ENVIRONMENTAL ASSESSMENT
Elkhorn Gravel Pit
Private Reserved & Outstanding Minerals

USDA FOREST SERVICE
DAKOTA PRAIRIE GRASSLANDS
MEDORA RANGER DISTRICT

Billings County, North Dakota
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CHAPTER I
PURPOSE and NEED

Introduction

This chapter identifies the proposed action, the project area location, the purpose and need, project development, mineral rights, and the decisions to be made.

The analysis for this Environmental Assessment (EA) is being conducted in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. The Elkhorn Gravel Pit Project planning will be conducted under the guidance of the Dakota Prairie Grasslands Land and Resource Management Plan, hereafter referred to as the LRMP (USDA Forest Service 2002).

Two alternatives have been developed for this project; Alternative 1 is the “No Action” alternative, Alternative 2 is the “Proposed Action – Operating Plan with Additional Stipulations.”

Background

The Medora Ranger District of the Dakota Prairie Grasslands received the first application for gravel exploration and development on October 08, 2008 from Ms. Peggy Braunberger, the mineral owner and operator, to test drill and sample gravel in sections 21, 22, 27, 33, and 34 over a three year period. Through many discussions concerning the operator’s rights and requirement to prove mineral rights and title, the operator chose only to focus on the proposed pit area in Section 34. The operator withdrew their initial applications and submitted their initial Operating Plan to mine and develop the proposed pit in Section 34 on February 9, 2010. The Operating Plan included all phases of gravel pit operations from mining, to stockpiling, washing, sorting, crushing, hauling, etc. with no specified timeframes. The initial Operating Plan was too generic and did not address all resource, surface use, and operation concerns. This resulted in approximately eighteen months of negotiations.

On September 1, 2011, the mineral owner and operator, submitted their final Operating Plan to the Medora Ranger District. On November 15, 2013 the minerals were transferred to Elkhorn Minerals LLC (Operator) with member owners being Roger Lothspeich and Peggy Braunberger.

The gravel pit proposal is located approximately 25 air miles north of Medora, North Dakota within the NW¼ of Section 34, T144N, R102W, Billings County (see Appendix A, Figure 1 Vicinity Map). This area coincides with the Elkhorn Ranchlands that were acquired by the US Forest Service in 2006-2007.

The surface and subsurface minerals were not included within the acquisition. For federal surface/private minerals, the mineral estate is dominant over the surface estate. The owner of private minerals has the right to use as much of the surface as is reasonably necessary to access
and develop the minerals estate. Consequently, the Forest Service must allow reasonable access to private minerals that occur on lands where the Forest Service owns the surface. The surface mineral ownership for this proposal has been verified.

The Elkhorn Ranch was purchased primarily for its historic significance. On September 28, 2012 portions of the acquired ranchlands including the gravel pit area, the Theodore Roosevelt National Park (TRNP) Elkhorn Ranch Unit, the North Dakota Park & Recreation (NDPR) lands adjacent to TRNP, and private land ownership were formally listed by the Keeper of the Register (National Park Service) as the Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Historic District (Elkhorn Ranchlands NHD). National Register designation recognizes places of importance in our Nation’s history. All historic properties are regulated by Sections 106 and 110(f) of the National Historic Preservation Act of 1996 (as amended) and 36 Code of Federal Regulations 60 and 800. National Register designation and NHPA do not automatically preclude an activity from occurring. This does not preclude an activity from occurring. The Forest Service is a multiple use agency and will maintain management authority and abide by federal law on all acquired lands.

The Medora Ranger District is analyzing access and surface occupancy for the exercise of private mineral rights to determine potential environmental consequences pursuant to the processes established by the National Environmental Policy Act of 1969 (NEPA). The Forest Service, as the surface managing agency, negotiates with the mineral owner to develop reasonable resource protection stipulations that satisfy the Forest Service goals and objectives for surface management while at the same time providing reasonable access to the privately owned minerals.

**Review of Consistency with Mineral Rights Reserved**

The Forest Service Manual (FSM) 2830 for Mineral Reservations and Outstanding Mineral Rights provides direction for situations where the United States does not own the rights to minerals underlying lands in the National Forest System. In addition, the authority for the administration of mineral reservations is in previously issued Secretary of Agriculture’s Rules and Regulations for mineral rights reserved in conveyances to the United States. Readers should be aware that “As a general rule, the Forest Service does not have authority to deny the exercise of a mineral reservation or outstanding mineral right” (FSM 2830.1). It is policy to promptly evaluate and respond to applications. The areas identified in the plan of operations are consistent with the rights reserved. These minerals were reserved or outstanding when the United States acquired the surface (Table 1).

| Mineral Rights | Generally, mineral rights include title to the mineral and the necessary authority to enter upon and use as much of the surface overlying the minerals estate as is reasonably necessary to explore for, develop, extract, and process the reserved minerals. Interpretation of mineral rights must be consistent with the terms of the deed and applicable law. |

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Mineral reservations are mineral rights retained by a grantor in a deed conveying land to the United States.

Outstanding mineral rights are those rights owned by a party other than the surface owner at the time the surface was conveyed to the United States. There is usually no contractual or other legal relationship between the United States and the owner of outstanding mineral rights.

**Private Mineral Deed Rights (Surface Minerals)**

A surface mineral title search for Section 34 was completed in August of 2009 by a title company. It affirmed that the surface mineral estate on the Elkhorn Ranch is very complex with multiple owners, varying mineral type ownerships (gravel, scoria, sand, etc.), and two types of mineral rights, all split out in varying percentages. This section discusses the gravel ownership and associated rights.

The two types of private mineral rights involved with the gravel are private outstanding minerals which include approximately 75.652221% (75.65%) and private reserved minerals which include approximately 24.347779% (24.35%).

**Private (Outstanding) Mineral Deed Rights**

Outstanding minerals occurred when the mineral and surface estates were separated at some time in the past, and the landowner who sold or exchanged land to the government did not own the minerals.

The 75.65% of outstanding mineral rights has been owned by third parties and their successors (third party) since 1947 and prior to the Forest Service purchasing the ranch in 2007. There are approximately forty different third party surface mineral and/or subsurface mineral owners. At the time of purchase these minerals were not available for purchase by the government. Ms. Braunberger purchased her 26.86% mineral ownership from the third party in 2009.

Case law has established that the mineral estate is dominant over the surface estate, that is, the owner of private minerals has the right to use as much of the surface as is reasonably necessary to access and develop the mineral estate.

Access and surface operations are subject to Federal and North Dakota State law. Consequently, the Forest Service follows Federal and State of North Dakota law and negotiates mitigation with the mineral estate owner. Federal law gives the Forest Service the authority to regulate NFS land; however, with outstanding minerals the Forest Service has limited authority to determine use of the federal surface.

The Forest Service administers the exercise of outstanding mineral rights as follows:

1. The mineral owner or lessee must provide the Grasslands Supervisor with proof of right to exercise mineral rights.
2. The mineral owner or lessee must provide the Grasslands Supervisor with 60 days advance written notice of surface occupancy by submitting a proposed operating plan.

3. The mineral owner or lessee must include the following information in an operating plan for the exercise of outstanding mineral rights: a). Location of roads and facilities; b). Areas to be disturbed; c). Methods of mineral extraction; d). Methods of disposal of mining and other wastes; e). Reclamation plans; f). Methods for control of erosion and prevention of water pollution; and g). Identification of owner's or lessee's agent.

The Grasslands Supervisor must review the operating plan to determine whether or not it: 1) Uses only so much of the surface as is prudently necessary for the proposed operations; 2) Is consistent with rights granted by deed; and 3) Is consistent with the Grasslands land and resource management plan.

If the operating plan meets these three criteria, the Grasslands Supervisor shall send the owner or lessee a letter stating that: 1) The operating plan is consistent with the Grasslands land and resource management plan; 2) The Forest Service intends to monitor operations to ensure compliance with the operating plan; 3) The owner or lessee must notify the Forest Service 60 days in advance of any major modifications in the operating plan; and 4) Any unapproved deviation from the operating plan may be construed as unlawful, and the United States may take appropriate legal action.

**Private (Reserved) Mineral Rights**

The Warranty Deed, signed April 25, 2007 during the government purchase of the ranch, reserved all minerals including the gravel (24.35%) together with the right to enter upon said lands for the purpose of exploring for, drilling, opening, developing, working, and taking out and removing, including by surface mining methods, all such gravel, and to occupy and make use of so much of the surface as may be reasonably necessary.

These private (reserved) mineral rights (24.35%) were retained by the seller in the deed, at the time when the private owner sold the surface to the United States. At that time the government agreed to the reservation and the seller agreed to the incorporation of the Secretary’s Rules and Regulation in effect at the time, which are attached to the deed. This proposal is subject to the 1963 Secretary’s Rules and Regulations. The deed, which does not change, grants specific rights to both the seller and buyer from that point on.

When the deed holder chooses to develop their private mineral rights, they must abide by the applicable Secretary’s Rules and Regulation, Federal laws, and the applicable state laws and regulations pertaining to mining, property, and environmental protection. In those instances where the Secretary’s Rules and Regulations are outdated in relation to current land and resource management practices, the Forest Service negotiates surface mitigation with the mineral estate owner while protecting the rights of both.

Because of the rights associated with the mineral deed, the Forest Service’s role is limited in that the Forest Service does not have the authority to deny the exercise of the deed. However,
under Forest Service Manual (FSM) 2831 the reserved mineral owners or lessee must submit an OP that incorporates the following items:

1. Incorporates the requirements of the Secretary of Agriculture’s Rules and Regulations of May 3, 1963.
2. Plans for the restoration or reclamation of disturbed lands.
3. Repair or replacement of any improvements damaged or destroyed by the mineral operation.

**Applicable Secretary of Agriculture’s Rules & Regulations**

The private (reserved) mineral rights for Section 34 are defined within the deed and are subject to the current Secretary of Agriculture’s Rules and Regulations, enacted on May 3, 1963. They can also be found in the Code of Federal Regulations 36 CFR 251.15. Following is a synopsis of the 1963 Rules & Regulations for which the Operator is responsible. A complete copy of the 1963 Secretary’s Rules and Regulations is included within the Project Record.

**May 3, 1963:** A synopsis of the conditions, rules and regulations to govern the exercise of mineral rights reserved in conveyances to the United States, where owners reserve the right to enter upon and to prospect for, mine and remove minerals or other inorganic substances.

1. Owner shall give prior written notice to the Forest Service and shall submit satisfactory evidence of authority to exercise such rights.
2. Only so much of the surface of the lands shall be occupied, used, or disturbed as is necessary for mining and removal of the reserved minerals or other inorganic substances.
3. None of the lands shall be so used, occupied, or disturbed until the record owner shall have applied for and received a permit authorizing such use, occupancy, or disturbance.
4. Said permit shall be issued upon agreement as to conditions necessary to protect the interest of the United States including such conditions deemed necessary to provide for the safety of the public and other uses of the land, and upon initial payment of the annual fee, which shall be at the rate of $2 per acre or fraction included in the permit.
5. Owner will repair or replace any improvements damaged or destroyed by the operations and restore the land to a condition safe and reasonably serviceable for authorized programs of the Forest Service, and shall provide for a bond in sufficient amount as determined necessary by the Forest Service to guarantee such repair, replacement, or restoration.
6. Failure to comply with the terms and conditions of the permit shall be cause for termination, but in event of such termination a new permit shall be issued upon application when the causes for termination of the preceding permit have been satisfactorily remedied.
7. All structures, other improvements, and materials shall be removed from the lands within one year after date of termination of the aforementioned permit.
8. All reasonable provisions shall be made for the disposal of tailings, dumpage, and other deleterious materials or substances in such manner as to prevent obstruction, pollution, or deterioration of water resources.
9. Nothing herein shall exempt the owner from any requirements of applicable State laws or from compliance with or conformity to any requirements of any law which later may be enacted and which otherwise would be applicable.

10. The owner, operators, contractors, subcontractors, and any employees thereof shall use due diligence in the prevention and suppression of fires, and shall comply with all rules and regulations applicable to the land.

Access to Private Mineral Rights

The Alaska National Interest Lands Conservation Act of 1980 established that the Forest Service must provide access to non-federally owned land within the boundary of the National Forest System lands. The Forest Service can determine what level of access is adequate to allow the owner reasonable use and enjoyment of the rights.

Mineral Title

A surface mineral title search for Section 34 was completed in August of 2009 by an independent title company. It was confirmed that Ms. Braunberger owns 26.86% of the gravel in Section 34. Ms. Braunberger purchased her 26.86% mineral ownership from third party outstanding mineral owners in 2009. The Quit Claim Mineral Deeds all contain a synopsis of the following mineral rights verbage:

“It is the intent of the Grantor to convey to the Grantee any and all interest owned by Grantor in the gravel, scoria, coal and uranium in and under the above described property (Section 34 All) together with the right of ingress and egress at all times for the purpose of mining, drilling, exploring, operating and developing said lands for all of the above-described minerals, and storing, handling, transporting and marketing the same therefrom with the right to remove from said land all of Grantee's property and improvements.”

These documents were forwarded to the Forest Service Regional Office and reviewed by the Lands Department and the Office of General Counsel. Both agree with the findings of the title company. On November 15, 2013, the mineral rights were transferred by Quit Claim to Elkhorn Minerals LLC (Operator), with member owners being Roger Lothspeich and Peggy Braunberger.

Mineral Co-tenancy

When property, in this case the gravel, is owned by more than one person at a time it is defined as co-tenancy. If more than one person owns the same property, they are referred to as co-owners, co-tenants or joint tenants. The State of North Dakota is responsible for co-tenancy. The Operator must comply with North Dakota law and has stated such in their OP.

In a legal memorandum titled “Right to Excavate Gravel” sent to the Forest Service Office of General Counsel (OGC), the Operator’s lawyer presented the following conclusion:

“Although North Dakota has not yet decided a case directly on point whether tenants in common to a gravel estate have the right to excavate and mine such interest without the consent of the other tenants, it is a well settled rule of law that a cotenant can mine the entire...
interest without the consent of the other tenants, but has to account for the proceeds in proportionate share to the non-producing cotenants. The producing tenant is entitled to offset expenses incurred, like taxes and insurance.”

The Operator has the right to develop their mineral rights regardless of the percentage owned, subject to permitting requirements. The Operator is exercising their private mineral rights and the mineral rights of the remaining mineral owners, and must comply with North Dakota law and assume all responsibility to notify other co-tenants of gravel and account for the proceeds due, to such other persons or entities. The Operator has also included this requirement within the OP.

**Permitting Process**
The Operator is exercising their private outstanding mineral rights. Because the Operator cannot develop the gravel pit without developing the reserved minerals, the remaining third party minerals, and utilizing the roads of other permit holders; they have agreed to permit the gravel pit under the Secretary’s Rules & Regulations of 1963. This is specified within the Operating Plan.

The permitting differences between outstanding and reserved minerals are negotiated and require the following components:
1. Proof of right to exercise mineral rights (Deed).
2. Advanced written notice.
3. Operating plan (Maps, Methods, Access, Reclamation, Resource Protection, Agent, etc).
4. Uses only so much of the surface as is prudently necessary.
5. Is consistent with rights granted by deed.
6. Is consistent with the grassland and resource management plan (LRMP).
7. Includes standard conditions (stipulations) necessary to protect public safety and resources consistent with the LRMP.
8. Compliance with State and Federal laws.

Under the Secretary’s Rules & Regulations the following are added:
1. Surface Occupancy Permit.
2. Reclamation Bond.

Proper notifications must be made and the OP must remain consistent with the Secretary’s Rules of 1963. If the OP changes; the permit must be revised and approved prior to any ground disturbance.

Access to the gravel pit would require the use of existing roads currently under permit to other holders. The Operator would need a Road Use (RU) permit and a Private Road Special Use (SU) Permit. The use of the roads including maintenance and reconstruction are included within this analysis. These permits would be issued separate from the Surface Occupancy Permit which is issued for use of the surface on the National Forest System land in accordance with the
applicable Secretary of Agriculture’s Rules and Regulations. An authorization letter is issued where there are outstanding mineral rights.

With private mineral estates, the Operator submits the required components and the Forest Service reviews the Operating Plan, including the road package and related special use needs, and determines whether to approve, deny, or modify it with certain terms and conditions. The conditions (stipulations) are standard stipulations, developed from the LRMP and used for all mineral operations. The environmental analysis identifies site specific mitigation measures which are added to the stipulations through negotiation.

The Forest Service directly notifies the Operator in writing whether the OP is approved or denied, and if approval is subject to specific terms and conditions. If denied, the Forest Service must work with the Operator to negotiate modifications needed to make the OP acceptable.

The operator is responsible for obtaining all of the necessary permits from the other regulating agencies such as Clean Water Act Section 404 permits from the Army Corps of Engineers (COE), Takings Permits from US Fish and Wildlife, air and water quality permits from the State of North Dakota, use of roads under easement issued to Billings County, etc.

**Purpose and Need**

The purpose of this proposal is to implement Forest Service Policy, by documenting concerns, effects, design criteria and stipulations, and conditions of access and surface occupancy for exploration of private minerals in the analysis area. The Dakota Prairie Grasslands (DPG) Land and Resource Management Plan (LRMP) has identified mineral development as a valid use. The Plan states that the Forest Service will honor all valid existing mineral rights. The design criteria and stipulations would be used to protect the National Forest System surface estate.

Elkhorn Minerals LLC has submitted an OP to develop the gravel pit. They propose to exercise their 26.860173 percent of the gravel held in a tenancy in common with other owners of the gravel; their percentage of the mineral rights has been validated.

**Proposed Action**

The proposed action defines how Elkhorn Minerals LLC proposes to exercise their legal private mineral rights to develop the gravel pit and use, reconstruct, and maintain existing NFS roads to access the pit and haul gravel. The gravel pit would develop both outstanding and reserved surface mineral rights located on NFS lands.

The proposed gravel pit area is approximately 24.6 total acres on NFS land. The mined area would be approximately 19.4 acres; with a buffer zone surrounding the mined area of approximately 5.2 acres (see Appendix A, Figure 3 Gravel Pit Area, and appendix B- Photos).
The proposed access route would utilize four existing National Forest System Road (NFSR) segments (see Appendix A, Figure 2 Project Map): road segment #1 (NFSR 719C) from Blacktail Road to mile 2.96; road segment #2 (NFSR 7082) from mile 2.96 on NFSR 719C to mile 0.04 intersection with NFSR 7082-1; road segment #3 (NFSR 7082-1) from intersection NFSR 7082 to mile 0.34 intersection with NFSR 7082-2, and road segment #4 (NFSR 7082-1) from mile 0.34 intersection with NFSR 7082-2 to mile 0.41 entrance to gravel pit. Road segments #1, #2, and #4 would be resurfaced with gravel, all drainage and turnouts reestablished, cattle guards replaced where needed, and adequate signing installed. Road segment #3, approximately 2,904 feet in length, would be reconstructed to reduce current excessive grades and to develop adequate drainage and soil controls (see appendix B- Photo 11). New disturbance associated with segment #3 is approximately 1.3 acres. Permits that are required to access the gravel pit include a Special Use (SU) Private Road permit for segments #2 and #3 and a Road Use (RU) permit for segment #1. A temporary road segment would be constructed within the gravel pit for hauling purposes. This temporary road would start inside of the material pit behind a gate and run the distance of the material pit. This temporary road would be obliterated and reclaimed upon conclusion of mining operations. Total disturbance for the proposed pit and associated road work would be approximately 25.9 acres.

Proposed mining operations would be completed in five phases. Phase one would bring the road system to standard and a perimeter fence would be constructed around the entire gravel pit and buffer zone. Upon completion of phase one, mining would commence. Mining would occur in four phases (2-5) over a two year period, pending any weather or wildlife related delays. Each mining phase would be less than five acres and operations would include the removal and stockpiling of all available topsoil (an estimated average of 0.5 feet) followed by the removal and stockpiling of all overburden materials (an estimated average of 2.17 feet) down to the gravel. The topsoil and overburden would be stockpiled within the buffer zone on bare ground. This would be accomplished with bull dozers and front end loaders (See Appendix A, Figure 3 Gravel Pit Area).

Once each mining phase has been completed it would be reclaimed. The overburden material stockpiled within the buffer zone would be put back in place and the pit area and surrounding slopes would be shaped to near natural contours and all drainages would be re-established. Once the overburden is contoured, the stockpiled topsoil would be replaced and shaped, and the entire area seeded with a native seed mixture. Although the topography would look natural, the elevation of the pit would be variably lower as a result of the different thicknesses of the gravel being removed. The overall skyline or ridgeline of the area would not be affected.

Reclamation would be concurrent with the start of the next mining phase. Upon completion of all reclamation, the area would be monitored annually to ensure soil stabilization and the reestablishment of vegetation. A reclamation bond would be posted until all reclamation has been accepted by the Forest Service. Upon final acceptance of the reclamation, the fence would be removed. Requirements to prevent noxious weed and invasive species during and after operations are included within the operating plan stipulations.
Front end loaders would load the exposed gravel into dump trucks and haul the gravel to privately owned property for crushing, sorting, separating, washing, grading, processing, and stockpiling. Once hauled away from the pit, no removed materials would be returned to the gravel pit. The gravel layer is estimated to be five to six feet thick but may vary from one to nine feet thick.

Additionally, to the extent that bonding or payments may be required under the terms of the deed or applicable law, the mineral owner or lessee shall provide bond coverage or payment to a cooperative fund in order to comply with the terms of the permit.

**Decision Framework**

Based on the rights of the mineral owner, the information in this analysis, and a consideration of public comments on the EA, the Deciding Officer will document his decisions. If the analysis finds no significant impacts to the human environment within the limited Forest Service decision space, the decisions will be documented in a Decision Notice and Finding of No Significant Impact (FONSI). The decision maker for this project is the District Ranger of the Medora Ranger District. The decisions to be made for the proposed Elkhorn Ranch Gravel Pit are:

- Whether the Operating Plan as modified by the resource protection stipulations is a reasonably necessary use of the surface to exercise the private mineral rights.
- Whether granting Road Use and Private Road Special Use Permits with stipulations for use of the existing roads provides reasonable access to the gravel pit area.
- To issue a Surface Occupancy Permit for the gravel pit once the Operator agrees to the stipulations.
- Whether an EIS should be prepared.

The Forest Service does not have the authority to deny exercise of a mineral reservation or outstanding mineral right (FSM 2830.1) and must promptly evaluate and respond to applications (FSM 2830.3). A denial, or takings, would likely result in a lawsuit and a court settled compensation to the mineral owner(s).

**Case Law**

There are two major lawsuits that help frame the decision space for this proposal. Under both suits the court has determined that the mineral rights are dominant over the surface rights subject to reasonable use. A synopsis for each of the two cases is as follows:

_Duncan Energy Company v. United States Forest Service 50 F.3d 584 (8th Cir. 1995):_ Case Law in which the Forest Service had acquired the surface but did not own the mineral estate. The Appellate Court found that the mineral estate is dominant over the rights of the surface estate holder. However, the mineral developer’s rights are limited to using only so much of the surface as is reasonably necessary to develop their minerals. The Forest Service cannot
deny, but has the right to determine and analyze reasonable surface use in a prudent manner and to impose reasonable mitigation.

**United States vs Minard Run Oil Co., 1980 U.S. Dist. Lexis 9570 (W.D. Pa. 1980):** The court held that the owner of mineral rights had an “unquestioned right” to enter the property to access and extract his minerals. Recognizing that the owner of the dominant estate had an obligation to reduce unnecessary disturbance of the surface estate, the Court ordered the following no less than 60 days in advance of commencing operations: (1) A designated field representative; (2) A map showing the location and dimensions of all improvements including but not limited to well sites and road and pipeline accesses; (3) A plan of operations, of an interim character if necessary, setting forth a schedule for construction and drilling; (4) A plan of erosion and sedimentation control; and (5) Proof of ownership of mineral title.

A brief synopsis of a third case study pertinent to the decision space when limited statutory authority is relevant is as follows:

**Department Of Transportation, et al., Petitioners, v. Public Citizen et al. No. 03–358. | Argued April 21, 2004. | Decided June 7, 2004.** Where agency has no ability to prevent certain effect due to its limited statutory authority over relevant actions, agency cannot be considered legally relevant “cause” of effect; hence, under NEPA and implementing Council on Environmental Quality (CEQ) regulations, agency need not consider these effects in its environmental assessment (EA) when determining whether its action is “major Federal action.” National Environmental Policy Act of 1969, § 102, 42 U.S.C.A. § 4332; 40 C.F.R. §§ 1508.8, 1508.18.

**Relationship to DPG LRMP Direction**

The LRMP (USDA Forest Service, 2002) offers guidance for all resource management activities on the DPG. It identifies management standards and guidelines; and describes resource management practices, levels of resource use and protection, and the availability and suitability of lands for resource management. All projects tier to the LRMP. There are three main chapters 1) Grassland-wide Direction; 2) Geographic Area Direction; 3) Management Area Direction; and 14 Appendices which include additional direction.

Until an amendment to set management direction for the acquired ranchlands is completed, the management of the area is covered by direction provided in Chapter 1 (Grasslands-wide) and Chapter 2 (Badlands Geographic Area) of the Dakota Prairie Grasslands Land and Resource Management Plan.

The Dakota Prairie Grasslands-wide goal for minerals is to improve the capability of the Nation’s forests and grasslands to provide a desired level of uses, values, products, and services (DPG LRMP, p. 1-5).
DPG LRMP objectives for minerals and energy are to: 1) Ensure reclamation provisions of Plan of Operations are completed to standard; 2) Honor all valid existing mineral rights; and 3) Respond in a timely manner to applications for special use permits, mineral leasing exploration and development (DPG LRMP, pp. 1-6 & 1-8).

DPG-wide Standards & Guidelines for Minerals and Energy Resources include: Honoring all valid existing rights pertaining to the development, production, and transport of mineral resources (DPG LRMP, pp. 1-12).

DPG-wide Standards and Guidelines for infrastructure (roads) are referenced in Section Q, Chapter 1 (pp. 1-26 & 1-27), and the Geographic Area Direction in Chapter 2 (pp. 2-9 through 2-23) of the DPG LRMP.

Public Involvement

The Council on Environmental Quality (CEQ) defines scoping as “an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action” (40 CFR 1501.7). The scoping process is used to invite public participation, to help identify public issues, and to obtain public comment at various stages of the NEPA process.

The Elkhorn Gravel Pit project proposal was first listed on the Dakota Prairie’s Schedule of Proposed Actions (SOPA) on October 5, 2011. The SOPA contains a list of proposed actions that will soon begin or are currently undergoing environmental analysis and documentation. It provides information so that the public can become aware of Forest Service proposals.

On that same date, a scoping letter to inform the public about the Elkhorn Gravel Pit proposal was mailed out to one hundred organizations, individuals, Federal, State, and local government agencies known to have an interest in this type of project. The scoping letter provided a summary and map of the Proposed Action and background information. The proposed project was also scoped within the Forest Service through an internal scoping process.

Scoping for the project closed on November 4, 2011. A total of seventy-one responses were received from the public. Documentation of the scoping and public involvement process is included in the Project Record available at the Medora Ranger District Office.

The National Park Service has cooperating agency status. This was granted by the Grasslands Supervisor.

Comments generated from the Forest Service’s request for comments on the proposed action were analyzed to compile, categorize, and capture the full range of public viewpoints and concerns regarding a plan or project. Content analysis ensures that every comment is considered at some point in the decision process. The content analysis can be found in the Project Record.
Using the comments received on the proposed action, the Interdisciplinary Team (IDT) developed a list of issues to address. These issues are discussed in Chapter II.

The Draft Environmental Analysis (EA) was sent out for comment on May 11, 2012. Public Notice was published on May 14, 2012 and the comment period for the EA closed 30 days from the date the Legal Notice was published. A total of fifty-four responses were received from the public. Documentation of the comments and public involvement process is included in the Project Record available at the Medora Ranger District Office.

**Tribal Consultation**

The USDA Forest Service Dakota Prairie Grasslands (DPG) initiated consultation with Tribal governments in October 2011. Project letters were sent to the Standing Rock Sioux Tribe (SRST) Tribal Chairman, THPO, and Environmental Protection Specialist; the Mandan, Hidatsa and Arikara (MHA) Nation Tribal Chairman, Cultural Preservation Officer, and Administrator of Natural Resources; and the Lower Brule Sioux Tribe Public Relations representative. Consultation continued with supplemental letters, information and meetings in 2012 and 2013, as documented in the EA project record.

The SRST THPO and MHA Nation THPO concur that no historic properties of significance to these tribes have been identified in the proposed project area. Identification of sites of religious and cultural significance concluded with SRST THPO on June 11, 2014, when the Grasslands Archaeologist accompanied the SRST THPO Archaeologist to the project area. The SRST THPO Archaeologist further confirmed that there are no intact stone features of religious or cultural significance in the proposed project area and documented his finding in a letter addressed to Ronald Jablonski dated June 18, 2014, THPO reference file 14-104. Face to face meetings with SRST THPO continues monthly to address any and all concerns and the Grasslands Archaeologist continues to keep the SRST THPO updated on proposed Elkhorn gravel pit progress.
CHAPTER II
ALTERNATIVES

Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the proposed Elkhorn Gravel Pit. It includes a discussion of how alternatives were developed; alternatives considered but dropped from detailed analysis, design criteria, and a comparison of the alternatives, focusing on key issues. Chapter II is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public.

An Interdisciplinary Team (IDT) developed alternatives to the project proposal, which respond to the DPG LRMP goals, objectives, standards and guidelines; the project’s Purpose and Need; public and agency concerns; and mineral laws and rights. The IDT consists of Forest Service personnel who have expertise in grassland resources. The alternatives were developed through a series of field visits, public comment, and internal review.

The proposal was initiated by a mineral owner with a valid existing private mineral deed, located on NFS lands overlying a private (reserved & outstanding) mineral estate.

Field Reviews, as described in Chapter I, (Project Development), took place on October 18, 2010 and again on June 16, 2011 as steps in the review and development of this project. Through this process, alternative mining methods and related issues were proposed, field reviewed and discussed with the mineral deed holder or their representative. These Field Reviews resulted in the creation of Alternative 2 which is the proposed action. Alternative 2 was checked for consistency with the terms of the private mineral deed.

Alternative Development Process

Section 102 (e) of NEPA states that all Federal agencies shall, “study, develop, and describe appropriate alternatives to recommend courses of actions in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” Two alternatives were developed and analyzed in detail. Alternative 1 was developed in response to (40 CFR 1502.14 [d]) for analysis of a No Action Alternative. Alternative 2 is the proposed action.

The range of alternatives developed has been deemed reasonable based on the scope of decision to be made. Specifically, the Agency does not have the authority to deny access for the exercise of private mineral rights (FSM 2830.1). This decision only relates to the type of resource protection stipulations to be included in the surface occupancy permit.
Issues

Issues are identified through the public involvement process and by review from other agencies and Forest Service personnel. The scoping process is used not only to identify important environmental issues, but also to identify and eliminate issues that do not pertain to the action, narrowing the scope of the environmental documentation process accordingly. Therefore, impacts are discussed in proportion to their importance.

To identify issues specific to the Elkhorn Gravel Pit project, the ID Team studied public comments and information about historic and current conditions within the analysis area. They also reviewed the LRMP and other site-specific planning documents relevant to the project area to further develop a list of issues. Primary issues were defined as those directly or indirectly caused by implementing the proposed action. Other comments received were determined to fall into one of the following categories: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Grassland Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. Comments on the EA have been responded to in the Response to EA Comments contained in Appendix D.

Primary Issues

The following issues were determined to be primary and within the scope of the project decision.

**Cultural:** There is a concern that the proposal would adversely affect the two historic properties, the Elkhorn Ranchlands NHD and the Elkhorn Ranch Unit of the Theodore Roosevelt National Park (TNRP).

*Measure:* Nature and extent of effects to the historic properties generated during mining activities.

**Soundscape:** There is a concern that the proposal would adversely affect the soundscape of the area, primarily from Theodore Roosevelt National Park (TNRP), North Dakota Parks & Recreation (NDPR) Lands, and from residential areas.

*Measure:* Nature and extent of effects to the soundscape from noise generated during mining activities.

**Tourism:** A concern was raised that the gravel pit would have a negative effect on tourism to the Theodore Roosevelt National Park and North Dakota Parks & Recreation (NDPR) Lands.

*Measure:* Nature and extent of effects to tourism on the TRNP and NDPR lands during operational periods.
**Visuals:** Concerns were expressed about the potential impacts of the proposed action on the visual resources of the area including the viewshed east from TRNP, NDPR, and from the Little Missouri River.

**Measure:** Effects of the Proposed Action on visual resources include the following: 1) qualitative evaluation of the federal lands’ visual quality; 2) effects to views from travel routes and recreation areas; including the viewshed east from TRNP, NDPR, and from the Little Missouri River and 3) effects to scenic resources, including other desirable aesthetic natural features.

**Alternatives Considered But Not Analyzed In Detail**

1. An alternative was considered that included all phases of gravel pit operations at the proposed location. This alternative was considered but not carried forward in the document.

In 2008-2009, the operator submitted special use applications to test drill and sample gravel in sections 21, 22, 27, 33, and 34 over a three year period. Through many discussions concerning the operator’s rights and requirement to prove mineral rights and title, the operator chose only to focus on the proposed pit area in Section 34. The operator withdrew their special use applications and submitted their initial Operating Plan to mine and develop the proposed pit in Section 34 on February 9, 2010. The Operating Plan included all phases of gravel pit operations from mining, to stockpiling, washing, sorting, crushing, hauling, etc. with no specified timeframes. The Operating Plan was too generic and did not address all resource, surface use, and operation concerns. This resulted in approximately eighteen months of negotiation in which the initial Operating Plan was replaced with the current proposed Operating Plan inclusive of the negotiated Operating Plan Stipulations.

2. An alternative was considered that would have purchased the mineral rights from the Operator. This alternative was considered but not carried forward in the document.

Over the years, the surface and subsurface mineral estates have been split and sold. The minerals are a combination of reserved and outstanding surface and subsurface minerals with multiple ownerships. The private minerals were not available at the time of purchase. This was common knowledge among all of the major participants in the process at the time. As specified in the mineral deeds and supported with case law, the mineral rights are dominant over surface ownership.

Purchases are very complex and involve at a minimum the following: 1) Willing seller and buyer; 2) Congressional (House & Senate) oversight and approval; 3) Public involvement; 4) Satisfaction of National Environmental Policy Act requirements; 5) Approved appraisals that are not over 1 year old; 6) Acquire title and clearing encumbrances; 7) Involvement with the Bureau of Land Management minerals division in regards to federal minerals; 8) Administrative approvals; and 9) Arrangements to convey title within a reasonable period. This requires involvement at the Unit, Regional, Washington Offices, and Office of General Counsel with the
work being elevated from the District to the Regional Lands Zone as the lead. The District Ranger is no longer the deciding official.

Unless 100% of the surface and subsurface mineral ownerships can be acquired, the issue of ongoing surface disturbance from other mineral holders may never be resolved although it is highly doubtful that all of the mineral estates would be available for purchase. Finally, the mineral purchase is beyond the scope of this proposal, would require a separate analysis, and relative to the current proposal, the effects of this alternative would be duplicative of those displayed in the EA for the No Action alternative (until such time as one of the remaining mineral owners exercises their own right to develop a pit).

3. An alternative was considered that would have exchanged the surface mineral rights between the Operator and the Forest Service. This alternative was considered but not carried forward in the document.

The obstacles for an exchange are very similar to those discussed within the Purchase Alternative above in regards to Split Estates, Willing sellers; and Congressional support with available funding. As further discussed below, additional obstacles of Erionite and 100% mineral ownership surfaced. As above, the effects of this alternative would be duplicative of those displayed in the EA for the No Action alternative (until such time as one of the remaining mineral owners exercises their own right to develop a pit).

Agreement In Principal (AIP): An AIP was signed on July 18, 2012 with the objective for accomplishing a mineral exchange between Peggy Braunberger (mineral owner) and Roger Lothspeich, (Power of attorney for Peggy Braunberger) and the United States Forest Service (USFS). The AIP included the following disclosures and discussion points pertinent to an exchange: All exchanges need congressional (House & Senate) support; the Bureau of Land Management (BLM) would be part of any type of federal mineral exchange; need title; need value of gravel; appraisal will have to be to yellow book standard; to the extent agreeable to all parties share in the cost of the exchange; NEPA must be completed; resource surveys would need to be completed on both federal and private portions of the exchange; existing easements and right-of-ways on individual properties will be retained with transfer of lands, if applicable; an exchange would be elevated to the East Side Lands Zone (Specialists); a minimum of 3 to 10+ years to complete an exchange; and explore other contributions and support.

The AIP also included clauses which placed the Plan of Operations on hold and allowed the Forest Service to begin the process of searching for potential gravel and/or scoria exchange sources.

Two major issues emerged relative to a mineral exchange: 1) The potential health threat associated with Erionite, a form of asbestos that is found in gravel in North Dakota and the surrounding area, and 2) The potential liability associated with partial mineral ownership by the government.
Erionite is still being evaluated for health risks and a final report is pending. If a liability claim were to emerge as a result of Erionite within the mined gravel from any entity, the government (taxpayer) would likely share in the liability and resulting damages. The only solution to this liability issue would be to obtain 100% of the mineral ownerships from all mineral owners.

**Issue of the Partial Mineral Ownership:** As previously stated, it is highly probable that with the current oil and gas boom in North Dakota, that oil and gas mineral development will occur on the deeded mineral rights within the Elkhorn Ranchlands at some point. There appear to be multiple private mineral leases issued by the mineral deed holders. These private mineral leases do not contain stipulations for surface resource protection. Oil and gas development also requires roads and road surfacing. Therefore between existing and new development there will likely always be a high demand for gravel or scoria.

Like the gravel pit proposal, resource protection measures for every surface and subsurface mineral proposal would have to be individually negotiated. Development could only be abated by obtaining 100% of mineral rights which would also require 100% willing sellers. And even then, there could still be issues pending the expiration of existing leases and the potential for lease right development. Anything less than 100% would not guarantee government control and the result is status quo that mineral development could occur at any given time at the discretion of the mineral owners.

Because of the complex mineral ownership, the Forest Service initiated mineral title search with an independent title company which is ongoing. In 2013 the Friends of the Elkhorn and Boone and Crockett initiated paying for title search to identify the multitude of mineral owners.

**Withdrawal from the AIP:** On July 31, 2013 the Forest Service met with Peggy Braunberger, Roger Lothspeich, and their legal counsel to discuss the issues, specifically the 100% acquisition of the surface mineral ownership and the overall timeframes to resolve and exchange minerals. This resulted in the Agreement in Principal being withdrawn on July 31, 2013 by Peggy Braunberger and Roger Lothspeich with a written August 2, 2013 request from their legal counsel to finish the environmental analysis and to authorize the Operating Plan. The mineral owners had the right to withdraw from the AIP as per Clause #7.

4. An alternative was considered that would have exchanged gravel for gravel between the Operator and the Forest Service for the volumes related to the current mining proposal. This alternative was considered but not carried forward in the document.

The Forest Service continued the search for alternative pit sites, even after the operator’s withdrawal from the AIP. Eventually there was renewed discussion between the Forest Service and the operator as locations were found and processes defined. The intent was to determine the gravel pit proposal volume and exchange an equal amount of gravel from an alternate pit location on the McKenzie Ranger District in exchange for the mineral rights associated with the current mineral proposal.
The process was not without obstacles as only public domain surface and minerals could be
developed and included within a mineral exchange. The alternate pit location would require an
operating plan, environmental analysis, title work, and use authorizations. Gravel volume
determinations would be also required. This did not resolve the two issues of government
liability or partial mineral ownership. However, it did open the door to a potential process of
moving toward 100% mineral ownership.

This alternative was withdrawn by the operator in a November 13, 2014 memo from their legal
counsel to the Forest Service. They further requested that the review process for the mining
proposal be brought to a conclusion forthwith. Had this alternative been carried further in the
EA, the environmental effects would be duplicative of those displayed in the EA for the No
Action alternative (until such time as one of the remaining mineral owners exercises their own
right to develop a pit).

5. An alternative was considered where the operator would donate the surface mineral rights
to the Forest Service. This alternative was considered but not carried forward in the document.

The most recent effort in 2014 was to respond to a request from the operator to consider a
possible donation of their surface mineral rights to the Forest Service. However, the operator
withdrew this option in a November 13, 2014 memo from their legal counsel to the Forest
Service. They further requested that the review process for the mining proposal be brought to
a conclusion forthwith. Had this alternative been carried further in the EA, the environmental
effects would be duplicative of those displayed in the EA for the No Action alternative (until
such time as one of the remaining mineral owners exercises their own right to develop a pit).

6. An alternative was considered that would have incorporated a land and resource
management plan (LRMP) amendment encompassing the acquired Elkhorn Ranchlands. There
was a suggestion that an Amendment to prescribe specific management direction to the
acquired Elkhorn Ranchlands must be completed prior to processing the plan of operations for
the gravel pit. This was considered but not carried forward in the document.

The viability of the project comes from the ownership and exercise of valid existing mineral
rights which were known and agreed to at the time of acquisition of the ranchlands. Resource
protection standards and guidelines, including the protection of historic, scenic, and valid
mineral rights, are included within Chapters 1 and 2 of the current LRMP. The importance of
the ranchlands have been taken into consideration in developing the site specific operating plan
stipulations to both honor the private mineral rights and provide protection to the Historic
District. The basis for all of the mitigation measures all originated from the current LRMP.
However, the negotiated stipulations are more stringent than would be applied under general
LRMP requirements. To date, the mineral owner has agreed to every negotiated mitigation
measure with the exception of 1) replacing the removed materials with other materials and 2)
dropping the proposal altogether. The future LRMP amendment, will still need to include
honoring valid existing rights to avoid violating federal law. In addition, there are other
resource and social issues that will be considered and analyzed in the amendment covering the acquired lands that are outside the scope of the proposal at hand.

Alternatives Considered In Detail

The alternative descriptions explain the activities that would occur if an alternative were selected. A detailed description of the environmental effects of implementing the alternatives is given in Chapter III.

Alternative 1 – No Action Alternative

Under the No Action Alternative, there would be no ground disturbing activities or vegetation removal as a result of the proposed gravel pit. This alternative serves as a baseline analysis for environmental affects analysis as described in 40 CFR 1502.14 (d). This alternative is not legal due to the taking of private mineral rights. The Forest Service does not have authority to deny the exercise of a mineral reservation or outstanding mineral right.

Under this alternative Elkhorn Minerals LLC would not be allowed to exercise their private mineral rights. The Operating Plan would not be approved and the gravel pit would not be developed. Maintenance would not occur on the access roads, one segment would not be reconstructed nor any surface use permitted. A denial, or takings, would likely result in a lawsuit and a court settled compensation to the mineral owner(s).

Alternative 2 – Proposed Action Plan of Operations with Additional Stipulations

This alternative includes the activities described under the Proposed Action in Chapter I and includes the design criteria below and the Stipulations in Appendix - C (measures to be undertaken by the permittee). The stipulations shown in Appendix - C would be included in the surface occupancy and road use permit. Any Road Use or Special Use road authorization would also include standard authorization clauses. In addition to the attached stipulations, the permittee would also follow laws that pertain to the State of North Dakota.

Alternative 2 was developed to address the purpose and need described in Chapter I. Under this alternative, the Operator would exercise their private mineral deed rights through the development of the Elkhorn Gravel Pit.

Design Criteria for Alternative 2 – Proposed Action

Exhibit C Operating Plan Stipulations contain forty-one pages of negotiated and agreed to mitigation measures. The following Design Criteria are included within the Operating Plan or within the construction, maintenance, or reclamation stipulations of the road permits in addition to standard permit clauses.
• The access route would utilize three existing roads in lieu of constructing new roads to the proposed gravel pit. These roads would be maintained to maintenance level three use for the life span of the mining. That is, a road that is 14 feet wide road surface with turnouts, drainage and surfacing, and accommodates semi-trucks. Erionite free gravel rather than scoria would be used for road surfacing to minimize dust and visual impacts.

• A Road Use (RU) Permit would be issued for the use of NFSR 719C from Blacktail Road to mile 2.96 and would be resurfaced with gravel, all drainage and turnouts reestablished, cattle guards replaced where needed, and adequate signing installed.

• A Private Road Special Use Permit (SU) would be issued for the use of NFSR 7082 and 7082-1 from the intersection with NFSR 719C to the gravel pit. Both roads would be resurfaced with gravel, all drainage and turnouts reestablished, cattle guards replaced where needed, and adequate signing installed.

• The RU and SU Permits would require the pretreatment of invasive species and noxious weeds prior to any road maintenance or reconstruction. Both permits would require participation in a Road User Group responsible for the construction, reconstruction, and/or maintenance of the access road.

• Approximately 2,904 feet in length of NFSR 7082-1 would be reconstructed to reduce current excessive grades and to develop adequate drainage and soil controls. New disturbance associated with this segment would be approximately 1.3 acres.

• Mining operations would be completed in five phases with phase one bringing the road system to standard and installation of a perimeter fence around the entire gravel pit and buffer zone. Upon completion of phase one, mining would commence. The gravel pit would be mined in four phases (2-5) over a two year period, pending any weather or wildlife related delays.

• Each mining phase would be less than five acres and operations would include the removal and stockpiling of all available topsoil (estimated average of 0.5 feet) followed by the removal and stockpiling of all overburden materials (an estimated average of 2.17 feet) down to the gravel. The topsoil and overburden would be stockpiled within the buffer zone on bare ground. This would be accomplished with bull dozers and front end loaders.

