

KEYSTONE XL PIPELINE PROJECT - STEELE CITY SEGMENT PIPELINE ROUTE VARIATION FORM			
1	VARIATION TYPE: Refinement: <input type="text"/> Centerline: <input checked="" type="checkbox"/>	Reroute: <input checked="" type="checkbox"/>	Valve Site: <input type="text"/> Pump Station: <input type="text"/>
2	LOCATION: State: <input type="text" value="SD"/> Township: <input type="text" value="4N"/> Section: <input type="text" value="14"/>	Sketch: <input type="text" value="Attached"/> County: <input type="text" value="Haakon"/> Range: <input type="text" value="20E"/> Centerline: <input type="text" value="11/18/2010"/>	Pictures: <input type="text" value="See attached."/> Quad Map: <input type="text" value="N/A"/> Aerial Map: <input type="text" value="See attached map sheet"/> MP: <input type="text" value="449.99"/> to <input type="text" value="450.97"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>The Current Centerline crosses Hwy 73 at a location where the State Right of Way significantly wide (~329 ft). The proposed reroute relocates the Centerline ~341 ft to the north which reduces the crossing length by ~171 ft and locates the centerline at a better crossing location with more gentle slopes at the edge of the highway. The proposed reroute also relocates the pipeline away from the side slope of a meandering waterbody near MP 450.87.</p> </div>		
DETAIL ROUTE VARIATION (Please describe route variation in detail): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>The proposed route variation starts at MP 449.99 and deviates ~7° northeast of current centerline. It continues in this direction for ~2,651 ft until it reaches Hwy 73. It then turns east and continues for another ~451 ft. Along its path, it crosses Hwy 73, ~171 ft north of the current crossing location. The proposed reroute then turns towards the southeast and continues for ~1,589 ft. Along this section, the reroute allows more distance (~69 ft) between the Centerline and the meandering stream (unnamed tributary to West Plum Creek) and continues further south for ~530.6 ft to rejoin the current centerline near MP 450.97.</p> </div>			
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <div style="border: 1px solid black; padding: 5px; min-height: 50px;"> <p>The proposed reroute is ~32 ft longer than the current route. The proposed reroute shortens Hwy 73 bore by ~171 ft.</p> </div>			
Is there an increase/decrease in the number of crossings? Yes <input type="text"/> No <input checked="" type="checkbox"/>			
If yes, please list: <input type="text" value="The meandering stream is considered as a minor stream crossing."/>			
COST ANALYSIS (costs incurred or saved from the route variation)			
Additional length of route realignment:	32	ft.	\$ 11,466.87 \$ 360/ft
Additional length of side-hill construction:		ft.	\$ - \$ 19/ft
Additional length of wetland construction:	-50	ft.	\$ (9,750.00) \$ 195/ft
Additional bore length (Road, RR):	-171	ft.	\$ (92,340.00) \$ 540/ft
Additional foreign line/pipeline crossings:		EA	\$ - \$ 30,000/EA
Additional water body crossing (streams, ponds, etc.):			
35 - 65' +		EA	\$ - \$ 185,000/EA
10' - 19'		EA	\$ - \$ 77,250/EA
Less than 10'		EA	\$ - \$ 32,500/EA
Additional survey required:			
Civil:	0.99	mile	\$ 4,945.81 \$ 5,000/mile
Cultural:	0.99	mile	\$ 2,472.90 \$ 2,500/mile
Biological:	0.99	mile	\$ 2,769.65 \$ 2,800/mile
Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above: <input type="text"/>			
Overall estimated costs of the route variation: <input type="text" value="\$ (80,435)"/> (See "Additional Impacts" above)			

4
LAND / UNIVERSAL FIELD *Doug Reichley*

a) Is a new landowner affected by the proposed variation? Yes No

b) Is proposed realignment outside the easement/workspace? Yes No

c) Is realignment proposed to satisfy landowner request? Yes No

-If yes, name of landowner(s)/track number(s):

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why:

5
ENGINEERING/CONSTRUCTION / STATE PM *Meera Kothari*

a) Maximum deviation perpendicular to proposed alignment: ft.

b) Has the centerline been staked for construction? Yes No

c) Does route variation affect HDD crossing alignment? Yes No

d) Is realignment proposed for engineering/construction reasons? Yes No

e) Will the route variation require the relocation of a pump station? Yes No

f) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why:

