United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office MC-208
115 Fourth Avenue S.E., Suite 400
Aberdeen, South Dakota 57401

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IN REPLY REFER TO:
DESCRM
MC-208

APR 2 7 2011

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: Regional Director, Great Plains Region

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for an Environmental Assessment to authorize land use and construction of approximately 4.3 miles of roadway by Petro-Hunt, LLC on the Fort Berthold Reservation, an Environmental Assessment (EA) has been completed and a Finding of No Significant Impact (FONSI) has been issued.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the EA, FONSI and Notice of Availability. The Council on Environmental Quality (CEQ) regulations require that there be a public notice of availability of the FONSI (40 C.F.R. Section 1506.6(b)). Please post the attached notice of availability at the Agency and Tribal buildings for 30 days.

If you have any questions, please call Marilyn Bercier, Regional Environmental Scientist, Division of Environment, Safety and Cultural Resources Management, at (605) 226-7656.

Attachment

cc: Tex Hall, Chairman, Three Affiliated Tribes (with attachment)
Elgin Crows Breast, THPO (with attachment)
Derek Enderud, BLM, Dickinson, ND (with attachment)
John Shelman, US Army Corps of Engineers
Jeffrey Hunt, Fort Berthold Agency

Finding of No Significant Impact
Petro-Hunt, LLC

Environmental Assessment for:
Oil Field Road

Fort Berthold Indian Reservation
Dunn County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) has received a proposal for the land use and construction of approximately 4.3 miles of roadway, in Township 148N, Range 94 West, located in on lands held in trust by the BIA within the Reservation. Associated federal actions by BIA include determinations of effect regarding cultural resources, approvals of leases, rights-of-way and easements, and a positive recommendation to the Bureau of Land Management regarding the Applications for Permit to Drill.

The potential of the proposed actions to impact the human environment is analyzed in the attached Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed EA, I have determined that the proposed projects will not significantly affect the quality of the human environment. No Environmental Impact Statement is required for any portion of the proposed activities.

This determination is based on the following factors:

1. Agency and public involvement was solicited and environmental issues related to the proposal were identified.

2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternative.

3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species. This guidance includes the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.) (NEPA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", and the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA).

4. The proposed actions are designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.

5. Environmental justice was fully considered.

6. Cumulative effects to the environment are either mitigated or minimal.

7. No regulatory requirements have been waived or require compensatory mitigation measures.

8. The proposed projects will improve the socio-economic condition of the affected Indian community.

Regional Director

4-27-11
Date

ENVIRONMENTAL ASSESSMENT

United States Department of the Interior
Bureau of Indian Affairs

Great Plains Regional Office
Aberdeen, South Dakota

Cooperating Agency:

Bureau of Land Management

North Dakota State Office
Dickinson, North Dakota

Petro-Hunt, LLC

Oil Field Road

Fort Berthold Indian Reservation

April 2011

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources Management
115 4th Avenue SE, Aberdeen, South Dakota 57401, (605) 226-7656

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

Petro-Hunt, LLC (Petro-Hunt) is proposing a roadway construction project on the Fort Berthold Indian Reservation (Reservation) that would provide access to Petro-Hunt's mineral leases in the area. The proposed action includes approval by the Bureau of Indian Affairs (BIA) for the land use and construction of approximately 4.3 miles of roadway, located on lands held in trust by the BIA within the Reservation, by Petro-Hunt (Figure 1-1). The BIA is the surface management agency for potentially affected tribal lands and individual allotments. The BIA manages lands held in title by the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation (MHA Nation) and tribal members.

The purpose of the federal action is to respond to a request from Petro-Hunt to grant a right-of-way (ROW) permit to access and upgrade an existing road for a distance of 0.3 mile and create a new road for a distance of 4 miles across allotted lands on the Reservation in Dunn County, North Dakota. The need for the action is to use the road to access mineral leases in the immediate area for Petro-Hunt and other companies. This main road will help to eliminate the need for multiple long access roads from either BIA Road 14 and/or BIA Road 17. Finally, it will help to aliviate some of the oilfield truck traffic on BIA Roads 14 and 17. Potential of the proposed action to impact the human environment is analyzed in this Environmental Assessment (EA), as required by the National Environmental Policy Act of 1969 (NEPA). This EA will analyze whether granting the ROW would result in significant effects to the human environment, including natural, cultural, and socioeconomic resources. Petro-Hunt would construct the proposed access road so that it parallels an existing two-track road for approximately 2.3 miles. Then, the proposed access road would turn east following a section line for approximately 1.4 miles. Finally, the proposed road would veer southeast for approximately 0.3 mile before connecting with the unnamed two-track road for the remaining 0.3 mile. An on-site visit was conducted with the BIA on August 22, 2010, during which the proposed road was evaluated and biological and cultural resource surveys were conducted. A ROW on-site visit was conducted with the BIA on October 4, 2010. A reroute was evaluated on November 17, 2010, and approved by Jeff DesJarlais, BIA Environmental Specialist, on December 16, 2010.

As shown in Figure 1-2, the proposed roadway would begin at a point in the Northwest 1/4 of Section 29, Township (T) 148 North (N), Range (R) 94 West (W), and travel in a south-southeasterly direction through the following sections in Dunn County:

- T148N, R94W, Sections 29, 32, 33, 34
- T147N, R94W, Section 3

The BIA's general mission is to represent the interests, including the Trust Resources, belonging to members of the MHA Nation as well as individual tribal members. The BIA's role in the proposed project includes analyzing the proposed ROW, and determining the impacts on the human environment, including cultural resources and other critical elements.

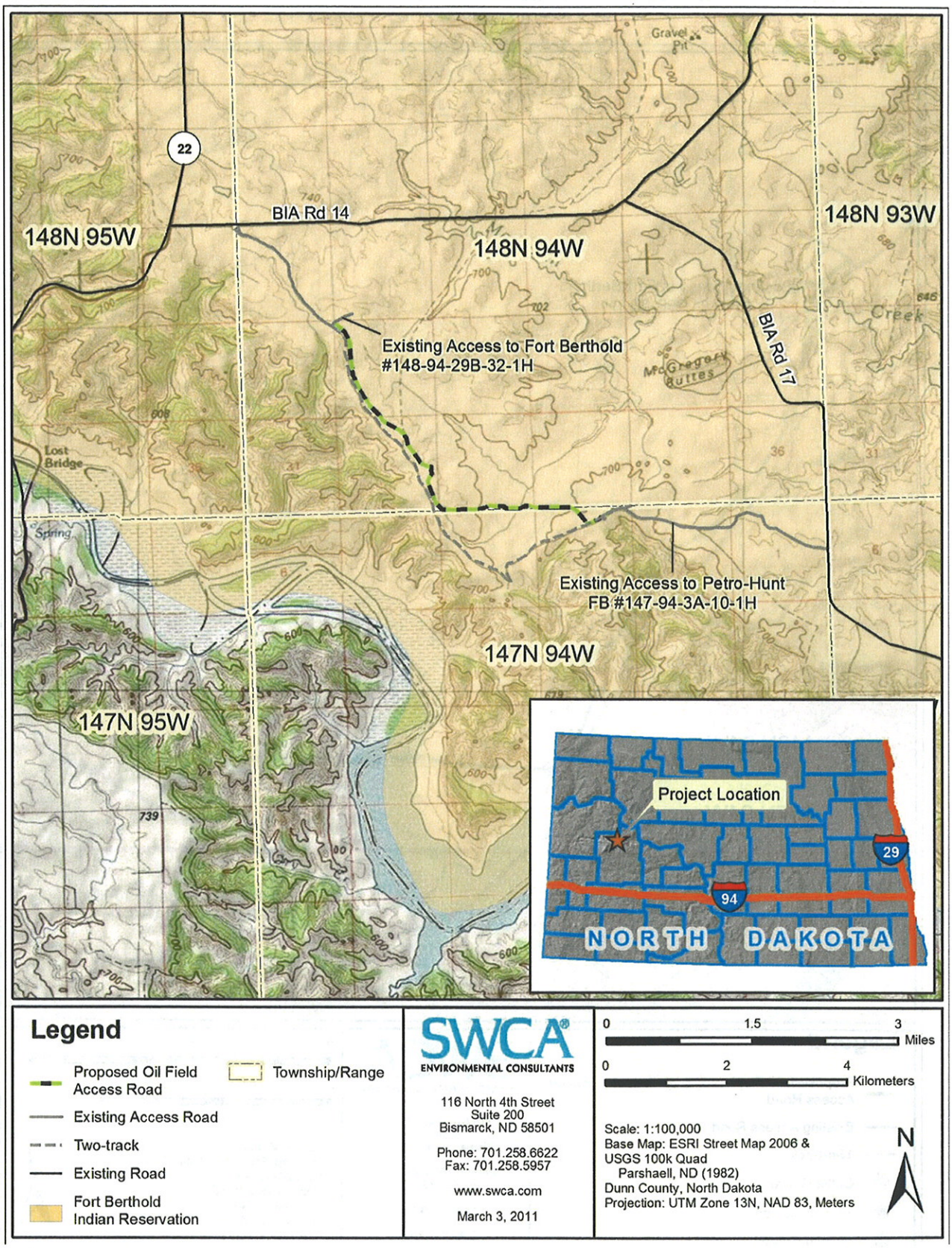


Figure 1-1. Project Location Map.

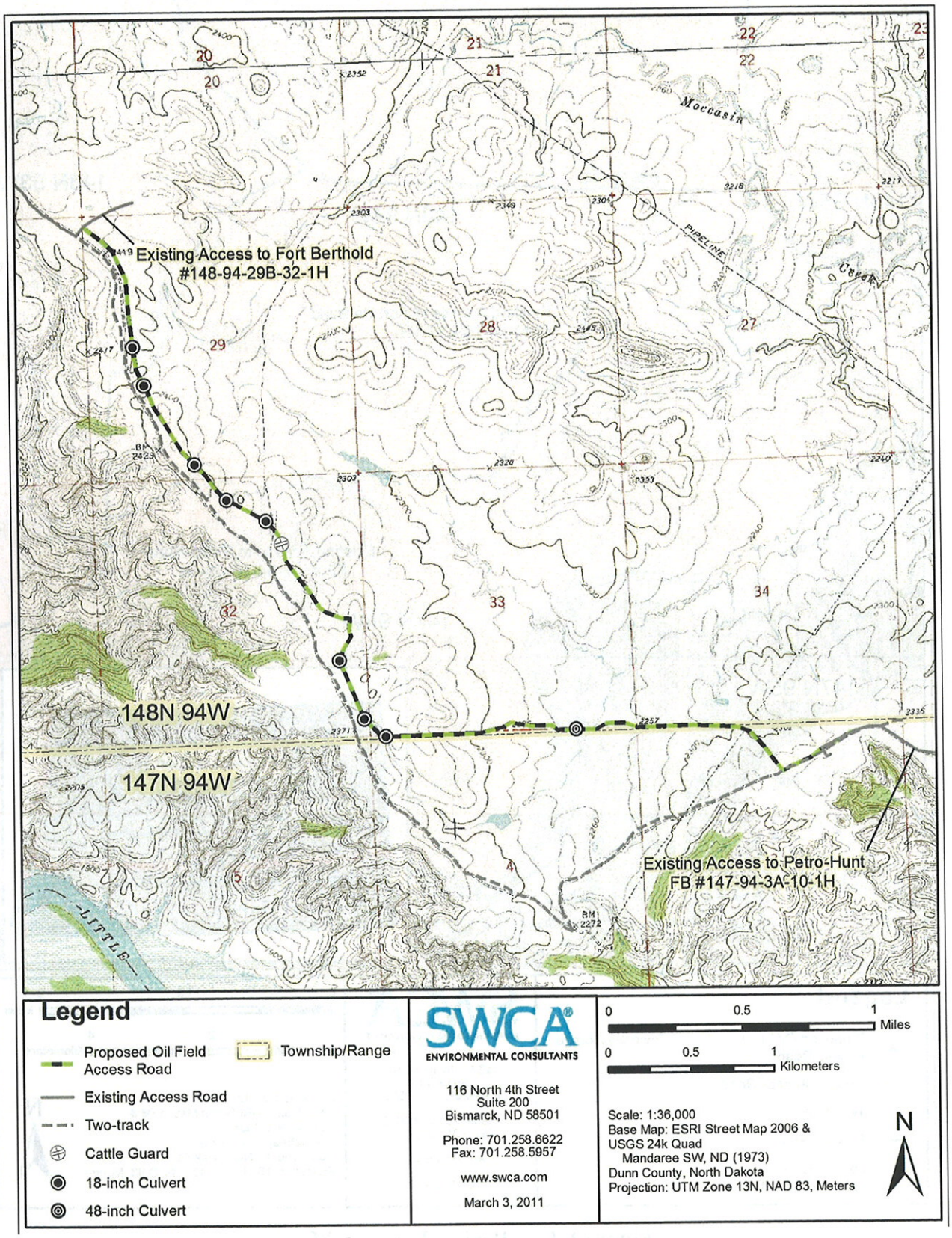


Figure 1-2. Detailed Access Road Map.

This proposed federal action requires compliance with NEPA (42 United States Code [USC] 4321, et seq.) and regulations of the Council on Environmental Quality (CEQ) (Title 40 Code of Federal Regulations [CFR] 1500–1508). Analysis of the proposal's potential to impact the human environment is expected to both improve and explain federal decision-making. The ROW application was submitted by Petro-Hunt to describe the development procedures and technical practices. The procedures and practices explained will help to describe the impacts to the land. Based on this analysis, this EA will result in either a Finding of No Significant Impact or a decision to prepare an Environmental Impact Statement (EIS).

Any authorized project will comply with all applicable federal, state, and tribal laws, rules, policies, regulations, and agreements. No construction or other ground-disturbing operations will begin until all necessary leases, easements, surveys, clearances, consultations, permissions, determinations, and permits are in place.

2.0 PROPOSED ACTION AND ALTERNATIVES

The BIA, as required by the NEPA, must "study, develop, and describe appropriate alternatives to the recommended course of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources..." (NEPA Sec 102[2][e]). Developing a range of alternatives allows for exploration of options designed to meet the purpose and need for the action. Along with the No Action Alternative, the BIA is considering the Proposed Action.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed project would not be constructed or operated. The BIA would not approve easements, leases, or ROWs for the proposed project. There would be no project-related surface disturbance. Existing conditions would not be impacted for the following critical elements: air quality, public health and safety, water resources, wetland and riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice. As such, there would be no project-related surface disturbance and traffic would not change from present levels. Current land use practices would continue at the site.

2.2 PROPOSED ACTION ALTERNATIVE

In addition to the No Action Alternative, this document analyzes the potential impacts of an approximately 4.3-mile access road located in the west-central portions of the Reservation in Dunn County, North Dakota. The proposed project would allow access to and from mineral leases on the Reservation in Dunn County, North Dakota. Placement of the roadway was decided upon by Petro-Hunt in consultation with tribal and BIA resource managers.

All activities related to the construction of the roadway would follow guidelines and standards in the Surface Operating Standards for Oil and Gas Exploration and Development (Bureau of Land Management [BLM] and U.S. Forest Service [USFS] 2007) and any conditions required by the BIA.

2.2.1 Construction Specifics

This document analyzes the impacts of the construction and upgrading of one access road on tribal lands held in trust within the Reservation. The proposed road is located in Sections 29, 32, 33, and 34, T148N, R94W, and also in Section 3, T147N, R94W, in Dunn County, North Dakota (Figure 1-1). The proposed road can be accessed from the town of Mandaree by traveling west on BIA Road 12 for approximately 1.3 miles, turning south on Highway 22 for approximately 7.6 miles, turning east on BIA Road 14 for approximately 0.6 mile, and finally following 1.7 miles of two-track road that is currently proposed to be upgraded to an access road for Fort Berthold #148-94-29B-32-1H. The proposed road is located in the western portion of the Reservation in Dunn County, North Dakota, about 61 miles north of Dickinson. The proposed road would provide access to mineral leases in the area for both Petro-Hunt and other operating companies.

Petro-Hunt proposes to upgrade 1,584 feet (0.3 mile) of an existing two-track access road with a 100-foot-wide ROW and proposes new construction of 21,120 feet (4 miles) of access road, also within the 100-foot-wide ROW (Figures 2-1 and 2-2). The proposed road is new construction as well as a small portion of existing roadway upgrade which would be used to connect to existing access roads in the NW¼ of Section 29, T148N, R94W, and in the NE¼ of Section 3, T147N, R94W. The two-track would be upgraded to an all-season road with stormwater improvements. All construction including the 0.3 mile of roadway upgrade would be crowned and ditched with a 66-foot running surface and approximately 4 inches of scoria on the surface. Wing ditches would be constructed as a best management practice (BMP) to manage runoff and erosion. In addition, as shown in Figure 1-2, nine 18-inch corrugated metal pipe culverts and one cattle guard would be installed in the road. The project is proposed to take approximately two to three weeks to complete with a maximum disturbed ROW of 100 feet resulting in approximately 52.12 acres of surface disturbance.

Figure 2-1. Proposed Petro-Hunt Oil Field Road, Looking South.

Figure 2-2. Proposed Petro-Hunt Oil Field Road, Looking East.

3.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The Reservation is the home of the MHA Nation. Located in west-central North Dakota, the Reservation encompasses more than one million acres, of which almost half are held in trust by the United States for either the MHA Nation or individual allottees. The remainder of the land is owned in fee simple title, sometimes by the MHA Nation or tribal members, but usually by non-Indians. In 1945, the Garrison Dam was completed, inundating much of the Reservation. In 1956, the rest of the land was divided into three sections by Lake Sakakawea, an impoundment of the Missouri River upstream of the Garrison Dam near Riverdale, North Dakota. The Reservation occupies portions of six counties, including Dunn, McKenzie, McLean, Mercer, Mountrail, and Ward. However, this analysis primarily focuses on Dunn County, which overlaps the western portion of the Reservation within the project area.

