

NORTH DAKOTA PUBLIC SERVICE COMMISSION

APPLICATION OF  
VANTAGE WEST SPUR LATERAL PIPELINE PROJECT  
for  
ROUTE PERMIT

Vantage Pipeline US LP  
April 2015



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## **SECTION A. DESCRIPTION OF PROPOSED FACILITY**

### **A.1. Type of Proposed Facility**

This is an Application for a Route Permit and is submitted simultaneously with an Application for a Corridor Certificate. These elements are discussed in Section A.1 of the Corridor Certificate portion of this Application.

Vantage Pipeline US LP (Vantage) is proposing to construct and operate approximately 47.3 miles of new, high vapor pressure (HVP) steel pipeline from a natural gas processing plant near Williston, North Dakota to an existing pipeline system near Stady, North Dakota, which currently transports ethane to the Alberta petrochemical industry. The proposed Vantage West Spur Lateral Pipeline (West Spur) would include the construction of approximately 47.3 miles of new 8-inch diameter pipeline in North Dakota. The general location of the Project is shown in Exhibit A and includes a 49.1 mile alternative pipeline route.

### **A.2. Product**

This is an Application for a Route Permit and is submitted simultaneously with an Application for a Corridor Certificate. These elements are discussed in Section A.2 of the Corridor Certificate portion of this Application.

### **A.3. Size and Design**

This is an Application for a Route Permit and is submitted simultaneously with an Application for a Corridor Certificate. These elements are discussed in Section A.3 of the Corridor Certificate portion of this Application.

### **A.4. Time Schedule**

This is an Application for a Route Permit and is submitted simultaneously with an Application for a Corridor Certificate. These elements are discussed in Section A.4 of the Corridor Certificate portion of this Application.

## **SECTION B. LOCATION**

### **B.1. Applicant’s policies and commitments to limit the environmental impact**

Vantage has prepared an Environmental Protection Plan (EPP) which is attached as Exhibit J to the Certificate of Corridor Compatibility and Route Permit Applications submitted simultaneously for the Vantage West Spur Lateral Pipeline. The EPP is discussed in more detail in section B.6 below.

### **B.2. Evaluation of proposed route with regard to applicable considerations set out in section 49-22-09 NDCC.**

#### **B.2.1 Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment.**

A discussion of the effects of the location, construction, and operation of the pipeline is provided in the Certificate of Corridor Compatibility portion of this application. Research and field investigation includes cultural resource surveys, wetland delineation surveys, and protected species surveys. Vantage has completed raptor surveys and proposes to conduct additional raptor surveys prior to the start of construction.

#### **B.2.2 The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects.**

The Project does not include new energy conversion or transmission technologies that are expressly designed to minimize adverse environmental effects. As described in Vantage’s EPP (Exhibit J), current construction techniques and mitigation measures will be utilized to minimize the effect of construction on environmental resources.

#### **B.2.3 The potential for beneficial uses of waste energy from a proposed energy conversion facility.**

The Project does not involve new energy conversion facilities and no usable waste energy will result from the Project.

#### **B.2.4 Adverse direct and indirect environmental effects which cannot be avoided should the proposed route be designated.**

Adverse environmental effects were minimized where possible. The following impacts are short term and completely reversible:

- Potential impacts to unavoidable wetland crossings
- Potential construction-related impacts to water quality
- Impacts to wildlife, plants, and habitat due to increased activity
- Establishment of noxious and invasive weed species
- Impacts to watercourse vegetation, trees and shrubs
- Impacts to soil impacts such as soil mixing, erosion, and compaction
- Temporary loss of hay and crops
- Construction-related air quality and noise impacts
- Visual resources impacts from permanent facilities

The majority of the construction-related impacts will be temporary. However, two new block valves will be permanently located on the surface during the design life for the pipeline. In addition, a block valve

and trap will be constructed at either end of the pipeline at existing facilities. Landowners will be compensated for any impacts related to construction and operation of the pipeline according to an agreement established prior to pipeline construction.

**B.2.5 Alternatives to the proposed site, corridor, or route which are developed during the hearing process and which minimize environmental effects.**

Alternatives considered by Vantage during Project development are discussed in Section C of the Certificate of Corridor Compatibility portion of this application.

**B.2.6 Irreversible and irretrievable commitments of natural resources should the proposed corridor or route be designated.**

A commitment of resources is considered irreversible when the current use of nonrenewable resources places limitations on future generations. An irretrievable commitment of resources occurs when a resource cannot be restored and becomes unavailable for use by future generations. Surface disturbance resulting from construction of the pipeline would be reclaimed and vegetation restored within the first growing season. A total surface area of approximately 0.32 acres would be occupied by block valves and access roads located along the pipeline route. Block valve locations and access roads would be removed and the land would be restored to its original state when the pipeline is no longer in operation; therefore, minimal irreversible and irretrievable commitments of natural resources will result from the Project.

**B.2.7 Direct and indirect economic impacts of the proposed facility.**

Short-term and long-term economic impacts to communities within North Dakota include:

- Creation of additional workforce requirements during pipeline construction
- Creation of a permanent workforce for pipeline operations
- Economic benefits to landowners
- Economic benefit to local counties
- Temporary increase in local populations
- Temporary impacts to housing and public facilities and services
- Increased value for product provided to local oil and gas producers
- Creation of a market for petrochemical grade ethane byproduct

These impacts are discussed in more detail in Section B.4.4.

**B.2.8 Existing plans of the state, local government, and private entities or other entities for other developments at or in the vicinity of the proposed site, corridor, or route.**

The proposed West Spur Pipeline does not follow an existing pipeline corridors, and Vantage is unaware of any proposed developments within the survey corridor or study area at this time. The West Spur Project is not near any municipalities and; therefore, will not impact plans for local government development. The pipeline Project area is remote and rural. Vantage is unaware of any plans for private entities or state government to develop the area. It is possible that future oil or gas well pads will be sited in the vicinity of the pipeline corridor. Currently, there are several east-west oriented crude and natural gas pipelines crossed by the proposed West Spur pipeline. All other current and proposed pipeline developments are predominantly in the southern half of Williams County, whereas the Vantage West Spur Lateral Pipeline route is in the northern half of Williams County and southern Divide County.

### **B.2.9 The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites.**

Structures associated with the Vantage West Spur Lateral Pipeline are small and unlikely to adversely affect the landscape appearance. If structures are visible, it would likely be from intersections where the pipeline crosses main roads. The occasional appearance of valve sites is generally not out of character with such landscapes in the productive Williston Basin oil field. No mitigation measures would therefore be required for visual resources.

#### *Cultural Resource Inventory Methods*

The cultural resource studies conducted for the Vantage West Spur Lateral Pipeline consist of both Class I and Class III investigations. The Class I investigation entails a review of local histories, examination of historic maps and a review of previous inventory and field survey efforts (Class I). The Class I study incorporated all sections located within one mile of the pipeline centerline.

The Class III inventory consists of a systematic pedestrian inspection of the defined 500-foot corridor using parallel transects spaced no more than 30 m apart. It is aimed at locating and recording all historic properties and archeological resources that have surface and exposed-profile indicators. The pipeline centerline was ascertained from shapefiles downloaded to portable global positioning system (GPS) units. Site forms accompanied the field crew, and the location of previously recorded sites and site leads were placed on a GPS unit to aid identification in the field.

When cultural evidence, such as artifacts (lithics, glass, modified bone) or a feature, dating 50 years or older were identified, the area was documented on the appropriate North Dakota state forms. General information such as boundaries, artifact/feature attributes, legal descriptions, landform, vegetation, topographic setting, are indicated. When historic depressions, foundations or standing historic features are present, county courthouse deed records are examined and compared with historic documents to ascertain whether the site is associated with a locally important individual.

Archaeological field investigations for the Vantage West Spur Lateral Pipeline were conducted from September 30, to October 7, 2014, and March 2015. The PSC does not require Native American consultation and no tribal representatives were present during the inventory. Tribes will not be contacted for comments regarding the results of this inventory. All unevaluated sites will be avoided. As such, no site testing is anticipated for this Project.

Additional fieldwork is needed. Several reroutes are identified that have not been investigated. As weather improves ground surface visibility, a pedestrian survey using the same standards established for the original inventory shall be conducted to ensure all uninvestigated areas are examined.

Upon completing an inventory, a technical report describing the Project, the sites and isolates identified, and recommendations of significance will be submitted to the NDSHPO for review. The NDSHPO will determine whether the cultural resources identified within the APE are significant and if rerouting and avoidance measures are adequate to avoid adverse impacts to significant sites.

#### **B.2.9.a Cultural Resource Inventory Results (Ongoing)**

The files search conducted as part of the Class I investigation indicates 21 previously documented studies were conducted within or adjacent to the Vantage West Spur Lateral Study Area. The majority of the inventories were conducted for pipelines, but other Projects include gravel pits, well pads, a power

station, a transmission line, an underground cable line, a waterline, highway maintenance, and a coalmine study. Eleven of the previous Projects overlap the study corridor.

The files search identifies 22 previously recorded sites within one mile, but outside, the study corridor. Eleven are prehistoric, ten are historic and one has both historic and prehistoric components. All of the prehistoric sites contain stone features (i.e. stone rings, cairns, alignments). The historic sites consist of three farmsteads, two churches, one school, one foundation, and three culture material scatters. The database also notes the presence of 25 previously documented site leads or isolated finds. They consist of eight historic coalmines, three historic post offices, two historic cultural material scatters, one historic dump, one historic machinery, and 10 prehistoric cultural material scatters. The precise location for several site leads is not available, so generalized site boundaries are drawn based on the legal location information provided. Eight of these generalized boundaries overlap the study corridor.