6
ENVIRONMENTAL / EXP *Jonathan Minton*

a) Has the corridor been environmentally surveyed? Yes No

b) Has the proposed variation been environmentally surveyed? Yes No

c) Was variation proposed to satisfy environmental issues? Yes No

d) Was realignment proposed to satisfy agency request? Yes No

-If yes, name of agency(s):

e) Environmental features:

Added (+): Subtracted (-):

Wetland ID # for newly impacted wetlands:

f) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why:

7
ENGINEERING / FACILITIES AND HYDRAULICS (if applicable) *Sandra Gigovic*

a) Will the route variation require the relocation of a pump station? Yes No

b) Will route variation impact hydraulics? Yes No

c) Are additional valves required at HCA's or water crossing? Yes No

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why:

8
STAKEHOLDER RELATIONS / TCPL (if applicable) *Bud Andersen*

a) Does the variation result in any new stakeholders? Yes No

b) Does the variation require follow-up with specific stakeholder groups? Yes No

c) Was the variation proposed to satisfy stakeholder request? Yes No

-If yes, please specify issue type (as it aligns to stakeholder database):

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why:

9
 Originator:

Date:

10
 Received by:

Date:

Fax to: ?

11
 Assigned Tracking Number:

12
 Filed by:

Date:

Fax to: ?

0196-SD-P2-450.1-451.1-S

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230

KEYSTONE XL PIPELINE PROJECT - STEELE CITY SEGMENT PIPELINE ROUTE VARIATION FORM	
1	VARIATION TYPE: Refinement: <input type="text"/> Reroute: <input checked="" type="checkbox"/> X Centerline: <input checked="" type="checkbox"/> X Valve Site: <input checked="" type="checkbox"/> X Pump Station: <input type="text"/>
2	LOCATION: Sketch: <input type="text"/> Attached Pictures: <input type="text"/> See attached State: <input type="text"/> Multiple County: <input type="text"/> Multiple Quad Map: <input type="text"/> N/A Township: <input type="text"/> Multiple Range: <input type="text"/> Multiple Aerial Map: <input type="text"/> See attached map sheet Section: <input type="text"/> Multiple Centerline: <input type="text"/> 11/18/2010 MP: <input type="text"/> XXX.X to <input type="text"/> XXX.X
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): The Reason for each Route Variation (RV) is given with the respective RV file. These reroutes are proposed based on aerial/pictometry/Lydar/flyover analysis of current line through Montana, South Dakota, and Nebraska.
	DETAIL ROUTE VARIATION (Please describe route variation in detail): See respective Route Variation Files. No new landowners were affected by the proposed route variations. RVs included: Discussed prior to 6/20/2011: Western Prairie Fringe Orchid Reroute (RV-0194) John Harter Reroute (RV-0195) Buzek Reroute (RV-0197) Discussed during 6/20/2011 Meeting: Reroute away from sidehill (SOM Land) (RV-0209) Discussed during 6/21/2011 Meeting: Reroutes to avoid creek Crossings (RV-0199) MP 475 Reroute (RV-0200) Reroutes to lessen/reduce PIs (RV-0213) Reroutes to avoid waterwell; fence (RV-0214) Reroutes to avoid creeks, dropoffs, wetlands, etc. (RV-0215) Reroutes to avoid sideslopes/hills (RV-0216) Reroutes to avoid pivot centers (RV-0217) Discussed during 8/10/2011 Meeting: HWY 73 Reroute (RV-0196) HWY 56 Reroute (RV-0219) Bad River HDD realignment reroute (RV-0220) MP 396 Reroute (RV-0224) Yellowstone River HDD Entry Pt (RV-0227) PI Breakdowns of all previous RV's for new CL (RV-0228 and RV-0229) CK-MLV-06 and CK-11 Valves relocation (RV-0230)
	ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
	Is there an increase/decrease in the number of crossings? Yes <input type="text"/> No <input type="text"/> If yes, please list: <input type="text"/> <input type="text"/>
9	Originator: <input type="text"/> Multiple Date: <input type="text"/> 8/12/2011
10	Received by: <input type="text"/> Date: <input type="text"/> 8/12/2011 Fax to: ?
11	Assigned Tracking Number: <input type="text"/> RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230
12	Filed by: <input type="text"/> Date: <input type="text"/> Fax to: ?

RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT) ROUTE VARIATION AUTHORIZATION FORM			
Date:	8/12/2011	Tracking Number:	RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230
Description:	Western Prairie Fringe Orchid Reroute (RV-0194) John Harter Reroute (RV-0195) Buzek Reroute (RV-0197) Reroute away from sidehill (SOM Land) (RV-0209)	MP: XXXX to XXXX	Originated By: Multiple
Universal Field - Land	Doug Reichley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Comments:	<i>Pending civil survey</i>	Date: 6/20, 6/21, & 8/10/11	If Rejected Why? <i>By S. King 10/5/11</i>
TransCanada - Engineering	Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20, 6/21, & 8/10/11
Comments:	and by David Gulen on the 6/20 and 6/21 meetings.	If Rejected Why?	
Exp - Engineering	Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20, 6/21, & 8/10/11
Comments:		If Rejected Why?	
TransCanada - Construction	Bobby Curbow	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20, 6/21, & 8/10/11
Comments:		If Rejected Why?	
Exp - Environmental	Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20, 6/21, & 8/10/11
Comments:		If Rejected Why?	
AECOM - Risk Assessment	Heidi Tillquist	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	N/A.	If Rejected Why?	
Facilities:	Sandra Gigovic	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	N/A. Does not affect Facilities.	If Rejected Why?	
TransCanada - PM (NE)	Robert Bradley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments:		If Rejected Why?	
TransCanada - Senior PM	Alan Lietz	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20, 6/21, & 8/10/11
Comments:	<i>Confidential approvals pending appropriate Regulatory approvals</i>	If Rejected Why?	
TransCanada - Manager	Steve Marr	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/9/11
Comments:		If Rejected Why?	
Forward to:	Doug Reichley <input checked="" type="checkbox"/> Meera Kothari <input checked="" type="checkbox"/> Butch Wallace <input checked="" type="checkbox"/> Bobby Curbow <input checked="" type="checkbox"/>	Jonathan Minton <input checked="" type="checkbox"/> Heidi Tillquist <input checked="" type="checkbox"/> Robert Bradley <input checked="" type="checkbox"/> Sandra Gigovic <input type="checkbox"/>	Alan Lietz <input checked="" type="checkbox"/> Steve Marr <input checked="" type="checkbox"/>

RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230

RV-0196, RV-0219-0220, RV-0224, RV-0227-0230

**KEYSTONE XL PIPELINE PROJECT - STEELE CITY SEGMENT
PIPELINE ROUTE VARIATION FORM**

1 **VARIATION TYPE:** Refinement: Reroute:
 Centerline: Valve Site: Pump Station:

2 **LOCATION:** Sketch: Attached Pictures: See attached
 State: Multiple County: Multiple Quad Map: N/A
 Township: Multiple Range: Multiple Aerial Map: See attached map sheet
 Section: Multiple Centerline: 11/18/2010 MP: XXX.X to XXX.X

3 **REASON FOR ROUTE VARIATION** (Please include reason for route variation):
 The Reason for each Route Variation (RV) is given with the respective RV file.
 These reroutes are proposed based on aerial/pictometry/Lydar/flyover analysis of current line through Montana, South Dakota, and Nebraska.

DETAIL ROUTE VARIATION (Please describe route variation in detail):
 See respective Route Variation Files. No new landowners were affected by the proposed route variations.
 RVs included:
 Discussed during 8/10/2011 Meeting:
HWY 73 Reroute (RV-0196)
HWY 56 Reroute (RV-0219)
Bad River HDD realignment reroute (RV-0220)
MP 396 Reroute (RV-0224)
Yellowstone River HDD Entry Pt (RV-0227)
PI Breakdowns of all previous RV's for new CL (RV-0228 and RV-0229)
CK-MLV-06 and CK-11 Valves relocation (RV-0230)

ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.):

Is there an increase/decrease in the number of crossings? Yes No
 If yes, please list:

