ACATION TYPE Refinement: Centerline: X Pump Station:	distance from 3480 ft to 00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	ed map sheet X to HDD locations a subsequently o 3580 ft and the state of the	XXX.X in South Dakot reviewed by
State: SD County: Various Range: Various Section: Various Centerline: 6/11/2013 REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommosed on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels Co Engineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 to 16 363 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted. ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit point area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 41 tracts impacted: ML-SD-HK-00120.000 (Celborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00120.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Clsen) ML-SD-HK-00130.000 (Grant J. Clsen) ML-SD-HK-00100.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Directs impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin are available of the following costs and distances are based on increases in HDD lease increase in the number of crossings? If yes, please list: - COST A	Pictures: N/A Quad Map: N/A Aerial Map: See attach MP: XXX. endations for three (3) poration and has been distance from 3480 ft t 00 ft as a result. 1856 ft to 1816 ft. This also increases the	ed map sheet X to HDD locations a subsequently o 3580 ft and the state of the	in South Dakot reviewed by the HDD length
State: SD County: Various Section: Various Section: Various Section: Various Section: Various Section: Various Centerline: 6/11/2013 REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommodated on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels CoEngineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted; ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 835 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Detacts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional losts associated with environmental surveys. Civil survey will be required for the Sah Creek Bluff HDD = 113 ft x \$529 = -\$59,777 Bridger Creek HDD = 454 ft x \$529 = -\$59,777 Bridg	Quad Map: N/A Nerial Map: See attach MP: XXX Available of three (3) poration and has been distance from 3480 ft to 00 ft as a result. Il856 ft to 1816 ft. This also increases the off the HDD (Please see attach)	HDD locations a subsequently o 3580 ft and the total horizonta	in South Dakot reviewed by ne HDD length
State: SD County: Various Section: Various Section: Various Section: Various Section: Various Section: Various Centerline: 6/11/2013 REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommodated on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels CoEngineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted; ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 835 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Detacts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional losts associated with environmental surveys. Civil survey will be required for the Sah Creek Bluff HDD = 113 ft x \$529 = -\$59,777 Bridger Creek HDD = 454 ft x \$529 = -\$59,777 Bridg	Quad Map: N/A Nerial Map: See attach MP: XXX Available of three (3) poration and has been distance from 3480 ft to 00 ft as a result. Il856 ft to 1816 ft. This also increases the off the HDD (Please see attach)	HDD locations a subsequently o 3580 ft and the total horizonta	in South Dakot reviewed by ne HDD length
Township: Various Reason For Route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommodated on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels CoEngineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted; ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the areast. HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Detacts impacted: No additional length of wetland construction: 4Additional length of route realignment Additional length of route realignment Additional length of wetland construction: 4Additional length of wetland construction: Additional length of wetland c	endations for three (3) poration and has been distance from 3480 ft to 00 ft as a result. This also increases the of the HDD (Please series)	HDD locations a subsequently o 3580 ft and the total horizonta	in South Dakot reviewed by ne HDD length
REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommosed on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels Co. Engineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by - Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from Itract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). 2. Dracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase) in HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). 3. The contraction of the second of the properties of the pro	endations for three (3) poration and has been distance from 3480 ft t 00 ft as a result. 1856 ft to 1816 ft. This also increases the	HDD locations a subsequently o 3580 ft and the total horizonta	in South Dakot reviewed by ne HDD length
REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this design change is to incorporate Keystone XL HDD design recommased on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels CoEngineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by - Adjusted HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by - Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from Litract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit poir area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 41 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep. Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). D tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the forder — S529. The following costs and distances are based on increase	poration and has been distance from 3480 ft to 00 ft as a result. This also increases the of the HDD (Please s	HDD locations a subsequently o 3580 ft and the total horizonta	in South Dakot reviewed by ne HDD length
