

RECLAMATION

Managing Water in the West

Final Environmental Assessment Whiterocks Irrigation Company – Whiterocks and Mosby Canals Rehabilitation Project

PRO-EA-16-018

**Upper Colorado Region
Provo Area Office
Provo, Utah**



**U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah**

November 2017

Mission Statements

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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.

Final Environmental Assessment Whiterocks Irrigation Company – Whiterocks and Mosby Canals Rehabilitation Project

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**Upper Colorado Region
Provo Area Office
Provo, Utah**

Interdisciplinary Team Leader

*Jared Baxter
Bureau of Reclamation
Provo Area Office
302 East 1860 South
Provo, Utah 84606*



**U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah**

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Provo Area Office
Provo, Utah

FINDING OF NO SIGNIFICANT IMPACT

**Environmental Assessment Whiterocks Irrigation Company –
Whiterocks and Mosby Canals Rehabilitation Project
Uintah County, Utah**

EA-16-018

Recommended by:



Jared Baxter
Fish and Wildlife Biologist

16 Nov 2017

Date

Concur:

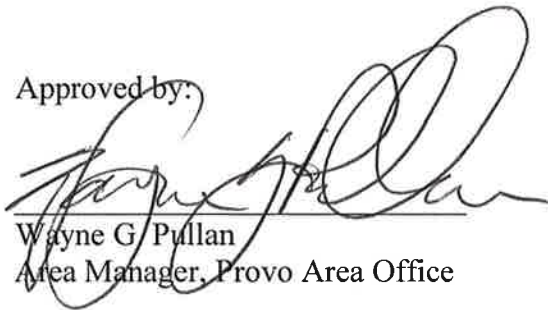


Rick Baxter
Water, Environmental, and Lands
Division Manager

16 Nov 2017

Date

Approved by:



Wayne G. Pullan
Area Manager, Provo Area Office

16 Nov 2017

Date

Introduction

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the Bureau of Reclamation - Provo Area Office has conducted an Environmental Assessment (EA) for a Proposed Action to provide funding to the Whiterocks Irrigation Company (Company) for diverting irrigation water from the existing Whiterocks and Mosby Canals (Canals) into a newly constructed pressurized pipeline. A total of 10.6 miles of pipeline would be constructed, and approximately 13.9 miles of canal would be abandoned and left open. Reclamation is responsible for implementing salinity control projects for the Colorado River Basin and is the lead agency for the purposes of compliance with the NEPA for this Proposed Action.

The EA was prepared by Reclamation to address the impacts associated with replacing sections of the Canals with a buried pipeline. The purpose of the Proposed Action is to eliminate seepage losses and to allow for a higher percentage of diverted water to reach points of use. This will allow for improved irrigation success on fields and pastures, and increased growth of grass and crops. The project is needed to reduce salt loading to the Colorado River System.

Alternatives

The EA analyzed the No Action Alternative and the Proposed Action of replacing 13.9 miles of the open Canals with 10.6 miles of buried pipeline.

Minimization Measures Incorporated into the Proposed Action

The minimization measures, along with other measures listed under each resource in Chapter 3 and Chapter 4 of the EA, have been incorporated into the Proposed Action to lessen the potential adverse effects.

- Staging areas would be located where they would minimize new disturbance of area soils and vegetation.
- Ground disturbance would be minimized to the maximum extent possible.
- Construction vehicles and equipment would be inspected and cleaned prior to entry into the project area to ensure that they are free of weed seed.
- Newly disturbed sites would be monitored for impacts to native vegetation, and would be reseeded with an approved native seed mix.
- Stockpiling of materials would be limited to those staging areas approved and cleared in advance.
- A Habitat Replacement Plan would be developed and implemented to mitigate impacts to native vegetation.

Environmental commitments that are integral to the Proposed Action are as follows:

1. **Standard Reclamation Best Management Practices** - Standard Reclamation Best Management Practices would be applied during construction activities to minimize environmental effects and would be implemented by construction forces, or included in construction specifications. Such practices or specifications include sections in the present EA on public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, erosion control, archaeological and historical resources, vegetation, wildlife, and threatened and endangered species. The project would comply with all requirements set forth in the formal Section 7 consultation with U.S. Fish and Wildlife Service (USFWS). Excavated material and construction debris may not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials must be wasted at a Reclamation approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. may not be stockpiled in riparian or water channel areas. Silt fencing would be appropriately installed and left in place until after vegetation becomes established, at which time the silt fence can then be carefully removed. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to construction.
2. **Additional Analyses** - If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined project construction area, additional environmental analyses may be necessary.
3. **Utah Pollution Discharge Elimination System (UPDES) Permit** - A UPDES Permit will be required from the State of Utah before any discharges of water, if such water is to be discharged as a point source into a regulated water body. Appropriate measures will be taken to ensure that construction related sediments will not enter the stream either during or after construction. Settlement ponds and intercepting ditches for capturing sediments will be constructed, and the sediment and other contents collected will be hauled off the site for appropriate disposal upon completion of the Project.
4. **Fugitive Dust Control Permit** - The Division of Air Quality regulates fugitive dust from construction sites, requiring compliance with rules for sites disturbing greater than one-quarter of an acre. Utah Administrative Code R307-205-5, requires steps be taken to minimize fugitive dust from construction activities. Sensitive receptors include those individuals working at the site or motorists that could be affected by changes in air quality due to emissions from the construction activity.
5. **Cultural Resources** - In the case that any cultural resources, either on the surface or subsurface, are discovered during construction, Reclamation's Provo Area Office archaeologist shall be notified and construction in the area of the inadvertent

discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archaeologist. If any person who knows or has reason to know that they have inadvertently discovered possible human remains on Tribal land, they must provide immediate telephone notification of the discovery to Reclamation's Provo Area Office archaeologist. Work will stop until the proper authorities are able to assess the situation onsite. This action will promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. The Utah State Historical Preservation Office and interested Native American Tribal representatives will be promptly notified. Consultation will begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10); and the Archaeological Resources Protection Act of 1979 (16 USC 470).

6. **Paleontological Resources** - Should vertebrate fossils be encountered by the proponent during ground disturbing actions, construction must be suspended until a qualified paleontologist can be contacted to assess the find.
7. **Wildlife Resources**
 - a. **Migratory Bird Protection**
 - i. Perform any ground-disturbing activities or vegetation treatments before migratory birds begin nesting or after all young have fledged.
 - ii. If activities must be scheduled to start during the migratory bird breeding season, take appropriate steps to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures and use of various excluders (e.g., noise). Prior to nesting, birds can be harassed to prevent them from nesting on the site.
 - iii. If activities must be schedule during the migratory bird breeding season, a site-specific survey for nesting prior to groundbreaking activities or vegetation treatments. Established nests with eggs or young cannot be moved, and the birds cannot be harassed (see ii., above), until all young have fledged and are capable of leaving the nest site.
 - iv. If nesting birds are found during the survey, appropriate spatial buffers should be established around nests. Vegetation treatments or ground-disturbing activities within the buffer areas should be postponed until the birds have left the nest. Confirmation that all young have fledged should be made by a qualified biologist.
 - b. **Raptor Protection** - Raptor protection measures will be implemented to provide full compliance with environmental laws. If raptor nests are identified prior to construction, raptor surveys will be developed using the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002), to ensure that the proposed project will avoid adverse impacts to raptors, including bald and golden eagles. Locations of existing raptor nests and

eagle roosting areas will be identified prior to the initiation of project activities. Appropriate spatial buffer zones of inactivity will be established during breeding, nesting, and roosting periods. Arrival at nesting sites can occur as early as December for certain raptor species. Nesting and fledging can continue through August. Wintering bald eagles may roost from November through March.

8. **Previously Disturbed Areas** - Construction activities will be confined to previously disturbed areas for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance will be minimized as much as possible.
9. **Public Access** - Construction sites will be closed to public access. Temporary fencing, along with signs, will be installed to prevent public access. Reclamation will coordinate with landowners or those holding special permits and other authorized parties regarding access to or through the Project area.
10. **Disturbed Areas** - All disturbed areas resulting from the Project will be smoothed, shaped, contoured, and rehabilitated to as near the pre-Project construction condition as practicable. After completion of the construction and restoration activities, disturbed areas will be seeded at appropriate times with weed-free, native seed mixes having a variety of appropriate species (especially woody species where feasible) to help hold the soil around structures, prevent excessive erosion, and to help maintain other riverine and riparian functions. The composition of seed mixes will be coordinated with wildlife habitat specialists and Reclamation biologists. Weed control on all disturbed areas will be required. Successful revegetation efforts must be monitored and reported to Reclamation, along with photos of the completed Project.
11. **Threatened and Endangered Species**
 - a. Construction activities would avoid, to the extent feasible, Ute Ladies'-tresses habitat within the Proposed Action area.
 - b. Best management practices would be determined during Endangered Species Act (ESA) Section 7 Consultation; and
 - c. All requirements of the USFWS Biological Opinion would be adhered to in compliance of the ESA.
12. **The Company and the Mosby Irrigation Company will comply with all provisions of the Habitat Replacement Plan (HRP) prepared for this project. Primary objectives of the HRP include:**
 - a. Sufficiently saturate the root zone of riparian vegetation along segments of the canals identified as riparian habitat. Adjust the flow rate or release duration as needed to achieve sufficient saturation of the root zone.

- b. The water release interval must be at least once each month between the months of May through September. Based on canal companies' monitoring of riparian vegetation health, the water release interval could be shortened (releasing water into canals more often than once each month) in order to maintain healthy riparian vegetation.

Related NEPA Documents

Environmental Impact Statements or Environmental Assessments that are related to, but not part of the scope of this EA, include the Steinaker Dam Right Abutment Slide Repair Final EA, Steinaker Service Canal Modification Project Final EA, and Steinaker Reservoir Carriage of Non-Project Water Final EA.

Decision and Finding of No Significant Impact

Based upon a review of the EA and supporting documents, I have determined that implementing the Proposed Action will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the area. No environmental effects meet the definition of significance in context or intensity as defined at 40 CFR 1508.27. Therefore, an environmental impact statement is not required for this Proposed Action. This finding is based on consideration of the context and intensity as summarized here from the EA.

Context

The affected locality is Uintah County, Utah. Affected interests include the Whiterocks and Mosby Irrigation Companies.

Intensity

The following discussion is organized around the 10 significance criteria described in 40 CFR 1508.27. These criteria were incorporated into the resource analysis and issues considered in the EA.

1. Impacts may be both beneficial and adverse. The Proposed Action will impact resources as described in the EA. Environmental commitments to reduce impacts to cultural and biological resources were incorporated into the design of the Proposed Action. The following short-term effects of the Proposed Action are predicted: road closures, noise, and ground disturbance along the Canal and pipeline alignment. Long-term predicted effects are wildlife habitat loss (mitigated for in the HRP). Adverse and beneficial effects include salt loading reduction to the Colorado River, eliminate seepage losses, and to allow for a higher percentage of diverted water to reach points of use.

None of the environmental effects discussed in detail in the EA are considered significant.

2. The degree to which the selected alternative will affect public health or safety or a minority or low-income population. The Proposed Action will have no significant impacts on

public health or safety. No minority or low income community will be disproportionately affected by the Proposed Action.

3. Unique characteristics of the geographic area. Any wetlands or other wildlife habitat that will be impacted by the Proposed Action will be mitigated for under the Habitat Replacement Plan. There are no park lands, prime farmlands, wild and scenic rivers, or other ecologically critical areas that will be affected by the proposal.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial. Reclamation contacted representatives of other Federal agencies, state and local governments, Indian tribes, public and private organization, and individuals regarding the Proposed Action and its effects on resources. Based on the responses received, the effects from the Proposed Action on the quality of the human environment are not highly controversial.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. When uncertainty about impacts to the human environment was identified in the EA, mitigation and monitoring measures were identified and included in the formulation of the alternatives. There are no effects on the human environment that are considered highly uncertain or that involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The Proposed Action will not establish a precedent for future actions with significant effects.

7. Whether the action is related to other actions which are individually insignificant but cumulatively significant. Cumulative impacts are possible when the effects of the Proposed Action are added to other past, present, and reasonably foreseeable future actions as described under Related NEPA Documents above; however, significant cumulative effects are not predicted, as described in the EA.

8. The degree to which the action may adversely affect sites, districts, buildings, structures, and objects listed in or eligible for listing in the National Register of Historic Places. The State Historic Preservation Officer has concurred with a determination of no adverse effect to historic properties by the Proposed Action.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. Ute ladies'-tresses (ULTs) were discovered each year from 2015-2017 along the Whiterocks Canal. Reclamation determined the Proposed Action "may affect, is likely to adversely affect" ULTs in the project area. The Service issued a Biological Opinion in October 2017, determining the Proposed Action is not likely to jeopardize the continued existence of ULTs.

10. Whether the action threatens a violation of Federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment. The project does not violate any Federal, state, local, or tribal law, regulation, or policy imposed for the protection of

the environment. In addition, this project is consistent with applicable land management plans, policies, and programs.

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Chapter 1 Purpose of and Need for Proposed Action

1.1 Introduction

This Environmental Assessment (EA) was prepared to examine the potential environmental impacts of the Whiterocks and Mosby Canals Rehabilitation Project (project), proposed by the Whiterocks Irrigation Company (WIC) in Uintah County, Utah. If approved, the Bureau of Reclamation would authorize the use of Federal funds to replace nearly 14 miles of open canal with pipelines, which would allow landowners to transition from flood irrigation practices to pressurized sprinkler irrigation.

This EA evaluates the potential effects of the Proposed Action in order to determine whether it would cause significant impacts to the human or natural environment, as defined by the National Environmental Policy Act (NEPA) of 1969. If the EA shows no significant impacts associated with implementation of the proposed project, then a Finding of No Significant Impact (FONSI) would be issued by Reclamation. Otherwise, an Environmental Impact Statement would be necessary prior to implementation of the Proposed Action.

1.2 Background

1.2.1 Colorado River Basin Salinity Control Program

The Colorado River Basin Salinity Control Act of 1974 was enacted to protect the Colorado River's water quality. Reclamation's Salinity Control Program seeks to provide cost-effective regional solutions for reducing the salinity loading of the Colorado River. The Colorado River provides water for approximately 30 million people in the United States and the Republic of Mexico. Water from the Colorado River is currently used to irrigate 4 million acres of land in the United States and 500,000 acres of land in Mexico.

Controlling the salinity of the Colorado River remains one of the most important challenges facing Reclamation. High salinity levels make it difficult to grow winter vegetables and popular fruits. In water systems, it plugs and destroys municipal and household pipes and fixtures.

Recent salinities in the lower portion of the Colorado River are typically about 700 mg/L, but in the future may range between 600 and 1,200 mg/L, depending upon the amount of water in the river system. Salinity damages in the United

States portion of the Colorado River Basin range between \$500 million to \$750 million per year and could exceed \$1.5 billion per year if future increases in salinity are not controlled (Reclamation 2016).

1.2.2 Existing Irrigation Facilities

The Whiterocks Canal is an unlined canal approximately 16 miles long, which begins at the Whiterocks River, north of Tridell, and ends approximately 2 miles south of Lapoint (see Map 1 in Appendix A). The canal has a capacity of 200 cubic feet per second (cfs) at the head and delivers water to approximately 6,700 acres of farm land and a culinary water system through the Tridell-Lapoint Water Improvement District. The WIC has several storage reservoirs; two of these are filled by the Whiterocks Canal (M&S Reservoir and Lapoint Reservoir).

The Mosby Canal is an unlined canal approximately 5.7 miles in length with a capacity of 12 cfs. The canal receives water from storage reservoirs operated by the Mosby Irrigation Company (MIC) through Deep Creek. The lower reservoir on MIC's system, Red Wash Reservoir, stores water for delivery to approximately 950 acres primarily east and south of Lapoint (see Map 1 in Appendix A).

Seepage from unlined irrigation canals is a significant source of groundwater, which mobilizes naturally occurring salts in the soil. Replacing such canals with piping reduces salt loading into the Colorado River.

Water losses to seepage are estimated at 4,000 acre-feet per year from the Whiterocks Canal and 880 acre-feet per year from the Mosby Canal for reaches of the canal proposed to be abandoned. Piping would allow WIC and MIC to abandon approximately 14 miles of unlined canal, leaving only the upper 5.8 miles of the Whiterocks Canal open, and save approximately 4,880 acre-feet of water per year. For full details on the pipeline and canal alignments, see section 2.3 Proposed Action and Appendix A – Maps.

This project could reduce salt loading into the Colorado River by an estimated 1,635 tons per year (Reclamation 2015). This project would also increase water use efficiency by providing pressurized sprinkler irrigation.

1.3 Purpose of and Need for Proposed Action

The purpose of the Proposed Action is to reduce water loss in canals due to seepage and evapotranspiration as well as to increase the efficiency of the existing irrigation system by transitioning from flood irrigation practices to pressurized sprinkler irrigation.

The need for the project is to reduce salt loading into the Colorado River by reducing canal seepage and transitioning from flood irrigation practices to pressurized sprinkler irrigation.

1.4 Public Scoping and Involvement

The public involvement process for this EA presented the members of the public including other agencies, interest groups and key stakeholders with opportunities to obtain information about the proposed project and opportunities to participate in the project through written comments. Reclamation's objectives during the public involvement process are to create and maintain a well-informed public and receive input on the proposed project.

Notices will be sent to relevant irrigation companies, shareholders, and other interested parties within the watershed.

No comments were received during the 30-day comment period. Coordination with interested agencies was performed throughout the EA process. Chapter 5 describes in detail the public involvement process and coordination completed during the development of this EA.

1.5 Permits, Licenses, and Authorizations

Implementation of the Proposed Action may require a number of authorizations or permits from state and Federal agencies. The WIC would be responsible for obtaining all permits, licenses, and authorizations required for the project. Potential authorizations or permits may include those listed in Table 1-1.

Table 1-1
Permits and Authorizations

Agency/Department	Purpose
State of Utah Department of Natural Resources, Division of Water Rights	A State-Only Stream Alteration Permit under Utah statutory criteria of stream alteration described in the Utah Code 73-3-29 would be required. This would apply for impacts to Deep Creek or other natural channels during project construction.
Utah State Historic Preservation Office	Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), 16 USC 470 would be required.

Agency/Department	Agency/Department
U.S. Army Corps of Engineers (USACE)	A permit, in compliance with Section 404 of the Clean Water Act, would be required prior to the discharge of dredged or fill material into waters of the United States.
U.S. Bureau of Reclamation	A Habitat Replacement Plan would need to be approved by Reclamation as required by the Salinity Control program.

1.6 Related Projects and Documents

1.6.1 Steinaker Dam Right Abutment Slide Repair EA

Reclamation completed an EA in 2017 to evaluate impacts associated with repairing a slope failure in the upstream face of the right abutment of Steinaker Dam and issued a FONSI. The repair includes extending the outlet works conduit approximately 80 feet upstream, constructing a new intake structure, flattening the upstream slope of the right abutment to improve stability, and constructing a stability berm along the upstream face of the dam.

1.6.2 Steinaker Service Canal Modification Project EA

Reclamation and the Uintah Water Conservancy District completed an EA in 2014 to evaluate impacts from the piping of the Steinaker Service Canal and issued a FONSI. The project, funded under Reclamation's Salinity Control Program, consisted of the installation of approximately 12 miles of pipe in phases to eliminate water losses to seepage and evaporation.

1.6.3 South Valley Lateral Salinity Control Project EA

Reclamation and the Sheep Creek Irrigation Company completed an EA in 2014 to evaluate impacts from the piping of the South Valley Lateral and issued a FONSI. The project, funded under Reclamation's Salinity Control Program, piped 7.4 miles of open unlined canals resulting in an estimated annual reduction of 3,373 tons of salt in the Upper Colorado River Basin.

1.6.4 Cedar Hollow Lateral Salinity Control Project EA

Reclamation and the Sheep Creek Irrigation Company completed the Cedar Hollow Lateral Salinity Control Project EA in 2014 and issued a FONSI. This EA evaluated the impacts from the proposed replacement of 5.42 miles of the Cedar Hollow Lateral with a pipeline to reduce the salinity contributions to the Upper Colorado River Basin. This project, located in Sweetwater County, Wyoming, and Daggett County, Utah, reduced the annual salt contribution to the Upper Colorado River Basin by approximately 2,220 tons.

1.6.5 Peoples Canal Salinity Control Project EA

Reclamation completed the Peoples Canal Salinity Control Project EA and issued a FONSI in 2010. This EA analyzed impacts from the proposed replacement of 9.1 miles of the Peoples Canal with a pipeline to reduce the salinity contributions to the Upper Colorado River Basin. This project was located in Sweetwater County, Wyoming, and Daggett County, Utah.

1.6.6 Manila-Washam Project EA

The Natural Resources Conservation Service (NRCS) completed an EA in 2006 and issued a FONSI for the Manila-Washam Project. This EA evaluated on-farm improvements for 11,000 water right acres in Daggett County, Utah, and Sweetwater County, Wyoming, to reduce salt loading in the Upper Colorado River Basin. Development of this salinity control project started in 2007.

All aforementioned projects were separate and complete projects with independent utility. These projects have been implemented to meet the goals of Reclamation's Salinity Control Program and in conjunction with the Proposed Action are expected to have a cumulative positive impact on the water quality in the Upper Colorado River Basin.

1.7 Scope of Analysis

The purpose of this EA is to determine whether or not Reclamation should authorize, provide funding, and enter into an agreement with WIC for the piping of Whiterocks and Mosby Canals, which would develop a more secure and reliable irrigation water supply for both the WIC and MIC shareholders. That determination includes consideration of whether there would be significant impacts to the human environment. In order to pipe the canals, this EA must be completed and a FONSI issued. Analysis in the EA includes temporary impacts from construction activities and permanent impacts as a result of piping the canals.

Chapter 2 Alternatives

2.1 Introduction

This chapter describes the features of the No Action and Proposed Action Alternatives. It includes a description of each alternative considered and presents the alternatives in comparative form, defining the differences between each alternative.

2.2 No Action

Under the No Action alternative, Reclamation would not authorize the use of Federal funds to pipe the canals. The open, unlined canals would continue to deliver irrigation water, and approximately 4,880 acre-feet of water per year would continue to be lost to seepage, evapotranspiration, and operational losses. Seepage from the canals would continue to percolate through adjacent soils, resulting in an estimated annual salt loading of 1,635 tons into the Colorado River.

2.3 Proposed Action

The Proposed Action is the preferred alternative. Under the Proposed Action, Reclamation would authorize the use of Federal funds to pipe the canals, and abandon 10.2 miles of the Whiterocks Canal and 3.7-miles of the Mosby Canal. The pressurized pipe system would allow for more efficient use of irrigation water, enabling landowners to transition from flood irrigation practices to sprinkler irrigation. Piping the canals and associated irrigation turnouts would allow for an annual water savings of approximately 4,880 acre-feet, and would reduce salt loading into the Colorado River by an estimated 1,635 tons annually. The estimated life of the proposed project facilities is 50 years.

2.3.1 Project Location

The canals and proposed piping are located near Lapoint in Uintah County, Utah. The project area includes portions of:

Uintah Meridian:

- T. 1 N., R. 1 E., secs. 23 and 24
- T. 1 N., R. 1 E., secs. 19, 30, and 31
- T. 5 S., R. 19. E., secs 3, 10, 11, 14, and 15

Salt Lake Meridian:

- T. 5 S., R. 19 E., secs 3, 10, 11, 14, and 15

2.3.2 Disturbance Summary

The project would consist of both temporary and permanent areas of disturbance. The total anticipated temporary disturbance for the project would be approximately 117.8 acres (see Table 2-1). Temporary disturbance would include clearing some or all of the vegetation from staging areas and the temporary 60-foot easements along the pipeline alignment, as well as excavating the trench for pipelines within the easements. Permanent disturbance would consist of excavating the new settling pond at the beginning of the Lapoint Feeder Pipeline alignment, constructing improvements to two small road segments (permanent easement access) along the Whiterocks Pipeline alignment, and maintaining a permanent 30-foot easement along the pipeline alignments.

The permanent easement would be used to allow continued access for the operation and maintenance of the pipelines. The majority of the permanent easement would experience temporary disturbance during construction activities, but would remain largely undisturbed following the reclamation of disturbed areas (except for agricultural disturbances). Areas of disturbance are represented in Maps 2 and 3 of Appendix A.

Table 2-1
Disturbance Calculations

Project Feature	Temporary Disturbance (Acres)	Permanent Disturbance (Acres)
Lapoint Feeder Pipeline	20.5	10.3
Whiterocks Pipeline	30.6	15.5
Mosby Pipeline	20.5	10.3
M&S Extension Pipeline	4.2	2.1
Staging Areas	37.3	0
Settling Pond	3.8	3.8
Permanent Access Easements	0.9	0.9
Total	117.8*	42.9

*Temporary disturbance area of 117.8 acres is the maximum disturbance for the Proposed Action. All permanent disturbance is located within the temporary disturbance areas and should not be considered additional acreage.

2.3.3 Lapoint Feeder Pipeline

The Lapoint Feeder Pipeline would serve water users in the area between M&S Reservoir and Lapoint Reservoir, and would also be capable of filling Lapoint Reservoir during freezing periods. A settling pond would be constructed at the M&S Reservoir diversion structure, from which water would enter the Lapoint

Feeder Pipeline. The 20-inch high-density polyethylene (HDPE) pipeline would extend 15,100 feet (2.9 miles) to the southern reaches of the existing M&S Pipeline (see Map 2 in Appendix A). This pipeline would serve approximately ten water users with turnouts from the main line.

2.3.4 M&S Pipeline Extension

The M&S Pipeline Extension is proposed to extend the existing 30-inch M&S Pipeline (originating from M&S Reservoir) to the Lapoint Reservoir, allowing flows to be delivered to Lapoint Reservoir year-round (the existing M&S Pipeline is not capable of operating during freezing temperatures). The proposed extension is approximately 3,100 feet (0.6 mile) long and would also have one turnout to an adjacent water user (see Map 2 in Appendix A).

2.3.5 Whiterocks Pipeline

The Whiterocks Pipeline would be approximately 22,700 feet (4.3 miles) in length, ranging from 42-inch-diameter to 30-inch-diameter HDPE pipe. This pipeline would originate from Lapoint Reservoir and convey water to the southern end of WIC's service area. The majority of the pipeline would be buried west of the canal, but approximately 3,870 feet of the pipeline would be buried within the canal prism. After the pipeline is buried, the canal would be reshaped to allow for continued stormwater and habitat maintenance flows (see Map 3 in Appendix A). There would be approximately 27 turnouts to shareholders on this pipeline.