• Front end loaders would then load the exposed gravel into dump trucks which would haul the gravel to privately owned property for crushing, sorting, separating, washing, grading, processing, and stockpiling. Once hauled away from the pit, no removed materials would be returned to the gravel pit. The gravel layer is estimated to be five to six feet thick but may vary from one to nine feet thick.

• A temporary road segment would be constructed within the gravel pit for hauling purposes. This temporary road would start inside of the material pit behind a gate and run the distance of the material pit. This temporary road would be obliterated and reclaimed upon conclusion of mining operations.

• Noxious weed and invasive species would be treated during and after operations through final reclamation until accepted and released by the Forest Service. Equipment would be cleaned to help prevent them from spreading.
- The mined gravel would be continually tested for Erionite utilizing State protocols. If Erionite is found to be present, required dust abatement mitigation measures for extraction and hauling would be implemented.
- Once a mining phase has been completed it would be reclaimed. The overburden material stockpiled within the buffer zone would be put back in place and the pit area and surrounding slopes would be shaped to near natural contours and all drainages would be re-established. Once the overburden is contoured, the stockpiled topsoil would be replaced and shaped, and the entire area seeded with a native seed mixture.
- Reclamation would be concurrent with the start of the next mining phase. Upon completion of all reclamation, the area would be monitored annually to ensure soil stabilization and the reestablishment of vegetation. An adjustable reclamation bond would be posted until all reclamation has been accepted by the Forest Service. Upon final acceptance of the reclamation, the fence would be removed.

**Reclamation**
The OP contains stipulations which define the reclamation standards. Forest Service specialists have been involved with the preparation of the stipulations and would oversee the entire process. Reclamation in relation to the gravel pit refers to the reclaiming of the disturbed surface area and temporary access (haul) roads. This “final” reclamation is accomplished with the use of heavy equipment such as bulldozers, scrapers, graders, and tractors. Final reclamation would occur in four phases as each phase of mining is completed.

The first step in the final reclamation process would be to reestablish the contours utilizing the stockpiled overburden. The pit area has been surveyed by Forest Service Cadastral Surveyors and the topography and elevations mapped. This survey would be used to reestablish the contours. The proposed pit sits on a cultivated field which has been flattened over time. The field lays upslope on a west facing aspect. The skyline and all of the surrounding topography features would not be disturbed or altered as a result of the mining. All natural drainages would be reestablished for positive drainage.

The removal of the gravel would result in the elevation of the ground dropping 2 to 8 feet. This would not preclude the shaping of the site to near natural contours. The original flat contours of the cultivated field would be shaped to appear more natural. The Forest Service Specialists would agree to and monitor all aspects of the contouring.

Next, the stockpiled topsoil would be spread back over the reclaimed site. Farm tractors and seeders would then be used to prepare the seedbed and plant it with a native seed mix specified in the OP. Finally, the perimeter fence would be checked and the area closed to help in the re-establishment of native vegetation on the site. All phases of the reclamation process would be monitored to ensure compliance with the reclamation plan and OP Stipulations.

A reclamation bond would be required at the time the permit is issued and held by the Forest Service until closure and acceptance of the reclamation. The reclamation bond would cover the actual cost required to adequately reclaim, seed, rework, monitor, and close out any
disturbance related to the proposed gravel pit should the Operator fail to meet the obligations of the OP and stipulations. Otherwise, if the Operator does complete the project and upon acceptance of the pit reclamation by the Forest Service, the reclamation bond would be returned to the Operator. The bond may be adjusted or extended as needed by the Forest Service.

Comparison of Alternatives

Table 2 briefly displays the differences between the considered alternatives in relation to the purpose and need.

Table 2 - Summary of How the Alternatives Respond to the Primary Issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cultural – Impacts to Elkhorn Ranchlands NHD</strong></td>
<td>No change in existing conditions related to the proposal.</td>
<td>There may be an “Adverse Effect” to historic properties; however, should an adverse effect occur, it will be mitigated sufficient so that it is not a significant adverse effect.</td>
</tr>
<tr>
<td><strong>Soundscape – Impacts to TRNP and NDPR</strong></td>
<td>No change in existing conditions related to the proposal.</td>
<td>Noise from gravel pit operations would impact users of the TRNP and NDPR lands.</td>
</tr>
<tr>
<td><strong>Tourism - Impacts to TRNP and NDPR users</strong></td>
<td>No change in existing conditions related to the proposal.</td>
<td>Temporary impacts possible, through the life of the gravel pit operations.</td>
</tr>
<tr>
<td><strong>Visuals – Impacts to TRNP, NDPR and Little Missouri River Viewsheds</strong></td>
<td>No change in existing conditions related to the proposal.</td>
<td>Temporary impacts during gravel pit operations. Permanent lowering of the elevation by eight feet. However, natural form retained.</td>
</tr>
</tbody>
</table>
CHAPTER III
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter describes the existing environment of the affected project area and a discussion of the potential direct, indirect and cumulative effects by alternative. Chapter III also presents the analytical basis for the comparison of alternatives presented in Chapter II. The chapter concludes with discussions of the consistency of the proposed action with other laws, regulations, and directives.

Analysis Assumptions

The effects are based on implementing the alternatives as described in Chapters I and II, including design features and stipulations specified for the action alternative. The effects discussions here are focused on gravel pit activities only. In this chapter, the plan of operations along with associated roads is also referred to as the project area.

None of the effects described in this chapter are uncertain, unique or unknown.

There is currently no designated Management Area (MA) direction for the acquired ranchlands. Management of the area is covered by the current direction provided in Chapter 1 (Grasslands-Wide) and Chapter 2 (Badlands Geographic Area) of the Dakota Prairie Grasslands Land and Resource Management Plan.

The various specialist reports in the Project Record include a description of the data used and field inventories conducted for this analysis. Data includes DPG Geographical Information System (GIS) information, project area maps, and photos. Field reviews occurred in the project area and vicinity.

Project Area

The project area includes approximately 24.6 acres of gravel pit located in Section 34, T144N, R102W, and the three existing access roads located within Section 1, T143N, R102W and continuing through Sections 2 and 35 into Section 34, T144N, and R102W (See Appendix A, Figure 2, Project Map). Road reconstruction would disturb an additional 1.3 acres in Section 34 for a total disturbance of 25.9 acres in Section 34.

There are no municipal watersheds, congressionally designated wilderness areas, research natural areas, or special interest areas within the project area.

The proposed gravel pit project lies within the boundaries of the Elkhorn Ranchlands NHD, formally listed by the Keeper of the Register (National Park Service) on September 28, 2012.
Elkhorn Ranchlands

The Forest Service was involved with the acquisition of the Blacktail Ranch (Elkhorn Ranchlands) from the initial attempts by the National Park Service (NPS) and State of North Dakota, to the eventual acquisition by the Forest Service. The Forest Service worked intimately with the numerous partnerships including the conservation groups; federal, state, and county authorities; and elected officials involved with the acquisition.

In response to the acquisition, Congress included the following provisions within Section 424 of Public Law PL-110-161, the Consolidated Appropriations Act 2008, which required the Forest Service to do the following:

(a) To offset the acreage acquired by the Federal Government upon the acquisition of the Elkhorn Ranchlands so that there will be no net gain in federally owned land in North Dakota as a result of these land conveyances.

(h) The multiple uses of the acquired Elkhorn Ranchlands shall continue.

The multiple-use mission of the Forest Service and the willingness to agree to the no net gain in land ultimately resulted in the acquisition of the ranch. The follow-up of PL-110-161 added the above clauses in response to local interests.

Elkhorn Ranchlands National Historic District

There are no provisions within PL-110-161 either promoting or prohibiting the nomination of the ranchlands to the National Register of Historic Places (NRHP) as a National Historic District. NRHP listing does not add additional restrictions or requirements beyond those that already exist under NHPA, 36 CFR 800 and the Archaeological Resources Protection Act (ARPA), including private mineral rights and development, grazing permits or authorizations, and recreational or other legal uses of public lands.

The Forest Service prepared the nomination with the help and assistance of local residents and the NDSHPO. The first nomination was supported by the NDSHPO and State Review Board but was not submitted to the Keeper of the Register due to local objections. The nomination was then revised resulting in the district size reduced from some 11,892 acres to 4,402 acres to incorporate the viewshed from the TR Ranch.

In December of 2011, the ND congressional delegation including both U.S. senators and the U.S. representative notified the ND State Historical Society that cooperation between all of the entities needs to continue in order to honor the spirit of PL 110-161.
The Forest Service and NDSHPO received public comment and input during the second NDSHPO review period, which included both local and national supporters and opponents of the nomination. The NDSHPO also replied to opponents regarding their concerns, as did the Forest Service. The NDSHPO extended its comment period to facilitate submission of additional letters. Upon reviewing all of the letters and input, and upon reviews by their legal counsel, the NDSHPO determined that the nomination was viable and met all their conditions and requirements.

The Forest Service Regional Office Federal Preservation Officer reviewed the nomination and forwarded the nomination to the Keeper of the National Register on March 14, 2012. On September 28, 2012, the Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Historic District (Elkhorn Ranchlands NHD) was listed on the National Register of Historic Places (NRHP) in accordance with the National Historic Preservation Act (NHPA) and 36 Code of Federal Regulations (CFR 60). The ranchlands were so designated because of their association with Theodore Roosevelt and the early conservation history of the United States. Some 4,402 acres in size, the NHD comprises portions of the Forest Service-acquired ranchlands, including the gravel pit area, the Theodore Roosevelt National Park (TRNP) Elkhorn Ranch Unit, and the North Dakota Park & Recreation (NDPR) lands adjacent to TRNP.

National Register nomination and listing would not deprive private mineral owners of their right to develop their mineral interests. Page 8 of the Elkhorn Ranchlands NHD recognizes the private mineral rights. The agency must address private mineral rights per 36 CFR Chapter II Section 251.15 and the Secretary’s Rules and Regulations. Forest Service Manual 2830 provides direction specifically for outstanding and reserved mineral rights.

**Affected Environment/Existing Condition**

**General Setting**

The general area can be classified as a diverse landscape of badlands, rugged buttes, and plateau regions accented by wooded draws all supporting a variety of vegetation types. Cultivated fields are scattered throughout the area and the Little Missouri River meanders through the course topography. Vegetation corresponds with the abrupt changes in conditions. Site characteristics including soil texture, soil chemistry, slope, exposure, and degree of erosion dictate plant diversity within the area.

The climate in the area is semi-arid continental with large seasonal and diurnal variations in temperature. Annual average temperatures are near 42 degrees Fahrenheit (F) with monthly averages ranging from 10 degrees F in January to 71 degrees F in July. Precipitation, in the form of rain and snow, averages around 15 inches per year; 75 % of this precipitation falls in a 6-month period between April and September, and 35 to 40 % falls mostly in the form of thunderstorms in June and July. In contrast, November through February is a dry period with roughly one half inch of precipitation monthly in the form of snow.

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North Dakota is the 11th windiest state in the union with an average wind speed of 18.80 mph. Billings County in which the gravel pit is located, is ranked 4th in the state with an average wind speed of 23.33 mph. The average wind speed of the eleven closest communities to the gravel pit average 22.29 mph. The wind blows on average 95% of the time. Calmer days in which the wind is less than 5 mph occurs approximately 9% of the time.

There are approximately 7.29 miles of existing roads within one-half mile of the proposed gravel pit. There are approximately 27.03 miles of road within the Elkhorn Ranchlands. With the exception of National Forest System Road (NFSR) 719C which was the main access to the previous ranch headquarters, all roads are currently closed to public driving. This closure has been in effect since the acquisition in 2007. Those entities with existing rights, such as the oil and pipeline companies, do have permitted access into the area. Because of the road closures, there is currently no motorized recreation on the existing roads and trails.

There is a shallow pond/wetland with willow, cottonwood, bulrush, and cattails along the beginning of the route at the turnoff from Blacktail Road. Continuing northwest, both sides of the road passed through areas with very high cover of smooth brome along with sweet clover and some blue flax. The smooth brome tends to extend well into the surrounding landscape where adjacent topography remained relatively level with the access road, particularly in areas with evidence of past cultivation or hay feeding. Western wheatgrass, inland saltgrass, and false mallow are intermixed with smooth brome on portions of the route and extended into adjacent rangeland with patches of silver sagebrush.

Several green ash drainages and slopes abut the road corridor and tend to exhibit healthy conditions with high regeneration and desired population structure. Healthy American elm are present in several of the draws. Slopes above the draws contain varying amounts of Kentucky bluegrass, buffalo berry, and Rocky Mountain juniper. Common burdock, a noxious weed, occurs sporadically along the road corridor and was noted within several woody draws.

Steeper slopes and steeper road segments with thinner soils and/or parent material outcrops exhibit greater native plant dominance and diversity with needle-and-thread, yucca, little bluestem, June grass, and upland sedges, and also contain patches of invasive Japanese brome. Some areas adjacent to the road have good forb diversity with northern bedstraw, harebell, and sego lily. However, these generally occupied areas are above the road cut, whereas the slopes and ditches adjacent to the road retained smooth brome, scattered silver sage, snowberry, and creeping jenny.

A similar pattern of plant composition continues to the proposed gravel pit, with high amounts of smooth brome and areas of inland saltgrass, rabbit brush, sweet clover, silver sagebrush, and some areas of high western wheatgrass and/or green needlegrass. The approach to the gravel pit is completely dominated by smooth brome, crested wheatgrass, sweet clover, and Japanese brome. Common burdock is also present in this area. The access road would extend between an abandoned gravel mining area on the east that borders the north end of the proposed gravel pit.
pit, and an agricultural field on the west that was abandoned shortly after acquisition of the property by the Forest Service.

The area was an active ranch up until 2007. The now abandoned Blacktail Ranch residence and several outbuilding foundations are northeast of the pit. The area has been heavily disturbed by past agriculture and ranching operations. Within a one-half mile radius of the proposed pit there are approximately 146.52 acres of cultivated wheat fields. Two thirds of the gravel pit lies within a cultivated field with another cultivated field directly downslope to the west closer to the river. Several parcels of broken land and recently abandoned agricultural fields and hay fields occur in the project area and adjacent to the road corridor.

Livestock use in the project area was high and several down-cut trails attest to trailing along portions of the road corridor. Winter feeding of invasive grass dominated hay along the access route and other portions of the project area has assisted the introduction and spread of invasive species. At least two developed springs occur in the analysis area with increased zones of grazing and trampling disturbance around the developments affecting habitat conditions.

The most economically important mineral resource of this region is oil and gas. The Elkhorn Ranchlands are located within or near three producing oil fields all developed in the 1980s. Over 140 wells have been drilled within these fields and 57 wells are still in production status. Improved technologies have increased the number of successful wells while at the same time reducing the overall number of wells. The potential for future development of oil and gas resources is high. ND is currently experiencing major oil and gas development.

A total of 21 wells have been drilled on the Elkhorn Ranchlands property itself. The drilling was done between the years of 1975 and 1990. Seven of these 21 wells are producing today. The remaining 14 wells were either dry holes or have been plugged and abandoned for other reasons. The majority of roads to these wells are still in place. There is one active well and road north of the gravel pit which would also be used to access the gravel pit. Along with the wells are existing pipeline rights-of-way.

Wildlife is abundant and includes deer, pronghorn, prairie dogs, elk, grouse, pheasants, partridge, waterfowl, wild turkeys, and a rich variety of non-game prairie wildlife species is present.

There are no schools, hospitals, or daycare centers located in the immediate vicinity of the project area. The nearest residence is approximately 4,000 feet to the northwest nestled along the Little Missouri River with no direct view of the gravel pit area. An overhead power line within a fifty foot right-of-way traverses the length of the plateau.

**Proposed Gravel Pit Site**

The proposed pit (see Appendix B-Photos) is located on a west/northwest aspect plateau in Section 34 approximately 0.8 miles east of the Little Missouri River, TRNP Elkhorn Ranch Unit,
and adjacent NDPR lands. The northern end of the proposed site utilizes an old gravel pit that was in use up until 2002. Evidence of the old pit is evident with stockpiles of dirt and cut banks. Billings County removed approximately 27,000 cubic yards of gravel from this site.

Most of the area proposed for gravel mining also consists of an abandoned agriculture field. Vegetation in these fields currently consists of a mixture of remnant oat and wheat plants, crested wheatgrass, annual brome, and weedy forbs such as kochia, Russian thistle, prostrate vervain, and sweet clover. Invasive smooth brome and crested wheatgrass dominate the abandoned gravel pit area north of the proposed site. These species, along with Kentucky bluegrass, dominate the perimeter of abandoned cropland, and occur intermixed with native needle-and-thread, sedges, and shrub patches of silver sagebrush along a narrow periphery of the plateau outside the proposed gravel pit.

The plateau slopes break to a steep badland escarpment immediately south of the proposed gravel pit that terminates at the upper floodplain of the Little Missouri River. The escarpment is comprised of sparse but distinct vegetation consisting of native shrubs such as silver sagebrush, Wyoming big sagebrush, rabbit brush, and broom snakeweed. Rocky Mountain juniper increases towards the bottom of the slope above green ash draws. Common forbs on the escarpment include butte candle, small-flowered buckwheat, yellow buckwheat, stemless hymenoxys, fineleaf hymenopappus, and several other species characteristic of the dry habitat and poor soil conditions.

The east side of the gravel pit breaks to more gentle slopes typically comprised of a mixture of native and invasive grass species and scattered shrub patches. A prominent woody draw drainage extends obliquely to the east shoulder of the plateau immediately below the proposed gravel pit. The north and west sides of the proposed gravel pit continue across the plateau for about 1,200 feet before breaking to escarpments that descend to the Little Missouri River floodplain.

**Environmental Effects**

This section provides a summary of the environmental impacts of the alternatives considered in detail. Further analysis and conclusions about the potential effects are available in reports for each resource and other supporting documentation cited in those reports.

The analysis and conclusions about the potential effects of alternatives are presented in this section. Council on Environmental Quality (CEQ) guidance (36 CFR 220.4(f) directs that cumulative effects analysis shall be carried out in accordance with 40 CFR 1508.7 and in accordance with “The Council on Environmental Quality Guidance Memorandum on Consideration of Past Actions in Cumulative Effects Analysis” dated June 24, 2005. Past, present, and reasonably foreseeable actions were considered for analysis of cumulative effects where appropriate for each resource.
Past, present, and reasonably foreseeable future activities listed in this section are activities known to have already occurred, are currently occurring, or are likely to occur in the vicinity of the proposed Elkhorn Gravel Pit project and may contribute to cumulative effects. These activities and events are primarily located within the Elkhorn Gravel Pit project area boundary but some extend beyond the proposed gravel pit to ensure cumulative effects analysis areas are fully considered. Following is a list and brief description of actions that will be discussed and used to determine effects.

Foreseeable Actions
- **Elkhorn Ranchlands Plan Amendment**: An amendment to the Dakota Prairie Grasslands Land and Resource Management Plan for management direction and travel management of the acquired Elkhorn Ranchlands.
- **Little Missouri River Crossing**: A proposed roadway river crossing in conjunction with upgrading existing roadways to connect east river to west river from North Dakota Highway 16 to U.S. Highway 85.
- **Oil & Gas Development**: Additional oil and gas private mineral operating plans being submitted for development and production of deeded mineral rights. One proposed oil and gas well has been submitted and is on hold by the Operator.
- **Mineral Development (gravel)**: There is a high probability that gravel mining and subsequent submittal of Plans of Operations will occur on private minerals within the same vicinity.
- **Special Uses (20 Existing Encumbrances (pipelines, electric lines, telephone line))**: Aging infrastructure will require the replacement and/or modification to existing facilities within the next 5-15 years.

Ongoing Actions
- **Oil & Gas Development**: There are seven active producing oil and gas wells on the Elkhorn Ranchlands.
- **Livestock Grazing**: Livestock grazing is expected to continue in the project area with multiple permittees.
- **Pest Plant Species**: The integrated prevention and control of pest plant species including noxious weeds and invasive species, utilizing both biological and chemicals agents, is expected to continue as both continue to spread.
- **Roads**: There are approximately 27.03 miles of road within the Elkhorn Ranchlands. Only 3 miles are open for public access. All would require annual ongoing road maintenance.
- **Special Uses (20 Existing Encumbrances (pipelines, electric lines, telephone lines))**: Annual maintenance of existing facilities, inspections, and access to facilities.
- **Recreation**: Dispersed recreational activities such as hiking, hunting, camping, sight-seeing, animal viewing, and limited motorized use activities will continue within the Elkhorn Ranchlands.

Past Actions
- **National Historic District**: On September 28, 2012 portions of the acquired ranchlands including the TRNP Elkhorn Ranch Unit, and the NDPR lands adjacent to TRNP were
formally listed by the Keeper of the Register (National Park Service) as the Elkhorn Ranchlands NHD.

- **Oil & Gas Development**: A total of 21 wells have been drilled on the ranchlands property between the years of 1975 and 1990. Seven of these 21 wells are producing today. Fourteen well pads have been reclaimed between 1985 and 2003.
- **Special Uses (Existing Encumbrances)**: 29 existing encumbrances at the time of acquisition, including 9 oil and gas facilities, 19 pipeline right-of-ways or assignments, and 4 right-of-ways for electric and telephone were authorized by the private land owners.
- **Homesteading**: approximately six acres of now abandoned Blacktail Ranch residence and several outbuilding foundations are northeast of the pit. The area has been heavily disturbed by past agriculture and ranching operations. A landing strip for airplanes was utilized in the 1980’s.
- **Farming**: Within one half mile of the proposed site are the residuals of 147 acres of leveled cultivated fields.
- **Gravel Pit**: There is an old gravel pit that was in use up until 2002. Evidence of the old pit is evident with stockpiles of dirt and cut banks and is on the current location of the proposed pit.
- **Roads**: Existing roads were privately constructed and not to federal standard. Occasionally the public was granted access from the main ranch to the river crossing.
- **Roads**: There are approximately 7.29 miles of existing roads within one half mile of the proposed gravel pit. There are approximately 27.03 miles of road within the Elkhorn Ranchlands.

**Actions on State/Private Lands within or Adjacent to the Project Area**

- **Oil & Gas**: The ranchlands are located within or near three producing oil fields all developed in the 1980s. Over 140 wells have been drilled within these fields with 57 wells still in production status.
- **Special Use pipelines, electric lines, and telephone lines**: Portions of 20 lines are located on adjacent lands as part of the overall system and could be utilized for future oil and gas development on the Elkhorn Ranchlands and other homestead improvements.
- **Historical Lands**: The Elkhorn Ranch Unit of Theodore Roosevelt National Park and the adjacent North Dakota Park and Recreation lands lie approximately 4,300 feet west of the proposed gravel pit and are used by park visitors and other recreationalists.

**Environmental Consequences**

This section details the environmental effects that would occur for each alternative. These discussions form the scientific and analytic basis for comparing the alternatives (40 CFR 1502.16). The effects of the No Action Alternative (Alternative 1) form a baseline against which the Action Alternatives are evaluated.

Environmental effects can be direct, indirect, or cumulative. They can be of long or short duration. Effects can be quantitative or qualitative, adverse or beneficial, actual or potential.
is important to consider timing and location of effects. Direct effects are caused by the action and they occur at the same time and place. Indirect effects are caused by the action and are later in time, or further removed in distance, but are still reasonable foreseeable (40 CFR 1508.8). In most cases, direct and indirect effects are discussed together. Cumulative effects are those that result from the incremental impact of the action when added to the other past, present, and reasonable foreseeable future actions (40 CFR 1508.7). Effects of past actions are already included in the disclosure of existing conditions for each resource area. The cumulative effects analysis builds upon this existing condition by considering the incremental addition of direct and indirect effects of the proposal.

CULTURAL AND PALEONTOLOGICAL RESOURCES

The proposed gravel pit project lies within the boundaries of the Elkhorn Ranchlands NHD, formally listed by the Keeper of the Register (National Park Service) on September 28, 2012. The Theodore Roosevelt Elkhorn Ranch Site (State Historic Site and Elkhorn Ranch Unit of Theodore Roosevelt National Park) lies approximately 4,240 feet (0.8 miles) southwest of the proposed gravel pit (see Soundscape, Visuals and Air Quality discussions in Chapter III for further discussion).

Compliance with Section 106 of the National Historic Preservation Act

In consultation with the Advisory Council on Historic Preservation (ACHP) and North Dakota State Historic Preservation Office (NDSHPO), the DPG defined the undertaking’s composite Area of Potential Effect (APE) as the area of direct effect, the viewshed APE, and the soundscape APE, strictly for the purposes of Section 106 compliance. Specifically, the area of direct effect is defined as the 24.6 acre gravel operation footprint, including associated access roads and a buffer zone. The viewshed APE illustrates the viewshed equal to or greater than 70% probability of being seen by an observer located within the general vicinity of the proposed gravel pit. This includes the Elkhorn Ranch Unit of Theodore Roosevelt National Park and the Elkhorn Ranchlands NHD. The viewshed analysis was conducted by the National Park Service using standard viewshed analysis protocols that include model inputs of a USGS 10-m digital elevation model and a viewshed input parameter of 6-ft observer height NPS Map 2. The coordinated soundscape APE relied upon analysis (see Soundscape in Chapter III for further discussion) and was derived through consultation with the ACHP and NDSHPO. This resulted in a defined two-mile affected area radiating from the center of the proposed gravel pit from all directions. See Appendix F Section 106 National Historic Preservation Act Memorandum of Agreement.

Upon defining the APE, historic properties within the APE are identified, evaluated, and possibility of adverse effect from the proposed project assessed. Under the NHPA, “historic properties” include prehistoric or historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the National Register of Historic Places maintained by the Secretary of the Interior (National Park Service). An adverse effect can occur when it is reasonably foreseeable that a proposed project may directly or indirectly alter characteristics of
a historic property that would diminish the property’s integrity and therefore eligibility for inclusion in the National Register of Historic Places.

**Inventory Surveys**
Two Class III inventory surveys were conducted. The area that may be impacted by the proposed gravel pit was first surveyed by University of North Dakota archaeologists on May 21 – 30, 2008 (Jackson, Toom and McCormick, 2010). This survey was conducted over the entire 4,370 acres of acquired lands that include the Elkhorn Ranchlands NHD. NDSHPO concurred with the findings on January 28, 2011. A second Class III inventory was initiated by the project proponent and conducted by Juniper, LLC, on August 27, 2009 (Morrison, 2009). This survey was conducted within boundary of the proposed gravel pit area. NDSHPO concurred with the findings and “no adverse effect” recommendation on September 10, 2011.

**Paleontological Resources**
A paleontological inspection was approved on March 2, 2010 by the Dakota Prairie Grasslands Minerals and Geology Program Manager (Geologist) in accordance with the Paleontological Resources Preservation Act of 2007. The pit area was inspected following using DPG LRMP Standards and Guidelines, and further direction for paleontological resources as outlined in Appendix J of the Plan.

For the Paleontological survey, the pit was inspected using parallel pedestrian transects spaced no more than 20 meters apart to cover the pit area. The boundaries of the landform and area of exposed subsurface sediments were inspected as well. These surveys are in compliance with DPG LRMP Standards and Guidelines, and further direction for paleontological resources as outlined in Appendix J of that plan.

**Direct and Indirect Effects**

**Alternative 1**
Implementation of Alternative 1 would result in the continuance of existing conditions at all sites for the foreseeable future. Conditions at each of these sites would change through natural aging processes and potentially unintended damage by visitors. There would be no impacts to cultural or paleontological resources under Alternative 1 relative to this proposal.

**Alternative 2**

**Cultural Resources**
No historic properties, including prehistoric or historic cultural resources, sites, or features, are located within the area of direct effect APE (i.e. directly within the boundaries of the gravel pit project). Implementation of Alternative 2 may have an adverse effect on the character-defining qualities of the Elkhorn Ranchlands NHD.

Theodore Roosevelt found solace and solitude at his cabin during a very tragic part of his life and this played an important role in his thinking. Visitors to his cabin site may get a glimpse of
what Roosevelt saw and heard, but Roosevelt’s soundscape and viewshed did not include modern day noises and intrusions, such as semi-truck traffic on the county and oil gas roads, oil and gas wells drilling and production, and agricultural activity. Gravel pit development may add to these various intrusions.

Gravel pit excavation would result in an average elevation drop of eight feet within the pit area. Dust may be visible during mining, loading of trucks and hauling. Mining may permanently alter the elevation of the pit area of the plateau, although reclamation will ensure a natural form, line, color, texture and pattern common to the natural landscape. The dominant background skyline will not be altered. Reclamation will continue for several years until any erosion is stabilized and the native seed mixtures take root. The mixing of native seed mixtures within the cultivated fields would be noticeable until the entire area returns to native vegetation sometime in the future. It may take decades to reclaim the overall landscape of the entire acquired lands area.

The majority of the gravel pit may be seen and heard from the adjacent Elkhorn Ranchlands NHD within the immediate foreground (0 to 300 feet) viewshed and within the foreground (0 to 1/2 mile) viewshed of the gravel pit along the northern and western edges of the gravel pit. Recreationalists who walk along the perimeter fence of the mining operations will hear the full effect of the noise associated with the trucks and heavy equipment used for hauling and mining. The noise will diminish with distance away from the operations. As the gravel pit sits at a higher elevation, a listener standing downwind will likely hear louder noise levels. The Elkhorn Ranchlands NHD experience may be negatively affected during the normal mining operating season from April through November for approximately two-three years. However, the associated noise will be temporal in nature in that it will cease upon completion of the operations.

After the 2012 listing of the Elkhorn Ranchlands NHD, the DPG reviewed the project and revised its recommendation to the NDSHPO that there may be an “adverse effect” to historic properties; however, through Section 106 consultation, these potential adverse effects have been resolved so they are mitigated sufficient that it is not-significant. Consultation with the NDSHPO under NHPA continued through the entire NEPA process. In collaboration with the ACHP and NDSHPO, and in consultation with the proposed Elkhorn Gravel Pit Section 106 consulting parties, including SRST THPO, MHA Nation THPO, Theodore Roosevelt National Park (TRNP), and National Trust for Historic Preservation (NTHP), the DPG analyzed both Class III cultural inventory report results within the composite APE. NDSHPO provided a map that corroborated analysis of historic properties, identifying all historic properties within the composite APE. The Elkhorn Ranchlands NHD was identified; however, there are no historic properties, discrete features or cultural resources within or outside the Elkhorn Ranchlands NHD, that will be effected.

In consultation with NDSHPO, ACHP and all Section 106 consulting parties, it was determined that the project may have an adverse effect on the character-defining qualities of the Elkhorn Ranchlands NHD, in accordance with criteria of adverse effect in the NHPA and 36 CFR 800.5.
Specifically, the gravel pit operation may have visual (pit, machinery), audible (equipment and vehicle noise), and atmospheric (dust, equipment and vehicle fumes) effects that will diminish the property’s historical integrity (see discussion below and see Soundscape, Visuals and Air Quality discussions in Chapter III). The gravel pit operations may be visible within the viewshed from Theodore Roosevelt’s ranch headquarters on nearby National Park Service land, which have historic features, interpretive signage, and a public presence.

The Forest Service and project proponent has agreed to design criteria and mitigation measures to reduce potential adverse impacts to the APE and the Elkhorn Ranchlands NHD. The Operating Plan and road permits offer additional mitigation measures. Section 106 consulting parties were invited to discuss these mitigation measures and the resolution of possible adverse effects to the Elkhorn Ranchlands NHD. In addition to frequent communication exchanges between Forest Service and various consulting party members, group conversations took place on three occasions. These group consultation conversations included the project proponent, NDSHPO, ACHP, TRNP, NTHP and Forest Service. In addition to a description of the Section 106 process resolving potential adverse effects, the mitigation measures from the operating plan have been incorporated into a NHPA Section 106 Memorandum of Agreement among the Forest Service, NDSHPO and the ACHP. Other consulting parties who were invited to sign this agreement include the project proponent, SRST and MHA Nation, TRNP, and the NTHP.

Mitigation measures described in this EA and Section 106 National Historic Preservation Act Memorandum of Agreement would mitigate adverse effects to the Elkhorn Ranchlands NHD (See Appendix F Section 106 National Historic Preservation Act Memorandum of Agreement). NDSHPO concurs with this recommendation. The SRST THPO and MHA Nation verbally agreed with the US Forest Service findings and recommendation to NDSHPO. SRST THPO documented his finding in a letter addressed to Ronald Jablonski dated June 18, 2014, THPO file 14-104.

**Visual Mitigation Measures**: The ridgeline above the pit and the main skyline will not be altered; the final reclamation stipulations, backed by a reclamation bond, would ensure that the high scenic integrity objective standards that require the repeat of the form, line, color, texture and pattern would be met; final reclamation will reestablish the natural rolling hills and remove the filled in low spots and eliminate the current altered landscape appearance; operations will occur in five phases with phase one upgrading the road system with erosion control measures; Four mining phases will occur in four smaller five acre sections with no more than two phases open and operating at one time; when the mining of each phase is complete, that area would be reclaimed using the stock piled soil and the next phase would be opened; operations will occur over a two-three year period pending the shutdown for protection of wildlife species; the use of native seed mixtures will reestablish the natural vegetative colors and textures; no outdoor lights; road maintenance will include dust abatement as needed to control fugitive dusts; the protection of inadvertent discovery of items of archaeological, paleontological, or historic value; the control of noxious weeds and invasive plant species as a result of operations; and the control and containment of all wastes.
**Soundscape Mitigation Measures:** The use of noise reducing mufflers.

**Visual and Soundscape Mitigation Measures:** Operations would occur between April and November of any given year and would be shut down during the remainder of the year; there will be no additional noise or dust or visuals from cleaning or sorting equipment as the gravel will be removed and hauled to a private site for processing; all topsoil will be protected to ensure adequate reclamation; soil overburden will be stockpiled along the edges of mining to offer some buffer for noise and visuals; no night operations; and upon written request from Theodore Roosevelt National Park for limited special events (e.g. encompassing one to three days), during such event, the Operator will suspend operations without any reduction or affect to the overall timeframe to complete operations.

The project design criteria and additional mitigation measures are consistent with Grassland-wide direction for protecting cultural resources (DPG LRMP p. 1-24-1-25). They will reduce, though not eliminate, the adverse effects to the Elkhorn Ranchlands NHD. Some mitigation measures, such as the re-contouring of previously disturbed land back to its natural appearances and reestablishing the natural form, line, color, texture and pattern with native grass species will have a positive effect on the current conditions.

**Paleontological Resources**
The Forest Service Geologist has determined that the proposed action would have no direct, indirect or cumulative effects on paleontological resources. No paleontological resources were observed during the inspection of the area, nor is it likely that significant fossil resources are present in the area of the proposed materials operation.

**Cumulative Effects**
The landscape that now comprises the Elkhorn Ranchlands NHD was the scene of many human activities prior to its acquisition by the Forest Service and NRHP evaluation and nomination as a historic district. The ranchlands, and surrounding area, have been modified by farming, ranching and livestock grazing, road construction, oil and gas development, recreational use and other historic and modern activities. Many of these activities, particularly energy development, are expected to continue into the foreseeable future.

Gravel pit development will add another tier of activity, and cumulative effect, upon an already busy, if not thriving, historic-modern landscape. However, unlike many other activities, gravel pit development, use and reclamation, as proposed, will be temporary. In addition, project design criteria and mitigation measures will reduce some of the impacts through the duration of the project. Still, despite reclamation, the gravel pit and its ancillary roads and staging areas will leave a subtle permanent fingerprint on the landscape that may detract from the overall integrity of the Elkhorn Ranchlands NHD.

**SOUNDSCAPE**
Noise is defined as unwanted or annoying sound that is typically associated with human activities and that interferes with or disrupts normal activities. Sound (noise) is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the Decibel (dB). One decibel is approximately equal to the threshold of a person's hearing, 30 decibels is considered very quiet, 45 decibels is commonly considered the maximum indoor noise level, and 65 decibels is commonly considered the maximum outdoor noise levels. At 100 decibels, noise begins to be intolerable and at 180 decibels noise is lethal.

Solitude is generally defined as the state or quality of being alone or remote from others possibly in a lonely or secluded place but not necessarily lonely. Seeking solitude can be inspirational, timeless, and enjoyable, but solitude is a very complex and personal concept that varies by individual. It is common knowledge that Teddy Roosevelt found solace and solitude at his cabin during a very tragic part of his life and that it also played an important role in his thinking. Visitors to his cabin site may get a glimpse of what Roosevelt saw and heard, but Roosevelt’s soundscape did not include modern day noises such as semi-truck traffic on the county and oil gas roads; heavy construction and maintenance equipment; the drilling of oil and gas wells; oil and gas production equipment; agriculture equipment during planting and harvesting; aircraft from small crop dusters spaying crops to commercial airplanes overhead on a daily basis; generators and pumps along the river or in the fields; close proximity neighbors; nor from recreationalists or other users along the river or in the countryside utilizing ATV’s, UTV’s and motorcycles.

Response to noise varies according to its type, its perceived importance, its appropriateness in the setting and time of day, and the sensitivity of the individual receptor. Human hearing is simulated by measurements in the A-weighting (dBA) network, which de-emphasizes lower frequency sounds to simulate the response of the human ear. Noise impacts must be assessed in terms of perceived change in existing sound levels. Typically for short-term noise sources, an increase of at least 3 dB is usually required before most people perceive a change in noise levels, and an increase of 5 dB is required before the change will be clearly noticeable. Noise values are logarithmic measurements. Every 10-dBA increase is perceived by the human ear as approximately twice the previous noise level. Sound level intensity decreases by approximately 6 dBA for each doubling of distance from the source. Further reduction occurs when sound energy travels far enough to be appreciably reduced by absorption.

The State of North Dakota and the Forest Service have not established standards quantifying noise levels. There is one preventative measure in the form of mufflers. A noise’s potential to do harm to hearing depends on its intensity, which is measured in decibels (dB), and its duration. Generally, a "safe" noise level registers 75 dB or less.

Theodore Roosevelt National Park (TRNP) provided the Forest Service with a six page “Acoustical Monitoring Snapshot” for the Elkhorn Ranch Unit dated March 2012 in which two acoustical monitoring systems were deployed in the Elkhorn Ranch Unit. The briefing is a preliminary snapshot of the acoustical conditions at the site between August 21 and October
20, 2012. A full acoustical monitoring report is pending further data analysis. Although the base decibel (dB) in both analyses differ, TRNP used a base of 35 decibels (dB) which is the equivalent of wilderness, and the FS used an adjusted base of 50 dB for existing background noise, the conclusions are basically the same in that the noise from the mining proposal (average 65 dBA), would clearly be noticeable from within the park, adjacent state lands, and from the residential area during daily operations. Most of the noise would be sporadic in nature and occur only during the day. This data has been incorporated into the Project Record.

**Occupational Safety and Health Administration (OSHA)** regulates oil and gas activities, noise regulations, and guidelines for worker exposure. These regulations and guidelines focus on noise from machinery, equipment and tools. OSHA has established a standard of “No Limit” on Total Daily Exposure below 78 dBA.

**Affected Environment**

The proposed gravel pit project lies within the boundaries of the Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Register District (Elkhorn Ranchlands NHD), formally listed by the Keeper of the Register (National Park Service) on September 28, 2012. The Elkhorn Ranchlands NHD includes the Elkhorn Ranch Unit of Theodore Roosevelt National Park (TRNP) and the adjacent Little Missouri River and North Dakota Park & Recreation (NDPR) lands. The TRNP and adjacent NDPR lands are approximately 4,300 feet southwest of the proposed gravel pit, west and adjacent to the Little Missouri River, which is a State designated scenic river.

Noise in and near the project area consists of traffic noise from County and DPG roads and noise emanating from existing oil and gas production equipment. Traffic on well access roads contributes intermittently to traffic noise in their vicinity. A limited number of vehicles access the area, and vehicle speeds are restricted. Because the access roads do not meet common standards for passenger vehicle travel, most of the road noise results from vehicles associated with oil and gas operations or agriculture. There may also be intermittent, infrequent noise associated with road maintenance. Road noise could increase during spring and fall hunting seasons when open roads may be used by hunters. Other recreational users may use the open roads with ATVs, OHVs, and dirt bikes, all of which are associated with un-muffled engines. Well production equipment is generally silent with the exception of combustion engine pump-jacks.

There are no sensitive human noise receptors, such as schools, hospitals, or daycare centers located in the immediate vicinity of the project area. The nearest residence is approximately 4,000 feet to the northwest nestled along the Little Missouri River with no direct view of the gravel pit area. Human receptors would include well field workers, agriculture workers, and recreational users. These activities occur primarily during the day.

Wind effectively helps to dissipate noise. North Dakota is the 11th windiest state in the union with an average wind speed of 18.80 mph. Billings County in which the gravel pit is located, is ranked 4th in the state with an average wind speed of 23.33 mph. The average wind speed of
the eleven closest communities to the gravel pit average 22.29 mph. The wind blows on average 95% of the time. Calmer days in which the wind is less than 5 mph occurs approximately 9% of the time.

**Acoustic Environment**

The area is unique in that the setting includes TRNP, NDPR lands, agriculture, rural residential, and oil and gas development with day-night average sound levels ranging from 30 to 120 dBA depending on specific circumstances. Some of the common noises are listed in the following Table.

A GIS layer was created showing a one mile radius of the TRNP boundary. Within this buffer you will find some of the following environmental type noises knowing that there are many others not identified:

**Table 3 – Acoustic Environment & GIS Noise Buffer**

<table>
<thead>
<tr>
<th>Environment Types &amp; Noises</th>
<th>dBA 0'</th>
<th>Distance From TRNP</th>
<th>dBA</th>
<th>Days /Year</th>
<th>Total</th>
<th>dBA Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thunder Clap</td>
<td>120</td>
<td>0</td>
<td>120</td>
<td>15</td>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>Tractor Under Load</td>
<td>100</td>
<td>2640</td>
<td>52</td>
<td>30</td>
<td>1560</td>
<td></td>
</tr>
<tr>
<td>Earthwork Excavation</td>
<td>95</td>
<td>2640</td>
<td>67</td>
<td>10</td>
<td>670</td>
<td></td>
</tr>
<tr>
<td>Trucks: Semi</td>
<td>91</td>
<td>2640</td>
<td>63</td>
<td>150</td>
<td>9450</td>
<td></td>
</tr>
<tr>
<td>Pump Jack</td>
<td>83</td>
<td>1320</td>
<td>61</td>
<td>365</td>
<td>22265</td>
<td></td>
</tr>
<tr>
<td>Drilling Rig</td>
<td>82</td>
<td>1320</td>
<td>60</td>
<td>10</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>Diesel Engines</td>
<td>71</td>
<td>1320</td>
<td>49</td>
<td>30</td>
<td>1470</td>
<td></td>
</tr>
<tr>
<td>Truck: Pickup</td>
<td>70</td>
<td>350</td>
<td>24</td>
<td>365</td>
<td>8760</td>
<td></td>
</tr>
<tr>
<td>Conversational Speech</td>
<td>60</td>
<td>40</td>
<td>42</td>
<td>150</td>
<td>6300</td>
<td></td>
</tr>
<tr>
<td>Light Traffic</td>
<td>56</td>
<td>350</td>
<td>24</td>
<td>250</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Moderate Rainfall</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>10</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Gentle Breeze 8-12 mph</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>150</td>
<td>7500</td>
<td></td>
</tr>
<tr>
<td>Bird Calls</td>
<td>50-40</td>
<td>0</td>
<td>45</td>
<td>90</td>
<td>4050</td>
<td></td>
</tr>
<tr>
<td>Agriculture Cropland</td>
<td>44</td>
<td>350</td>
<td>44</td>
<td>20</td>
<td>880</td>
<td></td>
</tr>
<tr>
<td>Babbling Brook</td>
<td>40</td>
<td>0</td>
<td>40</td>
<td>365</td>
<td>14600</td>
<td></td>
</tr>
<tr>
<td>Wilderness</td>
<td>35</td>
<td>0</td>
<td>35</td>
<td>365</td>
<td>12775</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td>2375</td>
<td>99180</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

There would be a range of noises both constant, such as oil and gas facilities and seasonal (farming) to single events (weather). There are many environmental noises within the area. A 10% error factor was added which takes the estimated conservative average to 46 dBA for the park area.

Actual noise levels in and around the area are affected by specific noise events, proximity to noise sources, intervening topography, vegetation, and meteorological conditions, including wind speed and direction. Although we do not have an established baseline noise level, we can
assume a conservative average 46 dBA for the area during the day and 30 dBA during the night. These noise levels assume that these rural areas are distant from transportation corridors (highways and railroads) and populated areas and that the wind speed is very low. However, the wind speed within the project area averages 10+ miles per hour (50 dBA) raising the ambient noise level somewhat.

Wind alters sound by bending the sound waves. Prevailing winds in the area are generally from the north/northwest/west/southwest nearly 59.9% of the time. Winds from the south and east occur approximately 33.6% of the time on average. Winds from these directions would not carry noise towards the park or adjacent state lands, but away from these areas 93.5% of the time. However, winds from the south and east directions could carry noise towards the portions of the Little Missouri River north of the park and adjacent state lands.

Natural topography, vegetation, and man-made structures also interferes with the wind which results in the wind moving more slowly near the ground than above any obstacle. Noise reduction can be accomplished by either reducing the amount of noise produced or by placing some type of barrier between the noise source and the ear. Good maintenance practices are an effective way to reduce noise exposure because they reduce noise at the source. Replacing worn, loose, or unbalanced machine parts cuts down on the amount of vibration generated. Making sure that machine parts are well-lubricated helps cut down on noise exposure created by friction. Installing a good, high-quality muffler on all engine-powered equipment reduces vibration produced by airflow. Industrial grade silencers reduce exhaust noise by 5-18 dBA. The stockpiling of the topsoil and overburden would help to deflect some noise. A listener standing downwind will likely hear louder noise levels than a listener standing upwind. On calm days there would be minimal dissipation of noise. Noise would not carry any further but most people would perceive any short term noise increases of at least 3 dB and any increases over 5dB would be clearly noticable.