The Reservation is within the northern Great Plains ecoregion and consists of four physiographic units: 1) the Missouri Coteau Slope north of Lake Sakakawea; 2) the Missouri River trench (now flooded); 3) the Little Missouri River badlands; and 4) the Missouri Plateau south and west of Lake Sakakawea (Williams and Bluemle 1978). The Missouri Plateau encompasses much of the Reservation, including the project area; it is a glaciated landscape of gently rolling topography. Elevations of the glaciated, gently rolling landscape range from a normal pool elevation of 1,838 feet at Lake Sakakawea to over 2,600 feet on Phaelan's Butte near Mandaree. Annual precipitation on the plateau averages between 15 and 17 inches. Mean temperatures fluctuate between -3 and 21 degrees Fahrenheit (°F) in January and between 55°F and 83°F in July, with 95 to 130 frost-free days each year (Bryce et al. 1998; High Plains Regional Climate Center 2008).

The proposed Oil Field road is in a rural area consisting of mostly grassland, shrubland, and cropland that is currently farmed, idle, or used to graze livestock. The landscape has been previously disturbed by dirt trails and gravel and paved roadways. The broad definition of the human environment under NEPA leads to the consideration of the following elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation (including invasive species), cultural resources, socioeconomic conditions, and environmental justice. Existing conditions and potential impacts to these elements are analyzed for both the No Action Alternative and the Proposed Action. Impacts may be beneficial or detrimental, direct or indirect, and short-term or long-term. This EA also analyzes the potential for cumulative impacts and ultimately makes a determination as to the significance of any impacts. In the absence of significant negative consequences, it should be noted a significant benefit from the project does not in itself require preparation of an EIS. After consideration of the No Action Alternative, existing conditions and potential impacts from implementation of the proposed road are described.

3.1 AIR QUALITY

The federal Clean Air Act (CAA) (USC § 7401–7671, as amended in 1990) established national ambient air quality standards (NAAQS) for criteria pollutants to protect public health and welfare. It also set standards for other compounds that can cause cancer, regulated emissions that cause acid rain, and required federal permits for large sources. NAAQS have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate

matter, and lead (U.S. Environmental Protection Agency [EPA] 2010a). The primary NAAQS have been set for pervasive compounds that are generally emitted by industry or motor vehicles. Standards for each pollutant meet specific public health and welfare criteria; thus, they are called the 'criteria pollutants.'

The CAA mandates prevention of significant air quality deterioration in certain designated attainment areas and has designated more stringent air quality standards, known as Secondary Standards, for these areas. Class I attainment areas have national significance and include national parks greater than 6,000 acres, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres that were designated prior to 1977 (Ross 1990). The Class I regulations (40 CFR 51.307) attempt to protect visibility through a review of major new and modified sources of pollutants, and requiring strict air quality emission standards if they will have an adverse impact on visibility within the Class I area (National Park Service 2010).

The nearest designated attainment area to the project area is the Theodore Roosevelt National Park (TRNP), a Class I area that covers about 110 square miles in three units within the Little Missouri National Grassland. The TRNP is located approximately 16 miles south of Watford City, North Dakota, and approximately 45 miles northwest of the proposed roadway. Two air quality monitoring stations are located there, with the North Unit monitoring most criteria pollutants (National Park Service 2010; North Dakota Department of Health [NDDH] 2010). All other parts of the state, including the Reservation, are classified as Class II attainment areas, affording them protections through the Primary NAAQS (NDDH 2010).

Some states have adopted more stringent standards for criteria pollutants, or have chosen to adopt new standards for other pollutants. For instance, the NDDH has established a standard for hydrogen sulfide (NDDH 2010).

Criteria pollutants and their health effects include the following.

- **Sulfur dioxide (SO_2):** SO_2 is a colorless gas with a strong, suffocating odor. SO_2 is produced by burning coal, fuel oil, and diesel fuel, and can trigger constriction of the airways, causing particular difficulties for asthmatics. Long-term exposure is associated with increased risk of mortality from respiratory or cardiovascular disease. SO_2 emissions are also a primary cause of acid rain and plant damage (EPA 2010a).
- **Inhalable Particulate Matter (PM10 and PM2.5):** PM10 and PM2.5 are classes of compounds that can lodge deep in the lungs, causing adverse health problems, depending on their size, concentration, and content. Based on extensive health studies, particulate matter is regulated under two classes: PM10 is the fraction of total particulate matter 10 microns or smaller, and PM2.5 is two and one-half microns or smaller. Inhalable particulate matter can range from inorganic wind-blown soil to organic and toxic compounds found in diesel exhaust. Toxic compounds such as benzene often find a route into the body via inhalation of fine particulate matter (EPA 2010a).

- **Nitrogen dioxide (NO_2):** NO_2 is a reddish-brown gas with an irritating odor. Primary sources include motor vehicles, industrial facilities, and power plants. In the summer months, NO_2 is a major component of photochemical smog. NO_2 is an irritating gas that may constrict airways, especially of asthmatics, and increase the susceptibility to infection in the general population. NO_2 is also involved in ozone smog production (EPA 2010a).
- **Ozone (O_3):** O_3 is a colorless gas with a pungent, irritating odor and creates a widespread air quality problem in most of the world's industrialized areas. Ozone smog is not emitted directly into the atmosphere but is primarily formed through the reaction of hydrocarbons and nitrogen oxides (NOx) in the presence of sunlight. Health effects associated with O_3 can include reduced lung function, aggravated respiratory illness, and irritated eyes, nose, and throat. Chronic exposure can cause permanent damage to the alveoli of the lungs. O_3 can persist for many days after formation and travel several hundred miles (EPA 2010a).
- **Carbon monoxide (CO):** CO is a colorless, odorless gas that is a byproduct of incomplete combustion. CO concentrations typically peak nearest a source, such as roadways or areas with high fireplace use, and decrease rapidly as distance from the source increases. Ambient levels are typically found during periods of stagnant weather, such as on still winter evenings with a strong temperature inversion. CO is readily absorbed into the body from the air. It decreases the capacity of the blood to transport oxygen, leading to health risks for unborn children and people suffering from heart and lung disease. The symptoms of excessive exposure are headaches, fatigue, slow reflexes, and dizziness (EPA 2010a).

The Primary and Secondary NAAQS standards for criteria pollutants are summarized in Table 3-1. NEPA assessments require analysis of both near-field and far-field as part of the cumulative effects of proposals on air quality. Therefore, the North Dakota Ambient Air Quality Standards (AAQS) are shown as well as federal standards.

Table 3-1. NAAQS and Other Air Quality Standards.

Pollutant	Averaging Period	Primary Standard (NAAQS)	Secondary Standard (National Parks)	North Dakota AAQS
SO_2 in parts per million of air (ppm)	3-hour	-	0.5	0.273 (1-hour)
	24-hour	0.14	-	0.099
	Annual Mean	0.03	-	0.023
PM10 in micrograms per cubic meter of air ($\mu g/m^3$)	24-hour	150	-	150
	Expected Annual Mean	50		50
PM2.5 ($\mu g/m^3$)	24-hour	35	35	-
	Weighted Annual Mean	15	15	-
NO_2 (ppm)	Annual Mean	0.053	0.053	0.053

Pollutant	Averaging Period	Primary Standard (NAAQS)	Secondary Standard (National Parks)	North Dakota AAQS
CO (ppm)	8-hour	9	-	9
	1-hour	35	-	35
O_3 (ppm)	8-hour	0.075	0.075	-
	1-hour	-	-	0.12
Lead ($\mu g/m^3$)	Quarterly Mean	1.5	1.5	1.5
Hydrogen Sulfide (ppm)	Instantaneous	-	-	10
	1-hour	-	-	0.20
	24-hour	-	-	0.10
	3-month	-	-	0.02

Sources: EPA 2010a; NDDH 2010.

North Dakota has separate state standards for several pollutants that are different from the federal criteria standards. These are the standards for SO_2 and hydrogen sulfide (H_2S). All other state criteria pollutant standards are the same as federal. North Dakota was one of 13 states that met standards for all federal criteria pollutants in 2008.

In addition, the EPA averages data from monitoring stations within each county to determine the Air Quality Index (AQI), a general measure of air quality for residents of the county. An AQI greater than 100 is indicative of unhealthy air quality conditions for the county residents, although residents may experience greater or lesser risks depending on their proximity to the sources of pollutants (EPA 2010b).

3.1.1 Greenhouse Gas Emissions and Responses to the Threat of Climate Change

Gases that trap heat in the atmosphere are often called greenhouse gases (GHGs). Some GHGs such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHGs (e.g., fluorinated gases) are created and emitted solely through human activities. The EPA (2010c) identifies the principal GHGs that enter the atmosphere because of human activities as the following.

- **Carbon Dioxide (CO_2)**: CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH_4)**: CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide (N_2O)**: N_2O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases**: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are typically emitted in small quantities, but are potent GHGs thought to contribute significantly to global warming processes (EPA 2010c).

CO_2 is the primary GHG, responsible for approximately 90 percent of radiative forcing, which is the rate of energy change as measured at the top of the atmosphere. Radiative forcing can be positive (warmer) or negative (cooler) (EPA 2010c). To simplify discussion of the various GHGs, the term 'Equivalent CO_2 or CO_2e' has been developed. CO_2e is the amount of CO_2 that would cause the same level of radiative forcing as a unit of one of the other GHGs. For example, one ton of CH_4 has a CO_2e of 22 tons; therefore, 22 tons of CO_2 would cause the same level of radiative forcing as one ton of CH_4. N_2O has a CO_2e value of 310 (EPA 2010c). These GHGs are all positive radiative forcing GHGs. Thus, control strategies often focus on the gases with the highest positive CO_2e values (EPA 2010c). This document incorporates by reference cited studies and reports from the Pew Center (2009) and the Intergovernmental Panel on Climate Change (2007) concerning GHGs and their impacts.

On May 13, 2010, the EPA issued a final rule that establishes thresholds for GHG emissions that define when permits under the New Source Review Prevention of Significant Deterioration (PSD) and title V Operating Permit programs are required for new and existing industrial facilities (EPA 2010d). This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain PSD and title V permits. Facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities. Emissions from small farms, restaurants, and all but the very largest commercial facilities will not be covered by these programs at this time; however, the EPA recently initiated additional hearings to help determine the types of industries to be held to new standards under these federal permits (EPA 2010d).

Energy production and supply was estimated to emit up to 25.9% of GHGs world-wide in 2004 (Pew Center 2009). Methane gas (CH_4), with a high radiative forcing CO_2e ratio, is a common fugitive gas emission in oil and gas fields (EPA 2010d). Oil and gas production, however, is highly variable in potential GHG emissions. Oil and gas producers in the United States are not considered large GHG emitters by the EPA, and are not the subject of any current federal proposals that would regulate GHG emissions.

3.1.2 Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are a class of compounds known to cause cancer, mutation, or other serious health problems. HAPs are usually a localized problem near the emission source. HAPs are regulated separately from criteria air pollutants. There are several hundred HAPs recognized by the EPA and State of North Dakota. Health effects of HAPs may occur at exceptionally low levels; for many HAPs, it is not possible to identify exposure levels that

do not produce adverse health effects. Major sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), wood smoke, and motor vehicle exhaust. Unlike regulations for criteria pollutants, there are no ambient air quality standards for HAPs. Examples of HAPs found in gases released by oil field development and operation include benzene, toluene, xylene, and formaldehyde (BLM 2009). HAP emissions receive evaluation based on the degree of exposure that can cause risk of premature mortality, usually from cancer.

Risk assessments express premature mortality in terms of the number of deaths expected per one million persons. The NDDH typically reviews projects and either requires an applicant to prepare a risk assessment or assign the state engineers to do the work. For new sources emitting HAPs with known negative health effects, an applicant must demonstrate that the combined impact of new HAP emission does not result in a maximum individual cancer risk greater than one in one hundred thousand.

3.1.3 Existing Air Quality in the Project Area

Federal air quality standards apply in the project area, which is designated as a Class II attainment area. Although the state of North Dakota does not have jurisdiction over air quality matters on the Reservation and no air quality monitoring stations occur within the boundaries of the Reservation, monitoring efforts are being made by the state and industry in the area. The NDDH operates a network of monitoring stations around the state that continuously measure pollution levels. Industry also operates monitoring stations as required by the state. The data from all these stations are subject to quality assurance, and when approved, it is published on the World Wide Web and available from EPA and NDDH (NDDH 2010).

Monitoring stations providing complete data near the project area include Theodore Roosevelt National Park North Unit (TRNP-NU) (Air Quality Station #380530002) in McKenzie County, and Dunn Center (Air Quality Station #38025003) in Dunn County (NDDH 2010). These stations are located west and southeast of the proposed project area, respectively. Bear Paw Energy and Amerada Hess operate site-specific monitoring stations in the region. However, these stations do not provide coverage that is applicable to this analysis (NDDH 2010).

Criteria pollutants measured at the two monitoring stations include SO_2, PM10, NO_2, and O_3. Lead and CO are not monitored by any of the three stations. Table 3-2 summarizes the NAAQS and the maximum levels of criteria pollutants. The highest value at either of the two monitoring locations is shown for each year from 2007 through 2009.

Table 3-2. Maximum Levels of Monitored Pollutants, 2007–2009, as Measured at Dunn Center and Theodore Roosevelt National Park North Unit Monitoring Stations.

Criteria Pollutant	Averaging Period	Primary Standard (NAAQS)	Maximum Reported Level from Dunn Center and TRNP-NU Monitoring Stations		
			2009	2008	2007
SO_2 (parts per million [ppm])	24-hour	0.14	0.006	0.004	0.004
	Annual Mean	0.03	0.0005	0.0004	0.0011
PM10 (micrograms per cubic meter [$\mu g/m^3$])	24-hour	150	54	108	57.4
	Expected Annual Mean	50	11.3	14.2	13.2
PM2.5 ($\mu g/m^3$)	24-hour	35	15	35.7	22.2
	Weighted Annual Mean	15	3.4	3.7	3.6
NO_2 (ppm)	Annual Mean	0.053	0.0015	0.0018	0.0015
O_3 (ppm)	8-hour	0.08	0.057	0.0063	0.0071

Source: NDDH 2010.

All monitored criteria pollutants are well below federal and state standards in the project area for all years in the study period from 2007 through 2009. In addition to the low levels of monitored criteria pollutants, the EPA reports that Dunn County and McKenzie County had zero days in which the air quality index exceeded 100 in 2007 and 2008, indicating that general air quality does not pose an unhealthy condition for residents of these counties (EPA 2010b). The AQI was not available for 2009, but is also likely to be zero for these counties.

3.1.4 Typical Air Emissions from Oil Field Development

According to EPA Emission Inventory Improvement documents (EPA 1999), oil field emissions encompass three primary areas: combustion, fugitive, and vented. Typical processes that occur during exploration and production include the following.

- Combustion emissions include SO_2, ozone precursors called volatile organic compounds (VOCs), GHGs, and HAPs. Sources include engine exhaust, dehydrators, and flaring (EPA 1999).
- Fugitive emissions include criteria pollutants, H_2S, VOCs, HAPs, and GHGs. Sources of fugitive emissions include mechanical leaks from well field equipment such as valves, flanges, and connectors that may occur in heater/treaters, separators, pipelines, wellheads, and pump stations. Pneumatic devices such as gas actuated pumps and pressure/level controllers also result in fugitive emissions. Other sources of fugitive emissions include evaporation ponds and pits, condensate tanks, storage tanks, and wind-blown dust (from truck and construction activity) (EPA 1999).

- Vented emissions include GHGs, VOCs, and HAPs. Primary sources are emergency pressure relief valves and dehydrator vents (EPA 1999).

Pad and road construction, drilling activities, and tanker traffic would generate emissions of criteria pollutants and HAPs. Primary emissions sources during drilling are diesel exhaust, wind-blown dust from disturbed areas and travel on dirt roads, evaporation from pits and sumps, and gas venting. Diesel emissions are being progressively controlled by the EPA in a nationwide program (EPA 2010d). This program takes a two-pronged approach. First, fuels are improving to the ultra-low sulfur standard, and secondly manufacturers must produce progressively lower engine emissions.

3.1.5 Air Quality Best Management Practices

Under the CAA, federal land management agencies have an affirmative responsibility to protect air quality. Tribes, federal land managers, and private entities can make emission controls part of a lease agreement. BMPs can be adopted for various portions of the roadway's lifecycle. BMPs fall into the following two general categories.

- Transportation BMPs to reduce the amount of fugitive dust and vehicle emissions
  - use water or dust suppressants to control fugitive dust on roads;
  - control road speeds; and
  - utilize van or carpooling.
- Monitoring and repair
  - install an air quality monitoring station.

3.1.6 Potential Air Quality Impacts

Based on the existing air quality of the region, typical air levels and types of emissions from similar oil field projects, and Petro-Hunt's commitment to implementation of BMPs identified in Section 3.10.2, the Proposed Action would not produce significant increases in criteria pollutants, GHGs, or HAPs.

3.2 PUBLIC HEALTH AND SAFETY

Federal and state laws and policies regulate the generation, use, storage, and disposal of hazardous and extremely hazardous substances. Substances considered hazardous are listed in 40 CFR 302, Designation, Reportable Quantities, and Notification and are administered under Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) of the Comprehensive Environmental Response, Compensation, and Liability Act. Hazardous substances may also be listed within Section 112 (r) of the CAA (1990). Extremely hazardous materials are those identified in the EPA's List of Extremely Hazardous Substances (40 CFR 355) titled as the Emergency Planning and Notification, which establishes a list of extremely hazardous substances and states the threshold planning quantities and the facilities notification responsibilities necessary for the development and implementation of state and local emergency response plans required under the Emergency Planning and Community Right-to-Know Act.

Petro-Hunt has consulted with the Bureau of Reclamation and there are no rural water pipelines for the Fort Berthold Rural Water System within the proposed ROW. Existing water pipelines along adjacent roads would not be impacted.