2.3.6 Mosby Pipeline

The Mosby Pipeline would be approximately 14,900 feet (2.8 miles) of 20-inch HDPE pipe. Approximately 1,840 feet of the pipeline would be buried within the canal prism. After the pipeline is buried, the canal would be reshaped to allow for continued stormwater and habitat maintenance flows (see Map 3 in Appendix A). Approximately seven turnouts would be installed to allow water releases for irrigation. The Mosby Pipeline would connect to the Whiterocks Pipeline, to deliver shares of Mosby Canal water to users of the Whiterocks Canal.

2.3.7 Canal Abandonment

Upon completion of the pipelines, the Whiterocks Canal would be abandoned from the M&S Reservoir diversion to the end of the canal south of Lapoint, a distance of approximately 10.2 miles. The Mosby Canal would be abandoned from the outlet of Red Wash Reservoir to Deep Creek and then from the headgate on Deep Creek to the end of the canal, a distance of approximately 3.7 miles (see Map 1 in Appendix A). The abandoned canals would be left in place for the purposes of flood control for Lapoint town, to avoid impacts to historic resources, and for the minimization of wildlife habitat loss.

Both the Whiterocks and Mosby Canals would continue to intercept stormwater runoff from areas upslope of the canals. Historically, the area north of State Route (SR)-121 has experienced flooding due to natural runoff overtopping the existing canals. In order to alleviate flooding in areas adjacent to the canals, an energy dissipation structure would be constructed on the Whiterocks Canal to

allow stormwater runoff within the canal to empty into the Deep Creek channel. Stormwater runoff from the Mosby Canal would also empty into the Deep Creek channel by means of enlarging an existing drainage ditch (approximately 900 feet in length) from Mosby Canal to Deep Creek. Riprap would be placed in areas with high erosion potential, and an undersized culvert would be replaced where the drainage ditch crosses an agricultural road (see Map 1 in Appendix A).

2.3.8 Ute Ladies'-tresses Transplanting

Surveys for Ute ladies'-tresses (ULT; *Spiranthes diluvialis*) individuals occurred along the Whiterocks Canal during August of 2015, 2016, and 2017. During October of 2017, ULT individuals were transplanted to a site located approximately 0.7 miles northwest of the project area, upstream of the abandoned section of the Whiterocks Canal. The ULT transplant locations would be protected from animal grazing the first year of establishment and monitored for 5 years. Where necessary, Russian olive (*Elaeagnus angustifolia*) was removed at transplant sites using accepted methods of removal.

2.3.9 Site Access and Staging Areas

Project sites and staging areas would be accessed by existing roads and adjacent private property. Temporary construction easements would be secured with private landowners along the pipeline alignments (60-foot-wide easement) and for staging areas. Staging areas would be located strategically along the pipeline alignments. Up to 37.3 acres could be temporarily disturbed for staging. Construction-related disturbance would be reclaimed following project completion. Two small permanent access easements located along the Whiterocks Canal would provide access for operations and maintenance of the new pipeline.

2.3.10 Operation and Maintenance

The WIC would secure permanent 30-foot-wide easements within the 60-foot-wide temporary construction easements for operation and maintenance of the pipelines. The pipelines would operate within the permanent easement, with periodic inspections of aboveground appurtenances. Individual shareholders and irrigators would be responsible for operation and maintenance of their turnouts downstream of the meter and valve. Winterization and operation of valves, along with springtime flushing and filling of the line, would be the majority of the operation and maintenance efforts.

2.3.11 Habitat Replacement Plan

In cooperation with WIC, Reclamation has identified wildlife habitat along the canal that would be lost due to water removal as a result of the canal abandonment and pipeline construction; this habitat evaluation can be found in Appendix A of Appendix C. The total value of wetland and riparian habitat lost by completing this project would be mitigated through the implementation of a Reclamation-approved Habitat Replacement Plan (HRP) (see Appendix C). The HRP details the methods for replacing the lost habitat values.

2.3.12 Construction Schedule

Construction is anticipated to begin in November of 2017, and is estimated to be complete by December of 2018; this would allow ample time to complete the project and account for weather-related delays. Construction within suitable ULT habitat would be avoided during flowering season to prevent disturbance to plants.

2.3.13 Construction Procedures

2.3.13.1 Trench Excavation

The pipeline trench would be excavated up to 7-feet-deep and approximately 6-feet-wide. Pipe segments would be laid out end-to-end along the trench at each active site. Topsoil and subsoil would be segregated and stockpiled separately adjacent to the trench. Large trees would not be removed and riparian vegetation would be avoided to the maximum extent feasible.

2.3.13.2 Pipe Installation, Trench Backfilling, and Site Reclamation

Each 50-foot pipeline segment would be butt-fused onsite. After the pipeline was placed in the trench, the stockpiled subsoil would be used to backfill the trench, and the topsoil would be replaced on the surface and graded to pre-disturbance contours. Any excess soil would be hauled off-site by the contractor, or utilized to reinforce portions of the abandoned canal access roads or embankment.

Once construction is complete, areas through agricultural fields would be reseeded and cultivated by private landowners. Noxious weed control would be implemented according to county standards.

2.4 Alternatives Considered and Eliminated from Further Study

The following alternative was evaluated but eliminated because it did not meet the purpose of or need for the project.

2.4.1 Membrane Lining

This alternative involves lining the existing canal with an impermeable membrane, such as an ethylene propylene diene monomer or polyvinyl chloride. This liner would be installed on top of a 6-inch thick layer of clean backfill material and covered with several inches of the same backfill material.

This alternative does not meet the purpose of and need for the project because it would not allow landowners to increase irrigation efficiency by transitioning from flood irrigation practices to pressurized sprinkler irrigation. This alternative does not meet the purpose of and need for the project because it would keep the water in an open environment, thus allowing evaporation, and equipment and livestock to continue to enter the Canal.

2.5 Comparison of Alternatives

The suitability of the No Action and Proposed Action Alternatives were compared based on three objectives identified for the project. The objectives are:

- Decrease salt loading into the Colorado River;
- Reduce water losses to seepage and evapotranspiration; and
- Increase irrigation efficiency.

The No Action Alternative did not meet the project's objectives, while the Proposed Action met all three objectives.

2.6 Minimization Measures Incorporated into the Proposed Action

The minimization measures, along with other measures listed under each resource in Chapters 3 and 4, have been incorporated into the Proposed Action to lessen the potential adverse effects.

- Staging areas would be located where they would minimize new disturbance of area soils and vegetation.
- Ground disturbance would be minimized to the maximum extent possible.
- Construction vehicles and equipment would be inspected and cleaned prior to entry into the project area to ensure that they are free of weed seed.
- Newly disturbed sites would be monitored for impacts to native vegetation, and would be reseeded with an approved native seed mix.
- Stockpiling of materials would be limited to those staging areas approved and cleared in advance.
- A HRP would be developed and implemented to mitigate impacts to native vegetation.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the environment that could be affected by the Proposed Action. These impacts are discussed under the following resource issues: geology and soils resources; visual resources; cultural resources; paleontological resources; wilderness and wild and scenic rivers; hydrology; water quality; system operations; health, safety, air quality, and noise; prime and unique farmlands; floodplains; wetlands, riparian, noxious weeds, and existing vegetation; fish and wildlife resources; threatened, endangered, and sensitive species; recreation; socioeconomics; access and transportation; water rights; Indian Trust Assets (ITAs); environmental justice; and cumulative effects. The present condition or characteristics of each resource are discussed first, followed by a discussion of the predicted impacts caused by the Proposed Action. The environmental effects are summarized in Section 3.7.

Implementing minimization measures would ensure impacts are minimal and short-term. Chapter 3 presents the impact analysis for resources after minimization measures and Best Management Practices (BMPs) have been successfully implemented.

3.2 Resources Considered and Eliminated from Further Analysis

The following resources in Table 3-1 were considered but eliminated from further analysis because they do not occur in the project area or impacts would be so minor (negligible) that they were discounted.

Table 3-1
Resources Eliminated from Further Analysis

Resource	Rationale for Elimination from Further Analysis
Visual Resources	The majority of project activities would occur within remote cultivated fields, pastures, or canal easements and would not normally be seen by the general public; therefore, visual resources would not be adversely impacted by the Proposed Action.
Wilderness and Wild and Scenic Rivers	There are no Wilderness Areas or Wild and Scenic Rivers or segments listed on the Nationwide Rivers Inventory within the project area; therefore, there would be no impact to these resources.
Fish and Wildlife Resources	Fish have been eliminated from further consideration because fish do not occur in the canal as the canal is regularly dewatered. Potential impacts to wildlife resources are addressed within this chapter.
Recreation	There are no designated recreation resources in the project area; therefore, there would be no direct effects on recreation from the Proposed Action.
Access and Transportation	The Proposed Action would not adversely impact access or transportation due to the remote location of the project area and the restricted canal easements. Pipeline crossings of existing roads would be temporary and would not impact access or transportation long-term.

3.3 Affected Environment and Environmental Consequences

This chapter describes the affected environment (baseline conditions) and environmental consequences (impacts as a result of the Proposed Action) on the quality of the human environment that could be impacted by construction and operation of the Proposed Action, as described in Chapter 2. The human environment is defined in this study as the environmental resources, including social and economic conditions occurring in the impact area of influence.

3.3.1 Geology and Soils Resources

The project area varies in topographic relief from relatively flat to somewhat undulating, with slopes ranging from 1 to 15 percent. According to the NRCS Web Soil Survey mapping service, soil textures range from a very cobbly loam to a clay loam, and are generally well drained.

3.3.1.1 No Action

The No Action Alternative would have no effect on geologic or soil resources.

3.3.1.2 Proposed Action

Trenching and backfilling activities would result in mixing of soil horizons. During trenching activities, topsoil would be salvaged and stockpiled separately from subsoil. Subsoil would be used first in backfilling activities, with the topsoil replaced on the surface. Soil stockpiling would be temporary, as open trenches would be filled at the end of each working day. Implementation of the Proposed Action would have no long-term adverse effect on geologic or soil resources.

3.3.2 Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation that are over 50 years in age. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites as well as isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historic significance.

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), mandates that Reclamation take into account the potential effects of a proposed Federal undertaking on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

In compliance with the regulations to Section 106 of the NHPA (36 CFR 800.16), the affected environment for cultural resources is identified as the area of potential effects (APE). The APE is defined as the geographic area within which Federal actions may directly or indirectly cause alterations in the character or use of historic properties. The APE for this Proposed Action includes the area that could be physically affected by any of the proposed project alternatives (the maximum limit of disturbance).

Cultural resource inventories were conducted for the proposed project in November of 2016 and May of 2017 by Montgomery Archeological Consultants (Stavish 2016a, 2016b, 2016c, 2017). A total of 261.2 acres were inventoried.

Sites identified include eligible site 42UN2679 (Whiterocks and Ouray Valley Canal), ineligible site 42UN8706 (irrigation canal), and eligible site 42UN8707 (cabin with outbuildings). An isolated biface was also found. The isolated find is recommended as not eligible to the NRHP as it fails to meet eligibility criteria.

3.3.2.1 No Action

The No Action Alternative would have no effect on cultural resources.

3.3.2.2 Proposed Action

The project is designed to avoid permanent impacts to the Whiterocks and Mosby Canals. Areas where the bank of the canals must be breached, or otherwise disturbed to accommodate placement of the new pipeline, would be reshaped to pre-construction conditions. The historic cabin site would be avoided. The Proposed Action would have no adverse effect on cultural resources. Concurrence letters from the Utah State Historic Preservation Office (SHPO) are in Appendix B.

3.3.3 Paleontological Resources

A paleontological file search from the Utah Geological Survey (UGS) was requested to determine the nature and extent of paleontological resources within the project area. The UGS determined that the project area generally has a low potential for yielding significant fossil localities; however, there may be exposures of the Eocene Duchesne River Formation, especially in the northern part of the project area, that have a high potential for yielding significant fossil localities. The letter is attached as Appendix E.

3.3.3.1 No Action

The No Action Alternative would have no effect on paleontological resources.

3.3.3.2 Proposed Action

Under the Proposed Action, vertebrate fossils may be encountered as a result of ground disturbing activities. If vertebrate fossils are encountered by WIC during ground disturbing activities, construction would be suspended until a qualified paleontologist can be contacted to assess the find and Reclamation would be notified. Ground disturbance would not continue until authorized by Reclamation; therefore, there would be no adverse effect to paleontological resources.

3.3.4 Hydrology

The proposed project is within four 6th field Hydrologic Unit Code watersheds: Uriah Heap (140600031403), Tridell (140600031404), Lower Deep Creek (140600031304), and Bottle Hollow-Uinta River (140600031406). Watersheds are represented in Map 4 of Appendix A. The project would impact one perennial channel and four ephemeral channels.

3.3.4.1 No Action

The No Action Alternative would allow for continued seepage along the canal. Stream channels near the seepage points would continue to receive more water than would naturally flow through them, resulting in an increase in salinity downstream.

3.3.4.2 Proposed Action

Under the Proposed Action, the Whiterocks and Mosby Canals would be abandoned, but would continue to intercept stormwater runoff from areas upslope of the canals. Stormwater from both canals would empty into Deep Creek in

order to avoid potential flooding in the area north of State Road-21 (SR) (see Section 2.3.7; Map 1 in Appendix A). The Whiterocks stormwater discharge structure and the Mosby drainage ditch into Deep Creek were designed to prevent erosion within the Deep Creek channel.

Portions of the ephemeral channels associated with outlets of Red Wash and Lapoint Reservoirs would be filled (100 feet and 250 feet respectively) in order to accommodate burying the new pipelines. The sole function of these channels is to convey the reservoir outlet flows to the respective canals. Impacts to these channels are unavoidable because of alignment constraints caused by the locations of the existing reservoir outlets. The Proposed Action would render the channels obsolete as they would no longer function to convey water from the reservoir outlets to the respective canals.

Two additional unnamed ephemeral channels would be crossed multiple times by the Mosby Pipeline alignment. Approximately 975 linear feet of these channels would be impacted by the installation of the pipeline; however, these impacts would be temporary as the pipeline would be buried and the channel would be reshaped to pre-construction conditions.

No water would be impounded by the Proposed Action. Implementation of the Proposed Action would have no adverse effect on hydrologic function of the channels within the affected watersheds.

3.3.5 Water Quality

Deep Creek is impaired for cold water fisheries and aquatic life due to low dissolved oxygen. No Total Maximum Daily Load has been prepared for this impairment. Seepage from unlined irrigation canals is a significant source of groundwater, which mobilizes naturally occurring salts in the soil and contributes to salt loading into the Colorado River.

3.3.5.1 No Action

Under the No Action Alternative, salt loads from the deep percolation of seepage from the Whiterocks and Mosby Canals would continue to degrade water quality in the Colorado River.

3.3.5.2 Proposed Action

The Proposed Action would eliminate seepage from the entire Mosby Canal as well as the abandoned portion of the Whiterocks Canal. The reduced seepage would result in an estimated 1,635 fewer tons of salt reaching the Colorado River annually. The Proposed Action may temporarily increase water turbidity where drainage structures would convey stormwater from the Whiterocks and Mosby Canals into the Deep Creek channel; however, increased turbidity would only occur during construction activities and the contractor would comply with a stormwater pollution prevention plan to reduce impacts to water quality. Overall, the Proposed Action would reduce salt loading into the Colorado River. The Proposed Action would improve water quality.

3.3.6 System Operations

Currently, delivery of irrigation water from canals is controlled by headgates associated with each property holding water rights. Shareholders controlling their respective headgates adhere to a delivery schedule managed by their respective irrigation company.

Prior to the irrigation season, the canals are cleared of debris as needed and necessary repairs are made to diversion structures, headgates, and flumes. The canal irrigation system becomes operable by diverting flow into the canals from the canals' respective water sources. After each irrigation season, water is no longer diverted into the canals and necessary repairs are made to canal infrastructure in preparation for the following irrigation season.

3.3.6.1 No Action

Under the No Action Alternative, there would be no change to the operations of the current irrigation system.

3.3.6.2 Proposed Action

Under the Proposed Action, water would continue to be delivered to each shareholder; however, water would be delivered by means of pressurized irrigation via turnouts from the new pipeline system. Water meters and valves at each turnout would allow both individual shareholders and irrigation company personnel to manage water use. Prior to the irrigation season, the pipeline system would be flushed, filled, and checked for proper function. At the end of each irrigation season, the system would be drained and winterized.

Implementation of the Proposed Action would facilitate change in the system operations from flood irrigation to pressurized irrigation, but would have no adverse effect on the system operations.

3.3.7 Health, Safety, Air Quality, and Noise

The portion of the project area located north of SR-121 has experienced flooding due to natural runoff overtopping the existing canals. The project area is adjacent to a number of residences and provides access for agricultural operations. Flooding in the area could create hazardous conditions that would risk human life and property. Flood events would also interrupt access for residents, emergency vehicles, and maintenance personnel.

3.3.7.1 No Action

Under the No Action Alternative, there would be no effect to public health, air quality, or noise; however, flooding would continue to present a risk to human life and property.

3.3.7.2 Proposed Action

Under the Proposed Action, there would be no effect to public health. The Proposed Action would provide a beneficial effect to public safety by alleviating flooding in areas north of SR-121, forcing stormwater runoff within the canals to

empty into the Deep Creek drainage (see proposed canal drainage improvements in Section 2.3.7).

Pipeline construction activities would require heavy equipment for trenching, for handling pipe, and for hauling material to and from the project site. The Proposed Action would temporarily generate fugitive dust and emissions from vehicle traffic, as well as excavation and backfilling activities. Fugitive dust generated by construction activities would be minimal, affecting only a localized area for a brief period. Because of the temporary nature of project activities and the remoteness of the project area, the Proposed Action would have no adverse effect on air quality.

Noise disturbance associated with construction activities would also be localized and of short duration along the pipeline alignments and would not occur along the entire alignment at one time. Construction activities would advance along the alignment at a rate of approximately 1,000 feet per day. Impacts to individual residences would be limited to approximately 2 days. Implementation of the Proposed Action would not adversely affect noise receptors long-term.

3.3.8 Prime and Unique Farmlands

According to the NRCS Web Soil Survey mapping service, the project area contains land classified as “Prime Farmland If Irrigated.” Within the project area, a portion of the land with this classification is irrigated.

3.3.8.1 No Action

Under the No Action Alternative, there would be no effect on Prime and Unique Farmlands. Farmlands in the project area would continue to produce as in the past.

3.3.8.2 Proposed Action

Under the Proposed Action Alternative, construction activities associated with the installation of the buried pipeline would cause temporary disturbance to agriculturally important lands, including land classified as Prime and Unique farmland. No farmlands would be permanently removed from production as a result of the Proposed Action. During trenching activities, topsoil would be salvaged and stockpiled separately from subsoil. After the pipeline was placed in the trench, the stockpiled subsoil would be used to backfill the trench, and the topsoil would be replaced on the surface and graded to pre-disturbance contours. Disturbed areas would be seeded with hay or pasture cultivars.

Efficiencies gained may result in a longer irrigation season, and potentially in increased agricultural productivity; no new land would be irrigated as a result of the Proposed Action. Implementation of the Proposed Action would have no adverse effect on Prime and Unique Farmlands, and could result in increased crop yields.

3.3.9 Floodplains

Executive order 11988: Floodplain Management (E.O. 11988) (May 24, 1977) established Federal policy for each agency to take action to reduce the risk of flood loss. The E.O. 11988 defines a floodplain, as lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year. Encroachment onto floodplains can reduce the flood-carrying capacity of the floodplain and extend the flooding hazard beyond the encroachment area.

According to the Federal Emergency Management Agency floodplain mapping service, a 100-year floodplain occurs within the project area and is associated with the Deep Creek drainage.

3.3.9.1 No Action

Under the No Action Alternative, there would be no effect to floodplains.

3.3.9.2 Proposed Action

The Proposed Action would impact a 100-year floodplain during trenching for the pipeline and construction of the stormwater discharge structure into Deep Creek; however, the impacts would be temporary and short-term, occurring only during construction (see Map 5 in Appendix A). The stormwater discharge structure within the floodplain would not impound water or raise the base flood elevation, and there would be no permanent impacts to floodplains associated pipeline crossing of Deep Creek. There would be no other floodplain impacts within the project area. The Proposed Action would have no permanent adverse effect on floodplain function.

3.3.10 Wetlands, Riparian, Noxious Weeds, and Existing Vegetation

A wetland delineation was completed by Wetland Resources Inc. in May of 2017. Of the 260 acres surveyed, approximately 3.8 acres were identified as wetlands. It is possible that the majority of the wetlands are being supported by subsurface seepage from the canal. Most of the wetlands occur downslope of the canals, and there are no wetlands immediately upslope of the canal in the project area (Sherman 2017).

Riparian habitat within the project area was assessed by Reclamation in March 2017. The habitat evaluation identified a total of 1.45 acres of riparian habitat associated with canal seepage that could potentially be lost as a result of the Proposed Action (see Appendix A of Appendix C).

Noxious weeds found in the area primarily consist of cheatgrass (*Bromus tectorum*) and dandelion (*Taraxacum officinale*).

Much of the vegetation consists of pinyon pine (*Pinus* sp.), juniper (*Juniperus* sp.), cottonwood (*Populus* sp.), sand bar willow (*Salix exigua*), greasewood (*Sarcobatus vermiculatus*), curly cup gumweed (*Grindelia squarrosa*), reed

canary grass (*Phalaris arundinacea*), Kentucky bluegrass (*Poa pratensis*), meadow fescue (*Festuca pratensis*), smooth brome (*Bromus inermis*), Baltic rush (*Juncus balticus*), and spikerush (*Eleocharis palustris*).

3.3.10.1 No Action

The No Action Alternative would have no effect on wetlands, riparian habitat, noxious weeds, or existing vegetation.

3.3.10.2 Proposed Action

The Proposed Action would impact wetlands as a result of pipeline trenching activities; however, impacts would be temporary as excavated soils would be replaced after pipeline installation and graded to pre-construction contours. The Proposed Action may eliminate wetlands that are induced by subsurface seepage from the canal. Impacts to wetlands would be permitted with the USACE.

The Proposed Action may cause some damage to riparian vegetation during construction activities; however, damage to riparian vegetation would be avoided to the maximum extent feasible. The Proposed Action would dewater the Whiterocks and Mosby Canals, removing the water source for the riparian vegetation growing along the canals. Impacts to riparian habitat would be mitigated by complying with the HRP prepared for the Proposed Action (see Appendix C). The Proposed Action would have no adverse effect on riparian vegetation.

The Proposed Action and the associated ground disturbance would likely increase presence and dominance of noxious weed species; however, weed seed control would occur on all construction equipment to help prevent the spread of noxious weeds. The Proposed Action would not promote the introduction or spread of invasive species or noxious weeds.

The Proposed Action and associated ground disturbance may remove or damage existing vegetation; however, disturbed areas would be reseeded by private landowners. The Proposed Action would have no permanent adverse effect on vegetation.

3.3.11 Wildlife Resources

3.3.11.1 Birds (Raptors and Migratory Birds)

The project area consists primarily of highly disturbed pastures and cultivated fields. Suitable migratory bird and raptor habitat may occur along the pipeline alignment and staging areas. Pinyon, juniper, and cottonwood are the most common tree species along the project area; shrubs are mainly greasewood with some herbaceous vegetation.

3.3.11.1.1 No Action

The No Action Alternative would have no effect on raptors or other migratory birds.

3.3.11.1.2 Proposed Action

The majority of the disturbance would occur within highly disturbed pastures and cultivated fields. Project-related disturbance would not differ greatly from routine agricultural disturbance, and birds nesting nearby or foraging within the area would likely be habituated to such types of visual and auditory disturbance. Further, the Proposed Action would not involve large tree removal, and existing riparian vegetation would be maintained by implementing the HRP prepared for this project. The Proposed Action would not adversely affect migratory birds or raptors.

3.3.11.2 Water Birds

The Whiterocks and Mosby Canals contain water regularly during the irrigation season (May through September), and are generally dewatered outside of the irrigation season. Although the canals are regularly dewatered, open water within the canals attract water birds during the irrigation season.

3.3.11.2.1 No Action

The No Action Alternative would have no effect on water birds.

3.3.11.2.2 Proposed Action

Water bird species dependent upon open water would experience a permanent loss of habitat as the canals would no longer provide open water during the irrigation season. Water birds would be displaced to other nearby water bodies that are readily available throughout the valley, including the reservoirs that supply the canals. The Proposed Action would have no permanent adverse effect to water birds.

3.3.11.3 Small Mammals, Reptiles, and Amphibians

Within the project area, canals and uplands provide habitat for nesting, breeding, foraging, cover, and movement corridors for an array of small animals, reptiles, and amphibians.

3.3.11.3.1 No Action

The No Action Alternative would have no effect on small mammals, reptiles, or amphibians.

3.3.11.3.2 Proposed Action

Impacts to burrowing amphibians, reptiles, and small mammals could include direct mortality and displacement during construction activities. Small animal species may experience reduced populations in direct proportion to the amount of disturbed habitat. These species and habitats are relatively common throughout the area and the Proposed Action would not adversely affect population persistence. During construction, pipeline trenches would be filled at the end of each working day for public safety and to eliminate potential entrainment of animals. The Proposed Action would not adversely affect small mammals, reptiles, or amphibians dependent upon riparian habitat.

3.3.11.4 Big Game

The project area is within Utah Division of Wildlife Resources (UDWR)-mapped substantial year-round and winter habitat for mule deer (*Odocoileus hemionus*; see Map 7 in Appendix A) and crucial winter habitat for elk (*Cervus canadensis*; see Map 8 in Appendix A). The majority of the project area is within highly disturbed pastures or cultivated fields. There is little winter forage within the project area, and only a narrow strip of riparian habitat associated with the canals.

3.3.11.4.1 No Action

The No Action Alternative would have no effect on big game.

3.3.11.4.2 Proposed Action

The Proposed Action would disturb approximately 29 acres of mule deer year-long habitat and approximately 88 acres of winter substantial habitat, as well as approximately 19 acres of crucial winter elk habitat. Construction would occur in the fall and early winter, when big game are moving onto the winter range and starting to rut, or early spring, prior to fawning/calving season. Disturbance to big game could occur as a result of the construction-related noise and intrusion, possibly resulting in big game avoidance of the limited areas where project activities were occurring and temporary displacement to adjacent suitable habitats; however, the timing, magnitude, and extent of construction-related activities would not differ greatly from routine agriculture-related disturbance that occurs within these highly disturbed cultivated fields and pastures. Big game that occur within the area would likely be habituated to such disturbance. Further, project construction would advance daily along the alignment and only disturb a very limited area (approximately 1,000 linear feet each day); therefore, construction related disturbance would be very limited in duration and distance throughout the project area.