The following table shows the types of activities one could expect to be associated with the road re-construction, mining, and reclamation of the gravel pit in four phases, and an estimate of time that it generally takes to perform those activities. Each activity requires specific types of equipment as listed in the following table #6.

**Table 4 - Gravel Pit Mining Activity Noises & Durations**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimated</th>
<th>Daily Equipment Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours /Day</td>
<td>Total Hours</td>
</tr>
<tr>
<td>Re-Construction of Access Road NFSR 7082-1</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>Maintenance of Main Access NFSR 719c</td>
<td>12</td>
<td>120</td>
</tr>
</tbody>
</table>
Table 4 Continued - Gravel Pit Mining Activity Noises & Durations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours /Day</th>
<th>Total Hours</th>
<th>Total Days</th>
<th>Frequency</th>
<th>Daily Equipment Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of Topsoil &amp; Overburden (5 Acre At A Time)</td>
<td>12</td>
<td>48 (192)</td>
<td>4 (16)</td>
<td>4</td>
<td>1 scraper, blade, tractor; 1 fuel truck, lowboy; 3-4 pickup trucks</td>
</tr>
<tr>
<td>Seeding (Stabilize Stock Piles)</td>
<td>12</td>
<td>12 (60)</td>
<td>1 (5)</td>
<td>5</td>
<td>1 Small farm tractor, 1 pickup truck</td>
</tr>
<tr>
<td>Mining Loading &amp; Hauling</td>
<td>12</td>
<td>2580</td>
<td>215</td>
<td>Annual (2 Years)</td>
<td>3-5 Dump Trucks; 1 Loader, dozer; 1-2 pickup trucks</td>
</tr>
<tr>
<td>Final Reclamation Replacement of Overburden/Topsoil (5 Acres At A Time)</td>
<td>12</td>
<td>84 (420)</td>
<td>7 (35)</td>
<td>5</td>
<td>2 scrapers, 1 blade; 1 tractor, fuel truck 1 lowboy, 3-4 pickup trucks</td>
</tr>
<tr>
<td>Seeding</td>
<td>12</td>
<td>12 (60)</td>
<td>1 (5)</td>
<td>5</td>
<td>1 small farm tractor; 1 pickup truck</td>
</tr>
<tr>
<td>Totals</td>
<td>3492</td>
<td>291</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reconstruction and/or Maintenance of the Access Roads: The road reconstruction of NFSR 7082-1 would be outside of the soundscape and viewshed of TRNP and state lands as it is all within the next drainage to the east (backside) of the main north-south ridgeline (viewshed) that lies between TRNP and the original ranch headquarters. Noise may carry toward TRNP and state lands from the reconstruction but should be very limited if at all. There would be noise associated with the reconstruction of the road within the next drainage to the east for approximately five working days. There could be up to an additional ten days of initial road maintenance work associated with the main access route NFSR 719c and occasional blading and surfacing associated with ongoing maintenance on an as needed basis.

Removal of Topsoil & Overburden: The removal of the topsoil and overburden would occur in four phases, each approximately five acres in size. It is planned to be stripped and stockpiled with a dozer and loader.

Seeding: Seeding native seed is required for the stabilization of the disturbance. This would occur during the stockpiling of the topsoil and overburden and then again during final reclamation. It is estimated that it would take approximately five 12 hour days to complete the necessary seeding for stockpile stabilization and another each phase.

Mining & Hauling: Mining would occur in four phases. Mining and hauling are weather dependent. They are estimated to begin in mid-April and conclude in Mid-November of each year. This is a 215 day season pending any weather or wildlife related delays. Timing mitigation measures could reduce the operating season from 215 days to 107 days which could result in a
third year of mining operations to complete the project. Once the topsoil and overburden are removed, a front end loader would be used to scoop up the gravel and place it in dump trucks. With an estimated 162,000 cubic yards to mine, it is estimated that it would take 3-6 loads per hour per day for 215 days to complete the project in the two year timeframe. A dozer would be used to expose the gravel while a loader would be used to help stockpile and then load trucks. Semi-trucks would be used to haul the gravel from the pit to the processing plant on private property. There would be noise on site from the constant use of the dozer and loader. There may be 1-2 semi-trucks on site either being loaded or returning from the processing plant at any given time. Mining, loading, and hauling would occur during the day with an average work day of 12 hours, longer in the summer, and shorter in the spring and fall. At 15 miles per hour, it is estimated that it would take approximately two minutes for a gravel truck to traverse the length of the gravel pit along the temporary road to NFSR 7082-1. At this point the trucks would not be within the viewshed or soundscape as they would be in the next drainage to the east.

**Final Reclamation:** Once a phase is completely mined, final reclamation would occur concurrently with the removal of the topsoil and overburden for the next phase. Once all mining is completed, the temporary road would be removed and all remaining disturbance would be reclaimed, seeded with native seed mixtures and monitored until ready for release and acceptance by the Forest Service. It is estimated that it should take approximately seven days per phase to complete final reclamation.

**Direct and Indirect Effects**

**Alternative 1**
No direct or indirect impacts to the existing soundscape would occur. Permitted uses and recreational activities and the noises associated with them would continue.

**Alternative 2**
The critical points are from the adjacent Elkhorn Ranchlands NHD, Theodore Roosevelt National Park (TRNP), the adjacent North Dakota Parks & Recreation (NDPR) Lands, the Little Missouri River, and the private residence to the northwest.

As discussed within the Cultural Section of the EA, pages 35-39, which includes soundscape, the DPG revised its recommendation to the NDSHPO that there may be an “adverse effect” to historic properties; however, should an adverse effect occur, it will be mitigated sufficient so that it is not a significant adverse effect. NDSHPO concurs with this recommendation. The proposed project will introduce audible (mining and equipment noise) that has the potential to diminish the property’s historical integrity, per 36 CFR 800.5 (a)(2)(v).

Within the Immediate Foreground (0 to 300 feet) of the pit, a listener would hear the full effect of the noise associated with the mining and hauling activities. A listener within the outer limits of the Foreground (0 to 1/2 mile) of the gravel pit would encounter a decrease of
approximately 32% (23-61%) of the noise but would still hear operations. The noise would continue to diminish with distance away from the operations.

As the gravel pit sits at a higher elevation a listener standing downwind will likely hear louder noise levels. However, most noises generated from the mining activities would be minimized or dissipated due to the distance (approximately 4,300 feet) and the deflection and absorption of noise from natural topography.

Based on the dBA projections at 4,240 feet from TRNP, NDPR lands, the river and residence, noise would be reduced approximately 30 dBA. Utilizing an average background base of 50 dBA and noting that people will perceive noise changes with a +3 dBA and clearly note any increases >5dBA, any noise levels above 53 dBA would be clearly noted.

The proposal is within the limitations of the outdoor 65 dBA standard. However, the excavation and hauling operations would be clearly noticeable at 4,240 feet or from within the park based on the dBA figures in the following Table.

Table 5 – dBA Projections

<table>
<thead>
<tr>
<th>Potential Equipment</th>
<th>dBA Reduction</th>
<th>-22</th>
<th>-28</th>
<th>-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Distance</td>
<td>50’</td>
<td>1320’</td>
<td>2640’</td>
<td>4240’</td>
</tr>
<tr>
<td>Earthwork/Excavation</td>
<td>95</td>
<td>73</td>
<td>67</td>
<td>65</td>
</tr>
<tr>
<td>Light Traffic</td>
<td>36</td>
<td>14</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Truck: Pickup</td>
<td>50</td>
<td>28</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>Truck: Medium</td>
<td>60</td>
<td>38</td>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>Truck, Semi</td>
<td>91</td>
<td>69</td>
<td>63</td>
<td>61</td>
</tr>
<tr>
<td>Tractor: Farm</td>
<td>80</td>
<td>58</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Dozer</td>
<td>80</td>
<td>58</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Grader</td>
<td>85</td>
<td>63</td>
<td>57</td>
<td>55</td>
</tr>
<tr>
<td>Scraper</td>
<td>88</td>
<td>66</td>
<td>60</td>
<td>58</td>
</tr>
<tr>
<td>Loader: Front End</td>
<td>88</td>
<td>66</td>
<td>60</td>
<td>58</td>
</tr>
</tbody>
</table>

Exceedances above 50 dBA would occur mostly from heavy equipment use during earthwork excavation and semi-truck hauling traffic. Road reconstruction and maintenance; reclamation work; and seeding would all be short term events, while mining and hauling would be approximately 215 days per year. The use of mufflers could reduce noise by another 5-18 dBA.

The natural obstacles of topography and trees would greatly interfere with the sound waves and help to deflect and absorb noise. Trees along the river and around the residence and TRNP cabin would help shield noise as well as the scattered steep embankments along the river. The man made stockpiling of the topsoil and overburden west of the pit would also help to deflect some noise.
An average wind speed of 15+ mph and breezier days would help to dissipate the noise. Winds that could carry noise that could affect TRNP and adjacent NDPR lands would more than likely be blowing from the northeast approximately 6.5% of the time on average.

The Forest Service and project proponent have agreed to forty-one pages of mitigation measures that will greatly decrease some of these impacts to soundscape by: there will be no additional noise or dust or visuals from cleaning or sorting equipment as the gravel will be removed and hauled to a private site for processing; operations would occur between April and November of any given year and would be shut down during the remainder of the year; all topsoil will be protected to ensure adequate reclamation; the use of noise reducing mufflers; soil overburden will be stockpiled along the edges of mining to offer some buffer for noise and visuals; no night operations; and upon written request for limited special events (e.g. encompassing one to three days), during such event, the Operator will suspend operations without any reduction or affect to the overall timeframe to complete operations. These mitigation measures will reduce but not eliminate the impacts.

However, even with these noise reducing influences, noise from the mining and hauling operations (average 65 dBA), which is above 53 dBA would clearly be noticeable from within TRNP, NDPR lands and along the unshielded portions of the river during daily operations. The TRNP and NDPR visitor experience would be negatively affected during the normal mining operating season from April through November for approximately two-three years. The duration of noise would not be continuous 24 hours per day but an expected 12 hours a day during the daylight hours. Most of the noise would be sporadic in nature. The associated noise will be temporary in nature in that it will cease upon completion of the operations.

**Cumulative Effects**

The area has had both hardrock (gravel) and oil and gas periodic mineral exploration in the past. Gravel was mined in the old abandoned pit, within the same area, up until 2002. Noise would continue to be produced from a variety of sources. There is a producing oil and gas well 1,600 feet north of the proposed site that could produce noise for the next ten to twenty years. There would be ongoing oil and gas truck traffic associated with the oil and gas production and operations within the area. Additional oil and gas wells more than likely will be developed within the area for decades to come as there are oil and gas wells adjacent to the area within three developed oil and gas fields. Likewise wells will continue to be plugged and reclaimed. There will be year round noise associated with motors, pumps, and production equipment. Roadwork may occur in the future such as road construction, reconstruction, maintenance, obliterations, and closures. Recreational use of the road system would also continue. Seasonal farming would continue on adjacent lands. Ongoing average wind speeds of 15+ mph would help dissipate all noises. Noise from the proposed mining operations would be temporal in nature for two-three years pending any weather or wildlife timing delays. Timing mitigation measures could reduce the operating season from 215 days to 107 days which could result in a third year of mining operations to complete the project. There should be only minor cumulative effects from noise to the soundscape until mining ceases.
**TOURISM (TRNP & NDPR Lands)**

Tourists visit the area specifically for the historic nature of the TRNP and adjacent NDPR lands. They may also engage in dispersed recreation activities on those lands which include hiking, camping, historical interests, driving for pleasure, sight-seeing, and water related activities in and along the adjacent Little Missouri River.

The number of visitors to the TRNP and NDPR lands is unknown. The Forest Service requested tourism data from TRNP in 2012 and 2013 as they have managed the park units since 1947-1947 and would be the best source of tourism data. As recently stated by TRNP, the number of actual visitors to the Elkhorn Ranch Unit has never been tracked or estimated. The 1986 Theodore Roosevelt National Park General Management Plan (GMP) provided strategies to guide management, use, and development of the park; a land protection plan; and an environmental assessment which includes the Elkhorn Ranch Unit. The Park’s GMP did not predict high usage and there is no current or revised statistical data to indicate otherwise.

**Affected Environment**

The Elkhorn Ranch Unit of Theodore Roosevelt National Park (TRNP) and North Dakota Parks & Recreation (NDPR) lands lie west of the Little Missouri River approximately 0.8 miles southwest of the proposed gravel pit. There are no developed recreation facilities in either the TRNP or NDPR lands. Access to the TRNP and State lands is from the west utilizing a system of county and Forest Service roads. It is approximately 3.1 miles from the county road to the park and state lands. The first mile to the Maah-Daah-Hey (MDH) Trail overnight site is regularly maintained. The 2.1 miles of road from the overnight to the park and state lands has occasional maintenance. Access is seasonal and/or weather permitting.

The Recreation Opportunity Spectrum (ROS) classification for the surrounding park and state lands identified by the DPG LRMP is Roaded Natural (RN). Roaded Natural is characterized by predominately natural-appearing environments with moderate evidence of the sights and sounds of people but compatible with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident but compatible with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

**Direct and Indirect Effects**

**Alternative 1**

This alternative would perpetuate the existing condition for tourism activities. No effects are anticipated. The existing tourism settings and naturally appearing landscape would continue.

**Alternative 2**

The proposed gravel pit may be visible from the higher points on both the park and state lands surrounding the TRNP Elkhorn Ranch cabin site but would not be visible from the cabin site due to the cottonwood trees. Noise from the mining operations may carry in the wind toward the
park and state lands when prevailing winds are from the northeast approximately 6.5% of the
time on average. The remaining 93.5% of the time on average, the prevailing winds will be
away from the park and state lands which will help to dissipate noise, dusts, and odors.—On
calm days noise and dust may be more noticeable.

From some of the higher elevation viewing points there would be noticeable noise, vehicle
traffic, and dust associated with the mining and hauling of the gravel for a two year period
which would reduce the tourist experience. A person could expect a minimum of 2-3 semi-
truck loads hauled out or 4-6 round trips per hour. This would equate to seeing either a loaded
or empty truck on the haul route approximately every 10-15 minutes. This flow would continue
during the normal operating season from April through November for approximately two to
three years, pending any weather or wildlife related delays. There would be no night time
operations.

There will be adverse soundscape and visual impacts that will diminish the quality of the
individual visitors experience as further discussed on pages 39-49 and 50-55. Overall visitor
numbers to the Elkhorn Ranch Unit and NDPR lands may decrease during the mining and
reclamation phases of the project for two to three years. Visitors may alter their destination
plans. However, these impacts would be temporary. The Operator has agreed to a stipulation
which allows for project down time or stoppage during special visitor events.

The ROS classification surrounding the TRNP and NDPR lands would not change because the
area affected by the proposed actions is not large enough to change its ROS characterization.
The tourist experience in the area as a whole would still be of a dispersed nature. The
proposed action would not affect enough area to have a significant adverse cumulative effect
on the dispersed recreational experience nor significantly affect the ROS settings of the area.

**Cumulative Effects**

There will continue to be adverse soundscape and visual landscape impacts from a variety of
sources that will diminish the quality of the individual TRNP and NDPR tourism experience. Oil
and gas development, in and adjacent to the area more than likely would continue for decades
to come. There is a producing oil and gas well 1,600 feet north of the proposed site that could
produce noise for the next ten to twenty years. There would be ongoing oil and gas truck traffic
associated with the oil and gas production and operations. Additional wells more than likely
will be developed within the area as there are oil and gas wells adjacent to the area within
three developed oil and gas fields. An increase in the number of wells will likely result in an
overall increase in oil and gas related traffic on the existing road system. Likewise wells will
continue to be plugged and reclaimed. Roadwork may occur in the future such as road
construction, reconstruction, maintenance, obliterations, and closures. Grazing would continue
and there would be the associated erosion from cattle trailing down the hillsides. The
cultivated fields will retain their flat farmed appearance unless they are recontoured to appear
natural sometime in the future. The existing noxious weeds and invasive species in the
cultivated fields will be treated for years to come in an attempt to eradicate them. They will
continue to spread and will not appear natural. Seasonal farming would continue on adjacent
lands. Noise and visual impacts from the proposed mining operations would be temporal in nature for two-three years pending any weather or wildlife timing delays. However, timing mitigation measures could reduce the operating season from 215 days to 107 days which could result in a third year of mining operations to complete the project. The removal of the gravel would result in an average elevation drop of eight feet within the pit area. Dust would be visible during mining, loading of trucks and hauling. Mining would permanently alter the elevation of the pit area of the plateau. However, adequate reclamation would ensure a natural form, line, color, texture and pattern common to the natural landscape. Reclamation would continue for several years until any erosion is stabilized and the native seed mixtures take root. The mixing of native seed mixtures within the cultivated fields would be noticeable until the entire area returns to native vegetation sometime in the future. Although the pit elevation will drop eight feet the landscape character should remain constant. The dominate background skyline would not be altered. It may take decades to reclaim the overall landscape of the area. There would be only minor cumulative effects from mining to the viewshed with adequate reclamation. Ongoing average wind speeds of 15+ mph would help dissipate some dusts and noises pending location.

**VISUALS**

The area of analysis for the direct and indirect effects to the visual quality objective is limited to the project area.

**Scenic Resource:** Attributes, characteristics, and features of landscapes that provide varying responses from and varying degrees of benefits to humans.

**Scenic Integrity Objective (SIO):** The Scenic Integrity Objective (SIO) is defined as the state of naturalness or, conversely, the state of disturbance created by human activities or alteration. Integrity is stated in degrees of deviation from the existing landscape character in a national grassland or forest. There are three main scenic integrity levels:

- **High (Appears Unaltered): Retention.** This level refers to landscapes where the valued landscape character appears intact. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.

- **Moderate (Slightly Altered): Partial retention.** This level refers to landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape character being viewed.

- **Low (Moderately Altered): Modification.** This level refers to landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.
There is currently no designated SIO for the acquired ranchlands. This will not occur until a LRMP amendment, which must go through an environmental analysis process, has been completed.

Viewshed must also be considered. The DPG LRMP defines viewshed as “The total visible area from a single observer's position or the total visible area from multiple observer positions. View sheds are accumulated seen areas from highways, trails, campgrounds, towns, cities, or other view locations”. There are four distance zones used:

1. **Immediate foreground**: 0 to 300 feet. At an immediate foreground distance, people can distinguish individual leaves, flowers, twigs, and small animals (chipmunks and songbirds) and can notice movement of leaves and grasses in light winds.

2. **Foreground**: 0 to 1/2 mile. At a foreground distance, people can distinguish small boughs of leaf clusters, individual shrubs, clumps of wildflowers, medium-sized animals (squirrels and rabbits), and medium-to-large birds (hawks, geese, and ducks).

3. **Middle ground**: 1/2 to 4 miles. Middle ground is usually the predominant distance zone at which national grassland and forest landscapes are seen. At this distance, people can distinguish individual tree forms, large boulders, flower fields, small openings in the forest, and small rock outcrops. Form, texture, and color remain dominant, and pattern is important.

4. **Background**: 4 miles to horizon. At a background distance, people can distinguish groves or stands of trees, large openings in the forest, and large rock outcrops. Texture has disappeared and color has flattened, but large patterns of vegetation or rock are still distinguishable and landform ridgelines and horizon lines are the dominant visual characteristic.

**Affected Environment**

The general area is a diverse landscape of badlands, rugged buttes, and plateau regions accented by wooded draws all supporting a variety of vegetation types. Cultivated fields are scattered throughout the area and the Little Missouri River meanders through the course topography. Vegetation corresponds with the abrupt changes in conditions. Site characteristics including soil texture, soil chemistry, slope, exposure, and degree of erosion dictate plant diversity within the area.

Within the Immediate Foreground (0 to 300 feet) viewshed, on the gravel pit plateau, the casual observer would notice two cultivated fields which appear level from years of farming. Between the two fields lies an existing north/south two-track road which parallels the length of the two fields then turns south along the ridge line overlooking the bottom fields, river, and park. North of the two-track road is an existing overhead power line that also runs the entire length of the plateau. Along the north end of the plateau is the remnant of the original gravel pit from which 27,000 yards of gravel was extracted prior to 2002. North of the gravel pit one would notice portions of the road to the oil and gas well and a portion of the well pad. East of
the gravel pit is a north-south range fence line just west of the north-south ridgeline which obscures the eastern half of Section 34.

Within the Foreground (0 to 1/2 mile) viewshed of the gravel pit to the west and southwest lay cultivated fields. To the north are cultivated fields and an oil and gas well. A small plateau is approximately ½ mile to the south. Livestock use in the area was high and several down-cut trails attest to trailing along portions of the roads and fields. Past grazing, mineral development, and farming have contributed to the prominence of invasive and noxious weed species throughout the area which appear unnatural.

The proposed gravel pit project lies within the boundaries of the Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Register District (Elkhorn Ranchlands NHD), formally listed by the Keeper of the Register (National Park Service) on September 28, 2012. The Elkhorn Ranchlands NHD includes the Elkhorn Ranch Unit of Theodore Roosevelt National Park (TRNP) and the adjacent Little Missouri River and North Dakota Park & Recreation (NDPR) lands.

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Looking northeast from TRNP and state lands, the plateau (gravel pit) lies within the middle ground (1/2 to 4 miles) viewshed. The elevation of the pit ranges from 2,340 to 2,400 with an average of approximately 2,375 feet. Looking east beyond the gravel pit to the next ridgeline (dominant skyline), also within the middle ground viewshed, the elevation high points range from 2400 to 2536 feet. The dominant skyline encompasses the ridgelines in Sections 22, 23, 26, 27 and 35.

**Direct and Indirect Effects**

**Alternative 1**

No direct or indirect impacts to the scenic integrity of the area would occur. Existing uses would continue.

**Alternative 2**

The proposed project will introduce visual (pit, machinery), atmospheric (dust), and audible (equipment noise) impacts that have the potential to diminish the property’s historical integrity, per 36 CFR 800.5 (a)(2)(v). The removal of the gravel would result in an average elevation drop of eight feet within the pit area. Mining would permanently alter the elevation of the pit area of the plateau. However, the reclamation stipulations would require that the area be reclaimed so that the natural form, line, color, texture and pattern common to the landscape are returned to near natural conditions. In other words, the pit elevation will drop eight feet but the reclamation requirements would ensure that the landscape character remains constant. The reclamation bond would ensure this. Other measures include the long gradual shaping of slopes and no daylighting or notching of the plateau skyline.
The Forest Service and project proponent have agreed to forty-one pages of mitigation measures that will greatly decrease some of these impacts by: the ridgeline above the pit and the main skyline will not be altered; the final reclamation stipulations, backed by a reclamation bond, would ensure that the high scenic integrity objective standards that require the repeat of the form, line, color, texture and pattern would be met; final reclamation will reestablish the natural rolling hills and remove the filled in low spots and eliminate the current altered landscape appearance; operations would occur between April and November of any given year and would be shut down during the remainder of the year; there will be no additional noise or dust or visuals from cleaning or sorting equipment as the gravel will be removed and hauled to a private site for processing; operations will occur in five phases with phase one upgrading the road system with erosion control measures; four mining phases will occur in four smaller five acre section with no more than two phases open and operating at one time; when the mining of each phase is complete, that area would be reclaimed using the stock piled soil and the next phase would be opened; operations will occur over a two-three period pending the shutdown for protection of wildlife species; all topsoil will be protected to ensure adequate reclamation; soil overburden will be stockpiled along the edges of mining to offer some buffer for noise and visuals; the use of native seed mixtures will reestablish the natural vegetative colors and textures; no night operations; no outdoor lights; upon written request from Theodore Roosevelt National Park for limited special events (e.g. encompassing one to three days), during such event, the Operator will suspend operations without any reduction or affect to the overall timeframe to complete operations; the use of noise reducing mufflers; road maintenance will include dust abatement as needed to control fugitive dusts; the protection of inadvertent discovery of items of archaeological, paleontological, or historic value; the control of noxious weeds and invasive plant species as a result of operations; and the control and containment of all wastes. These mitigation measures will reduce but not eliminate the adverse effects to historic properties, i.e. the Elkhorn Ranchlands NHD. However, many of the same mitigation measures such as the recontouring of the cultivated land back to natural appearances and reestablishing the natural form, line, color, texture and pattern with native grass species will have a positive effect.

*Theodore Roosevelt National Park:* Mining operations would be visible from the higher elevation portions of the park which contains historic features and interpretive signage. The gravel pit would not be seen from the cabin site. Park visitors would see the heavy equipment used to remove the gravel. The stockpiled topsoil and overburden would be visible until reclamation would occur. The TRNP experience would be negatively affected during the normal mining operating season from April through November for approximately two-three years. There would be no night time operations, so no outdoor lights would be permitted. The dominate background skyline would not be impacted or altered.

*North Dakota Parks & Recreation (NDPR) Lands:* Within the NDPR lands, approximately half of the gravel pit can be seen from the higher elevation ground within the northern unit. None of the gravel pit can be seen from NDPR lands south of TRNP. There are minimal elevation points within the NDPR lands from which the entire pit area would be seen.
**Elkhorn Ranchlands NHD:** As discussed within the Cultural Section of the EA, there may be a direct effect to the character defining features of the Elkhorn Ranchlands NHD. This includes an intrusive gravel pit that generates noise and dust. The elevation of the gravel pit area would be lowered an average of eight feet due to the extraction of the gravel. However, despite the character defining features of the Elkhorn Ranchlands NHD, the land that comprises this district has seen a variety of uses prior to the DPG acquiring the surface of the land in 2007. The land was imposed upon by farming, ranching, roads, wells, etc., from the previous land owners. These intrusions have visually affected the landscape prior to federal surface ownership, thereby detracting from the cumulative effects of this proposed project. The majority of the gravel pit may be visible from the adjacent Elkhorn Ranchlands NHD within the Immediate Foreground (0 to 300 feet) viewshed and within the Foreground (0 to 1/2 mile) viewshed of the gravel pit along the northern and western edges of the gravel pit. Recreationalists could walk along the perimeter fence of the mining operations and witness the actual mining operations including the open pit and stockpiled topsoil and overburden. One may see the trucks and heavy equipment used for hauling and mining and may see the dust from those operations. The reclamation may be noticeable until vegetative cover is completely established and the perimeter fence removed. The temporary road through the gravel pit may be noticeable until it is removed and reclaimed. The Elkhorn Ranchlands NHD experience may be negatively affected during the normal mining operating season from April through November for approximately two-three years. However, the associated visual will be temporal in nature in that they will cease upon completion of the operations.

**Little Missouri River:** The extreme north end of the proposed mining operations, approximately 3,000 feet from the river, and the extreme south end of the proposed pit, approximately 4,000 feet from the river would be seen. These two areas make up approximately nine percent of the proposed mining operations area that could be visible along the river. Recreationalists would see stockpiled topsoil and overburden on the south end of the proposed pit and semi-truck traffic and mining on the north end. It is expected that river enthusiasts would be more focused on the navigation of the river and immediate surroundings.

**Private Residence:** There is a private residence approximately 4,000 feet northwest of the gravel pit nestled within the trees next to the Little Missouri River. A steep embankment along the river would help shield the residence from the pit. Very little of the proposed pit can be seen from the residential area. Distance from the pit to the residence is similar to the distance from TRNP. Although the residence is somewhat more shielded, the impacts from noise are projected to be similar.

**Cumulative Effects**
The land was imposed upon by farming, ranching, grazing, roads, oil and wells, and the introduction and spread of invasive species and noxious weeds, etc., from the previous land owners. These intrusions have visually and audibly affected the landscape prior to federal surface ownership, thereby detracting from the cumulative effects of this proposed project. Grazing would continue and there would be the associated erosion from cattle trailing down
the hillsides. The cultivated fields will retain their flat farmed appearance unless they are recontoured to appear natural sometime in the future. The noxious weeds and invasive species will be treated for years to come in an attempt to eradicate them. They will continue to spread. Oil and gas development, in and adjacent to the area more than likely would continue for decades to come. Each well site may adversely affect the visual landscape until each individual well is plugged and reclaimed. There are cumulative impacts anticipated. However, the design criteria agreed to will ameliorate those impacts sufficiently.

AIR QUALITY

Air quality is managed through a set of federal and state laws and regulations. The primary federal acts include the Air Quality Act of 1967, which is followed by Clean Air Act Amendments in 1970, 1977, and 1990. The Clean Air Act Amendments of 1970 established uniform National Ambient Air Quality Standards (NAAQS). The amendments of 1977 established the Prevention of Significant Deterioration (PSD) process, which sets increments of allowable decreases in air quality for nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), and total suspended particulates (TSP). The amendments of 1990 established the Title V permit program, which consolidates all federal and state rules and regulations under one document.

The Environmental Protection Agency (EPA) has the primary federal role of ensuring compliance with the requirements of the Clean Air Act. The EPA issues national air quality regulations, approves and oversees state implementation plans, and conducts major enforcement actions. The State of North Dakota, Department of Health (NDDH) regulates air quality in North Dakota and has the primary responsibility for carrying out the requirements of the Clean Air Act through the development and execution of State Implementation Plans (SIP), which must provide for the attainment and maintenance of air quality standards.

Affected Environment

The gravel pit is located in a Class II Area for air quality. This class provides a moderate degree of protection to lands by allowing a moderate increase in human caused air pollution in these areas. It includes all Wilderness areas designated after August 7, 1977 and all other National Forest System lands.

The Theodore Roosevelt Elkhorn Ranch Site (TR Ranch) is located approximately 0.8 miles southwest of the proposed gravel pit. This 218-acre site is one of three units, which comprise the Theodore Roosevelt National Park (TRNP). The Northern Unit is located approximately twenty-three miles to the northeast in McKenzie County, and the Southern Unit is located approximately sixteen miles to the south in Billings County. Each of the park units are identified as Class I airsheds. This class provides the most protection to pristine lands and it limits the amount of human caused air pollution that can be added in these areas. It includes all National Parks.
Direct and Indirect Effects

**Alternative 1**
No direct or indirect impacts to Air Quality would occur under this alternative. Existing uses would continue.

**Alternative 2**
Impacts to air quality are associated with particulates (dust) and emissions, i.e. carbon monoxide, nitrogen oxides, and hydrocarbons from vehicle and equipment gasoline and diesel engines. There would be a short-term increase in emissions of carbon monoxide, nitrogen oxides, and hydrocarbons from vehicle, heavy equipment, and dump truck gasoline and diesel engines during the mining phase. After mining is completed there would be some reclamation work required for one or two weeks. During production of the pit there would be emissions from daily dump truck traffic and from occasional maintenance equipment.

There would be a short-term increase in particulates (dust) during the maintenance, reconstruction, and surfacing (graveling) of the 3.75 miles of access route. There would also be a short term increase in particulates (dust) during the construction and removal of the temporary road within the gravel pit. Dust would be generated from heavy equipment during the removal of the topsoil and overburden, from loaders scooping up gravel and loading dump trucks, from dump trucks hauling gravel to the production facilities, and from heavy equipment during reclamation and seeding. There would be traffic associated with the day-to-day inspections. Dust generated by vehicular traffic on major roads may carry a short distance into the adjacent areas, depending on wind direction.

The heaviest impact from dust would occur during the mining phase when dump trucks would be hauling gravel from the pit to the processing area. Hauling would be continuous daily from spring through fall. Generated dust may cause some visibility impairment in the immediate area of the roads, and a dust plume may be visible for some distance. However, visibility of dust plumes from the National Park would be minimal since the access roads, with the exception of the temporary road within the gravel pit, are all located within the next drainage to the east, sheltered behind the natural viewshed. Dust abatement is also required as part of the road maintenance stipulations which would require the wetting of the road to reduce dust. NDDH, in their October 25, 2011 letter, and reaffirmed in a March 5, 2012 conversation, stated that environmental impacts from the proposed mining operation will be minor and can be controlled by proper construction methods, and that the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

The Theodore Roosevelt Elkhorn Ranch Site lies approximately 4,240 feet (0.8 miles) southwest of the proposed gravel pit. Particulates, emissions and odors generated by the proposed action would generally follow the prevailing winds. Prevailing winds are generally from the north/northwest/west/southwest nearly 59.9% of the time and from the south and east approximately 33.6% of the time on average. Winds from these directions would not carry dust or odors towards the park but away from the park. Winds that could carry dust and odors that
could affect TRNP would more than likely be blowing from the northeast approximately 6.5% of the time on average. It is likely that operations are expected to contribute only minor emissions, which will not violate either Class I or II air quality standards. There is no indication that the cumulative amount of emissions from the proposed action would create an adverse effect on either of the Class I or II airsheds.

Cumulative Effects
There would be exhaust and fugitive dust generated from the mining operations, ongoing and future oil and gas development, and from farming on adjacent lands. Gas emissions from oil and gas operations would continue to affect the air quality. Dust would continue to be generated on all roads from hauling and other traffic uses in the area. The State of North Dakota, who is responsible for air quality, determined that the Class I and II airsheds affected by the proposed action currently meet air quality standards and that the proposed pit would not have a significant adverse effect on either airshed. Average wind speeds of approximately 15+ mph would help to quickly dissipate dust. The operations are temporary in nature therefore there would be no long-term cumulative effects to air quality from the proposed project.

BOTANY

A Forest Service Botanist surveyed the area as part of a larger assessment for resource conditions within the Elkhorn Ranchlands unit during September 2008. An independent surveyor assessed the site for botanical resources on September 10, 2009. The access route was surveyed by a Forest Service Botanist on June 27, 2011. The Forest Service Botanist prepared the Biological Evaluation (BE) / Specialist Report for the pit on February 28, 2011 and for the access route on July 13, 2011. The surveys and biological evaluation are included within the Project Record.

Field surveys were conducted to determine the presence or absence of sensitive and watch plant species and habitat necessary to support these plant species. The survey area surrounding the proposed materials pit was traversed on foot. All habitats likely to be disturbed by the proposed project were systematically surveyed. Areas were expanded, when necessary, to include additional critical habitat that might be affected.

Affected Environment

Site Analysis

Access Route: There is a shallow pond/wetland with willow, cottonwood, bulrush, and cattails along the beginning of the route at the turnoff from Blacktail Road. Continuing northwest, both sides of the road passed through areas with very high cover of smooth brome along with sweet clover and some blue flax. The smooth brome tends to extend well into the surrounding landscape where adjacent topography remained relatively level with the access road, particularly in areas with evidence of past cultivation or hay feeding. Western wheatgrass,
inland saltgrass, and false mallow are intermixed with smooth brome on portions of the route and extended into adjacent rangeland with patches of silver sagebrush.

**Gravel Pit Area:** The access road would extend between an abandoned gravel mining area on the east that borders the north end of the proposed gravel pit, and an agricultural field on the west that was abandoned shortly after acquisition of the property. Most of the area proposed for gravel mining also consists of an abandoned agriculture field. Vegetation in these fields currently consists of a mixture of remnant oat and wheat plants, crested wheatgrass, annual brome, and weedy forbs such as kochia, Russian thistle, prostrate vervain, and sweet clover. Invasive smooth brome and crested wheatgrass dominate the abandoned gravel pit area north of the proposed site. These species, along with Kentucky bluegrass, dominate the perimeter of abandoned cropland, and occur intermixed with native needle-and-thread, sedge, blue grama, and shrub patches of silver sagebrush along a narrow periphery of the plateau outside the proposed gravel pit.

**Threatened or Endangered Species:** There are no federally listed Threatened or Endangered plant species occurring on the LMNG.

**Sensitive & Watch Species:** There are fourteen plant species listed on the LMNG Sensitive Species List.

**Direct, Indirect and Cumulative Effects**

**Alternative 1**
No impacts/no effects to any species are expected from the no action alternative. The current condition of the project area provides suitable habitats for some listed species. Taking no action would not impair the suitability of these habitats.

**Alternative 2**
*Gravel Pit Area:* No sensitive plant species were discovered and habitat in areas that would be disturbed by the gravel pit presented relatively poor conditions for the occurrence or long-term maintenance of most of the listed species. Past agricultural disturbances, including herbicide treatments, decrease or negate the potential occurrence of a few sensitive species that could potentially establish within the abandoned cropland. Although relatively light plant cover at present creates moderately suitable conditions for the sensitive species of Hooker's townsendia, sand lily, and Torrey's cryptantha, increasing time since agricultural abandonment would gradually decrease conditions for these species as a result of increased plant community development, plant structure, and competition.

Gravelly soils along the periphery of the plateau, including the extreme south end of the proposed mining area, present potential habitat for alkali sacaton. Failure to document the occurrence of this late season species during 2008 and 2009 increases the evidence for its absence. Barren badland exposures along the escarpment on the south side of the plateau presented the greatest potential habitat conditions for several sensitive species - Torrey's
cryptantha, Dakota buckwheat, dwarf mentzelia, alyssum-leaved phlox, Hookers townsendia, and alkali sacaton, but these areas would not be directly disturbed by gravel mining operations. White locoweed and several other watch plant species also have the potential to occur on these slopes.

The understory of the woody draw immediately east and below the proposed mining area presented potential habitat for the species blue-eyed Mary. Although the draw would not be directly disturbed by gravel mining, a level of adverse impact would likely occur to the woody draw community due to decreased snow accumulation resulting from the gravel pit trapping or impeding snow drift across the plateau that would normally accumulate in the draw. Thus moisture conditions resulting from spring snowmelt would be decreased to some degree, potentially affecting conditions for early season growth of blue-eyed Mary.

**Gravel Pit:** As a conservative determination, the proposed gravel pit “would impact individuals (undiscovered) or habitat for blue-eyed Mary, but would be unlikely to contribute towards a trend of federal listing or cause a loss of viability to the species on the LMNG.” There are four documented active populations of blue-eyed Mary in other areas of the LMNG that would ensure persistence of the species. There would be a sufficiently low risk of adverse effects to other sensitive plant species or habitat conditions to result in a conclusion of “no impact”. This is based on the lack of any discovered populations and marginal suitability of habitat for sand lily, Hooker's townsendia, and Torrey's cryptantha on the plateau. Current marginal habitat conditions for these species would naturally decrease with increasing plant development and time since agricultural abandonment. There would also be “no impact” to several sensitive species or potential habitat conditions on the south aspect escarpment due to the lack of direct or indirect disturbances in this area. Potential decreases of snow drift accumulation would have less effect on the south aspect due to rapid runoff of this moisture and late or mid-summer growth periods of sensitive species that could occur in this area.

**Access Route:** No sensitive plant species were discovered along the access route. Potential habitat was present for blue-eyed Mary, alkali sacaton, lanceleaf cottonwood, Hooker’s townsendia, and Missouri pincushion cactus. The wetland near the beginning of the route presented potential habitat for several watch plant species. Slopes and outcrops above the road presented potential habitat for additional sensitive plant species but these areas would not be affected by the proposed road upgrade. As a conservative determination, the project “may impact individuals (undiscovered) or habitat for the five identified species, but would not contribute towards a trend of federal listing or cause a loss of viability to the species on the LMNG.” Suitable habitat adjacent to the areas of disturbance, and documented populations of the five sensitive species in other areas of the LMNG would contribute to their continued viability.

There are no sensitive plant species present in the project area or along the access route. Habitat for five sensitive plant species was present in or adjacent to the gravel pit. The Forest Service Botanist concluded that there would be “no impact” to four of the species and a “may impact individuals, but will not likely contribute to a trend toward federal listing or loss of
viability to the population or species of blue-eyed Mary on the LMNG. There is potential habitat for one watch species adjacent to the proposed gravel pit but would not be impacted. Habitat for five species is present along the access route. The Forest Service Botanist concluded that the project “may impact individuals (undiscovered) or habitat for the five identified species, but would not contribute towards a trend of federal listing or cause a loss of viability to the species on the LMNG”. There is potential habitat for several watch species in the wetland located at the beginning of the access route which would not be impacted. Noxious weeds and invasive species would be treated as specified within the stipulations. No unique plant habitats would be fragmented, nor would plant diversity be significantly affected by the proposed action. There would be no adverse impacts to botanical resources.

No sensitive plant species were discovered in the project area, but potential habitat was present for blue-eyed Mary, alkali sacaton, lanceleaf cottonwood, Hooker’s townsendia, and Missouri pincushion cactus. The wetland near the beginning of the route presented potential habitat for several Watch plant species. Slopes and outcrops above the road presented potential habitat for additional sensitive plant species but these areas would not be affected by the proposed road upgrade.

As a conservative determination, the project may impact individuals (undiscovered) or habitat for the five identified species, but would not contribute towards a trend of federal listing or cause a loss of viability to the species on the LMNG. Suitable habitat adjacent to the areas of disturbance, and documented populations of the five sensitive species in other areas of the LMNG would contribute to their continued viability.

Soil and vegetation disturbances associated with improvement of the road would create opportunities for the increased establishment and dominance of invasive smooth brome, sweet clover, crested wheatgrass, Japanese brome, Kentucky bluegrass, and burdock. High competitive ability and other characteristics of the invasive species would increase their potential for gaining dominance at the expense of native plant species that are intermixed with the invasive species or occur in intermingled patches along portions of the route. This potential would occur despite reclamation seeding with native grasses.

Cumulative Effects
The project area was under private ownership until recently acquired by the Forest Service, but past management has been similar to management across the LMNG. Oil and gas development occurs in the general project area and previous road upgrades and maintenance have contributed to the establishment of invasive species along the road corridor with evidence of continued spreading into adjacent rangeland. Previous small-scale gravel mining at the proposed site also created opportunities for the establishment and spread of invasive species.

Several parcels of broken land and recently abandoned agricultural fields and hay fields occur in the project area and adjacent to the road corridor. These areas have also contributed to the prominence of invasive species. Livestock use in the project area was high and several down cut trails attest to trailing along portions of the road corridor. Winter feeding of invasive grass
dominated hay along the access route and other portions of the project area has assisted the introduction and spread of invasive species.

The Plan amendment for the entire acquired Elkhorn Ranch lands is likely to have a native plant restoration option for reclamation of the numerous agricultural fields within and outside the analysis area. This would have the potential to increase the extent of native plant communities or percent composition of native plant species; additional strategies would be required to reduce the occurrence and dominance of invasive species.

Final reclamation and the use of native seed mixtures would aid in the re-establishment of native plant diversity and helps to deter invasive and noxious weed species.

The Elkhorn Gravel Pit project proposal is in compliance with DPG LRMP Badland Geographic Area direction for TES and Sensitive Plant Guilds (LRMP, 2-16).

**LITTLE MISSOURI RIVER**

The Little Missouri River is approximately 4,300 feet west of the proposed gravel pit. The river is a designated State Scenic River and flows north along the western edge of the ranchlands. Portions of the ranchlands are within the floodplain of the river and flood during high water events. The river provides recreationalists year round fishing opportunities and high water rafting or canoeing. Currently there is no public vehicle access to the river from the ranchlands due to the current road closure order. There was an irrigation pivot system located along the river on the ranchlands within Section 33 which drew water from the river up until 2012 when it was dismantled and removed.

**Direct and Indirect Effects**

**Alternative 1**
Under this alternative current uses would continue.

**Alternative 2**
The proposed pit is approximately 4,300 feet from the Little Missouri River. No water would be removed from the river. The stipulations require sediment control measures and all natural drainage would be maintained. There are no proposals to mine gravel closer to the Little Missouri River at this time.

Approximately 2.16 acres of the mining operations or 8.51 percent of the mining area would be visible from the Little Missouri River should there be recreationalists on the river. The visible areas of the gravel pit include the extreme north which is approximately 3,000 feet from the river and the extreme south end which is approximately 4,000 feet from the river (See the Visuals section for more on these effects).
The State of North Dakota is responsible for water quality. There are no planned operations within the river or adjacent to the river. The Operating Plan also contains sediment controls to further protect against erosion and water pollution.

There would be no physical impacts to the river as the river is approximately 4,300 feet from the proposed pit. Approximately 2.16 acres of the mining operations or 8.51 percent of the mining area will be visible from the Little Missouri River should there be recreationalists on the river. The visible areas of the gravel pit include the extreme north which is approximately 3,000 feet from the river and the extreme south end which is approximately 4,000 feet from the river. It is more likely that recreationalists would see stockpiled topsoil and overburden on the south end and semi-truck traffic and mining on the north end. From this distance recreationalists would hear the operations. Although, truck traffic and construction sounds, downwind, may carry for a mile or more under windy conditions. Given an average daily wind speed of 10 miles per hour, the effects of noise would be somewhat dissipated.

**Cumulative Effects**

There are no waters or wetlands within the project area and therefore would be no effects. There are no plans to utilize water from the Little Missouri River. Natural drainage would be maintained during all operations and final reclamation would require contouring to ensure natural drainage.

**NOXIOUS WEEDS AND INVASIVE PLANT SPECIES**

In 2010, the Elkhorn Ranchlands Cover Crop Project analysis was conducted to evaluate the threat of large populations of noxious weeds becoming established in the previously cultivated fields, and the potential soil lost due to wind and water erosion. Mitigation included chemical pretreatment and then planting the cultivated fields to a cover crop. The field containing the proposed gravel pit was treated chemically in 2010. No further treatments have occurred.

**Direct and Indirect Effects**

The direct and indirect effect analyses for noxious and invasive plants were conducted at the project area scale including access roads, because this is where these impacts would likely occur as a result of ground disturbance.