Negative impacts from construction of the proposed roadway would be largely temporary. Noise, fugitive dust, and increased traffic in the area, which increases the traffic hazard, would be present for the duration of construction, which would last approximately two to three weeks. Dust suppression techniques would be employed to reduce fugitive dust emissions and noise levels would be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. During construction and operation, a variety of by-products and waste materials would be generated including construction waste, garbage, and miscellaneous solid and sanitary wastes. With the proper procedures in place, it is anticipated that waste would not present any environmental consequences especially if materials are collected in appropriate containers and recycled or disposed off-site in accordance with applicable regulations.

During construction of the proposed roadway, accidental spills or leaks associated with equipment failures, refueling and maintenance of equipment and storage of fuels, oil, or other fluids could cause soil and surface water and/or groundwater contamination. The severity of potential impacts from accidental material spills would depend upon the chemical released, the quantity released, and the proximity of the release to a waterbody or aquifer.

The construction site shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment. Petro-Hunt shall be responsible for assuring that all waste is properly disposed of at the appropriate regulated disposal facility.

No hazardous materials shall be used during any phase of the operations unless prior approval has been obtained from the BIA.

If any hazardous chemicals, fuels, oils, lubricants, and/or noxious fluids are spilled during construction, they shall be cleaned up immediately. Petro-Hunt shall have absorbent on site for spill containment. After clean up, the chemicals, fuels, oil, lubricants, and/or noxious fluids and any contaminated material shall be removed from the site and disposed of at an approved disposal facility.

The EPA specifies chemical reporting requirements under Title III of the SARA, as amended. No materials used or potentially generated by this project are on the SARA list or on EPA's list of extremely hazardous substances in 40 CFR 355. Project design and operational precautions mitigate against impacts from toxic gases, hazardous materials, and traffic. Impacts from the Proposed Action are considered minimal, unlikely, and insignificant. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

3.3 WATER RESOURCES

3.3.1 Surface Water

The surface water resources in the project area would be managed and protected according to existing federal law and policies regarding the use, storage, and disposal of the resource during the construction and operation of the project. Surface water resource use and protection is administered under the following federal laws:

- Clean Water Act of 1972, as amended (33 USC 1251 et seq.)
- Federal Land Policy and Management Act of 1976 (43 USC 1711–1712)
- National Environmental Policy Act of 1972 (42 USC 4321)
- Safe Drinking Water Act of 1974, as amended (42 USC 300 et seq.)

Water quality is protected under the Federal Water Pollution Control Act (as amended), otherwise known as the Clean Water Act (CWA). The CWA has developed rules for regulating discharges of pollutants into waters of the U.S. and also regulates water quality standards for surface waters. The CWA has also made it unlawful to discharge any pollutant from a point source into any navigable waters of the U.S., unless a permit has been obtained from the National Pollution Discharge Elimination System (NPDES) program.

The Environmental Division of the MHA Nation has had an application for delegation of authority to set federally approved water quality standards on the Reservation pending with the EPA since 1996. In the absence of tribal surface water quality authorities, enforcement of federal environmental laws regarding surface water on the Reservation is accomplished through permitting, inspection, and monitoring activities of the NPDES, as administered by the EPA.

The project area is located within the Lower Little Missouri River watershed (Hydrologic Unit Code [HUC] 10110205), and within the Dry Creek (HUC 101102050506) and Upper Moccasin Creek (HUC 101102050604) sub-watersheds (Figure 3-1).

BMPs would be implemented for all ground-disturbing activities, as required by the CWA. With the implementation of all the provisions of the CWA NPDES, including federal requirements for implementation of adequate Spill Prevention, Control and Countermeasures during construction, no impacts to water resources are anticipated.

As part of the NPDES Construction Permit, the proposed project would be engineered and constructed to minimize the suspended sediment (i.e., turbidity) concentration of surface runoff, avoid disruption of drainages, and avoid direct impacts to surface water. No surface water would be used for construction activities. Any chemicals or potentially hazardous materials would be handled in accordance with the operator's spill prevention, control, and countermeasure plan. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

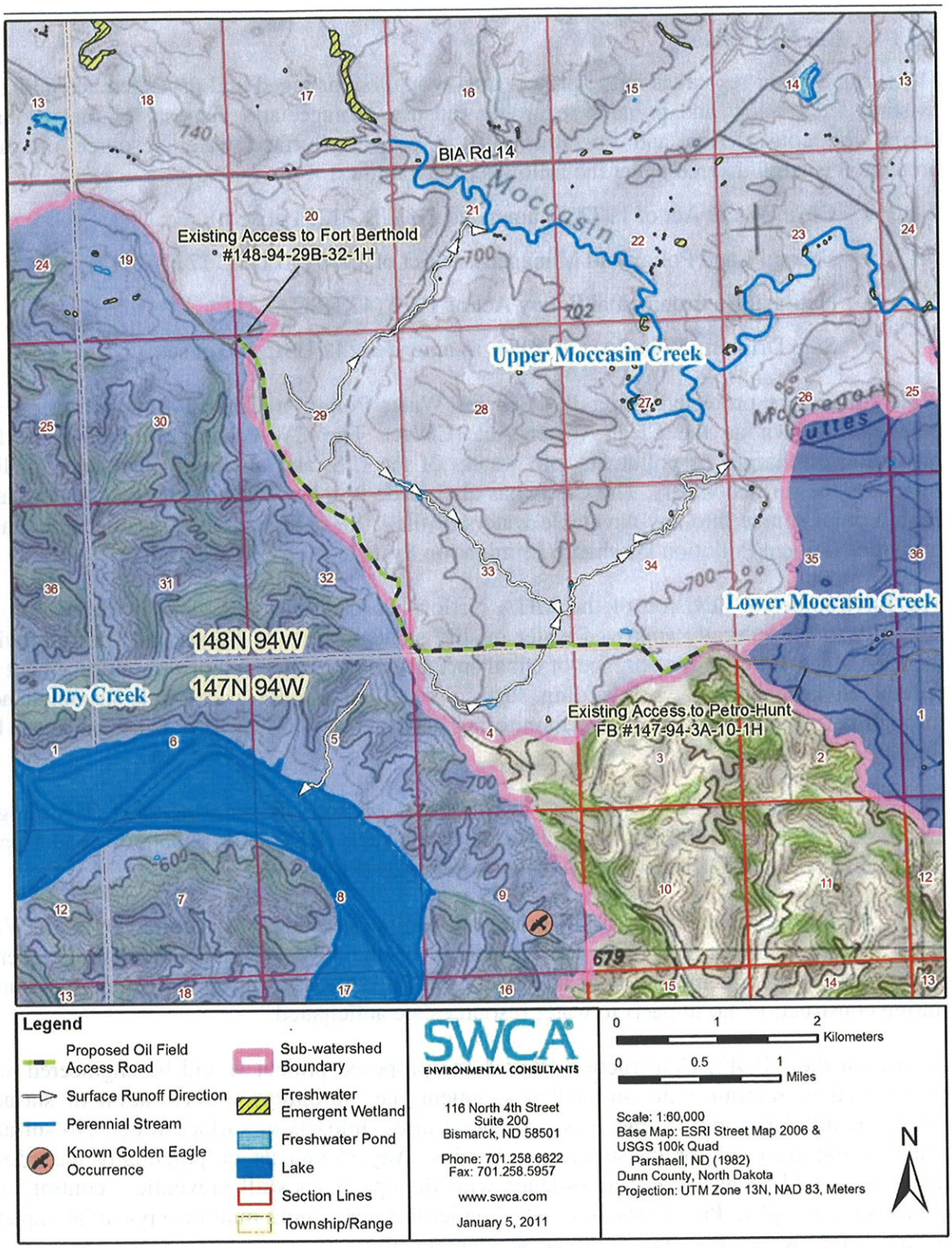


Figure 3-1. Watershed Boundaries, Hydrology, and Known Occurrence of Eagle Nest.

3.3.2 Groundwater

Aquifers in the project area include, from deepest to shallowest, the Cretaceous Fox Hills and Hell Creek formations and the Tertiary Ludlow, Tongue River, and Sentinel Butte formations (Table 3-3). Several shallow aquifers related to post-glacial outwash composed of till, silt, sand, and gravel are located in Dunn County. However, none are within the proposed project area.

Table 3-3. Common Aquifers in the Proposed Project Area and Surrounding Region.

Period	Formation		Depth Range (feet)	Thickness (feet)	Lithology	Water-Yielding Characteristics
Quaternary	Alluvium		0–40	40	Silt, sand, and gravel	Maximum yield of 50 gal/min to individual wells from sand and gravel deposits.
Tertiary	Fort Union Group	Sentinel Butte	0–670	0–670	Silty, clay, sand and lignite	5 to 100 gal/min in sandstone. 1 to 200 gal/min in lignite.
		Tongue River	140–750	350–490	Silty, clay, sand and lignite	Generally less than 100 gal/min in sandstone.
		Cannonball/ Ludlow	500–1,150	550–660	Fine- to medium-grained sandstone, siltstone, and lignite	Generally less than 50 gal/min in sandstone.
Cretaceous	Hell Creek		1,000–1,750	200–300	Claystone, sandstone, and mudstone	5 to 100 gal/min in sandstone.
	Fox Hills		1,100–2,000	200–300	Fine- to medium-grained sandstone and some shale	Generally less than 200 gal/min in sandstone. Some up to 400 gal/min.

Sources: Croft 1985; Klausing 1979.
gal/min = gallons per minute

The shallow Sentinel Butte Formation, commonly used for domestic supply in the area, outcrops in Dunn and McKenzie counties. This aquifer meets standards of the NDDH (Croft 1985). Detailed analyses are available from the North Dakota Geological Survey, Bulletin 68, Part III, 1976.

3.3.2.1 Potential Impacts to Surface Water and Groundwater Resources

The proposed project would be located between 1.8 and 12.0 miles from Lake Sakakawea, and several protective measures have been included in the construction plan, such as implementing proper hazardous materials management. Based on the location and design, no significant adverse impacts to surface water or groundwater resources are anticipated from the Proposed Action.

The proposed access road would be engineered and constructed to minimize the suspended solid (i.e., turbidity) concentration of surface runoff and avoid disruption of drainages. Construction activities, such as grading and earth moving, may impact water quality through increased sedimentation and runoff. Soil disturbance and removal of vegetative cover increases the potential for soil erosion which in turn increases sediment loading during runoff-producing storm events. The compacted soil of the proposed access road would decrease the ability of the soil to infiltrate precipitation, leading to increased runoff. The amount of runoff produced by a storm event may also increase due to soil compaction from the operation of vehicles and other construction equipment. Salts, metals, organic substances, and other pollutants present on the roads are transported in the runoff and into the surface waters which further degrade water quality.

Although no hazardous materials would be used during road construction, any chemicals or potentially hazardous materials would be handled in accordance with Petro-Hunt's Spill Prevention, Control, and Countermeasure plan. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

3.4 WETLANDS, HABITAT, AND WILDLIFE

3.4.1 Wetlands

National Wetland Inventory (NWI) maps maintained by the U.S. Fish and Wildlife Service (USFWS) identify several wetland areas in the vicinity of the proposed project corridor. According to the USFWS NWI database, several palustrine emergent wetlands are located near the proposed access road, with the largest area located approximately 0.5 mile to the south in Section 4, T147N, R94W. Two NWI delineated wetlands are located within 1 mile of the proposed access road.

A wetland assessment of the project by SWCA Environmental Consultants (SWCA) in August 2010 determined that no wetlands or potentially jurisdictional waters of the U.S. would be impacted by the proposed project. All wetlands within or near the project area will be avoided. Therefore, no impacts to wetlands are anticipated from this project and no permitting for wetland impacts will be required from the U.S. Army Corps of Engineers (USACE). If it is determined that wetland permitting will be required due to changes in the project design or layout, Petro-Hunt will coordinate any permitting with the BIA, USACE, and appropriate state and federal agencies, and comply with all conditions of permit approval during construction.

3.4.2 Wildlife

Several wildlife species that may exist or have been known to exist in Dunn County are listed as threatened or endangered under the Endangered Species Act (16 USC 1531 et seq.) (ESA). According to the USFWS, listed species in Dunn County, North Dakota, include the gray wolf, black-footed ferret, whooping crane, piping plover and its Designated Critical Habitat, interior least tern, and pallid sturgeon, as well as two federal candidate species, the Dakota skipper and Sprague's pipit. The listed species and their federal status are provided in Table 3-4 and Appendix A. SWCA did not observe any of these species during their field surveys, although potential habitat for the Dakota skipper, Sprague's pipit, whooping crane, black-footed ferret, and gray wolf do occur within or near the project area.

Wildlife species identified by SWCA ecologist's during the field survey include prairie dog (*Cynomys ludovicianus*), mule deer (*Odocoileus hemionus*), western meadowlark (*Sturnella neglecta*), sharp-tailed grouse (*Tympanuchus phasianellus*), bluebird (*Sialia sialis*), and clay colored sparrow (*Spizella pallida*).

Potential impacts to wildlife would come as a result of the upgrading of the existing two-track road and the vehicular traffic associated with this activity. No impact on listed threatened or endangered species is anticipated due to the low likelihood of their occurrence within the project area. Furthermore, on-site assessments confirmed that no threatened or endangered species habitat exists in the project area. Ground clearing for the access road might impact habitat for unlisted species, including small birds, small mammals, and other wildlife species.

In the effort to reduce impacts to wildlife, vehicular traffic traveling to and from the project area would be limited to a speed deemed appropriate for this area.

Table 3-4. Summary of Potential Effects to Threatened and Endangered Species.

Species	ESA Status	Habitat Suitability or Known Occurrence	Operator-Committed Measures	Effects Determination
Black-footed Ferret (*Mustela nigripes*)	Endangered	Species is presumed extirpated from North Dakota.	None	No Effect
Gray Wolf (*Canis lupus*)	Endangered	Nearest known gray wolf populations exist in Minnesota, Canada, Montana, and Wyoming. Western North Dakota sightings in the late twentieth century are speculated to be solitary, transient, young adult males seeking to establish territory.	None	No Effect

Species	ESA Status	Habitat Suitability or Known Occurrence	Operator-Committed Measures	Effects Determination
Whooping Crane (*Grus americana*)	Endangered	Birds may occasionally stopover during migration due to the presence of suitable foraging habitat near the project area.	Construction activity will cease and the Bureau of Indian Affairs (BIA) and U.S. Fish and Wildlife Service (USFWS) will be notified if whooping cranes are sighted within 1 mile of the project area. In addition, migratory bird protective measures will be implemented, as follows: • Construction will be conducted outside of the migratory bird breeding season (February 1–July 15). If Petro-Hunt clears the right-of-way (ROW) of vegetation through either blading or mowing before February 1, then no additional avian surveys will be conducted assuming the ROW is kept clear of vegetation until reclamation commences. • If construction is to occur during bird breeding season, vegetation within the construction ROW will be regularly mowed after surveys for nesting migratory birds are completed within 5 days of construction. • If active nests are located during a supplemental avian survey, Petro-Hunt will consult with the BIA and USFWS to determine acceptable options. • Wetlands and waterbodies would be avoided. Therefore, no impact to wetlands or waterbodies as a result of construction activities is anticipated.	May Affect, Is Not Likely to Adversely Affect
Piping Plover (*Charadrius melodus*)	Threatened	Birds are unlikely to be present due to lack of suitable foraging or nesting habitat.	See migratory bird protective measures for whooping crane.	May Affect, Is Not Likely to Adversely Affect

Species	ESA Status	Habitat Suitability or Known Occurrence	Operator-Committed Measures	Effects Determination
Designated Critical Habitat for Piping Plover	Designated Critical Habitat	Critical Habitat occurs within the watershed of the project area, on the shoreline and islands of Lake Sakakawea approximately 16.7 river miles from proposed roadway.	Petro-Hunt will implement all best management practices (BMPs) and erosion control measures.	May Affect, Is Not Likely to Adversely Affect
Interior Least Tern (*Sterna antillarum)*	Endangered	The nearest suitable nesting and foraging habitat occurs on the shoreline and islands of Lake Sakakawea, approximately 16.7 river miles from proposed roadway. Migrating interior least terns may transition through the project area.	See migratory bird protective measures for whooping crane. See Designated Critical Habitat protective measures for piping plover.	May Affect, Is Not Likely to Adversely Affect
Pallid Sturgeon (*Scaphirhynchus albus)*	Threatened	Lake Sakakawea is approximately 16.7 river miles from proposed roadway. The Little Missouri River is approximately 3.9 river miles from proposed roadway.	Petro-Hunt will implement all BMPs and erosion control measures. Wetlands and waterbodies would be avoided. Therefore, no impact to wetlands or waterbodies as a result of construction activities is anticipated.	May Affect, Is Not Likely to Adversely Affect
Dakota Skipper (*Hesperia dacotae)*	Candidate	Suitable habitat was noted within the project area. However, no adverse impact is anticipated as a result of construction activities.	The temporary ROW would be reclaimed as soon as possible after construction.	May Affect, Is Not Likely to Adversely Affect
Sprague's Pipit (*Anthus spragueii)*	Candidate	Suitable habitat was noted within the project area. However, no adverse impact is anticipated as a result of construction activities.	The temporary ROW would be reclaimed as soon as possible after construction.	May Affect, Is Not Likely to Adversely Affect

