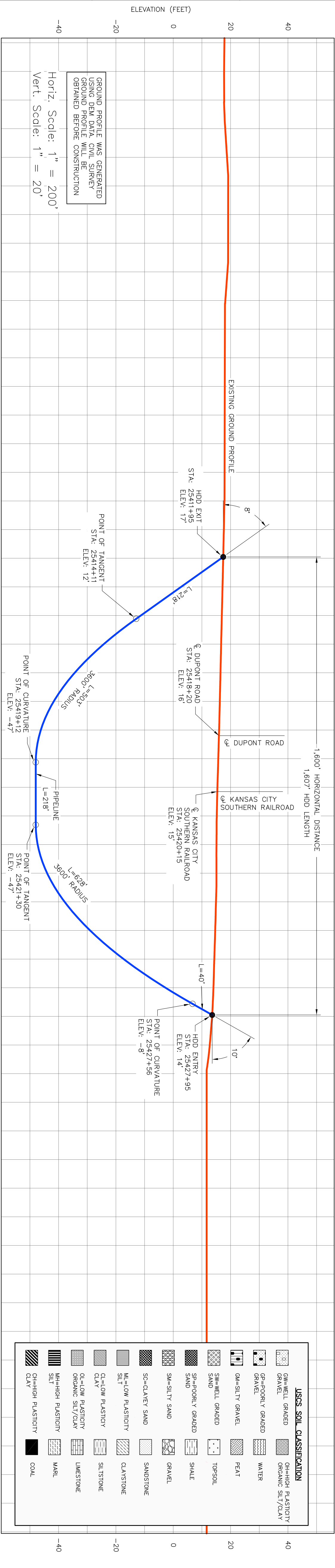


**INSTALLATION NOTES**

- 1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE RAILS. A SYSTEM RIGHT-OF-WAY MUST BE OBTAINED FROM THE RAILROADS APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- 2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- 3) WORK SPACE: WORK SPACE LIMITS ARE DETERMINED. CLEANING WILL BE PERFORMED ALONG THE RIGHT-OF-WAY. THE RIGHT-OF-WAY WILL BE MAINTAINED ACCESSIBLE TO STAKE COORDINATE MARKS AND INSTALL PIPES AND PILING TO OBTAIN WATER (WHERE APPROVED).
- 4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROLOGIC INVESTIGATION SHALL SCREEN THE INDIAN HOSE TO PREVENT THE ENHANCEMENT OF FISH OR REEFERS AND IN ACCORDANCE WITH THE PROJECT RECOMMENDATIONS, THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.
- 5) HYDROLOGIC TEST: PRE-INSTALLATION HYDROLOGIC TEST SHALL BE CONDUCTED BY THE CONTRACTOR. THE CONTRACTOR SHALL DISCUSS HYDROLOGIC TEST WATER BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. TO REDUCE THE VELOCITY OF THE DISCHARGE ON THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- 6) SPILL PREVENTION: ALL PIPES SHALL BE SET IN SCOURPROOF CONCRETE AND CONTAINERS FOR FUEL, OIL, GREASE, EQUIPMENT AND MATERIALS SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE ENVIRONMENTAL INSPECTOR. ALL SPILLS SHALL BE REPORTED TO THE ENVIRONMENTAL INSPECTOR. ALL SPILLS SHALL BE CLEANED UP AND MATERIALS, FIELDS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM THE WATER SOURCE. ALL SPILLS SHALL BE REPORTED TO THE ENVIRONMENTAL INSPECTOR. ALL SPILLS SHALL BE CLEANED UP AND MATERIALS, FIELDS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM THE WATER SOURCE.
- 7) PERSON AND EQUIPMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SIGNAGE CONTROL STRUCTURES IN ACCORDANCE WITH THE ENVIRONMENTAL INSPECTOR.
- 8) TRESPASSING: TRESPASSING SHALL BE PROHIBITED BY THE ENVIRONMENTAL INSPECTOR.
- 9) TRESPASSING SHALL BE PROHIBITED BY THE ENVIRONMENTAL INSPECTOR.
- 9) PRIOR TO PRE-PULLBACK, CONTRACTOR'S ACTUAL DAILY PROFILE SHALL BE SUBMITTED TO KERSTONE FOR APPROVAL.
- 10) INSTALLATION: THE PRE SECTION FOR THE PULLED CROSSING SHALL BE SUBMITTED TO KERSTONE FOR APPROVAL. THE CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
- 11) WAD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS BALLAST AND OTHER MATERIALS IN ACCORDANCE WITH THE ENVIRONMENTAL INSPECTOR. THE ENTRY AND EXIT POINTS SHALL BE CONFINED AND PREVENT BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
- 12) CLEANUP/RESTORATION: ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION. SOILS SHALL BE SEEDS AS SPECIFIED IN PROJECT DOCUMENTS. SOILS SHALL BE SEEDS AS SPECIFIED IN PROJECT DOCUMENTS. SOILS SHALL BE SEEDS AS SPECIFIED IN PROJECT DOCUMENTS.
- 13) NORMAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UNPULLED DIMENSIONS MAY BE PROVIDED WITH LOCAL OVERLAP/SPACES ARE THE FURNISHED.



