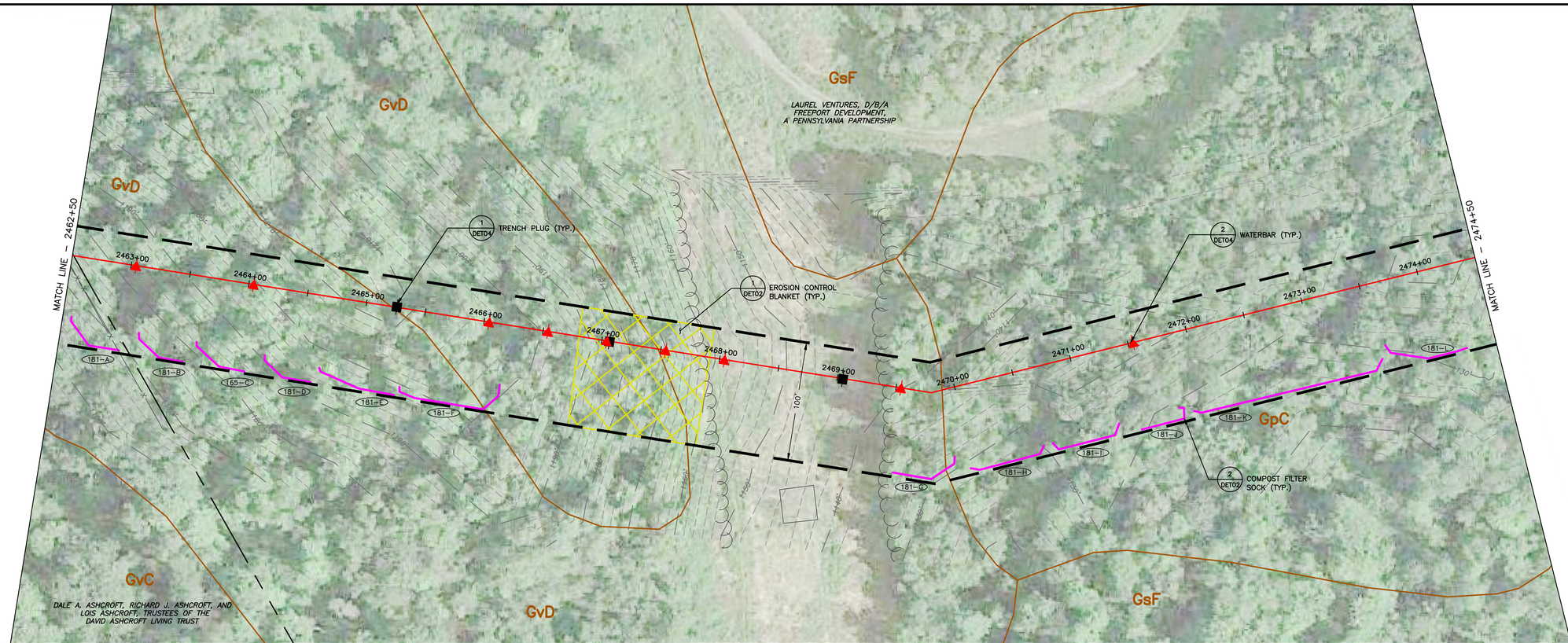
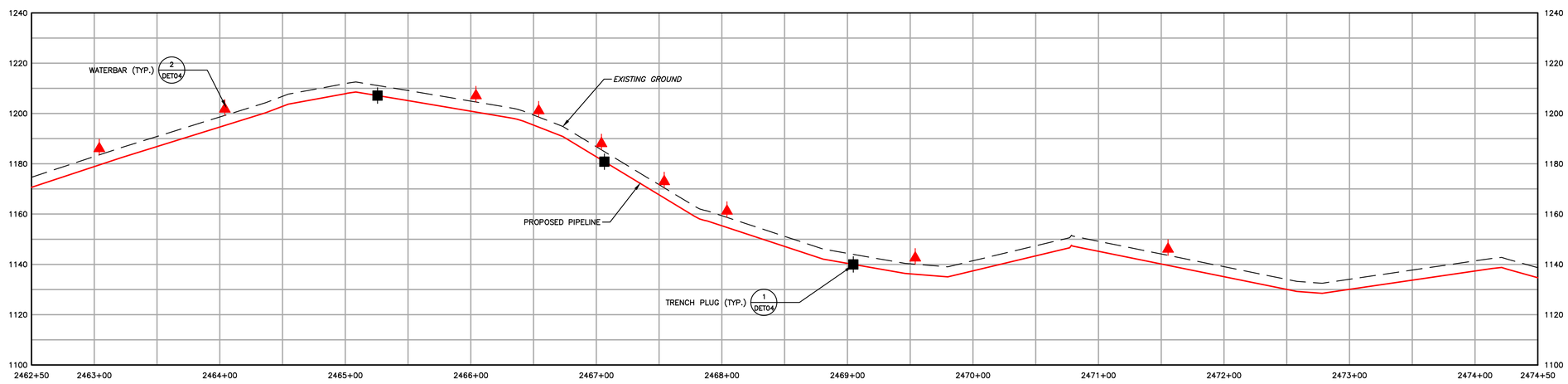
EROSION AND SEDIMENT CONTROL PLAN
ES180 – (STA. 2450+50 TO STA. 2462+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119465	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN180.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 10:45 AM) Last Plotted: 2018-01-03 (1/3/2018 8:38 AM)



LAND USE	WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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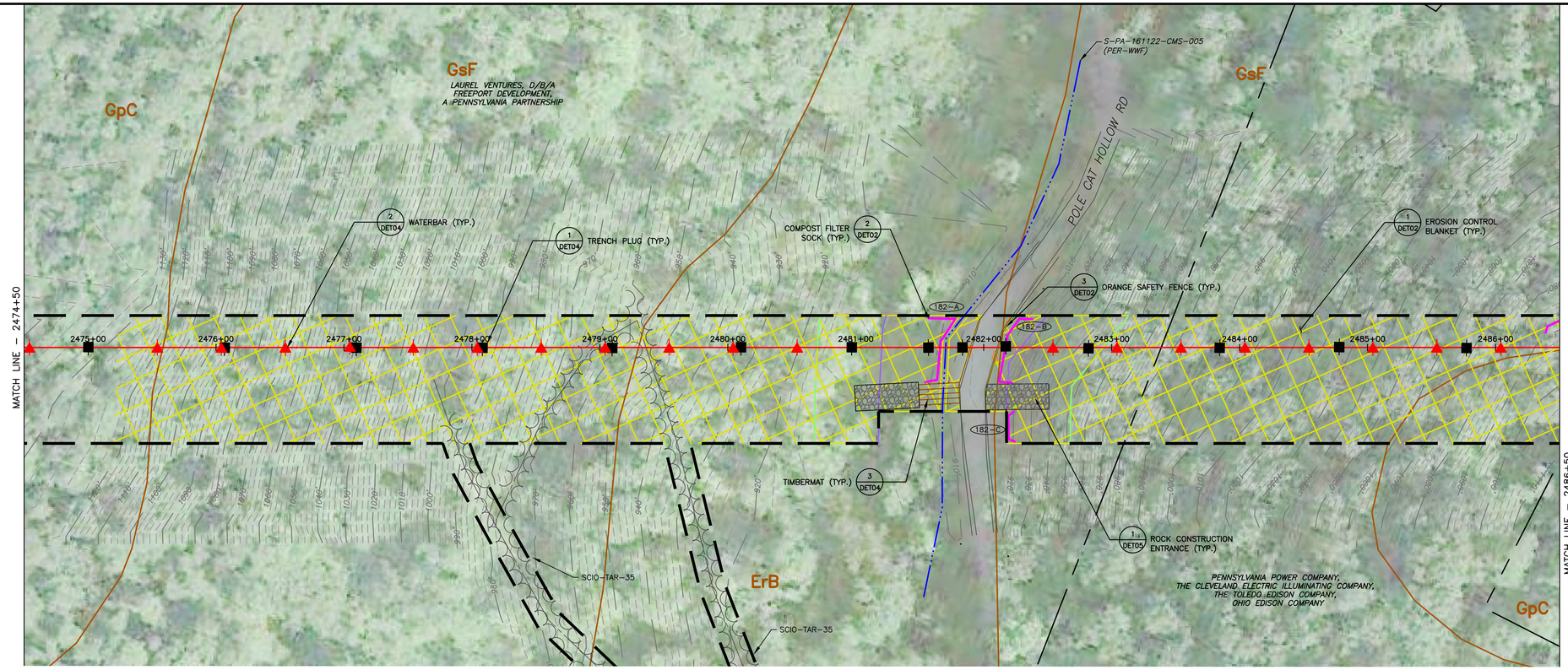
EROSION AND SEDIMENT CONTROL PLAN
ES181 – (STA. 2462+50 TO STA. 2474+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

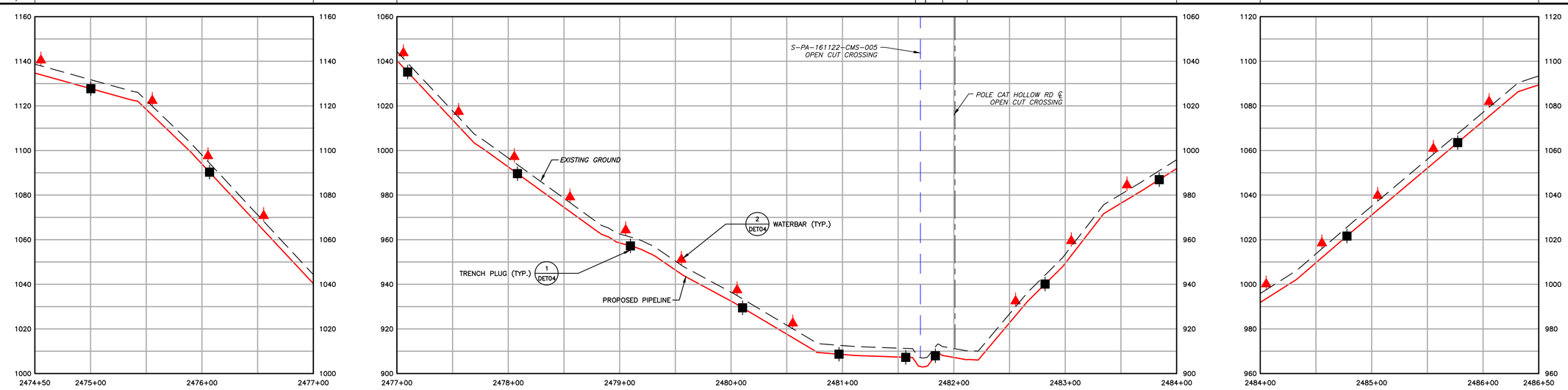
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119466	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\90–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN181.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:36 AM) Last Plotted: 2018–01–03 (1/3/2018 8:39 AM)



MATCH LINE – SEE ES182A

LAND USE	WOODS		WOODS	STREAM	ROAD	WOODS		WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	5'	5'	4'		4'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES182 – (STA. 2474+50 TO STA. 2486+50)
BEAVER COUNTY PENNSYLVANIA
GREENE TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119467	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174X\SHELL\6648985 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN182.DWG
Last saved by: ESSARGA (12/29/2017 1:51 PM) Last Plotted: 2018-01-03 (1/3/2018 8:40 AM)

0 50' 100'
SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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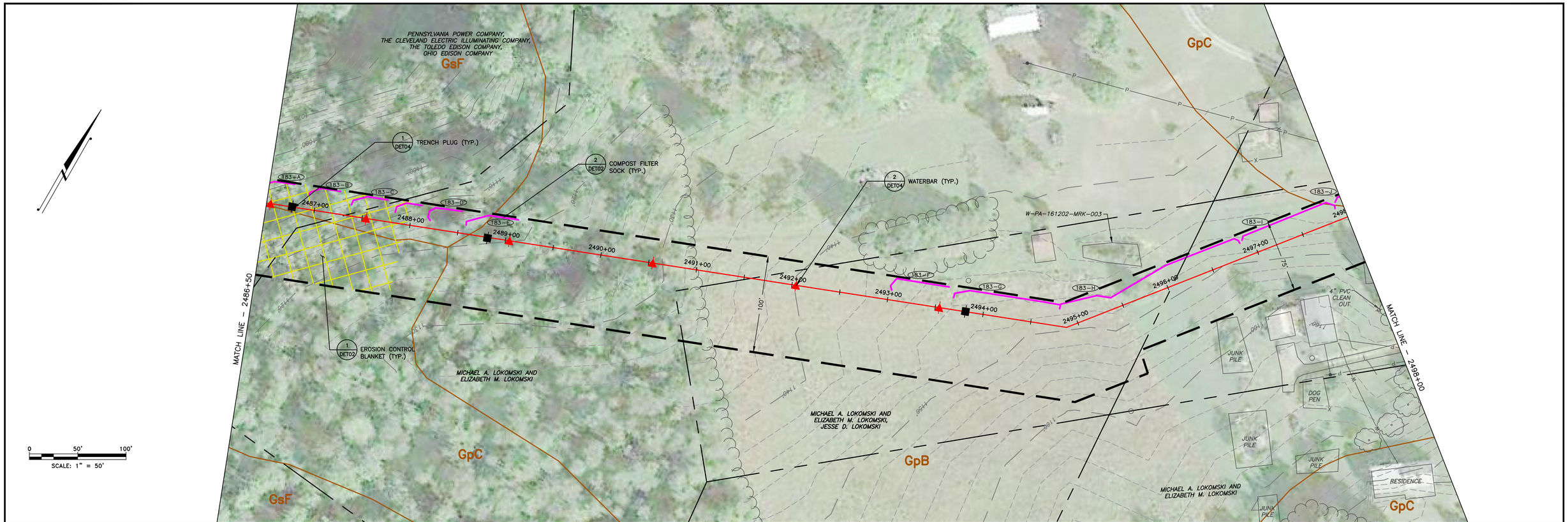
EROSION AND SEDIMENT CONTROL PLAN
ES182A – (SCIO-TAR-35)

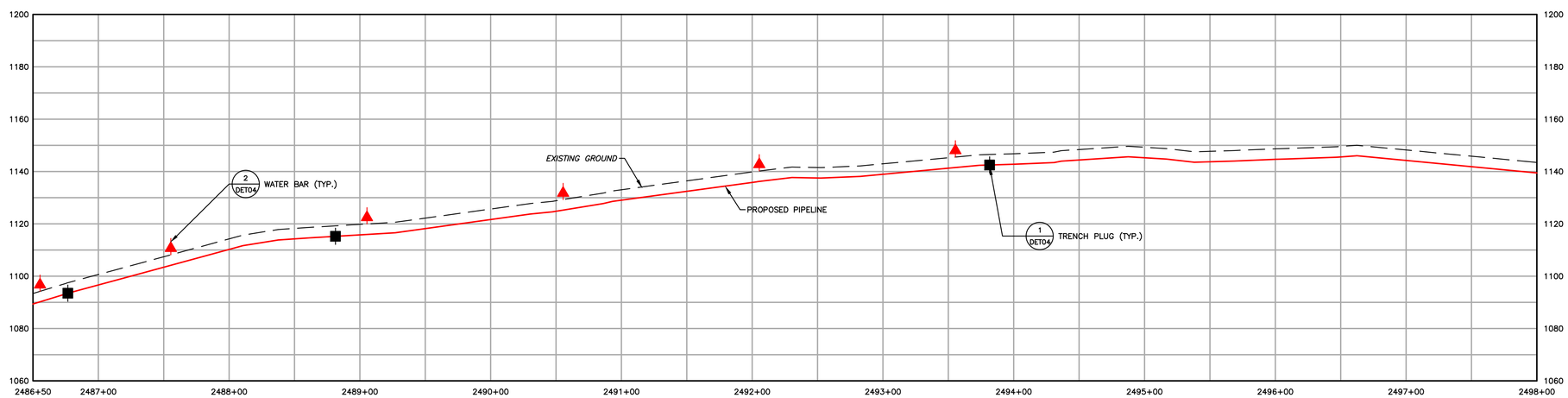
BEAVER COUNTY
GREENE TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119772	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN182A.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:53 AM) Last Plotted: 2018-01-03 (1/3/2018 8:41 AM)