The primary reason for this design change is to incorporate Keystone XL HDD design recommosased on the Laney Directional Drilling Co. review. This review was conducted based on comments and design changes proposed by Michels CoEngineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3636 ft. Existing workspace including pull back area will be adjusted by - Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted; ML-SD-HK-0020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft to stension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: - ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) - ML-SD-HK-00130.000 (Kelly Blair) - ML-SD-HK-00170.000 (Kelly Blair) - S. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). - Dracts impacted: - No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD is Ash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Brid	distance from 3480 ft to 00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	o 3580 ft and the total horizonta	ne HDD length
This review was conducted based on comments and design changes proposed by Michels Congineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from \$522 ft to 8365 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1tract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit point area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 41 tracts impacted: - ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) - ML-SD-HK-00130.000 (Grant J. Olsen) - ML-SD-HK-00130.000 (Grant J. Olsen) - ML-SD-HK-00170.000 (Kelly Blair) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). - Dracts impacted: - No additional costs associated with environmental surveys. Civil survey will be required for the for HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD is Ash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 - Shidger Creek HDD = 454 ft x \$529 = ~\$59,777 - Shidger Creek HDD = 454 ft x \$529 = ~\$59,777 - Shidger Creek HDD = 454 ft x \$529 = ~\$59,777 - Shidger Creek HDD = 454 ft x \$640 = ~\$50,757 - Shidger Creek HDD = 454 ft x \$640 = ~\$50,757 - Shidger Creek HDD = 454 ft x \$640 = ~\$50,757 - Shidger Creek HDD = 454 ft x \$640 = ~\$50,757 - Shidger Creek HDD = 454 ft x \$640 = ~\$50,757	distance from 3480 ft to 00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	o 3580 ft and the total horizonta	ne HDD length
This review was conducted based on comments and design changes proposed by Michels Co- Engineering. DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from tract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00120.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing the creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$1,587 Fotal = ~\$301,530 s there an increase/decrease in the number of crossings? fyes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of wetland construction: - Additional foreign line/pipeline crossings: - Cost analysis construction:	distance from 3480 ft to 00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	o 3580 ft and the total horizonta ee map attache	ne HDD length
DETAIL ROUTE VARIATION (Please describe route variation in detail): 1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from 1 tract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 41 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00130.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). 2. Dracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increases in HDD length will also increase from 2062 ft to 2065 ft (3 ft increases). 2. Dracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing value for the properties of the properties	distance from 3480 ft to 00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	o 3580 ft and the total horizonta ee map attache	ne HDD length
1. Ash Creek Bluff HDD (MP 431.22) - Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. - Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from Ltract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit point area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from the tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00120.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Grant	00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	e total horizonta ee map attache	I distance
Extended HDD exit point by 100 ft downstream. This also increases the total horizontal from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from tract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from tracts impacted. ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00120.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Dracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the Start force Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$1,587 Fortal = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional length of wetland construction: 0 ft. Additional foreign line/pipeline crossings: 0 EA	00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	e total horizonta ee map attache	I distance
