Finding of No Significant Impact and Final Environmental Assessment for the Funding and Construction of the Heart Butte Conduit Repair, Grant County, North Dakota
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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF
RECLAMATION DAKOTAS
AREA OFFICE BISMARCK,
NORTH DAKOTA

FINDING OF NO SIGNIFICANT IMPACT

OF

FINAL ENVIRONMENTAL ASSESSMENT

FOR

Funding and Construction of the Heart Butte Conduit Repair, Grant County,
North Dakota

NO. DK-5000-17-02

Recommended: Kate Kenninger
Environmental Specialist
Dakotas Area Office

Date: 4/25/18

Concur: Danae Feucht
Acting Chief, Resources Management
Dakotas Area Office

Date: 4/25/2018

Approved: Arden Freitag
Area Manager
Dakotas Area Office

Date: 4/25/18
Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation’s natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.
Introduction

Issuance of this Finding of No Significant Impact (FONSI) follows the completion of the Environmental Assessment for Funding and Construction of the Heart Butte Conduit Repair, Grant County, North Dakota

The FONSI describes the reasons for the finding for the proposed action’s anticipated impacts insignificant. This document contains the FONSI and Final Environmental Assessment.
Finding of No Significant Impact
Of
Environmental Assessment
For
Funding and Construction of the Heart Butte Conduit Repair, Grant County, North Dakota

The Bureau of Reclamation (Reclamation), proposes to fund construction of the Heart Butte Dam Conduit Repair (Figure 1).

The Heart Butte Conduit Repair would include:

1. The construction of a sand filter diaphragm surrounding three sides of the conduit, a drain with perforated pipes on two sides of the conduit with outfall pipes leading to downstream inspection wells. The inspection wells would discharge to the downstream river channel;
2. Construction of an earthen berm above the filter to provide weight should the filter be subjected to high reservoir pressures;
3. Grouting of the conduit joints to prevent seepage flow in the embankment from entering into the conduit;
4. A contract between Reclamation and the Western Heart River Irrigation District for repayment of Safety of Dam modification costs associated with the Project;
5. Construction according to the Environmental Mitigation Commitments as described in Chapter 4, Environmental Commitments, within the Final Environmental Assessment.

Five private party responses were received via phone call and email and six agency responses, were received regarding the preparation of the EA in response to Reclamation’s scoping notice. The comments were referenced and incorporated where appropriate within the environmental impact categories addressed in the final EA. Appendix B of the final EA contains the responses to scoping. More than 30 days have transpired since the release of the draft EA, during which time Reclamation received three agency responses from the Bureau of Indian Affairs, North Dakota Department of Health, and the North Dakota State Water Commission (NDSWC) and no private party responses (pages 8-18).

Edits to the final EA included the addition of a contract between Reclamation and the Western Heart River Irrigation District in the Proposed Action on page 2-1. Additional information was incorporated into the Proposed Action to clarify dual drains along each wingwall on page 2-1.

In the NDSWC response to the draft EA (pages 12 – 18), they have requested Reclamation to complete a construction permit and a temporary water permit and submit to the Office of the State Engineer (OSE). These permits requested by the NDSWC have been incorporated into Table 1 of the final EA.
Agency Decision

**No Action.** The No Action Alternative consists of a future without the proposed federal action and would allow the conduit to remain in its present condition. Seepage through the embankment would continue and the risk of potential failure would remain above dam safety guidelines. With time, the risks are likely to increase beyond the present condition. If a larger flood release were to occur, it would be very difficult to take action to prevent a failure. Therefore this alternative was rejected.

**Proposed Action.** Reclamation has determined that the Proposed Action, Reclamation’s preferred alternative, as described in the Environmental Assessment DK-5000-17-02 will not result in significant impacts to the human and natural environment; therefore, an environmental impact statement will not be prepared. A complete description and analysis of the project’s anticipated environmental impacts is contained in the final EA.

*Reclamation defines significance relative to context and intensity in accordance with CEQ Regulations, 40 CFR 1508.27.*
The reasons for the FONSI determination are summarized as follows:

1. All requirements of the National Environmental Policy Act have been met, including public involvement and coordination with Federal, State, and local agencies.

2. This action will not have significant effect on the quality of the human environment.

3. All stipulations of the Clean Water Act and other applicable Federal laws, regulations, and guidelines concerning wetlands and water resources will be satisfied prior to construction. Environmental commitments include the coordination with U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service prior to construction, as necessary.

4. Reclamation has determined the Proposed Action would have no effect on all federally listed species and designated critical habitat in Grant County.

5. Reclamation has determined the Proposed Action would have no impacts to migratory birds or eagles. Mitigation and minimization measures have been incorporated into the project’s design to eliminate potential impacts to migratory birds.

6. All stipulations of the National Historic Preservation Act and other applicable Federal laws, regulations, and guidelines concerning cultural resources will be satisfied prior to construction. Avoidance measures have been incorporated into the project’s design to reduce or eliminate impacts to historic properties. Reclamation has determined that Proposed Action would have no adverse effects on historic properties. The North Dakota State Historic Preservation Officer (NDSHPO) was consulted and concurred with Reclamation’s determination of No Adverse Effects on January 16, 2018 (NDSHPO REF: 18-0296).

7. Reclamation has determined the Proposed Action would have no impacts to Indian Trust Assets.

8. All applicable Federal and State environmental laws, regulations, and executive orders will be adhered to.

9. Reclamation is including a list of environmental commitments as part of the proposed action to be implemented in order to (a) prevent, minimize, or offset the occurrence of potential adverse environmental effects and (b) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.
Environmental Mitigation Commitments

This section presents environmental commitments which have been developed by Reclamation in consultation with Federal and State agencies, the Tribes, and the public through responses to scoping. These commitments are included as an inseparable component of this Proposed Action and are designed to offset potential for significant environmental effects resulting from the Proposed Action.

Should this project be constructed, Reclamation will ensure that these commitments are implemented and followed prior to and/or during construction of the Project. Appropriate environmental commitments will be incorporated into the designs and construction contracts and specifications of the project.

An Interagency Environmental Review Team, with appropriate agency representation, may be assembled to review environmental compliance in the field, as needed.

These environmental commitments will be implemented to (1) prevent, minimize, or offset the occurrence of potential for adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

<table>
<thead>
<tr>
<th>General Best Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comply with all appropriate Federal, State, and Local laws.</td>
</tr>
<tr>
<td>Follow recommended practices for construction, restoration, and maintenance.</td>
</tr>
<tr>
<td>Dump grounds, trash piles, and potential hazardous waste sites will be avoided.</td>
</tr>
<tr>
<td>Standard construction, industry measures will be taken to minimize fugitive dust emissions during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.</td>
</tr>
<tr>
<td>Erosion Best Management Practices (BMPs) will be followed to prevent runoff of soil, silt, and other debris.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface Water and Wetlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 404 permit will be completed and submitted to the U.S. Army Corps (USACE), as necessary. Section 401 and 402 certification will be completed, as necessary. Wetland impacts will be appropriately mitigated according to the standards and direction of the USACE, Natural Resources Conservation Service (NRCS), and U.S. Fish and Wildlife Service (USFWS). Wetland impacts will comply with the Clean Water Act and Agricultural Act of 2014.</td>
</tr>
<tr>
<td>Woody species including those bordering wetlands, shelterbelts, riparian woodlands, woody draws, or woodland vegetation will be avoided to the extent possible. For unavoidable impacts to woody habitats, replacement plants at a 2:1 ratio of native speciation will be planted, as appropriate.</td>
</tr>
<tr>
<td>Erosion control measures will be employed as appropriate: Stabilization, erosion controls, restoration, and re-vegetation of all streambeds and embankments will be performed as soon as a stream crossing is completed and maintained until stable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fish and Wildlife Species and Habitat</th>
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</thead>
<tbody>
<tr>
<td>To the extent possible, construction will avoid:</td>
</tr>
<tr>
<td>- Wetlands</td>
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<tr>
<td>- Federal, State, and Local wildlife areas and refuges</td>
</tr>
<tr>
<td>- Designated critical habitats</td>
</tr>
<tr>
<td>- Migratory bird habitats during the nesting brood rearing season (February 1 – July 15)</td>
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<td>---</td>
</tr>
<tr>
<td>To minimize impacts to fisheries resources, any stream identified as a fishery (fisheries – confirm with ND Game and Fish Department) will be avoided from April 15 to June 1 and crossed later in the summer or fall when flows are low or the stream is dry.</td>
</tr>
<tr>
<td>Construction within 660 feet of visible nesting bald eagles will be avoided from February through August.</td>
</tr>
<tr>
<td>Project proponents will coordinate with the USFWS’s appropriate Refuges and Wetland Management Districts and provide the latest-map version of the Proposed Project to avoid impacts to USFWS lands, including wetland and grassland easements, national wildlife refuges (NWR), waterfowl production areas or other USFWS lands interface.</td>
</tr>
<tr>
<td>If threatened or endangered species are identified and encountered during construction, all ground-disturbing activities in the immediate area will be stopped until Reclamation can consult with the USFWS to determine appropriate steps to avoid impacting the species.</td>
</tr>
<tr>
<td>Native prairie will be avoided to the extent possible. However, if native prairie sod must be broken, existing topsoil will be carefully salvaged and replanted with native grasses in a timely manner, with a seed mix recommended by the local NRCS and approved by Reclamation and the landowner.</td>
</tr>
<tr>
<td>Tree removal will take place during the non-active time of year for the northern long-eared bat and migratory birds (November 1 to January 31).</td>
</tr>
<tr>
<td>Any new signage will be placed in a manner as to not endanger raptors which may perch on the top of the post.</td>
</tr>
</tbody>
</table>

**Cultural Resources**

All cultural resource investigations will be performed according to the procedures specified in the programmatic agreement among Reclamation, the SHPO, and the Advisory Council on Historic Preservation for Reclamation activities in North Dakota. Cultural resource inventories will be performed under the direction of an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards (48 FR 44738-9). All appropriate cultural resource activities will be completed prior to the commencement of ground-disturbing activities, including Class I and Class III surveys and consultation with the SHPO. All cultural resources, except those exempted in the programmatic agreement, will be avoided if their significance cannot be established prior to disturbance. If avoidance is not practicable, Reclamation, in consultation with the SHPO would determine if the site is eligible for nomination to the National Register of Historic Places [36CFR800.4(c) and 36CFR60.4]. If the site is eligible as a historic property, initially Reclamation, SHPO, and other interested parties, depending on the type of property, will consult to determine a plan of mitigation. If an adverse effect cannot be avoided, the Advisory Council on Historic Preservation will be contacted. All ensuing activities will comply with the NHPA, as amended, and the Archaeological Resource Protection Act.

The Tribes will be consulted concerning the locations of unmarked burials or cemeteries. All such burials or cemeteries will be avoided to the extent possible. If a burial or cemetery cannot be avoided or is encountered during construction, Reclamation will comply with the Native American Graves Protection and Repatriation Act if graves are discovered on Federal or trust lands or within reservation boundaries. Reclamation will comply with North Dakota Century Code 23-06-27: “Protection of Human Burial Sites, Human Remains, and Burial Goods” for graves on private or State-owned lands.

If unrecorded cultural resources or traditional cultural properties are encountered during construction, all ground disturbance activity within the area will be stopped, Reclamation and appropriate authorities will be notified, and all applicable stipulations of the NHPA will be followed. Activities in the area will resume only when compliance has been completed.

**Paleontological Resources**

Reclamation consulted with the North Dakota Geological Survey to identify areas for paleontological survey where significant fossils are likely. One locality was identified near the project area. If any
ground disturbance takes place near the locality, the locality will be avoided and the nearby ground disturbance monitored by qualified personnel. If unknown paleontological resource are encountered during construction, all ground disturbance activity within the area will be stopped, Reclamation and appropriate authorities will be notified, and all applicable stipulations of the PRPA will be followed. Activities in the area will resume only when compliance has been completed.

Future Modifications and Changes
Major changes or modifications to the proposed action would be addressed through additional NEPA and NHPA compliance.
MEMORANDUM

TO: Area Manager, Bureau of Reclamation – Great Plains Region – Dakota Area Office

FROM: Deputy Regional Director – Trust Services – Great Plains Region

SUBJECT: Release of Draft Environmental Assessment

We received your letter regarding the proposed project listed below. We have considered the potential for both environmental damage and impacts to archaeological and Native American religious sites on lands held in trust by the Bureau of Indian Affairs, Great Plains Region. You should be aware; however, that Tribes or Tribal members may have lands in fee status near the sites of interest. These lands would not necessarily be in our databases, and the Tribes should be contacted directly to ensure all concerns are recognized. The actions considered have the following notification date and project location:

March 19, 2018  Project Title: Funding and Construction of a Diaphragm Filler and Drainage System for the Combined Outlet Works/Spillway Conduit and Stilling Basin Structure for Heart Butte Dam, Grand County, North Dakota

We have no environmental objections to this action as long as the project complies with all pertinent laws and regulations. Questions regarding environmental opinions and conditions can be addressed to Marilyn Barzier, Regional Environmental Scientist, at (605) 226-7656.

We also find that the listed action will not affect cultural resources on Tribal or individual landholdings for which we are responsible. Methodologies for the treatment of cultural resources now known or yet to be discovered – particularly human remains – must nevertheless utilize the best available science in accordance with provisions of the Native American Graves Protection and Repatriation Act, the Archaeological Resources Protection Act of 1979 (as amended), and all other pertinent legislation and implementing regulations. Archaeological concerns can be addressed to Dr. Sebastian C. LeBeau II, Acting Regional Archaeologist, at (605) 226-7656.
March 23, 2018

Ms. Kate Kenninger
Bureau of Reclamation
Dakotas Area Office
P.O. Box 1017
Bismarck, ND 58502-1017

Re: Draft EA for the Funding & Construction of a Diaphragm Filter & Drainage System for the Combined Outlet Works/Spillway Conduit & Stilling Basin Structure for Heart Butte Dam
Grant County

Dear Ms. Kenninger:

This department has reviewed the information concerning the above-referenced project submitted under date of March 19, 2018, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. 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. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.

2. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department’s website or by calling the Division of Water Quality (701-328-3210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

3. The proposed construction project overlies the Heart River sensitive groundwater area and the Rimrock Recreation Area and Lake Tschida Downstream Campground non-community wellhead protection areas. Care should be taken to avoid spills of any materials that may
have an adverse effect on groundwater quality. All spills must be immediately reported to this Department and appropriate remedial actions performed.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.
Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.
April 10, 2018

Kate Kenninger
Dakotas Area Office
PO Box 1017
Bismarck, ND 58502

Dear Ms. Kenninger:

This is in response to your request for a review of the environmental impacts associated with the Funding and Construction of a Diaphragm Filter and Drainage System for the Combined Outlet Works/Stillway Conduit and Still Water Basin Structure for Heart Butte Dam project located in Grant County, ND.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- There are no floodplains identified and/or mapped where this proposed project is to take place. The area is mapped as Zone D, which is a zone with undetermined flood risk. A floodplain development permit would not be required relative to the minimum standards of the National Flood Insurance Program.

- A Sovereign Land Permit is required for any work completed below the ordinary high water mark of the Heart River. Please contact Ashley Persinger, Sovereign Land Specialist, at 701-328-4988 or apersinger@nd.gov should you have questions regarding this comment.

- The Office of the State Engineer (OSE) Engineering and Permitting Section reviewed the project location and determined that the project, as described, constitutes a modification to a dam. Such modification will require a construction permit from the OSE according to North Dakota Century Code § 61-16.1-38. Enclosed is a construction permit application for the project. The project will require completed plans and specifications that are signed by a professional engineer registered in the state of North Dakota. For further information on the OSE’s permitting requirements, please visit the Regulation & Appropriation tab on the OSE’s website (swc.nd.gov). Please contact the OSE Engineering and Permitting Section at 701-328-4898 if you have any questions regarding this comment.

- The Environmental Effects of the Proposed Action Alternative (See Page 3-7 of the EA) describes the effect on the irrigators before and during the proposed repair process. The second paragraph on Page 3-7 describes the 2019 irrigation season as a normal occurrence, with the drawdown of the reservoir for the needed repair starting in September 2019. The target Reservoir Water Surface (RWS) of 2050 feet is proposed to be reached by Jul 31, 2020, with no releases after July 31, 2020.

The second paragraph also states, "...The ability to irrigate during the drawdown and construction would be coordinated between Reclamation and the Western Heart Irrigation District..." However, this statement will need clarification. Water discharged during drawdown is scheduled to be classified as "Maintenance water," not irrigation water (See Table 7, page 4-1). Since no discharges are scheduled during the construction period after the drawdown is completed, irrigation water under...
the BOR's water permit, number 250B, will not be available to the irrigators with water service contracts with the BOR.

No releases from the impounded water behind the Heart Butte Dam means that the irrigators having water service contracts with the BOR will have no water for irrigation after July 31, 2020. The water in the Heart River, with the discharge from the Heart Butte Dam at zero, would be classified as natural flows of the Heart River. Perfected Water Permit 250B, issued to the BOR for the irrigation water behind the dam, is the authorizing mechanism for the irrigators with water service contracts with the BOR. The discharge of that authorized water is scheduled to be zero during the construction period, thus, no water is available under the BOR water services contracts.

BOR irrigators wanting to use the natural flows of the Heart River during the period of zero discharge from Heart Butte Dam will need to apply for a temporary water permit from the OSE. A minimum of thirty (30) days is required for the review and issuance, if approved, of any temporary water permit. State-permitted water appropriators on the lower reaches of the Heart River will have senior rights to the natural flows of the Heart River. Should you have questions regarding water permits, please contact Dan Farrell at 701-328-3468.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4967.

Sincerely,

[Signature]

Jared Huibregtse
Water Resource Planner IV

JH:dmv/1570
APPLICATION/NOTIFICATION TO CONSTRUCT OR MODIFY A DAM, DIKE, RING DIKE OR OTHER WATER RESOURCE FACILITY
OFFICE OF THE STATE ENGINEER
REGULATORY DIVISION
SFN 51655 (5/2018)

No. (EXCLUDE ONLY)

I, the undersigned, do hereby submit the following information to the Office of the State Engineer for determination and use as a filing of information required under North Dakota Century Code §31-04-02 or as an application to construct or modify a facility under North Dakota Century Code §61-16.1-38.

A. General Information

This Application/Notification Must Include A Map From An Actual Survey, Aerial Photo Or Topographic Map. The Size Of The Map Shall Be 8½ By 11 Inches. The Map Shall Have A North Arrow And Approximate Scale. If, In The Opinion Of The State Engineer, The Map Does Not Contain Information To Properly Evaluate The Project, It Will Be Returned.