The Proposed Action would have no permanent adverse effect to big game species.

3.3.12 Threatened, Endangered, and Sensitive Species

The U.S. Fish and Wildlife Service (USFWS) IPaC system was accessed on June 27, 2017 (see Appendix D). There are no critical habitats within the project area. The following species were identified as potentially occurring within the project area, and are considered as follows:

- Mexican spotted owl (*Strix occidentalis lucida*) - The area lacks suitable canyon habitat. The nearest critical habitat is over 40 miles to the south of the project area. The nearest modeled habitat is over 8 miles to the northeast of the project area.
- Yellow-billed cuckoo (*Coccyzus americanus*) - Potentially suitable riparian habitat with mature trees does not occur within the project area.

The nearest proposed critical habitat is over 11 miles to the south of the project area.

- Fish species including: Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) - The four listed fish species do not occur within the project area, but water from the project area could eventually flow into the Green River, which is designated critical habitat for each of the species. A short-term decrease in water quality may occur during construction, but would be minimized through implementation of conservation measures (see Section 2.6). The Green River is at least 30 miles downstream of the project area.
- Canada lynx (*Lynx canadensis*) - The project area is not suitable remote coniferous forest habitat favored by lynx.

3.3.12.1 Greater sage-grouse

Greater sage-grouse is the only sensitive species known to occur near the project area. The project area boundaries are within Utah Division of Wildlife Resources (UDWR)-mapped brood-rearing and winter habitat for greater sage-grouse (*Centrocercus urophasianus*). There are three leks within 2 miles of the project area, and the nearest lek is over 1 mile away (see Map 6 in Appendix A). A lek is an area where sage-grouse congregate in the spring to engage in courtship displays. The proposed activities would occur outside of brood-rearing season (mid-July to mid-September), but may overlap with winter use (November to February) and lekking season (late February to April).

3.3.12.1.1 No Action

The No Action Alternative would have no effect on greater sage-grouse.

3.3.12.1.2 Proposed Action

The Proposed Action would temporarily disturb up to 118 acres of brood-rearing habitat and up to 26 acres of crucial winter habitat. Disturbance to sage-grouse could occur as a result of the proposed activities, but is unlikely as the birds would avoid areas where project activities were occurring. Noise disturbance associated with construction activities could be experienced by sage-grouse that may be in the area, possibly resulting in temporary displacement to adjacent suitable habitat areas or reduced male lek attendance. Conversely, the timing, magnitude, and extent of construction-related activities would not differ greatly from routine agriculture-related disturbance that occurs within these highly disturbed cultivated fields and pastures. Further, project construction would advance daily along the alignment and only disturb a very limited area (approximately 1,000 linear feet of pipeline alignment each day); therefore, construction related disturbance would be very limited in duration and distance throughout the project area.

Riparian habitat would be maintained through implementation of the Habitat Replacement Plan (see Appendix C). The Proposed Action would have a temporary minor adverse effect on greater sage-grouse.

3.3.12.2 Ute Ladies'-tresses

Reclamation biologists conducted surveys for ULT along the Whiterocks Canal on August 17, 2015, and August 9, 2016; at least 167 and 168 individuals were found, respectively, in association with the Whiterocks Canal. In 2017, biologists with Bowen Collins & Associates located 208 individuals on the Whiterocks Canal. Based on habitat evaluations conducted in 2015, there is no suitable habitat along the Mosby Canal. The extent of ULT occupied habitat is found on Map 9 in Appendix A.

3.3.12.2.1 No Action

The No Action Alternative would have no effect on ULT.

3.3.12.2.2 Proposed Action

The ULT would be affected directly by ground disturbing activities and loss of canal water. The project would reduce irrigation water levels in the canals considerably, which would result in a loss of suitable hydrologic conditions for the species. To mitigate the loss of suitable habitat and ULT individuals along the abandoned segment of canal, ULT individuals were transplanted to suitable habitat nearby. A suitable transplant site was identified approximately 0.7 miles to the northwest of the project, in an unaffected upstream segment of the Whiterocks Canal above the M&S Reservoir Diversion.

Surveys were conducted in occupied and suitable habitat while the individuals were flowering in August of 2017, and 208 individuals were marked for transplant. Individual plants were transplanted in October 2017 during the fall to increase their survival success.

Because the Proposed Action would likely adversely affect ULT individuals and habitat, Reclamation initiated formal consultation with USFWS (see consultation letter dated July 5, 2017 in Appendix F). The USFWS issued a Biological Opinion on October 3, 2017 (see Appendix G). The USFWS determined the Proposed Action would not likely jeopardize the continued existence of ULT.

3.3.13 Socioeconomics

Water from the Whiterocks and Mosby Canals supports agricultural uses, primarily for the towns of Tridell and Lapoint. The Whiterocks Canal delivers water to approximately 6,700 acres of farm land and a culinary water system through the Tridell-Lapoint Water Improvement District. The Mosby Canal delivers water to approximately 950 acres primarily east and south of Lapoint. Primary production includes alfalfa hay, as well as cattle and sheep livestock production. Agricultural development in the area is limited by the amount of available water to irrigate crops.

3.3.13.1 No Action

The No Action Alternative would not benefit the water users who receive water from the Whiterocks and Mosby Canals. Water would continue to seep from the canal and be lost for irrigation purposes. Economic benefits of increased water availability would not be realized.

3.3.13.2 Proposed Action

The Proposed Action would allow for more water availability by reducing canal seepage, while also increasing water delivery efficiency through pressurized sprinkler irrigation. These improvements could potentially be utilized to increase crop production and support the local agricultural economy.

3.3.14 Water Rights

The section of the Whiterocks Canal that is proposed to be piped carries water appropriated to WIC and allows diversions from the Whiterocks River of up to 91.8 cfs. Water losses to seepage along this section of canal are estimated at 4,000 acre-feet per year. The section of the Mosby Canal that is proposed to be piped carries water appropriated to MIC and allows diversions from the Dry Fork and Deep Creek drainages of up to 30 cfs. Water losses to seepage along this section of canal are estimated at 880 acre-feet per year. Relevant water rights are listed in Table 3-2 below:

**Table 3-2
Relevant Water Rights for the Whiterocks and Mosby Canals**

Canal	Water Right No.	Priority Date	Quantity
Whiterocks	43-503	07-11-1908	8.93 cfs
Whiterocks	43-3042	10-31-1905	50 cfs
Whiterocks	43-3053	01-16-1906	32.859 cfs
Mosby	45-515	08-17-1935	30 cfs
Mosby	43-3743	03-03-1964	2,175 acre-feet

3.3.14.1 No Action

The No Action Alternative would have no effect on water rights; however, water losses due to seepage would continue to decrease the volume of water that is ultimately delivered to water users.

3.3.14.2 Proposed Action

The Proposed Action would not affect water rights; however, the Proposed Action would decrease water losses due to seepage by approximately 4,880 acre-feet per year and allow company shareholders to deliver their water more efficiently through pressurized irrigation. In order to maintain riparian habitat as prescribed in the HRP (see Appendix C), a relatively small amount of water would be utilized between the months of May and September for habitat maintenance. Overall, the Proposed Action would result in a net increase of water delivery and

use efficiency, which would increase crop yields; no new land would be irrigated as a result of the Proposed Action. The Proposed Action would have a long-term beneficial effect on water delivery and use efficiency.

3.4 Indian Trust Assets

Indian Trust Assets are legal interests in property held in trust by the United States for federally recognized Indian Tribes or Indian individuals. Assets can be real property, physical assets, or intangible property rights, such as lands, minerals, hunting and fishing rights, and water rights. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to such tribes or individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect trust assets. Reclamation carries out its activities in a manner which protects these assets and avoids adverse impacts when possible. When impacts cannot be avoided, Reclamation would provide appropriate mitigation or compensation. Implementation of the Proposed Action would have no foreseeable adverse impacts on Indian Trust Assets.

3.5 Environmental Justice

Executive Order 12898 established environmental justice as a Federal agency priority to ensure that minority and low-income groups are not disproportionately affected by Federal actions.

Implementation of the Proposed Action would not disproportionately (unequally) affect any low-income or minority communities within the project area. The reason for this is that the Proposed Action would not involve major facility construction, population relocation, health hazards, hazardous waste, or substantial economic impacts. This alternative would therefore have no adverse human health or environmental effects on minority and low-income populations.

3.6 Cumulative Effects

In addition to project-specific impacts, Reclamation analyzed the potential for significant cumulative impacts to resources affected by the project and by other past, present, and reasonably foreseeable activities within the watershed. According to the Council on Environmental Quality's regulations for implementing NEPA (50 Code of Federal Regulations [CFR] §1508.7), a "cumulative impact" is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually

minor but collectively significant actions taking place over a period of time. It focuses on whether the Proposed Action, considered together with any known or reasonably foreseeable actions by Reclamation, other Federal or state agencies, or some other entity, combined to cause an effect.

The Proposed Action would comply with all relevant Federal, state, and local permits. The proposed area and duration of disturbance under the Proposed Action would be localized and short-term (less than 18 months). Long-term impacts are not expected to result in adverse cumulative impacts to environmental resources. Several other salinity control projects related to the lateral systems of the Upper Colorado River Basin have been implemented by Reclamation over the past 10 years (see Section 1.6). These salinity control projects should result in a positive cumulative impact on water quality. Based on Reclamation's review of the Proposed Action, Reclamation has determined that this action would not have a significant adverse cumulative effect on any resources.

3.7 Summary of Environmental Effects

Table 3-3 summarizes environmental effects under the No Action and the Proposed Action Alternatives.

Table 3-3
Summary of Environmental Effects

Project Resource	No Action	Proposed Action
Geology and Soils	No Effect	No Adverse Effect
Cultural Resources	No Effect	No Adverse Effect
Paleontological Resources	No Effect	No Adverse Effect
Hydrology	No Effect	Temporary and Permanent Impacts on Ephemeral Channels
Water Quality	No Beneficial Effect	Reduced Salt Loading into the Colorado River.
System Operations	No Effect	No Adverse Effect
Health, Safety, Air Quality, and Noise	Adverse Effect	Improved Public Safety by Reducing the Risk of Flooding; Temporary Impacts on Air Quality and Noise.
Prime and Unique Farmlands	No Effect	Temporary Impacts to Agricultural Lands of Importance.
Floodplains	No Effect	Temporary Impacts to Deep Creek During Construction.
Wetlands, Riparian, Noxious Weeds,	No Effect	Temporary Impacts to Irrigation-Induced Wetlands and Riparian

Project Resource	No Action	Proposed Action
and Existing Vegetation		Vegetation; Temporary and Permanent Impacts to Ephemeral Channels.
Wildlife Resources	No Effect	Water Birds Would be Permanently Displaced; Temporary Impacts to Small Mammals, Reptiles, Amphibians, and Big Game.
Threatened, Endangered, and Sensitive Species	No Effect	Likely to Adversely Affect ULT, Section 7 Consultation Required; Potential Temporary Impacts to Sage Grouse.
Socioeconomics	No Beneficial Effect	Increased Water Availability for Agricultural Use.
Water Rights	No Effect	Increased Water Availability and Use Efficiency.
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Cumulative Effects	No Effect	No Adverse Effect

Chapter 4 Environmental Commitments

Environmental Commitments, along with Minimization Measures in Section 2.6, have been developed to lessen the potential adverse effects of the Proposed Action.

4.1 Environmental Commitments

The following environmental commitments would be implemented as an integral part of the Proposed Action.

1. **Standard Reclamation Best Management Practices** - Standard Reclamation BMPs would be applied during construction activities to minimize environmental effects and would be implemented by construction forces, or included in construction specifications. Such practices or specifications include sections in the present EA on public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, erosion control, archaeological and historical resources, vegetation, wildlife and threatened and endangered species. The project would comply with all requirements set forth in the formal Section 7 consultation with USFWS. Excavated material and construction debris may not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials must be wasted at a Reclamation approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. may not be stockpiled in riparian or water channel areas. Silt fencing would be appropriately installed and left in place until after vegetation becomes established, at which time the silt fence can then be carefully removed. Machinery must be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to construction.
2. **Additional Analyses** - If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined project construction area, additional environmental analyses may be necessary.
3. **Utah Pollution Discharge Elimination System (UPDES) Permit** - A UPDES Permit will be required from the State of Utah before any

discharges of water, if such water is to be discharged as a point source into a regulated water body. Appropriate measures will be taken to ensure that construction related sediments will not enter the stream either during or after construction. Settlement ponds and intercepting ditches for capturing sediments will be constructed, and the sediment and other contents collected will be hauled off the site for appropriate disposal upon completion of the project.

4. **Fugitive Dust Control Permit** - The Division of Air Quality regulates fugitive dust from construction sites, requiring compliance with rules for sites disturbing greater than one-quarter of an acre. Utah Administrative Code R307-205-5, requires steps be taken to minimize fugitive dust from construction activities. Sensitive receptors include those individuals working at the site or motorists that could be affected by changes in air quality due to emissions from the construction activity.
5. **Cultural Resources** - In the case that any cultural resources, either on the surface or subsurface, are discovered during construction, Reclamation's Provo Area Office archaeologist shall be notified and construction in the area of the inadvertent discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archaeologist. If any person who knows or has reason to know that they have inadvertently discovered possible human remains on Tribal land, they must provide immediate telephone notification of the discovery to Reclamation's Provo Area Office archaeologist. Work will stop until the proper authorities are able to assess the situation onsite. This action will promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. The Utah SHPO and interested Native American Tribal representatives will be promptly notified. Consultation will begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10); and the Archaeological Resources Protection Act of 1979 (16 USC 470).
6. **Paleontological Resources** - Should vertebrate fossils be encountered by the proponent during ground disturbing actions, construction must be suspended until a qualified paleontologist can be contacted to assess the find.
7. **Wildlife Resources:**
 - a. **Migratory Bird Protection** –
 - i. Perform any ground-disturbing activities or vegetation treatments in suitable habitat before migratory birds begin nesting or after all young have fledged.

ii. If activities must be scheduled to start during the migratory bird breeding season, take appropriate steps to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures and use of various excluders (e.g., noise). Prior to nesting, birds can be harassed to prevent them from nesting on the site.

iii. If activities in suitable habitat must be scheduled during the migratory bird breeding season, a site-specific survey for nesting birds should be performed starting at least 2 weeks prior to groundbreaking activities or vegetation treatments. Established nests with eggs or young cannot be moved, and the birds cannot be harassed until all young have fledged and are capable of leaving the nest site.

iv. If nesting birds are found during the survey, appropriate spatial buffers should be established around nests. Vegetation treatments or ground-disturbing activities within the buffer areas should be postponed until the birds have left the nest. Confirmation that all young have fledged should be made by a qualified biologist.

b. **Raptor Protection** - Raptor protection measures would be implemented to provide full compliance with environmental laws. Raptor surveys would be developed using the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002), to ensure that the proposed project would avoid adverse impacts to raptors, including bald and golden eagles. Locations of existing raptor nests and eagle roosting areas would be identified prior to the initiation of project activities. Appropriate spatial buffer zones of inactivity would be established during breeding, nesting, and roosting periods. Arrival at nesting sites can occur as early as December for certain raptor species. Nesting and fledging can continue through August. Wintering bald eagles may roost from November through March.

8. **Previously Disturbed Areas** - Construction activities will be confined to previously disturbed areas where possible for such activities as work, staging, and storage, waste areas and vehicle and equipment parking areas. Vegetation disturbance will be minimized as much as possible.
9. **Public Access** - Construction sites will be closed to public access. Temporary fencing, along with signs, will be installed to prevent public access. Reclamation will coordinate with landowners or those holding special permits and other authorized parties regarding access to or through the project area.

10. **Disturbed Areas** - All disturbed areas resulting from the project would be smoothed, shaped, contoured, and rehabilitated to as near the pre-project construction condition as practicable. After completion of the construction and restoration activities, disturbed areas would be seeded at appropriate times for crop production. Weed control on all disturbed areas would be required.
11. **Threatened and Endangered Species** -
 - a. Construction activities would avoid, to the extent feasible, ULT habitat within the Proposed Action area.
 - b. Best management practices would be determined during Endangered Species Act (ESA) Section 7 Consultation; and
 - c. All requirements of the USFWS Biological Opinion would be adhered to in compliance of the ESA.
12. **The WIC and MIC will comply with all provisions of the HRP prepared for this project. Primary objectives of the HRP include:**
 - a. Sufficiently saturate the root zone of riparian vegetation along segments of the canals identified as riparian habitat. Adjust the flow rate or release duration as needed to achieve sufficient saturation of the root zone.
 - b. The water release interval must be at least once each month between the months of May through September. Based on canal companies' monitoring of riparian vegetation health, the water release interval could be shortened (releasing water into canals more often than once each month) in order to maintain healthy riparian vegetation.

Chapter 5 Consultation and Coordination

5.1 Introduction

This chapter details other consultation and coordination between Reclamation and other Federal, state, and local government agencies, Native American Tribes, and the public during the preparation of this EA. Compliance with NEPA is a Federal responsibility that involves the participation of all of these entities in the planning process. The NEPA requires full disclosure about major actions taken by Federal agencies and accompanying alternatives, impacts, and potential mitigation of impacts.

5.2 Public Involvement

The draft EA was provided to the public and government agencies for a 30-day comment period (October 4, 2017 to November 2, 2017). Reclamation mailed 201 scoping letters to WIC, MIC, and their shareholders, as well as state and Federal agencies, notifying them of the project and availability of the draft EA. No comments on the draft EA were received.

5.3 Native American Consultation

Reclamation conducted Native American consultation throughout the public involvement process. A consultation letter was sent to the Ute Indian Tribe of the Uintah and Ouray Reservation. The letter was sent on July 5, 2017. This consultation was conducted in compliance with 36 CFR 800.2(c)(2) on a government-to-government basis. Through this effort, the tribe is given a reasonable opportunity to identify any concerns about historic properties; to advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance; to express their views on the effects of the Proposed Action on such properties; and to participate in the resolution of adverse effects. Reclamation received no response from Native American tribes regarding the Proposed Action.

5.4 Utah Geological Survey

Reclamation requested a paleontological file search from the UGS to determine the nature and extent of paleontological resources within the APE. File search

results and recommendations from the UGS were received in a letter dated July 3, 2017. The letter is attached as Appendix E.

5.5 Utah State Historic Preservation Office

A copy of the Class III Cultural Resource Inventory Reports and a determination of historic properties affected for the Proposed Action were submitted to the SHPO. The SHPO concurred with Reclamation's determination of no adverse effect to historic properties in a letter dated July 26, 2017 (see Appendix B).

5.6 U.S. Fish and Wildlife Service

The USFWS was consulted during project planning to determine whether listed species could be impacted by the proposed project. Based on agency review, ULT individuals and habitat would be impacted by the Proposed Action. No other listed species or critical habitat were identified within or near the project area. A Biological Assessment was prepared and sent to the USFWS on July 5, 2017 in order to address potential impacts to ULT. A Biological Opinion was received October 3, 2017 (see Appendix F).

5.7 U.S. Army Corps of Engineers

The USACE was consulted in June 2017 to discuss the project and the best permitting approach. Based on impacts to jurisdictional waters and wetlands, a Clean Water Act Section 404 permit would be required.

Chapter 6 Preparers

The following is a list of preparers who participated in the development of the EA. They include environmental summary preparers, Reclamation team members, and Federal, State and District members.

**Table 6-1
Environmental Summary Preparers**

Name	Title	Company
Ms. Merissa Davis	Biologist	Bowen Collins & Associates
Ms. Jenna Jorgensen	Environmental Coordinator	Jones and DeMille Engineering
Mr. Eric Major	Professional Engineer	Jones and DeMille Engineering
Mr. Jody Patterson	Archaeologist	Montgomery Archeological Consultants
Mr. Wyatt Shakespear	Environmental Specialist	Jones and DeMille Engineering
Mr. Todd Sherman	Wetland Scientist	Wetland Resources, Inc.

**Table 6-2
Reclamation Team Members**

Name	Title	Resource
Mr. Jared Baxter	Fish and Wildlife Biologist, Team Lead	Biological Resources
Mr. Rick Baxter	Water, Environmental, and Lands Division Manager	Document Oversight
Mr. Peter Crookston	Environmental Group Chief	NEPA Oversight
Mr. Dale Hamilton	Resource Management Division Manager	Health, Safety, Air Quality, and Noise
Mr. Jeff Hearty	Economist	Socioeconomics
Mr. John Mann	Civil Engineer	Water Rights

Name	Title	Resource
Ms. Linda Morrey	Secretary	Writing, Editing
Mr. Zachary Nelson	Archaeologist	Cultural Resources, Paleontological Resources, Indian Trust Assets
Mr. Dave Snyder	Fish and Wildlife Biologist	Biological Resources

Table 6-3
Federal, State or District Members

Name	Title	Company
Ms. Rita Reisor	Energy Botanist	U.S. Fish and Wildlife Service

Chapter 7 Acronyms and Abbreviations

Acronym/Abbreviations	Meaning
APE	Area of Potential Effects
BIA	Bureau of Indian Affairs
BMPs	Best Management Practices
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
HDPE	High Density Polyethylene
HRP	Habitat Replacement Plan
ITA	Indian Trust Assets
MIC	Mosby Irrigation Company
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
Reclamation	U.S. Bureau of Reclamation
SHPO	Utah State Historic Preservation Office
SR	State Road
UDWR	State of Utah Division of Wildlife Resources
UGS	Utah Geological Service
ULT	Ute-ladies' -tresses

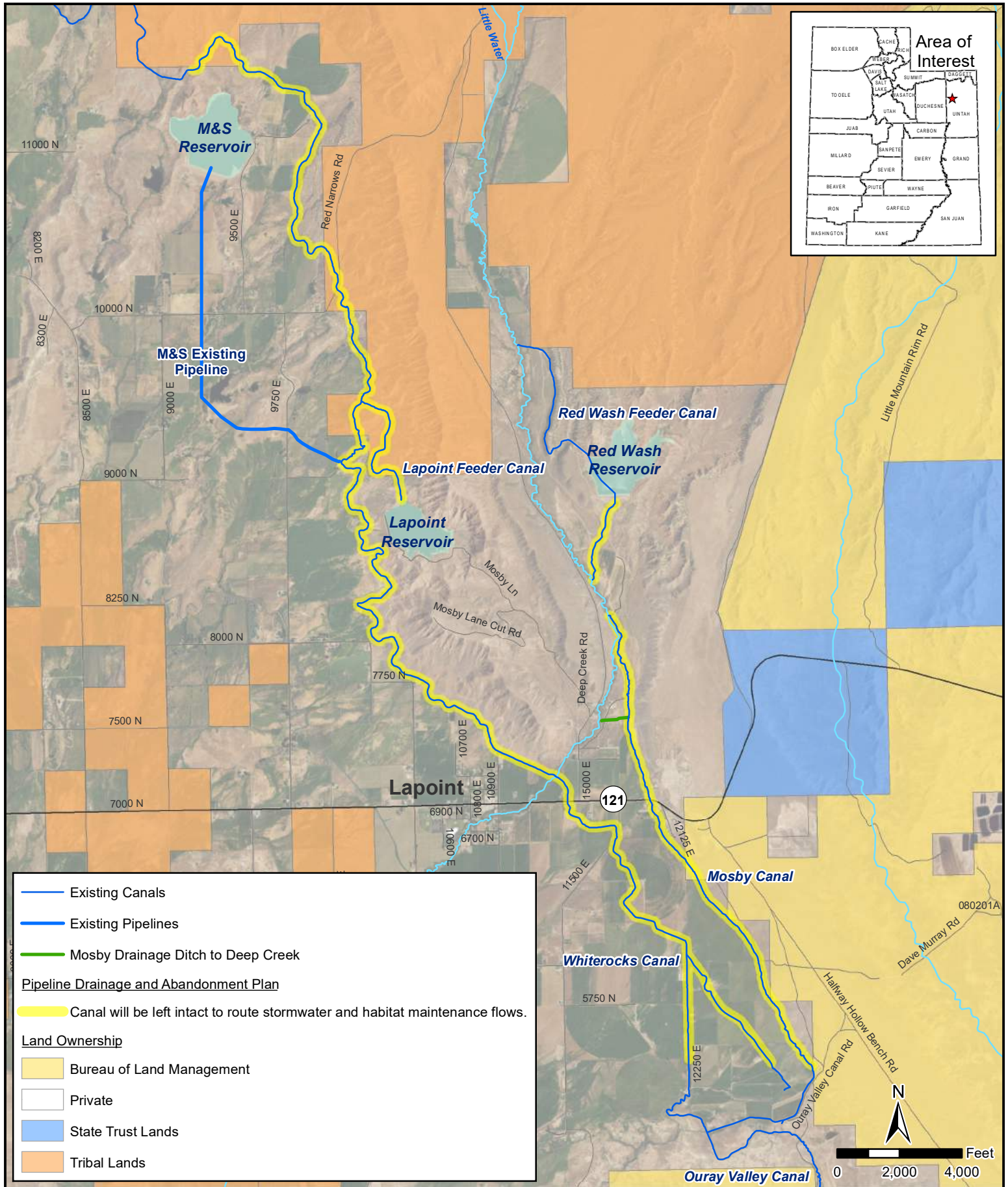
Acronym/Abbreviations	Meaning
UPDES	Utah Pollution Discharge Elimination System
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WIC	Whiterocks Irrigation Company

