DRAFT ENVIRONMENTAL ASSESSMENT

Roger's Mesa Water Distribution Association
Slack and Patterson Laterals
Salinity Control Project
Delta County, CO

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Bureau of Reclamation
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Chapter 1: Purpose and Need for the Proposed Action

1.1 Introduction

This Environmental Assessment (EA) has been prepared for the U.S. Bureau of Reclamation (Reclamation) and the Roger's Mesa Water Distribution Association (RMWDA) to assess the potential effects of the proposed Slack and Patterson Laterals Salinity Control Project located in Delta County, Colorado. The Federal action evaluated in this document is whether Reclamation should authorize the use of Federal funds to pipe the Slack and Patterson Laterals within the RMWDA's irrigation system.

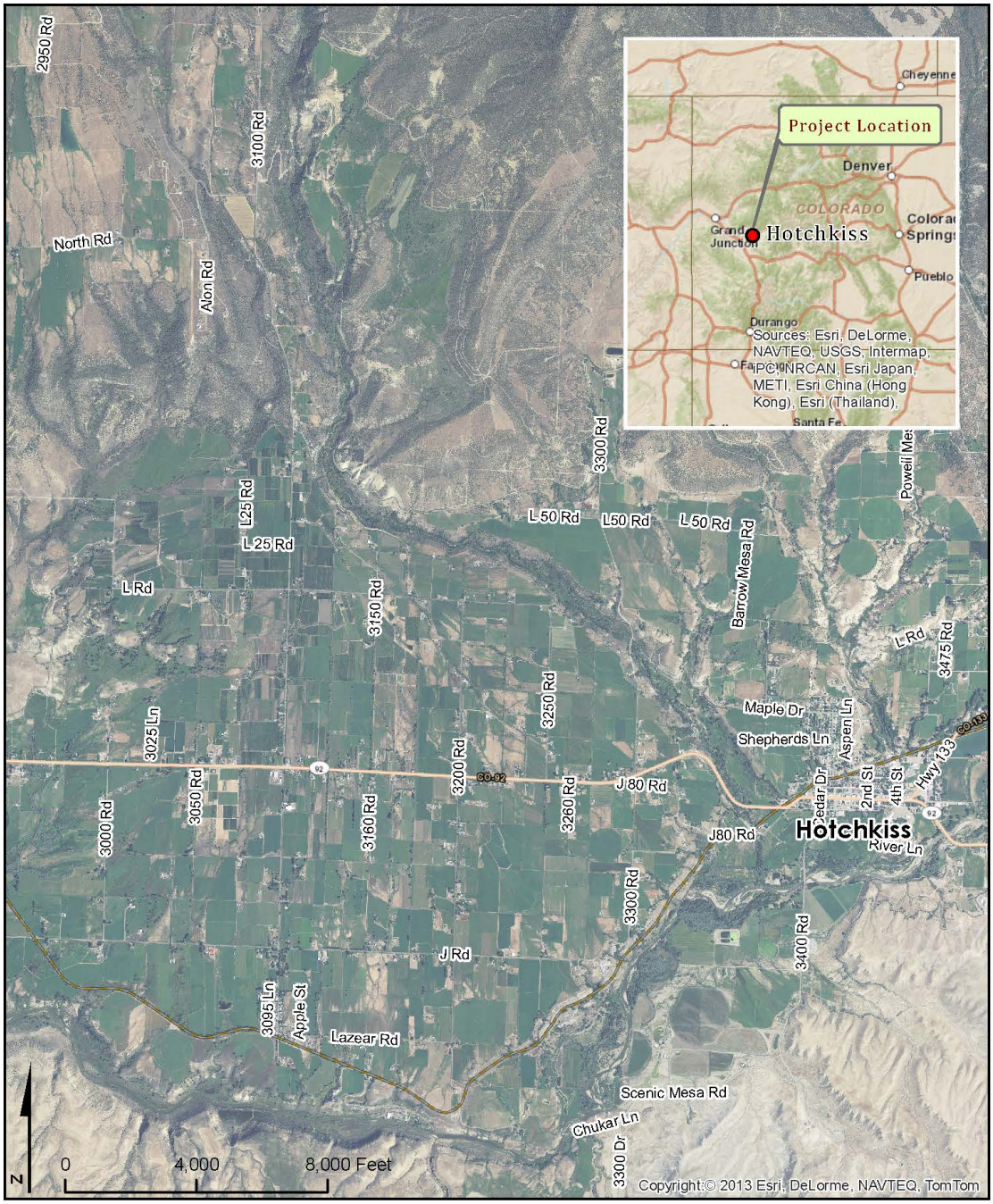
This EA has been prepared as required by the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the U.S. Department of the Interior (Interior) regulations implementing NEPA. If potentially significant impacts are identified, an Environmental Impact Statement (EIS) would be prepared. If no significant impacts are identified, a Finding of No Significant impact (FONSI) would be issued by Reclamation.

