Finding of No Significant Impact

Arrow Midstream Holdings, LLC, Oil and Gas Gathering System
Phase 1A – Northern Extension

The U.S. Bureau of Indian Affairs (BIA) received a proposal for construction of three pipelines (oil, gas and water) and a utilities line. The gathering system would be installed in a single 100-foot Right-of-Way (ROW) on the Fort Berthold Indian Reservation, in T149N, R94W, T150N, R94W and T150N, R93W in Dunn and McKenzie Counties, North Dakota. Associated federal actions by BIA include determinations of effect regarding cultural resources and approvals of leases, rights-of-way and easements.

Potential of the proposed action 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 the proposed project 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, water resources, and cultural resources. The 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 was fully considered.

4. The proposed action was designed to avoid adverse effects to historic, archaeological, cultural, and traditional properties, sites, and practices. The Tribal Historic Preservation Officer has concurred with BIA's determination that no historic properties will be affected.

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 project will improve the socioeconomic condition of the affected Indian community.

Regional Director – Great Plains Regional Office

12/4/2009
Date

Environmental Assessment

United States Bureau of Indian Affairs

Great Plains Regional Office
Aberdeen, South Dakota

Arrow Midstream Holdings, LLC
Oil and Gas Gathering System
Phase 1A - Northern Extension

Fort Berthold Indian Reservation

December 2009

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TABLE OF CONTENTS

Tables

Figures

1. Purpose and Need for the Proposed Action

Arrow Midstream Holdings, LLC (AMH) is proposing to construct and operate a trunk line extension of an oil, gas and water gathering system on the Fort Berthold Indian Reservation (Reservation). Plans also include a buried electrical power line. For convenience, this document will refer to these facilities collectively as Phase 1A-Northern Extension.

Development has been proposed on allotted and tribal land held in trust by the United States in McKenzie and Dunn Counties, North Dakota. The U.S. Bureau of Indian Affairs (BIA) is the surface management agency for potentially affected tribal lands and individual allotments. As shown in **Figure 1-1**, Phase 1A - Northern Extension would start in the SE¼SW¼ of Section 19, T150N, R93W and run southwest for 5.98 miles terminating in the NW¼NW¼ of Section 4, T149N, R94W. The proposed project is a branch of Arrow Midstream Holdings Pipeline (AMHP) currently under construction located in the north-central part of western North Dakota, roughly 80 miles south of the Canadian border and 60 miles east of Montana.

The economic development of available resources and associated BIA actions are consistent with BIA's general mission. Leasing and development of mineral resources offer substantial economic benefits to both the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation (MHA Nation) and to individual tribal members. Phase 1A- Northern Extension is being proposed to reduce waste of valuable resources through continued flaring of gas and to mitigate environmental and public safety concerns – including visual impacts, noise, heavy truck traffic and road deterioration.

Oil and gas exploration and development activities are conducted under authority of the Indian Mineral Leasing Act of 1938 (25 United State Code [USC] 396a *et seq.*), the Gas Royalty Management Act of 1982 (30 USC 1701, *et seq.*), the Energy Policy Act of 2005 (42 USC 13522) and 25 Code of Federal Regulations (CFR) 169. BIA actions in connection with the proposed project are largely administrative and include approval of rights-of-way (ROW) and determinations regarding effects on cultural resources.

This proposed federal action requires compliance with the *National Environmental Policy Act* of 1969 (NEPA) and analysis of the proposed project's potential to impact the human and natural environment. Compliance with NEPA is expected to both improve and explain federal decision making. This Environmental Assessment (EA) will result in either a Finding of No Significant Impact (FONSI) or a decision to prepare an Environmental Impact Statement (EIS).

There are several components to the proposed action. Existing roads would be used to access Phase 1A- Northern Extension for construction or operation and would be maintained to existing or improved conditions. After the Phase 1A – Northern Extension corridor and facility pad were cleared and topsoil stockpiled, the pipeline trench would be excavated, pipelines installed and the trench promptly backfilled, re-graded, re-seeded and reclaimed. Analysis of potential impacts from this portion of the project is included in this document as reasonably foreseeable and stemming from BIA actions. All project components on tribal and allotted land would eventually be reclaimed and abandoned according to applicable federal and tribal conditions, unless formally transferred with federal approval to either the BIA or the landowner.

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. Additional NEPA analysis, findings and federal actions will be required prior to development beyond what is described and analyzed in this EA.

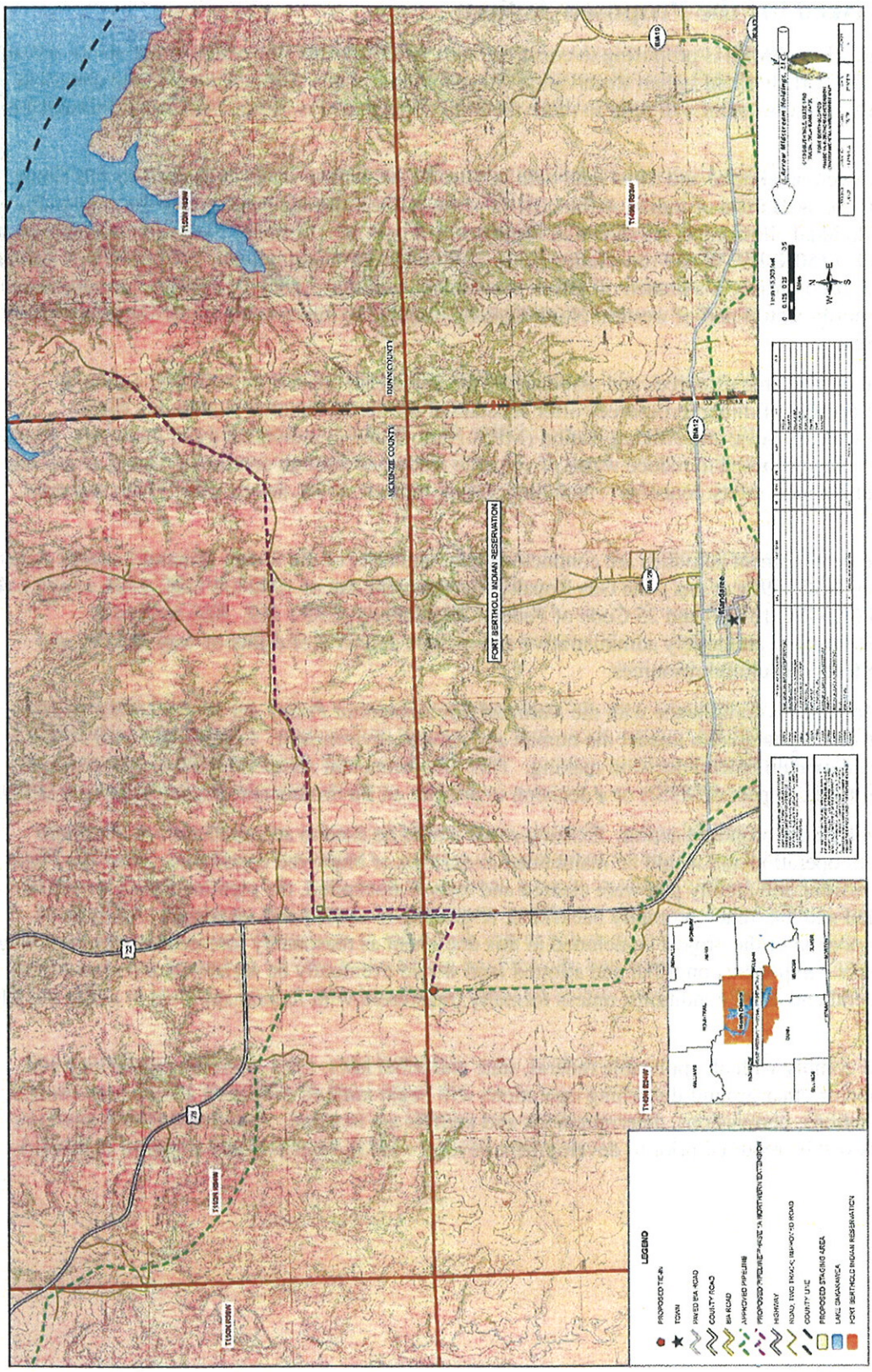

Figure 1-1 Proposed Phase 1A- Northern Extension Project Location

2. Proposed Action and Alternatives

The **No Action alternative** must be considered within an EA. If this alternative were selected, BIA would not approve the proposed oil and gas gathering system. Current land use practices would continue, as would current oil and gas operations. Transport of oil and water from wells on the reservation would continue using heavy trucks; truck traffic would increase over time as more wells were installed. Valuable resources would continue to be wasted without economic benefit, as gas is flared rather than brought to market. The No Action alternative is the only available or reasonable alternative to the specific proposal considered in this document.

The **Proposed Action alternative** consists of a single corridor in which an electrical line and pipelines for oil, gas and wastewater would be buried. As shown in Figure 1-1, the Phase 1A – Northern Extension would start in the SE¼SW¼ of Section 19, T150N, R 93W and run 5.98 miles to the southwest terminating in the NW¼NW¼ of Section 4, T149N, R94W where it would tie into the AMHP project currently under construction.

All construction activities would follow stipulations, practices, and procedures outlined in this document, associated technical reports, guidelines and standards in *Surface Operating Standards for Oil and Gas Exploration and Development* (U.S. Department of the Interior [USDI] and U.S. Department of Agriculture [USDA] 2007), and any conditions added by the BIA. All pipeline operations would be conducted in full compliance with applicable laws and regulations. The proposed action is described in more detail in the remainder of this chapter.

2.1 System Design and Relation to Other Pipelines

The proposed system would consist of three separate pipelines for transport of oil, gas and produced water. An electrical utility line would also be installed for future service to compressors, well sites and pumping stations. As shown in Figure 1-1, all system components would end in the NW¼NW¼ Section 4, T149N, R94W where the proposed Phase 1A - Northern Extension would tie into the AMHP currently under construction. A 100-foot wide construction ROW corridor approximately 5.98 miles to the southwest would cross allotted and tribal lands. The ROW would be reduced to a width of 50 feet after construction is completed.

No lateral pipelines or other secondary gathering lines have been proposed to collect products or waste products from any producing or proposed wells. The proposed project consists of a trunkline system only, operating in conjunction with the AMHP currently under construction, which could be operated at low or high pressure. At low pressure (no more than 80 pounds per square inch gauge [psig]), the entire system (AMHP and Phase 1A - Northern Extension) could move more than 14,000 barrels of oil, nine million cubic feet of gas and 4,000 barrels of water each day. This is the expected output of about 100 wells. Operated at high pressure with necessary infrastructure, daily capacity would be more than 100,000 barrels of oil, 90 million cubic feet of gas and 15,000 barrels of water, which is roughly the output of 1,000 wells. Output from the Bakken Formation is expected to decline abruptly over the first several months of production, after which output would continue to decrease, but the rate of decline would tend to slow.

West and south of the Missouri River and Lake Sakakawea, the Fort Berthold Indian Reservation comprises about 365,000 acres. Most of these acres have been leased for oil and gas exploration and possible production. Well spacing units vary according to producer preference and geologic conditions, but commonly range from 320 acres to 1280 acres per well. Full development of the leased area therefore results in an estimated total number of wells between 285 and 1140.

To achieve its purpose, the proposed project must be augmented with gathering lines to individual producing wells or off-site tank batteries. Low pressure service would not require any compression or pumping stations on the Reservation, and no such facilities are included in the proposed project, but high-pressure facilities may be proposed in the future in response to production on the Reservation and producer interest. All such construction, cooperative arrangements and connections require design compatibility, mutually agreeable economic terms, additional NEPA analysis, and BIA approval. Off-Reservation connections to existing regional oil or gas pipelines do not require BIA review or approval, unless trust land may be directly or indirectly impacted.