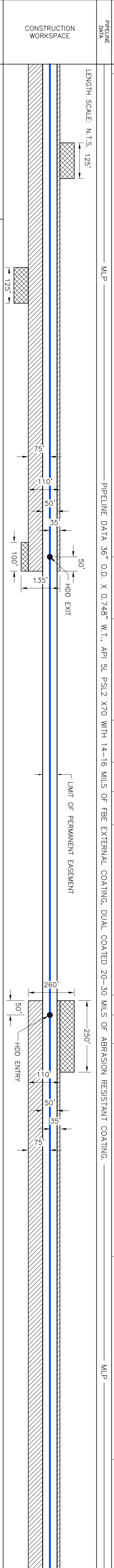
**USGS SOIL CLASSIFICATION**

GM-WELL GRADED GRAVEL	OH-HIGH PLASTICITY ORGANIC SILT/CLAY
GP-POORLY GRADED GRAVEL	WATER
GM-SILT GRAVEL	PEAT
SM-WELL GRADED SAND	TOPSOIL
SP-FORMALLY GRADED SAND	SHALE
SM-SILT SAND	GRAVEL
SP-CLAYEY SAND	SANDSTONE
ML-LOW PLASTICITY SILT	CLAYSTONE
CL-LOW PLASTICITY CLAY	SILTSTONE
OL-LOW PLASTICITY ORGANIC SILT/CLAY	LIMESTONE
MH-HIGH PLASTICITY SILT	MARL
OH-HIGH PLASTICITY CLAY	COAL

**CROSSING INFORMATION (ESTIMATED STATIONING)**

25396+00	25398+00	25400+00	25402+00	25404+00	25406+00	25408+00	25410+00	25412+00	25414+00	25416+00	25418+00	25420+00	25422+00	25424+00	25426+00	25428+00	25430+00	25432+00	25434+00	25436+00	25438+00	25440+00	25442+00	25444+00
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**PIPELINE DATA 36" O.D. X 0.748" W.T., API 5L PSL2 X70 WITH 14-16 MILS OF FIBER EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING.**



**ENVIRONMENTAL MITIGATION/RECLAMATION**

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSTRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

**LEGEND**

○	POINT OF INTERSECTION (P.I.)
●	ENTRY OR EXIT POINT
⊕	GEOTECHNICAL BORHOLE
⊖	POWERPOLE
—	MANHOLE PIPE
—	PIPELINE
—	FOREIGN PIPELINE
—	EDGE OF WATER
—	PRIVATE ACCESS SHED RTV ROAD
—	COUNTY BOUNDARY
—	WATER LEVEL
—	USACE CONSTRUCTION REFERENCE POINT
—	WETLANDS
—	PERMANENT EASEMENT
—	TEMPORARY EASEMENT
—	EXTRA WORKSPACE

**TO BE DETERMINED**

**REFERENCE DRAWINGS**

DRAWING No	TITLE
11042 HDD XREF-15	11042 HDD XREF-15.dwg
TC_UD_BR_UJI	TC_UD_BR_UJI.dwg
NOTES-LEGEND	NOTES-LEGEND.dwg

**REVISION**

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
0	03.15.10	ISSUED FOR CONTRACT PRE-AWARD	11042	UEI	UEI	BM	JW	JH	UEI

**APPROVAL**

DESIGNER	PROJECT MANAGER
DRAFTER	COMPANY
DRAFTING CHECKER	
DESIGN CHECKER	

**PROFESSIONAL ENGINEER/ART**

DATE	PERMIT/ ENG. APPROVAL

**UNIVERSAL ENGINEERING, INC.**

4397-03-ML-03-204

481.4

DISCIPLINE # 03

CHANGE:

SCALE AS SHOWN

PLOTTED SIZE: ANSI D (22x34)

**KANSAS CITY SOUTHERN RR & DUPONT RD. HDD INSTALLATION**

**KEYSTONE XL PROJECT**

**JEFFERSON COUNTY, TEXAS**

TC\_UD\_BR.DWG 22x34

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

DESIGNFILE