The Proposed Facility Is A

- Dam (Complete Sections A, C & F)
- Dike (Complete Sections A, D & F)
- Ring Dike (Complete Sections A, D & F)
- Wetland Restoration (Complete Sections A, C, E & F)
- Pond, Lagoon, or Diversion (Complete Sections A, B & F)
- Diversion Ditch (Complete Sections A, B & F)
- Other (Complete Sections A, B & F)

Is This Application/Notification For Modification Of An Existing Structure? ☐ Yes ☐ No

If So, What Year Was Existing Structure Constructed? By Whom?

Project Will Be Located In Which Water Resource District

Legal Description

<table>
<thead>
<tr>
<th>¼ Section</th>
<th>Township</th>
<th>Range</th>
</tr>
</thead>
</table>

(Optional) Latitude

Longitude

Waterway On Which Project Will Be Located

A Tributary To

Will The Project, Including Any Area Affected As A Result Of The Project, Be Located Entirely On Land Owned By The Applicant? ☐ Yes ☐ No

If Any Portion Of The Project Will Be Constructed On Land Not Owned In Fee Title By The Applicant, Written Authorization To Construct The Project Must Be Obtained From The Landowner Of Record And A Copy Of The Authorization Provided To This Office. If The Project Will Affect Land Not Owned By The Applicant, Evidence Of A Property Right Must Be Provided By The Applicant And A Copy Of The Property Right Provided To This Office. If Any Portion Of The Project Will Be Constructed Within The Right-Of-Way Of A Section Line, Roadway, Or Railroad, Or If The Project Will Impound Water Within The Right-Of-Way Of A Section Line, Roadway, Or Railroad, Written Authorization To Do So Must Be Obtained From The Appropriate Authority And A Copy Provided To This Office.

Project Sponsor (Water Resource District/City/Us Fish & Wildlife Service, Etc.) If Applicable

Contractor, If Known

Anticipated Construction Start Date

Completion Date

Who Will Be Responsible For The Operation And Maintenance Of This Project?
### B. Pond, Lagoon, Dugout, Diversion Ditch, Or Other Water Resource Facility

#### Design Data

<table>
<thead>
<tr>
<th>A. Pond, Lagoon, Or Dugout (Complete Below And Diagram Next Page For Each Pond Or Cell, Photocopy if Necessary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Area Top Of Structure (Acres)</td>
</tr>
<tr>
<td>Storage/Top Of Structure (Acre-Feet)</td>
</tr>
<tr>
<td>Maximum Depth Of Water (Feet)</td>
</tr>
</tbody>
</table>

#### B. Diversion Ditch

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Bottom Width (feet)</th>
<th>Side Slopes (feet)</th>
<th>Maximum Cut (feet)</th>
<th>Gradient (foot/foot)</th>
</tr>
</thead>
</table>

Description Of Project, If Not A Pond, Lagoon, Dugout, Or Diversion Ditch

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![Diagram of a pond or lagoon structure with various dimensions labeled, including Lt, Wt, Lc, Wc, Lw, Ww, fb, Sb, Dw, Sw, Tw, Dc, Lc or Wc.](diag.png)
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ABBREVIATION</th>
<th>DIMENSION (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Length Of Pond (Includes Banks)</td>
<td>Lt</td>
<td></td>
</tr>
<tr>
<td>Total Width Of Pond (Includes Banks)</td>
<td>Wt</td>
<td></td>
</tr>
<tr>
<td>Length Of Water Surface At Full Service Level</td>
<td>Lw</td>
<td></td>
</tr>
<tr>
<td>Width Of Water Surface At Full Service Level</td>
<td>Ww</td>
<td></td>
</tr>
<tr>
<td>Length Of Cut Into The Soil Surface</td>
<td>Lc</td>
<td></td>
</tr>
<tr>
<td>Width Of Cut Into The Soil Surface</td>
<td>Wc</td>
<td></td>
</tr>
<tr>
<td>Depth Of Cut Into Soil Surface</td>
<td>Dc</td>
<td></td>
</tr>
<tr>
<td>Depth Of Water In The Pond At The Full Service Level</td>
<td>Dw</td>
<td></td>
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<tr>
<td>Freeboard (The Distance Between The Full Service Level And The Top Of The</td>
<td>Fb</td>
<td></td>
</tr>
<tr>
<td>Structure That Is Used To Manage Wave Action, Usually 2-3 Feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top Width Of Embankment Surrounding The Pond</td>
<td>Tw</td>
<td></td>
</tr>
<tr>
<td>Outside Bank Sideslope Ratio (Usually 4:1, Which Is 4 Horizontal Feet For</td>
<td>Sb</td>
<td></td>
</tr>
<tr>
<td>Every 1 Foot Of Rise)</td>
<td></td>
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<tr>
<td>Inside Bank Sideslope Ratio (Will Vary Between 4:1 And 6:1, Depending On</td>
<td>Sw</td>
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<tr>
<td>The Soil Type)</td>
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C. Dams

**Drainage Area Above Dam**

<table>
<thead>
<tr>
<th>Square Miles</th>
<th>Acres</th>
</tr>
</thead>
</table>

**Purpose**

**Geometric Description Of Dam**

<table>
<thead>
<tr>
<th>Maximum Height (H) (feet)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Elevation (T) (feet msl)</td>
<td></td>
</tr>
<tr>
<td>Top Width (feet)</td>
<td></td>
</tr>
</tbody>
</table>

**Side Slopes/ Upstream (S1) (1)**  
**Side Slopes/ Downstream (S2) (1)**

**Type Of Embankment Protection**

**Emergency Spillway**

<table>
<thead>
<tr>
<th>If Earthen</th>
<th>Width (feet)</th>
<th>Side Slopes (1)</th>
<th>Level Section Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions If Other Than Earthen</td>
<td></td>
<td></td>
<td></td>
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</table>
Principal Spillway

<table>
<thead>
<tr>
<th>Outlet Pipe</th>
<th>Type</th>
<th>Diameter</th>
<th>Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riser</td>
<td>Type</td>
<td>Diameter</td>
<td></td>
</tr>
<tr>
<td>Control Gate</td>
<td>Type</td>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>Drawdown Pipe</td>
<td>Type</td>
<td>Diameter</td>
<td></td>
</tr>
</tbody>
</table>

Distance To Nearest Downstream Occupied Dwelling(s)

<table>
<thead>
<tr>
<th>ELEVATION (feet)</th>
<th>RESERVOIR SURFACE AREA (acres)</th>
<th>RESERVOIR CAPACITY (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Datum</td>
<td>Top Of Dam</td>
<td>Emergency Spillway</td>
</tr>
<tr>
<td></td>
<td>Principal Spillway</td>
<td>Drawdown Pipe</td>
</tr>
<tr>
<td></td>
<td>Streambed At Dam</td>
<td></td>
</tr>
</tbody>
</table>

Is This Application/Notification For The Construction Of A Ring Dike? □ Yes □ No

If So, Will The Ring Dike Tie into Existing? □ Dike □ Roadway □ High Ground □ Other

Purpose

Area Of Land To Be Protected By Dike (acres)

Description Of Dike

<table>
<thead>
<tr>
<th>Dike Length (feet)</th>
<th>Dike Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top Width (T) (feet)</td>
</tr>
<tr>
<td></td>
<td>Side Slopes/ Interior (S1) (°1)</td>
</tr>
<tr>
<td></td>
<td>Side Slopes/ Exterior (S2) (°1)</td>
</tr>
<tr>
<td></td>
<td>Maximum Height (H) (feet)</td>
</tr>
<tr>
<td></td>
<td>Maximum Elevation (feet msl)</td>
</tr>
<tr>
<td></td>
<td>Minimum Height (H) (feet)</td>
</tr>
<tr>
<td></td>
<td>Minimum Elevation (feet msl)</td>
</tr>
</tbody>
</table>

Embankment Erosion Protection

Will The Dike Flood Or Adversely Affect Adjacent, Upstream Or Downstream Land? □ Yes □ No

If Yes, Attach Flowage Easements. Easements Must Include A Description Of Provisions, And Names And Signatures Of Grantees.
**E. Wetland Restoration**

<table>
<thead>
<tr>
<th>The Proposed Wetlands Are</th>
<th>□ Temporary</th>
<th>□ Permanent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage Area Above Dam (square miles)</td>
<td>Or (acres)</td>
<td></td>
</tr>
<tr>
<td>Is This Project Mitigation For Another Project?</td>
<td>□ Yes</td>
<td>□ No</td>
</tr>
</tbody>
</table>

If Yes, Please Describe

Describe The Proposed Operation Plan For The Wetland

<table>
<thead>
<tr>
<th>OVERFLOW ELEVATION (feet)</th>
<th>CAPACITY (acres)</th>
<th>SURFACE AREA (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Datum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Local</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ NVD 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ NAVD88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Existing
Natural
Proposed
Top Of Structure

**F. Additional Information, Affidavit Of Design Engineer, And Signature**

Additional Information And Comments

A complete set of plans and specifications prepared by a professional engineer registered in the State of North Dakota must be submitted with and made part of this Application/Notification if the proposed structure will be capable of retaining, obstructing, or diverting more than 50 acre-feet of water, or if the structure is a medium or high hazard dam, as determined by the State Engineer, capable of retaining more than 26 acre-feet of water. Low hazard dams, as determined by the State Engineer, less than 10 feet in height are exempt from the requirement for professional engineering services. If plans and specifications are required, the following affidavit must be completed.

1. __________________________ (name) (PE license number), a Professional Engineer registered in the State of North Dakota, designed and/or personally supervised the design of the project as described in this application and on any attached sheets, and construction will be inspected in accordance with North Dakota Administrative Code §89-08-03-01. Date ____________

The filing of this Application/Notification in no way relieves the applicant or landowner from any responsibility or liability resulting from the construction, operation or failure of the project.

Land Owner (print)

Address

Telephone Number

Signature Date

Sponsoring Agency

Address

Telephone Number

Signature Date
Environmental Assessment for the Funding and Construction of the Heart Butte Conduit Repair, Grant County, North Dakota
Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation’s natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.
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**List of Acronyms and Definitions**

**Action Area** – Based on Reclamation’s assessment of the potential direct and indirect effects of the proposed action to federally listed species (50 CFR 402.02)

APE – area of potential effect

CAS – Corrective Action Study

CEQ – Council of Environmental Quality

CFR – Code of Federal Regulations

CFS – cubic feet per second

**Critical Habitat** – It is a specific geographic area(s) that is essential for the conservation of a threatened or endangered species and that may require special management and protection.

**Connected Actions** – Connected actions are those actions that are “closely related” to the proposal and alternatives. Connected actions automatically trigger other actions, they cannot or will not proceed unless other actions have been taken previously or simultaneously, or they are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR Part 1508.25)

DKAO – Dakotas Area Office

DSPR- Dam Safety Priority Rating

**Environmental Mitigation Commitments** – These are commitments included as an inseparable component of this Proposed Action. They are designed to offset potential for significant environmental effects resulting from the Proposed Action. These commitments will be implemented to (1) prevent, minimize, or offset the occurrence of potential for adverse environmental effects and (2) ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

EA – Environmental Assessment

EIS – Environmental Impact Statement

ESA – Endangered Species Act of 1973

FER - Field Exploration Request

**FONSI** – Finding of No Significant Impact, the decision document that concludes an EA

GHG – Greenhouse gases
IE – Issue Evaluation

IPaC – Information, Planning, and Conservation System

ITA – Indian Trust Assets

Lake Tschida - Heart Butte Reservoir

MR&I – Municipal Rural and Industrial (water supply)

NDSHPO – North Dakota State Historic Preservation Officer

NEPA – National Environmental Policy Act of 1969 as amended

NHPA – National Historic Preservation Act of 1966 as amended

NRCS – Natural Resources Conservation Service

NRHP – National Register of Historic Places

O&M – Operations and Maintenance

Project Area – The Heart Butte Dam downstream embankment surrounding the outlet works/spillway conduit, conduit, stilling basin, Lake Tschida and Heart River below the dam.

Proposed Project – The subject of this EA, the proposal to install a sand filter diaphragm on three sides of the outlet works/spillway conduit, the drains on both sides of the stilling basin walls and the earthen berm above the filter.

PSMBP-Pick-Sloan Missouri Basin Program

RA- Risk Analysis

Reclamation – U.S. Department of the Interior, Bureau of Reclamation

ROW – River Outlet Works

RWS- Reservoir Water Surface

SOD – Dam Safety Program

USACE – U.S. Army Corps of Engineers

USDA – U.S. Department of Agriculture

USFWS – U.S. Fish and Wildlife Service
Chapter 1 Introduction and Regulatory Background

The Bureau of Reclamation (Reclamation) is proposing to fund and construct a sand filter diaphragm and drainage system for the combined outlet works/spillway conduit and stilling basin structure for Heart Butte Dam (Proposed Action).

Reclamation is the lead federal agency for the Proposed Action; therefore, Reclamation is ultimately responsible for compliance with the National Environmental Policy Act (NEPA) of 1969 (as amended). In order to comply with NEPA and related environmental laws and regulations, federal agencies must consider the potential environmental effects of their decisions regarding approval of projects proposed on federally-owned and administered land or projects under federal control. In addition, Reclamation must evaluate connected actions as required in the Council of Environmental Quality (CEQ) 40 Code of Federal Regulations (CFR) 1508.25 in evaluating the effects of the entire action. This evaluation may include assessing impacts on non-federally managed lands. This Environmental Assessment (EA) documents the proposed federal action, alternative actions considered, expected impacts of those actions, and compliance with environmental laws and regulations.

This EA may lead to a Finding of No Significant Impact (FONSI) if the responsible official decides the impacts of the action are not significant. If significant environmental impacts are identified, Reclamation would stop the EA process and may proceed with the preparation of an Environmental Impact Statement (EIS). Reclamation defines significance in accordance with 40 CFR 1508.27 in reference to context and intensity.

If a FONSI is issued but there are substantial changes to project design or operating condition, it may be necessary to conduct additional environmental review.

Authority

Background and History
Heart Butte Dam, located on the Heart River in southwest North Dakota, was authorized in Section 9 of the Flood Control Act of 1944 (S. Doc. No. 247, 78th Cong., 2nd sess) created in the Pick-Sloan Missouri Basin Program (PSMBP) formerly called the Missouri River Basin Project. The dam, completed in December 1949, was constructed to provide: flood control benefits to the entire Heart River Valley, an irrigation water supply to serve 13,100 acres in the Heart Butte Unit with water service from Heart Butte Reservoir, with incidental fish and wildlife, and recreation benefits.
Active conservation storage is available for project purposes including downstream irrigation. The first water storage in Heart Butte Reservoir (Lake Tschida) was in October 1949. In addition to irrigation, the Unit has since provided flood protection, particularly to the city of Mandan, even as recently as 2009 and 2010. The dam and reservoir are operated and maintained by Reclamation.

On January 25, 2013 during a routine inspection, fine gray-colored sand deposits were observed inside the outlet works conduit at Heart Butte Dam. Subsequent investigation determined that sand was being transported by seepage through a contraction joint at conduit station 9+62. On March 7, 2013, the lower portion of the contraction joint was covered with two layers of a geotextile filter fabric that was held in place by a perforated stainless steel plate. This action is considered a temporary means of preventing further internal erosion of sand into the conduit. In the future, high flows through the conduit could damage or destroy the temporary installation resulting in the loss of filter protection. An Issue Evaluation (IE) completed in August, 2016 recommended that a Corrective Action Study (CAS) be initiated to mitigate the risk of internal erosion failure associated with the outlet works conduit at Heart Butte Dam (Reclamation 2016).

The IE identified an unsatisfactory risk for dam failure at Heart Butte Dam and assigned Dam Safety Priority Rating (DSPR) of DSPR 3 (Moderate to High Priority). This classification indicates that Heart Butte Dam has potential dam safety deficiencies with significant risks or probabilities of dam failure. If this situation is not addressed, continued seepage and sediment transportation could lead to dam failure by internal erosion. In cases of DSPR 3 classification, the Safety of Dams (SOD) program dictates that Reclamation must determine whether it is appropriate to proceed with actions that either better define the dam safety risks or take actions to directly reduce the dam safety risk. Reclamation’s CAS determined that “additional studies are unlikely to reduce the risk estimates,” and thus, Reclamation should proceed with actions to directly reduce the dam safety risk.

**Purpose and Need for the Action**
The need for corrective actions at Heart Butte Dam arises from Reclamation’s duty to ensure that Reclamation dams do not present unreasonable risks to people, property, and the environment. Currently, the risk of dam failure due to persistent seepage issues at Heart Butte Dam is at an unsatisfactory level. Corrective actions are needed to reduce the risk of dam failure to satisfactory levels according to Reclamation’s SOD guidance.

Undertaking corrective actions would serve the following purposes:

1. Downgrading of the Heart Butte Dam DSPR from a DSPR 3 (Moderate to High Priority) to DSPR 4 (Low to Moderate Priority) or DSPR 5 (Low Priority). This downgraded DSPR would indicate reduction of risk of dam failure to a satisfactory level that would not indicate a pressing need for action (Reclamation 2011; Reclamation 2017 b).
2. Continue to meet the primary purposes of Heart Butte Dam, including delivery of irrigation water in accordance with the terms and conditions of Contract No. 149D620001, Repayment Contract between the United States of America and the Western Heart River Irrigation District providing for an irrigation water supply. Continue to provide flood control benefits to the entire Heart River Valley, fish and wildlife conservation, and recreation benefits, in accordance with Section 9 of the Flood
Control Act of 1944 (S. Doc. No. 247, 78th Cong., 2nd sess) created in the PSMBP formerly known as the Missouri River Basin Project (Reclamation 2016).

**Project Area**

Heart Butte Dam is located on the Heart River in southwest North Dakota, 18.4 miles south of Glen Ullin, North Dakota. The dam embankment is in Section 13, Township 137 North, Range 89 West, Grant County, North Dakota. The Dam is an earthfill embankment with a structural height of 142 feet, and was constructed from 1948-1949. The Dam has a design service spillway capacity of 5,700 ft³/s (at Reservoir Water Surface (RWS) 2,118.2) and a design outlet works capacity of 700 ft³/s (at RWS 2,064.5). The service spillway and outlet works are combined into a single penetrating conduit, which includes a “double-barrel” geometry upstream of the embedded outlet works gate chamber. See Figure 1 for an overview of the Project Area.