2.2 Construction Plan and Specifications

Construction is expected to require two to three months and would be confined within a 100-foot wide temporary ROW. Pipeline materials would be staged at the storage facility and/or trucked directly to the corridor via existing federal, state, county and private roads. Traffic is expected to be heavy and daily at all access points. Prior to construction, road conditions would be documented in a photographic record provided to BIA, and erosion controls would be installed as necessary or as determined by BIA. Existing roads used to access the Phase 1A- Northern Extension corridor would be maintained until final abandonment and reclamation of the corridor occurs. Excessive rutting or other surface disturbing activities would be avoided. No new roads would be constructed. Traffic would be confined to the ROW and proposed access roads designated in **Table 2-1** and shown in **Figure 2-1**. All off-road driving, other than within the ROW, would be strictly prohibited. Signs would be installed on approved access roads and would also be used to identify roads where access is prohibited.

The gathering system would consist of three pipelines. For the first 1.06 miles of the proposed pipeline, the lines would have the following dimensions: one 6-inch oil line, one 6-inch gas line, and one 4-inch waterline. For the last 4.92 miles the line dimensions would be increased to one 8-inch oil line, one 8-inch gas line, and one 6-inch waterline. The pipelines would be laid in a continuous operation in either a single 60-inch trench or in two 36-inch trenches. Although U.S. Department of Transportation (DOT) regulations do not apply in the sparsely populated project area, all pipe and facilities in the system would be designed, assembled and installed in accordance with the DOT Title 49 CFR Part 195 and Part 192, and American National Standards Institute, American Society of Mechanical Engineers B31.4 and B31.8. Oil and gas lines would be constructed of carbon steel to high pressure specifications and hydrostatically tested to more than 1,000 psig; wall thicknesses would allow for a minimum of 1/16-inch internal corrosion. The water line would consist of a fiberglass and polyethylene composite rated and tested to at least 750 psig. All three lines could be operated at either high or low pressure.

Table 2-1 Proposed Access Roads for Phase 1A - Northern Extension

Access Road Number	Location	Description	Ownership	Length (miles)
1	Highway 22 to allotment 664A-D	Improved Road	664 A-D	0.08
2	Highway 22 to allotment 664A-B	Improved Road	664A-B	0.04
3	Existing access road to pipeline in allotment T751A	Two-Track	664A-B; T666A; 1083A; 1082A; 915A;	4.60

Installation of pipelines and utilities would require clearing and grading within the construction ROW. Topsoil would be separated and stockpiled to prepare for prompt re-seeding and reclamation of the disturbed surface. Continuous beneficial use of pastures, grazing units, livestock facilities and public improvements would be maintained. Trenches would be excavated to a depth of 78-inches to minimize frost heaving, using either rotary trenching equipment or backhoes, and pipelines would be covered with at least 66 inches of backfilled soil. Cover will increase to at least 72-inches at highway crossings, borrow ditches and at the lowest points within a highway ROW. Typical procedures are shown in **Figure 2-1**. After construction, the ROW would be reduced to 50 feet width.

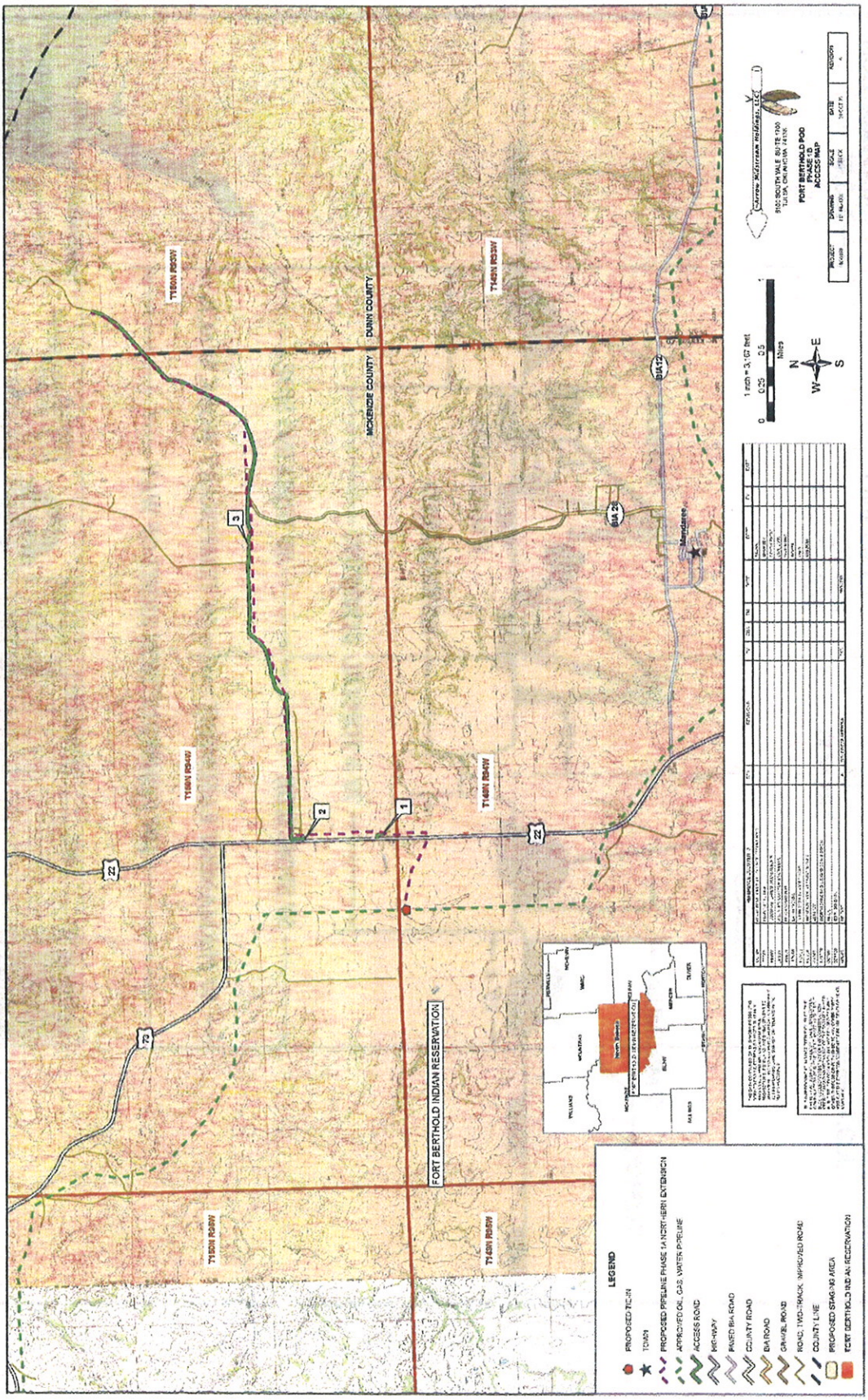

Figure 2-1 Proposed Access Roads for Phase 1A – Northern Extension

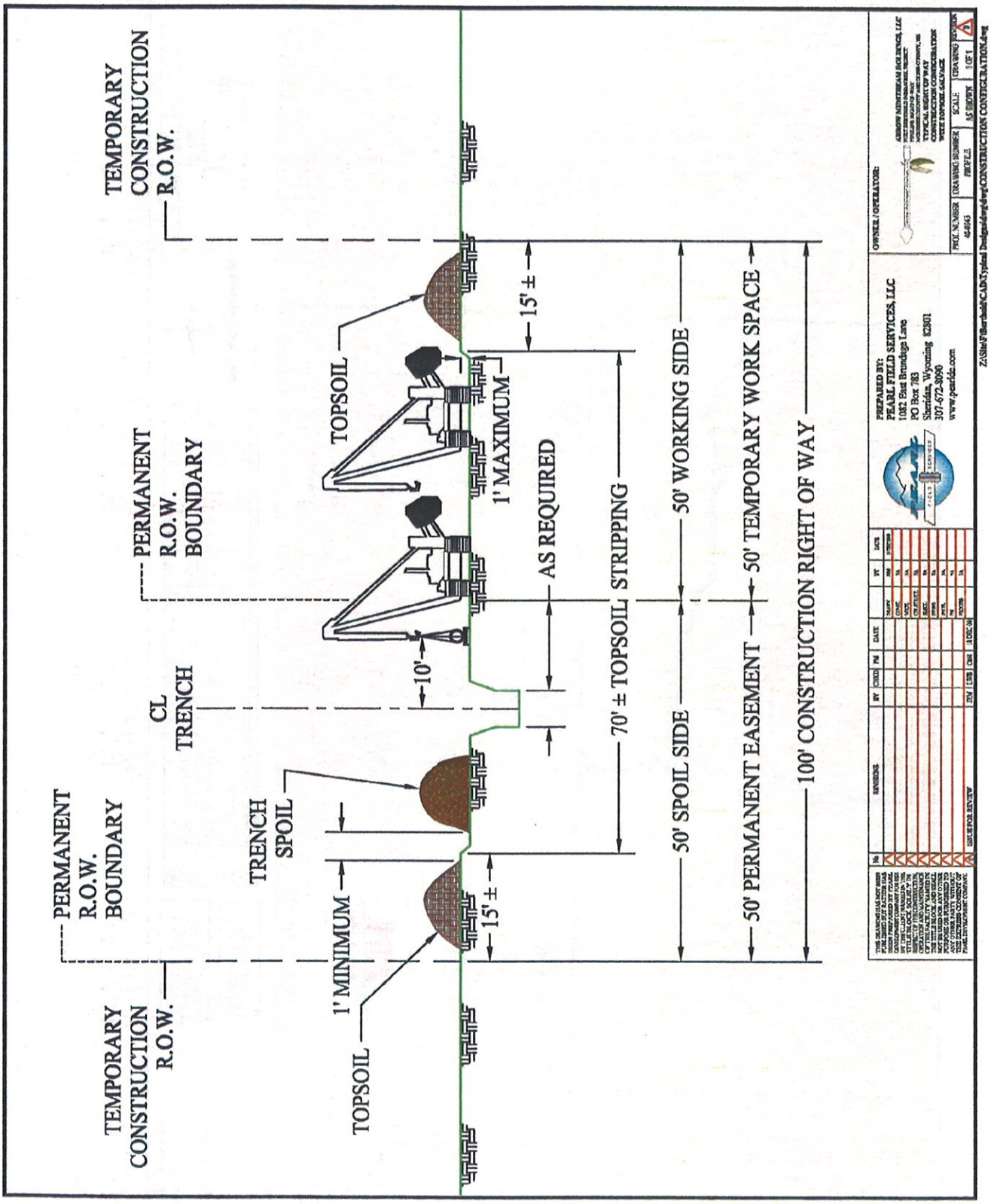

Figure 2-2 Typical ROW Construction

Trenches may be open for several days before pipes are placed and the trench backfilled. Crossings would be created as needed by temporarily filling the trench to allow pedestrians and vehicles to cross over. Ramps or soft plugs would be installed to help wildlife and domestic stock to escape the trench. BIA's instructions on all of these measures would be binding on the operator/installer. Installation involves several other procedures that are summarized below:

- **Stringing:** Stringing is a method of pipeline delivery that involves trucking the pipe from the pipe supplier to designated locations along the ROW prior to bending, line-up, and welding the pipe.
- **Bending:** After stringing is completed along a section of pipe, a hydraulic bending machine would field-bend each pipe to conform to vertical and horizontal changes in the trench. If a required bend exceeds certain design criteria, factory-bent segments may be required.
- **Welding:** After the pipe segments are bent, they would be welded together. The pipeline will be mounted on supports as a continuous line along the side of the trench to facilitate welding.
- **X-ray/Inspection:** A certified welding inspector would visually inspect each weld and 100% of the welds would be x-rayed in the field to detect flaws that could lead to pipeline failure. All welds of pre-fabricated assemblies and welds at road and stream crossings would be x-rayed.
- **Lowering:** Sideboom tractors would then lower the pipeline into the open trench. Before backfilling, the trench and pipeline would be inspected to ensure that 1) the trench is deep enough to comply with minimum cover requirements; 2) the bottom of the trench is free of large rocks, tree limbs, large roots, and other debris; 3) the pipe bends adequately conform to the trench; and 4) the external coating on the pipe has not been damaged. If the trench line is located in rock, soil padding and rock shield would be used to protect the pipeline from damage when it is lowered.
- **Hydrostatic Testing:** After the pipe is placed in the trench, the line would be pressure tested with water for structural soundness. Test water for hydrostatic testing would be trucked from a municipal source and returned, via the pipeline, to the facility. The water will then be hauled off and disposed of in a permitted facility.
- **Trench Backfilling:** Marker tape will be added to the pipeline trench to avoid unintended excavation or damage to pipes. After the trench is backfilled, it will be compacted with a wheel roller. A 3- to 6-inch crown would be left over the centerline of the trench to allow for natural subsidence. Trench breakers, or water stops, would be installed, as necessary, adjacent to wetlands or stream crossings to eliminate groundwater migration along the trench. Trench breakers are areas along the pipeline where bentonite, or a similar material, is packed around the pipe. In the event of a pipe blowout, the trench breakers effectively stop water from washing out the area.
- **Re-grading:** After the trench has been backfilled, disturbed areas would be re-graded to original contours and stockpiled topsoil would be redistributed over the ROW.

