Table 1: Anticipated Permits or Reviews for the Project in South Dakota			
AGENCY	**PERMIT**	**AGENCY ACTION**	**ESTIMATED APPLICATION SUBMITTAL DATE**
Federal			
U.S. Army Corps of Engineers (USACE), Omaha District - South Dakota Regulatory Office	Sections 404 Clean Water Act for discharge of fill in water of the U.S.; Section 10 Rivers and Harbors Act Permit for crossing navigable waters of the U.S.	Authorization of discharge of fill material into waters of the U.S. and structures crossing navigable waters	Submitted October 2022 Addendum Submitted March 2023
	Section 408 Review	USACE determined there are no USACE interest properties, no review required	NA
U.S. Fish and Wildlife Service	Section 7 Consultation - Endangered Species Act	Federally listed threatened and endangered species affect determination review and concurrence.	October 2022; BA to be submitted Q3 2023
State Historic Preservation Officer	Section 106 Consultation - National Historic Preservation Act	Effects Determination and associated mitigation.	Initial review of 2021 survey results February 2022; Updated memo provided to SHPO week of 8/28/23 for route and survey status; full report to be completed after survey season in 2023.
Pipeline Hazardous Materials Safety Administration (PHMSA)	49 CFR Part 195	Integrity Management Plan and Emergency Response Plan	Prior to operations
Federal Highways Administration	Crossing Permit	Issuance of permits for the crossing of federally funded highways.	Q3 2023
State			
South Dakota Department of Agriculture and Natural Resources	401 Water Quality Certification (WQC)	Issuance of certification occurs with USACE NWP 58 issuance.	Issued with USACE NWP 58
	Surface Water Discharge General Permit for Temporary Discharge Activities and a Temporary Water Rights Use Permit (SDG070000)	Issuance of permit for hydrostatic test water discharge and construction dewatering to waters of the State, and Temporary Water Use Permit.	Q1//Q2 2024
	Surface Water Discharge General Permit for Stormwater Discharges Associated with	Issuance of permits for discharges associated with activity that causes land	Q1/Q2 2024

Table 1: Anticipated Permits or Reviews for the Project in South Dakota			
AGENCY	**PERMIT**	**AGENCY ACTION**	**ESTIMATED APPLICATION SUBMITTAL DATE**
	Construction Activities Permit (SDR100000)	disturbance equal to or greater than one acre.	
	Standard Water Rights Permit	Review and make a recommendation for appropriation of water from a state jurisdictional waterbody during construction activities if authorization is not issued under the Temporary Water Rights Use Permit.	Q1/Q2 2024
South Dakota Department of Transportation	Application for Permit to Occupy Right of Way	Issuance of permits to occupy right of way.	Q3 2023
South Dakota Department of Game, Fish, and Parks	State Listed Species Review	Review and authorization.	Concurrent with USFWS BA review
Local			
County Road Departments	Crossing Permits	Issuance of permits for crossing county roads.	Q1/Q2 2024
	Road Haul Agreements	Negotiated agreements between counties and the Applicant.	Q1/Q2 2024
County and Local Authorities	Floodplain, Conditional Use, and building permits	Review and approval.	Q1 2024
	Special or Conditional Use Permits, where required	Review and approval.	Q1 2024
	Municipal Water Use Agreements (if required)	Negotiated agreements between municipalities and the Applicant.	Q2 2024

Table 2: Project Facilities in South Dakota							
ID	FACILITY TYPE[1]	LENGTH (miles)[2]	NOMINAL DIAMETER (inches)	COUNTY	BEGINNING MILEPOST	END MILEPOST	ASSOCIATED PIPELINE
Pipelines							
NDM-106	Main Line	26.14	24	McPherson	0.00	26.14	NA
NDT-211	Trunk Line	3.00	12	Brown	88.78	91.78	NA
NDT-211	Trunk Line	21.96	12	McPherson	91.78	113.74	NA
SDL-320	Lateral	19.78	6	Sully	0.00	19.78	NA
SDL-320	Lateral	18.82	6	Hyde	19.78	38.60	NA
SDL-320	Lateral	31.36	6	Hand	38.60	69.96	NA
SDL-320	Lateral	10.39	6	Spink	69.96	80.34	NA
SDL-335	Lateral	0.43	4	Edmunds	0.00	0.43	NA
SDL-336	Lateral	0.54	4	Spink	0.00	0.54	NA
SDM-104	Main Line	23.32	24	Lincoln	27.19	50.52	NA
SDM-104	Main Line	3.07	24	Turner	50.52	53.58	NA
SDM-104	Main Line	27.61	24	Minnehaha	53.58	81.20	NA
SDM-104	Main Line	2.24	24	McCook	81.20	83.43	NA
SDM-104	Main Line	18.90	24	Lake	83.43	102.33	NA
SDM-104	Main Line	15.38	24	Miner	102.33	117.71	NA
SDM-104	Main Line	29.43	24	Kingsbury	117.71	147.14	NA
SDM-104	Main Line	4.12	24	Beadle	147.14	151.26	NA
SDM-105	Main Line	7.39	24	Beadle	0.00	7.39	NA
SDM-105	Main Line	51.80	24	Spink	7.39	59.19	NA
SDM-105	Main Line	15.10	24	Brown	59.19	74.30	NA
SDM-105	Main Line	22.16	24	Edmunds	74.30	96.46	NA
SDM-105	Main Line	12.11	24	McPherson	96.46	108.57	NA
SDT-206	Trunk Line	14.51	6	Lake	0.00	14.51	NA
SDT-207	Trunk Line	23.77	6	Beadle	0.00	23.77	NA
SDT-208	Trunk Line	12.84	6	Codington	0.00	12.84	NA
SDT-208	Trunk Line	13.17	6	Hamlin	12.84	26.00	NA
SDT-208	Trunk Line	22.01	6	Clark	26.00	48.01	NA
SDT-208	Trunk Line	2.54	8	Beadle	48.01	50.56	NA
SDT-209	Trunk Line	12.41	8	Spink	0.00	12.41	NA
SDT-210	Trunk Line	10.13	6	Brown	0.00	10.13	NA
SDT-210	Trunk Line	1.81	6	Edmunds	10.13	11.94	NA
Pump Stations							
Hartford (MPS-04)	Pump Station	NA	NA	Minnehaha	69.57	69.57	SDM-104
Manchester (MPS-05)	Pump Station	NA	NA	Beadle	0.01	0.01	SDM-105

Table 2: Project Facilities in South Dakota							
ID	FACILITY TYPE[1]	LENGTH (miles)[2]	NOMINAL DIAMETER (inches)	COUNTY	BEGINNING MILEPOST	END MILEPOST	ASSOCIATED PIPELINE
Ashton (MPS-06)	Pump Station	NA	NA	Brown	71.73	71.73	SDM-105
Leola (MPS-07)	Pump Station	NA	NA	McPherson	0.07	0.07	NDM-106
Mainline Valves							
MLV-106-01*	MLV	NA	NA	McPherson	0.12	0.12	NDM-106
MLV-106-01-A	MLV	NA	NA	McPherson	9.45	9.45	NDM-106
MLV-106-02	MLV	NA	NA	McPherson	15.26	15.26	NDM-106
MLV-211-09	MLV	NA	NA	Brown	89.70	89.70	NDT-211
MLV-211-09-A	MLV	NA	NA	McPherson	103.95	103.95	NDT-211
MLV-211-10*	MLV	NA	NA	McPherson	113.61	113.61	NDT-211
MLV-320-01*	MLV	NA	NA	Sully	0.00	0.00	SDL-320
MLV-320-01-A	MLV	NA	NA	Sully	3.59	3.59	SDL-320
MLV-320-02	MLV	NA	NA	Hyde	22.87	22.87	SDL-320
MLV-320-03	MLV	NA	NA	Hand	42.63	42.63	SDL-320
MLV-320-04	MLV	NA	NA	Hand	61.34	61.34	SDL-320
MLV-320-05*	MLV	NA	NA	Spink	80.34	80.34	SDL-320
MLV-335-01*	MLV	NA	NA	Edmunds	0.00	0.00	SDL-335
MLV-335-02*	MLV	NA	NA	Edmunds	0.41	0.41	SDL-335
MLV-336-01*	MLV	NA	NA	Spink	0.00	0.00	SDL-336
MLV-336-02*	MLV	NA	NA	Spink	0.53	0.53	SDL-336
MLV-104-06	MLV	NA	NA	Lincoln	27.46	27.46	SDM-104
MLV-104-07	MLV	NA	NA	Lincoln	43.61	43.61	SDM-104
MLV-104-07-A	MLV	NA	NA	Lincoln	50.50	50.50	SDM-104
MLV-104-08-B	MLV	NA	NA	Minnehaha	62.02	62.02	SDM-104
MLV-104-08*	MLV	NA	NA	Minnehaha	69.53	69.53	SDM-104
MLV-104-08-A*	MLV	NA	NA	Minnehaha	69.61	69.61	SDM-104
MLV-104-09*	MLV	NA	NA	Lake	85.56	85.56	SDM-104
MLV-104-09-A	MLV	NA	NA	Lake	94.40	94.40	SDM-104
MLV-104-10	MLV	NA	NA	Lake	100.41	100.41	SDM-104
MLV-104-10-A	MLV	NA	NA	Miner	113.55	113.55	SDM-104
MLV-104-11	MLV	NA	NA	Kingsbury	118.84	118.84	SDM-104
MLV-104-11-A	MLV	NA	NA	Kingsbury	130.83	130.83	SDM-104

Table 2: Project Facilities in South Dakota							
ID	FACILITY TYPE[1]	LENGTH (miles)[2]	NOMINAL DIAMETER (inches)	COUNTY	BEGINNING MILEPOST	END MILEPOST	ASSOCIATED PIPELINE
MLV-104-11-B*	MLV	NA	NA	Beadle	150.61	150.61	SDM-104
MLV-104-12*	MLV	NA	NA	Beadle	151.21	151.21	SDM-104
MLV-104-13*	MLV	NA	NA	Beadle	0.06	0.06	SDM-105
MLV-105-01-C	MLV	NA	NA	Spink	8.42	8.42	SDM-105
MLV-105-01	MLV	NA	NA	Spink	18.88	18.88	SDM-105
MLV-105-01-B	MLV	NA	NA	Spink	27.27	27.27	SDM-105
MLV-105-01-A*	MLV	NA	NA	Spink	35.78	35.78	SDM-105
MLV-105-03	MLV	NA	NA	Spink	51.32	51.32	SDM-105
MLV-105-04	MLV	NA	NA	Spink	53.32	53.32	SDM-105
MLV-105-05	MLV	NA	NA	Brown	62.70	62.70	SDM-105
MLV-105-06	MLV	NA	NA	Brown	65.58	65.58	SDM-105
MLV-105-02*	MLV	NA	NA	Brown	71.73	71.73	SDM-105
MLV-105-07*	MLV	NA	NA	Edmunds	81.83	81.83	SDM-105
MLV-105-08	MLV	NA	NA	Edmunds	88.24	88.24	SDM-105
MLV-105-08-A	MLV	NA	NA	McPherson	101.07	101.07	SDM-105
MLV-105-09*	MLV	NA	NA	McPherson	108.56	108.56	SDM-105
MLV-206-01*	MLV	NA	NA	Lake	0.00	0.00	SDT-206
MLV-206-02	MLV	NA	NA	Lake	2.95	2.95	SDT-206
MLV-206-03	MLV	NA	NA	Lake	4.65	4.65	SDT-206
MLV-206-04*	MLV	NA	NA	Lake	14.50	14.50	SDT-206
MLV-207-01*	MLV	NA	NA	Beadle	0.00	0.00	SDT-207
MLV-207-01-A	MLV	NA	NA	Beadle	3.91	3.91	SDT-207
MLV-207-02	MLV	NA	NA	Beadle	8.97	8.97	SDT-207
MLV-207-03	MLV	NA	NA	Beadle	12.86	12.86	SDT-207
MLV-207-04*	MLV	NA	NA	Beadle	23.73	23.73	SDT-207
MLV-208-01*	MLV	NA	NA	Codington	0.00	0.00	SDT-208
MLV-208-01-C	MLV	NA	NA	Codington	8.54	8.54	SDT-208
MLV-208-01-A	MLV	NA	NA	Hamlin	13.38	13.38	SDT-208
MLV-208-01-B	MLV	NA	NA	Hamlin	21.13	21.13	SDT-208
MLV-208-02-A	MLV	NA	NA	Clark	27.47	27.47	SDT-208
MLV-208-03	MLV	NA	NA	Clark	40.79	40.79	SDT-208
MLV-208-04*	MLV	NA	NA	Beadle	50.54	50.54	SDT-208

Table 2: Project Facilities in South Dakota							
ID	FACILITY TYPE[1]	LENGTH (miles)[2]	NOMINAL DIAMETER (inches)	COUNTY	BEGINNING MILEPOST	END MILEPOST	ASSOCIATED PIPELINE
MLV-209-01	MLV	NA	NA	Spink	1.75	1.75	SDT-209
MLV-209-02*	MLV	NA	NA	Spink	12.40	12.40	SDT-209
MLV-210-01*	MLV	NA	NA	Brown	0.00	0.00	SDT-210
MLV-210-01-A	MLV	NA	NA	Brown	7.04	7.04	SDT-210
MLV-210-02*	MLV	NA	NA	Edmunds	11.91	11.91	SDT-210
Launcher-Receivers Sites							
PLR-01	Launcher-Receiver	NA	NA	Edmunds	11.93	11.93	SDT-210
PLR-02	Launcher-Receiver	NA	NA	Spink	12.41	12.41	SDT-209
PLR-04	Launcher-Receiver	NA	NA	Beadle	150.63	150.63	SDM-104
PLR-05	Launcher-Receiver	NA	NA	Lake	85.56	85.56	SDM-104
PLR-15	Launcher-Receiver	NA	NA	Edmunds	0.41	0.41	SDL-335
PLR-20	Launcher-Receiver	NA	NA	Spink	0.54	0.54	SDL-336
DELW-LR	Launcher-Receiver	NA	NA	Lake	0.00	0.00	SDT-206
GLEA-LR	Launcher-Receiver	NA	NA	Brown	0.00	0.00	SDT-210
GLEH-LR	Launcher-Receiver	NA	NA	Beadle	0.00	0.00	SDT-207
GLEM-LR	Launcher-Receiver	NA	NA	Edmunds	0.00	0.00	SDL-335
GLEW-LR	Launcher-Receiver	NA	NA	Codington	0.00	0.00	SDT-208
REFO-LR	Launcher-Receiver	NA	NA	Sully	0.00	0.00	SDL-320
RFER-LR	Launcher-Receiver	NA	NA	Spink	0.00	0.00	SDL-336

Notes:

There are 44 temporary access roads for construction and 58 permanent access roads for operation totaling 8.39 miles.

[1] Main lines are pipelines that carry CO_2 from trunk lines to the sequestration facility.
Trunk lines are pipelines that carry CO_2 from ethanol plants to mainlines or from lateral pipelines to the mainline.
Laterals are pipelines that carry CO_2 from ethanol plants to trunklines.

[2] Lengths are rounded for presentation purposes.

*Indicates valves located within pump stations, launcher/receivers, or capture facilities.