LAND USE	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
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LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

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1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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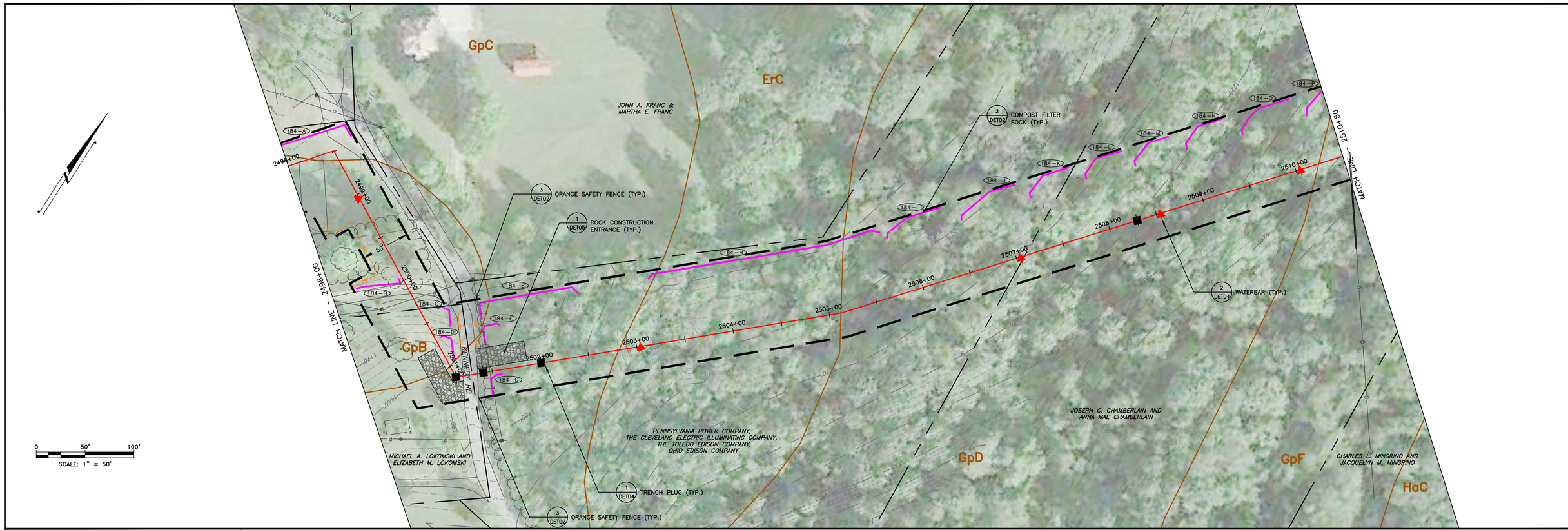
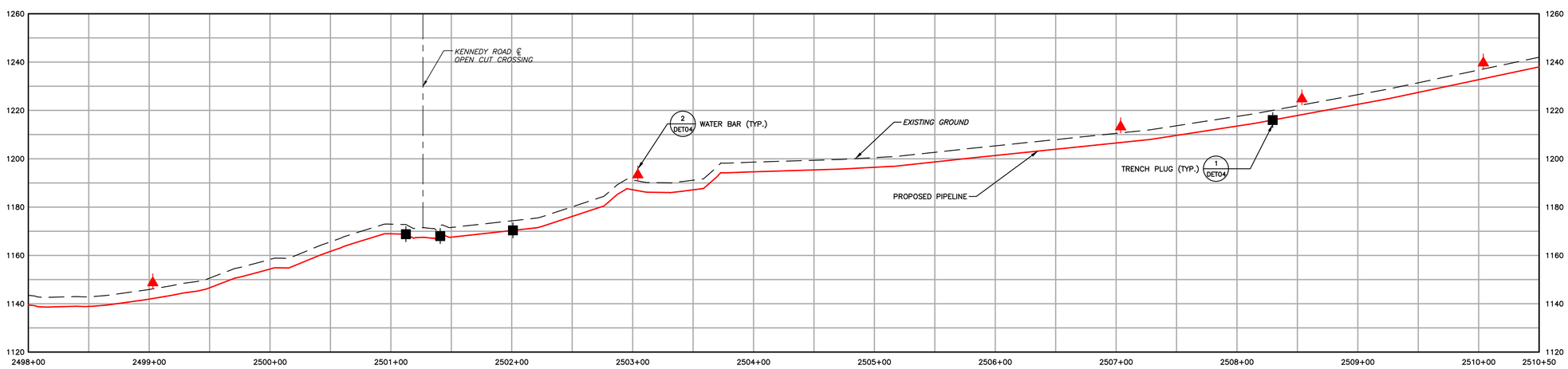
EROSION AND SEDIMENT CONTROL PLAN
ES183 – (STA. 2486+50 TO STA. 2497+50)
BEAVER COUNTY PENNSYLVANIA
GREENE AND RACCOON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119468	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\742\SHELL\60498885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN183.DWG
Last saved by: ALEXANDER.CURTICE (12/08/2017 11:35 AM) Last Plotted: 2018-01-03 (1/3/2018 8:42 AM)



LAND USE	FIELD	ROAD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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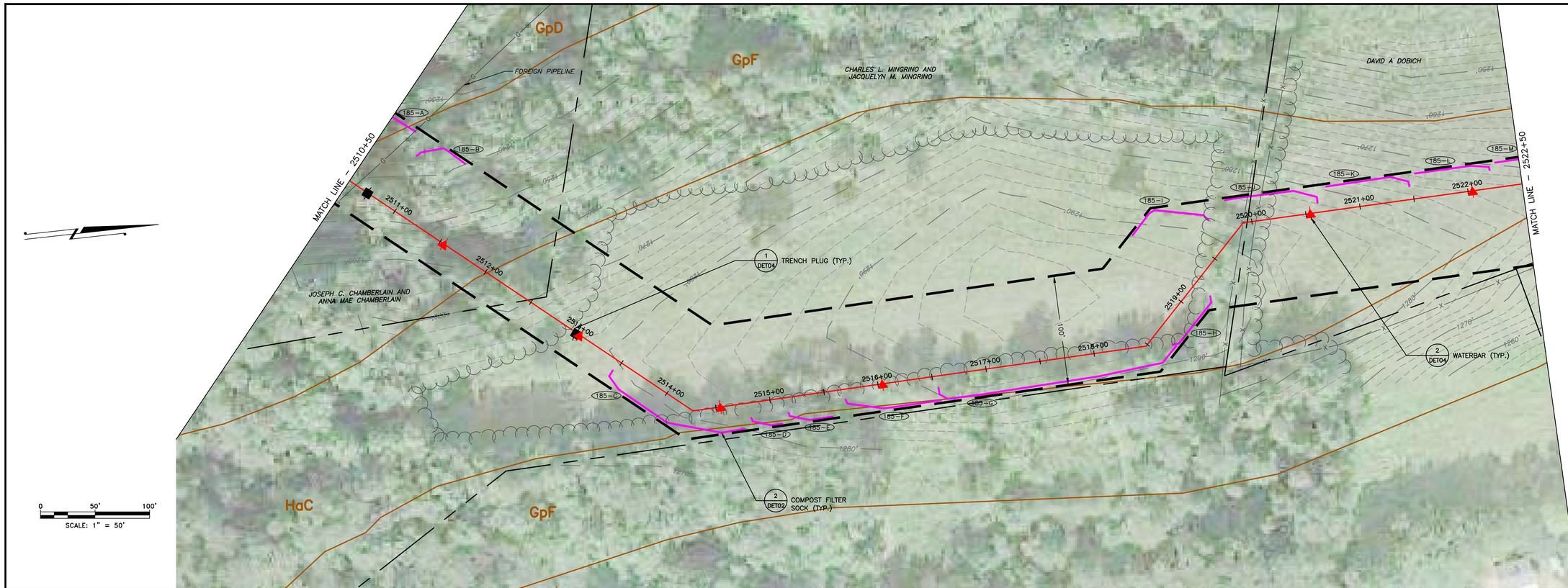
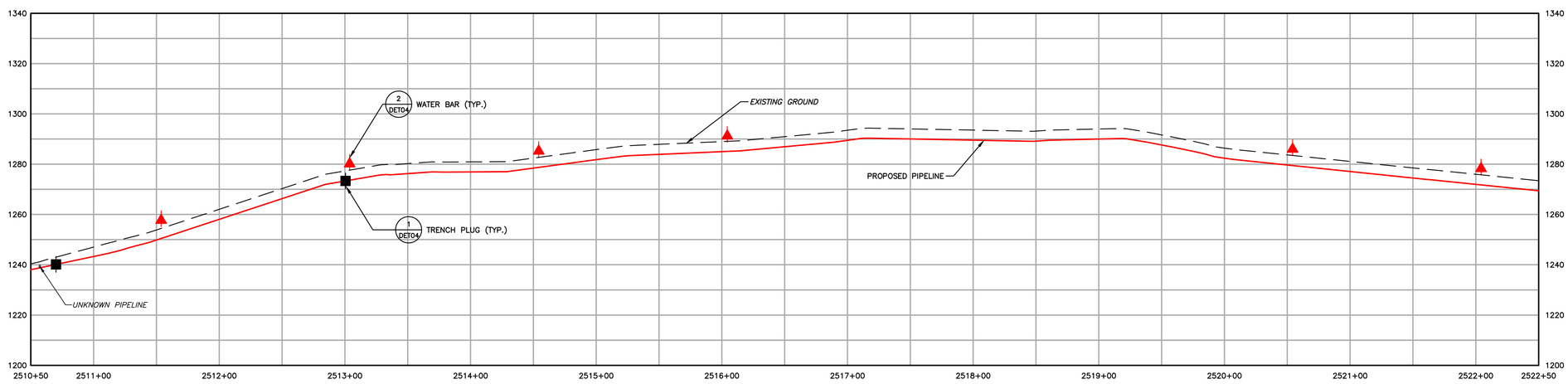
EROSION AND SEDIMENT CONTROL PLAN
ES184 – (STA. 2497+50 TO STA. 2510+50)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119469	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0495885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN184.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:55 AM) Last Plotted: 2018-01-03 (1/3/2018 8:43 AM)



LAND USE	WOODS	FIELD	WOODS	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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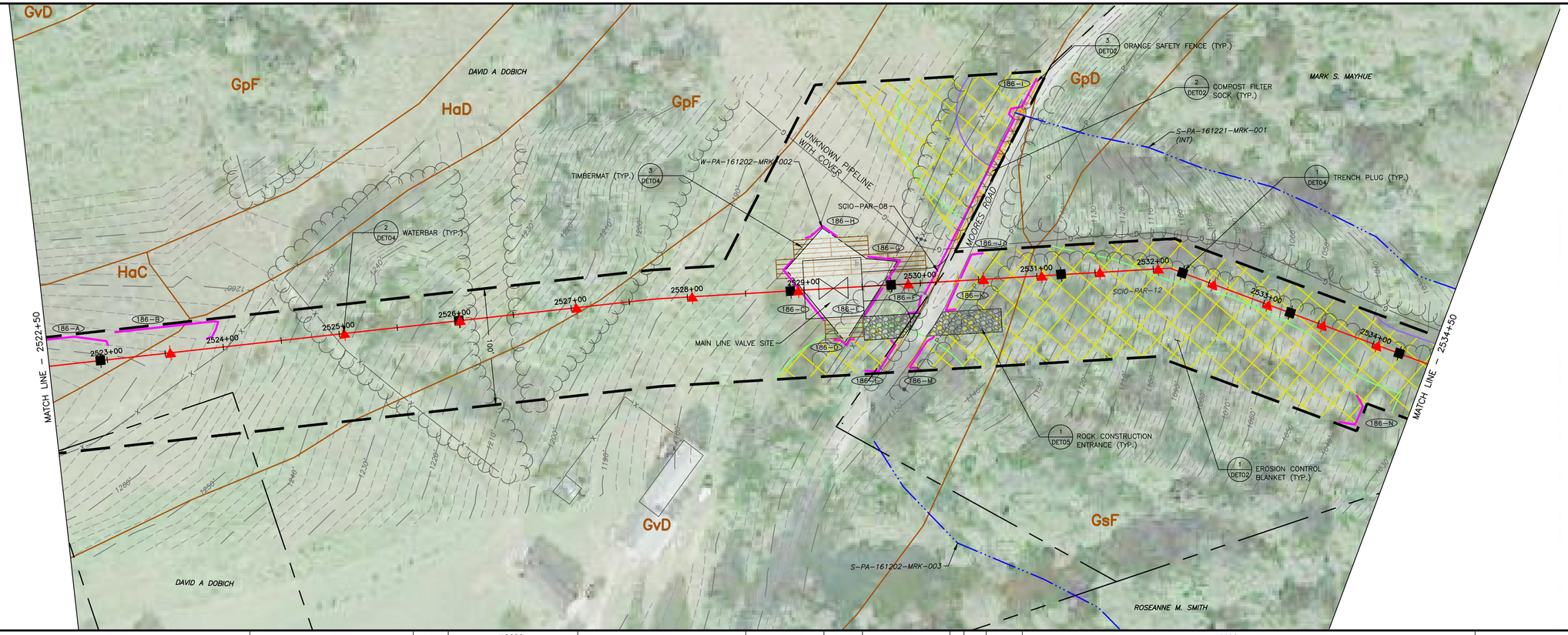
EROSION AND SEDIMENT CONTROL PLAN
ES185 – (STA. 2510+50 TO STA. 2522+50)

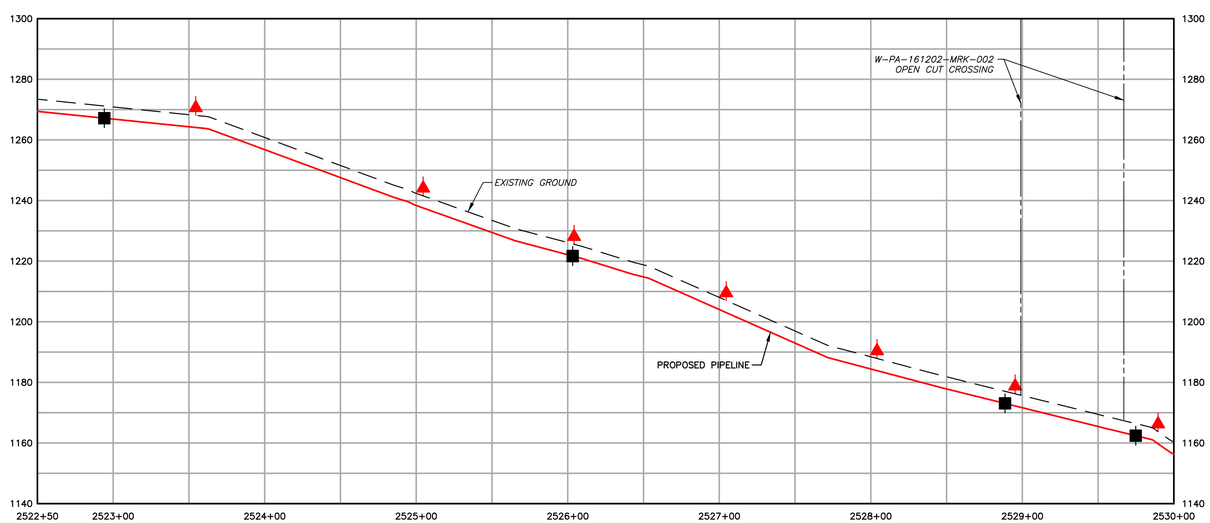
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