Other features of the system would include:

- **Air release valves** (ARVs) would be placed at several high-elevation locations along the water pipeline to release air pressure and prevent disturbances in water flow and prevent damage to pipes and fittings. ARVs would surface in a two-foot wide covered manhole extending about 12-inches above ground surface. The manhole is a non-pressurized, insulated vessel allowing access to the ARV. ARVs pose no threat to livestock or humans.
- **Pipeline inspection gauges** (PIGs) are tools sent down gas pipelines to clean the line or inspect the walls. A pig receiver and launcher will be needed for the 6 inch diameter pipeline as well as the 8 inch diameter pipeline.
    - The first Phase 1A - Northern Extension launcher would be installed at the north end of the gas pipeline in the SE¼SW¼ Section 19, T150N, R93W on a 20 foot x 35 foot pad enclosed by a chain link fence. The pig receiver for the 6 inch diameter segment of pipeline would be located in the SW¼SE¼ Section 25, T150N, R94W.
    - The launcher for the 8" PIG would be located in the SW¼SE¼ Section 25, T150N, R94W. The PIG receiver for the 8 inch pipeline would be installed at the south end of Phase 1A - Northern Extension in the NW¼NW¼ Section 4, T149N, R94W. The launcher enclosure will also include storage for 90 barrels of methanol for injection into the gas line to prevent freezing of water in that line.
    - A second receiver may also be located in the SW¼SE¼ Section 25, T150N, R94W to receive the PIG sent from any Arrow Pipeline extensions.

- **Tie-in valves** would be needed to connect lateral pipelines to the Phase 1A - Northern Extension corridor. The number and location of these valves would be determined and proposed for BIA consideration as more productive wells are drilled.
- **Staging Areas,** approximately one acre in size, would be located in the SW¼NE¼ Section 34 T150N, R94W and in the NW¼NW¼ Section 36 T150N, R94W. These two staging areas would temporarily serve as storage areas for pipeline construction materials. Topsoil would be cleared and stockpiled at these locations until construction was completed. At that time, topsoil would be redistributed and the areas reseeded and reclaimed.

Non-hazardous materials, such as paper, plastic and wood, would be collected and stored in appropriate waste containers with lids. Portable toilets would be confined to trailers while parked in the ROW. A sanitation company would be contracted to periodically remove solid, non-hazardous waste materials and deposit them in an approved landfill.

2.3 Directional Drilling

Directional drilling – sometimes referred to as horizontal drilling or boring – can reduce or mitigate surface disturbance, traffic interruptions, damage to roads and environmental impacts to waterways, wetlands, cultural resources or other valuable surface or near-surface assets. A hole would be bored beneath the asset in a shallow arch from one surface location to another. The pipeline is pulled through either the bare hole or through a casing. Locations have been identified within the proposed project area that require directional drilling, either in conformance with BIA regulations or as best management practices around running or extensive standing water. These locations, listed in **Table 2-2**, include a dirt road and two wetland crossings. Wetlands to be bored are discussed in greater detail in Section 3.10.

Table 2-2 Directional Drilling Locations

Location	Type of Asset	Asset	Length (ft)
NWNE Sec. 4 T150N, R94W	Highway	Highway 22	300
SWSE Sec. 33 T150N, R94W	Road and draw	Private driveway and Tributary of Boggy Creek	300

2.4 Reclamation

Reclamation would take place throughout the project lifespan. Reclamation would be required after the initial construction, after any maintenance work or addition of auxiliary infrastructure, and before final abandonment of the decommissioned system. At all times, successful reclamation would remain the obligation and responsibility of the system operator.

Trenches would be backfilled immediately after pipe and utility installation and testing, waiting only if soils are frozen or overly wet. A stormwater pollution prevention plan is not required by the EPA. Appropriate temporary and long-term measures would be applied to all disturbed areas to minimize and control erosion. Field practices would conform with standard recommendations of the Natural Resources Conservation Service (NRCS) (2003) and may include 1) installing silt fences and erosion fabric, mats or logs; 2) construction of ditches and water bars; 3) seeding, planting, mulching and creation of buffer strips; and/or 4) any other measures required by BIA to minimize erosion and soil loss.

After subsoil on the working side of the ROW is plowed to alleviate compaction, stockpiled topsoil would be redistributed over the ROW. Re-contouring and reclamation of disturbed areas would be accomplished as soon as possible after construction is completed, and no later than by the next appropriate planting season (fall or spring). The ROW would be re-seeded with certified, weed-free seed mixtures established by BIA. In all cases, native species would be used to the extent possible and all seeding and planting would comply with BIA directions to ensure successful reclamation.

The entire corridor would be monitored to identify areas of excessive erosion, subsidence or invasion of noxious weeds. Periodic monitoring would be performed – and repeated reclamation efforts would be undertaken in problem areas – until BIA has certified the entire corridor as successfully reclaimed. Successful reclamation is defined to

include the following observable factors: reproduction from seeded and re-established species, natural invasion of plants from undisturbed adjacent communities, and control or exclusion of noxious weeds. A noxious weed survey was conducted in the project corridor. A weed management plan was developed with BIA to facilitate the treatment of known and likely noxious/invasive weed species. Details of the vegetation surveys can be found in Section 3.11. If re-seeding is not successful within two growing seasons, BIA may require extraordinary efforts to stabilize the site, such as matting the entire area or using a mix of rapidly growing forbs and annual grasses, followed by re-seeding with grasses, forbs, and shrubs with rapidly expanding, deep root systems.

Decommissioning of the pipeline would result in mandatory final reclamation of the corridor. All surface facilities would be removed. Cement foundations would be broken and hauled to an approved disposal site. Gravel pads would be buried onsite or hauled to a disposal site. Compacted areas would be scarified, ripped and re-contoured. Stockpiled topsoil would be redistributed and re-vegetated. Due to economic and environmental costs associated with excavation and removal, pipelines would be purged with water to remove hydrocarbons, and then abandoned in place. Long-term monitoring would be required to ensure successful reclamation and implementation of any necessary remedial efforts.

2.5 Operation and Maintenance

County, state, private and BIA roads used by Phase 1A- Northern Extension would be maintained in the same or better condition as existed prior to the start of operations, as documented in photographs taken prior to construction. Maintenance of roads used to access the ROW would continue until final abandonment and reclamation of the corridor occurs. Excessive rutting or other surface disturbing activities would be avoided or immediately repaired. Maintenance on pipelines and utilities would be confined to the 50-foot permanent ROW. Corrosion or leaking might require replacement of system sections. Loss of products or waste products might require excavation of contaminated soils and other remedial projects. All applicable regulations and best management practices would be implemented aggressively to minimize waste of resources and/or environmental damage.

3. The Affected Environment and Potential Impacts

The Fort Berthold Indian 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 generally owned in fee simple title, sometimes by the MHA Nation or tribal members, but usually by non-Indians. The Reservation occupies portions of six counties, including Dunn, McKenzie, McLean, Mercer, Mountrail and Ward. In 1956, much of the land was inundated and the balance divided into three sections by Lake Sakakawea, an impoundment of the Missouri River upstream of the Garrison Dam near Riverdale, North Dakota.

The proposed Phase 1A- Northern Extension project is situated geologically within the Williston Basin, where the shallow structure consists of sandstones, silts, shales and some lignite coal. These date from the Tertiary Period (65 to 2 million years ago). Oil, gas and water to be transported by the proposed project would usually be from the underlying Bakken, Sanish or Three Forks formations. Earlier oil/gas exploration activity within the Reservation was limited and commercially unproductive, but recent economic changes and technological advances now make accessing resources more feasible. Impacts and hazards have increased proportionately.

The Reservation is in the northern Great Plains ecoregion, which 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). Much of the Reservation is on the Missouri Coteau Slope. The elevation of the formerly glaciated, gently rolling landscape ranges 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° F in January and between 55° 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 Phase 1A – Northern Extension project is in a rural area with native/mixed-grass prairie. Areas with steep slopes and/or rocky, thin soils are usually used to graze cattle. Some of the areas with broad gentle slopes are farmed, mostly in small grains or perennial hay crops. The broad definition of the human and natural environment under NEPA leads to the consideration of the following elements: air quality, public health and safety, socioeconomics, environmental justice, cultural resources, wildlife, soils, water resources, wetlands, vegetation and invasive species. Potential impacts to these elements are analyzed for both the No Action alternative and the preferred alternative. 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 that a significant benefit from the project does *not* in itself require preparation of an EIS.

3.1 The No Action Alternative

Under the No Action alternative, the proposed project would not be constructed or operated. Trucking of products and waste products from existing wells would continue, as would the flaring of gas at well pads. With no practicable alternative, trucking and flaring would increase as more wells are completed; existing conditions would be progressively impacted for the following critical elements: air quality, invasive species, and public safety. Flaring of gas from more wells might lead over time to measurable degradation of air quality. Trucking impacts range from seeding of invasive species to loss of human life. Loss of tribal and individual royalties from existing and potential wells would impact tribal and individual economies and planning.

No Action exacerbates waste of resources and loss of revenue. Gas income loss due to flaring is estimated at 2 million dollars over the life of each well, based on average gas prices in North Dakota 2006-2008, Estimated Ultimate Recovery of 350,000 barrels oil per Bakken well, and a typical gas to oil ratio (Energy Information Administration, 2009). Typical leases assign 18% of these revenues to the lessor, either the MHA Nation or allottees. Inasmuch as losses to producers are significantly higher, No Action may also have an indirect dampening effect on development decisions, further depressing economic benefits to the MHA Nation and individual Indians.

3.2 Air Quality

The North Dakota Department of Health (NDDH) network of Ambient Air Quality Monitoring (AAQM) stations includes Watford City in McKenzie County, Dunn Center in Dunn County, and Beulah in Mercer County. These stations are located west, south and southeast of the proposed project area. Criteria pollutants tracked under National

Ambient Air Quality Standards (NAAQS) of the *Clean Air Act* include sulfur dioxide (SO_2), particulate matter (PM_{10}), nitrogen dioxide (NO_2) and ozone (O_3). Two other criteria pollutants – lead (Pb) and carbon monoxide (CO) – are not monitored by any of three stations. **Table 3-1** summarizes federal air quality standards and available air quality data from the three-county study area.