**Alternative 1**

Management direction in the LRMP and 2007 Dakota Prairie Noxious Weed FEIS would still be followed. Existing roadside infestations are expected to continue to slowly spread, into disturbed areas where the existing native plant community does not repel these invaders. If the infestations become very large, they could become treatment sites at a later date, separate from this project. Other noxious weeds could establish in the project area, spread by wind, animals, or human activities. Since there would be no ground disturbance, there is low potential for invasive plant spread.
Alternative 2
It is not the Operator’s responsibility to restore the ranch area to a weed free native species environment. However, it is the Operator’s responsibility to treat any ground disturbance as a result of operations. The mining operations would preclude ongoing plans and actions to chemically treat and plant the proposed gravel pit area back to native species.

The Operator is responsible for the prevention and control of noxious weeds and to minimize the spread of invasive species on the surface areas authorized under the OP and any subsequent or related permits associated with the OP, and on any adjacent areas infested as a result of operations, and shall provide prevention and control measures as prescribed by the Forest Service listed within the stipulations. The Operator is required to participate in an Integrated Pest Management Program to help prevent and control noxious weeds (See Appendix C).

Cumulative Effects
Non-native invasive plant species could be introduced or spread by mining activities. Newly constructed or disturbed areas represent a higher risk, since there would be areas of exposed soil following the gravel extraction. This threat is lessened by the stipulations for pretreatment and post treatment of noxious weeds and the cleaning of off-road equipment prior to entry onto Federal lands. However, movement of equipment within the project area and bare soil exposure could result in new spot infestations of the medium and low priority invaders already present in the area.

RECREATION

Affected Environment
There are no Forest Service developed campgrounds, picnic areas, trails or trailhead facilities within the area. The primary recreational uses of the area center around dispersed recreation activities including camping, historical interests, driving for pleasure, sight-seeing, upland bird and big game hunting, and target shooting. Others visit the area for the historic nature of the site. Users can still access the area on NFSR 719C, park along the route, but must walk from that point. NFSR 719C is lightly to moderately used in the summer, and more heavily used during the fall hunting season by a variety of motorized vehicles. There are no maintained Forest Service trails in the project area. The Maah Daah Hey Trail, which is approximately 1.5 miles west of the project area, is a popular recreation destination for hikers, mountain bikers, and horse enthusiasts.

The dispersed nature of recreation in the area is not expected to change if the proposed action were implemented. Recreation in the area would continue to favor dispersed recreational activities including camping, driving for pleasure, sightseeing, upland bird and big game hunting and target shooting.

The Recreation Opportunity Spectrum (ROS) classification for the area identified by the DPG LRMP is Roaded Natural (RN). Roaded Natural is characterized by predominately natural-
appearing environments with moderate evidence of the sights and sounds of people but compatible with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident but compatible with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

**Direct and Indirect Effects**

**Alternative 1**
This alternative would perpetuate the existing condition for recreation activities. No effects are anticipated. The existing recreation settings and naturally appearing landscape would continue.

**Alternative 2**
There would be no impact to the Maah-Daah-Hey Trail. The trail, approximately 1.5 miles west of the project area, is a popular recreation destination for hikers, mountain bikers, and horse enthusiasts. The proposed gravel pit may be visible from some points along the trail but the distance and topography and focus on the trail would detract attention from the pit. Prevailing winds in the area are generally from the north/northwest/west/southwest nearly 50.1% of the time. Winds from these directions would not carry dust or odors or noise towards the MDH trail but away from the trail. Winds from the south/southeast/east/northeast occur approximately 34.9% of the time on average and could carry dust and odors and noise towards the MDH trail. On calm days (9%) there would be minimal dissipation of odors, dust and noise. Dust would hang in the air longer and could be more visible until it settled out. Noise would not carry any further but most people would perceive any short term noise increases of at least 3 dB and any increases over 5dB would be clearly noticable. Noise, dust, and odors from the mining operations may carry in the wind toward the Maah-Daah-Hey but would quickly dissipate with distances from 1.5 to 2.5 miles away and with average wind speeds in the area greater than 15+ mph.

There would be noticeable noise, vehicle traffic, and dust associated with the mining and hauling of the gravel for a two year period which would reduce the recreational experience in the immediate vicinity of the gravel pit and hauling route. A person could expect a minimum of 2-3 semi-truck loads hauled out or 4-6 round trips per hour whenever the pit is operating. This would equate to meeting either a loaded or empty truck on the haul route approximately every 10-15 minutes. This flow would continue during the normal operating season from April through November for approximately two years, pending any weather or wildlife related delays. There would be no night time operations.

The ROS classification would not change because the area affected by the proposed actions is not large enough to change its ROS characterization. The recreational experience in the area as a whole would still be of a dispersed nature. The proposed action would not affect enough area to have a significant adverse cumulative effect on the dispersed recreational experience nor significantly affect the ROS settings of the area.
Cumulative Effects
There would be no impact to the Maah-Daah-Hey Trail. The recreational experience would be lowered in the proximity of the gravel pit and haul route. However, the ROS designation of Roaded Natural for the area would be maintained. While the proposed action would likely impact the recreational experiences adjacent to the gravel pit and haul route, it would not have an adverse effect on the recreational opportunities offered in the rest of the area. Recreational effects to TRNP and NDPR lands are further discussed under Tourism, pages 45-48 of the EA.

ROADS

Affected Environment
The access route utilizes three existing National Forest System Road (NFSR) segments which are the most acceptable direct routes with the least amount of impact to the surface and other resources. Reference Appendix A, Figure 2, Project Map. Road Segment 1 (719C) is the main road from Blacktail County Road to the recent ranch headquarters and main house. At mile 2.96 there is a road intersection with NFSR 2082 which leads to the gravel pit. Road Segment 2 (7082) is a short 211 foot road segment that connects NFSR 719C to NFSR 7082-1. It is currently under a private road special use permit to an oil company and used to access their oil and gas well in Section 27. It is closed to public use. Road Segment 3 (7082-1) is described in two sub-segments. Sub-segment one from intersection 7082 to mile 0.34 intersection with 7082-2, is the segment of road up the hill which must be reconstructed to reduce grade. This segment is currently under a private road special use permit to an oil company and used to access their oil and gas well in Section 27. Sub-segment two, approximately 397 feet and also part of NFSR 7082-1, is the road segment from mile 0.34 intersection with 7082-2 to mile 0.41, the entrance to the gravel pit.

For federal surface/private minerals (reserved and outstanding minerals), case law has established that the mineral estate is dominant over the surface estate. The owner of private minerals has the right to use as much of the surface as is reasonably necessary to access and develop the minerals estate. Consequently, the Forest Service must allow reasonable access to private minerals that occur on lands where the Forest Service owns the surface (DPG LRMP Preface, p. 7).

The road system within the ranchlands was never constructed to any regulatory standard. It is adequate for passenger vehicles and the incidental semi-truck use, but would not hold up to any new major activity such as gravel mining or new oil and gas development. Road Logs conducted by Forest Service Engineers in 2010 identified a number of maintenance issues affecting drainage and erosion control that must be corrected. The road system, in its current condition may hold up for several more years with annual maintenance, but eventually will have to be overhauled or reconstructed to correct drainage and erosion issues.
Direct and Indirect Effects

**Alternative 1**
Under the No Action Alternative, the proposed project would not be implemented and there would be no impact (modification or improvements) to the existing road system. Existing uses would continue. Annual road maintenance would continue.

**Alternative 2**
The proposal utilizes three existing NFSR segments which are the most acceptable direct routes with the least amount of impact to the surface and other resources.

<table>
<thead>
<tr>
<th>Road Segment #</th>
<th>Mileage</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>719c</td>
<td>2.96</td>
<td>15,629</td>
</tr>
<tr>
<td>7082</td>
<td>0.04</td>
<td>211</td>
</tr>
<tr>
<td>7082-1</td>
<td>0.34</td>
<td>1,795</td>
</tr>
<tr>
<td>7082-1</td>
<td>0.07</td>
<td>397</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>3.41</strong></td>
<td><strong>18,032</strong></td>
</tr>
</tbody>
</table>

These road segments are all within the ranchlands. Reference Appendix A, Figure 2 Project Map. The proposal would also utilize approximately 19 miles of Blacktail Road (County Road FH-2), which is under County jurisdiction.

**Road Segment 1 (719C):** This is the main road from Blacktail Road (County Road FH-2) to the main house. The public had been allowed to use this segment over the years to access a river crossing to the north in Section 27. Around 2004, the river crossing was closed to the public. In 2005, Billings County attempted to take the road resulting in legal action. The process was never completed and the road became part of the NFSR system (NFSR 719C) with the acquisition of the ranchlands. 719C has been open to the public since 2007. Approximately 2.96 miles of 719C, from County Road FH-2 would be used for hauling. At mile 2.96 there is a road intersection with NFSR 7082 which leads west to the proposed gravel pit. The entire 2.96 miles would require road maintenance including but not limited to the maintenance of ten turn-outs, reshaping the road template, repairing and establishing drainage structures (culverts & ditch blocks), surfacing (gravel), blading, and installation of signs. Five turnouts would also be constructed. Use of 719C would require a Road Use Permit which includes maintenance stipulations and a road log identifying the current maintenance work. Future maintenance would be proportional to the use and shared with the other users.

**Road Segment 2 (7082):** This is a short 211 foot road segment that connects NFSR 719C to NFSR7082-1. It is currently under a Private Road Special Use Permit to an oil company and used to access their well in Section 27. It has been closed to public use since the land was acquired by the Forest Service. This section would require the maintenance of two turnouts and the construction of one turnout. General maintenance is similar to NFSR 719C. Use of this section of the road would require a Private Road Special Use (SU) Permit which would include...
maintenance stipulations and a road log identifying the current maintenance work. Future maintenance would be proportional to the use shared with the other users. During maintenance and construction work, this road segment must be open and available to the oil company’s operations.

**Road Segment 3 (7082-1):** This road is described in two sub-segments. Sub-segment one, approximately 1,795 feet in length, from intersection 7082 to mile 0.34 intersection with 7082-2, is the segment of road up the hill must be reconstructed to reduce grade. Professionally designed road plans have been submitted and reviewed by Forest Service Engineering. The road would be constructed with the appropriate drainage, turnouts, and surfacing. This segment is currently under a Private Road Special Use Permit to an oil company and used to access their well in Section 27. The oil company is not obligated to share in the reconstruction costs. Use of this section of the road would require a Private Road Special Use permit which includes construction and maintenance stipulations and a road log identifying the current maintenance needs. Future maintenance would be proportional to the use shared with other users. During reconstruction, the road segment must be open and available to the oil company’s operations. This segment of road has been closed to public use since the land was acquired by the Forest Service.

Sub-segment two, approximately 397 feet and also part of NFSR 7082-1, is the road segment from mile 0.34 intersection with 7082-2 to mile 0.41, the entrance to the proposed gravel pit. This segment is not under any existing permits but would require a Private Road Special Use Permit for use. Maintenance requirements would be similar to NFSR 719C. Future maintenance costs would be the responsibility of the Operator. This segment of road leads south and west toward TRNP and the Little Missouri River and has been closed to public use since the land was acquired by the Forest Service.

Once inside the pit, a fourth segment of temporary road would be constructed within the gravel pit for hauling purposes. It would extend across the entire length of the pit and would be closed to public use. The road design would be a typical road profile with established drainage and surfacing requirements and construction and maintenance stipulations. At the end of the use, the road would be obliterated and the entire area reclaimed with a native seed mixture.

Use of County Road FH-2 would be necessary for hauling off of NFSR 719C from the ranchlands. FH-2 includes segments of road located on both private and NFS lands. The segments of road located on NFS lands are included within a USDA Public Road Easement to Billings County and is maintained and regulated under County jurisdiction. FH-2 is a double lane graveled road and is a major access route through the Blacktail Creek area. It has both industry and residential users and is open and maintained year round. Use of the road by the Operator would require approval from the Billings County Commissioners.

At the time of acquisition, the Forest Service recognized all the existing uses and rights, known and unknown. The road which we now refer to as NFSR 7082-1 and the oil well were recognized as an existing outstanding right. In 2011, the Forest Service completed negotiations
with the oil company on a current operating plan for the well and related special use private road permits. The Forest Service can allow other uses as long as the new use does not interfere with the existing rights and uses. The gravel pit hauling cannot interfere with the oil company’s operations. Therefore the oil company must have access to their operations. This is specified within the current OP stipulations and would be included within any road use and private road special use permit.

Having a road system in place eliminates the need for new road construction. However, the gravel pit hauling would impact the existing road system from the heavy use requiring heavy maintenance and one segment of road reconstruction. Since these costs are attributed to the gravel pit hauling, Elkhorn Minerals LLC would have to bear the construction costs to bring the road to gravel hauling standards.

Since both the oil company and the gravel pit operator would share the road over the next two years until the gravel pit mining is completed, both would share in the maintenance of the road proportional to their individual use.

The OP, Private Road Special Use, and Road Use permits would require the Operator to bring the road system to a satisfactory level prior to hauling gravel and to bear all costs. The OP, Private Road Special Use, and Road Use permits would also require future maintenance and costs on a proportional use. The reclamation bond would further ensure compliance with these stipulations.

NFSR 719C is currently a public road being analyzed as part of the plan amendment.

NFSR 7082 and 7082-1 are currently permitted to the oil company accessing their well in Section 27. This is also the segment of road requiring reconstruction to reduce the grade of the road. The oil well is expected to be in production long after the gravel mining is completed. At the time the well is plugged, the road will be analyzed as whether to retain the road or to obliterate the road. Until that time, the oil company has a valid permitted use which includes the obliteration and reclamation of the road. The decision to dismantle this road is beyond the scope of this document.

The temporary road would be dismantled and reclaimed at the end of its use as directed within the OP stipulations. The reclamation bond would help ensure compliance.

The dismantling of NFSR 719C, 7082, and 7082-1 are beyond the scope of this document. The temporary road would be obliterated and reclaimed as directed within the OP. The reclamation bond would help ensure compliance to this stipulation.

To provide safety to the public and reduce resource impacts, NFSR 719C would have a posted speed of 25 mph. There would be a total of 15 turnouts along the 2.96 mile route to allow for traffic to pull off the road. There would also be dust abatement stipulations as needed to keep
dust to a minimum during hauling. There would be ongoing road maintenance. This direction would be included within the Road Use and Special Use Permit.

Use of the existing road system would eliminate the need to construct additional access roads on the ranchlands. However, the existing road conditions are inadequate for major hauling of gravel and therefore must be upgraded to provide for adequate safety, drainage, and erosion control. This would include the maintenance and/or installation of turnouts, culverts, cattle guards, drainage systems, and signing. This would temporarily disrupt existing permittees and recreational users until the upgrades are completed. There would be ongoing maintenance, as needed, for as long as operations existed. The road requirements associated with the proposed action would correct all of the existing safety, drainage, and erosion control problems and would extend the life of the road for years. The road maintenance and reconstruction will not affect any cultural or paleontological resources.

There would be noticeable noise, vehicle traffic, and dust associated with the hauling of the gravel in the immediate vicinity. A person could expect to encounter either a loaded or empty truck along the haul route approximately every 10-15 minutes. This flow would continue during the normal operating season from April through November for approximately two years, pending any weather or wildlife related delays. This would reduce the recreational experience adjacent to the haul route but would not have a significant adverse effect on the recreational opportunities offered in the rest of the area. The dispersed nature of recreation in the area is not expected to change if the proposed action were implemented.

The NFS roads would be patrolled by Forest Service Law Enforcement to ensure compliance to speeds and use.

**Cumulative Effects**

The existing road system is currently adequate for passenger vehicles and incidental semi-truck use. It is expected that use of the existing road system would continue for grazing management, access to permitted oil and gas facilities, and access to existing special use pipeline and electric line permits. Recreationalists would continue to access the area utilizing NFSR 719C. There would be ongoing annual road maintenance for as long as these uses existed. The road system in its current condition may hold up for several more years with annual maintenance, but eventually will have to be overhauled or reconstructed to correct existing drainage and erosion issues.

Given the increased usage of the primary road, big game use adjacent to the haul route would likely be reduced for approximately two years. However, most movement by big game is from the early evening hours through the early morning hours. Most hauling activity would occur outside of these hours. Given the terrain and vegetation along the route, effects to big game should be relatively minimal in relationship to the temporary nature of the activity.
If in the future, if NFSR 719C were to become the main access for a future major river crossing, the road would have to be reconstructed to a double lane road, essentially doubling the current road width and disturbance corridor. This decision is beyond the scope of this document.

SOILS

Affected Environment
Approximately 6” of topsoil overlay the proposed mining and buffer area. Past use in the project area prior to transfer to the USFS was cultivated cropland. Current management of the site includes planting cover crops to prevent noxious weeds from invading the site and for erosion control.

Soils in the northern two-thirds of the proposed gravel pit and buffer zone consists of the Tinsley-Chanta complex, which are 53 percent Tinsley and similar soils and 17 percent Chanta and similar soils. Tinsley soils typically have 6-35 percent slopes, are excessively drained, and not hydric. From 0-3 inches in depth, the soil is a gravelly sandy loam and from 3-60 inches is classified as extremely gravelly loamy sand. The parent material is sandy and gravelly alluvium.

Chanta and similar soils are described as loamy to gravelly sand with slopes of 6-15 percent. These soils are well drained, not hydric and have the same parent material as the Tinsley soils. A site visit on June 16, 2011 verified the area is gently sloping, with slope closer to 6% than to 35%.

Direct and Indirect Effects

Alternative 1
The No Action Alternative would result in no change in the existing conditions to the soils in the project area.

Alternative 2
Direct effects include disturbance of 24.6 acres of soils over the proposed gravel pit and buffer zone, all of which would be stockpiled for use in site reclamation. The site would not be disturbed all at once, but done in stages, shortening the time that any individual stockpile would be stored. In total, about 19,845 cubic yards of topsoil and 86,125 cubic yards of overburden would be removed, stockpiled, and replaced over the life of the project.

The proposed work on roads to access the site would be road improvement projects on existing road footprints. Soil disturbances would occur in areas where drainage improvements were needed and stormwater control practices would be required to prevent erosion. Once vegetation is reestablished on the disturbed areas, improved stormwater control practices would benefit soils in the project area when compared to existing conditions of the roads.

The removal, working, and stockpiling topsoil would affect the physical, chemical, and biological properties of the soil. Studies indicate that soil organic matter, nutrients, and soil aggregates
decrease from the stripping, stockpiling, replacement cycle. Some organic matter loss is likely due to the mixing of topsoil with lower horizon overburden. Mixing of topsoil and lower horizons also may cause an increase in electrical conductivity of the soils (Wick, et al, 2009). Care should be taken to avoid mixing topsoil and overburden while being stripped, stockpiled, and replaced.

Soil productivity will be interrupted and vegetative cover would be removed making stockpiles prone to erosion from precipitation and wind. Storm water controls are needed to prevent loss of soil from stockpiles. Storm water controls should be effective at preventing erosion from wind on non-active stockpiles. Dust suppression should be used on active stockpiles.

By conserving the topsoil and replacing it to avoid compaction, site reclamation would likely lead to the eventual recovery of soil physical, chemical, and biological processes. Seeding native vegetation on the site would prevent erosion, rebuild soil organic matter and aggregate structure; and reestablish biological activity. If monitoring shows native vegetation is difficult to establish, soil testing would be needed and soil amendments applied based on the results.

Cumulative Effects
Past, present and reasonably foreseeable actions could also affect soils in the vicinity of the project area. Currently there are seven producing oil wells on the Elkhorn Ranch lands, which would be reclaimed when no longer in production. Reclamation left to be completed related to these seven producing wells is estimated to be about 25 acres. An additional 24 acres of reclamation associated with these wells has already occurred. Fourteen well pads that are no longer in production have been completely reclaimed on the Elkhorn Ranch lands to date, with an estimated reclamation of 98 acres total related to these.

Other potential soil disturbing activities include repair and maintenance of pipelines, facilities, and utilities associated with rights-of-ways. All of the authorized surface disturbing activities are subject to best management practices and reclamation procedures as part of their permit approval.

Please note: Per FSM 2500 R-1 Supplement No. 2500-99-1, Soil Quality Standards “do not apply to intensively developed sites such as mines, developed recreation sites, administrative sites, or rock quarries.” And therefore, this project does not require a Detrimental Soil Disturbance Analysis. Please see FSM 2500 R-1 Supplement 2500-99-1 for specifics on the Detrimental Soil Disturbance Analysis.

WILDLIFE

A site specific Biological Evaluation (BE) for the project areas was completed by the Forest Service Wildlife Biologist. The following wildlife discussions summarize the detailed information provided in these reports. The BE is located in the Project Record.
Forest Service Manual (FSM) 2670.32 requires that Threatened and Endangered (T&E) and FS Sensitive species be addressed as a part of the NEPA process. The guidelines set forth by FSM 2672.41, 2672.42, and 2672.43 have been met by the above report/survey and then summarized by the Forest Service Wildlife Biologist. This direction provides a process and standard by which to ensure that TES species receive consideration in the decision making process.

Direct and Indirect Effects

**Threatened and Endangered Species (T&E):** The U.S. Fish and Wildlife Service (USFWS) (November 2011) identified the following Threatened and Endangered (T&E) species as those species that may occur or have potential habitat on the Medora Ranger District: 1) Birds: Whooping crane, and 2) Mammals: Black-footed ferret and gray wolf.

The list of T&E species that may be found in Billings and/or Golden Valley Counties was gathered from the USFWS. The Forest Service Wildlife Biologist determined within the BE:

- There would be “no effects” to T&E species. There are no threatened or endangered species (gray wolf, whooping crane, and black-footed ferret) currently residing in this area. There is no designated critical habitat for these three species.
- The USFWS recommendations related to migrating whooping cranes is duly noted (Towner, March 2, 2010). However, use of this portion of Billings County would be highly incidental and unlikely based on data displayed in Austin and Richert (2001) as well as the “North Dakota Whooping Crane Migration Corridor” map provided in the USFWS letter. This project falls very near the outer edge of the 95 percent statistical isocline of the species migration corridor. There has been only one documented sighting of whooping cranes in Billings County and none for Golden Valley for the period of 1943-1999 (ibid.). One small man-made palustrine wetland lies less than ½ mile to the east. This wetland also lies less than ¼ mile from existing buildings. Data in Austin and Richert (2001) indicate that cranes typically avoid areas near human developments. Results from Johns et al (1997) further describe potential migration stops. Habitat elements within the project area would not be within the range of the preferred habitat parameters of that study. Therefore there would be “no effects” to the whooping crane from this project, therefore no mitigation is necessary.

The interior least tern (bird) and the pallid sturgeon (fish) were also analyzed within the BE. However, there is no existing or potential habitat on the district for the interior least tern, therefore the project would have no effect on the least tern or the pallid sturgeon or their habitat.

**Sensitive Species:** The Forest Service identifies animal species for which population viability is a concern as evidenced by significant current or predicted downward trends in population numbers, density, or habitat capability that would reduce a species existing distribution. The BE, p. 15-19, assesses the effects to sensitive species. Based on this BE, the Forest Service
Wildlife Biologist determined within the BE the following determinations for Region 1 Sensitive Species listed for the Dakota Prairie Grasslands that are known or may potentially occur on the Medora RD. The list of species was garnered from Weldon (2011):

“No impact” –
- Bighorn sheep; black-tailed prairie dog; Sprague’s pipit; long-billed curlew; sage grouse; bald eagle; burrowing owl; red-belly dace; Regal fritillary butterfly; tawny crescent butterfly; ottoe skipper; and Dakota skipper:
- Dakota Skipper: there are no known occurrences of this species in Billings or Golden Valley Counties at this time. In addition, the current project proposal would stay within the previously disturbed area, which is out of potential habitat for this species.
- Ottoe skipper: The current project proposal would stay within the previously disturbed area which is dominated by invasive grasses, which is typically not supportive of potential habitat for this species. Restoration activities for the pit and the adjacent plowed fields may improve habitat for this species with time (approximately 10 years).
- Tawny crescent butterfly: The current project proposal would stay within the previously disturbed area, which is typically not supportive of potential habitat for this species.

“May impact individuals or habitat, but would not likely lead to a trend towards federal listing or cause a loss of viability to the population or species” –
- Baird’s sparrow; and loggerhead shrike. After reclamation, the project area, in addition to the activities planned to occur on adjacent plowed fields, could potentially improve habitat for some species such as Baird’s sparrow, Sprague’s pipit, and ottoe skipper.

Management Indicator Species (MIS): Management Indicator Species (MIS) include those identified in the Northern Great Plains FEIS:

- Sharp-tailed grouse: There is one known active sharp-tailed grouse lek within one mile of the gravel pit site. Actual distance is approximately 700-800 feet from the pit boundary. With timing mitigation (March 15 through May 31st), there are no expected appreciable effects. A nesting hen may use the potentially available habitat within the pit area. However, the viability of the lek and the sharp-tailed grouse population will not be compromised with the potential loss of one or two nests over the expected two to three years of project activities. Another potential lek is suspected in the NWNE Section 1 near the east terminus of the haul route, approximately 0.6 mile from the nearest point of the haul route. It does not appear that the haul route is visible to the lek. However, there are several known active leks across the LMNG that are even closer to roads - and some satellite leks may even be found on roads at times. Therefore, effects are expected to be none to minimal for this lek.
- Sage grouse: Sage grouse in ND occur in the southwestern part of the state. There are no sage grouse leks within approximately 30-40 miles of the project site. There would be no impacts to sage grouse or habitat.
- Black-tailed prairie dog: There are no known colonies in the vicinity. There are no prairie
dog colonies in the area that would be directly or indirectly impacted by construction activities. Therefore there would be no impacts to black-tailed prairie dog or their habitat.

**Migratory Birds:** Migratory birds are those species that use areas seasonally, migrating between breeding and winter ranges. The movements of any particular species can be hundreds of miles to thousands of miles. Some species migrate from the Northern Great Plains or Canada south to warmer climes in the fall while others may migrate from more northern areas in Canada and winter in or near the LMNG.

Upon review of information regarding migratory birds and their habitats in relation to existing habitats and the proposal, the Forest Service Wildlife Biologist determined that “there would be an expected temporary loss of approximately 26 acres of migratory bird habitat (approximately 0.0049% of the MRD) resulting in minimal direct impacts to migratory bird habitat from the implementation of the proposed project”. According to Igl et al (2006), the density of breeding birds would be a minimum of approximately 0.5 birds per acre, or approximately the temporary direct loss of habitat for 13 birds for the proposed project.

Pit operations are proposed to last approximately two years with reclamation activities occurring concurrently with every five acres completed. The expected time frame for the completion of reclamation is expected to occur over a 10 year period. As reclamation proceeds, habitat for migratory birds would improve and over time (i.e. 10 years), habitat for migratory birds should be improved with the restoration of a native plant community.

**Raptors:** Raptors are birds of prey such as owls, hawks, ospreys, and eagles. Their significance arises from their sensitivity to human disturbance and protection under various laws and regulations. Nesting and foraging areas are the two most important components of raptor habitat. Nesting is most important since human activities near an active nest may lead to abandonment of the nest and loss of reproduction for that year. For this reason, known nest locations and the surrounding area receive special consideration in Forest Service activities.

One potential golden eagle nest is known within one-half mile of the proposed gravel pit site. In September of 2007, this nest had two eggs of an unknown species found abandoned in it. Surveys of this nest have shown no activity in 1993, 2004, 2005, and 2006. The Forest Service Wildlife Biologist checked for any activity on March 5, 2010 and no activity was observed. Another check was made on March 21, 2011 and no activity was observed. No other nests are known in the adjacent area, including the haul route. A third check on May 6, 2011 found the nest occupied by a Canadian goose.

The Applicant has also stated within the Operating Plan, which is more restrictive and protective, “We would like to take a proactive approach to mitigate golden eagle activity in the nest that lies directly west of the material pit, by getting a proper survey completed around February when nests first become occupied. If the eagles are using the nest, mining will halt until sometime in the summer when the fledging eagles have successfully left the nest.” This
statement within the operating plan is enforceable and would guarantee protection of the
eagles until they left the nest.

A timing mitigation measure was negotiated with the Operator and included within the OP
Stipulations to account for the potential nesting period (Feb. 1 to July 31) requiring a survey
after April 15 to determine the nesting activity level of this nest and the surrounding area
within a required one-half mile prior to any construction activities. If nesting activities occur for
any raptor, then construction activities would not occur between the dates of Feb. 1 and July 31
(LRMP). If not active after April 15, it would be assumed that the nest is not active for that
season. A survey after April 15 would be required for every year the pit is planned for
operation or until the nest is determined to be inactive as per LRMP guidance. However, since
there is also a timing need for the grouse lek, this combination allows for flexibility in achieving
the optimal time for both surveys.

This measure could extend the overall mining process beyond the expected two year timeframe
depending upon the amount of down time.

The USFW has jurisdiction over protection of the golden eagle nest. The USFWS will continue
to analyze the effects of the project to the golden eagle nest to consider whether the proposal
would result in a taking (permanent abandonment of the nest). If the USFWS determines a
taking, the Operator would be responsible to file for a taking permit directly with the USFWS.

Another identified nest does exist approximately 1.1 miles to the northwest of the proposed
pit. If the nest is active, the activity may disrupt foraging or other activities in this portion of its
territorial range. Territorial ranges average approximately 3.5 sq. miles (1.2 – 10.3 sq. miles).
The Forest Service Wildlife Biologist has determined that no mitigation would be required for
this nest as effects would be minor.

Big Game: Several big game species (antelope, elk, mule deer, and whitetail deer) can be found
in the analysis area. Mule deer are the most common species in the area.

The analysis area provides a diversity of habitats (vegetative and topographical), relatively low
developed road densities; approximately 80% of the analysis area lacks human disturbances
(e.g. oil and gas, field cultivation, etc.). These factors create good to excellent settings for big
game. The home range for these species may encompass a much larger area compared to the
analysis area or the project area.

During the two years of proposed activity at the pit (approximately April 15 through November
15), potential big game use would be displaced to other areas. Given the availability of the
diversity of habitats and topography within the analysis area and the home ranges, the effects
from operations at the pit would be insufficient to have an appreciable affect on habitat or
populations. The project area is not known or expected to be a key habitat area (e.g. winter or
fawning).
The increased activity along the haul route would create an approximate two year impact to areas adjacent to the route. Given the increased usage of the primary road, big game use adjacent to the road would likely be reduced. However, most movement by big game is from the early evening hours through the early morning hours. Most hauling activity would occur outside of these hours. Given the terrain and vegetation along the route, effects to big game should be relatively minimal in relationship to the temporary nature of the activity.

Therefore, most individuals of big game species may be displaced seasonally from the project area for approximately two seasons. There is topographical and habitat heterogeneity within the vicinity so there would be no appreciable adverse effects to overall habitat quality. There is not expected to be an appreciable change in population from the activity since habitat would not be appreciably affected due to the temporary nature of the activity. Big game would not be adversely affected from the proposed activity.

**Fisheries:** There are no seeps; springs, bogs, ponds, or other bodies of water within the project area or analysis area capable of supporting a fishery. The nearest fishery exists in the Little Missouri River. Distance from the pit to the Little Missouri River is approximately 4,200 feet. No water would be removed from the river; and sediment control of drainages would be maintained. Hence, there would be no direct or indirect effects to fish habitat within the Little Missouri River.

**Fragmentation/Biological Corridors:** The DPG LRMP defines fragmentation as “the breakup of a large land area (such as a grassland) into smaller patches isolated by areas converted to a different land use (p. G-21, App. G, DPG LRMP).” Lord and Norton (1990) note that fragmentation is not restricted to any particular scale, and in a related vein, it can mean different things to different species. For this analysis, this discussion will be limited to the analysis area.

The concepts of Fragmentation and Biological Corridors are, or can be, related. Therefore, biological corridors can be scalar and species specific as well. Given the relatively small size of the analysis area and the already altered state of the project and analysis area, and given the species of interest and available habitats, fragmentation created by the project would be insignificant. These effects would be temporary. Post mining reclamation, in addition to the on-going reclamation activities on the adjacent cultivated fields, the contribution of the analysis area to greater connectivity and decreased “fragmentation” would be improved over existing conditions and during proposed project activities.

**Diversity:** Like Fragmentation and Corridors previously addressed, diversity is also a scalar issue. Under the National Forest Management Act (NFMA), that scale is defined as the area covered by a land management plan. NFMA and the DPG define diversity similarly but the NFMA goes beyond the DPG definition somewhat. The DPG definition focuses on the distribution of the plant and animal communities covered by the land and resource management plan. The NFMA has a similar statement but goes beyond that by explicitly referring to the actual composition of the region controlled by the land management plan.
Though some species do use the current project area, the effects to those species and the overall diversity of the land management plan would not be greatly impacted by the project. The loss of the current non-native habitat from the project would be replaced by native species, thus, improving habitat conditions for more species. Though the local effect would eventually be improved potential in diversity, over the entire LMNG, the effect would be minor.

Management for diversity is also taken into account through the mitigation measures for the potential golden eagle nest and the sharp-tailed grouse lek. Minimal disturbance to breeding activities on the lek and the reclamation of the project site after activities are concluded, help to ensure breeding by the grouse.

It is expected that livestock grazing would continue to be a part of the activities surrounding the Elkhorn Ranchlands. This would have direct and indirect effects to the restored plant communities. It is not certain at this time what those specific effects may be, but livestock grazing can and does affect plant communities, hence, they also influence wildlife habitat.

**Cumulative Effects**
No appreciable adverse cumulative effects are known or expected from the implementation of this project at this time. Mitigation measures and reclamation activities of the project site in addition to the adjacent agriculture fields, should cumulatively improve habitat for a suite of native wildlife species.

However, it is expected that livestock grazing will continue to be a part of the activities surrounding the Elkhorn Ranchlands. This will have direct and indirect effects to the restored plant communities. It is not certain at this time what those specific effects may be but livestock grazing can and does affect plant communities, hence, they also influence wildlife habitat. Assuming Plan objectives would be addressed; those effects should be within the analysis for wildlife habitat and their populations.

It should be pointed out that prior to FS management of the Elkhorn Ranchlands in 2007; private ownership may not have necessarily taken wildlife concerns, or other multiple-use considerations into its management planning. Therefore, cumulatively, wildlife resources are now recognized and managed in accordance with other multiple-uses on the acquired lands.

**Summary**
The effects from activities are temporary (approximately 2-5 years including reclamation) and limited in scope. Restoration activities of the pit and the adjacent cultivated fields will aid in restoring native habitats to the analysis area, thus potentially improving habitat quality for several wildlife species. The project would have temporary and inappreciable effects to wildlife resources of the area. After reclamation, habitat should be more improved for native wildlife than current conditions dictate.
References


Weldon. 2011. Regional Forester’s Sensitive Species List, 2011 Update. USDA, Forest Service, Northern Region, Missoula, MT.


Preparers, Input, Consultation, and Collaboration with Others

Forest Service
Archaeologist: Merv Floodman
Archaeologist (SO): Tom Turck (Retired)
Archaeologist (SO): Liv Fetterman
Botanist: Joe Washington (Transferred)
District Ranger: Ronald W. Jablonski, Jr. (Retired)
Engineer: Curt Glasoe (Retired)
Engineer: Steve Volesky
Geologist / Paleontology (SO): Larry Melvin (Retired)
Geologist (RO): Ray TeSoro
GIS (SO): Phil Sjursen
Lands & Minerals Program Manager: Mark Sexton
Lands & Special Uses: Martina Thornton
Lands & Special Uses (SO): Sheri Schwenke (Transfer)
Lands & Special Uses (RO): Terry Egenhoff
Law Enforcement: Grant Geis (Resigned)
Resources Program Staff (SO): Mark Goeden (Retired)
Resource Clerk: Kathy Felchle
Minerals Program Staff (CNO): Leslie Vaculik
NEPA Coordinator: Jeff Adams (Retired)
NEPA Coordinator / Writer / Editor SO: Brenda Quale (Transfer)
NEPA Coordinator / Writer / Editor SO: Lauri Teig (Resigned)
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Office of General Counsel (RO): Mark Lodine
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Oil Development Area Manager / GIS: Shawn Reisenauer (Resigned)
Range Conservationist: Jack Dahl
Recreation (SO): Paula Johnston
Soils/Hydrology (SO): Alison Schlag
Soils/Hydrology: Jack Norman (Transfer)
Wildlife Biologist (SO):  Dan Svingen (Transfer)
Wildlife Biologist:  Arden Warm

Operator’s Consultants
Yellowfield Biological Surveys, LLC:  Botanical Survey
Yellowfield Biological Surveys, LLC:  Wildlife Survey
Juniper LLC:  Cultural Survey
Juniper LLC:  Paleontological Survey
Kadrmas, Lee, and Jackson:  Road Survey & Design

Federal Agencies:
U. S. Army Corps of Engineers, Bismarck, ND
U. S. Fish and Wildlife Service, Bismarck, ND
U. S. Department of Interior, Theodore Roosevelt National Park, Medora, ND

State Agencies & Congressional
N.D. Department of Health, Environmental Health Section, Bismarck, ND
N.D. Game and Fish Department, Bismarck, ND
N.D. Geological Survey; Bismarck, ND
N.D. Historical Society, Bismarck, ND
N.D. Industrial Commission; Bismarck, ND
N.D. Land Department; Bismarck, ND
N.D. Parks & Recreation Department; Bismarck, ND
N.D. Tourism Promotion Department, Bismarck, ND
N.D. State Lands Department; Bismarck, ND
N.D. Natural Resources Trust, Bismarck, ND
N.D. State Historic Preservation Office, Bismarck, ND
N.D. Governor’s Office, Bismarck, ND
N.D. Senator Kent Conrad, Bismarck, ND (Retired)
N.D. Senator John Hoeven, Bismarck, ND
N.D. Representative Rick Berg, Bismarck, ND (Former)
N.D. Senator Heidi Heitkamp, Bismarck, ND
N.D. Representative Kevin Cramer, Bismarck, ND

Tribal Governments
Standing Rock Sioux Tribe, Fort Yates, ND
Three Affiliated Tribes, New Town, ND
Lower Brule Sioux Tribe, Lower Brule, SD

Consulting Parties
National Trust for Historic Preservation- Consulting Agency
APPENDIX A
FIGURES (MAPS)

Figure 1: Vicinity Map
Figure 2: Project Map
Figure 3: Project Map: Gravel Pit Area
Figure 2. Project Map
PROPOSED ELEHORN GRAVEL PIT AND ACCESS ROUTE
NW1/4 SEC 34 T144N R102W
BILLINGS COUNTY, NORTH DAKOTA
APPENDIX B
PHOTOS

Photo 1: The View South-Southwest
Photo 2: The View North-Northwest
Photo 3: The View Northwest
Photo 4: Abandoned Gravel Pit Cut Slopes
Photo 5: Abandoned Gravel Pit Stockpile
Photo 6: The North End View
Photo 7: The View Northeast From TRNP
Photo 8: Access Route NFSR 719C in Section 1.
Photo 9: Access Route NFSR 719C in Section 2.
Photo 10: Access Route NFSR 719C in Section 2.
Photo 11: Access Route NFSR 7082-1 in Section 34.

Photo 1 The View South-Southwest: This photo is of the view looking south-southwest from the north end of the proposed gravel pit. The proposed gravel pit would be left (east) of the overhead lines. The overhead powerline and two-track road parallel and divide the two cultivated fields (disturbed area) on both sides of the road. TRNP would be located approximately 4,300 feet west in the cottonwood trees in the upper right quadrant of the photo.
Photo 2 The View North-Northwest:  This photo is of the view looking north-northwest from the midpoint of the proposed gravel pit along the western edge. The existing oil and gas well facilities can be seen in the upper right quadrant of the photo. The overhead powerline and two-track road parallel and divide the two cultivated field (disturbed area). The upper left quadrant of the photo is the cultivated field between the proposed gravel pit and the Little Missouri River.

Photo 3 The View Northwest:  This photo is of the view looking northwest from the highpoint on the old abandoned gravel pit stockpile. The closest residence to the proposed gravel pit is located along the river approximately 4,000 feet northeast near the outbuildings located in the middle of the photo left of the power pole. Below the power pole would be the north end of the proposed gravel pit. The darker colored vegetation is cultivated fields. The Little Missouri River lies among the cottonwood trees.
Photos 4 and 5 show remnants of the old abandoned gravel pit within the north end of the proposed gravel pit area. The pit was in use up until 2002 and over 27,000 cubic yards of gravel were removed. Photo 3 shows the existing cut slopes and disturbance. Photo 4 shows abandoned stockpiled materials. The view in Photo 4 is looking west toward TRNP in the background. The proposed pit is located on a west/northwest aspect plateau in Section 34.
Photo 6 The North End View: This photo is of the view looking north-northeast from the high point of the proposed gravel pit along the western edge. The existing oil and gas well facilities can be seen in the upper right quadrant of the photo. The overhead powerline and two-track road parallel and divide the two cultivated field (disturbed area). The upper left quadrant of the photo is the cultivated field between the proposed gravel pit and the Little Missouri River.

Photo 7 The View Northeast From TRNP: This photo is of the view looking northeast from the high point in TRNP. This view shows the cultivated field, road to the field, and the pivot irrigation system in the foreground (0 to ½ mile). The plateau on which the gravel pit lies is within the middle ground (1/2 to 4 miles) viewshed. Behind the plateau on the next ridge east in the background is the dominate skyline. This view is approximately 4,500 feet from the proposed gravel pit. The large cultivated field west of the proposed gravel pit can be seen on the plateau in the left quadrant of the photo.
ACCESS ROUTE

Photo 8 View of NFSR 719C Looking South toward Blacktail Road (FH-2): This is the first segment of road onto the ranchlands in Section 1 paralleling the cultivated fields.

Photo 9 View of NFSR 719C Looking Northwest in Section 2:
Photo 10 View of NFSR 719C Looking North in Section 2: This is the large curve in the northwest quarter of Section 2 looking toward the ranch headquarters.

Photo 11 View of NFSR 7082-1 Looking Northwest in Section 34: This is road segment 3 that would be reconstructed to reduce grade. This segment is currently under permit to an oil and gas company. The oil well is at the top of the hill. TRNP and the Little Missouri River are within the next drainage to the west.
Appendix “C” Operating Plan Stipulations

For the
Elkhorn Ranch Gravel Pit
(Reserved & Outstanding Mineral Right)

NW1/4 Section 34, T144N, R102W
Elkhorn Minerals LLC Owner & Applicant

The following Stipulations have been negotiated with and agreed to by the Operator and are in accordance with the Dakota Prairie Grasslands Land and Resource Management Plan Dated July 31, 2002 and shall be made part of the Operating Plan (OP) for private minerals for the above mentioned project as a condition of approval, consent, and/or permit:

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<td>Standard Stipulations of Approval</td>
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<td>Erosion Control Best Management Practices</td>
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<td>Noxious Weed Prevention &amp; Control</td>
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<td>Road Package (See Below)</td>
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ROAD PACKAGE COMPONENTS

| ✓             | 29-19A1| FP-03 Standard Specifications and Supplements for Construction of Roads and Bridges on Federal Highway Projects |
| ✓             | 29-19A2| Section 153 - Quality Control                                            |
| ✓             | 29-19A3| Table 153-01, Sampling, Testing, and Measurement Requirements            |
| ✓             | 29-19A4| Road Data Sheet                                                          |
| ✓             | 29-19A5| Road Maintenance Information Sheet                                       |
| ✓             | 29-19A6| Road Management Plan                                                    |


[Signature]
Acting District Ranger

11/6/15
Date
Definitions & Abbreviations Used Within the Stipulations:

**Area of Operations:** The mining area authorized within the Operating Plan including all permitted roads and any permitted area used by vehicles regardless of frequency.

**Authorized Officer:** The Forest Service officer with delegated authority to issue the necessary authorizations for these operations.

**Facilities:** Structures, roads, equipment, fixtures, and related facilities and other improvements necessary for the exercise of mineral rights that are located on National Forest System land.

**FS:** Forest Service.

**Operator:** The holder of the approved authorization(s) to conduct operations including the Operator's representatives, workers, contractors, and subcontractors.

**Operations:** All functions, work, and activities in connection with the mining of gravel and all reasonable uses of the surface including roads and other means of access.

**Operating Plan (OP):** The final plan approved by the Authorized Officer which includes the Mining Permit; the Operator's Operating Plan which describes the Operator's proposed operations and use and restoration of federal surface; the Operating Plan Stipulations herein; and all related road use and special use road permits.

**Operating Plan Stipulations:** Terms and conditions that are included as a part of an approved Operating Plan; and limit, condition, or amend the specific actions proposed by the Operator, in order to provide for the adequate protection and utilization of National Forest System land and resources. Such Terms and Conditions may not prevent or unreasonably interfere with the Operator's exercise of non-Federal mineral rights.

**Private Road Special Use (SU) Permit:** A permit issued by the Authorized Officer to allow use of existing single use roads subject to applicable terms and conditions.

**Road Use (RU) Permit:** A permit issued by the Authorized Officer to allow use of existing public roads subject to applicable terms and conditions.

**Temporary stockpiling:** As defined within the OP, which will be commonly no more than an hour but may span overnight if mining operations halt for the day. A temporary stockpile may be left over a weekend break, and up to one week in the event of poor weather.

01. Operator Responsibilities

The Operator including the Operator's representatives, workers, contractors, and subcontractors are responsible for conducting operations and maintaining structures, facilities, improvements, and equipment in a safe and professional manner that minimizes effects on surface resources prevents unnecessary and unreasonable surface resource disturbance and that is in compliance with the requirements of this OP. It is the Operator's responsibility to make sure that his representatives, workers, contractors, and subcontractors are provided with and understand the terms of this OP.

A. **Operating Plan on Location:** A legible copy of the approved OP must be present on the site during all phases of operations and reclamation. Failure to produce a copy of the OP may result in immediate shut down of operations.