The Class III cultural resource inventory identified 24 sites. These consist of 14 prehistoric sites, nine historic sites, and one multicomponent site. All of the prehistoric sites contain stone features such as stone rings, cairns and alignments. The historic sites are made up of a railroad, a historic school, historic farmsteads, a historic depression, and historic material scatters. The multicomponent site (32WI1663) contains prehistoric stone rings. In addition to the sites, the investigation identified 10 isolated finds consisting of less than five artifacts or isolated farm implements. The investigation observed no cultural districts or rural historic landscapes. Although there are similarities in the type of stone features observed in the Project area, the sites are not sufficiently concentrated, and do not demonstrate sufficient linkage to indicate a shared relationship. There is no evidence for planned or designed development. Over 80 percent of the Project area is cultivated and reflect rural use; however, the landscape is not associated with an important event, an important person, or share architectural elements. The significance of the prehistoric sites is unknown. Further investigation is needed to ascertain whether the sites have sufficient materials to address pertinent archaeological questions, and can be placed within a meaningful temporal or cultural context. The portion of the railroad within the inventory corridor is recommended a non-contributing (i.e. not significant) element of the otherwise unevaluated site. The remaining historic components are recommended not significant. Isolated Finds are not significant.

Vantage rerouted 25 miles of the pipeline. These reroutes will avoid 22 of the sites. Three sites are within the 500-ft survey corridor, but are at least 45 ft (15 m) from the temporary 100-ft wide construction corridor. To avoid secondary impacts associated with artifact collecting and vandalism from/to any of the identified sites, Vantage would limit all activities by workers to the defined temporary construction corridor. This would provide a 45-foot buffer to the identified sites and would minimize the visibility of all but the standing structures and buildings. The construction of the pipeline and the associated facilities would constitute a temporary visual impact to National Register eligible properties with standing structures.

It is unlikely that disturbance activities associated with the construction of the Vantage West Spur Pipeline will cause impacts to deposits capable of containing paleontological resources because the bedrock of the region is covered by varying thickness of Quaternary deposit, chiefly glacial drift, which rarely contains fossils.

#### **B.2.10 The effect of the proposed route on areas which are unique because of biological wealth or because they are habitats for rare or endangered species.**

Habitats for threatened and endangered species were identified by the U.S. Fish and Wildlife Service (USFWS) in Divide and Williams Counties. Seven species of concern were identified as occurring within vicinity of the Vantage West Spur Lateral Pipeline, including: the grey wolf, interior least tern, whooping

crane, piping plover, Sprague’s pipit, northern long-eared bat, and pallid sturgeon. Of the identified species, the whooping crane and Sprague’s pipit were identified as potentially being impacted by construction of the Vantage West Spur Lateral Pipeline. Route selection avoided any areas identified as critical habitat for these species.

### **B.2.11 Problems raised by federal agencies, other state agencies, and local entities.**

Considerations raised by federal and state agencies and local entities were gathered through consultation with the following:

- North Dakota (ND) State Historic Preservation Office
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resource Conservation Service
- ND Fish & Game Department
- U.S. Fish and Wildlife Service
- ND Department of Parks and Recreation
- ND Department of Agriculture
- ND Department of Health
- ND Department of Trust Lands
- ND State Water Commission
- U.S. Department of Agriculture, Farm Services Agency
- U.S. Department of Interior, Bureau of Land Management
- U.S. Department of Interior, Bureau of Reclamation
- ND Water Resources Boards
- ND County Weed Boards
- U.S. Department of Interior, National Park Service
- U.S. Department of Defense

Comments and concerns from these consultations are summarized in Section B of the Certificate of Corridor Compatibility application, and Exhibits E and H.

### **B.3. Identify and map of the criteria that led to the proposed route location within the designated corridor.**

Primary criteria considered in identification of the initial study corridor included minimizing the total pipeline distance and area of impact and minimizing impacts to wetlands and watercourses. The process for selecting the initial study corridor included evaluation of several alternatives within the study area:

- A direct route from the Stateline Plant near Williston, ND to the Vantage Pipeline near Stady, ND
- A route which minimized wetland and water feature crossings

After selection of this general route, GIS data and aerial photography were used to identify potential environmental impacts. The route was then altered based on the following criteria to establish the preliminary study corridor:

- Minimize impact to wetlands and watercourses
- Avoid grassland easements
- Minimize federal or state owned land crossings
- Minimize road and railroad crossings
- Minimize impact to native grasslands
- Minimize impact to trees and shelter belts

- Minimize impacts to residents
- Address landowner concerns
- Apply a 500-foot buffer to local residences, schools, and places of business

Identification of the route and study corridor was followed by an onsite assessment of the existing environment to identify unknown potential environmental impacts. Additional route selection criteria used to select the pipeline route within the study corridor are discussed below. Landowner input was considered during determination of the final alignment location.

#### **B.4. Discussion of the relative value of each criteria and effects upon each criterion including location, construction, and operation of the facility**

In accordance with North Dakota Administrative Code (NDAC) § 69-06-08-02, the proposed route was selected after completing the route suitability evaluation process. The route alignment was selected after identifying exclusion areas and avoidance areas, and considering the selection and policy criteria discussed below. The pipeline initial study area consisted of possible route locations within a ten mile wide area in Williams and Divide County of North Dakota, between ONEOK's natural gas plant outside of Williston, ND and the existing Vantage Pipeline. Vantage compiled and reviewed data for land ownership, land cover type, soils, surface water, wetlands, and other criteria within the study area, as a basis for developing route. Using the exclusion, avoidance and selection criteria, the route was narrowed to a two mile wide study area for more detailed routing and agency informal consultation. Vantage initially defined its study area as the general area centered on the proposed pipeline route within Williams and Divide Counties. As the routing criteria was further analyzed, a 500 foot wide survey corridor(s) was field surveyed and used for selecting the proposed route centerline (Exhibit C). Information below is for both the preferred and alternative routes unless specified otherwise.

##### **B.4.1 Exclusion Areas**

The North Dakota Public Service Commission (Commission) has classified geographical areas to be excluded in the consideration of pipeline route option. "Exclusion Areas" have been defined by the NDAC § 69-06-08-02 as such; were excluded from consideration during routing of the Vantage pipeline. Site assessments, data review, and analyses were completed to define exclusion areas applicable to the Vantage Pipeline Project area. Exclusion areas within the study area (Williams and Divide counties, North Dakota) that led to the proposed facility location are identified in Table 1 and discussed below. In addition, see Section B.3 of the Route Permit for agency informal consultation information.

**Table 1. Exclusion areas crossed by the corridor.**

<b>EXCLUSION AREA</b>	<b>PRESENT WITHIN CORRIDOR</b>
National Parks	No
National Memorial Parks	No
National Historic Sites and Landmarks	No
National Natural Landmarks	No
National Monuments	No
National Wilderness Areas	No
State Parks	No
State Historic Sites	No
State Monuments	No
State Historical Markers	No
State Archaeological Sites	No
State Nature Preserves	No
County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental Jurisdiction	No
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No
Areas Where Animal or Plant Species Unique or Rare in the State Would be Irreversibly Damaged	No
Intercontinental ballistic missile launch or launch control facilities	No

**B.4.1.a Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas**

No designated or registered national parks, memorial parks, historic sites and landmarks, natural landmarks, monuments, and wilderness areas are crossed by the route. The Fort Union Trading Post National Historic Site is the nearest National Park Service property to this pipeline Project. Fort Union is located over 20 miles southwest of the West Spur pipeline Project and is not expected to be directly impacted (Exhibit H.14).

**B.4.1.b Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves**

No designated or registered state parks, historic sites, monuments, historical markers, archaeological sites, and nature preserves are crossed by the route.

**B.4.1.c County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions**

No county parks and recreational areas, municipal parks, and parks owned or administered by other governmental subdivisions are crossed by the route.

**B.4.1.d Areas critical to the life stages of Threatened or Endangered animal or plant species**

Six federally listed Threatened and Endangered animal species and designated Critical Habitat are known to occur in Williams and Divide Counties of North Dakota. At this time, there are no federally listed threatened and endangered plant species listed for Divide or Williams Counties, North Dakota. The

USFWS also lists one Proposed and one Candidate species in each county (Table 2). There is no legal requirement for protecting candidate or proposed species; however, they are discussed below because of their potential to be listed. In addition, the USFWS Dakota Field Office identified the Dakota skipper as a species of concern in the region (Exhibits G and H.3).

**Table 2. Threatened and Endangered Species of Williams and Divide Counties.**

DIVIDE COUNTY	WILLIAMS COUNTY
<p><b>Endangered Species</b>            Whooping crane (<i>Grus Americana</i>)            Gray wolf (<i>Canis lupus</i>)</p>	<p><b>Endangered Species</b>            Interior least tern (<i>Sterna antillarum</i>)            Whooping crane (<i>Grus Americana</i>)            Pallid sturgeon (<i>Scaphirhynchus albus</i>)            Grey wolf (<i>Canis lupus</i>)</p>
<p><b>Threatened Species</b>            Piping plover (<i>Charadrius melodus</i>)            Rufa red knot (<i>Calidris canutus rufa</i>)</p>	<p><b>Threatened Species</b>            Piping plover (<i>Charadrius melodus</i>)            Rufa red knot (<i>Calidris canutus rufa</i>)</p>
<p><b>Proposed Species</b>            Northern long-eared bat (<i>Myotis septentrionalis</i>)</p>	<p><b>Proposed Species</b>            Northern long-eared bat (<i>Myotis septentrionalis</i>)</p>
<p><b>Candidate Species</b>            Spragues's pipit (<i>Anthus spragueii</i>)</p>	<p><b>Candidate Species</b>            Spragues's pipit (<i>Anthus spragueii</i>)</p>
<p><b>Designated Critical Habitat</b>            Piping Plover – Alkali Lakes and Wetlands</p>	<p><b>Designated Critical Habitat</b>            Piping Plover – Lake Sakakawea</p>

The **grey wolf** (*Canis lupus*) is an occasional visitor in North Dakota. The USFWS indicated that the wolf has been observed mainly in the Turtle Mountain area located approximately 200 miles northeast of the Project area. Although the prairies of North Dakota historically supported wolves, the North Dakota Game and Fish Department's Comprehensive Wildlife Conservation Strategy indicated that no known gray wolf production has been documented in North Dakota in recent years. Most wolves observed in North Dakota during recent years were believed to be young males that migrate from packs in Manitoba and Minnesota. The likelihood of seeing a wolf along the pipeline route would be a rare occurrence. The Project area does not consist of suitable habitat that would likely support long-term occupancy by a wolf pack because of the lack of desirable prey species and cover. If a wolf was observed it would most likely be a transitory individual and would not remain in the area. However, if a wolf is observed on the pipeline, it would be immediately reported to the U.S. Fish and Wildlife Service, Ecological Services office and a determination would be made for appropriate actions to avoid conflict while it is in the area. The West Spur Project is not likely to adversely affect this species.