Table 3: Land Requirements for the Project (Acres)		
FACILITY	CONSTRUCTION [1]	OPERATIONS [2]
Pipelines	5,873.4	2,890.1
Pump Stations	8.9	8.9
MLVs	2.3	2.3
Launcher-Receivers	3.1	3.1
Access Roads	29.9	11.7
ATWS	523.6	0.00
TOTAL	**6,441.2**	**2,916.1**

Notes:

[1] Acreage for construction includes both construction (temporary) and operations (permanent) footprint.

[2] Acreage for operations includes only permanent footprint.

Table 4: Collocation of Pipelines in South Dakota			
ROUTE	PIPELINE LENGTH (miles)	COLLOCATION LENGTH (miles)	PERCENT COLLOCATED
SDL-320	80.34	3.20	3.98%
SDL-335	0.43	0.15	34.74%
SDL-336	0.54	0.00	0.00%
NDT-211	24.96	2.18	8.72%
SDT-206	14.51	1.78	12.25%
SDT-207	23.77	2.65	11.14%
SDT-208	50.56	27.35	54.10%
SDT-209	12.41	0.27	2.21%
SDT-210	11.94	4.26	35.71%
SDM-104	124.06	60.95	49.12%
SDM-105	108.57	8.23	7.58%
NDM-106	26.14	5.45	21.87%
ALL PIPELINES	478.23	116.47	24.35%

Table 5: Route Variance Log [1]				
ROUTE ID	MILEPOST START	MILEPOST STOP	LENGTH CHANGE (+/- IN FT)	REASON FOR CHANGE
NDM-106	0.09	0.39	203.1	Avoidance of landowner's property
NDM-106	0.58	2.02	169.3	Avoidance of sensitive resources and wetlands. Adjustment of route to HDD under sensitive resources
NDM-106	2.36	2.85	-27.6	Adjusted route to remain in survey corridor
NDM-106	5.66	5.77	10.8	Adjusted route for road crossing
NDM-106	7.24	8.30	-368.3	Adjustment of route to HDD under sensitive resources
NDM-106	8.72	8.99	66.0	Avoidance of sensitive resources. Relocated temporary workspace.
NDM-106	9.45	9.45	0.0	Addition of MLV 106-01-A to protect Long Lake Other Populated Area (OPA)
NDM-106	9.86	10.30	14.9	Avoidance of sensitive resources. Modification to flatten PIs
NDM-106	10.81	11.75	1,028.4	Avoidance of sensitive resources and protected wetlands
NDM-106	11.89	12.29	33.6	Avoidance of sensitive resources
NDM-106	15.29	16.46	435.2	Avoidance of sensitive resources and undisturbed areas
NDM-106	17.13	17.84	358.0	Avoidance of sensitive resources and protected wetlands
NDM-106	20.73	21.90	-2.7	Avoidance of sensitive resources and adjustment for HDD crossing
NDM-106	22.23	22.55	71.3	Avoidance of sensitive resources
NDT-211	104.75	105.06	101.7	Addition of bore to avoid sensitive resources
NDT-211	105.28	106.20	499.0	Avoidance of sensitive resources and protected wetlands. Engineering modifications to better pipeline route.
NDT-211	106.27	107.38	22.4	Avoidance of sensitive resources
SDL-320	42.57	42.60	8.6	Modification to remove workspace from within the roadside fence
SDM-104	45.37	45.68	1.4	Moved centerline away from existing pipeline
SDM-104	46.26	46.32	0.0	Addition of HDD to avoid impacts to waterline

Table 5: Route Variance Log [1]				
ROUTE ID	MILEPOST START	MILEPOST STOP	LENGTH CHANGE (+/- IN FT)	REASON FOR CHANGE
SDM-104	46.66	46.86	-0.5	Moved centerline away from existing pipeline
SDM-104	48.86	49.12	-21.8	Moved centerline away from existing pipeline
SDM-104	50.50	50.50	0.0	Addition of MLV MLB-104-07-A to protect OPAs near Sioux Falls
SDM-104	51.99	52.13	13.0	Engineering modification to better the crossing angle
SDM-104	53.55	54.12	0.9	Moved centerline away from existing pipeline
SDM-104	56.09	56.35	1.1	Moved workspace away from existing pipeline
SDM-104	58.90	59.00	33.9	Adjust temporary workspace. Engineering modification to revise crossing angle.
SDM-104	59.65	59.85	9.7	Moved centerline and workspace away from existing pipeline
SDM-104	62.91	63.58	-12.4	Engineering modification to straighten pipeline and remove a PI.
SDM-104	64.22	64.56	-23.1	Engineering modification to straighten pipeline.
SDM-104	65.95	66.33	0.0	Workspace modification to avoid impacts to wetland.
SDM-104	68.45	68.48	10.6	Adjustment for bore crossing
SDM-104	74.61	74.76	38.3	Engineering modification to adjust crossing angle
SDM-104	76.83	77.56	2.0	Adjust temporary workspace to avoid impacts to wetlands
SDM-104	83.64	83.99	0.5	Moved workspace away from existing pipeline
SDM-104	85.55	85.58	-0.1	Addition of additional temporary workspace for road crossing
SDM-104	91.16	92.46	-0.8	Moved centerline away from existing pipeline
SDM-104	94.40	94.40	0.0	Addition of MLV-104-09-A to protect Winfred OPA
SDM-104	95.36	95.48	42.1	Moved workspace away from existing pipeline. Engineering modification to revise crossing angle

Table 5: Route Variance Log [1]				
ROUTE ID	MILEPOST START	MILEPOST STOP	LENGTH CHANGE (+/- IN FT)	REASON FOR CHANGE
SDM-104	107.15	107.47	15.2	Engineering modification to revise crossing angle
SDM-104	109.01	109.35	8.0	Adjustment for bore crossing
SDM-104	112.73	112.82	14.7	Adjustment for bore crossing
SDM-104	113.55	113.55	0.0	Addition of MLV-104-10-A to protect Colony OPA
SDM-104	124.75	124.98	-1.2	Moved centerline and workspace away from existing pipeline
SDM-104	125.35	125.38	5.2	Adjustment for bore crossing
SDM-104	126.65	126.85	-3.3	Moved centerline and workspace away from existing pipeline
SDM-104	127.01	127.19	11.6	Moved centerline and workspace away from existing pipeline
SDM-104	127.41	128.22	4.1	Moved centerline and workspace away from existing pipeline
SDM-104	129.48	129.76	0.3	Moved centerline and workspace away from existing pipeline
SDM-104	134.68	134.71	1.5	Adjustment for bore crossing
SDM-104	138.04	138.10	3.0	Engineering modification to better road crossing angle
SDM-104	143.17	143.18	7.4	Adjustment for bore crossing
SDM-104	144.93	144.97	19.3	Adjustment for bore crossing
SDM-104	145.87	147.13	9.5	Adjustment for bore crossing
SDM-104	150.61	150.65	32.2	Route modifications within the launcher/receiver facility to accommodate the new MLV
SDM-105	8.42	8.42	0.0	Addition of MLV-105-01-C to protect OPA
SDM-105	10.16	10.30	22.1	Adjustment for bore crossing
SDM-105	22.85	22.98	18.3	Adjustment for bore crossing
SDM-105	27.27	27.27	0.0	Addition of MLV-105-01-B to protect Camrose Colony OPA
SDM-105	36.49	36.52	2.8	Adjustment for bore crossing
SDM-105	36.54	36.57	0.9	Adjustment for bore crossing
SDM-105	37.35	37.44	11.4	Adjustment for bore crossing
SDM-105	41.05	41.12	5.7	Adjustment for bore crossing

Table 5: Route Variance Log [1]				
ROUTE ID	MILEPOST START	MILEPOST STOP	LENGTH CHANGE (+/- IN FT)	REASON FOR CHANGE
SDM-105	42.28	42.45	89.4	Avoidance of sensitive resources
SDM-105	43.09	43.51	-4.0	Engineering modification to straighten centerline and avoid a power pole
SDM-105	51.33	53.36	-104.1	Avoidance of impacts to sensitive features
SDM-105	53.67	53.74	4.4	Adjustment for bore crossing
SDM-105	58.19	58.26	4.6	Adjustment for bore crossing
SDM-105	60.64	62.06	-810.7	Reduction of route length
SDM-105	63.57	63.63	0.7	Adjustment for bore crossing
SDM-105	66.69	67.25	23.0	Modification to flatten PIs
SDM-105	71.63	71.79	1.8	Modification to accommodate pump station layout
SDM-105	75.87	75.89	0.5	Adjustment for bore crossing
SDM-105	78.18	78.28	3.4	Adjustment for bore crossing
SDM-105	84.06	84.20	5.1	Adjustment for bore crossing
SDM-105	87.80	88.22	-52.6	Adjustment to centerline to be within survey corridors
SDM-105	94.32	94.36	18.2	Adjustment for bore crossing
SDM-105	99.55	99.66	17.7	Adjustment for bore crossing
SDM-105	101.07	101.07	0.0	Addition of MLV-105-08-A to protect potential future OPA Deerfield Colony
SDT-206	14.49	14.51	68.9	Adjustment of pipeline due to launcher/receive facility modifications
SDT-207	3.91	3.91	0.0	Addition of MLV-207-01-A to protect Huron OPA
SDT-207	4.62	5.53	463.6	Modification of centerline due to landowner request
SDT-207	9.65	10.63	1.4	Adjustment of workspace to avoid impacts to protected wetland
SDT-208	0.03	0.27	-0.1	Adjustment of centerline due to modifications of launcher/receiver facility
SDT-208	8.54	8.54	0.0	Addition of MLV-208-01-C to protect Watertown OPA
SDT-208	14.53	14.64	20.3	Addition of temporary workspace

Table 5: Route Variance Log [1]				
ROUTE ID	MILEPOST START	MILEPOST STOP	LENGTH CHANGE (+/- IN FT)	REASON FOR CHANGE
SDT-208	14.84	15.03	6.3	Moved centerline away from existing pipeline. Addition of neckdown at wetland crossing and additional temporary workspace adjacent to wetland
SDT-208	19.66	19.84	-1.7	Moved centerline away from existing pipeline.
SDT-208	21.13	21.13	0.0	Addition of MLV-208-01-B to protect OPAs
SDT-208	26.91	27.07	-1.2	Moved centerline away from existing pipeline.
SDT-208	29.48	29.72	-13.6	Engineering modification to straighten centerline across existing pipeline
SDT-208	30.21	30.56	3.5	Moved centerline and workspace away from existing pipeline.
SDT-208	30.96	31.06	-5.7	Moved centerline away from road intersection and temporary workspace away from existing pipeline.
SDT-208	31.13	31.51	-2.6	Moved centerline away from intersection and moved to collocate with existing pipeline
SDT-208	39.00	39.35	-1.9	Moved centerline and workspace away from existing pipeline.
SDT-208	39.65	41.54	1.0	Moved centerline away from existing pipeline.
SDT-208	50.11	50.56	38.7	Modification to flatten PIs
SDT-210	3.39	3.83	12.7	Modification to flatten PIs

[1] Variances between filed route on May 2, 2023 and current route as of August 23, 2023.

[2] MLV – Mainline Valve; HDD – Horizontal Directional Drill; OPA – Other Populated Area; PI – Point of Inflection

Table 6: Potential Soil Hazards Summary Table						
SOIL CHARACTERISTIC	CONSTRUCTION FOOTPRINT (Acres)			OPERATIONS FOOTPRINT (Acres)		
	PIPELINE	ABOVE GROUND FACILITIES	ACCESS ROADS	PIPELINE	ABOVE GROUND FACILITIES	ACCESS ROADS
Prime Farmland	1,453.8	1.3	7.0	648.1	1.3	3.3
Farmland of Statewide Importance	1,703.1	9.7	2.4	759.9	9.7	1.0
Prime Farmland if Irrigated or Drained	1,246.2	0.7	5.9	562.3	0.7	2.5
Hydric	338.4	0.3	2.6	169.9	0.3	1.7
Saline	131.7	0.1	1.2	65.8	0.1	0.6
Sodic	76.3	0.0	0.5	36.1	0.0	0.0
Shallow Bedrock/ Restrictive Layer	9.0	0.0	0.0	4.1	0.0	0.0
Poor Revegetation Potential	987.0	1.5	9.0	462.4	1.5	3.4
Severe Wind Erosion	26.5	0.0	0.5	13.9	0.0	0.0
Severe Water Erosion	2,389.8	2.1	9.2	1,079.6	2.1	4.1

Notes:

[1] Acres are rounded up for presentation purposes.

[2] Construction footprint includes impacts from both construction and operation.

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Aberdeen-Nahon silt loams, till substratum, 0 to 2 percent slopes	0.43	Pipeline	SDT-209	7	125.6	0.3
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Access Road	SDL-336	--	--	1.4
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Access Road	SDM-105	--	--	0.02
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Access Road	SDT-209	--	--	0.2
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Launcher/ Receiver	SDL-320	--	--	0.01
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	MLV	SDM-105	--	-	0.1
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-336	0	1,113.8	2.7
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	32, 33, 34, 35 36, 38, 39 41, 42, 46, 48, 49 54, 55, 61, 62, 63, 64, 65	22,101.9	59.0
Aberdeen-Nahon silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	0, 11, 12	2,669.9	5.5
Aberdeen-Nahon-Hiel silt loams, till substratum, 0 to 2 percent slopes	0.43	Pipeline	SDM-105	27	277.0	0.9
Alcester silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	30	187.1	0.3
Alcester silty clay loam, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	50	32.2	0.2
Alcester silty clay loam, cool, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	79	250.3	0.8
Badger-Tonka silty clay loams, coteau, 0 to 1 percent slopes	0.49	Pipeline	SDT-208	35	189.1	0.5

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Badus silty clay loam	0.43	Access Road	SDT-206	--	--	0.9
Badus silty clay loam	0.43	Pipeline	SDM-104	85, 89	1,257.8	3.2
Badus silty clay loam	0.43	Pipeline	SDT-206	2, 12, 14	2,137.2	4.3
Bearden silt loam, 0 to 2 percent slopes	0.43	Pipeline	SDM-105	50, 51	1,344.6	4.1
Bearden silt loam, saline, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	63, 54	335.7	1.1
Bearden-Huffton silt loams, 1 to 6 percent slopes	0.49	Pipeline	SDM-105	65	269.9	1.3
Bearden-Tonka, silty substratum silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	51	904.6	3.0
Beotia silt loam, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	52, 57, 59, 60, 61	5,859.3	14.4
Beotia silt loam, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	9	834.4	1.9
Beotia-Rondell silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	60, 61	806.5	2.7
Beotia-Winship silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	50, 54, 58, 60, 61, 63	1,758.9	5.0
Beotia-Winship silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	1, 2, 9, 11	1040.1	2.3
Beotia-Winship silt loams, till substratum, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	29	207.9	0.5
Bon-Northville complex, nearly level	0.49	Pipeline	SDL-320	51, 65	414.6	2.0
Brookings silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	2, 3	297.9	0.9
Bryant silt loam, 2 to 6 percent slopes	0.49	Pipeline	SDM-105	74, 75, 92, 95	3,454.3	9.0
Bryant silt loam, 6 to 9 percent slopes	0.49	Pipeline	SDM-105	74, 75, 95	559.6	1.8
Chancellor-Viborg silty clay loams	0.43	Access Road	SDM-104	--	--	0.02
Chancellor-Viborg silty clay loams	0.43	Pipeline	SDM-104	29, 30, 31, 34, 43, 44	2,262.4	6.3