B. **Designated Field Representative:** During any field operations, the Operator shall appoint and retain a local Field Representative. If a substitute Field Representative is appointed, the Operator shall immediately inform the District Ranger. Designation shall be in writing, and the representative shall have full authority to act for the Operator. The Operator shall provide the FS Inspector with the phone number(s), including mobile phone numbers, of where the Operator and/or the Operator's local Field Representative can be contacted during the normal operating hours of this plan. The Operator shall immediately notify the FS Inspector in case of change of address.
The Operator or Operator’s authorized representative will notify the FS Inspector at the following intervals: (1) Start of project; (2) Extended shutdowns; (3) Reports of any undesirable event – spills, fires, etc.; and (4) Within five days of completion of operations (annually & end of project).

C. Other Permits & Permissions: The Operator is responsible for obtaining all of the necessary county, state, and other federal agency permissions and permits prior to implementing the OP. This includes any required Forest Service Special Use Permits or Road Use Permits. The Operator shall provide copies of all non-Forest Service permits to the District Ranger.

Changes in Operator, Operator Name, or Address for Special Use & Road Use Permits: The Operator must notify the Forest Service in writing no later than thirty (30) days after a sale or transfer of facilities, an Operator name change, or a change in address to facilitate the modification or re-issuance of special use and road use permits associated with this proposal. Failure to do so may result in shut-in, cancellation, or denied use of the facilities under permit.

D. Changes To The Approved Operating Plan: Any change or deviation in the approved Operating Plan must be approved in writing by the Authorized Officer prior to implementation. The operator shall submit a written proposed modification to the OP, which details the change or deviation. Proposals shall include attached maps, diagrams, etc. as needed. The Authorized Officer shall notify the Operator of the necessary processes. Approval of a plan change or deviation may be made subject to such terms and conditions as the Authorized Officer deems necessary to protect National Forest System land and resources.

Emergency responses: Without prior Forest Service approval, the Operator may take action which deviates from the approved OP to the extent necessary in order to protect against threats to health and safety and imminent and significant property damage and environmental degradation. The Forest Service must be notified of such action as soon as possible, but no later than 24 hours following the action. The operator has a continuing responsibility to submit sufficient information to the Forest Service to allow an evaluation of any resulting surface disturbing activities or modifications planned to mitigate adverse environmental effects.

E. Unauthorized Operations: The Forest Service will perform random spot inspections without notification during all phases of the operations to monitor compliance with the OP.

If operations are being conducted in noncompliance with the terms of the approved operating plan or any other applicable law or regulation, the Authorized Officer shall serve a notice of noncompliance upon the operator or the operator’s agent in person or by certified mail. Such a notice shall describe the noncompliance, specify the actions necessary to bring the operation into compliance, and identify the appropriate timeframe within which the actions are to be completed. The Forest Service may invoke civil and criminal penalties, including 36 CFR Part 261.

F. Mineral Ownership Changes: To ensure that the mineral record is complete and to fulfill the Operator’s proof of mineral ownership requirements, a report of title and a copy of the deed must be submitted by the Operator to the Forest Service for all future mineral acquisitions associated with the exercise of these non-Federal mineral rights.

02. Botany
Any sensitive or watch plant species found at a later date in the project area should be protected and their habitats should be managed to protect the species. This will be coordinated with the Forest Service Botanist.
03. Chemical Use & Storage

A. Chemicals: with the exception of herbicide use for control of vegetation as specified under Stipulation #25 Vegetative Control, no other chemical use or storage is authorized unless approved by the Forest Service prior to use.

04. Cultural Resources
If, prior to or during any disturbance activity, items of archaeological, paleontological, or historic value are reported or discovered, or an unknown deposit of such items is disturbed, the Operator will immediately cease disturbance activities in the affected area and notify the Forest Service. Disturbance activities will not resume until the District Ranger gives approval.

05. Dikes (Berms)
Berms, if needed, shall be approved by the Forest Service Inspector prior to installation. Berm material shall be free of contaminants. All berms, regardless of use, shall be kept bare of all living and/or dead vegetation and maintained to prevent erosion.

06. Erosion Control
The Operator shall prevent and control soil erosion and landslides. Soils and topsoil stockpiles shall be stabilized and vegetated with approved native species. The Operator shall take prompt action to stabilize, repair, and re-vegetate eroded or washed areas and prevent gullying. Forest Service approval is required prior to any earth disturbing activity. The requirements for erosion, runoff and sediment controls for this plan are listed in the OP Stipulation Addendum #29-06.

07. Facilities (Equipment & Accessories)

A. Existing Facilities & Improvements: The Operator shall protect, in place, unless approved otherwise by the Forest Service, all existing facilities and/or improvements; underground flowlines and pipelines; buried and overhead electric lines; fences; roads; etc.; and shall repair or replace any damage as a result of actions or operations.

Overhead Powerline: McKenzie Electric Cooperative has a 50 foot right of way across Section 34. The fenced area of operations will maintain a 25 foot buffer from the existing power line. Vehicles nor equipment shall not pass under the line.

The Operator shall honor the access to, use of, and maintenance of existing facilities and lines permitted to other Users until such time as those facilities are either abandoned and/or removed. All maintenance shall be coordinated between Users so as to minimize impacts to operations. The Forest Service has final determination for determining resolution of any issues, conflicts, and other problems that may arise.

B. Changes to Facilities: If the Operator plans to add, remove, or change facilities, a detailed written statement of the changes shall be filed and approved in writing, prior to the changes being started. Statements shall include attached maps, diagrams, etc. as needed.

C. Excessive Equipment (Facilities): Facilities not approved in the OP and on location, are excessive facilities (equipment) and shall be promptly removed from the location.

D. Condition & Maintenance: All facilities shall be functional and kept maintained to prevent resource damage or shall be promptly removed from the location.
E. Animal Protection: All facilities shall be designed and maintained to ensure that livestock, wildlife, domestic animals, flying mammals, and both migratory and non-migratory birds cannot get into nor can be harmed from facilities and/or equipment.

08. Fences, Gates, Cages, & Cattleguards

A. General: Prior to commencing operations, a fence will be installed surrounding the Material Pit as delineated within Map Set 1. The new fence will tie into and utilize the existing fence on the east side of the Material Pit. A gate with locks and/or a cattleguard will be installed where Road 3 intersects the Material Pit, and temporary Road 4 starts to deter the public from entering the Material Pit grounds and to keep livestock out of the mining area. The Forest Service and all permitted holders will have access to any locked common areas. The Forest Service will be provided either a duplicate key to all locks or the Forest Service will provide a lock for use on a common chain. Upon completion of operations and once the vegetation has been re-established and determined to be satisfactory by the Forest Service, the newly constructed portion of the fence shall be removed by the Operator as required by the Forest Service.

B. Cattleguard(s): Cattleguards will be a minimum HS-20 load rating if the cattleguard is part of an existing range fence or if the access road will pass through the site requiring two cattleguards, and must meet Forest Service standards as specified in 619 of the Standard Construction and Maintenance Specifications (Reference Stipulation Addendum #29-19A1). If the cattleguard is located at the end of the road and at the site, then the Operator can determine the standard. If a future road passes through the site then the Operator standard cattleguard shall be replaced with a HS-20 cattleguard and “Cattleguard Ahead” warning signs shall be installed.

All cattleguards will be maintained as specified in 0-619 Miscellaneous Structures of the Uniform Specifications for Road Maintenance (Reference Stipulation Addendum #29-19A1) regardless of standard. Tie-in fences shall be sound and secured to the wings. Loose rails shall be welded or bolted back in place. Excess material from the cattleguard shall be removed when drainage is blocked or when it reaches six (6) inches from the bottom of the cattleguard frame. Drainage to and from the cattleguard shall be kept open. A by-pass gate will be installed as specified below with all cattleguards.

Object Markers (cattleguard safety signs) shall be installed and maintained as specified in 0-710, Traffic Services (Reference Stipulation Addendum #29-19A1) and in accordance with the Manual on Uniform Traffic Control Devices, on all cattleguards.

C. Site Fences & Gates: Fences will be constructed as specified in the Stipulation Addendum #29-08C. Wires shall be tightened if loose. Broken strands of wire, damaged and/or broken posts and damaged and/or broken braces shall be replaced. Woven wire is prohibited. Gates shall be a minimum fourteen (14) feet wide. Wire gates shall be maintained the same as a fence. Swing gates, if allowed, shall swing easily. Hinges or latches shall be repaired if not operating properly. Hinges shall be oiled. All gates shall be kept closed.

D. Road Closure Devices: All road closure devices and signs shall be approved by the Forest Service prior to installation and shall be installed and maintained as specified in 0-710, Traffic Services (Reference Stipulation Addendum #29-19A1) and in accordance with the Manual on Uniform Traffic Control Device. A sign shall be installed at the entrance of the pit restricting public access into the gravel pit.

09. Fire Prevention & Suppression Requirements
Requirements are listed in Stipulation Addendum #29-09. After year one, the requirements are subject to change. It is the Operator’s responsibility to know and comply with the most current
#29-09 Forest Service Fire Prevention & Suppression Requirements. Failure to comply may result in immediate suspension of operations. Current requirements may be requested from the Forest Service at any time.

10. Haul Route(s) and Off Road Vehicle Travel
The Operator shall limit truck traffic and personnel vehicle use to specified haul routes so as to limit resource damage to other roads. Variances or changes must be approved in writing by the District Ranger prior to use. Off road vehicle travel is not allowed unless approved in writing by the District Ranger. The gravel mining project will be accessed by the following existing road segments: (Reference Map Set 2 of the OP):

- Road Segment 1 (719C) – From Blacktail Road to mile 2.96.
- Road Segment 2 (7082) – From mile 2.96 on 719C to mile 0.04 intersection with 7082-1.
- Road Segment 3 (7082-1) – From intersection 7082 to mile 0.34 intersection with 7082-2. Note: this is the segment up the hill to oil and gas road intersection
- Road Segment 4 (7082-1) – From mile 0.34 intersection with 7082-2 to mile 0.41 entrance to gravel pit.
- Road Segment 5 (Temporary) – A proposed mining road that starts at mile 0.41 on 7082-1. This road will start inside of the material pit behind a gate and run the distance of the material pit maintaining a minimum 25 foot buffer from the power line. This mining road will utilize the two wheeled track that is already present inside the fenced area of operations. One section of track heading into the historic mining pit (Phase 1), and another section of track at the south end of the material pit.

11. Lights: Outdoor
Outdoor area lights and lighting fixtures are not authorized under this OP.

12. Noise Control (mufflers)
All internal combustion engines associated with facilities and equipment will be equipped with functional noise-reducing mufflers. The Operator must comply with any other Federal, State, County, or Municipal Laws, ordinances, or regulations pertaining to noise control.

13. Noxious Weeds & Invasive Plants
The Operator is responsible for the prevention and control of noxious weeds and to minimize the spread of invasive species on the surface areas authorized under this OP and any subsequent or related permits, etc. associated with this OP, and on any adjacent areas infested as a result of operations, and shall provide prevention and control measures prescribed by the Forest Service as listed in Stipulation Addendum #29-13.

A. Integrated Pest Management Program: The Operator is required to participate in an Integrated Pest Management Program to help prevent and control noxious weeds. Upon request, the Operator must provide the Forest Service with annual noxious weed prevention and control plans. The plans may include biological, mechanical, and/or chemical treatments or a combination of all three, as defined within the 2007 Dakota Prairie Grasslands Noxious Weed Management Project.

14. Operations
A. Map Sets: Within the OP are six (6) Map Sets applicable to operations and the stipulations herein. Map Sets are shown at scales of 1:4,000, 1:12,000 and 1:24,000 for permitting and administrative purposes. Any proposed modifications or changes shall be submitted at comparable scales. The Map Sets are as follows:
Map Set 1 – Material Pit and Buffer Zone Outlines
Map Set 2 – Roads and Haul Route
Map Set 3 – Phased Operations
Map Set 4 – Reclamation Buffer For Phases 2-5
Map Set 5 – Pre-disturbance Contours
Map Set 6 – Post-disturbance Contours

B. Area of Operations: The authorized mining area as delineated in Map Set 1 and all permitted haul roads and any permitted area used by vehicles regardless of frequency. The Area of Operations shall be maintained in a neat and safe manner and in accordance with the stipulations herein regardless of operations status.

Staking: All Phases within the mining area will be staked as delineated in Map Sets 3 and 4, including buffer zones, and designated areas for locations of stockpiling topsoil and non-aggregate material.

C. Phased Mining Operations: Operations are planned in five (5) phases: the first phase (1) to prep operations and four (4) phases of mining, all in succession. Each mining phase will not exceed five (5) acres in area. Gravel and associated aggregate material will be temporarily stockpiled and hauled to private owned land for crushing, sorting, separating, washing, grading, processing, and stockpiling. No materials will be returned to the mining site once removed. Temporary Stockpiling is defined within the OP.

D. Stockpiles: Stockpiles of topsoil and other non-aggregate material will be placed within the designated buffer zones (Reference Map Set 3). Stockpiles will be sited within the buffer zone so as not to interfere with natural drainage. Locations shall be coordinated between the Operator’s Field Representative and the FS Inspector. Stockpiles shall be located on bare ground and stabilized so as to control and prevent erosion. Stockpiles will be treated for noxious weeds as necessary.

- Topsoil: All available topsoil shall be stripped where disturbance will occur and be deposited in a pile apart from other excavated material to reduce potential mixing with subsoil material. There is an estimated average depth of six (6) inches of topsoil or 807 cubic yards of topsoil per acre.
- Subsoil & Other Non-aggregate Materials: All available subsoil & other non-aggregate materials down to the gravel shall be stripped where disturbance will occur and be deposited in piles apart from topsoil to reduce potential mixing with topsoil material. There is an estimated average depth of 2.2 feet (26 inches) of other materials overlying the aggregate or 3,495 cubic yards of other materials per acre.
- Aggregate: Shall be segregated and temporarily stockpiled as described within the OP. FS written approval is required for any temporary stockpile that needs to be stored on site longer than one week. There will be an estimated average thickness of 5.7 feet of aggregate to be removed or 9,075 cubic yards of aggregate per acre.

15. Pesticide(s)
Pesticide to control insects and rodents will not be used without the prior written approval of the District Ranger.

16. Pits
There are no pits authorized within the OP.
17. Prework Meeting(s)
A prework meeting shall be held prior to any earth disturbing activities and prior to starting a new phase, and a starting date established. This will include, at minimum, the Operator or their authorized representative, the Operator’s contractor(s), and the authorized Forest Service officer. The Operator is responsible for scheduling and holding this meeting in a timely manner sufficient for resolving any potential problems prior to actual disturbance. A minimum 48-hour advance notice is required. The Forest Service shall be notified in the event the established starting date is changed. The Forest Service will then determine if another prework conference is necessary.

Post Prework Delays: The Operator must notify the Forest Service 48 hours prior to commencing operations or resuming operations following any temporary cessation, delay, or down time in which seven or more days has elapsed.

Staking Prior to a Prework: When staking is specified, i.e. for roads, site (phase) perimeter, etc; the staking must be completed to standard prior to conducting the prework or the prework will be postponed and rescheduled at a later date. All proposed surface disturbance must be surveyed and staked including the outer limits of the area to be disturbed (catch points). Reference also Stipulation #19D for Road Staking.

18. Reclamation

A. Operator’s Responsibilities: The Operator, as specified within their OP, must conduct reclamation in accordance with the stipulations herein. All reclaimed areas will be seeded with Forest Service approved native seed mixtures.

B. Prework Meeting(s): A prework meeting is required prior to implementing any reclamation work and/or plan. A prework meeting will be required for each phase.

C. Reclamation Plan(s): All surface areas on which ground cover is destroyed in the course of operations will be reclaimed and revegetated. Plans for surface reclamation and stabilization must be designed to return the disturbed area to productive use and to meet the objectives of the land and resource management plan. Such plans must include, as appropriate: Configuration of the reshaped topography, drainage systems, segregation of spoil materials (stockpiles), surface disturbances, backfill requirements, proposals for pit/sump closures, redistribution of topsoil, soil treatments, seeding or other steps to reestablish vegetation, weed control, and practices necessary to reclaim all disturbed areas, including any access roads.

Phased Final Reclamation: Mining operations are planned in four (4) phases and each phase will be reclaimed in succession upon removal of all the aggregate material contained within. Each phase will not exceed five (5) acres in area. Reference the following Map Sets:

- Map Set 3 – Phased Operations
- Map Set 4 – Reclamation Buffer For Phases 2-5
- Map Set 5 – Pre-disturbance Contours
- Map Set 6 – Post-disturbance Contours

Buffer Zones: A 50 foot buffer zone will be in place between phases and along the temporary road to allow for crossover reclamation work between phases.

D. Contouring: Each Phase will have its own set of segregated stockpiles located east of the haul road (reference Map Set #3), and all material from those stockpiles will be evenly spread within that Phased boundary. Ensure that there is adequate materials to finish contouring the buffer zones. There is an estimated average depth of 2.2 feet (26 inches) of subsoil and other
materials overlying the aggregate or 3,495 cubic yards of other materials per acre. All slopes and contours will be shaped and smoothed to near original contours and/or to appear natural. Care will be taken to eliminate all potential concentrations of water on the disturbed area and to re-establish the natural drainage. Reference Map Set 5 Pre-disturbance Contours and Map Set 6 Post-disturbance Contours to help determine final contours. Transferring extra stockpile material from one phase to another is prohibited unless approved first by the FS Inspector. Final contouring must be accepted by the FS before topsoil can be spread.

Note Elevation Changes: The overall surface elevation may be lowered an estimated average of six (6) feet due to the removal of the aggregate. The estimated thickness of the aggregate ranges from 1.5 to 9 feet. Because the exact thickness of gravel to be mined is variable and/or unknown, final contouring shall be adjusted on site as determined by FS inspectors.

E. Water Bars: After contouring, water bars as needed will be constructed at approximately the following intervals:

<table>
<thead>
<tr>
<th>% Slope</th>
<th>Water Bar Intervals - Feet</th>
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<tr>
<td>0-2</td>
<td>200</td>
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<tr>
<td>2-4</td>
<td>100</td>
</tr>
<tr>
<td>4-5</td>
<td>75</td>
</tr>
<tr>
<td>+5</td>
<td>50</td>
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</table>

Waterbars should spill water to the opposite sides of the disturbed area to avoid concentration of water and should extend at least five (5) feet beyond the disturbed area. Waterbars should not be constructed in locations that will cause water to drain on fill slopes.

F. Winter Freeze-up: In the event of winter freeze-up, reclamation will be put on hold as determined by the Forest Service.

G. Contaminated Soils: Upon request, the Operator shall test areas that have been subject to previous spills and/or saturation from wastes to determine hydrocarbon and salt concentrations, chemical additives, minerals, and/or other substances as necessary. Test results will be made available to the Forest Service. Contaminated soils shall be promptly treated prior to any reclamation. Treatment methods and/or plans must be approved prior to treatment.

H. Topsoil: It is advantageous to the Operator to conduct a joint site survey in advance, with the Forest Service, to determine all available topsoil quantity. There is an estimated average depth of six (6) inches of topsoil or 807 cubic yards of topsoil per acre to be re-spread, although more may exist. All available topsoil shall be stripped where disturbance will occur and be deposited in a pile east of the haul road (reference Map Set #3) or within other buffer zones apart from other excavated material to reduce potential mixing with subsoil material. During operations, not all topsoil may be used. Excess topsoil is to be piled, seeded and protected until final reclamation occurs. Excess topsoil will not be removed from the site for any other uses. Upon completion of mining operations and FS acceptance of final contouring, the stockpiled topsoil shall be evenly spread over exposed subsoil to the extent practicable. Ensure that there is adequate materials to finish topsoiling the buffer zones. If the phase is short of topsoil, the Operator shall import an adequate amount of certified weed seed free clean topsoil to meet the reclamation requirements. A written certification report shall be submitted to and approved by the Forest Service prior to use. Once spread, the area is to be promptly seeded with native seed as per the stipulations herein.

I. Roads: During construction after grading is completed and before applying revegetation measures, areas to be revegetated shall be raked or otherwise cleared of sticks, stumps, stones, and other debris, which might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass covered areas. If any damage by erosion or other causes occurs after the
completion of grading and before beginning the revegetation work, the Operator shall repair such damages. This shall include filling gullies, smoothing irregularities, and repairing other incidental damage. Immediately in advance of the seeding, any crusted surface shall be scarified at right angles to the slope plane.

J. Time Frames for Completing Reclamation:
- **Site**: Each phase must be promptly reclaimed upon completion of mining operations within that phase including any buffer zones between phases not needed for current operations.
- **Road Authorizations**: Upon completion of operations, the temporary road shall be obliterated and reclaimed concurrent with the final phase unless otherwise approved in writing by the District Ranger.

K. Time Frames for Releasing Reclamation: The Forest Service will conduct annual inspections to monitor the reclamation and vegetative cover. Generally most sites can be released within five to seven (5-7) years of seeding. However, this is dependent upon three variables: adequate moisture; achieving vegetative cover that is representative of the seed mixture and 70% of the surrounding area; and achieving a minimum of three consecutive growing seasons without disturbance and/or damage. The site will not be released if there are any state or county listed noxious weeds present on the site. It is important to maintain all fences and gates to keep livestock out of the reclaimed area. Additional reclamation work and seeding may be required. All fences and gates shall be removed upon Forest Service acceptance of the reclamation and prior to bond release.

L. Reclamation Bond: A reclamation bond is required to ensure reclamation of the site between phases and upon cessation of operations. The following shall apply:

- The OP will be extended to such time as needed to adequately reclaim the site as prescribed in the reclamation plan.
- Acceptable proof of the bond must be furnished to the Authorized Officer before operations may begin.
- The bond shall be in an amount sufficient to cover anticipated damages, restoration costs, and closure and reclamation costs, which would be incurred should the operator not comply with the approved OP. The amount and components of the Reclamation Bond are specified in Stipulation Addendum #29-18L.
- The bond must stay in place for the duration of the bonded operation unless the Authorized Officer terminates the period of liability of the bond.
- When warranted, the Authorized Officer may reduce and/or adjust the amount of the bond to meet current needs.
- The bond will not be released until the reclamation work has been completed to the satisfaction of the Authorized Officer.

19. Road(s)

A. Road Specifications: The access road will be constructed and/or reconstructed and maintained in accordance with the Road Plans and/or road logs approved by the Forest Service prior to construction and use. The Operator must improve or maintain existing roads in a condition the same as or better than before operations began. The Operator must provide any plans for improvement and/or maintenance of existing roads. Components of the Road Package are specified in Stipulation Addendum #29-19.

The Operator will provide the dirt contractor with a copy of the latest revision of FP-03 Standard Specifications and Supplements for Construction of Roads and Bridges on Federal Highway
Projects along with a complete set of approved road plans. Construction operations may be suspended if the dirt contractor fails to have these documents on site.

**B. Road Permits:** Roads under the jurisdiction of the Forest Service may be used if it meets the transportation objectives of the Forest Service, and contains the required road use authorization. When access involves the use of existing roads, the FS may require that the Operator contribute to road maintenance. This is usually authorized by a Road Use Permit. The FS will charge the Operator a pro rata share of the costs of road maintenance and improvement, based upon the anticipated use of the road.

**Road Use Permit(s):** A Road Use (RU) permit will be required for use of this segment of road.
- Road Segment 1 (719C) – From Blacktail Road to mile 2.96.

**Special Use Road Permit(s):** A Special Use (SU) road permit will be required for these segments of road:
- Road Segment 2 (7082) – From mile 2.96 on 719C to mile 0.04 intersection with 7082-1.
- Road Segment 3 (7082-1) – From intersection 7082 to mile 0.34 intersection with 7082-2.  
  Note: this is the segment up the hill to the oil and gas road intersection

The remaining road segments are included as part of the OP authorization.
- Road Segment 4 (7082-1) – From mile 0.34 intersection with 7082-2 to mile 0.41 entrance to gravel pit.
- Road Segment 5 (Temporary) – A proposed mining road that starts at mile 0.41 on 7082-1.  
  This road will start inside of the material pit behind a gate and run the distance of the material pit maintaining a minimum 25 foot buffer from the power line. This mining road will utilize the two wheeled track that is already present inside the fenced area of operations. One section of track heading into the historic mining pit (Phase 1), and another section of track at the south end of the material pit.

**C. Inspection & Acceptance:** The Operator will contact the Forest Service Engineering Representative when the construction activity is completed and prior to road surfacing for a subgrade inspection and acceptance. Subgrade acceptance is required prior to surfacing and moving equipment onto the area of operations.

**D. Staking:** All designed sections will be construction staked to ensure compliance with the survey and design. Cut and fill stakes are to remain in place until final inspection. Stakes must then be removed by the contractor. Survey stakes are not to be broken off at ground level with ends left in the ground.

**E. Winter or Freeze-up Conditions:** In the event that construction activities will occur during frozen ground and/or winter conditions, the Forest Service may modify the construction requirements to provide access and minimize environmental damage. In those cases, the road will be completed to final standards within the next six (6) months. Snow and/or ice will not be incorporated into embankment or be placed to cause damage. No snow clearance is to be conducted unless approval has been obtained in writing from the District Ranger.

**F. Surfacing:** Gravel surfacing must be proven to be free of the mineral erionite through testing procedures established by the North Dakota Department of Health and used by the state Department of Transportation. Test results must be submitted to this office prior to the use of gravel on any National Forest System lands. After year one, the requirements are subject to change. It is the Operator’s responsibility to know and comply with the most current Erionite Use requirements. Failure to comply may result in immediate suspension of operations. Current requirements may be requested from the Forest Service at any time.
**Erionite Policy:** Dakota Prairie Grasslands Erionite Policy (04/15/10): “The following projects and authorizations, including but not limited to contracts, mineral related authorizations, special-use road and road authorizations, road maintenance, range improvements, and recreation facilities and sites, shall exclude erionite-gravel and ensure testing specifications be established consistent with the State of North Dakota standards, presently used by state Department of Transportation and established by the North Dakota Department of Health.”

**North Dakota Department of Health Publications Regarding Erionite Sampling Standards:**
- Erionite Bulk Sampling Guidelines for North Dakota, Dated November 2007
- Gravel Pit Operations and Exploration, Erionite Sampling Checklist, Dated November 2007

For more information about erionite, please contact the North Dakota Department of Health, Division of Waste Management, at 701-328-5166.

**Dust Abatement:** If erionite is found to be present in the pit, the Operator must ensure the control of fugitive dust associated with operations. Sprinkling water from trucks for dust control will be required during the removal, stockpiling, loading, and hauling of the aggregate. All loads leaving the site shall be adequately covered. The pit shall be signed warning of the presence of erionite.

**G. Maintenance:** The Operator is responsible for maintaining all authorized roads as per the Maintenance Specifications listed under Stipulation Addendum #29-19A1. If the road segment(s) are included within a road maintenance agreement, the Operator shall cooperate with the maintenance group and contribute to the maintenance and improvement of all included roads. The taking or borrowing of soils or topsoil from National Forest System lands for construction and/or maintenance is not allowed.

**H. Plats: As Built:** As-built survey plats will be submitted to the Forest Service upon completion of all roads and will be prepared as per Stipulatation Addendum #29-19B. After one year the requirements are subject to change. The Operator shall request from the Forest Service updated specifications for all projects completed after the one-year period.

**20. Safety**
The Operator shall operate and maintain structures, facilities, improvements, and equipment in a safe and neat manner and must take appropriate measures to protect the public from hazardous sites or conditions resulting from the operations.

**21. Seed Mixtures & Seeding**
Seeding shall be consistent with the reclamation plan(s).

**A. Mixtures:** The native seed mixture listed in Other Stipulations of Approval, shall be used for seeding all reclamation work completed within one (1) year of completion of this project. The Operator shall request from the Forest Service updated seed mixtures for any seeding accomplished after the one-year period. Approved cover crops are included within the native seed mixtures.

**B. Report of Seeding & Certification:** The mixture shall be lab tested to identify the noxious and invasive weed seed present and certified weed free by the Seed Operator. A copy of the certification including the purity and viability of the seed mix shall be supplied to the Forest Service prior to planting. Upon completion of the planting, a Report of Seeding (Stipulation Addendum #29-21B) from the Operator or the seeding contractor shall be submitted to the Forest Service verifying that the seeding is completed.
C. Seeding and/or Planting Dates: The best success rates for seeding or planting are normally from the end of spring thaw to May 15 or from October 1 to freeze-up. Seeding will be repeated annually until such areas are accepted in writing by the District Ranger as being satisfactorily revegetated (3-5 years average but may take longer) and stabilized.

D. Seeding Methods: Seeding shall be completed with grass seeders or small rangeland drills. Large grain drills are not allowed. Rangeland drills are designed to seed the larger diameter seed and seed mixes that are uniform in size. Rangeland drills should be and typically are equipped with a broadcast (dribble) box that drops the smaller diameter seed if applicable, onto the surface. A drag implement attached will provide a light soil cover over the small diameter seed. All planting will be parallel to contours and use of criss-cross patterns to prevent erosion.

Broadcast seeding, by hand or by hand held seed spreaders or with ATV mounts are allowed only on areas where it is too steep for drill equipment. When broadcast seeding, twice the normal seed mixture rate will be used. Areas broadcasted shall be raked or dragged to ensure a minimum of half-inch soil coverage over the seed.

E. Seed Beds: The seedbed should be thoroughly worked, firm, and free of clods. Drill row spacing should be about two (2) inches. Seeding depths vary from \( \frac{1}{4} \) to \( \frac{1}{2} \) inch deep and should be no deeper than one half (\( \frac{1}{2} \)) inch. Seeding deeper than one (1) inch will result in a Poor stand.

F. Mulches: A variety of mulching techniques may be required on disturbed slopes to hold seed. These sites will be mulched using certified weed free clean straw or native grass hay. Mulching should not include native hay unless livestock have been excluded from the hayed site. Reference also Stipulation Addendum #29-06 for Best Management Practices for Erosion Control which includes E3 Mulches.

G. Geotextiles: Seed and soil blankets, known as erosion control fabric and/or other names, may be used to stabilize disturbed areas. Reference also Stipulation Addendum #29-06 for Best Management Practices for Erosion Control which includes E1 Geotextiles.

H. Fertilizers: Fertilizers may be used with prior written approval from the District Ranger.

22. Signs
All signs shall be approved by the Forest Service prior to installation and kept maintained in accordance with the Manual on Uniform Traffic Control Devices.

A. Site Sign: The Operator shall install and maintain a legible and durable site sign showing the name of Operator, surveyed location (quarter/quarter, section, township, range). The sign shall be legible under normal conditions at a minimum distance of fifty feet (15.24 meters).

B. Signs Other: All other signs shall be approved by the Forest Service prior to installation and kept maintained in accordance with the Manual on Uniform Traffic Control Devices.

C. Markers: All markers such as for cattleguards, lines, etc., shall be kept maintained and painted as specified.

D. Reclamation Sign: Upon completion of the final reclamation and fencing of the site, the site sign or a similar type of sign shall be installed on or near the fence or gate at the point where the access road would have entered the site. The sign requirements are the same as for the site sign.
23. Storage
There are no areas of storage authorized under this OP. Any future areas of storage, if needed, must be approved by the District Ranger prior to use and shall be maintained in the same manner as the Area of Operations.

24. Survey Monuments
The Operator shall protect, in place, all public land survey monuments, private property corners, and Forest Service boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of their rights, depending on the type of monument destroyed, the Operator shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States", (2) the specifications of the county surveyor, or (3) the specifications of the Forest Service.

25. Vegetative Control
The Operator must prevent and control noxious weeds on the Area of Operations. A combination of both mechanical and chemical methods may produce the most effective results.

A. Mechanical Methods: Includes, but is not limited to, hand pulling, burning, use of drags, disks, etc. Burning requires prior approval.

B. Chemical Methods: Includes ground application of herbicides and requires Forest Service approval prior to application. Specifications for herbicide use and control are listed in Stipulation Addendum #29-25B. A copy of the approved herbicide use must be present on the site during the application of any herbicide. Failure to produce a copy of the OP may result in immediate shut down of operations.

26. Wastes

A. Trash, Garbage, Junk, Debris, etc.: Portable dumpsters used for trash are not authorized under this OP. All trash will be hauled off site (off NFS lands) and properly disposed of; no burning or burying will be allowed.

B. Sewage: All extensive or long term operating areas will have adequate sewage handling facilities. The Operator must ensure the proper function, maintenance, and cleaning of all sewage facilities and the proper containment, disposal, and removal of all sewage wastes. An adequate number of portable toilets (1 toilet/10 people/40 hours) shall be present on or near the site during operations. Holes excavated or drilled into the cut portion of the site or adjacent areas to catch or hold sewage wastes are prohibited. All sewage waste must be disposed of in State and/or County approved facilities. No sewage wastes shall be placed within a pit, buried on location, and/or disposed of on National Forest System Lands. The Operator is responsible for preventing the freeze-up of storage vessels. Heating tapes, tank heaters, etc. shall be used as needed. The Operator shall conduct routine inspections. All sewage spills shall be promptly reported to the Forest Service, a treatment plan developed, submitted, and approved prior to any treatment.

C. Equipment Fluids: Motor oil, hydraulic fluids, brake fluids, antifreeze, etc. will be properly disposed of off National Forest System lands. Disposal of these types of fluids on site is prohibited. Soils contaminated by these fluids shall be treated as specified in subsection E.

D. Storage of Fuels: Storage of fuels is not authorized under this OP. Any refueling of equipment, if necessary, will be conducted on bare ground and any soils contaminated by fuel shall be treated as specified in subsection E.
E. Leaks, Spills, & Other Undesirable Events: It is the Operator's responsibility to know and comply with the most current Forest Service spill reporting and containment requirements. Current requirements are listed in Stipulation Addendums #29-26E1 and E2. This includes contamination of soils or water resulting from the operations.

All spills (any soils saturated from fuel, oil, treated water, or chemical during operations) shall be promptly contained, reported, and then promptly treated. Cleanup operations will be reviewed and approved by the Forest Service prior to clean up with Forest Service recommendations for action followed. Soils contaminated and/or saturated as a result of a spill will not be buried or reburied as a means of treatment or disposal. Areas that have been subject to previous spills and/or saturation may have to be tested prior to final reclamation. Upon request, the Operator shall employ the services of a Forest Service approved independent testing lab to collect and conduct the testing.

27. Water

A. Control & Drainage: The Operator shall control water run-off so as to control soil erosion and prevent damage. During operations, drainage ditches will be established and/or natural drainage maintained to divert water away from the area of operations. Standing water and/or puddles will not be allowed.

B. Water Supply: The borrowing or taking of water from National Forest System lands for use during any phase of operations is not authorized under the OP. If operations warrant the use of water, the Operator must indicate the source, any access haul routes, and the transportation method. The water must be tested and the results provided to the Forest Service prior to any surface application. Proper permits for water depending on the source would also be needed.

28. Wildlife & Livestock
No harassment of wildlife and livestock. Notify the Forest Service if any livestock must be moved, the owner or manager of the stock shall do it.

29. Stipulations Other

A. Addendum(s)

29-06 Erosion Control Best Management Practices (BMP) (05/07/2007)
29.08C: Fence Construction & Maintenance (Revised 01/14/2005).
29.09: Fire Prevention (Revised 01/14/2005).
29.13: Noxious Weeds (Revised 01/14/2005).
29-18L: Reclamation Bond Calculation Sheet
29.19: Roads Package (Revised 01/14/2005).
29-19B: Plats As Built (Revised 08/01/11)
29.21A: Seed Mixture (Revised 05/07/2007).
29.21B: Report of Seeding (Revised 05/07/2007).
29.25B: Vegetative Control (Revised 01/14/2005).

B. Other Stipulations Developed From the Environmental Analysis

29.01C: The Operator is responsible to obtain a 1) Mining Permit from the North Dakota Department of Health, Water Quality Division; and 2) A Permit to Construct from the North Dakota Department of Health, Air Quality Division prior to commencing any ground disturbance.
**29.01G Requests for Suspension of Operations:** Upon written request from Theodore Roosevelt National Park (TRNP), the Operator will suspend operations for limited special park events (e.g. encompassing one to three days) during such event, without any reduction or affect to the overall timeframe to complete operations. All TRNP requests shall be submitted and processed through the Forest Service.

**29.18D Topography Survey:** For final reclamation, the site specific Topography Survey dated February 21, 2012 will be utilized to re-establish final contours and all natural drainages within the gravel pit area. A copy will be provided to the Operator.

**29.19B:** This permit requires the Holder to participate in a Road User Group responsible for the construction, reconstruction, and/or maintenance of the access road as necessary to accommodate the Holder’s use under the permit or to deposit funds to the Road User Group sufficient to cover these costs. The lead for the Road User Group shall be the Holder with the largest commensurate use. Commensurate use for each Holder will be based on their average number of vehicles accessing the facility. The Holder shall provide an annual vehicle use report to the Forest Service prior to their annual billing. Failure to participate in the Road User Group shall result in termination of this permit. The Forest Service has final determination for determining commensurate use and resolution of any issues, conflicts, and other problems that may arise.

**29.28A:** If the project is planned for implementation between February 1 and July 31st of any subsequent year, an additional raptor survey is required. A survey for raptors cannot commence until April 15th to allow for migratory raptors to pass through the area. Notify the Forest Service Wildlife Biologist prior to conducting the survey as this stipulation may be waived.

**29.27A:** Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. All construction which directly or indirectly impacts aquatic systems be managed to minimize impacts. All necessary State permits shall be obtained prior to any ground disturbance.

**29.28B:** To mitigate for sharp-tailed grouse lek, No activities from March 15th to May 31st. If the project is planned for implementation between March 15th and May 31st of any subsequent year, then an additional grouse lek survey is required. A survey cannot commence until April 1st. Notify the Forest Service Wildlife Biologist prior to conducting the survey.

**29.28C:** Notice to Operator: The US Fish and Wildlife Service (USFWS) has jurisdiction over protection of the golden eagle nest. The USFWS will continue to analyze the effects of the project to the golden eagle nest to consider whether the proposal would result in a taking (permanent abandonment of the nest). If the USFWS determines a taking, the Operator would be responsible to file for a taking permit directly with the USFWS.
#29-06 Erosion Control Best Management Practices (BMP) (05/07/2007)

The checked (✓ or X) reference sections are the erosion, runoff, and sediment controls that will apply to this SUPO or PO and shall be incorporated into the road & pad design.

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<th>Check Here</th>
<th>Environmental Protection Agency BMP</th>
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<td><strong>EROSION CONTROL</strong></td>
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<td>S3. Sediment Traps SE-3</td>
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<td>S4. Silt Fences SE-1</td>
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<th>#2 Road Construction</th>
<th>#3 Line Construction</th>
<th>#4 Site Reclamation</th>
<th>#5 Road/Lane Reclamation</th>
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Agreed To By:

FOREST SERVICE Personnel At Meeting: 

Operator Personnel At Meeting:
#29-08c. Standards for Fences, Braces, & Gates (Revised 05/07/2007)

**General:** Site and/or reclamation fences are designed to protect livestock, wildlife, vegetation, soils, and production facilities. Fences will be 4 strands, 12½ gauge (minimum) barbed wire with horizontal design corner and line braces. Steel posts will be used in the fenceline where terrain is fairly level. On slopes greater than 2:1 (50% slope) there will be 1 wood post for every 3 steel posts. Gates (14 feet minimum) are required.

**Braces**

**Corner Braces:** will be installed whenever a horizontal change in fence direction occurs. Corner braces will consist of 3 upright posts and 2 horizontal poles. Corner braces for segments on slopes 2:1 or greater, will consist of 5 upright posts and 4 horizontal poles.

**Line Braces:** will be installed when vertical changes occur. Line braces will consist of 2 upright posts and 1 horizontal pole.

**Gate Braces:** Gate braces will consist of 2 upright posts and 1 horizontal pole on each side of the gate. Gate sticks will be wooden, round, and a minimum of 2 inches on the small end. Smooth wire will be used for all bales on the ground posts, as well as the loop for opening the gate.

**Upright Posts (wood):** All upright brace posts will have a minimum diameter of 6 inches and a minimum length of 8 feet and shall be set at a minimum depth of 42 inches and tamped firmly. Fill is to be tamped in 6" lifts.

**Horizontal Poles:** All horizontal wooden brace (poles) will be a minimum diameter of 4 inches and a minimum length of 8 feet.

**Brace Wires & Twists:** #9 smooth wire will be used between brace posts and twisted tight, leaving a twist stick (wood, rod, or pipe) inserted in the center of the twist. Twist sticks will be 18 to 24 inches in length.

**Wires & Spacing**

**Barbed Wire:** The barbed wire will be a minimum 12½ gauge. Wire must be taut with due consideration for contraction and expansion. Wire should never be kinked or nicked. Staples should hold the wire close to the post. No more than ¼ mile of wire is to be stretched at one time. Dead end on corners and gates on the end of the brace opposite from direction of pull with wire ends wrapped around posts twice and twisted back on stretched wire. Barbed wire will not be used for purposes other than the top 3 main strands. Smooth Wire of the same gauge shall be used for the bottom strand.

**Barbed Wire Spacing:** Wire spacing from the ground up will be: 1st strand (smooth) at 16 inches, 2nd strand at 22 inches, 3rd strand at 28 inches, and 4th strand at 40 inches.

**Depressions:** Where fences cross depressions, extra wires may be needed. Wires crossing depressions shall be weighted down with rocks and tie-downs to take the strain off the staples and posts.

**Smooth Wire:** excluding the 4 main strands and the 4 strands on individual gates, #9 smooth wire will be used for all other wire needs including but not limited to braces, gates, anchors, etc..

**Fence (Non-Brace) Posts:** All posts will be in a straight line between stretch stations or brace sections and spaced 16½ feet apart. Fence post height is 48 inches excluding braces. Wood posts will be a minimum length of 6½ feet and a minimum diameter of 3 inches at the small end and firmly set a minimum of 30 inches in the ground. Steel posts will be set at a depth so that the anchor plates (flanges or fins) will be at least 3-4 inches below ground surface.
Horizontal Braces

Direction of pull

5/8" x 9" dowel pin
8"x4" horizontal brace
Twist stick

8'x6' brace post
(1" lean)

8'x6' end post
(1" lean)

Two complete wraps
max-ten 200 wire

8'x6' corner post

3/8" x 4" dowel pins

8'x4' horizontal brace

3/8" x 9" dowel pin

Twist stick

Corner Brace

Two complete wraps
max-ten 200 wire

8'x6' brace post

DOUBLE WRAP DETAIL

8'-0"

Direction of stretch
Direction of stretch

Double wrap

Double wrap all wires

Twisted

USE OF STAPLES

Drive Staples at angle. Leave wire loose in Staple.
Do not drive Staple parallel to side of post.
Leave Wire loose in Staple.

LINE BRACE

8' (min) 14'

Spike (typ)
4" bracing
6" dia

Double wire bracing
(1" twisted)

8' (min)

Single panel end and gate brace.
#29-09: Fire Prevention & Suppression Requirements (Revised 05/07/2007)

**A. General:** A HOLDER is defined as the Operator and their representatives, employees, workers, contractors, and subcontractors.

1. Compliance to the stipulations in this exhibit shall not preclude the holder from complying with any other Federal, State, County, or municipal laws, ordinances, or regulations pertaining to fire prevention and suppression.
2. The Normal Fire Season for the Medora and McKenzie Ranger Districts will be from April 1 to October 31 of each year. If conditions warrant, the District Ranger may begin or extend the fire season as deemed necessary. The District Ranger may also amend, add, or delete any requirement as deemed necessary.
3. It is the holder's responsibility to obtain and know the daily Wildfire Danger. For information on restrictions or prohibitions contact local fire officials, the State Fire Marshal, or the North Dakota Division of Emergency Management.
4. The holder shall do everything reasonable within their power and shall require their employees, contractors, and employees of contractors to do everything reasonable within their power, both independently and upon request of the Forest Service to prevent and suppress fires on or near the lands to be occupied under a Permit or Plan. Self-inspections are encouraged.
5. It is the holder's responsibility to call the local or rural fire department(s) if suppression help is needed.
6. The holder is responsible for all suppression costs and damages as a result of any fire resulting from their operations and/or practices.
7. The holder shall promptly report all fires to the Forest Service and will also cooperate with the Forest Service in completing a follow-up Fire Report.

**B. Fires:** With the exception of approved facilities, no open fires (fires for warming, burning wastes, brush disposal, debris, etc.) are allowed unless approved in writing from the District Ranger.

**C. Production Facilities:** A thirty (30) foot minimum bare ground buffer zone shall be maintained around any facility (equipment and/or accessories) capable of producing a flame.

**D. Smoking:** All smoking will be done inside of vehicles or in areas cleared of flammable material when the "Fire Danger" exceeds "Moderate".

**E. Fireworks:** Fireworks are prohibited on public lands.

**F. Exhaust & Arrester Systems:** Each internal combustion engine shall be provided with a spark arrester or spark arresting device approved by Forest Service. Exceptions where Forest Service may approve mufflers or other equipment in lieu of spark arresters qualified and rated under Forest Service standard 5100-1a are: (a) small multi-position engines, such as chain saws, shall meet Society of Automotive Engineers J335b standards, (b) passenger-carrying vehicles and light trucks may have baffle-type muffler with tail pipe, (c) heavy-duty trucks may have a vertical stack exhaust system with muffler, provided the exhaust stack extends above the cab of the vehicle, (d) an exhaust driven turbocharger is considered to be a satisfactory spark arrester. Internal combustion engine exhaust systems, arresters and other devices shall be properly installed and maintained.

**G. Catalytic Converters:** The holder shall take extra precautionary measures when driving off-road with vehicles equipped with catalytic converters. Such measures shall include but are not limited to: avoiding driving over or through vegetation tall enough to come into contact with the converter, avoid parking in vegetation tall enough to come into contact with the converter, and keep all debris from building up around or on the exhaust system.