1.2 Proposed Action

The proposed action would pipe approximately 49,700 feet of existing unlined earthen canals along the Slack and Patterson laterals within the RMWDA irrigation system (Figure 1:1 Project Location Map). The existing Slack and Patterson laterals consist of their respective turnouts from the Fire Mountain Canal, a flume on each lateral and splitter boxes for diverting flow to individual users. High-density polyethylene (HDPE) pipe would be installed to replace the existing earthen laterals. Concrete junction boxes would be constructed at intervals to facilitate pipeline maintenance. A pipeline would be installed and placed within the existing canal right-of-way, except in minor sections where the pipeline would extend outside of the existing canal alignment. The Proposed Action is described in detail in Chapter 2: Alternatives.

1.3 Purpose and Need

The purpose of the proposed project action is to replace the existing unlined earthen Slack and Patterson laterals with a pipeline to prevent seepage of irrigation water into soil. The proposed 9.4 miles of pipeline running along the Slack and Patterson laterals would increase the efficiency of the existing system. The proposed project improvements are needed to reduce maintenance on the canal, lower the salinity contributions to Colorado River system, consistent with the purposes of the Colorado River Basin Salinity Control Program, and reduce selenium in adjacent waterways. Leroux Creek and the North Fork of the Gunnison River are located within the vicinity of the project area. Both water bodies are currently classified as impaired waters due to high levels of selenium. The proposed project would likely reduce the selenium loading of these water bodies by substantially reducing the amount of irrigation water infiltrating through the soils. This proposed project would also reduce the salt loading of the Colorado River Basin by an estimated 3,415 tons a year.



Roger's Mesa Project Area

Projection: Nad 83 State Plane Colorado South

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Figure 1:1 Project Location Map

1.4 Project Background

1.4.1 Colorado River Basin Salinity Control Program

The Colorado River and its tributaries provide municipal and industrial water to approximately 27 million people and irrigation water to nearly 4 million acres of land in the United States. The river also serves about 2.3 million people and 500,000 acres of agricultural land in Mexico. The threat of salinity is a major concern in both the U.S. and Mexico. Salinity levels in the Colorado River threaten agricultural, municipal, and industrial water users. 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.

One half of the salinity in the Colorado River System is due to natural sources. These include, but are not limited to runoff, saline springs, and the erosion of saline geologic formations. Non-natural causes of salinity loading can consist of irrigation, reservoir evaporation, and municipal and industrial sources. Agricultural activities represent the largest consumer group of water in the Colorado River Basin and are also a major contributor to the salinity of the river system. Irrigation increases salinity by consuming water (evapotranspiration) and by dissolving salts found in underlying saline soils and geologic formations, usually marine (Mancos) shale. Deep percolation mobilizes the salts found naturally in the soils, especially if the lands are over-irrigated (Reclamation).

The Colorado River Basin Salinity Control Act was enacted by Congress in June 1974 with the purpose of protecting the quality of water available in the Colorado River. The program's overall goal is to cost-effectively reduce the amount of salinity in the river water. The Colorado River Basin Salinity Control Program, in collaboration with the Colorado Department of Public Health and Environment (CDPHE), estimates that implementing the program may reduce the amount of salt reaching the Colorado River by 772,627 tons annually.

1.4.2 The Roger's Mesa Water Distribution Association

The Roger's Mesa Water Distribution Association (RMWDA) is a private, nonprofit irrigation company that was established in 1892. Currently, the canals within the RMWDA distribute irrigation water to 228 users. These canals are fed by Leroux Creek and Fire Mountain Canal. In total, there are five major laterals within the RMWDA system. Two of these laterals, the Slack and the Patterson, are proposed to be piped as part of the Colorado River Basin Salinity Control Program.

The Slack lateral is 3.5 miles long. The lateral begins at the Fire Mountain Canal diversion and runs south and easterly until it terminates near the town of Lazear. From the headgate on the Fire Mountain Canal to the end of the line, the Patterson lateral is approximately 4.7 miles long. The lateral runs primarily south and westerly before terminating in the town of Lazear. Most of the land in the project area has been converted to agricultural uses. The crops grown in the area include hay, pasture, small grains, and fruit orchards. The irrigation water is also used on lawns and gardens in the town of Lazear.

1.5 Location and Environmental Setting

The Slack and Patterson laterals run through private land just west of the town of Hotchkiss and north of the town of Lazear. A small section of the RMWDA system runs through the town of

Lazear, Colorado. The laterals cross through portions of Sections 3 and 4, Township 15 South, Range 93 West, as well as parts of Sections 27, 28, 33, and 34, Township 14 South, Range 93 West, of the 6th Prime Meridian. Elevations along the canals range from 5,400-5,880 feet above sea level. The project area is in the North Fork Valley and the Gunnison River Valley on the eastern edge of the Colorado Plateau. This area is bound on the northwest by the Redlands Mesa and on the south by the Gunnison Uplift. The North Fork of the Gunnison River travels west to east directly south of the project site. The Grand Mesa is also northwest of the proposed project.