Table 3-1 Air Quality Standards and County Data

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	NAAQS (ppm)	County		
				Dunn	McKenzie	Mercer
SO_2	24-Hour	365	0.14	0.004 ppm	0.004 ppm	0.011 ppm
	Annual Mean	80	0.030	0.001 ppm	0.001 ppm	0.002 ppm
PM_{10}	24-Hour	150	--	50 ($\mu g/m^3$)	35 ($\mu g/m^3$)	35 ($\mu g/m^3$)
	Annual Mean	50	--	--	--	--
$PM_{2.5}$	24-Hour	35	--	--	--	--
	Weighted Annual Mean	15	--	--	--	--
NO_2	Annual Mean	100	0.053	0.002 ppm	0.001 ppm	0.003 ppm
CO	1-Hour	40,000	35	--	--	--
	8-Hour	10,000	9	--	--	--
Pb	3-Month	1.5	--	--	--	--
O_3	1-Hour	240	0.12	0.071 ppm	0.072 ppm	0.076 ppm
	8-Hour	--	0.08	0.061 ppm	0.066 ppm	0.067 ppm

Source: U.S. Environmental Protection Agency (EPA) 2006. $\mu g/m^3$ = micrograms per cubic meter. ppm = parts per million.

North Dakota was one of only nine states in 2006 that met standards for all criteria pollutants. The state also met standards for fine particulates and the eight-hour ozone standards established by the U.S. Environmental Protection Agency (EPA) (NDDH 2007). The three counties addressed in Table 3-1 are also in full attainment and usually far below established limits for these pollutants (American Lung Association 2006). The Clean Air Act mandates prevention of significant deterioration in designated attainment areas. Class I areas are of national significance and include national parks greater than 6,000 acres in size, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres and designated prior to 1977. There is a Class I airshed at nearby Theodore Roosevelt National Park, which covers about 110 square miles in three units within the Little Missouri National Grassland between Medora and Watford City, about 50 miles west and upwind of the proposed Phase 1A- Northern Extension corridor. The Reservation can be considered a Class II attainment airshed, which affords it a lower level of protection from significant deterioration.

The proposed project is similar to other projects installed nearby with the approval of state offices. Construction traffic would generate temporary, intermittent and nearly undetectable gaseous emissions of particulates, SO_2, NO_2, CO, and volatile organic compounds. Road dust would be controlled as necessary and other best management practices implemented as necessary to limit emissions to the immediate project area (USDI BLM 2009). A permit for the storage facility as a minor source of pollutantswill be requested from the NDDH.

No detectable or long-term impacts to air quality or visibility are expected within the airsheds of the Reservation, state, or Theodore Roosevelt National Park. Despite minor construction impacts, the proposed project is expected to have an overwhelmingly positive and long-term impact on air quality. In addition to eliminating flaring of gas from connected wells, the gathering system will drastically reduce heavy truck traffic. Over its first ten years, the typical Bakken Formation well will produce almost 2,000 tanker loads of oil and 450 loads of produced water. Within that period, a gathering system servicing 50 wells will make unnecessary about 6,000,000 miles of heavy truck traffic. No laws, regulations or other requirements have been waived; no monitoring or compensatory measures are required.

3.3 Public Health and Safety

Health and safety concerns include traffic hazards posed by heavy trucks and equipment during construction, hazardous materials used or generated during installation or production, and burning or explosive hazards during operation of the pipelines and storage facility.

Negative impacts from construction would be largely temporary. Noise, fugitive dust, and traffic hazards would be present for sixty to ninety days during construction and then diminish sharply during operations. The U.S. EPA specifies chemical reporting requirements under Title III of the *Superfund Amendments and Reauthorization Act* (SARA) of 1986, as amended. No materials used or generated by this project for production, use, storage, transport, or disposal are on either the SARA list or on EPA's list of extremely hazardous substances in 40 CFR 355. The most common and potentially hazardous substances used during the construction of the pipeline and facility would include diesel fuel, gasoline, lubricating oils, paints, and solvents. The Spill Prevention Control and Countermeasure (SPCC) plan includes procedures for hazardous materials storage, handling, disposal, cleanup and reporting. Potentially hazardous materials would be stored only in designated and permitted staging areas at least 100 feet from watercourses and wetlands. Vehicle refueling would comply with the same minimum setback. Material Safety Data Sheets for each potentially hazardous substance would be maintained onsite in the control room at AMHP central facility and at the point of use at all times.

According to the Pipeline and Hazardous Materials Safety Administration (PHMSA 2009), pipelines are a reliable and cost-effective means to transport natural gas and hazardous liquids. PHMSA statistics show one gallon of oil is spilled for every barrel of oil that is transported one million miles: "In household terms, this is less than one teaspoon of oil spilled per thousand barrel-miles". In the event of a spill, AMH would notify local emergency management authorities and state or federal response centers. After the pipeline is operational, AMH would also install and utilize the following programs for public safety: operator training, cathodic protection, detailed ROW marking, regular inspections, and integrity management programs (automated PIG launcher). Pipeline pressure would also be monitored at both ends of the system; significant leaks causing pressure drops would be located by launching a special PIG or other detection equipment down a line.

There have been four oil transport related deaths on or near the Reservation in the past two years. PHMSA data show that pipelines generally have a far better safety record (deaths, injuries, fires/explosions) than other modes of oil transportation. For a given volume transported, there are 87 times more oil transport truck-related deaths, 35 times more oil transport truck related fires/explosions and twice as many oil transport truck-related injuries. There are about 7,000 miles of gas and hazardous liquid pipelines in North Dakota. Over the past ten years, there have been no fatalities and 4 injuries associated with these facilities (PHMSA 2009).

A comprehensive gathering system would eliminate the need for most of this traffic and increase overall public safety. During the first ten years of operation, the typical Bakken Formation well is expected to produce 256,595 barrels of oil and 48,180 barrels of water. Oil is commonly carried in tankers with a capacity of 140 barrels, while water tankers usually carry up to110 barrels. Ten-year transportation needs are therefore equivalent to about 2,300 trucks. Average roundtrip distances from oil depots can be very conservatively estimated at 50 miles. Service to each productive well on the Reservation would therefore result in at least 115,000 miles driven during the ten year period of interest. Fifty typical wells would require almost six million miles to be driven by heavy trucks on sometimes substandard roads through sometimes severe weather. Since full development estimates range from 285 wells to as many as 1,185 on the west side of the Reservation, traffic loading could be between 33 million and 130 million miles over ten years.

Combustion and explosive hazards are considered extremely unlikely for the proposed project, but modeling results show that most damage would be expected within 0.5 mile of either side of the pipeline as shown in **Figure 3-1.** Within this estimated maximum blast zone, there are six existing homes and two abandoned homes. Prevailing winds in the area are to the southwest, minimizing potential combustion and explosive hazards from the pipeline to the town of Mandaree (see Figure 3-1).

Project design and operational precautions mitigate against impacts from traffic or hazardous materials. The size of the area potentially impacted by leaks, fire or explosion is limited by burial of the pipelines at least 5.5 feet underground and the relatively small diameter of the proposed lines. All operations would conform to instructions from BIA fire management staff. Impacts from the proposed project are considered minimal, insignificant or unlikely. No laws, regulations or other requirements have been waived; no compensatory mitigation measures are required.

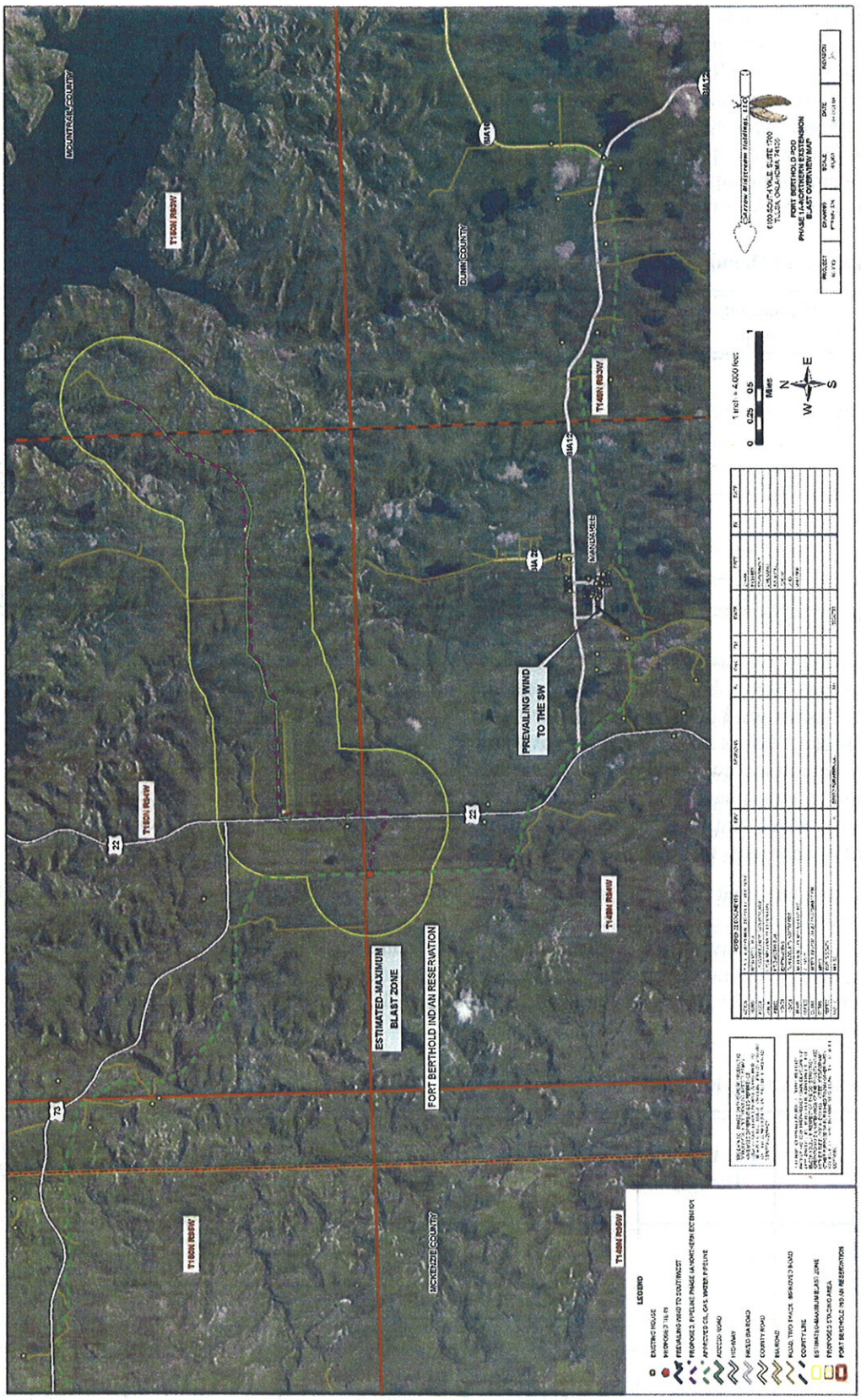

Figure 3-1 Blast Overview Phase 1A- Northern Extension

3.4 Socioeconomics

Socioeconomic conditions include population, demographics, income, employment, and housing. These conditions can be analyzed and compared at various scales. This analysis focuses on the Reservation, the four counties that overlap most of the Reservation, and the state of North Dakota. The state population showed little change between the last two censuses (1990–2000), but there were notable changes locally, as shown in **Table 3-2**. Populations in Dunn, McKenzie, McLean, and Mountrail counties declined 5 to 11%, while population on the Fort Berthold Reservation increased by almost 10%. These trends are expected to continue (Rathge *et al.* 2002). While American Indians are the largest group on the Reservation, they are a minority within the four counties and statewide. More than two-thirds (3,986) of the Reservation population are tribal members.