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Chancellor-Wakonda-Tetonka complex	0.43	Pipeline	SDM-104	36, 37, 42	2,363.0	6.0
Colvin-Oldham silty clay loams	0.43	Pipeline	SDT-208	16, 21	890.4	1.5
Cubden silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	8, 9, 34	1,320.1	3.0
Cubden-Badger silty clay loams, coteau, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	7, 9, 15, 16, 18, 19, 20, 21, 22, 25, 26, 30, 35	9,110.1	20.7
Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	0.49	Access Road	SDT-208	--	--	0.08
Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	0.49	MLV	SDT-208	--	--	0.06
Cubden-Tonka silty clay loams, coteau, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	10, 11, 12, 13, 14, 15, 16, 18, 22, 13, 14, 17, 19, 32, 33, 36, 37, 38	14,744.1	32.9
Daglum-Rhoades loams, 0 to 6 percent slopes, shaly	0.49	Pipeline	SDT-210	8, 9	1,331.0	3.0
Dempster silt loam, 0 to 2 percent slopes	0.43	Access Road	SDM-104	--		0.02
Dempster silt loam, 0 to 2 percent slopes	0.43	Access Road	SDT-206	--	--	0.7
Dempster silt loam, 0 to 2 percent slopes	0.43	MLV	SDM-104	--	--	0.06
Dempster silt loam, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	27	750.0	2.4
Dempster silt loam, 0 to 2 percent slopes	0.43	Pipeline	SDT-206	4, 6, 9	4,298.9	11.4
Dempster silt loam, 2 to 6 percent slopes	0.43	Pipeline	SDM-104	28	1,352.2	2.8
Dempster silt loam, 2 to 6 percent slopes	0.43	Pipeline	SDT-206	4, 5	1,984.8	4.3
Dempster-Delmont complex, 6 to 9 percent slopes	0.43	Pipeline	SDT-206	4, 5	477.1	1.2

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Dempster-Graceville silty clay loams, 1 to 5 percent slopes	0.43	Pipeline	SDM-104	53	357.6	0.9
Dovecreek silt loam, 0 to 2 percent slopes	0.55	Pipeline	SDM-105	74	432.9	1.2
Dovecreek-Fluvaquents channeled, complex, 0 to 2 percent slopes, flooded	0.55	Pipeline	SDM-105	74	1,236.0	4.1
Dudley-Jerauld silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	54, 55, 67, 69	14,121.6	5.4
Dudley-Jerauld silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	143, 144	3,083.6	8.8
Dudley-Jerauld silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	8, 9, 10	6,795.2	17.8
Dudley-Jerauld silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-207	7	1,553.5	3.4
Dudley-Jerauld silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	46, 47	1,621.2	4.3
Durrstein silty clay loam, nearly level	0.43	Pipeline	SDL-320	58, 59, 61, 64, 65	3,821.6	6.6
Durrstein and Egas soils	0.49	Pipeline	SDL-320	18	835.6	1.4
Eakin-Raber complex, 0 to 2 percent slopes	0.49	Access Road	SDL-320	--	--	0.08
Eakin-Raber complex, 0 to 2 percent slopes	0.49	Launcher/ Receiver	SDL-320	--	--	0.04
Eakin-Raber complex, 0 to 2 percent slopes	0.49	MLV	SDL-320	--	-	0.06
Eakin-Raber complex, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	0, 1, 3, 4, 8, 9, 10, 11, 12, 13, 14, 15	8,390.6	40.6
Eakin-Raber complex, 2 to 6 percent slopes	0.49	Pipeline	SDL-320	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 15	8,430.4	40.2
Eckman-Zell very fine sandy loams, 2 to 6 percent slopes	0.49	Access Road	SDM-105	--	--	0.3
Eckman-Zell very fine sandy loams, 2 to 6 percent slopes	0.49	Pipeline	SDM-105	--	--	1.2
Egan silty clay loam, 3 to 6 percent slopes	0.43	Pipeline	SDM-104	28, 29, 30, 32, 25, 42, 43, 45, 46, 47	8,691.5	22.8

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Egan silty clay loam, 6 to 11 percent slopes	0.49	Pipeline	SDM-104	88, 91, 93, 94, 95	3,281.0	8.2
Egan silty clay loam, 6 to 11 percent slopes	0.49	Pipeline	SDT-206	14	483.5	1.1
Egan-Beadle complex, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	88	1,060.1	2.7
Egan-Beadle complex, 2 to 6 percent slopes	0.43	Access Road	SDT-206	--	--	0.05
Egan-Beadle complex, 2 to 6 percent slopes	0.43	Pipeline	SDM-104	84, 85, 86, 88, 89, 90, 91, 92, 93, 94 95	9,090.6	24.7
Egan-Beadle complex, 2 to 6 percent slopes	0.43	Pipeline	SDT-206	2, 3, 9, 10, 12, 13 14	8,852.9	20.8
Egan-Beadle complex, 6 to 9 percent slopes	0.43	Pipeline	SDM-104	88, 89, 90, 92, 93, 94, 95	3,755.0	10.1
Egan-Beadle complex, 6 to 9 percent slopes	0.43	Pipeline	SDT-206	3, 14	904.7	1.9
Egan-Chancellor silty clay loams, 0 to 4 percent slopes	0.43	Pipeline	SDM-104	34, 37, 39, 42	4,860.0	12.7
Egan-Ethan complex, 2 to 6 percent slopes	0.43	Pipeline	SDM-104	51, 53, 65, 67, 72, 78, 83, 84	11,958.4	33.5
Egan-Ethan complex, 2 to 6 percent slopes	0.43	Pipeline	SDT-206	1, 2	1,008.5	2.6
Egan-Ethan complex, 5 to 9 percent slopes	0.43	Pipeline	SDM-104	81, 82, 83	3,272.2	8.4
Egan-Ethan complex, 6 to 9 percent slopes, eroded	0.43	MLV	SDM-104	--	--	0.004
Egan-Ethan complex, 6 to 9 percent slopes, eroded	0.43	Pipeline	SDM-104	94, 85, 86, 87, 90, 92, 93, 94, 95, 96	5,243.3	14.3
Egan-Ethan complex, 6 to 9 percent slopes, eroded	0.43	Pipeline	SDT-206	0, 1, 2, 3, 8, 9 13, 14	6,234.3	14.6
Egan-Ethan-Trent complex, 1 to 6 percent slopes	0.43	Access Road	SDM-104	--		0.01
Egan-Ethan-Trent complex, 1 to 6 percent slopes	0.43	MLV	SDM-104	--	--	0.06

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Egan-Ethan-Trent complex, 1 to 6 percent slopes	0.43	Pipeline	SDM-104	54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 79, 80, 81	55,230.7	152.6
Egan-Shindler complex, 2 to 6 percent slopes	0.43	Pipeline	SDM-104	29, 44, 45, 47, 48, 49, 50	10,518.7	30.7
Egan-Shindler complex, 6 to 9 percent slopes	0.43	Pipeline	SDM-104	30, 44, 48, 49, 50	2,917.6	9.6
Egan-Trent silty clay loams, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	56, 66, 74	2,442.1	5.6
Egan-Viborg silty clay loams, 0 to 3 percent slopes	0.43	Pipeline	SDM-104	84, 85, 86	2,750.6	6.6
Egan-Viborg silty clay loams, 0 to 3 percent slopes	0.43	Pipeline	SDT-206	7, 11, 13	5,961.4	14.2
Egan-Wentworth complex, 0 to 2 percent slopes	0.49	Access Road	SDM-104	--	--	0.03
Egan-Wentworth complex, 0 to 2 percent slopes	0.49	MLV	SDM-104	--	--	0.05
Egan-Wentworth complex, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	94	384.2	1.1
Egan-Wentworth complex, 2 to 6 percent slopes	0.49	Access Road	SDM-104	--	--	0.01
Egan-Wentworth complex, 2 to 6 percent slopes	0.49	Launcher/ Receiver	SDM-104	--	-	0.5
Egan-Wentworth complex, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	52, 53, 84, 85, 86, 87, 88, 90, 91, 92, 93, 94, 95	17,529.5	48.4
Egan-Wentworth complex, 2 to 6 percent slopes	0.49	Pipeline	SDT-206	2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14	12,220.6	28.0
Egan-Wentworth-Trent complex, 2 to 6 percent slopes	0.49	Access Road	SDM-104	--	--	0.03
Egan-Wentworth-Trent complex, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	54, 57, 65, 66, 68, 70, 73, 74, 75, 78	9,346.6	25.5

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Egan-Worthing complex, 0 to 6 percent slopes	0.43	Pipeline	SDM-104	49	1,070.9	2.7
Estelline-Kampeska silt loams, 2 to 6 percent slopes	0.49	Pipeline	SDT-208	9	637.2	1.6
Exline-Aberdeen-Nahon silt loams, 0-2 % slopes	0.43	Pipeline	SDL-320	79, 80	3,281.8	8.1
Exline-Aberdeen-Nahon silt loams, 0-2 % slopes	0.43	Pipeline	SDM-105	35, 36, 46, 63, 64, 65	1,692.8	4.8
Exline-Aberdeen-Nahon silt loams, 0-2 % slopes	0.43	Pipeline	SDT-209	4	2,897.1	6.8
Exline-Aberdeen-Nahon silt loams, till substratum, 0-2 % slopes	0.43	Pipeline	SDT-209	7, 8, 9	7,224.7	16.6
Exline-Aberdeen-Nahon silt loams, till substratum, 0-2 % slopes	0.43	Pipeline	SDL-320	79, 80	317.8	0.9
Exline-Heil silt loams, 0 to 2 percent slopes	0.43	Pipeline	SDL-320	78, 89	814.2	2.3
Exline-Heil silt loams, 0 to 2 percent slopes	0.43	Pipeline	SDM-105	45	1,282.5	3.4
Exline-Heil silt loams, 0 to 2 percent slopes	0.43	Pipeline	SDT-209	5	698.0	1.8
Exline-Heil silt loams, till substratum, 0-2 % slopes	0.49	Pipeline	SDT-209	7	173.9	0.8
Exline-Putney silt loams, 1-6 % slopes	0.49	Pipeline	SDM-105	62, 63, 64, 65	4,095.4	10.8
Forestburg-Doger loamy fine sands, 0 to 3 percent slopes	0.43	Pipeline	SDT-207	4, 6	2,874.3	6.3
Gardena-Glyndon silt loams, 0 to 2 percent slopes	0.55	Access Road	SDM-105	--	--	0.2
Gardena-Glyndon silt loams, 0 to 2 percent slopes	0.55	Pipeline	SDM-105	--	--	0.5
Graceville silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	28, 50	2,561.2	7.3

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Graceville silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDT-206	5, 8	1,501.8	3.7
Grassna silt loam, 0 to 2 percent slopes	0.49	Pipeline	NDM-106	9, 25	1,656.4	4.2
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Access Road	SDL-336	--	--	0.6
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Access Road	SDM-105	--	--	0.5
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Access Road	SDT-209	--	--	0.02
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Launcher/ Receiver	SDL-336	--	--	0.04
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	MLV	SDM-105	--	--	0.06
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	MLV	SDT-209	--	--	0.06
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-336	0	155.4	0.2
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	29, 30, 31, 34, 35, 39, 41, 50, 51, 53, 55, 56, 57, 58, 59, 60, 61	36,554.7	96.1
Great Bend-Beotia silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	1, 2, 3, 9, 10	8,620.4	19.8
Great Bend-Beotia silt loams, 2 to 6 percent slopes	0.49	Access Road	SDL-336	--	--	0.2
Great Bend-Beotia silt loams, 2 to 6 percent slopes	0.49	Pipeline	SDM-105	35, 39, 40, 58, 59	1,598.2	4.5

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Great Bend-Beotia silt loams, 2 to 6 percent slopes	0.49	Pipeline	SDT-209	9	609.4	1.6
Great Bend-Beotia silt loams, till substratum, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	28	1,412.2	3.9
Great Bend-Putney silt loams, 0 to 2 percent slopes	0.55	Pipeline	SDM-105	32, 35, 49, 59, 63	2,006.1	5.5
Great Bend-Putney silt loams, 0 to 2 percent slopes	0.55	Pipeline	SDT-209	11	64.1	0.3
Great Bend-Zell silt loams, 2 to 6 percent slopes	0.55	Access Road	SDM-105	--	--	0.01
Great Bend-Zell silt loams, 2 to 6 percent slopes	0.55	MLV	SDM-105	--	--	0.06
Great Bend-Zell silt loams, 2 to 6 percent slopes	0.55	Pipeline	SDM-105	41, 53, 54, 55, 57	3.254.9	9.3
Great Bend-Zell silt loams, 2 to 6 percent slopes	0.55	Pipeline	SDT-209	11	810.1	1.9
Great Bend-Zell silt loams, 6 to 9 percent slopes	0.55	Access Road	SDM-105	--	--	0.4
Great Bend-Zell silt loams, 6 to 9 percent slopes	0.55	Pipeline	SDM-105	52, 58	1,962.0	8.1
Great Bend-Zell silt loams, 6 to 9 percent slopes	0.55	Pipeline	SDT-209	1, 2, 3, 9, 10	5,454.5	13.4
Harmony-Aberdeen silt loams, till substratum, 0 to 2 percent slopes	0.55	Access Road	SDM-105	--	-	0.02
Harmony-Aberdeen silt loams, till substratum, 0 to 2 percent slopes	0.55	MLV	SDM-105	--	--	0.06
Harmony-Aberdeen silt loams, till substratum, 0 to 2 percent slopes	0.55	Pipeline	SDM-105	25, 27	8,919.4	22.8

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Harmony-Aberdeen silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	32, 33, 34, 36, 39, 41, 42, 43, 48, 55, 56, 59, 60, 61, 62, 63	23,392.1	64.3
Harmony-Aberdeen silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	4, 6, 7, 12	4,618.4	10.5
Harmony-Beotia silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	32, 34, 37, 38, 39, 41, 49, 50, 54, 56, 58, 59	20,837.6	54.0
Harmony-Beotia silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	2	157.7	0.2
Harmony-Beotia silt loams, till substratum, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	27, 28, 29, 30	7,582.2	20.2
Heil silt loam, till substratum, 0-1% slopes	0.43	Pipeline	SDT-209	8, 9	432.9	1.0
Heil silt loam, till substratum, 0-1% slopes	0.43	Pipeline	SDM-105	24, 35	685.7	1.1
Heil silt loam, till substratum, 0-1% slopes	0.43	Pipeline	NDT-211	89	253.8	0.7
Henkin-Blendon fine sandy loams, 2 to 6 percent slopes	0.43	Pipeline	SDL-320	72	104.8	0.5
Henkin-Blendon fine sandy loams, 2 to 6 percent slopes	0.43	Pipeline	SDT-208	43	258.7	0.6
Hetland silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDT-208	16, 34, 35, 36	7,813.8	18.6
Hetland silty clay loam, 2 to 6 percent slopes	0.43	Pipeline	SDT-208	36, 37	482.0	1.5
Highmore silt loam, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	9,816.9	46.0
Highmore silt loam, 2 to 6 percent slopes	0.49	Pipeline	SDL-320	13, 19	243.9	1.2