The **pallid sturgeon** (*Scaphirhynchus albus*) is known to occur in the Missouri and Yellowstone Rivers in Williams County. The **interior least tern** (*Sterna antillarum*) nests on exposed sandbars and gravel beds of the Missouri and Yellowstone Rivers. Both the Missouri and Yellowstone Rivers are greater than 12 miles from the pipeline corridor at the closest point, and no tributaries will be disturbed that could drain directly into these rivers. The Project would have no effect on these two species.

**Whooping cranes** (*Grus Americana*) can occur in North Dakota during the spring and fall migration between the breeding and wintering areas. The fall migration between the Saskatchewan staging area and the Texas wintering area generally takes less than two weeks with stops along the migration corridor in North Dakota for brief periods. The spring migration movement to the north lasts longer than the fall migration, due to spring storms and variations in retreating snow and ice conditions. During both

migrations, the cranes use shallow, open-water wetlands and water-covered river sandbars for roosting during the day and night. They feed on waste grain in nearby agricultural croplands, as well as on frogs, crayfish, and plant tubers. Migration habitat characteristics include various sizes of wetlands in close proximity to areas producing grain. Although no traditional staging or use areas have been identified within close proximity to the pipeline corridor, potential whooping crane habitat—wetlands in association with agricultural grain crops—is interspersed throughout the pipeline route.

The likelihood of seeing a migratory whooping crane along the pipeline route would be a rare occurrence. Construction activities may cause migratory whooping cranes to avoid the area. The USFWS recommends construction stop if whooping cranes are sighted within one mile of construction activities. Construction activities can resume when the cranes have left the area. Any sightings of whooping cranes within the construction corridor will be immediately reported to USFWS and NDGF.

Adverse effects to the whooping crane and its habitat associated with pipeline construction and operation would be minimized by Project site monitoring and construction scheduling (shut-downs) for areas where whooping crane sightings are within one mile of the pipeline corridor. Implementation of approved reclamation and habitat restoration prescriptions following construction would result only in temporary loss of native and agricultural habitats form and function, between the time of pipeline construction and successful habitat reclamation.

The **pipng plover** (*Charadrius melodus*) nests on midstream sandbars of the Missouri and Yellowstone Rivers and along shores of saline wetlands. More nests are located in North Dakota than in any other state. In North Dakota, piping plover begin arriving at their breeding grounds in early to mid-April and typically depart by early September. Designated Critical Habitat for piping plovers, including known nesting sites, are located in Divide and Williams Counties (Exhibit G). The proposed Vantage West Spur Lateral Pipeline route would be at least seven miles from the nearest known Critical Habitat area. Furthermore, environmental baseline surveys did not identify potential piping plover habitat on the proposed route. The West Spur Project is not likely to adversely affect this species.

**Rufa red knot** (*Charadrius melodus*) fly more than 9,300 miles for their spring and fall migration each spring and fall, making this species one of the longest-distance migrants of any animal. The rufa red knot winters in northern Brazil, the Caribbean, and along the U.S. coasts. It migrates to its breeding grounds in the tundra of the central Canadian Arctic. It is listed as ‘known to or believed to occur’ in Divide and Williams Counties, North Dakota. It uses the Central Flyway on its migration and may stopover in North Dakota wetlands, which is its assumed habitat in this region although its use of habitat in North Dakota is not well documented. Rufa red knot occurrence on the West Spur Project would be rare.

The **northern long-eared bat** (*Myotis septentrionalis*) summer habitat includes roosting underneath bark, in cavities, or in crevices of both live and dead trees. They use a variety of tree species and sizes. The northern long-eared bats may also rarely use manmade structures such as barns and sheds. The species is non-migratory and hibernates in caves and mines during the winter. Route selection avoided treed areas as much as possible. Only three windbreaks would be crossed by the Project (both routes) where trees will need to be removed to maintain a thirty foot permanent ROW. The remaining pipeline route crosses grasslands and croplands, and no winter habitat was identified on the route. The impact on northern long-eared bats by the Project will be minimal.

The **Sprague’s pipit** (*Anthus spragueii*) habitat includes native short- and mixed-grassland habitats for wintering and large prairie areas for nesting, both of which are present in the Vantage West Spur Lateral Pipeline Project area. The Sprague’s pipit population decline has been linked to habitat conversion to

seeded pasture, hayfields, and cropland. While the species habitat is possible in the Project area, the quality and quantity of the habitat is low. The majority of the pipeline route is in cropland or pasture. Only 0.82 miles of native grassland are crossed by the Project's preferred route (1.59 miles grassland by the alternative route). The short-term impact and risk to the Sprague's pipit could be minimized through: 1) construction scheduling to avoid potential nesting areas in the nesting period; 2) pre-construction measures (employed in the fall, prior to subsequent spring nesting) to remove grass cover through mowing and disking of the pipeline right-of-way; and 3) reclamation plantings (seed mix and planting prescription) to restore pre-construction grassland cover immediately following construction.

The **Dakota skipper** (*Hesperia dacotae*) is a small butterfly that is a federally proposed species. It is not listed in Divide or Williams Counties of North Dakota. However, during phone conversations (Shelley, Personal Communications 02/09/15), the USFWS expressed concern about this species in the West Spur Project area. A habitat assessment utilizing USFWS Information, Planning, and Conservation (IPaC) decision support system concluded that known critical habitat for the Dakota skipper was approximately forty-five miles southeast of the pipeline route. Furthermore, high quality native prairie containing a high diversity of wildflowers and grasses is limited along the route. This species is not likely to be impacted by the Project.

**B.4.1.e Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged**

Coordination with the USFWS, a desktop analysis of critical habitat and environmental field surveys determined that no areas where animal or plant species unique or rare to this state will be irreversibly damaged by the Project (Exhibit G).

**B.4.1.f Intercontinental ballistic missile launch or launch control facilities**

No intercontinental ballistic missile launch or launch control facilities are within the survey corridor or two mile study area (Exhibit H.15).

**B.4.2 Avoidance Areas**

The Commission defines "Avoidance Areas" in NDAC § 69-06-08-02 as geographical areas not to be considered for the routing of a transmission facility unless it is shown that, under the circumstances, there are no reasonable alternatives. Table 3 lists each area that must be avoided and identifies whether or not each is crossed by the corridor. Each of the topic areas are discussed below. In addition, see Section B.3 of the Route Permit for agency consultation information.

**B.4.2.a Designated or registered national: historic districts; wildlife areas; wild, scenic or recreational rivers; wildlife refuges; and grasslands**

No designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; or wildlife refuges were identified within the survey corridor.

**Table 3. Avoidance areas crossed by the survey corridor.**

AVOIDANCE AREA	PRESENT WITHIN CORRIDOR
National Historic Districts	No
National Wildlife Areas	No
National Wild, Scenic or Recreational Rivers	No
National Wildlife Refuges	No
National Grasslands	No
State Wild, Scenic or Recreational Rivers	No
State Game Refuges	No
State Game Management and Management Areas	No
State Forests	No
State Forest Management Lands	No
State Grasslands	No
Historical Resources which are not Specifically Designated as Exclusion or Avoidance Areas	No
Areas which are Geologically Unstable	No
Within 500 Feet of an Inhabited Residence, School, or Place of Business	No
Reservoirs and Municipal Water Supplies	No
Water Sources for Organized Rural Water Districts	No
Irrigated Land	No
Areas of Recreational Significance	No

**B.4.2.b Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands**

No designated or registered state wild, scenic or recreational rivers, game refuges, game management areas, forests, or forest management areas were identified within the survey corridor. In addition, no North Dakota State Trust Lands are crossed by the route.

*Private Lands Open to Sportsmen*

Parcels participating in the Private Lands Open to Sportsmen (PLOTS) state management program will be traversed by the pipeline. The PLOTS program is an agreement between the North Dakota Fish and Game Department (NDFG) and the landowner allowing public walk-in hunting access under the PLOTS conditions set forth in the NDFG policy. The location of PLOTS land was not factored into the route selection criteria since the impacts would be mitigated following construction. The proposed Vantage West Spur Lateral Pipeline route crosses one parcel (0.5 miles) of PLOTS. Pipeline construction will result in temporary localized vegetation impacts at these locations; however, vegetation will be restored to preconstruction conditions.

**B.4.2.c Historical resources not specifically designated as exclusion or avoidance areas**

There are no exclusion areas associated with cultural resources within the Vantage West Spur Lateral Pipeline route. Vantage will avoid direct and indirect impacts to all significant or unevaluated cultural

resources. This includes all sites with stone features. The proposed pipeline Project will generally require a 100-ft wide construction right-of-way (ROW). For short distances, construction can “neck-down” to a 50-ft ROW to avoid impacting cultural resources. Within the 500-ft corridor surveyed for this pipeline Project, Vantage anticipates sufficient space will be available to maintain a 45-ft buffer between the edge of construction and the prehistoric site(s) of concern. If routing around the site is not possible, Vantage will bore beneath the sites to avoid adverse effects. To avoid secondary impacts, Vantage will maintain a 100 ft buffer between construction and all significant or unevaluated sites with standing structures or cemeteries. The SHSND considers pipeline and the associated facilities construction a temporary visual impact.