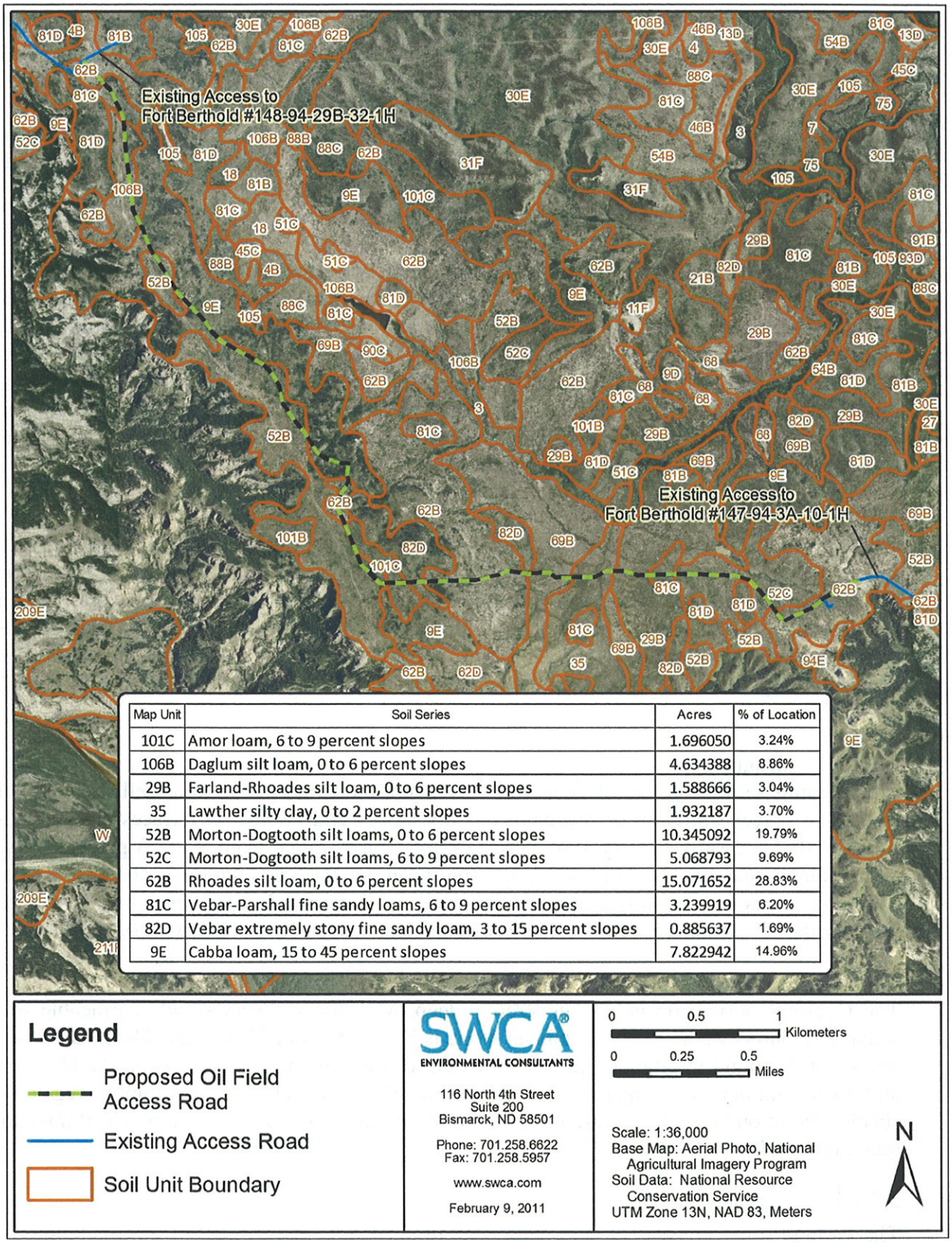
Species	ESA Status	Habitat Suitability or Known Occurrence	Operator-Committed Measures	Effects Determination
Other Federally Protected Species				
Bald Eagle (*Haliaeetus leucocephalus)*	Bald and Golden Eagle Protection Act (BGEPA)	Raptor habitat survey was conducted. No evidence of bald eagle habitat or nesting occurs in the project area.	A 0.5-mile line of sight survey was conducted during the initial field survey and no suitable nesting habitat was observed within the project area. No additional bald eagle surveys will be conducted.	No Adverse Effects Anticipated
Golden Eagle (*Aquila chrysaetos)*	BGEPA	Raptor habitat survey was conducted. No eagle nests were observed in the project area. Nesting habitat was present and golden eagles may occasionally visit or forage within or around the project area.	A 0.5-mile line of sight survey was conducted during the initial field survey and suitable nesting habitat was observed within the project area. No additional golden eagle surveys will be conducted. The closest known golden eagle nest occurrence is approximately 1.75 miles south of the proposed project area. The nest is located in the SE ¼ of Section 9 T147N, R94W (47.563833°,-102.658162°). No additional golden eagle surveys will be conducted.	No Adverse Effects Anticipated
Migratory Birds	Migratory Bird Treaty Act	Suitable habitat for nesting migratory grassland birds occurs in the project area.	See migratory bird protective measures for whooping crane.	No Adverse Effects Anticipated

3.5 SOILS

Soils in the project area vary depending on the topography, slope orientation, and parent material from which the soil is derived. The project area is located toward the center of the Williston Basin. The Greenhorn Formation, which consists of thin limestone and dark gray to black organic-rich shale, is found from the surface to a depth of approximately 4,000 feet. The Greenhorn is subdivided into lower and upper intervals of limestone and calcareous shale with a middle interval of shale. Near-surface sediment is of Recent, Pleistocene, or Tertiary age, and includes Sauk, Tippecanoe, Kaskaskia, Absaroka, Zuni, and Tejas Sequences. The Natural Resources Conservation Service (NRCS) soil data for soil series found in the project area are described in this section.

3.5.1 Natural Resources Conservation Service Soil Data

Published soil surveys for the project area are updated as of 2009. Updated information is available online from the NRCS. The acreage shown is based on the spatial extent of soil series combinations derived from NRCS data (Figure 3-2); therefore, the acreage is approximate and used as a best estimate of soil series distribution for the project area.



Map Unit	Soil Series	Acres	% of Location
101C	Amor loam, 6 to 9 percent slopes	1.696050	3.24%
106B	Daglum silt loam, 0 to 6 percent slopes	4.634388	8.86%
29B	Farland-Rhoades silt loam, 0 to 6 percent slopes	1.588666	3.04%
35	Lawther silty clay, 0 to 2 percent slopes	1.932187	3.70%
52B	Morton-Dogtooth silt loams, 0 to 6 percent slopes	10.345092	19.79%
52C	Morton-Dogtooth silt loams, 6 to 9 percent slopes	5.068793	9.69%
62B	Rhoades silt loam, 0 to 6 percent slopes	15.071652	28.83%
81C	Vebar-Parshall fine sandy loams, 6 to 9 percent slopes	3.239919	6.20%
82D	Vebar extremely stony fine sandy loam, 3 to 15 percent slopes	0.885637	1.69%
9E	Cabba loam, 15 to 45 percent slopes	7.822942	14.96%

Figure 3-2. Approximate Spatial Extent of Soil Types within the Project Area.

As demonstrated in Figure 3-2, the Rhoades silt loam and Morton-Dogtooth silt loam soil types are the dominant soils found in the project area.

The following soil series descriptions represent individual soil series reported to exist within the project area (NRCS 2009). Each individual soil series may exist individually within the project area or in combination with other soil types.

3.5.1.1 Amor

The Amor series consists of well drained, moderately permeable soils that are moderately deep to soft sandstone bedrock. They formed in material weathered from stratified soft sandstone, siltstone, and mudstone. These soils are on uplands and have slopes of 0 to 25 percent. Mean annual temperature is 42°F, and mean annual precipitation is 15 inches. These soils are commonly cropped to small grains, flax, corn, hay, and grass in a crop summer fallow rotation. Native vegetation is mid and short prairie grasses such as green needlegrass (*Nassella viridula*), needle-and-thread (*Hesperostipa comata*), western wheatgrass (*Pascopyrum smithii*), and blue grama (*Bouteloua gracilis*).

3.5.1.2 Cabba

The Cabba series consists of shallow, well drained, moderately permeable soils found on hills, escarpments, and sedimentary plains. The soil slopes broadly range between 2 and 70 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and mean annual air temperature is approximately 43°F. The most common vegetation species found on this soil type are little bluestem (*Schizachyrium scoparium*), green needlegrass, and other various herbs, forbs, and shrub species (NRCS 2009).

3.5.1.3 Daglum

The Daglum series consists of deep and very deep, moderately well and well drained soils formed in clayey alluvium or residuum on foot slopes and swales on terraces and uplands. These soils have slow or very slow permeability. Slopes range from 0 to 25 percent. Mean annual air temperature is about 42°F, and the mean annual precipitation is about 16 inches. This soil series is used for range, pasture, and small grains. Native vegetation is western wheatgrass, blue grama, green needlegrass, needleleaf sedge (*Carex duriuscula*), and forbs.

3.5.1.4 Dogtooth

The Dogtooth series consists of moderately deep, well drained, very slowly permeable soils found in uplands where the predominant slope is between 0 and 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches and mean annual air temperature is approximately 42°F. The most common vegetation species found on this soil type are range and pasture grasses including western wheatgrass and blue grama (NRCS 2009).

3.5.1.5 Farland

The Farland series consists of very deep, well drained soils that formed in stratified alluvium on terraces, valley foot slopes, and fans on uplands. Permeability is moderate or moderately slow. Slope ranges from 0 to 20 percent. Mean annual precipitation is about 14 inches, and

mean annual temperature is about 42°F. Potential native vegetation is needle-and-thread, green needlegrass, western wheatgrass, and blue grama.

3.5.1.6 Lawther

The Lawther series consists of very deep, well drained, slowly permeable soils that formed in calcareous clayey sediments. These soils are on uplands, fans, and terraces. Slope ranges from 0 to 9 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 16 inches. Most areas are cropped to wheat and other small grains; some are in native grass. Native vegetation includes western wheatgrass, green needlegrass, blue grama, and forbs.

3.5.1.7 Morton

The Morton series consists of moderately deep, well drained, moderately permeable soils that formed in material weathered from soft calcareous silty shales, siltstones, and fine-grained sandstones. These soils are on uplands and have slopes of 0 to 15 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 15 inches. Cultivated areas are used for growing small grains, flax, corn, hay, and pasture. Native vegetation is mid- and short-prairie grasses such as western wheatgrass, green needlegrass, and blue grama (NRCS 2009).

3.5.1.8 Parshall

The Parshall series consists of very deep, well or moderately well drained, moderately rapidly permeable soils formed in alluvium. These soils are on terraces, outwash plains, and upland swales and have slopes of 0 to 25 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 16 inches. Most areas are cropped to small grains, flax, tame grass, and alfalfa. Native vegetation is medium and short prairie grasses as needle-and-thread, and some legumes.

3.5.1.9 Rhoades

The Rhoades series consists of deep and very deep, well to moderately well drained, very slowly permeable soils found on swales and uplands with slopes ranging from approximately 0 to 25 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and mean annual air temperature is 42°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass and blue grama (NRCS 2009).

3.5.1.10 Vebar

The Vebar series consists of well drained, moderately deep, moderately rapidly permeable soils that formed in residuum weathered from soft calcareous sandstone. These soils are on uplands and have slopes ranging from 0 to 65 percent. Mean annual air temperature is 42°F, and mean annual precipitation is 16 inches. These soils are often cropped to corn and small grains, or used for hay or pasture. Native grasses are needle-and-thread and prairie sandreed (*Calamovilfa longifolia*).

3.5.2 Potential Impacts from Soil Erosion

Potential for erosion to occur may exist at some sites depending on surface disturbance, site-specific slope, soil type, and construction technique and/or long-term maintenance. The pipeline would be contoured to the original topography and revegetated immediately following construction, resulting in no potential soil loss.

Petro-Hunt has committed to the following specific protective measures that would prevent or reduce erosion potential at each site.

- All construction would include implementation of BMPs to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization. Sites would be inspected during construction in accordance with NPDES requirements, and monitored after construction to ensure that erosion does not occur.
- Roads would be constructed with crown and ditch to direct runoff away from gravel surfaces. Roads are designed with appropriately sized culverts at any intermittent stream crossings, in accordance with BLM Gold Book Standards. All disturbed areas except the road surface would be stabilized through seeding techniques as soon as practical following construction.
- Erosion and sedimentation control measures would be implemented in the project area, such as installing culverts with energy dissipating devices at culvert outlets to avoid sedimentation in ditches, constructing water bars alongside slopes, and planting cover crops to stabilize soil following construction and before permanent seeding takes place.

Most of the soils in the project area are known to support native grassland vegetation, which may substantially increase the probability for successful and permanent reclamation, provided care is taken in areas where the soils are less than ideal for vegetative growth (NRCS 2010). Proven construction BMPs are known to significantly reduce erosion of various types of soil, including those in the project area (BLM Instruction Memorandum 2004-124, www.blm.gov/bmp; BLM and USFS 2007; Grah 1997).

The project is not expected to create unmanageable erosion issues or interfere with reclamation of the area. Topsoil stripped from areas of new construction would be retained for use during reclamation. Any areas stripped of vegetation during construction would be seeded following construction activities. All construction sites would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization. The implementation of BMPs by the operator would reduce project effects and maintain negligible levels of erosion; therefore, no significant adverse impacts to soil resources are anticipated.

3.6 VEGETATION AND INVASIVE SPECIES

The project is located in the Missouri Coteau Slope and Riverbreaks ecoregions that are characterized by western mixed-grass and short-grass prairie vegetation (Bryce et al. 1998). Common native vegetation species in the region include blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), prairie junegrass (*Koeleria macrantha*), needle-

and-thread (*Stipa comata*), buffalo grass (*Buchloe dactyloides*), green needlegrass (*Nassella viridula*), and little bluestem (*Schizachyrium scoparium*). Common wetland vegetation includes various sedge species (*Carex* spp.), bulrush (*Scirpus* spp.), and cattails (*Typha* spp.). Common plant species found in woody draws, coulees, and drainages include chokecherry (*Prunus virginiana*), silver buffaloberry (*Shepherdia argentea*), and western snowberry (*Symphoricarpos occidentalis*).

SWCA biologists conducted wetland/waterbody and wildlife surveys, including threatened and endangered species habitat assessments, on July 22 and November 17, 2010. Habitat types identified during the field surveys included mixed grass prairie, forested upland, and shrubland. Northern mixed grass prairie can include wetlands, native grassland, and grass-shrub habitats, with riparian and floodplain forests along major drainages. All species listed were found within the mixed grass prairie, forested upland, or shrubland habitat.

Species observed within forested upland and shrubland habitat include green ash (*Fraxinus pennsylvanica*), creeping juniper (*Juniperus horizontalis*), common chokecherry, silver buffaloberry, western snowberry, and western poison ivy (*Toxicodendron rydbergii*).

One native upland grass species, little bluestem, was recorded during the field survey. Additionally, the non-native species crested wheatgrass (*Agropyron cristatum*) was observed during the field survey.

Upland forbs identified within the project area include fringed sage (*Artemisia frigida*), Russian knapweed (*Centaurea repens*), purple coneflower (*Echinacea angustifolia*), yellow sweetclover (*Melilotus officinalis*), and prairie coneflower (*Ratibida columnifera*).

Invasive species is a general term referring to species that are not native to an area, spread aggressively, and have negative economical and environmental impacts. Noxious weeds are invasive plant species that can spread easily to the detriment of public health, indigenous plant communities, livestock, recreational areas, and the management of natural or agricultural systems. The 11 weed species declared noxious under the North Dakota Century Code (Chapter 63-01.1) must be controlled by all cities and counties in North Dakota (North Dakota Department of Agriculture [NDDA] 2007). Table 3-5 summarizes the available acreage data, reported in 2007, for noxious weeds within Dunn County.

As presented in Table 3-5, Absinth wormwood (*Artemisia absinthium*) is the most prolific noxious weed in Dunn County and the second most abundant is Canada thistle (*Cirsium arvense*).

Evaluation of the existing vegetation during on-site assessments conducted in August 2010 indicated one noxious weed present (Russian knapweed). After further review it was discovered that the plant had been misidentified; therefore, no noxious species are present within the proposed access road location.

Table 3-5. North Dakota Noxious Weed List (from NDDA 2007).

Common Name	Scientific Name	Dunn County Acres
Absinth wormwood	*Artemisia absinthium*	38,600
Canada thistle	*Cirsium arvense*	32,800
Dalmatian toadflax	*Linaria dalmatica*	2
Diffuse knapweed	*Centaurea diffusa*	--
Leafy spurge	*Euphorbia esula*	10,500
Musk thistle	*Carduus nutans*	2
Purple loosestrife	*Lythrum salicaria*	--
Russian knapweed	*Acroptilon repens*	--
Salt cedar	*Tamarix ramosissima*	--
Spotted knapweed	*Centaurea stoebe*	--
Yellow toadflax	*Linaria vulgaris*	--
Total		**114,904**

Potential disturbance of approximately 52.12 acres and removal of existing vegetation may facilitate the spread of invasive species. The mixed grass prairie community is dominant in the proposed 100-foot ROW and, therefore, would be most impacted by the Proposed Action. Direct impacts of vegetation removal associated with the proposed access road would include long-term loss of vegetation including the modification of vegetation structure, plant species composition, and aerial extent of cover types. Removal of vegetation may result in increased soil exposure, loss of wildlife habitat, reduced plant diversity, and loss of livestock forage. Indirect impacts would include the increased potential for non-native/noxious plant establishment and introduction, accelerated wind and water erosion, changes in water runoff due to road/facility construction, soil impacts that affect plant growth (soil erosion or siltation), shifts in species composition and/or changes in vegetative density away from desirable conditions, and changes in visual aesthetics.

The operator would be required to control noxious weeds throughout the project area. If a noxious weed community is found, it would be eradicated unless the community is too large, in which case it would be controlled or contained to prevent further growth. The services of a qualified weed control contractor would be utilized.

Surface disturbance and vehicular traffic must not take place outside approved ROWs for the roadway. Areas that are stripped of topsoil must be seeded and reclaimed at the earliest opportunity. Additionally, certified weed-free straw and seed must be used for all construction, seeding, and reclamation efforts. Prompt and appropriate construction, operation, and reclamation are expected to maintain minimal levels of adverse impacts to vegetation and would reduce the potential establishment of invasive vegetation species. Rapid reclamation and the implementation of BMPs would minimize any long-term loss of soil and degradation of vegetation resources in the pipeline ROW. The loss of acres, with implementation of BMPs and noxious weed management guidelines, would result in negligible levels of vegetation disturbance and would not result in significant adverse impacts to vegetation resources.