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Highmore-DeGrey silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	13	244.3	1.2
Highmore-Walke silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	9	715.4	3.4
Hoven silt loam, 0-1 % slopes	0.43	Pipeline	SDL-320	0, 1, 7, 8, 17, 20, 21, 22, 26, 28, 32, 33, 36, 38, 44, 45, 47, 48, 49	8,879.0	13.9
Hoven silt loam, 0-1 % slopes	0.43	Pipeline	SDM-105	0, 2	836.1	2.1
Hoven silt loam, 0-1 % slopes	0.43	Pipeline	SDT-207	6, 7, 8	1,723.8	4.1
Huntimer silty clay loam, 0 to 2 percent slopes	0.43	Access Road	SDT-206	--	--	1.0
Huntimer silty clay loam, 0 to 2 percent slopes	0.43	Launcher/ Receiver	SDT-206	--	--	0.04
Huntimer silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	447, 52, 65, 63, 64, 67, 69, 72, 74, 78, 82, 87, 88, 89, 90, 92, 95	11,685.8	31.8
Huntimer silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDT-206	0, 1	2,593.7	5.9
Huntimer silty clay loam, 2 to 6 percent slopes	0.43	Pipeline	SDM-104	60, 64, 73, 78, 79, 81, 87, 88, 90, 92, 93, 95	8,394.6	23.2
Huntimer silty clay loam, 2 to 6 percent slopes	0.43	Pipeline	SDT-206	0, 1, 13	2,306.7	5.7
Jerauld-Houdek complex, undulating	0.43	Pipeline	SDL-320	65, 66	3,116.8	5.7
Jerauld-Houdek complex, undulating	0.43	Access Road	SDL-320	--	--	1.4
Kings Lake-Buse-Waubay complex, 1 to 6 percent slopes	0.49	Pipeline	SDT-208	2	468.8	1.0
Kranzburg-Brookings silty clay loams, 0 to 2 percent slopes	0.43	Pipeline	SDT-208	2, 3, 4, 5	4,591.3	11.4

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Kranzburg-Brookings silty clay loams, 1 to 6 percent slopes	0.43	Pipeline	SDT-208	2, 3, 4, 5	13,171.5	32.0
Kranzburg-Buse-Waubay complex, 1 to 6 percent slopes	0.43	Access Road	SDT-208	--	--	0.05
Kranzburg-Buse-Waubay complex, 1 to 6 percent slopes	0.43	Pipeline	SDT-208	30, 31, 36	1,024.0	2.7
Kranzburg-Cresbard silt loams, 0 to 2 percent slopes	0.43	Pipeline	SDM-105	25, 28	1,729.5	4.6
Kranzburg-Cresbard silt loams, 0 to 2 percent slopes	0.43	Pipeline	SDT-209	2, 3	2,417.5	5.8
Kranzburg-Zell-Aastad complex, 1 to 6 percent slopes	0.43	Access Road	SDL-336	--	--	0.0003
Kranzburg-Zell-Aastad complex, 1 to 6 percent slopes	0.43	Pipeline	SDL-336	0	446.2	1.1
Kranzburg-Zell-Aastad complex, 1 to 6 percent slopes	0.43	Pipeline	SDM-105	30, 31	1,017.6	2.8
Kranzburg-Zell-Aastad complex, 1 to 6 percent slopes	0.43	Pipeline	SDT-209	0, 1	612.3	1.5
Kranzburg-Zell-Aastad complex, 3 to 9 percent slopes	0.43	Pipeline	SDT-209	1	262.5	0.6
La Prairie-Fairdale loams, channeled	0.43	Pipeline	SDT-208	36	162.0	0.5
LaDelle silt loam, 0 to 2 percent slopes, occasionally flooded	0.49	Pipeline	SDM-105	31, 40, 41	1,989.7	6.1
LaDelle silt loam, 0 to 2 percent slopes, occasionally flooded	0.49	Pipeline	SDT-209	0, 1, 10	4,618.3	11.8
LaDelle-Fluvaquents, channeled complex, 0 to 2	0.49	Pipeline	SDM-105	31, 41	1,018.6	1.9

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
percent slopes, frequently flooded						
LaDelle-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded	0.49	Pipeline	SDT-209	1, 10	748.3	0.9
Lamo silt loam	0.43	Pipeline	SDT-207	11	1,736.1	2.0
Lamo silty clay loam	0.43	Pipeline	SDM-104	113	278.1	0.8
Lamo silty clay loam, cool, 0 to 2 percent slopes, occasionally flooded	0.43	Access Road	SDM-104	--	--	0.02
Lamo silty clay loam, cool, 0 to 2 percent slopes, occasionally flooded	0.43	MLV	SDM-105	--	-	0.06
Lamo silty clay loam, cool, 0 to 2 percent slopes, occasionally flooded	0.43	Pipeline	SDM-104	44, 47, 49, 50, 51, 97	3,779.1	10.2
Lamo silty clay loam, cool, 0 to 2 percent slopes, occasionally flooded	0.43	Pipeline	SDT-206	5, 6, 9	2,744.1	6.7
Lamoure silty clay loam, somewhat poorly drained, 0 to 1 percent slopes, frequently flooded	0.43	Pipeline	SDM-105	52, 53	2,263.9	2.6
Lamoure-Rauville silty clay loams, channeled	0.43	Pipeline	SDT-208	17	312.1	0.7
Lawet loam, 0 to 2 percent slopes	0.43	Pipeline	SDL-320	71	1,107.0	3.8
Mckranz-Badger silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	2, 3, 4	2,859.1	6.8
McKranz-Hidewood, frequently flooded, silty clay loams, 0 to 2 percent slopes	0.43	Pipeline	SDT-208	4	363.1	0.8
Miranda-Heil complex, 0-3 % slopes	0.43	Pipeline	NDT-211	101	436.0	1.2
Mobridge silt loam, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18	9,871.7	46.0

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Access Road	SDM-105	--	--	0.02
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Launcher/ Receiver	SDL-320	--	--	0.04
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Launcher/ Receiver	SDM-105	--	--	0.6
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-336	0, 1	509.8	1.1
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	32, 33, 36, 37, 38, 39, 42, 43, 45, 46, 47, 60, 62, 63, 65	37,318.8	100.5
Nahon-Aberdeen-Exline silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	0, 4, 5, 6, 7, 11, 12	14,561.0	34.9
Nahon-Aberdeen-Exline silt loams, till substratum, 0 to 2 percent slopes	0.49	Pipeline	SDT-209	7, 8, 9	2,491.0	5.7
Obert silty clay loam, 0 to 1 percent slopes	0.43	Pipeline	SDM-104	79	182.5	0.5
Onita-Hoven silt loams	0.49	Pipeline	SDL-320	20, 21	630.2	2.6
Poinsett-Buse-Waubay complex, 1 to 6 percent slopes	0.49	Access Road	SDT-208	--	--	0.04
Poinsett-Buse-Waubay complex, 1 to 6 percent slopes	0.49	MLV	SDT-208	--	--	0.1
Poinsett-Buse-Waubay complex, 1 to 6 percent slopes	0.49	Pipeline	SDT-208	7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 28	33,403.2	80.6
Poinsett-Buse-Waubay complex, 2 to 9 percent slopes	0.49	Pipeline	SDT-208	7, 9, 10, 11, 20, 23	4,527.3	10.7
Poinsett-Rusklyn silty clay loams, 6 to 9 percent slopes	0.49	Pipeline	SDT-208	32, 34	1,248.0	3.0

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Poinsett-Rusklyn-Waubay silty clay loams, 1 to 6 percent slopes	0.49	Pipeline	SDT-208	31, 32, 33, 34, 36, 37	6,691.8	16.5
Poinsett-Waubay silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	7, 8, 9, 10, 11, 17, 18, 20, 21, 24, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 37	16,318.5	40.3
Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	0.49	Access Road	SDT-208	--	--	0.4
Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	0.49	MLV	SDT-208	--	--	0.06
Poinsett-Waubay silty clay loams, 1 to 6 percent slopes	0.49	Pipeline	SDT-208	11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 37	49,136.0	119.2
Rimlap silt loam, 0 to 1 percent slopes	0.49	Pipeline	SDT-210	7	262.8	0.8
Rimlap-Heil silt loams, 0 to 1 percent slopes	0.49	Access Road	SDT-210	--	--	0.02
Rimlap-Heil silt loams, 0 to 1 percent slopes	0.49	Pipeline	SDM-105	72	196.5	0.4
Rimlap-Heil silt loams, 0 to 1 percent slopes	0.49	Pipeline	SDT-210	4, 5, 6, 7, 10	1,870.3	3.7
Rimlap-Heil, till substratum silt loams, 0 to 1 percent slopes	0.49	Pipeline	NDT-211	96	62.4	0.1
Salmo silty clay loam	0.43	Pipeline	SDT-208	43	415.1	.07
Salmo silty clay loam, very wet	0.43	Pipeline	SDM-104	54, 61	2,040.3	3.3
Stickney-Dudley silt loams, 0 to 2 percent slopes	0.49	Access Road	SDT-207	--	--	0.2
Stickney-Dudley silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	147, 148, 150	2,652.1	7.7
Stickney-Dudley silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	7	146.8	0.6
Stickney-Dudley silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-207	0, 2, 3, 7, 9, 10, 15, 23	5,299.4	12.0

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Stickney-Dudley silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	46, 47, 48, 50	3,938.9	8.6
Stickney-Dudley-Hoven silt loams, 0 to 2 percent slopes	0.49	Access Road	SDM-104	--	--	0.6
Stickney-Dudley-Hoven silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDL-320	71	631.8	2.7
Stickney-Dudley-Hoven silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	141, 142, 143, 144	5,062.1	13.5
Stickney-Dudley-Hoven silt loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-105	7	452.1	0.8
Still lake-Graceland silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	6, 7	2,337.9	5.5
Still lake-Graceland silty clay loams, 1 to 6 percent slopes	0.49	Pipeline	SDT-208	6	1,546.5	3.5
Tansem-Roseglen silt loams, 2 to 6 percent slopes	0.49	Pipeline	NDM-106	4, 5, 8	5,474.0	16.1
Temvik-Grassna-Bearpaw complex, 0 to 6 percent slopes	0.49	Pipeline	NDM-106	24	1,165.6	3.0
Tetonka silt loam, 0 to 1 percent slopes	0.49	Pipeline	SDL-320	45, 49, 51, 52, 53, 55, 57, 58, 62, 63, 65, 67, 68, 69	3,348.3	13.7
Tetonka silt loam, 0 to 1 percent slopes	0.49	Pipeline	SDM-104	52, 53, 110, 111	1,035.6	2.6
Tetonka silt loam, 0 to 2 percent slopes, frequently ponded	0.49	Pipeline	SDM-104	30, 31, 34, 37, 44, 91, 98, 100	2,140.1	6.3
Tetonka silt loam, 0 to 2 percent slopes, frequently ponded	0.49	Pipeline	SDT-206	--	--	0.01
Tonka silt loam, silty substratum, 0 to 1 percent slopes	0.43	Pipeline	SDM-105	35, 60	889.4	1.6

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Tonka silt loam, silty substratum, 0 to 1 percent slopes	0.43	Pipeline	SDT-209	1	250.9	0.6
Tonka silty clay loam, 0 to 1 percent slopes	0.49	Pipeline	SDT-208	7, 8, 9, 23, 30	1,374.8	2.5
Viborg silty clay loam, 0 to 2 percent slopes	0.49	Access Road	SDT-206	--	--	0.2
Viborg silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	86, 87, 88, 89, 90, 93, 94, 95, 96	3,614.7	11.1
Viborg silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDT-206	1, 2, 3, 5, 8, 9, 10, 12, 13, 14	6,002.4	14.1
Viborg-Egan silty clay loams, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	90, 92, 93, 94, 95	2,019.4	5.3
Viborg-Egan silty clay loams, 2 to 6 percent slopes	0.49	Pipeline	SDT-206	13	444.1	1.3
Wakonda-Chancellor complex, 0 to 2 percent slopes	0.55	Pipeline	SDM-104	73, 77, 80	1,615.1	4.8
Waubay-Badger silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDT-208	12	333.4	0.7
Wentworth silty clay loam, 0 to 2 percent slopes	0.49	Access Road	SDM-104	--	--	0.002
Wentworth silty clay loam, 0 to 2 percent slopes	0.49	MLV	SDM-104	--	--	0.06
Wentworth silty clay loam, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	29, 30, 40, 41, 44, 45, 46, 48, 83	12,889.2	35.4
Wentworth silty clay loam, 2 to 6 percent slopes	0.49	Pipeline	SDM-104	81, 82, 83	2,048.9	5.4
Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	0.43	Access Road	SDM-104	--	--	0.5
Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	28, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 46, 47, 48	48,890.6	135.8

Table 7: Areas of Soils in the Project Area with High Susceptibility to Water Erosion						
SOIL TYPE	Kw [1]	FACILITY	PIPELINE ID	MILEPOST[2]	LENGTH [3] (feet)	AREA [4] (acres)
Wentworth-Chancellor-Wakonda silty clay loams, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	61, 64, 65, 72, 77	4,243.8	10.6
Wentworth-Ethan complex, 2 to 5 percent slopes	0.43	Pipeline	SDM-104	83	1,378.0	3.9
Wentworth-Trent complex, 0 to 2 percent slopes	0.49	Pipeline	SDM-104	67	124.2	0.2
Whitewood silt loam	0.43	Pipeline	SDM-104	83	238.0	0.8
Whitewood silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDM-104	73, 85, 86, 87, 88, 90, 91, 95, 93, 94, 99	6,001.5	15.9
Whitewood silty clay loam, 0 to 2 percent slopes	0.43	Pipeline	SDT-206	2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14	4,978.7	12.0
Winship-Tonka silt loams, 0 to 1 percent slopes	0.49	Pipeline	SDM-105	32, 46, 49, 55, 47, 49, 61, 62, 63, 64	3,915.1	11.1
Winship-Tonka silt loams, 0 to 1 percent slopes	0.49	Pipeline	SDT-209	6, 11	526.1	1.1
Winship-Tonka silt loams, till substratum, 0 to 1 percent slopes	0.49	Pipeline	SDT-209	2	290.2	0.8
Zell-Great Bend silt loams, 6- 25 % slopes	0.43	Pipeline	SDM-105	53	374.1	0.4

Notes:

[1] Kw = erodibility in water factor; Kw over 0.40 considered highly susceptible to erosion by water.

[2] Approximate milepost, in which soils are present; soils are scatted within these areas.

[3] Approximate total length totaled over the centerline; -- signifies the polygon is not crossed by the pipeline centerline.

[4] Approximate acreage within the Project footprint.

[5] Acres are rounded.

Table 8: Areas of Soils in the Project Area with High Susceptibility to Wind Erosion						
SOIL TYPE	WEG [1]	FACILITY	PIPELINE ID	MILEPOST [2]	LENGTH [3] (feet)	AREA [3] (acres)
Dickey-Buse-Embden complex, 6-15 % slopes	2	Pipeline	NDT-211	92	199.7	0.4
Doger loamy fine sand	2	Pipeline	SDT-207	3, 5	846.6	2.2
Elsmere loamy fine sand, loamy substratum	2	Pipeline	SDT-207	5	1,236.1	2.5
Forestburg-Doger loamy fine sands, 0-3 % slopes	2	Pipeline	SDT-207	4, 6	2,874.3	6.3
Loup loamy fine sand	2	Pipeline	SDT-207	2, 4, 5	459.3	1.1
Shue loamy fine sand	2	Pipeline	SDT-207	5, 6	2,482.7	12.9
Shue loamy fine sand	2	Access Road	SDT-207	5	3,589.5	0.5
Telfer-Lihen loamy fine sands, 9- 15 %	2	Pipeline	NDM-106	23	431.1	1.1

Notes:
[1] WEG = wind erodibility group
[2] Approximate milepost, soils are scattered in the area.
[3] Approximate total length (feet) and area (acres); -- means the polygon is not crossed by the pipeline centerline.
[4] Acres are rounded.