Table 3-2 Population and Demographics

County/Reservation	Population in 2000	% of State Population	% Change, 1990-2000	Predominant Group	Predominant Minority
Dunn County	3,600	0.56%	- 10.1%	White	American Indian (12%)
McKenzie County	5,737	0.89%	- 10.1%	White	American Indian (21%)
McLean County	9,311	1.45%	- 11.0%	White	American Indian (6%)
Mountrail County	6,631	1.03%	- 5.6%	White	American Indian (30%)
Fort Berthold	5,915	0.92%	+ 9.8%	American Indian	White (27%)
North Dakota	642,200	100%	+ 0.005%	White	American Indian (5%)

Source: U.S. Census Bureau 2007.

In addition to the ranching and farming that are mainstays in western North Dakota, employment on the Reservation largely stems from tribal government, tribal enterprises, schools, and federal agencies. The MHA Nation's Four Bears Casino and Lodge, near New Town, employs over 320 people, 90% of whom are tribal members (Three Affiliated Tribes 2008). Counties overlapping the Reservation tend to have per capita incomes, median household incomes, and employment rates that are lower than North Dakota statewide averages. Reservation residents have lower average incomes and higher unemployment rates compared to the encompassing counties. MHA Nation members are in turn disadvantaged relative to overall Reservation incomes and unemployment rates that average in non-Indian data.

The most recent census found that per capita income for residents of the Reservation is $10,291 (less than 33% of the state average). Overcrowded housing skews the median Reservation household income upward to $26,274 (about 66% of the state average). A BIA report in 2003 found that 33% of *employed* MHA Nation members were living below federal poverty levels. The unemployment rate for tribal members is 22 %, compared to 11.1% for the Reservation as a whole and 3.2% statewide. These and other comparisons are shown in **Table 3-3**.

Table 3-3 Income and Unemployment

Unit of Analysis	Per Capita Income	Median Household Income	Unemployment Rate (2007)	Employed but Below Poverty Level	Percent of All People in Poverty
MHA Nation members	--	--	22 %	33 %	Unknown
Fort Berthold Reservation	$ 10,291	$ 26,274	11.1 %	--	Unknown
Mountrail County	$ 29,071	$ 34,541	5.8 %	--	15.4%
Dunn County	$ 27,528	$ 35,107	3.4 %	--	13%
McKenzie County	$ 27,477	$ 35,348	3.1 %	--	15.8 %
McLean County	$ 32,387	$ 37,652	4.7 %	--	12.8%
North Dakota	$ 31,871	$ 40,818	3.2 %	--	11.2 %

Source: U.S. Department of Agriculture Economic Research Data 2008 and BIA 2003.

Availability and affordability of housing could impact oil and gas development and operations. The tribal 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. New housing construction has recently increased within much of the analysis area, but availability remains low. Housing data is summarized in **Table 3-4**.

Table 3-4 Housing

Housing Development	Fort Berthold Reservation	Dunn County	McKenzie County	McLean County	Mountrail County
Existing Housing					
Owner-Occupied Units	1,122	1,570	2,009	4,332	2,495
Renter-Occupied Units	786	395	710	932	941
Total	1,908	1,965	2,719	5,264	3,436
New Private Housing Building Permits 2000-2005	--	18	4	135	113
Housing Development Statistics					
State rank in housing starts	--	51 of 53	15 of 53	21 of 53	17 of 53
National rank in housing starts	--	3112 / 3141	2498 / 3141	2691 / 3141	2559 / 3141

Source: U.S. Census Bureau, 2007 and 2008.

The proposed project is not expected to have measurable impacts on population trends, housing starts or local unemployment rates. Construction jobs would result from pipeline construction on the Reservation, but these opportunities are short-term. The capture and sale of gas presently wasted in well pad flare pits would provide significant royalty income and other indirect economic benefits.

3.5 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, was signed by President Clinton in 1994. The Order requires agencies to advance environmental justice 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 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 U.S. 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.

Environmental justice is an evolving concept with potential for disagreement over the scope of analysis and the implications for federal responsiveness. It is nevertheless clear that tribal members on the Great Plains qualify for environmental justice consideration as both a minority and low-income population. The population of the Dakotas is predominantly Caucasian. While some 70% of Fort Berthold residents are tribal members, Indians comprise only 5% of North Dakota residents and 12% of the population of Dunn County. Even in a state with relatively low per capita and household income, Indian individuals and households are distinctly disadvantaged.

There are, however, some unusual considerations when proposed federal actions are meant to benefit tribal members. Determination of fair treatment necessarily addresses the existence and distribution of both benefits and negative impacts, due to variation in the interests of various tribal groups and individuals. There is also potential for major differences in impacts to resident tribal members and those enrolled or living elsewhere. A general benefit to MHA Nation government and infrastructure has already resulted from tribal leasing, fees and taxes. Oil and gas leasing has also already brought much-needed income to MHA Nation members who hold mineral interests, some of whom might eventually benefit further from royalties on commercial production. Profitable production rates at proposed locations might lead to exploration and development on additional

tracts owned by currently non-benefiting allottees. The absence of lease and royalty income does not, moreover, preclude other benefits. Exploration and development may provide many relatively high-paying jobs, with oversight from the Tribal Employment Rights Office.

The owners of allotted surface within project areas may not hold mineral rights. In such cases, surface owners do not receive oil and gas lease or royalty income and their only related income would be compensatory for productive acreage temporarily lost to the pipeline corridor. Tribal members without either surface or mineral rights would not receive any direct benefits whatsoever. Indirect benefits of employment and general tribal gains would be the only offset to negative impacts.

Potential impacts to tribes and tribal members include disturbance of cultural resources. There is potential for disproportionate impacts, especially if the impacted tribes and members do not reside within the Reservation and therefore do not share in direct or indirect benefits. This potential is significantly reduced following surveys of the proposed pipeline route and access road routes and determination by the BIA that there will be no effect to historic properties. Nothing is known to be present, furthermore, that qualifies as a traditional cultural property or for protection under the American Indian Religious Freedom Act. Potential for disproportionate impacts is further mitigated by requirements for immediate work stoppage following an unexpected discovery of cultural resources of any type. Mandatory consultations will take place during any such work stoppage, affording an opportunity for all affected parties to assert their interests and contribute to an appropriate resolution, regardless of their home location or tribal affiliation.

The proposed project has not been found to pose significant impacts to any other critical element—air, public health and safety, water, wetlands, wildlife, soils or vegetation— within the human environment. Avoiding or minimizing such impacts generally also makes unlikely specific and disproportionate impacts to low-income or minority populations. The proposed action offers many positive consequences for tribal members, while recognizing environmental justice concerns. Procedures summarized in this document are binding and sufficient. No laws, regulations or other requirements have been waived; no compensatory mitigation measures are required.

3.6 Cultural Resources

Cultural resources is a broad term encompassing sites, objects, or practices of archaeological, historical, cultural and religious significance. 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. 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). As a result, BIA consults and corresponds with the THPO on all projects proposed within the exterior boundaries of the

Fort Berthold Reservation. The MHA Nation has also designated responsible parties for consultations and actions under NAGPRA and cultural resources generally.

Cultural resource inventories of this Arrow Pipeline Northern Extension and reroutes were conducted by personnel of SWCA Environmental Consultants, using a pedestrian methodology. A total of approximately 107.36 acres were intensively inventoried on June 25 – August 13, 2009 (Cooper 2009) and on September 14 – 15, 2009 (Reed and Cooper 2009). Properties located within the project area that appeared to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register of Historic Places have been avoided through reroutes. As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached determinations of **no historic properties affected** for this undertaking. This determination was communicated to the THPO for the initial project on October 8, 2009, and the THPO concurred on October 29, 2009 (see Part 4). The same determination was communicated to the THPO for the reroutes on November 2, 2009; however, no response was received from the THPO within the allotted 30-day comment period.

3.7 Wildlife

The USFWS has identified six federally listed threatened and endangered species occurring in Dunn and McKenzie Counties, in addition to one species that is a candidate for listing under the *Endangered Species Act* (ESA) (USFWS 2008a). None of these species were observed during field reconnaissance of the proposed site. The state of North Dakota (North Dakota Game and Fish Department, NDGFD), BIA, Bureau of Land Management (BLM), and Fort Berthold Reservation do not have a list of threatened or endangered species different from the federal government. Tribes and states may recognize additional species of concern; such lists are taken under advisement by federal agencies, but are not legally binding in the manner of the ESA.

Whooping crane *(Grus Americana)* Status: Endangered. Likelihood of occurrence: **unlikely**
Whooping cranes historically nested in North Dakota, but the whooping crane is currently only a migrant through North Dakota in the spring and fall. During spring and fall whooping crane migration, preferred roost habitat consist of large shallow marshes with a minimal to nonexistent emergent zones and preferred foraging habitat consists of upland cropland and pastures adjacent to and usually within one kilometer (0.62 mile) of roosts (Howe 1989). The lack of a cropland/wetland matrix habitat makes migratory stopovers by whopping cranes unlikely. The proposed project will not affect this species.

Interior least tern *(Sterna antillarum)* Status: Endangered Likelihood of occurrence: **unlikely**
Natural habitat for interior least terns in North Dakota includes islands, beaches and sandbars of the Missouri and Yellowstone Rivers and along the shorelines of Lake Sakakawea and Oahe (USFWS 2006). Interior least terns are generally restricted to larger meandering rivers with a broad floodplain, slow currents and greater sedimentation rates, which allow for the formation of suitable habitat. Interior least terns experience the greatest nesting success on sand or gravel bar islands because predation by terrestrial predators is reduced (USFWS 2006). Interior least terns' seasonal habitat requisites are associated with rivers, streams and reservoirs. There is no existing suitable habitat within or near the project area that would be appropriate for this species. The proposed project will not affect this species.

Pallid sturgeon *(Scaphirhynchus albus)* Status: Endangered. Likelihood of occurrence: **would not occur**
The pallid sturgeon is known to occur in North Dakota primarily at the confluence of the Missouri and Yellowstone Rivers (USFWS 2006). There is no existing or potential aquatic habitat within or near the project area that would be suitable for this species. The proposed project would not affect this species.

Black-footed ferret *(Mustela nigripes)* Status: Endangered. Likelihood of occurrence: **would not occur**
Black-footed ferrets historically occurred in this region of North Dakota, but mostly in the extreme southwest part of the state (USFWS 2006). Suitable habitat includes large black-tailed prairie dog *(Cynomys ssp.)* colonies or complexes of colonies. The ferret's primary food source is the black-tailed prairie dog and ferret's also inhabit black-tailed prairie dog burrows. The proposed project area does not contain active black-tailed prairie dog colonies. The black-footed ferret is not expected to be

present given the paucity of food and habitat on the project area. The proposed project would not affect this species.

Gray wolf (*Canis lupus*) Status: Endangered. Likelihood of occurrence: **would not occur**
The most suitable habitat for the gray wolf in North Dakota is in the dense and contiguous forested areas in the north central and northeast parts of the state. There have been documented occurrences of gray wolves in south-central North Dakota (1985, 1990, and 1991) and confirmed reports of gray wolves in the Turtle Mountains of North Dakota (NDGFD 2006). The project area does not contain dense, contiguous forested areas required by the gray wolf and there have been no historical wolf sightings within or near the project area (USFWS 2006). The proposed project would not affect this species.

Piping plover (*Charadrius melodus*) Status: Threatened. Likelihood of occurrence: **unlikely**
Critical habitat for the piping plover includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with the water bodies (USFWS 2006). As the project area is composed primarily of grassland habitat, there are no suitable nesting/foraging habitats for piping plovers present. The proposed project would not affect this species.