**H. Chainsaws:** The sawyer shall have a shovel (round point #0 or equal) and a Fire extinguisher, containing not less than eight (8) ounces of extinguisher fluid or a dry chemical powder type of not less than one (1) pound capacity. The Operator shall carry the extinguisher at all times. All refueling shall be done on bare soils. Chainsaws will have a manufacturer approved or equivalent spark arrester.
I. Required Fire Suppression Equipment: any vehicle and/or piece of equipment used off-road will be equipped with an operational, charged, Type ABC fire extinguisher; a shovel (round point #0 or equal); and one of the following (per person):

1. A five (5)-gallon standard galvanized metal, fiberglass, or rubberized backpack water container, with hand pump attached, to be filled at all times.
2. Burlap bags in a ten (10) gal. Or larger container of water
3. Fire swatter/fire brooms.

Minimum fire extinguisher sizes are identified in the following table. Aerosol canned suppressants will not be considered adequate fire extinguishers for vehicles.

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Minimum Size ABC Fire Extinguisher</th>
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</thead>
<tbody>
<tr>
<td>Pickups &amp; Cars</td>
<td>2 Pound</td>
</tr>
<tr>
<td>Trucks &gt; 1 Ton GVW</td>
<td>5 Pound</td>
</tr>
<tr>
<td>Earth Moving Equipment (Dozers, Scrapers, Motor Patrol, Etc.)</td>
<td>10 Pound</td>
</tr>
<tr>
<td>Welding Equipment</td>
<td>10 Pound</td>
</tr>
<tr>
<td>Miscellaneous Equipment</td>
<td>10 Pound</td>
</tr>
</tbody>
</table>

J. Welding: Welding and use of cutting torches or cutoff saws will be permitted only in areas that have been cleared or are free of all material capable of carrying fire. Flammable debris and vegetation must be removed from within a minimum ten (10) foot radius of all welding and cutting operations. There will be no welding when winds exceed twenty (20) miles per hour.

When the "Fire Danger" exceeds "Moderate", each welding crew will have available in the immediate working or project area, 1). The required fire suppression equipment; 2). A ground tanker of not less than three hundred (300) gallon capacity with a pump capable of pumping twenty (20) gallons per minute at one hundred (100) pounds per square inch (PSI) and not less than one hundred (100) feet of hose; and 3). A road grader or dozer, which will be kept in the immediate working or project area when welding, is being performed on pipelines or flowlines.

K. Fire Suppression Plan: Upon request from the District Ranger, the holder shall submit a Fire Suppression Plan to be included as part of the Plan of Operations. It shall contain the following:

1. The names, phone numbers and mobile numbers of the holder's primary and secondary contact person(s) responsible for fire suppression.
2. Crew size(s) including supervisor(s), foremen, etc.
3. A complete listing of fire suppression equipment.
4. The names and numbers of the local/area fire departments and 2 contact names for each.
5. Location(s) of staging area(s) for water tankers and/or tenders if required.
6. Preventative measures for storage of aircraft fuel(s) at landing zones or staging areas if used.
7. A topographic map with a scale of 2.64 inches to the mile or one (1) inch equals two thousand (2000) feet will be attached with this exhibit to show the following if applicable: (a) Location(s) of all proposed water sources for fire suppression, and (b) Location(s) of all Staging Areas for water tankers and/or tenders.
8. Must be signed and dated by the holder or holder's authorized representative.

L. Failure to Comply: Failure to comply may result in immediate suspension of operations.
**#29-13: Noxious Weed Prevention & Control (Revised 08/01/2011)**

The following prescribed prevention and control measures, when used in conjunction with other measures, will help the Operator meet their responsibilities in preventing and controlling noxious weeds and/or invasive plants as identified by the North Dakota State Dept of Agriculture, individual Counties, and within the 2007 Dakota Prairie Grasslands Noxious Weed Management Project.

**A. Existing Weeds:** Annual treatment is required if noxious weed species are present.

**B. Construction Equipment:** Remove all mud, dirt, and plant parts from all off road construction equipment before moving into the project area. If this equipment was recently used on a weed infested site it should be thoroughly cleaned with a pressure washer. Cleaning must occur off National Forest System Lands. This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area. Likewise, all equipment must be cleaned prior to leaving the project site if operating within infested areas.

**C. New Construction and/or Reconstruction**
- Include weed prevention measures in all reclamation plans.
- Areas infested with noxious weeds, which will be disturbed during the construction process, should be chemically treated during the normal growing season with herbicides one year prior to disturbance. If this is not possible, infestations should be treated at least two to four weeks prior to disturbance.
- Excavated topsoil infested with noxious weeds shall be stored separately from other topsoil and periodically treated with herbicides if sprouting of noxious weeds is detected.
- If straw is used for road stabilization and erosion control, it must be certified weed free.

**D. Borrow Materials (Scoria, Gravel, Dirt, Manure, & Topsoil) & Sites**
- It is the Operator’s responsibility to obtain borrow materials from pits or sites that have been inspected and certified as weed free sites, and approved by the Forest Service prior to use. It is in the Operator’s best interest to help maintain regularly used borrow sites as weed free.
- Certification shall be in writing and shall include the quarter/quarter, section, township, and range, and the name and address of the surface owner. If the Operator is in doubt as to whether a site has been inspected and certified, the Operator may request the individual County Weed Board or the Forest Service inspect and certify the site. Certification shall be no more than twelve (12) months old, and the certifying inspection shall have been conducted during the active growing season (May through September).
- Borrow material will not be used if the weeds present at the borrow site are not found at the site of intended use. If weeds are present, they must be treated before transport and use.
- The Operator is responsible to control any weed source originating from any borrow material for as long as the weeds grow on and/or adjacent to the location.

**E. Road Maintenance:** Do not blade roads or pull ditches where new invaders are found. Coordinate road maintenance activities with herbicide application to maximize efficiency.

**F. Road Obliteration:** Chemically treat infested roads (including all areas to be disturbed) prior to obliteration and reclamation.

**G. Monitoring:** The Forest Service shall perform annual inspections to monitor the effectiveness of treatments. The Forest Service will also take the lead in identifying any new noxious weed occurrences in cooperation with the local County Weed Boards and the Operator.

**H. Chemical Treatment:** Reference COA Other #37-32B, Vegetative Control, Application of Herbicides, for the guidelines regarding the application of approved herbicides.
#29-19A Road Package Components (Revised 05/07/2007)

A complete Road Plan package for this project shall include the following attachments, which will be made part of the Plan of Operations:

#29-19A1: FP-03 Standard Specifications and Supplements for Construction of Roads and Bridges on Federal Highway Projects

The checked (✓ or X) reference sections are the construction and maintenance specifications that will apply to this plan of operations.

<table>
<thead>
<tr>
<th>Check Here</th>
<th>Construction and Maintenance Specifications</th>
<th>Check Here</th>
<th>Uniform Specifications for Road Maintenance</th>
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<tr>
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<td>101 Terms, Format, and Definitions</td>
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<td>X 0-103 Dust Abatement</td>
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<td>107 Legal Relations &amp; Responsibility To The Public</td>
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#29-19A2 Section 153 - Quality Control

This section replaces the 153 of FP-03 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects and shall apply to this plan of operations.

153.01 Work: This work consists of obtaining samples for Contractor quality control testing, performing tests for Contractor quality control, providing inspection and exercising management control to ensure that work conforms to the contract requirements.

153.02 Quality Control & Quantity Measurement System: The holder shall provide and maintain a quality control system that will ensure that all services, supplies, and construction required under this permit conform to the permit requirements. The holder shall perform, or cause to be performed, the sampling, inspection, and testing required to substantiate that all supplies, services, and construction
conform to the permit requirements. The holder shall also perform, or cause to be performed, all measurement of quantities of materials incorporated into the work or work processes that are to be measured under the provisions of the permit.

a) **Quality Control Plan.** The holder shall submit in writing the following: (1) Authorities and responsibilities of inspection and testing personnel; (2) Experience and qualifications of inspection and testing personnel to be assigned and name and location of any (for hire) testing facility to be used; (3) Description of the testing facilities and information on when and where each of the required materials tests will be performed; and (4) Example of technique to be used for random sampling.

b) **Approval of Quality Control Plan.** The holder's proposed quality control plan for all items requiring quality control shall be submitted to the Forest Service for review prior to the holder commencing work. Within 5 working days of receipt of plan, the Forest Service shall notify the holder whether the plan adequately covers quality control requirements. Construction work shall not be performed prior to holder's receipt of written approval of the proposed plan.

The holder shall submit to the Forest Service in writing, any proposed changes in the approved quality control plan. Proposed changes shall not be put into effect until approved in writing by the Forest Service.

153.03 **Sampling, Testing, Inspection, & Measurement of Quantities:** The holder shall provide or have provided and maintained appropriate measuring and testing devices, equipment, and supplies to accomplish the required measurement, testing, and inspection in a timely manner. Tests, measurements, and certifications shall be made as required by the drawings and specifications. The holder shall take samples or have samples taken and perform inspections and tests necessary to achieve the quality of construction required by the permit and make required measurements of work under this permit performed onsite or offsite. Minimum sampling and testing frequency for specific items shall be shown below in Table 153-01.

153.04 **Records of Inspections, Tests, & Measurement:**

a) **Inspection and Tests.** The holder shall maintain current records of all inspections and tests performed. The holder shall certify in writing that all inspections and tests were performed in accordance with specifications.

b) **As-Built Drawings.** The holder shall maintain a set of the permit drawings depicting as-built conditions. These drawings shall be maintained in a current condition and shall be available for review. All variations from permit drawings shall be indicated in red on the drawings. Upon completion of the permit work, as-built drawings shall be submitted to the Forest Service.

Any changes in the original permit drawings or specification must be approved by the Forest Service before any changes are made.

Sampling and testing by the holder shall meet the applicable AASHTO and ASTM standards. Unless waived by the Forest Service, the Forest Service will inspect both sampling and testing equipment and procedures prior to production.

153.05 **Certifications & Measurements:** (a) **Offsite Produced Materials.** The holder shall furnish certificates executed by the manufacturer, supplier, or vendor, stipulating that all offsite produced materials incorporated into the work meet the applicable requirements shown on the drawings or stated in the specifications. Incidental purchases needed to remedy minor shortages of material shall be certified by the holder.

#29-19A3: **Table 153-01, Sampling, Testing, & Measurement Requirements**

Where random sample or random measurement is specified, it shall be a stratified statistically random sample. Random numbers are to be determined by ASTM D3665 Section 5.1 through 5.7. The sampling must be stratified to eliminate the possibility of sample points being "clustered". Stratification is done by dividing the total quantity for the applicable bid item by the sample frequency. This process divides the total project quantity of one lot into sublots. The random number is used to obtain a random sampling point within each sublot.
Key to symbols used in table: Who Is Responsible

- **HT**: Sampling and testing by holder's personnel identified by name on the approved holder's Q/C plan. Interim approval of personnel submitted will be based on specified training or experience requirements. Final approval will be based on observation of work performance on the project.
- **PE**: Sampling and testing under the direction of and certification by a registered engineer retained by the holder and specifically identified on the approved holder's Q/C plan.

**Note**: The minimum frequency shown in this table is for Holder Quality Control sampling and testing. The holder can run additional samples over the minimum number specified in the table. These additional samples can be taken in any manner, at any time desired by the holder. Quality assurance sampling and testing by the Forest Service may be done at any time or location.

<table>
<thead>
<tr>
<th>Subsection Reference Required Sampling, Testing and Measurements</th>
<th>Who Is Responsible</th>
<th>Minimum Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>204.10 Embankment Placing</td>
<td>HT/HT</td>
<td>1 curve per soil type</td>
</tr>
<tr>
<td>Moisture Density Curve</td>
<td>HT/HT</td>
<td>All Stockpiles</td>
</tr>
<tr>
<td>204-1 Construction Tolerances</td>
<td>HT/HT</td>
<td>2 Random samples/1,000 feet. With station and items on Station</td>
</tr>
<tr>
<td>Measurement of Topsoil Pile for Quantity</td>
<td>HT/HT</td>
<td>Check all widths and length on turnouts on drawings.</td>
</tr>
<tr>
<td>Measurement of Construction Tolerances</td>
<td>HT/HT</td>
<td>2 Random samples/1,000 feet.</td>
</tr>
<tr>
<td>Measurement of Turnouts</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>Measurements of Ditch Depths and Flow</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>301.02 Gradation</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>Per 703-02 (a) &amp; (b) Pit Run or Grid Rolled Aggregate</td>
<td>HT/HT</td>
<td>3 checks for maximum size per 1,000 cubic yards.</td>
</tr>
<tr>
<td>602.02 Requirement (method A or B) Type of Pipe</td>
<td>HT/HT</td>
<td>Helical or Annular</td>
</tr>
<tr>
<td>602.03 Bedding</td>
<td>HT/PE</td>
<td>One curve per soil type</td>
</tr>
<tr>
<td>Moisture Density (Method B)</td>
<td>HT/HT</td>
<td>The first pipe on each project shall be tested. Thereafter of all installations select randomly or one test/pipe for each road or road segment whichever frequency produce the greater number of tests.</td>
</tr>
<tr>
<td>Field Density (Method A or B)</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>Camber height (Method A or B)</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>602.04 Laying Pipe</td>
<td>HT/HT</td>
<td>List for pipe installed</td>
</tr>
<tr>
<td>Alignment, Seams, Outlet (Method A or B)</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>602.03 Backfilling</td>
<td>HT/PE</td>
<td>One test per soil type</td>
</tr>
<tr>
<td>Moisture density curve (Method B)</td>
<td>PE/PE</td>
<td>One test per 12 inch lift on each side of culvert</td>
</tr>
<tr>
<td>Field density for culverts in live streams and all culverts 48 inches diameter or equivalent or greater (Method B)</td>
<td>PE/PE</td>
<td>The first pipe on each project shall be tested. Thereafter of all installations select randomly, or 1 test per pipe for each road or road segment whichever frequency produce the greater number of tests.</td>
</tr>
<tr>
<td>Field density for all other culverts (Method A)</td>
<td>HT/HT</td>
<td></td>
</tr>
<tr>
<td>Damaged or Distorted (Method A or B)</td>
<td>HT/HT</td>
<td>On all pipes installed.</td>
</tr>
</tbody>
</table>
#29-19A4 Road Data Sheet

Date of Field Review: October 29, 2010
Design Speed: (X) 15 mph (__) 35 mph

Design Class: (X) Local (X) Collector

Type of Alignment:
(X) Geometric
(__) Drivable flag line with field review and approval by the Forest Service

Type of Plans
(X) Forest Service Standard Set
(____) Other, Describe:

Cross Sections Required
(X) Yes  (__) No
(X) For entire Project
(____) Only Segments: Describe:

Turnout Spacing:
(____) 1,000 feet Maximum
(____) Intervisible
(X) Intervisible with 1,000 feet Maximum spacing

Turnouts shall be an additional 10 feet wide; Turnout tapers shall have a length of 50 feet.

Fill In Values for Each (feet)

<table>
<thead>
<tr>
<th>A (ft)</th>
<th>C (ft)</th>
<th>E (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: See standard set of plans for slopes and fill widening. Method of embankment placement (spec.204.10.a, b, c), will be method 2 with a sheep foot.

Surfacing Depth:
(X) Single Lane Road 4 inches
(____) Double Lane Road 6 inches

Maximum Grade: 8%

Construction Tolerance Class (X) E (____) F

Road Number:

Road Use (Y/N): Y
On Lease (Y/N): Y

Special Use Road (Y/N) Y

FOREST SERVICE Personnel At Meeting:
Steve Volesky

Operator Personnel At Meeting:
Roger Lothspeich
Jason Braunberger
#29-19A5 Road Maintenance Information

## Road Segments
Permitted As Part of This Operating Plan

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
<th>Length</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Road Segment 1 (719C) – From Blacktail Road to mile 2.96.</td>
<td>2.96</td>
<td>Road Use Permit Required</td>
</tr>
<tr>
<td>2</td>
<td>Road Segment 2 (7082) – From mile 2.96 on 719C to mile 0.04 intersection with 7082-1.</td>
<td>0.04</td>
<td>Special Use Permit Required</td>
</tr>
<tr>
<td>3</td>
<td>Road Segment 3 (7082-1) – From intersection 7082 to mile 0.34 intersection with 7082-2. Note: this is the segment up the hill to oil and gas road intersection</td>
<td>0.34</td>
<td>Special Use Permit Required</td>
</tr>
<tr>
<td>4</td>
<td>Road Segment 4 (7082-1) – From mile 0.34 intersection with 7082-2 to mile 0.41 entrance to gravel pit.</td>
<td>0.07</td>
<td>Permitted Within OP</td>
</tr>
<tr>
<td>5</td>
<td>Road Segment 5 – A proposed mining road that starts at mile 0.41 on 7082-1. This road will start inside of the material pit behind a gate and run the distance of the material pit maintaining a minimum 25 foot buffer from the power line. This mining road will utilize the two wheeled track that is already present inside the fenced area of operations. One section of track heading into the historic mining pit (Phase 1), and another section of track at the south end of the material pit.</td>
<td>0.00</td>
<td>Permitted Within OP</td>
</tr>
</tbody>
</table>

**TOTAL** 3.41

## Road Information
Reference Individual Road Logs

### Road Work Items

<table>
<thead>
<tr>
<th>Road #: 719C</th>
<th>Date: 10-29-10</th>
<th>Surveyor: Volesky</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Begin Termini:</strong></td>
<td>Junction FH2 NESW Section 1, T143N, R102W</td>
<td></td>
</tr>
<tr>
<td><strong>End Termini:</strong></td>
<td>Junction Road 7082 SWNE Section 34, T144N, R102W</td>
<td></td>
</tr>
<tr>
<td><strong>Primary Maintainer:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MP</th>
<th>Comments/Work Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00-2.96</td>
<td>20’ subgrade</td>
</tr>
<tr>
<td>0.012</td>
<td>20’ pipe cattleguard, concrete base, needs object markers, repair wings, certification of HS20 required</td>
</tr>
<tr>
<td>0.036</td>
<td>Install CMP 24”-36”???</td>
</tr>
<tr>
<td>0.068</td>
<td>Cattleguard Sign Lt</td>
</tr>
<tr>
<td>0.00-2.96</td>
<td>Blade and surface to 4” compacted depth, add 2”</td>
</tr>
<tr>
<td>0.065-0.09</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>0.131</td>
<td>Install CMP 18”-24”</td>
</tr>
<tr>
<td>0.237</td>
<td>Clean 18” CMP</td>
</tr>
<tr>
<td>0.265-0.295</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>0.30-0.34</td>
<td>Construct turnout Rt.</td>
</tr>
<tr>
<td>0.337</td>
<td>Install 18” CMP</td>
</tr>
<tr>
<td>0.414</td>
<td>Cattleguard Ahead sign Rt.</td>
</tr>
<tr>
<td>0.486</td>
<td>Install 18” CMP</td>
</tr>
<tr>
<td>0.492</td>
<td>20’ pipe cattleguard, concrete bases, needs object markers and certification of HS20 load rating</td>
</tr>
<tr>
<td>0.538</td>
<td>Speed Limit 25 Sign Rt.</td>
</tr>
<tr>
<td>0.545</td>
<td>Cattleguard sign Lt.</td>
</tr>
<tr>
<td>Location</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>0.58-0.63</td>
<td>Construct turnout Lt.</td>
</tr>
<tr>
<td>0.595</td>
<td>Junction with road Rt.</td>
</tr>
<tr>
<td>0.58-0.63</td>
<td>Clean ditch Lt. construct 2’ separation</td>
</tr>
<tr>
<td>0.64</td>
<td>Remove old CMPs Rt. 30’ x 30’ (2)</td>
</tr>
<tr>
<td>0.64</td>
<td>Install 24”-36” CMP with Ditch Block Rt.</td>
</tr>
<tr>
<td>0.716</td>
<td>Telephone riser ±20’ Rt.</td>
</tr>
<tr>
<td>0.75</td>
<td>Install 24”-36” CMP</td>
</tr>
<tr>
<td>0.75-0.85</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>0.82</td>
<td>Intersection “Y” sign Rt. Remove</td>
</tr>
<tr>
<td>0.92-0.97</td>
<td>Blade and surface turnout Rt &amp; Lt Double wide road</td>
</tr>
<tr>
<td>0.956</td>
<td>Speed Limit 25 Sign Lt.</td>
</tr>
<tr>
<td>1.01</td>
<td>Overhead powerline crossing</td>
</tr>
<tr>
<td>1.09</td>
<td>Stock water tank ± 50’ Lt.</td>
</tr>
<tr>
<td>1.14</td>
<td>Pipeline riser Rt. ± 30’ Rt.</td>
</tr>
<tr>
<td>1.30-1.37</td>
<td>Blade and surface turnout Lt.</td>
</tr>
<tr>
<td>1.33</td>
<td>Overhead powerline crossing</td>
</tr>
<tr>
<td>1.41</td>
<td>Junction with 2-track road Lt. Blade and surface turnout Lt.</td>
</tr>
<tr>
<td>1.55-1.60</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>1.61</td>
<td>Telephone riser ± 50’ Lt.</td>
</tr>
<tr>
<td>1.625</td>
<td>Pipeline marker post ± 30’ Rt.</td>
</tr>
<tr>
<td>1.71</td>
<td>Install 24”-36” CMP</td>
</tr>
<tr>
<td>1.76-1.81</td>
<td>Construct turnout Rt.</td>
</tr>
<tr>
<td>1.78</td>
<td>Speed Limit 25 Sign Rt.</td>
</tr>
<tr>
<td>1.79</td>
<td>Junction with 2-track road Rt.</td>
</tr>
<tr>
<td>1.79</td>
<td>Telephone riser ± 50’ Lt.</td>
</tr>
<tr>
<td>1.94</td>
<td>Pipeline riser Rt. ± 30’ Rt.</td>
</tr>
<tr>
<td>1.995</td>
<td>18” CMP good condition, right size?</td>
</tr>
<tr>
<td>2.10-2.20</td>
<td>Clean ditch Lt. Establish 2’ separation</td>
</tr>
<tr>
<td>2.10-2.15</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>2.147</td>
<td>Underground pipeline marker post ± 30’ Lt.</td>
</tr>
<tr>
<td>2.182-2.185</td>
<td>3 delineator posts Rt.</td>
</tr>
<tr>
<td>2.191</td>
<td>18” CMP</td>
</tr>
<tr>
<td>2.192</td>
<td>Underground pipeline marker post ± 30’ Lt.</td>
</tr>
<tr>
<td>2.20</td>
<td>Underground pipeline marker post ± 30’ Rt.</td>
</tr>
<tr>
<td>2.20-2.25</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>2.23</td>
<td>Pipeline riser ± 50’ Rt.</td>
</tr>
<tr>
<td>2.236</td>
<td>Underground pipeline marker post ± 50’ Rt.</td>
</tr>
<tr>
<td>2.28-2.33</td>
<td>Construct turnout Rt.</td>
</tr>
<tr>
<td>2.28-2.40</td>
<td>Clean ditch Lt. Establish 2’ separation</td>
</tr>
<tr>
<td>2.37</td>
<td>18” CMP repair inlet</td>
</tr>
<tr>
<td>2.42-2.48</td>
<td>Blade and surface turnout Lt.</td>
</tr>
<tr>
<td>2.46</td>
<td>Telephone riser ± 30’ Rt.</td>
</tr>
<tr>
<td>2.56</td>
<td>Underground pipeline marker post ± 30’ Rt.</td>
</tr>
<tr>
<td>2.564</td>
<td>Wood post ± 30’ Rt.</td>
</tr>
<tr>
<td>2.566</td>
<td>Underground pipeline crossing</td>
</tr>
<tr>
<td>2.573</td>
<td>Underground pipeline marker post ± 30’ Lt.</td>
</tr>
<tr>
<td>2.575</td>
<td>Wood post ± 30’ Lt.</td>
</tr>
<tr>
<td>2.628</td>
<td>18” CMP clean</td>
</tr>
<tr>
<td>2.70-2.86</td>
<td>Blade and surface turnout Rt.</td>
</tr>
<tr>
<td>2.85</td>
<td>Junction with 2-track road Rt.</td>
</tr>
<tr>
<td>2.93</td>
<td>18” CMP</td>
</tr>
<tr>
<td>2.94</td>
<td>Junction road 7082</td>
</tr>
<tr>
<td>2.93-2.98</td>
<td>Construct turnout Rt.</td>
</tr>
</tbody>
</table>
### Road Work Items

**Road #: 7082**  
**Date:** 10-29-10  
**Surveyor:** Volesky

**Begin Termini:** SWNE Section 34, T144N, R102W  
**End Termini:** NESW Section 34, T144N, R102W  
**Primary Maintainer:** Ranch Oil to Junction With 7082-1

<table>
<thead>
<tr>
<th>MP</th>
<th>Comments/Work Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Junction with main road 719C</td>
</tr>
<tr>
<td>0.00-0.42</td>
<td>Add surfacing to 4” depth, compacted</td>
</tr>
<tr>
<td>0.01-0.42</td>
<td>Clean ditch RT establish 2’ separation, ditch erosion</td>
</tr>
<tr>
<td>0.012</td>
<td>Install 18” CMP, cross drain w/Ditch Block Rt</td>
</tr>
<tr>
<td>0.022</td>
<td>Wood post Rt. Old “No Trespassing” sign?</td>
</tr>
<tr>
<td>0.037</td>
<td>Gate</td>
</tr>
<tr>
<td>0.13-0.19</td>
<td>Blade and surface to 4” depth turnout Rt</td>
</tr>
<tr>
<td>0.142</td>
<td>Underground pipeline crossing markers ± 30’ Rt</td>
</tr>
<tr>
<td>0.26-0.31</td>
<td>Blade and surface to 4” depth turnout Rt</td>
</tr>
<tr>
<td>0.34-0.40</td>
<td>Clean ditch Rt. establish 2’ separation</td>
</tr>
<tr>
<td>0.398</td>
<td>20’ pipe cattleguard, concrete base, not HS20, Replace cattleguard, wings, &amp; object markers</td>
</tr>
<tr>
<td>0.39-0.42</td>
<td>Construct turnout Rt. Add approach to accommodate truck traffic entry onto road from 7082-4</td>
</tr>
<tr>
<td>0.42</td>
<td>Junction with 7082-4</td>
</tr>
</tbody>
</table>

### Road Work Items

**Road #: 7082-1**  
**Date:** 10-29-10  
**Surveyor:** Volesky

**Begin Termini:** SWNE Section 34, T144N, R102W  
**End Termini:** NENW Section 34, T144N, R102W  
**Primary Maintainer:** Ranch Oil

<table>
<thead>
<tr>
<th>MP</th>
<th>Comments/Work Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Junction with 7082</td>
</tr>
<tr>
<td>0.01-0.135</td>
<td>Clean ditch RT establish 2’ separation, ditch erosion</td>
</tr>
<tr>
<td>0.0</td>
<td>Gate</td>
</tr>
<tr>
<td>0.063</td>
<td>Install 18” CMP cross drain w/Ditch Block Rt</td>
</tr>
<tr>
<td>0.07-0.12</td>
<td>Blade and surface existing turnout Lt</td>
</tr>
<tr>
<td>0.00-0.10</td>
<td>10% Grade</td>
</tr>
<tr>
<td>0.10-0.21</td>
<td>8% Grade</td>
</tr>
<tr>
<td>0.134</td>
<td>18” CMP w/Ditch Block Rt, Clean CMP maintain Ditch Block</td>
</tr>
<tr>
<td>0.20-0.215</td>
<td>Blade and surface existing turnout Rt</td>
</tr>
<tr>
<td>0.21</td>
<td>18” CMP w/Ditch Block Rt, Clean CMP and maintain Ditch Block</td>
</tr>
<tr>
<td>0.21-0.31</td>
<td>7% Grade</td>
</tr>
<tr>
<td>0.22-0.26</td>
<td>Clean ditch Rt. Establish 2’ separation</td>
</tr>
<tr>
<td>0.273</td>
<td>20’ pipe, Cattleguard timber base, no wings. Replace guard with HS20 rated guard</td>
</tr>
<tr>
<td>0.27-0.34</td>
<td>Add 4” compacted surfacing</td>
</tr>
<tr>
<td>0.34</td>
<td>Junction W/oil and gas road Rt.</td>
</tr>
<tr>
<td>0.34-0.40</td>
<td>Construct road to typical section, surface to 4” compacted depth</td>
</tr>
<tr>
<td>0.395</td>
<td>Construct double lane approach Lt. for pit access.</td>
</tr>
<tr>
<td>0.38-0.40</td>
<td>Construct turnout Rt.</td>
</tr>
<tr>
<td>0.40-0.41</td>
<td>Blend constructed road into existing 2-track road</td>
</tr>
</tbody>
</table>

**NOTE:** All CMPs must be professionally sized prior to installation.
**#19-19B Plats: As Built (Revision 08/01/2011)**

As-built survey plats will be submitted to the U.S. Forest Service upon completion of all roads and pipelines, and will be prepared as per the following table:

<table>
<thead>
<tr>
<th>Minimum Requirements For Linear R-O-Ws Including Road, Pipeline, Powerline And Underground Cable Plats On National Forest System Lands:</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Format</strong></td>
<td></td>
</tr>
<tr>
<td>Size of Plat: 8½ X 11 Inches. If larger size is necessary, holder will be responsible for providing full size and/or reduced copies. Multiple page plats are preferred over reduced sheets.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Title Block (Each Sheet)</strong></td>
<td></td>
</tr>
<tr>
<td>Name of Applicant/Holder</td>
<td>Yes</td>
</tr>
<tr>
<td>Authorization I.D. Number (SUDS # for Special Uses or Lease # for On-lease)</td>
<td>Yes</td>
</tr>
<tr>
<td>Name of Project</td>
<td>Yes</td>
</tr>
<tr>
<td>Description of Improvements (Type, dimensions, material – for example 2” buried fiberglass gas pipeline with tracer tape)</td>
<td>Yes</td>
</tr>
<tr>
<td>Origin and Destination (for pipelines)</td>
<td>Yes</td>
</tr>
<tr>
<td>Depth of Line (for buried facilities)</td>
<td>Yes</td>
</tr>
<tr>
<td>Name of Preparer</td>
<td>Yes</td>
</tr>
<tr>
<td>Date Prepared</td>
<td>Yes</td>
</tr>
<tr>
<td>Signed, sealed, &amp; dated by licensed engineer or surveyor in the State of ND</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Title Sheet with Index Map (If multiple sheets are used)</strong></td>
<td>Yes</td>
</tr>
<tr>
<td>Vicinity Map: minimum 1/2 “=1 mile (example Forest Map)</td>
<td>Yes</td>
</tr>
<tr>
<td>Legend: Describing all symbols used</td>
<td>Yes</td>
</tr>
<tr>
<td>Approval Block: See Below</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**All Plats Must Show**

- North Arrow
- Bar Scale (1” = 2000’ minimum)
- Sections, Township, Range, Meridian, County, and State
- Property boundaries & land ownership along the R-O-W (Private, State, Forest Service & other Federal Agencies) adjacent to the authorized use, by legible black and white means such as hatching, shading, or labeling.
- Legal description for all authorized NFS lands, to the 40 acre aliquot part or lot subdivision
- Acreage for all NFS lands authorized (by Section)
- Location of improvements or use site (GPS coordinates and/or bearing/azimuth and distance to the nearest recognizable feature such as a section corner or road intersection, and the method of measurement and estimated accuracy)

**All Plats For Linear Uses Must Also Show (In Addition To The Above)**

- Origin and Destination in the Title Block for (powerlines and all pipelines)
- R-O-W centerline description & stations & stations at P.I.s (metes and bounds, etc.)
- R-O-W width (note locations where width changes)
- Corner ties at ownership changes and at points of beginning and ending if on NFS land, identifying the corner monument being tied to (stone, brass cap, etc.)
- R-O-W length and acreage by section (if lengthy this may be attached as a separate tabular exhibit)
- Depth to buried improvements (note locations where depth changes)
- Foreign crossings and encroachments (mandatory for buried facilities and all new or reconstruction)
- Adjacent existing improvements within 50’ of centerline. Note: Parallel R-O-Ws need only be shown every ¼ mile (i.e. fences, pipelines, trails, roads, etc.).
- Road Locations

**Electronic Media and GPS Data Requirements**

- Digital files, compatible with Forest Service GIS (Arch Info) – consult with FS
- GPS Data Collection – consult with FS to ensure proper datum, projection, etc.
- Statement of geodetic datum used and data accuracy shown on exhibit
- GPS unit minimum accuracy of 10 meters, or as required by FS

**Note:** APPROVAL BLOCK:

Reviewed by: ___________________________ Date: ____________

Approved by: ___________________________ Date: ____________

Forest Service
#29-21A Seed Mixture (Revised 05/07/2007)

Operator:  
Site ID:  
Date:  

RECLAMATION SCENERIO # 12  
ALL SITES

Seed Mixture Pounds of Pure Live Seed Per Acre

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Common Name</th>
<th>% of Mix</th>
<th>Actual PLS Mix Lbs/Acre</th>
<th>Broadcast Actual PLS Lbs/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grasses Cool Season:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agropyron smithii</td>
<td>Rodan</td>
<td>Western wheatgrass</td>
<td>40%</td>
<td>7.00</td>
<td>14.00</td>
</tr>
<tr>
<td>Stipa viridula</td>
<td>Lodorm</td>
<td>Green needlegrass</td>
<td>30%</td>
<td>4.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Grasses Warm Season</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calamovilfa longifolia</td>
<td>Goshen</td>
<td>Prairie sandreed</td>
<td>30%</td>
<td>2.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Total of All Species</td>
<td></td>
<td></td>
<td>100%</td>
<td>13.00</td>
<td>26.00</td>
</tr>
<tr>
<td>Cover Crop: 1 of 3</td>
<td>Mandan</td>
<td>Oats or Barley or Canadian Wild Rye</td>
<td>4.00</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>

Total Pounds per Type  
- Shrub: Replacement: None  
- Tree: Replacement: See Prescription

USE OF PURE LIVE SEED (PLS) FOR CALCULATING SEED MIXTURES

All of the seed mixtures in this guide give the rate of pure live seed (PLS) for each species per acre. These rates were derived using three basic figures: percent of each species desired by composition, number of seeds per pound according to species, and total number of PLS per square foot.

The following equation should be used to calculate how much seed is needed to provide the required pounds of PLS needed.

\[
\text{% Purity} \times \text{Germination Rate \%} = \% \text{ PLS}
\]
\[
\text{Pounds of PLS Desired divided by %PLS = Pounds of Seed Required}
\]

An example of this is: 10 lbs of PLS is required. The given seed lot for this species has a purity of 95% and a germination rate of 85%. How many pounds of seed will be necessary to have 10 PLS?

\[
.95 \text{(Purity)} \times .85 \text{(germination rate)} = .81 \text{(\% PLS)}
\]
\[
10 \text{(required poundage)} \div .81 \text{(%PLS)} = 12.3
\]

12.3 pounds of seed will be necessary to provide 10 lbs PLS of seed.

Note: The Following Are Required to Meet This Stipulation:
1. Report of Seeding (#29-21B)
2. Certification of Seed Mixture from Seed Company
#29-21B Report of Seeding (Revised 05/07/2007)

REPORT OF SEEDING

01. SITE SEEDED

<table>
<thead>
<tr>
<th>Operator Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Name or #:</td>
<td></td>
</tr>
<tr>
<td>¼ ¼ :</td>
<td>Sec:</td>
</tr>
</tbody>
</table>

02. SEEDING OPERATOR

| Operator Name: |  |
| Date Seed Mixture Sent To Forest Service: |  |
| Date Site Seeded: |  |

03. SEEDING METHODS

<table>
<thead>
<tr>
<th>✓</th>
<th>Seed Bed Preparation</th>
<th>✓</th>
<th>Equipment Used</th>
<th>✓</th>
<th>Seeding Techniques</th>
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<tbody>
<tr>
<td></td>
<td>Ripped Seed Bed</td>
<td></td>
<td>Grass Seeder</td>
<td></td>
<td>Parallel To Contours</td>
</tr>
<tr>
<td></td>
<td>Disked Seed Bed</td>
<td></td>
<td>Small Grain Seeder</td>
<td></td>
<td>Criss-Cross Pattern</td>
</tr>
<tr>
<td></td>
<td>Firm</td>
<td></td>
<td>Large Grain Seeder</td>
<td></td>
<td>Mulching</td>
</tr>
<tr>
<td></td>
<td>Free of Clods</td>
<td></td>
<td>Hand Seeded</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

04. Drill Row Spacing (Inches):

05. Seeding Depth (Inches):

06. Approximate Acres Seeded:

07. I hereby certify that I, or persons under my direct supervision, have seeded this site, and the mixture has been certified weed free. A copy of the seed mixture certification, including the seed mixture is attached.

<table>
<thead>
<tr>
<th>Seeding Operator Representative</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Forest Service Reviewer</th>
<th>Date Received</th>
</tr>
</thead>
</table>

**NOTE:** ✓ The appropriate boxes and fill in the blanks as applicable for all 7 items above. Sign and send the original to the Forest Service Ranger District. Faxed copies must be followed by the original.
#29-25B: Vegetative Control, Application of Herbicides (Revised 08/01/2011)

NOTE: Herbicides used for vegetative control are generally pre-emergence short-term (less than one year duration) herbicides that will kill all vegetation including grasses and forbs. Therefore, it is extremely important that these herbicides not be used to control noxious weeds and/or invasive species, as defined within those areas where native vegetative cover is being established under interim or final reclamation.

**Chemical Treatment**

The following mitigation measures shall apply to the ground application of all herbicides:

**General**
- All chemical treatments on National Forest System (NFS) lands must be approved in writing by the Forest Service prior to any surface application.
- A copy of the approved Pesticide Use Proposal must be present on the site during the application of any herbicide.
- The herbicide MSDS sheet and product labels must be onsite and available for quick reference.
- Safe handling practices, application rates, and practices designed to protect human health and the environment as specified on the herbicide label must be adhered to.
- Herbicides must be applied by a certified herbicide applicator in accordance with the laws of the State of North Dakota.
- Failure to comply with the measures herein may result in the immediate suspension of operations.

**Herbicides**

Only approved herbicides, as specified within the 2007 Dakota Prairie Grasslands Noxious Weed Management Project can be used for chemical treatment. Since this listing may change from year to year, it is the Operator’s responsibility to request and submit use for the most current listing of approved herbicides. An approved current listing of vegetative control herbicides can be obtained from the Forest Service District Office upon request.

**Applications, Forms, Monitoring**

Companies using herbicides for vegetative control or for control of noxious weeds and/or invasive species must annually complete, submit, and have approved prior to use the following documents:

1. Pesticide-Use Proposal (Form FS-2100-2).

- Hard copies and/or electronic copies of forms 2100-2 and 2100-2A can be obtained from the Forest Service District Office upon request.
- Do not combine vegetative control use with control of noxious weeds and/or invasive species use on the same forms. Separate forms must be submitted for each.
- Herbicides will be rotated when and where possible to prevent herbicide resistant plants.

**Tentative Spraying Schedules**

Applicators must provide the Forest Service with a tentative schedule of spraying activities (1) prior to conducting herbicide activity on NFS lands, (2) when major deviations from the schedule occur, and (3) upon request from the Forest Service.

**Ground Application**
- Herbicide use will be permitted only within the areas identified within the approved proposal.
- Tank mixes will be managed according to the most restrictive of the combined chemicals.
• Blue or similar color dye will be used with the herbicide in order to clearly show where herbicides have been applied.
• No herbicide will be applied directly to surface water or where surface water from treated areas can run into live water sources.
  ➢ A buffer of at least one hundred (100) feet from bodies of water must be maintained.
  ➢ The buffer width would be determined based on soil, slope, etc.
• No spraying of liquid formulations will be done if temperatures exceed eighty-five (85) degrees.
• No spraying of liquid formulations will be done if the wind velocity exceeds ten (10) mph or per herbicide labeling directions, whichever is more restrictive.
• Application of liquid formulations should be avoided if wind speed is less than three (3) mph due to variable wind direction and high temperature inversion potential.
• If boom spraying is done, boom pressure will not exceed forty (40) psi to minimize drift.
• If required by the Forest Service, a sign saying the area has been treated with herbicides will be posted in areas receiving treatments at least one full day (unless the herbicide label says longer) after the treatment.

Monitoring
The Forest Service will monitor the herbicide use in the form of random compliance inspections. All monitoring will be done under the direction of a Forest Service employee who is a licensed Commercial Pesticide Applicator.

Year End Report
Upon completion of herbicide treatment for the season and prior to October 1 of each year, the Operator must submit the following information for each site treated and for each herbicide applied on NFS lands:
• Date of application
• Name of the treated site
• Name of the target weed(s)
• Legal description of treated site including quarter/quarter, section, township, range and county
• Chemical formulation (name of active ingredient) and trade name of chemicals applied
• EPA registration number and manufacturer
• Rate of application of active ingredient, including pounds of active ingredient applied to the site
• Amount of diluted material applied and total acres treated on the site
• Time of day, temperature, and wind speed and direction at time of application
• Type of equipment used for application
• Signature of applicator

• In the case of a combination of herbicides being used, you will need to submit the information for each herbicide in the mixture.
• DPG form 2100-2-B or a comparable form should be used to report the season’s activities. An electronic version of the form can be obtained from the Forest Service upon request.
• Failure to submit the year end reports will delay future Pesticide Use Proposals.

Closed Sites
Noxious weeds should be sprayed prior to reclamation of the site and during the monitoring of the site until released. Use caution not to use herbicides that will have a detrimental effect to any seeding requirements.
#29-26E1 Spill Policy

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
DAKOTA PRAIRIE GRASSLANDS

On Lands Administered by the Dakota Prairie Grasslands

The intent of the Dakota Prairie Grasslands in issuing this direction is that when spills associated with minerals exploration or development occur, Forest Service personnel will be informed immediately and have the opportunity to respond as needed.

Requirements of this policy apply to all oil and gas or other mineral activities conducted on Federal leaseholds on lands administered by the Dakota Prairie Grasslands. Operators on these lands must report all spills, discharges, and other undesirable events in accordance with the requirements of this policy. The Grasslands realizes there may be spills of a minor nature for which we normally would not need immediate notification, but without the information, that assessment cannot be made.

As used in this Notice, the term Authorized Officer means that officer of the Forest Service having supervisory jurisdiction for the geographic area in which the event occurs.

1. Spills of any substance, that occurs on-site, whether it is inside a bermed area or outside of it, must be reported to the Authorized Officer by phone or in person as soon as possible. These spills must also be reported in writing within 30 days of the spill. Each spill must be identified individually with required information included for each spill.

2. Any spill that occurs off-site must be reported to the Authorized Officer immediately by phone or in person, regardless of quantity.

3. Any spill of a toxic substance on Dakota Prairie Grasslands lands, must be reported immediately by phone or in person to the Authorized Officer.

Failure to provide the necessary notification or reports as provided this policy may result in other measures being taken to secure compliance, such as those provided by Title 36 CFR 261.10(a).

#29-26E2 Spill Protocol (06/26/2007)

Initial Containment and Clean Up

The spill site should be located and initial containment and clean up operations started as soon as possible to remove as much spilled fluids as possible. Small furrows or ditches should be constructed as necessary at the perimeters to contain the fluid for recovery and to minimize spread. Spilled fluids can be pushed across the surface with appropriate equipment to predetermined collection points for removal. In winter, frozen brine can be scraped together and collected. Note: Do not use freshwater for washing emulsion or saltwater spills during clean up without a calcium amendment added at the proper concentrations.

The total volume of spilled fluids and the type shall be calculated and recorded in a spill log. The recovered spilled fluids shall be removed from the site and disposed of in a landfill approved by the State of North Dakota for this activity. The total volume of spilled fluids and the type removed from the site shall be calculated and recorded in the spill log. The spill log shall be available to the Authorized Officer on request.
There will be no further spill action taken until the Authorized Officer inspects the site.

**Spill Remediation Plan**

The Authorized Officer will determine based on the size and complexity of the spill whether or not the development of a Spill Remediation Plan by the Operator will be required. If required there will be no further action at the spill site until the Spill Remediation Plan has been submitted and approved by the Forest Service.

The Plan will include a sampling and laboratory testing protocol by an independent certified entity to characterize the extent of the contamination both in surface area and vertically in soil depth as well as contaminant concentrations. The extent of the contamination will be displayed on a map for submission that meets Forest Service mapping standards.

The proposed treatments to meet total remediation of the site will be outlined. Disposal sites for contaminants will be identified and pre-approvals will be submitted. A proposed schedule of remediation treatments with benchmarks will be included.

**Spill Remediation Plan Components**

The following is a list of items to Include within the plan. More information may be required depending upon site specific circumstances.

**Characterize the area where the spill occurred.**
- The proximity of the spill to nearby surface and groundwater sources; what is the depth to groundwater?
- The proximity of the spill to sensitive areas, including archeological sites, T&E species habitat, etc.
- The soil types that the spill occurred in including soil depths, soil textures, presence of soil aggregation and biological activity;
- The types of vegetative cover present.

**Prepare a Spill Map:**
- Display the spill area and perimeter utilizing global positioning system.
- Calculate the spill area, slope and direction of flow.
- Identify depths of contaminant infiltration through visual observation utilizing a soil probe or auger at multiple locations.
- Delineate the various soil types present within the spill area.
- Locate proposed soil sampling locations within and out of the spill area.

**Describe Soil Sampling and Lab Work:**
- Identify the proposed sampling depths including control locations.
- List the independent certified soil sampling technician and laboratory that will conduct testing.
- List the types of soil tests to be performed based on type of spill; hydrocarbon, emulsion, or saltwater.
- Identify sampling protocols and quality controls.