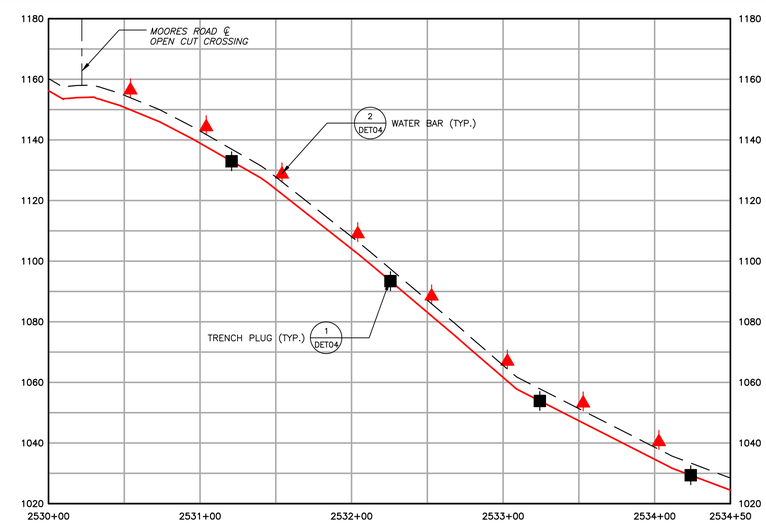
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119470	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 – FALCON\90–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN185.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:34 AM) Last Plotted: 2018–01–03 (1/3/2018 8:44 AM)



LAND USE	FIELD	WOODS	FIELD	WOODS	FIELD	WETLAND	FIELD		ROAD	FIELD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'	4'	5'	4'		5'	4'	4'	





EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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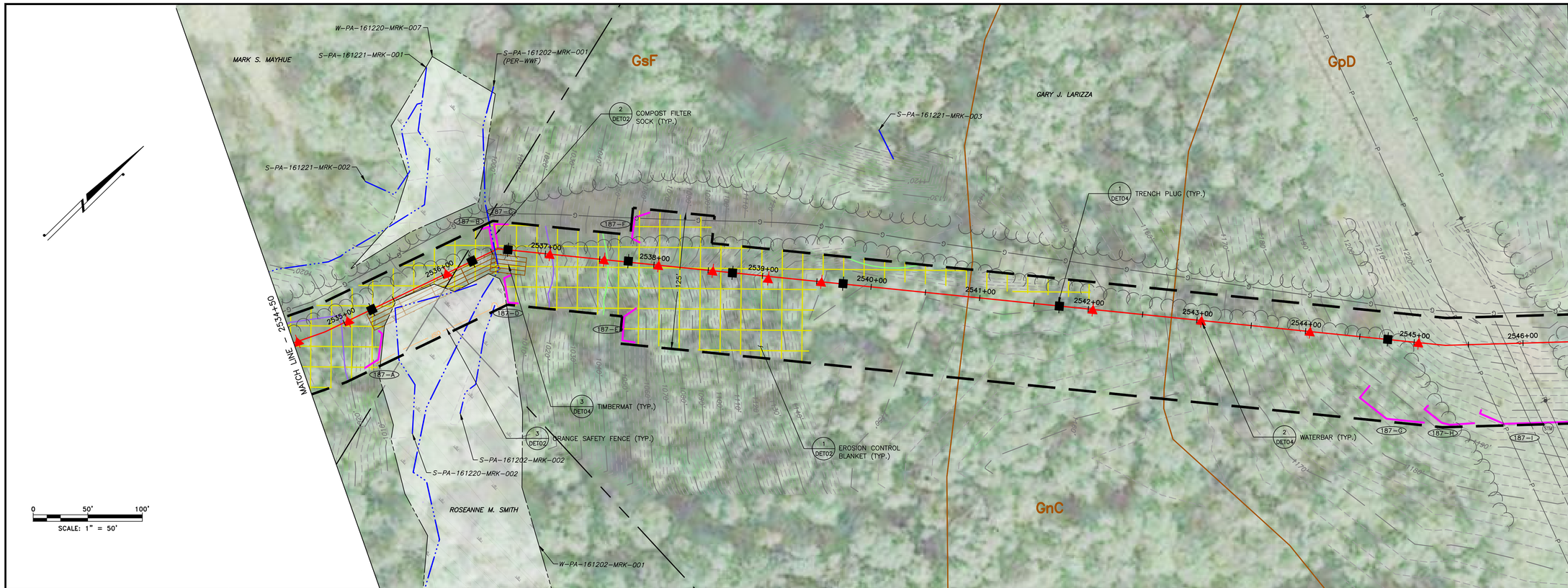
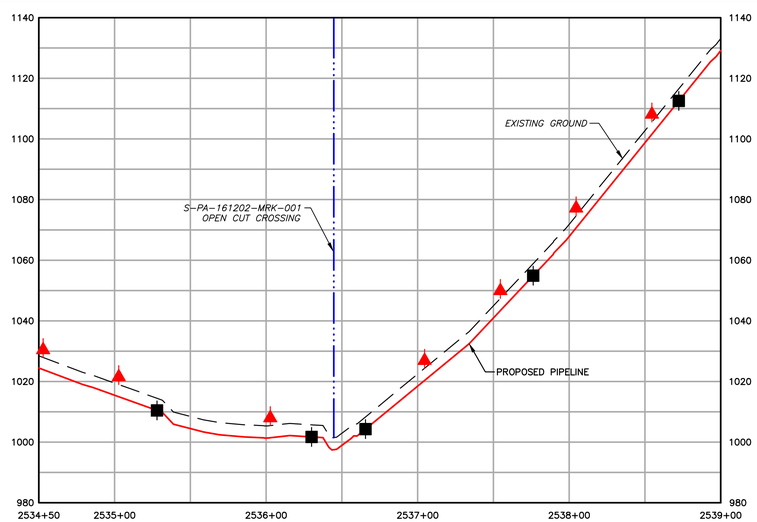
EROSION AND SEDIMENT CONTROL PLAN
ES186 – (STA. 2522+50 TO STA. 2534+50)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

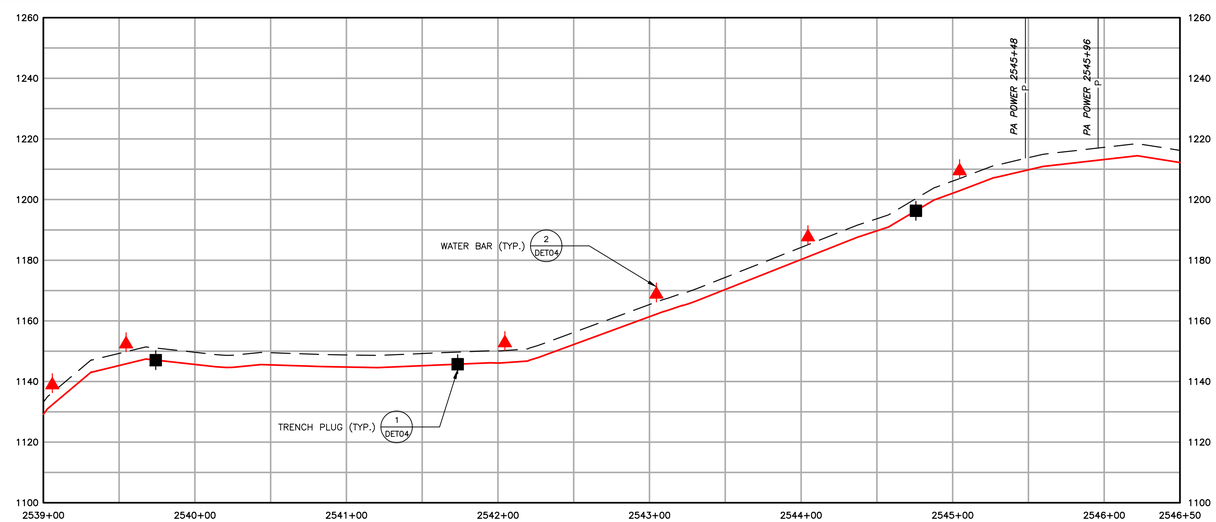
SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119471	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\6458895 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN186.DWG
Last saved by: CESARGA (12/26/2017 1:31 PM) Last Plotted: 2018-01-03 (1/3/2018 8:45 AM)



LAND USE	WOODS	STREAM	WOODS	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'	4'	4'





EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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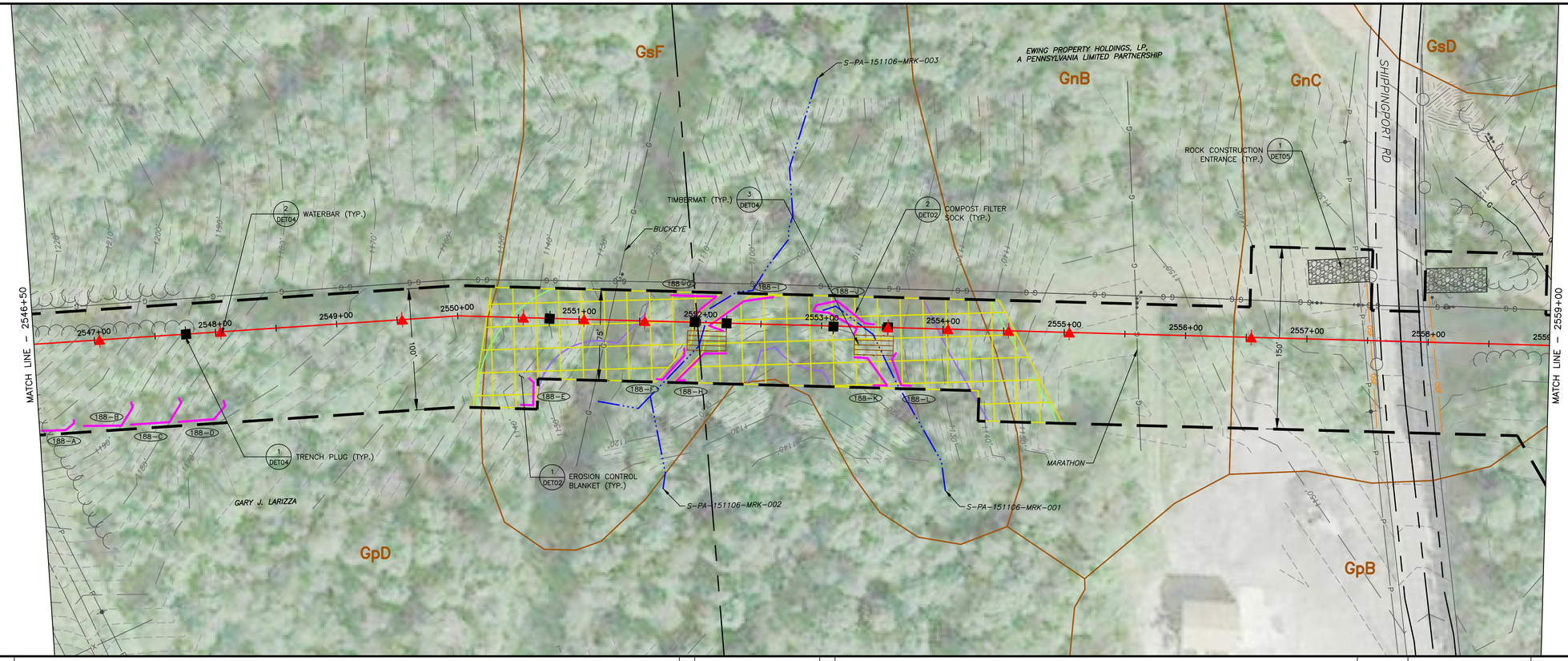
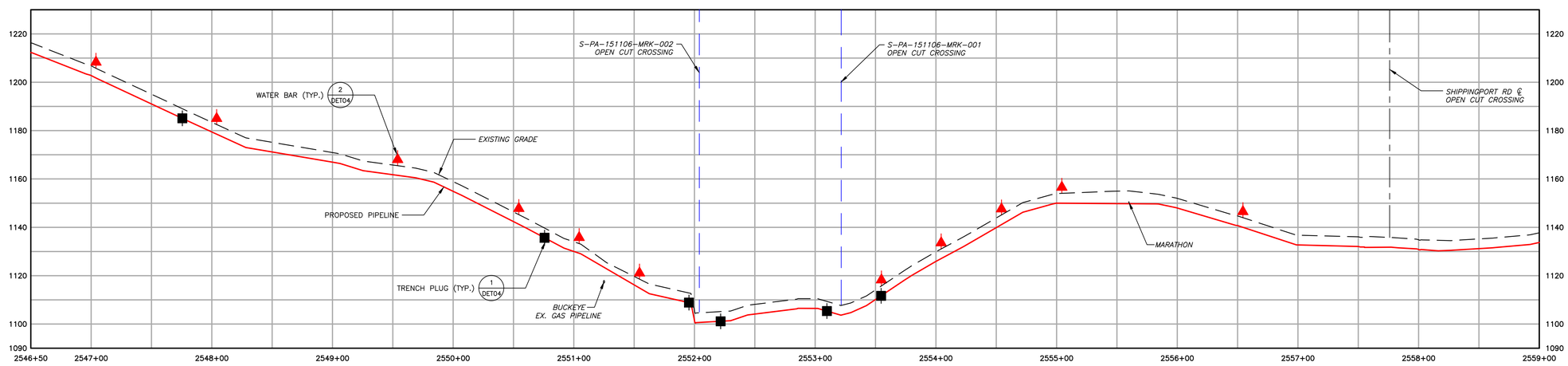
EROSION AND SEDIMENT CONTROL PLAN
ES187 – (STA. 2534+50 TO STA. 2546+50)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC-GOM-AE-SD119472	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0459885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN187.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:53 AM) Last Plotted: 2018-01-03 (1/3/2018 8:48 AM)



LAND USE	WOODS	STREAM	WOODS	STREAM	FIELD	ROAD	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	5'	4'



EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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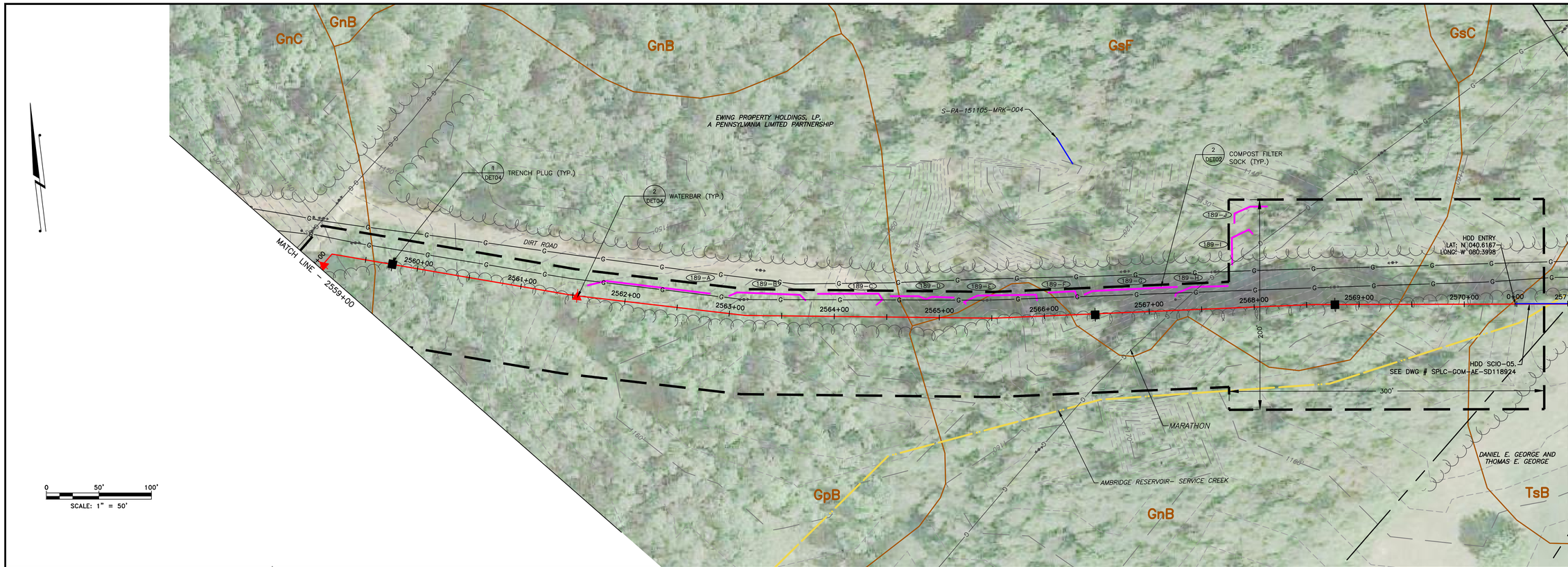
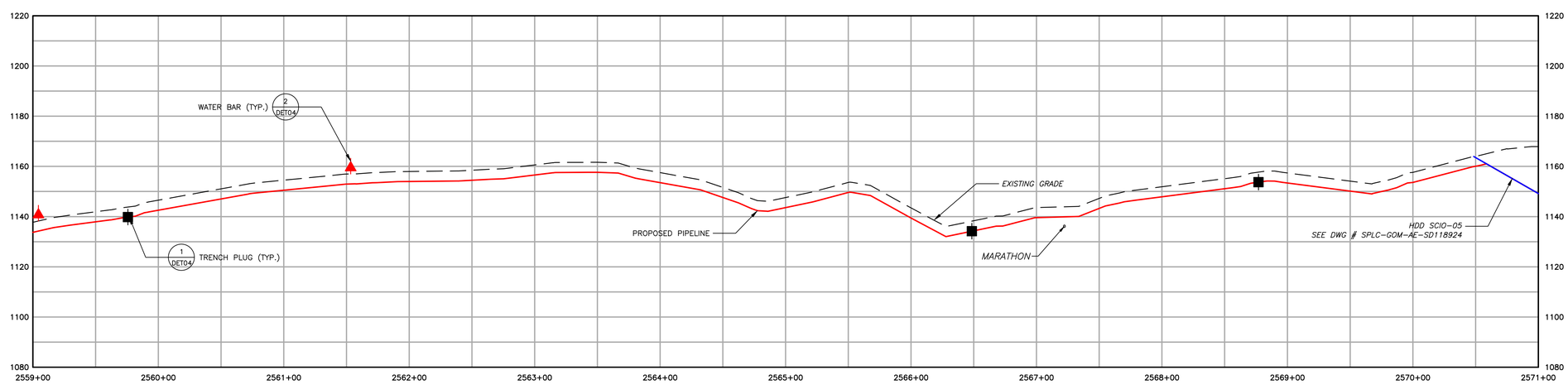
EROSION AND SEDIMENT CONTROL PLAN
ES188 – (STA. 2546+00.00 TO STA. 2558+50.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119473	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10495885 – FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN188.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:53 AM) Last Plotted: 2018-01-03 (1/3/2018 8:47 AM)



