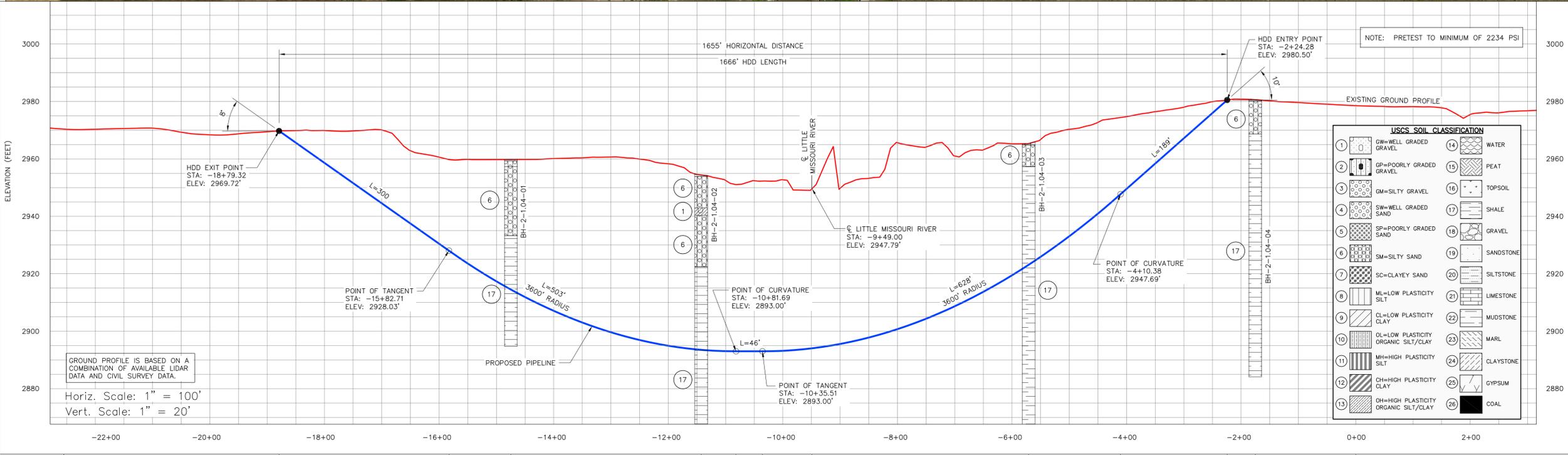
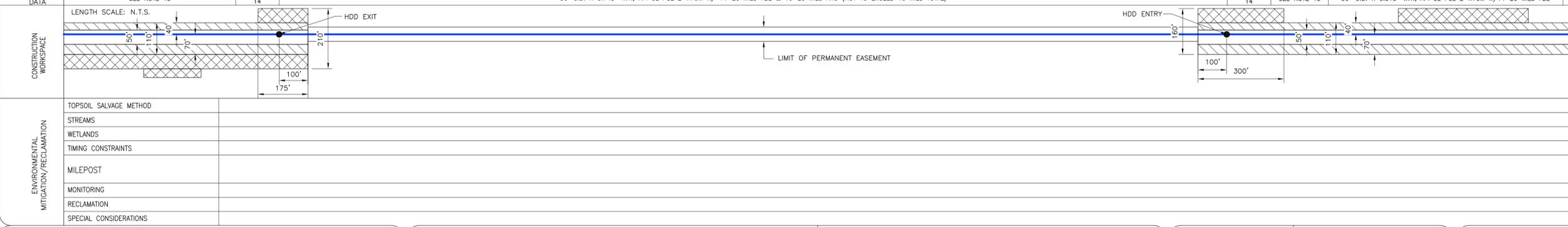


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 - 36" O.D. X 0.618" W.T., API 5L PSL 2-X70M W/14-20 MILS & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)
 - 36" O.D. X 0.572" W.T., API 5L PSL 2-X70M W/14-20 MILS FBE



CROSSING INFORMATION (STATIONING)	PIPELINE DATA
HDD EXIT POINT STA: -18+79.32 ELEV: 2969.72'	SEE NOTE 15
PT OF TANGENT STA: -15+82.71	SEE NOTE 14
BH-2-1.04-01 STA: -14+75	36" O.D. X 0.748" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)
BH-2-1.04-02 STA: -11+42	
PT OF CURVATURE STA: -10+81.69	
PT OF TANGENT STA: -10+35.51	
MISSOURI RIVER STA: -9+49.00	
BH-2-1.04-03 STA: -5+71	
PT OF CURVATURE STA: -4+10.38	
HDD ENTRY POINT STA: -2+24.28 ELEV: 2980.50'	SEE NOTE 15
BH-2-1.04-04 STA: -1+75	SEE NOTE 14
P.I. 125627' LT. STA: 0+00	36" O.D. X 0.515" W.T., API 5L PSL 2-X70M W/14-20 MILS FBE



REFERENCE DRAWINGS

DRAWING No	TITLE
4365-03-ML-02-005	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION
2013-05-31

REVISION

REV No	DATE	DESCRIPTION
00	2013-05-31	ISSUED FOR CONSTRUCTION

APPROVAL

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2095406	EXP	TLB	BLS	KJM	KJM	EXP

PROFESSIONAL ENGINEER/RPT
FIRM: EXP ENERGY SERVICES, INC.
FIRM LICENSE: FB034023

PERMIT/ ENG. APPROVAL
DATE

11883 KEVIN JAMES MCGLYNN
REGISTERED PROFESSIONAL ENGINEER
SOUTH DAKOTA
REG. NO. 37253

REV. NO. DATE PERMIT NUMBER:

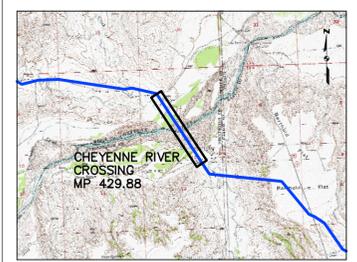
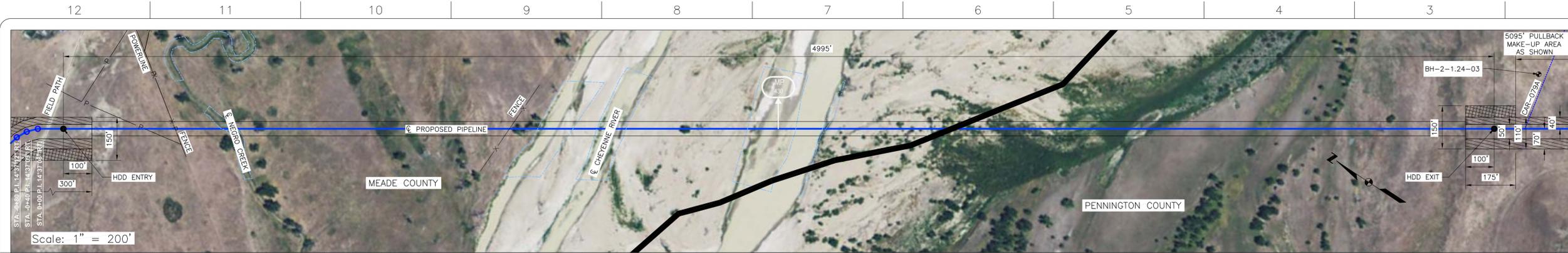
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Tulalahoma, FL 32308
USA
www.exp.com

TransCanada
In business to deliver

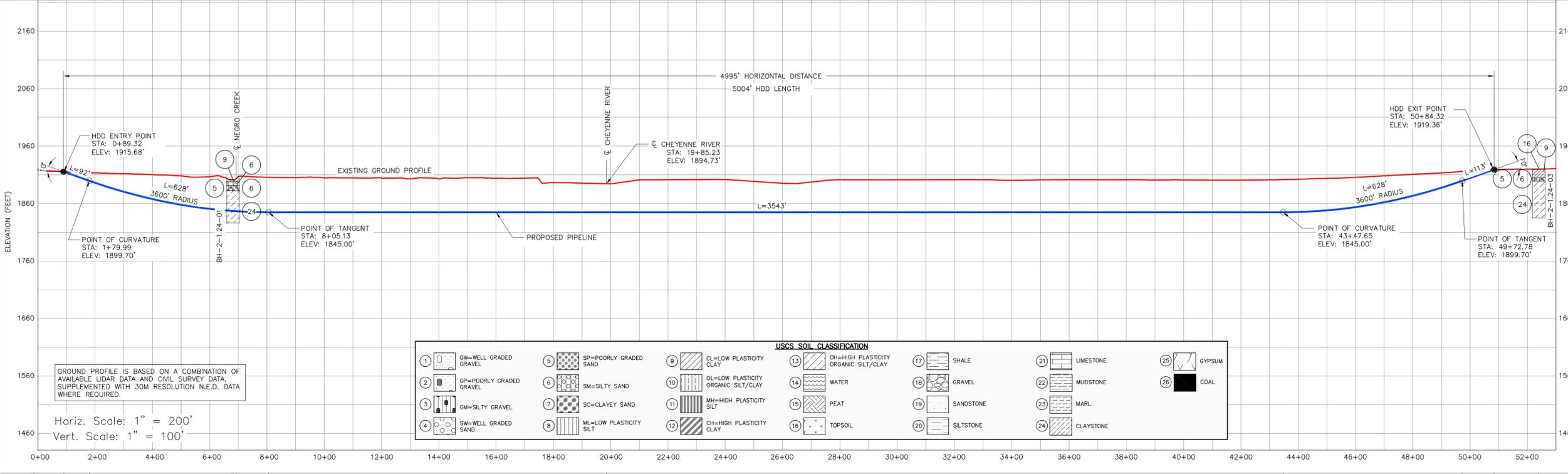
KEYSTONE XL (NPS 36 2014) HARDING SECTION
FIA # 4365 CHAINAGE: MP 295.06 DISCIPLINE # 03

LITTLE MISSOURI RIVER HDD INSTALLATION
PROPOSED KEYSTONE XL PROJECT
HARDING COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4365-03-ML-03-001 REV 00

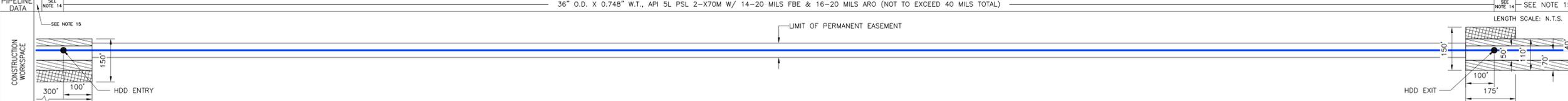


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CROSSING INFORMATION (STRIKING)