**Site Treatment:**
- Describe the proposed treatment. If contaminated soil is to removed from the spill site, identify where its disposal will occur with pre-approval from an approved disposal facility.
- If topsoil is to be hauled into the site then certifications from the source will be required. Certifications will indicate that the material is noxious weed and seed free per the State of North Dakota list.
- If treatment is proposed in place such as a gypsum treatment for a saltwater spill then the process will be described in detail. Identify the timing of the gypsum to be applied, the
quantity to be applied, the type of incorporation and the planned depth. Identify monitoring schedule and expected results.

**Monitoring:**

- Describe the proposed type of protection for the site during remediation and following reclamation activities.
- Identify the type of monitoring and schedule to determine remediation and reclamation success.

**Spill Remediation Implementation**

After approval of the Plan spill remediation treatments can commence. All actions will be documented in the Spill Log. Periodic progress inspections will be conducted by the Authorized Officer.

At conclusion of spill remediation the site will be inspected by the Authorized Officer for acceptance. If the site is accepted then site reclamation will commence as outlined in Stipulation #18 Reclamation.
#29-18L Reclamation Bond Calculation Sheet

Reclamation bond for this project shall be $116,512.00

<table>
<thead>
<tr>
<th>Item</th>
<th>Pit Cost</th>
<th>2 Phases</th>
<th>Road Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move Equipment In/Out</td>
<td>600.00</td>
<td>600.00</td>
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<tr>
<td>Equipment &amp; Labor</td>
<td>167,850.00</td>
<td>12,280.00</td>
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<tr>
<td>Grass Seed</td>
<td>1,393.00</td>
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<td>281.00</td>
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<tr>
<td>Government Administration</td>
<td>9,702.00</td>
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<td>3,168.00</td>
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<tr>
<td>Subtotal</td>
<td>179,545.00</td>
<td>16,329.00</td>
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</tr>
<tr>
<td>10%</td>
<td>17,555.00</td>
<td>1,633.00</td>
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</tr>
<tr>
<td>Grand Total</td>
<td>197,100.00</td>
<td>98,550.00</td>
<td>116,512.00</td>
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</table>

Estimated Volumes & Acres

<table>
<thead>
<tr>
<th></th>
<th>Totals Estimated</th>
<th>Average Depth/Thickness Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Acres</td>
<td>24.6</td>
<td></td>
</tr>
<tr>
<td>Topsoil Cubic Yards</td>
<td>19,852</td>
<td>0.5 (6&quot;)</td>
</tr>
<tr>
<td>Other Materials Cubic Yards</td>
<td>83,459</td>
<td>2.666</td>
</tr>
<tr>
<td>Gravel Cubic Yards</td>
<td>176,055</td>
<td>5.625</td>
</tr>
<tr>
<td>Miles Road</td>
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Thickness Estimates (From Test Hole Data Report)

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<th>Point</th>
<th>Gravel</th>
<th>Over</th>
<th>Point</th>
<th>Gravel</th>
<th>Over</th>
<th>Point</th>
<th>Gravel</th>
<th>Over</th>
<th>Total</th>
<th>Avg</th>
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<tbody>
<tr>
<td>1</td>
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<td>3.0</td>
<td>4</td>
<td>8.5</td>
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<td>11</td>
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<tr>
<td>2</td>
<td>1.5</td>
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<td>5</td>
<td>8.0</td>
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<td>9.0</td>
<td>17.5</td>
<td>32.0</td>
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</table>

Volume Estimates

<table>
<thead>
<tr>
<th>Average Depth Feet</th>
<th>X</th>
<th>Acre Sq/Feet</th>
<th>Cubic Feet</th>
<th>CU/Yt Yard</th>
<th>Cubic Yards Acre</th>
<th>Round Up</th>
<th>X</th>
<th>Acres</th>
<th>Total Cubic Yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsoil 0.5</td>
<td>X</td>
<td>43,560</td>
<td>21,780</td>
<td>806.66</td>
<td>807</td>
<td>24.6</td>
<td>x</td>
<td></td>
<td>19,852</td>
</tr>
<tr>
<td>Other 2.666</td>
<td>X</td>
<td>43,560</td>
<td>113130.96</td>
<td>4301.15</td>
<td>4302</td>
<td>19.4</td>
<td>x</td>
<td></td>
<td>83,459</td>
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<tr>
<td>Gravel 5.625</td>
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<td>43,560</td>
<td>245,025</td>
<td>9075.00</td>
<td>9075</td>
<td>19.4</td>
<td>x</td>
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<td>176,055</td>
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<td>279,366</td>
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Equipment & Laborer Costs and Rate of Work

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<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
<th>Rate of Work</th>
<th>Hours</th>
<th>$/Hour</th>
<th>Est Costs</th>
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<tbody>
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<td><strong>Contouring</strong></td>
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<td></td>
<td></td>
<td></td>
<td>104,400.00</td>
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<tr>
<td>Scraper</td>
<td>Yards</td>
<td>180 yards/hour</td>
<td>464</td>
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<td></td>
<td>104,400.00</td>
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<tr>
<td><strong>Fine Contouring</strong></td>
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<td></td>
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<td>2,500.00</td>
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<tr>
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<td>Miles</td>
<td>1 mile/hour</td>
<td>20</td>
<td>125.00</td>
<td>2,500.00</td>
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<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,500.00</td>
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<tr>
<td><strong>Topsoiling</strong></td>
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<tr>
<td>Scraper</td>
<td>Yards</td>
<td>180 yards/hour</td>
<td>110</td>
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<tr>
<td>Blade</td>
<td>Miles</td>
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<td>Tractor &amp; Seeder</td>
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<td>2 mile/hour</td>
<td>13</td>
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<td>Foreman</td>
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<td>167,850.00</td>
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</table>
Rate of Work

**Blade** - 1 mi/hr, 10 feet wide blade
1 acre = 43,560 sq/ft = approximately an area 209 ft by 209 ft area (208.7 ft)
1 acre = 4356 ft long x 10 ft wide
4356 x 24.6 (acres) = 107,158 ft divided by 5280 (ft/mile) = 20.3 miles or 20 miles
24.6 x 43,560 sq/ft = 1,071,576 sq/ft divided by 10 ft wide = 107,158 feet long

**Tractor & Seeder**
The average tractor and Seeder will cover 8’ wide rows. Average 2 miles per hour.
24.6 (acres) x 43,560 sq/ft = 1,071,576 sq/ft divided by 8 ft wide = 133,947 feet long.
133,947 divided by 5280 = 25.36 or 25 miles divided by 2 miles/hour equals 12.5 or 13 hours

**Scrapers**: Short haul Distance (quick turnaround on site), average 15 cubic yard load

Move-in/Move-out Cost

Project is approximately 40 miles from the closest contractors, which are in Belfield, ND.

<table>
<thead>
<tr>
<th>Semi Truck With Lowboy Trailer</th>
<th>$/Mile</th>
<th>Miles</th>
<th>Rate $</th>
<th>$/Mile</th>
<th>Miles</th>
<th>Rate $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor/Trailer/Seeder Move One Direction</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
</tr>
<tr>
<td>Blade Move</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scraper Move</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>600.00</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Grass Seed

Area is primarily rolling farmed land (seed mixture attached).
Estimate that seed would cost $58/acre. (Approximate industry figure)
Estimated 24.01 acres X $58/ac = $1,392.58

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Common Name</th>
<th>% Mix</th>
<th>Actual PLS Mix Lbs/Acre</th>
<th>$ Lb</th>
<th>$$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agropyron smithii</td>
<td>Rodan</td>
<td>Western wheatgrass</td>
<td>40%</td>
<td>4.00</td>
<td>3.50</td>
<td>14.00</td>
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<tr>
<td>Stipa viridula</td>
<td>Lodorm</td>
<td>Green needlegrass</td>
<td>30%</td>
<td>3.00</td>
<td>4.25</td>
<td>12.75</td>
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<tr>
<td>Calamovilfa longifolia</td>
<td>Goshen</td>
<td>Prairie sandreed</td>
<td>30%</td>
<td>3.00</td>
<td>10.00</td>
<td>30.00</td>
</tr>
<tr>
<td><strong>Cover Crop: 1 of 3</strong></td>
<td></td>
<td>Oats or Barley or Canadian Wild Rye</td>
<td></td>
<td>4.00</td>
<td>0.25</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Total Pounds per Type</strong></td>
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<td></td>
<td></td>
<td>14.00</td>
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<tr>
<td>Shrub: Replacement</td>
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<td></td>
</tr>
<tr>
<td>Trees: Replacement</td>
<td></td>
<td>See Prescription</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Common Name</th>
<th>% Mix</th>
<th>Actual PLS Mix Lbs/Acre</th>
<th>$ Lb</th>
<th>$$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses Cool Season</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Agropyron smithii</td>
<td>Rodan</td>
<td>Western wheatgrass</td>
<td>40</td>
<td>7.00</td>
<td>3.50</td>
<td>24.50</td>
</tr>
<tr>
<td>Stipa viridula</td>
<td>Lodorm</td>
<td>Green needlegrass</td>
<td>30</td>
<td>4.00</td>
<td>4.25</td>
<td>17.00</td>
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<tr>
<td><strong>Grasses Warm Season</strong></td>
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<tr>
<td>Calamovilfa longifolia</td>
<td>Goshen</td>
<td>Prairie sandreed</td>
<td>30</td>
<td>2.00</td>
<td>10.00</td>
<td>20.00</td>
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<td><strong>Total of All Species</strong></td>
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<tr>
<td><strong>Cover Crop: 1 of 3</strong></td>
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<td></td>
<td></td>
<td>Mandan</td>
<td>Oats or Barley or Canadian Wild Rye</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total Pounds per Type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.00</td>
<td></td>
</tr>
<tr>
<td>Shrub: Replacement</td>
<td></td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees: Replacement</td>
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<td>See Prescription</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**Government time to Administer Reclamation**

<table>
<thead>
<tr>
<th></th>
<th>Rate</th>
<th>Days</th>
<th>Miles</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor</td>
<td>450.00</td>
<td>2</td>
<td></td>
<td>900.00</td>
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<tr>
<td>Administration &amp; Inspector</td>
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<tr>
<td>Vehicle Cost FOR</td>
<td>10.00/day</td>
<td>20</td>
<td></td>
<td>200.00</td>
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<tr>
<td><strong>Totals</strong></td>
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<tr>
<td><strong>Admin Overhead Costs</strong></td>
<td>10%</td>
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<td></td>
<td><strong>882.00</strong></td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>9702.00</strong></td>
</tr>
</tbody>
</table>

**ROADS**

Road Reclamation: 20 feet both sides of road, approximately 1 mile of reconstruction and turnout work that would require additional/follow-up reclamation work.

- $40\times 5280 = 211,200 \div 43,560 = 4.85$ acres
- $1 \text{ acre} = 4356 \text{ ft long} \times 10 \text{ ft wide}
- $4356 \times 4.85 = 21,127 \text{ ft divided by 5280 (ft/mile)} = 4.0 \text{ miles or 4 miles}
- $4.85 \times 43,560 \text{ sq/ft} = 211,266 \text{ sq/ft divided by 10 ft wide} = 21,127 \text{ feet long}$

**Topsoil Spreading**

- $4.85 \text{ (acres)} \times 43,560 \text{ sq/ft} = 211,266 \text{ sq/ft} \times 0.5'' (6'') \text{ depth} = 105,633 \div 27 = 3,912 \text{ yards}$
- $3,912 \div 180 = 21.7 \text{ hours}$

**Tractor & Seeder**

- The average tractor and Seeder will cover 8' wide rows. Average 2 miles per hour
- $4.85 \text{ (acres)} \times 43,560 \text{ sq/ft} = 211,266 \text{ sq/ft} \div 8 \text{ ft wide} = 26,408 \text{ feet long}$
- $26,408 \div 5280 = 5.00 \text{ or 5 miles divided by 2 miles/hour equals 2.5 or 3 hours}$

**Move-in/Move-out Cost**

Project is approximately 40 miles from the closest contractors, which are in Belfield, ND.

<table>
<thead>
<tr>
<th>Semi Truck With Lowboy Trailer</th>
<th>$/Mile</th>
<th>Miles</th>
<th>Rate $$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor/Trailer/Seeder Move One Direction</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
</tr>
<tr>
<td>Blade Move</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
</tr>
<tr>
<td>Scraper Move</td>
<td>5.00</td>
<td>40.0</td>
<td>200.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>600.00</strong></td>
</tr>
</tbody>
</table>

**Grass Seed**

Area is primarily rolling farmed land (seed mixture attached). Estimate that seed would cost $58/acre.  
(Approximate industry figure) Estimated $4.85 \text{ acres} \times 58/\text{ac} = 281.30$

**Maintenance Blade** - 1 mi/hr, 10 feet wide blade, Takes 2 Passes/mile, 3.41 total miles

**Surfacing:** 3.41 miles ($3.41 \times 5280 = 18,005$ feet)  
14' wide x 0.33' (4'') deep = 14 \times 0.33 \times 18,005 = 83,183 \div 27 = 3081 \text{ yards}$
- Estimate 15% Maintenance Issue = 462 \text{ yards} \div 14 = 33 \text{ loads}$
- Average load $35.00/\text{load} + \text{mileage (average 50 miles)}$ $30.00/\text{load} = 65.00/\text{load}$

**Government time to Administer Reclamation**

<table>
<thead>
<tr>
<th></th>
<th>Rate</th>
<th>Days</th>
<th>Miles</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor</td>
<td>450.00</td>
<td>2</td>
<td></td>
<td>900.00</td>
</tr>
<tr>
<td>Administration &amp; Inspector</td>
<td>350.00</td>
<td>5</td>
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<td>1750.00</td>
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<tr>
<td>Vehicle Cost Mileage</td>
<td>0.30/mile</td>
<td>120</td>
<td>5</td>
<td>600</td>
</tr>
<tr>
<td>Vehicle Cost FOR</td>
<td>10.00/day</td>
<td>5</td>
<td></td>
<td>50.00</td>
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<td><strong>Totals</strong></td>
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<td><strong>2880.00</strong></td>
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<td><strong>Admin Overhead Costs</strong></td>
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<td></td>
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<tr>
<td><strong>Total</strong></td>
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</table>
## Equipment & Laborer Costs and Rate of Work

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<th>Type</th>
<th>Quantity</th>
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<th>Hours</th>
<th>$/Hour</th>
<th>Est Costs</th>
</tr>
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<td>Mtnc Blading</td>
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<tr>
<td>Blade</td>
<td>Miles</td>
<td>3.41 1 mile/hour</td>
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<td>Subtotal</td>
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<td>Fine Contouring</td>
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<tr>
<td>Blade</td>
<td>Miles</td>
<td>20.0 1 mile/hour</td>
<td>4</td>
<td>125.00</td>
<td>500.00</td>
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<td>Subtotal</td>
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<td>500.00</td>
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<tr>
<td>Topsoiling</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Scraper</td>
<td>Yards</td>
<td>3,912 180 yards/hour</td>
<td>22</td>
<td>225.00</td>
<td>4,950.00</td>
</tr>
<tr>
<td>Blade</td>
<td>Miles</td>
<td>4.0 1 mile/hour</td>
<td>4</td>
<td>125.00</td>
<td>500.00</td>
</tr>
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<td>Subtotal</td>
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<td></td>
<td>5,450.00</td>
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<td>Seeding</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tractor &amp; Seeder</td>
<td>Miles</td>
<td>5.0 2 mile/hour</td>
<td>3</td>
<td>100.00</td>
<td>300.00</td>
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<td>Surfacing</td>
<td>Yards</td>
<td>462 14 yards/load</td>
<td>40</td>
<td>65.00</td>
<td>910.00</td>
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<td>Foreman</td>
<td>Hourly</td>
<td>77 60.00</td>
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<td>4620.00</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
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<td>12,280.00</td>
</tr>
</tbody>
</table>

**Prepared By:**

______________________________________________ _____________
Program Manager       Date

**Approved By:**

______________________________________________ _____________
Acting District Ranger       Date
Appendix C.1

#29-18D
Topography Survey & Cross Sections

Draft Operating Plan Stipulations

For the
Elkhorn Gravel Pit
(Reserved & Outstanding Mineral Right)

NW1/4 Section 34, T144N, R102W
Peggy Braunberger Mineral Owner & Applicant

The following Stipulations are in accordance with the Dakota Prairie Grasslands Land and Resource Management Plan Dated July 31, 2002 and shall be made part of the Operating Plan (OP) for private minerals for the above mentioned project as a condition of approval, consent, and/or permit:

#29-18D Topography Survey & Cross Sections

29.18D Topography Survey and Cross Sections: For final reclamation, the site specific Topography Survey and Cross Sections dated February 21, 2012 will be utilized to re-establish final contours and all natural drainages within the gravel pit area. A copy will be provided to the Operator.

[Signature]
District Ranger

1/6/15
Date
Elkhorn Gravel Pit
Topography Survey & Cross Sections
SECTION 34, T143 N, R102 W
MEDORA RANGER DISTRICT
BILLINGS COUNTY, ND

Survey Date: February 21, 2012
Surveyed by Mark Aughtman, Registered Land Surveyor &
Kevin McElvaney, Land Survey Technician
Drafted by Kevin McElvaney on April 6, 2012
Elkhorn Gravel Pit

Topography Survey

SECTION 34, T143 N, R102 W
MEDORA RANGER DISTRICT
BILLINGS COUNTY, ND

LEGEND
- 5/8" x 18" Rebar
- Power Pole
- T Post
- Major Contour (5 feet)
- Minor Contour (1 foot)
- Survey Boundary
- Overhead Power Line
- Cross Sections

SCALE 1:2000

200 0 200

2/6/12

REV. NO. REV. BY DATE
Appendix D Response to EA Comments

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AIR QUALITY

Comment #1: “The Theodore Roosevelt Elkhorn Ranch Site lies 0.8 miles southwest of the proposed gravel pit. The brief discussion regarding anticipated impacts to the park’s Class I air quality is short and inadequate. The EA raises significant sources of impairment of the park’s Class I air quality and then dismisses any potential impacts to it by stating that the wind will carry all the impacts away. Please provide the on the ground monitoring and modeling that supports this claim.”

Response: Air quality is addressed on pages 55-57 of the EA. The State of North Dakota, Department of Health (NDDH) regulates air quality in North Dakota and has the primary responsibility for carrying out the requirements of the Clean Air Act through the development and execution of State Implementation Plans (SIP), which must provide for the attainment and maintenance of air quality standards. NDDH provided two letters on November 1, 2011 and June 8, 2012 and determined that the Class I and II airsheds affected by the proposed action currently meet air quality standards and that the proposed pit would not have a significant adverse effect on either airshed. In a follow-up phone call to NDDH on July 10, 2012, they reiterated that their two letters are adequate and that they have not changed their position.
The gravel pit is not a major stationary source as there are no processing and crushing facilities, and is fugitive in nature since it deals with dust associated with dirt work, loading, and hauling. It is temporal in nature and impacts to the park’s airshed are unlikely.

Wind effectively disperses dusts and odors. North Dakota is the 11th windiest state in the union with an average wind speed of 18.80 mph. Billings County in which the gravel pit is located, is ranked 4th in the state with an average wind speed of 23.33 mph. The average wind speed of the eleven closest communities to the gravel pit average 22.29 mph. The wind blows on average 95% of the time. Calm days in which the wind is between 3-9 mph occurs approximately 5% of the time. Prevailing winds are generally from the north/northwest/west/southwest nearly 59.9% of the time. Winds from the south and east occur approximately 33.6% of the time on average. Winds from these directions would not carry dust or odors towards the park but away from the park. Winds that could carry dust and odors that could affect TRNP would more than likely be blowing from the northeast approximately 6.5% of the time on average.

As a further precaution, it is specified within the stipulation package #29.01c, that the Operator is required to obtain a permit from NDDH prior to commencing any ground disturbance. Although NDDH also stated that permits are generally not required for these types of operations, they would be the regulatory agency monitoring operations.

**CULTURAL**

*Comment #2: Was the area that would be reconstructed to reduce current excessive grades and to develop adequate drainage and soil controls also examined for cultural resources per Section 106?*

**Response:** Anthropology Research at the University Of North Dakota conducted an intensive cultural resources survey of the 4,370-acre block of land, acquired by the DPG in 2007, which encompasses this proposed gravel pit project. The survey was conducted May 21 – 30, 2008, and SHPO concurred with these findings on January 28, 2011. There was an additional Class III inventory of the proposed gravel pit project area conducted by Juniper, LLC, at the request of the project proponent. This survey was conducted on August 26, 2009, with a report date of November 2009. North Dakota State Historic Preservation Officer (NDSHPO) concurred at that time with the “no adverse effect” recommendation on March 16, 2010.

*Comment #3: The EA states that a survey was conducted within the 25.7 acre project area, but it is not clear why only the “project area” was surveyed and other adjacent areas were not included since this would have been required as part of the Section 106 process. There appears to be no back-up documentation to substantiate this analysis (copies of letters, maps, inventories, etc.) available in the printed EA or online.*

**Response:** As stated above in the previous comment, there have been intensive cultural resources surveys conducted on the Elkhorn Ranchlands at the time of acquisition by the DPG
in 2007, and in 2008 and 2009 as part of the subsequent surveys conducted for the proposed project.

All of the survey information, including the reports for the Elkhorn Ranch National Historic District nomination, has been used as part of the cultural determinations. The EA and online documentation does not include any cultural resource specific information because this is protected information under the National Historic Preservation Act and the Archaeological Resources Protection Act.

Comment #4: How is the USDA Forest Service addressing identification of historic properties of significance to tribes for this project under Section 106 of NHPA including consultation efforts?

Response: The USDA Forest Service Dakota Prairie Grasslands (DPG) initiated consultation upon receipt of the project proponent's application to extract surface mineral resources. On October 5, 2011, the DPG sent letters describing this proposed project to the chairman, the Tribal Historic Preservation Office (THPO), and in some cases additional offices of the local area Native American tribes who may place significance to historic properties under 36 CFR 800.2. Specifically, these October 5, 2011, letters were sent to the Standing Rock Sioux Tribe (SRST) Tribal Chairman, THPO, and Environmental Protection Specialist; the Mandan, Hidatsa and Arikara (MHA) Nation Tribal Chairman, Cultural Preservation Officer, and Administrator of Natural Resources; and the Lower Brule Sioux Tribe Public Relations representative. Consultation continued with supplemental letters that were sent to the same offices and representatives on May 11, 2012.

Consultation continued with a follow-up face to face meeting to those tribes that demonstrated interest. Specifically, the DPG heritage personnel and line officer met with the MHA Nation THPO on February 5, 2013; and the SRST THPO and staff on August 21, 2012. Follow-up face to face consultation meetings were held at the SRST THPO on February 28, 2013 and January 28, 2014 to address SRST concerns with this proposed project and others. Face to face meetings with SRST THPO continues monthly to address any and all concerns and the Grasslands Archaeologist continues to keep the SRST THPO updated on proposed Elkhorn gravel pit progress.

The 2007 ranchlands acquisition reports and the 2008 and 2009 Class III inventory reports, concurred with by SHPO in 2010 and 2011, were reviewed for this undertaking. At that time NDSHPO concurred with the “no adverse effect” recommendations. The project area was farmed and previously explored for surface minerals prior to the DPG acquiring this land, leaving little to no intact deposits or features at the proposed location of the proposed gravel pit. The face to face meetings addressed any concerns and at the time, the SRST THPO and MHA Nation THPO verbally agree that no historic properties of significance to these tribes have been identified in the proposed project area.

Identification of sites of religious and cultural significance concluded with SRST THPO on June 11, 2014, when the Grasslands Archaeologist accompanied the SRST THPO Archaeologist to the
Appendix D, Response To Comments, Page 4 of 25

project area. The SRST THPO Archaeologist further confirmed that there are no intact stone features of religious or cultural significance in the proposed project area and documented his finding in a letter addressed to Ronald Jablonski dated June 18, 2014, THPO reference file 14-104.

Comment #5: What assurances do the tribes have that our sites will be protected should they be discovered as an inadvertent discovery or during identification efforts conducted in accordance with 36CFR800.4?

Response: In addition to federal laws, such as the National Historic Preservation Act (NHPA) and the Archaeological Resources Protection Act (ARPA), there are protocols in the Region 1 as well as DPG Heritage Protection Plan that ensure the archaeologist and USDA Forest Service law enforcement officer will be notified in the event of inadvertent discovery of a place of religious and cultural significance to the tribes. The Plan of Operations also contains a mitigation measure to ensure the protection of any inadvertent discovery.

Stipulation #04 Cultural Resources: If, prior to or during any disturbance activity, items of archaeological, paleontological, or historic value are reported or discovered, or an unknown deposit of such items is disturbed, the Operator will immediately cease disturbance activities in the affected area and notify the Forest Service. Disturbance activities will not resume until the District Ranger gives approval.

The MHA Nation verbally confirmed that there are no sites of religious and cultural significance in the project area. The grasslands archaeologist accompanied the SRST THPO archaeologist to the project area in June 2014 to confirm that there are no intact features of religious or cultural significance in the proposed project area. The SRST THPO archaeologist documented his finding in a letter addressed to Ronald Jablonski dated June 18, 2014, THPO reference file 14-104. However, if a site should be discovered, the above legal and mitigation measures will be applied.

Comment #6: There is confusion that the Forest Service and State Historic Preservation Office reached a determination of either “no historic properties affected” or “no adverse effects” when clearly, there are at least two historic properties, the Elkhorn Ranchlands and the Elkhorn Ranch Unit of Theodore Roosevelt National Park, both of which are included within the National Register-eligible Elkhorn Ranch National Historic District, and, as documented in other parts of the EA, they are adversely affected by the proposed gravel pit.

Response: The proposed gravel pit is within Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Historic District as of October 28, 2012. The National Historic District was so designated as a result of Theodore Roosevelt’s home at the Elkhorn ranch site, the viewshed he observed, and the time spent exploring his ranchlands, those lands that caused him to develop ideas about conservation practices in the United States.
Prior to the National Historic District designation, SHPO concurred with the “no adverse effect” recommendations for both the 2008 and 2009 findings. After the 2012 designation, the DPG reviewed the project, and after considering comments from the public and consulting parties including tribal contacts, the DPG has revised its recommendation to the NDSHPO that there may be an “Adverse Effect” to historic properties; however, should an adverse effect occur, it will be mitigated sufficient so that it is not a significant adverse effect. NDSHPO concurs with this recommendation. The SRST THPO concurred with the US Forest Service findings and revised recommendations and to NDSHPO, and documented his finding in a letter addressed to Ronald Jablonski dated June 18, 2014, THPO reference file 14-104. There are no historic properties that fall within the proposed gravel pit inside the Theodore Roosevelt Elkhorn Ranch and Greater Elkhorn Ranchlands National Register District. Despite the various effects that may occur and are discussed throughout the draft EA, most are temporary in nature, and are mitigated sufficient to find the effects not significant. The consequent mitigation measures have been encapsulated in a Memorandum of Agreement (MOA) between the NDSHPO, the Advisory Council on Historic Preservation (ACHP), and the US Forest Service. Other consulting parties have had the opportunity to sign this agreement as signatories, such as Native American tribes including SRST and MHA Nation, the Theodore Roosevelt National Park (TRNP), and the National Trust for Historic Preservation (NTHP). The potential effects to the Elkhorn Ranch unit of the Theodore Roosevelt National Park and the National Register listed Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands have been addressed in the EA on pages 32-55.

**Comment #7: Was there any assessment made of the visual impacts the proposed pit might have on any sites of significance to tribes within the boundaries of the park?**

**Response:** A visual assessment was completed for the project and is addressed in the EA on pages 50-55 which includes the Elkhorn Ranchlands NHD, the Elkhorn Ranch Unit of TRNP and the adjacent Little Missouri River and North Dakota Parks & Recreation (NDPR) lands. There may be a direct effect to the character defining features of the Elkhorn Ranchlands NHD; however, while the Elkhorn Ranchlands District encompasses the proposed project area, no discrete historic properties are located directly within the area that may be impacted by the proposed gravel pit project, including the excavation pits, access roads, and equipment or other staging areas. Face to face tribal meetings addressed any site concerns and the SRST THPO and MHA Nation THPO agree that no historic properties of significance to these tribes have been identified in the proposed project area nor do they have concerns about an inadvertent discovery. Ongoing consultation continues, including monthly meetings with the SRST THPO. In the fall of 2014, the grasslands archaeologist accompanied the SRST THPO archaeologist to the project area to further confirm that there are no intact stone features or sites of religious or cultural significance in the proposed project area.

During Section 106 consultation conversations, TRNP agreed to conduct and provide viewshed analysis illustrating the viewshed TRNP was concerned will be affected by the gravel pit operations. This analysis TRNP conducted illustrated the viewshed equal to or greater than 70% probability of being seen by an observer located within the general vicinity of the proposed gravel pit. This includes the Elkhorn Ranch Unit of TRNP and the District.
Comment #8: Under the Historic Preservation Act of 1966 (16 U.S.C. 470E), Section 106, requires that the Advisory Council on Historic Preservation be afforded the opportunity to comment on actions of the federal government that affect sites on the National Register, or eligible for the National Register of historic places.

Response: The MOA resolving potential adverse effects to the District and TRNP is an agreement between the ND SHPO, the ACHP, and the DPG. The ACHP was initially afforded the opportunity to participate in consultation and comment on the proposed project and consequent MOA on May 29, 2014. Revised drafts of the MOA and supporting documentation were sent to the ACHP for opportunity to comment on July 28, 2014; October 17, 2014; October 21, 2104; November 14, 2014; and November 21, 2014. Consistent consultation conversations occurred between the DPG and the ACHP, including June 24, 2014; July 17, 2014; August 21, 2014; September 4, 2014; and November 17, 2104. Formal Section 106 consultation emails were exchanged with all consulting parties, including the ACHP, on June 24, 2014; July 15, 2014; July 16, 2014; July 28, 2014; September 17, 2014; October 21, 2014; November 3, 2014; November 7, 2014; and November 12, 2014. Formal Section 106 consultation phone calls inviting all consulting parties to participate, including ACHP, SRST, MHA Nation, NTHP, and TRNP, occurred on June 17, 2014; July 17, 2014; and November 14, 2014.

Comment #9: “It is difficult to understand that the protection of the historical integrity of the Elkhorn Ranchlands is not the primary issue of the analysis. Direct and indirect impacts of the proposed gravel permit should be analyzed in the context of their affects on the integrity of the surrounding significant historical resources. The narrow scope of the analysis, limited project area, alternative limitations, and the failure to recognize the significance of the affects of the proposed action on the historical integrity of the Elkhorn Ranchlands are significant flaws in the EA analysis. “

Response: The protection of the acquired ranchlands is our primary focus, as evidenced by the purchase of the lands, and the championing of the Historic District designation. The Forest Service has a legal responsibility to honor the valid mineral rights that were recognized and agreed to at the time of the purchase of the ranchlands. The Forest Service has spent the better part of five years negotiating an operating plan and forty-one pages of mitigation measures with the Applicant. The analysis is in line with the limited statutory authority of the Forest Service in this proposal.

COUNTY DEPARTMENT OF TRANSPORTATION BRIDGE PROJECT

Comment #10: “To not allow the historic area of the Elkhorn ranch be changed by the road and bridge project.”

Response: The current discussions and analysis of a bridge crossing project is beyond the scope of this proposal, nor is it a connected action. That project is undergoing a separate NEPA analysis. While it is an action that is reasonably foreseeable action within the area, there is not
enough connection to the proposal at hand to include it in cumulative impact analysis for this project.

DEPARTMENT OF INTERIOR

Comment #11: “Permitting active construction, mining, new roads are not in keeping with former Secretary of the Interior Gale Norton's public private partnership to protect this wild place. The proposal is counter to past U.S. Government policies and is conflict with the objectives of the National Park Service.”

Response: The policies and objectives of the Department of Interior are not applicable as the ranchlands were incorporated into the National Forest System lands under the Department of Agriculture’s policies and objectives. See also the response to #9 above relative to the limited statutory authority relative to this proposal.

ERIONITE

Comment #12: “Aggregate to be used for road construction should not contain any Erionite. Aggregate sources should be tested for Erionite following guidelines found at www.ndhealth.gov/EHS/Erionite.”

Response: The gravel from the proposed pit will not be used for road reconstruction and/or maintenance. The gravel must originate from a gravel pit that has been tested to State protocols and is free of Erionite. The gravel must be tested prior to any mining operations as required within the Operating Plan Stipulations (Stipulation #19F). The Operator has stated within the Operating Plan that they will test and comply with all testing protocols for Erionite (Operating Plan page 8).

Comment #13: “That the proposed pit area itself should be tested prior to any gravel extraction and if Erionite is found in the gravel, the Operating Plan should not be approved.”

Response: The mineral operator owns the gravel with or without Erionite present and the presence of Erionite within the gravel would not be a legal justification to deny the Operating Plan. However, the presence of Erionite would necessitate mitigation measures to ensure the safe removal and transportation of Erionite laden gravel. The gravel must be tested prior to any mining operations as required within the Operating Plan Stipulations (Stipulation #19F). The Operator has stated within the Operating Plan that they will test and comply with all testing protocols for Erionite (Operating Plan page 8). They also stated that they will comply with the FS Interim Erionite Policy which prohibits its use on National Forest System lands. Mitigation measures are included within Stipulation 19F which includes requirements for testing, use, and dust abatement. Failure to comply would result in the immediate suspension of operations.
**Comment #14:** “If you lack the legal authority to deny, at the very least this stipulation should be reworded to require continuous compliance with ND and federal law or regulation, so that if stiffer rules are put into place as time passes, limiting the movement or sale of Erionite-containing gravel, the operator would be required to comply with the new rules as they become effective (similar to the language already used for road surface gravel).”

**Response:** The Operator would be responsible to abide by both state and federal laws. Any amended operating plan would also contain any amended policies.

**HISTORIC NATIONAL MONUMENT**

**Comment #15:** “Urge national monument designation for the original site of Theodore Roosevelt's Elkhorn Ranch and the view scape around it, totaling some 4,400 acres.”

**Response:** Whether or not the ranchlands are designated a national monument or not is beyond the scope of this document. The Forest Service does not have the authority to designate national monuments as that is a legislative and/or executive privilege.

**LAND AND RESOURCE MANAGEMENT PLAN (LRMP) AMENDMENT**

**Comment #16:** “Lack of a LRMP amendment gives this proposal viability without standards to hold the site to. The LRMP process would have provided the tools necessary to protect the historic and Scenic Integrity Objective character of the ranch. We request that prior to any decisions and any further NEPA analysis, the LRMP amendment be completed so that the FS does not foreclose on future options based on decisions made in regarding the proposed gravel pit.”

**Response:** This comment is outside the scope. Refer to Comment #9 above relative to valid existing mineral rights. The viability of the project comes from the ownership and exercise of valid existing mineral rights which were known and agreed to at the time of acquisition of the ranchlands. Resource protection standards and guidelines, including the protection of historic, scenic, and valid mineral rights, are included within Chapters 1 and 2 of the LRMP. To date, the mineral owner has agreed to every negotiated mitigation measure with the exception of 1) replacing the removed materials with other materials and 2) dropping the proposal altogether. The bases for all of the mitigation measures all originated from the LRMP. Any future LRMP amendment would still need to include honoring of valid existing rights to avoid violating federal law. It must also be noted that the Historic District recognizes valid mineral rights and mineral development with limited authority.

**Comment #17:** “It would be inappropriate to allow this specific activity to proceed under the general grasslands-wide and badlands specific sections of the existing plan, as they do not take into account the historic significance, sensitivity, and high public interest in these acquired lands.”
Response: The LRMP was prepared in accordance with the 1976 National Forest Management Act (NFMA), the 1969 National Environmental Policy Act (NEPA), and other laws and associated regulations. It identifies the framework to guide the day-to-day resource management operations on the Dakota Prairie Grasslands, and subsequent land and resource management decisions made during project planning. The NFMA requires that resource plans and permits, contracts, and other instruments issued for the use and occupancy of National Forest System (NFS) lands be consistent with the final revised management plan.

That being said, in this situation the importance of the ranchlands have been taken into consideration in developing the site specific operating plan stipulations to both honor the private mineral rights AND provide protection to the Historic District. These stipulations are more stringent than would be applied under general LRMP requirements. This is permissible on a site-specific basis.

LITTLE MISSOURI RIVER

Comment #18: “The conclusion of the EA that a 25.9 acre gravel pit would have "no adverse effect" is contradicted by the very thorough analysis given [EA@ 26-58] of the effects this will have on the adjacent Little Missouri River watershed, a designated Scenic State River.”

Response: The effects to the Little Missouri River are disclosed on pages 39–55 and 61-62 of the EA. There would be no physical impacts to the river as the river is approximately 4,300 feet from the proposed pit and there are no operations adjacent to or within the river, nor is the proposal within the quarter mile Little Missouri River Corridor. The impacts to the visuals and soundscape along the river would be temporary.

MINERAL ACQUISITION

Comment #19: “The EA dismisses the possibility of purchasing or exchanging the applicant's surface mineral (sand & gravel) rights by lumping them with subsurface mineral ownership. The development of an alternative that addresses the purchase or exchange of the proponent's sand and gravel rights would allow the Forest Service to determine the quantity, quality and value of the gravel resource. The applicant has publicly stated they would sell the rights to the government.”

Response: For the last two years the Forest Service has negotiated with the Elkhorn Minerals, LLC and explored the feasibility and means to reasonably acquire, exchange, or donate the rights to the mineral holdings in order to avoid this development (EA Pages 19-22). While the Forest Service has yet to gain sufficient social, political, and financial support to move forward with a feasible proposal, we will continue to pursue and support reasonable and feasible means to acquire these mineral rights either directly or by other interested individuals or groups. At this point, Elkhorn Minerals, LLC withdrew from our Agreement in Principle on July 31, 2013,
and requested on November 13, 2014 to move forward with processing their operating plan. To their credit, I believe Elkhorn Minerals, LLC have established their own interest in protecting this historic resource as demonstrated through their agreement to stipulations that will reasonably minimize potential impacts of their development. The Forest Service is bound by law to process the Elkhorn Minerals, LLC’s operating plan in an expedient manner.

**NEPA ASSESSMENT**

**Comment #20:** “We request that the Forest Service comply with NEPA and explore an adequate range of alternatives so that the public can fully understand the tradeoffs and consequences between alternatives and it’s not a ‘take it or leave it’ proposition in which the agency has already prematurely conceded that it cannot pursue one of its two alternatives. That’s not a range; it’s a target. The courts have found that simply providing the public with the two choices of ‘no action’ and the proposed project fails to meet the criteria for rigorously exploring a reasonable range of alternatives so that the public can fully understand and weigh the tradeoffs among alternatives.”

**Response:** The NEPA does require that we consider a reasonable range of alternatives. However, given the narrow nature of the scope of the project (narrowed by statute), the range of alternatives analyzed in detail is small (see EA page 22-26). However, the NEPA requires no minimum number of alternatives, despite assertions to the contrary. While in many situations projects lend themselves to a larger number of alternatives, when presented with a project of this nature the choices are clear. We must consider “no action” – even though in this situation it isn’t a viable alternative - because NEPA requires that we consider the effects of not completing the proposal. While only two alternatives were considered in detail, four additional alternatives to reasonably acquire, exchange, or donate the rights to the mineral holdings in order to avoid this development have been dropped from detailed consideration (see EA, pages 19-22). Had any of the four alternatives proved successful, this analysis would have ended, and the alternative(s) would have required a separate process and environmental analysis.

**Comment #21:** “It is reasonable to expect the project proponent to help pay for the costs of the development and completion of that document, not to mention for the costs of the EA now in process.”

**Response:** It is indeed reasonable to expect the project proponent to pay for all or a portion of the cost for a project proposed on National Forest System lands. In this situation, the project proponent provided funds to pay for survey work necessary to support the NEPA analysis for this project.

**Comment #22:** “The Cumulative Effects Analysis put forth in the draft EA is inadequate. NEPA requires not simply listing the past, present and actions in the reasonably foreseeable future, but also requires the Forest Service to analyze and disclose the cumulative impacts of the proposal.”
Response: The EA not only provides a listing of past, present and reasonable foreseeable future actions (EA p. 33-34), it provides disclosure of cumulative impact analysis by resource area as well (see EA pages 39, 47, 49-50, 54-55, 57, 60-61, 62, 63, 65, 69-70, 71, and 77). The scope of the proposal, and the effects analysis, are appropriate to the scale and nature of the project at hand. Included in the list of actions are those reasonably foreseeable, as required by NEPA, the list is not exhaustive to the point of including projects that are speculative or not anticipated to overlap in time or space with the action at hand.

Comment #23: “Accordingly, the nature of the proposed action and its effects on the historically significant Elkhorn Ranchlands mandates the preparation of an EIS evaluating the impact on the 4,402 acre viewshed of the Elkhorn.”

Response: We understand the concerns expressed, but must fall back on the nature of the decision at hand, this proposal is for the exercise of a valid existing private mineral right which requires the use of the federal surface. The decision is not “whether or not to allow the use of the federal surface” for this action. The decision is “how to allow the use of the federal surface.” The proposed use of the NFS surface is minor in scope, (approximately 26 acres) and temporary in nature (approximately two to three years). When all the factors are taken into consideration, despite the proximity to the Elkhorn Ranchlands NHD, this proposal is properly analyzed in the EA.

Comment #24: “The U.S. Forest Service is arbitrarily limiting its management flexibility and prerogatives by narrowly defining its decision space.”

Response: While the commenters may feel that the Forest Service is limiting itself unnecessarily, the fact that the mineral estate is dominant over the surface estate is well established. Therefore, since the minerals development proposal in question is for access to private minerals associated with National Forest System surface ownership, we have defined our decision space appropriately. We do not have the legal ability to deny the mineral owner their access to their minerals, however Forest Service staff have worked exhaustively to craft design criteria in such a way as to provide adequate protection of the NFS lands. We have taken into consideration potential indirect impacts to adjacent National Park Service lands, as well, in the development of the design criteria.

Comment #25: “We would never have undertaken an exhaustive three-year campaign to "protect" the Elkhorn had we known the U.S. Forest Service would interpret its multiple use mission to honor and process to successful fruition every application it receives such as the one referenced above. The language within Section 424 of Public Law P.L.110-161, Consolidated Appropriations Act of 2008, says: "(h) The multiple uses of the acquired Elkhorn Ranchlands shall continue." [EA@27]. The draft EA goes on to say: "The follow-up of P.L.110-161 added the above clauses in response to local interests." This language was put in for only one reason, expressly at the request of the Medora Grazing Association, to insure their continued grazing privileges on the 23,550 acres acquired. "Multiple uses" meant "traditional uses," i.e. grazing,
farming, hunting, and all other forms of recreational uses such as hiking, biking, camping, wildlife viewing, etc. “

Response: It is the Forest Service’s multiple-use mission and the agency's willingness to agree to a no net gain of federal lands in Billings County that paved the way for the acquisition. Other provisions included in P.L. 110-161 were added to satisfy primarily local interests. However, PL 110-161 did not exclude mineral development as a multiple use. The Option Contracts signed in August of 2006, the year prior to the actual purchase, recognized the reservation of the mineral estate including oil and gas, sand, and gravel and the right to occupy the surface to explore for, mine, and develop as much as the surface as necessary subject to the Secretary of Agriculture’s Rules and Regulations. This was agreed to by the sellers, the Rocky Mountain Elk Foundation, and the Forest Service. The Preliminary Title Opinion (PTO) accepted “any right, title, or interest in any mineral rights,” which includes both the private outstanding and the private reserved mineral rights. The mineral rights were clearly recognized by all parties prior to the acquisition.

Comment #26: “That the Purpose and Need is poorly worded and wrong and simply sets up the Forest Service for the inevitable rubber stamp of the proposed project and therefore artificially limits a reasonable range of alternatives.”

Response: The Purpose and Need is legally correct given the type of action proposed, a proposal for private mineral development associated with federal surface is only subject to design criteria, NOT denial of the action. The Forest Service Manual 2830, Mineral Reservations and Outstanding Mineral Rights can be quoted directly as “As a general rule, the Forest Service does not have authority to deny the exercise of a mineral reservation or outstanding mineral right.” The Forest Service authority is described in the terms of the deed. When the surface was acquired, the minerals were accepted as an outstanding right. Simply put, the federal government owns the surface property rights, but does not own the mineral property rights. Therefore, the Purpose and Need for Action was written to accurately represent the Forest Service’s purpose for the action “…documenting concerns, effects, design criteria and stipulations, and conditions of access and surface occupancy for exploration...” (EA page 11).

OPERATIONS

Comment #27: “That the location of the processing facilities be disclosed, so that an assessment could be made of the impacts along the route to the processing facility and in the vicinity of the processing facility itself. While the environmental assessment indicates the frequency of disturbance at the Elkhorn Ranch site, it fails to address the location of the processing facility or the route used by trucks to reach this facility. “

Response: There are no proposed processing facilities on NFS lands or adjacent to NFS lands. The operator has indicated they could be hauling to existing facilities in Dickinson or north to Watford City or Williston. The Forest Service does not have any jurisdiction over private lands and therefore would not conduct an assessment at those facilities. The EA does address the
haul route on page 65 of the EA. Use of County Road FH-2 would be necessary for hauling off of NFSR 719C from the ranchlands. FH-2 includes segments of road located on both private and NFS lands. The segments of road located on NFS lands are included within a USDA Public Road Easement to Billings County and is maintained and regulated under County jurisdiction. FH-2 is a double lane graveled road and is a major access and collector route through the Blacktail Creek area. It has both industry and residential users and is open and maintained year round.