LAND USE	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE	OSF	PROPOSED ORANGE SAFETY FENCE
			PROPOSED TIMBER MAT
			PROPOSED EROSION CONTROL BLANKET
			PROPOSED STONE CONSTRUCTION ENTRANCE
			100-YEAR FLOODPLAIN
			WATERSHED BOUNDARY
		MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
		MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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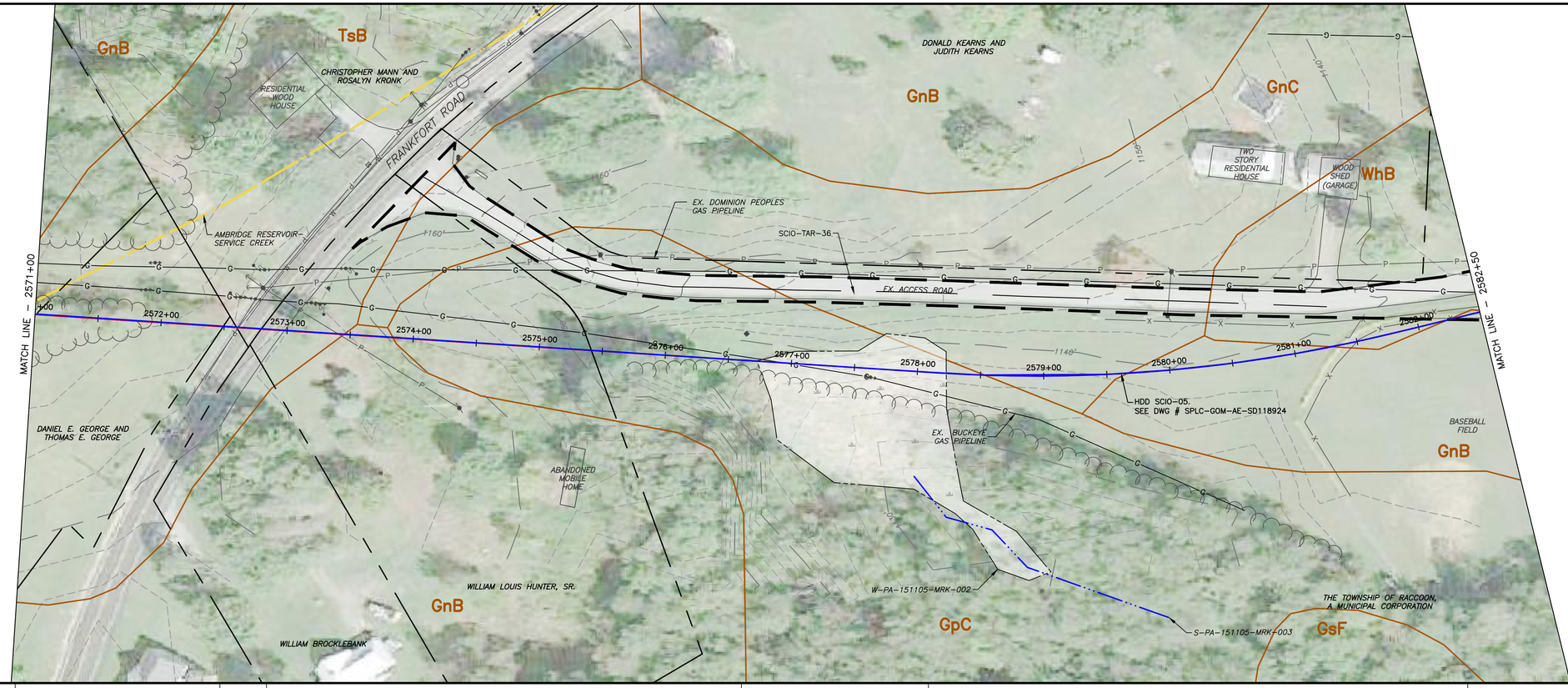
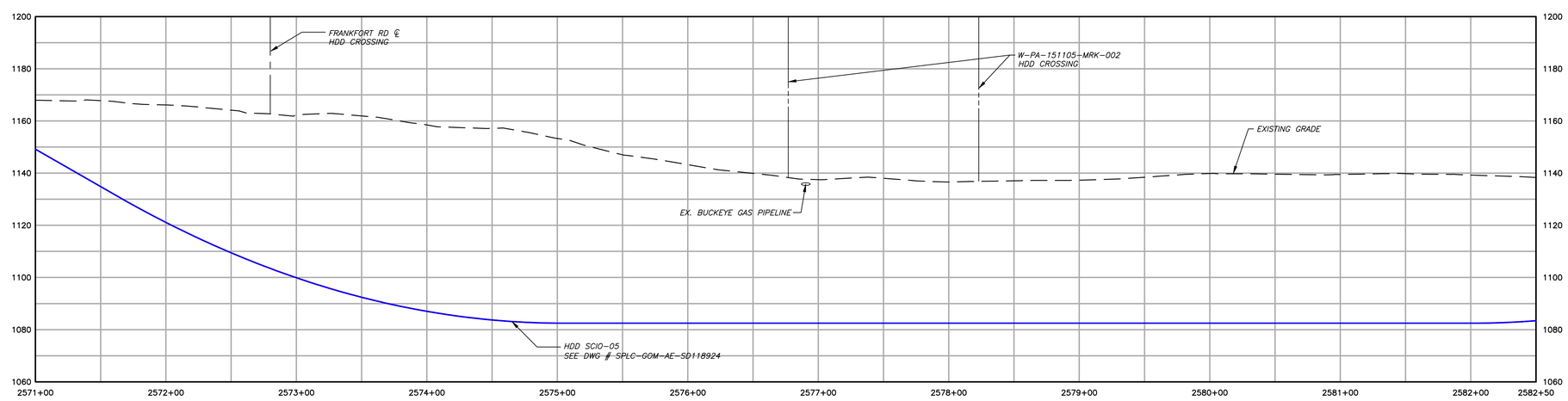
EROSION AND SEDIMENT CONTROL PLAN
ES189 – (STA. 2558+50.00 TO STA. 2570+50.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119474	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN189.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:53 AM) Last Plotted: 2018-01-03 (1/3/2018 8:48 AM)



LAND USE	FIELD	ROAD	FIELD	WETLANDS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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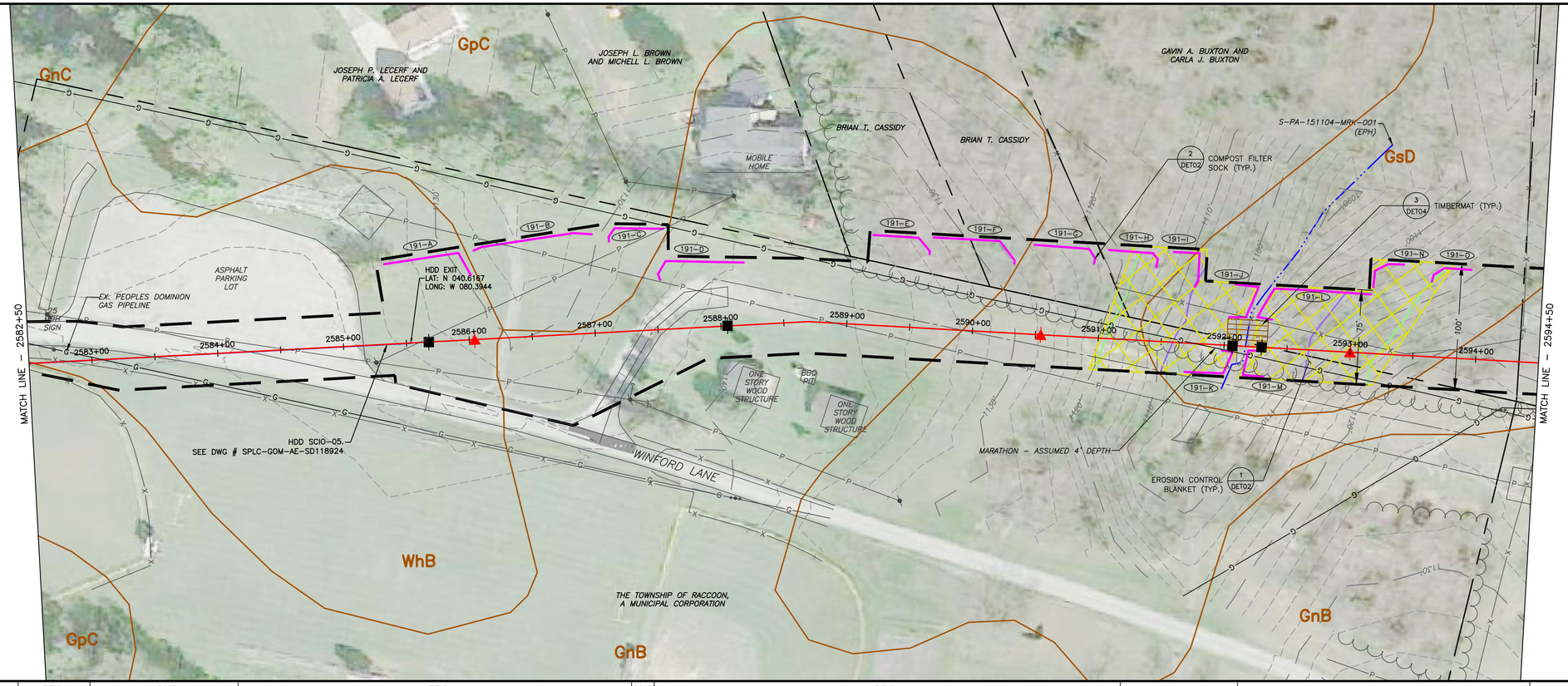
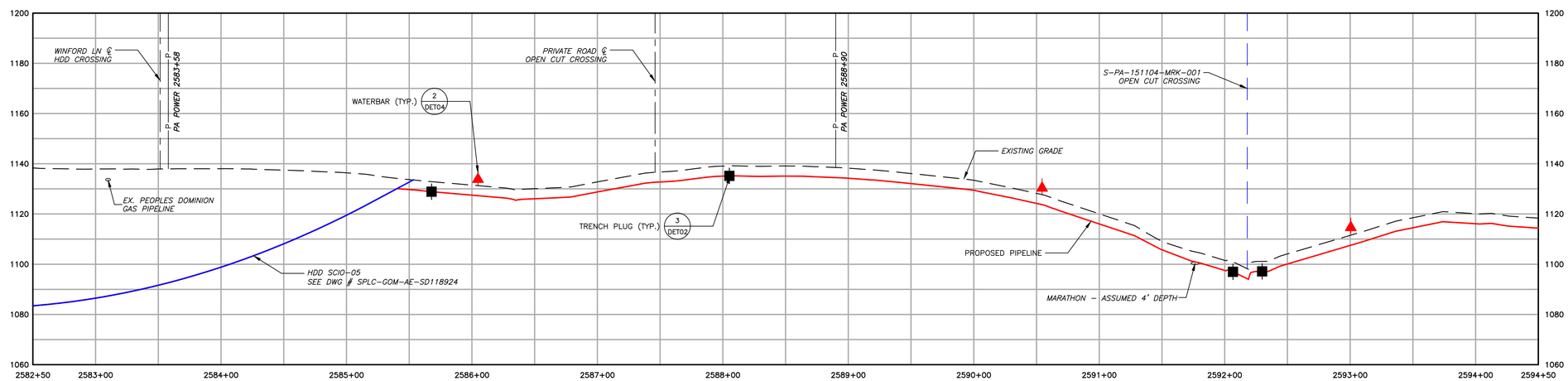
EROSION AND SEDIMENT CONTROL PLAN
ES190 – (STA. 2570+50.00 TO STA. 2582+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119475	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0495885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN190.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:32 AM) Last Plotted: 2018-01-03 (1/3/2018 8:50 AM)