from 3522 ft to 3635 ft. Existing workspace including pull back area will be adjusted by Adjusted HDD exit angle from 12° to 14°. Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from tract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 41 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Dracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the Correct HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 154 ft x \$529 = ~ \$240,166 Bad River HDD = 3 ft x \$529 = ~ \$1,587 Total = ~ \$301,530 sthere an increase/decrease in the number of crossings? fotal = ~ \$301,530 sthere an increase/decrease in the number of crossings? fotal = River HDD = 164 ft x \$629 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River HDD = 164 ft x \$620 = ~ \$1,587 Total = River H	00 ft as a result. 1856 ft to 1816 ft. This also increases the of the HDD (Please s	e total horizonta ee map attache	I distance
- Adjusted HDD exit angle from 12° to 14° Depth of cover will be increased by 40 ft by lowering the bottom tangent elevation from Litract impacted; ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft Centerline change will be required to accommodate the 300 ft extension at the exit point area will be extended 300 ft. Neck down at Wetland crossing Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: - ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) - ML-SD-HK-00125.000 (Kelly Blair) - ML-SD-HK-00130.000 (Grant J. Olsen) - ML-SD-HK-00170.000 (Kelly Blair) - ML-SD-HK-00170.000 (Kelly Blair) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase) Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the Sort HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD lease for HDD = 113 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 - Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 - Bad River HDD = 3 ft x \$529 = ~\$1,587 - Total = ~\$301,530 - Sthere an increase/decrease in the number of crossings? - ft yes, please list: - COST ANALYSIS (costs incurred or saved from the route variation) - Additional length of wetland construction: - Additional length of ine/pipeline crossings: - Cost Analysis (Length Road, RR): - Additional length of we	1856 ft to 1816 ft. This also increases the of the HDD (Please s	ee map attache	
Litract impacted: ML-SD-HK-00020.000 (Craig & Deborah Hanrahan) 2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit poin area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). 2. tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the 10 to 3 ft x \$529 = x \$59,777 For HDDs, 1 ft = x \$529. The following costs and distances are based on increases in HDD lease of the 10 to 3 ft x \$529 = x \$1,587 For HDD = 3 ft x \$529 = x \$1,587 Fortal = x \$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of wetland construction: 0 ft. Additional length of wetland construction: 0 ft. Additional length of wetland construction: 0 ft. Additional foreign line/pipeline crossings: 0 EA	This also increases the of the HDD (Please s	ee map attache	
2. Bridger Creek HDD (MP 433.59) - Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. - Centerline change will be required to accommodate the 300 ft extension at the exit point area will be extended 300 ft. Neck down at Wetland crossing. - Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 1 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00120.000 (Kelly Blair) ML-SD-HK-00130.000 (Kelly Blair) ML-SD-HK-00140.000 (Kelly Blair) ML-SD-HK-00140.000 (Kelly Blair) B. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing a diditional costs associated with environmental surveys. Civil survey will be required for the for HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 Bad River HDD = 3 ft x \$529 = ~\$1,587 Total = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of wetland construction: 0 ft. Additional length of wetland construction: 0 ft. Additional provential incomplete increasings: 0 EA	of the HDD (Please s	ee map attache	
Extended HDD exit point by 300 ft downstream and the entry point by 150 ft upstream. from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8897 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poir area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the pash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 foriger Creek HDD = 454 ft x \$529 = ~\$240,166 ft and River HDD = 3 ft x \$529 = ~\$240,166 ft and River HDD = 3 ft x \$529 = ~\$1,587 fortal = ~\$301,530 st there an increase/decrease in the number of crossings? f yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of wetland construction: 0 ft. Additional foreign line/pipeline crossings: 0 EA	of the HDD (Please s	ee map attache	
from 8335 ft to 8785 ft and the HDD length from 8443 ft to 8997 ft. Centerline change will be required to accommodate the 300 ft extension at the exit poir area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from a tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00130.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Ditracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing additional costs associated with environmental surveys. Civil survey will be required for the for HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD to ash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 Bad River HDD = 3 ft x \$529 = ~\$1,587 Fortal = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 EA	of the HDD (Please s	ee map attache	
area will be extended 300 ft. Neck down at Wetland crossing. Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from 4 tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) ML-SD-HK-00170.000 (Kelly Blair) Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD lease. Ash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 Bad River HDD = 3 ft x \$529 = ~\$1,587 Total = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of wetland construction: Oft. Additional foreign line/pipeline crossings: 0 EA	•		ed). Pull back