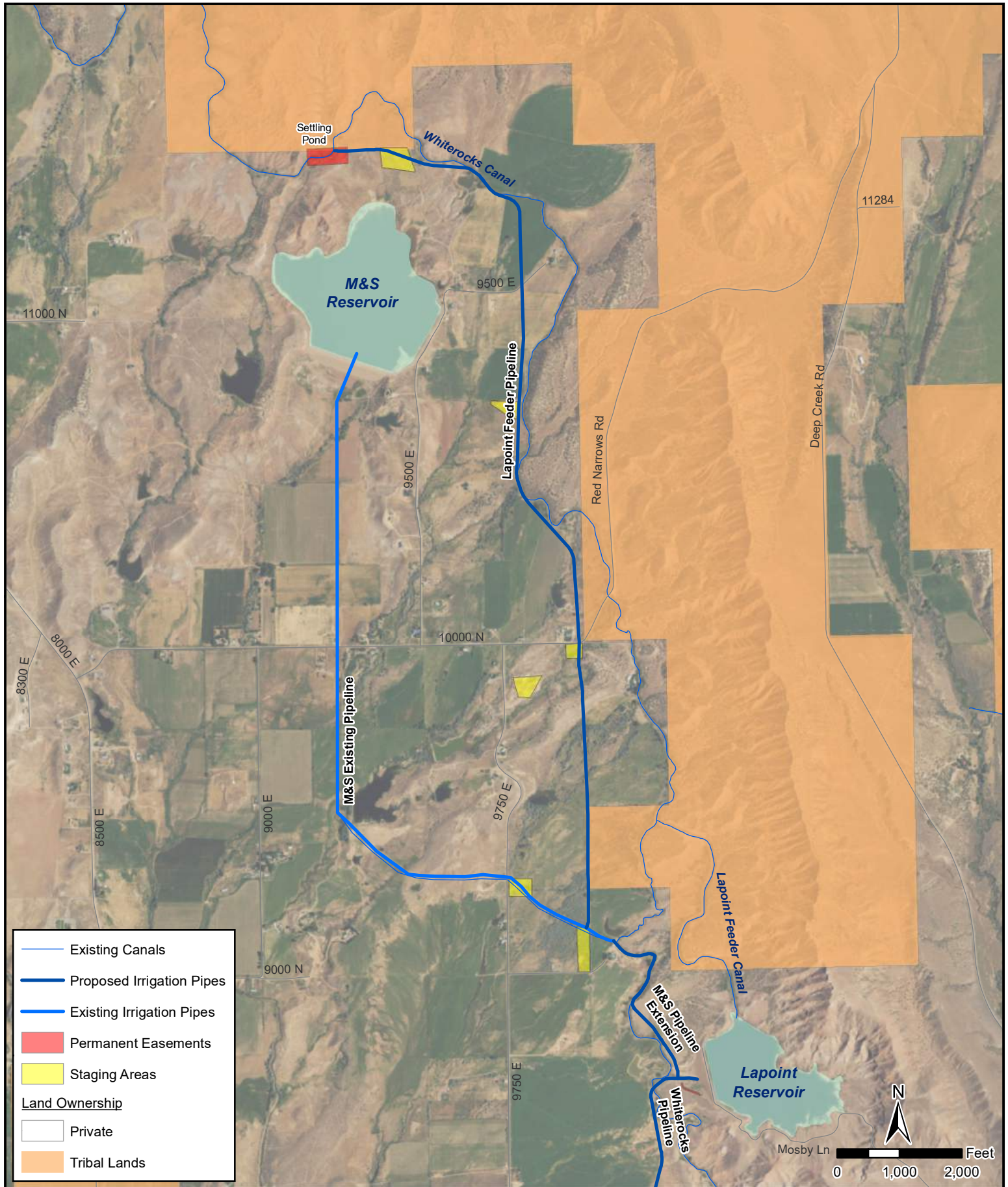
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Chapter 9 Appendices

Appendix A. Maps





- Existing Canals
- Proposed Irrigation Pipes
- Existing Irrigation Pipes
- Permanent Easements
- Staging Areas
- Land Ownership
- Private
- Tribal Lands

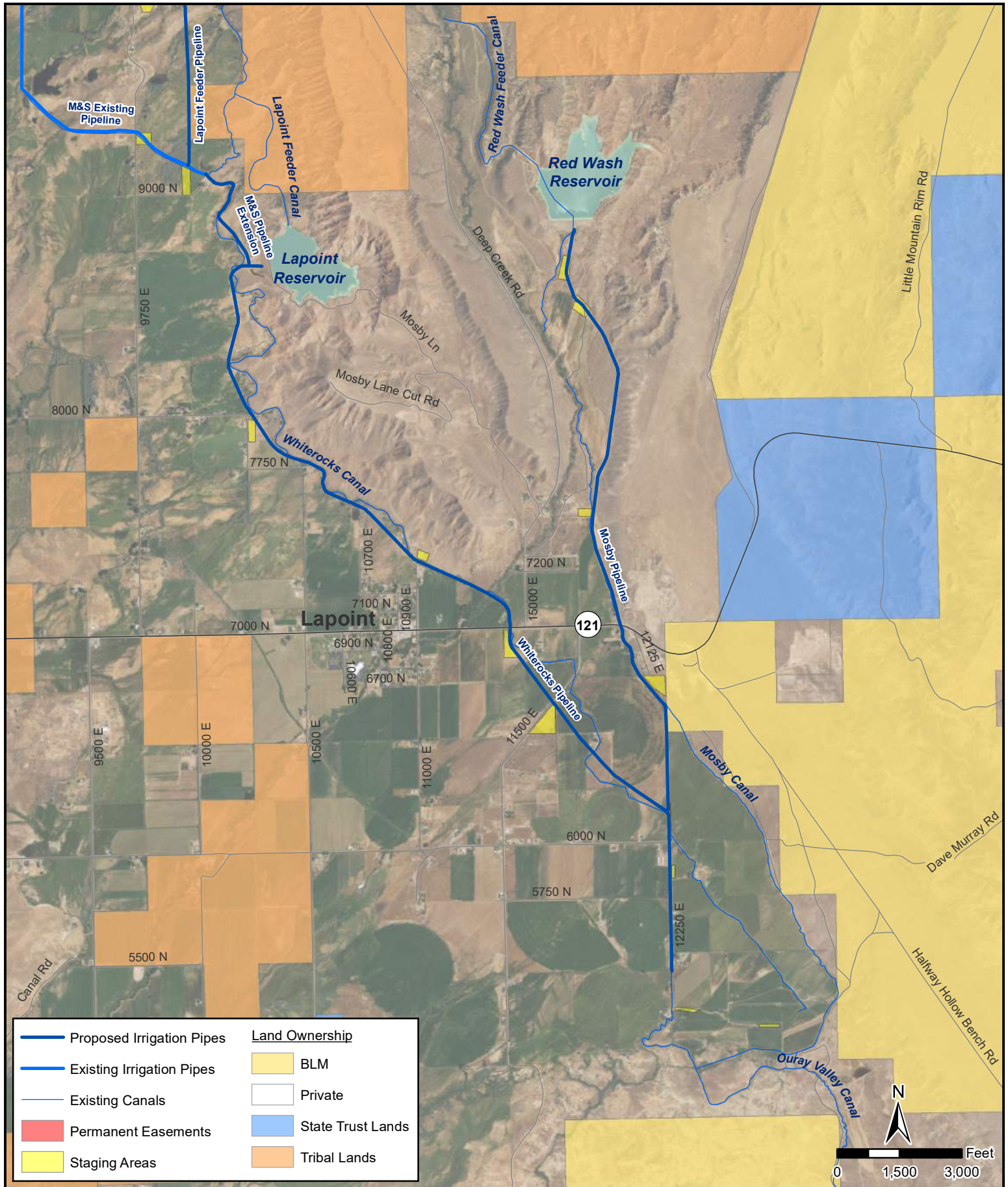
**Jones & DeMille
Engineering**

- Shaping the Quality of Life -

800.748.5275 www.jonesanddemille.com

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Whiterocks & Mosby Canals Rehabilitation Project Lapoint Feeder and M&S Extension Pipeline Alignments	
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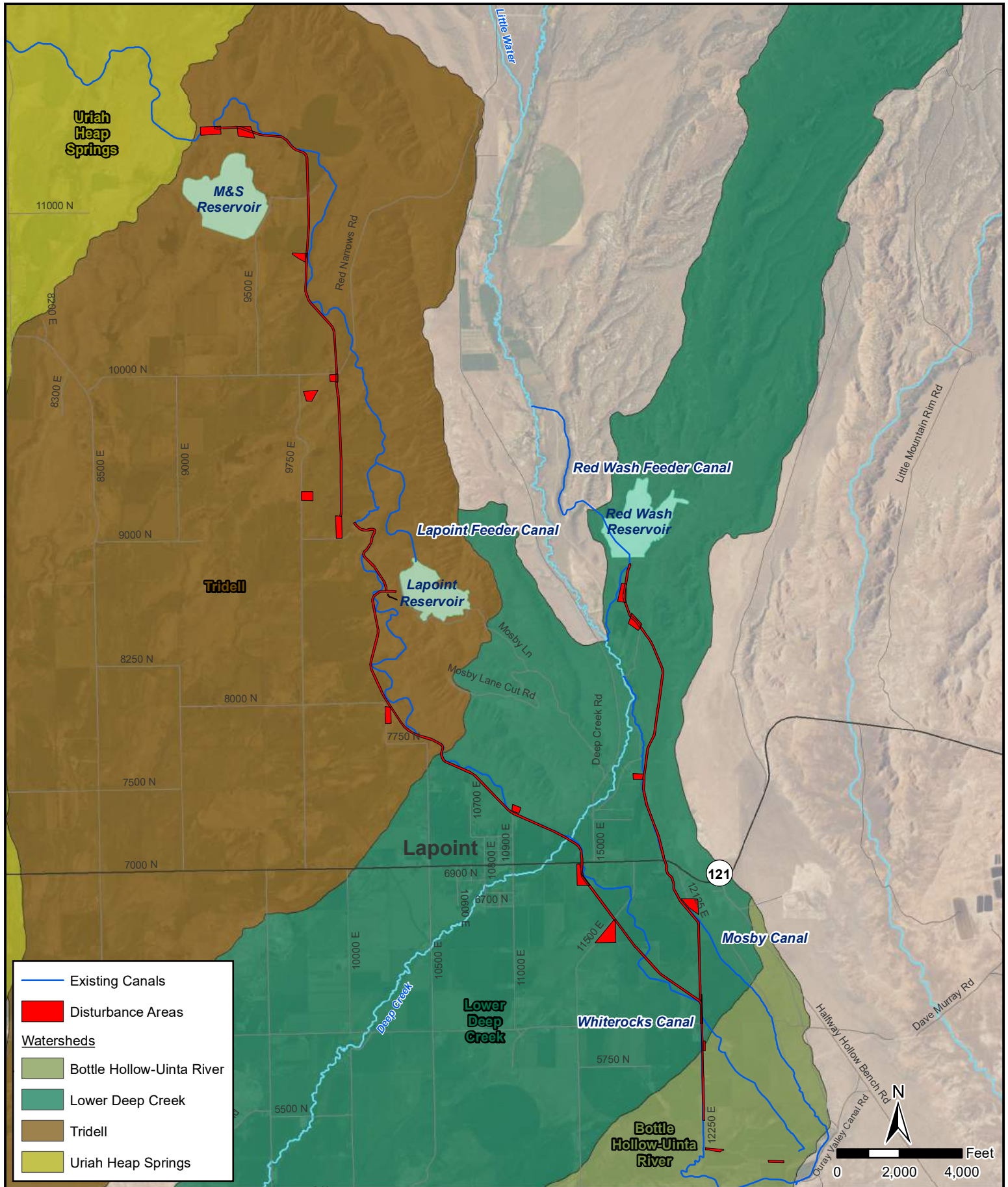
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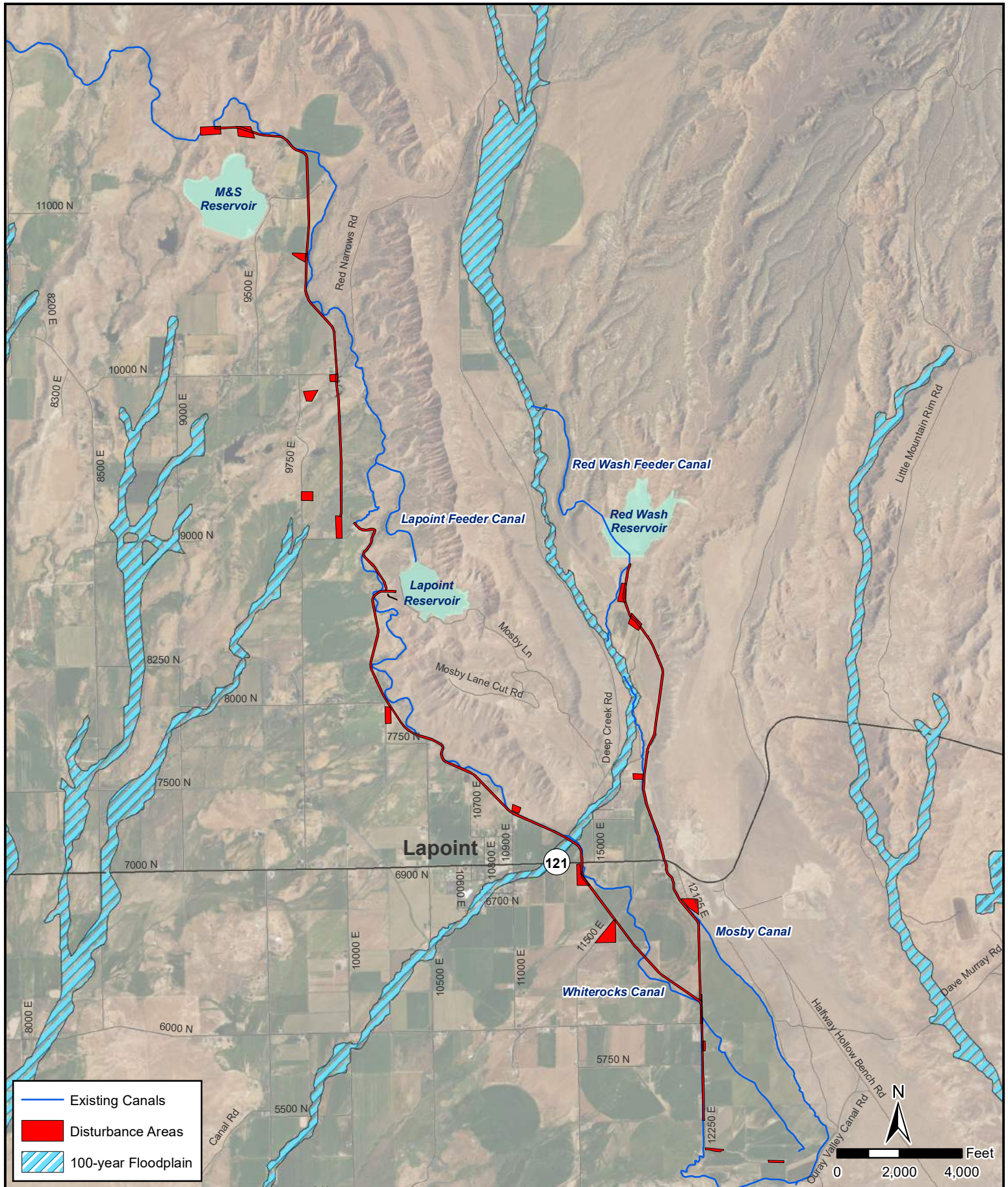
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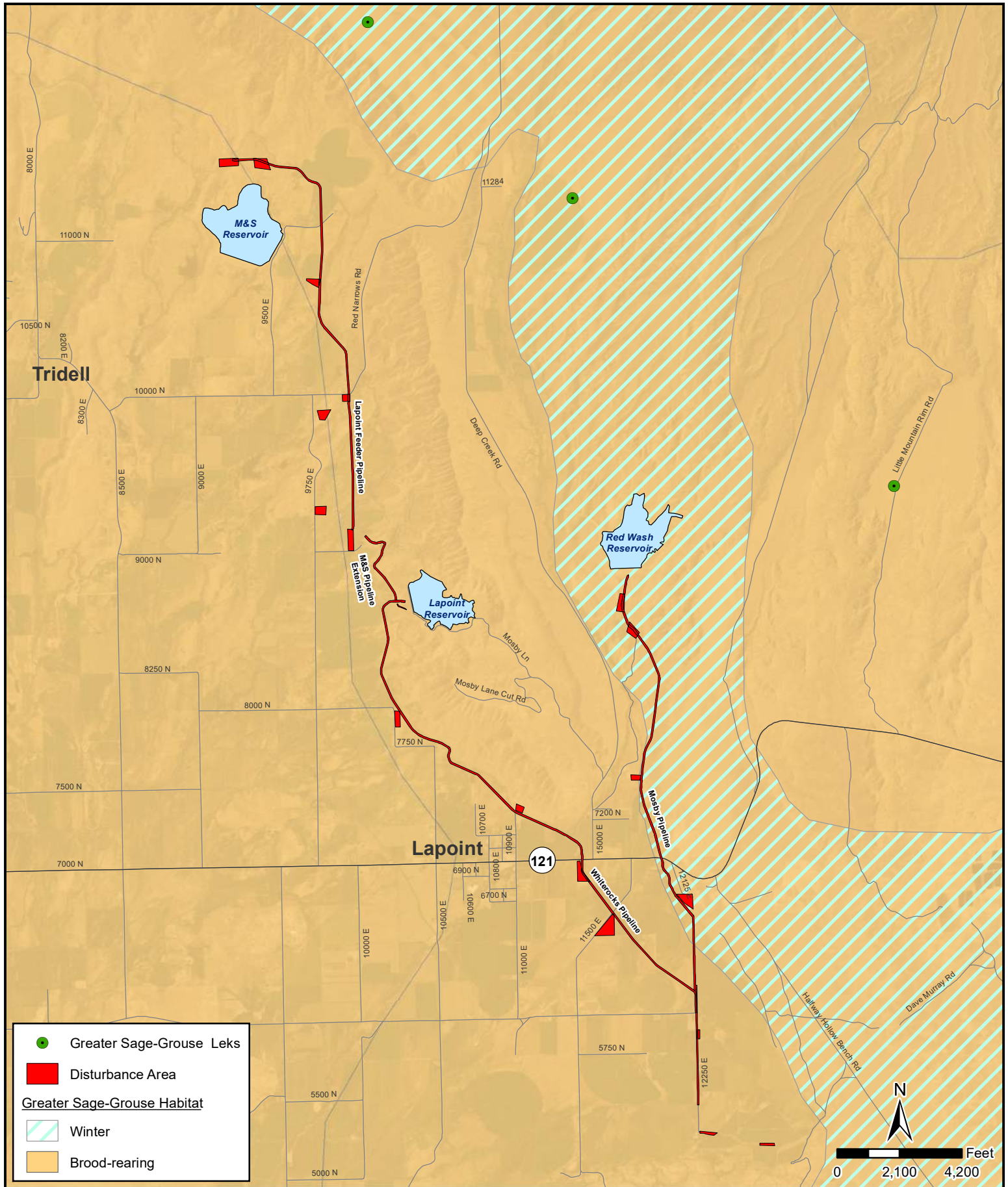
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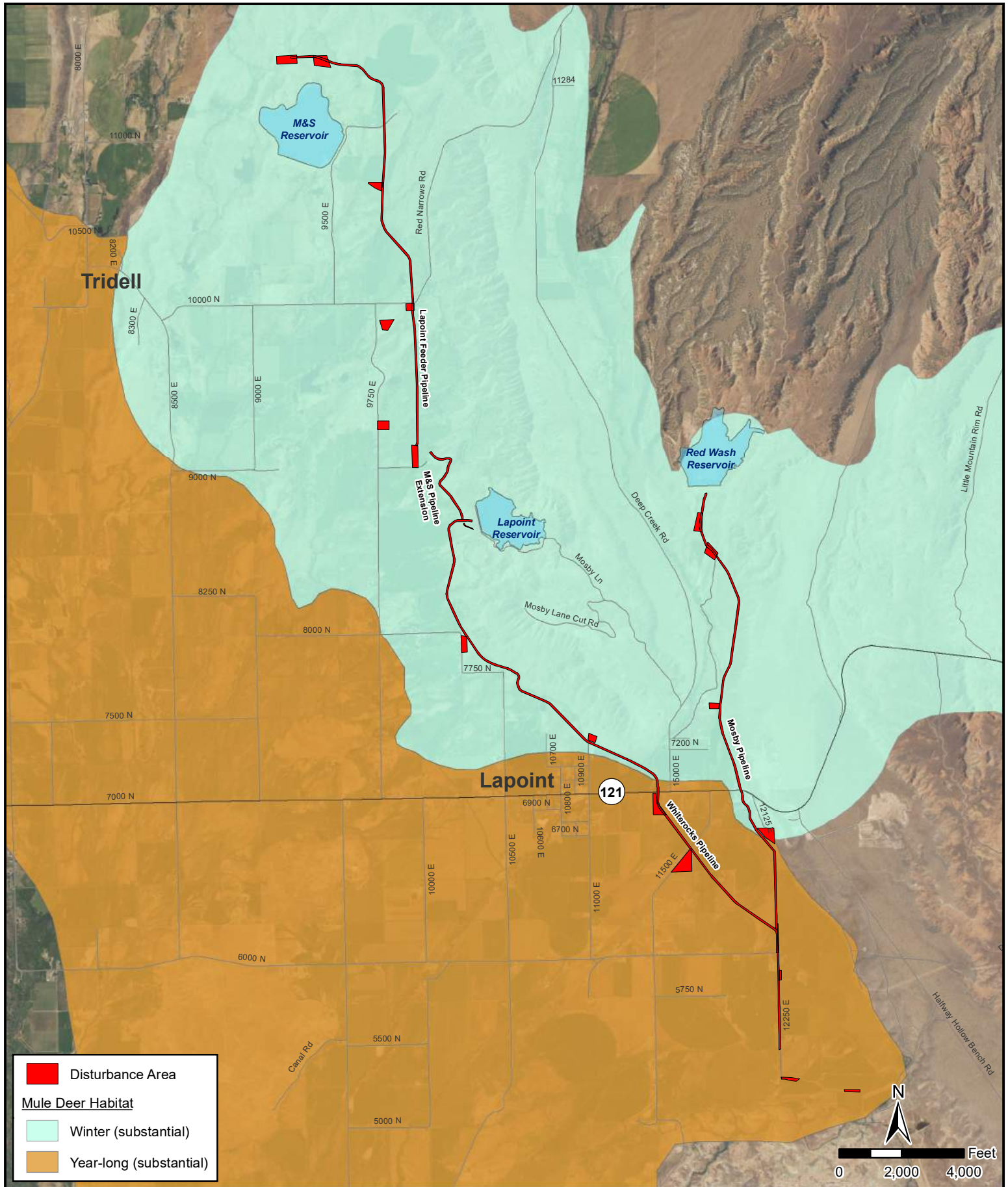
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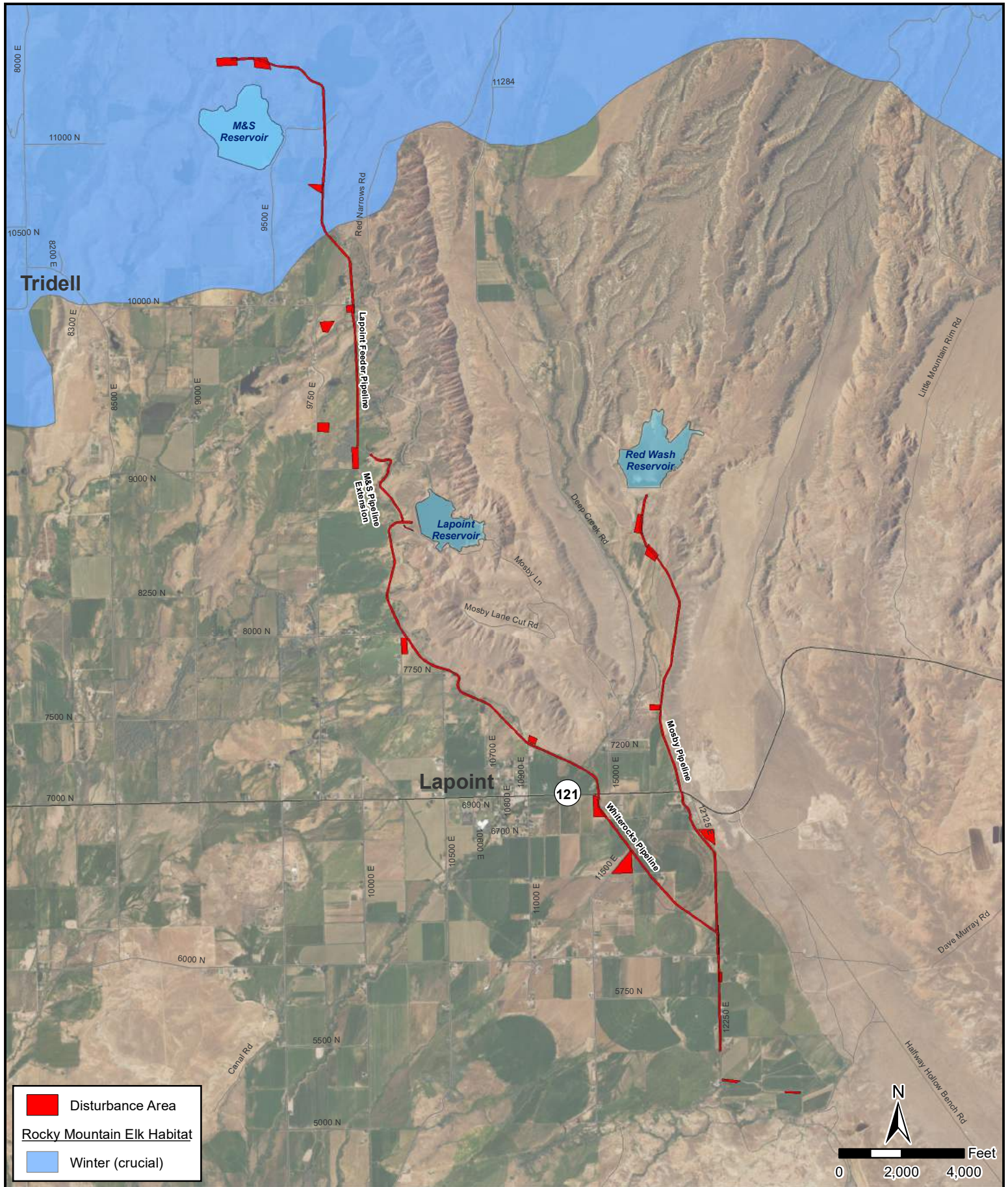
Jones & DeMille Engineering

- Shaping the Quality of Life -

800.748.5275 www.jonesanddemille.com

Whiterocks & Mosby Irrigation Companies		
Whiterocks & Mosby Canals Rehabilitation Project		
Wildlife Habitat - Mule Deer		
Map Name: H:\JDI\Proj\1607-331\Design\GIS\Maps\Environmental\EA Maps\7_Mule_Deer_Habitat.mxd		
Project Number: 1607-331	Drawn by: JEM 07-17	Last Edit: 07/11/2017