Dakota skipper (*Hesperia dacotae*) Status: Candidate. Likelihood of occurrence: **may occur**
North Dakota has a large and stable population of Dakota skippers. In the western part of the state, its habitat includes ungrazed native prairie with little bluestem (*Schizachyrium scoparium*), needle and thread (*Stipa viridula*), purple coneflower (*Echinacea spp.*) and a high forb and grass diversity (USFWS 2006). The Dakota skipper has been documented within both McKenzie and Dunn Counties in the NESW & NWSE Section 28, T149N, R94W and the NENW of Section 33, T149N, R94W (USFWS 2008a). The project area does contain suitable habitat for the Dakota skipper. No individuals were observed during the survey.

SWCA conducted wildlife surveys on April 24, June 25, and September 15, 2009, and determined that construction and operation of the proposed pipeline is not likely to affect the six federally listed threatened or endangered species that have ranges that include the project area (Cooper 2009). No effects are expected for the pallid sturgeon, black-footed ferret, gray wolf and whooping crane, interior least tern, and piping plover because these species do not occupy the project area, other than occasional transients. Habitat for the candidate species, Dakota skipper, is potentially found in the project area and there are confirmed observations of individuals in sections near the proposed pipeline. Only indirect effects would be likely, such as temporary displacement caused by noise or presence of humans. These potential effects are not likely to negatively affect this species or its habitat.

Bird and mammal species potentially present in the vicinity of the project area based on potential habitat, queries of state and federal natural resource related databases, and interviews with state (NDGFD 2008) and federal management personnel (USFWS 2008b) are listed in **Table 3-6**. Eighteen resident birds are known from McKenzie and Dunn Counties and at least 71 migratory birds could potentially occur in the vicinity of the project. Based on a lack of suitable waterfowl nesting habitat present within the project area, only limited use of the area (except staging on Lake Sakakawea, 10 miles from the project area) by migrating waterfowl species would be expected. A review of the NDGFD annual game bird reports for central and western North Dakota indicates that populations are healthy and stable-to-increasing in this region. In addition to avian species, 21 species of mammals could occupy the project area both continually and intermittently throughout the year. A review of NDGFD winter aerial survey data indicates that white-tailed deer density within McKenzie and Dunn Counties is excellent and suggests a healthy and stable-to increasing deer population.

Construction activities that remove vegetation and disturb soil may cause direct mortality, displacement, or increased exposure to predators for of less mobile wildlife species (i.e. small mammals, amphibians, reptiles, ground-nesting birds). More mobile species (i.e. medium to large mammals and birds) would be expected to disperse from the project area during construction and re-enter the area following completion of construction activities. Long-term habitat loss would be minimal and restricted to the localized area of permanently altered vegetation. Disturbance to wildlife due to noise, increased traffic, and human presence may temporarily

displace individuals during the construction period. However, due to the migratory and transient behavior of wildlife species, these effects are not likely to cause long term declines in populations. Interim reclamation and the use of BMPs over the life of the project would reduce long-term impacts to all wildlife. Monitoring of species in the area would occur as part of the normal monitoring processes.

Table 3-5 Potential Wildlife Species in McKenzie and Dunn Counties, North Dakota

Resident Birds	Migratory Birds		Mammals
American Crow	American Coot	Turkey Vulture	Pronghorn Antelope
Black-billed Magpie	Marbled Godwit	Brewer's Blackbird	Badger
Black-capped Chickadee	American Goldfinch	Cooper's hawk	Beaver
Blue Jay	Franklin's Gull	Brown Thrasher	Big Brown Bat
Short-eared Owl	American Kestrel	Northern Harrier	Coyote
Downy Woodpecker	Loggerhead Shrike	Brown-headed Cowbird	Eastern Chipmunk
Eastern Screech Owl	American Robin	American Avocet	Fox Squirrel
European Starling	Long-billed Dowitcher	Bufflehead	Franklin's Ground Squirrel
Gray Partridge	American Tree Sparrow	Greater Yellowlegs	Little Brown Bat
Great Horned Owl	Mallard	Cedar Waxwing	Long-tailed Weasel
Hairy Woodpecker	Bank Swallow	Chipping Sparrow	Meadow Vole
House Finch	Marsh Wren	Rough-legged hawk	Mink
House Sparrow	Gray Catbird	Common Yellowthroat	Muskrat
Ring-necked Pheasant	Mountain Bluebird	Ruby-throated Hummingbird	Raccoon
Sharp-tailed Grouse	Mourning Dove	Eastern Wood-Pewee	Red Fax
White-breasted Nuthatch	Killdeer	Savannah Sparrow	Red Squirrel
Wild Turkey	Northern Flicker	Semi-palmated Plover	Silver-haired Bat
Horned Lark	Least Flycatcher	Short-billed Dowitcher	Thirteen-lined Ground Squirrel
	Western Meadowlark	Snow Bunting	White-tailed Deer
	Lesser Yellowlegs	Snow Goose	Mule Deer
	Common Nighthawk	Solitary Sandpiper	White-tailed Jackrabbit
	Great Blue Heron	Song Sparrow	
	Willet	Sora	
	Black-crowned Night Heron	Spotted Sandpiper	
	Yellow Warbler	Horned Grebe	
	Canada Goose	Eared Grebe	
	Barn Swallow	Swainson's Hawk	
	Blue-winged Teal	Tree Swallow	
	Belted Kingfisher	Upland Sandpiper	
	Gadwall	Vesper Sparrow	
	Red-Headed woodpecker	Double-crested Cormorant	
	Northern Shoveler	White-fronted goose	
	Black Tern	Wood Duck	
	American Wigeon	Lesser Scaup	
	Black-bellied Plover		
	Ruddy Duck		
	Bonaparte's Gull		

3.8 Soils

Physiographically, the project area is part of the Missouri Plateau, a relatively high plain that slopes to the east and northeast. Soils within the project area have developed over till plains and uplands. Till plains soils are found on ridges, swales, knolls, rises, and hills with slopes ranging between 0 and 60 percent and were developed in fine-loamy till from glacial deposition. Soils of the uplands developed from a variety of parent materials ranging from clayey residuum and loamy and clayey alluvium weathered from sedimentary rock to loamy residuum and colluvium derived from mudstone. Upland soils are found on ridges, pediments, hills, alluvial fans, flats, and swales with gentle to steep slopes (0–70 percent).

Soils are categorized and described as soil mapping units. Published soil surveys are available online for Dunn County and McKenzie County (NRCS 2009). Databases were reviewed and soils in the Phase 1A- Northern Extension corridor were surveyed by SWCA on April 24, June 25, and September 15, 2009 (Cooper 2009). Their detailed report is on file with BIA and indicates 18 soil mapping units are present in the project area. As shown in **Table 3-7**, the most prevalent soil types within the project area developed over till plains (76 percent of total project area) and are predominantly comprised of Williams, Bowbells, and Zahl loams.

Table 3-6 Common Soils in Project Area

Map Unit #	Soil Map Unit	Acres	% Project Area
Till Plains			
41 Williams	Bowbells loams, 0 to 3 percent slopes	1.1	1.4
41B	Williams-Bowbells loams, 3 to 6 percent slopes	12.6	16.4
42C, 88C	Williams loam, 6 to 9 percent slopes	7.8	10.2
43C	Williams-Zahl loams, 6 to 9 percent slopes	19.2	25.0
44D, 93D	Zahl-Williams loams, 9 to 15 percent slopes	10.1	13.1
88B	Williams loam, 3 to 6 percent slopes	0.2	0.3
145F	Zahl-Cabba-Arikara complex, 9 to 70 percent slopes	6.2	0.1
340B	Niobell-Williams loams, 0 to 6 percent slopes	0.9	1.2
341B	Noonan-Niobell-Williams loams, 0 to 6 percent slopes	0.8	1.1
Uplands			
9E	Cabba loam, 15 to 45 percent slopes	2.9	3.8
24	Arnegard loam, 0 to 2 percent slopes	3.2	4.1
33	Belfield-Grail silty clay loams, 0 to 2 percent slopes	1.4	1.9
38F	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes	1.6	2.1
51B	Amor-Shambo loams, 3 to 6 percent slopes	0.6	0.8
51C	Amor-Cabba loams, 6 to 9 percent slopes	2.7	3.5
51D	Amor-Cabba loams, 9 to 15 percent slopes	2.5	3.2
71C	Regent-Janesburg complex, 6 to 9 percent slopes	1.6	2.1
211F	Badland-Cabba-Arikara complex, 9 to 70 percent slopes	1.4	1.8

Source: NRCS 2009

Major soil map units in the project area do not meet hydric criteria; however, several components of these SMUs are rated as hydric (Table 3-8). These soil components include suborders, great groups, or subgroups that are poorly drained or very poorly drained and have a water table at a depth of 12 inches or less during the growing season when permeability is restricted in the surface layers (NRCS 2009). Additionally, these soils are frequently ponded for long or very long durations during the growing season.

Table 3-7 Common Soils

Map Unit #	Soil Map Unit	Component	Percent of Map Unit	Landform
38F	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes	Regan, occasionally flooded	3	Drainageways
41	Williams-Bowbells loams, 0 to 3 percent slopes	Tonka	2	Depressions
		Heil	1	Depressions
41B	Williams-Bowbells loams, 3 to 6 percent slopes	Tonka	1	Depressions
88B	Williams loam, 3 to 6 percent slopes	Tonka	1	Depressions
88C	Williams loam, 6 to 9 percent slopes	Tonka	3	Depressions
340B	Niobell-Williams loams, 0 to 6 percent slopes	Tonka	3	Depressions

Source: NRCS 2009

Erosion potential increases in the interval between construction and reclamation, while topsoil and stabilizing vegetation are absent. Soil erosion rates have been extensively studied and various practices have been shown to feasibly and significantly reduce erosion of a wide variety of soils, including those within the project area (BLM 2009, USDI and USDA 2007). Erosion control and reclamation can be affected by topography and soil characteristics. Both upland and till plain soils in the project area are moderately well drained to well drained and are not susceptible to flooding or ponding. Shrink-swell potential is low to high due to elevated clay percentages and surface organic matter content is typically below five percent. Soil reactivity ranges from moderately acidic to strongly alkaline (pH 5.6–9.0). The calcium carbonate equivalent is generally moderate but does not exceed 20 percent near the surface. Due to their calcareous nature, clayey texture, and steep slopes (greater than 25 percent), both upland and till soils may be highly susceptible to wind and water erosion when vegetation is removed and surface layers are left unprotected. Phase 1A - Northern Extension, however, has been aligned and situated to generally avoid steep areas more susceptible to erosion. Best management practices would be implemented to reduce erosion to negligible levels on sections of pipeline on steeper slopes. Most of the soil types listed present no special construction problems and when trenched and compacted after pipeline placement, will be receptive to re-seeding and reclamation. Directional drilling would be used to avoid increasing erosion problems in several wetland areas.

3.9 Water Resources

Surface Water

The project area is located within the Missouri River Basin, the Missouri-Little Missouri subregion, and the Lake Sakakawea eight-digit Hydrologic Unit Code (HUC) (10110101) sub-basin (NRCS 2008). Moving from east to west, the project area intersects two watersheds, Independence Point and Bear Den Creek, and two subwatersheds, Bear Den Bay and Boggy Creek (North Dakota State Water Commission [NDSWC] 2008). The northeastern portion of the pipeline follows a comparatively high area between ravines draining north and east into Lake Sakakawea. The southwestern portion of the pipeline crosses Boggy Creek, which is culverted to pass under State Highway 22. The pipeline would be bored at least 14 feet below the surface when crossing Boggy Creek. Runoff is generally sheet-flow until collected by ephemeral and perennial drainages leading to the Missouri River (Lake Sakakawea).

Ground Water

Aquifers in Dunn and McKenzie counties, North Dakota, include Sentinel Butte, Tongue River, Hell Creek, Fox Hills, and Fort Union (NDSWC 2008). None of these aquifers are intersected by the pipeline, and the only aquifer within proximity to the project area is the Fort Union aquifer, approximately 2.5 miles west. Additionally, there are no wells within proximity of the project area. The proposed depth of the pipeline does not extend beyond 6.5 feet, unless for bored crossings of

streams and wetlands; therefore, no significant impacts to surface water or groundwater are expected as a result of the proposed construction.