![Figure 1. The Heart Butte Conduit Repair Project Area.](image)

Heart Butte Reservoir lands include approximately 7,361 acres of public land and 3,397 acres of water with 55 miles of shoreline that make up Lake Tschida. All support wildlife habitat, hunting, fishing, camping, and recreational activities. Please see Figure 2 for an overview of the Heart Butte Reservoir lands.
Lake Tschida has a probable maximum flood capacity of 435,123 acre-feet: 222,427 acre-feet is surcharge flood storage (51%), 147,605 acre-feet is exclusive flood control storage (34%), 60,763 acre-feet is controlled “active conservation storage” for project purposes (14%), and 4,328 acre-feet is for dead storage (1%) (Figure 3).
The Heart River is approximately 120 miles long and follows a meandering course easterly from west of Dickinson, North Dakota, to its confluence with the Missouri River south of Mandan, North Dakota. Principal tributary streams entering the river below Heart Butte Dam include Antelope Creek, Muddy Creek and Sweet Briar Creek. The Heart River Valley is bordered by escarpments and steep rolling hills. The river originates at elevation 2,900 and enters the Missouri River at elevation 1,620. Prior to construction of Dickinson and Heart Butte Dams between 1949 and 1950, the river valley was subject to severe flooding nearly every year. Since construction of the dams, this condition has been largely eliminated. Typical flows near the river’s mouth at Mandan range from 20 ft³/s during winter months to 8,000 to 10,000 ft³/s during flood periods. Approximately 5 to 8 ft³/s is released from Heart Butte Reservoir during the winter to provide river flows similar to historic conditions for downstream domestic use.

Permits and Authorizations Required
Implementation of the Proposed Action may require authorizations or permits from state and federal agencies. Table 1 lists the permits, licenses, and/or authorizations associated with each Agency/Department.

Table 1. Potential Permits and/or Authorizations Required by Agencies and Departments.

<table>
<thead>
<tr>
<th>AGENCY/DEPARTMENT</th>
<th>PERMIT/AUTHORIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dakota Department of Health</td>
<td>• Approved Storm Water Pollution Prevention Plan (SWPPP)</td>
</tr>
<tr>
<td></td>
<td>• National Pollution Discharge Elimination System (NPDES),</td>
</tr>
<tr>
<td></td>
<td>• Section 402: General Construction Permit</td>
</tr>
<tr>
<td></td>
<td>• Section 401 Water Quality Certification</td>
</tr>
<tr>
<td>North Dakota State Historical Preservation Office</td>
<td>• Consultation pursuant to Section 106 of the National Historic Preservation Act, 16 USC 470</td>
</tr>
<tr>
<td>North Dakota State Water Commission</td>
<td>• If any portion of the project encroaches on a FEMA identified 100-year floodplain, a floodplain development permit will be required;</td>
</tr>
<tr>
<td></td>
<td>• A Sovereign Lands Permit is required if any work is proposed under or on the banks of the Heart River;</td>
</tr>
<tr>
<td></td>
<td>• If observations wells are encountered during project activities and must be removed, the SWC must be contacted;</td>
</tr>
<tr>
<td></td>
<td>• The Office of the State Engineer (OSE) will be notified regarding any impacts to water resources (i.e. streams or rivers), drains, and wetlands (i.e. ponds, sloughs, lakes, or any series thereof) as any alternations, modifications, improvements, or impacts to those water resources may require a drainage permit(s) or a construction permit(s) from the OSE;</td>
</tr>
<tr>
<td></td>
<td>• Construction permit to the OSE;</td>
</tr>
<tr>
<td></td>
<td>• Temporary Water Permit to the OSE.</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers</td>
<td>• If jurisdictional wetlands are impacted, Section 404 permit may be required; Acceptable mitigation plan if jurisdictional wetlands are impacted and require mitigation.</td>
</tr>
</tbody>
</table>
Chapter 2 Proposed Action and Alternatives Considered

No Action Alternative
Under this alternative, no Federal action would be taken to correct safety deficiencies at Heart Butte Dam. The No Action Alternative would allow the conduit to remain in its present condition. This is the least cost alternative, but it does not address the risks for internal erosion failures. If no action is taken, seepage through the embankment would continue and the risk of potential failure would remain above dam safety guidelines. With time, the risks are likely to increase beyond the present condition. If a larger flood release were to occur, it would be very difficult to take action to prevent a failure (Reclamation 2017b).

Due to the risks to property and public safety, this alternative would not satisfy the purpose and need for the project. Although this alternative does not satisfy the purpose and need, it was carried forward for additional discussion and analysis in accordance with the guidance presented in Reclamation’s NEPA Handbook (Reclamation 2012a).

Proposed Action – Reclamation’s Preferred Alternative
The Proposed Action, Reclamation’s preferred alternative, would be to install a sand filter diaphragm surrounding three sides of the conduit. Water collected by the sand filter would be drained through outfall pipes leading to downstream inspection wells. The inspection wells would discharge to the downstream river channel. Perforated pipes would be installed parallel to the outfall pipes, where they abut the downstream wingwalls to prevent any additional water from collecting there. This water would be collected and released in the same fashion as the outfall pipes. This alternative also includes construction of an earthen berm above the filter to provide weight should the filter be subjected to high reservoir pressures. After installation of the filter and drain system, the conduit joints would be grouted to prevent seepage flow in the embankment from entering into the conduit. The grouting would be carefully controlled and monitored to prevent grout from entering the sand filter (Reclamation 2016b). The filter and drain are shown on Figure 4. Refer to Figure 1 for a depiction of the Project Area.

The Proposed Action would also include a contract between Reclamation and the Western Heart River Irrigation District for repayment of SOD modification costs associated with the Proposed Project.
The dam site has a mean precipitation of 16.27 inches annually with most of the precipitation occurring April through September and almost half of the precipitation occurring in just three months (May through July). Rainfalls over ½ inch also occur during the heavy rain period of May through July where several days of construction activity could be lost during these months. The dam site also averages 36.2 inches of snowfall per year, but rarely more than 3 inches in any event; however, the snow accumulates on the ground for much of November through March. Thus, winter construction would be impeded by snow falls in the winter months and impacted by rainfall several days each month from May through July. The optimum construction season would be late summer into early fall.

A significant construction risk is reservoir spilling during construction. The uncontrolled spillway crest is at elevation 2064.50. Data available from Hydromet for this reservoir from October 1949, to December 2015 indicates the reservoir is above the uncontrolled spillway crest 21 percent of the time and the reservoir can spill during any month of the year (Reclamation 2016c) (see Figure 5). Furthermore, the double barrel construction of the river outlet works (ROW) and service spillway means that any releases would flow through the construction site. The Reservoir needs to be drawn down to a level that would increase the probability that construction can be completed without water releasing through the conduit. While there is no absolute safe RWS for construction, the RWS has historically reached 2050.00 which would reduce the chances of reservoir releases; therefore, Reclamation has selected this elevation for the RWS during construction.
A reservoir restriction of elevation 2050.00 is necessary due to the following reasons:

1. If the outlet conduit is exposed, there may be a risk of failure if the conduit cannot safely confine the outlet flows without the surrounding embankment confining the internal stresses due to the hydrostatic pressure.

2. The worksite could also become inundated with tail water from the outlet channel, damaging equipment, completed earthwork and contaminating the filter drain material. If this occurred, once un-watered, the embankment construction completed prior to the event would likely need to be removed and replaced in its entirety. (Reclamation 2016c).

3. The reservoir elevation of 2050.00 is comparable to the historic low reservoir elevation recorded during normal facility operations in October of 1991 (Figure 6) and is within the normal operating water level of the reservoir.

4. A lower reservoir elevation, extended for a period of time, would help relieve the hydrostatic pressure through the dam and help ensure construction is completed within the scheduled period and not extended into the next calendar year.

A coffer dam and access road may be necessary for this alternative. The U.S. Army Corps of Engineers would be consulted to obtain Section 404 permits.

Construction would initiate in the summer of 2020 and would take 6 to 9 months to complete, depending on weather conditions. No releases from the reservoir would occur from July 31, 2020 through the completion of construction. Reservoir filling would be allowed after construction completion, which would occur in the spring of 2021. Depending on climatic conditions, the reservoir could take months to years to fill to normal operating levels. The drawdown would start in September 2019, after the irrigation season. Releases would be maintained at 100 cfs with a
target of RWS 2057.00. Releases of 100 cfs or less allow for low water crossings to be utilized and irrigation pumps to remain in the river channel. Any deviations from 100 cfs releases would be communicated to downstream stakeholders. Once the target elevation is achieved or the reservoir is ice covered, whichever comes first, releases would be adjusted in an effort to match inflows throughout the winter. Winter releases would be coordinated with applicable emergency managers and adjusted as necessary to minimize hazardous ice conditions downstream.

During 2020 spring runoff, releases would be restarted and maintained at maximum flow (700 cfs at RWS 2064.50) in an effort to achieve RWS 2055.00. At RWS 2055.00, releases would be reduced to 100 cfs until the target RWS 2050.00 is achieved, at which point releases would be set to match inflows. If wetter than normal conditions are experienced and inflows are greater than 100 cfs, releases over 100 cfs and up to the maximum releases (700 cfs at RWS 2064.50) would be made in an effort to achieve RWS 2050.00 by July 31, 2020. This plan would be adaptable as needed to reflect actual rainfall and runoff conditions into and below the dam and communicated to applicable emergency managers and downstream landowners.

During the repair, access to the downstream campground and the Heart River below the dam would be closed. To keep the public informed of changing recreation conditions, irrigation releases, and reservoir elevations prior to and during construction, DKAO has developed a communication strategy shown in Table 2.
Table 2. Heart Butte Conduit Repair Communication Strategy.

<table>
<thead>
<tr>
<th>Message</th>
<th>How</th>
<th>Audience</th>
<th>When</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td>General updates, respond to questions.</td>
<td>Emergency Action Plan Orientation</td>
<td>Emergency Responders, Cooperating agencies,</td>
<td>March 1, 2018, February/March 2019 and</td>
<td>Heart Butte Shop</td>
</tr>
<tr>
<td></td>
<td>Exercise and Communication Drill</td>
<td>Managing Partners</td>
<td>2020</td>
<td></td>
</tr>
<tr>
<td>General updates, respond to questions.</td>
<td>Annual Cabin Association Meeting</td>
<td>Cabin owners</td>
<td>April 2018, April 2019 and 2020</td>
<td>Elks Lodge Bismarck, ND</td>
</tr>
<tr>
<td>General updates, respond to questions.</td>
<td>Irrigation District Meeting</td>
<td>Irrigators</td>
<td>January and February 2018 and Spring 2019 and 2020</td>
<td>Carson, ND</td>
</tr>
<tr>
<td>General updates, respond to questions.</td>
<td>Joint Jobs Development Agency Annual</td>
<td>General Public, managing partners, cooperating</td>
<td>July 2018, July 2019 and 2020</td>
<td>Heart Butte Shop</td>
</tr>
<tr>
<td></td>
<td>Meeting</td>
<td>agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Assessment, updates</td>
<td>Reclamation website</td>
<td>All</td>
<td>Ongoing</td>
<td><a href="https://www.usbr.gov/gp/dkao/">https://www.usbr.gov/gp/dkao/</a></td>
</tr>
<tr>
<td>General updates</td>
<td>JJDA Website</td>
<td>All</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>General updates</td>
<td>North Dakota Game and Fish website</td>
<td>All</td>
<td>Ongoing</td>
<td><a href="https://gf.nd.gov/">https://gf.nd.gov/</a></td>
</tr>
<tr>
<td>Reservoir releases</td>
<td>Telephone notification and email from</td>
<td>Irrigators, stakeholders, affected agencies</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the dam tender and posted on websites</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*News releases and/or public involvement products will be prepared and distributed to appropriate media outlets during the environmental assessment process to provide updates to the public and interested parties as to the progress of the proposed Federal action.*
Alternatives Considered and Eliminated from Further Study

The following Alternatives were evaluated during the Heart Butte CAS (Reclamation 2017b) but eliminated because they did not meet the purpose or need for the Proposed Project or were not reasonable or feasible.

**Full Filter around Conduit, Stability Berm, Drains**

Compared to the Preferred Alternative there are additional construction risks with this Alternative due to a longer period of construction (3 to 4 months). The construction risks are mainly concerned with dewatering and maintaining stable excavation slopes until the work is completed. Another risk is that a large flood event occurs during construction which requires operation of the spillway. Operation of the spillway during construction could result in significant erosion damage if the flood occurs after the concrete conduit has been removed but not yet replaced. It would be necessary to stop work, construct a temporary armored flow channel, and refill excavations to pass the flood. Although the construction would be limited to the dry fall portion of the year, to reduce the flood risk, the longer duration of the project means that these risks are greater than those of the preferred alternative (Reclamation 2017b). This Alternative was eliminated because it does not provide significant risk reduction compared to the Preferred Alternative for a substantially higher cost (Reclamation 2016b).

**Permanent Reservoir Restriction**

The Reservoir Restriction Alternative was determined to not be a viable choice. For 27 percent of the years of dam operation, the entire normal reservoir volume flows into the reservoir in a single month’s time. Even if the dam was restricted down to the dead pool it would still be subject to rapid filling due to river inflows. When the reservoir refills, the risk of dam failure would be above dam safety guidelines values. This alternative was not further evaluated once it was determined that it does not meet the risk reduction requirements (Reclamation 2017b).

**Dam Removal**

The Dam Removal Alternative would eliminate the risk of dam failure. Unfortunately all project benefits would be lost, including flood control. Removal of the dam would subject downstream populations to dangerous flooding on a frequent basis. Over 3,000 acres of land would need to be reclaimed and revegetated. This alternative would involve a large and complex construction project with cost estimates of approximately $250.5 million. This alternative is not viable because of its high cost and because it would place downstream populations at risk of dangerous flooding by the river. (Reclamation 2017 b)

Additional Alternatives not discussed in the CAS that were considered during the Value Planning Study conducted in July of 2015 are listed and summarized below (Reclamation 2015):

**Partial Filter using Geotextile around Conduit, Stability Berm, Drains**

Install a partial filter using Geotextile around three sides of the outlet works/spillway conduit on the downstream side of the dam. Construct a stability berm consisting of zone 3 miscellaneous fill above the filter and drain. This Alternative was rejected because it did not fully address the failure mode.
**One-Pass Trencher**
A one-pass trencher would install flexible perforated drainage pipe with engineered filter media and envelope material starting near the conduit and discharging into the river. Construct a stability berm consisting of zone 3 miscellaneous fill over the treated area. This Alternative was rejected because it did not fully address the failure mode.

**Replace Dam**
Remove and replace the entire existing outlet works conduit, including the spillway structure which would result in the replacement of the dam due to excavation safety requirements. This Alternative was rejected because it was cost prohibitive.

**Relief Wells**
Vertical drainage/relief wells would be drilled on each side of the conduit on the downstream slope of the dam. This Alternative was rejected because it did not fully address the failure mode.
Chapter 3 Affected Environment

Introduction
This section describes the existing conditions and potential impacts for resources which may be affected by the Proposed Project. The affected environment includes the existing communities, land, water, and air-sheds that might be affected by the Proposed Project. Environmental consequences to these resources may be direct (as a result of construction, operation, or maintenance) or indirect (generally subsequent to a direct effect but not directly resulting from Proposed Action), positive (beneficial) or negative (adverse), and long term (permanent, long-lasting) or short term (temporary). Measures that would be implemented to reduce, minimize, or eliminate impacts (mitigation measures) are presented in Chapter 4 as an inseparable part of the Proposed Action, Required Mitigation Measures for the Proposed Action, and discussed under each resource. The ultimate anticipated impacts of the Proposed Project, accounting for the use of mitigation measures, are summarized at the end of each resource section.

The area of potential impacts (affected area) would be resource-specific and is defined in each individual resource discussion. The boundary of the affected area for each resource extends to where effects can be reasonably and meaningfully measured. Direct impacts would generally occur within the Project Area; however, some impacts may occur on a broader scale, encompassing an area beyond the Project Area. Impacts that may extend beyond the Project Area are disclosed in the section of each resource.

Resources Considered and Eliminated from Further Analysis
In light of Reclamation’s Environmental Commitments (Chapter 4) and in response to comments received from the scoping notice, the Proposed Project would have no potential to affect certain resource areas or its affect to certain resource areas is so minor (negligible) that it was discounted. These resources include: air quality and noise, climate change, environmental justice, Indian Trust Assets, public health and human safety, paleontological resources, wildlife, vegetation, soils, prime and unique farmlands, and visual resources (Table 3).

Table 3. Resources Eliminated from Further Analysis.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Rationale for Elimination from Further Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality and Noise</td>
<td>The Proposed Action would result in temporary effects during construction activities which would include fugitive dust and an increase in noise. Application of standard construction industry measures would be taken to minimize fugitive dust emissions during construction activities. Noise impact would be short-term and would occur mainly during daylight hours.</td>
</tr>
<tr>
<td>Climate Change</td>
<td>The Proposed Action would result in minor emissions due to construction activity which would cease upon construction completion.</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>No Environmental Justice population has been identified that would disproportionately bear impacts of the Proposed Action.</td>
</tr>
<tr>
<td>Indian Trust Assets (ITAs)</td>
<td>No impacts to ITAs are anticipated from the Proposed Action.</td>
</tr>
<tr>
<td>Public Health and Human Safety</td>
<td>No impacts to public safety are anticipated from the Proposed Action.</td>
</tr>
</tbody>
</table>
### Resource | Rationale for Elimination from Further Analysis
---|---
Wildlife | Impacts to wildlife from the Proposed Action would include displacement due to noise and traffic from construction activities. Impacts would be temporary and would cease upon completion of construction.
Visual Resources | Impacts to visual resources from the Proposed Action would be temporary and would cease upon completion of construction activities.

### Water Resources and Hydrology

#### Affected Environment

The Heart River watershed is within the Upper Heart and Lower Heart drainage basins, the surface area for each is approximately 1,714 and 1,633 square miles, respectively (USDA et al 2017). According to LANDFIRE, land use in the area consists mainly of agriculture. Approximately 25 percent of lands are cultivated for cash crops, with 14 percent planted grasslands and 33 percent native grasslands likely utilized as pasturelands for livestock grazing (LANDFIRE 2015). The remaining areas include developed roads and towns, trees, shrublands, wetlands, and riparian areas. The North Dakota Department of Health identified 791 concentrated livestock feeding areas within the watershed above Heart Butte Dam (NDDH 2006). If inadequately treated, feedlots may increase concentrations of nutrients, sediments, and coliform bacteria in the river.

The North Dakota Department of Agriculture annually monitors pesticides in the state’s surface waters. Two sites are sampled along the Heart River, one near Richardton, ND, the other near Mandan, ND. In 2016, unspecified pesticides were detected at these two sample points. However, based on EPA thresholds for pesticide effects on aquatic life and human health maximum contaminant levels, the levels detected were not high enough to negatively impact aquatic ecosystems or human health (NDDA 2016).