9 Originator: Multiple
 Date: 8/12/2011

10 Received by:
 Date: 8/12/2011
 Fax to: ?

11 Assigned Tracking Number: RV-0196, RV-0219-0220, RV-0224, RV-0227-0230

12 Filed by:
 Date:
 Fax to: ?

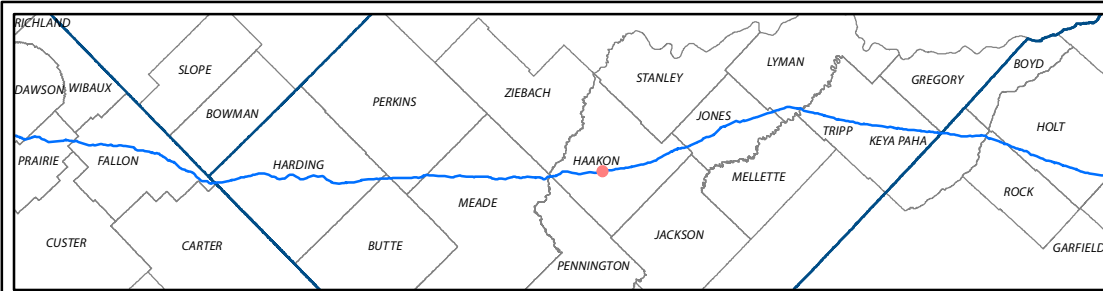
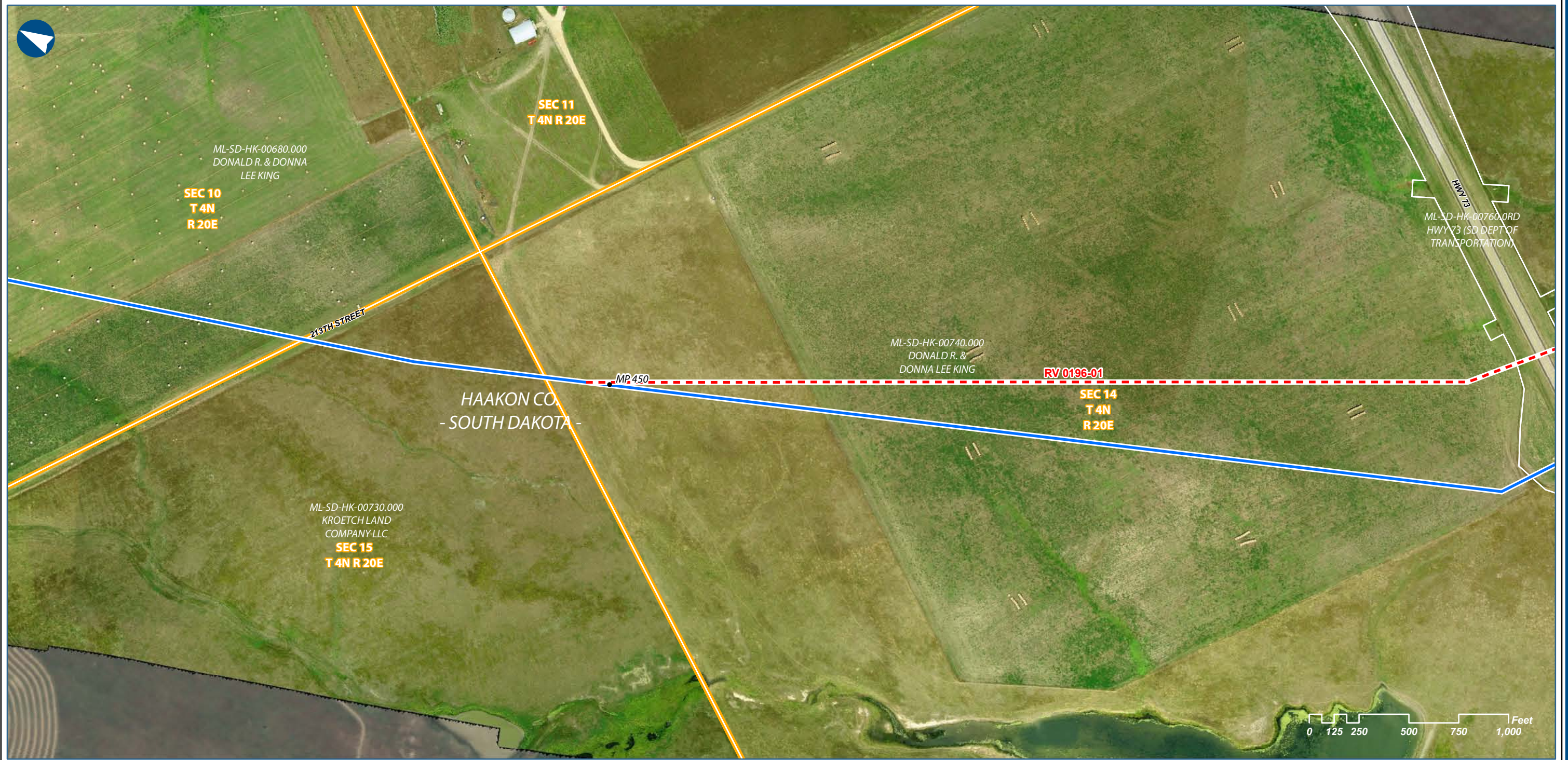
RV-0196, RV-0219-0220, RV-0224, RV-0227-0230