CL P.I.	0+00
P.I.	1+437.08 RT.
HDD ENTRY POINT	0+89.32
PT OF CURVATURE	1+79.99
BH-2-1.24-01	6+81
NEGRO CREEK	6+92
PT OF TANGENT	8+06.13
CHEYENNE RIVER	19+85.23
PT OF CURVATURE	43+47.65
PT OF TANGENT	49+72.78
HDD EXIT POINT	50+84.32
BH-2-1.24-03	52+40



ENVIRONMENTAL MITIGATION/RECLAMATION

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

LEGEND

CL P.I.	UNDERGROUND UTILITY	HEADCUT AREA
ENTRY OR EXIT POINT	TELEPHONE LINE	EXCLUSION FENCE
GEOTECHNICAL BOREHOLE	PROPERTY PARCEL	
WARNING SIGN	SECTION	
PIPELINE ROUTE	COUNTY LINE	
CATHODIC PROTECTION TEST STATION	PERMANENT EASEMENT	
ROAD CL	TEMPORARY WORKSPACE BOUNDARY	
ROAD EDGE	ADDITIONAL TEMPORARY WORKSPACE	
FIELD PATH	PERMANENT ACCESS ROAD	
RAILWAY	TEMPORARY ACCESS ROAD	
FENCE	EXISTING GROUND	
FOREIGN PIPELINE	WATER BODY	
WATER LINE	WETLAND BOUNDARY	
OVERHEAD POWERLINE		

REFERENCE DRAWINGS

DRAWING No	TITLE
4367-03-ML-02-026	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION
2013-05-31

REVISION

REV No	DATE	DESCRIPTION
00	2013-05-31	ISSUED FOR CONSTRUCTION

APPROVAL

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2095406	EXP	TLB	BLS	KJM	KJM	EXP

PROFESSIONAL ENGINEER/RPT
FIRM: EXP ENERGY SERVICES, INC.
FIRM LICENSE: FB034023

PERMIT/ ENG. APPROVAL
DATE

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REG. NO. 37253

REV. NO. DATE PERMIT NUMBER:

exp Energy Services Inc.
1300 Metropolitan Blvd
Tulalahoma, FL 32308
USA
www.exp.com

TransCanada
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KEYSTONE XL (NPS 36 2014) FAITH SECTION
FIA # 4367 CHAINAGE: MP 429.88 DISCIPLINE # 03

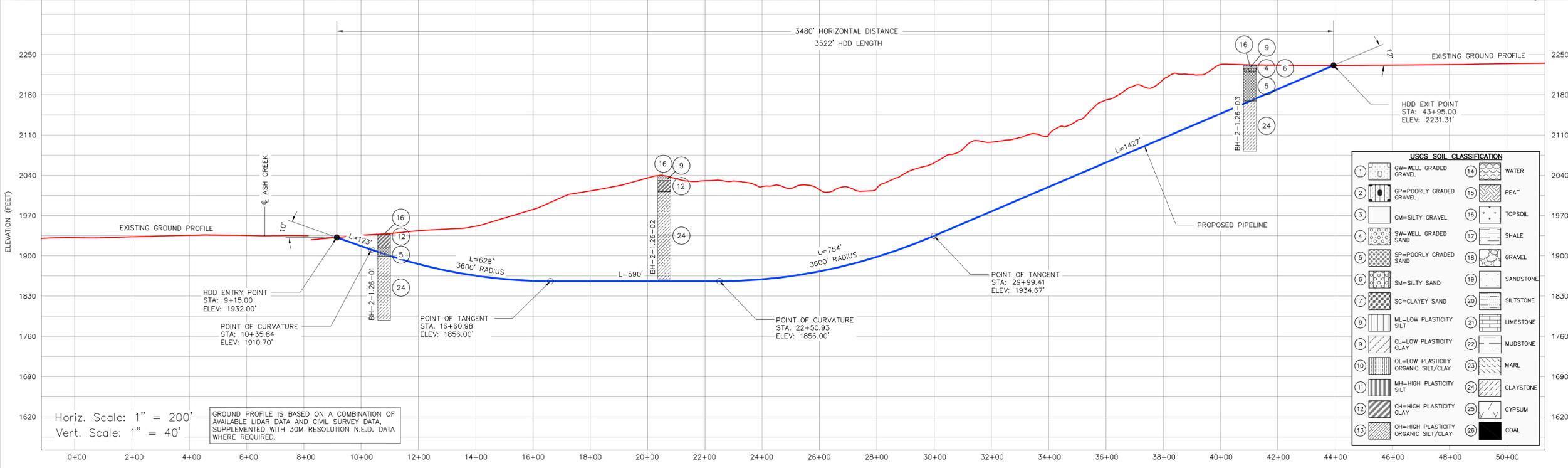
CHEYENNE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
MEADE & PENNINGTON COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4367-03-ML-03-001 REV 00



INSTALLATION NOTES

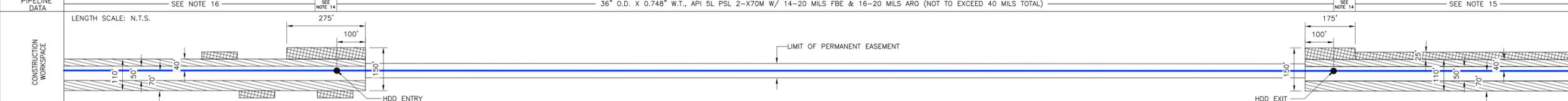
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- 36" O.D. X 0.515" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE



USCS SOIL CLASSIFICATION

1	GW=WELL GRADED GRAVEL	14	WATER
2	GP=POORLY GRADED GRAVEL	15	PEAT
3	GM=SILTY GRAVEL	16	TOPSOIL
4	SW=WELL GRADED SAND	17	SHALE
5	SP=POORLY GRADED SAND	18	GRAVEL
6	SM=SILTY SAND	19	SANDSTONE
7	SC=CLAYEY SAND	20	SILTSTONE
8	ML=LOW PLASTICITY SILT	21	LIMESTONE
9	CL=LOW PLASTICITY CLAY	22	MUDSTONE
10	OL=LOW PLASTICITY ORGANIC SILT/CLAY	23	MARL
11	MH=HIGH PLASTICITY SILT	24	CLAYSTONE
12	CH=HIGH PLASTICITY CLAY	25	GYPSUM
13	OH=HIGH PLASTICITY ORGANIC SILT/CLAY	26	COAL

CROSSING INFORMATION (STATIONING)	0+00 P.I. 12+43.02" LT.	6+64 ASH CREEK	9+15.00 HDD ENTRY POINT	10+80 BH-2-1.26-01	10+35.84 PT. OF CURVATURE	16+60.98 PT. OF TANGENT	20+59.88 BH-2-1.26-02	22+50.93 PT. OF CURVATURE	29+99.41 PT. OF TANGENT	41+03 BH-2-1.26-03	43+95.00 HDD EXIT POINT	46+64 P.I. 14+50.02" RT.	47+03 P.I. 14+49.51" RT.	47+43 P.I. 14+50.01" RT.
PIPELINE DATA	36" O.D. X 0.748" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)													



ENVIRONMENTAL MITIGATION/RECLAMATION	TOPSOIL SALVAGE METHOD	STREAMS	WETLANDS	TIMING CONSTRAINTS	MILEPOST	MONITORING	RECLAMATION	SPECIAL CONSIDERATIONS
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LEGEND

CL P.I.	UNDERGROUND UTILITY	HEADCUT AREA
ENTRY OR EXIT POINT	TELEPHONE LINE	EXCLUSION FENCE
GEOTECHNICAL BOREHOLE	PROPERTY PARCEL	
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	TEMPORARY WORKSPACE	
	ROAD EDGE	
	FIELD PATH	
	RAILWAY	
	FENCE	
	FOREIGN PIPELINE	
	WATER LINE	
	OVERHEAD POWERLINE	

REFERENCE DRAWINGS

DRAWING No	TITLE
4367-03-ML-02-027	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION 2013-05-31

REVISION

REV No	DATE	DESCRIPTION
00	2013-05-31	ISSUED FOR CONSTRUCTION

APPROVAL

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2095406	EXP	TLB	BLS	KJM	KJM	EXP

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REG. NO. 31253

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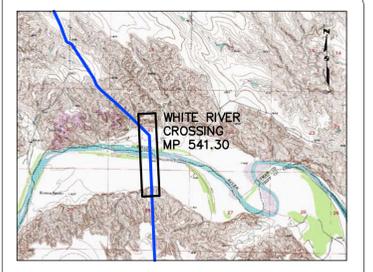
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KEYSTONE XL (NPS 36 2014) FAITH SECTION

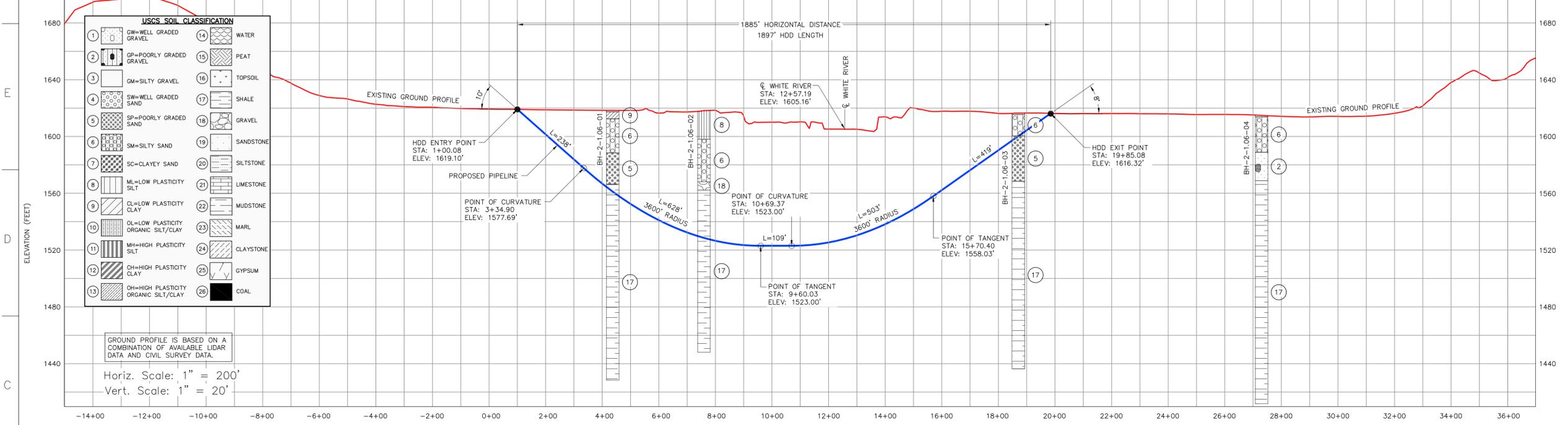
FIA # 4367 CHAINAGE: MP 431.22 DISCIPLINE # 03