The project area is located in a valley that was formed by the waters of the North Fork of the Gunnison River, which is fed by several high-country streams draining from the West Elk Mountains and Grand Mesa. The valley begins about 4 miles to the northeast of Paonia where the steep-walled canyon of the North Fork River gives way to a 3 mile wide, alluvial-floored expanse that extends west-southwest for 16 miles. It then meets up with the main stem of the Gunnison River. The valley lies within the Mesaverde Formation deposited during the Cretaceous age around 70 million years ago. The geology in the project area is a complex mixture of sedimentary deposits and igneous intrusions. Mancos shale with a high clay content that shrinks and swells in response to moisture is present throughout the lower Gunnison Basin. This Cretaceous-age Mancos shale is the source of the selenium that the piping project is intending to reduce.

Numerous small, intermittent drainages originate on Roger's Mesa and drain southward to the North Fork of the Gunnison River. The main permanent drainage in the vicinity is Leroux Creek, which is located about 1 mile northeast of the project area and originates on the slopes of the Grand Mesa to the north. The project area has been converted to farmland of both row crops and fruit trees except for the small area converted to residential use in Lazear.

1.6 Relationship to Other Projects

In October 2012, the Minnesota Canal and Reservoir Company (MCRC) of Paonia, Colorado, prepared an EA evaluating the piping of a portion of the Minnesota Canal. The MCRC received a grant through Reclamation, in association with the Basinwide Salinity Control Program, aimed at reducing the amount of salt and selenium that reaches the Colorado River. This project is located within the general vicinity of the project area near the North Fork of the Gunnison River Valley on the eastern edge of the Colorado Plateau. The MCRC proposed to pipe 5.2 miles (27,479 feet) of earthen canal and make modifications to the diversion structures on the Minnesota Creek.

Other Salinity Control Projects in Delta County include the C Ditch Company's C Ditch/Needle Rock Pipeline Project and the Crawford Clipper Ditch Company's Piping Project. The proposed C Ditch/Needle Rock Pipeline Project is located about three miles north of Crawford, in the Cottonwood Creek drainage basin. This project would pipe approximately 14,669 linear feet of open irrigation ditch. The proposed Clipper Irrigation Salinity Control Project is located in Delta County, about 2.5 miles southeast of the Town of Hotchkiss, in the Cottonwood Creek drainage basin. This proposed project involves replacing approximately 18,709 linear feet of open irrigation ditch with buried pipe. The majority of the buried pipe alignment would be located within existing ditch alignments and approximately 1.4 miles of existing ditch alignment would be abandoned.

Collectively these three projects are anticipated to reduce the salinity contributions to Colorado River by 5,585 tons annually.

1.7 Scoping

Scoping was primarily limited to RMWDA, U.S. Fish and Wildlife Service (USFWS), Colorado Parks and Wildlife, and the Colorado Office of Archaeology and Historic Preservation. Alternatives evaluated in this EA are limited to the proposed Action Alternative and No Action Alternative. The alternatives are described in Chapter 2. Information obtained during scoping was used to evaluate resource impacts and is described in detail in Chapter 3**.**

Chapter 2: Proposed Action and Alternatives

2.1 Introduction

The proposed action analyzed in this EA is Reclamation's authorization for use of Federal funds for the enhancement deemed most suitable for the Slack and Patterson laterals under the present conditions, including the execution of any easements for required land acquisition as described in Section 2.3. This EA will be used to determine the potential effects on the human and natural environment. The resource analysis contained within this EA, along with other pertinent information, will guide Reclamation's decision about whether or not to implement the proposed action. The proposed action (Action Alternative) is analyzed in comparison to a No Action Alternative in order to determine potential effects.