LAND USE	FIELD	ROAD	FIELD	ROAD	FIELD	WOODS STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'	4' 5'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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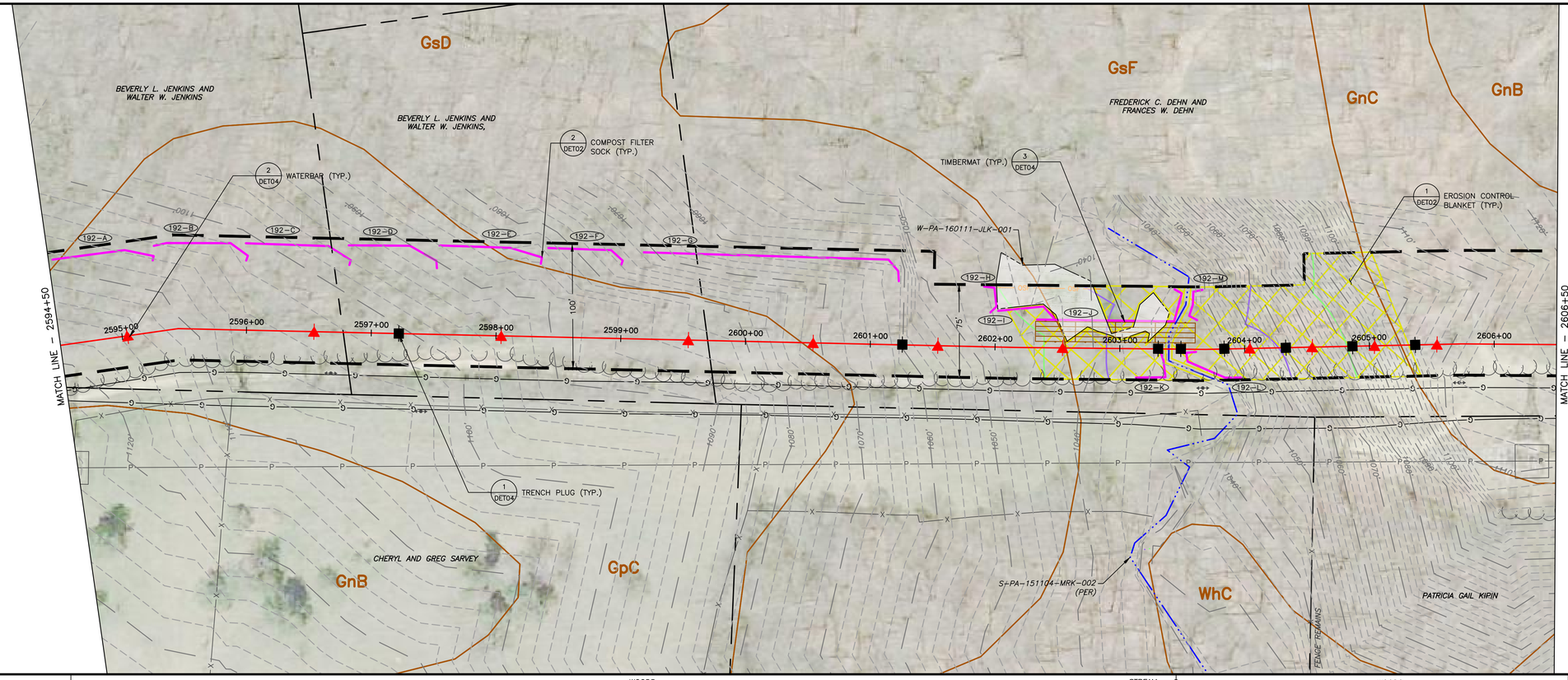
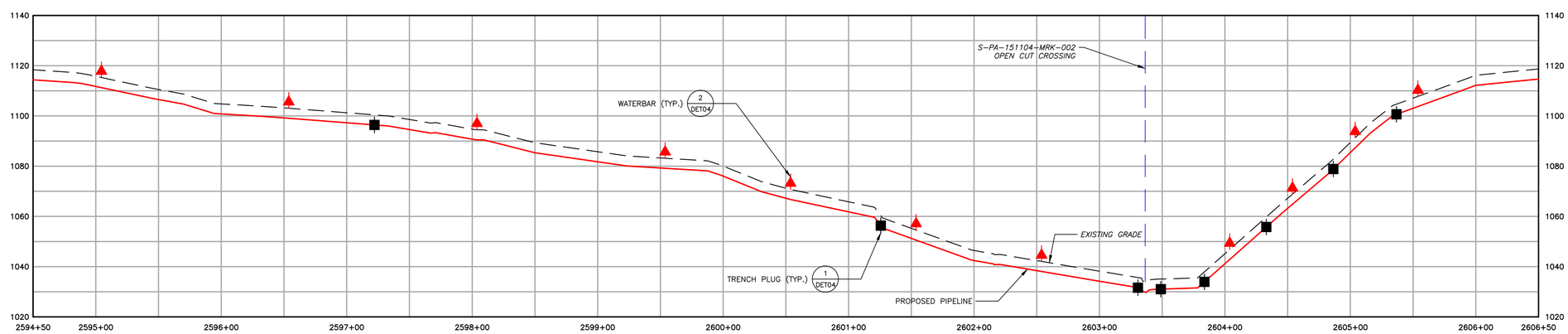
EROSION AND SEDIMENT CONTROL PLAN
ES191 - (STA. 2582+00.00 TO STA. 2594+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119476	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHEILL\0449889 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN191.DWG
Last saved by: TASHNA.MCKINNEY (12/26/2017 3:53 PM) Last Plotted: 2018-01-03 (1/3/2018 8:51 AM)



LAND USE	WOODS	STREAM	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

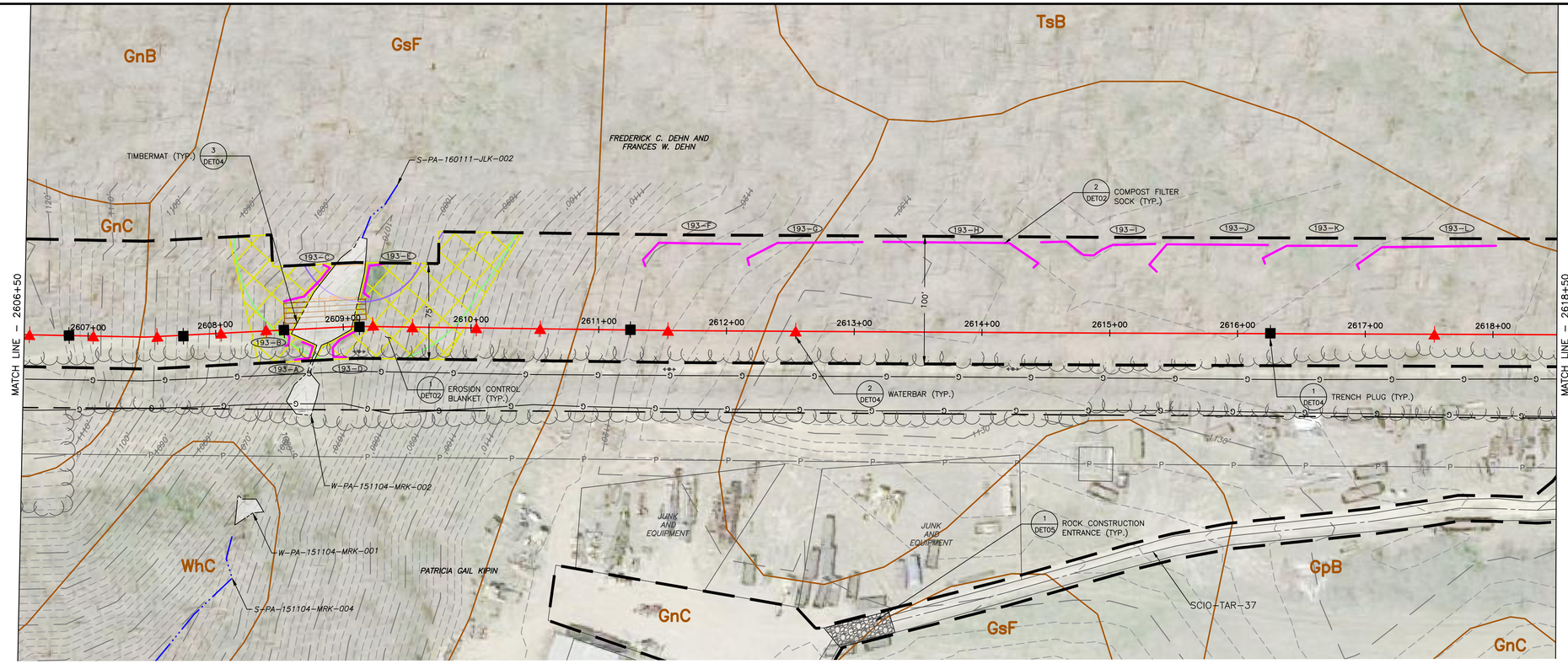
SCIO TO JUNCTION

THIS DOCUMENT IS CONFIDENTIAL AND IT SHALL NOT BE REPRODUCED OR REDISTRIBUTED WITHOUT PRIOR PERMISSION. NEITHER THE OPERATOR NOR THE OWNER MAKE ANY WARRANTY AS TO THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION CONTAINED ON THIS DRAWING, AND THE USER ASSUMES ALL RISK OF LOSS TO PERSONS AND PROPERTY AS A RESULT OF RELIANCE THEREON.

EROSION AND SEDIMENT CONTROL PLAN
ES192 – (STA. 2594+00.00 TO STA. 2606+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

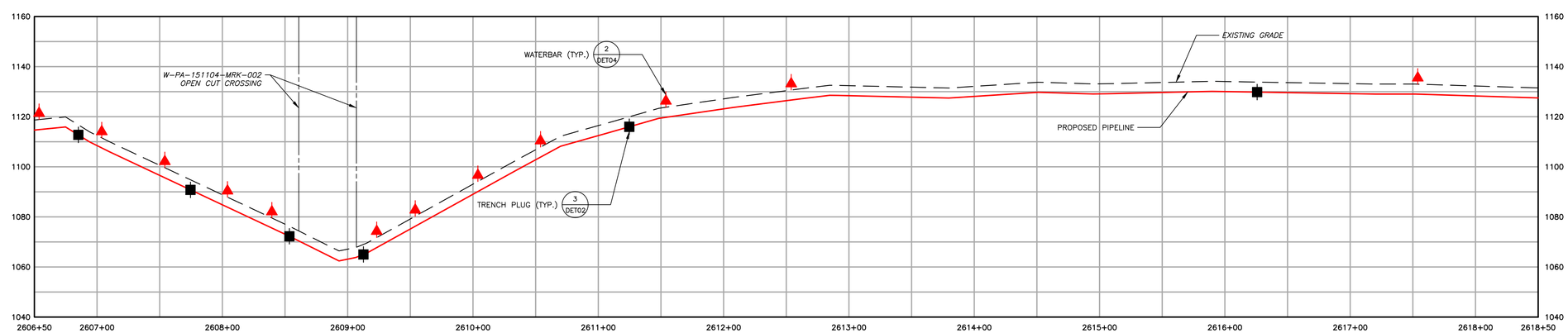
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119477	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0449885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN192.DWG
Last saved by: TASHINA.MCKINNEY (12/26/2017 3:06 PM) Last Plotted: 2018-01-03 (1/3/2018 8:52 AM)



MATCH LINE – SEE ES193A

LAND USE	WOODS	WETLAND	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE

PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG

OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES193 – (STA. 2606+00.00 TO STA. 2617+50.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119478	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0649885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN193.DWG
Last Saved by: ALEXANDER.CURTICE (12/28/2017 11:45 AM) Last Plotted: 2018-01-03 (1/3/2018 8:53 AM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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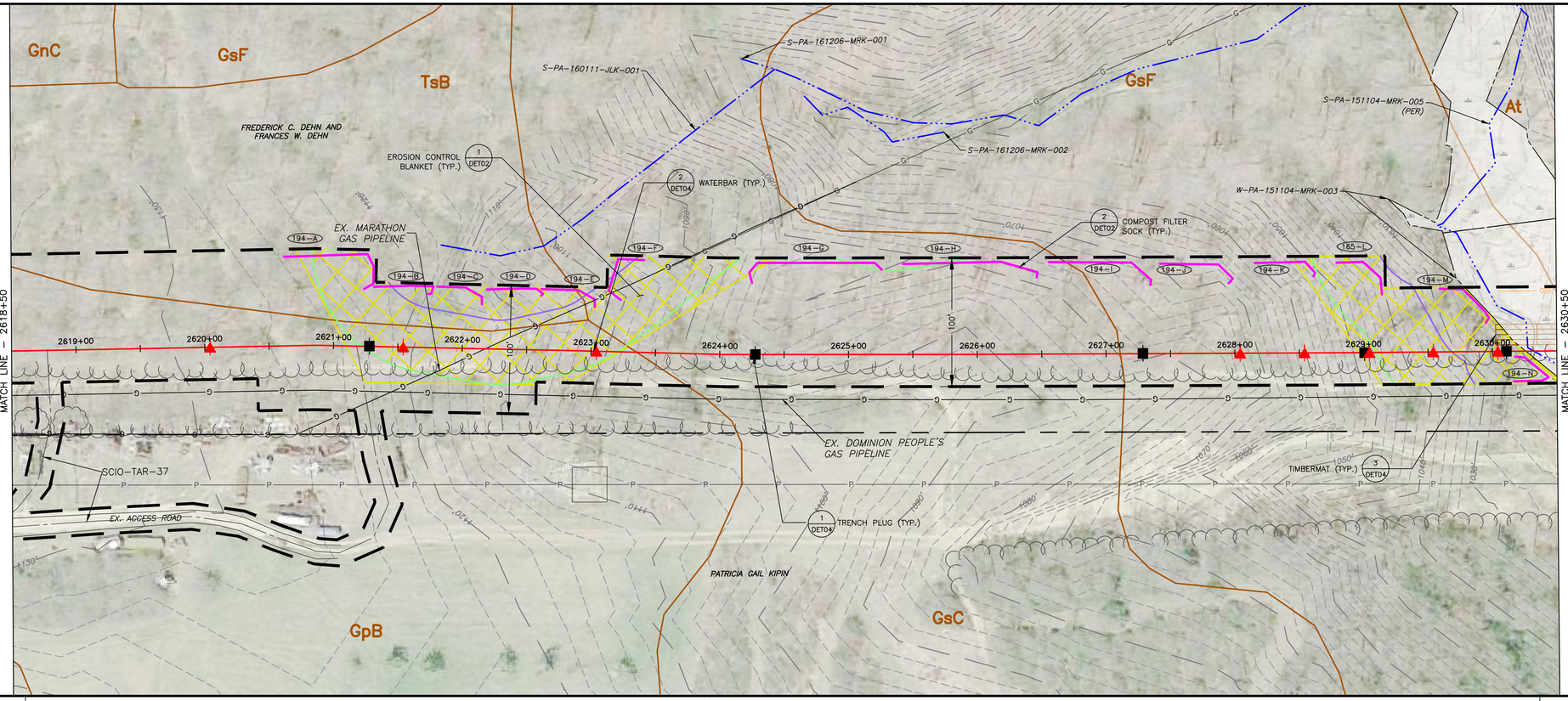
EROSION AND SEDIMENT CONTROL PLAN
ES193A - (SCIO-TAR-37)

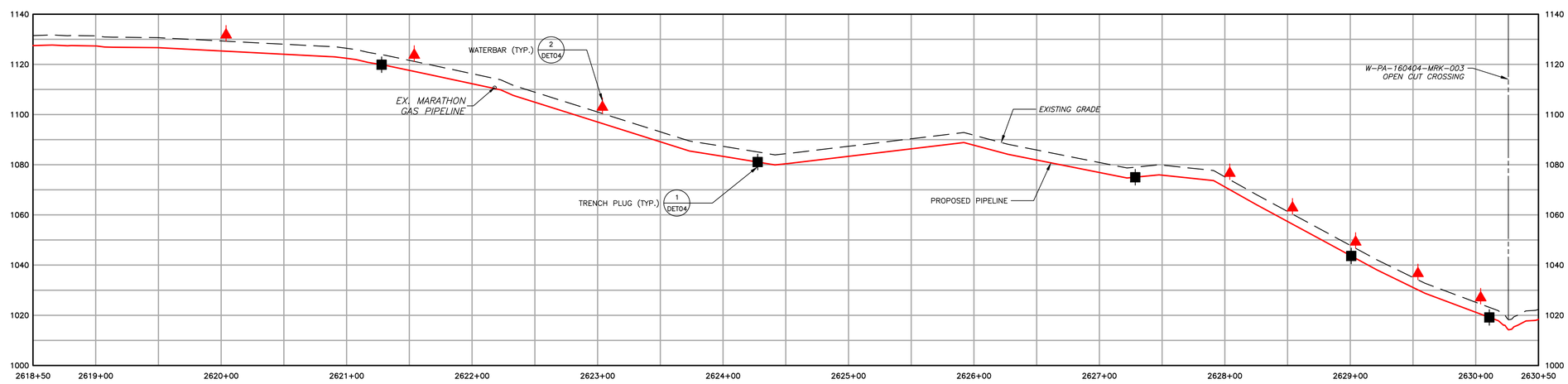
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119771	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489883 - FALCON\950-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN193A.DWG
Last saved by: ALEXANDER.CORTEZ (12/29/2017 11:57 AM) Last Plotted: 2018-01-03 (1/3/2018 8:54 AM)