ASH CREEK BLUFF HDD INSTALLATION
KEYSTONE XL PROJECT
PENNINGTON & HAAKON COUNTY, SOUTH DAKOTA

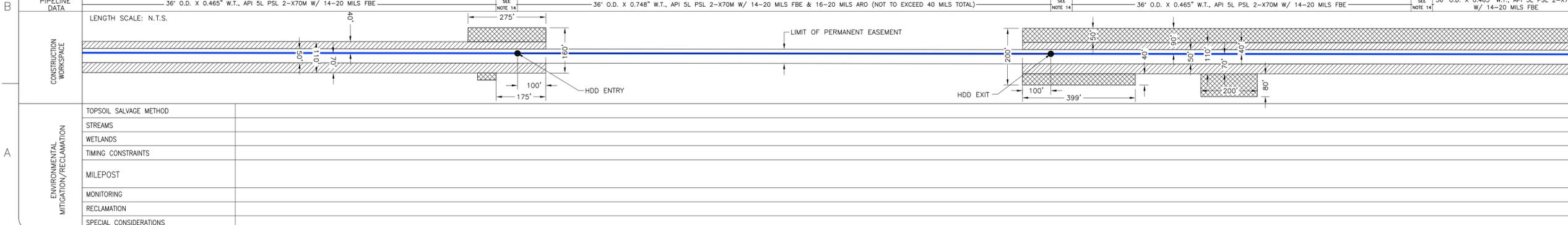
SCALE AS SHOWN DRAWING No 4367-03-ML-03-007 REV 00



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 - 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 SENT TO AN UPLAND LOCATION NEAR THE WITHDRAWAL POINT AS 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.
 - 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.
 - 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.
 - PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.
 - 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.
 - 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 EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
 - CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.
 - 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.
 - CONTRACTOR SHALL FOLLOW REFERENCE SPECIFICATIONS. REFER TO KEYSTONE CMRP, KEYSTONE CONSTRUCTION SPECIFICATIONS, PROJECT ENVIRONMENTAL REQUIREMENTS FOR THIS SITE SPECIFIC DETAIL, PART 195 OF THE CODE OF FEDERAL REGULATIONS (LATEST EDITION), ASME B31.4, AND API 1102.
 - 36" O.D. X 0.618" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)



CROSSING INFORMATION (STATIONING)	PIPELINE DATA
0+00 P.I. 14°18'48" RT. 0+40 P.I. 14°18'57" RT. 0+00 P.I. 14°18'53" RT. 1+00.08 HDD ENTRY POINT 3+34.90 PT OF CURVATURE 4+37 BH-2-1.06-01 7+60 BH-2-1.06-02 9+60.03 PT OF TANGENT 10+69.37 PT OF CURVATURE 12+57.19 Q. WHITE RIVER 15+70.40 PT OF TANGENT 18+71 BH-2-1.06-03 19+85.08 HDD EXIT POINT 27+30 BH-2-1.06-04	SEE NOTE 14 36" O.D. X 0.465" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE SEE NOTE 14 36" O.D. X 0.748" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL) SEE NOTE 14 36" O.D. X 0.465" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE SEE NOTE 14 36" O.D. X 0.465" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE



LEGEND

CL P.I.	UNDERGROUND UTILITY	HEADCUT AREA
ENTRY OR EXIT POINT	TELEPHONE LINE	EXCLUSION FENCE
GEOTECHNICAL BOREHOLE	PROPERTY PARCEL	
WARNING SIGN	SECTION LINE	
PIPELINE ROUTE	COUNTY LINE	
CATHODIC PROTECTION TEST STATION	PERMANENT EASEMENT	
ROAD CL	BOUNDARY	
ROAD EDGE	TEMPORARY WORKSPACE	
FIELD PATH	ADDITIONAL TEMPORARY WORKSPACE	
RAILWAY	PERMANENT ACCESS ROAD	
FENCE	TEMPORARY ACCESS ROAD	
FOREIGN PIPELINE	EXISTING GROUND	
WATER LINE	WATER BODY	
OVERHEAD POWERLINE	WETLAND BOUNDARY	

REFERENCE DRAWINGS

DRAWING No	TITLE
4369-03-ML-02-027	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION
2013-05-31

REVISION

REV No	DATE	DESCRIPTION
00	2013-05-31	ISSUED FOR CONSTRUCTION

APPROVAL

PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2095406	EXP	TLB	BLS	KJM	KJM	EXP

PROFESSIONAL ENGINEER/RPT
 FIRM: EXP ENERGY SERVICES, INC.
 FIRM LICENSE: FB034023

PERMIT/ ENG. APPROVAL
 DATE

11883 KEVIN JAMES MCGLYNN
 REGISTERED PROFESSIONAL ENGINEER
 SOUTH DAKOTA
 REG. NO. 37253

REV. NO. DATE PERMIT NUMBER:

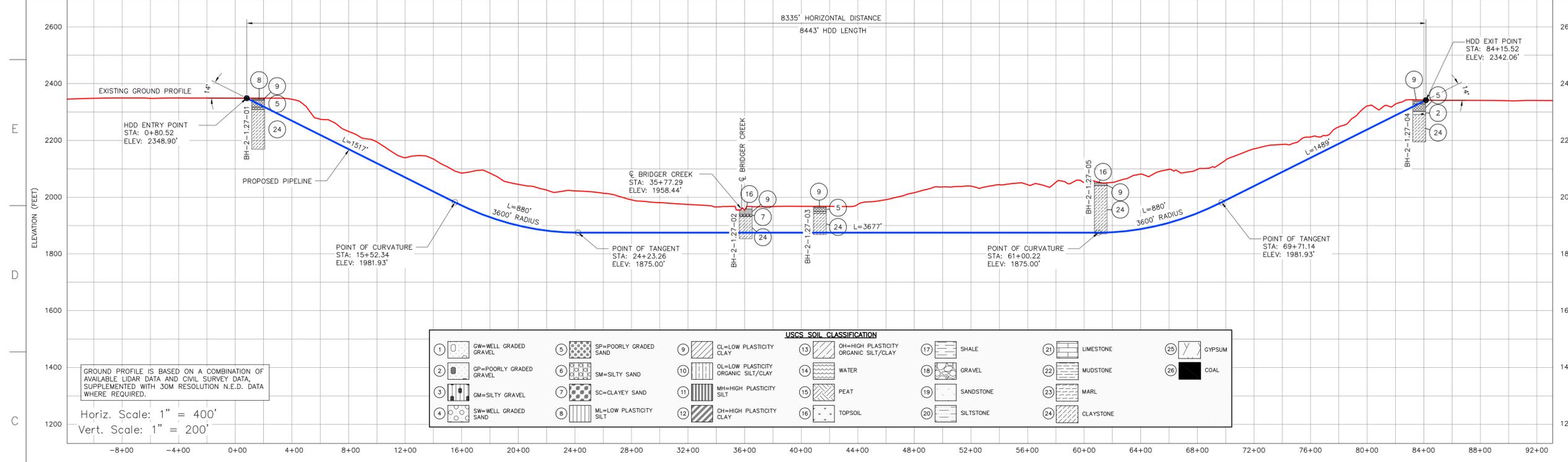
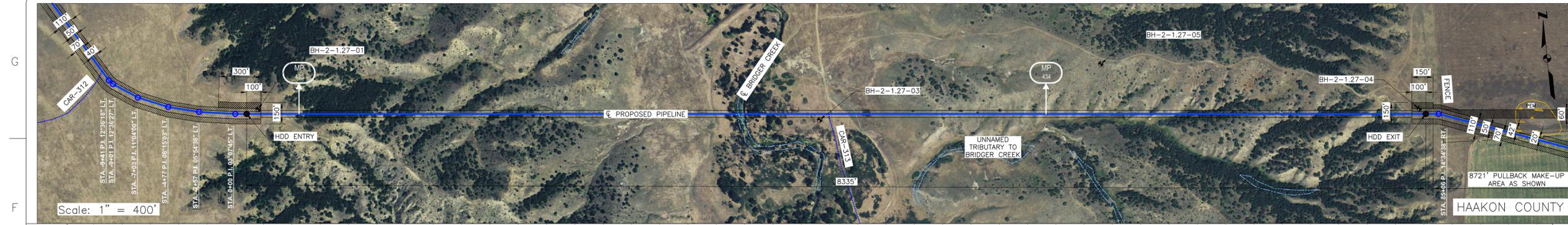
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KEYSTONE XL (NPS 36 2014) MURDO SECTION
 FIA # 4369 CHAINAGE: MP 541.30 DISCIPLINE # 03

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

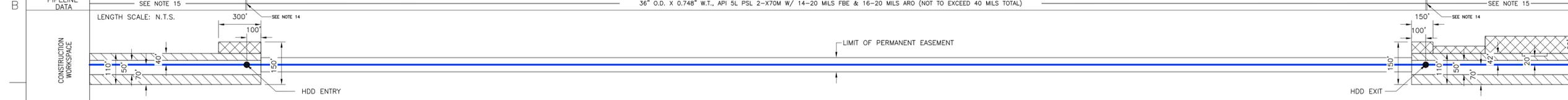
SCALE AS SHOWN DRAWING No 4369-03-ML-03-001 REV 00



USCS SOIL CLASSIFICATION											
1	GW=WELL GRADED GRAVEL	5	SP=POORLY GRADED SAND	9	CL=LOW PLASTICITY CLAY	13	OH=HIGH PLASTICITY ORGANIC SILT/CLAY	17	SHALE	21	LIMESTONE
2	GP=POORLY GRADED GRAVEL	6	SM=SILTY SAND	10	OL=LOW PLASTICITY ORGANIC SILT/CLAY	14	WATER	18	GRAVEL	22	MUDSTONE
3	GM=SILTY GRAVEL	7	SC=CLAYEY SAND	11	MH=HIGH PLASTICITY SILT	15	PEAT	19	SANDSTONE	23	MARL
4	SW=WELL GRADED SAND	8	ML=LOW PLASTICITY SILT	12	CH=HIGH PLASTICITY CLAY	16	TOPSOIL	20	SILTSTONE	24	CLAYSTONE
										25	GYPSUM
										26	COAL

- INSTALLATION NOTES**
- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
 - VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - 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. NO CLEARING BETWEEN THE ENTRY AND EXIT POINTS OF THE HDD EXCEPT WHERE APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - 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 ENTRAPMENT 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.
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 - CONTRACTOR SHALL FOLLOW REFERENCE SPECIFICATIONS. REFER TO KEYSTONE CMRP, KEYSTONE CONSTRUCTION SPECIFICATIONS, PROJECT ENVIRONMENTAL REQUIREMENTS FOR THIS SITE SPECIFIC DETAIL, PART 153 OF THE CODE OF FEDERAL REGULATIONS (LATEST EDITION), ASME B31.4, AND API 1102.
 - 36" O.D. X 0.618" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)
 - 36" O.D. X 0.465" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE

CROSSING INFORMATION (ESTIMATED SHOWN)	PIPELINE DATA
P.I. 1104.00 LT. P.I. 0815.03 LT. P.I. 0554.38 LT. P.I. 0307.94 LT. HDD ENTRY POINT STA: 0+80.52 STA: 1+62 BH-2-1.27-01	SEE NOTE 15 36" O.D. X 0.748" W.T., API 5L PSL 2-X70M W/ 14-20 MILS FBE & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL) SEE NOTE 15



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

LEGEND	
CL P.I.	UNDERGROUND UTILITY
ENTRY OR EXIT POINT	TELEPHONE LINE
SCOTCHMAN BOREHOLE	PROPERTY PARCEL
WARNING SIGN	SECTION LINE
PIPELINE ROUTE	COUNTY BOUNDARY
CATHODIC PROTECTION TEST STATION	PERMANENT EASEMENT BOUNDARY
ROAD CL	TEMPORARY WORKSPACE BOUNDARY
ROAD EDGE	ADDITIONAL TEMPORARY WORKSPACE
FIELD PATH	ACCESS ROAD
RAILWAY	TEMPORARY ACCESS ROAD
FENCE	EXISTING GROUND
FOREIGN PIPELINE	WATER BODY
WATER LINE	WETLAND BOUNDARY
OVERHEAD POWERLINE	
	HEADCUT AREA
	EXCLUSION FENCE

REFERENCE DRAWINGS	
DRAWING No	TITLE
4367-03-ML-02-028	ALIGNMENT SHEET
4367-03-ML-02-029	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION 2013-05-31

REVISION			APPROVAL						
REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
00	2013-05-31	ISSUED FOR CONSTRUCTION	2095406	EXP	TLB	BLS	KJM	KJM	EXP

PROFESSIONAL ENGINEER/RPT
 FIRM: EXP ENERGY SERVICES, INC.
 FIRM LICENSE: FB034023

PERMIT/ ENG. APPROVAL
 DATE

11883 KEVIN JAMES MCGLYNN
 REGISTERED PROFESSIONAL ENGINEER
 SOUTH DAKOTA
 REG. NO. 11883

REV. NO. DATE PERMIT NUMBER:

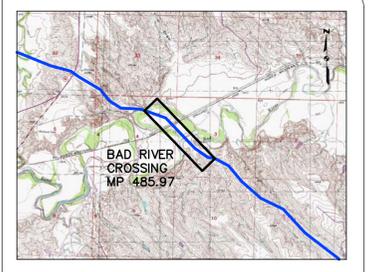
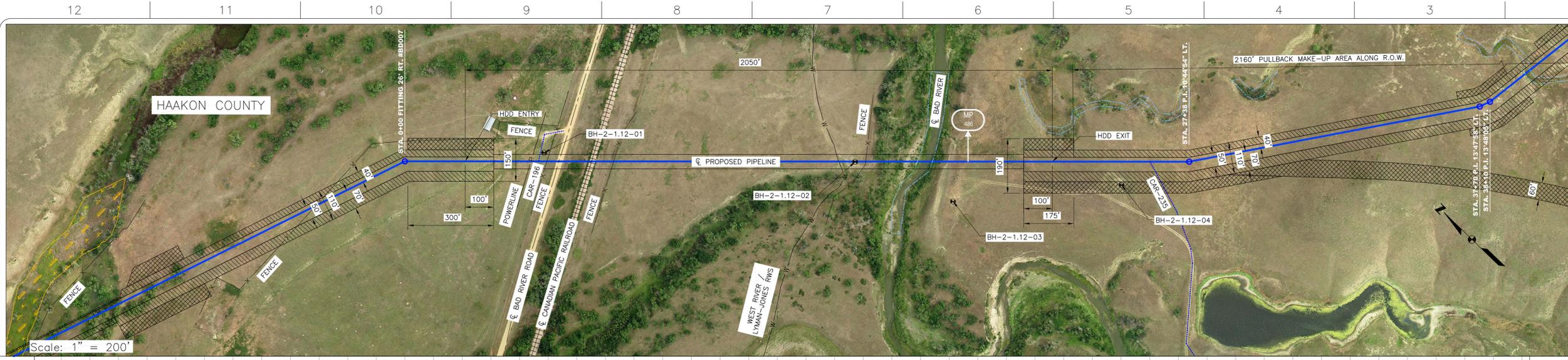
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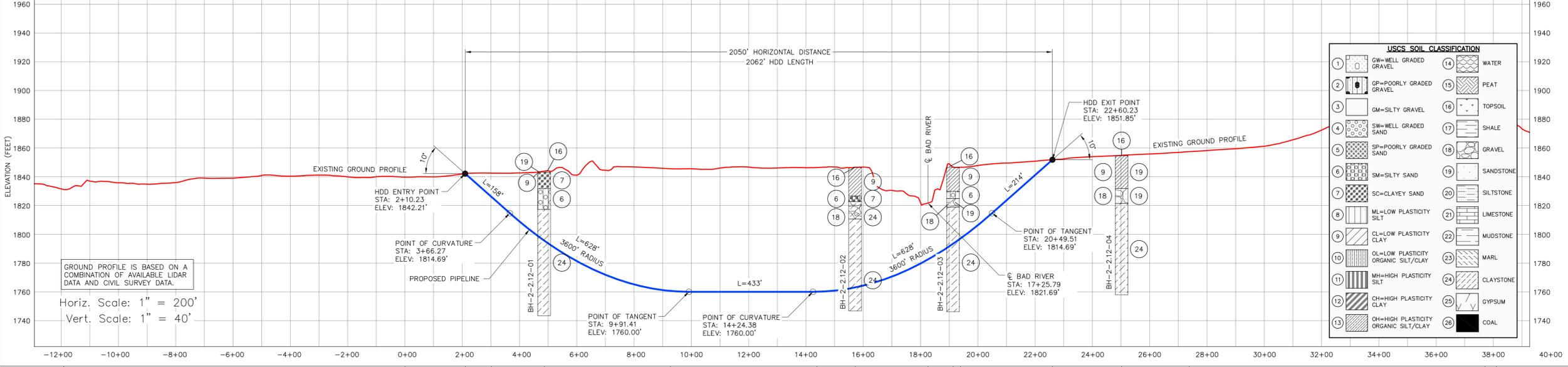
KEYSTONE XL (NPS 36 2014) FAITH SECTION
 FIA # 4367 CHAINAGE: MP 433.59 DISCIPLINE # 03