Figure 7 illustrates the mean annual discharge from Lake Tschida over the period of record 1951-2016. Mean annual discharge varies from less than 6 cfs during some drought years to nearly 456 cfs during wet years, with an average of approximately 120 cfs.
During most years, reservoir inflows are sufficient to fill the conservation pool to elevation 2,064.50 feet, although during extended droughts the reservoir may not fill for several years. The glory hole spillway limits the rise in elevation during flood events, with the maximum recorded reservoir elevation being 20.67 feet above the spillway crest. Figure 5 provides the reservoir elevation for the 1949-2015 period of record.

Water quality along the Heart River is dependent upon many factors, including: source of streamflow, composition of rocks and soils over which water flows, land use, location, time of year, and volume of streamflow. During periods of low flow, most of the flow is derived from groundwater inflow, which is mineralized, and the resulting streamflow has large dissolved-solids concentrations. During periods of high flow, most of the flow is derived from snowmelt or rainfall runoff, which is not mineralized, and the resulting streamflow has lower dissolved-solids concentrations. In the most recent state water quality assessment (NDDH 2016), Lake Tschida and four areas along the Heart River are listed as Section 303(d) waters, which means they are considered water quality limited (Table 4).

Four impairments which threaten or did not support designated uses along the Heart River and Lake Tschida were documented, the impairments include: E. coli, benthic-macroinvertebrate bioassessments, methylmercury, and nutrient/eutrophication indicators. Sources of E. coli include animal feedlots, riparian area grazing, and failing or poorly designed septic systems. Based on North Dakota’s numeric water quality standards for E. coli, fully supporting but threatened criteria states “For each assessment unit, less than 10 percent of samples collected during any 30-day consecutive period (e.g., calendar month) from May 1 through September 30 exceed a density of 409 CFUs per 100 ml...” (NDDH 2016). The National River and Stream Surveys (NRSA) evaluates the biological condition of waterbodies by analyzing characteristics of communities of organisms that occur there, such as benthic macroinvertebrates (aquatic insects, crustacean, worms and mollusks that live at the bottom of rivers and streams); a value of <40 using the NDDH index of biological integrity indicates poor condition, not supporting its designated use. Based on fish tissue data and fish population survey, fish consumption and
average concentrations of methylmercury could be calculated for Lake Tschida. This data did not meet EPA criteria for fish tissue methylmercury (0.3 µg/g); therefore, Lake Tschida was assessed as not supporting fish consumption. Sources of methylmercury can be anthropogenic or natural; however, no specific causes or sources have been identified for mercury in North Dakota fish. Eutrophication occurs from nutrient loading, which results in nuisance algae and plant growth. Lake Tschida was posted for a harmful algal bloom advisory in 2016 by NDDH (NDDH 2016).

Reclamation has one irrigation and repayment contract with Western Heart River Irrigation District to provide stored water to irrigate approximately 7,700 acres along the Heart River. During the irrigation season, generally May through September, water releases are requested by local irrigators through the irrigation District manager, who calls the Dam Operators office. Water releases are made at a rate sufficient to supply the anticipated needs of irrigators downstream. Releases for irrigation are usually limited to less than 100 cfs to maintain river crossings used by irrigators along the Heart River. During the winter months, and when the reservoir water surface is below the spillway crest of 2064.50 feet, river releases of about 8 cfs are made to accommodate downstream landowner’s livestock watering needs. There are nine grazing permittees on Heart Butte Reservoir lands, of those, five permittees rely on the reservoir for livestock watering. The grazing schedule for those permittees has been adjusted to accommodate lower reservoir elevations. In the event the pastures are not suitable for grazing due to the lack of water, the permit states that the permittee will not be charged a grazing fee. Figure 8 depicts the irrigation service area of the Western Heart River Irrigation District, which is the only entity that contracts with Reclamation to store water. Contracted irrigators through Reclamation are not the only Heart River water users. Based on comments received during the scoping period, Mandan Parks and Recreation Department also uses the Heart River to irrigate their golf course.
Table 4. Heart River and Lake Tschida Section 303(d) Listed Waters (NDDH 2016).

<table>
<thead>
<tr>
<th>Description</th>
<th>Location (County)</th>
<th>Designated Use</th>
<th>Use Support</th>
<th>Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart River from its confluence with Plum Creek downstream to its confluence with Government Creek (20.02 Miles)</td>
<td>Stark</td>
<td>Recreation</td>
<td>Fully Supporting, but Threatened</td>
<td>E. coli</td>
</tr>
<tr>
<td>Heart River from Patterson Lake, downstream to its confluence with the Green River (25.12 Miles)</td>
<td>Stark</td>
<td>Fish and Other Aquatic Biota</td>
<td>Not Supporting</td>
<td>Benthic-Macroinvertebrate Bio-assessments</td>
</tr>
<tr>
<td>Heart River from its confluence with Fish Creek downstream to its confluence with Dead Heart Slough (33.95 Miles)</td>
<td>Morton</td>
<td>Recreation</td>
<td>Fully Supporting, but Threatened</td>
<td>E. coli</td>
</tr>
<tr>
<td>Lake Tschida (5018 Acres)</td>
<td>Grant</td>
<td>Fish Consumption</td>
<td>Not Supporting</td>
<td>Methylmercury</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recreation</td>
<td>Fully Supporting, but Threatened</td>
<td>Nutrient/Eutrophication Biological Indicators</td>
</tr>
</tbody>
</table>
Figure 8. Irrigation Service Area of the Western Heart River Irrigation District.
Environmental Effects of the Proposed Action Alternative

Under the Proposed Action Alternative, water quality would change via reduced reservoir elevations resulting in a temporary decline in dissolved oxygen, with an increase in eutrophication over the summer. The eutrophication may lead to a blue green algae bloom. Additionally, any flow into the reservoir would be stored until the completion of the project, resulting in potential slight increases in methyl-mercury and E. coli detection. Due to current low levels of detection of E.coli in the Heart River only, it is likely to remain under EPA thresholds in Lake Tschida and downstream. Since methyl-mercury is already not supporting fish consumption in Lake Tschida, this trend would continue with or without this project. Pesticide use in the area would continue during construction, but due to current low measurements found upstream of Lake Tschida, is not likely to have a measurable effect on the lake or downstream water quality.

Irrigators would not be affected during the 2019 irrigation season, since drawdown would not begin until September of 2019 and releases would still be available if needed. Releases starting September 2019 would be maintained at 100 cfs with a target of RWS 2057.00. During 2020 spring runoff, releases would be restarted and maintained at maximum flow (700 cfs at RWS 2064.50) in an effort to achieve RWS 2055.00. After RWS 2055.00 is achieved, water releases would be reduced to 100 cfs. In the event of wetter than average conditions increasing runoff to the reservoir, releases would be increased as necessary to meet the target of RWS 2050.00 by July 31, 2020. No releases from the reservoir would occur from July 31, 2020 through the completion of construction. Downstream river flows of 100 cfs or higher make it difficult for landowners using low water crossings to reach their fields and also difficult to maintain irrigation pump intakes in the river. August is typically the month with the highest crop water requirements; however natural flows in the river from tributaries may allow for some irrigation for the remainder of the growing season. Temporary economic impacts to irrigators may occur if releases exceed 100 cfs during the irrigation season, or if natural river flows are not sufficient to meet water needs after July 31, 2020. Reservoir filling would be allowed after construction completion, which would occur in the spring of 2021. Depending on climatic conditions, the reservoir could take months to years to fill to normal operating levels. However, releases for irrigation would be made available after completion of construction. The ability to irrigate during drawdown and construction would be coordinated between Reclamation and the Western Heart River Irrigation District. Any deviations from 100 cfs releases would be communicated to downstream stakeholders through the communication strategy described in Chapter 2.

The communication strategy described in Chapter 2 would be implemented prior to reservoir drawdown and throughout the duration of the project to keep the downstream stakeholders and general public informed of timing, accommodations, and changing conditions. A temporary water crossing may also be constructed across the downstream river channel to allow for access of construction equipment. Coordination with the U.S. Army Corps of Engineers, NDDH, and NDSWC would take place as needed for all permitting requirements.

Erosion control measures including revegetation, stabilization, and industry standards such as straw wattles and silt fences would be utilized through the duration of the project. For additional environmental commitments to be part of the project, please see Chapter 4.
Environmental Effects of the No Action Alternative
The No Action Alternative would result in Reclamation not correcting the conduit deficiencies, which may result in future dam failure. The Heart River would return to natural flows, including flooding events, resulting in changes to water flow and quality, sedimentation, and irrigation techniques.

Vegetation, Noxious Weeds, and Soils
Landcover in the Project Area includes native and tame grasslands and native shrublands. According to LANDFIRE data, dominant land cover is Northwestern Great Plains mixed grass prairie and Northwestern Great Plains shrubland. Species that occur in the area include western wheatgrass, blue grama, and green needlegrass, with invasion by smooth bromegrass and Kentucky bluegrass. Shrubs species include buffaloberry, snowberry, and skunkbush sumac.

There are 11 plant species declared noxious weeds by the state of North Dakota, which include: absinth wormwood, Canada thistle, Dalmatian toadflax, diffuse knapweed, leafy spurge, musk thistle, purple loosestrife, Russian knapweed, saltcedar, spotted knapweed, and yellow toadflax. Counties are able to list additional weeds if needed, Grant County has listed black henbane, hoary cress, baby’s breath, and houndstongue (NDDA 2017). Noxious weeds are surveyed and sprayed annually on Reservoir lands by DKAO staff according to the DKAO Integrated Pest Management Plan (DKAO IPM).

Soils in the project area have been previously disturbed due to dam construction, campground construction, and excavating borrow pits. According the Web Soil Survey, no prime farmland or farmland of statewide importance occur in the project area that haven’t already been affected by construction of the downstream campground area (NRCS 2018).

Environmental Effects of the Proposed Action Alternative
Under the Proposed Action Alternative, ground disturbance would occur in current borrow areas that may be expanded during construction and at the dam location. All areas of disturbance would be re-seeded with a native seed mix approved by Reclamation. Noxious weeds will be surveyed and sprayed in accordance with the DKAO IPM prior to and after construction to prevent the spread of weeds to new areas. Erosion control measures including revegetation, stabilization, and industry standards such as straw wattles and silt fences would be utilized through the duration of the project. For additional environmental commitments to be part of the project, please see Chapter 4.

Environmental Effects of the No Action Alternative
The No Action Alternative would result in Reclamation not correcting the conduit deficiencies, which may result in future dam failure. Downstream effects to vegetation and soil resources would likely include erosion and the spread of noxious weeds during a major flooding event.

Threatened and Endangered Species and Designated Critical Habitat
Reclamation consulted the USFWS, North Dakota Ecological Service’s Office website (https://www.fws.gov/northdakotafieldoffice/SEtable.pdf) and the Information, Planning, and
Conservation System (IPaC) (https://ecos.fws.gov/ipac/) to obtain a list of threatened and endangered species and critical habitats associated with the Action Area (Table 5).

This section constitutes the Biological Assessment for the Proposed Action as required under Section 7(c) of the Endangered Species Act of 1973, as amended, in compliance with regulations found at 50 CFR Part 402 Interagency Cooperation – Endangered Species Act of 1973, as Amended.

Table 5. Endangered Species Act-Listed Species in the Action Area.

<table>
<thead>
<tr>
<th>Species</th>
<th>Critical Habitat</th>
<th>Federal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whooping Crane</td>
<td>None</td>
<td>E</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-footed Ferret</td>
<td>None</td>
<td>E and Experimental Population, Non-Essential</td>
</tr>
<tr>
<td>Gray Wolf</td>
<td>None</td>
<td>E</td>
</tr>
<tr>
<td>Northern Long-eared Bat</td>
<td>None</td>
<td>T (4(d) Rule)</td>
</tr>
</tbody>
</table>

T = threatened, E = endangered, C = candidate, D = delisted, P=proposed.

**Action Area**

The Action Area identified is based on Reclamation’s assessment of the potential direct and indirect effects of the Proposed Action to federally listed species (50 CFR 402.02). The evaluation of federally listed species focuses on the aquatic and terrestrial environments that may be influenced by the activities of the Proposed Action. The Action Area for the Safety of Dams conduit repair is the Heart Butte Reservoir water and lands.

**Whooping Crane (Endangered)**

**Population Rangewide**

The whooping crane was listed as endangered in 1967 (Federal Register 32:4001). Whooping crane recovery efforts have made great strides over the years, with new populations being established in Florida and Wisconsin. The birds that migrate through North Dakota are part of the Aransas-Wood Buffalo population. Approximately, 329 whooping cranes were estimated during the winter 2015-2016 survey, centered on the Aransas National Wildlife Refuge (Whooping Crane Conservation Association 2016). The whooping crane recovery plan includes scientific information about the species and provides objectives and actions needed to down-list the species (Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007). Recovery actions designed to achieve these objectives include protection and enhancement of the breeding, migration, and wintering habitat for the Aransas-Wood Buffalo population. The goals are to allow the wild flock to grow and reach ecological and genetic stability; reintroduction and establishment of geographically separate self-sustaining wild flocks to ensure resilience to catastrophic events; and maintenance of a captive breeding flock that is genetically managed to retain a minimum of 90 percent of the whooping cranes’ genetic material for 100 years.
**Action Area**

The Project Area is located within the migration corridor, as shown in Figure 9. In 2010, the Service produced Whooping Crane Migration Corridor Maps that outline the percentage of confirmed crane sightings based on current and historical sighting reports (Service 2010). Most sightings occurred along and east of the Missouri River corridor exiting through the northwest corner of ND. There have been no whooping cranes reported in the Action Area and the closest sightings are 18 miles east and 16 miles south of the Heart Butte Reservoir.

![Figure 9. Central Flyway Whooping Crane Corridor, Confirmed Sightings (Service 2010), and Project Potential Areas of Affect (red line areas).](image)

**Gray Wolf (Endangered)**

**Population Rangewide**

By the time wolves were protected by the ESA of 1973, only a few hundred remained in extreme northeastern Minnesota and a small number on Isle Royale, Michigan. The status of the gray wolf has changed multiple times since the original 1973 listing. In December 2011, the USFWS revised and removed the Western Great Lakes Distinct Population Segment of gray wolf from the list of endangered and threatened wildlife (*Federal Register* 76:81665-81726). In February 2015, following court orders, the USFWS reinstated the March 9, 1978 (*Federal Register* 43:9607) regulatory protection for the gray wolf, including the endangered status for gray wolves in the eastern half of North Dakota (*Federal Register* 80:9218-9229). Wolves can occupy a wide
range of habitats where large ungulates are typically found, including forests, prairies, including agricultural and pasture lands.

**Action Area**
Because wolf transients are known to follow drainages, it may be possible that a gray wolf can move into the Heart River drainage but the recreational facilities and managed lands on the east side of the reservoir used by people is not suitable to wolves. The west end of the reservoir with less use and intermixed with grassland, shrubland, and forested areas may be more attractive to transient wolves. There have been no verified sightings within or adjacent to the Action Area.

**Northern Long-eared Bat (Threatened with 4(d) Rule)**

**Population Rangewide**
The northern long-eared bat was listed as threatened in 2015 (*Federal Register* 80:17974-18033) with a 4(d) rule in 2016 (*Federal Register* 81:1900-1922). The range of the northern long-eared bat includes much of the eastern and north-central United States and most of the Canadian provinces (Figure 10). The northern long-eared bat spends winters hibernating in caves and mines. In summer, the northern long-eared bat roosts underneath bark of live and dead trees, rock crevices, caves, mines, barns, and sheds. The dramatic decline of the northern long-eared bat is due to white-nose syndrome. There are many unknowns regarding white-nose syndrome, however it is expected that the disease will spread throughout the United States. Other sources of decline include impacts to hibernacula, degradation of summer habitat, and wind farm operation.
**Action Area**

Forested habitats exist on Project lands but no surveys have been conducted. Since these bats exist along the Missouri River it is thought that tributaries like the Heart River could act as migratory corridors or even roosting sites if appropriate size trees were present (Gillam and Barnhart 2011). No known records exist in forested areas along the Heart River at this time.

**Black-footed Ferret (Endangered and experimental, non-essential population)**

Black-footed ferrets have long been considered extirpated from North Dakota. The closest known population is located in South Dakota and is classified as an experimental population. Therefore, no further discussion on this species is warranted. The purpose of any discussion was the existence of the ferret on the Service’s list for the county in which the Project exists.

**Environmental Effects of the Proposed Action Alternative**

Although wetlands providing potential habitat for whooping crane occur adjacent to the Action Area, sightings of whooping crane is rare in North Dakota and no recorded observations of this species has occurred within the Action Area. Therefore, **the Proposed Action will have no effect on the whooping crane.**

North Dakota is not identified as a recovery area and gray wolves occur as rare, sporadic transients with no established populations in the state; therefore, **the Proposed Action will have no effect on the gray wolf.**
Northern long-eared bat may use “suitable” roosting trees adjacent to the Reservoir adjacent to the Action Area. However, Reclamation is not aware of any survey results, nor have maternity roost trees or hibernacula been identified within the Action Area. No trees would be removed during project construction; therefore, the Proposed Action will have no effect on the northern long-eared bat.

Black-footed ferrets have long been considered extirpated from North Dakota; therefore, the Proposed Action will have no effect on the black-footed ferret.

Environmental Effects of the No Action Alternative
Under the no action alternative, no federal action would be taken to correct the deficiencies with the dam, which may result in future dam failure. The no action alternative would have no effect on the whooping crane, gray wolf, northern long-eared bat, or the black-footed ferret.

Cultural Resources

Affected Environment
Reclamation manages cultural resources within the Heart Butte Reservoir lands in accordance with Section 110 and Section 106 of the National Historic Preservation Act (NHPA) and other applicable laws and regulations. Under Section 110 of the NHPA, Reclamation has completed cultural resource surveys at the Heart Butte Reservoir lands and has conducted evaluations to determine what cultural resource sites are eligible for listing on the National Register of Historic Places (NRHP). Sites that are determined to be eligible for listing on the NRHP are given high cultural resource management consideration and status as historic properties. Section 106 of the NHPA requires Reclamation to consider effects to historic properties when planning and implementing actions such as those identified in this EA. The Heart Butte Dam has been evaluated for the NRHP and has been recommended as eligible for listing on the NRHP (Godfrey 2013; NDSHPO REF: 13-1243; August 15, 2013).