Table 9: Areas with Potential Geologic Hazards					
HAZARDS PRESENT	PIPELINE / FACILITY	APPROXIMATE MILEPOST START	CONSTRUCTION IMPACTS[1] ACREAGE	PERMANENT IMPACTS ACREAGE	HAZARD RISK
Karst	SDT-206	0, 11	57.4	27.9	Low
	SDT-207; Access Road; Launcher/Receiver; MLV	0, 1, 4, 10	40.8	22.0	Low
	SDT-209	10	3.9	1.7	High
	SDM-104; Access Road; Launcher/Receiver; MLV	29, 31, 35, 85, 97	290.9	123.0	Low
	SDM-105	40, 50, 52, 60, 63, 67	135.0	57.7	Low
	SDL-320	66, 74	9.5	4.6	Low
Landslides	SDT-206	0	184.7	90.6	Low Incidence
	SDT-207	0	291.2	145.3	Low Incidence
	SDT-208	0	638.4	309.3	Low Incidence
	SDT-209	0	154.3	75.0	Low Incidence
	SDT-210	0	145.0	73.1	Low Incidence
	SDM-104	27	1,793.1	753.8	Low Incidence
	SDM-105	0, 82	1,547.8	665.3	Low Incidence
	SDL-320	18	217.4	108.3	Moderate Susceptibility & Low Incidence
	SDL-320	0	764.0	379.9	Low Incidence
	SDL-335	0	8.8	5.7	Low Incidence
	SDL-336	0	8.9	5.7	Low Incidence
	NDT-211	89	321.2	150.7	Low Incidence
	NDM-106	0	376.1	163.1	Low Incidence

Notes:

[1] Construction impacts include impacts from both operations and construction.

[2] Acres are rounded.

Table 10: Perennial Streams Crossed by the Project by River Basin					
BASIN[1]	PERENNIAL STREAM	LINE / MILEPOST	CROSSING LENGTH (feet)	COUNTY	CROSSING METHOD [2]
Fort Randall Reservoir	Medicine Knoll Creek	SDL-320 / 17.7	26	Sully	Wet open cut
James	Redstone Creek	SDM-104 / 128.6	54	Kingsbury	Wet open cut
	Dry Run	SDM-105 / 40.6	82	Spink	Wet open cut
	Dry Run	SDT-209 / 9.6	99	Spink	HDD
	Unnamed Waterbody	SDM-105 / 52.1	96	Spink	HDD
	James River	SDT-209 / 1.0	117	Spink	HDD
	James River	SDM-105/ 52.1	96	Spink	HDD
	James River	SDT-207 / 11.0	1,997	Beadle	HDD
	Shue Creek	SDT-207 / 18.0	1	Beadle	Wet open cut
	Snake Creek	SDM-105 / 74.1	17	Brown	Wet open cut
	Timber Creek	SDM-105 / 31.1	84	Spink	Wet open cut
	Webber Gulch	NDT-211/ 89.0	162	Brown	HDD
	Shue Creek	SDM-105 / 3.1	9.5	Beadle	Wet open cut
	Tributary to Shue Creek	SDM-105 / 4.3	34	Beadle	Wet open cut
	James River	SDM-105 / 52.1	82	Spink	HDD
	Unnamed Waterbody	SDT-207 / 0.2	4	Beadle	Wet open cut
Big Sioux	Tributary to Big Sioux River	SDT-208 / 8.0	30	Codington	Wet open cut
	Big Sioux River	SDM-104 / 27.2	93	Lincoln	HDD
	Unnamed Waterbody	SDM-104 / 54.2	8	Minnehaha	Wet open cut
	Tributary to Beaver Creek	SDM-104 / 47.4	4	Lincoln	Wet open cut
	Big Sioux River	SDT-208 / 0.2	59	Codington	HDD
	Big Sioux River	SDT-208 / 0.7	53	Codington	HDD
Lewis and Clark Lake	East Fork Vermillion River	SDM-104 / 97.1	89	Lake	Wet open cut

Notes:

[1] Identified by the hydrologic unit code (HUC) 6.

[2] Crossing method planned at this time; methods are described in Section 2.2.

Table 13: Ecoregions Crossed by the Project				
LEVEL III ECOREGION [1]	**LEVEL III ECORGION VEGETATION [2]**	**LEVEL IV ECOREGION [3]**	**PROJECT [1,3]**	
			MILES	**PERCENT**
Northwestern Glaciated Plains	Spear grass, blue grama grass (*Bouteloua gracilis*), and wheat grass were once dominant native grasses that covered many parts of the landscape. A variety of shrubs and herbs were also common as well as some sagebrush. On the driest sites yellow cactus and prickly pear (*Opuntia* spp) can be found. Scrubby quaking aspen (P*opulus tremuloides*), willow (*Salix* spp), cottonwood (*Populus deltoides*), and box elder (*Acer negundo*) occur to a limited extent on shaded slopes of valleys and river terraces. Local saline areas support alkali grass (*Puccinellia nuttallii*), wild barley, greasewood (*Sarcobatus vermiculatus*), red sampire (*Salicornia rubra*), and sea blite. There is a low density of streams and rivers across the area. High concentrations of temporary and seasonal wetlands create favorable conditions for waterfowl nesting and migration.	Missouri Coteau	71	15%
		Southern Missouri Coteau Slope	19	4%
		All	90	19%
Northern Glaciated Plains	Most of the region is now farmland but in its native state, the landscape was characterized by quaking aspen, oak groves, mixed tall shrubs, and intermittent fescue grasslands. Bur oak (*Quercus macrocara*) and grassland communities occupied drier sites. Many areas had transitional grassland containing tallgrass and shortgrass prairie, including big (*Andropogon gerardi*) and little bluestem (*Schizachyrium scoparium*), green needlegrass (*Nassella viridula*), blue grama, western wheatgrass (*Pascopyrum smithii*), and switchgrass (*Panicum virgatum*). Streams in the region are mostly intermittent, though some are perennial, and there are some larger rivers. The region is drained by the Missouri River system to the south and to the north by the South Saskatchewan River. In some areas, a high concentration of semi-permanent and seasonal wetlands can be found, locally referred to as Prairie Potholes.	Drift Plains	67	14%
		James River Lowland	159	33%
		Prairie Coteau	90	19%
		Big Sioux Basin	7	1%
		Glacial Lake Basins	65	14%
		All	388	81%

Notes:
[1] GIS data accessed online at https://www.epa.gov/eco-research/ecoregions-north-america.
[2] Descriptions from CEC 2011.
[3] Project centerline miles and percent of total Project centerline miles.

Table 14: Land Cover Types Traversed by the Project in South Dakota			
	PROJECT CENTERLINE		
COVER TYPE [1]	MILES	PERCENT	DESCRIPTION [2]
Irrigated lands/water sources for organized rural water systems lands/Public use	0.1	<0.1%	Areas of open water, generally with less than 25% cover of vegetation or soil.
Irrigated lands/water sources for organized rural water systems lands	0.4	<0.1%	Manmade and natural ponds.
Existing and potential extractive nonrenewable resources	<0.1	<0.1%	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
Rural residences and farmsteads, family farms, and ranches / Residential / Noise Sensitive Land Use	1.6	0.3%	Includes such land as residential, commercial, industrial, ROW corridors. Vegetation in previously disturbed areas is frequently little to none and is often composed of introduced weedy species. The previously disturbed areas crossed by the Project have been identified through land-use classification as ROW corridors, with a very small portion (<0.1 mile) identified as rural residence. ROW corridors include roads, utility corridors and railroads. These areas have often been replanted with a mixture of grass and forbs.
Rural residences and farmsteads, family farms, and ranches / Residential / Public use / Noise Sensitive Land Use	10.0	2.1%	Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
Land used primarily for row and non-row crops in rotation	334.7	70.0%	Areas used for the production of annual crops, which in the Project area are crops such as wheat, corn, and soybeans. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
Pasturelands and rangelands / Haylands	60.7	12.7%	Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation. Dominant vegetation observed in hayfields within the Project area consisted of oat (*Avena sativa*), blue grama (*Bouteloua gracilis*), smooth brome (*Bromus inermis*), redroot (*Ceanothus americanus*), orchardgrass (*Dactylis glomerata*), creeping wildrye (*Elymus repens*), fox-tail barley (*Hordeum jubatum*), alfalfa (*Medicago sativa*), reed canarygrass (*Phalaris arundinacea*), Kentucky bluegrass (*Poa pratensis*), tall false ryegrass (*Schedeonorus arundinaceus*), and common dandelion (*Taraxacum officinale*). (Perennial 2021a, 2022b)

Table 14: Land Cover Types Traversed by the Project in South Dakota			
	PROJECT CENTERLINE		
COVER TYPE [1]	MILES	PERCENT	DESCRIPTION [2]
Palustrine Emergent Wetlands (PEM)	22.6	4.7%	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water. See descriptions of PEM wetland vegetation in **Section 5.4.** Further description is provided in the Project wetlands report (Perennial 2021a, Perennial 2022b) provided in **Appendix 9**.
Palustrine Forested Wetlands (PFO)	0.1	<0.1%	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water. See descriptions of palustrine scrub shrub (PSS) and palustrine forested (PFO) wetland vegetation in **Section 5.4.** Additional information is provided in the Project wetlands report (Perennial 2021a) provided in **Appendix 9**.
Palustrine Scrub/Shrub Wetlands (PSS)	0.1	<0.1%	Areas where perennial PSS herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
Public Use	0.8	0.2%	Includes areas of deciduous forest dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change. Forests within the Project area are characterized as hardwood forests. Dominant tree and shrub species in the Project area include boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), eastern red-cedar (*Juniperus virginiana*), European buckthorn (*Rhamnus cathartica*), American-aster (*Symphyotrichum lanceolatum*), American elm (*Ulmus americana*), and Siberian elm (*Ulmus pumila*). Further description is provided in the habitat assessment (Perennial 2021a, 2022b) provided in **Appendix 10**. Also includes areas of shrub/scrub dominated by shrubs less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
Undisturbed native grasslands	46.3	9.7%	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling but can be utilized for grazing.
Potential sources for irrigated lands	0.2	<0.1%	Areas of open water, generally with less than 25% cover of vegetation or soil with an ephemeral or intermittent flow regime.
Potential sources for irrigated lands / Public Use	0.6	<0.1%	Areas of open water, generally with less than 25% cover of vegetation or soil with a perennial flow regime.

Table 14: Land Cover Types Traversed by the Project in South Dakota			
	PROJECT CENTERLINE		
COVER TYPE [1]	MILES	PERCENT	DESCRIPTION [2]
Public, commercial, and institutional use	<0.1	<0.1%	Developed lands include such land as commercial and industrial uses. Vegetation in previously disturbed areas is frequently little to none and is often composed of introduced weedy species.

Notes:

All figures are rounded.

[1] NLCD cover type descriptors have been revised to reflect SD legislation.

[2] Cover types of descriptions from National Land Cover Database 2019 (NLCD 2019) Legend online at: https://www.mrlc.gov/data/legends/national-land-cover-database-2019-nlcd2019-legend#:~:text=National%20Land%20Cover%20Database%202019%20%28NLCD2019%29%20Legend%20,%20%20%20%2024%20more%20rows%20.

Table 15: Horizontal Directional Drill and Bore Crossings of USFWS Grassland Easements and Wetlands					
EASEMENT	**COUNTY**	**PIPELINE ID**	**MILEPOST**	**LENGTH (feet)**	**AREA[1] (acres)**
Grassland	McPherson	NDM-106	6.4	976.7	1.1
Grassland and Wetlands	McPherson	NDM-106	7.0	865.6	1.0
Wetland[2]	McPherson	NDM-106	12.3	128.5	0.2
Grassland[2]	McPherson	NDM-106	16.4	141.3	0.2
Wetlands	Edmunds	SDM-105	90.1	1,083.1	1.2
Grassland[2]	Edmunds	SDM-105	103.7	328.4	0.4
Grassland and Wetlands	McPherson	SDM-105	107.2	2,897.0	3.3
Wetlands	Brown	SDT-210	6.1	973.0	1.1
Wetlands[2]	Brown	SDT-210	6.5	199.2	0.2
Grassland and Wetlands	Brown	SDT-210	10.7	4,190.0	4.8
Wetlands	Hyde	SDL-320	29.5	2,739.6	3.1
Grassland	Hand	SDL-320	40.4	3,534.8	4.1
Grassland and Wetlands[2]	Hand	SDL-320	44.8	219.4	0.3
Wetlands[2]	Hand	SDL-320	52.9	409.2	0.5
Grassland	Hand	SDL-320	58.6	2,962.2	3.4
Grassland and Wetlands	Hand	SDL-320	65.8	1,881.0	2.2
Grassland and Wetlands	Hand	SDL-320	66.4	2,724.2	3.1
Grassland	Spink	SDL-320	75.2	570.1	0.7
Wetlands	Spink	SDL-320	78.5	2,531.4	2.9
Wetlands	Edmunds	SDL-335	0.1	556.7	0.6

Notes:

[1] Acres are rounded.
[2] Crossed via bore.

Table 16: Noxious Weeds in South Dakota Counties Traversed by the Project

NOXIOUS WEED	NOXIOUS WEEDS IN COUNTIES TRAVERSED BY THE PROJECT [1,2]																	
	BEADLE	BROWN	CLARK	CODINGTON	EDMUNDS	HAMLIN	HAND	HYDE	KINGSBURY	LAKE	LINCOLN	MCCOOK	MCPHERSON	MINER	MINNEHAHA	SPINK	SULLY	TURNER
Absinth wormwood [1] *Euphorbia esula*	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Bull thistle [2] *Cirsium vulgare*	C	C	C	C	--	C	--	C	--	C	--	C	--	C	--	--	--	-
Canada thistle [1] Cirsium arvense	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Common burdock [2] *Arctium minus*	--	--	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--
Common mullein [2] *Verbascum Thapsus*	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--	--	--
Field bindweed [2] *Convolvulus arvensis*	--	---	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--
Hoary cress [1] *Cardana draba*	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Houndstongue [2] *Cynoglossum oficinale*	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--	--	--	--
Leafy spurge [1] *Euphorbia esula*	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Musk thistle [2] *Carduus nutans*	C	C	--	C	--	C	C	C	C	C	C	C	--	C	-	C	--	--
Palmer Amaranth [2] *Amaranthus palmeri*	--	--	--	--	C	--	--	C	--	--	--	--	--	--	--	--	--	--
Perennial sowthistle [1] *Sonchus arvensis*	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Plumeless thistle [2] *Carduus acanthoides*	C	C	--	C	--	C	C	C	C	C	C	C	--	C	--	C	--	--
Poison hemlock [2] *Conium maculatum*	--	--	C	--	--	C	--	--	C	--	--	--	--	--	--	--	--	--
Purple loosestrife [1] *Lythrum salicaria*	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Saltcedar [1] *Tamarix* spp.	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
Scotch thistle [2] *Onopordum acanthium*	--	--	--	--	--	--	--	--	--	C	--	--	--	--	--	--	--	--
Spotted knapweed [2] *Centaurea maculosa*	--	--	C	--	--	--	--	--	--	C	C	--	--	--	--	--	--	C
Yellow toadflax [2] *Linaria vulgaris*	C	C	--	--	C	C	C	--	--	--	--	--	C	--	--	C	--	--

[1] Statewide (SW) noxious weed species per S.D. Admin. R. 12:62:03:01.06 and online at https://danr.sd.gov/Conservation/PlantIndustry/WeedPest/WeedandPestInfo/StateNoxious/default.aspx.