Uintah County
Scale: 1" = 4,000'
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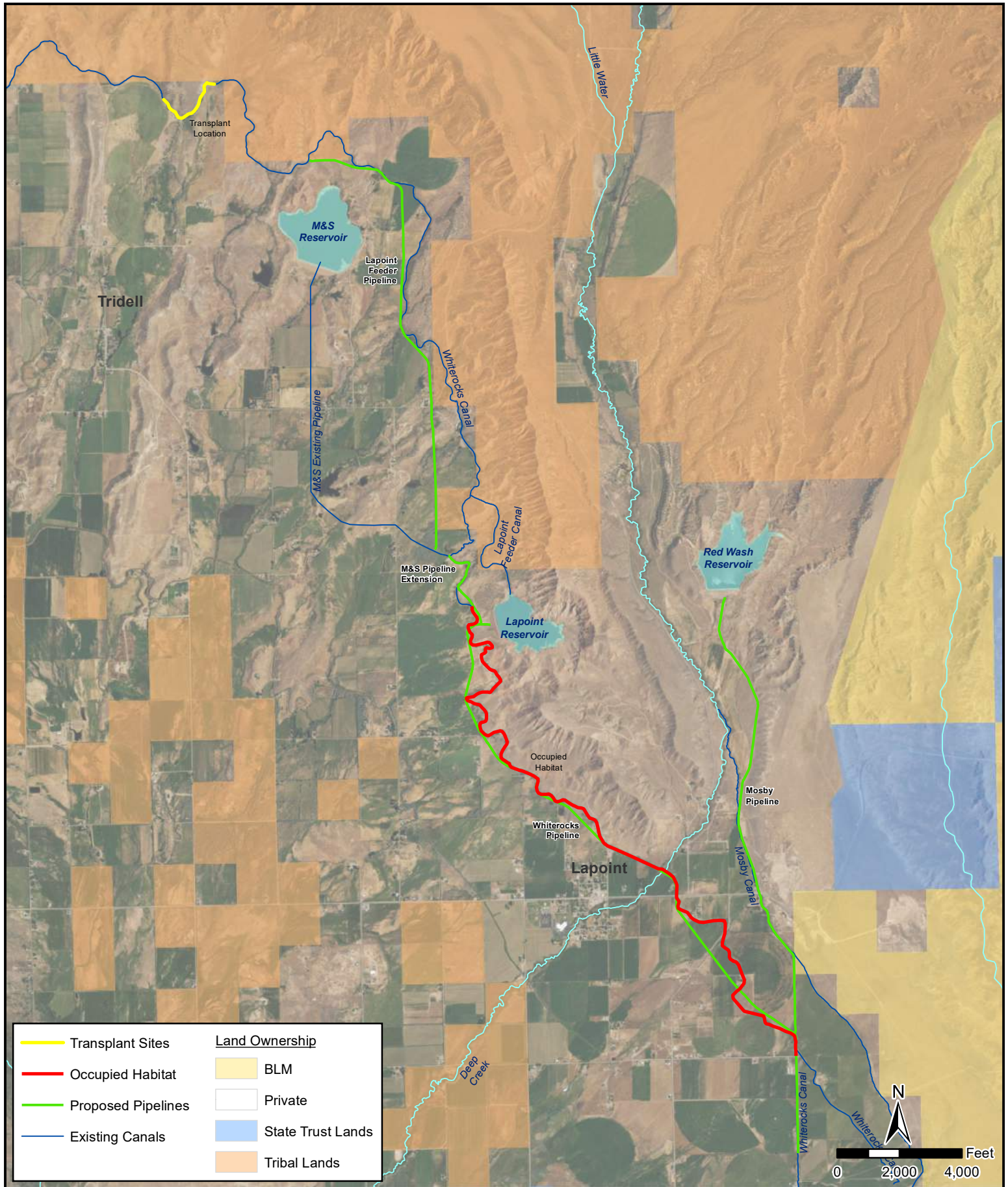

Jones & DeMille Engineering









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Whiterocks & Mosby Irrigation Companies		
Whiterocks & Mosby Canals Rehabilitation Project		
Wildlife Habitat - Rocky Mountain Elk		
Map Name: H:\JDI\Proj\1607-331\Design\GIS\Maps\Environmental\EA Maps\8_Mountain_Elk_Habitat.mxd		
Project Number: 1607-331	Drawn by: JEM 07-17	Last Edit: 07/10/2017

Uintah County
Scale: 1" = 4,000'
8



 Transplant Sites	<u>Land Ownership</u>
 Occupied Habitat	 BLM
 Proposed Pipelines	 Private
 Existing Canals	 State Trust Lands
	 Tribal Lands



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Whiterocks & Mosby Irrigation Companies	
Whiterocks & Mosby Canals Rehabilitation Project Ute Ladies' Tresses Transplant Sites	
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Project Number: 1607-331	Drawn by: JEM 07-17
Last Edit: 07/11/2017	

<p>Uintah County</p> <p>Scale: 1" = 4,000'</p> <p>9</p>
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Appendix B. Cultural Resources Letters



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Brad Westwood
Director

July 26, 2017

Wayne G. Pullan
Area Manager
Bureau of Reclamation
Provo Area Office
302 East 1860 South
Provo, Utah 84606-7317

RE: Whiterocks and Mosby Canals Rehabilitation Project U-16-MQ-0956, U-16-MQ-0957,
U-16-MQ-0958 and U-17-MQ-0429 BOR Project No. PRO-EA-16-018 - Salinity Grant

For future correspondence, please reference Case No. 17-1228

Dear Mr. Pullan:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced undertaking on July 10, 2017.

We concur with your determinations of eligibility and effect for this undertaking.

This letter serves as our comment on the determinations you have made, within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-245-7263 or cmerritt@utah.gov.

Sincerely,

Chris Merritt, Ph.D.
Deputy State Historic Preservation Officer
Archaeology

PRO Official File Copy
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JUL 31 '17

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GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Brad Westwood
Director

July 26, 2017

Wayne G. Pullan
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Sincerely,

Chris Merritt, Ph.D.
Deputy State Historic Preservation Officer
Archaeology

Appendix C. Habitat Replacement Plan

Habitat Replacement Plan

Whiterocks & Mosby Canals Rehabilitation Project



Location: Uintah County, Utah



Prepared for:

U.S. Department of the Interior
Bureau of Reclamation
Upper Colorado Region, Provo Area Office
302 East 1860 South Provo, Utah 84606

Prepared by:

Wyatt Shakespear
Jones & DeMille Engineering
1535 South 100 West Richfield, Utah 84701

September 5, 2017

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2.	Project Setting and Overview.....	1
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4.	Habitat Maintenance Strategy	2
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4.2.	Monitoring and Quality Assurance	3
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Appendix A. Habitat Evaluation

1. Introduction

This Habitat Replacement Plan (HRP) was prepared by Jones and DeMille Engineering for the Whiterocks Irrigation Company (WIC) and the Mosby Irrigation Company (MIC) to address impacts of the Whiterocks and Mosby Canals Rehabilitation Project (Project) on wetland and riparian wildlife habitat value in Uintah County, Utah. The U.S. Bureau of Reclamation (Reclamation) requires the development of a HRP under the Salinity Control Program, in accordance with Public Law 98-569. If approved, Reclamation would authorize the use of federal funds to replace nearly 14 miles of open canal with high-density polyethylene (HDPE) pipelines, which would allow landowners to transition from flood irrigation practices to pressurized sprinkler irrigation.

Reclamation estimates that the Project would reduce salt loading into the Colorado River by an estimated 1,635 tons per year. The Project would also save approximately 4,880 acre-feet of water per year by converting the unlined canal to a pressurized, piped system, eliminating losses due to evaporation and seepage.

Reclamation requires that wetland and riparian habitat areas that would be lost or impacted due to the Project be assessed according to the methods outlined in the Basinwide Salinity Control Program: Procedures for Habitat Replacement (see Appendix B of the Habitat Assessment found in Appendix A of this document). The goal of the HRP is to meet or exceed the initial Total Habitat Value (THV) by preserving, enhancing, and/or developing existing or proposed habitat areas. The purpose of this report is to detail the specific measures that would be taken to preserve wetland and riparian habitat.

2. Project Setting and Overview

The Project is located in the Uinta Basin in northeastern Utah. The Uinta Basin lies to the south of the Uinta Mountains and is fed by creeks and rivers flowing south from those mountains. The principal rivers flow into the Duchesne River, which feeds the Green River - a tributary of the Colorado River. The mountains receive about 30 inches of precipitation annually. The central portion of the Uinta Basin has an elevation of 5,000 to 5,500 feet above sea level. The average annual precipitation is about 8.3 inches, with a smaller area around Ouray and Leota receiving less than 6 inches annually.

The Project would replace nearly 14 miles of open, unlined canal with HDPE pipelines. Pipeline alignments would occur within portions of the canals; however, all canal segments disturbed by Project activities would be reshaped to pre-disturbance conditions. Canals would remain open to provide flood protection for homes and property located adjacent to the canals.

3. Existing Habitat

A habitat evaluation for the Project was conducted by Dave Snyder, Reclamation biologist, during March 2017 (see habitat evaluation in Appendix A). The purpose of the evaluation is to determine the extent

of existing wetland and riparian wildlife habitat areas that would be affected as a result of implementing the Project. Reclamation surveyed each canal segment and associated wetland and riparian habitats to verify each classified habitat's location, size, diversity, overall condition, and water source.

Reclamation's evaluation resulted in the identification of potential riparian habitat loss on two segments of the Whiterocks Canal (1.11 acres) and one segment of the Mosby Canal (0.34 acres), for a total of 1.45 acres that could be impacted by implementing the Project. Riparian habitat identified on the Whiterocks Canal is located from between the M&S Reservoir Diversion and the Whiterocks Crossing of Deep Creek. Riparian habitat identified on the Mosby Canal is located from approximately 2,700 feet upstream of and 3,000 feet downstream of State Route 121 (see Appendix A of Appendix A for habitat evaluation and location maps). The Project would dewater the Whiterocks and Mosby Canals, eliminating the irrigation related water supply for the existing riparian vegetation.

4. Habitat Maintenance Strategy

WIC and MIC would implement measures to ensure no net loss of wetland and riparian wildlife habitat value as a result of the Project. This objective would be achieved by maintaining existing riparian vegetation identified in the habitat assessment (see maps in Appendix A of Appendix A). Habitat would be maintained by releasing water into the abandoned portions of canals in a prescribed schedule (below) through the existing headgates and diversions or from the new irrigation pipeline. These water releases would provide the moisture needed to sustain the target vegetation along the canals. Water must be released at sufficient volume and frequency to saturate the root zone at least once per month during the growing season of May through September. Each canal company would be responsible for maintenance of riparian habitat on their respective canals. During construction activities, disturbance to existing trees and woody vegetation would be avoided to the maximum extent feasible. Further, construction vehicles and equipment would be inspected and cleaned prior to entry into the project area to ensure that they are free of weed seed.

4.1. Habitat Maintenance Flows

Water would be released to all segments of canal with riparian habitat as identified in the habitat evaluation (see habitat location maps in Appendix A of Appendix A). WIC would release habitat maintenance flows at the M&S Diversion location by opening a headgate at the proposed structure for the new settling pond at the head of the Lapoint Feeder Pipeline. This would allow water to flow directly into the Whiterocks Canal as it did historically. The water would continue down the Whiterocks Canal until it reaches the Deep Creek flume, where it would be released into Deep Creek. MIC would divert water through their existing diversion on Deep Creek that lies below the Red Wash Reservoir. Both MIC and WIC have a secondary option to release water by flushing their reservoir bypass valves into the existing canal, drawing water from their respective reservoirs. MIC would also install a small turnout on their proposed pipeline to water habitat and large trees on the segment of canal south of SR-121. The water release locations described above would allow WIC and MIC to water all riparian habitat segments identified in the habitat evaluation.

The following water release schedule is proposed for Habitat Maintenance Flows:

- WIC would release approximately 10 cfs of flow, at a duration of one to two days (20 to 40 acre-feet), and at an interval of at least once each month during the months of May through September.
- MIC would release approximately 3 cfs of flow, at a duration of one to two days (6 to 12 acre-feet), and at an interval of at least once each month during the months of May through September.

4.2. Monitoring and Quality Assurance

WIC and MIC representatives would be responsible to monitor riparian vegetation health and determine the efficacy of the water releases described above. If it appears that the root zone of the riparian vegetation is not becoming sufficiently saturated, the flow rate or release duration would be increased to achieve sufficient saturation. Monitoring may also determine that flow rate or release duration may be excessive and sufficient saturation of the root zone could still be achieved by decreasing the flow rate or release duration. If monitoring indicates a need for a shorter release interval (releasing water into canals more often than once each month), WIC and MIC would shorten the release interval to maintain riparian vegetation health.

Precipitation events and the subsequent stormwater runoff within the canals may reduce the required flow rate or release duration, or entirely alleviate the need to release water into the canals during a release interval. Riparian vegetation would receive sufficient saturation of the root zone at least once each month between the months of May and September, whether it be by irrigation releases into the canal or by stormwater within the canal.

5. Conclusion

The proposed habitat maintenance measures would allow for no net loss of wetland and riparian wildlife habitat value as a result of the Project. Existing riparian vegetation would be avoided by construction activities to the maximum extent possible, and measures would be taken to avoid spread of invasive weed species. WIC and MIC would monitor riparian vegetation health and evaluate the efficacy of the proposed water release schedule, adjusting the schedule as necessary to ensure the successful maintenance of riparian habitat impacted by the Project.

Appendix A. Habitat Evaluation

**An Evaluation of Fish and Wildlife Habitat Impacts
Associated with the Whiterocks and Mosby Canals
Rehabilitation Project**



Prepared by: David Snyder

United States Department of the Interior
Bureau of Reclamation
Provo Area Office

March 2017

Figure 1. Whiterocks and Mosby Canals Area Map

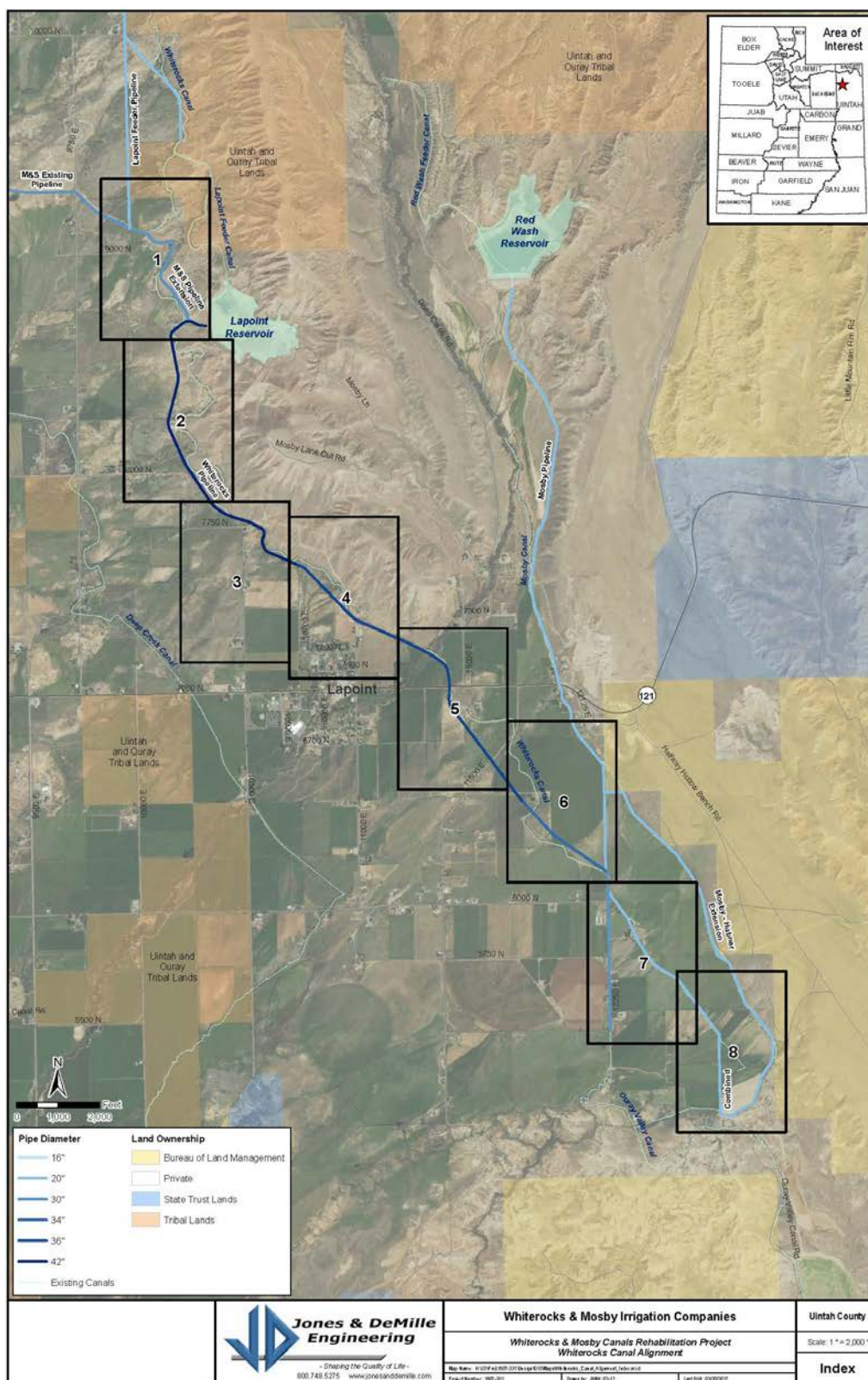
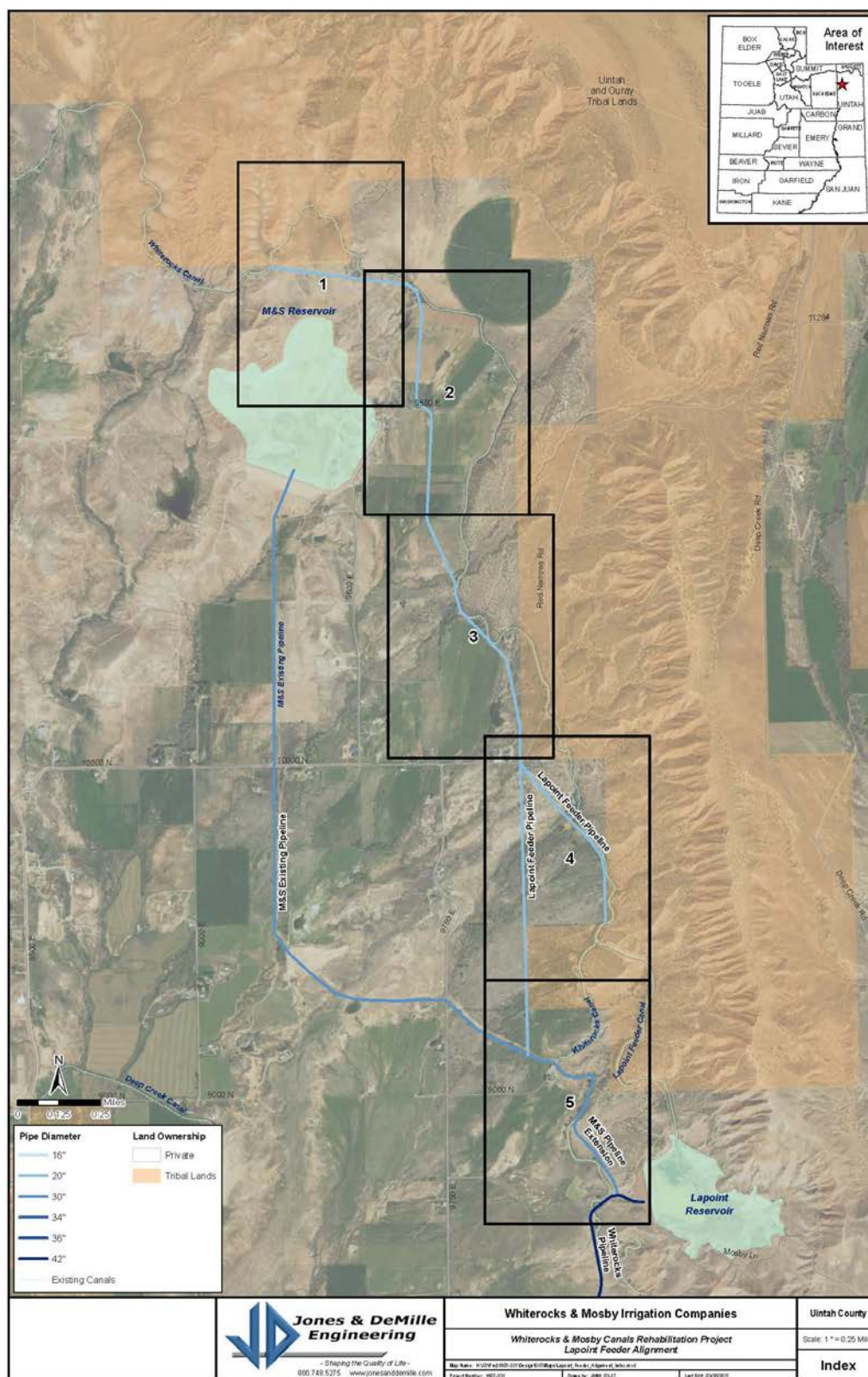


Figure 2. Whiterocks and Mosby Canals Area Map



Background

Public Law 104-20 authorizes the Bureau of Reclamation (Reclamation) to pursue and fund salinity control efforts within the Colorado River Basin. In 2015, Reclamation solicited applications for salinity control efforts within the Upper Colorado River Basin. An application from Whiterocks Irrigation Company and Mosby Irrigation Company (Companies) was submitted entitled “Whiterocks and Mosby Canals Rehabilitation Project” (Project) under this solicitation and accepted for implementation.

Reclamation will provide funding for work associated with the Project, which includes replacing 13.5 miles of open channel canal with pipe, and implementation of a habitat replacement plan. The Companies will construct, operate, and maintain the Project. Portions of the existing canals will remain open for storm water control purposes. It is anticipated that the Project will result in the annual reduction of approximately 1,635 tons of salt in the Colorado River at a cost-effectiveness value of \$61.50/ton/year.

The Project is located in the Uintah Basin in northeastern Utah. The Uintah Basin lies to the south of the Uinta Mountains and is fed by creeks and rivers flowing south from those mountains. The principal rivers flow into the Duchesne River which feeds the Green River - a tributary of the Colorado River. The mountains receive about thirty inches of precipitation annually. The central portion of the basin has an elevation of 5,000 to 5,500 feet. The average annual precipitation is about 8.3 inches, with a smaller area around Ouray and Leota receiving less than 6 inches annually.

This evaluation identifies habitat value losses anticipated as a result of implementing the Project.

Habitat Evaluation

Description of Evaluation

The purpose of the evaluation is to determine existing fish and wildlife habitats that would be affected as a result of implementing the Project. A site visit was conducted in March 2017 to identify wetland and riparian habitat associated with the Project. Google Earth Pro was used to calculate lateral lengths and habitat acreages. The Project was evaluated in six segments (Table 1).

Table 1. Description of the evaluated canal segments.

Canal Segment	Canal Length
Segment 1	12,140 feet
Segment 2	20,320 feet
Segment 3	17,110 feet
Segment 4	9,350 feet
Segment 5	5,510 feet
Segment 6	7,520 feet
TOTAL	71,950 feet

On March 21, 2017, each canal segment and wetland and riparian habitats were visited by Dave Snyder, Reclamation biologist, to verify each classified habitat's location, size, diversity, overall condition, and water source. Acreages of habitats to be lost were then calculated using Google Earth Pro.

The habitat inventory and evaluation methods followed the guidelines developed and included in Reclamation's "Basinwide Salinity Control Program: Procedures for Habitat Replacement," dated March 2013. A copy of these procedures is included in this evaluation as Appendix B.

1. Only riparian or wetland habitat is eligible for habitat replacement.
2. Only habitats that received ¼ or more of their water from canal or lateral seepage were counted. Habitats that received less than ¼ of their water from the canal or lateral seepage were not included in the final inventory.
3. In identifying the apparent source(s) of water supporting each habitat, wetland and riparian vegetation immediately down slope from a canal was attributed to canal or lateral seepage, particularly if upland type vegetation was found in the area directly upslope from the canal. Wetland and riparian vegetation along farm ditches and immediately downslope from irrigated fields was attributed to deep percolation from on-farm irrigation management. Streamside habitats and wetlands obviously associated with natural drainages were considered natural wetlands.
4. The determination of each habitats source(s) of water was made by simple ocular analysis of the habitat site, its surrounding terrain, and the location of the site in relation to its nearest potential water source(s).

Results

The canals were divided into segments of habitat, and each segment was sized and evaluated (see Appendix A for segment maps). Acreage was determined by estimating habitat width along the canal during the site visit and determining habitat length using Google Earth Pro. The formula for calculating acreage was as follows:

$$\text{Length (feet) x Vegetation Width (feet) / 43,560 = Acres of Habitat}$$

The habitat evaluation identified a total of 1.45 acres of riparian habitat associated with canal seepage (Table 2).

Canal Segment	Acreage of Habitat
Segment 1	0*
Segment 2	0.52
Segment 3	0.59
Segment 4	0**
Segment 5	0.34
Segment 6	0***
TOTAL	1.45

**Wetland and riparian habitat is non-existent in this segment.

Habitat Quality Score

The HQS for each vegetation type was multiplied by the number of acres of wetland and riparian habitat for each canal segment to calculate the THV units lost. An estimated total of 5.83 units of habitat value would be lost as a result of the Project (Table 3).