The Heart Butte Reservoir is located in the Heart River Study Unit, which is one of 13 Study Units (drainage basins) used for prehistoric and protohistoric archeological site studies and management in North Dakota (Gregg et al. 2016). The majority of the cultural resource sites within the reservoir lands are prehistoric lithic scatters and historic farmsteads. Lithic scatters are distinct accumulations of stone (lithic) tools and/or debris from tool making. The historic farmsteads consist of the remains of farms from the recent past and include foundations, depressions, standing and/or collapsed farm structures. Additional site types include prehistoric occupation sites, stone circles, cairns, and quarry sites. Occupation sites are scatters of artifacts, bone, pottery shards, and fire-cracked rock. Stone circle sites, also called tipi ring sites, are distinguished by one or more circular rings of stone. Cairn are a pile or clustering of stones of varying size and shape. Rock cairns have been used for various purposes including, but not limited to, capping human burials, and ceremony, cache, trail, and boundary markers. Quarry sites are areas that were used for the procurement of tool, fuel, and construction materials in both prehistoric and historic time periods.
The Heart Butte Reservoir lands were originally surveyed by the River Basin Survey staff of the Smithsonian in 1946-1948 (Cooper 1947; Hlady 1947; Hewes 1949; Cooper 1958). Following a 27-year hiatus in archaeological investigations, small scale cultural resource surveys were performed in 1975 (Franke) and in 1979 (Loscheifer and Greer; Ward-Williams). These small scale surveys continue to be performed into the present day, primarily for utility and road projects (Persinger 1987; Burbidge and Borchert 1989; Good 1989; Bluemle 2000; Heidman 2012). An intensive, large scale survey of the Heart Butte Reservoir was undertaken in 1980-1981 (Plochman et al. 1982). In 1989, Reclamation surveyed land where a new overflow spillway would be constructed (MacDonald 1983; Robson 1983). A shoreline survey of the reservoir was conducted by the University of North Dakota (UND) in 1990 (Picha and Gregg 1991) and 1992 (Gregg). The 1990 survey led to additional reconnaissance surveys and test excavations by UND in 1992-1993 (Toom et al. 1999). Further test excavations, controlled surface collections, and survey work were carried out by UND personnel in 1998, 1999, and 2000 (Jackson et al. 2001), in 2001-2002 (Jackson and Toom 2005; Toom 2002), and in 2008 (Jackson and Toom 2013).

Excavation was undertaken at the Beadmaker site (a prehistoric occupation site) in 2003 by UND to salvage a larger portion of the significant deposit, before river erosion destroyed that part of the site. The report for this work is currently being prepared by the State Historical Society of North Dakota. Following the 2003 excavation work, Reclamation carried out a bank stabilization project along the cutbank. The stabilization work was evident when the site was revisited in 2008 (see Jackson and Toom 2013).

**Effects of the Proposed Action Alternative**

For the Proposed Action Alternative, activities would occur within in the project’s Area of Potential Effect (APE). A Class I cultural resource inventory was completed by Reclamation’s Area Archaeologist on December 11, 2017. A total of 42 previously recorded cultural resources were identified within the 1-mile study area. Forty-one of the 42 previously recorded cultural resources are located outside of the project APE; one resource, the Heart Butte Dam, is located within the APE. Under the NHPA, criteria are used to determine a cultural resource site’s NRHP eligibility (36 CFR 60.4). As stated above, the Heart Butte Dam has been recommended as eligible for listing on the NRHP (see Godfrey 2013; NDSHPO REF: 13-1243; August 15, 2013). Additionally under NHPA, criteria in 36 CFR Part 800 are applied to determine effects to historic properties. Reclamation has assessed the potential impact that the project would have on the integrity of the Dam and has determined that it would result in no long-term adverse effects. Reclamation recommends a determination of, *No Adverse Effects*, to this historic property and that the project proceed as planned. The North Dakota SHPO was consulted and concurred with Reclamation’s determination of *No Adverse Effects* on January 16, 2018 (ND SHPO REF: 18-0296, January 16, 2018). Any fill material used for this Proposed Action alternative would be procured from a location that has been cleared of cultural resources and verified by Reclamation’s Area Archaeologist.

**Effects of the No Action Alternative**

The No Action Alternative would result in an *Adverse Effect* to the Dam, as defined by 36 CFR 800.5. The continued seepage through the embankment would result in damage to portions and/or the entirety of the Dam. A complete failure of the Dam would result in *Destruction* of the site.
Paleontological Resources

Affected Environment
The Paleocene age Bullion Creek Formation is the only bedrock formation exposed in the erosional bluffs along the shore of Heart Butte Reservoir, and in road cuts and ravines adjacent to the Reservoir. The Bullion Creek Formation consists of interbedded sandstones, siltstones, mudstones, and lignites. These rocks were laid down in a fluvial-lacustrine depositional systems about 60 million years ago. Mammal remains are extremely rare in the Bullion Creek formation.

The 2009 Paleontological Resources Preservation Act (P.L. 111-011 Title VI Subtitle D) directs federal agencies to manage, protect, and preserve paleontological resources. Two paleontological resources surveys have been undertaken at the Heart Butte Reservoir. The first survey was done as part of the Smithsonian River Basin Survey in 1946 (see Cooper 1947) and consisted on only a brief study of the area; no fossils were identified during the survey. A recommendation was made in the Cooper (1947) report to have a paleontologist perform a more comprehensive survey of the reservoir; however, no additional surveys were performed until the early 2000s. An in-depth paleontological assessment of the Heart Butte Reservoir was undertaken by the North Geological Survey in 2001 (Hoganson and Campbell 2002). The 2001 assessment identified 30 fossil localities during the inventory. Identified fauna and flora include freshwater mollusks (Sphaerium, Campeloma nebrascensis, Liplacodes), freshwater fish (Lepisosteus), turtle remains (Plastomenus), a crocodile like reptile (Champsosaurus), petrified wood, and an unidentified mammal bone. Evidence of unauthorized fossil collecting was found at two of the localities. Twenty-one of the 30 recorded localities were determined to be significant, and it was recommended that the fossil sites be visited periodically to determine if unauthorized collecting is occurring and whether natural causes are impacting the sites.

Effects of the Proposed Action Alternative
Because this alternative includes soil-disturbing activities, there is potential for encountering unknown paleontological materials during construction actions. As the majority of soil disturbing activities would take place on the Dam itself, which is constructed of previously excavated materials, the potential for encountering unknown deposits is low. However, one of the significant localities identified in the 2001 assessment (see Hoganson and Campbell 2002) is located in proximity to the project area. If any ground disturbance takes place near the locality, the locality would be avoided and the nearby ground disturbance monitored by qualified personnel. The monitoring would consist of an examination of the exposed area, including the spoil or storage piles at key times. These times are dependent on the activity, but typically are: when bedrock is initially exposed, occasionally during active excavation, and when the maximum exposure is reached and before backfilling has begun. This monitoring and spot-checking must be performed by a permitted paleontologist. The paleontologist has the authority to require a halt in activity at the location while a suspected find is evaluated and reported if necessary. If unknown paleontological resources were discovered during construction activities, construction would be halted until Reclamation’s Dakotas Area Office archeologist is notified and appropriate consultations are completed. Additionally, Reclamation would make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage.
Effects of the No Action Alternative
There would be no effect to paleontological resources under the No Action Alternative.

Recreation

Affected Environment
Recreation is an important part of the regional economy and to the North Dakota economy as a whole. A survey of fishing, hunting, and wildlife viewing in North Dakota estimated total annual fishing expenditures of $94 million, hunting expenditures of $129 million, and wildlife watching expenditures of $23 million in 2006 (the most recent data) (Service and Census Bureau 2008). These expenditures generate notable economic benefits throughout the state and include both trip-related expenditures (e.g. food and lodging) and equipment expenditures (e.g. rods, reels, and firearms).

Lake Tschida is Grant County’s largest body of water and the most popular recreation site in the area, well known for its water-based activities, such as swimming, boating, water skiing, and year-round fishing. In 2017, North Dakota Game and Fish Department (NDGF) stocked over 300,000 walleye to enhance the fishery (NDGF 2017). Nine designated recreation areas are located at Lake Tschida, which include electrical camping, boat ramps, shower houses, and one concessionaire. Recreation areas and other uses at Lake Tschida and their acreage are given below in Table 6.

<table>
<thead>
<tr>
<th>Management Units</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreation Areas:</td>
<td>249.9 acres (9 units)</td>
</tr>
<tr>
<td>Rimrock</td>
<td>70 acres</td>
</tr>
<tr>
<td>Hawebesi</td>
<td>3.7 acres</td>
</tr>
<tr>
<td>Schatzs Point</td>
<td>66.1 acres</td>
</tr>
<tr>
<td>Sled Creek</td>
<td>2.2 acres</td>
</tr>
<tr>
<td>Koehler’s Point</td>
<td>9.2 acres</td>
</tr>
<tr>
<td>Rattlesnake Point</td>
<td>15.9 acres</td>
</tr>
<tr>
<td>Crappie Creek</td>
<td>49.2 acres</td>
</tr>
<tr>
<td>Northshore Concession</td>
<td>13.4 acres</td>
</tr>
<tr>
<td>Downstream</td>
<td>20.2 acres</td>
</tr>
<tr>
<td>Wildlife Management Areas:</td>
<td>6,789 acres (16 units)</td>
</tr>
<tr>
<td>Cross Roads</td>
<td>178 acres</td>
</tr>
<tr>
<td>Schatzs Creek</td>
<td>180 acres</td>
</tr>
<tr>
<td>New Leipzig</td>
<td>320 acres</td>
</tr>
<tr>
<td>Ackerman</td>
<td>350 acres</td>
</tr>
<tr>
<td>Willow Bottoms</td>
<td>201 acres</td>
</tr>
<tr>
<td>Verworn South</td>
<td>120 acres</td>
</tr>
<tr>
<td>Verworn North</td>
<td>38 acres</td>
</tr>
<tr>
<td>Far West</td>
<td>2,687 acres</td>
</tr>
<tr>
<td>Eagle Bluffs</td>
<td>363 acres</td>
</tr>
<tr>
<td>Shelles</td>
<td>298 acres</td>
</tr>
<tr>
<td>Rattlesnake Bluffs</td>
<td>427 acres</td>
</tr>
<tr>
<td>Crappie Creek</td>
<td>42 acres</td>
</tr>
<tr>
<td>Swift</td>
<td>351 acres</td>
</tr>
<tr>
<td>North Trailers</td>
<td>231 acres</td>
</tr>
<tr>
<td>Downstream</td>
<td>132 acres</td>
</tr>
<tr>
<td>Other Areas</td>
<td>670 acres</td>
</tr>
<tr>
<td>Group Use Areas:</td>
<td>214 acres (5 units)</td>
</tr>
<tr>
<td>Boy Scouts Area</td>
<td>180 acres</td>
</tr>
<tr>
<td>Carson Wildlife Club</td>
<td>4 acres</td>
</tr>
<tr>
<td>Elgin Lions Club</td>
<td>5 acres</td>
</tr>
<tr>
<td>Farmers Union Camp</td>
<td>20 acres</td>
</tr>
<tr>
<td>Prairie Learning Center</td>
<td>5 acres</td>
</tr>
<tr>
<td>Cabin and Trailer Sites:</td>
<td>322.7 acres (3 units)</td>
</tr>
<tr>
<td>Cabin Areas 1, 2, 3, 4</td>
<td>236 acres</td>
</tr>
<tr>
<td>Trailer Areas 1 and 2</td>
<td>56.6 acres</td>
</tr>
<tr>
<td>Southside Trailer Area</td>
<td>30.1 acres</td>
</tr>
</tbody>
</table>
As part of the SOD requirements, an economic benefit and cost analysis was completed to determine the least cost alternative for the Proposed Project. Recreation benefits were calculated using traffic counts and an estimation of visitor activities. Nine recreation activities were determined from discussions with DKAO personnel, which included motorized boating, non-motorized boating, swimming, fishing, big game hunting (deer), upland game hunting (pheasants, grouse), small game hunting (rabbits, squirrels), waterfowl hunting (ducks, geese), and hiking/walking/birdwatching. An estimated economic value per visit was developed for each of these recreation activities based on a nationwide database of recreation economic studies providing values per visit by activity, indexed to 2016 dollars. Estimates of visitation percentages by activity were obtained from DKAO personnel. Traffic counts obtained from Heart Butte Reservoir Recreation Use Reports from 2006 to 2015 were used to develop the average annual visitation rate of 171,133 visits. Based on the information above, annual recreation value at Lake Tschida was estimated at $5.42 million (Reclamation 2017c).

Environmental Effects of the Proposed Action Alternative
Under the Proposed Action Alternative, construction would likely take 6 to 9 months to complete. The downstream campground would be closed to the recreating public starting the summer of 2020, resulting in decreased revenue to the managing partner and decreased recreating opportunities for the public. The remaining recreation areas would be open; however,
boat and swimming access to water would be limited to concentrated areas. As drawdown occurs, public boat ramps are going to become unusable. The NDGF recommends temporarily extending boat ramps to accommodate the fishing public until reservoir levels reach normal operating conditions. At elevation 2050.00, two boat ramps at Rimrock campground are feasible to extend and would be available for public water access. Due to location and the extension length required to access necessary water depth to launch a boat, all other boat ramps would be unusable until completion of construction and the reservoir begins filling to normal conditions. Cabin and trailer owners would have difficulty accessing the water; however, extensions would be allowed for dock owners, in accordance with the conditions of their Special Use Permits. One concessionaire operating at the Northshore Concession Area would likely experience a reduced revenue for the summer of 2020. There is likely to be a reduction in recreation revenue for the 2020 season.

Reservoir drawdown would begin the fall of 2019. Winter sports taking place on the reservoir, including ice fishing and snowmobiling, could be impacted during the drawdown time period by creating unsafe ice for recreationists. To prevent the occurrence of unsafe ice conditions during drawdown, inflows and outflows would be matched during the winter months in an effort to prevent air pockets forming under the ice. 2020 spring and summer reservoir activities including fishing, boating, and swimming access by boat ramps and docks would be impeded by the reduced elevation. Fisheries may experience an increase in harvest and may be more susceptible to winter kill during the low elevations, which would negatively impact the fishery. Efforts to prevent a winter kill, along with future stocking timing and rates would be coordinated with the NDGF. The communication strategy described in Chapter 2 would be implemented prior to reservoir drawdowns and throughout the duration of the project to keep the recreating public safe and informed of timing, accommodations, changing conditions and areas closed and open to access.

**Environmental Effects of the No Action Alternative**
Under the No Action Alternative, no federal action would take place to correct the dam safety deficiencies. Water-based recreation along with managing partner revenues would be affected on a long-term basis in the event of future a dam failure.

**Transportation and Roads**

**Affected Environment**
Main access to the project area would include North Dakota State Highway 49 and Reclamation maintained gravel roads to the Downstream Area campground, the south side of the downstream area, and the road to the visitor station. A traffic count conducted on Highway 49 in 2016 through the North Dakota Department of Transportation (NDDOT) recorded 535 vehicles at a location north of the Reservoir and 505 vehicles south of the Reservoir (NDDOT 2017). Considering this portion of Highway 49 connects Elgin to Glen Ullin, traffic on this Highway likely consists of local residents, farm and ranch traffic, and school buses. The gravel roads are maintained by Reclamation and the State Highway is maintained by the NDDOT. Low water crossings maintained by private owners and used by local residents for agricultural activities also occur downstream of the Dam.
Environmental Effects of the Proposed Action Alternative

Under the Proposed Action, the direct impacts would include increased construction traffic in the Project Area due to construction activities. Heavy equipment and truck traffic may cause damage to roads and ditches. Reclamation would coordinate with NDDOT on Highway 49 accessibility during construction. After construction completion, Reclamation would work with NDDOT to ensure Highway 49 is restored to safe conditions. In the event releases over 100 cfs occur, low water crossings would be unusable during the high outflows; however those effects are short term and would cease after flows are returned to 100 cfs or stopped during construction of the project. The communication strategy described in Chapter 2 would be implemented prior to reservoir drawdowns and throughout the duration of the project to keep the public safe and informed of timing, accommodations, changing conditions and areas closed and open to access.

Environmental Effects of the No Action Alternative

The No Action Alternative would maintain current roadway and transportation conditions. If, in the event a dam failure were to occur, Highway 49 would be unsafe for travel and crossings downstream of the dam would likely be inundated and potentially destroyed due to the heavy outflow of water.
Chapter 4 Environmental Commitments

This Chapter presents environmental commitments which have been developed in consultation with Federal and State agencies, the Tribes, and the public in response to construction activities and scoping over the last decade of Reclamation water projects in North Dakota. These environmental commitments would be implemented to: 1. Prevent, minimize, or offset the occurrence of or potential for adverse environmental effects and 2. Ensure compliance with applicable Federal and State regulations designed to protect fish and wildlife resources, important habitats and sensitive areas, cultural and paleontological resources, human health and safety, and the public interest.

Appropriate environmental commitments would be incorporated into the designs, construction contracts, and specifications of the project. An Interagency Environmental Review Team, with appropriate agency representation, may be assembled to review environmental compliance in the field, as deemed appropriate.

Table 7. Environmental Commitments regarding the Heart Butte Conduit Repair Project.

<table>
<thead>
<tr>
<th>General Best Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comply with all appropriate Federal, State, and Local laws.</td>
</tr>
<tr>
<td>Follow recommended practices for construction, restoration, and maintenance.</td>
</tr>
<tr>
<td>Dump grounds, trash piles, and potential hazardous waste sites will be avoided.</td>
</tr>
<tr>
<td>Standard construction, industry measures will be taken to minimize fugitive dust emissions during construction activities. Any complaints that may arise will be dealt with in a timely and effective manner.</td>
</tr>
<tr>
<td>Erosion Best Management Practices (BMPs) will be followed to prevent runoff of soil, silt, and other debris.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surface Water and Wetlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 404 permit will be completed and submitted to the U.S. Army Corps (USACE), as necessary. Section 401 and 402 certification will be completed, as necessary. Wetland impacts will be appropriately mitigated according to the standards and direction of the USACE.</td>
</tr>
<tr>
<td>If work occurs below the ordinary high water mark of the Heart River, as Sovereign Land Permit would be obtained prior to construction taking place.</td>
</tr>
<tr>
<td>At the request of the State Water Commission, the water discharged prior to construction will be reported as water released for maintenance purposes on the Annual Water Use Report for the year the water was released.</td>
</tr>
<tr>
<td>A construction permit from the Office of the State Engineer Engineering and Permitting Section may be required for the modification to the dam.</td>
</tr>
<tr>
<td>If more than one acre is disturbed, a permit to discharge storm water runoff may be needed through the North Dakota Department of Health Division of Water Quality</td>
</tr>
<tr>
<td>Woody species including those bordering wetlands, shelterbelts, riparian woodlands, woody draws, or woodland vegetation will be avoided to the extent possible. For unavoidable impacts to woody habitats, replacement plants at a 2:1 ratio of native speciation would be planted, as appropriate.</td>
</tr>
<tr>
<td>Erosion control measures will be employed as appropriate: Stabilization, erosion controls, restoration, and re-vegetation of all streambeds and embankments will be performed as soon as construction across waterbodies is completed and maintained until stable.</td>
</tr>
<tr>
<td>Any disruption or displacement of the streambed and banks other than the planned alterations must be restored to pre-project conditions.</td>
</tr>
</tbody>
</table>
Fish and Wildlife Species and Habitat

**To the extent possible**, construction would avoid:
- Wetlands
- Federal, State, and Local wildlife areas and refuges
- Designated critical habitats
- Migratory bird habitats during the nesting brood rearing season (February 1 – July 15)

To minimize impacts to fisheries resources any stream identified as a fishery (fisheries – confirm with ND Game and Fish Department) will be avoided from April 15 to June 1 and crossed later in the summer or fall when flows are low or the stream is dry.