[2] Localized (C) noxious weed in noted county per South Dakota Locally Noxious Weed Pest List, available at https://danr.sd.gov/Conservation/PlantIndustry/WeedPest/docs/noxiousweeds.pdf.

Table 18: Project ROW Impacts by Land Cover Type in South Dakota						
COVER TYPE [1]	TEMPORARY IMPACT [2]		PERMANENT IMPACT [3]		TOTAL	
	ACRES[4]	PERCENT	ACRES[4]	PERCENT	ACRES[4]	PERCENT
Irrigated lands/water sources for organized rural water systems lands/Public use	<0.1	<1%	0.0	0%	0.0	<1%
Irrigated lands/water sources for organized rural water systems lands	1.0	<1%	0.0	0%	1.0	<1%
Existing and potential extractive nonrenewable resources	0.9	<1%	0.2	<1%	1.1	<1%
Rural residences and farmsteads, family farms, and ranches / Residential / Noise Sensitive Land Use	16.7	<1%	5.8	21.6%	22.5	2.2%
Rural residences and farmsteads, family farms, and ranches / Residential / Public use / Noise Sensitive Land Use	133.9	2.1%	3.5	13.0%	137.4	72.3%
Land used primarily for row and non-row crops in rotation	4588.7	72.4%	10.9	40.6%	4599.6	12.8%
Pasturelands and rangelands / Haylands	809.7	12.8%	3.2	11.9%	812.9	3.0%
Palustrine Emergent Wetlands (PEM)	189.3	3.0%	0.03	<1%	189.33	<1%
Palustrine Forested Wetlands (PFO)	0.2	<1%	0.4	1.5%	0.6	<1%
Palustrine Scrub/Shrub Wetlands (PSS)	0.3	<1%	0.5	1.9%	0.8	<1%
Public Use	10.7	<1%	0.2	<1%	10.9	<1%
Undisturbed native grasslands	585.1	9.2%	1.0	3.7%	586.1	9.2%
Potential sources for irrigated lands	1.8	<1%	<0.1	<1%	1.84	<1%
Potential sources for irrigated lands / Public Use	0.9	<1%	0.0	0%	0.9	<1%

Table 18: Project ROW Impacts by Land Cover Type in South Dakota						
COVER TYPE [1]	TEMPORARY IMPACT [2]		PERMANENT IMPACT [3]		TOTAL	
	ACRES[4]	PERCENT	ACRES[4]	PERCENT	ACRES[4]	PERCENT
Public, commercial, and institutional use	0.2	<1%	1.1	4.1%	1.3	<1%
Total	**6339.4**	**100%**	26.9	100%	**6366.3**	**100%**

Notes:

[1] Cover types from and as mapped by National Land Cover Database but revised to include survey and desk top analysis. NLCD cover type descriptors have been revised to reflect SD legislation.

[2] Temporary impacts consist of Project footprint during construction including the operational pipeline ROW and additional temporary workspace (ATWS).

[3] Permanent impacts consist of areas where permanent facilities exist including pump stations, MLVs, launcher/receivers, and access roads.

[4] Acres are rounded.

Table 21: Turkey Management Areas and Hunting Success in Project Counties

MANAGEMENT UNIT [1]	PROJECT COUNTY [2]	SPRING 2021 AND FALL 2020 HUNTING SEASON [4]				MANAGEMENT GOAL [5,6]
		LICENSES SOLD [3]	HUNTER SUCCESS [3] (%)	HARVEST BY SEASON (BIRDS/100MI^2)		
				SPRING	FALL	
01A	Minnehaha	80	58	2-9	0-2	increase
22A	Codington [7]	90	44	2-9	--	increase
32A	Clark/Hamlin	20	50	0-2	--	increase
40A	Beadle/Hand [8]	20	40	2-9	--	increase
44A/44B	Lincoln	100	48 / 21	2-9	0-2	increase
61A	Turner	20	39	0-2	--	increase
--	McPherson, Edmunds, Brown, Spink, Sully, Hyde, Kingsbury, Miner, Lake, McCook	--	--	--	--	--

Notes:
[1] Hunting license not valid outside regulatory Management Unit (SDGFP 2021e).
[2] County within the Management Unit with Project footprint.
[3] Data from SDGFP 2022 Spring Turkey Harvest Report.
[4] Data from SDGFP 2021 Spring and 2020 Fall Turkey Harvest Statistics (SDGFP 2021c); dashes (–) indicate no fall turkey hunting season in these counties, no harvest record.
[5] Data from SDGFP 2021d; dashes (–) indicate no season in the county.
[6] Management goal set by SDGFP (2021d) as increase, maintain, or decrease turkey population.
[7] Management Unit also includes Day County, which has no Project footprint.
[8] Management Unit also includes Jerauld County, which has no Project footprint.

Table 22: Abundance, Priority Habitats, and Harvest of Prairie Grouse in Project Counties

PROJECT COUNTY	SHARP-TAILED GROUSE			GREATER PRAIRIE CHICKEN			PRAIRIE GROUSE HARVEST (BIRDS/100 SQ MI)[3]
	ABUNDANCE [1]	PRIORITY HABITAT IN [2]		ABUNDANCE [1]	PRIORITY HABITAT IN [2]		
		COUNTY	FOOTPRINT		COUNTY	FOOTPRINT	
Beadle	present, <10 Leks	Yes	Yes	present, <10 Leks	Yes	--	0 - 23
Brown	present, no known leks	yes	yes	present, <10 leks	--	--	0 - 23
Clark	present, <10 leks	yes	yes	present, <10 leks	--	--	0 - 23
Codington	present, <10 leks	yes	--	present, no known leks	--	--	24 - 78
Edmunds	present, <10 leks	yes	yes	present, no known leks	--	--	0 - 23
Hamlin	maybe present	yes	--	possibly present	--	--	0 - 23
Hand	present,>10 leks	yes	yes	present,>10 leks	yes	--	24 - 78
Hyde	present,>10 leks	yes	yes	present,>10 leks	yes	yes	0 - 23
Kingsbury	present, no known leks	yes	--	possibly present	--	--	0 - 23
Lake	maybe present	yes	yes	possibly present	--	--	0 - 23
Lincoln	probably absent	--	--	probably absent	--	--	24 - 78
McCook	maybe present	yes	--	probably absent	--	--	0 - 23
McPherson	present,>10 leks	yes	yes	present, <10 leks	--	--	24 - 78
Miner	present, no known leks	yes	--	possibly present	--	--	0 - 23
Minnehaha	maybe present	yes	--	probably absent	--	--	0 - 23
Spink	present, no known leks	yes	yes	present, <10 leks	yes	--	0 - 23
Sully	present,>10 leks	yes	yes	present, <10 leks	yes	yes	24 - 78
Turner	maybe present	--	--	possibly present	--	--	0 - 23

Notes

[1] SDGFP (2017) assesses abundance and distribution based on the number of known leks.

[2] Priority habitat within the Project County and within Project footprint per SDGFP Environmental Review Tool accessed on 8/25/23 at https://ert.gfp.sd.gov/content/map.

[3] Average number of prairie grouse (sharp-tailed grouse and greater prairie chicken) harvested per 100 square miles in 2022 per SDGFP 2023 Prairie Grouse Hunting Forecast Report.

Table 23: Project Waterfowl Production Area Crossings					
PIPELINE ROUTE ID	MILEPOST	CROSSING LENGTH (MILES)	WATERFOWL PRODUCTION AREA	TYPE	DATA SOURCE[1]
NDM-106	2.61	0.27	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	4.37	0.2	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	4.57	0.3	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	4.87	0.67	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	5.53	0.18	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	5.72	0.33	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	6.05	0.3	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	6.35[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	NCED
NDM-106	6.35[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	6.35[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	6.37	1.51	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	7.08[2]	0.01	McPherson County Waterfowl Production Area	Conservation Easement	NCED
NDM-106	7.08[2]	0.01	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	7.88	0.44	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	10.6	0.28	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	10.88	0.4	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	11.29	0.16	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	11.44	0.7	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	12.14	0.12	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	12.26	0.75	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	13.01	0.32	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	15.44[2]	0.29	McPherson County Waterfowl Production Area	Conservation Easement	NCED
NDM-106	15.44[2]	0.29	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	16.54[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	NCED
NDM-106	16.54[2]	0.82	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	16.54[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	17.36	0.49	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	17.85	0.54	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	18.38	0.13	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	18.51	0.18	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	18.7	0.17	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	18.87	0.51	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	19.37	0.5	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	19.87	0.52	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDM-106	20.39	0.97	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDT-211	105.42	0.74	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
NDT-211	111.24	0.2	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	27.68	0.5	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	29.22	0.5	Hyde County Waterfowl Production Area	Conservation Easement	PADUS

Table 23: Project Waterfowl Production Area Crossings					
PIPELINE ROUTE ID	MILEPOST	CROSSING LENGTH (MILES)	WATERFOWL PRODUCTION AREA	TYPE	DATA SOURCE[1]
SDL-320	29.72	1.02	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	30.83	1.18	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	32.01	0.93	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	33.45	0.52	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	33.97	1.56	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	35.53	1.06	Hyde County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	38.6	0.43	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	40.04[2]	0.56	Hand County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	40.04[2]	0.53	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	40.04[2]	0.53	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	40.57	0.03	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	40.57	0.03	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	44.81[2]	0.05	Hand County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	44.81[2]	0.05	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	44.81[2]	0.05	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	52.51	0.5	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	58.32[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	58.32[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	58.32[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	62.93	0.09	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	63.02	0.43	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	63.46	0.11	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	63.73	0.57	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	64.53	0.05	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	65.66[2]	0.09	Hand County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	65.66[2]	0.09	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	65.66[2]	0.09	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	65.75	0.44	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	66.18[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	66.18[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	66.18[2]	0.5	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	66.68	1.62	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	68.31	0.48	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	68.86	1.1	Hand County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	72.6	0.5	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	73.1	1.09	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	74.2	1.04	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	75.23	0.07	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	75.23	0.07	Spink County Waterfowl Production Area	Conservation Easement	PADUS

Table 23: Project Waterfowl Production Area Crossings					
PIPELINE ROUTE ID	MILEPOST	CROSSING LENGTH (MILES)	WATERFOWL PRODUCTION AREA	TYPE	DATA SOURCE[1]
SDL-320	75.24[2]	0.05	Spink County Waterfowl Production Area	Conservation Easement	NCED
SDL-320	75.83	0.4	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	76.39	0.48	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	76.87	0.51	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	77.37	0.5	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	77.87	0.4	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	78.29	0.18	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-320	78.47	0.41	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDL-335	0	0.3	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDL-335	0.3	0.13	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	58.35	0.17	Minnehaha County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	58.75	0.4	Minnehaha County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	59.88	0.06	Minnehaha County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	77.61	0.3	Minnehaha County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	77.61	0.3	Minnehaha County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	100.39	0.05	Lake County Waterfowl Production Area Of Sd	Conservation Easement	PADUS
SDM-104	100.44	0.66	Lake County Waterfowl Production Area Of Sd	Conservation Easement	PADUS
SDM-104	101.73	0.59	Lake County Waterfowl Production Area Of Sd	Conservation Easement	PADUS
SDM-104	102.33	0.1	Miner County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	102.43	0.52	Miner County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	109.12	0.91	Miner County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	116.76	0.64	Miner County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	126.61	0.03	Kingsbury County Waterfowl Production Area	Conservation Easement	PADUS
SDM-104	126.98	0.31	Kingsbury County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	35.71	0.06	Spink County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	81.64	0.6	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	82.25	0.77	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	83.02	0.5	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	83.52	0.6	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	84.12	0.1	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	85.99	0.91	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	86.9	0.56	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	87.46	0.49	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	87.95	0.28	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	88.23	0.28	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	88.51	0.27	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	88.94	1.18	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	90.13	0.54	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	90.67	0.8	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS

Table 23: Project Waterfowl Production Area Crossings					
PIPELINE ROUTE ID	MILEPOST	CROSSING LENGTH (MILES)	WATERFOWL PRODUCTION AREA	TYPE	DATA SOURCE[1]
SDM-105	94.29	0.12	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	103.39[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	NCED
SDM-105	103.39[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	103.39[2]	0.02	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	103.4	1.38	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	106.87	0.29	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	107.16[2]	0.29	McPherson County Waterfowl Production Area	Conservation Easement	NCED
SDM-105	107.16[2]	0.29	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDM-105	107.16[2]	0.29	McPherson County Waterfowl Production Area	Conservation Easement	PADUS
SDT-206	1.59	0.28	Lake County Waterfowl Production Area Of Sd	Conservation Easement	PADUS
SDT-207	1.32	0.56	Beadle County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	13.87	0.26	Hamlin County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	14.13	0.37	Hamlin County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	17.64	0.03	Hamlin County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	22.39	0.66	Hamlin County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	29.31	0.15	Clark County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	33.48	0.35	Clark County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	36.2	0.67	Clark County Waterfowl Production Area	Conservation Easement	PADUS
SDT-208	39.24	0.56	Clark County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	4.39	0.51	Brown County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	4.89	0.52	Brown County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	5.42	0.61	Brown County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	6.03	1.02	Brown County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	7.05	1	Brown County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	10.89	0.25	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS
SDT-210	10.89	0.25	Edmunds County Waterfowl Production Area	Conservation Easement	PADUS

[1] NCED = National Conservation Easement Database; PADUS = Protected Areas Database of the United States
[2] Waterfowl Production Areas to be crossed by HDD or bore methods.