Basinwide Salinity Control Program Habitat Quality Score Sheet

Seg. ID	Veg. Diversity	Strati- fication	Native vs. Non- native	Noxious Weeds	Veg. Health	Disease Present	Interspersion of Open Water with Vegetation	Conn- ectivity	Uniqueness or Abundance	Water Supply	Alter- ation	Total	HQS	Habitat Acreage	THV	
1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
2	3	5	6	3	8			1	2	7	3	2	40	4	0.52	2.08
3	3	5	6	4	8			1	2	7	3	2	41	4.1	0.59	2.42
4	0	0	0	0	0			0	0	0	0	0	0	0	0	0
5	2	4	8	8	3			1	2	7	3	1	39	3.9	0.34	1.33
6	0	0	0	0	0			0	0	0	0	0	0	0	0	0
												Totals:			1.45	5.83

Date: 21 March 2017

APPENDIX A

Canal Segment Maps and Photos

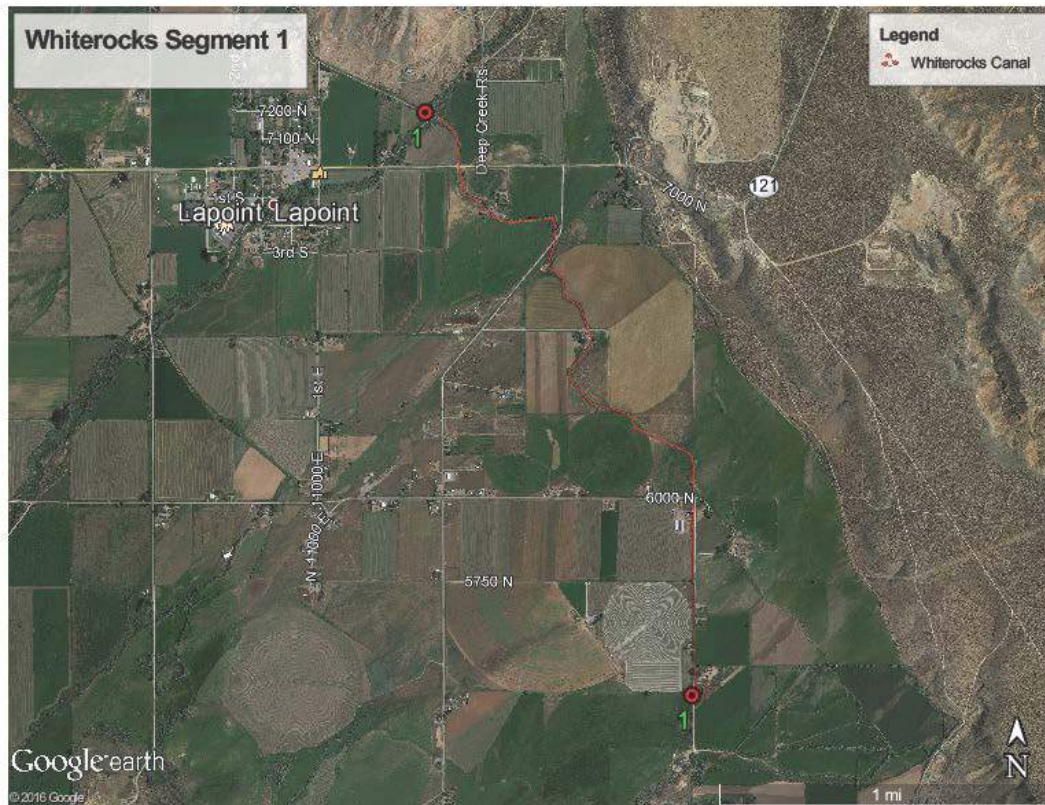


Photo 1. Segment 1 typical habitat.



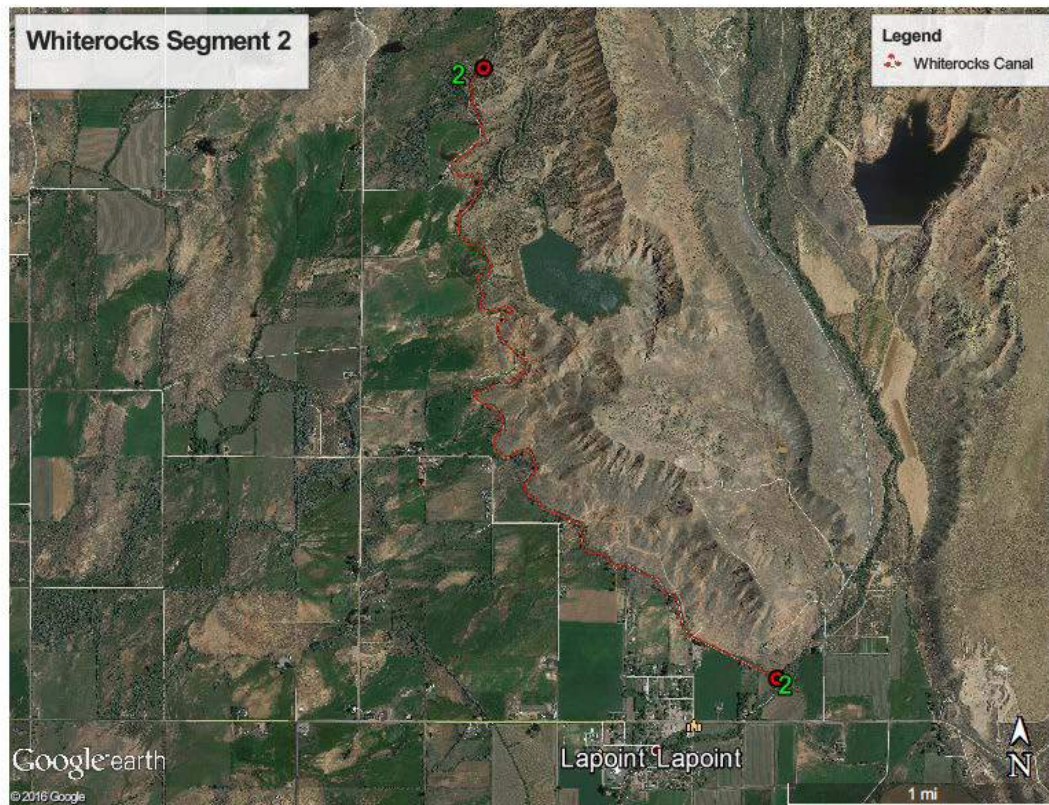


Photo 2. Segment 2 typical habitat.



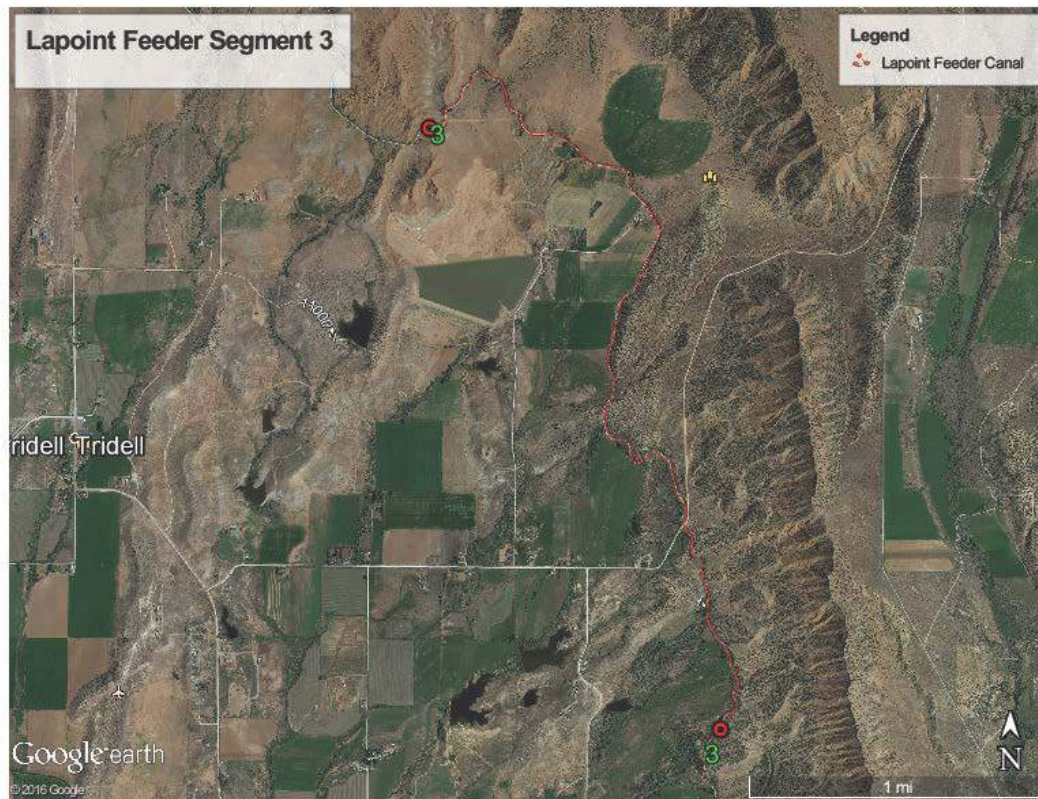


Photo 3. Segment 3 typical habitat.



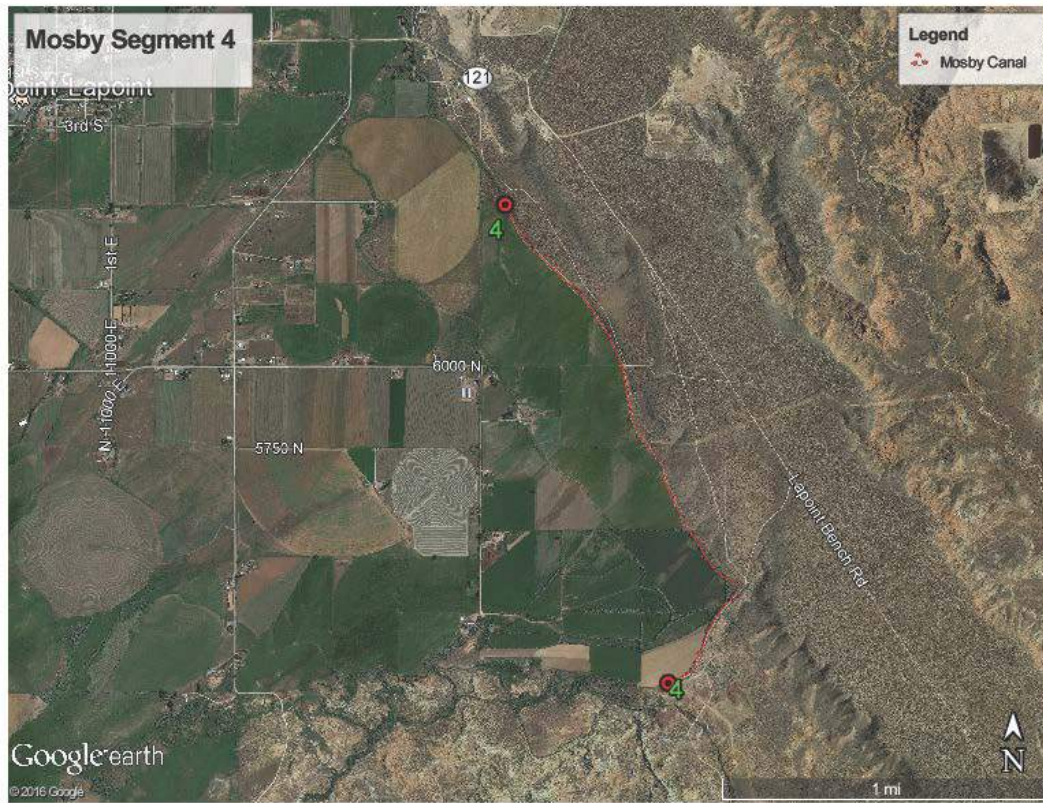


Photo 4. Segment 4 typical habitat.



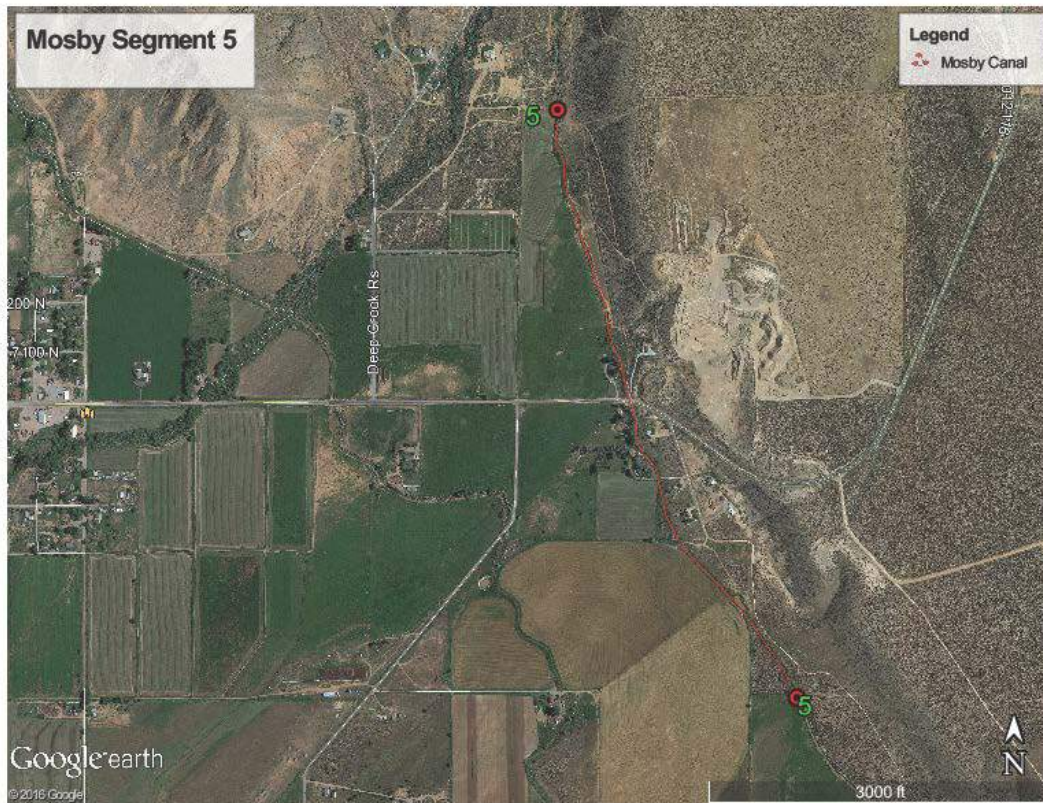


Photo 5. Segment 5 typical habitat.



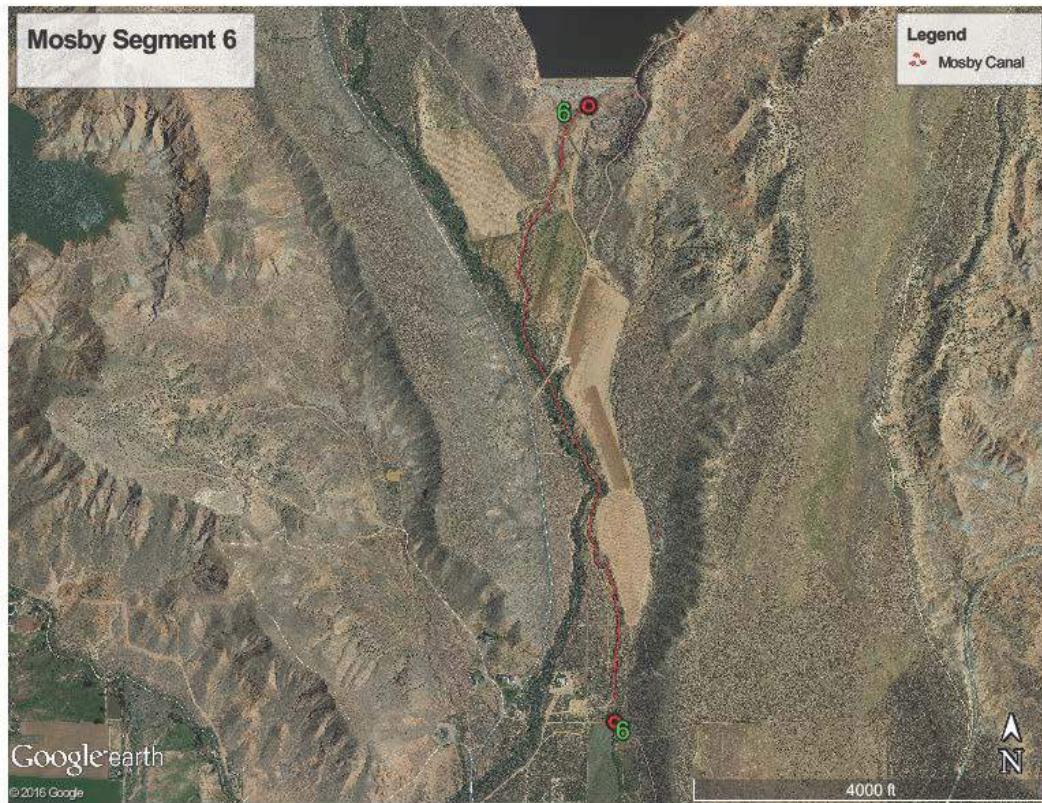


Photo 6. Segment 6 typical habitat.



APPENDIX B

March 2013

Basinwide Salinity Control Program: Procedures for Habitat Replacement

SUMMARY: Habitat Replacement requirements and procedures under salinity control programs have been prepared by a Reclamation-Fish and Wildlife Service team. Authorities for replacement are presented. Avoidance of habitat losses is preferred; where this is not possible, replacement plans should result in no net loss of habitat. A general method of determining habitat losses and replacement needs is presented. Monitoring and record keeping are discussed.

I. AUTHORITY

The requirement and authority to implement habitat replacement features were first included in the 1984 amendments, Public Law 98-569, to the Salinity Control Act, Public Law 93-320 (Act). The Act, as amended, states:

-In Section 202(a)(1)-(5) that The Secretary shall construct, operate, and maintain the salinity control units . . . consisting of measures to replace incidental fish and wildlife values foregone.

-In Section 202(b)(6) “In implementing the units authorized to be constructed pursuant to subsection (a) of this section, the Secretary shall implement measures to replace incidental fish and wildlife values foregone concurrently with the implementation of a unit's, or a portion of a unit's, related features.

The 1995 amendments, Public Law 104-20, to the Act that created the Basinwide Salinity Control Program states... “Such program shall provide for the mitigation of incidental fish and wildlife values that are lost as a result of the measures and associated works.” The Act, as amended, requires the replacement of incidental fish and wildlife habitat values foregone by the implementation of salinity control projects in the Basinwide Program. The cost of this mitigation has typically been included in the costs of the salinity control projects used in computing cost effectiveness.

II. ASSUMPTIONS AND DEFINITIONS

A. Assumptions

As described in the last section, authority is provided by the Act for a habitat replacement program to replace the habitat values foregone or lost as a result of implementation of salinity control improvements. In the original salinity-control program, prior to the development of the

Basinwide Program, habitat replacement was accomplished by Reclamation. Long-term operation and maintenance (O&M) of these properties is funded through annual Congressional appropriations, and thus, there is little concern about losing these credits over a 50 year project life.

With the advent of the Basinwide Program, a “request for proposals” (now Funding Opportunity Announcement) is used to select salinity control projects from throughout the upper Colorado River Basin (Wyoming, Utah, New Mexico and Colorado). Successful project applicants become responsible for formulation, implementation and long term O&M of their habitat replacement plans. Some proponents utilize Reclamation technical assistance for initial planning and implementation, and other applicants work independently.

Some of the basic assumptions of the habitat replacement process are:

- Habitat losses are estimated based on impacts of the salinity control project on existing habitat. If it is clear that the habitat would be lost in the short term even without the salinity-control project, the projected losses can be adjusted.
- Piping an open ditch is assumed to eliminate 100% of the seepage from that ditch. In this case, all adjacent vegetation providing habitat would be assumed to be lost unless there is some other water source nearby (e.g., an irrigated field, groundwater from another source, or natural seeps and drainages) to maintain a portion of the vegetation. Residual seepage on a lined canal might be assumed to be 5% (initially) and 30% (for concrete later in its life) of the pre-project value which could help maintain some existing habitat.
- Habitat replacement plans are developed with the intent to provide complete and concurrent replacement of losses for the life of the salinity project, typically 50 years for pipelines. Habitat replacement activity will occur at the same time as project construction with the goal of having all initial habitat replacement development completed at the same time as the salinity-control project is completed. If habitat projects do not last the required 50 years, Reclamation operates under the assumption that a revitalized project or new projects will be implemented to complete the 50 year requirement.
- Costs of replacement were to be allocated to project’s cost effectiveness value (cost per ton).
- In general, NEPA and ESA compliance are needed to implement salinity-control projects. In some cases, NEPA can be tiered off of previous NEPA documents or categorically excluded from a need for a NEPA compliance document. Reclamation is usually the lead agency for NEPA although the project applicant may be required provide necessary data and draft reports. The NEPA document must include commitments to complete habitat replacement in accordance with salinity program requirements, even if NEPA analyses determine minor effects to wildlife from the proposed action

- There is a general assumption that wetlands associated with canal and lateral seepage do not meet the definition of jurisdictional wetlands in the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands and the 1987 Corps of Engineers Wetlands Delineation Manual. If wetland sites are classified as jurisdictional under the Clean Water Act, additional permitting and mitigation may be required after consulting with the Corps of Engineers.

B. Definitions

Replacement means the creation or enhancement of habitat to replace habitat values lost as a result of salinity control measures being implemented. This results in no net loss of habitat. An example of this is as follows:

- i. The implementation of a salinity control measure is estimated to cause the loss of 20 habitat units.
- ii. To replace that loss, a replacement property is located where the 20 units can be created by enhancing habitat through plantings, grazing management, wetland development, weed control, etc.
- iii. The replacement property may have had 10 units of value in its pre-existing condition, so once the habitat replacement plan is implemented, the total habitat units on this property would be 30.

Avoidance of impacts means not allowing impacts to occur in the first place. This is the preferred approach to project implementation, when compatible with the overall project purpose. If avoidance can be achieved as regards habitat replacement for salinity control projects, there is no need to undertake habitat replacement for those projects. When impacts to habitat are **unavoidable**, then habitat replacement is required.

Post-construction **preservation** can be an acceptable means of fulfilling the habitat replacement requirements of the salinity control program. **Preservation** of existing pre-project habitat means designing and implementing a management plan that assures that the habitat will remain viable for the life of the project. For example, habitat along a canal which is also located near natural seeps or a natural watershed might be designated for preservation, with monitoring and management intervention (water supply, invasive species control, etc) as needed.

Where avoidance and preservation are not feasible, then acquisition, through fee or easements, and improvement of replacement property is the required approach.

III. PROCEDURES

A. Determining Losses and Replacement Needs

The Salinity Control Act provides for the replacement of incidental fish and wildlife values that are affected by project implementation, and provides that there be no net loss of wildlife habitat. This is not to say that acreage must be the same, but there should be no net loss in total value to wildlife.

Habitat quality will be ascertained using a standardized habitat assessment protocol. This protocol will examine various components of both the habitat impacted in the project area and proposed replacement habitat(s) to form a value of land to wildlife and to assign a Habitat Quality Score. The total wildlife habitat value of an area is determined with the following formula:

$$\begin{aligned} \text{Area (acres) of impacted habitat} \times \text{Habitat Quality Score (HQS) of the impacted habitat} &= \text{Total} \\ &\text{Habitat Value Lost (or Total Habitat Units lost)} \\ A \times \text{HQS} &= \text{THV} \end{aligned}$$

The existing total habitat value (THV) of the proposed replacement lands is determined by the same method. Then improvements are planned for replacement lands; the improvement (acres improved \times increase in existing HQS) must equal or exceed the total habitat value lost. Thus there will be no net loss of habitat value. The acreage of project impacts and replacement lands will likely be different, varying with the habitat quality scores (HQS) and improvement potential of the replacement lands.

Example:

Five miles of a lateral are to be placed in pipe. There are 5 acres of wetlands/riparian vegetation supported by seepage from the lateral. It is predicted that these 5 acres will be lost when the lateral is placed in pipe.

The Habitat Quality Score of the 5 acres are determined. In this example, the Habitat Quality is 3. Therefore the THV or Habitat Units lost will be 5 acres \times 3 = 15

Replacement lands are identified. These lands will have to have the THV improved by 15 in order to have no net loss of value. In this example the replacement area is 5 acres and has a Habitat Value Score of 4. Therefore the THV of the replacement lands is 20. This needs to be increased to 35. Improvements need to be made to the replacement lands to increase the per acre Habitat Quality Score to 7 for an improvement of 15. This improvement will result in no net loss of habitat value from the project. If jurisdictional wetlands are present within the proposed project area, Reclamation will coordinate with the Corps of Engineers to coordinate habitat replacement requirements.

1. Habitat Quality Score (HQS)

This protocol has been designed to assess the habitat quality score of a specified area in a timely and cost effective manner. Eleven criteria have been developed to examine aspects of habitat that are essential for wildlife. The first criterion, riparian or wetland habitat type must have a 'yes' answer in order to proceed to further evaluation. Each of the remaining 10 criteria should

then be scored as to what is appropriate or expected for the specific habitat type being evaluated, and some may need to be adapted to fit the specific project area. Evaluators should have an understanding of the ecological community they are evaluating.

For each criterion, the project area will be scored from 1-10, with 10 having the most value to wildlife, 1 having the least value. An example of the scoring system:

Native vs. Nonnative Vegetation Species for both Flora and Fauna.

0	2	4	6	8	10
5 % or less native species	20% native 80% nonnative	40% native 60% nonnative	60% native 40% nonnative	80% native 20% nonnative	95% or greater native species

After all criteria have been evaluated, the total points will be added together. These points will then be correlated to a habitat quality score based on percentage.

Example- There are 10 criteria to be evaluated. The total points earned in the different criteria were 86. The land would have an HQS of 8.6 (raw score of 86 divided by 10)

Habitat Quality Score (HQS)

Raw Score Total

10	100
9.0 to 9.9	90-99
8.0 to 8.9	80-89
7.0 to 7.9	70-79
6.0 to 6.9	60-69
5.0 to 5.9	50-59
4.0 to 4.9	40-49
3.0 to 3.9	30-39
2.0 to 2.9	20-29
1.0 to 1.9	10-19

2. Evaluation Criteria

- **Habitat Type:** Examine the habitat type. Riparian and wetland communities serve a broader and more diverse species base as compared to upland communities. Project needs to restore or protect riparian or wetland habitat to be eligible for further consideration.

In evaluating replacement lands, project will restore/protect riparian or wetland habitat: YES
NO

If YES, proceed to evaluate remaining 10 criteria. If NO, project will not be considered further.

- **Vegetative Diversity:** Evaluate the composition of readily observable native plant species. Examine if a variety of native plant species are present or if 1 or 2 species dominate with little variation.