3.7 CULTURAL RESOURCES

Historic properties, or cultural resources, on federal or tribal lands are protected by many laws, regulations and agreements. The *National Historic Preservation Act of 1966* (16 USC 470 *et seq.*) at Section 106 requires, for any federal, federally assisted or federally licensed undertaking, that the federal agency take into account the effect of that undertaking on any district, site, building, structure or object that is included in the National Register of Historic Places (National Register) before the expenditure of any federal funds or the issuance of any federal license. Cultural resources is a broad term encompassing sites, objects, or practices of archaeological, historical, cultural and religious significance. Eligibility criteria (36 CFR 60.6) include association with important events or people in our history, distinctive construction or artistic characteristics, and either a record of yielding or a potential to yield information important in prehistory or history. In practice, properties are generally not eligible for listing on the National Register if they lack diagnostic artifacts, subsurface remains or structural features, but those considered eligible are treated as though they were listed on the National Register, even when no formal nomination has been filed. This process of taking into account an undertaking's effect on historic properties is known as "Section 106 review," or more commonly as a cultural resource inventory.

The area of potential effect (APE) of any federal undertaking must also be evaluated for significance to Native Americans from a cultural and religious standpoint. Sites and practices may be eligible for protection under the *American Indian Religious Freedom Act of 1978* (42 USC 1996). Sacred sites may be identified by a tribe or an authoritative individual (Executive Order 13007). Special protections are afforded to human remains, funerary objects, and objects of cultural patrimony under the *Native American Graves Protection and Repatriation Act* (NAGPRA, 25 USC 3001 *et seq.*).

Whatever the nature of the cultural resource addressed by a particular statute or tradition, implementing procedures invariably include consultation requirements at various stages of a federal undertaking. The MHA Nation has designated a Tribal Historic Preservation Officer (THPO) by Tribal Council resolution, whose office and functions are certified by the National Park Service. The THPO operates with the same authority exercised in most of the rest of North Dakota by the State Historic Preservation Officer (SHPO). Thus, BIA consults and corresponds with the THPO regarding cultural resources on all projects proposed within the exterior boundaries of the Fort Berthold Reservation.

A cultural resource inventory of this proposed road was conducted by personnel of SWCA Environmental Consultants, using an intensive pedestrian methodology. A total of approximately 59.46 acres was inventoried between May 24 and November 17, 2010 (Lechert *et al.* 2011). Six previously recorded archaeological sites were revisited and two new sites were located that may possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. One other site was revisited which is not considered eligible for the National Register, and one other site was not revisited but may be eligible for protection under the American Indian Religious Freedom Act (42 USC 1996). As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for this undertaking, provided that the potentially eligible sites are fenced off and a qualified

archaeologist is present during all construction activities. This determination was communicated to the THPO on March 21, 2011; however, the THPO did not respond within the allotted 30 day comment period.

If cultural resources are discovered during construction or operation, the operator shall immediately stop work, secure the affected site, and notify the BIA and THPO. Unexpected or inadvertent discoveries of cultural resources or human remains trigger mandatory federal procedures that include work stoppage and BIA consultation with all appropriate parties. Following any such discovery, operations would not resume without written authorization from the BIA. Project personnel are prohibited from collecting any artifacts or disturbing cultural resources in the area under any circumstance. Individuals outside the ROW are trespassing. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

3.8 SOCIOECONOMICS

3.8.1 Socioeconomic Analysis Area

The scope of analysis for social and economic resources includes a discussion of current social and economic data relevant to the Analysis Area and surrounding communities of the Reservation and McKenzie, Dunn, McLean, and Mountrail counties, North Dakota. These counties were chosen for analysis because their proximity to the proposed roadway construction and overlap with the Reservation could result in socioeconomic impacts. These communities are collectively referred to as the Analysis Area.

This section discusses community characteristics such as population, housing, demographics, employment, and economic trends within the Analysis Area. Also included are data relating to the State of North Dakota and the United States, which provide a comparative discussion when compared to the Analysis Area. Information in this section was obtained from various sources including, but not limited to, the U.S. Census Bureau, the U.S. Bureau of Economics, and the North Dakota State Government.

3.8.2 Population and Demographic Trends

Historic and current population counts for the Analysis Area, compared to the state, are provided below in Table 3-6. The state population showed little change between the last two census counts (1990–2000), but there were notable changes at the local level. Populations in all four counties have steadily declined in the past. McLean and Dunn counties had a higher rate of population decline among the four counties at -10.5% and -7.8%, respectively. These declines can be attributed to more people moving to metropolitan areas, which are perceived as offering more opportunities for growth. However, population on or near the Reservation has increased approximately 13.3% since 2000. While Native Americans are the predominant group on the Reservation, they are considered the minority in all other areas of North Dakota.

As presented in Table 3-6, population growth on the Reservation (13.3%) exceeds the overall growth in the state of North Dakota (-0.1%) and four counties in the Analysis Area. This trend

in population growth for the Reservation is expected to continue in the next few years (Fort Berthold Housing Authority 2008).

Table 3-6. Population and Demographics.

County or Reservation	Population in 2008	% of State Population	% Change Between 1990–2000	% Change Between 2000–2008	Predominant Group in 2008 (%)	Predominant Minority in 2008 (Percent of Total Minority Population)
Dunn	3,318	0.5	-10.1	-7.8	Caucasian (84.9%)	American Indian (15.1%)
McKenzie	5,674	0.8	-10.1	-1.1	Caucasian (76.3%)	American Indian (23.7%)
McLean	8,337	1.3	-11.0	-10.5	Caucasian (91.3%)	American Indian (8.7%)
Mountrail	6,511	1.0	-5.6	-1.8	Caucasian (62.8%)	American Indian (37.2%)
On or Near Fort Berthold Indian Reservation[1]	11,897	1.8	178.02	+13.33	American Indian	Caucasian (~27%)
Statewide	641,481	100	0.005	-0.1	Caucasian	American Indian (8.6%)

Source: U.S. Census Bureau 2010a.

[1] Bureau of Indian Affairs 2005. Population shown reflects the Total enrollment in the Tribe in 2005. 2008 data unavailable. All information related to the Fort Berthold Indian Reservation reflects 2005 data, including state population. 11,897 reflects tribal enrollment on or near the Reservation. According to the BIA, near the Reservation includes those areas or communities adjacent or contiguous to the Reservation.

3.8.3 Employment

The economy in the state of North Dakota, including the Reservation and four counties in the Analysis Area, has historically depended on agriculture, including grazing and farming. However, 2007 economic data indicates that the major employers in North Dakota include government and government enterprises, which employed 16.6%; health care and social assistance, which employed 11.7%; and retail trade, which employed at 11.3% of the state's labor force (U.S. Bureau of Economic Analysis 2009a). Energy development and extraction, power generation, and services related to these activities have become increasingly important over the last several years and many service sector jobs are directly and indirectly associated with oil and gas development.

Table 3-7 provides data on 2009 employment opportunities for the Analysis Area, and changes in unemployment for the period between 2005 and 2009. All counties in the Analysis Area, and the entire state of North Dakota, showed average weekly wages that were lower than the national average in 2009. In 2009, total employment in the state of North Dakota was

approximately 354,916, with a statewide unemployment rate of 4.3% of the workforce, one of the lowest in the nation (Bureau of Labor Statistics 2009). While some counties in the Analysis Area experienced a slight increase in unemployment, others were unchanged or experienced a decreased unemployment.

Table 3-7. 2009 Total Employment, Average Weekly Wages, and Unemployment Rates.

Location	Total Employment (September 2009)	Average Weekly Wage (September 2009)	Unemployment Rate (2009)	Change in Unemployment Rate (2005–2009)
United States	128,088,742	$840	9.8%	
North Dakota	354,916	$680	4.3%	+0.9%
Dunn County	929	647	4.5%	+1.1%
McKenzie County	2,899	839	3.5%	-0.2%
McLean County	3,594	755	5.0%	No change
Mountrail County	3,126	681	4.2%	-1.8%
On or Near Fort Berthold Indian Reservation*	1,287	N/A	71%	N/A

Sources: Bureau of Labor Statistics 2009; U.S. Department of Agriculture 2010; Bureau of Indian Affairs 2005.
* Represents 2005 data only.

The BIA publishes biannual reports documenting the Indian service and labor market for the nation. According to the 2005 American Indian Population and Labor Force Report, of the 8,773 tribal members that were eligible for BIA-funded services, 4,381 constituted the total available workforce. Approximately 29%, or 1,287 members, were employed in 2005, indicating a 71% unemployment rate (as a percent of the labor force) for members living on or near the Reservation; 55% of the employed members were living below poverty guidelines. Compared to the 2001 report, 2005 statistics reflect a 6.2% increase in the number of tribal members employed living on or near the Reservation, but unemployment (as a percent of the labor force) has stayed steady at 71% and the percentage of employed people living below the poverty guidelines has increased to 55% (BIA 2005).

Although detailed employment information for the Reservation is not provided by the U.S. Bureau of Economics or the State of North Dakota, residents of the Reservation are employed in similar ventures as those outside the Reservation. Typical employment includes ranching, farming, tribal government, tribal enterprises, schools, federal agencies, and recently, employment related to conventional energy development. The MHA Nation's Four Bears Casino and Lodge, located 4 miles west of New Town, employs approximately 320 people, of which 90% are tribal members (Fort Berthold Housing Authority 2008).

The Fort Berthold Community College, which is tribally chartered to meet the higher education needs of the people of the MHA Nation, had 11 full-time members and 25 adjunct members in academic year 2006–2007. Approximately 73% of the full-time faculty members

are of American Indian/Alaska Native descent, approximately 88% of which are enrolled members of the MHA Nation. Additionally, 65% of the part-time faculty members are of American Indian/Alaska Native descent and all (100%) are tribal members.

3.8.4 Income

Per capita income is often used as a measure of economic performance, but it should be used with changes in earnings for a realistic picture of economic health. Since total personal income includes income from 401(k) plans as well as other non-labor income sources like transfer payments, dividends, and rent, it is possible for per capita income to rise even if the average wage per job declines over time.

The North American Industry Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. According to NAICS standards, per capita personal income for Dunn County was $20,634 in 2000 and $26,440 in 2007, an increase of approximately 28.1%; per capita personal income for McKenzie County was $21,637 in 2000 and $32,927 in 2007, an increase of approximately 52.1%; per capita personal income for McLean County was $23,001 in 2000 and $38,108 in 2007, an increase of approximately 65.6%; per capita personal income for Mountrail County was $23,363 in 2000 and $32,324 in 2007, an increase of approximately 38.3%. These figures compare with a State of North Dakota per capital personal income of $25,105 in 2000 and $36,082 in 2007, an increase of approximately 43.7% from 2000 (U.S. Bureau of Economic Analysis 2009b).

According to a 2008 report published by the Fort Berthold Housing Authority, the average per capita income for the Reservation was $8,855 in 1999, compared to $17,769 for the State and the U.S. average of $21,587 at that time (Fort Berthold Housing Authority 2008).

With the exception of McLean County, counties that overlap the Reservation tend to have per capita incomes and median household incomes below North Dakota statewide averages. As presented in Table 3-8, unemployment rates in all counties, including the Reservation, were equal to or above the state average of 3.1%. Subsequently, Reservation residents and MHA Nation members tend to have per capita incomes and median household incomes below the averages of the encompassing counties, as well as statewide and higher unemployment. Per capita income for residents on or near the Reservation is approximately 28% lower than the statewide average. The median household income reported for the Reservation (i.e., $26,274) is approximately 40% lower than the state median of $43,936. According to the BIA, approximately 55% of tribal members living on or near the Reservation were employed, but living below federal poverty levels (BIA 2005).

Table 3-8. Income and Poverty in Analysis Area, 2007.

Unit of Analysis	Per Capita Income[1]	Median Household Income	Percent of all People in Poverty[2]
Dunn County	26,440	$37,632	13.5%
McKenzie County	32,927	$41,333	13.8%
McLean County	38,108	$44,421	10.4%

Unit of Analysis	Per Capita Income[1]	Median Household Income	Percent of all People in Poverty[2]
Mountrail County	32,324	$35,981	15.9%
Fort Berthold Indian Reservation[3]	10,291	$26,274	N/A
North Dakota	36,082	$43,936	11.8%

[1] U.S. Bureau of Economic Analysis 2009b
[2] United Stated Department of Agriculture 2009
[3] North Dakota State Data Center 2009

3.8.5 Housing

Workforce-related housing can be a key issue associated with development. Historical information on housing in the four counties in the Analysis Area was obtained from the U.S. Census Bureau, 2000 Census, with 2008 updates (U.S. Census Bureau 2010a). Because the status of the housing market and housing availability changes often, current housing situations can be difficult to characterize quantitatively. Therefore, this section discusses the historical housing market. Table 3-9 provides housing unit supply estimates in the Analysis Area, including the Reservation and four overlapping counties.

The Fort Berthold Housing Authority manages a majority of the housing units within the Reservation. Housing typically consists of mutual-help homes built through various government programs, low-rent housing units, and scattered-site homes. Housing for government employees is limited, with a few quarters in Mandaree and White Shield available to Indian Health Service employees in the Four Bears Community and to BIA employees. Private purchase and rental housing are available in New Town. New housing construction has recently increased within much of the Analysis Area, but availability remains low.

Table 3-9. Housing Development Data for the Reservation and Encompassing Counties.

Region	Total Housing Units						% Change 2000–2008
	Occupied	Owner Occupied	Renter Occupied	Vacant	Total	Total	
	2000	2000	2000	2000	2000	2008	
Dunn	1,378	1,102	276	587	1,965	1,968	+0.1
McKenzie	2,151	1,589	562	568	2,719	2,781	+2.2
McLean	3,815	3,135	680	1,449	5,264	5,420	+2.9
Mountrail	2,560	1,859	701	878	3,438	3,528	+2.6
Reservation	1,908	1,122	786	973	2,881	N/A	N/A
North Dakota	257,152	171,299	85,853	32,525	289,677	313,332	+8.2

Source: U.S. Census Bureau 2010a.

Availability and affordability of housing could impact oil and gas development and operations. The number of owner-occupied housing units (1,122) within the Reservation is approximately 58% lower than the average number of owner-occupied housing units found in the four overlapping counties (1,921).

In addition to the relatively low percent change of the total housing units compared to the state average, these four counties are ranked extremely low for both the state and national housing starts and have minimal new housing building permits, as presented in Table 3-10.

Table 3-10. Housing Development Data for the Encompassing Counties 2000–2008.

Housing Development	North Dakota County			
	Dunn	McKenzie	McLean	Mountrail
New Private Housing Building Permits 2003–2008	14	14	182	110
Housing Starts-State Rank	51 / 53	15 / 53	21 / 53	17 / 53
Housing Starts-National Rank	3,112 / 3,141	2,498 / 3,141	2,691 / 3,141	2,559 / 3,141

Source: U.S. Census Bureau 2009a, 2009b.

3.8.6 Potential Impacts to Area Socioeconomics

Impacts to socioeconomic resources of the Analysis Area would be minimal and therefore would not adversely impact the local area. Short-term impacts to socioeconomic resources would generally occur during the construction and completion phase of the proposed roadway. Long-term effects would occur during the production phase, should the wells along the roadway prove successful. Impacts would be significant if the affected communities and local government experienced an inability to cope with changes including substantial housing shortages, fiscal problems, or breakdown in social structures and quality of life.

Although the Analysis Area has experienced a recent decline in population between 2000 and 2008 (as shown in Table 3-6), the population on the Reservation itself has increased. This has not led to significant housing shortages. The historic housing vacancy rate (Table 3-9) indicates that housing has remained available despite the growth of the population on the Reservation. The levels of available housing are therefore anticipated to be able to absorb the projected slight increase in population related to this proposed project. As such, the proposed project would not have measurable impacts on housing availability or community infrastructure in the area. The proposed project also would not result in any identifiable impacts to social conditions and structures within the communities in the project area.

Implementation of the proposed project would likely result in direct and indirect economic benefits associated with industrial and commercial activities in the area, including the Reservation, State of North Dakota, and potentially local communities near the Reservation. Direct impacts would include increased spending by contractors and workers for materials, supplies, food, and lodging in Dunn County and the surrounding areas, which would be subject to sales and lodging taxes. Other state, local, and Reservation tax payments and fees would be incurred as a result of the implementation of the proposed project, with a small percentage of these revenues distributed back to the local economies. Wages due to employment would also impact per capita income for those that were previously unemployed or underemployed. Indirect benefits would include increased spending from profitable gas production. Mineral severance and royalty taxes, as well as other relevant county and Reservation taxes on production would also grow directly and indirectly as a result of increased industrial activity in the oil and gas industry.

3.9 ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, signed in 1994 by President Clinton, requires agencies advance environmental justice (EJ) by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from federal programs, policies, decisions, or operations. Meaningful involvement means federal officials actively promote opportunities for public participation and federal decisions can be materially affected by participating groups and individuals.

The EPA headed the interagency workgroup established by the 1994 Order and is responsible for related legal action. Working criteria for designation of targeted populations are provided in Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (EPA 1998). This guidance uses a statistical approach to consider various geographic areas and scales of analysis to define a particular population's status under the Order.

EJ is an evolving concept with potential for disagreement over the scope of analysis and the implications for federal responsiveness. Nevertheless, due to the population numbers, tribal members on the Great Plains qualify for EJ consideration as both a minority and low-income population. Table 3-11 summarizes relevant data regarding minority populations for the Analysis Area.

Table 3-11. Minority Population Breakdown by North Dakota County and Race, 2000–2008[1].