LAND USE	WOODS	WETLANDS →	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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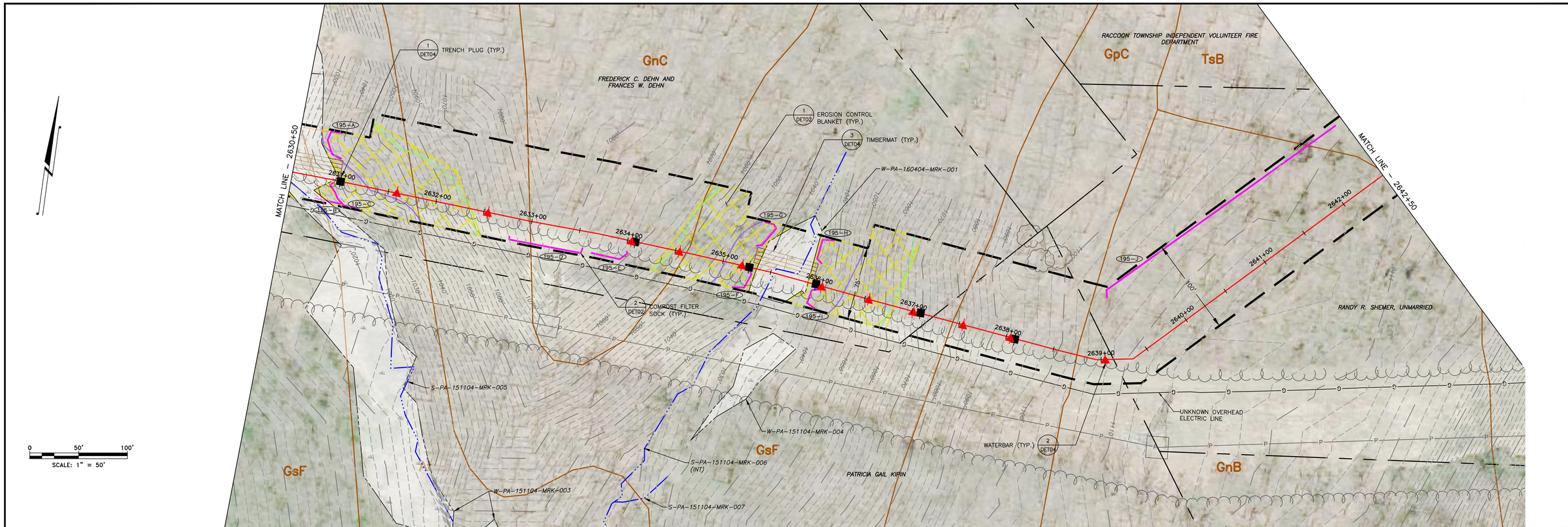
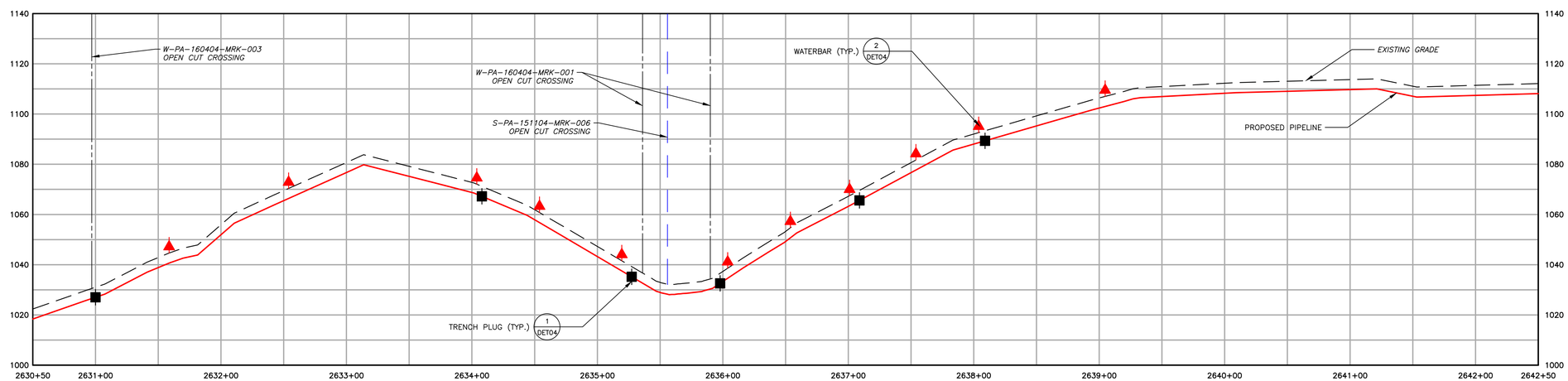
EROSION AND SEDIMENT CONTROL PLAN
ES194 – (STA. 2617+50.00 TO STA. 2630+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119479	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 - FALCON\90-WORK\91-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN194.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 11:49 AM) Last Plotted: 2018-01-03 (1/3/2018 8:55 AM)



LAND USE	WETLAND	WOODS	WETLAND	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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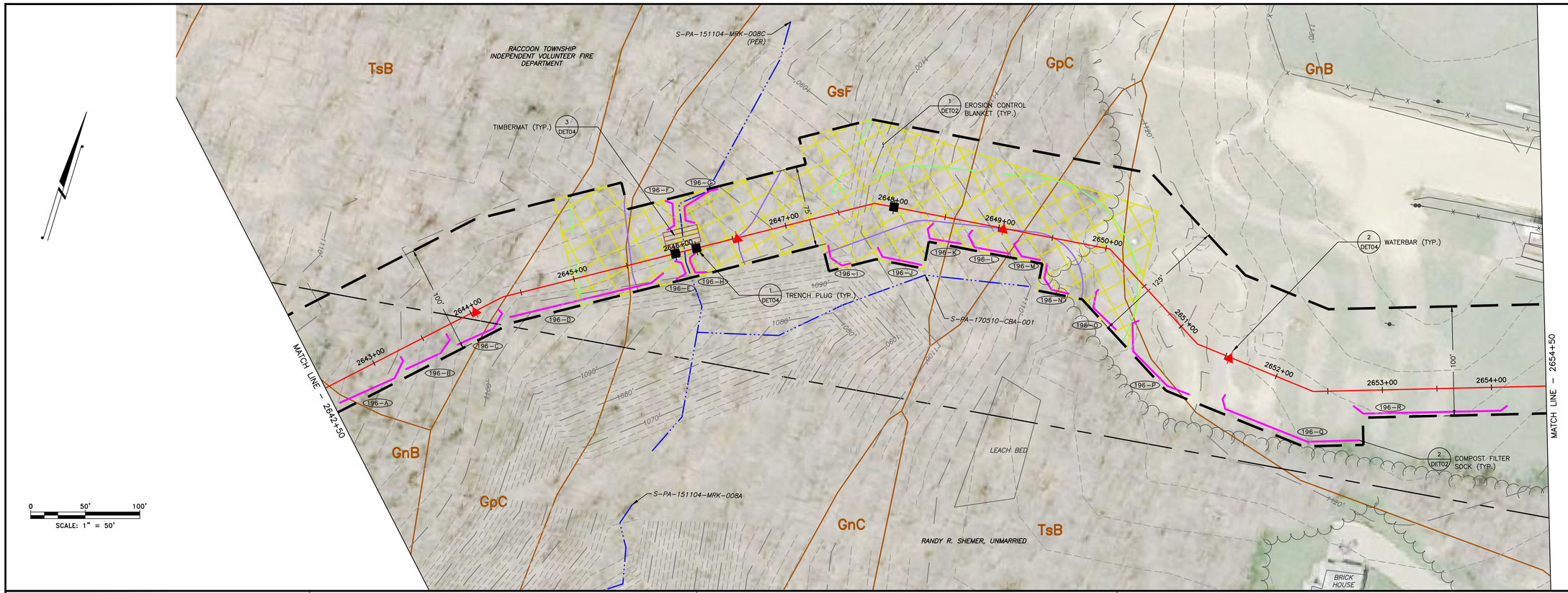
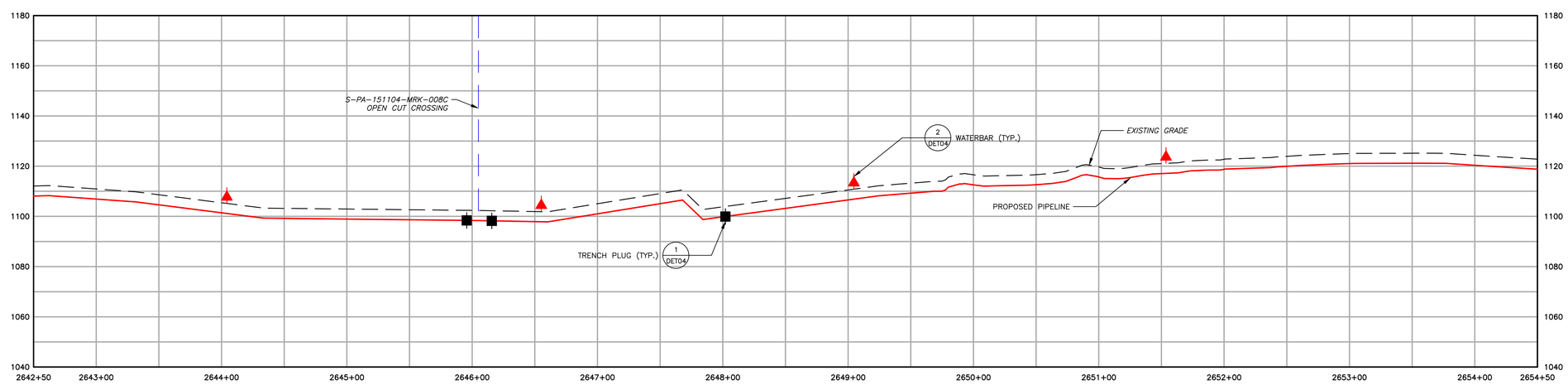
EROSION AND SEDIMENT CONTROL PLAN
ES195 – (STA. 2630+00.00 TO STA. 2642+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119480	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0449885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN195.DWG
Last saved by: TASHNA.MCKINET (12/26/2017 3:17 PM) Last Plotted: 2018-01-03 (1/3/2018 8:58 AM)



LAND USE	WOODS	STREAM	WOODS	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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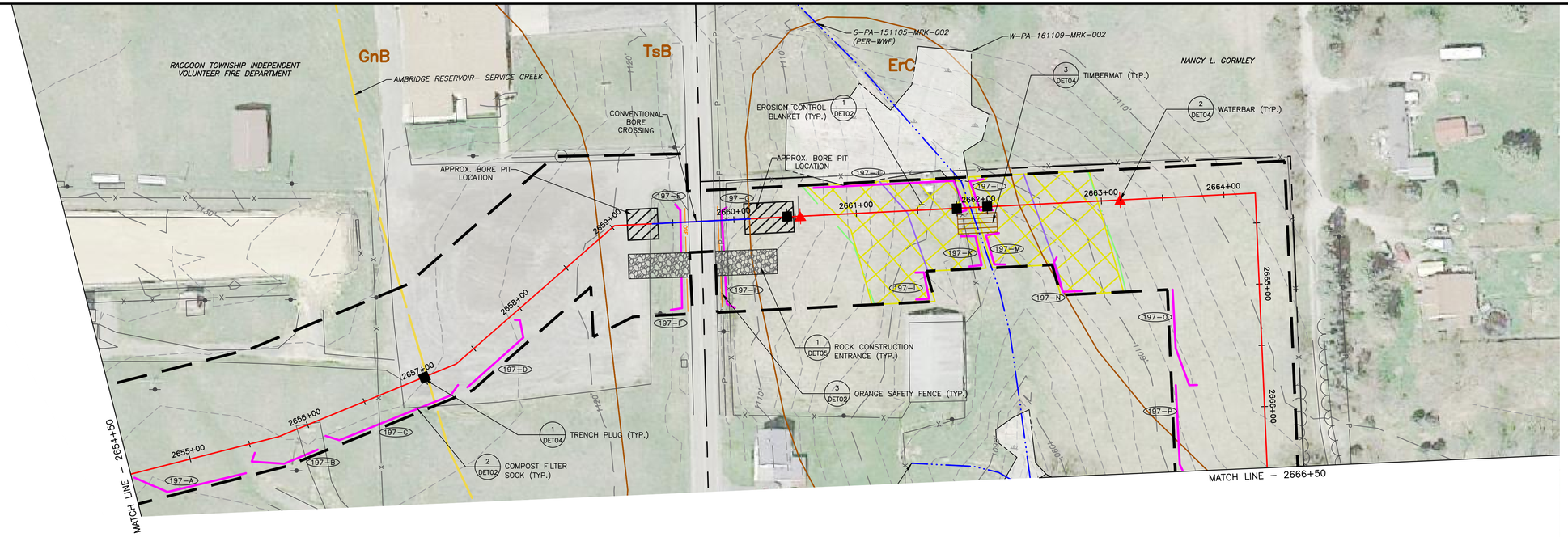
EROSION AND SEDIMENT CONTROL PLAN
ES196 - (STA. 2642+00.00 TO STA. 2654+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

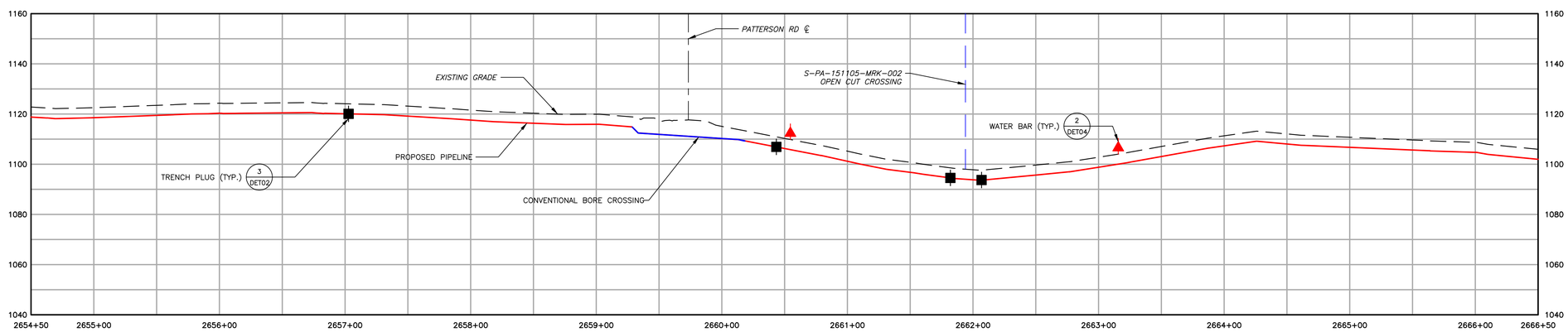
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119481	REVISION
DRAWN	TLM	120/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0459885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN196.DWG
Last saved by: TASHINA.MCKINET (12/26/2017 4:13 PM) Last Plotted: 2018-01-03 (1/3/2018 8:57 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	FIELD	ROAD	FIELD	STREAM	FIELD
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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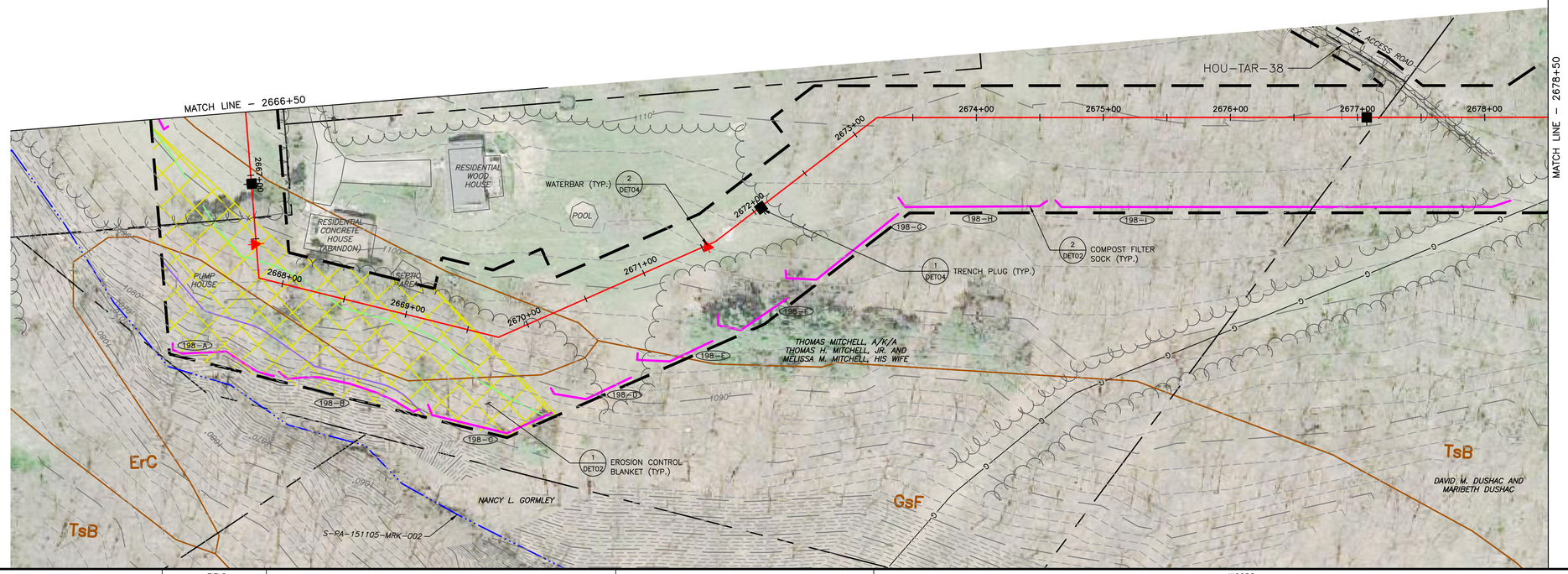
EROSION AND SEDIMENT CONTROL PLAN
ES197 – (STA. 2654+00.00 TO STA. 2666+00.00)