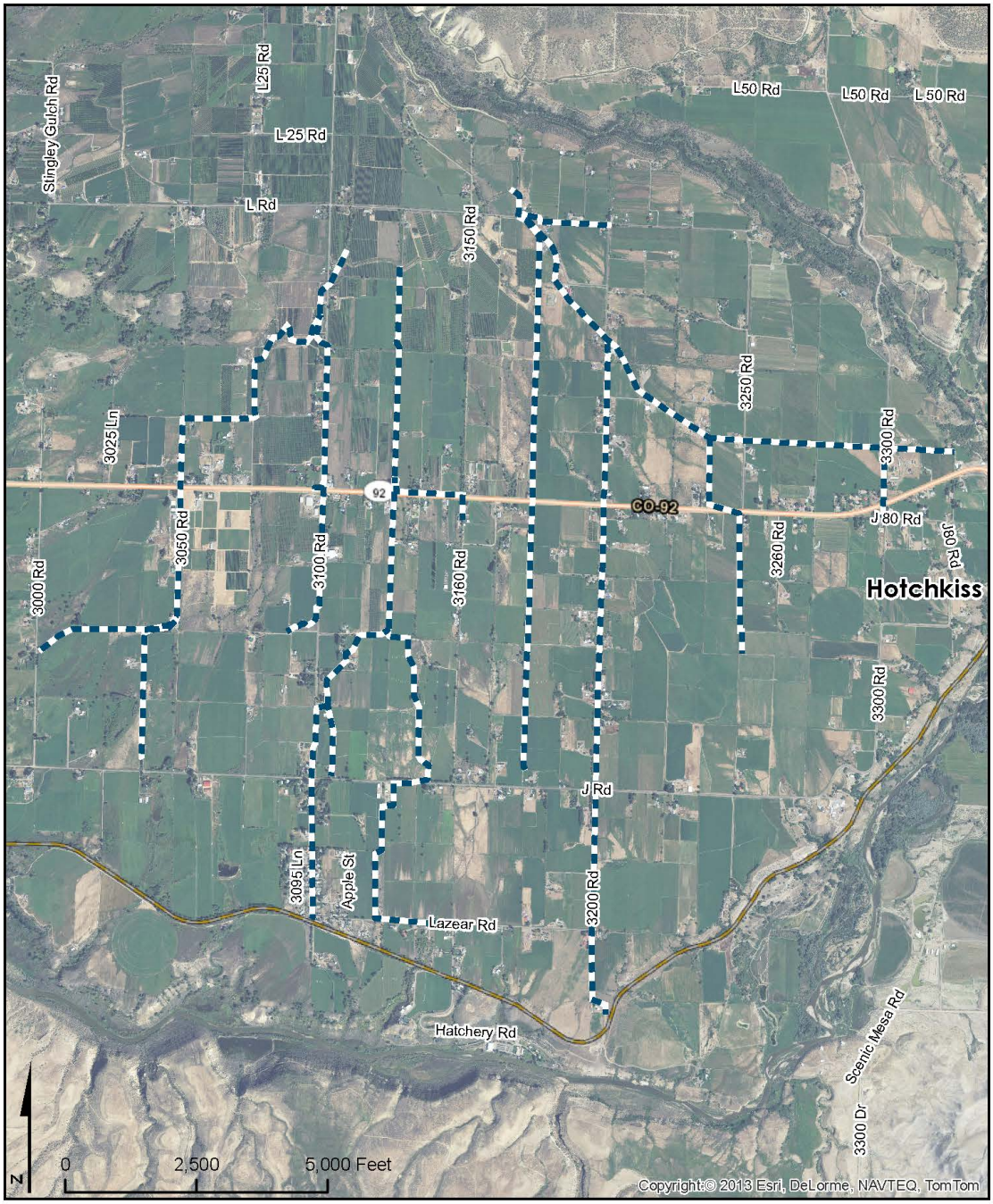
If Reclamation decides to implement the proposed action, RMWDA would be authorized to proceed with piping the Slack and Patterson laterals in order to reduce the salinity contributions to the Colorado River Basin. If authorized to proceed, the RMWDA would construct, operate, and maintain these new pipelines in place of the open laterals. As a feature of the RMWDA irrigation system, the existing and newly acquired easements would be owned, operated, and maintained by the RMWDA.

2.2 No Action Alternative

Reclamation would not authorize the use of Federal funds to pipe the RMWDA's Slack and Patterson laterals under the No Action Alternative. The existing open laterals would continue to be used for irrigation water delivery with no proposed improvements for reducing or eliminating seepage. Seepage of irrigation water would continue to increase the salinity level of the Colorado River and contribute to the high selenium levels of adjacent waterways. These conditions may worsen in the future under the No Action Alternative. The Colorado River would continue to receive 3,415 tons of salt each year due to irrigation water seepage from the open canal laterals. Additionally, the loss of water would continue to negatively impact the efficiency of the water delivery along the RMWDA irrigation system.

2.3 Action Alternative

Under the Action Alternative, Reclamation would authorize the use of Federal funds to pipe approximately 9.4 miles of the Slack and Patterson laterals. This action would reduce the salinity loading of the Colorado River by approximately 3,415 tons annually. Piping of the laterals would reduce the amount of water lost through seepage, making more water available for irrigation users and reducing selenium contributions to adjacent waterways. The Action Alternative would also reduce the amount of ongoing system maintenance. Ongoing maintenance currently includes removing debris from the laterals, clearing overgrown vegetation, and replacing outdated valves and gates.