Race	Dunn		McKenzie		McLean		Mountrail		North Dakota	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
Total Population	3,600	3,318	5,737	5,674	9,311	8,337	6,629	6,511	642,204	641,481
Non-Hispanic	3,573	3,275	5,679	5,581	9,230	8,191	6,542	6,327	634,418	628,254
Hispanic or Latino[2]	27	43	58	93	81	146	87	184	7,786	13,227
Races										
Caucasian	3,123	2,818	4,457	4,329	8,632	7,610	4,546	4,086	596,722	586,272
African American	1	2	4	30	2	9	7	27	4,157	6,956
American Indians and Alaska Natives	448	467	1,216	1,230	568	587	1,988	2,277	31,440	35,666
Asian / Pacific Islanders	8	3	4	10	12	19	17	20	3,912	5,095
Two or More Races	25	28	39	75	97	112	71	101	5,973	7,492

Race	Dunn		McKenzie		McLean		Mountrail		North Dakota	
	2000	2008	2000	2008	2000	2008	2000	2008	2000	2008
All Minorities	509	543	1,321	1,438	760	808	2,170	2,609	53,268	55,209
% Minority Population	14.1	16.4	23.0	25.3	8.2	9.7	32.7	40.1	8.3	8.6
Change in Minority Population (2000–2008)	+6.7%		+8.9%		+6.3%		+20.2%		+3.6%	

[1] U.S. Census Bureau estimates of population demographics were made in July 2008.

[2] Hispanic or Latino may be of any race.

Source: U.S. Census Bureau 2010a.

In July 2008, the U.S. Census estimated that North Dakota's total minority population comprised approximately 55,209 persons, or 8.6% of the state's total population (i.e., 641,481 residents). This represents an increase of 3.63% over the 2000 minority population of the state, even though the overall state's total population decreased during the same time. An even stronger trend of increased minority population, and decrease in overall population occurred in the Analysis Area during the same time period. As presented in Table 3-11, the number of Caucasian residents decreased, while minorities in nearly all categories increased, producing a strong increase in the percentage of minority population in each of the counties in the Analysis Area during the period from 2000 until 2008 (U.S. Census Bureau 2010a). The four counties of the Analysis Area showed an increase of 6.3% to 20.2% in minority population, compared with the statewide increase of 3.6%.

The American Indian and Alaska Native population is the largest minority in each of the counties, as well as for the state as a whole (North Dakota Indian Affairs Commission [NDIAC] 2010). The NDIAC reports that American Indian population (race alone or in combination) in North Dakota has increased 12% from 35,228 in 2000 to 35,666 in 2008 (U.S. Census Bureau 2010a), with estimates for the future American Indian population (one race only) at 47,000 in 2015 and 59,000 in 2025 in North Dakota (NDIAC 2010). The Reservation has a total population of 5,915 in the 2000 census, with 67.4 % American Indian, mostly with tribal affiliations with MHA Nation (NDIAC 2010).

Poverty rate data for the counties in the Analysis Area are summarized in Table 3-12. The data show that poverty rates have decreased in the Analysis Area during the period from 2000 to 2008 (U.S. Census Bureau 2010b). However, except for McLean County, the poverty rates are higher and the median household incomes are lower for area residents in 2008, compared with the statewide poverty rate of 11.5% and median household income of $45,995.

Table 3-12. Poverty Rates and Median Household Income for the Analysis Area.

Location	2000	2008	2008 Median Household Income

Dunn County	13.3%	12.2	$40,801
McKenzie County	15.7%	14.4	$44,704
McLean County	12.3%	11.1	$46,131
Mountrail County	15.7%	14.0	$41,551
North Dakota	10.4%	11.5%	$45,996

Source: U.S. Census Bureau 2010b.

3.10 MITIGATION AND MONITORING

Monitoring programs would be initiated immediately following all reclamation efforts, whether following initial construction, any operational ground disturbance or after final reclamation. Need for additional seeding, planting or other soil stabilization measures would be decided by these monitoring efforts. Problem areas would be treated as soon as possible. All unauthorized vehicle access points on the project would be noted and subsequently blocked by the installation of signage or fencing. Other protective measures and procedures are described in this document.

No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required. Monitoring of cultural resource impacts by qualified personnel is recommended during all ground-disturbing activities. Each phase of construction and development through production will be monitored by the BIA and representatives of the MHA Nation to ensure the protection of cultural, archaeological, and natural resources. In conjunction with 43 CFR 46.30, 46.145, 46.310, and 46.415, a report will be developed by the BIA that documents the results of monitoring in order to adapt the projects to eliminate any adverse impact on the environment.

Mitigation opportunities can be found in general and operator-committed BMPs and mitigation measures. BMPs are loosely defined as techniques used to lessen the visual and physical impacts of development. Petro-Hunt would implement, to the extent possible, the use of BMPs in an effort to mitigate environmental concerns in the planning phase allowing for smoother analysis, and possibly faster project approval.

3.10.1 General BMPs

Although largely project-specific, there are a number of BMPs that can, and should, be considered on development projects in general. The following are examples of general BMPs.

- Planning roads to minimize visual impacts.
- Using existing roads to the extent possible, upgrading as needed.
- Reducing the size of facility sites and types of roads to minimize surface disturbance.
- Minimizing topsoil removal.
- Stockpiling stripped topsoil and protecting it from erosion until reclamation activities commence. At that time, the soil would be redistributed and seeded on the

disturbed areas. The reclaimed areas would be protected and maintained until the sites are fully stabilized.

- Avoiding removal of, and damage to, trees, shrubs, and groundcover where possible. Trees near construction areas would be marked clearly to ensure that they are not removed.
- Mowing, instead of clearing, a facility or well site to accommodate vehicles or equipment.
- Maintaining buffer strips or using other sediment control measures to avoid sediment migration to stream channels as a result of construction activities.
- Planning for erosion control.
- Storing chemicals properly (including secondary containment).
- Keeping sites clean, including containing trash in a portable trash cage. The trash cage would be emptied at a state-approved sanitary landfill.
- Conducting snow removal activities in a manner that does not adversely impact reclaimed areas and areas adjacent to reclaimed areas.
- Avoiding or minimizing topographic alterations, activities on steep slopes, and disturbances within stream channels and floodplains to the extent possible.
- Maintaining buffers around work areas where there is a risk of fire as a result of construction activities.
- Keeping fire extinguishers in all vehicles.
- Planning transportation to reduce vehicle density.
- Posting speed limits on roads.
- Avoiding traveling during wet conditions that could result in excessive rutting.
- Practicing dust abatement on roads.
- Contouring disturbed areas to approximate the original contours of the landscape.
- Developing a final reclamation plan that allows disturbed areas to be quickly absorbed into the natural landscape.

Petro-Hunt recognizes that there are several BMPs that can be used to mitigate environmental concerns specific to projects associated with below-ground linear alignments, such as those included in the proposed utility corridor. These include:

- following the contour (form and line) of the landscape;
- avoiding locating ROWs on steep slopes;
- sharing common ROWs; and
- using natural (topography, vegetation) or artificial (berms) features to help screen facilities such as valves and metering stations.

Petro-Hunt would implement these and/or other BMPs to the extent that they are technically feasible and would add strategic and measurable protection to the project area.

3.10.2 Mitigation and Safety Measures Committed to by Petro-Hunt

3.10.2.1 Utility Lines

All utility lines, including electric lines, fiber optic, and pipelines essential to oil well operations, would be installed underground.

3.10.2.2 Dust Control

During construction, a watering truck may be kept on site and the access roads would be watered as necessary, especially during periods of high winds and/or low precipitation.

3.10.2.3 Fire Control

Petro-Hunt would implement fire prevention and control measures including, but not limited to:

- requiring construction crews to carry fire extinguishers in their vehicles and/or equipment;
- training construction crews in the proper use of fire extinguishers; and
- contracting with the local fire district to provide fire protection.

3.10.2.4 Traffic

Construction personnel would stay within the ROW or would follow designated access roads.

3.10.2.5 Wildlife

During an informal Section 7 consultation with the USFWS, the following mitigation measures were agreed upon to reduce the potential impact to protected species.

3.10.2.5.1 Migratory Bird Protective Measures

- Petro-Hunt would conduct all construction outside of the migratory bird breeding season (between February 1 and July 15); or, if construction occurs during bird breeding season, Petro-Hunt would either:
  - mow and maintain vegetation within the project construction area (access road and pipeline corridor) prior to and during the breeding season to deter migratory birds from nesting in the project area until construction is underway; or
  - conduct an ornithological survey of the project area five days before construction begins, and report any findings to the BIA and USFWS.

3.10.2.5.2 ESA Protective Measures

- Whooping Crane: If a whooping crane is sighted within 1 mile of the proposed project area, work will be stopped and the BIA and USFWS will be notified. In coordination with the USFWS, work may resume after the bird(s) leaves the area.

3.10.2.6 Cultural Resources

Petro-Hunt recognizes the need to protect cultural resources on the project locations and has committed to the following.

- Avoiding, as recommended, all identified National Register-eligible or unevaluated cultural resources. Buffers would be placed between eligible or unevaluated cultural resources and the proposed infrastructure (100-foot-wide temporary construction corridor). When avoidance buffers of 50 feet or greater cannot be achieved due to project design constraints, temporary fencing is recommended along the edge of the construction corridor and monitoring by a qualified archaeologist is recommended during all ground-disturbing activities to ensure that inadvertent impacts to cultural resources are avoided. Necking down of the construction corridor to increase the cultural resource avoidance buffer may be used as necessary.

- Prohibiting all project workers from collecting artifacts or disturbing cultural resources in any area under any circumstances.

- Avoiding impacts to National Register-eligible or unevaluated cultural resources on the access road. If cultural resources are discovered during construction or operation, work shall immediately be stopped, the affected site be secured, and BIA and THPO notified. In the event of a discovery, work shall not resume until written authorization to proceed has been received from the BIA.

3.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Potential resource commitments associated with upgrading and construction of the access road include soil lost through wind and water erosion, cultural resources inadvertently destroyed, wildlife killed during earthmoving or in collisions with vehicles, and energy expended during construction.

3.12 SHORT-TERM USE OF THE ENVIRONMENT VERSUS LONG-TERM PRODUCTIVITY

The approximately 52.12 acres or 4.3-mile area dedicated to the proposed access road would be unavailable for livestock grazing, wildlife habitat, and other uses. Because the project area is partly an existing two-track road and also new road construction, the area is not an ideal location for these short-term uses. Access roads and work areas would be leveled or backfilled as necessary, scarified, contoured, and seeded. Exceptions to these reclamation measures might occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees. Any grazing allottees to which compensation for land disturbance is owed will be properly compensated for the loss of land use.

3.13 CUMULATIVE IMPACTS

Environmental impacts may accumulate either over time or in combination with similar events in the area. Unrelated and dissimilar activities may also have negative impacts on critical elements, thereby contributing to cumulative degradation of the environment. Past and

current disturbances in the vicinity of the project area include farming, grazing, roads, and oil and gas development. Reasonably foreseeable future impacts must also be considered. Current farming and ranching is expected to continue with little change, since virtually all available acreage is already organized into range units to utilize surface resources for economic benefit. Undivided interests in the land surface, range permits, and agricultural leases are often held by different tribal members than those holding subsurface rights.

The major foreseeable activity with potential to impact critical elements of the human environment is oil field development. Over the past several years, exploration has increased. Most of this exploration has taken place outside the Reservation boundary on fee land, but for purposes of cumulative impact analyses, land ownership and the Reservation boundary are immaterial. Current impacts from existing activity in the area, such as other road development and oil and gas-related activities are still fairly dispersed. No significant negative impacts are expected to any critical element of the human environment; impacts would generally be low and mostly temporary from implementation of the proposed action.

Within the Reservation and near the project area, development projects remain few and widely dispersed. At this time, the proposed access road would access one proposed well located on private lands with private minerals. However, this may change in the future as new exploratory wells may be proposed, though such developments are merely speculation until Applications for Permit to Drill are submitted for approval. Additional cumulative impact analyses and BIA approvals are required before the surface is disturbed at any other location.

It is anticipated that the pace and level of natural gas development within this region of the state will continue at the current rate over the next few years and contribute to cumulative air quality impacts. Although the proposed access road would negligibly contribute to emissions, largely due to fugitive dust and vehicular emissions, any contribution would be localized, largely temporary, and limited in comparison with regional emissions. Therefore, it is unlikely that the project would significantly impact the cumulative air quality of the region.

The proposed access road, when combined with other actions (livestock grazing, oil and gas development, and agriculture) that are likely to occur in and near the project area in the future, may increase sedimentation and runoff rates. Sediment yield from active roadways could occur at higher rates than background rates and continue indefinitely. Thus, the proposed access road could incrementally add to existing and future sources of water quality degradation in the Lower Little Missouri River watershed. However, increases in degradation would be reduced by Petro-Hunt's commitment to using erosion control measures as necessary, and implementing BMPs designed to reduce impacts.

As previously stated, because active roadways are not typically reclaimed, sediment yield from roads can continue indefinitely at rates two to three times the background rate. The proposed access road would incrementally add to existing and future impacts to soil resources in the general area. However, Petro-Hunt is committed to using BMPs to mitigate these effects. BMPs would include implementing erosion and sedimentation control measures, such as installing culverts with energy dissipating devices at culvert outlets to avoid sedimentation in ditches, constructing water bars along side slopes, planting cover crops to stabilize soil following construction and before permanent seeding takes place.

Vegetation in and around the project area could be affected by various activities, including energy development and surface disturbance of quality native prairie areas that have been largely undisturbed by development activities, grazing, and agriculture. Indirect impacts to native vegetation may be possible due to soil loss, compaction, and increased encroachment of unmanaged invasive weed species. Potential future oil and gas development within the Reservation could result in the loss, and further fragmentation, of native mixed-grass prairie habitat. Past, present, and reasonably foreseeable future activities within the general area have reduced, and would likely continue to reduce, the amount of available habitat for listed species.

Significant archaeological resources are irreplaceable and often unique; any destruction or damage of such resources can be expected to diminish the archaeological record as a whole. However, no such damage or destruction of significant archaeological resources is anticipated as a result of the Proposed Action, as these resources would be avoided, negating the cumulative impacts to the archaeological record.

The proposed access road would not incrementally add to existing and future socioeconomic impacts in the general area. Construction of the proposed access road would temporarily increase employment, but would only require a small crew of workers. Therefore, little change in employment would be expected over the long term.

4.0 CONSULTATION AND COORDINATION

The BIA must continue to make efforts to solicit the opinions and concerns of all stakeholders. For the purpose of this EA, a stakeholder is considered any agency, municipality, or individual person to which the Proposed Action may affect either directly or indirectly in the form of public health, environmental, or socioeconomic issues. A scoping letter declaring the location of the proposed access road and explaining the action proposed was sent in advance of this EA to allow stakeholders ample time to submit comments or requests for additional information. A summary of the stakeholder responses are listed in Table 4-1. Additionally, a copy of this EA should be submitted to all federal agencies with interests either in, near, or potentially affected by the Proposed Action.

Table 4-1. Scoping Comments.

Organization	Name	Comment	Response
Barnes County Municipal Airport, Manager	Lindemann, Larry	No Comment	
Bureau of Indian Affairs	Bercier, Marilyn	No Comment	
Bureau of Land Management	Bagley, Lonny	No Comment	
Bureau of Land Management	Nash, Mike	No Comment	
Dunn County	Hauck, Reinhard	No Comment	
Dunn County	Kadrmas, Ray	No Comment	
Enerplus Resources (USA) Corporation	Thingelstad, Blane	No Comment	
EOG Resources, Inc.	Smith, Heather	No Comment	
Federal Aviation Administration	Obenauer, Steve	*Patricia Dressler:* No objections.	
Federal Emergency Management Agency	Insurance and Hazard Director	Major concern is whether or not project is located within a mapped Special Flood Hazard Area.	Project area is not in a flood hazard area. Please see Section 3.3 Water Resources.
Fort Berthold Agency	Turcotte, Daryl	No Comment	
Fort Berthold Rural Water Director, Three Affiliated Tribes	Danks, Marvin	No Comment	
Garrison Project Office Corps of Engineers, Omaha District		No Comment	
Indian Affairs Commission	Davis, Scott	No Comment	
Killdeer, Weydahl Field	Hoffman, Warren	No Comment	
McKenzie County	Cayko, Richard	No Comment	
McKenzie County	Olson, Frances	No Comment	
McKenzie Electric Cooperative	Thorson, Gary	No Comment	
McLean County Board of Commissioners	Hudson-Schenfisch, Julie	No Comment	
McLean Electric Cooperative, Inc.	Rudolph, Reginald	No Comment	
Mercer County, County Courthouse		No Comment	
Midcontinent Cable Company	Boyd, Bill	No Comment	

Organization	Name	Comment	Response
Minot Air Force Base	Chief Missile Engineer	No Comment	
Montana Dakota Utilities	Dixon, Doug	No Comment	
Mountrail Board of County Commissioners, Chairman	Hynek, David	No Comment	
National Parks Service	Chevance, Nick	No Comment	
Natural Resources Conservation Service	Schaar, Jerome	Wetlands and important farmlands should be avoided	All wetlands are avoided, and no important farmlands are found within the project borders
New Town Municipal Airport	Johnson, Harley	No Comment	
NoDak Electric Cooperative, Inc.	Berg, George	No Comment	
North Dakota Department of Health	Glatt, David	Impacts will be minor and can be controlled by proper construction methods.	See Sections 2.2.1 Construction Specifics, and 3.10 Mitigation and Monitoring, for site-specific details and BMPs.
North Dakota Department of Transportation	Peterson, Walter	No Comment	
North Dakota Game and Fish Department	McKenna, Mike	No Comment	
North Dakota Parks and Recreation Dept.	Hanson, Jesse	There are no known occurrences of historic plant/ animal species of concern or other significant ecological communities within or adjacent to the project area.	
Northern Border Pipeline Company	Attn: Land Department	No Comment	
Parshall-Hankins Field Airport	Kuehn, John	No Comment	
Petro-Hunt, LLC	Nordquist, Don	No Comment	
Reservation Telephone Cooperative	Jarski, Tim	No Comment	
Sisseton-Wahpeton Sioux Tribe, Chairman	Selvage, Michael	No Comment	
Southwest Water Authority	Massad, Mary	No Comment	
Spirit Lake Sioux Tribe	Pearson, Myra	No Comment	

