

KEYSTONE XL PIPELINE PROJECT

0314-SD-P4-546.9-548.8-S

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM			
1	VARIATION TYPE:	Refinement: <input type="text"/>	Reroute: <input checked="" type="checkbox"/> X
		Footprint: <input type="text"/>	Design: <input type="text"/>
		Centerline: <input checked="" type="checkbox"/> X	Pump Station: <input type="text"/>
		Valve Site: <input type="text"/>	CAR: <input type="text"/>
2	LOCATION:	Sketch: <input type="text" value="Attached"/>	Pictures: <input type="text" value="See attached."/>
	State: <input type="text" value="SD"/>	County: <input type="text" value="Tripp"/>	Quad Map: <input type="text" value="N/A"/>
	Township: <input type="text" value="102N"/>	Range: <input type="text" value="78W, (77W)"/>	Aerial Map: <input type="text" value="See attached map sheet"/>
	Section: <input type="text" value="024, 025, (030)"/>	Centerline: <input type="text" value="3/14/2012"/>	MP: <input type="text" value="546.93"/> to <input type="text" value="548.80"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation):		
	<p>The primary reason for this proposed route variation is to avoid the difficult terrain (side slopes, bluffs) and workspaces inside the drainage/creek encountered near MP 546.9.</p> <p>This reroute is requested by Engineering and is based on recommendations from the field reconnaissance.</p>		
	DETAIL ROUTE VARIATION (Please describe route variation in detail):		
	<p>The proposed route variation starts near MP 546.9 and deviates ~5° east of the current CL. It continues in this direction for ~3,811 ft. The reroute, then turns further southeast and extends for ~1,811 ft. It continues by turning south for ~4,425 ft. to rejoin the current CL near MP 548.8.</p>		
	ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.):		
	<p>4 tracts are impacted by the reroute: ML-SD-TR-10200.000 (Pahapesto Cattle Co., Inc.) ML-SD-TR-10240.000 (Tresh Swedlund & Sara Swedlund) ML-SD-TR-10250 and ML-SD-TR-10260 (Both Jorgensen Farms, Inc., a SD Corporation)</p> <p>Additional Cost savings include: a) To avoid a difficult construction and workspaces paralleling drainage feature (near MP 547) ~30,000</p>		
	Is there an increase/decrease in the number of crossings?		Yes <input type="text"/> No <input checked="" type="checkbox"/> X
	If yes, please list: <input type="text"/>		
	COST ANALYSIS (costs incurred or saved from the route variation)		
	Additional length of route realignment:	<input type="text" value="254"/> ft.	\$ <input type="text" value="91,289.29"/> \$ 360/ft
	Additional length of side-hill construction:	<input type="text" value="-4,530"/> ft.	\$ <input type="text" value="(86,070.00)"/> \$ 19/ft
	Additional length of wetland construction:	<input type="text"/> ft.	\$ <input type="text"/> \$ 195/ft
	Additional bore length (Road, RR):	<input type="text"/> ft.	\$ <input type="text"/> \$ 540/ft
	Additional foreign line/pipeline crossings:	<input type="text"/> EA	\$ <input type="text"/> \$ 30,000/EA
	Additional water body crossing (streams, ponds, etc.):		
	35 - 65' +	<input type="text" value="0"/> EA	\$ <input type="text"/> \$ 185,000/EA
	10' - 19'	<input type="text" value="0"/> EA	\$ <input type="text"/> \$ 77,250/EA
	Less than 10'	<input type="text" value="0"/> EA	\$ <input type="text"/> \$ 32,500/EA
	Additional survey required:		
	Civil:	<input type="text" value="0.00"/> mile	\$ <input type="text"/> \$ 5,000/mile
	Cultural:	<input type="text" value="0.54"/> mile	\$ <input type="text" value="1,347.86"/> \$ 2,500/mile
	Biological:	<input type="text" value="0.54"/> mile	\$ <input type="text" value="1,509.61"/> \$ 2,800/mile
	Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above:		\$ <input type="text" value="(30,000)"/> (30,000)
	Overall estimated costs of the route variation:	<input type="text" value="\$ (21,923.24)"/> (21,923.24)	(See "Additional Impacts" above)

4 **LAND / TransCanada** *Tina Hall*

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

b) Is the affected landowner/tract a possible condemnation? Yes No

c) Does proposed route variation impact Tribal Lands? Yes No

d) Does proposed route variation impact any Federal/State Lands? Yes No
 -If yes, name type (i.e. USFWS, BLM, etc.):

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

f) Is realignment proposed to satisfy landowner request? Yes No
 -If yes, name of landowner(s)/track number(s):

g) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No
 If no, please explain why:

5 **ENGINEERING/CONSTRUCTION - TransCanada** *Meera Kothari*

a) Maximum deviation perpendicular to proposed alignment: ft.

b) Does variation (CL) (including workspaces) falls within 500 ft. MDEQ Corridor? Yes No

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

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

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

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

g) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No
 If no, please explain why:

6 **ENVIRONMENTAL - TransCanada** *Sandra Barnett*

a) Has the corridor been environmentally surveyed? Yes No

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

c) Does proposed route variation impact Sage Grouse areas? Yes No

d) Does route variation impact ABB areas? Yes No

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

f) Was realignment proposed to satisfy agency request? Yes No
 -If yes, name of agency(s):

g) Environmental features:
 Added (+): Subtracted (-):
 Wetland ID # for newly impacted wetlands:

h) 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: ?

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KEYSTONE XL PIPELINE PROJECT

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM	
Date: 8/10/2012 Description: The primary reason for this proposed route variation is to avoid the difficult terrain (steep slopes, bluffs) and wetlands/trails the design/construct occupied near MP 548.8.	Tracking Number: 0314-SD-P4-548.9-548.9-3 MP: 548.8 to 548.8 Originated by: Engineering Approved by: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected Date: 8/10/12
Transmittal: B. Walker Comments:	Variation: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected Date: 8-10-12
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: N/A Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: N/A. Does not affect facilities Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Transmittal: None Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Forward to: <input type="checkbox"/> The Hill <input type="checkbox"/> Gainers Eminent <input type="checkbox"/> James O'Connell <input type="checkbox"/> Mason Kolman <input type="checkbox"/> Hill Trillium <input type="checkbox"/> Robert Bricker <input type="checkbox"/> Jeff Amersbach <input type="checkbox"/> Sarah O'Leary <input type="checkbox"/> Steve Mar	Approved by: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:

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KEYSTONE XL PIPELINE PROJECT

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: 8/14/2012	Tracking Number: 0314-SD-P4-546.9-548.8-S	
Description: The primary reason for this proposed route variation is to avoid the difficult terrain (side slopes, bluffs) and workspaces inside the drainage/creek encountered near MP 546.9.	MP: 546.9 to 548.8	Originated By: Engineering
	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>TransCanada - Land</u> Tina Hall	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8-20-12
Comments:	If Rejected Why?	
<u>TransCanada - Engineering</u> Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/14/12
Comments:	If Rejected Why?	
<u>Exp - Engineering</u> Butch Wallace	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	If Rejected Why?	
<u>TransCanada - Environmental</u> Sandra Barnett	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 8/22/12
Comments:	If Rejected Why?	
<u>Stantec - Risk Assessment</u> Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: N/A.	If Rejected Why?	
<u>TransCanada - Facilities</u> Sandra Glogovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: N/A. Does not affect facilities	If Rejected Why?	
<u>TransCanada - PM (Montana)</u> Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	If Rejected Why?	
<u>TransCanada - PM (South Dakota)</u> James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: Aug 24, 2012
Comments:	If Rejected Why?	
<u>TransCanada - PM (Nebraska)</u> Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	If Rejected Why?	
<u>TransCanada - Area Manager</u> Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments:	If Rejected Why?	
Forward to: Tina Hall <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Butch Wallace <input type="checkbox"/>	Sandra Barnett <input type="checkbox"/> Heidi Tillquist <input type="checkbox"/> Sandra Glogovic <input type="checkbox"/> Alan Lietz <input type="checkbox"/>	James Odom <input type="checkbox"/> Robert Bradley <input type="checkbox"/> Steve Marr <input type="checkbox"/>

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Date: 8/10/2012	Tracking Number: 0314-SD-P4-546.9-548.8-S	
Description: The primary reason for this proposed route variation is to avoid the difficult terrain (steep slopes, bluffs) and workspaces inside the drainage/foreek encountered near MP 546.9.	MP: 546.9 to 548.8 Originated By: Engineering Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
TransCanada - Land Tina Hall	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada- Engineering Meera Kothari	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Exp - Engineering Jeff Amelorsano	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada- Environmental Sandra Barnett	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Stantec - Risk Assessment Heidi Tilquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: N/A	If Rejected Why? <input type="text"/>	
TransCanada - Facilities Sandra Glogovic	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: <i>Sept 7, 2012</i>
Comments: N/A. Does not affect facilities	If Rejected Why? <input type="text"/>	
TransCanada - PM (Montana) Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - PM (South Dakota) James Odom	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - PM (Nebraska) Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - Area Manager Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: _____
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Forward to: Tina Hall _____ Meera Kothari _____ Jeff Amelorsano _____	Sandra Barnett _____ Heidi Tilquist _____ Sandra Glogovic _____ Alan Lietz _____	James Odom _____ Robert Bradley _____ Steve Marr _____