- Depth of cover will be increased by 50 ft by lowering the bottom tangent elevation from tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 8. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). O tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 Bridger Creek HDD = 3 ft x \$529 = ~\$1,587 Total = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of side-hill construction: Additional length of wetland construction: Additional length of wetland construction: Additional bore length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA	1875 ft to 1825 ft.	otion from 1760	
### tracts impacted: ML-SD-HK-00120.000 (Deborah L. Hanrahan, Personal Rep, Estate of Craig L. Hanrahan) ML-SD-HK-00125.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) #### Band River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). #### DITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD to ash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 #################################		otion from 1760	
ML-SD-HK-00125.000 (Kelly Blair) ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00130.000 (Kelly Blair) Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Diracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing additional costs associated with environmental surveys. Civil survey will be required for the for HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD lease for HDDs, 1 ft = \$529. The following costs and distances are based on increases in HDD lease for HDD = 3 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 Bad River HDD = 3 ft x \$529 = ~\$1,587 Fotal = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of side-hill construction: Additional length of wetland construction: 0 ft. Additional foreign line/pipeline crossings: 0 EA		otion from 1760	
ML-SD-HK-00130.000 (Grant J. Olsen) ML-SD-HK-00170.000 (Kelly Blair) 8. Bad River HDD (MP 485.97) - The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). 9. tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing additional costs associated with environmental surveys. Civil survey will be required for the for HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 (Bridger Creek HDD = 454 ft x \$529 = ~\$59,777 (Bridger Creek HDD = 3 ft x \$529 = ~\$1,587 (Bridger Creek HDD = 3 ft x		ation from 1760	
3. Bad River HDD (MP 485.97) The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). O tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD lease. Creek Bluff HDD = 113 ft x \$529 = ~\$59,777 Bridger Creek HDD = 454 ft x \$529 = ~\$240,166 Bad River HDD = 3 ft x \$529 = ~\$1,587 Total = ~\$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: O ft. Additional length of wetland construction: O ft. Additional bore length (Road, RR): O EA		ation from 1760	
The only adjustment to be made will be a depth of cover increase of 20 ft by lowering the a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). Outracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossing validational costs associated with environmental surveys. Civil survey will be required for the control of the control o		ation from 1760	
a result, HDD length will also increase from 2062 ft to 2065 ft (3 ft increase). O tracts impacted: No above ground impact. ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~\$529. The following costs and distances are based on increases in HDD lease for the Result of the Result o		ation from 1760	
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~ \$529. The following costs and distances are based on increases in HDD least Creek Bluff HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bad River HDD = 3 ft x \$529 = ~ \$1,587 Total = ~ \$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional foreign line/pipeline crossings: 0 EA	e bottom tangent eleva	110111111111111111111111111111111111111	ft to 1740 ft. A
No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~ \$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bad River HDD = 3 ft x \$529 = ~ \$1,587 Total = ~ \$301,530 s there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: Additional length of wetland construction: Additional length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA			
No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~ \$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 4540,580 Bridger Br			
No additional costs associated with environmental surveys. Civil survey will be required for the For HDDs, 1 ft = ~ \$529. The following costs and distances are based on increases in HDD leash Creek Bluff HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 3 ft x \$529 = ~ \$1,587 Bridger Creek HDD = 4540,580 Bridger Br	as induction bends et	.c.).	
For HDDs, 1 ft = ~ \$529. The following costs and distances are based on increases in HDD leads to the cost of the			
Ash Creek Bluff HDD = 113 ft x \$529 = ~ \$59,777 Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bad River HDD = 3 ft x \$529 = ~ \$1,587 Fotal = ~ \$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 EA Additional foreign line/pipeline crossings: 0 EA	Bridger Greek conten	ino onango.	
Bridger Creek HDD = 454 ft x \$529 = ~ \$240,166 Bad River HDD = 3 ft x \$529 = ~ \$1,587 Flotal = ~ \$301,530 Is there an increase/decrease in the number of crossings? If yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: Definitional length of wetland construction: Additional length of wetland construction: Definitional length of wetland construction: Additional bore length (Road, RR): Definitional foreign line/pipeline crossings: Definitional length of EA	ngth.		