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT) ROUTE VARIATION AUTHORIZATION FORM		
Date: 8/12/2011	Tracking Number: RV-0196, RV-0219-0220, RV-0224, RV-0227-0230	MP: XXX.X to XXX.X
Description: HWY 73 Reroute (RV-0196) ; HWY 56 Reroute (RV-0219) ; Bad River HDD realignment reroute (RV-0220); MP 396 Reroute (RV-0224); Yellowstone River HDD Entry Pt (RV-0227); PI Breakdowns of all previous RVs for new CL (RV-0228 and RV-0229); CK-MLV-08 and CK-11 Valves relocation (RV-0230)	Originated By: Multiple	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Universal Field - Land Doug Reichley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: Pending Civil Survey	If Rejected Why? Doug Reichley 8/5/11	
TransCanada - Engineering Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: [Signature]	If Rejected Why?	
Exp - Engineering Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments:	If Rejected Why?	
TransCanada - Construction Bobby Curbow	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: BAD RIVER REVIEW COMPLETE!	If Rejected Why?	
Exp - Environmental Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: Pending Survey Completion	If Rejected Why?	
TransCanada - Environmental Stephen Craycroft	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: N/A.	If Rejected Why? ASSUMING LEGISLATION AND EUB REVIEW COMPLETE.	
Facilities: Sandra Gligovic	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments: N/A. Does not affect Facilities.	If Rejected Why?	
TransCanada - PM (NE) Robert Bradley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments:	If Rejected Why?	
TransCanada - Senior PM Alan Lietz	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/10/2011
Comments: Each item approved AND/OR appropriate Regulation approvals.	If Rejected Why?	
TransCanada - Manager Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments:	If Rejected Why?	
Forward to:	<input checked="" type="checkbox"/> Doug Reichley	<input checked="" type="checkbox"/> Jonathan Minton
	<input checked="" type="checkbox"/> Meera Kothari	<input checked="" type="checkbox"/> Stephen Craycroft
	<input checked="" type="checkbox"/> Butch Wallace	<input checked="" type="checkbox"/> Robert Bradley
	<input checked="" type="checkbox"/> Bobby Curbow	<input type="checkbox"/> Sandra Gligovic
	<input type="checkbox"/> Alan Lietz	<input checked="" type="checkbox"/> Steve Marr

RV-0196, RV-0219-0220, RV-0224, RV-0227-0230

10-10-11
 ASSUMING LEGISLATION AND EUB REVIEW COMPLETE.
 0219
 HWY 56
 RE ROUTE
 ONLY



LEGEND

●	MILEPOST		300 FT CORRIDOR
	PHASE IV CL (2010-11-18)		PROPERTY PARCEL
	PROPOSED ROUTE VARIATION		CULTURAL SITE
	SECTION LINE		WETLAND
	ACCESS ROAD		WATERBODY
	PUMP STATION		HORIZONTAL DIRECTIONAL DRILL
	VALVE SITE		