#### **B.4.2.d Areas which are geologically unstable**

No geologically unstable areas are crossed by the route.

#### **B.4.2.e An inhabited residences, school, or place of business within 500 feet**

There are no inhabited residences, schools, or places of business within 500 feet of the pipeline centerline.

#### **B.4.2.f Reservoirs, municipal water supplies, and water sources for organized rural water districts**

No public water supply wells are located within one mile of the proposed pipeline route. Vantage will obtain hydrostatic test water from major water bodies crossed by the pipeline and/or private sources along the pipeline route. Hydrostatic testing is discussed in section B.10.7 of this Route Permit.

#### **B.4.2.g Irrigated land**

Field assessments of land use along the proposed route did not identify any lands currently irrigated or with evidence of irrigation in the past.

#### **B.4.2.h Areas of recreational significance**

No areas of recreation significance are crossed by the route. Construction of the pipeline could temporarily impact wildlife-related recreation activities, including hunting and bird watching. Construction is expected to take place in the third and fourth quarters of 2015 and extend into the first quarter of 2016. All disturbances caused by construction will also be re-vegetated in order to avoid long-term impacts and restore the right-of-way to pre-construction recreational conditions.

### **B.4.3 Selection Criteria**

Additional selection criteria have been defined by the NDAC § 69-06-08-02. Selection criteria that led to the proposed facility location within the study corridor is identified and ranked in Table 4. The criteria are discussed in more detail below. The relative value for each criterion is ranked as high or low. Primary selection criteria were ranked as high and secondary selection criteria were ranked as low.

**Table 4. Pipeline selection criteria and relative value.**

SELECTION CRITERIA	PRESENT WITHIN CORRIDOR	RELATIVE VALUE
Agricultural Production	Yes	Low
Family Farms and Ranches	Yes	Low
Land Suitable for Irrigation	No	Low
Surface Drainage and Groundwater Flow Patterns	Yes	Low
Noise-sensitive Land Uses	No	Low
Visual Effects	No	Low
Extractive and Storage Resources	No	Low
Wetlands, Woodlands and Wooded areas	Yes	High
Communication or Electric Control Facilities	No	Low
Human Health and Safety	Yes	High
Animal Health and Safety	Yes	High
Plant Life	Yes	High

A field assessment of land uses and vegetation within the study corridor provided information for the above selection criteria and are discussed in the sections below. The land use categories were defined as follows:

- a. *Lands used primarily for row and non-row crops in rotation* are agricultural fields that may be tilled but not irrigated. Primary row crops include cereal and legume grains.
- b. *Irrigated lands* are agricultural fields irrigated with center pivots, furrows, or flood irrigation received from lateral ditches.
- c. *Pasturelands and rangelands* include lands that may have been plowed at some time in the past and replanted to pasture grasses. There is a high to moderate component of non-native grasses.
- d. *Haylands* include lands that have grass and alfalfa crops with evidence to suggest hay production such as the presence of bales.
- e. *Undisturbed native grasslands* are dominated by native grass species. Non-native plant species may be present but are in low densities. It also includes restored grasslands dominated by native grass species.
- f. *Existing and potential extractive nonrenewable resources* include coal, natural gas, and oil resources that are in the vicinity of the Project.
- g. *Rural residences and farmsteads, family farms, and ranches* are individual farmsteads and outbuildings, as well as farmstead windbreaks and shelterbelts.
- h. *Public, commercial, and institutional use* includes county roads, highways, and railroad ROWs, commercial developments, schools, and churches. This category includes roadway borrow ditches that may be vegetated.
- i. *Noise sensitive land uses.*

Additional information on vegetation species and cover were collected for each mapped land use segment. Wetlands and waterbodies were documented independent of land use and occurred in all land use categories, with the exception of "existing and potential extractive nonrenewable resources". A summary of the miles crossed by each land use, and anticipated temporary workspace disturbance impacts by land use is presented in Table 5.

**Table 5. Miles crossed and temporary workspace acres by land use.**

Land Use Category	Preferred Route			Alternative Route		
	Miles Crossed	Workspace Acres	Percent Pipeline	Miles Crossed	Workspace Acres	Percent Pipeline
Row Crops	39.27	475.69	83%	40.16	486.23	82%
Haylands	0.94	11.34	2%	0.94	11.34	2%
Rural residences and farmsteads (windrows)	0.03	0.35	0%	0.05	0.57	0%
Pasturelands and Rangelands	5.69	68.75	12%	5.73	68.81	12%
Native Grassland	0.82	9.9	2%	1.59	20.05	3%
Public, commercial, and institutional use (ROW)	0.60	7.46	1%	0.64	7.91	1%
<b>Total</b>	<b>47.34</b>	<b>573.5</b>	<b>100%</b>	<b>49.11</b>	<b>594.91</b>	<b>100%</b>

Permanent impacts to land use will occur in the locations of the two new block valves and a block valve and trap constructed at either end of the pipeline at existing facilities (Table 6). Specifically, approximately 0.32 acres will be removed from crop production permanently to accommodate the block valve locations. The block valve locations will be fenced and the permanent access road will be necessary to allow inspections and maintenance. Access to the block valve locations will typically follow the 30-foot-wide permanent right-of-way. The block valve locations are within cropland areas that will not be restored to upland following completion of the construction activities. The block valve locations will be fenced and will include an access road to allow inspections and maintenance. An area of approximately 0.32 acres will be required for the block valve locations and access roads. These locations will be permanently removed from crop production.

**Table 6. Block valve locations within Land Use.**

BLOCK VALVE NUMBER	MILEPOST	LAND COVER	AREA (acres)
BV-1	0	Hayland	0.08
BV-2	22.65	Cultivated cropland	0.08
BV-3	34.41	Cultivated cropland	0.08
BV-4	47.32 (end)	Grassland	0.08
		<b>TOTAL AREA</b>	<b>0.32</b>

#### **B.4.3.a Agricultural Production/Family Farms and Ranches**

Lands primarily used for row and non-row haylands is the primary land use crossed and temporary disturbances along the Vantage West Spur Lateral Pipeline route (Table 5). Row crops account for 83% with 475.69 acres of workspace disturbance on the preferred route, and 82% with 486.23 acres of workspace on the alternative route. The primary row crops are cereal and legume grains such as wheat and lentils. Haylands are areas with evidence of current or past hay production such as hay bales and introduced forage species. Hay pastures are most commonly a combination of smooth brome, Kentucky

bluegrass, and alfalfa. Avoidance of agricultural land is not possible since agricultural production is the primary land use in the Project area. Cultivated land used for production of row crops and small grains will be temporarily disturbed and removed from production during construction. Construction activities, including trenching, pipe installation, backfilling, and access will temporarily disturb the cropland within both the construction and permanent right-of-way.

Vantage will restore agricultural land to preconstruction conditions as soon as practicable following construction. Agricultural production will resume during the growing season following completion of the pipeline construction. Landowners will be compensated for crop losses and other damages resulting from the pipeline construction. During construction, Vantage will maintain landowner access to the fields, storage areas, and other agricultural facilities in order to reduce impacts on planting and harvesting. Any drainages systems such as roadway ditches crossed by the pipeline and disturbed during construction will be maintained to the extent practicable. Repair of drainage systems will be completed in accordance with Vantage's mitigation plans.

Although present, livestock grazing was not found to be a significant land use within the areas traversed by the Vantage West Spur Lateral Pipeline. Some parcels are fenced and grazing of horses, cattle and other livestock may occur. Vantage will take appropriate measures to protect livestock during construction. Vantage will coordinate with landowners to provide passage for livestock and will provide temporary fencing and gates where required to protect livestock from construction-related hazards. Following construction, fences and gates will be rebuilt to original condition.

#### *Grassland easements*

The USFWS Grassland Easement an agreement between the USFWS and landowners to protect grassland habitat. The program requires landowners to cease cultivation and restricts mowing, haying and seeding activities. Vantage has been working closely with the USFWS Crosby Wetland Management District to identify grasslands under easement. Grassland easements were avoided during pipeline routing. The West Spur Lateral Pipeline route does not cross any parcels enrolled in the Grassland Easement program.

#### *Conservation Reserve Program*

To determine if the pipeline route crosses any Conservation Reserve Program (CRP) lands, the Farm Services Agency (FSA) in Divide and Williams Counties and the state office was contacted by phone and email in January and February 2015 (Exhibit H.9).

The CRP program is administered by the USDA Farm Service Agency (FSA), and is a voluntary reserve program through which landowners of eligible farmland establish a long-term (10 to 15-year) agreement to preserve vegetative land cover. The CRP is intended to control water runoff and sediment from directly entering groundwater, nearby lakes, rivers ponds and streams while contributing to wildlife habitat. Since the impacts to CRP land will be minimized by post-construction reclamation, the location of CRP land was not factored into the route selection criteria. Vantage will restore all CRP lands in accordance with FSA requirements.

Vantage actively engages with landowners along the pipeline route to determine their involvement in FSA programs. Vantage provides a questionnaire to landowners to gather information on CRP and other FSA programs (Exhibit O). If a landowner is enrolled in CRP, they are asked to complete the CRP form (Exhibit O) which is ultimately sent to the Farm Service Agency.