KEYSTONE XL PIPELINE PROJECT

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM	
Date: 8/19/2012 Description: The primary reason for this proposed route variation is to avoid the difficult terrain (steep slopes, bluffs) and wetlands inside the drainage/work encircled near MP 548.8.	Tracking Number: 0314-SD-P4-548-9-548-8-S MP: 548.8 (of 548.8) Digitized By: [Signature] Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? _____
TransCanada - Legal: Tom Mag Comments: _____	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> Date: 8/19/12 If Rejected Why? _____
TransCanada - Engineering: Megan Kellard Comments: _____	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> Date: 8/19/12 If Rejected Why? _____
Env. - Assessment: Jeff Amersbach Comments: _____	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> Date: 8/13/12 If Rejected Why? _____
TransCanada - Environmental: Sandra Barber Comments: _____	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> Date: 8/23/12 If Rejected Why? _____
Regulatory - Risk Assessment: Heidi Thibodeau Comments: N/A	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? _____
TransCanada - Facilities: Sandra Giguere Comments: N/A. Does not affect facilities	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? _____
TransCanada - PM (Maryland): [Signature] Comments: _____	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? _____

0314-SD-P4-548-9-548-8-S

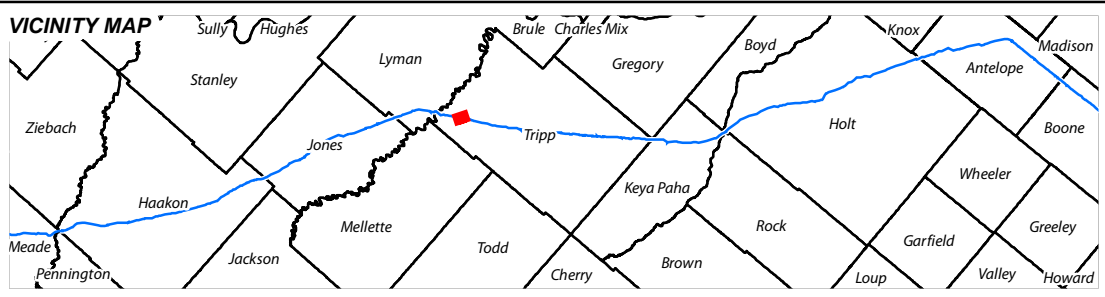
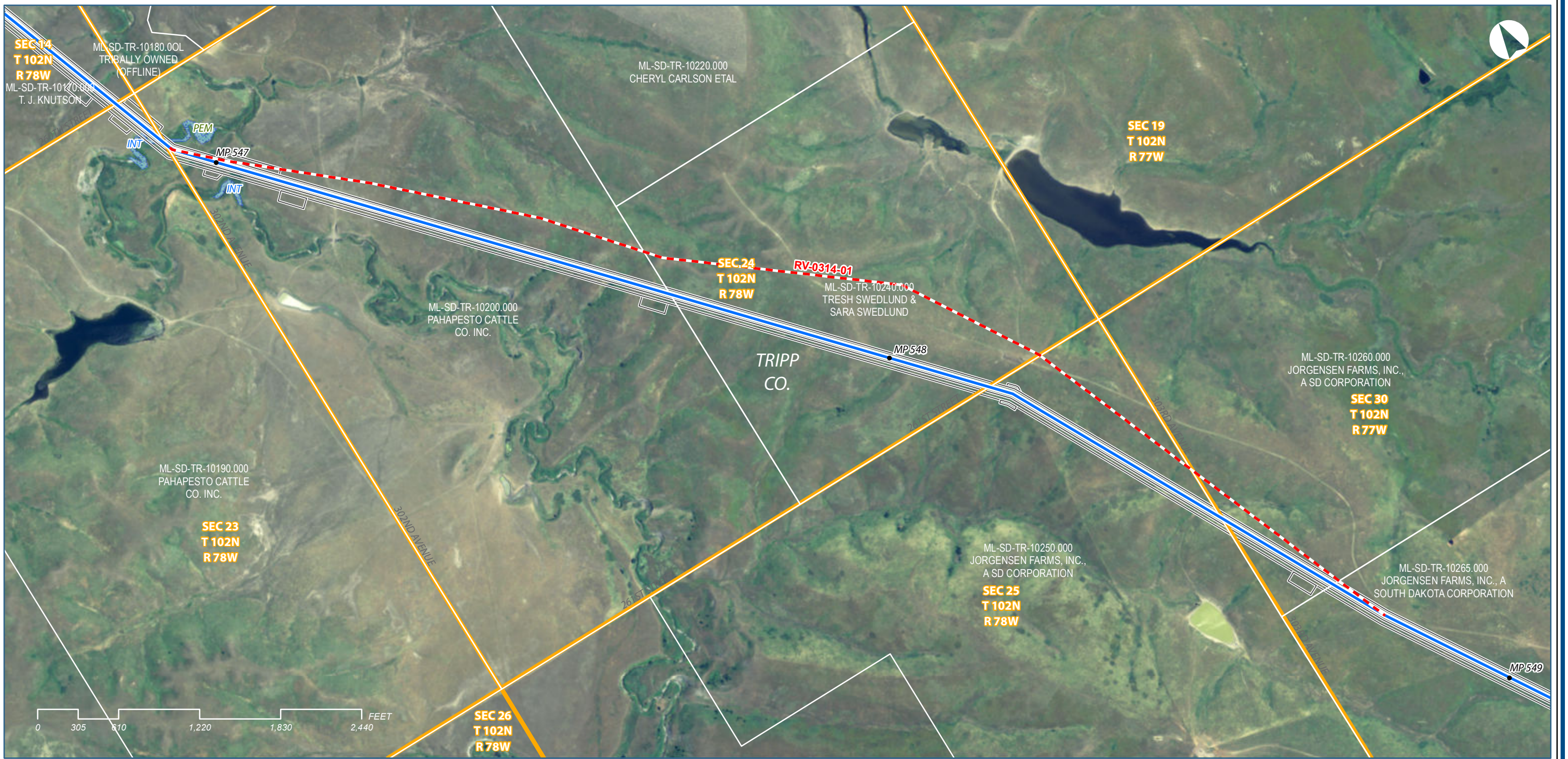
8/13/12
 I am unable to sign off on this at this time as Lonnie Barber is working with Craig Jones on the possibility of avoiding the NEW landowner, who we have never talked to.
 [Signature]
 Tina Hall