Construction within 660 feet of visible nesting bald eagles will be avoided from February through August.

If threatened or endangered species are identified and encountered during construction, all ground-disturbing activities in the immediate area will be stopped until Reclamation can consult with the USFWS to determine appropriate steps to avoid impacting the species.

Native prairie will be avoided to the extent possible. However, if native prairie sod must be broken, existing topsoil will be carefully salvaged and replanted with native pollinator mix including grasses in a timely manner, with a seed mix recommended by Reclamation.

Tree removal would take place during the non-active time of year for the northern long-eared bat and migratory birds (November 1 to March 31).

Aquatic Nuisance Species (ANS) regulations enacted by the NDGF will be implemented year round prior to and during construction including: removing all aquatic vegetation from vessels, motors, trailers, or construction equipment, all water shall be drained from confined spaces on vessels, boat motors, construction equipment, or bilge(s), all species of ANS must be removed from vessels, motors, trailers, or construction equipment (list can be obtained from NDGF website). The contractor must provide the NDGF a reasonable opportunity to inspect any and all vehicles, vessels, pumps, and equipment that will be used for project prior to those items being launched or placed in waters of the state. A minimum 72 hour noticed must be provided to NDGF for scheduling an inspection. Jessica Howell, the NDGF ANS Biologist from Jamestown Office (701-368-8368) is to be contacted for scheduling and additional information.

Any new signage will be placed in a manner as to not endanger raptors which may perch on the top of the post.

**Cultural Resources**

All cultural resource investigations will be performed according to the procedures specified in the programmatic agreement among Reclamation, the NDSHPO, and the Advisory Council on Historic Preservation for Reclamation activities in North Dakota. Cultural resource inventories will be performed under the direction of an archaeologist that meets the Secretary of the Interior’s Professional Qualification Standards (48 FR 22716, Sept. 1983). All appropriate cultural resource activities will be completed prior to the commencement of ground-disturbing activities, including Class I and Class III surveys and consultation with the NDSHPO. All cultural resources, except those exempted in the programmatic agreement, will be avoided if their significance cannot be established prior to disturbance. If avoidance is not practicable, Reclamation, in consultation with the SHPO would determine if the site is eligible for nomination to the National Register of Historic Places [36CFR800.4(c) and 36CFR60.4]. If the site is eligible as a historic property, initially Reclamation, SHPO, and other interested parties, depending on the type of property, will consult to determine a plan of mitigation. If an adverse effect cannot be avoided, the Advisory Council on Historic Preservation will be contacted. All ensuing activities will comply with the NHPA, as amended, and the Archaeological Resource Protection Act (ARPA).

If previously undiscovered cultural resources are exposed during any activities, work within the area shall cease. The site will be secured and protected. Project work at the site will not resume until all
activities needed to comply with the Protection of Historic Properties (36 CFR Part 800.13) have been completed. Reclamation will consult with NDSHPO and the Advisory Council on Historic Preservation on its determination as to whether the discovery qualifies as a historic property. Project work can continue under the advisement of the Project Archaeologist meeting the Secretary of the Interior’s Professional Qualification Standards (48 FR 22716, Sept. 1983).

In the event of an inadvertent discovery of human remains or funerary objects, all work at the find spot and in the immediate vicinity shall cease. The site will be secured and protected until Reclamation officials and the NDSHPO have been notified and arrive on site. Protection of the discovery site may include flagging the discovery location with a buffer zone around it, tarping the find spot, and having an individual stay at the location to prevent further disturbance. Contact information for the individual who discovered the site must be provided to Reclamation and the NDSHPO. No digging, collecting, or moving human remains or other items will occur after the initial discovery. Reclamation will comply with the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et. seq. [Nov. 16, 1990]) if graves are discovered on Federal or trust lands or within reservation boundaries. Reclamation will comply with North Dakota Century Code 23-06-27: “Protection of Human Burial Sites, Human Remains, and Burial Goods” for graves on private or State-owned lands.

Under the National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (TCP), a TCP is an historic property that derives its significance from the role it plays in a community’s historically rooted beliefs, customs, and practices. If a potential TCP is discovered during the course of implementing the project, all work in its vicinity must halt. Reclamation and the appropriate Tribal Historic Preservation Officer(s) (THPO) will be notified and would be responsible for determining the appropriate course of action.

Under the Archaeological Resources Protection Act (16 U.S.C. 470aa-470mm; Public Law 96-95 [1979]), historic properties, which may include rock art sites, historic buildings or structures, or historic or prehistoric artifacts, are protected. Unauthorized collecting or digging, vandalism, or other methods of destruction to historic properties are not permitted. Therefore, Reclamation and the NDHPO will be notified if construction personnel discover evidence these types of activities.

**Paleontological Resources**

Under the Omnibus Public Land Management Act of 2009, Public Law 111-11, 16 USC 470aaa, Subtitle D-Paleontological Resources Preservation, paleontological resources, defined as any fossilized remains, traces, or imprints of organisms preserved in or on the earth’s crust, may not be collected without a permit from the Bureau of Reclamation. This means that a person may not excavate, remove, damage or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any paleontological resources located on Federal lands. Any person who knowingly violates this or other restrictions under the law may be fined or imprisoned, depending on the type of violation. If paleontology resources are inadvertently discovered during the course of work under this EA, all work must cease and the Area Archaeologist must be notified immediately.
Chapter 5 Agency Consultation and Coordination

Reclamation presented this project to the Interagency (State and Federal) Environmental Coordination group on December 7, 2017. Reclamation sent a scoping notice announcement to approximately 350 individuals on November 13, 2017 including Native American Tribes, North Dakota’s congressional delegation, appropriate state and federal agency contacts, associated county government auditor offices, private individuals, non-government organizations and two published newspapers, the Bismarck Tribune and Dickinson Press (Appendix A). Reclamation’s Scoping Notice and responses to Reclamation’s Scoping Notice are included in Appendix B. Five private party responses were received via phone call and email. Six agency letters of response were received: Bureau of Indian Affairs, North Dakota Department of Health, State Historical Society of North Dakota, Mandan Parks and Recreation District, North Dakota State Water Commission, and North Dakota Department of Transportation. Two email responses were received from Morton County Emergency Manager and ND National Guard. The majority of the comments include timing of construction, drawdown procedures and levels, and how recreation, irrigation, and flood control would be affected. The comments received from the public have been incorporated into the text of the document throughout Chapters 2, 3, and 4. In addition to the initial public scoping process conducted for the Environmental Assessment, the communication strategy discussed in Chapter 2 will be implemented prior to and during construction to keep the public informed of changing conditions and project status.

Compliance with Environmental Statutes

If the Proposed Action Alternative would be implemented, it would be accomplished in accordance and compliance with the following environmental laws, regulations, directives and compliance with the following:

- Native American Grave Protection and Repatriation Act (P.L. 101-601)
- Archaeological and Historic Preservation Act (P.L. 93-291)
- Archaeological Resources Protection Act of 1979 (P.L. 96-95)
- National Environmental Policy Act of 1969 (42 USC 4321)
- Clean Air Act (33 USC 7401) and Amendments
- Clean Water Act (33 USC 1251 et seq.), Sections 401, 402, and 404
- Farmland Protection Policy Act (P.L. 97-98)
- Fish and Wildlife Coordination Act of 1958 (P.L. 85-624)
- Indian Trust Responsibilities (512 DM Chapter 2)
- Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments
- Executive Order 11988 – Floodplain Management (1977)
- Executive Order 11990 – Protection of Wetlands (1977)
- Executive Order 12898 – Environmental Justice (1994)
• Executive Order 13007 – Indian Scared Sites (1996)
• Executive Order – 11593 – Protection and Enhancement of the Cultural Environment (1971)
• Executive Order 13186 – Protection of Migratory Birds (2001) Responsibilities of Federal Agencies to Protect Migratory Birds in furtherance of the purposes of the migratory bird conventions
• Executive Order 13112 – Invasive Species
• Migratory Bird Treaty Act (16 USC 703-711)
• Bald and Golden Eagle Protection Act (16 USC 668-668d)
• Fish and Wildlife Coordination Act (16 USC 661-666c)
• Endangered Species Act of 1973 (16 USC 1531-1544)

List of Preparers

A list of individuals with primary responsibility for conducting this study, preparing the documentation, and providing technical reviews is below:

Matt Cox – Archaeologist – DKAO – Bismarck, North Dakota
Randy Ehlis – Natural Resource Specialist – DKAO – Bismarck, North Dakota
Arden Freitag – Area Office Manager – DKAO – Bismarck, North Dakota
Andrea Gue – Natural Resource Specialist – DKAO – Bismarck, North Dakota
Joe Hall – Division Manager, Environment and Resources – DKAO – Bismarck, North Dakota
Kate Kenninger – Natural Resource Specialist – DKAO – Bismarck, North Dakota
Damien Reinhart – Supervisory Natural Resource Specialist – DKAO – Bismarck, North Dakota
Jim Weigel – Engineer/Planning Program Coordinator – DKAO – Bismarck, North Dakota
Chapter 6 References


Picha, P. R., and M. L. Gregg. 1991. Heart Butte Reservoir Shoreline Archeological Site Inventory, Grant County, North Dakota. Contribution No. 268. Department of Anthropology, University of North Dakota, Grand Forks. Submitted to the U.S. Bureau of Reclamation, Missouri-Souris Projects Office, Bismarck, ND.


Robson, L. G. 1983. Heart Butte Dam Modification-Initial Investigation, Grant County, North Dakota. On file at the U.S. Bureau of Reclamation, Bismarck, ND.


U.S. Department of Agriculture –Natural Resource Conservation Service, U.S. Geological Survey, and Environmental Protection Agency (USDA-NRCS, USGS, and EPA). 2017. The Watershed Boundary Dataset (WBD) was created from a variety of sources from


Ward-Williams, L. 1979. A Short Survey of a Road-Reroute, Heart Butte Dam, Grant County, North Dakota. Western Water and Power Administration, Billings, MT. Attached to 32GT24 site file at Archeology and Historic Preservation Division, State Historical Society of North Dakota, Bismarck.

Appendix A: Scoping Notice Contact List
HONORABLE HEIDI HEITKAMP
UNITED STATES SENATE

HONORABLE JOHN HOEVEN
UNITED STATES SENATE

HONORABLE KEVIN CRAMER
MEMBER, UNITED STATES HOUSE

HONORABLE KEVIN CRAMER
MEMBER, UNITED STATES HOUSE

TRIBAL HISTORIC PRESERVATION OFFICE
TURTLE MOUNTAIN BAND OF CHIPPEWA

TRIBAL HISTORIC PRESERVATION OFFICE
TURTLE MOUNTAIN BAND OF CHIPPEWA

PRESIDENT
NORTH DAKOTA CHAPTER OF THE
WILDLIFE SOCIETY

PRESIDENT
NORTH DAKOTA CHAPTER OF THE
WILDLIFE SOCIETY

MR KEVIN SHELLEY
NORTH DAKOTA SUPERVISOR
US FISH AND WILDLIFE SERVICE

MR. ALLEN SCHLAG
HYDROLOGIST
NATIONAL WEATHER SERVICE

MR DAVID GLATT
ENVIRONMENTAL HEALTH SECTION
NORTH DAKOTA DEPARTMENT OF HEALTH

US GEOLOGICAL SURVEY
821 EAST INTERSTATE AVENUE
BISMARCK ND  58501

PRESIDENT
NORTH DAKOTA CHAPTER OF THE
WILDLIFE SOCIETY
MS MARILYN BERCIER
REGIONAL ENVIRONMENTAL SCIENTIST
BUREAU OF INDIAN AFFAIRS

MR JON EAGLE
TRIBAL HISTORIC PRESERVATION OFFICER

MS SARAH OTTE COLEMAN
NORTH DAKOTA TOURISM DIVISION

MR. TOM DOERING
MORTON COUNTY EMERGENCY MANAGEMENT

BURLEIGH COUNTY WATER RESOURCE DISTRICT

DR ERICH LONGIE
TRIBAL HISTORIC PRESERVATION OFFICER
SPIRIT LAKE TRIBE

NORTH DAKOTA IRRIGATION ASSOCIATION

FRANK AND MAXINE BONDESON

DEAN AND MICHELLE KUHN

JAMES AND EILEEN GERL

DALE D. ELY

RANDY AND LISA RHONE

ROBBYN OR CODY WEINBERGER

CRANE CHILDREN TRUST
ATTN. STEPHEN CRANE

GARY L. AND JUDY VASEY

BRIAN AND AMBER SCHATZ

NOEL AND MARY FLETCHER

BEVERLY PALUH AND JOHN PALUH
BURNELL AND LINDA HUETHER

CYNTHIA L. LEE
CORRIE AND CAROL HUBER
GRANT AND SHERYL DANIELS
KEITH A. AND JEANETTE HERTZ
MARK S. AND CHARLOTTE SCHMIDT
KELLY AND YVONNE ROTH
DONALD J. OR THOMAS J. SIMONIEG
CHARLES BINGERT
DENNIS AND BRENDA FISHER
RONALD AND DONNA EMTER
LANCE AND RENEE DOLL
ANDY AND PAM JANGULA
MICHAEL OR JONATHAN AHNEMAN
CHERYL SCHROEDER
LIONEL AND KATHY DOLL
MARK CAROL PETERSON
JAMES AND LYNN HELFERICH
DUANE A. AND CAROL S. KURTZ
SHERRY DOLL
LYNN KINNISCHTZKE
RONALD D. AND DEBORAH YEAGER
WAYNE R. AND CLAIRE L. BARON
STEVE AND BECKY THILMONY
DALE C. AND MARJEAN SEASE
NICK SIBLA AND NICOLE M. GREEN (BINEGAR)
LANCE AND EMILY YANISH
PATRICK J. AND SUSAN M. FORSTER
JANEL F. WAHL FRENCH
RON A. AND GLENDIA S. VANDER-LINDEN
BRUCE AND JANE BAIR
DANIEL AND RENEE ULMER
REGINALD AND DONNA ROEMMICH
JON AND SHERI WERT
MIKE C. PARKE
BENITA REPNOW
SHIRLEY DYKSHOORN
GERALD M. AND LAURA C. STURN
LARRY R. AND LEONE ROTH
JODY BRORBY OR FARREL CARLSON
KARI L. CONRAD OR ERVIN J. LEE
DAVID M. SLOVEN
HENRY AND JOYCE BROWN
PATRICK A. AND JOSEPHINE CONMY
BENDICTINE SISTERS OF THE ANNUNICAATION MONASTERY
SHERRY MILLS MOORE
SHANE AND PAT GAFFANEY
KEITH A. ULMER OR ELDEN J. ULMER
PHILLIP AND MELLISSA SCHOELLKOPF
JEANNE WOESTE OR LYNN BLAKEMAN
WILLIAM AND TRACY DIEDE
JULIE A. KRENZ
PAUL T. GOVIG
RANDY S. AND LAURA A. MILDENBERGER
WALTER H. AND JUDITH A. VOLLMERS
BRENT OR BONITA A. ANDERSON
ROBERT M. FITZSIMMONS
PATRICK A. HOERNER
ALAN HOERNER
ROSS AND PATTI MUSHIK
BETH NODLAND
MICHAEL F. CONMY
NODLAND FAMILY TRUST
ATTN. JILLIAN NODLAND
KEVIN AND MARY HELLMAN
BRYCE JR. AND MARSHALE HANCOCK
TERRY L. AND LINDA M. WOLF
GREGORY GERHART
EUGENE L. AND CINDI KAUTZMAN
MAURY AND KAY KAMINS
SKJOD CHILDREN IRREVOCABLE TRUST
JAMIE SIGLER OR JOHN SEBASTIAN
GREGORY AND DONNA PFLEGER
RYAN KRAMER
ZACHARY OR KAREN KNOOP
TRACY OR SHARI DOE
RALPH AND MARCIA KILZER
DAVID AND MARGARET BRINTNELL
JOHN AND BETH DINEEN
MYRON AND AMY AXTMAN
BRAD LEE AND TANA M. BANKER
RICHARD OLSON
TERRIS L. AND BRENDA J. MEIDINGER
TRACY AND JANE WOLF
BRADLEY AND JUDITH E. CHARNHOLM AND JACQUELINE PETERSON
RUSSELL AND SHIRLEY STAIGER
JEFFREY AND BARBARA MCCONNELL
ANTHONY AND PAULETTE SCHIRADO
BRIAN AND TRISH WILD
ROBERT AND JOANN OPP
ANDRE AND CAROLYN TWITE
JOHN C. AND DEBORAH K. CLARYS
DALE AND KIM BREN
GREG M. WILZ OR GISELLE GREG
JANELLE BRACKEL
KENT T. AND KATHLEEN BRACKEL
SCOTT A. AND MICHELLE A. RADIG
ALAN AND KATHY CHMIELEWSKI
LON AND JENNIFER ROMSAAS
LEROY AND LINDA MILLER
JUANITA JEROMCHEK OR JAMES J. JEROMCHECK
DENNIS J. AND CHARLENE PRINDIVILLE
DOUG AND CATHY SCHAFER
MICHAEL AND RENAE BALTZER
THOMAS AND TERRANCE JAHNER
BONNIE KUNTZ
CAROL AND RICHY ROEHRICH
COLLEEN SCHWEIGERT OR KATHLEEN SEIDEL
SCOTT J. AND SANDRA L. RESSLER
ROBERT J. AND MARILYN M. SCHLOBOHM
RANDALL BINEGAR
ROY S. TOWNE III OR SALEM W. TOWNE
MICHAEL P. KOCH
WAYNE AND LORI SCHMAUTZ
PATRICK AND LORI O'BRIEN
ROSE HEIER OR ROGER BARTH
PATRICK AND BLAIR FREEZON
STEVEN L. VOGELPOHL
CHRIS AND LAURIE STROMMEN
SCOTT AND TIFFANNI WAX
WILLIAM OR PAUL WETZSTEIN
RAYMOND AND HENRIETTA HEIDT
LANCE AND ANITA ANDERSON
BLAKE HAAKENSON
KYLE AND CAROLYN REISENAUER
NADINE MEULER
VICKI ANN LIPPERT JESSICAN LIPPERT
DANIEL AND SHELLY NAMENIUK
KENNETH L. AND REBECCA L LINGLE
DONALD AND CHERYL MEIER
MARVIN A. OR JEANETTE FETTIG
NATHAN AND LORI WEILER
REBECCA BROER OR KRISTI CIANNI
LEO JR. AND DIANE VETTER
KEITH FRANKLUND
MIKE AND KIM JONES
ALENE SPEAR AND BETTY GERHARDT
GARRETT AND DEBRA SPRECHER
BETTY OR SHEILA MANOLOVITS
KEITH AND MARIE KRAMER
BECKY STUART HAUGE
SUSAN SCHOCK
THERESA AND DAVE SCHLAFMANN
JAMES JR. AND DEB HAUGE
ROB AND LAURIE LARSON
JIM AND JODY HAUGE
TROY MOSBRUCKER OR LAWRENCE ZENTNER
JAY AND LINDA SKABO
THOMAS MELAND OR JOAN SKABO
ANDREW PELTZ
MIKE AND JODY JAHNER
TROY A. OR BRAD J. FLECK
HOWARD R. ROTH
JERRY AND JACKY SCHAIBLE
GEORGE (TODD) AND RITA ORMINSTON
LES AND JOLEEN PRAUS
HEATHER K. HERTZ
KEVIN & DOREEN SENN
LISA AND SCOTT BOEHM
KEVIN H. AND PATRICIA E. ROTH
TOM AND TERENCE STEFFES
DALLAS AND SARA LAWREY
DENNIS MESCHKE
RODNEY AUER OR JANESSA VOGEL
LOIS BURWICK OR NORMA AUER
CHARLES CARVELL OR PEGGY FIEDLER
DION H. AND ANDY FREIDT
JOE OR BRAD ROTHSCHILLER
DENNIS TIBOR
MARLYN STAIGER
DELVIN ZIMMERMAN
MALCOLM SCHULZ
DANIEL ACKERMAN
KIRBY SCHATZ
COREY ROTH
VIRGIL SWIFT
DAVID SKJOLDAL
MR. JOHN FOSS
GRANT COUNTY SHERIFF

