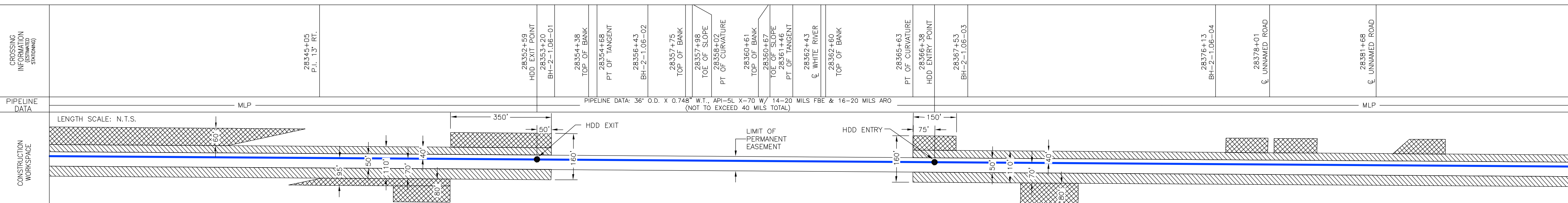
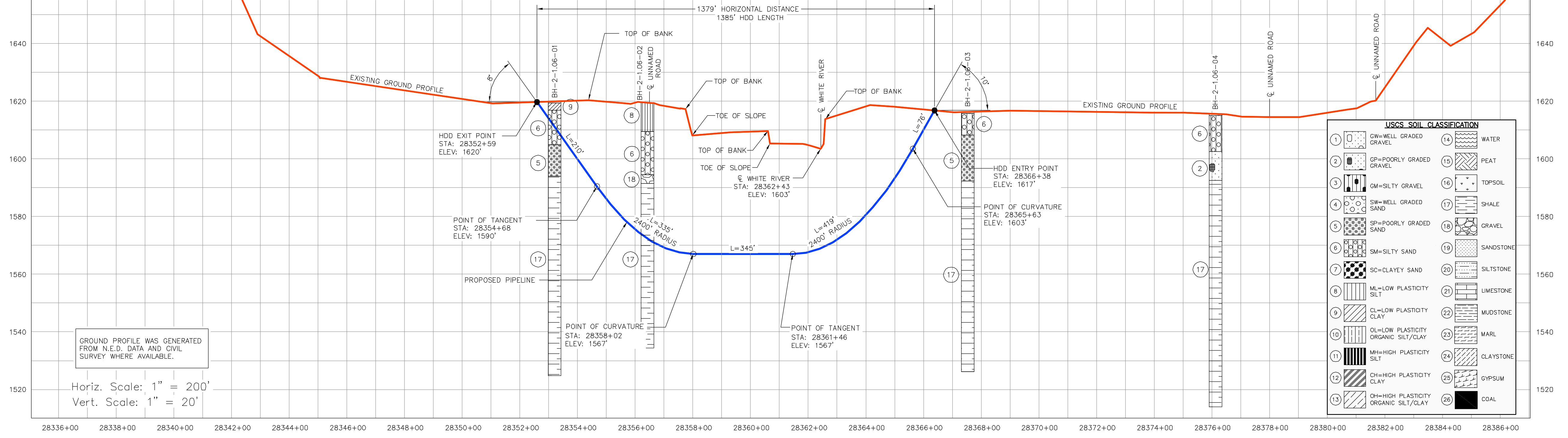


DRAWING IS FOR INFORMATIONAL USE ONLY. CENTERLINE STATIONS AND MILE POST ARE BASED ON MARCH 26, 2010 CENTERLINE AND MAY BE SUBJECT TO CHANGE.

**INSTALLATION NOTES**

- 1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
- 2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
- 3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).
- 4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRANCE OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.
- 5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION TO REDUCE THE VELOCITY OF THE DISCHARGE. THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.
- 6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.
- 7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- 8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.
- 9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.
- 10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
- 11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXISTS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICABLE AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
- 12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE SEED AS SPECIFIED IN PROJECT DOCUMENTS.
- 13) NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.



CROSSING INFORMATION	PIPELINE DATA	CONSTRUCTION WORKSPACE	ENVIRONMENTAL MITIGATION/RECLAMATION
28345+05 P.I. 1.5' RT.	MLP	LENGTH SCALE: N.T.S.	TOPSOIL SALVAGE METHOD STREAMS WETLANDS TIMING CONSTRAINTS
28352+59 HDD EXIT POINT 28353+20 BH-2-1.06-01	PIPELINE DATA: 36" O.D. X 0.748" W.T., API-5L X-70 W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)	HDD EXIT	MILEPOST MONITORING RECLAMATION SPECIAL CONSIDERATIONS
28354+38 TOP OF BANK 28354+59 PT OF TANGENT		HDD ENTRY	
28356+43 BH-2-1.06-02 TOP OF BANK			
28357+75 TOP OF BANK			
28357+98 TOE OF SLOPE			
28359+02 PT OF CURVATURE			
28360+61 TOP OF BANK			
28360+67 TOP OF BANK			
28361+46 PT OF TANGENT			
28362+43 WHITE RIVER			
28362+60 TOP OF BANK			
28365+63 PT OF CURVATURE			
28366+38 HDD ENTRY POINT			
28367+53 BH-2-1.06-03			
28376+13 BH-2-1.06-04			
28378+01 UNNAMED ROAD			
28381+68 UNNAMED ROAD			

**LEGEND**

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- GEOTECHNICAL BOREHOLE
- POWERPOLE
- MLP MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOULDER ROAD
- COUNTY BOUNDARY
- WATER LEVEL
- USACE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- ADDITIONAL TEMPORARY WORKSPACE

DRAWING No	TITLE

REV No	DATE	DESCRIPTION
3	04.21.10	ISSUED FOR DEIS FILING (3.26.10 CL)
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (2.15.09 CL)
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2095406	JB	AH	FP	RB	RG	TROW
THES0050388X	JB	AH	HF	RB	RG	TROW
THES0050388X	BM	AH	HF	RB	RG	TROW
THES0050388X	JB	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

**PRELIMINARY**

PREPARED BY: TROW ENGINEERING CONSULTANTS INC  
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MURDO SECTION  
 FIA # 4369 CHAINAGE: MP 537.2 DISCIPLINE # 03

WHITE RIVER HDD INSTALLATION  
 KEYSTONE XL PROJECT  
 LYMAN COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4369-03-ML-03-001 REV 3