*Prime farmland*

As defined by the NRCS, prime farmland is “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is also available for these uses.” Indicators of prime farmland include adequate moisture supply, permeability, acceptable acidity and alkalinity levels, acceptable salt and sodium content, and few rocks. These characteristics used to classify soils as prime farmland, farmland of statewide importance, prime farmland if drained, and prime farmland if irrigated. The both the preferred (47.3 miles) and the alternative (49.1 miles) proposed Vantage West Spur Lateral Pipeline route cross prime farmland and farmland of statewide importance (Table 7). Since soils consisting farmland of statewide importance represent a significant portion of the Project area, total avoidance of this soil type was not practicable.

**Table 7. Farmland classification.**

FARM CLASSIFICATION	LENGTH (MI)	PERCENTAGE OF PIPELINE LENGTH	PERCENTAGE OF PIPELINE LENGTH
	Preferred / Alternative	Preferred Route	Alternative Route
Prime farmland	0.17	0%	0%
Farmland of statewide importance	36.52	77.0%	74.0%
Prime farmland if drained	0.25	0.01%	0.01%
Prime farmland if irrigated	0.1	0.0%	0.0%
Non-prime or state import farmland	10.26 / 12.06	22%	25%
<b>Totals</b>	<b>47.3 / 49.1 miles</b>	<b>100%</b>	<b>100%</b>

Pipeline construction operations that contribute to soil impacts include: grading, trenching, backfilling, right-of-way traffic, and clean-up activities. The most common impact associated with these pipeline construction activities is the mixing of organic and nutrient-rich topsoil with less fertile mineral subsoil. The loss of organic matter and nutrients from the root zone can affect plant growth in varying degrees, depending on the type of vegetation.

In order to mitigate the potential for mixing soils, Vantage would use soil-handling mitigation options outlined in EPP (Exhibit J). Vantage would segregate salvaged topsoil and subsoil into separate stockpiles. During trench backfilling, subsoil material would be placed and graded prior to topsoil spreading.

**B.4.3.b Land economically suitable for irrigation**

No lands crossed by the pipeline are currently irrigated and no evidence of past irrigation was identified during field surveys. In addition, no landowner along the corridor has provided information to Vantage to demonstrate that their land has the characteristics to economically support irrigated crops or an irrigation system.

**B.4.3.c Surface drainage patterns and groundwater flow patterns**

The pipeline preferred route will cross 7 wetlands, 1 perennial stream, and 10 intermittent or ephemeral drainages, and the alternative route crosses 9 wetlands, 1 perennial stream, and 7 intermittent or ephemeral drainages. Field surveys verified data from the National Hydrography Dataset as being a waterbody (perennial, intermittent or ephemeral) or an upland area. Some waterbodies flow into closed basins where the water terminates in an isolated wetland. Other waterbodies connected to higher order streams. No state or federally listed wild or scenic rivers are crossed by the route. Areas with high densities of waterbody (streams, wetlands, seeps, springs, etc.) crossings were avoided during route planning. As indicated in the EPP (Exhibit J), Vantage will obtain a construction storm water permit

(NDR10-0000) from the NDDH and prepare a Storm Water Pollution Prevention Plan (SWPPP) to minimize surface water runoff and erosion.

During construction and prior to placing the pipeline into service, hydrostatic testing will take place to ensure the system is capable of operating at the design pressure. The testing will follow regulations set by the Pipeline Safety, Pipeline and Hazardous Materials Safety Administration (PHMSA). During the hydrostatic testing, a section of pipeline is filled with water and maintaining a prescribed pressure for a specified amount of time. The length of individual test segments would be determined by topography and water availability. Water withdrawals used to fill and test the pipelines would be consistent with applicable regulations and the EPP. Vantage would obtain hydrostatic test water from major waterbodies crossed by the pipeline and/or municipal or private sources along the pipeline route. Adequate flow would be maintained in surface water sources to protect aquatic life and allow for downstream uses. The test water would be discharged through controlled energy dissipation devices to the ground surface or to a nearby surface waterbody. These discharges would be done in accordance with the EPP and permits issued by applicable agencies.

Groundwater is a primary source for public water systems, private drinking-water wells, irrigation, and livestock along the Vantage Pipeline route. The major aquifer in the vicinity of the pipeline route is the regional Lower Tertiary bedrock aquifer. The Lower Tertiary aquifer consists of sandstone beds of the Paleocene age. Lower tertiary aquifers are not highly permeable due to interbedded shale, mudstone, siltstone, lignite, and coal, but are large, making them an important water supply source. In the Williston basin, lower Tertiary rocks are typically less than 1,000 feet thick. Permeable areas include openings between sand grains, bedding planes, joints and clinker zones. Wells are typically drilled 300 to 900 feet deep. The pipeline as part of the Project will be buried up to six feet deep and therefore impacts to groundwater resources are not expected.

#### **B.4.3.d Sound sensitive land uses**

The Project area is sparsely populated and primarily rural/agricultural in nature. Noise sensitive land uses were not found within the survey corridor but may be present within the vicinity of the Project. Noise-sensitive areas include private residences. Existing noise levels within the Project area are representative of rural conditions and are expected to be between 35 and 45 dBA, except near roads where noise levels may be as high as 65 dBA. Noise levels from traffic along the interstate typically average greater than 70 dBA.

Median noise levels for the proposed Project area likely range from 20 to 40 dBA in the morning and evening and from 50 to 60 dBA in the afternoon when wind speeds are typically greatest. Noise may exceed 70 dBA in close proximity to specific pieces of equipment or operations during pipeline construction.

Noise levels will temporarily increase near the Project area during pipeline construction activities. Noise would be intermittent, depending on the construction schedule and the size and types of equipment used for soil stripping, trenching, pipe installation, backfilling and soil spreading. There are no residences within 500 feet of the Vantage West Spur Lateral Pipeline right-of-way and therefore no residences will experience short-term inconvenience from construction equipment noise.

#### **B.4.3.e Visual Effects on the adjacent area**

The effects to the visual landscape as a result of the Project will occur during the construction period and as such, will be temporary and short term. During construction, heavy equipment, pipeline trenches, and

soil spoil piles will be present above ground. Following construction, the majority of the pipeline facilities will be buried and vegetation will be restored in grasslands and agricultural areas as soon as practical. The only permanent above ground facilities will be two new block valves. These facilities will be small (0.08 acres each), surrounded by chain link fencing, and where possible, painted with colors complementary with the landscape. In addition, a block valve and trap will be constructed at either end of the pipeline at existing facilities (0.08 acres each).

#### **B.4.3.f Extractive and storage resources**

As part of the land use assessment completed in the 500 foot survey corridor on both routes, areas classified as existing and potential extractive nonrenewable resources were documented. This includes lands within the survey corridor used for coal, natural gas, and oil production. The entire length of the pipeline is located within the Williston structural basin. This area contains known oil and gas reserves and has been heavily developed. Oil/gas production facilities on six pads are within in the 500 foot survey corridor. However, these well pads were not crossed by the centerline or will be disturbed by the temporary work space. Therefore, no impacts are anticipated to this land use.

Pipeline facilities associated with the Vantage Project will be buried up to six feet deep. Oil and gas wells are typically 1,000 or more feet in depth, and therefore oil and gas production will not be impacted by the Project. Any underground gathering facilities will be identified and treated with the same precautions as any other buried facilities crossed by the Project and will not be disrupted.

#### **B.4.3.g Wetlands**

Vantage conducted a conservative and approximate inventory of wetland boundaries along the initial 47.3-mile long, 500-foot wide Vantage West Spur Lateral Pipeline survey corridor based upon visible hydrology and vegetation indicators. A 49.1 mile alternative route was also surveyed. Preliminary correspondence with the U.S. Army Corps of Engineers indicated that formal wetland delineations were not necessary for pipeline route planning. Rather, a conservative and approximate wetland boundary would be appropriate for impact avoidance and minimization efforts. Full wetland delineations for every wetland were therefore not completed during the preliminary field surveys.

The wetland investigation resulted in the identification and mapping of 62 wetlands within the 500-foot Vantage West Spur Lateral Pipeline preferred survey corridor (69 wetlands alternative route). Exhibit F provides a summary of the wetlands and waterbodies encountered and classifies each by wetland and stream type.

Permanent impacts are those that involve permanent dredging of material from, or the placement of permanent fill into waters of the United States, including wetlands. No pump stations or other permanent structures will be constructed in wetlands or waterbodies. The proposed Project will therefore not create any permanent impacts to wetlands.

Total avoidance of all wetlands was not possible due to the high density of wetlands in the Project area. The Project will temporarily impact seven wetlands within the permanent right-of-way, as shown in Exhibit F. All temporary impacts to wetlands will be minimized to the extent practicable. Wetland soils excavated during pipeline construction will be stockpiled for reuse and the area will be restored to its original grade and seeded or planted with native plants after construction. Horizontal boring will be used where trenching is not practical. Construction workspaces, including stockpiles, lay down areas, and construction staging areas will be located outside of wetlands. Detailed wetland mitigation measures are provided in the EPP and Exhibit F.

#### *Wetland easements*

Due to the high density of wetlands and wetland easement parcels in the Project area, total avoidance of wetland easement parcels was not possible. Individual wetlands within the parcels covered by wetland easements were avoided to the extent practicable. The proposed alignment traverses two parcels that are enrolled as USFWS Wetland Easement program. Vantage has provided the routing in these areas to the USFWS and will continue to coordinate with the USFWS to mitigate potential impacts. The USFWS determined that the pipeline is near wetlands on only one of these parcels. Further, USFWS stated that by avoiding impacts to these wetlands within the 100 foot right-of-way would satisfy USFWS's land interest perspective (Exhibit H.3). In areas where wetland easements have been identified, the temporary construction right-of-way will be narrowed to avoid impact to any wetlands protected by a wetland easement.