Organization	Name	Comment	Response
Standing Rock Sioux Tribe, Chairman	Murphy, Charles	No Comment	
State Historical Society	Paaverud, Merl	Requests a copy of reports and forms to keep archives current.	Reports will be sent to the required agencies. See Section 3.7 Cultural Resources.
THPO, Three Affiliated Tribes	Crows Breast, Elgin	No Comment	
Three Affiliated Tribes	Benson, Barry	No Comment	
Three Affiliated Tribes	Brugh, V. Judy	No Comment	
Three Affiliated Tribes	Fox, Fred	No Comment	
Three Affiliated Tribes	NAGRPA Office	No Comment	
Three Affiliated Tribes	Natural Resources Dept.	No Comment	
Three Affiliated Tribes	Packineau, Mervin	No Comment	
Three Affiliated Tribes	Poitra, Fred	No Comment	
Three Affiliated Tribes	Strahs, Arnold D.	No Comment	
Three Affiliated Tribes	Whitecalfe, Frank	No Comment	
Three Affiliated Tribes	Williams, Damon	No Comment	
Three Affiliated Tribes	Wolf, Malcolm	No Comment	
Three Affiliated Tribes, Chairman	Hall, Tex	No Comment	
Turtle Mountain Band of Chippewa	Ferris, Kade M.	No Comment	
U.S. Army Corps of Engineers	Cimarosti, Dan	Project needs to follow Section 10, Section 404, and Nationwide Permit 14 regulations	The project is in compliance with Section 10, Section 404, and Nationwide Permit 14
U.S. Army Corps of Engineers	Laux, Eric	*Randal Sellers:* Plans should be coordinated with the EPA, USFWS, ND Game and Fish, and North Dakota SHPO.	The EPA, USFWS, ND Game and Fish, and North Dakota SHPO have all been included in the scoping process.
U.S. Army Corps of Engineers	Sorensen, Charles	No Comment	

Organization	Name	Comment	Response
U.S. Bureau of Reclamation	Nelson, Richard	*Kelly McPhillips:* Concerns with potential for the Project to cross pipelines in the Fort Berthold Rural Water System	The project will not cross the Fort Berthold Rural Water System.
U.S. Department of Agriculture	Sweeney, Paul	No Comment	
U.S. Environmental Protection Agency	Dhieux, Joyce	No Comment	
U.S. Environmental Protection Agency	Hefferman, Dan	No Comment	
U.S. Environmental Protection Agency	Svoboda, Larry	No Comment	
Ward County Board of Commissioners	Erickson, Carroll	No Comment	
West Plains Electric Cooperative, Inc.	Schelkoph, David	No Comment	
Western Area Power Administration	Paulson, Gerald	No Comment	
Williams Productions RMT Co.	Head, Jennifer	No Comment	
Xcel Energy	Manager	No Comment	
Zenergy Operating Company, LLC	Bryan, Kelley	No Comment	

List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of CEQ regulations. This document was drafted by SWCA under the direction of the BIA. Information was compiled from various sources within SWCA.

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- Nicholas Smith, Archaeologist
  Conducted cultural resource surveys.
- Stephanie Lechert, Archaeologist
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- Rick Wadleigh, NEPA Specialist
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5.0 REFERENCES

Bryce, S., J.M. Omernik, D.E. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S.H. Azevedo. 1998. Ecoregions of North Dakota and South Dakota. Jamestown, North Dakota: Northern Prairie Wildlife Research Center Online. Available online at http://www.npwrc.usgs.gov/resource/habitat/ndsdeco/index.htm. Accessed September 2009.

Bureau of Indian Affairs (BIA). 2005. 2005 American Indian Population and Labor Force Report. Available online at http://www.indianaffairs.gov/WhatWeDo/Knowledge/Reports/index.htm. Accessed December 2009.

Bureau of Labor Statistics 2009. County Wages and Employment in North Dakota, 3rd Quarter 2009. Available online at http://www.bls.gov/ro5/qcewnd.pdf. Accessed October 6, 2010.

Bureau of Land Management (BLM). 2009. Air Resource BMPs – Best Management Practices for Fluid Minerals. Available online at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/technical_information.html. Accessed August 2009.

Bureau of Land Management (BLM) and U.S. Forest Service (USFS). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

Croft, M.G. 1985. Groundwater Resources of McKenzie County, North Dakota. Bulletin 80 – Part III. North Dakota Geological Survey.

Fort Berthold Housing Authority. 2008. Mandan, Hidatsa and Arikara Nation. New Town, ND. June. Available online at http://www.ndhomelesscoalition.org/images/10year/FortBerthold10YearPlan.pdf. Accessed October 2009.

Grah, O.J. 1997. Soils, Water, and Vegetation Resources Technical Report. Report prepared for the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project Environmental Impact Statement. Prepared for the Casper District Office, Bureau of Land Management, and Gary Holsan Environmental Planning, Thayne, Wyoming, by ECOTONE Environmental Consulting, Inc. Logan, Utah. 101 pp.

High Plains Regional Climate Center. 2008. Historical Climate Data Summaries. Available online at http://www.hprcc.unl.edu/data/historicl. Accessed September 2009.

Intergovernmental Panel on Climate Change (IPCC). 2007. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Core Writing Team, Pachauri, R.K. and Reisinger, A. (Eds.),

Geneva, Switzerland. Available online at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf. Accessed October 25, 2010.

Klausing, Robert L. 1979. Groundwater Resources of Dunn County, North Dakota. Bulletin 68 – Part III. North Dakota Geological Survey.

Lechert, S., J. Schleicher, and N. Klitzka. 2011. A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Oil Field Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. Prepared by SWCA Environmental Consultants for Petro-Hunt, LLC.

National Park Service. 2010. Visibility Protection. Available online at http://www.nature.nps.gov/air/regs/visibility.cfm. Accessed October 4, 2010.

Natural Resources Conservation Service (NRCS). 2009. National Cartography and Geospatial Center. National Soil Survey Center. United States Department of Agriculture. Soil Data Mart. Available online at http://ortho.ftw.nrcs.usda.gov/. Accessed October 2009.

———. 2010. Web Soil Survey. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Available online at http://websoilsurvey.nrcs.usda.gov and http://soildatamart.nrcs.usda.gov. Accessed December 29, 2010.

North Dakota Department of Agriculture (NDDA). 2007. 2006 Noxious Weed List Survey – Reported Acres. North Dakota Department of Agriculture. Bismarck, North Dakota. 2 pp. Available online at http://www.agdepartment.com/Programs/Plant/NoxiousWeedSurveys.htm. Accessed October 2009.

North Dakota Department of Health (NDDH) 2010. Air Quality: Ambient Monitoring Annual Reports. Available online at http://www.ndhealth.gov/AQ/AmbientMonitoring.htm. Accessed October 1, 2010.

North Dakota Indian Affairs Commission (NDIAC). 2010. Statewide Data: Tribal population projections. Available online at http://www.nd.gov/indianaffairs/?id=37. Accessed October 6, 2010.

North Dakota State Data Center. 2009. Profile of General Demographic Characteristics: 2000. Fort Berthold Indian Reservation. Available online at http://www.ndsu.nodak.edu/sdc/data/profiles/profilesDP1to4/reservations/fortberthold.pdf. Accessed December 15, 2009.

Pew Center. 2009. Climate Change 101: Understanding and Responding to Global Climate Change. Available online at http://www.pewclimate.org/docUploads/Climate101-Complete-Jan09.pdf. Accessed October 25, 2010.

Ross, M. 1990. The Clean Air Act. Chapter 4 in M. A. Mantell, ed. Managing National Park System Resources: A Handbook of Legal Duties, Opportunities, and Tools. The Conservation Foundation, Washington, D.C.

United States Bureau of Economic Analysis. 2009a. Regional Economic Accounts. Local Area Personal Income. Table CA25 – Total Employment by Industry. Available online at http://www.bea.gov/. Accessed December 2009.

———. 2009b. Regional Economic Accounts. Local Area Personal Income. Table CA1-3 – Personal Income, Population, Per Capita Personal Income. Available online at http://www.bea.gov/. Accessed December 1, 2009.

United States Census Bureau. 2010a. USA Counties. Available online at http://censtats.census.gov/usa/usa.shtml. Accessed October 6, 2010.

———. 2010b. Small Area Income and Poverty. Available online at http://www.census.gov/did/www/saipe/county.html. Accessed October 15, 2010.

United States Department of Agriculture (USDA). 2009. Economic Research Service. County-Level Unemployment and Median Household Income for North Dakota. Available online at http://www.ers.usda.gov/Data/Unemployment/RDList2.asp?ST=ND. Accessed December 1, 2009.

_____. 2010. North Dakota Unemployment Data, by County. Available online at http://www.ers.usda.gov/data/unemployment/RDList2.asp?ST=ND. Accessed October 15, 2009.

United States Environmental Protection Agency (EPA). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. Office of Federal Activities, U.S. Environmental Protection Agency.

———. 1999. Emission Inventory Improvement, Volume II, Chapter 10. Preferred and Alternative Methods for Estimating Air Emissions from Oil and Gas Field Production and Processing Operations. Available online at http://www.epa.gov/ttnchie1/eiip/techreport/volume02/ii10.pdf. Accessed October 25, 2010.

———. 2010a. National Ambient Air Quality Standards (NAAQS). Available online at http://www.epa.gov/air/criteria.html. Accessed October 4, 2010.

———. 2010b. Air Quality Indices, by County. Available online at http://www.epa.gov/cgi-bin/broker?grtype=CGM&dbtype=TSV&rpp=25&reqtype=viewdata&_service=airdata&_program=progs.webprogs.msummary.scl&_debug=2&geotype=st&geocode=ND&geoname=North+Dakota&mpol=aqi_days&myear=2008. Accessed October 4, 2009.

———. 2010c. Climate Change-Science. Available online at http://www.epa.gov/climatechange/emissions/. Accessed October 25, 2010.

———. 2010d. Climate Change-Regulatory Initiatives. Available online at http://www.epa.gov/climatechange/initiatives/index.html. Accessed October 25, 2010.

Williams, B.B., and M.E. Bluemle. 1978. Status of Mineral Resource Information for the Fort Berthold Indian Reservation, North Dakota. Administrative Report BIA-40. 35 pp. Accessed September 2009.

6.0 ACRONYMS

°F	degrees Fahrenheit
AAQM	Ambient Air Quality Monitoring (site)
APE	Area of Potential Effect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GHG	greenhouse gas
HAP	hazardous air pollutant
HUC	hydrologic unit code
MHA Nation	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
NAAQS	National Ambient Air Quality Standards
NDDA	North Dakota Department of Agriculture
NDDH	North Dakota Department of Health
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PSD	Prevention of Significant Deterioration
ROW	right-of-way
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SWCA	SWCA Environmental Consultants
THPO	Tribal Historic Preservation Officer
USC	United States Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

APPENDIX A

Threatened and Endangered Species in Dunn County, North Dakota

Black-footed Ferret (*Mustela nigripes*)
ESA Status: Endangered
Affects Determination: No Effect

Black-footed ferrets are nocturnal, solitary carnivores of the weasel family that have been largely extirpated from the wild primarily due to range-wide decimation of the prairie dog (*Cynomys* sp.) ecosystem (Kotliar et al. 1999). They have been listed by the U.S. Fish and Wildlife Service (USFWS) as endangered since 1967, and have been the object of extensive re-introduction programs (USFWS 2010a). Ferrets inhabit extensive prairie dog complexes of the Great Plains, typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base. The *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (USFWS 1989) states that ferrets require black-tailed prairie dog (*Cynomys ludovicianus*) towns or complexes greater than 80 acres in size, and towns of this dimension may be important for ferret recovery efforts (USFWS 1988a). A prairie dog town approximately 120 acres in size (determined by aerial imagery) does occur in and around the project area. However, this prairie dog town is isolated by topography from any known towns where populations of black-footed ferrets exist. In addition, this species has not been observed in the wild for more than 20 years. The proposed project will have **no effect** on this species.

Gray Wolf (*Canis lupus*)
ESA Status: Endangered
Affects Determination: No Effect

The gray wolf, listed as endangered in the United States in 1978 (USFWS 1978), was believed extirpated from North Dakota in the 1920s and 1930s with only sporadic reports from the 1930s to present (Licht and Huffman 1996). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings that have occurred within North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountains region in north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 28 kilometers (km) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2010b). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation, in particular road construction as a result of oil and gas development, may act as an additional barrier against wolf recolonization in western North Dakota. Therefore, the proposed project would have **no effect** on the gray wolf.

Whooping Crane (*Grus americana*)
ESA Status: Endangered
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The whooping crane was listed as endangered in 1970 in the United States by the USFWS, and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species includes habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2010c). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007; USFWS 2010c). Dunn and McKenzie counties, including the project area, are within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007). Whooping cranes are omnivores and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 1 km of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Suitable whooping crane foraging habitat (i.e., cultivated cropland) was observed near the project area. Petro-Hunt would cease all construction activities and notify the USFWS of the sighting, should a crane be spotted within 1 mile of the project area. As a result, the proposed project **may affect, but is not likely to adversely affect** the endangered whooping crane.

Piping Plover (*Charadrius melodus*)
ESA Status: Threatened
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985a).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2010d). The shorelines of lakes of the Missouri River

constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988b). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2010d). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988b, 2010d).

Suitable shoreline habitat for breeding and nesting plovers does not occur in the project area, and Lake Sakakawea is a minimum of 16.7 river miles away from the proposed roadway. It is unlikely that migrating plovers would visit the project area during their migration. Therefore, the proposed project **may affect, but is not likely to adversely affect** piping plovers.

Designated Critical Habitat of Piping Plover
ESA Status: Designated Critical Habitat
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated Critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat, including areas near the proposed Project, along the shoreline of Lake Sakakawea in Dunn County, North Dakota (USFWS 2002).

The project will not modify, alter, disturb, or affect the shoreline of Lake Sakakawea directly, but may directly affect its tributary streams. Therefore, the project **may affect, but is not likely to adversely affect** the designated critical habitat of the piping plover.

Interior Least Tern (*Sterna antillarum*)
ESA Status: Endangered
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The interior population of the least tern is listed as endangered by the USFWS (1985b). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2010e).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota will often be found sharing sandbars with the piping plover, a threatened species (USFWS 2010e).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and

on the Missouri and Yellowstone rivers upstream of Lake Sakakawea (USFWS 1990a, 2010e). Approximately 100 pairs breed in North Dakota (USFWS 2010e). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2010e).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande River systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2010e).

Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2010e).

Suitable shoreline habitat for breeding and nesting terns does not occur in the project area, and Lake Sakakawea is a minimum of 16.7 river miles away from the proposed project. It is unlikely that terns would visit the upland habitats present in the project area. Therefore, the proposed project **may affect, but is not likely to adversely affect** endangered least terns.

Pallid Sturgeon (*Scaphirhynchus albus*)
ESA Status: Threatened
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The pallid sturgeon was listed as Endangered in 1990 in the United States by the USFWS (1990b). The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes (USFWS 1990b). These alterations within the Missouri River have blocked movements to spawning, feeding, and rearing areas, destroyed spawning habitat, altered flow conditions which can delay spawning cues, and reduced food sources by lowering productivity (USFWS 2007a). The fundamental elements of pallid sturgeon habitat are defined as the bottom of swift waters of large, turbid, free-flowing rivers with braided channels, dynamic flow patterns, flooding of terrestrial habitats, and extensive microhabitat diversity (USFWS 1990b).

The pallid sturgeon population which is found near the project area occurs from the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007a). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007a). Hatchery reared sturgeon have also been stocked since 1998. The pallid sturgeon has been found to utilize the 25 km of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996 per USFWS 2007a). Larval pallid sturgeons have also been found to drift into Lake Sakakawea. While the majority of pallid sturgeons are found in the headwaters of Lake Sakakawea, North Dakota Game and Fish have caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook area. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, U.S. Fish and

Wildlife Service, to Mike Cook, Aquatic Ecologist, SWCA Environmental Consultants, September 3, 2010).

Suitable habitat for pallid sturgeon does not occur in the project area. Lake Sakakawea and the Little Missouri River are a minimum of 16.7 and 4.0 river miles, respectively, from the proposed project. The Little Missouri River, which drains a portion of the project area, is a perennial tributary to Lake Sakakawea. Potential pollution and sedimentation occurring within the project area are concerns for downstream populations of endangered pallid sturgeon. Activities associated with the construction, or reclamation of the proposed project area is not anticipated to adversely affect water quality and subsequently the pallid sturgeon. Therefore, the proposed project **may affect, but is not likely to adversely affect** pallid sturgeon.

Dakota Skipper (*Hesperia dacotae*)
ESA Status: Candidate
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The Dakota skipper is a small butterfly with a 1-inch wingspan and is found primarily in undisturbed native tall grass and upland dry mixed grass prairie areas with a high diversity of wildflowers and grasses (Committee on the Status of Endangered Wildlife in Canada 2003). The Dakota skipper appears to require a range of precipitation-evaporation ratios between 60 and 105 and a soil pH between 7.2 and 7.9 (McCabe 1981). Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding (USFWS 2005). Dakota skippers are not known to occur within the project area; however, suitable habitat does occur. The proposed project **may affect, but is not likely to adversely affect** this species. The use of best management practices and conservation guidelines (USFWS 2007b) during construction and operation and immediate reclamation of short-term disturbance should decrease direct, indirect, and cumulative impacts to this species.

Sprague's Pipit (*Anthus spragueii*)
ESA Status: Candidate
Affect Determination: May Affect, but is Not Likely to Adversely Affect

The Sprague's pipit is a small passerine bird that is native to the North American grasslands. It is a ground nester that breeds and winters on open grasslands and feeds mostly on insects and spiders and some seeds. The Sprague's pipit is closely tied with native prairie habitat and breeds in the north-central United States in Minnesota, Montana, North Dakota, and South Dakota as well as south-central Canada (USFWS 2010f). Wintering occurs in the southern states of Arizona, Texas, Oklahoma, Arkansas, Mississippi, Louisiana, and New Mexico. The proposed project site is located in areas with native prairie grassland. Therefore, the proposed project **may affect, but is not likely to adversely affect** this species.