Roger's Mesa Piping Alignment Area

Projection: Nad 83 State Plane Colorado South

Legend

Laterals

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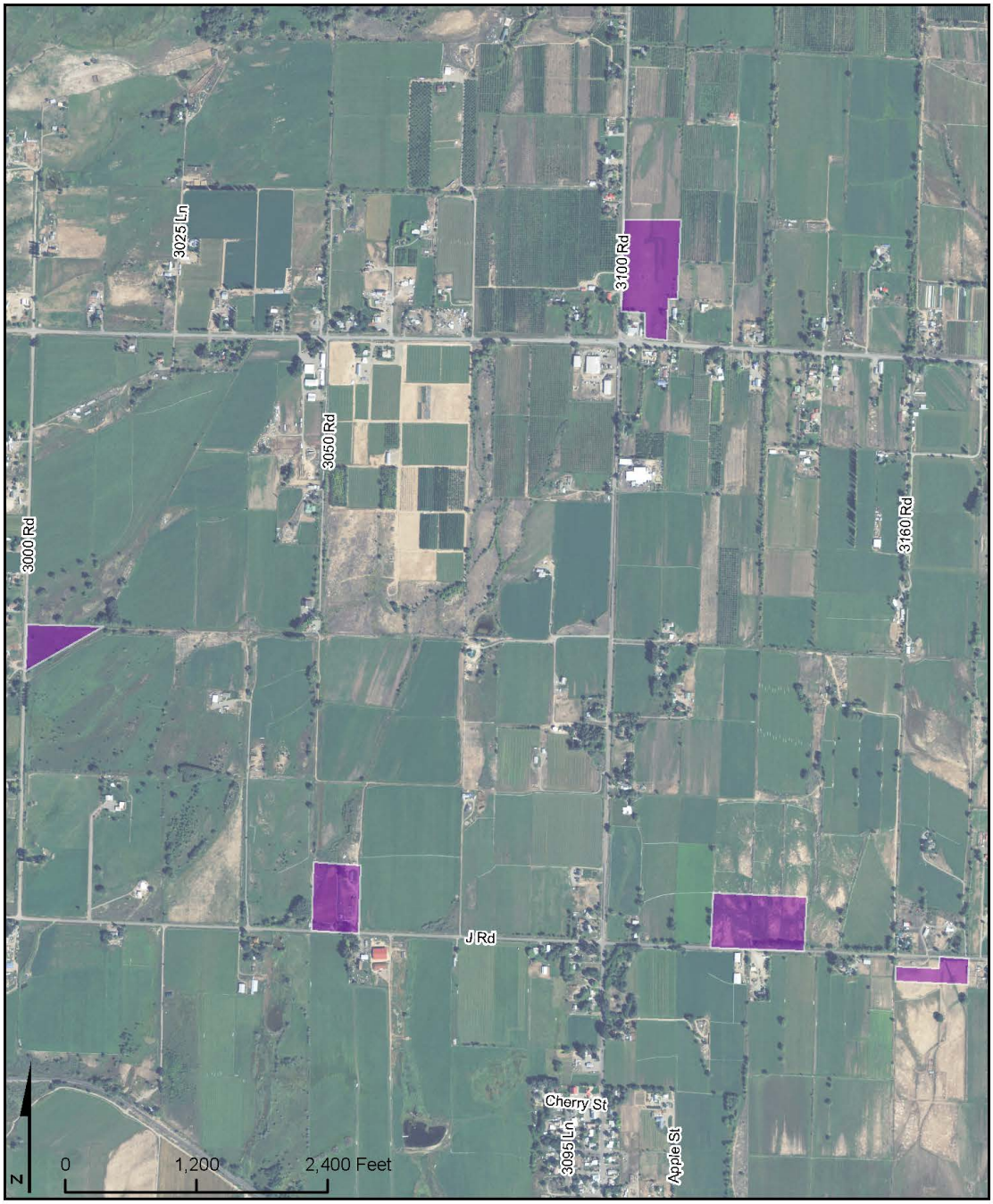
Figure 2:1 Proposed Project Alignment



Roger's Mesa Piping Staging Areas

Projection: Nad 83 State Plane Colorado South

Legend

Staging Areas

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Figure 2.2: Proposed Project Staging Areas

The Action Alternative would place approximately 49,700 linear feet of HDPE pipe in the existing earthen canal laterals. Under the Action Alternative, the approximate maximum pipe diameter for Patterson lateral would be 30 inches at the start of the line and would decrease down to 8 inches towards the end of the line. The pipe diameter for the Slack lateral would range from 22 inches to 8 inches. These pipelines would primarily follow the existing lateral alignments, except for a few minor alignment shifts to increase the efficiency of the alignment (Figure 2.1 Proposed Project Alignment).

2.3.1 Easements

Easements would be required where the proposed alignment deviates from the existing lateral alignment. All acquired easements would be obtained from landowners in the name of the RMWDA. Where deviations from the existing alignment occur, a 30-foot wide permanent easement would be needed for the operation and maintenance of the pipeline. No easements from publicly owned local, state, or federal land would be required.

A 100-foot temporary construction easement would be required for construction in areas where the proposed alignment deviates from the existing alignment. A 50-foot construction easement (25 feet off the centerline of the existing laterals) would be required for construction activities taking place along the existing alignment of the laterals. Construction of the Action Alternative would temporarily disturb approximately 57 acres of land.