#### **B.4.3.h Woodlands and wooded areas**

The *rural residences and farmsteads* land use category includes planted shelterbelts and windbreaks. These areas are the only wooded areas in the survey corridor. While this category also includes abandoned/occupied farmsteads and outbuildings, these areas were not encountered in the survey corridor. The wooded areas are small in size (0.03 miles preferred, 0.05 miles alternative route) and account for a minor portion of the Project routes (Table 5). The most common tree species are green ash, Siberian peashrub (*Caragana arborescens*), and chokecherry (*Prunus virginiana*). Non-native grass species (smooth brome and Kentucky bluegrass) are usually dominant in the understories. Any trees and/or shrubs that are cleared during construction will be replanted outside of the permanent right-of-way as the right-of-way is to be free of such vegetation to allow for pipeline inspection and maintenance.

#### **B.4.3.i Communication or Electronic Control Facilities**

No communication or electronic control facilities, including radio, television, cellular communication, etc., are located in the immediate vicinity of the Project. Therefore, no impacts to these types of facilities are expected.

#### **B.4.3.j Human Health and Safety**

Transportation of liquid ethane by pipeline involves some risk to the public and to the environment in the event of an accident or release. The main causes of pipeline incidents in the United States are corrosion, excavation damage, pipe or weld failure, incorrect operations, or natural causes (e.g., floods). To avoid pipeline incidents, the federal government has established minimum pipeline safety standards under the U.S. Code of Federal Regulations (CFR), Title 49 “Transportation”, Parts 190–199. The Office of Pipeline Safety (OPS), Pipeline and Hazardous Materials Safety Administration (PHMSA), within the U. S. Department of Transportation (DOT), is the primary federal enforcement agency that regulates the safety of hazardous liquid and gas pipelines within the United States. The North Dakota Pipeline Authority (NDPA), within the Industrial Commission of North Dakota, is the jurisdictional state agency responsible for assisting operators with the development of pipeline facilities to support the production, transportation, and utilization of North Dakota energy-related commodities.

DOT is mandated, pursuant to 49 U.S.C. Chapter 601, to regulate the safety of pipelines. Within DOT, PHMSA administers the national pipeline regulatory program to ensure the safe transportation of hazardous liquids, including liquid hydrocarbons, by pipeline. PHMSA specifically develops safety regulations and other approaches to risk management that mandate safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards that set safety attainment levels, which can be achieved through the use of various technologies. Of those, Parts 190, 194, 195, 198, and 199 are relevant to hazardous liquid

pipelines. The following highlights key PHMSA regulations that apply to the Vantage West Spur Lateral Pipeline:

- Part 190 describes the procedures for carrying out regulatory duties, including inspection of pipelines and enforcement of the regulations.
- Part 194 contains requirements for spill response plans and emergency response plans intended to reduce the environmental impact of liquid hydrocarbons discharged from onshore pipelines.
- Part 195 prescribes the safety standards and reporting requirements for hazardous liquid pipelines, including detailed requirements on a broad spectrum of areas related to the safety and environmental protection of hazardous liquid pipelines.
- Part 199 requires operators of gas and hazardous liquid pipelines to establish programs for preventing alcohol misuse and to test employees for the presence of alcohol and prohibited drugs.

PHMSA policies also address pipeline safety standards near high consequence areas (HCAs). The Vantage West Spur Lateral Pipeline HCAs include environmentally sensitive areas (wetlands) as defined in 49 CFR Part 195.6 located adjacent to the alignment.

To ensure safe pipeline construction, operation, and maintenance, the Vantage West Spur Lateral Pipeline will be constructed and maintained to meet or exceed requirements and standards established by DOT, PHMSA, and North Dakota PA, as well as industry standards. Applicable industry standards include those issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and American Petroleum Institute.

Specifically, the Vantage West Spur Lateral Pipeline will incorporate a cathodic protection system, which will be designed to induce an impressed current on the pipeline and further protect the steel from corrosion. The system will consist of one or more underground sacrificial anode wells that will be located inside the Project's surface lease(s). Cables will connect the anode well to a rectifier and the above-ground piping via a flange connector. Once the system has been commissioned, a series of tests will be conducted to ensure there is adequate potential available to protect the steel of the pipeline. Periodic tests will also be conducted during the operation of the pipeline to ensure the system is functioning. In both cases, further modifications will be made if necessary.

In addition, each of the Project's four (4) proposed above ground riser sites will include a programmable logic control (PLC) panel that will receive and transmit local pressure readings from the pipeline. These pressure readings will be remotely monitored by a master control room via a supervisory control and data acquisition (SCADA) data link and will be integrated as part of the leak detection system of the pipeline. An uninterruptable power supply will be included to permit the closure of any necessary valves in the event of a malfunction or communication break. Furthermore, a flow meter will be included at the tie-in with the Vantage Pipeline at BV-05. Together with local temperature and pressure readings, the mass and/or volume of ethane will be balanced on a continuous basis to ensure there are no line leaks in accordance with conservation of mass principles. This mechanism will also be continuously monitored by a master control room. Each site will be fully-enclosed to prevent any accidental or intentional damage to the equipment.

Specifics of the above pipeline safe operation check systems will be finalized during the detailed engineering and design phase of the Project.

Natural and ethane gas has traditionally been flared in the Bakken largely due to a lack of infrastructure to harness and transport the gas. The North Dakota Industrial Commission passed flaring goals in July of 2014 in part to improve air quality for human health. This requires operators to capture 77 percent of the

natural gas produced as of January 2015, 85 percent by January 2016, and 90 percent by October 2020 or reduce overall production. The Stateline II Gas Processing Plant and its associate pipeline infrastructure will reduce the flaring of natural and ethane gas in the region, enable producers to deliver natural and ethane gas to customers, and enable the sale of ethane to markets in Alberta. The proposed pipeline is needed for production companies to meet new flaring standards. The volatile nature of ethane restricts its transport by truck and rail, particularly across international borders. Thus, the Vantage West Spur Lateral Pipeline is the safest and most economical option for transporting ethane from the Stateline II natural gas processing facility.

#### **B.4.3.k Animal Health and Safety**

Any impacts to domestic animals and/or wildlife would be limited to the pipeline construction period. Once constructed, the majority of the Project will be subsurface and is expect to have no impacts upon wild and domestic animals. Construction of the pipeline will involve removal of herbaceous and woody vegetation from the right-of-way. This will temporality reduce vegetation cover, production, nesting, and foraging habitat for some wildlife or domestic grazing livestock. Most species will move to adjacent habitat areas until construction and re-vegetation efforts are complete. Trenches and spoil piles may create a short term barrier for some smaller species; however, pipeline corridor crossings will remain at roadways, wetlands areas, and farm lanes. Impacts to treed areas will be minimized, though some permanent removal of trees will be necessary for safe pipeline operation, maintenance and operation. Habitats will be reclaimed to the pre-existing conditions following construction, and the overall habitat quantity and quality is not expected to change in the long-term.

##### *Migratory birds*

The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, and transportation (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. Field assessments of the survey corridor identified potential habitat areas for migratory birds including wetlands areas, native and non-native grassland, and treed areas. Construction activities will cause a short term loss of habitat in some areas, but long term impacts are not expected.

##### *Eagles*

The Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone without a permit from taking bald or golden eagles, including their parts, nests, or eggs. Bald eagle (*Haliaeetus leucocephalus*) habitat includes bodies of water located in close proximity to groves of tall trees with potential nesting habitat. Wetland and aquatic habitats within one to two miles of mature tree stands (e.g., pines, spruce, firs, cottonwoods, poplars, oak, and birch) provide foraging areas with fish, waterfowl, and shorebird food resources for adults and broods. Golden eagles (*Aquila chrysaetos*) are a common nesting species of the native prairie and agricultural cropland habitats in the area of the Vantage West Spur Lateral Pipeline proposed route.

Field surveys did not identify any active or inactive eagle nests within a two mile study area of the pipeline corridor. Additional surveys will be conducted prior to construction. If an eagle nest is documented within the construction corridor or is within the minimum disturbance buffer for eagles, avoidance measures will be implemented until the nest has fledged.

#### **B.4.3.l Plant life**

The land use assessment of the survey corridor served as the primary source for the identification of native and non-native vegetation communities. For each land use segment, information on vegetation

species and cover, including invasive and noxious weeds, were documented. Table 5 summarizes the land uses that primarily consist of perennial native and non-native plant communities (non-agricultural).

*Pasturelands and rangelands* account for 5.69 miles of the Project preferred route (5.73 alternative route) and include lands that may have been plowed at some time in the past and re-planted to grasses suitable for livestock grazing. These areas are dominated by non-native grass species such as smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), and crested wheatgrass (*Agropyron cristatum*). Native grasses, forbs, and shrubs may be present, though generally in small amounts. The most common native species are blue gramma (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), snowberry (*Symphoricarpos albus*), and white sagebrush (*Artemisia ludoviciana*).

*Native grasslands* are uncommon in the Project route (0.82 miles preferred route; 1.59 acres alternative route; Table 5). These areas are similar to pasturelands, though native grass species are dominant. Native grasslands were avoided when possible as they serve as important wildlife habitats and are often protected lands. The primary species present include western wheatgrass, green needle grass (*Nassella viridula*), needle and thread (*Hesperostipa comata*), and blue gramma. Non-native species, including Kentucky bluegrass and smooth brome, are also present in small quantities.

Lands classified as *public, commercial, and institutional use* are exclusively road right-of-ways including vegetated barrow ditches. These areas are generally small in size (approximately 0.02 miles each) but occur frequently because of the section line road system in North Dakota. The preferred route has 0.60 miles of right-of-ways while the alternative route has 0.64 miles of right-of-ways (Table 5). The right-of-ways consist primarily of non-native planted vegetation including smooth brome, Kentucky bluegrass, yellow sweetclover (*Melilotus officinalis*), and alfalfa (*Medicago sativa*). Native species are generally not present. Many of the roadside right-of-ways are used for hay production.