3.10 Wetlands

After review of the National Wetland Inventory maintained by the USFWS, in conjunction with soil and vegetation surveys, the Phase 1A- Northern Extension corridor was examined for wetlands meeting criteria in the Corps Wetlands Delineation manual (Environmental Laboratory, 1987) and the *Interim Regional to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Corps 2008). Criteria include hydrophytic vegetation, hydric soils, and wetland hydrology. Areas meeting two of the three criteria are classified as wetlands. Field surveys determined that there were no wetlands within the Phase 1A – Northern Extension corridor (Cooper 2009). No permits are required by USACE, under Section 404 of the CWA, regarding work in or near wetlands within the ROW. There will be no long-term impact to wetland vegetation from the pipeline construction.

3.11 Vegetation and Invasive Species

The Phase 1A project area was surveyed by SWCA Environmental Consultants on April 24, June 25, and September 15, 2009. General observations were made concerning the topography, soils and the general composition of the vegetation. All species that could be identified were noted. Special effort was made to ascertain the presence of sensitive plant species especially those of concern to the U.S. Forest Service (USFS 2004) or any listed by the North Dakota Natural Heritage Inventory (2006) as well as any species listed by North Dakota's Noxious Weed Law (2005). The following vegetation descriptions are taken from SWCA field observations (SWCA 2009).

Dominant vegetation observed within the Phase 1A - Northern Extension project area was indicative of upland and lowland prairies of the Missouri Plateau, interspersed with forested habitats and cultivated pastures (Bryce et al. 1996). Observed forb and grass species included prairie sagewort (*Artemisia frigida*), white sagebrush (*Artemisia ludoviciana*), blue grama (*Bouteloua gracilis*), field brome (*Bromus arvensis*), narrowleaf purple coneflower (*Echinacea angustifolia*), blanket flower (*Gaillardia aristata*), wild alfalfa (*Medicago* spp.), yellow sweet clover (*Melilotus officinalis*), green needlegrass (*Nassella viridula*), western wheatgrass (*Pascopyrum smithii*), little bluestem (*Schizachyrium scoparium*), and Indiangrass (*Sorghastrum nutans*). Shrubs and woody vegetation observed included silver sagebrush (*Artemisia cana*), hawthorn (*Crataegus* sp.), green ash (*Fraxinus pennsylvanica*), chokecherry (*Prunus virginiana*), Mongolian oak (*Quercus mongolica*), prairie rose (*Rosa arkansana*), Woods' rose (*Rosa woodsii*), buffaloberry (*Shepherdia* sp.), and western snowberry (*Symphoricarpos occidentalis*). The project area is dominated by little bluestem which can be a fair to good forage species for deer (*Odocoileus* spp.), elk (*Cervus elaphus*), and various livestock. Little bluestem also provides forage material for song birds and upland game birds, as well as cover for small mammals. Field brome is the second most dominant grass and is known to be a forage species for Canada geese (*Branta canadensis*). Several sections of the project area were noted as being actively used as pastures. Although no wetlands were observed within the project area, some wetlands were observed north of the proposed pipeline but outside of the ROW, and included dominant vegetation of various sedges (*Carex* spp.) and rushes (*Eleocharis* spp.).

The Noxious Weed Team of North Dakota coordinates the efforts of county and city weed boards and state and federal land managers to implement integrated weed management programs to control and mitigate the impacts of undesirable plant species (North Dakota Department of Agriculture [NDDA] 2009). NDDA lists twelve plant species as noxious, whereas McKenzie County includes an additional four species (Table 1). Noxious plant species observed in the project area included Canada thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*). Consideration should be given to controlling and minimizing the spread of these undesirable species.

Table 3-8 Noxious Plant Species of North Dakota

Common Name	Scientific Name	Noxious Status
Absinth wormwood	Artemisia absinthium	S
Canada thistle	Cirsium arvense	State
Common burdock	Arctium minus	McKenzie County
Dalmatian toadflax	Linaria dalmatica ssp. dalmatica	State
Diffuse knapweed	Centaurea diffusa	State
Field bindweed	Convolvulus arvensis	State
Houndstongue	Cynoglossum officinale	McKenzie County
Leafy spurge	Ephorbia esula	State
Musk thistle	Carduus nutans	State
Purple loosestrife	Lythrum virgatum	State
Russian knapweed	Acroptilon repens	State
Saltcedar	Tamarix chinensis	State
Spotted knapweed	Centaurea stoebe ssp. micranthos	State
Yellow starthistle	Centaurea solstitialis	State
Yellow toadflax	Linaria vulgaris	State

Source: NDDA 2009

3.12 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. Monitoring results would be used to determine need for additional seeding, planting or other soil preparation or stabilization measures. Identified problem areas would be treated as soon as possible. Unauthorized vehicle access would be noted during monitoring and measures to block access would be taken, such as fencing or signage of the pipeline corridor. Many protective measures and procedures are described in this document. No laws, regulations, or other requirements have been waived.

3.13 Irreversible and Irretrievable Commitment of Resources

Construction of an oil and gas gathering system may expedite removal and consumption of oil or gas from the Bakken Formation would be an irreversible and irretrievable commitment of resources. Other potential resource commitments include acreage devoted to the facility and associated infrastructure along the Phase 1A- Northern Extension project, soil lost through wind and water erosion, cultural resources inadvertently destroyed, wildlife killed by earthmoving, habitat loss or in collisions with vehicles, and energy expended during construction and operation.

3.14 Short-term Use of the Environment versus Long-term Productivity

Short-term activities would not detract significantly from long-term productivity of the project area. The small area dedicated to the Phase 1A- Northern Extension corridor would be temporarily unavailable for livestock grazing, wildlife habitat or other uses, but original uses would be re-established very quickly. Allottees with surface rights would be compensated for temporary loss of productive acreage and project footprints would shrink considerably once the pipeline was backfilled and non-working areas were reclaimed and reseeded. Successful and ongoing reclamation of the landscape would quickly stabilize the soil, reduce potential for erosion and sedimentation, and re-establish customary land uses for wildlife and livestock. The major long-term resource loss corresponds with the project purpose: gathering of hydrocarbons from the Bakken Formation for economic benefit of MHA Nation and individual Indians.

3.15 Cumulative Impacts

Environmental impacts may accumulate either over time or in combination with similar activities in the area. Unrelated 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 include farming,

grazing, roads, and other oil/gas wells. Virtually all available acreage is already organized into agricultural leases of range permits. Small-scale disruption of these activities during construction of the proposed gathering system would not have more than a minor, temporary effect on surface use patterns.

Construction of the proposed system could facilitate additional oil/gas exploration by salvaging revenue streams currently wasted in flaring. Gathering capability may therefore lead to more wells drilled, even while commodity prices are relatively low, but all such developments remain speculative and incapable of analysis. Extensions of the gathering system itself are viewed generally as posing relatively minor direct impacts and tending to reduce indirectly overall oil field environmental impacts, through reductions in flaring, trucking and public hazards from all serviced wells. No significant cumulative, negative impacts are reasonably foreseen from proposed activities.

4. Consultation and Coordination

The project notice reproduced below was posted at the BIA Fort Berthold Agency and direct-mailed to the recipients listed in **Table 4-1** on September 11, 2009. Six comment letters were returned during the 30-day comment period. A summary of the comments is provided in Table 4-1.

Dear Interested Party:
The Bureau of Indian Affairs (BIA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA), in cooperation with the Bureau of Land Management (BLM). BIA and BLM are considering approval of three pipelines (oil, gas and water) and a utilities line in one 100 foot Right-of-Way (ROW) on the Ft. Berthold Reservation by Arrow Midstream Holdings, LLC.

The proposed route of the ROW is shown on the enclosed map and described in the following paragraph:

> The ROW will start in the NWNW of Section 4, T149N, R94W. The pipeline route will head Southeast through Section 4 and then head North thru Section 33 T150N R94W paralleling Highway 22 then heading East thru Sections 34, 35 and 36 of T150N R94W. The route then proceeds NE thru Section 25 of T150N R94W and proceeds into Section 30 of T150N R93W and ends in Section 19.

To ensure that social, economic, and environmental effects are analyzed accurately, we solicit your views and comments on the proposed action, pursuant to Section 102(2) (D) (IV) of NEPA, as amended. We are interested in developments proposed or underway that should be considered in connection with the proposed project. We also ask your assistance in identifying any property or resources that you own, manage, oversee or otherwise value that might be adversely impacted. Please send your replies and requests for additional project information to:

> Pearl, LLC
> Attn: Christi Haswell
> PO Box 783
> Sheridan, WY 82801

Questions for the BIA can be directed to Marilyn Bercier, Great Plains Regional Office in Aberdeen, SD at (605) 226-7656.

Sincerely,

Regional Director

Table 4-1 Public Comments

Name	Organization	Comment
Bagley, Lonny	Bureau of Land Management	No comments
Benson, Barry	Three Affiliated Tribes	No comments
Berg, George	NoDak Electric Cooperative, Inc.	No comments
Black, Mike	Bureau of Indian Affairs	No comments
Boland, Mike	Saddle Butte Pipelines, LLC	No comments
Boyd, Bill	Midcontinent Cable Company	No comments
Brady, Perry	THPO, Three Affiliated Tribes	No comments
Brien, David	Chairman, Turtle Mountain Band of Chippewa	No comments
Brugh, V. Judy	Three Affiliated Tribes	No comments
Cayko, Richard	McKenzie County	No comments
Christenson, Ray	Southwest Water Authority	The Southwest Water Authority and the Southwest Pipeline Project will not be effected by the proposed pipeline as the Reservation is not part of the Southwest Pipeline Project service area.
Cimarosti, Dan	U.S. Army Corps of Engineers	The proposed pipeline appears to cross Boggy Creek and may involve other unnamed tributaries to Lake Sakakawea and/or wetlands. The proposed pipeline may require Section 10, NWP 12, and/or Section 404 permits and authorization prior to construction.
Corps of Engineers, Omaha District	Garrison Project Office	No comments
Danks, Marvin	Fort Berthold Rural Water Director	No comments
Dhieux, Joyce	U.S. Environmental Protection Agency	No comments
Director, Insurance & Hazard	Federal Emergency Management Agency	No comments
Dixon, Doug	Montana Dakota Utilities	No comments
Early, John	Saddle Butte Pipeline, LLC	No comments
Erickson, Carroll	Ward County Board of Commissioners	No comments
Flores, J.R.	Natural Resources Conservation Service	No comments
Fox, Fred	Three Affiliated Tribes	No comments
Glatt, David	ND Department of Health, cont	No comments
Gorton, Candace	U.S. Army Corps of Engineers	No comments
Guzman, Frank	U.S. Forest Service	No comments
Hall, Joseph	U.S. Department of Interior Bureau of Reclamation, Chief Resource Management	No comments
Hall, Tex	President, Fort Bethold Allottee Land & Mineral Owners Association	No comments
Hall, Todd	Three Affiliated Tribes	No comments
Hanson, Jesse	ND Parks and Recreation Department	The proposed project does not affect state park lands. Based on review of the North Dakota Natural Heritage database, there are no species of concern or other significant ecological communities known to occur with-in or adjacent to the project area. Regarding reclamation efforts, it is recommended that any impacted areas be revegetated with species native to the project area.
Hauck, Reinhard	Dunn County	No comments
His Horse Is Thunder, Ron	Standing Rock Sioux Tribe	No comments
Hoffman, Warren	Killdeer, Weydahl Field	No comments
Hovda, Roger	Reservation Telephone Cooperative	No comments
Hudson-Schenfisch, Julie	McLean County Board of Commissioners	No comments
Hynek, David	Chair, Mountrail Board of County Commissioners	No comments
Kulas, Cheryl	Indian Affairs Commission	No comments
Manager	Xcel Energy	No comments