2.3.2 Pipeline Construction Procedures

Construction of the pipeline would likely occur in the following sequence:

- Flagging of the construction area
- Mobilization of the construction equipment
- Delivery of HDPE pipe to construction site staging areas
- Excavation of the trench
- Fusing of the pipe
- Placement of the pipe within the trench
- Backfill around the pipe and compaction of the backfill
- Clean up and restoration of areas disturbed by construction
- Planting and reseeding of disturbed areas for re-vegetation

2.3.2.1 Trench Excavation

Excavation would be performed with the use of appropriately sized construction equipment to minimize disturbance to the surrounding area. Excavated material would be stockpiled and used as backfill after pipe installation. In critical areas, topsoil would be separated from other materials to preserve it to be placed as the top layer of soil.

2.3.2.2 Pipe Installation

The pipe would be transported to the staging areas. From the staging areas, the pipe would either be transported by a loader to the work site or fused into longer sections and hauled to the work site access roads. Each section of pipe would be fused together with a pipe fuser and then placed in the prepared trench. After pipe installation, backfill would be placed around the pipe. In established agricultural areas, the preserved topsoil would be placed last to minimize impacts and facilitate a recovery of vegetation. Backfill would be mechanically compacted. Soil in work

areas would be spread evenly to blend with the natural topography and maintain local drainage patterns. Stockpiled topsoil would then be spread evenly over previously vegetated areas and reseeded with native or agricultural vegetation species, as appropriate.

2.3.3 Construction Staging Areas

Construction staging areas have been identified throughout the project area (Figure 2.2: Proposed Project Staging Areas). The staging areas would be used to stockpile the pipe, place equipment and park construction vehicles. Staging areas have been assessed as part of the project's disturbance area to determine potential impacts during the duration of construction.

2.3.4 Land Disturbance

The proposed project alignment totals approximately 9.4 miles in length and would require a maximum construction width of 100 feet. The project would also include approximately 50 acres of staging areas. This proposed disturbance area, including the project alignment and staging areas, was evaluated for potential impacts. Construction activities would be confined to the disturbance limits examined in this EA.

2.3.5 Transportation Requirements

Transportation to the project would follow existing access roads wherever possible to minimize disturbance to the existing vegetation. If necessary, any new access routes would be within the proposed construction easement.

2.3.6 Standard Operating Procedures

Reclamation's standard operating procedures (SOPs) would be followed (except for under unforeseen circumstances) during construction, operation, and maintenance of the proposed action to avoid or minimize adverse impacts on the built and natural environment. A preconstruction meeting with Reclamation, the contractor, and RMWDA would be held prior to commencing construction. During construction, weekly meetings would be held to assess the progress of the work.

Specifics of restoration would be outlined in the SOPs and/or right-of-way easements. Restoration procedures include the determination of what native vegetation is appropriate for the different construction zones, reseeding rates, landscaping, re-vegetation, and noxious weed removal and control. Monitoring and treatment would continue until the success criteria are met for two successive years without human intervention. These actions would provide that disturbed areas are returned to a natural state as appropriate. Chapter 3 presents the impact analysis for resources after SOPs have been successfully implemented.

Chapter 3: Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the existing environment of the project area and potential impacts from the No Action and Action Alternatives to that environment. The present condition and characteristics of each resource are discussed, followed by an analysis of the predicted impacts under the No Action and Action Alternatives. This chapter is concluded with a summary comparison of the alternatives and a list of mitigation measures.

During the preparation of this EA, information on existing conditions and potential concerns was received from RMWDA, resource agencies, key stakeholders and other interested parties. The consultation and coordination process is described in detail in Chapter 4.

3.2 Air Quality

Air quality in the project area is regulated by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment. The National Ambient Air Quality Standards (NAAQS) established by the EPA under the Clean Air Act (CAA) specify limits for criteria air pollutants. Criteria pollutants include carbon monoxide, particulate matter (PM 10 and PM 2.5), ozone, sulfur dioxide, lead and nitrogen. If the levels of a criteria pollutant in an area are higher than the NAAQS, the airshed is designated as a nonattainment area. Areas that meet the NAAQS for criteria pollutants are designated as attainment areas.

The project area is in attainment for all criteria pollutants.

3.2.1 No Action Alternative

There would be no adverse effects on air quality from the No Action Alternative.

3.2.2 Action Alternative

Fugitive dust generation from construction activities would have a temporary, short-term effect on the air quality in the project area. Fugitive dust would be generated by excavation activities and the movement of construction equipment on unpaved roads. Best Management Practices (BMPs) would be implemented to minimize dust and may include watering the construction site and access roads. Air quality impacts would be temporary and would cease once the project is constructed. There would be no long-term impacts to air quality from the Action Alternative.

3.3 Water Rights and Use

The Slack and Patterson laterals are privately owned by the RMWDA. The RMWDA system diverts water from the Fire Mountain Canal and Leroux Creek to irrigate agricultural lands. Leroux Creek is a tributary to the North Fork of the Gunnison River. The Gunnison River Basin is approximately 7,800 square miles. Numerous drainages originate on Roger's Mesa and drain southward to the North Fork of the Gunnison River. The main permanent drainage in the vicinity is Leroux Creek, which is located about 1 mile northeast of the project area and originates on the slopes of the Grand Mesa to the north.