RECLAMATION

Comment #28: “That complete restoration is just not possible and the proposed reclamation efforts do not go far enough in returning the landscape to its previous appearance, and that the project proponent should be required to undertake mitigation efforts to return the site to its pre-gravel pit state.”

Response: The site as it currently exists is perceived as being natural when in reality it has been altered from years of farming, which has flattened the natural rolling of the hills and filled in the low spots along with the creation of access roads. There are also remnants of the previous gravel pit which occupies the northern end of what is now the proposed gravel pit. The reason this is not apparent is that the ridgeline above the proposed gravel pit site and the ridgeline along the skyline has not been altered and the flattened side or end view of the fields don’t show the alterations. As a resource agency we would not want to keep or maintain this altered appearance. If mining were to occur it would not alter either ridgeline or the main skyline.

Commenters suggested that the operator be required to replace the removed material with source material from another location to ensure the pre-gravel pit state. As stated on pages 37-39 and 50-55 of the EA, the elevation of the gravel pit area could be lowered an average of eight feet, but once reclaimed, all of the natural features including ridges and drainages, would be reestablished and recontoured, and at a distance, the reclamation should appear more natural than the current topography. Bringing in replacement soils from a borrow pit was proposed with the Operator but rejected by the Operator as unreasonable. Locating a borrow pit on or near the ranchlands, would meet with the same resistance as the gravel pit and potentially require disturbing an equal sized area resulting in two disturbed areas.

Comment #29: “That any attempt at reclamation using native seeds should have a broader mix than three grasses. Perhaps more grasses could be added to the mix at the beginning and the addition of at least some forbs could be required five years into the reclamation process or just prior to bond release. This addition should not be particularly costly for the operator, but would likely produce a better result over time.”

Response: In 2010 the Elkhorn Ranchlands Cover Crop Project was implemented to authorize the planting of five native grass species as specified only for the purpose to restore native plants to these former cultivated fields. An environmental analysis and public involvement were completed for the Cover Crop Project. The area of the proposed gravel pit has been planted with these native species. The native seed mix in Stipulation #29.21a includes three of
the five native species already planted. After seeding, we will monitor the vegetative growth for several years to ensure survival and species diversity. If needed, the site would be interseeded and monitored until acceptable as required under Stipulations #18 and #21. The current seed mixture intentionally does not include forbs. Although forb seed is available on the market, very few have been collected from local native seed sources and therefore do not have a high survival rate. After years of developing seed mixes with and without forbs, and years of planting reclaimed sites, we have discovered that there is an adequate forb seed base already present in the ground.

RECREATION

Comment #30: “Mineral resource development will continue and be of benefit to society, but development must be brought into balance. Every poll of ND citizens in the past 30 years has found 75 to 80 per cent in favor of protecting our outdoor heritage. I ask that the US Forest Service not approve any applications for any gravel pit operations on the former Blacktail Ranch, to protect the Elkhorn Ranchlands, as purchase of the ranch was intended.”

Response: As discussed on pages 63-65 of the EA, there would be no impact to the Maah-Daah-Hey Trail. The recreational experience would be lowered in the proximity of the gravel pit and haul route. However, the ROS designation of Roaded Natural for the area would be maintained. While the proposed action would likely impact the recreational experiences adjacent to the gravel pit and haul route, it would not have an adverse effect on the recreational opportunities offered in the rest of the area. There would be no effects to the Little Missouri River and thusly no effect to any recreational opportunities associated with the river.

ROADS

Comment #31: “Given the amount of traffic associated with the project, we believe additional measures should be specified to control the dust plume created by vehicles in the pit, and the truck traffic going between the pit and processing facility.”

Response: Proper maintenance and reduced speeds on the haul route from the gravel pit to the county road will help to abate dust. Dust abatement would be required as specified within the Operating Plan Stipulations #19F: Surfacing, if Erionite is present and also under Stipulation #29-19A1 Uniform Specifications for Road Maintenance #0-103 Dust Abatement. Both ensure adequate dust abatement measures. These stipulations would also be applied to any related road use and special use road permit.

Comment #32: “That the environmental assessment should identify the road segments that will be reclaimed (e.g. obliterated), the standards that they will be reclaimed to, when the reclamation will be done, and who is responsible for the reclamation.”
Response: The Operator would be responsible to reclaim Segment #5 which is a temporary road inside the gravel pit. Segment #5 would be completely obliterated and recontoured to natural conditions at the end of its use (EA pages 67). The dismantling and reclamation of the existing road segments are not included in this proposal or analysis.

Comment #33: “The EA at times is unclear about whether or not the project proponent will be required to pay for all costs associated with infrastructure improvements. We note that extensive roadwork is being proposed and it is not clear who’s picking up the tab.”

Response: The proponent would bear all costs associated with infrastructure improvements plus share in the overall road maintenance costs until the project is completed.

SOCIAL & ECONOMIC

Comment #34: “That increased technology is not only foreseeable, but is all but certain, which means more gravel will certainly be needed to support increasing oil and gas development.”

Response: comment noted. However, it is speculative in nature. Therefore, it cannot be included in the analysis of cumulative impacts for this proposal.

Comment #35: “Approving this gravel mining permit would directly contradict federal and private sector efforts over the past few years to protect and set aside this land forever as a tribute to Theodore Roosevelt and his legacy of conservation.”

Response: The Forest Service must honor the valid rights recognized and agreed to prior to and within the legal framework of the acquisition. Pages 5-11 and pages 13-14 of the EA explain the Forest Service’s legal obligation to honor valid existing mineral rights associated with the acquisition. These same mineral rights are also recognized within the Historic District designation and would have to be addressed within any national monument designation.

Comment #36: “The public trust is threatened by this project. The public must be assured that every possible solution has been thoroughly explored before a decision on the merits of this project is made.”

Response: At this point in time, the Forest Service is in the position of either having to approve the mining proposal with mitigation or to deny the proposal which would likely result in legal litigation for taking of the private mineral estate. For the last two years the Forest Service has negotiated with the Elkhorn Minerals, LLC and explored the feasibility and means to reasonably acquire, exchange, or donate the rights to the mineral holdings in order to avoid this development (EA Pages 19-22). The Applicant has accepted all of the Forest Service’s proposed resource mitigation measures which will protect the resources and ensure reclamation.

Soundscape
Comment #37: “We take issue with the posited degree of effect. We are supportive of the use of mufflers and other mitigation strategies to minimize these effects, but they do not go far enough in preserving the quiet, natural environment, a key characteristic of the area. “

Response: As disclosed on pages 39-47 of the EA there will be noticeable equipment noise during the life of the operations over a two year period barring any mitigation required delays. The only way to completely eliminate the noise would be to not approve the operations which, as discussed previously, we do not have the legal authority to do. We have endeavored to research all available mitigation measures to help reduce the noise impact including the following measures:

- No crushing or processing facilities on location
- No night operations
- Noise reducing mufflers on all combustion engines
- Maintained and lubricated equipment
- Utilizing the Natural terrain and environment:
  - Distance from the park (4,286 feet): equipment noise levels would decrease 30 dBA
  - Stockpiling of topsoil and overburden between the operations and the park to absorb and deflect noise
  - Natural average wind speed will help dissipate noise

Comment #38: “The project as defined may affect state park lands located adjacent to the Elkhorn Ranch Unit of TRNP. The area is recognized for its scenic vistas and outstanding visitor experience including the importance of the natural quiet that the Elkhorn Ranchlands and adjacent Elkhorn Ranch Unit offer. The project impact to the natural soundscapes is of concern to the Department. “

Response: see response to Comment #37.

Comment #39: “If Alternative 2 is ultimately selected, I would urge you to strengthen the Stipulation Package. It seems reasonable to require use of the very best industrial mufflers – those which will reduce noise as much as possible, i.e., at or near the 18 dBA level rather than mufflers which would reduce noise only at or near the 5 dBA level. “

Response: Comment noted. The Forest Service will inspect equipment to ensure the best noise reducing mufflers as possible.

Comment #40: “The EA fails to adequately analyze and disclose the overall direct and indirect impacts of the proposed project on visitor solitude to the NPS unit. Further, it fails to adequately mitigate for the impacts it does disclose.” NPS has developed a more comprehensive soundscape analysis program that would likely prove helpful to the Forest Service in analyzing and disclosing the full impacts to the park soundscape and visitor experience. “
Response: TRNP provided the Forest Service with an “Acoustical Monitoring Snapshot” for the Elkhorn Ranch Unit dated March 2012 in which two acoustical monitoring systems were deployed in the Elkhorn Ranch Unit. The briefing is a preliminary snapshot of the acoustical conditions at the site between August 21 and October 20, 2012. A full acoustical monitoring report is pending further data analysis. This data has been incorporated into the Project Record.

Although the base decibel (dB) in both analyses differ, TRNP used a base of 35 decibels (dB) which is the equivalent of wilderness, and the FS used an adjusted base of 50 dB for existing background noise, the conclusions are basically the same in that the noise from the mining proposal (average 65 dBA), would clearly be noticeable from within the park, state lands, and from the residential area during daily operations. Most of the noise would be sporadic in nature and occur only during the day. The soundscape is further discussed on pages 39-47 of the EA.

TOURISM

Comment #41: “There is no other analysis in the EA of the possible economic implications of reduced visitation, nor is there any suggested way to measure whether and/or to what degree there is a relationship between the intrusion of the gravel pit and visitation to the adjacent TRNP. We believe the document should be revised to include such an analysis. Once the issue is more fully analyzed, other mitigation measures, such as limitations on gravel pit mining operational hours, could be considered.”

Response: The number of visitors to the TRNP and NDPR lands is unknown. The Forest Service requested tourism data from TRNP in 2012 and 2013 as they have managed the park units since 1947-1947 and would be the best source of tourism data or estimates. The Park’s General Management Plan did not predict high usage and there is no current or revised statistical data to indicate otherwise. As recently stated by TRNP, the number of actual visitors to the Elkhorn Ranch Unit has never been tracked or estimated. There are no available or reliable numbers or estimates for determining the number of actual visitors. Therefore determining results for an economic effect or any deviations from current use or trends would be highly speculative.

As stated by TRNP, the quality of the visit outweighs the quantity of visitors. There will be soundscape and visual impacts that will diminish the quality of the individual visitors experience as further discussed in the EA pages 48-50. Overall visitor numbers to the Elkhorn Ranch Unit may decrease during the mining and reclamation phases of the project for two to three years. Visitors may alter their destination plans. However, they also may not. Any such impacts would be short lived – only during the time that the gravel operation is occurring. Refer also to Comment #42 below.
Comment #42: “To add a provision allowing the Superintendent of the TRNP to request that the Forest Service suspend operations during migration periods of humans as well. There are certain times when a large number of people congregate at the Elkhorn for special events.”

Response: This was discussed and agreed to by the Operator for reasonable requests. This measure could extend the overall mining process beyond the expected two year timeframe depending upon the amount of down time. The following stipulation has been added to the Operating Plan Stipulations:

29.01G Requests for Suspension of Operations: Upon written request from Theodore Roosevelt National Park (TRNP), the Operator will suspend operations for limited special park events (e.g. encompassing one to three days) during such event, without any reduction or affect to the overall timeframe to complete operations. All TRNP requests shall be submitted and processed through the Forest Service.

Comment #43: “The Elkhorn Gravel Pit project will bring more traffic and noise to the area and without intent may compromise the low impact recreation experience available in the Elkhorn Ranchlands, adjacent Elkhorn Ranch Unit of TRNP and Parks and Recreation lands adjacent to the Elkhorn Ranch Unit or TRNP”.

Response: As state lands are adjacent to the TRNP unit and both are on the west side of the river and have common access points, the effects to the state lands are determined to be the same as for the effects to the TRNP Elkhorn Ranch Unit. There are no developed recreation facilities on either the TRNP or State lands and recreational use would be dispersed. There would be additional traffic associated with the mining operations but the area would remain closed to public access. Discussions on soundscape and visual effects are further discussed in the EA pages 39-47 and 50-55. Effects on dispersed recreation in the area are discussed on pages 63-65 of the EA and effects from roads is further discussed on pages 65-70 of the EA. Refer also to Comments #41 and #42.

VISUALS

Comment #44: “The concern that the gravel pit would be seen from at least 50% of the park and have a visual effect that could cause Park visitation to decrease, as well as degrade the visitor experience.”

Response: Refer to Comments #41-#43 above regarding tourism impacts. Visual effects are further discussed on pages 50-55 of the EA.

Comment #45: “In addition to the gravel pit itself, there’s the increased industrial machinery that will travel on roads visible within the park unit.”
**Response:** Refer to pages 11-13, 33-55, and 65-70 of the EA which characterizes the activities and potential impacts from the construction and operation of the pit.

It is reasonable to expect a minimum of 2-3 semi-truck loads hauled out or 4-6 round trips per hour whenever the pit is operating. This would equate to meeting either a loaded or empty truck on the haul route approximately every 10-15 minutes. This flow would continue during the normal operating season from April through November for approximately two years, pending any weather or wildlife related delays.” Machinery will be visible during operations from April through November of each year for approximately two years. Truck hauling would not be constant but would be sporadic across the temporary road until operations cease.

**Comment #46:** “To alter the land with this gravel pit is to destroy the wilderness-like qualities of the landscape for all visitors, and wildlife.”

**Response:** Refer to Comments #28 and Comments #41-#45

**Comment #47:** “It will diminish the integrity of the Park. If the gravel pit is allowed, it will likely be a wedge factor for more of the same, including more roads, bridges, and traffic that could also support the current onslaught of oil development, exacerbating the effects of this proposed effort.”

**Response:** Pages 33-34 of the EA disclose the past, present, and reasonably foreseeable actions within the area. There is a high probability of oil and gas development on the acquired lands in and near the park unit as mineral holders exercise their valid mineral rights. Although the Forest Service cannot prevent the exercise of the mineral rights, the Forest Service can negotiate surface mitigation measures to reduce those impacts. Refer to Comments #9 and Comments #41 - #45.

**Comment #48:** “Because there has been no LRMP amendment for the acquired lands, there is no designated Scenic Integrity Objective for the acquired lands. Because the Forest Service has failed to complete an LRMP amendment it doesn’t even have a standard to hold the site to. Therefore, we again request that prior to any decisions and any further NEPA analysis, the LRMP amendment be completed so that the FS does not foreclose on future options based on decisions made in regarding the proposed gravel pit.”

**Response:** Refer to Comment #17. As per the discussion on page 50-55 of the EA, there are three levels of Scenic Integrity Objectives (SIO), High, Moderate, and Low. The level used throughout this analysis, although not required, has been “High” and a Land and Resource Management Plan (LRMP) amendment would not result in a higher level.

*High (Appears Unaltered): Retention.* This level refers to landscapes where the valued landscape character appears intact. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.
The site as it currently exists is perceived as being natural when in reality it has been altered from years of farming, which has flattened the natural rolling of the hills and filled in the low spots. The vegetative color and textures are also not natural when compared to native vegetation. There are also remnants of the old gravel pit workings with pits and stockpiles of dirt and access roads to and throughout the farmed fields. When viewing the site at the immediate foreground (0-300 feet) and foreground (0 to ½ mile), the deviations in the form, line, color, texture and pattern common to the landscape character are quite noticeable.

When viewing the site at the middle ground (1/2 to 4 miles) distance, the current deviations are not as noticeable. The reason this is not apparent is that the ridgeline above the site and the ridgeline along the skyline has not been altered and the flattened side or end view of the fields don’t show the alterations.

As stated in the EA that the elevation of the gravel pit area would be lowered an average of eight feet. This would be noticeable during operations and within the immediate foreground and foreground views. However, once reclaimed, all of the natural features including hills and drainages would be reestablished and recontoured and at the middle ground viewing distance, the reclamation would be still be perceived as being natural. The ridgelines and the main skyline would remain unaltered and the native grass seed would blend colors and textures. Reclamation would also include the recontouring of the cultivated field and the treatment of both invasive and noxious weed species within the pit area which currently do not meet the High SIO standard. The final reclamation stipulations, backed by a reclamation bond, would ensure that the High SIO standards that require the repeat of the form, line, color, texture and pattern would be met.

Comment #49: “The project as defined may affect state park lands that we manage located adjacent to the Elkhorn Ranch Unit of TRNP. The area is recognized for its scenic vistas and outstanding visitor experience.”

Response: Refer to Comments #41 -#48.

Comment #50: “This site is one of the most historic sites in the western US. In addition it is in a virtual pristine condition as it was in 1884 when Theodore Roosevelt lived there. That in itself is very rare combination for major historic sites and is worth preserving.”

Response: It is common knowledge that Teddy Roosevelt found solace and solitude at his cabin during a very tragic part of his life and that along with the viewshed played an important role in his thinking. Visitors to his cabin site may get a glimpse of what Roosevelt saw, but Roosevelt’s viewshed did not include the current modern day remnants of an old gravel pit, roads, overhead power lines, leveled wheat fields, cleared and irrigated river bottoms, fences, oil and gas facilities, or close proximity neighbors and buildings. Pages 29-55 of the EA describe the current setting, soundscape, and visuals of the area and the affects to each.
**WATER**

*Comment #51:* “The EA simply analyzed the direct impacts of the gravel mine itself but fails to account for the indirect cumulative effects of dramatically increased industrial truck traffic on roads that cross, or are adjacent to, rivers and streams.”

**Response:** There are no waters or wetlands within the project area (EA page 62) and there are no river or stream crossings along the haul route from the proposed pit to the county road. Therefore, there would be no effects to rivers and streams.

**WILDLIFE**

*Comment #52:* “Project construction and operation could lead to a significant disruption of the breeding behavior of any golden eagles actively nesting at the nest site and diminish future occupancy.”

**Response:** The Forest Service has mitigated (via negotiation) the activity to prevent disruption to potential nesting golden eagles (page 74-75 of the EA).

*Comment #53:* “The list of references in the environmental assessment does not cite the letters and other correspondence that has occurred over the last several months between the Forest Service and the Fish and Wildlife Service. We recommend that this shortfall be corrected.”

**Response:** All correspondences from the US Fish and Wildlife are in the Project Record and have been reviewed and analyzed by the Forest Service Wildlife Biologist for inclusion into pages 71-77 of the EA.

*Comment #54:* “That mining operations be prohibited during the nest prospecting period (approximately January 1) and when the nest site and/or territory is occupied during the life of the Project.”

**Response:** The timing mitigation measures for Golden eagle nests (February 1 to July 31) found within the LRMP are relatively consistent with other guidelines throughout the west. The Forest Service has mitigated (via negotiation) the activity to prevent disruption to potential nesting golden eagles (page 74-75 of the EA). The Applicant has also stated within the Operating Plan, which is more restrictive and protective, “We would like to take a proactive approach to mitigate golden eagle activity in the nest that lies directly west of the material pit, by getting a proper survey completed around February when nests first become occupied. If the eagles are using the nest, mining will halt until sometime in the summer when the fledging eagles have successfully left the nest.” This statement within the operating plan is enforceable and would guarantee protection of the eagles until they left the nest.
Comment #55: “That road management includes seasonal closures to restrict public motorized access during the winter use period beginning no later than December 1 through fledging period (determined annually by surveys).”

Response: The road system being used to access the gravel pit does not belong to the Applicant but to existing permit holders all of whom access the area year-round for their operations. The road system to the proposed gravel pit is currently “closed to public use” pending the completion of an LRMP amendment and transportation planning. The segment of temporary road within the gravel pit area of operations would be signed and closed to public use.

Comment #56: “That annual surveys should be conducted by qualified personnel.”

Response: This is a requirement under Condition of Approval (COA) 29.28A that requires annual surveys and pre-notification to the Forest Service Wildlife Biologist for each year.

Comment #57: “To maintain a physical barrier between the nest site and mine to reduce visual and acoustic stressors.”

Response: Since mining activities will not be occurring if the nest site is active, constructing a physical barrier is not considered necessary. Also, the physical location of the nest is below the immediate ridgeline between the mine and the nest and so it is naturally out of line-of-sight of the mine location. Constructing a barrier is unnecessary to reduce visual and acoustic stressors to the nest site. However, there is a 20 foot buffer zone included within the operating plan in which topsoil and overburden would be stockpiled, thus creating a physical barrier between the pit and nest.

Comment #58: “The February 1 to July 31 dates do not provide sufficient protections, since nest prospecting may begin as early as January 1, and since eaglets may not be prepared to fledge until late August or possibly early September. Therefore, the measure included in the Design Criteria to implement timing restrictions will not effectively prevent take of golden eagles.”

Response: There is a lack of literature or studies to substantiate a mitigation need for golden eagles to “prospect” for potential nest sites. Therefore, February 1 is a consistent time frame for golden eagles with other units throughout the west in the northern latitudes. Should future studies dictate such a need, this can be revisited and the LRMP could be amended. The July 31 date is likely based on the time of fledging. Fledging is defined as the moment when the young first leave the nest (USBoR 2008, and O’Toole et al 1999). In ND, based on a MT field guide, hatching dates are “mid-May” and a date of fledging may occur approximately in the latter half of July until early August (Based on 10.1 weeks after hatching – O’Toole et al 1999). Whittington and Allen (Draft 2008) would shorten the time to fledge from hatching up to 66-75 days. Therefore, based on the time of fledging (first flight), the timing stipulation is adequate – on average.
Comment #59: “The USFWS suggests that if the conservation measures (timing, road closures, annual surveys and physical barrier) are not included in your permit the Forest Service would need to obtain a golden eagle take permit before issuing a permit to mine gravel at the site.”

Response: The USFWS and the Forest Service met and agreed that whereas the Forest Service has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the Forest Service agency cannot be considered a legally relevant “cause” of the effect. Hence, the Applicant who is legally causing the effect is responsible for obtaining a taking permit from the US Fish and Wildlife Service if deemed necessary by the Service.

MINERAL RIGHTS

Comment #60: “With the difficult job of ascertaining ownership of the mineral right, how did you determine that Ms. Braunberger owns 26.860173% of the mineral rights? That level of detail would be difficult to prove.”

Response: The percentage of mineral ownership has been verified by an independent title company. Mineral ownerships are often split and passed down from generation to generation resulting in percentages of percentages.

MINERAL RIGHTS NSO (No Surface Occupancy)

Comment #61: “A Forest Plan amendment process would have included a No Surface Occupancy (NSO) stipulation or a withdrawal of this relatively small parcel from future mineral development.”

Response: It is probable that a future Forest Plan amendment pertaining to the Elkhorn Ranchlands acquisition would have included a No Surface Occupancy (NSO) stipulation or a mineral withdrawal for federally owned minerals. However, the surface and subsurface mineral estates in question are privately owned deeded rights not subject to NSO stipulations. The federal government recognized and agreed to honor the private mineral rights at the time of the acquisition of the ranchlands. There is a legal process for analyzing and implementing a LRMP amendment which is beyond the scope of this decision.

MINERAL TAKINGS

Comment #62: “We question the fundamental assumption that it is a forgone conclusion that the mineral lease holder has the ultimate ability to access his minerals beneath the historic Elkhorn Ranch regardless of the impacts that would be brought upon not only Forest Service acquired lands but NPS lands. In the interest of the public good, the Forest Service does have the authority and should deny the permit based on the historic and cultural values of the Elkhorn Ranchlands.”
Response: All parties involved in the acquisition of the Elkhorn Ranchlands were aware of the fact that the private mineral estates were not offered as part of the acquisition. The Forest Service agreed to honor all valid existing mineral rights and other encumbrances at the time of the acquisition, including the surface mineral rights. The acquisition was successful because of the multiple use concept of the Forest Service.

The mineral holder does have the right to access their minerals as per the terms of their deeded rights. However, that does not imply that the access is carte blanche. As stated on pages 8-9 of the Draft EA, and page 9 of the final EA, the Alaska National Interest Lands Conservation Act of 1980 established that the Forest Service must provide access to non-federally owned land within the boundary of the National Forest System. The Forest Service can determine what level of access is adequate to allow the owner reasonable use and enjoyment of their mineral rights. Numerous court decisions have upheld mineral rights as dominate over surface rights. The surface mineral rights were verified as valid.

The Forest Service could deny the use which would result in a legal mineral taking. This would be inconsistent with the terms of the acquisition and would also be inconsistent with years of LRMP direction (page 14 of the Draft EA and pages 14-15 of final EA) honoring valid rights. The result of takings would likely be a legal action against the government by the surface and subsurface mineral owners affected.

MINERAL COTENANT

Comment #63: “The Forest Service must require and insure that the applicant provide a full accounting of all costs incurred, and all receipts derived from the operation of the gravel extraction that must be shared with the co-tenants of the gravel estate. “

Response: The Forest Service is not a mineral cotenant and would not be involved with any of the accounting of or distribution of monies associated with this proposal. Accounting and equity would be accomplished through the other cotenant’s attorneys, according to the state laws and legal system. The Forest Service does not have any legal jurisdiction over these matters.

MINERAL VALUE

Comment #64: “That an environmental and economic analysis should be completed to ensure the proposal is viable and to establish a value for payment either for an exchange, acquisition, or a takings. “

Response: An economic analysis is not required to conduct operations. The owner has the right to remove their minerals whether economically or not. An economic analysis would be required for any agreement for an acquisition or exchange to determine fair market value. In
the case of mineral takings, an economic analysis would probably be helpful, but the courts would ultimately determine damages and compensation. The Forest Service has no plans to conduct an economic analysis unless an acquisition or exchange agreement can be made. The Forest Service does not intend to pursue a minerals taking.
Appendix E Project Development Chronology

Project Development
This proposal has been moving forward since 2008. Since this time there have been many revisions to the proposed Operating Plan and negotiated mitigation measures (stipulations).

- Initial applications to explore for and test for gravel within an old gravel pit area were received in October and November of 2008 followed by response letters requesting additional permit information.
- An amended application was received in January of 2009.
- In March of 2009 the first joint meeting was held to discuss processes, information needs, ownership, co-tenancy, etc.
- Title work was received for Section 34 in August 2009.
- The Forest Service received an Operating Plan in February and a revised Operating Plan in September of 2010.
- A Field Review was conducted in October of 2010 to review the site and discuss ongoing issues and needs. At this point it was decided at this meeting to work one-on-one with the Operator’s Representative to negotiate an acceptable Draft Operating Plan and Stipulations. The entire proposal was reviewed on the ground.
- Second Field Review on June 16, 2011 to discuss plan modifications, boundaries, buffer zones, and road reconstruction.
- Several versions of the Draft Operating Plan and Draft Stipulations were sent back and forth throughout 2011.
- An Operating Plan with reference to the negotiated Stipulation Package was received from Ms. Braunberger on September 1, 2011 for the purpose of developing a gravel pit in Section 34, T144N, R102W, and for use of the existing roads to access the gravel pit and to haul gravel to the processing plant on private property. Road designs were attached for reconstruction of a portion of the haul route to the pit.
- The project was publically scoped for comments on October 5, 2011. There were 111 commenters, 39 of which submitted comments as one group.
- An Environmental Analysis (EA) was prepared and the Draft EA was put out for a 30 day comment period starting on May 11, 2012. There were 51 commenters.
- An Agreement in Principal was signed on July 18, 2012 with the objective for accomplishing a mineral exchange between Peggy Braunberger (mineral owner) and Roger Lothspeich, (Power of attorney for Braunberger) and the US Forest Service.
- The EA was put on hold pending the outcome of the Agreement in Principal.
- The Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Register District (Elkhorn Ranchlands NHD) was formally listed by the Keeper of the Register (National Park Service) on October 28, 2012.
- The Agreement in Principal was withdrawn on July 31, 2013 by Peggy Braunberger and Roger Lothspeich with a written confirmation on August 6, 2013 with a request from their counsel to finish the environmental analysis and to authorize the Operating Plan.
• Elkhorn Minerals LLC, a small business entity is formed, and the mineral rights transferred to Elkhorn Minerals LLC by a quit claim deed recorded in Billings County, North Dakota on November 55, 2013. Member owners are Roger Lothspeich and Peggy Braunberger.

• Forest Service continues the search for alternative pit sites, even after Elkhorn Minerals LLC’s withdrawal from the AIP. Eventually there was renewed discussion between the Forest Service and Elkhorn Minerals LLC as potential locations were found and processes defined. Discussions included exchange and donation options.

• In April, 2014 the Draft DN/FONSI was released for a pre-decisional objection period. Six objections were received during that period. Following the objection review, clarifications to the EA and DN/FONSI were made, as well as completion of the NHPA Section 106 consultation.

• Elkhorn Minerals LLC, in a November 13, 2014 memo from their legal counsel to the Forest Service, withdraws from any further discussion of options and requests that the review process for the mining proposal be brought to a conclusion forthwith.
APPENDIX F

SECTION 106 HISTORIC PRESERVATION ACT (NHPA)
MEMORANDUM OF AGREEMENT (MOA)

AMONG THE
UNITED STATES FOREST SERVICE, DAKOTA PRAIRIE GRASSLANDS

AND
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICER

AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING THE
ELKHORN GRAVEL PIT DEVELOPMENT
BILLINGS COUNTY, NORTH DAKOTA
MEMORANDUM OF AGREEMENT
AMONG THE
UNITED STATES FOREST SERVICE, DAKOTA PRAIRIE GRASSLANDS
AND
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICER
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
ELKHORN GRAVEL PIT DEVELOPMENT
BILLINGS COUNTY, NORTH DAKOTA

WHEREAS, the U.S. Department of Agriculture, Forest Service, Dakota Prairie Grasslands (FS) is negotiating permit (access, surface occupancy) conditions to exercise private (outstanding & reserved) mineral rights and use of National Forest roads for a gravel pit development on National Forest System (NFS) lands under 36 C.F.R 251 Subpart B – Special Uses and 36 C.F.R. 251.14 – Conditions, Rules and Regulations to Govern Exercise of Mineral Rights Reserved in Conveyance to the United States; and

WHEREAS, the undertaking consists of a 24.6 acre area encompassing a gravel pit (19.4-acres) and associated access roads and a buffer zone in the northwest ¼ of Section 34, Township 144 North, Range 102 West, Billings County, North Dakota. Gravel mining would normally occur between April and November over a two to three year period pending time delays. Mining would be phased and affect an approximate 5-acre area at one time, including overburden removal and stockpiling, gravel excavation, and reclamation. Gravel would be removed and hauled to a location(s) on private land for processing. The entire area would be reclaimed to natural conditions; and

WHEREAS, the FS has defined the undertaking’s composite area of potential effect (APE) as the area of direct effect, the viewshed APE, and the soundscape APE; Composite Area of Potential Effect Map (C-APE Map 1). Specifically, the area of direct effect is defined as the 24.6-acre gravel operation footprint, including associated access roads and a buffer zone as identified on Map 1. The viewshed APE, as is defined in the National Park Service Viewshed Analysis (NPS Map 2), illustrates the viewshed equal to or greater than 70% probability of being seen by an observer located within the general vicinity of the proposed gravel pit; National Park Service Viewshed Analysis (NPS Map 2). This includes the Elkhorn Ranch Unit of Theodore Roosevelt National Park and the Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Historic District (“District”); NPS Map 2. The viewshed analysis was conducted by the National Park Service using standard viewshed analysis protocols that include model inputs of a USGS 10-m digital elevation model and a viewshed input parameter of 6-ft observer height NPS Map 2. The coordinated soundscape APE (S-APE) analysis was derived through consultation with the Advisory Council on Historic Preservation and North Dakota State Historic Preservation Office (SHPO). The deliberate soundscape analysis relied on historical data interpolation and on data outlined in the Environmental Assessment. The coordinated S-APE resulted in a defined two-mile affected area radiating from the center of the proposed gravel pit from all directions.

WHEREAS, the FS has determined during its environmental review that the undertaking may have an adverse effect on the Elkhorn Ranch Unit of Theodore Roosevelt National Park and the District which is
listed in the National Register of Historic Places and has consulted with North Dakota SHPO pursuant to 36 C.F.R. part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C 470f); and

WHEREAS, the adverse effects of the undertaking on the District may include physical, atmospheric, visual and auditory effects, and will alter the characteristics for which is was listed in the National Register, diminishing the integrity of setting, feeling and association for the short term (approximately three (3) years); and

WHEREAS, the FS has consulted with the Lower Brule Sioux Tribe; the Mandan, Hidatsa and Arikara Nation (Three Affiliated Tribes) and the Standing Rock Sioux Tribe to identify properties of religious and cultural significance and has invited them to sign the MOA as concurring parties; and

WHEREAS, the FS has consulted with the National Park Service and National Trust for Historic Preservation regarding the effects of the undertaking on historic properties and has invited them to sign this MOA as concurring parties; and

WHEREAS, the FS has consulted the owner Elkhorn Minerals, LLC., (Operator) and invited him to be a signatory to this agreement, and the Operator has declined to be a signatory; and

WHEREAS, in accordance with 36 C.F.R. 800.6(a)(1) the FS has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with the specified documentation and the ACHP has chosen to participate in the consultation pursuant to 36 C.F.R. 800(a)(1)(iii);

NOW, THEREFORE, the FS, SHPO, and ACHP agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the District:

I. STIPULATIONS

The FS shall ensure that the following conditions are included in the Operating Plan and are carried out:

A. Operator will normally conduct gravel mining operations between April and November of each calendar year. Operator will conduct mining and reclamation operations within a 3-year period following commencement of project, excluding limited periods of shut-downs required to protect wildlife or other resource concerns.

B. Operator will conduct gravel mining in five phases, including upgrading the existing road system with erosion control measures (Phase I). Operator will conduct four mining phases or episodes, affecting a total of four 5-acre sections with no more than two 5-acre tracts open and operating at one time (Phases II-V).

C. Operator will not alter the ridgeline above the gravel pit (looking east, directly adjacent to the gravel pit) or the main skyline (which encompasses portions of the ridgelines in Sections 22, 23, 26, 27 and 35) (see Figures 1 and 2).

D. Operator will conduct dust abatement by controlling fugitive dusts as a result of access and haul road upgrades and maintenance.
E. Operator will control noxious weeds and invasive plant species by following protocols provided by the FS, including washing of mining and hauling equipment.

F. Operator and FS will appropriately control and monitor all mining waste and sanitation.

G. Operator will utilize noise reducing mufflers on all mining and hauling vehicles and equipment.

H. Operator will not conduct night operations (including the use of outdoor lights) for gravel mining or reclamation operations.

I. Operator will protect all topsoil to ensure adequate reclamation; operator will stockpile soil overburden along the edges of mining to buffer noise and visual intrusions.

J. When each mining phase is completed, operator will reclaim that area using the stock-piled soil. Operator will use native seed mixtures, as authorized by the FS, to reestablish the natural vegetation, including colors and textures, of the Elkhorn Ranchlands Historic District.

K. Operator will conduct final reclamation, backed by a reclamation bond, to re-grade and re-shape to the extent practicable the natural rolling hills to minimize alterations of the historic landscape appearance. After completion of the operation, reclamation and re-seeding, the view from the National Park Service Elkhorn Ranch Unit should be virtually unchanged.

L. Operator will cease all work in the case of the inadvertent discovery of items of archaeological, paleontological, or historic resources until the appropriate protection or other measures are implemented (see Attachment A).

M. Upon written request from Theodore Roosevelt National Park, the mining operator will suspend operations for limited special park events (e.g. encompassing one to three days), during such event, without any reduction or affect to the overall timeframe to complete operations. Written requests shall be submitted and processed through the Forest Service.

II. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, the Forest Service may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VI below.

III. POST-REVIEW DISCOVERIES

If potential historic properties are discovered or unanticipated effects on historic properties found, the Forest Service shall implement the Northern Region Unanticipated Discovery Plan and Discovery of Human Remains Protocols in Attachment A of this MOA.

IV. MONITORING AND REPORTING

Each calendar year following the execution of this MOA until it expires or is terminated, the FS shall provide all parties to this MOA a summary report of work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the FS's efforts to carry out the terms of this MOA.
V. DISPUTE RESOLUTION

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, the FS shall consult with such party to resolve the objection. If the FS determines that such objection cannot be resolved, the FS will:

A. Forward all documentation relevant to the dispute, including the FS’s proposed resolution, to the ACHP. The ACHP shall provide the FS with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FS shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The FS will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FS may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FS shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

It is the FS’ responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VI. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VII. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VI, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, the FS must either (a) execute an MOA pursuant to 36 CFR 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. The FS shall notify the signatories as to the course of action it will pursue.

VIII. EXECUTION AND IMPLEMENTATION

Execution of this MOA by the FS, SHPO and ACHP and implementation of its terms evidence that the FS has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.
MEMORANDUM OF AGREEMENT
AMONG THE
UNITED STATES FOREST SERVICE, DAKOTA PRAIRIE GRASSLANDS
AND
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICER
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
ELKHORN GRAVEL PIT DEVELOPMENT
BILLINGS COUNTY, NORTH DAKOTA

SIGNATORY:

U.S. Forest Service

Date 11-21-2014

[Signature]
Dennis Neitzke, Supervisor, Dakota Prairie Grasslands
MEMORANDUM OF AGREEMENT
AMONG THE
UNITED STATES FOREST SERVICE, DAKOTA PRAIRIE GRASSLANDS
AND
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICER
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
ELKHORN GRAVEL PIT DEVELOPMENT
BILLINGS COUNTY, NORTH DAKOTA

SIGNATORY:

North Dakota State Historic Preservation Officer

Claudia J. Berg, North Dakota State Historic Preservation Officer
MEMORANDUM OF AGREEMENT
AMONG THE
UNITED STATES FOREST SERVICE, DAKOTA PRAIRIE GRASSLANDS
AND
NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICER
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE
ELKHORN GRAVEL PIT DEVELOPMENT
BILLINGS COUNTY, NORTH DAKOTA

SIGNATORY:

Advisory Council on Historic Preservation

[Signature]

12/8/2014

John M. Fowler, Executive Director
Attachment A
Unanticipated Discovery Plan and Discovery of Human Remains Protocols
Northern Region, USDA Forest Service
September 2011

If unanticipated cultural resources or human remains are identified during project activity and construction, Northern Region forests and grasslands will ensure that the agency and its agents (contractors, cooperators) comply with the following protocols. These protocols are based on federal law, regulation and FSM policy and direction.

Unanticipated Discovery of Cultural Resources (see FSM 2364.13)

1. Forest Service line officer (Forest Supervisor, District Ranger) or delegated staff will:
   A. Cease all project activity within (at minimum) 100ft of the unanticipated discovery until after the affected cultural resource(s) is evaluated and adverse effects to the cultural resource have been avoided, minimized, or mitigated.
   B. Notify the Contracting Officer of work-stoppage if this discovery was caused by a contractor or cooperator. Ensure that the appropriate contracting procedures are being followed.
   C. Protect the discovery from further damage, theft, or removal. Leave all artifacts and cultural materials in place. Involve law enforcement as necessary.
   D. Follow the protocols below if the discovery involves human remains.
   E. Follow the requirements of NAGPRA if associated or unassociated funerary objects or objects of cultural patrimony are discovered.
   F. Involve FS Law Enforcement if the unanticipated discovery also involves deliberate removal or destruction of cultural resources.
   G. Allow resumption of work only following resolution of the discovery incident. In most cases, this decision will be the District Ranger, but when human remains are involved the Forest Supervisor will make this decision.

2. Forest Heritage Program Leader, or delegated heritage program staff, will:
   A. Document the unanticipated discovery using appropriate site recordation procedures and forms. This should include, but is not limited to, documenting exposed artifacts and features; mapping the extent of artifacts, features, and cultural horizons; and documenting natural and cultural stratigraphy in open trenches or pits.
   B. Notify the SHPO, tribes, and other consulting parties, including any cultural resource consultants assigned to the project as appropriate.
C. Evaluate the cultural resources for National Register of Historic Places (NR) eligibility. Testing will be limited to a sufficient level needed to provide a recommendation of NR eligibility. Funding to support evaluation may be provided by benefiting function (or the cause of unanticipated discovery).

1) If the affected cultural resource is eligible for the NR, the heritage program leader will consult with the SHPO, tribes and consulting parties about measures to avoid, minimize, or mitigate further effects to the NR eligible cultural resource. Mitigation measures will be contingent on the type and extent of the disturbed resource, the extent of the adverse effect, and whether or not it is possible to avoid any further effects.

2) If the affected cultural resource is determined to be NR-ineligible, with SHPO concurrence, work may resume with appropriate monitoring for further cultural resource disturbances.

3) If NR evaluation is not possible due to circumstances beyond control, the affected cultural resource will be treated as NR eligible in accordance with FSM 2363.22.

D. Develop an action plan, mitigation plan, or emergency treatment plan for the affected cultural resources if the cultural resource is NR eligible or is being treated as eligible absent formal evaluation. Fund the action plan and necessary emergency treatment or mitigation work via benefiting function or heritage program contingent on the cause and nature of the discovery.

E. Document the unanticipated discovery in annual reports to the SHPO under programmatic agreements, and include an Event record in Infra, as appropriate.

**Discovery of Human Remains (FSM 2361.3 and 2364.1)**

Heritage professionals are often the first point of contact when human remains are discovered on National Forest System land. Advise the appropriate line officer to follow State burial laws or and these protocols.

1. Forest Service line officer (Forest Supervisor, District Ranger) or delegated staff will:

   A. Ensure that all discovered human remains are treated with dignity and respect. Viewing and photographing exposed human remains by agency employees is generally an affront to American Indian peoples and may compromise forensic or law enforcement efforts.

   B. Ensure that the discovery area is secure the area; leave human remains in place; cease project activity as necessary until a plan of action is developed and; involve law enforcement as necessary.
C. Allow resumption of work only when the disposition of the human remains is determined and a written binding agreement is executed between the necessary parties in accordance with 43 CFR Part 10.4(e).

2. Forest Heritage Program Leader or delegated heritage program staff will:

   A. Promptly notify SHPO, the appropriate Indian tribe(s), and the County Coroner/Medical Examiner, who will officially determine the nature of the remains (forensic or archaeological).

      1) If the remains are not forensic and non-Native American, leave the remains in place and assist in the development of a plan for avoidance (in place preservation) or removal. Consult with SHPO and other interested parties as appropriate.

      2) If the remains are not forensic and Native American, ensure that NAGPRA regulations at Section 10.4 of Title 43, Code of Federal Regulations, Part 10, are followed. Notify the appropriate Indian tribe(s) by telephone followed by written confirmation as soon as practicable. Develop an Action Plan for disposition of Human Remains.

      3) If the remains are forensic, Forest Service law enforcement and/or the County Coroner/Medical Examiner take control of the situation.

   B. Coordinate and communicate with the Line Officer, forest staff, tribes, SHPO, and consulting contractors regarding progress and status of human remains discovery incident, as necessary and appropriate. Otherwise, treat this information as confidential.
Elkhorn Gravel Pit Composite APE (Area of Potential Effect)

- **2 Mile Soundscape Buffer**
- **Proposed Gravel Site**
- **Viewshed - Percent of Area Visible**
  - 0 - 70%
  - > 70-100%

**Oil Gas Well Status (5/15/2014)**
- Active
- Inactive
- Temporarily Abandoned
- Permit Now Cancelled
- Plugged and Abandoned
- Dry Hole

**Data Sources:**
- Oil and Gas Wells - ND Oil Gas Commission
- Viewshed - National Park Service
- Other data - US Forest Service

**Map Details:**
- Medora Ranger District
- Elkhorn Gravel Pit Composite APE (Area of Potential Effect)
- Viewshed - Percent of Area Visible
- Oil Gas Well Status (5/15/2014)
- Unimproved Road
- Improved Road
- National Grassland
- Non Federal
- National Park Service
- State

**Map Scale:**
- 0 0.5 1 2 Miles

**Map Notes:**
- DPG GIS Lab 10/15/2014

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**Legend:**
- **Shaded Area:** Area of Interest
- **Symbol:** 2 Mile Soundscape Buffer
- **Symbol:** Proposed Gravel Site
- **Legend:** Viewshed - Percent of Area Visible
  - 0 - 70%
  - > 70-100%
- **Legend:** Oil Gas Well Status (5/15/2014)
  - Active
  - Inactive
  - Temporarily Abandoned
  - Permit Now Cancelled
  - Plugged and Abandoned
  - Dry Hole
- **Legend:** Unimproved Road
- **Legend:** Improved Road
- **Legend:** National Grassland
- **Legend:** Non Federal
- **Legend:** National Park Service
- **Legend:** State

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**Map Sources:**
- Oil and Gas Wells - ND Oil Gas Commission
- Viewshed - National Park Service
- Other data - US Forest Service

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**Map Credits:**
- DPG GIS Lab 10/15/2014
The overall viewshed of the proposed gravel mine located within Theodore Roosevelt’s Elkhorn Ranch and Greater Elkhorn Ranchlands National Historic District was evaluated using standard viewshed analysis protocols. Model inputs included a USGS 10-m digital elevation model and viewshed input parameter of 6-ft observer height. Three hundred and seven systematically spaced site location points were located within the proposed gravel mine site’s boundary and were assigned a height consistent with existing local elevation.

The result of this analysis is portrayed in this map document as the percent total area of the proposed gravel mine site visible to an observer. For example, if a viewer was located within a “dark green zone”, >0 to 10% of the proposed mine surface location would be visible to the observer. Likewise, if a observer was located within a “red zone”, >90 to 100% of the proposed mine surface location would be visible to the observer.

It is imperative to note, this analysis examines existing ground condition of the proposed mine site, and does not reflect potential future alteration of the ground elevation within the proposed gravel mine boundary.
Figure 1: View of East Ridgeline and Proposed Gravel Development from West of River
Figure 2: View of East Ridgeline and Proposed Gravel Development from West of River
Figure 3: View of Theodore Roosevelt’s Ranch State Historic Site (indicated by black line) from Eastern Ridge of proposed Gravel Pit
Figure 4: View of Theodore Roosevelt’s Ranch State Historic Site (indicated by black line) from Eastern Ridge of proposed Gravel Pit