McKenna, Mike	ND Game and Fish Department	Project may possibly disturb native prairie and wooded draws associated with construction of pipeline and access roads. It is recommended that construction be avoided to the extent possible within native prairie, wooded draws, and wetland areas. It is requested that disturbed areas be reclaimed to pre-project conditions. NWI indicates several wetlands within project corridor. Steps should be taken to avoid and protect wetland areas. Above-ground appurtenances should not be placed in wetland areas, and no alterations should be made to existing drainage patterns. No significant adverse effects on wildlife or wildlife habitat provided best management practices are implemented.
McLean, Alex	Peak North Dakota, LLC.	No comments
Melhouse, Ronald	Bureau of Reclamation	Proposed pipeline could potentially affect Reclamation facilities in the form of rural water pipelines of the fort Berthold Rural Water System. There are water lines within the ROW proposed. Any work planned should be coordinated with Marvin Danks, Fort Berthold Rural Water Directory
Melland, Gary	McKenzie Electric Cooperative	No comments
Missile Engineer, Chief	Minot Air Force Base	No comments
Moch, Alan	ND Public Service Commission	No comments
NAGPRA Office	Three Affiliated Tribes	No comments
Nash, Mike	Bureau of Land Management	No comments
Obenauer, Steve	Federal Aviation Administration	No comments
Olson, Frances	McKenzie County	No comments
Paaverud, Merlan	State Historical Society	SHPO would appreciate copies of reports and site forms regarding the project. Consultation is with MHAN THPO.
Packineau, Mervin	Three Affiliated Tribes	No comments
Paulson, Gerald	Western Area Power Administration	No comments
Pearson, Myra	Spirit Lake Sioux Tribe	No comments
Peterson, Walter	ND Department of Transportation	No comments
Poitra, Fred	Three Affiliated Tribes	No comments
Representative, Mandaree Segment	Three Affiliated Tribes	No comments
Roth, Sandy	Northern Border Pipeline Company	No comments
Rudolph, Reginald	McLean Electric Cooperative, Inc.	No comments
Schelkoph, David	West Plains Electric Cooperative, Inc.	No comments
Selvage, Micheal	Chairman, Sisseton-Wahpeton Sioux Tribe	No comments
Svoboda, Larry	U.S. Environmental Protection Agency	No comments
Thompson, Brad	U.S. Army Corps of Engineers	No comments
Towner, Jeffrey	U.S. Fish and Wildlife Service	No comments
Wells, Marcus	Chairman, Three Affiliated Tribes	No comments
Whitcalf, Frank	Three Affiliated Tribes	No comments
Williams, Damon	Three Affiliated Tribes	No comments
Wolf, Malcolm	Three Affiliated Tribes	No comments

United States Department of the Interior

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

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

OCT 08 2009

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Brady:

We have considered the potential effects on cultural resources of an oil pipeline in Dunn and McKenzie Counties, North Dakota. Approximately 84.76 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. Five archaeological sites (32MZ1971, 32MZ1972, 32MZ1973, 32MZ1974, 32MZ1975) were located within the project area of potential effect, 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. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for this undertaking, as the archaeological sites will be avoided. Catalogued as **BIA Case Number AAO-1671/FB/09,** the proposed undertaking, location, and project dimensions are described in the following report:

Cooper, Judith R.
(2009) A Class I and Class III Cultural Resource Inventory of the Arrow Midstream Holdings Pipeline Northern Extension, Fort Berthold Indian Reservation, Dunn and McKenzie Counties, North Dakota. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

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

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

Sincerely,

ACTING Regional Director

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

TRIBAL HISTORIC PRESERVATION
Mandan Hidatsa Arikara
Perry 'No Tears' Brady, Director.
404 Frontage Road,
New Town, North Dakota 58763
Ph/701-862-2474 fax/701-862-2490
pbrady@mhanation.com

October 29, 2009

Carson Murdy
Regional Archeologist
Bureau of Indian Affairs
Great Plains Regional Office
115 Fourth Avenue SE
Aberdeen, SD, 57401

RE: Project: AAO-1671/FB/09
Arrow Midstream Holdings Pipeline, northern extension, Ft. Berthold reservation, Dunn & McKenzie Counties, ND.

Dr. Murdy:

After review of the documentation provided by SWCA, the Mandan Hidatsa Arikara Nations Tribal Historic Preservation Office concurs with the determination of 'No Historic Properties Affected' to any pre and post-historic relics, artifacts or sacred and cultural resources in the proposed Project area.

We respectfully request to be notified should any culturally-related issue or others arise as the Project progresses.

Sincerely,

Perry Brady PC

Perry 'No Tears' Brady,
Tribal Historic Preservation Officer,
Mandan Hidatsa Arikara Nations.

United States Department of the Interior

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

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

NOV 0 2 2009

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Brady:

We have considered the potential effects on cultural resources of an oil pipeline extension in Dunn and McKenzie Counties, North Dakota. Approximately 22.6 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. One archaeological site (32MZ2008) was located within the project area of potential effect, 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. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for this undertaking, as the archaeological site will be avoided. Catalogued as **BIA Case Number AAO-1671/FB/09,** the proposed undertaking, location, and project dimensions are described in the following report:

Reed, Karen, and Judith Cooper
(2009) A Class I and Class III Cultural Resources Inventory of the Arrow Midstream Holdings Pipeline Northern Extension, Fort Berthold Indian Reservation, Dunn and McKenzie Counties, North Dakota: Addendum 1. SWCA Environmental Consultants for Zenergy Operating Company, LLC, Tulsa, OK.

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

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

Sincerely,

ACTING Regional Director

Enclosure

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

5. List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of Council on Environmental Quality regulations. Pearl Field Services prepared portions of this EA under contract to Zenergy, Inc/Arrow Midstream Holdings, LLC and under the direction of the BIA, Great Plains Regional Office, Division of Energy and Environment. Western Plains Consulting performed fieldwork and prepared water, soil, vegetation and wildlife sections. Beaver Creek Archaeology performed archeology surveys and prepared the arch section. Preparers, reviewers, consultants, and federal officials include the following:

- BIA — Division of Environmental, Safety, and Cultural Resource Management BIA – Great Plains Regional Office.
- Scott Martin — Arrow Midstream Holdings, LLC Project Manager. Document Review.
- Pearl Field Services, LLC — Christi Haswell, Regulatory Project Manager.

  Tracey Ostheimer, Regulatory Project Coordinator.
- SWCA Environmental Consulting

  Michael Cook, Ecologist

  Judy Cooper PH D, Archaeologist

  Wade Epperson, GIS Specialist

  Jon Markman, Archaeologist/ Field Coordinator

  Josh Ruffo, Project Manager, NEPA Biologist

  Richard Wadleigh, Senior NEPA Planner

6. References and Acronyms

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Acronyms

AAQM	Ambient Air Quality Monitoring
AMH	Arrow Midstream Holdings, LLC
APE	Area of potential effect
ARVs	Air release valves
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
MHA Nation	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDDH	North Dakota Department of Health
NDGFD	North Dakota Game and Fish Department
NDSWC	North Dakota State Water Commission
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PIG	Pipeline inspection gauge
PHMSA	Pipeline and Hazardous Materials Safety Administration
Psig	Pounds per Square Inch Gauge
Reservation	Fort Berthold Indian Reservation
ROW	Right-of-way
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SPCC	Spill Prevention, Control, and Countermeasure
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
USC	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

Notice of Availability and Appeal Rights

Arrow Midstream Holdings: Phase 1A – Northern Extension

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of the Phase 1A – Northern Extension Oil and Gas Gathering System as shown on the attached map. Construction by Arrow Midstream Holdings is expected to begin in 2009.

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 December 3, 2009, 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.

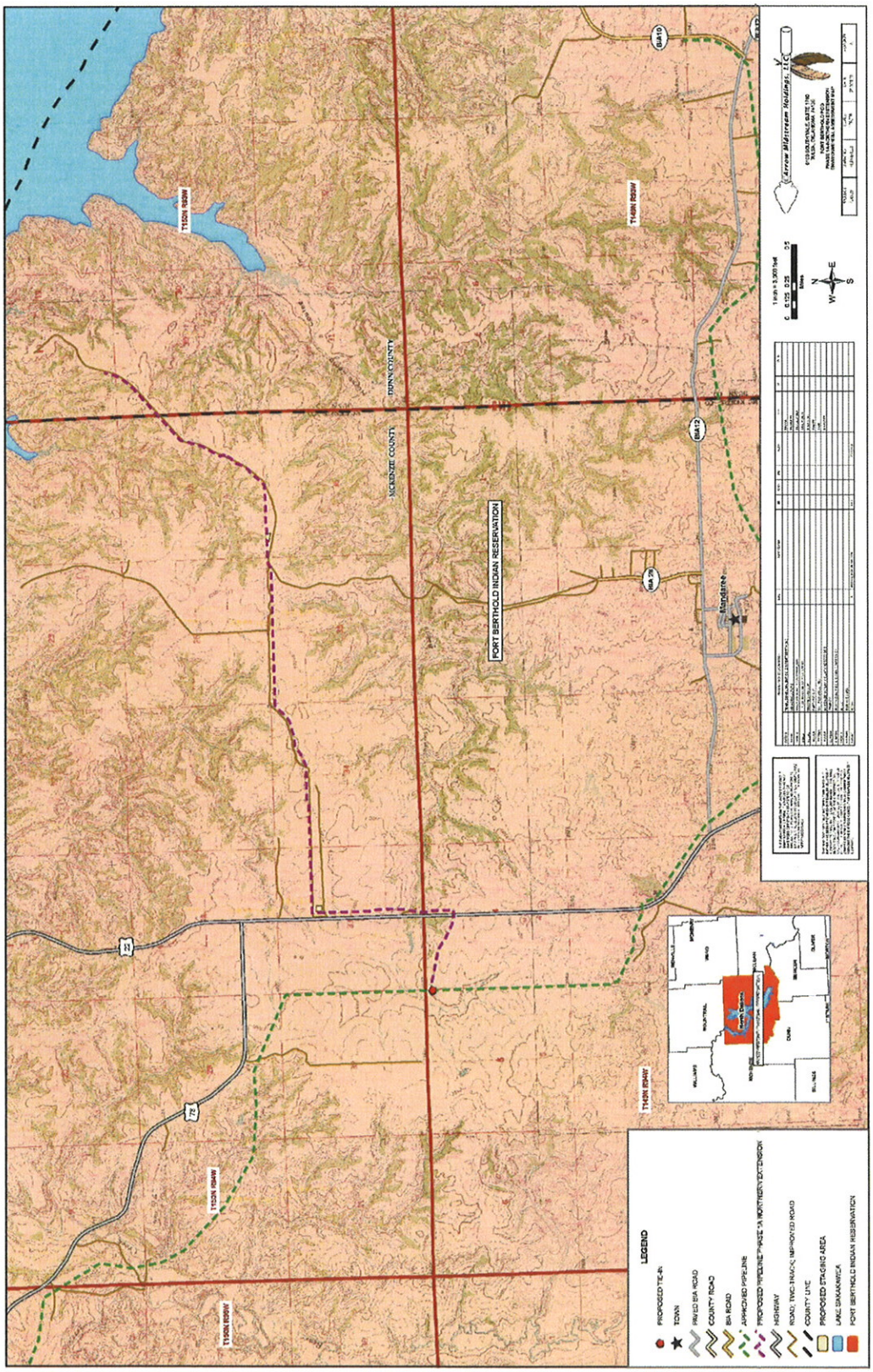

Figure 1-1 Proposed Phase 1A- Northern Extension Project Location