BRIDGER CREEK HDD INSTALLATION
 KEYSTONE XL PROJECT
 HAAKON COUNTY, SOUTH DAKOTA

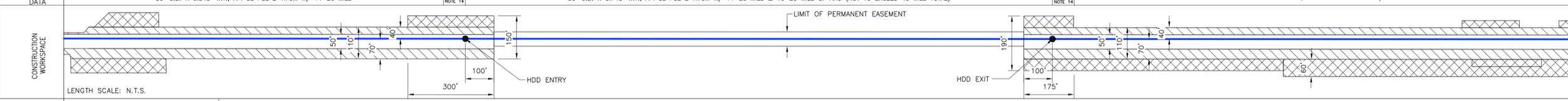
SCALE AS SHOWN DRAWING No 4367-03-ML-03-003 REV 00



- INSTALLATION NOTES**
- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
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 - 36" O.D. X 0.618" W.T., API 5L PSL 2-X70M W/14-20 MILS & 16-20 MILS ARO (NOT TO EXCEED 40 MILS TOTAL)



CROSSING INFORMATION (SHOWING)	PIPELINE DATA
0+00 FITTING 26" RT. #B0007	36" O.D. X 0.515" W.T., API 5L PSL 2-X70M W/ 14-20 MILS
2+10.23 HDD ENTRY POINT	SEE NOTE 14
3+66.27 PT OF CURVATURE	36" O.D. X 0.748" W.T., API 5L PSL 2-X70M W/ 14-20 MILS & 16-20 MILS OF ARO (NOT TO EXCEED 40 MILS TOTAL)
4+86 BH-2-2.12-01	SEE NOTE 14
9+91.41 PT OF TANGENT	36" O.D. X 0.465" W.T., API 5L PSL 2-X70M W/ 14-20 MILS
14+24.38 PT OF CURVATURE	
16+71 BH-2-2.12-02	
17+25.79 & BAD RIVER	
18+13 BH-2-2.12-03	
20+49.51 PT OF TANGENT	
22+60.23 HDD EXIT POINT	SEE NOTE 14
25+02 BH-2-2.12-04	
27+38 P.I. 10"4454" LT.	
37+70 P.I. 13"4758" LT.	
38+10 P.I. 13"4800" LT.	



ENVIRONMENTAL MITIGATION/RECLAMATION	LEGEND
TOPSOIL SALVAGE METHOD	CL P.I.
STREAMS	UNDERGROUND UTILITY
WETLANDS	ENTRY OR EXIT POINT
TIMING CONSTRAINTS	GEOTECHNICAL BOREHOLE
MILEPOST	WARNING SIGN
MONITORING	PIPELINE ROUTE
RECLAMATION	CATHODIC PROTECTION TEST STATION
SPECIAL CONSIDERATIONS	ROAD CL
	ROAD EDGE
	FIELD PATH
	RAILWAY
	FENCE
	FOREIGN PIPELINE
	WATER LINE
	OVERHEAD POWERLINE
	HEADCLUT AREA
	EXCLUSION FENCE
	PROPERTY PARCEL
	SECTION LINE
	COUNTY LINE
	PERMANENT EASEMENT
	TEMPORARY BOUNDARY
	TEMPORARY WORKSPACE
	PERMANENT ACCESS ROAD
	TEMPORARY ACCESS ROAD
	EXISTING GROUND
	WATER BODY
	WETLAND BOUNDARY

REFERENCE DRAWINGS	
DRAWING No	TITLE
4368-03-ML-02-027	ALIGNMENT SHEET
4368-03-ML-03-028	ALIGNMENT SHEET

ISSUED FOR CONSTRUCTION 2013-05-31

REVISION			APPROVAL						
REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
00	2013-05-31	ISSUED FOR CONSTRUCTION	2095406	EXP	TLB	BLS	KJM	KJM	EXP

PROFESSIONAL ENGINEER/RPT
 FIRM: EXP ENERGY SERVICES, INC.
 FIRM LICENSE: F8034023

PERMIT/ ENG. APPROVAL
 DATE

11883 KEVIN JAMES MCGLYNN
 REGISTERED PROFESSIONAL ENGINEER
 SOUTH DAKOTA
 REG. NO. 31223

REV. NO. DATE PERMIT NUMBER:

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 www.exp.com

KEYSTONE XL (NPS 36 2014) HAAKON SECTION
 FIA # 4368 CHAINAGE: MP 485.97 DISCIPLINE # 03

BAD RIVER HDD INSTALLATION
 KEYSTONE XL PROJECT
 HAAKON COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4368-03-ML-03-001 REV 00