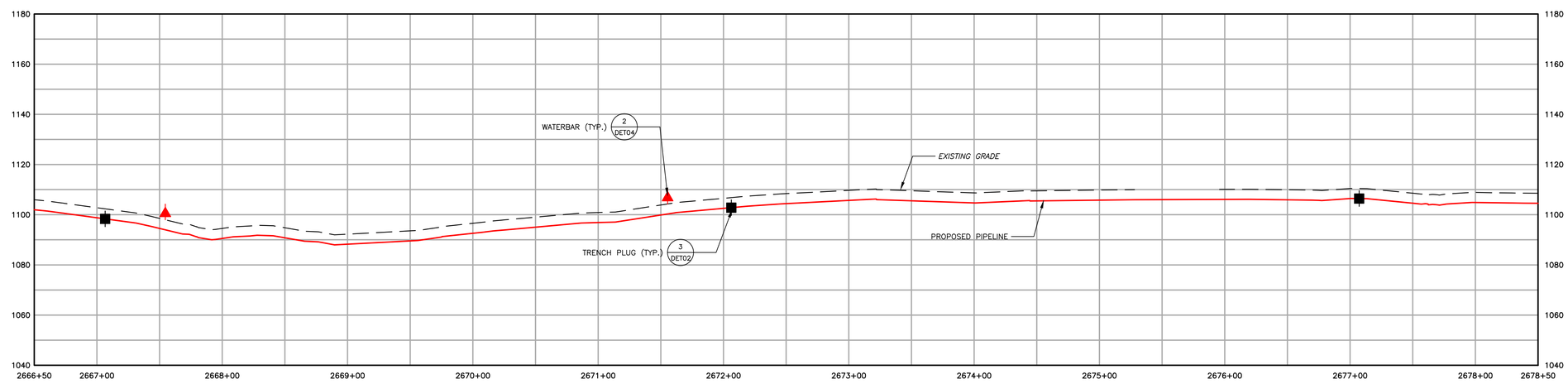
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC–GOM–AE–SD119482	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\174T\SHELL\65489885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN197.DWG
Last saved by: ALEXANDER.CLOWICE (12/28/2017 12:01 PM) Last Plotted: 2018–01–03 (1/5/2018 8:58 AM)



LAND USE	FIELD	WOODS	FIELD	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	4'	4'	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
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LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES198 – (STA. 2666+00.00 TO STA. 2678+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119483	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\0498885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN198.DWG
Last saved by: TASHINA.MCKINNEY (12/26/2017 3:22 PM) Last Plotted: 2018-01-03 (1/3/2018 8:59 AM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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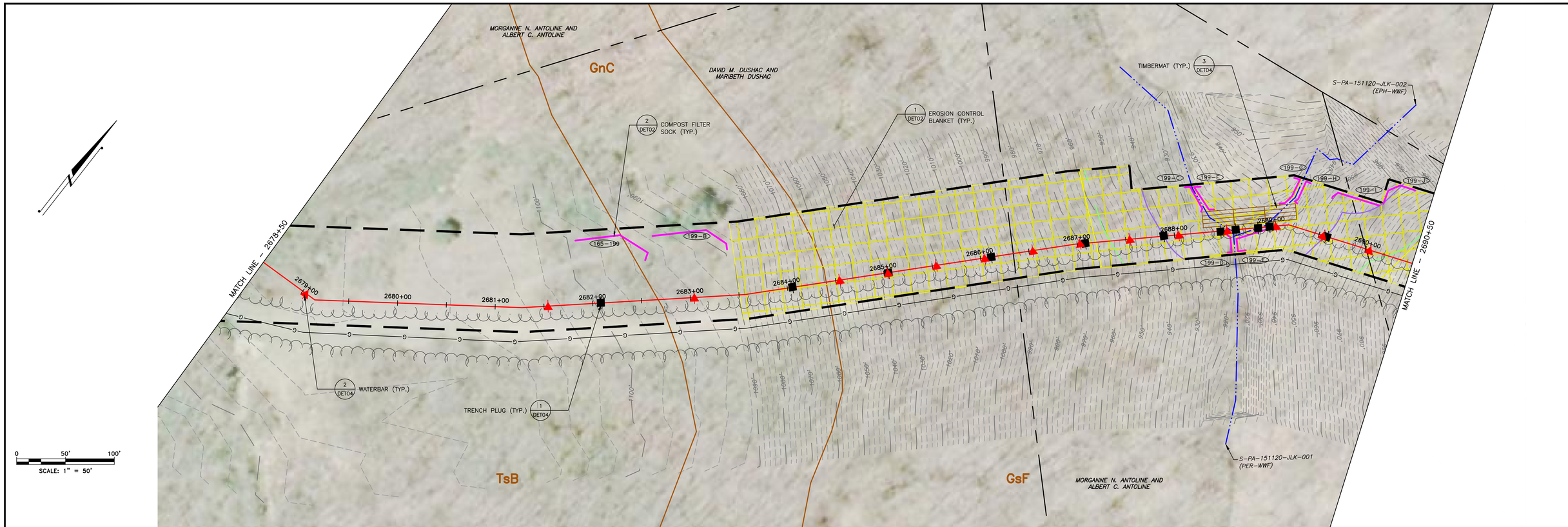
EROSION AND SEDIMENT CONTROL PLAN
ES198A – SCIO-TAR-38

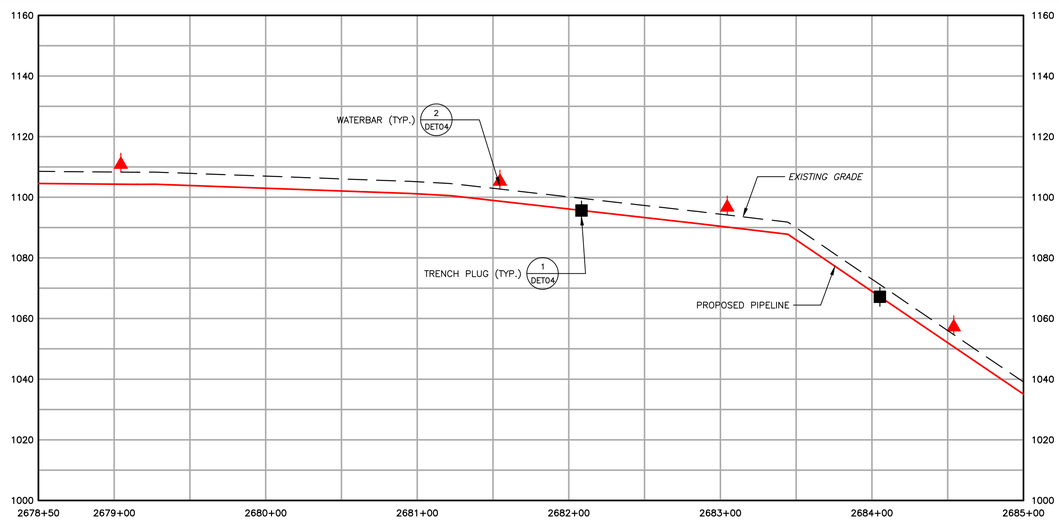
BEAVER COUNTY
RACCOON TOWNSHIP
PENNSYLVANIA

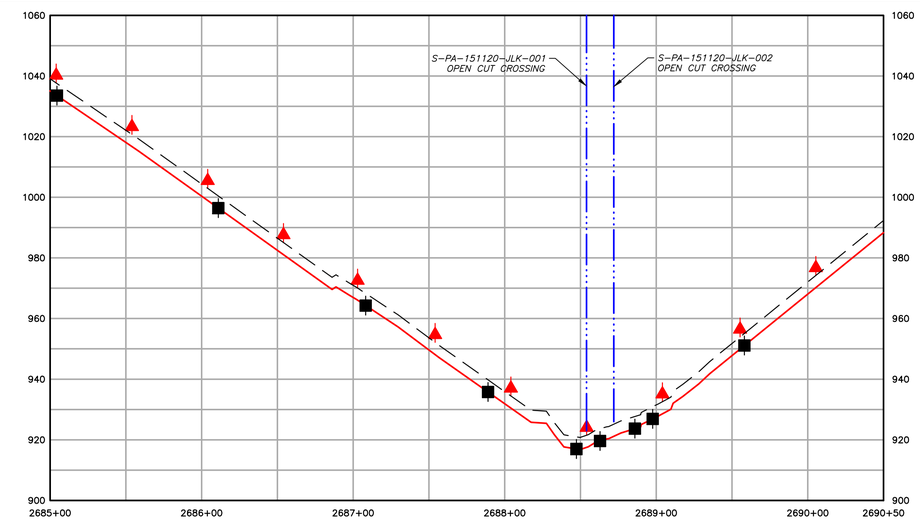
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119770	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\60489883 – FALCON\950-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN198A.DWG
Last saved by: ALEXANDER.CORTEZ (12/29/2017 12:59 PM) Last Plotted: 2018-01-03 (1/3/2018 9:00 AM)



LAND USE	WOODS		WOODS	STREAM — STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'		4'	5' 5'	4'





1550	EXISTING CONTOURS (INDEX)		PROPOSED PIPELINE
	EXISTING CONTOURS (INTERMEDIATE)		LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	EXISTING PROPERTY LINE		ACCESS ROAD CENTERLINE
	EXISTING STREAM		PROPOSED SILT FENCE (BY TYPE)
	ASSUMED FLOODWAY (50 FEET)		PROPOSED COMPOST FILTER SOCK
	STREAM BUFFER (100 FEET)		PROPOSED RIGHT OF WAY DIVERSION
	EXISTING WETLAND		PROPOSED TRENCH PLUG
	TREE/BRUSH LINE		

OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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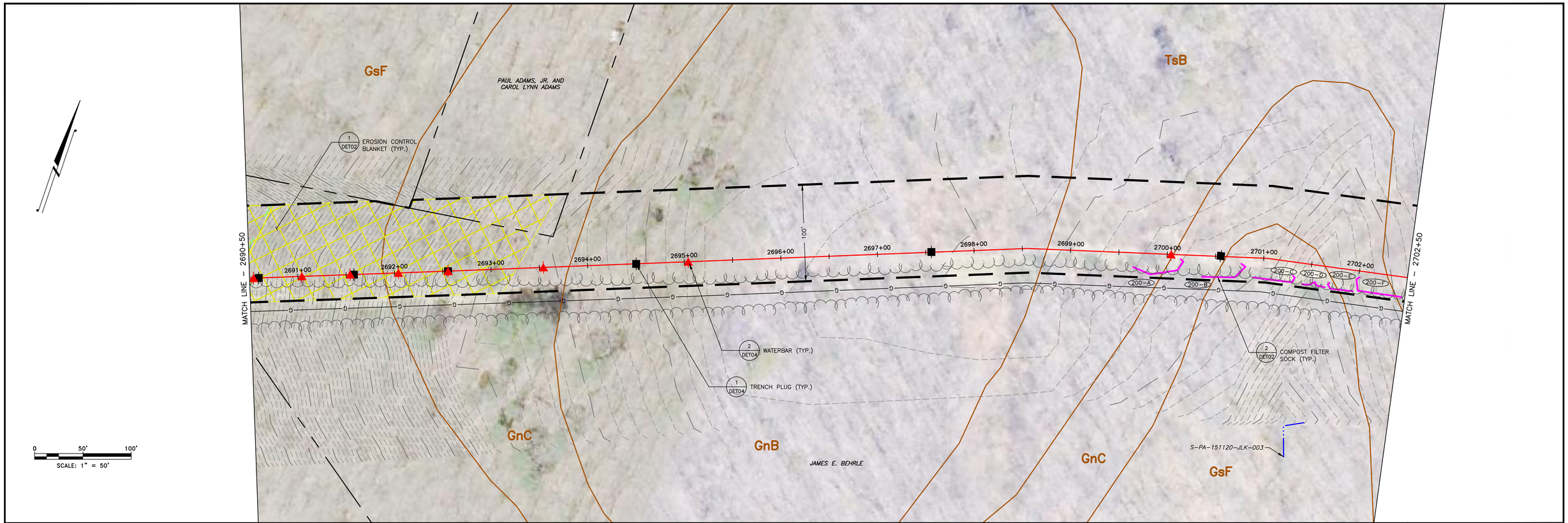
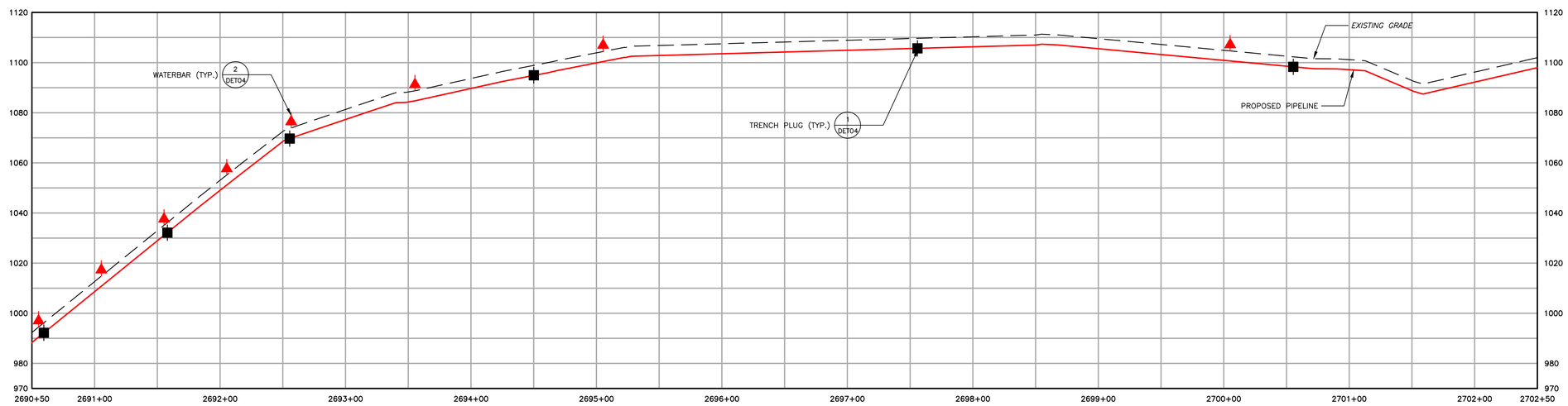
EROSION AND SEDIMENT CONTROL PLAN
ES199 – (STA. 2678+00.00 TO STA. 2690+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119484	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\10458885 - FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN199.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 12:11 PM) Last Plotted: 2018-01-03 (1/3/2018 9:01 AM)