0	3	5	7	10
Very Low Diversity	Low Diversity	Moderate Diversity	High Diversity	Very High Diversity

- **Stratification:** Evaluate the canopy coverage of the different height levels of vegetation. It should be taken into account that different communities will have different canopy compositions. Examine if there is there an appropriate mixture of trees, shrubs, and herbaceous species.

0	2	4	6	8	10
More than 2 layers missing	2 layers are absent	1 layer is missing, at least 1 of the other layers is not functioning	1 layer is missing, but others are functioning	All appropriate layers are present, but one is not functioning	All appropriate layers present and functioning

- **Native species vs. Nonnative species:** Evaluate the composition of native flora and fauna species as compared to nonnative species. What is the relative percentage of each?

0	2	4	6	8	10
5 % or less native species	20% native 80% nonnative	40% native 60% nonnative	60% native 40% nonnative	80% native 20% nonnative	95% or greater native species

- **Noxious Weeds:** Evaluate the presence of noxious weeds. Are noxious weeds present? How abundant are they? If weeds are present then management activities will be needed to control weeds.

0	2	4	6	8	10
Weeds cover 25% of lands	Weeds cover 20% of lands	Weeds cover 15% of lands	Weeds cover 10% of lands	Weeds cover 5% of lands	Land is weed-free


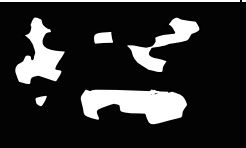
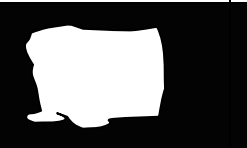

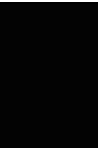
- **Overall Vegetative Condition/ Health:** Evaluate the overall health and condition of plant species. Are the plants healthy or stressed? Examine leaf color, leaf size, and percent of dead material, evidence or absence of new growth. Are any diseases or insect infestations present? If disease or infestation is present then a score no higher than 5 may be given.

0	2	4	6	8	10
60% of plants are stressed, no disease or infestation	50% or less of plants are stressed, no disease or infestation	40% or less of plants are stressed, no disease or infestation	30% or less of plants are stressed, no disease or infestation	20% or less of plants are stressed, no disease or infestation	No visible signs of disease/ infestation, 100% of plants healthy

- **If disease or infestation is present, additional scoring as follows:**

0	2	4	5
25% of plants are diseased or infested	15% of plants are diseased or infested	10% of plants are diseased or infested	5% or less of plants are diseased infested

- **Interspersion of open water with vegetation:** The special arrangement of the Wetland's open water in relation to its vegetation.

10-8 High	7-4 Moderate	3 Low	1 Low	0 Zero
				

- **Connectivity:** Examine the proximity of other wildlife habitat areas. Is the land isolated or are travel corridors present? Is the adjacent property in an established conservation area, or is no protective agreement in place?

0	3	5	7	10
Land is isolated	Adjacent to wildlife habitat with no agreement	Within wildlife habitat property with no agreement	Adjacent to an established conservation area	Within an established conservation area

- **Uniqueness or Abundance:** Examine the overall value of habitat to wildlife and its abundance or scarcity. Is the land especially unique or valuable to wildlife? Does it provide special or critical habitat? Is this habitat type common or unusual?

0	2	4	6	8	10
Exhibits very low wildlife value regardless of abundance or scarcity	Exhibits medium to low value for wildlife and is relatively abundant	Exhibits medium value for wildlife and is relatively abundant	Exhibits medium value for wildlife and is relatively scarce Seasonal use	Highly valuable for wildlife but is relatively scarce or becoming scarce Year Round use by wildlife	Highly valuable for wildlife and is very uncommon Nesting or fawning or calving present

- **Water Supply:** Examine the water supply for the area. Examine if the water is from a natural flowing stream or river, or dependent on irrigation flows or delivery systems. Examine the nature of the stream- is water present year round or only seasonally? If the habitat is dependent on water from non-natural sources to maintain its HQS, then what are the terms surrounding the water supply? Is an agreement in place?

0	2	4	6	8	10
No water supply	Water supply is uncertain	Non-natural flows are seasonal or year round flows are uncertain	Non-natural seasonal flows are guaranteed; Seasonal natural flows are uncertain	Non-natural year round flows are guaranteed or seasonal natural flows guaranteed	Perennial, unregulated stream

- **Alteration:** Examine the evidence of human alteration on the land. Look for roads, mining, railroad tracks, urban and suburban encroachment. The more disturbance that has occurred on the land the lower the score.

0	2	4	6	8	10
80% or more of land has been heavily developed/ altered	70% has been developed/ altered	50% has been developed/ altered	30% of land has been developed/ altered	10% or less of project or adjacent land	No alteration/ development observed

3. Future Habitat Value

The future habitat value of replacement lands will be taken into consideration. If lands are currently at a low HQS due to current or past management practices, but have the potential for higher habitat quality, and will be managed in a manner to restore the habitat, then the potential of the land will be evaluated. The probable net increase of HQS of the habitat after restoration will be the score used in calculating the THV. A restoration plan, including identifying a managing entity, should be developed to qualify for consideration under this method. The predicted HQS should be supported by tangible evidence such as adjacent unaltered areas or historical references.

If the lands are currently in good condition but are faced with an imminent threat that would notably reduce their value then additional points will be awarded. 1/4 of the total points earned in the criteria evaluation will be added to the score.

4. Additional Considerations

The following criteria will not be used as “points” in evaluating existing conditions or proposals; however, the criteria will be important for qualitative adjustments and negotiations with wildlife agencies.

- **Operation and Maintenance Requirements:** Evaluate habitat replacement proposals for O&M costs and for likelihood of area being maintained in the long-run. Is there an opportunity for a state/federal land management agency to manage lands under existing programs?
- **Habitat for Sensitive or Special Value Species:** Existing habitat and replacement habitat should be evaluated for federally or State listed species or their habitat. Also species of special value such as raptors should be considered.
- **Restoration of Missing Habitat:** There is added value to replacement lands that create or restore a community or habitat type that was previously missing.
- **Educational or Social Value:** The site has value to the community as an environmental education site and will be developed to utilize this potential.
- **Wildlife Species:** Based on observations, will replacement lands benefit species that utilized the impacted habitat.

B. Determining Habitat Replacement Plan

Documentation requirements for habitat replacement plans:

- **Basic salinity control project information:** Project name, applicant name, location, habitat replacement requirement.

- Approved habitat replacement plan/habitat management plan, including monitoring plan (or, a summary of approved plan).
- Monitoring reports

The goal of the salinity-control program pursuant to authorizing legislation is to assure no net loss of wildlife values. On the project management level, the goal where replacement is needed (e.g. impacts are unavoidable, and pre-project habitat cannot be reliably preserved) is to develop habitat replacement that is beneficial to wildlife, cost effective, viable and manageable for the life of the project, and meets the intent of the Salinity Control Act. This is accomplished through improvement in function and value of other habitats.

1. Criteria for habitat replacement for impacts

- i. Where habitat replacement is needed, the value of the created habitat must equal or exceed in biological value the habitat being lost as the result of a project.
- ii. An “Ideal” replacement property is one that:
 1. Is in or near the salinity-control project area so as to provide compensation for directly affected wildlife to the extent possible.
 2. Is an in-kind replacement of the particular values lost (usually riparian or wetland but sometimes upland too).
 3. Is contiguous to or connects other areas that have wildlife value, such as adjacent to perennial streams and naturally occurring wetland complexes.
 4. Would have a willing and able manager (e.g. state wildlife agency, volunteer conservation group such as Ducks Unlimited, or a city or county level agency).
 5. Has the most characteristics that might assure viability for 50 years (e.g. location, ownership/easements, level of management/maintenance needs, fits within agency and public conservation plans and priorities, availability of managing partner at no cost to Reclamation).

2. Procedures and options for applicant’s planning and designing habitat replacement projects

- i. Developmental steps
 1. Develop preliminary and final plans in coordination with Reclamation, FWS, state wildlife agencies, and landowners.
 2. Identify opportunities for habitat projects closely resembling the Ideal property model described above.
 3. Determine total habitat value of lands impacted by proposed action.
 4. Develop plan to provide replacement lands that provide sufficient increase in total habitat value to offset losses.
 5. Include monitoring, adaptive management, and reporting in the plan.

3. Option for Reclamation to implement habitat replacement plans

There are Pros and Cons as to whether Reclamation should, in the future, allow for the option of accepting responsibility for implementing project-specific habitat replacement for an applicant. We have historically allowed for this option by withholding project funds. In one case, the Provo Office must still come up with habitat replacement and management for 32.43 acres in the Price-San Rafael project area for 9 projects (an average of 3.6 acres per project). Below is a quick listing of ‘pros’- continuing to allow the pay-Reclamation-to-do-HR option, and ‘cons’- requiring the applicant to prepare and submit for approval a HR plan that assures replacement of wildlife values foregone for the life of the project.

PROS	CONS
For small acreage habitat needs, allows for consolidation into larger, contiguous wildlife tracts that would have more long term value and viability	Increases Reclamation’s salinity program staff workload and costs
Better assurance of viable habitat replacement for the life of the project	Reclamation is ‘not a land management agency’; not necessarily long term guarantee if future budget cuts
Increased opportunities to partner with state or Federal land or wildlife agencies to concurrently meet their needs while fulfilling salinity habitat requirements	Not necessarily long term assurance if partnering agency is victim of future budget cuts
Better assurance of willing participants in the process	Might be detrimental to desired goal of ‘in kind in place’ replacement (consolidated wildlife properties might be some distance from area of wildlife habitat loss).
Makes it easier on the applicant who is not a wildlife habitat expert	Potential loss of educational opportunity to foster local interest in wildlife conservation
Better accountability between Reclamation and Salinity Control Forum on good habitat replacement	Years later we are still on the hook for some projects- and getting them done goes to the end of the line in deference to getting newer projects in place.

4. Options for locating projects

With increasing land values, urbanization and small scale salinity projects (when compared to Salinity Control Units, i.e. Grand Valley) being implemented, purchasing properties for development for most habitat replacement projects may not be a realistic option. Partnerships with other agencies can stretch limited funding and accomplish multiple objectives. Listed below are few options to assist in planning habitat replacement projects.

- Are there federal, state, county or local government properties with proposed habitat projects that need funding for implementation? Examples include: national wildlife refuges, national parks and conservation areas, wilderness study areas, areas of critical environmental concern, state wildlife areas, state

parks, county-designated open space areas, and conservation easements. Agencies may agree to provide long-term operation and maintenance if habitat projects fit within their long-range plans and the anticipated O&M costs are limited.

- Are there properties listed in above without planned habitat enhancement projects that have potential for habitat development or enhancement?
- Are there lands under federal, state, or local jurisdictions adjacent to properties described above that could be developed and incorporated by the jurisdiction (i.e. adding adjoining land to a state wildlife area)?
- Does the applicant own or control lands with potential for habitat replacement? Ideal properties would include those along rivers or streams where sufficient groundwater and/or irrigation is available to support riparian and wetland species. Measures need to be developed to assure that the habitat replacement is maintained for the life of the salinity control project implemented (normally 50 years for piping projects).

C. Habitat replacement written plans

General requirements: The habitat replacement plan should include:

- Description of proposed salinity control project.
- Description and quantification of salinity project habitat impacts
- Description of proposed habitat replacement plan, including development and O&M.
- Quantification of net increase in habitat value that result from the habitat replacement plan.

D. Review procedures

Habitat replacement plan will be reviewed by Reclamation and wildlife agencies. Plan will require approval by Reclamation prior to implementation of salinity control activities

IV. Role of Fish and Wildlife Service and State & Tribal Wildlife Agencies

The FWS participates in the Salinity Control Program pursuant to authorities and responsibilities set forth in the Endangered Species Act, Fish and Wildlife Coordination Act, Clean Water Act, National Environmental Policy Act, and the Migratory Bird Treaty Act. These authorities are not always applicable; however, Reclamation believes that voluntary coordination with the FWS on all program habitat replacement projects is appropriate and beneficial.

The FWS participates in the Salinity Control Program by providing technical assistance on fish and wildlife resource impact assessment, restoration, and management and acting as liaison with

and to state wildlife management agencies. The FWS also provides independent review and oversight of program aspects dealing with fish and wildlife resources, including our assessment of the degree to which fish and wildlife have received due consideration in project planning and incidental fish and wildlife values foregone have been replaced.

Scope of work for FWS pertaining to the basinwide program contains this:

- Shall provide written evaluations or recommendations to Reclamation for the planning, design, and development of habitat replacement plans for Basinwide Program projects throughout the Upper Colorado River basin. Such evaluations or recommendations will be for the purpose of assisting Reclamation in assuring the habitat replacement commitments are met.
- Shall assist in preparing a “Score Sheet” table, in collaboration with Reclamation, showing the habitat replacement needs, i.e. values and/or acres, for each of the Basinwide Program projects and the habitat replacement that has occurred with these projects.

Coordination with State and Tribal Wildlife Agencies:

- Reclamation will provide state or tribal wildlife agencies copies of all wildlife agreements with a request for their review, comments and ultimate approval of the agreement prior to its implementation. The state and tribal wildlife agencies will be encouraged to contact the FWS salinity coordinator to discuss the agreements prior to their final approval.

V. Monitoring requirements

Final payment for salinity work should be made pending sufficient progress on habitat replacement work. Once a property has been developed for salinity project wildlife replacement, the proponent is responsible for long-term monitoring to determine if habitat replacement remains successful. Habitat plans should commit proponents to monitoring for life of project. In addition, Reclamation will monitor each property at least once a year to ensure that it is performing as intended and attaining or enhancing wildlife values.

- Site visits are conducted at least once a year to verify condition of property and allow for follow-up with applicant (or property manager if different) on any issues/concerns that need to be addressed.
- When applicable set up photo points of area of interest (Example: pre and post pictures of grazing).
- Coordination with property manager occurs as needed throughout the year to ensure management in accordance with approved plan or if necessary, revise plan in coordination with FWS and DWR as conditions change.
- Reclamation will direct applicants to repair any determined deficiencies.

Appendix D. IPaC Report



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331

<http://www.fws.gov>

<http://www.fws.gov/utahfieldoffice/>



In Reply Refer To:

June 27, 2017

Consultation Code: 06E23000-2017-SLI-0359

Event Code: 06E23000-2017-E-01092

Project Name: Whiterocks and Mosby Canals Rehabilitation Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office

2369 West Orton Circle, Suite 50

West Valley City, UT 84119-7603

(801) 975-3330

Project Summary

Consultation Code: 06E23000-2017-SLI-0359

Event Code: 06E23000-2017-E-01092

Project Name: Whiterocks and Mosby Canals Rehabilitation Project

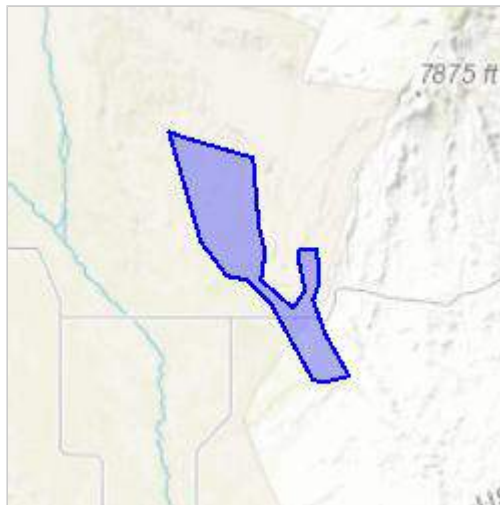
Project Type: AGRICULTURE

Project Description: Located in Uintah County, Utah, the project would dewater portions of the Whiterocks and Mosby Canals for the purposes of 1) increasing the efficiency of the existing irrigation system, 2) reduce the water lost to seepage, evaporation, and operational water losses, and 3) reduce salt loading in the Colorado River System. This project is being funded with Colorado River Basin Salinity Control Program funds through the United States Bureau of Reclamation. Construction for this project would begin in the early Fall of 2017, possibly extending into 2018.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/40.42860213619448N109.8168996178457W>



Counties: Uintah, UT

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Canada Lynx (<i>Lynx canadensis</i>) Population: Contiguous U.S. DPS There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened

Birds

NAME	STATUS
Mexican Spotted Owl (<i>Strix occidentalis lucida</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. DPS There is a proposed critical habitat for this species. Your location is outside the proposed critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bonytail Chub (<i>Gila elegans</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) (<i>Ptychocheilus lucius</i>) Population: Wherever found, except where listed as an experimental population There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub (<i>Gila cypha</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker (<i>Xyrauchen texanus</i>) There is a final critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses (<i>Spiranthes diluvialis</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159	Threatened

Critical habitats

There are no critical habitats within your project area.

Appendix E. Paleontological Letter



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Utah Geological Survey

RICHARD G. ALLIS
State Geologist/Division Director

July 3, 2017

Wyatt Shakespear
Jones & DeMille Engineering
1535 South 100 West
Richfield UT 84701

RE: Paleontological File Search and Recommendations for the Whiterocks and Mosby Canals
Rehabilitation Project, Uintah County, Utah
U.C.A. 79-3-508 compliance; literature search for paleontological specimens or sites

Dear Wyatt:

I have conducted a paleontological file search for the Whiterocks and Mosby Canals Rehabilitation Project in response to your request of July 3, 2017. There are no paleontological localities recorded in our files within this project area. Quaternary and Recent alluvial deposits that are exposed along most of the project rights-of-way have a low potential for yielding significant fossil localities (PFYC 2). However, there may be exposures of the Eocene Duchesne River Formation, especially in the northern part of the project area, that have a high potential for yielding significant fossil localities (PFYC 4) so please be aware of potential impacts to paleontological resources if these deposits are impacted by ground disturbing activities. Otherwise, unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden
Paleontological Assistant

Appendix F. Section 7 Consultation with USFWS



United States Department of the Interior

BUREAU OF RECLAMATION
Upper Colorado Region
Provo Area Office
302 East 1860 South
Provo, UT 84606-7317

IN REPLY REFER TO:

PRO-634

ENV-6.00

JUL 05 2017

MEMORANDUM

To: Field Supervisor, U.S. Fish and Wildlife Service, 2369 West Orton Circle, Suite 50,
West Valley City, UT 84119-7603
Attention: Mr. Larry Crist

From: Wayne G. Pullan
Area Manager

WAYNE PULLAN

Subject: Request for Formal Section 7 Consultation Under Section 7(a)(2) of the Endangered
Species Act on the Whiterocks and Mosby Canals Rehabilitation Project –
Consultation Code: 06E23000-2017-SLI-0359

The Bureau of Reclamation requests formal Section 7 consultation on the Proposed Action to replace 14 miles of the open, unlined Whiterocks and Mosby Canals in and around Lapoint, Uintah County, Utah with 10.6 miles of underground, pressurized pipeline. The Proposed Action is needed to increase the efficiency of the existing irrigation system, reduce the water lost to seepage, evaporation, and operational losses, and reduce salt loading in the Colorado River system. The Proposed Action would allow Whiterocks Irrigation Company and Mosby Irrigation Company (Companies) to more efficiently irrigate all their serviced lands.

This Section 7 consultation, pursuant to section 7(a)(2) of the Endangered Species Act is between the U.S. Fish and Wildlife Service (Service) and Reclamation. The Service sent an Official Species List of endangered, threatened, and candidate species that occur in the area of influence of the Proposed Action to Jones and DeMille Engineering, the Companies consultant. That list included Mexican Spotted owl (*Strix occidentalis lucida*), Yellow-Billed Cuckoo (*Coccyzus americanus*), Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), Humpback chub (*Gila cypha*), Razorback sucker (*Xyrauchen texanus*), Ute ladies'-tresses (*Spiranthes diluvialis*), and Canada Lynx (*Lynx canadensis*).

Table 2 of the attached Biological Assessment (BA) identifies all listed species potentially present in the project study area, listing status, designated critical habitat, and occurrence of these species in the study area. Of the eight species identified, only one species, the Ute ladies'-tresses, had potential to occur within the study area and has been identified within the study area. The BA specifically examines the direct, indirect, and cumulative effects of the Proposed Action

on the Ute ladies'-tresses. It has been determined that implementing the Proposed Action will have "no effect" on all other species listed in Table 2.

On the basis of anticipated effects, Reclamation concludes that the Proposed Action would not affect the Mexican Spotted owl, Yellow-Billed Cuckoo, Bonytail chub, Colorado pikeminnow, Humpback chub, Razorback sucker, and Canada Lynx. No critical habitat exists for these species in the project study area. Reclamation also has determined that the Proposed Action may affect, and is likely to adversely affect the Ute ladies'-tresses. No critical habitat exists for this species in the project study area. Reclamation requests concurrence with this determination from the Service.

If you have any questions, please contact Mr. David Snyder at dsnyder@usbr.gov or 801-379-1185.

Attachment

cc: Ms. Rita Reisor
Botanist, U.S. Fish and Wildlife Service
2369 West Orton Circle Suite 50
West Valley City, UT 84119-7603
(w/att)

✓ Mr. Wyatt Shakespear
Environmental Specialist, Jones and
DeMille Engineering, Inc.
1535 South 100 West
Richfield, UT 84701

Ms. Jenna Jorgensen
Environmental Specialist, Jones and
DeMille Engineering, Inc.
1535 South 100 West
Richfield, UT 84701
(w/o att to each)



United States Department of the Interior

FISH AND WILDLIFE SERVICE



IN REPLY REFER TO
FWS/R6
ES/UT
06E23000-
2017-F-0427

Utah Field Office
2369 West Orton Circle, Suite 50
West Valley City, Utah 84119

OCT 03 2017

Memorandum

To: Wayne Pullman, Area Manager, Bureau of Reclamation, Upper Colorado Region,
302 East 1860 South, Provo UT, 84606

From: *for* Utah Field Supervisor, Ecological Services, U.S. Fish and Wildlife Service,
West Valley City, Utah *Paul E. Albeto*

Subject: Conclusion of section 7 consultation for the Whiterocks and Mosby canal
rehabilitation project

In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), this transmits our final biological opinion (BO) based on review of the Bureau of Reclamation's (BOR) Provo Area Office proposed Whiterocks and Mosby canal rehabilitation project (hereafter, Project) and its effects on Ute ladies'-tresses (*Spiranthes diluvialis*). This BO is based on information provided in your July 2016 request for formal consultation, biological assessment (BA), in-person meetings, and email correspondence (see Consultation History, below).

CONSULTATION HISTORY

This section summarizes significant steps in the consultation process:

February 10, 2017: We met with staff from your office and the canal companies at our office.

April 6, 2017: We received an email with your proposed mitigation plan.

April 17, 2017: We discussed project details and proposed mitigation with your office during a phone call.

April 21, 2017: Your office emailed our office a map and photos of potential transplant locations.

May 5, 2017: We attended a site visit with your staff to identify potential transplant locations.

May 8, 2017: We received an email from the third party contractor with specific transplant site identified on the field visit.

July 11, 2017: We received the request for consultation and biological assessment from your office.

August 20, 2017: We received an email from the biological consultant with a summary of the third year of survey results for Ute ladies'-tresses.

August 23, 2017: We emailed your office requesting additional information on Russian olive (*Elaeagnus angustifolia*) treatment measures.

September 5, 2017: We emailed your office requesting additional survey information.

BIOLOGICAL OPINION

1. DESCRIPTION OF THE PROPOSED ACTION

The Project is located near Lapoint in Uintah County, Utah, where the Project proponent proposes to replace approximately 14 miles of open, unlined irrigation canal with buried pressurized pipelines. The Whiterocks Canal will be abandoned from the M&S diversion structure to the end of the canal, totaling approximately 10.2 miles. A settling pond will be constructed at the M&S diversion structure and water will enter the Lapoint Feeder Pipeline. This 20-inch high density polyethylene pipeline will run approximately 2.9 miles (15,100 feet) south until it connected with the existing M&S Pipeline. The 30-inch diameter M&S Extension Pipeline will be installed from the end of the existing M&S Pipeline and will extend approximately 0.6 miles (3,100 feet) to connect with the proposed Whiterocks Pipeline. The Whiterocks Pipeline will connect to the outlet of Lapoint Reservoir and run approximately 4.3 miles (22,700 feet) south to the end of the project. This pipeline will range from 42 to 30 inches in diameter. The Mosby Canal will be abandoned from the outlet of Red Wash Reservoir to the end of the canal, totaling approximately 3.7 miles. The 20-inch Mosby Pipeline will connect to the Red Wash Reservoir outlet and run approximately 2.8 miles (14,900 feet) south, where it will tie in to the proposed White rocks Pipeline.

The project will consist of both temporary and permanent areas of disturbance. Temporary disturbance will consist of clearing vegetation from the staging areas and the temporary 60-foot easements along the pipeline alignment, as well as excavating the trench for pipelines within the easements. Permanent disturbance will consist of excavating the new settling pond at the beginning of the Lapoint Feeder Pipeline alignment, constructing two small road segments along the Whiterocks Pipeline alignment, and maintaining a permanent 30-foot pipeline easement that will remain for operation and maintenance of the pipelines. Constructed pipelines will total approximately 10.6 miles in length.

Once construction is complete, areas through agricultural fields will be reseeded and cultivated by private landowners. Areas where the pipeline alignment occurs within or near the canal prism

will be restored to pre-construction conditions. Both the Whiterocks and Mosby Canals will remain in place in order to continue intercepting storm water runoff from areas upslope of the canals.

Applicant Committed Conservation Measures

The following applicant committed conservation measures will apply:

General

1. Habitat flows will be utilized on a periodic basis to maintain deep-rooted vegetation along the Whiterocks Canal north of the Deep Creek crossing and a portion of the Mosby Canal. The quantity and frequency of these flows will be determined in consultation and coordination with qualified botanists, as well as engineers from the Salinity Control Program.

Salvage and Relocation

1. BOR will compensate for the loss of Ute ladies'-tresses individuals from Project activities by salvaging, relocating, and monitoring the 208 individual plants found during the 2017 survey.
2. Ute ladies'-tresses transplant locations will be identified by a qualified botanist in coordination with our office prior to dewatering of the canal.
3. Transplanting of identified individuals will be overseen by a qualified botanist and will occur in September-October of 2017, after the flowering stalks have senesced.
4. Transplanting will be completed according to protocols used previously by the BOR on a similar project.
5. The contractor or responsible representative will coordinate the salvage and relocation efforts to minimize the amount of time the plants are maintained out of the ground.
6. The BOR or responsible representative will develop and finalize a monitoring plan for the salvaged and transplanted Ute ladies'-tresses. The plan will be reviewed and approved by our office. A minimum of three consecutive years of monitoring will be performed. Monitoring reports will be submitted to our office by December 31st, annually.
7. The transplant sites will be protected from domestic livestock grazing the first year of establishment, though October 2018.
8. Where necessary, Russian olive will be removed at transplant sites using accepted methods of removal. Removal will occur prior to transplanting of the individuals in 2017. Follow up treatments will occur as necessary, and transplant areas will be marked in order to avoid impacts.