MIGRATORY BIRD TREATY ACT / THE BALD AND GOLDEN EAGLE PROTECTION ACT

Bald Eagle (*Haliaeetus leucocephalus*)
Status: Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act
Effects of Project: No adverse effects anticipated

Suitable nesting or foraging habitat for bald eagles includes old growth trees relatively close (usually less than 1.24 miles [Hagen et al. 2005]) to perennial waterbodies. The project area does not contain old growth trees and the proposed roadway is 2.9 miles from Lake Sakakawea and 1.2 miles from the Little Missouri River. No nests were observed within a 0.5-mile line of sight during the field surveys. Therefore, no adverse effects are anticipated. However, the possibility of transient bald eagle individuals traversing the project area does exist.

Golden Eagle (*Aquila chrysaetos*)
Status: Not Listed; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act
Effects of Project: No adverse effects anticipated

No eagles or nests were observed during the field surveys; however, golden eagles may occur within or near the project area. The closest known golden eagle nest occurs within 1.75 miles of the proposed project area, in Section 9, T147N, R94W. The golden eagle prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which provide suitable nesting habitat. However, no primary or secondary indication of golden eagle presence, including nests, was observed within or near the project area during the field survey. Therefore, the project is unlikely to cause any adverse effects to golden eagles.

REFERENCES CITED

Armbruster, M.J. 1990. Characterization of habitat used by whooping cranes during migration. Biological Rept. 90(4):1–16.

Bramblett, R.G. 1996. Habitats and movements of pallid and shovelnose sturgeon in the Yellowstone and Missouri Rivers, Montana and North Dakota. Doctoral dissertation. Montana State University, Bozeman.

Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007. International Recovery Plan for the Whooping Crane. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Committee on the Status of Endangered Wildlife in Canada. 2003. COSEWIC Assessment and Status Report on the Dakota Skipper *Hesperia dacotae* in Canada. Ottawa: Committee on the Status of Endangered Wildlife in Canada.

Hagen, S.K., P.T. Isakson, and S.R. Dyke. 2005. North Dakota Comprehensive Wildlife Conservation Strategy. North Dakota Game and Fish Department. Bismarck, ND.

Howe, M.A. 1987. Habitat use by migrating whooping cranes in the Aransas-Wood Buffalo corridor. Pages 303–311, in J. C. Lewis and J. W. Ziewitz, eds. Proc. 1985 Crane Workshop. Platte River Whooping Crane Habitat Maintenance Trust and USFWS, Grand Island, Nebraska.

———. 1989. Migration of radio-marked whooping cranes from the Aransas-Wood Buffalo population: Patterns of habitat use, behavior, and survival. USFWS Technical Report.

Kotliar, N.B., B.W. Baker, A.D. Whicker, and G. Plumb. 1999. A critical review of assumptions about the prairie dog as a keystone species. Environmental Management 24(2):177–192.

Licht, D.S., and S.H. Fritts. 1994. Gray wolf *(Canis lupus)* occurrences in the Dakotas. *American Midland Naturalist* 132:74–81.

Licht, D.S., and L.E. Huffman. 1996. Gray wolf status in North Dakota. The Prairie Naturalist 28(4):169–174.

McCabe, T.L. 1981. The Dakota skipper (*Hesperia dacotae* (Skinner): Range and biology, with special reference to North Dakota. Journal of the Lepidopterists' Society 35(3):179–193.

Root, B.G., M.R. Ryan, and P.M. Mayer. 1992. Piping plover survival in the Great Plains. Journal of Field Ornithology, Vol. 63, No. 1, pp. 10–15.

U.S. Fish and Wildlife Service (USFWS). 1978. Reclassification of the gray wolf in the United States and Mexico, with determination of critical habitat in Michigan and Minnesota. Federal Register 43(47):9607–9615.

———. 1985a. Endangered and Threatened Wildlife and Plants: Determination of Endangered and Threatened Status for the Piping Plover. Federal Register 50 (238):50726–50734.

———. 1985b. Interior population of the least tern. Federal Register 50 FR 21784–21792. May 28, 1985.

———. 1988a. Black-footed Ferret Recovery Plan. U.S. Fish and Wildlife Service. Denver, Colorado. 154 pp.

———. 1988b. Great Lakes and Northern Great Plains Piping Plover Recovery Plan. U.S. Fish and Wildlife Service, Twin Cities, MN. 160 pp.

———. 1989. Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. Denver and Albuquerque: U.S. Fish and Wildlife Service.

———. 1990a. Interior Population of the Least Tern Recovery Plan. U.S. Fish and Wildlife Service, Twin Cities, MN. 160 pp.

———. 1990b. Endangered and threatened wildlife and plants; Determination of endangered status for the pallid sturgeon. Federal Register 55(173):36641–36647.

———. 2002. Designation of Critical Habitat for the Northern Great Plains Breeding Population of the Piping Plover; Final Rule. Federal Register. September 11, 2002 (Volume 67, Number 176), Rules and Regulations, pp. 57637–57717.

———. 2005. Endangered and Threatened Wildlife and Plants; Review of Native Species that are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions; Proposed Rule. Federal Register 70(90): 24870–24934.

———. 2007a. Pallid sturgeon (*Scaphirhynchus albus)* 5-year review summary and evaluation. U.S. Fish and Wildlife Service, Pallid Sturgeon Recovery Coordinator. Billings, Montana.

———. 2007b. Dakota skipper conservation guidelines *Hesperia dacotae* (Skinner) (Lepidoptera: Hesperiidae). U.S. Fish and Wildlife Service, Twin Cities Field Office. Available online at http://www.fws.gov/midwest/endangered/insects/dask-cons-guid2007.pdf. Accessed September 3, 2010.

———. 2010a. Black-footed ferret. Available online at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A004. Accessed September 7, 2010.

———. 2010b. Gray wolf. Available online at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A00D. Accessed September 7, 2010.

———. 2010c. Whooping crane. Available online at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B003. Accessed September 2, 2010.

———. 2010d. Piping plover. Available online at http://www.fws.gov/mountain-prairie/species/birds/pipingplover. Accessed September 7, 2010.

———. 2010e. Least Tern (Interior population). Available online at http://www.fws.gov/southwest/es/oklahoma/lestern.htm. Accessed September 7, 2010.

———. 2010f. Sprague's Pipit. Available online at http://www.fws.gov/mountain-prairie/species/birds/spraguespipit/index.html. Accessed December 28, 2010.

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401

MAR 2 1 2011

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

Elgin Crows Breast, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Crows Breast:

We have considered the potential effects on cultural resources of a proposed road in Dunn County, North Dakota. Approximately 59.46 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. Six previously recorded archaeological sites (32DU312, 32DU313, 32DU314, 32DU315, 32DU316 and 32DU317) were revisited and two new sites (32DU1553, 32DU1569) were located which may possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. Site 32DU304, also revisited, is not considered eligible for the National Register. Site 32DU1549 was not revisited but may qualify for protection under the American Indian Religious Freedom Act (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no adverse effect** for this undertaking, provided that the potentially eligible sites are fenced off and a qualified archaeologist is present during all construction activities. Catalogued as **BIA Case Number AAO-1906/FB/11**, the proposed undertaking, location, and project dimensions are described in the following report:

Lechert, Stephanie, Jolene Schleicher and Nelson Klitzka
(2011) A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Oil Field Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. SWCA Environmental Consultants for Petro-Hunt, LLC, Bismarck.

If your office concurs with this determination, consultation will be completed under the National Historic Preservation Act and its implementing regulations. We will adhere to the Standard Conditions of Compliance.

If you have any questions, please contact Dr. Carson N. Murdy, Regional Archaeologist, at (605) 226-7656.

Sincerely,

Regional Director

Enclosure

cc: Chairman, Three Affiliated Tribes
Superintendent, Fort Berthold Agency

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501

MAR 4 2011

Ms. Sarah Ruffo, Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

Re: Petro-Hunt Access Road, Fort Berthold Reservation, Dunn County, North Dakota

Dear Ms. Ruffo:

This is in response to your January 10, 2011, scoping letter and a subsequent February 24, 2011, email correspondence from Mr. Josh Ruffo with Heidi Riddle of my staff, on the proposed construction of approximately 4.3 miles of roadway to be completed by Petro-Hunt, LLC (Petro-Hunt) on the Fort Berthold Reservation, Dunn County, North Dakota.

Specific locations for the proposed road are:

T. 148 N., R. 94 W., Sections 29, 32, 33, 34
T. 147 N., R. 94 W., Section 3

We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.) (NEPA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA), and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

Threatened and Endangered Species

In an e-mail dated October 13, 2009, the Bureau of Indian Affairs (BIA) designated SWCA Environmental Consultants (SWCA) to represent the BIA for informal Section 7 consultation under the ESA. Therefore, the U.S. Fish and Wildlife Service (Service) is responding to you as the designated non-Federal representative for the purposes of ESA, and under our other authorities as the entity preparing the NEPA document for adoption by the BIA.

The Service concurs with your "may affect, is not likely to adversely affect" determination for piping plover, interior least tern, and pallid sturgeon The Service has determined that the effects of the project will not destroy or adversely modify designated critical habitat for the piping plover. The proposed location for the access road is approximately 6.3 miles at the nearest point, from nesting locations and habitat on Lake Sakakawea and designated critical habitat for the piping plover.

The Service concurs with your "may affect, is not likely to adversely affect" determination for whooping cranes. This concurrence is predicated on Petro-Hunt's commitment to stop work on the proposed site if a whooping crane is sighted within one mile of the proposed project area and immediately contacting the Service. Work may resume in coordination with the Service once the bird(s) have left the area.

The Service acknowledges your "no effect" determination for gray wolf and black-footed ferret.

The Dakota skipper is a small to medium-sized hesperiine butterfly associated with high-quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. The first type of habitat is relatively flat and moist native bluestem prairie. Three species of wildflowers are usually present: wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and smooth camas (*Zygadenus elegans*). The second habitat type is upland (dry) prairie that is often on ridges and hillsides. Bluestem grasses and needlegrasses dominate these habitats. On this habitat type, three wildflowers are typically present in high-quality sites that are suitable for Dakota skipper: pale purple (*Echinacea pallida*) and upright (*E. angustifolia*) coneflowers and blanketflower (*Gaillardia sp.*). Because of the difficulty of surveying for Dakota skippers and a short survey window, we recommend that the project avoid any impacts to potential Dakota skipper habitat. If Dakota skipper habitat is present near the proposed project, and you intend to take precautions to avoid impacts to skipper habitat, please notify the Service for further direction.

In 2010, the Sprague's pipit was added to the candidate species list. Migratory bird species, such as the Sprague's pipit, that are candidates are still protected under the MBTA. Sprague's pipits require large patches of grassland habitat for breeding, with preferred grass height between 4 and 12 inches. The species prefers to breed in well-drained, open grasslands and avoids grasslands with excessive shrubs. They can be found in lightly-to-heavily grazed areas. They avoid intrusive human features on the landscape, so the impact of a development can be much larger than the actual footprint of the feature. If Sprague's pipit habitat is present within or adjacent to the proposed project area, the Service requests that you document any steps taken to avoid and minimize disturbance of this habitat.

The Dakota skipper and Sprague's pipit are candidate species for listing under the ESA; therefore, an effects determination is not necessary for these species. No legal requirement exists to protect candidate species; however, it is within the spirit of the ESA

to consider these species as having significant value and worth protecting. Although not required, Federal action agencies, such as the BIA, have the option of requesting a conference on any proposed action that may affect candidate species such as the Dakota skipper and Sprague's pipit.

Migratory Birds

Petro-Hunt has committed to implementing the following measures:

- Construction will be done outside of the migratory bird nesting season (Feb. 1-July 15);
- Or, conduct a bird/nest survey within five days prior to construction and report any findings to the Service;
- Or, mow/grub grassy areas outside of the breeding season, and keep clear of vegetation.

Bald and Golden Eagles

Your letter states that the nearest documented golden eagle nest is located 1.75 miles away and that no eagle nests were observed within 0.5 mile of the project area during line of sight surveys.

The Service believes that Petro-Hunt's commitment to implement the aforementioned measures demonstrates that measures have been taken to protect migratory birds and bald and golden eagles to the extent practicable, pursuant to the MBTA and the BGEPA.

Thank you for the opportunity to comment on this project proposal. If you require further information or the project plans change, please contact me or Heidi Riddle of my staff at (701) 250-4481 or at the letterhead address.

Sincerely,

Jeffrey K. Towner

Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

cc: Bureau of Indian Affairs, Aberdeen
(Attn: Marilyn Bercier)
Bureau of Land Management, Dickinson
Director, ND Game & Fish Department, Bismarck

Notice of Availability and Appeal Rights

PetroHunt: Oil Field Road

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to the land use and construction of 4.3 miles of roadway as shown on the attached map. Construction by Petro-Hunt is expected to begin in the Spring 2011.

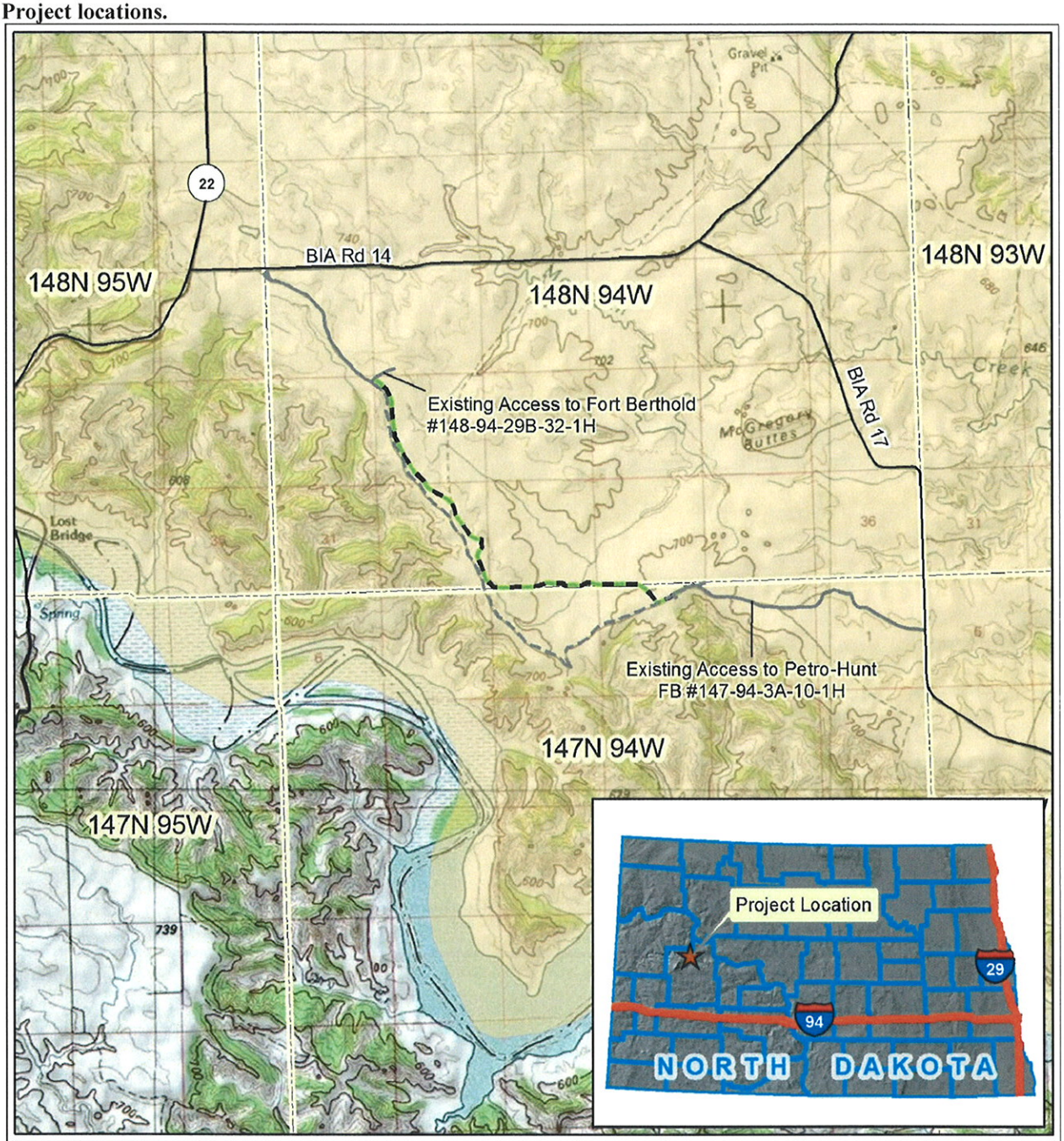
An environmental assessment (EA) determined that proposed activities will not cause significant impacts to the human environment. An environmental impact statement is not required. Contact Howard Bemer, Superintendent at 701-627-4707 for more information and/or copies of the EA and the Finding of No Significant Impact (FONSI).

The FONSI is only a finding on environmental impacts – it is not a decision to proceed with an action and *cannot* be appealed. BIA's decision to proceed with administrative actions *can* be appealed until May 27, 2011, by contacting:

United States Department of the Interior
Office of Hearings and Appeals
Interior Board of Indian Appeals
801 N. Quincy Street, Suite 300, Arlington, Va 22203.

Procedural details are available from the BIA Fort Berthold Agency at 701-627-4707.

Project locations.



Legend

- Proposed Oil Field Access Road
- Existing Access Road
- Two-track
- Existing Road
- Fort Berthold Indian Reservation
- Township/Range

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March 3, 2011

0 1.5 3 Miles

0 2 4 Kilometers

Scale: 1:100,000
Base Map: ESRI Street Map 2006 &
USGS 100k Quad
Parshaell, ND (1982)
Dunn County, North Dakota
Projection: UTM Zone 13N, NAD 83, Meters

N