Combined, the land use categories that contain non-crop perennial native and non-native plant communities comprise 14 percent of the preferred route (15% alternative route), and will be crossed by the Vantage West Spur Lateral Pipeline for 6.51 miles (17.36 workspace acres) on the preferred route. These areas will be temporarily disturbed during construction of the Vantage West Spur Lateral Pipeline. Where possible routing selection favored cultivated land and avoided native vegetation. Vantage will restore upland areas to preconstruction conditions as soon as practical following construction. Each area will be seeded to establish the dominant species present prior to construction disturbance.

#### *Invasive and Noxious Weeds*

Some introduced plants are aggressive, invasive species that can alter plant community composition, impact rangeland and cropland productivity, and decrease wildlife habitat quality. When a plant species is known to cause environmental and economic impacts, it is listed as a federal, state, and/or county noxious weed. A 'noxious weed' is defined as a plant of foreign origin that can directly or indirectly injure agriculture (crops, pasture, and rangeland), waterways (including navigation), wildlife, or public health. The Federal Noxious Weed list, determined by rule of the United States Department of Agriculture under the Federal Noxious Weed Act of 1974 (Title 7, Chapter 61), is a combination of aquatic/wetland, parasitic, and terrestrial plant species that are of foreign origin and not widely prevalent within the United States. No federally listed noxious weeds were documented within the Project route.

The North Dakota state noxious weed list is determined by Noxious Weed Control law (Chapter 4.1-47). There are currently 11 noxious weeds on the North Dakota state list (Table 9). Under the Law, it is a landowner's legal responsibility to manage noxious weeds on their lands. Local county governments have the responsibility for the implementation and enforcement of weed management. In addition to state listed

noxious weeds, many North Dakota counties have noxious weed lists for species that are locally problematic. The counties crossed by the Project (Divide and Williams) do not list additional noxious weed species.

**Table 8. North Dakota state noxious weed list.**

Scientific Name	Common Name	Divide County	Williams County
<i>Acroptilon repen</i>	Russian knapweed	--	--
<i>Artemisia absinthium</i>	Absinth wormwood	--	--
<i>Carduus nutans</i>	Musk thistle	--	--
<i>Centaurea diffusa</i>	Diffuse knapweed	--	--
<i>Centaurea maculosa</i>	Spotted knapweed	--	--
<i>Cirsium arvense</i>	Canada thistle	Present	Present
<i>Euphorbia esula</i>	Leafy spurge	--	--
<i>Linaria dalmatic</i>	Dalmatian toadflax	--	--
<i>Linaria vulgaris</i>	Yellow toadflax	--	--
<i>Lythrum spp.</i>	Purple loosestrife	--	--
<i>Tamarix spp.</i>	Saltcedar	--	--

Noxious weed species locations, and the size and percent canopy cover of infestations were recorded within the survey corridor for both the preferred and alternative routes. Canada thistle was the only noxious weed documented. Canada thistle was most commonly located in roadside barrow ditches, on the edges of seasonal wetlands, and in heavily grazed pastures. On average, it occurred in 0.3 acre infestations with an average canopy cover of ten percent.

**B.4.4 Policy Criteria**

In accordance with NDAC Section § 69-06-08-02, the Commission may give preference to applicants that demonstrate the use of policies and practices discussed below, and in a proper case, may require the adoption of such policies and practices.

**B.4.4.a Location and design**

Vantage studied a variety of alternatives for the Project (Exhibit C). System alternatives and route alternatives were evaluated by their ability to meet Project objectives, technical and economic feasibility, and minimizing potential environmental impacts for each alternative.

System alternatives are options to the proposed pipeline corridor that would make use of other existing pipeline or transportation systems to meet the stated objectives of the Project. No other pipelines currently exist in the area to transport ethane to markets located in Alberta. Rail or truck transport is not an economic or safe alternative to transport ethane (See Route Permit Section C.2).

Vantage conducted an analysis of environmental impacts along each potential route alternative. Initial environmental considerations included impacts to exclusion and avoidance areas, followed by the selection criteria outlined in Sections B.4 of this document. After review, Vantage identified no major route alternatives in North Dakota for the Vantage West Spur Lateral Pipeline.

**B.4.4.b Training and utilization of in-state labor**

Vantage will use local labor to the extent practicable.

#### **B.4.4.c Economies of construction and operation**

The construction of the Vantage West Spur Lateral Pipeline will serve the national interest by providing the ethane-producing Bakken Formation region of North Dakota with access to the existing Alberta Ethane Gathering System (AEGS) pipeline infrastructure and market in Alberta. This will thereby meet the President’s goals of increasing U.S. exports, while assisting energy producers in the United States to increase revenues from existing resources. In addition, the Vantage West Spur Lateral Pipeline will contribute to employment and the tax base of North Dakota.

In recent years, natural gas production in the Bakken Formation region of North Dakota has been increasing as oil reserves are developed. Natural gas, which is primarily comprised of methane along with smaller amounts of ethane, propane, butane, and condensate (natural gasoline), is produced along with oil. Many of these materials are extracted separately from the natural gas and sold to consumers. Currently, no infrastructure exists to transport ethane to markets that use ethane as a feedstock. Natural gas production in North Dakota where it is economically feasible to extract ethane from the natural gas, provided an opportunity to extract and transport ethane to the Alberta petrochemical industry.

Ethane is currently used as a feedstock by the petrochemical industry in Alberta, Canada, where petrochemical facilities convert ethane to ethylene. Ethylene is the building block for a wide range of consumer and industrial products, such as plastics, antifreeze, rubber, detergents, and solvents. Ethane is currently transported to/distributed amongst the Alberta petrochemical industry by the existing Alberta Ethane Gathering System (AEGS) pipeline infrastructure. Construction of the Vantage West Spur Lateral Pipeline will provide North Dakota natural gas producers with access to the AEGS, making it economically feasible to begin extracting ethane from processed natural gas.

The Vantage West Spur Lateral Pipeline will also assist in meeting national interests to increase exports. On March 11, 2010, through Executive Order, the President issued a National Export Initiative (NEI) focused on “ensuring that U.S. businesses can actively participate in international markets by increasing their exports of goods, services and ... products.” The NEI was issued to meet the President’s goal of doubling U.S. exports in 5 years by helping firms enter new export markets. In a report issued in September 2010, the Export Promotion Cabinet established by the NEI, recommended that Canada play a special role as the United States’ largest export market. The NEI Cabinet reiterated that increasing U.S. exports to countries, including Canada, is “good for American business, good for American workers and good for American jobs.” The Vantage West Spur Lateral Pipeline will assist in meeting the goals of the President’s NEI by increasing exports of ethane to Canada by 2016 and providing an economic ethane market to North Dakota natural gas producers.

Apart from the national benefit of expanded export opportunities, North Dakota producers of ethane will receive an additional 20-30 percent value for selling ethane to consumers in the Canadian petrochemical industry. The Vantage West Spur Lateral Pipeline will benefit the nation’s energy sector, and make more productive use of existing resources, with a minimal investment and no significant adverse environmental impact.

The \$85 million investment in the construction of the Vantage West Spur Lateral Pipeline will provide additional economic benefits to those communities where the Vantage West Spur Lateral Pipeline will be constructed. North Dakota towns and communities along the pipeline route will benefit from increased spending during pipeline construction. In addition, 50 – 75 persons will be employed during the proposed six month-long construction period. Long-term employment opportunities will be created for 1 – 3 individuals for ongoing pipeline operations.

#### **B.4.4.d Use of citizen coordinating committees**

Vantage initiated discussions with federal and state agencies regarding the proposed Project in late-summer, 2014. Vantage initiated preliminary outreach with landowners and local, county, state, and federal elected officials along the proposed pipeline route. Vantage is prepared to hold applicant-sponsored public informational sessions (i.e., open houses) and/or participate in agency-led scoping meetings at key locations along the pipeline route, with the intent to identify issues and to receive public input.

Vantage has initiated preliminary outreach with landowners and local, county, state, and federal elected officials along the proposed pipeline route. All landowners of record have received a letter introducing the Project (Exhibit O). The letters provided an overview of the Project and a fact sheet addressing the specifics of the Project along with a map depicting the location on the landowner's property.

Vantage will also contact all local first responders located in areas relevant to the West Spur Lateral Pipeline proposed Project route. Vantage representatives will meet with first responders in-person to notify them of the location and construction timelines. Any feedback received by first responders will be incorporated into the Project's Emergency Response Plan (ERP), as necessary.

Vantage has contacted the Divide and Williams County Commissioners Chairs and has scheduled appointments to make presentations about the Project to the County Commissioners. Vantage has incorporated messaging regarding easement, safety, environmental stewardship, land use and reclamation, and tax benefits into their information materials. At least one public open house will be held prior to the date of the PSC hearing. The appropriate date, time, and location are to be determined.

#### **B.4.4.e Commitment of a portion of the product for use in the state**

No market for the sale of ethane as a feedstock exists in North Dakota.

#### **B.4.4.f Labor relations**

No labor relations will be affected by the Project.

#### **B.4.4.g Coordination of facilities**

The need for the Project is dictated by the increasing ethane supplies in the Williston Basin, and demonstrated interest from the petrochemical industry in Alberta to purchase these increased supplies. Vantage has signed a contract with NOVA Chemicals Corporation (NOVA) to purchase and transport ethane from the existing ONEOK Stateline II Gas Plant to NOVA's existing Joffre Petrochemical Complex in Alberta under a long-term agreement.

#### **B.4.4.h Monitoring of impacts**

Vantage will employ on-site environmental monitors during construction to ensure that wetland, cultural, and wildlife restrictions are adhered to at all times. Vantage will employ BMPs to monitor storm water runoff in accordance with the Stormwater Pollution Prevention Plan. All monitoring of impacts will be completed in accordance with measures described in Section B.6 of this Route Permit and the EPP (Exhibit J).