Res Table 25: Other State Listed Species in the Project Area					
SPECIES [1]	**STATUS [2]**	**PROJECT COUNTIES [4,5]**	**KEY HABITATS [3]**	**IMPACT ASSESSMENT[7]**	**DETERMINATION OF EFFECTS[7]**
Swift Fox *Vulpes velox*	ST	Sully, Hyde	Prefers heavily grazed shortgrass or mixed-grass prairies with open, gently rolling topography for high visibility of surrounding area and is usually associated with prairie dog or ground squirrel colonies. They use dens throughout the year and may dig their own dens or occupy abandoned badger dens or prairie dog burrows. Suitable habitat may be present within the Project area, especially in Sully and Hyde Counties (Perennial 2021b)	Suitable habitat may be present within the Project area, especially in Sully and Hyde counties. However, based on coordination with SDGFP, occurrence is unlikely due to minimal habitat and lack of recorded observations in the vicinity of the proposed Project. Therefore, the Project is *not likely to adversely affect* the swift fox.	Not Likely to Adversely Affect
Bald eagle [6] *Haliaeetus leucocephalus*	BGEPA [6]	All	Usually found near water such as rivers, lakes, reservoirs, and coastal areas. Large cottonwood trees are typically used for nesting and roosting. This species requires a large area of clear surface water for feeding. Bald eagles are widespread nesters that nest along many rivers and large wetlands in South Dakota. Wintering birds congregate near Missouri River dams and surrounding forests and also winter in the Black Hills. Eagles can be seen in migration along rivers and large wetlands. Eagles begin nesting in March or April. They typically nest high in trees and often reuse nests from previous years. A typical clutch has 2 eggs which are incubated for 45 days. Both parents care for chicks, which stay in the nest for 10-11 weeks. Suitable habitat for the bald eagle may be present at various locations within the Project area, especially near large rivers and streams such as the Big Sioux River and the Vermillion River.7Although bald eagles were observed	Suitable habitat for the bald eagle may be present at various locations within the Project area in South Dakota, especially near large rivers and streams such as the Big Sioux River and the Vermillion River. Although bald eagles were observed during the survey, eagle nests were not observed within the Project area. In the event a bald eagle is observed prior to or during construction, SCS will coordinate with SDGFP. Additionally, SCS will adhere to the conservation measures established in the USFWS National Bald Eagle Management Guidelines.	Not Likely to Adversely Affect

Res Table 25: Other State Listed Species in the Project Area					
SPECIES [1]	**STATUS [2]**	**PROJECT COUNTIES [4,5]**	**KEY HABITATS [3]**	**IMPACT ASSESSMENT[7]**	**DETERMINATION OF EFFECTS[7]**
			during the survey, eagle nests were not observed in the Project area (Perennial 2021b)		
Lined snake *Tropidoclnion lineatum*	SE	Lincoln, Minnehaha	Prefers open, grassy prairies with rich soils and sparsely wooded areas. Often found on hillsides near rocky areas. Lined snakes are active at night and typically shelter beneath rocks and logs during the day. This species overwinters underground in animal burrows. Suitable habitat for the lined snake may be present in the Project area (Perennial 2021b; 2022a).	Species-specific surveys were conducted in July 2022. Neither lined snakes nor suitable habitat were observed within the Project area. Additional surveys for Lined Snake will take place in Fall of 2023.	Final determination of effects will be made when surveys are complete.
False map turtle *Graptemys pseudogeographica*	ST	Sully, Hyde	Large rivers, backwaters, lakes, and flooded floodplains. Turtles need basking sites and aquatic vegetation. Females dig nests in sandy areas near water, laying up to 3 clutches per breeding season. She lays 12-16 eggs in June and July, and eggs hatch 2 months later. Turtles overwinter in mud or in muskrat dens within wetlands.	Suitable habitat for the false map turtle may be present in the Project area. However, the Project area within the range of this species has largely been converted to agricultural use. One small pond and wetland complex is present within the species range and Project area at GPS coordinates (44.693070°, -100.054419°), but due to the small size of the feature and its isolation from other lakes, rivers, and ponds, it is highly unlikely to support this species. Therefore, the project is *not likely to adversely affect* the false map turtle.	*Not Likely to Adversely Affect*
Banded killifish *Fundulus daphaneus*	SE	McPherson, Edmunds, Brown	Habitat is lentic or lotic; it has been detected in quiet, shallow lakes, and in ponds with abundant aquatic vegetation and sandy-gravel substrates but also in streams with muddy bottoms without aquatic vegetation. Reported from a few lakes in west South Dakota. East South Dakota is on the range periphery. Since	Suitable habitat for the banded killifish may be present in the Project area, especially in quiet shallow streams ponds, and lakes within McPherson County (Hydrologic Unit Code 10: 1013010603). However, based on coordination with SDGFP, the proposed Project does not	*No Effect*

Res Table 25: Other State Listed Species in the Project Area					
SPECIES [1]	**STATUS [2]**	**PROJECT COUNTIES [4,5]**	**KEY HABITATS [3]**	**IMPACT ASSESSMENT[7]**	**DETERMINATION OF EFFECTS[7]**
			2000, reported banded killifish have been limited to the inlet of Bitter Lake, Day County and Little Eureka Lake, McPherson County (Perennial 2021b).	intersect within 1 mile of this species' known and current range. Therefore, the Project will have *no effect* on this species	
Blacknose shiner *Notropis heterolepis*	SE	Brown, Codington	Prefers cool, highly vegetated streams, small rivers, and lakes with sandy substrates. Spawns May to June over sandy substrates. Southern South Dakota, tributaries to the James and Keya Paha River basins. South Dakota is on the western periphery of the range for this species	Suitable habitat for the blacknose shiner may be present in the project area in the tributaries of the James and Paha River basins. However, based on coordination with SDGFP, the proposed Project does not intersect within 1 mile of this species' known and current range. Therefore, the Project will have *no effect* on this species.	*No Effect*
Northern redbelly dace *Chrosomus eus*	ST	Codington, Miner, Turner, Lincoln, Hamlin, Kingsbury, McCook, Minnehaha	Prefers cool, bogs, ponds, beaver ponds, lakes, and small clear streams. Spawns in clear low to moderate current over sand or gravel substrates during the spring. South central South Dakota- tributaries to the Little White and Keya Paha River basins. South Dakota is on the southern periphery of the range for this species. Suitable habitat for the northern redbelly dace may be present in the Project area in the tributaries of the Missouri and Big Sioux rivers (Perennial 2021b).	Species-specific surveys were conducted in June 2022. Suitable habitat for the northern redbelly dace was observed in the Project area within the South Fork Pearl Creek in Kingsbury County, and Pearl Creek in Beadle County Other waterbodies in the Project vicinity identified as containing potentially suitable habitat were assessed during the 2022 surveys and determined to not support fish populations or provide suitable habitat for northern redbelly dace. SCS will utilize trenchless crossing methods in these waterbodies, such as HDD or bore, to avoid all in-stream impacts. Therefore, the Project is *not likely to adversely affect* the northern redbelly dace.	*No Effect*
Interior Least Tern *Sternula antillarum athalassos*	SE	Sully	Interior least terns are typically found along large rivers. The nesting areas are barren, treeless beaches of sand, gravel, or shells; dry mudflats and salt flats; and sand and	Suitable habitat for the interior least tern may be present west and south of the Project area. However, this species is only present in South Dakota during the nesting	Not Likely to Adversely Affect

Res Table 25: Other State Listed Species in the Project Area					
SPECIES [1]	**STATUS [2]**	**PROJECT COUNTIES [4,5]**	**KEY HABITATS [3]**	**IMPACT ASSESSMENT[7]**	**DETERMINATION OF EFFECTS[7]**
			gravel pits along rivers. Interior least terns arrive in South Dakota in early May and leave at the end of the summer. In South Dakota, interior least terns nest along the Missouri and Cheyenne rivers, with the majority nesting below Gavins Point Dam.	season (May-August). Construction activities will start prior to and will continue through when the least tern would be expected to inhabit the area during migration. Therefore, it is anticipated that the least tern would utilize similar habitat beyond the Project area where disturbance is actively occurring. Additionally, this species is highly mobile and would likely avoid the construction area. Therefore, the project is not likely to adversely impact the interior least tern	

Notes:

[1] State listed species in South Dakota, which are also not federally listed, and which are found in South Dakota counties the Project traverses (SDGFP 2021 j,k,l).

[2] Status: ST = State threatened, SE = State endangered, BGEPA = Bald and Golden Eagle Protection Act

[3] Key habitats and distribution from SDGFP Wildlife of South Dakota website https://apps.sd.gov/gf43wap/Species.aspx#tab2.

[4] Counties with Project footprint only.

[5] Occurrence / distribution from SDGFP (2021j) mapping website Wildlife of South Dakota accessed on 13 December 2021 at https://apps.sd.gov/gf43wap/Species.aspx#tab2; includes more counties than Environmental Review Tool (SDGFP 2021l) at https://ert.gfp.sd.gov/content/map.

[6] The bald eagle is not currently federally listed or state-listed in South Dakota but is included here due to its protection under the BGEPA.

[7] Impact Assessment and Determination of Effects as included in *Threatened and Endangered Species Report – Beadle, Brown, Clark, Codington, Edmunds, Hamlin, Hand, Hyde, Kingsbury, Lake, Lincoln, McCook, McPherson, Miner, Minnehaha, Spink, Sully, and Turner counties, South Dakota, 2022.*

Table 28: Wetlands Impacted by the Project

WETLAND TYPE [1]	PROJECT IMPACTS BY FACILITY TYPE [2,3]					
	PIPELINE		ACCESS ROADS		PUMP STATIONS	
	CONSTRUCTION ROW (ACRES)[4]	OPERATION ROW (ACRES)	CONSTRUCTION (ACRES)[4]	OPERATION (ACRES)	CONSTRUCTION (ACRES)[4]	OPERATION (ACRES)
PEM	188.0	0.0	1.3	<0.1	<0.1	<0.1
PSS	0.8	0.5	0.0	0.0	0.0	0.0
PFO	0.6	0.4	0.0	0.0	0.0	0.0
Total	**189.4**	**0.9**	**1.3**	<0.1	<0.1	<0.1

Notes:

[1] PEM = palustrine emergent, PSS = palustrine scrub-shrub, PFO = palustrine forested.

[2] Area within Project footprint; there are no direct wetland impacts associated with Project facilities not listed here. Project HDD crossings are not included as impacts, the ground disturbance at these locations will be avoided.

[3] Impacts shown consist of wetlands within the Project workspace, including those not crossed by the Project centerline.

[4] Construction impacts include both construction footprint and operation footprint.

Table 29: Named Waterbodies Crossed by the Project							
FEATURE NAME	**COUNTY**	**LINE / MILEPOST**	**CROSSING METHOD [1]**	**CROSSING LENGTH [2] (FEET)**	**IMPACT [3] (ACRES)**	**ASSOCIATED WETLANDS [4]**	**STREAM TYPE**
Spring Creek	McPherson	NDM-106 / 21.3	HDD	6.2	--	PEM	Intermittent
Webber Gulch	Brown	NDT-211 / 89.0	HDD	161.8	--	PEM	Perennial
Foot Creek	McPherson	NDT-211 / 112.1	WOC	2.2	0.002	--	Ephemeral
Medicine Knoll Creek	Sully	SDL-320 / 17.7	WOC	26.5	0.03	PEM	Perennial
Matter Creek	Hand	SDL-320 / 50.7	WOC	11.2	0.02	--	Ephemeral
Bryant Creek	Hand	SDL-320 / 63.9	WOC	20.7	0.02	PEM	Intermittent
E. Fork Vermillion R.	Lake	SDM-104 / 97.1	WOC	89.0	0.1	--	Perennial
Redstone Creek	Clark	SDT-208 / 43.4	WOC	1.0	0.001	PEM	Ephemeral
	Kingsbury	SDM-104 / 128.6	WOC	53.6	0.06	PEM	Perennial
W. Branch Skunk Cr.	Minnehaha	SDM-104 / 76.4	WOC	2.4	0.003	PEM	Ephemeral
Dry Run	Spink	SDM-105 / 40.6	WOC	82.4	0.1	PEM	Perennial
	Spink	SDT-209 / 9.6	HDD	99.4	==	PEM	Perennial
James River	Spink	SDT-209 / 1.0	HDD	116.6	--	PEM	Perennial
	Spink	SDM-105 / 52.1	HDD	81.9	--	PFO	Perennial
	Beadle	SDT-207 / 11.0	HDD	1,996.7	--	PEM	Perennial
Shue Creek	Beadle	SDM-105 / 3.1	WOC	9.5	0.01	PEM	Perennial
	Beadle	SDT-207 / 18.0	WOC	71.0	0.08	--	Perennial
Snake Creek	Brown	SDM-105 / 74.1	WOC	17.1	0.02	PEM	Perennial
	Brown	SDT-210 / 9.0	WOC	10.6	0.01	PEM	Ephemeral
Timber Creek	Spink	SDM-105 / 31.1	WOC	83.7	0.1	PEM	Perennial

Table 29: Named Waterbodies Crossed by the Project							
FEATURE NAME	**COUNTY**	**LINE / MILEPOST**	**CROSSING METHOD [1]**	**CROSSING LENGTH [2] (FEET)**	**IMPACT [3] (ACRES)**	**ASSOCIATED WETLANDS [4]**	**STREAM TYPE**
Big Sioux River	Lincoln	SDM-104 / 27.2	HDD	92.7	--	--	Perennial
	Codington	SDT-208 / 0.2	HDD	59.0	--	PEM	Perennial
	Codington	SDT-208 / 0.7	HDD	53.0	--	PEM	Perennial
Brant Lake	Lake	SDT-206 / 3.4	HDD	187.2	--	PEM	Lake
Foster Creek	Spink	SDM-105 / 15.1	WOC	51.5	0.05	PEM	Intermittent

Notes:

[1] Crossing method is either HDD (horizontal directional drill) or WOC (wet open cut) as identified in Section 2.2.

[2] Crossing length is centerline and bank to bank.

[3] Impact within stream; there may be additional impact to adjacent associated wetlands.

[4] Associated wetlands are adjacent riparian wetlands but are not included in the impact acreage: PEM = palustrine emergent.

Table 30: Fish Stocked in Named Waterbodies Crossed by the Project			
STREAM	**COUNTY [1]**	**FISH STOCKED [2]**	**MOST RECENT STOCK YEAR [3]**
Redstone Creek	Sanborn	Walleye	1985
W. Branch Skunk Cr.	Minnehaha	Black bullhead, black crappie, yellow perch	1935
James River	Beadle	Black crappie, channel catfish, smallmouth bass, largemouth bass, bluegill, walleye, sauger, muskellunge, northern pike, yellow perch	1995
James River	Brown	Saugeye, walleye	2023
James River	Spink	Walleye	2023
Shue Creek	Beadle	Black bullhead	1935
Snake Creek	Brown	Black bullhead	1935
Timber Creek	Spink	Black bullhead, largemouth bass, northern pike, yellow perch	1970
Big Sioux River	Minnehaha	Black bullhead, Black crappie, white crappie, channel catfish, smallmouth bass, largemouth bass, bluegill, walleye, northern pike, yellow perch	1996
Round Lake	Lake	Northern pike	1969
Medicine Knoll Creek	Sully	Bluegill, largemouth bass	2019
Spring Creek	Campbell	Black bullhead, largemouth bass, yellow perch	1940
East Fork Vermillion River	McCook	Walleye, black crappie, yellow perch, bluegill, channel catfish, fathead minnow, largemouth bass, northern pike, white crappie	2017

Notes:

[1] Stocking location may not be in a county crossed by the Project.

[2] Fish species stocked by SDGFP in named streams crossed by the Project per SDGFP stocking reports at: https://apps.sd.gov/GF56FisheriesReports/?_ga=2.236776577.1808269613.1640486355-1162596512.1638215578.

[3] The most recent year that stocking was conducted by SDGFP for that waterbody.

Table 31: Surface Waterbodies in Project Counties that are Infested by Aquatic Invasive Organisms										
			PLANTS [1]			FISH [1]				INVERTEBRATES[1]
WATERBODY	COUNTY	CURLY PONDWEED	EURASIAN MILFOIL	PURPLE LOOSESTRIFE	FLOWERING RUSH	SILVER CARP	BIGHEAD CARP	GRASS CARP	EUROPEAN RUDD	ZEBRA MUSSEL
James River	Brown	--	--	--	--	X	X	X	--	X
	Spink	--	--	--	--	X	X	X	--	X
	Beadle	--	--	--	--	X	X	X	--	X
East Fork Vermillion River	Kingsbury	--	--	--	--	X	X	--	--	--
	Miner	--	--	--	--	X	X	--	--	--
	Lake	--	--	--	--	X	X	--	--	--
	McCook	--	--	--	--	X	X	--	--	--
	Turner	--	--	--	--	X	X	--	--	--

Notes:

[1] Data from SDGFP (2023) Environmental Review Tool website at: https://ert.gfp.sd.gov/content/map; and South Dakota Aquatic Invasive species website at: https://sdleastwanted.sd.gov/maps/default.aspx.