RMWDA maintains a combined total of 191cubic feet per second (CFS) of annual water rights.

3.3.1 No Action Alternative

The No Action Alternative would have no direct effect on water rights and uses within the Gunnison River Basin. The water delivery system would continue to function as it has in the past. Due to the lack of efficiency in the Slack and Patterson laterals, late season irrigation water would continue to be scarce in drier years and may limit the types/number of crops produced.

3.3.2 Action Alternative

Under the Action Alternative, RMWDA would have the ability to better manage its water rights with efficiencies gained from piping the canal laterals. This action would result in an increase in irrigation water traveling through to agricultural users along the laterals, thereby improving the efficiency of the irrigation system. The reduction in delivery system losses may allow for additional water to be available in the later parts of the irrigation season, especially in drier years when there has historically not been enough water. No water rights or changes to water rights would be required under the Action Alternative.

3.4 Water Quality

RMWDA is located in the North Fork of the Gunnison River Watershed. The North Fork begins at the confluence of Muddy Creek and Anthracite Creek downstream of Paonia Dam and flows southwesterly approximately 33 miles to its confluence with the Gunnison River. The North Fork watershed drains approximately 986 square miles and includes five small communities that line the North Fork as it flows west towards the Gunnison River. The water that flows through the RMWDA's irrigation system is diverted from Leroux Creek and the Fire Mountain Canal.

Leroux Creek and the North Fork of the Gunnison are both classified as impaired waters due to selenium concentrations. Selenium is a nonmetal that is most often produced during copper production. Specific solids are selenium-rich and can be bioconcentrated by certain plants. In soils, selenium most often occurs in soluble forms such as selenite, which is very easily leached into rivers by runoff. Though trace amounts of selenium are necessary for cellular functioning of many organisms, it is toxic in large amounts.

3.4.1 No Action Alternative

Under the No Action Alternative, no change to existing water quality trends is predicted. The Slack and Patterson laterals would continue to contribute approximately 3,415 tons of salt annually to the Colorado River. The laterals would also continue to contribute to the high selenium levels of the waterways in the general vicinity of the project area, specifically Leroux Creek and the North Fork of the Gunnison River.

3.4.2 Action Alternative

The Action Alternative would eliminate seepage from the Slack and Patterson laterals. Implementation of the Action Alternative is predicted to result in a total annual reduction of 3,415 tons of salt in the Colorado River and to lower selenium levels in adjacent waterways.

Construction of the Action Alternative would occur within the dry canal laterals and no change in water quality is predicted from construction activities. This project qualifies for a Section 401

Water Quality exemption and no certification is required (Appendix B). However, BMPs would be implemented to protect water resources in the project area. BMPs may include but would not be limited to the following:

- If dewatering is needed, the contractor would obtain a Section 402 Storm Water Discharge Permit (NPDES) from the Colorado Department of Public Health and Environment for dewatering the construction area.
- Fuels, lubricants, hydraulic fluids, and other petrochemicals would be stored and dispensed in an approved staging area. Equipment would be inspected daily for petrochemical leaks. Construction equipment would be parked, stored, and serviced only at an approved staging area.
- An oil spill response plan would be prepared for the area of work where spilled contaminants could flow into water bodies. All employees and workers, including those under separate contract, would be briefed and made familiar with this plan. The plan would be developed prior to initiation of construction. An oil spill response kit, which includes appropriate-sized spill blankets, shall be easily accessible and onsite at all times.
- Onsite supervisors and equipment operators would be trained and knowledgeable in the use of spill containment equipment.
- Appropriate Federal and Colorado authorities would be immediately notified in the event of any contaminant spill.

3.5 Vegetative Resources

The vegetation in the general vicinity of the project area is characterized by pinion-juniper forests, Gambel oak, sagebrush, rabbitbrush, buffalo currant, and serviceberry. The project area is located along private land that is comprised of human-altered vegetation, primarily used for agricultural and residential uses. Agricultural activities in the project area have replaced native upland vegetation with pasture grasses, row crops and fruit trees. Vegetation along the laterals include weedy species such as cheatgrass, Russian olive, Russian knapweed, whitetop, chicory, Canada thistle, Siberian elm, Scotch thistle, burdock, Dyer's woad, and tamarisk.

The Delta County Noxious Weed Management Plan identifies scattered infestation of whitetop, Russian knapweed, oxeye daisy, yellow toad flax, and scotch thistle within the North Fork area. Canadian thistle is also listed as a county-wide infestation. The listed weedy species along the canal laterals include: Russian olive, Canada thistle, Siberian elm, Scotch thistle, Russian knapweed, whitetop, chicory, cheatgrass, burdock, Dyer's woad, and tamarisk. The complete list of the noxious plant species located in Delta County is found in Appendix F.

3.5.1 No Action Alternative

The No Action Alternative would have no effect on existing vegetation resources.