KEYSTONE PHASE IV, US
Proposed Route Variation 0196-01

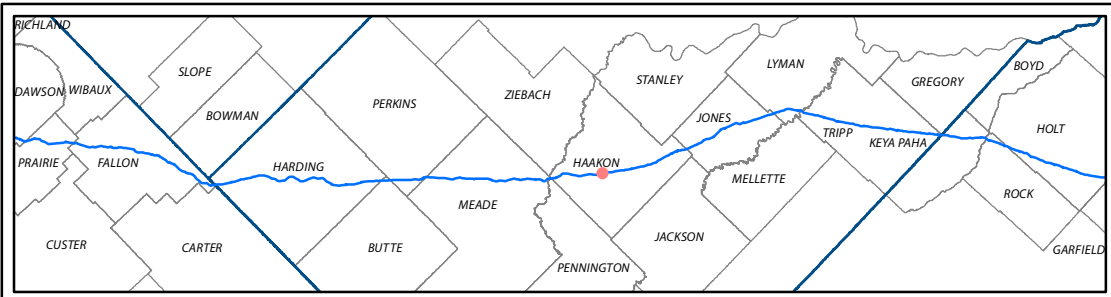
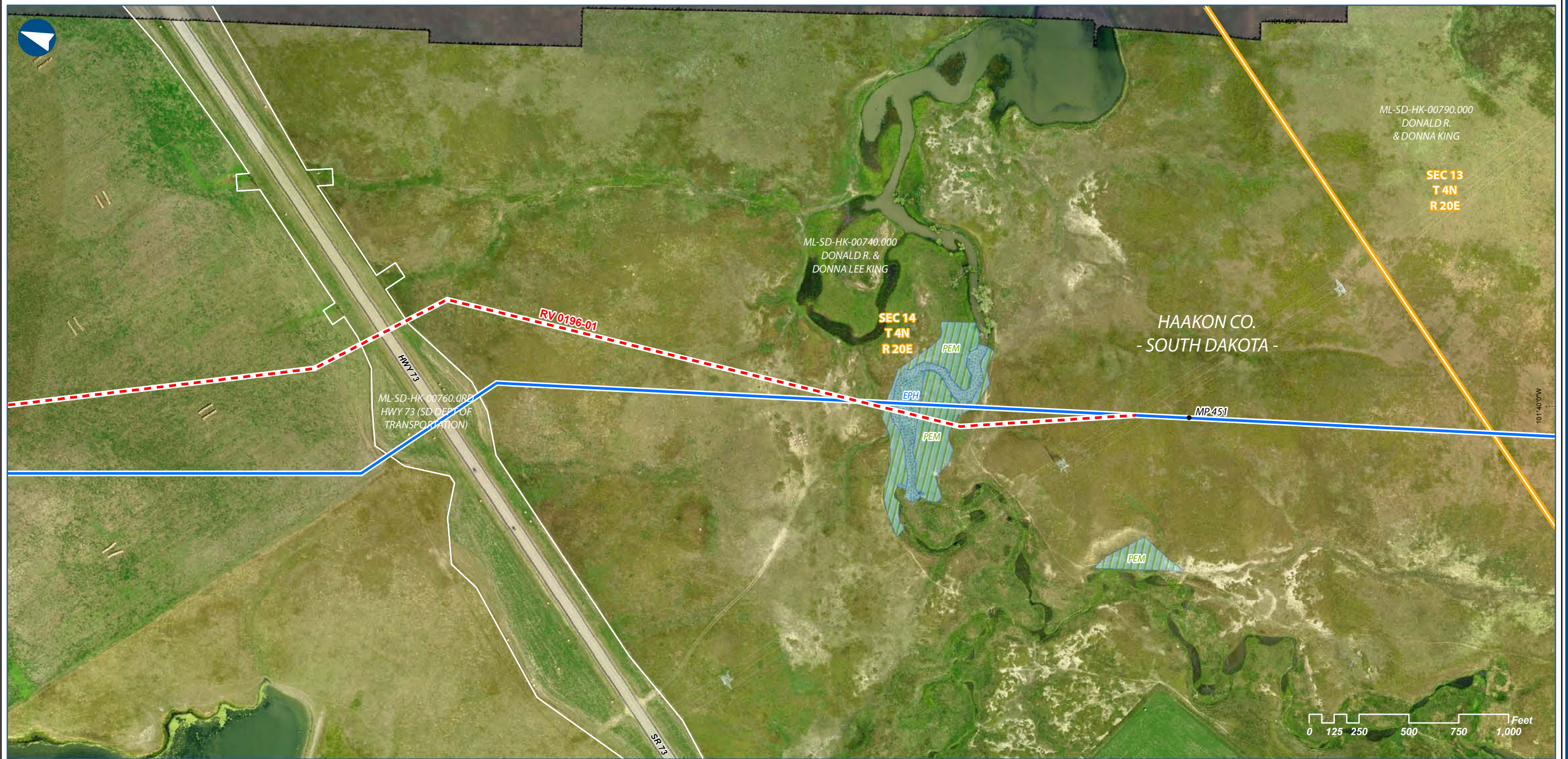
COUNTY:	HAAKON	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2011-08-08	
PRELIMINARY			
DATE:	2011-08-08	PROJECTION:	NAD83 UTM14 N

PREPARED BY:
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• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

DWG:	XL-00-P-9189	SHEET:	1
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LEGEND

- MILEPOST
- PHASE IV CL (2010-11-18)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- ⊙ PUMP STATION
- ⊗ VALVE SITE
- ▭ 300 FT CORRIDOR
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- ▨ WATERBODY
- HORIZONTAL DIRECTIONAL DRILL

KEYSTONE PHASE IV, US
Proposed Route Variation 0196-01

COUNTY:	HAAKON	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2011-08-08	
PRELIMINARY			
DATE:	2011-08-08	PROJECTION:	NAD83 UTM14 N

PREPARED BY:
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DWG: XL-00-P-9189 SHEET: 2