MAJOR GENERAL ALAN DOHRMANN
NORTH DAKOTA ADJUTANT GENERAL

MS. AMY ANTON
STATE EMERGENCY OPERATIONS CHIEF
NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

MS. BRENDA VOSSLER
STATE EMERGENCY EXERCISE COORDINATOR
NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

MR. MIKE LYNK
STATE RADIO
NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

MS. KELLIE BERGMAN
CHIEF, WATER CONTROL SECTION

MS. JESSICA BATTERMAN
HYDRAULIC ENGINEER

NORTH DAKOTA HIGHWAY PATROL

NORTH DAKOTA GAME AND FISH

MR. DAN HOENKE

MR. RON MANCHESTER
TOMAN ENGINEERING

MS. MELONIE MOEN
AMERICAN RED CROSS

MICHELLE PSYCK
TRI-CITIES JOINT JOB DEVELOPMENT AUTHORITY

MR. GREG WILZ
HOMELAND SECURITY DIRECTOR
NORTH DAKOTA DEPARTMENT OF EMERGENCY SERVICES

RUSSELL ARMAN

RUSSELL BAHM

WILLIAM BAHM
JACOB BARNHARDT

ARTHUR L. CARLSON

LARRY CHESAK

MARIE FELAND

CAROL FORD

MR. DENNIS GUNSCH

DAVID HENDRICKSON

LEE INGALLS

DENNIS JOHNSON
RON KOVAR
ARNIE KUHN
MITCH KUHN
LEONARD LEINGANG
CHET MEYER
DAVID MEYER
MARTY MEYER
KELLY MOLDENHAUER
KEVIN NELSON
DENNIS NELSON
TERRY L. NELSON
NUSS CHILDREN TRUST
JEFF OLSEN
TODD PETERSON
CHAD PLETAN
DOUGLAS PLUMMER
T.J. RUSSELL
FRED SCHEER
BRADLEY SCHMIDT
SHERRY SCHMIDT
SHULTZ RANCH
CHAD SKRETTEBERG
ERIC SKRETTEBERG
LORON SKRETTEBERG
NEAL SLAVICK
LYNN STARCK
PAUL TRAUGER
KENT VANDENBURG
VOGEL IRREVOCABLE TRUST
ESTHER VOGEL TRUSTEE
LUKE VOIGT
GARY WILLMAN
KRISTEN HAMMAN
312 FEDERAL BUILDING
DON LARSON
312 FEDERAL BUILDING
ROSS KEYS
228 FEDERAL BUILDING
CHRISS MAROHL
328 FEDERAL BUILDING
MS CLAUDIA BERG
NORTH DAKOTA STATE HISTORICAL SOCIETY
MR GARLAND ERBELE
STATE ENGINEER
NORTH DAKOTA STATE WATER COMMISSION
MR DUANE DEKREY
GENERAL MANAGER
GARRISON DIVERSION CONSERVANCY DISTRICT
HONORABLE MARK FOX
CHAIRMAN
MHA NATION
HONORABLE MYRA PEARSON
CHAIRWOMAN
SPIRIT LAKE TRIBE

MR ELGIN CROWS BREAST
TRIBAL HISTORIC PRESERVATION OFFICE
MHA NATION
Appendix B: Scoping Letter and Scoping Letter Responses
United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E., Suite 400
Aberdeen, South Dakota 57401

IN REPLY REFER TO:
DECRM
MC-208

MEMORANDUM

TO: Area Manager, Bureau of Reclamation – Dakota Area Office
FROM: Deputy Regional Director, Trust Services, Great Plains Region

SUBJECT: Funding and Construction of the Heart Butte Conduit Repair, Grant County, North Dakota

We received your letter regarding the proposed project listed below. We have considered the potential for both environmental damage and impacts to archaeological and Native American religious sites on lands held in trust by the Bureau of Indian Affairs, Great Plains Region. You should be aware; however, that Tribes or Tribal members may have lands in fee status near the sites of interest. These lands would not necessarily be in our databases, and the Tribes should be contacted directly to ensure all concerns are recognized.

We have no environmental objections to this action as long as the project complies with all pertinent laws and regulations. Questions regarding environmental opinions and conditions can be addressed to Marilyn Bercier, Regional Environmental Scientist, at (605) 226-7656.

We also find that the listed action will not affect cultural resources on Tribal or individual landholdings for which we are responsible. Methodologies for the treatment of cultural resources now known or yet to be discovered – particularly human remains – must nevertheless utilize the best available science in accordance with provisions of the Native American Graves Protection and Repatriation Act, the Archaeological Resources Protection Act of 1979 (as amended), and all other pertinent legislation and implementing regulations. Archaeological concerns can be addressed to Dr. Sebastian C. LeBeau II, Acting Regional Archaeologist, at (605) 226-7656.
MEMORANDUM OF SIGNIFICANT CONFERENCE OR TELEPHONE CONVERSATION

DATE (S): 11-20-2012, 11-21-2012  TIME: 10:30 am - Call back
CALLER (S) OR CONFERENCE COORDINATOR (S): Office
Chuck Bender  Cabin Owner
PERSON (S) CALLED OR IN ATTENDANCE: Office
Kate Knapp
SUBJECT (S): HB Conduct Repair Scope Notice

DISCUSSION NOTES
Chuck wanted clarification on the scope notice. Kate explained it is part of the NPS process. Chuck asked about the timeline of the project. Kate said drain downs are likely to begin late in 2013 and construction to potentially begin in 2014 - drain downs will be weather dependent. Chuck asked about the potential for irrigation being that from Kate said sps would need to confirm amounts. Project engineer. Chuck also asked where construction would take place; did it include the downstream side. Kate said sps would need to contact project engineer. She also stated as more information is put together, questions and actions would be addressed in draft document. Scoping requests would be notified when the draft is ready for review.

DECISIONS REACHED
No decisions reached.

ACTION TAKEN AND/OR FURTHER ACTION REQUIRED
Downstream irrigation?
Construction to include downstream side?
CONVERSATION RECORD

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Location of Visit/Conference:

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**SUBJECT**

HB Conduct Repair Scoping/Comml

**SUMMARY**

Irrigates from the river and residence near river. Major concern is timing and amounts of water released.

Also would like to be informed if project proceeds (via letter separate no computer access)

**ACTION REQUIRED**


**NAME OF PERSON DOCUMENTING CONVERSATION**

Kate Kemminger

**SIGNATURE**

Kate Kemminger

**DATE**

1/31/18
Attention: Area Manager, Bureau of Reclamation:

On behalf of the Mandan Park District, I am submitting concerns related to the Environmental Assessment for the Funding and Construction of the Heart Butte Conduit Repair.

The Mandan Municipal Golf Course, located on the banks of the Heart River, has been a recreational staple of the community for nearly a century. As one of the oldest golf courses in the area, it is has been held in high regard for generations.

Currently, the Mandan Municipal Golf Course utilizes the Heart River as a source of irrigation. Our pumping site is one of the last locations before the confluence of the Heart and Missouri Rivers. Thus, over the past several years, it has been increasingly difficult to pump water due to the low levels at our location. To combat the lower water levels, we have invested in a more efficient way to harvest irrigation water from the river.

If water releases were controlled to a point that river levels did not allow us to successfully pump water, it would affect the quality of our operation. Golf Course turf is akin to production crops; without adequate irrigation, turf quality and yield would be negatively impacted, potentially reducing our business.

In this scenario, we would possibly have to supplement our irrigation through the usage of City of Mandan water. The ten-year average for water usage at Mandan Municipal Golf Course is eleven million gallons annually. At an estimated price of $3.74 thousand gallons of water, this would be over $40,000 per year. If we conservatively utilized half that amount, it is still a $20,000 annual impact on our operation.

It is my hope that there is a potential solution that would allow the necessary repairs to take place, while simultaneously allowing agricultural operations of all sizes and scope to continually function in an efficient manner.

Thank you.

Sincerely,

Garrett Schnitz
Golf Superintendent
Mandan Park District
gschultz@mandanparks.com
MEMORANDUM OF SIGNIFICANT CONFERENCE OR TELEPHONE CONVERSATION

DATE (S): 11-17-2017
CALLER (S) OR CONFERENCE COORDINATOR (S): Mark Schmidt
PERSON (S) CALLED OR IN ATTENDANCE: Kate Kinninger
SUBJECT (S): Keeping Notice - Heart Butte Conduct Repair
OFFICE: Cabin Owner - Heart Butte
BOB

DISCUSSION NOTES

Mr. Schmidt called and asked about a liostream. Kate said drawdown is proposed to begin in 2019 wi
construction to take place in 2019. However, NEPA
is in its early stage and detailed information on liostream
would likely be available when the draft EA is completed.
She said Mr. Schmidt and others notified during the
keeping period would again be notified when the draft
EA is available for comment.

DECISIONS REACHED
None

ACTION TAKEN AND/OR FURTHER ACTION REQUIRED
None
# CONVERSATION RECORD

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- Concern with timing of 11B drawdown and relation and effect to grazing pasture as cattle last crop as water source.
- How line will the water source be and its effect to grazing.

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B-7
RE: Scoping Letter for Heart Butte Dam EA
3 messages

Tom Doering <Tom.Doering@mortonnd.org> Thu, Nov 16, 2017 at 11:13 AM
To: Ron Manchester <ron@tomanengineering.com>, "kkenninger@usbr.gov" <kkenninger@usbr.gov>

Ron - I am forwarding your questions on to Kate Kenninger

Tom Doering
Morton County Emergency Manager
701-595-2971

---

From: Ron Manchester [mailto:ron@tomanengineering.com]
Sent: Thursday, November 16, 2017 10:17 AM
To: Tom Doering
Subject: RE: Scoping Letter for Heart Butte Dam EA

Tom,

As you are aware the Heart Butte Dam is a major component to the overall flood protection to the City of Mandan. It sounds like the lowering of the water level will not begin until after the 2018 spring runoff. What is the plan for holding back any water for the 2019 Spring Runoff event? Will the 2050 lake level not be allowed to raise in 2019 to help control the Spring Runoff?

Ron

Ronald W Manchester
Toman Engineering Company
501 First Street NW
Mandan, ND 58554
Ph (701) 683-6483
Fax (701) 683-0623
Email Ron@tomanengineering.com
From: Tom Doering [mailto:Tom.Doering@mortonnd.org]
Sent: Thursday, November 16, 2017 8:03 AM
Subject: Scoping Letter for Heart Butte Dam EA

See attached scoping letter from the Bureau of Reclamation to do an environmental assessment in preparation for planned conduit repair project at Heart Butte Dam.

Your comments are invited – if you'd like can forward comments to me and I can roll into one response.

Drawdown could start as early as this coming spring.

Project construction is planned for August – December of 2019 (depending on weather).

Tom Doering
Morton County Emergency Manager
701-595-2971

Kenninger, Kate <kkenninger@usbr.gov>
Thu, Nov 16, 2017 at 11:36 AM
To: James Weigel <jweigel@usbr.gov>, Randall Ehils <rehils@usbr.gov>

Please see email below for questions related to the proposed conduit repair at Heart Butte Dam.
Thank you, Kate

---------- Forwarded message ----------
From: Tom Doering <Tom.Doering@mortonnd.org>
Date: Thu, Nov 16, 2017 at 11:13 AM
Subject: RE: Scoping Letter for Heart Butte Dam EA
[Quoted text hidden]

--
Kate Kenninger
Bureau of Reclamation
Natural Resource Specialist

Dakotas Area Office
PO Box 1017
Bismarck, ND 58502-1017

Office: (701) 221-1282

Weigel, James <jweigel@usbr.gov>
Thu, Nov 16, 2017 at 12:09 PM
To: Ron@tomanengineering.com, Tom.Doering@mortonnd.org
https://mail.google.com/mail/u/0?ui=2&ik=3465a8e&lr=0&sa=X&ved=2ahUKEwijwc9m5-YnAhW4tVoKHQtgAe0QCh0wHoEwAA#%3Fview%3Dc%26search%3Dnbox%26th%3D15f666719f544c0&smi=15f6d2b4d76b...
11/17/2017

DEPARTMENT OF THE INTERIOR Mail - RE: Scoping Letter for Heart Butte Dam EA

Cc: Randall Ehls <rehls@usbr.gov>, "Kenninger, Kate" <kkeminger@usbr.gov>, Damin M. Goetzfried <DGoetzfried@usbr.gov>, David Herr <dherr@usbr.gov>

Tom and Ron,

Thanks for the question. We will be holding back water from the 2019 Spring runoff and thereafter making releases to allow us reach our target elevation of 2050 in July or August 2019. If we have a wet winter, spring or summer it will be difficult so we will be lowering the reservoir in 2018 in hopes of reducing the releases in 2019. We have not identified a target elevation for the fall of 2018 at this time. We will be developing a plan for water releases in the near future but rainfall events will dictate our actual water releases.

Jim

Jim Wiegel
Engineer/Planning Program Coordinator
Dakota Area Office
Bureau of Reclamation
PO Box 1017
Bismarck ND 58502

701-221-1128 office  701-519-3035 cell

[Quoted text hidden]
Environmental Assessment of Heart Butte Conduit Repair, DK-5000-17-02 ENV-6.00 (UNCLASSIFIED)

1 message

Herda, Stephen P NFG NG NDARNG (US) <stephen.p.herda.nfg@mail.mil>
To: "kkenninger@usbr.gov" <kkenninger@usbr.gov>

CLASSIFICATION: UNCLASSIFIED

Dear Ms. Kenninger,

The North Dakota National Guard has received the letter discussing the Bureau of Reclamation proposal regarding the Heart Butte Dam.

The North Dakota National Guard (NDNG) has reviewed the information provided and does not have and information or issues regarding potential environmental effects. The NDNG does not own any real property in the area, nor are lands in the potential project area used for conducting training.

If you have any questions concerning this response, please contact me at your convenience.

Stephen P. Herda
Environmental Program Manager
NGND-ENV
PO Box 5511
Bismarck ND 58506-5511
701 333 2070
701 333 2067 (fax)
373 2070 DSN

What one person receives without working for, another person must work for without receiving. You cannot multiply wealth by dividing it. Dr. Adrian Rogers, 1931-2005

CLASSIFICATION: UNCLASSIFIED
November 28, 2017

Ms. Kate Kenninger  
Bureau of Reclamation  
P.O. Box 1017  
Bismarck, ND 58502

Re: Environmental Assessment for the Funding and Construction of the Heart Butte Conduit Repair, Grant County

Dear Ms. Kenninger:

This department has reviewed the information concerning the above-referenced project submitted under date of November 13, 2017, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.

2. 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. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.

3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department’s website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.
The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.
Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.
December 5, 2017

Arden Freitag
Acting Area Manager
US Department of Interior
P.O. Box 1017
Bismarck, ND 58502-1017

EA FOR FUNDING AND CONSTRUCTION OF A DIAPHRAGM FILTER AND DRAINAGE SYSTEM FOR THE COMBINED OUTLET WORKS/SPILLWAY CONDUIT AND STILL BASIN STRUCTURE FOR HEART BUTTE DAM, GRANT COUNTY, NORTH DAKOTA

We have reviewed your November 13, 2017, letter.

This project should have no adverse effect on the North Dakota Department of Transportation highways.

However, if because of this project any work needs to be done on highway right of way, appropriate permits and risk management documents will need to be obtained from the Department of Transportation District Engineers, Larry Gangl at 701-328-6955.

ROBERT A. FODE, P.E., DIRECTOR – OFFICE OF PROJECT DEVELOPMENT

c: Larry Gangl, Bismarck District Engineer
December 15, 2017

Kate Kenninger
Bureau of Reclamation
PO Box 1017
Bismarck, North Dakota 58502

Dear Ms. Kenninger:

Re: Heart Butte Conduit Repair

The Bureau of Reclamation (BOR) is preparing an Environmental Assessment (EA) for a diaphragm filter and drainage system for the combined outlet works/spillway conduit and stilling basin structure for Heart Butte Dam. There are concerns with seepage in the conduit and potential for associated internal erosion. The sand filter diaphragm would include a drain on two sides of the conduit with outfall pipes leading to downstream inspection manholes which would discharge to the downstream river channel. The reservoir will be drawn down to 2050.00 msl or 14.50 feet below the crest of the spillway. The reduction in reservoir elevation is necessary to contain the most potential rainfall events and lessen probability of uncontrolled releases during the construction.

The Department supports the Bureau's effort to maintain the existing dam and associated infrastructure. However, the Department's primary concern is the duration and timing of the reservoir drawn down. The reduction in aquatic habitat for considerable time frames will likely negatively impact the fishery. The Department encourages the Bureau to potentially reduce the drawdown to the minimum elevation needed to complete the project and to reduce the duration of the project.

Due to the need to draw the reservoir down to historic lows, the Department questions how the Bureau will address boating access? Boat ramps will need to at least be temporarily extended to accommodate the fishing public until reservoir levels reach normal operating elevations. The Department will likely receive numerous phone calls and concerns regarding the project. The BOR should develop a public service announcement to inform the public of the project and the associated drawdown and boat ramp issues.