s there an increase/decrease in the number of crossings? f yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment 11 ft. Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA			
s there an increase/decrease in the number of crossings? f yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA			
f yes, please list: COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA			
COST ANALYSIS (costs incurred or saved from the route variation) Additional length of route realignment Additional length of side-hill construction: Oft. Additional length of wetland construction: Oft. Additional bore length (Road, RR): Oft. Additional foreign line/pipeline crossings: OEA	Yes		No X
Additional length of route realignment 11 ft. Additional length of side-hill construction: 0 ft. Additional length of wetland construction: 0 ft. Additional bore length (Road, RR): 0 ft. Additional foreign line/pipeline crossings: 0 EA			
Additional length of side-hill construction: Additional length of wetland construction: Oft. Additional bore length (Road, RR): Oft. Additional foreign line/pipeline crossings: OEA			
Additional length of wetland construction: Oft. Additional foreign line/pipeline crossings: OEA	\$ 3,96	60.00	\$ 360/ft
Additional bore length (Road, RR): Oft. Additional foreign line/pipeline crossings: 0 EA	\$	_	\$ 19/ft
Additional foreign line/pipeline crossings: 0 EA	\$		\$ 195/ft
Additional foreign line/pipeline crossings: 0 EA	\$	-	\$ 540/ft
	\$	_	\$ 30,000/E
35 - 65' + <u>0</u> EA		-	\$ 185,000/
10' - 19' 0 EA	\$	-	\$ 77,250/E
Less than 10' 0 EA	\$		\$ 32,500/E
Additional survey required:			
Civil: 0.82 mile	\$		
Cultural: 0.00 mile	\$ \$	00.00	\$ 5,000/mi
Biological: 0.00 mile	\$ \$	00.00	\$ 5,000/mi \$ 2,500/mi
	\$ \$ 4,10	-	\$ 2,500/mi
Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed	\$ \$	00.00	

4 LAND / TransCanada	Tina Hall			
a) Is a new landowner affected by the proposed variation?		Yes	No	X
b) Is the affected landowner/tract a possible condemnation?		Yes	No	X
c) Does proposed route variation impact Tribal Lands?		Yes	No	X
d) Does proposed route variation impact any Federal/State Land	ls1	Yes	No	Х
-If yes, name type (i.e. USFWS, BLM, etc.):				
e) Is proposed realignment outside the easement/workspace?		Yes	No	x
		Yes		x
f) Is realignment proposed to satisfy landowner request?		165	NU	
-If yes, name of landowner(s)/track number(s):				
g) Has all the evaluation criteria been examined/provided for this spe	cific discipline?	Yes X	No	
If no, please explain why:		·		
- ENCINEEDING/CONSTRUCTION TransCanada	Meera Kothari			-
5 ENGINEERING/CONSTRUCTION - TransCanada	weera Koman		70 6	
a) Maximum deviation perpendicular to proposed alignment:			78 ft.	
b) Does variation (CL) (including workspaces) falls within 500 ft.	MDEQ Corridor?	Yes N/A	NoN	I/A
c) Has the centerline been staked for construction?		Yes	No	X
d) Does route variation affect HDD crossing alignment?		Yes	No	X
e) Is realignment proposed for engineering/construction reasons?		Yes	No	х
f) Will the route variation require the relocation of a pump station?		Yes	No	X
g) Has all the evaluation criteria been examined/provided for this spe	cific discipline?	Yes X	No No	
•	one discipline:	103 <u>X</u>	110	
If no, please explain why:				
6 ENVIRONMENTAL / TransCanada	Sandra Barnett			
a) Has the corridor been environmentally surveyed?		Yes X	No	
b) Has the proposed variation been environmentally surveyed?		Yes X	No	
c) Does proposed route variation impact Sage Grouse areas?		Yes	No	х
d) Does route variation impact ABB areas?		Yes	No	x
e) Was variation proposed to satisfy environmental issues?		Yes		X
f) Was realignment proposed to satisfy agency request?		Yes	_	x
1) Was realignment proposed to satisfy agency request:		163	140	
-If yes, name of agency(s):				
g) Environmental features:				
Added (+):	Subtracte	ed (-):		
		().		
Wetland ID # for newly impacted wetlands:				
h) Has all the evaluation criteria been examined/provided for this spe	cific discipline?	Yes X	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	X
b) Will route variation impact hydraulics?		Yes	No	X
c) Are additional valves required at HCA's or water crossing?		Yes	No	Х
d) Has all the evaluation criteria been examined/provided for this spe	cific discipline?	Yes X	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	X
b) Does the variation require follow-up with specific stakeholder grou	ps?	Yes	No	Х
c) Was the variation proposed to satisfy stakeholder request?		Yes		x
-If yes, please specify issue type (as it aligns to stakeholder database	5).			
d) Has all the evaluation criteria been examined/provided for this spe	·	Yes X	No	
, , , , ,	ото изорите:	Λ	NU	
If no, please explain why:		10		
Originator: Engineering		Receive	d by:	
Date: 1/8/2014			Date:	
7,5/2017			Fax to: ?	