LAND USE	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100–YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
JOSEPH W. RYAN
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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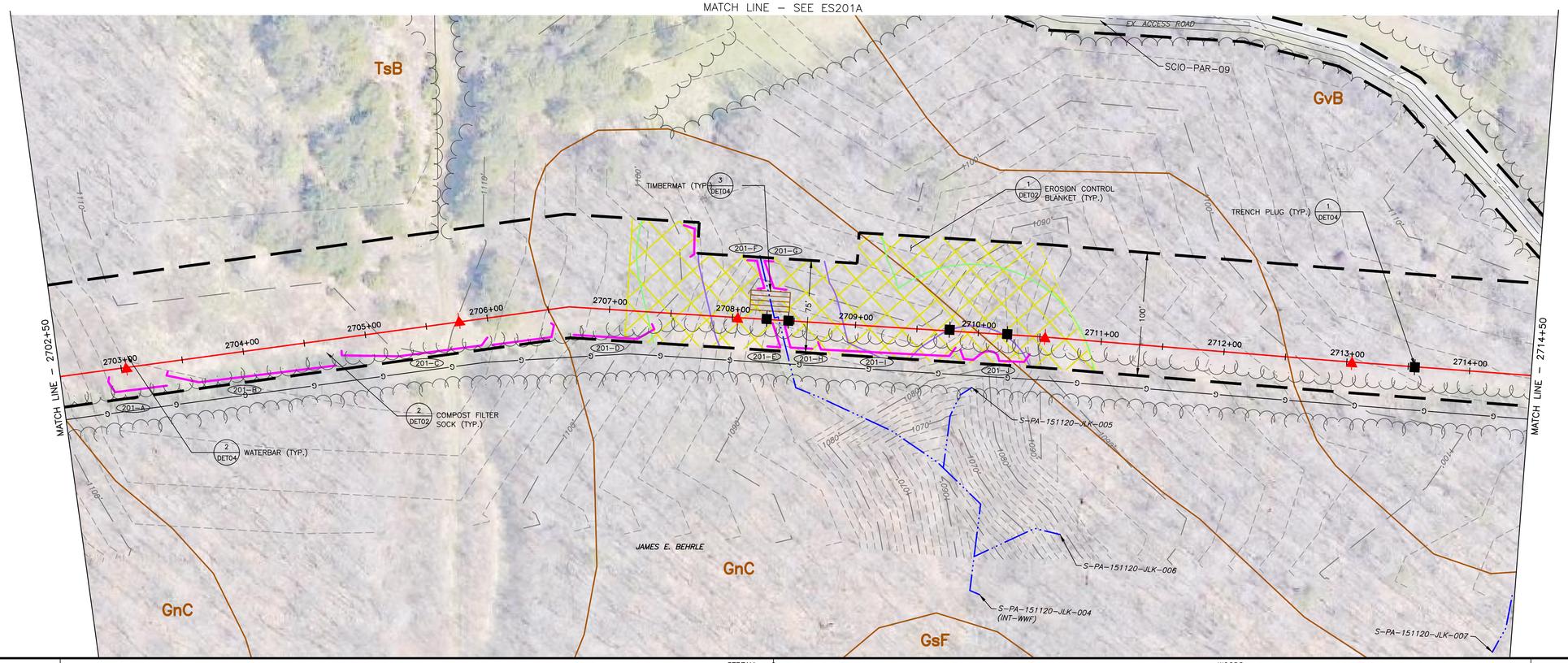
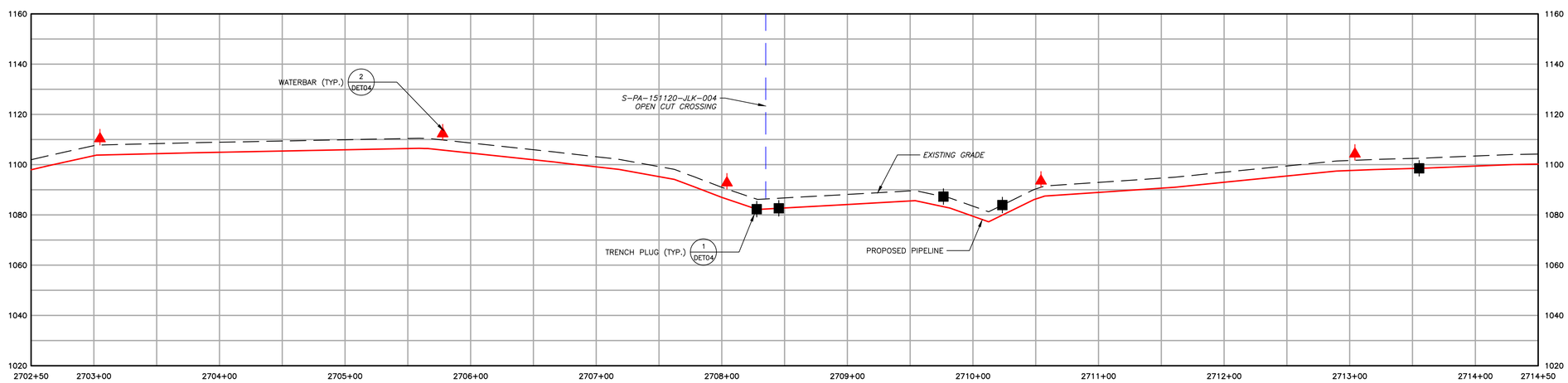
EROSION AND SEDIMENT CONTROL PLAN
ES200 – (STA. 2690+00.00 TO STA. 2702+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119485	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\10458885 – FALCON\100–WORK\91–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN200.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 12:15 PM) Last Plotted: 2018–01–03 (1/3/2018 9:02 AM)



LAND USE	WOODS	STREAM	WOODS
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'



1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100–YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES201 – (STA. 2702+00.00 TO STA. 2714+00.00)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	12/05/17	SPLC–GOM–AE–SD119486	REVISION 1
DRAWN	TLM				

Filename: Y:\PROJECTS\1747\SHELL\0485885 – FALCON\900–WORK\911–ENVIRONMENTAL\20–SHEETS\PENNSYLVANIA\PLAN201.DWG
Last saved by: ALEXANDER.CURTICE (12/29/2017 12:59 PM) Last Plotted: 2018–01–03 (1/3/2018 9:53 AM)

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
	WATERSHED BOUNDARY
MrB2	SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL	LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES201A - (SCIO-PAR-09 - HOU-TAR-50)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119769	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\5489885 - FALCON\90-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN201A.DWG
Last saved by: LMCGUA32HOTER (12/28/2017 1:25 PM) Last Plotted: 2018-01-03 (1/3/2018 10:05 AM)

LAT: N040.624172
LON: W080.358874
EL: 1120.90

POWER POLE (TYP.)

OVERHEAD POWER

GsD

GsF

JAMES E & DIANA M BEHRLE

PAUL ADAMS, JR & CAROL LYNN ADAMS

1 DET05 ROCK CONSTRUCTION ENTRANCE (TYP.)

HOU-TAR-50

HOU-TAR-50

EX. ACCESS ROAD

GnC

3 DET04 TIMBERMAT (TYP.)

201B-B

201B-A

COMPOST FILTER SOCK (TYP.) 2 DET02

W-PA-160503-MRK-001

TsB

SCIO-PAR-09

SCIO-PAR-09

EX. ACCESS ROAD

16'

JAMES E & DIANA M BEHRLE

GnC

GsF

MATCH LINE - SEE ES201B

0 50' 100'

SCALE: 1" = 50'

1550	EXISTING CONTOURS (INDEX)
	EXISTING CONTOURS (INTERMEDIATE)
	EXISTING PROPERTY LINE
	EXISTING STREAM
	ASSUMED FLOODWAY (50 FEET)
	STREAM BUFFER (100 FEET)
	EXISTING WETLAND
	TREE/BRUSH LINE
	PROPOSED PIPELINE
	LIMIT OF DISTURBANCE/PERMIT BOUNDARY
	ACCESS ROAD CENTERLINE
	PROPOSED SILT FENCE (BY TYPE)
	PROPOSED COMPOST FILTER SOCK
	PROPOSED RIGHT OF WAY DIVERSION
	PROPOSED TRENCH PLUG
OSF	PROPOSED ORANGE SAFETY FENCE
	PROPOSED TIMBER MAT
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED STONE CONSTRUCTION ENTRANCE
	100-YEAR FLOODPLAIN
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GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM

SCIO TO JUNCTION

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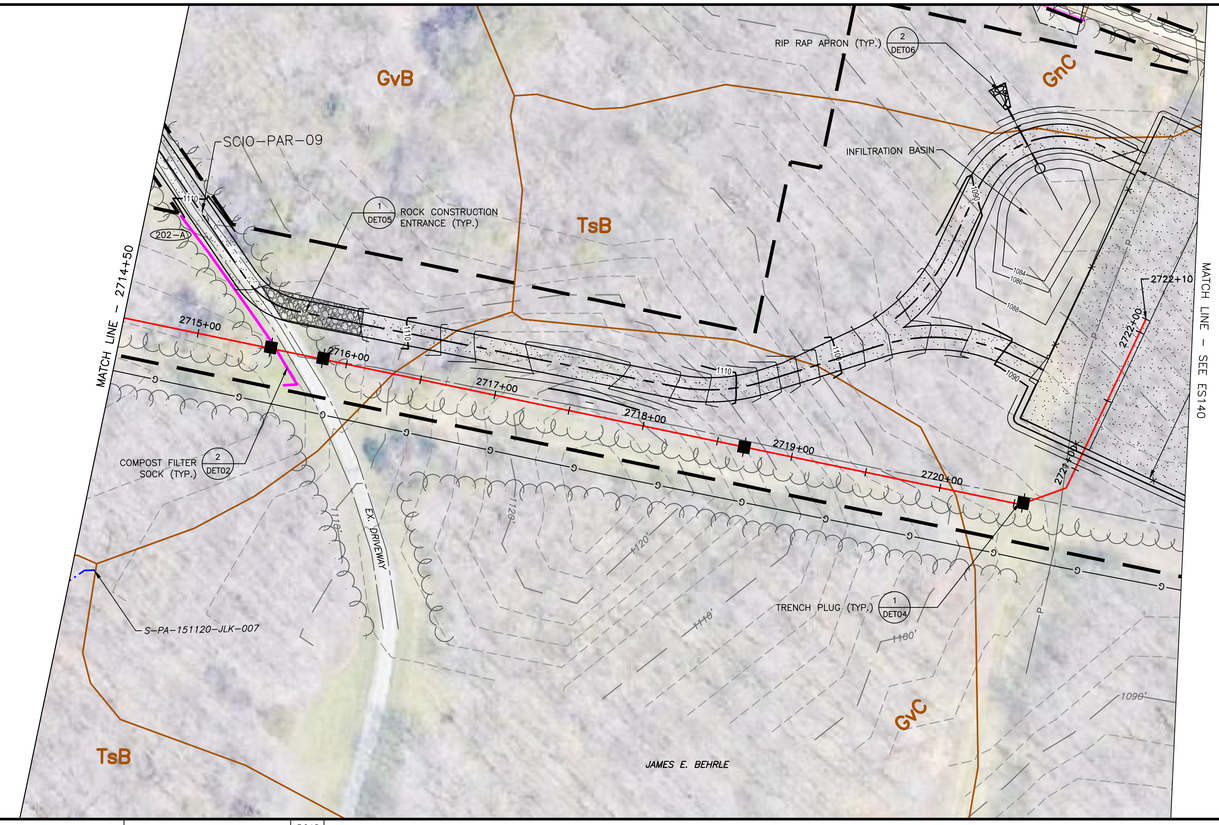
EROSION AND SEDIMENT CONTROL PLAN
ES201B - (SCIO-PAR-09 - HOU-TAR-50)

BEAVER COUNTY RACCOON TOWNSHIP PENNSYLVANIA

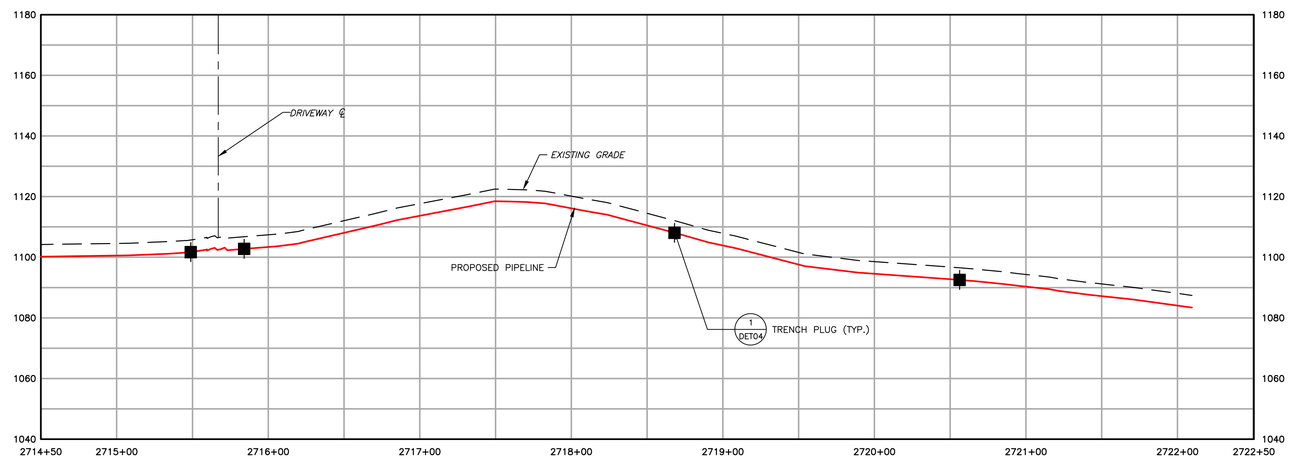
SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119768	REVISION
DRAWN	TLM	12/05/2017		1

Filename: Y:\PROJECTS\1747\SHELL\6489885 - FALCON\100-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN201B.DWG
Last Saved by: LINCOLNSCHAEFER (12/28/2017 1:25 PM) Last Plotted: 2018-01-03 (1/3/2018 10:29 AM)



0 50' 100'
SCALE: 1" = 50'

LAND USE	WOODS	ROAD	WOODS	
MIN DEPTH OF COVER (TO TOP OF PIPE)	4'	5'	4'	



1550 EXISTING CONTOURS (INDEX)
EXISTING CONTOURS (INTERMEDIATE)
EXISTING PROPERTY LINE
EXISTING STREAM
ASSUMED FLOODWAY (50 FEET)
STREAM BUFFER (100 FEET)
EXISTING WETLAND
TREE/BRUSH LINE
PROPOSED PIPELINE
LIMIT OF DISTURBANCE/PERMIT BOUNDARY
ACCESS ROAD CENTERLINE
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED RIGHT OF WAY DIVERSION
PROPOSED TRENCH PLUG
OSF PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
100-YEAR FLOODPLAIN
WATERSHED BOUNDARY
MrB2 SOIL TYPE BOUNDARY AND SOIL BOUNDARY
MFL LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY

GENERAL NOTES:

REV NO	DATE	DESCRIPTION OF REVISION	CHK	APP
1	12/05/17	REVISED PER CCD/DEP REVIEW	LJS	JWR
0	09/14/17	ISSUED FOR PERMIT	BMW	JWR

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH W. RYAN
ENGINEER
PE-081218

FALCON ETHANE PIPELINE SYSTEM
SCIO TO JUNCTION

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EROSION AND SEDIMENT CONTROL PLAN
ES202 – (STA. 2714+00.00 TO STA. 2721+55.40)
BEAVER COUNTY PENNSYLVANIA
RACCOON TOWNSHIP

SCALE	1"=50'	DATE	SPLC-GOM-AE-SD119487	REVISION
DRAWN	TLM	12/05/17		1

Filename: Y:\PROJECTS\1747\SHELL\5458885 – FALCON\900-WORK\911-ENVIRONMENTAL\20-SHEETS\PENNSYLVANIA\PLAN202.DWG
Last saved by: CESARGA (12/26/2017 2:44 PM) Last Plotted: 2018-01-03 (1/3/2018 10:47 AM)