8/24/12
 I would like to wait until the landowner issue is resolved before assessing this route variation for approval.
 James Odum

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Description: <u>The primary reason for this proposed route variation is to avoid the difficult terrain (side slopes, bluffs) and workspaces inside the drainage/creek encountered near MP 546.9.</u>	MP: <u>546.9</u> to <u>548.8</u>	Originated By: <u>Engineering</u>
	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
TransCanada - Land Tina Hall	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada- Engineering Meera Kothari	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Exp - Engineering Butch Wallace	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada- Environmental Sandra Barnett	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Stantec - Risk Assessment Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <u>N/A.</u>	If Rejected Why? <input type="text"/>	
TransCanada - Facilities Sandra Gigovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <u>N/A. Does not affect facilities</u>	If Rejected Why? <input type="text"/>	
TransCanada - PM (Montana) Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - PM (South Dakota) James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: <u>19 Sept 2012</u>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - PM (Nebraska) Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
TransCanada - Area Manager Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/>
Comments: <input type="text"/>	If Rejected Why? <input type="text"/>	
Forward to: Tina Hall <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Butch Wallace <input type="checkbox"/>	Sandra Barnett <input type="checkbox"/> Heidi Tillquist <input type="checkbox"/> Sandra Gigovic <input type="checkbox"/> Alan Lietz <input type="checkbox"/>	James Odom <input type="checkbox"/> Robert Bradley <input type="checkbox"/> Steve Marr <input type="checkbox"/>

0314-SD-P4-546.9-548.8-S



LEGEND

●	MILEPOST	—	OVERHEAD POWER LINE
—	KEYSTONE XL CL (2012-07-13)	▭	PROPERTY PARCEL
- - -	PROPOSED ROUTE VARIATION	▭	CULTURAL SITE
▭	SECTION LINE	▨	WETLAND
—	ACCESS ROAD	▨	WATERBODY
▭	PUMP STATION		
⊙	POWER POLE		

KEYSTONE XL PROJECT
Proposed Route Variation 0314-01

COUNTY:	TRIPP	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	0	REVISION	ISSUED FOR REVIEW.
		DATE	2012-08-13
PRELIMINARY			
DATE:	2012-08-13	PROJECTION:	NAD83 UTM14 N

PREPARED BY:
exp Energy Services Inc.
t: +1.850.385.5441 | f: +1.850.385.5523
1300 Metropolitan Blvd.
Tallahassee, FL 32308
U.S.A.
www.exp.com

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• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

DWG: XL-30-P-9200 SHEET: 1

Side hill construction.

Current CL Workspaces parallel drainage/creek



Current CL Workspaces parallel drainage/creek





Looking Southeast at minute 3:49:262