11		12		
Assigned Tracking Number: 0543-SD-P4-XXX.X-XXX.X-S		File	d by:	
			Date:	

0543-SD-P4-XXX.X-XXX.X-

0543-SD-P4-XXX.X-XXX.X-S

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM					
in to	1/8/2014 he primary reason for this design change is to corporate Keyslone XL HDD design recommendations in three (3) HDD locations in South Dakota based on the aney Directional Drilling Co. review.	Tracking Number, 0543-SD-P4-XXX X-XXX X-S MP XXX X to XXX X Originated By Engineering Variation Form Attached: Yes X No			
TransCanada Comments:	-Land Tine Hall	Variation. Approved X Rejected Todate Dista 1-13-2014 If Rejected Why?			
IrensCaneda: Comments:	Engineering Meera Kothari	Vaguation: Approved Rejected Date: 110 Mar. 110			
Exp - Enginee Comments:	rine Kevin McGlynn	Hartally accretion & Rejected The Rejected Why? Rejected Why?			
TransCanada Comments:	Environmental Sandra Barnett	Variation: Approved Rejected G. C.) S. M. T. Date: 1/13/14 If Rejected U.Ck.5 pace fraces Why? To be kept out with a company of the comp			
Stantec - Risk Comments:	Assesment Hordi TRiquist	Variation: Approved Rejected Date:			
TransCanada Comments:	Facilities Sandra Gigovic	Varietion: Approved Rejected If Rejected Why?			
TransCanada Commenta:	- Phi (Montana) Aian Uetz	Verlation: Approved Rejected Date:			
TrangCanada Comments:	- PM (South Dakota) James Odom	Variation: Approved Rejected Tame H.O.d. Date: Variation Vary?			
TransCanada. Comments:	PM (Nebraska) Robert Bradley	Variation: Approved Rejected Date: If Rejected Why?			
TransCanada Comments:	- Area Manager Steve Marr	Variation: Approved Rejected Outs: If Rejected Why?			
A	ina Hall Sandra B Beers Kothari Heldi Tili Sevin McGlynn Sandra G Alan Liet	ust Robert Bradley igovic Steve Marr			

KEYSTONE XL PIPELINE PROJECT

REVETONE XL ROUTE VARIATION	PIPELINE PROJECT AUTHORISATION FORM	3
(Death) 1/8/2014 Description: The primary reason for this design change is to	Tracking Homber	0543-SD-P4-XXX.X-XXX.X-S
The privary reason for this design change is to incorporate Keystone XL HDD design recommendations for three (3) HDD focusions in South Databa based on the Laney Directional Criting Co. review.	(Digitalized By) Engineering	4
	Vankfort arm Allachell Yau X No	ģ
TransGinada Land Doc'Hell Comments:	Variable: Approved trining of	£
	Jerope ed	8
		ξ
Danigardi Praheeling Meer Kobat	Veliable Approved Services	
Countell	Missississis Why?	
) ''''(
Exp. Engineering Kevin (423) yia	Vinico Approved Reading	
Countries:	- Oale	
	ntremeted Years	
TransCanada y Environmental Sandra Barkell Commonlis :	VARMON, Approved Repailor	
	Haragected MOV2	
Stankie Birk Archamoni Rold (Tolqua)	Viriation: Approximate Projecting	
Comments	Kasicied	
	1001	
Tradeconstinues Sando Gipovo	Yaqahya: Apployed 3 Yellacted	
Contraction (TOUCH Date (744/4)	2014
	Kranson	
	300/4	
Transcapada PM (Montana) Alan Lietz	Variebury: Approved	
Committee:	Hpalesid Word	
Transidanada - Eth Ibouin Dakota) James Odon	Vatalian: Approved Rejected	
Contriguits.	Date:	
	(Printed and Veloy)	
Assertation and the second		
TransCant Gaurent (Names and) Probert Bladey	Variation: Approved (
Connarte	I Rejected	
	WW.	
TransCaneda : Area Menager Storye Marr.	Validies Applyod Hajedad	
Trans-Canada Area Manager Story Man Bergrander	088	
	II Rejected Why/	
	Language of the second	
Fewariel Inc. Tara (Ind. Sentral) Meeric Februari Kevin McGlyyn Sentral Akan Liet	Appel Cycon Robert Headley Rysels Steve Mart	
New Mickey (1) 1 Sandra G Alan Det		