#### **B.4.4.i Utilization of existing and proposed right-of-way and corridors**

Vantage West Spur Lateral Pipeline does not parallel any existing pipeline corridors. There are no existing corridors in the area to follow that would be practicable.

#### **B.4.4.j Other existing or proposed transmission facilities.**

Existing transmission facilities in the area of the proposed route include several crude and natural gas pipelines. There are also three crude pipeline compressor stations within 10 miles of the proposed route. The proposed route will supply ethane from the existing Stateline II Plant and connect to the existing Vantage Pipeline. These elements are discussed in more detail in Section A.2 of the Corridor Certificate portion of this Application. No other ethane pipelines exist in the Project area and Vantage is unaware of any that are proposed at this time.

#### **B.5. The criteria to be evaluated shall include at a minimum all of the following, which are within the designated corridor:**

Complete descriptions, potential impacts, and mitigation measures relevant to the following six criteria are provided in section B.4 in conjunction with the descriptions of potential impacts.

- Exclusion Areas
- Avoidance Areas
- Selection Criteria
- Policy Criteria
- Design and Construction Limitations
- Economic Considerations

#### **B.6. Mitigative Measures**

The Vantage West Spur Lateral Pipeline Environmental Protection Plan (EPP, Exhibit J) provides a comprehensive description of environmental measures to be used during construction of the Vantage West Spur Lateral Pipeline in order to minimize potential construction-related impacts. The EPP contains environmental best management practices (BMPs) to be implemented by the pipeline contractor(s) during pre-construction, construction, cleanup and reclamation, and post-construction monitoring. It includes emergency and Project contacts as well as contingency plans for spills, fire, soil erosion, instream boring fluids mud release, water crossing sediment, winter or frozen conditions, sensitive plants, wildlife, and cultural resources. All contractor and subcontractor activities would be overseen by Vantage representatives. Mitigation measures are discussed in the following guidelines and plans included in the EPP:

- Spill Contingency Plan Guidelines
- Fire Contingency Plan
- Soil Conditions Contingency Plan
- Soil Erosion Contingency Plan
- Instream Boring Fluids Mud Release Contingency Plan
- Water Crossing Sediment Contingency Plan
- Winter or Frozen Conditions Contingency Plan
- Sensitive Plants Contingency Plan
- Wildlife Contingency Plan
- Cultural Resources Contingency Plan

#### **B.7. Qualifications of persons contributing to the study**

This is an Application for a Route Permit and is submitted simultaneously with an Application for a Corridor Certificate. Qualifications of persons contributing to the study are discussed in Section D of the Corridor Certificate Application.

## **B.8. Maps**

See Section D of the Corridor Certificate Application.

## **B.9. Right-of-Way preparation, construction, and reclamation**

### **B.9.1 Right-of-Way preparation, survey and staking**

Before construction, Vantage crews would survey and stake the centerline and exterior boundaries of the construction right-of-way. The exterior boundary stakes would mark the limit of approved disturbance areas which would be maintained throughout the construction period. The North Dakota State One Call system would be contacted to identify and mark the locations of underground utilities. During this period, equipment involved in pipeline construction would be moved onto the right-of-way using existing roads for access wherever practicable.

## **B.10. Construction**

All construction activities will be monitored by qualified inspectors.

### **B.10.1 Clearing and Grading**

Vantage would clear the 100-foot-wide construction right-of-way and temporary extra workspaces of shrubs and trees. The clear width may be necked down to avoid sensitive locations accordance with the EPP. The clearing crew would typically mow, chip, mulch, and/or haul off all non-merchantable timber. Burning of non-merchantable wood may be allowed when the contractor has the necessary permits and approvals.

Following clearing, grading of the ground surface may be done to provide a relatively smooth working surface and a safe working area. Typically, a 10-foot-wide buffer would be left relatively undisturbed at waterbody crossings except where grading is needed for bridge installation. This would occur just prior to the pipeline installation across the waterbody.

Following clearing and grading, temporary bridges may be installed at waterbodies, except for drainage ditches, intermittent waterbodies, and other non-fisheries water, along the pipeline route to provide temporary access for equipment traveling along the construction right-of-way. In addition, temporary erosion control measures would be installed in accordance with the EPP.

### **B.10.2 Topsoil Stripping**

Topsoil would be stripped and segregated in agricultural areas, cropland, hayfields, pasture, and other areas as requested by the landowner, along the pipeline route in accordance with the EPP. In other areas, a maximum of 12 inches of surficial soils would be stripped from directly over the trench, in accordance with the EPP.

### **B.10.3 Stringing and Bending**

Before excavating pipeline trenches, individual joints of pipe would be strung along the construction right-of-way and arranged to be accessible to construction personnel. This operation typically involves specially designed stringing trucks to deliver pipe from pipe yards to the right-of-way.

Small portable cranes and/or side-boom tractors are used to unload the stringing trucks and place pipe along the right-of-way. A mechanical pipe-bending machine would bend individual joints of pipe to the desired angle to accommodate natural ground contours or pipeline alignment. In certain areas, prefabricated fittings would be used where field bending is not practicable.

#### **B.10.4 Welding and Coating**

After stringing and bending are complete, pipe sections would be aligned, welded together, and placed on temporary supports along the edge of the trench. The welds would be inspected, both visually and radiographically. The pipe is typically delivered with a factory coating of yellow jacket or similar material to prevent corrosion. Coating sleeves would be applied at the welded joints and then the coating would be electronically inspected before the pipe is lowered into the trench.

#### **B.10.5 Trenching**

Backhoes and/or ditching machines would be used to excavate trenches in accordance with the U.S. Department of Transportation (DOT). A minimum 4 feet of cover for normal excavations and 18 to 30 inches of cover in rocky areas will be used. The trench walls would generally be kept vertical to the extent practicable and the trenches would typically be 2 feet wide at the base of the trench. In unstable and saturated soils, trenches may be wider.

Where trench dewatering is needed, water would be discharged in accordance with requirements for the temporary discharge permit issued by the North Dakota Department of Health – Division of Water Quality. Best Management Practices would be used to mitigate potential for erosion and sediment discharge. Where vegetation is sparse or absent, or in environmentally sensitive areas (e.g., adjacent to waterbodies or wetlands), straw bale dewatering structures or suitable filtering alternatives would be used to minimize siltation in adjacent waterbodies.

#### **B.10.6 Lowering-in and Backfilling**

After welding and coating are completed and the trench is excavated, the pipe would be lowered into the trench by side-boom tractors. Bladed equipment or a specially designed backfilling machine would be used to backfill and compact the trench to the approximate ground surface elevation. This generally consists of replacing the material excavated from the trench. In areas where topsoil has been segregated, subsoil would be replaced first, and topsoil would be spread uniformly on top. Directly above the pipeline, an excess of soil or “crown” would be placed to allow for future settling. Construction debris, including wooden supports, welding rods, containers, brush, trees, or refuse of any kind, would not be permitted in the backfill. If an excessive amount of rocks are present in the backfill, the pipeline would be protected with rock shielding or similar protective coating and/or backfilled with clean padding prior to backfilling with the rocky material.

#### **B.10.7 Hydrostatic Testing**

After backfilling, the pipeline would be hydrostatically tested in accordance with regulations of the Office of Pipeline Safety, Pipeline and Hazardous Materials Safety Administration (PHMSA) within the DOT to ensure that the system is capable of operating at the design pressure. The testing process would involve filling a segment of the pipeline with water and maintaining a prescribed pressure for a specified amount of time.

The length of individual test segments would be determined by topography and water availability. Water withdrawals used to fill and test the pipelines would be consistent with applicable regulations and the EPP. Vantage would obtain hydrostatic test water from major waterbodies crossed by the pipeline and/or municipal or private sources along the pipeline route. Adequate flow would be maintained in surface water sources to protect aquatic life and allow for downstream uses. The test water would be discharged through energy dissipation devices to the ground surface or to a nearby waterbody. These discharges would be done in accordance with the EPP and permits issued by applicable agencies.

## **B.11. Reclamation**

### **B.11.1 Cleanup**

After the backfilling is completed, Vantage would regrade and restore work areas as nearly as practicable to the original contour of the land. Topsoil would be redistributed over areas from which it was originally removed. Permanent soil stabilization efforts would primarily include revegetation of the right-of-way. Fences removed to install the pipelines would be reconstructed across the right-of-way. A detailed description of this process is provided in Section 4 of the EPP.

### **B.11.2 Restoration and Revegetation**

Following installation and final cleanup, original grade and contours would be restored to the extent practicable and permanent erosion controls would be installed. Disturbed areas would be revegetated in accordance with Section 4 of the EPP, other permit requirements, and site-specific landowner requests.

## **B.12. Landowners**

### **B.12.1 Notification of affected landowners**

Vantage has acquired right-of-way required for the construction and operation of the Vantage West Spur Lateral Pipeline by negotiating easements with landowners along the pipeline route (Exhibit O). Vantage has negotiated permanent easements that would grant the company the right to construct, operate, and maintain the pipeline in the permanent right-of-way. Vantage has also negotiated temporary easements for additional workspace needed to construct the pipeline. The easements would also address any specified concerns or requests the landowner may have.

### **B.12.2 Compensation**

Landowners would receive monetary compensation in return for granting easements, including compensation for temporary loss of use during construction, crop damages, and the restoration of unavoidable damage to property during construction.

### **B.12.3 Public outreach and landowner communications**

Vantage's land agent made personal contact with every local landowner, explained the proposed Project, and requested survey permission. At the time of the initial meeting, the landowner was given the survey consent form and map of the proposed pipeline route (Exhibit O). A letter and map sketches were sent to out-of-town landowners followed by a phone call for introducing the Project and requesting survey permission. At the time of negotiating the final route and compensation, each landowner was again contacted in person or by mail, and given an informational letter and map. At least one public open house will be held prior to the PSC hearing date. The specifics of the open house are to be determined.