Buried Pipeline

Since no Ute ladies'-tresses were found in the 2017 surveys for the buried pipeline portion of the project, and because a buried pipeline is considered a temporary disturbance, the conservation measures identified below will be applied where the buried pipeline intersects suitable habitat. The BOR will:

1. Have a qualified botanist onsite to will flag areas of suitable habitat within each reach prior to construction activities, and assist the contractor with establishing ingress and egress areas to avoid and minimize impacts to suitable habitat.
2. Clean equipment to remove noxious weeds/seeds and petroleum products prior to moving on site.
3. Avoid suitable habitat where possible. When avoidance of suitable habitat is not possible, the upper part of the soil profile shall be salvaged and retained as intact as possible during construction. The soil profile shall be repositioned on the appropriately grazed backfilled trench to maintain a level soil surface and be consistent with pre-construction hydrology.
4. Minimize soil disturbance in suitable habitat by operating heavy equipment on top of temporary earth fills above geotextile mats.
5. Minimize soil erosion in wetland areas with the use of silt fences.
6. Not place excavated fill material in wetland areas.
7. Relocate salvaged soils to an appropriately graded location.
8. Re-grade disturbed areas to their natural contours and re-vegetated with appropriate native plant species.
9. Fuel of machinery off site or in a confined, designated area to prevent spillage into waterways and wetlands.
10. Will not stockpile materials in the riparian area or wetland areas.
11. Ensure that fill materials will be free of fines, waste, pollutants, and noxious weeds/seeds.
12. Ensure that equipment will work from the top of the bank or from the channel to minimize disturbance to the riparian area and to protect the banks. Heavy equipment will avoid or minimize crossing and/or disturbing wetlands.
13. Minimize ingress and egress access with suitable habitat.
14. Sort excavated soils into mineral soils and top soils. When backfilling a disturbed site, top soils should be placed on the surface to provide a seed bed for native plants.
15. Monitor disturbed areas for noxious and undesirable plant species during construction and control actions should be implemented if necessary by the construction contractor.
16. Revegetate disturbed areas (work site(s), ingress, egress, stockpile site(s), pit) when appropriate after construction with native plants or certified weed-free native seed. The planting should be monitored for success. If the planting fails it should be reseeded/planted.

1.1 Action Area

The project action area is defined in 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

For the purpose of our evaluation of impacts to all species, we define the action area to include the direct Project footprint of actions, the 4.7 miles of Whiterocks canal, all construction area, staging areas, ingress and egress areas, spoils areas, and the transplant area in the upper section of Whiterocks canal. Therefore, the action area is approximately 16,771 acres.

2. STATUS OF THE SPECIES

2.1 Regulatory Status

We listed Ute ladies'-tresses as threatened in its entire range under the Act on January 17, 1992 (USFWS 1992a). No critical habitat is designated for the species. A draft recovery plan was prepared, but not finalized (USFWS 1995). The descriptions that follow are derived from a draft recovery plan, a range-wide status review (Fertig *et al.* 2005), and additional sources as necessary.

2.2 Species Description and Taxonomy

Ute ladies'-tresses was first described as a species in 1984 by Dr. Charles J. Sheviak from a population discovered near Golden, Colorado (Sheviak 1984). The species is a perennial orchid (member of the plant family Orchidaceae) that first emerges above ground as a rosette of thickened leaves, and is very difficult to distinguish from other vegetation given the dense herbaceous vegetation where the species often grows. Its leaves are up to 1.5 cm (0.6 in.) wide and 28 cm (11 in.) long; the longest leaves are near the base. The usually solitary flowering stem is 20 to 50 cm (8 to 20 in.) tall, terminating in a spike of 3 to 15 white or ivory flowers. Flowering generally occurs from mid-July through August. However, in some locations the species may bloom in early July, or may still be in flower as late as early October, depending on elevation and timing of high water flows.

Ute ladies'-tresses looks most similar to hooded ladies'-tresses (*Spiranthes romanzoffina*), but differs in the detailed characteristics of the individual flowers. In hooded ladies'-tresses (which is more common), each individual flower has petals and sepals that are fused to form a covering, or "hood." In Ute ladies'-tresses, these floral parts are not fused, appearing instead to be widely spread, or "gaping" open.

2.3 Distribution and Status

When it was listed under the Act in 1992, Ute ladies'-tresses was known from 10 extant populations within portions of only two states (Colorado and Utah, USFWS 1992a). At that time, these 10 populations were estimated to encompass approximately 170 acres of occupied habitat. At listing, the species was presumed extirpated in Nevada.

Since listing, Ute ladies'-tresses was rediscovered in Nevada, and new populations were discovered in southern Idaho, southwestern Montana, western Nebraska, central and northern Washington, southeastern Wyoming (Fertig *et al.* 2005, Figure 1 of this BO), and south central

British Columbia (Bjork 2007). In 2005, 53 populations (encompassing 674-784 acres of habitat) were considered extant across the range of the species (Fertig *et al.* 2005); the British Columbia locations were discovered the following year (Bjork 2007). Utah had the most populations (23), the largest amount of occupied habitat (234-308 acres), and the highest number of reported plants (47,859 individuals) of any state (Fertig *et al.* 2005). The Spanish Fork watershed in Utah was assessed as having the highest recorded population estimate (28,825 plants), whereas the Upper Green-Flaming Gorge Reservoir population (which spans the Colorado-Utah border) spanned the most extensive area (117-126 acres). The majority of known populations (66 percent) occupied between 0.1 and 10 acres, whereas relatively few (4.9 percent) occupied more than 50 acres.

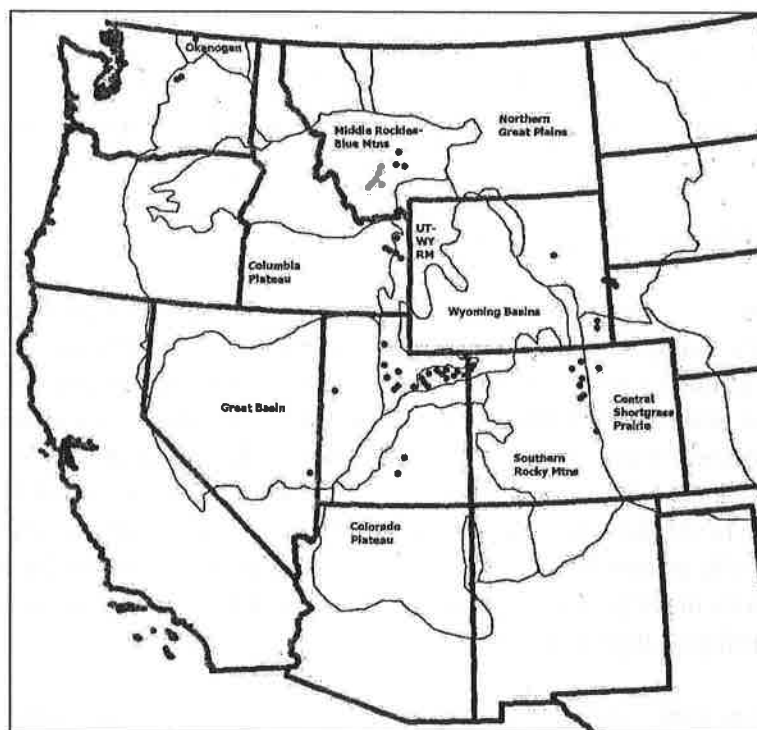


Figure 1. Ute ladies'-tresses in the Western United States. Source: Figure 5 (p.11) of Fertig *et al.* 2005.

2.4. Life History and Population Dynamics

Ute ladies'-tresses is a long-lived perennial herb that is thought to reproduce exclusively by seed (Fertig *et al.* 2005). Bees are the primary pollinators; however, because Ute ladies'-tresses provides only nectar as a food reward, other pollen-providing plant species must be present to attract and maintain pollinators (Sipes and Tepedino 1995, Sipes *et al.* 1995, Pierson and Tepedino 2000).

The life cycle of Ute ladies'-tresses consists of four main stages—seedling, dormant, vegetative, and reproductive (flowering or fruiting) (Fertig *et al.* 2005). Ute ladies'-tresses seedlings may

develop slowly into larger, dormant mycorrhizal roots or grow directly into above-ground vegetative shoots (Wells 1981), but neither has been confirmed in the wild. The Cincinnati Zoo and Botanical Garden has grown plants from seed under laboratory and greenhouse conditions; germination took 6-8 months and development from a protocorm into a plant was slow (Pence 2009). Long-term demographic monitoring studies indicate that vegetative or reproductive Ute ladies'-tresses plants can revert to a below-ground existence for as many as four consecutive growing seasons before reemerging above ground (Arft 1995, Allison 2001, Heidel 2001). Flowering individuals are necessary to reliably distinguish Ute ladies'-tresses from other similar-looking plant species (esp. other *Spiranthes* species), and surveys during flowering season also maximize the likelihood of detecting Ute ladies'-tresses among dense stands of other herbaceous plant species. However, surveys in which only flowering stems are tallied are of limited value for assessing population trends, given that individual Ute ladies'-tresses plants do not flower consistently from one year to the next, and the relative proportion of individual Ute ladies'-tresses plants in each of the four life stages (seedling, dormant, vegetative, reproductive) can vary widely within and among years and between different colonies (Arft 1995, Pierson and Tepedino 2000, Allison 2001, Heidel 2001, Fertig *et al.* 2005).

Population trends are less variable when inferred from datasets where all life stages are counted (Arft 1995, Heidel 2001). However, because non-reproductive individuals are inherently difficult and laborious to detect, most surveys tend to focus on the detection (and counting) of flowering individuals (Fertig *et al.* 2005). As a result, knowledge of Ute ladies'-tresses population trends is severely hindered. This also suggests that available estimates (derived solely from flowering stem counts) are likely to represent conservative estimates of total population size.

With these and other caveats (discussed further in Fertig *et al.* 2005) in mind, the following statements can be made regarding rangewide abundance and trends in Ute ladies'-tresses. When the species was listed under the Act in 1992, the rangewide population was estimated to contain fewer than 6,000 individuals (USFWS 1992). In 1995, the draft recovery plan increased this estimate to 20,500 individuals, primarily the result of 21 new populations discovered over the previous 3 years (USFWS 1995). As of 2005, 53 populations were estimated to collectively contain more than 80,000 (83,316) individuals (Fertig *et al.* 2005). For these populations, available population estimates ranged in size from 1 to more than 28,000 plants. More than 80 percent of these populations contained fewer than 1,000 individuals, and 38 percent contained fewer than 100 individuals.

2.5. Habitat

Ute ladies'-tresses occurs in a variety of human-modified and natural habitats, including, seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lakeshores (Jennings 1989, USFWS 1992a, Fertig *et al.* 2005). Numerous populations also occur along irrigation canals, behind berms, within abandoned roadside borrow pits, along reservoir edges, and other human created or modified wetlands. Streamside populations of Ute ladies'-tresses typically occur on shallow alluvial soils overlying permeable cobbles, gravels, and sediments. Across the range of the species, populations occur at elevations

ranging from 220 to 558 m (720 to 1,830 ft) in Washington and British Columbia to 2,134 m (7,000 ft) in northern Utah.

Most Ute ladies'-tresses sites have mid-successional vegetation (well-established grasses and forbs) communities that are maintained by human disturbances such as livestock grazing, mowing, ditch and irrigation maintenance, and prescribed fire (Allison 2001, Fertig *et al.* 2005). Ute ladies'-tresses may persist for some time in the grassy understory of woody riparian shrublands, but it does not appear to thrive under these conditions (Ward and Naumann 1998).

Nearly all streambank, floodplain, and abandoned ox-bow sites occupied by Ute ladies'-tresses have a high water table (usually within 12.5 to 45 centimeters (5 to 18 inches) of the surface) augmented by seasonal flooding, snowmelt, runoff, and often irrigation (Jennings 1989, Arft 1995, Black *et al.* 1999, Riedel 2002). Soils must be sufficiently stable and moist in the summer flowering season to support the species (Ward and Naumann 1998). Sites located in springs or sub-irrigated meadows appear to be fed by groundwater rather than surface flows. Less is known about the average depths to groundwater in these locations, but it is reasonable to assume that (as with locations where groundwater depths have been quantified) groundwater must remain relatively close to the surface in order to sustain the moist soils consistently associated with Ute ladies'-tresses.

2.6 Threats to the Species

At the time of listing, we identified habitat loss and modification as the primary threat to the species, but also noted that small population sizes and low reproductive rates rendered Ute ladies'-tresses vulnerable to other threats (USFWS 1992a). Our listing rule identified several specific forms of habitat loss and modification as threats to Ute ladies'-tresses, including: urbanization, water development and conversion of lands to agriculture, excessive livestock grazing, excessive or inappropriate use of herbicides or other chemicals, and the proliferation of invasive exotic plant species. In addition, we concluded that the species may be subject to over-collection, given its status as an orchid and inquiries from orchid enthusiasts and wildflower collectors.

Today, many of these same threats affect Ute ladies'-tresses at least at the site-specific level (Figure 2; Fertig *et al.* 2005), and some newer stressors have emerged. For example, whereas over-collection had not materialized as a specific threat to Ute ladies'-tresses, vegetation succession, losses or reductions in pollinators, and changes in hydrology appeared to be new stressors. Current threats that remain include habitat loss and modification due to urbanization, water development and conversion of lands to agriculture, excessive livestock grazing, excessive or inappropriate use of herbicides or other chemicals, and the proliferation of invasive exotic plant species.

Roadways and ground disturbance provide corridors and vectors for the introduction and spread of invasive and non-native species (Forman *et al.* 2003; Gelbard and Belnap 2003; Watkins *et al.* 2003; Flory and Clay 2006; Christen and Matlock 2009; Mortensen *et al.* 2009). Invasive species can affect individuals, populations, and ecosystems through competition, change in

community composition, and changes in environmental conditions (Simberloff et al. 2013). The impacts of invasive species usually decline with increasing distance from disturbance (Gelbard and Belnap 2003; Forman *et al.* 2003).

The Bureau of Land Management Vernal field Office has identified infestations of six invasive weed species within Ute ladies'-tresses habitat including Russian knapweed (*Acroptilon repens*), teasel (*Dipsacus fullonum*), perennial pepperweed (*Lepidium latifolium*), Canada thistle (*Cirsium arvense*), Russian olive, and salt cedar (*Tamarix ramosissima*). Invasive weeds compete with Ute ladies'-tresses for resources via competition for sunlight and space which can then result in displacement of Ute ladies'-tresses plants. Since Ute ladies'-tresses is a small stature plant, it requires open riparian patches with low growing herbaceous vegetation that will not block sunlight.

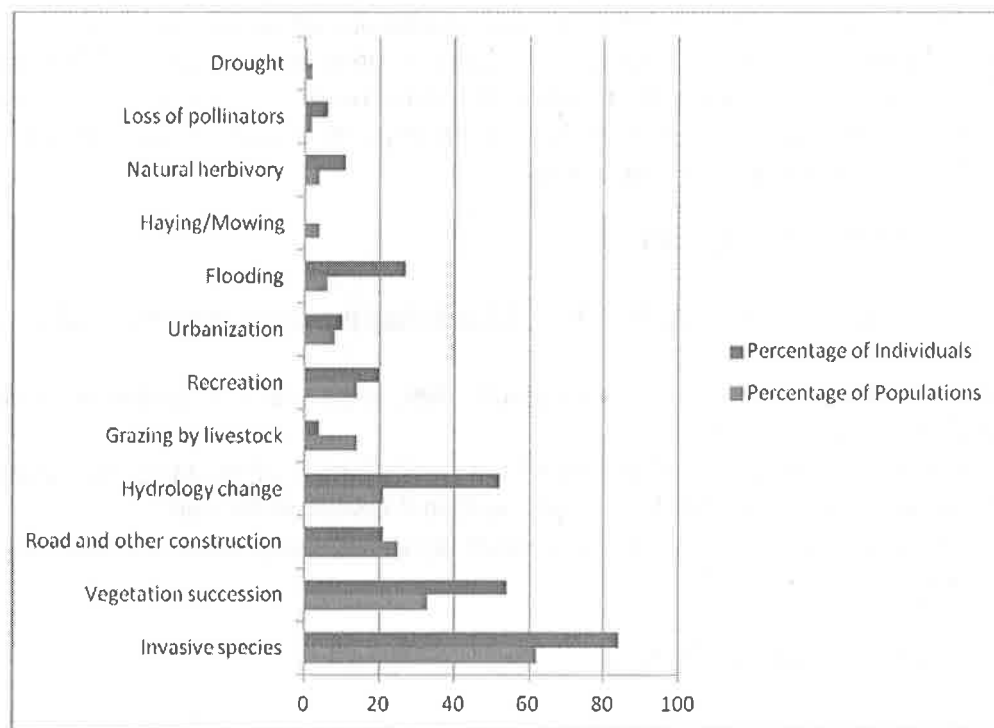


Figure 2. Ute ladies'-tresses stressors quantified as a percentage of known populations and known individuals (based upon the maximum count ever reported for all subpopulations comprising a given population). Adapted from Table 15 (p.81) of Fertig *et al.* (2005).

Conversion of irrigation water to municipal use, flood control (includes riverbank stabilization), water development or redevelopment, and restoration projects targeting stream and riparian corridors (includes in-stream and habitat alteration) contribute to altered hydrologic regimes across the species' range. However, Ute ladies'-tresses has proliferated in areas with greatly altered, but stable and predictable hydrology (Fertig *et al.* 2005). Prominent examples include the Green River along the Colorado-Utah border (Ward and Naumann 1998), Diamond Fork Creek in the Spanish Fork watershed of Utah (Black and Gruwell 2004), the Columbia River in Washington (Cordell-Stine and Pope 2008), and the South Fork Snake River in Idaho (Idaho

Conservation Data Center 2007). The species is also frequently encountered along streams and canals and in wet hay pastures in the Uinta Basin of eastern Utah, even though an extensive irrigation canal system was constructed in the early 1900s and natural streams are nearly dry all summer (Fertig *et al.* 2005, Kendrick 1989). Ute ladies'-tresses has also colonized wetlands left behind when peat was mined, and the species occurs in drainage ditches alongside roads and railroad tracks (Fertig *et al.* 2005). In the summer of 2012, the species was rediscovered in Salt Lake County, Utah, after decades of unsuccessful attempts to relocate a historical collection of the species the county dating from 1953. The county property where the orchid was recently found has been managed as a flood control basin with permitted horse grazing for the past 50 years.

In summary, Ute ladies'-tresses occurs in more than 50 populations distributed across eight U.S. states and one Canadian province. These populations collectively contain some 80,000 individuals. Approximately 80 percent of known populations are associated with lands managed for agriculture or recreation, rivers regulated by dams, or other human-modified habitats (Fertig *et al.* 2005). Research, monitoring and management activities have demonstrated that ongoing patterns of land use across the range of the species are capable of mimicking or providing the conditions required for the species' persistence.

3. ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as follows:

- The past and present impacts of all Federal, state, or private actions and other human activities in the action area;
- The anticipated impacts of all proposed state or Federal projects in the action area that have already undergone formal or early section 7 consultation; and
- The impact of state or private actions which are contemporaneous with the consultation process.

3.1 Status of the Species within the Action Area

Within the action area, Ute ladies'-tresses were found in the vicinity of the White Rocks irrigation canal, but no individuals were found in the Mosby irrigation canal area. The action area contains human-created habitat for Ute ladies'-tresses, and the species has also been found in nearby creeks and rivers as well as in moist fields where some livestock grazing or mowing occurs. Vegetation along the canal has been maintained as needed by the canal owner, including herbicide treatments, mowing, and burning.

Due to the difficulty of detecting the species during surveys and the life history of the species, it is difficult to estimate population numbers and extent within the action area. The canal prism was surveyed for three consecutive years from 2015-2017 and Ute ladies'-tresses were found each year with 167, 168, and 208 individuals counted, respectively. Approximately 5 acres of temporary disturbance areas (underground pipeline corridor, staging areas, and transplant receiving sites) were surveyed for suitable habitat and species presence in 2017.

No Ute ladies'-tresses were located in these surveys.

The same threats, stressors, and impacts described in the Status of the Species section (see section 2.6) are also present throughout the action area. However, the primary threats to Ute ladies'-tresses in the action area include habitat loss due to changes in hydrology, competition from invasive species, and excessive grazing.

3.2 Factors Affecting the Species within the Action Area

The main threat to Ute ladies'-tresses within the action area is the alteration of hydrology within the canal system and the subsequent loss of habitat associated with the Project. Project activities are anticipated to destroy both suitable and occupied habitat of Ute ladies'-tresses within the action area because the canal closure will remove the water source currently supporting the species.

Prior to this Project, threats to the species from invasive species and vegetative succession were regularly addressed from vegetation management activities along the canal as described in section 3.1. The Whiterocks canal company will continue to conduct Russian olive treatments and removal within the portion of the action area where salvaged plants will be relocated.

3.3 Recent Section 7 Consultations

No formal section 7 consultations for Ute ladies'-tresses have occurred within the action area. However, some recent formal section 7 consultations have occurred within the same watershed, including the;

- Steinkaker Service Canal Modification project,
- Crescent Point Energy Randlett 3D Seismic project, and
- BLM Vernal Field Office Invasive Weed Management Plan.

4. EFFECTS OF THE ACTION

Regulations pursuant to section 7 of the Act define effects of the action as “the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline” (50 CFR § 402.02). Direct effects are defined as the direct or immediate effects of the action on the species or its habitat. Indirect effects are defined as those effects that are caused by or result from the proposed action, are later in time, and are reasonably certain to occur.

The effects of the Project will result in the complete loss of all Ute ladies'-tresses individuals and habitat within a 4.7 mile section of the Whiterocks canal in the action area. By transporting water via a pipe rather than an open canal, the hydrology of the canal will be altered sufficiently such that the species will not be supported in the short and long term. The open canal supported riparian vegetation including Ute ladies'-tresses and removal of the water source will alter the

vegetation within the action area. The dry soils surrounding the piped canal will no longer support riparian vegetation or Ute ladies'-tresses.

Ute ladies'-tresses disperses seeds primarily through transporting seeds downstream where they colonize suitable habitat. Therefore, the removal of the plants and seed source from the Project section of canal may impact Ute ladies'-tresses populations that exist downstream. While downstream hydrologic connections have not been entirely surveyed, we do know that some populations are present downstream and have a hydrologic connection to Whiterocks canal. It is unknown how and to what extent the removal of these individuals will affect the downstream populations of Ute ladies'-tresses. Based on current knowledge of the species dispersal mechanism and population biology, it is reasonable to assume that the loss of a seed source will have some negative impact to the downstream populations.

To minimize the impact of the Project to Ute ladies'-tresses individuals, BOR commits to salvaging all identified Ute ladies'-tresses individuals, and transplanting them to suitable habitat that is approximately 0.7 miles upstream from where water will be diverted. The BOR accepts that some individuals of Ute ladies'-tresses will be lost because the rate of transplant success is unknown.

5. CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Declines in the abundance or range of many special status species are attributable to various human activities on Federal, state, and private lands, such as human population expansion and associated infrastructure development; energy development and associated infrastructure; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of non-native plant, wildlife, or fish or other aquatic species, that can alter native habitats or out-compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the action area. Species with small population sizes, endemic locations, or slow reproductive rates will generally be more susceptible to cumulative effects.

Future non-Federal activities have the potential to cumulatively affect Ute ladies'-tresses, as a significant portion of the species' range occurs on state, private, and tribal lands without a Federal nexus, and are therefore not always subject to section 7 consultations. Quantified data on the future extent of these activities are difficult to obtain, but we must assume, for the purposes of this assessment, that some level of these activities are reasonably certain to occur, particularly energy and mineral exploration, development, infrastructure projects, livestock

grazing, and salinity control projects. Where these future activities intersect Ute ladies'-tresses populations or habitat, they will cumulatively add to the existing and future impacts of activities authorized by Federal agencies. Ute ladies'-tresses individuals on non-Federal lands will be negatively impacted by direct loss and disturbance, as well as landscape-scale factors (i.e. habitat fragmentation and degradation) due to cumulative impacts in the action area.

6. CONCLUSION

After reviewing the current status of the Ute ladies'-tresses, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the Ute ladies'-tresses. No critical habitat is designated for this species and therefore none would be affected.

We base our conclusion on the following reasons:

- The total number of Ute ladies'-tresses individuals that will be impacted by the proposed Project is 208. This represents only 0.3 percent of the total range-wide population of the species which is estimated to be 80,000 individuals (Fertig *et al.* 2005).
- The applicant's commitment to minimize impacts to suitable habitat and to salvage, relocate, and monitor impacted Ute ladies'-tresses individuals reduces the amount of overall loss of individual plants.

7. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal

areas in violation of state law or regulation or in the course of any violation of a state criminal trespass law.

Reporting Requirements

Transplant location information and final data will be submitted to our office by December 31st 2017. Annual monitoring reports for the three subsequent years of monitoring will be submitted to our office by December 31st each year.

If listed plants are crushed or injured during construction activities, immediate notification must be made to our Salt Lake City Field Office at (801) 975-3330. Pertinent information including the date, time, and location shall be recorded and provided to us.

8. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We recommend the following:

- a. We recommend that Russian olive infestations should be monitored annually and treated as needed within the transplanted areas for a minimum of 3 years after transplanting.
- b. We recommend that BOR consider utilizing conservation easements to protect additional occupied habitat of Ute ladies' tresses. This will allow BOR to assist with Ute ladies'-tresses conservation and recovery efforts on a landscape level, rather than on a small, project-specific basis.

9. REINITIATION NOTICE – CLOSING STATEMENT

This concludes formal consultation on the proposed Whiterocks and Mosby canal rehabilitation project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action is retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may impact listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded or if the terms and conditions of this Biological Opinion are not fully implemented, any operations causing such take must cease immediately pending reinitiation.

We appreciate your commitment in the conservation of endangered species. If the project changes or it is later determined that the project affects listed species differently than identified above; it may become necessary to reinitiate section 7 consultation. If you require further assistance or have any questions, please contact Rita Reisor at (801) 975-3330 extension 135.

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