Aquatic Nuisance Species (ANS) rules were enacted by the North Dakota Game and Fish Department in 2008. These regulations are to prevent the introduction of undesirable species of plants and animals. Preventive measures are now required to bring equipment into the state. State law allows for fines up to $1,000 and the confiscation of equipment.
Required measures include removing any and all aquatic vegetation from vessels, motors, trailers, or construction equipment; all water shall be drained from bilge(s) or confined spaces on vessels, boat motors or construction equipment; all species of ANS (this list can be found on the North Dakota Game and Fish Department website) must be removed from vessels, motors, trailers or construction equipment; and water must be drained from confined spaces on vessels, boat motors or construction equipment. These ANS preventative measures extend to any and all vehicles, vessels, trailers, pumps and such equipment that will be used in the project or any/all construction efforts connected with this project in or on the waters of the State. This requirement should be included if occurring during the open water season or if the operation proceeds on the ice pack.

The contractor or his agents or subcontractors must provide the Department a reasonable opportunity to inspect any and all vehicles, vessels, pumps and equipment that will be used in the project in or on the waters of the State prior to those items being launched or placed in the waters of the State. A minimum of 72-hour notice must be provided to the Department for scheduling an inspection. The Department’s ANS Biologist, Ms. Jessica Howell, is to be contacted at the Jamestown Office (701-368-8368) for equipment inspections or any additional information regarding ANS prevention protocols.

In addition, the Department suggests implementing the following recommendations to minimize impacts to fish and wildlife resources:

1. Disturbed areas should be planted to a native pollinator mixture.

2. Erosion control measures should be implemented to minimize the opportunity for sediments to enter the waterway and to isolate suspended sediments within the work site (i.e. silt fences, floating turbidity barriers).

3. We request work does not take place within the waterway from April 15 to June 1 to protect the fisheries resource.

4. Any disruption or displacement of the streambed and banks other than the planned alterations must be restored to pre-project conditions.

5. Any unavoidable losses of native forest or riparian forest be replaced with similar species on a 2:1 basis by incorporating a mitigation planting into the impacted forest to complement the existing woody vegetation.

Sincerely,

Greg Link
Chief
Conservation & Communication Division

blk
Lake Tschida drawdown
2 messages

rkramer <rkramer@gmail.com>  Sun, Nov 19, 2017 at 10:38 AM
To: kkrenninger@usbrc.gov

Hello, just a quick question… When is the proposed drawdown scheduled to occur? (the letter didn't indicate if it was 2015 or 2019).

Also, I don't know if you have the information, but do you know the usable elevation of the various boat ramps around the lake? I know most will be un-useable at that elevation, but I'm not sure if any will still be accessible. Thanks!

Ryan Kramer

---

Kenninger, Kate <kkrenninger@usbrc.gov>  Wed, Nov 22, 2017 at 9:56 AM
To: rkramer <rkramer@gmail.com>, James Weigel <jweigel@usbrc.gov>, Randall Ehlis <rehlis@usbrc.gov>, Patience Hurley <phurley@usbrc.gov>

Good morning Ryan,

Thank you for your questions.

Reclamation will be holding back water from the 2019 spring runoff and thereafter making releases to allow the reach of the target elevation of 2050 in July or August of 2019. If there is a wet winter, spring or summer it will be difficult so Reclamation will start lowering the reservoir in 2018 in hopes of reducing the releases in 2019. There has not been a target elevation identified for 2018 at this time. Reclamation is developing a plan for water releases in the near future, but rainfall events will dictate the actual water releases.

Since the drawdown plan is not finalized, the discussions on usable boat ramps are ongoing at this time. Your comment will be incorporated and addressed in the draft Environmental Assessment. You will receive another notice when the draft Environmental Assessment is available for comment.

Thank you, Kate

[Quoted text hidden]

---

Kate Kenninger
Bureau of Reclamation
Natural Resource Specialist

Dakota Area Office
PO Box 1017
Bismarck, ND 58502-1017

Office: (701) 221-1282
November 17, 2017

Mr. Matt Cox
Archaeologist
Bureau of Reclamation
Dakotas Area Office
PO Box 1017
Bismarck, ND 58502-1017

NDSHPO REF.: 18-0153 BOR EA for the Funding and Construction of the Heart Butte Conduit Repair in portions of [T139N R96W Section 8?] Stark County, North Dakota

Dear Mr. Cox and Ms. Kenninger,

We reviewed the preliminary information dated Nov. 13, 2017 on NDSHPO REF.: 18-0153 BOR EA for the Funding and Construction of the Heart Butte Conduit Repair in portions of [T139N R96W Section 8?] Stark County, North Dakota. The Dickinson Dam historic site 32SK1079 is recommended eligible (concurrency with BOR on 8/13/13) for the National Register of Historic Places and site 32SKx61 may be affected by the project. The project map does not provide sufficient detail to be able to determine whether or not the area has been surveyed for cultural effects and does not convey what the Area of Potential Effect (APE) might be.

Therefore we recommend a Class I survey of the project area, and await further details regarding the project as well as consultation from Area Archaeologist Matt Cox.

Thank you for the opportunity to review the project to date. We look forward to further consultation. If you have questions, please contact Susan Quinnell at (701) 328-3576 or squinnell@nd.gov.

Sincerely,

Claudia J. Berg
State Historic Preservation Officer (North Dakota)

Kate Kenninger, BOR, Bismarck
November 28, 2017

Mr. Matt Cox
Archaeologist
Bureau of Reclamation
Dakotas Area Office
PO Box 1017
Bismarck, ND 58502-1017

NDHSHPO REF.: 18-0153 BOR EA for the Funding and Construction of the Heart Butte Conduit Repair in portions of [T136N R89W Section 13] Grant County, North Dakota

Dear Mr. Cox and Ms. Kenninger,

We reviewed the preliminary information dated Nov. 13, 2017 on NDHSHPO REF.: 18-0153 BOR EA for the Funding and Construction of the Heart Butte Conduit Repair in portions of [T136N R89W Section 13] Grant County, North Dakota. The Heart Butte Dam historic site 32GT340 is recommended eligible (concurrency with BOR on 8/13/13) for the National Register of Historic Places. We need more information on the details of the project and the Area of Potential Effect (APE) might be.

Therefore we await further details regarding the project as well as consultation from Area Archaeologist Matt Cox.

Thank you for the opportunity to review the project to date. We look forward to further consultation. If you have questions, please contact Susan Quinnell at (701) 328-3576 or squinnell@nd.gov.

Sincerely,

Claudia J. Berg
State Historic Preservation Officer (North Dakota)

Kate Kenninger, BOR, Bismarck
December 12, 2017

Arden Freitag
Area Manager
Bureau of Reclamation
PO Box 1017
Bismarck, ND 58502

Dear Mr. Freitag:

This is in response to your request for a review of the environmental impacts associated with the Construction of the Heart Butte Diverting Project located in Grant County, ND.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- A S敏锐区 Land Permit may be required for this project. If work occurs below the ordinary high water mark of the Heart River, please contact Ashley Persinger, S敏锐区 Land Specialist, at 701-328-4988 or apersinger@nd.gov if you have questions regarding this comment.

- There are no floodplains identified and/or mapped where the proposed project is to take place. A floodplain development permit would not be required relative to the National Flood Insurance Program (NFIP).

- The Office of the State Engineer (OSE) Engineering and Permitting Section reviewed the project location and determined that the proposed project, as described, constitutes a modification to a dam. Such a modification will require a construction permit from the OSE according to North Dakota Century Code § 61-16.1-38. Enclosed is a construction permit application for the project. The project will require completed plans and specifications by a registered professional engineer in the state of North Dakota. For further information on the OSE’s construction permitting requirements, please visit the Regulation & Appropriation tab on the OSE’s website (swc.nd.gov). Please contact the OSE Engineering and Permitting Section at 701-328-2752 if you have any questions regarding this comment.

- The construction period for the proposed maintenance work on the sand filter installation will coincide with the irrigation season. Discharge of the volume of water estimated to be 25,538 acre-feet from the Active Conservation Pool and any waters in the Excluding Flood Contour Pool is anticipated to be completed prior to or during the construction season. The water discharged for this purpose should be reported as water released for maintenance purposes on the Annual Water Use Report for the year in which the water is released.

Coordination by the Bureau of Reclamation, Department of Interior (BOR) with the downstream landowners and municipalities concerning the timeline of the discharge of the waters is encouraged. It is anticipated that discharge will need to commence at a time when ice is still present on the river, making the effects of the discharge different than during the summer months. Should you have questions regarding this comment, please contact Dan Farrell at 701-328-4908 or dfarrell@nd.gov.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4987.

Sincerely,

[Signature]

Jared Hafney
Water Resource Planner IV

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4987.

Sincerely,

[Signature]

Jared Hafney
Water Resource Planner IV

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4987.

Sincerely,

[Signature]

Jared Hafney
Water Resource Planner IV

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 701-328-4987.

Sincerely,
APPLICATION/NOTIFICATION TO CONSTRUCT OR MODIFY A DAM, DIKE, RING DIKE OR OTHER WATER RESOURCE FACILITY
OFFICE OF THE STATE ENGINEER
REGULATORY DIVISION
SFP 9/895 (5/2019)

I, the undersigned, do hereby submit the following information to the Office of the State Engineer for determination and use as a filing of information required under North Dakota Century Code §61-04-02 or as an application to construct or modify a facility under North Dakota Century Code §61-16.1-38.

A. General Information
This Application/Notification Must Include A Map From An Actual Survey, Aerial Photo Or Topographic Map. The Size Of The Map Shall Be 9½ By 11 Inches. The Map Shall Have A North Arrow And Approximate Scale. If, In The Opinion Of The State Engineer, The Map Does Not Contain Information To Properly Evaluate The Project, It Will Be Returned.

The Proposed Facility Is A
- Dam (Complete Sections A, C & F)
- Dike (Complete Sections A, D & F)
- Ring Dike (Complete Sections A, D & F)
- Wetland Restoration (Complete Sections A, C, E & F)
- Pond, Lagoon, or Dugout (Complete Sections A, B & F)
- Diversion Ditch (Complete Sections A, B & F)
- Other (Complete Sections A, B & F)

Is This Application/Notification For Modification Of An Existing Structure?  □ Yes  □ No
If So, What Year Was Existing Structure Constructed?  By Whom?

Project Will Be Located In Which Water Resource District

<table>
<thead>
<tr>
<th>Legal Description</th>
<th>¼ Section</th>
<th>Township</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Optional) Latitude</td>
<td>Longitude</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Waterway On Which Project Will Be Located

A Tributary To

Will The Project, Including Any Area Affected As A Result Of The Project, Be Located Entirely On Land Owned By The Applicant?  □ Yes  □ No
If Any Portion Of The Project Will Be Constructed On Land Not Owned In Fee Title By The Applicant, Written Authorization To Construct: The Project Must Be Obtained From The Landowner Of Record And A Copy Of The Authorization Provided To This Office. If The Project Will Affect Land Not Owned By The Applicant, Evidence Of A Property Right Must Be Obtained By The Applicant And A Copy Of The Property Rights Provided To This Office. If Any Portion Of The Project Will Be Constructed Within The Right-Of-Way Of A Section Line, Roadway, Or Railroad, Written Authorization To Do So Must Be Obtained From The Appropriate Authority And A Copy Provided To This Office.

Project Sponsor (Water Resource District/City/Us Fish & Wildlife Service, Etc.) If Applicable

Contractor, If Known

Anticipated Construction Start Date

Completion Date

Who Will Be Responsible For The Operation And Maintenance Of This Project?
### B. Pond, Lagoon, Dugout, Diversion Ditch, Or Other Water Resource Facility

#### Design Data

<table>
<thead>
<tr>
<th>Surface Area Top Of Structure (Acres)</th>
<th>Surface Area Service Level (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Storage Top Of Structure (Acre-Feet)</th>
<th>Storage Service Level (Acre-Feet)</th>
</tr>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Maximum Depth Of Water (Feet)</th>
<th>Maximum Embankment Height (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

### B. Diversion Ditch

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Bottom Width (feet)</th>
<th>Side Slopes (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Maximum Cut (feet)</th>
<th>Gradient (foot/foot)</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tbody>
</table>

Description Of Project, If Not A Pond, Lagoon, Dugout, Or Diversion Ditch

---

**Diagram**

[Drawing of pond or lagoon diagram with labeled dimensions]
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ABBREVIATION</th>
<th>DIMENSION (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Length Of Pond (includes Banks)</td>
<td>Ll</td>
<td></td>
</tr>
<tr>
<td>Total Width Of Pond (includes Banks)</td>
<td>Wt</td>
<td></td>
</tr>
<tr>
<td>Length Of Water Surface At Full Service Level</td>
<td>Lw</td>
<td></td>
</tr>
<tr>
<td>Width Of Water Surface At Full Service Level</td>
<td>Ww</td>
<td></td>
</tr>
<tr>
<td>Length Of Cut Into The Soil Surface</td>
<td>Lc</td>
<td></td>
</tr>
<tr>
<td>Width Of Cut Into The Soil Surface</td>
<td>Wc</td>
<td></td>
</tr>
<tr>
<td>Depth Of Cut Into Soil Surface</td>
<td>Dc</td>
<td></td>
</tr>
<tr>
<td>Depth Of Water In The Pond At The Full Service Level</td>
<td>Dw</td>
<td></td>
</tr>
<tr>
<td>Freeboard (The Distance Between The Full Service Level And The Top Of The Structure That Is Used To Manage Wave Action, Usually 2-3 Feet)</td>
<td>Fb</td>
<td></td>
</tr>
<tr>
<td>Top Width Of Embankment Surrounding The Pond</td>
<td>Tw</td>
<td></td>
</tr>
<tr>
<td>Outside Bank Sidewalk Ratio (Usually 4:1, Which Is 4 Horizontal Feet For Every 1 Foot Of Rise)</td>
<td>Sb</td>
<td></td>
</tr>
<tr>
<td>Inside Bank Sidewalk Ratio (Will Vary Between 4:1 And 6:1, Depending On The Soil Type)</td>
<td>Sw</td>
<td></td>
</tr>
</tbody>
</table>

C. Dams

Drainage Area Above Dam

<table>
<thead>
<tr>
<th>Square Miles</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

Purpose

Geometric Description Of Dam

<table>
<thead>
<tr>
<th>Maximum Height (H) (feet)</th>
<th>Elevation (T) (feet msl)</th>
<th>Top Width (feet)</th>
<th>Side Slopes/ Upstream (S1) (.1)</th>
<th>Side Slopes/ Downstream (S2) (.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Type Of Embankment Protection

<table>
<thead>
<tr>
<th>Emergency Spillway</th>
<th>Type</th>
<th>If Earthen</th>
<th>Width (feet)</th>
<th>Side Slopes (.1)</th>
<th>Level Section Length (feet)</th>
<th>Dimensions If Other Than Earthen</th>
</tr>
</thead>
<tbody>
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<td></td>
</tr>
</tbody>
</table>
Principal Spillway

<table>
<thead>
<tr>
<th>Cutlet Pipe</th>
<th>Type</th>
<th>Diameter</th>
<th>Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riser</td>
<td>Type</td>
<td></td>
<td>Diameter</td>
</tr>
<tr>
<td>Control Gate</td>
<td>Type</td>
<td></td>
<td>Dimensions</td>
</tr>
<tr>
<td>Drawdown Pipe</td>
<td>Type</td>
<td></td>
<td>Diameter</td>
</tr>
</tbody>
</table>

Distance To Nearest Downstream Occupied Dwelling (ft)

<table>
<thead>
<tr>
<th>ELEVATION (feet)</th>
<th>RESERVOIR SURFACE AREA (acres)</th>
<th>RESERVOIR CAPACITY (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>NGVD 29</td>
<td>NAVD 88</td>
</tr>
</tbody>
</table>

Top Of Dam
Emergency Spillway
Principal Spillway
Drawdown Pipe
Streambed At Dam

D. Dike

Is This Application Notification For The Construction Of A Ring Dike?  □ Yes  □ No

If So, Will The Ring Dike Tie Into Existing?  □ Dike  □ Roadway  □ High Ground  □ Other

Purpose

Area Of Land To Be Protected By Dike (acres)

Description Of Dike

□ Dike Length (feet)

□ Dike Design

□ Top Width (T) (feet)

□ Side Slopes/Interior (S1) (1)

□ Side Slopes/Exterior (S2) (1)

□ Maximum Height (H) (feet)

□ Maximum Elevation (feet msl)

□ Minimum Height (H) (feet)

□ Minimum Elevation (feet msl)

□ Embankment Erosion Protection

Will The Dike Flood Or Adversely Affect Adjacent, Upstream Or Downstream Land?  □ Yes  □ No

If Yes, Attach Floodway Easements. Easements Must Include A Description Of Provisions, And Names And Signatures Of Grantors.
### E. Wetland Restoration

- The Proposed Wetlands Are
  - [ ] Temporary
  - [ ] Permanent

- Drainage Area Above Dam (square miles)
- Or (acres)

- Is This Project Mitigation For Another Project?
  - [ ] Yes
  - [ ] No

- If Yes, Please Describe

- Describe The Proposed Operation Plan For The Wetland

<table>
<thead>
<tr>
<th>OVERFLOW ELEVATION (feet)</th>
<th>CAPACITY (acres)</th>
<th>SURFACE AREA (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate Datum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[ ] Local</td>
<td>[ ] NGVD 29</td>
<td>[ ] NAVD 03</td>
</tr>
</tbody>
</table>

#### F. Additional Information, Affidavit Of Design Engineer, And Signature

**Additional Information And Comments**

A complete set of plans and specifications prepared by a professional engineer registered in the State of North Dakota must be submitted with and made part of this Application/Notification if the proposed structure will be capable of retaining, obstructing, or diverting more than 50 acre-feet of water, or if the structure is a medium or high hazard dam, as determined by the State Engineer, capable of retaining more than 25 acre-feet of water. Low hazard dams, as determined by the State Engineer, less than 10 feet in height are exempt from the requirement for professional engineering services. If plans and specifications are required, the following affidavit must be completed.

1. ____________ (name), ____________ (PE license number), a Professional Engineer registered in the State of North Dakota, designed and/or personally supervised the design of the project as described in this application and on any attached sheets, and construction will be inspected in accordance with North Dakota Administrative Code §85-08-03-01. Date: ____________

The filing of this Application/Notification in no way relieves the applicant or landowner from any responsibility or liability resulting from the construction, operation or failure of the project.

**Land Owner (print)**

- Address
- Telephone Number

**Signature**

- Date

**Sponsoring Agency**

- Address
- Telephone Number

**Signature**

- Date