Table 32: Existing Land Use for the Project (Acres)[1]														
LAND USE	PIPELINES		PUMP STATIONS		MLVS		LAUNCHER-RECEIVERS		ACCESS ROADS		ATWS		TOTAL	
	CONS.[2]	OPER.	CONS.[2]	OPER.	CONS.[2]	OPER.	CONS.[2]	OPER.	CONS.[2]	OPER.	CONS.[2]	OPER.	CONS.[2]	OPER.
Irrigated lands/water sources for organized rural water systems lands/Public use	0.4	0.4	--	--	--	--	--	--	--	--	--	--	0.4	0.4
Irrigated lands/water sources for organized rural water systems lands	2.5	2.2	--	--	--	--	--	--	--	--	--	--	2.5	2.2
Existing and potential extractive nonrenewable resources	0.7	0.2	--	--	--	--	--	--	0.2	0.2	0.2	--	1.1	0.5
Rural residences and farmsteads, family farms, and ranches / Residential / Noise Sensitive Land Use	16.3	9.6	--	--	<0.1	<0.1	0.2	0.2	6.5	5.6	1.4	--	24.4	15.4
Rural residences and farmsteads, family farms, and ranches / Residential / Public use / Noise Sensitive Land Use	119.7	60.2	1.6	1.6	0.4	0.4	0.3	0.3	2.6	1.2	13.9	--	138.5	63.7
Land used primarily for row and non-row crops in rotation	4244.1	2023.3	6.1	6.1	1.2	1.2	1.6	1.6	9.0	2.0	348.8	--	4610.8	2034.2
Pasturelands and rangelands / Haylands	721.9	366.0	1.2	1.2	0.3	0.3	1.0	1.0	4.4	0.7	107.5	--	836.3	369.2
Palustrine Emergent Wetlands (PEM)	200.7	137.5	<0.1	<0.1	--	--	--	--	1.3	<0.1	1.2	--	203.2	137.5
Palustrine Forested Wetlands (PFO)	0.8	0.6	--	--	--	--	--	--	--	--	--	--	0.8	0.6
Palustrine Scrub/Shrub Wetlands (PSS)	0.8	0.5	--	--	--	--	--	--	--	--	--	--	0.8	0.5
Public Use	11.0	4.7	--	--	--	--	<0.1	<0.1	0.1	0.1	0.3	--	11.4	4.8
Undisturbed native grasslands	548.4	279.8	--	--	0.3	0.3	<0.1	<0.1	4.5	0.7	50.3	--	603.5	280.8
Potential sources for irrigated lands	2.0	1.4	<0.1	<0.1	--	--	--	--	<0.1	<0.1	--	--	2.0	1.4
Potential sources for irrigated lands / Public Use	4.1	3.9	--	--	--	--	--	--	--	--	--	--	4.1	3.9
Public, commercial, and institutional use	0.2	<0.1	--	--	--	--	--	--	1.1	1.1	<0.1	--	1.3	1.1
TOTAL[3]	5873.6	2890.2	8.9	8.9	2.2	2.2	3.1	3.1	29.9	11.7	523.6	--	6441.2	2916.1

Notes:

[1]Acreage required for construction includes both construction and operations. Pump stations, MLVs and launcher-receivers have the same footprint for construction and operations.

[2]Acres are rounded.

[3]Totals are rounded to the nearest tenth.

[4]Wetlands and Waterbodies totals are represented in Section 5.4.

Table 33: Local Land Use Control Permits Anticipated for the Project						
COUNTY	PIPELINES	PUMP STATION	MLV	LAUNCHER-RECEIVER	ACCESS ROADS	PERMITS
Beadle	✓	✓	✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Brown	✓	✓	✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Clark	✓		✓		✓	Pipeline Construction Review
Codington	✓		✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Edmunds	✓		✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Hamlin	✓		✓		✓	Pipeline Construction Review
Hand	✓		✓		✓	Pipeline Construction Review
Hyde	✓		✓		✓	Pipeline Construction Review
Kingsbury	✓		✓		✓	Pipeline Construction Review; Building Permit; Zoning Application
Lake	✓		✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Lincoln	✓		✓		✓	Pipeline Construction Review
McCook	✓					Pipeline Construction Review
McPherson	✓	✓	✓		✓	Pipeline Construction Review; Building Permit; Zoning Application
Miner	✓		✓		✓	Pipeline Construction Review
Minnehaha	✓	✓	✓		✓	Pipeline Construction Review; Building Permit; Zoning Application
Spink	✓		✓	✓	✓	Pipeline Construction Review; Zoning Review; Building Permit
Sully	✓		✓	✓	✓	Pipeline Construction Review; Zoning Review/Application; Building Permit
Turner	✓					Pipeline Construction Review

Table 34: Impairment Status of Streams with Assigned Beneficial Uses that are Crossed by the Project

WATERBODY [1]	COUNTY	PIPELINE	MP	CROSSING METHOD [2]	BENEFICIAL USES [3]	IMPAIRMENT STATUS [4]	IMPAIRED USE [5] (cause)
Redstone Creek	Kingsbury	SDM-104	128.6	WOC	6,8,9,10	--	--
James River	Spink	SDT-209	1.0	HDD	5,8,9,10	--	--
James River	Spink	SDM-105	52.1	HDD	5,8,9,10	--	--
James River SD-JA-R-JAMES_07	Beadle	SDT-207	11.02	HDD	**1**,5,8,9,10	5 impaired without TMDL	1 (TDS)
Snake Creek	Brown	SDM-105	74.1	WOC	6,8,9,10	--	--
	Brown	SDT-210	9.0	WOC	6,8,9,10	--	--
Timber Creek	Spink	SDM-105	31.1	WOC	6,8,9,10	--	--
Foster Creek	Spink	SDM-105	15.1	WOC	6,8,9,10	--	
Big Sioux River SD-BS-R-BIG_SIOUX_02	Codington	SDT-208	0.2, 0.7	HDD	5,8,9,10	--	--
Big Sioux River SD-BS-R-BIG_SIOUX_14	Lincoln	SDM-104	27.2	HDD	5,7,8,9,10	4A impaired with approved TMDL	5 (TSS) 7, 8 (E. coli)
Brant Lake SD-BS-L-BRANT_01	Lake	SDT-206	3.4	HDD	4,7,8,9	1 all uses met	--

Notes:

[1] Table includes only named waterbodies crossed by the Project for which specific beneficial uses have been assigned; see Appendix 8 for other waterbodies.

[2] Crossing methods are WOC (west open cut) and HDD (horizontal directional drill).

[3] Beneficial uses are those assigned by South Dakota Department of Agriculture and Natural Resources as indicated in the ADNR Surface Water Quality website at: https://sdgis.sd.gov/portal/apps/MapSeries/index.html?appid=f3e56d2e55a34c65b7d78b07ef1e677e

The codes are: (1) domestic water supply; (4) warmwater permanent fish life propagation; (5) warmwater semipermanent fish life propagation; (6) warmwater marginal fish life propagation; (7) immersion recreation; (8) Limited-contact recreation; (9) fish and wildlife propagation, recreation, and stock watering; (10) Irrigation; and (11) commerce and industry. TMDL is Total Maximum Daily Load.

[4] Impaired status per SD DANR's Surface Water Quality website; -- means there is no data, or an assessment has not been made.

[5] See footnote (3) for beneficial use codes; DO = dissolved oxygen, TDS = total dissolved solids; TSS = total suspended solids, E. coli = the bacterium *Escherichia coli*.

Table 35: South Dakota County Labor Force Crossed by the Project				
COUNTY	LABOR FORCE	EMPLOYMENT	UNEMPLOYMENT	RATE
Beadle County	9,439	9,260	179	1.90%
Brown County	20,196	19,791	405	2.00%
Clark County	2,061	2,020	41	2.00%
Codington County	16, 425	16,133	292	1.80%
Edmunds County	2,011	1,969	42	2.10%
Hamlin County	3,742	3,679	63	1.70%
Hand County	1,857	1,831	26	1.40%
Hyde County	660	647	13	2.00%
Kingsbury County	2,840	2,785	55	1.90%
Lake County	6,918	6,783	135	2.00%
Lincoln County	39,085	38,477	608	1.60%
McCook County	3,220	3,168	52	1.60%
McPherson County	1,005	984	21	2.10%
Miner County	1,283	1,264	19	1.50%
Minnehaha County	121,397	119,307	2,090	1.70%
Spink County	3,055	2,992	63	2.10%
Sully County	834	821	13	1.60%
Turner County	4,905	4,817	88	1.80%

Source:

Labor Market Information Center, South Dakota Department of Labor and Regulation, in cooperation with the U.S. Bureau of Labor Statistics, available at: https://dlr.sd.gov/lmic/lbtables/countylf.aspx. Accessed August 2023.

Table 36: Cultural Resources Recorded in the Environmental Survey Corridor				
Site Number	Site Type	NRHP Recommendation	Management Recommendation	SHPO Concurrence
39CK2072	Railroad	Eligible	Avoided via Bore	Yes
39HD0128	Farmstead	Eligible	Avoidance by reroute	Yes
39HD0129	Stone Circle	Eligible	Avoided via HDD	Yes
39MP0015	Stone circle and cairn	Eligible	Avoidance by reroute pending	Pending
39MP0110	Stone circle and cairn	Eligible	Avoided via HDD or reroute pending	Pending
39MP0111	Stone circle	Eligible	Avoided via HDD or reroute pending	Pending
39BN0144	Stone circle and cairn	Eligible	Avoided via reroute	Yes
39CK2007	Railroad	Eligible	Avoided via bore	Yes
39ED2007	Railroad	Eligible	Avoided via bore	Yes
39HD0134	Stone circle and cairn	Eligible	Avoided via reroute	Yes
39HD0136	Stone circle	Eligible	Avoided via reroute	Yes
39HE0097	Stone circle and cairn	Eligible	Avoided via HDD	Yes
39HE0099	Stone circle	Eligible	Avoided via reroute	Yes
39LK2013	Railroad	Eligible	Avoided via HDD	Yes
39KB0056	Stone Alignment	Eligible	Avoided via reroute	Yes
39KB2013	Railroad	Eligible	Avoided via HDD	Yes
39MP0118	Stone circle	Eligible	Avoidance by reroute	Yes
39MP0119	Stone circle and cairn	Eligible	Avoided via HDD	Yes
39MP0123	Stone circle	Eligible	Avoided via reroute	Yes
39MP0134	Stone circle	Eligible	Avoided via reroute	Yes
39MH2014	Railroad	Eligible	Avoided via HDD	Yes
39CK0214	Farmstead	Not Eligible	No further work	Yes
39CK0021	Historic artifact scatter	Not Eligible	No further work	Yes

Table 36: Cultural Resources Recorded in the Environmental Survey Corridor				
Site Number	Site Type	NRHP Recommendation	Management Recommendation	SHPO Concurrence
39HD0017	School foundation	Not Eligible	No further work	Yes
39KB0054	Farmstead	Not Eligible	No further work	Yes
39MN0036	Farmstead	Not Eligible	No further work	Yes
39LN0068	Historic artifact scatter	Not Eligible	No further work	Yes
39MH0192	Prehistoric artifact scatter	Not Eligible	No further work	Yes
39LK0058	Farmstead	Not Eligible	No further work	Yes
39BE0188	Historic depression	Not Eligible	No further work	Yes
39ED0066	Historic artifact scatter	Not Eligible	No further work	Yes
39LK0088	Prehistoric artifact scatter	Not Eligible	No further work	Yes
39MP0109	Prehistoric artifact scatter	Not Eligible	No further work	Yes
39KB0055	Farmstead	Not Eligible	No further work	Yes
39SP0288	Prehistoric open camp	Eligible	Avoided via HDD	Yes
39LN0138	Historic well/cistern	Not Eligible	No further work	Yes
39KB2003	Railroad	Eligible	Avoided via HDD	Yes
39MP2051	Railroad	Eligible	Avoided via bore	Yes
CS4555MP005	Prehistoric open camp	Pending	Pending	Pending
CS4333SP001b	Railroad	Eligible	Pending, avoided by HDD	Pending
CS4333SP002	Multicomponent historic and prehistoric artifact scatter	Pending	Pending	Pending
CS4411CL001	Historic artifact scatter	Pending	Pending	Pending
CS6363BR001	Railroad	Eligible	Pending, avoided by HDD	Pending
38SP2003	Railroad	Eligible	Pending, avoided by HDD	Pending
CS6363MP001	Prehistoric Stone circle	Pending	Pending	Pending
CS6363MP002	Prehistoric artifact scatter	Pending	Pending	Pending
39SP2003	Railroad	Eligible	Pending, avoided by HDD	Pending
39MP2051	Railroad	Eligible	Pending, avoided by HDD	Pending

Table 36: Cultural Resources Recorded in the Environmental Survey Corridor				
Site Number	Site Type	NRHP Recommendation	Management Recommendation	SHPO Concurrence
CS4555MP005	Prehistoric open camp	Pending	Pending	Pending
CS4333SP001b	Railroad	Eligible	Pending, avoided by HDD	Pending
CS4333SP001a	Historic artifact scatter	Pending	Pending	Pending
CS4333SP001b	Railroad	Eligible	Pending, avoided by HDD	Pending
CS6363LI001	Railroad	Eligible	Pending, avoided by HDD	Pending

Table 37: Project Witnesses		
Application Section	**Application Subsections**	**Witness**
1.0 Introduction	All Sections Section 1.8	Mr. James Powell Dr. Jon Schmidt
2.0 Project Description	All Sections Section 2.2 Section 2.1.1 Section 2.3.2 (abnormal operations/ERP) Section 2.2 and 2.3	Mr. James Powell/Erik Schovanec Mr. Alex Lange Dr. Jon Schmidt Mr. Rod Dillon Mr. Brigham McCown
3.0 Demand for Facility	All Sections	Mr. James Powell
4.0 Alternatives	All Sections	Dr. Jon Schmidt Mr. Erik Schovanec Mr. James Powell
5.0 Environmental Information and Impact on Physical Environment	All Sections	Dr. Jon Schmidt Mr. Erik Schovanec
6.0 Community Impact	All Sections All Sections	Mr. James Powell Dr. Jon Schmidt
7.0 Other Information	7.1 Monitoring of Impacts	Dr. Jon Schmidt Mr. Erik Schovanec
Appendices	1 and 2 1, 2, 3, 4, 8, 9, 10, and 12 3, 5-12 13	Mr. Alex Lange Mr. Erik Schovanec Dr. Jon Schmidt Mr. James Powell

Tables with no Updated Needed

Table 11: South Dakota Rural Water System Areas Crossed by the Project

Table 12: Water Sources for Project Hydrostatic Tests

Table 17: Reported Infestations of Statewide Noxious Weeds in Counties Traversed by the Project

Table 19: Recommendations and Concerns Voiced by USFWS during Project Pre-application Meetings

Table 20: Distribution and Occurrence of Big Game Species in Project Counties

Table 24: Probable Presence of Birds of Conservation Concern in the Project Area

Table 26: Occurrence of Sensitive Species Near Project Footprint based on SDGFP Natural Heritage Data

Table 27: Project Crossings of Streams with Reported Topeka Shiner Sightings