3.5.2 Action Alternative

Temporary disturbances within the project area would occur during construction. Most of the areas where construction would take place are already altered from their natural state by agricultural and residential uses. All disturbed areas would be re-contoured and reseeded post construction. Areas that are disturbed during construction would be more vulnerable to nonnative

species and noxious weed infestation. These nonnative species typically recover more quickly after a disturbance than native species.

BMPs would be implemented to reduce impacts to native vegetation, such as staging materials outside of sensitive areas. Construction materials and equipment would be washed to remove dirt and seeds from weeds. Washing of construction equipment would also reduce the possibility of infestation by nonnative species. After surface disturbance, proper rehabilitation procedures would be followed to prevent infestation of invasive species. Cultivated lands that are disturbed during construction would be reseeded with an appropriate agricultural seed mix. Post-constriction treatment would take place to control noxious and invasive weeds.

There are no known wetland resources within the project area outside of the canal prism of the Slack and Patterson laterals. RMWDA is seeking a concurrence with the USACE that a Department of Army permit (i.e. Section 404 permit) is not required because the Action Alternative meets the exemption requirements outlined in 33 CFR 323.4(a)(3). (*USACE consultation is pending)*

3.6 Fish and Wildlife Resources

The majority of the project area contains agricultural fields. The small pockets of riparian areas along the laterals contain narrow-leaf and Fremont cottonwoods, sumac, wild rose, bulrush, carex, cattails, and a number of small forbs and grasses. Drier areas naturally support serviceberry, juniper trees and bushes, pinyon trees, and mountain mahogany. Habitat supported by the area ditches is subject to disturbance from periodic maintenance of the ditches and adjacent agricultural activities, but this area does provide some habitat associated with natural wetlands and riparian areas. Nonnative weeds found along the ditch include: Russian olive, Canada thistle, Russian knapweed, Siberian elm, Scotch thistle, whitetop, chicory, cheatgrass, burdock, Dyer's woad, and tamarisk. In addition to nesting birds, these habitats support small mammals, and in association with adjacent irrigation land, provide hunting areas for raptors and other wildlife.

Colorado Parks and Wildlife (CPW) describes the project area as winter and severe winter range for elk. For deer, the CPW lists the project area as a mule deer concentration area, winter range, winter concentration area, summer range, severe winter range, resident population area, and critical winter range (CPW 2010). The project area is also described as a winter forage area for the bald eagle and is within the historic range of Gunnison sage-grouse.

All projects receiving funding through the Colorado River Basin Salinity Control Program are required to implement a habitat replacement plan to provide for the mitigation of incidental fish and wildlife values that are lost due to the project. Reclamation has developed habitat evaluation procedures that estimate habitat losses or changes associated with salinity improvements.

3.6.1 No Action Alternative

Under the No Action Alternative, terrestrial wildlife and habitat would remain in their current condition. Salinity loading of the Colorado River Basin would continue at current rates, which would affect water quality within the drainage over time, thereby impacting the fish and wildlife using the area.

3.6.2 Action Alternative

Implementation of the Action Alternative would likely result in minor temporary impacts to wildlife species within the project area. Local wildlife may avoid using portions of the project area because of temporary disturbances due to pipeline construction. During the construction period and during pipeline maintenance there could be a short-term displacement (approximately three to six months) of wildlife that normally occupy the immediate project area. All construction activities would occur within a 100-foot wide area along the proposed pipeline alignment. Generally, wildlife would move easily and find alternative areas for forage and cover, and may return after construction and maintenance operations have been completed.

Impacts to small mammals, especially burrowing animals, could include direct mortality and displacement during construction activities. Small mammal 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 loss would be minor.

Impacts to big game would include short-term disturbances and displacement of late summer and fall incidental use during the construction period. It is anticipated, due to the minor amount of habitat disturbance, that minor to no impact to wintering big game populations would occur.

Impacts to raptors and other avian species would include minor short-term disturbance and displacement during construction, with no long-term impacts after construction. Construction would occur outside of the irrigation season and should not impact nesting birds.

The proposed action would result in a decrease in salinity and selenium levels, which would improve water quality in the Colorado River Basin and potentially benefit fish within the Colorado River System.

Those species, including avian and amphibian species, which are dependent on wetland and riparian habitats, would experience a long-term (greater than five years) loss of habitat as described above. The total habitat value that would be lost long-term would be mitigated through the implementation of a habitat replacement plan that has been approved by Reclamation. The habitat scoring for the project area is described in detail in Appendix H.

3.7 Federally Listed Species

The Endangered Species Act (ESA) of 1973 protects federally listed endangered, threatened, and candidate plant and animal species and their critical habitats. Table 3.1 lists these species that may occur within Delta County, Colorado. A general description of each species follows.

Table 3.1: Federally Listed and Candidate Species

Common Name	Scientific Name	Listing Status
Black-footed ferret	*Mustela nigripes*	Endangered
Bonytail chub	*Gila elegans*	Endangered
Canada lynx	*Lynx canadensis*	Threatened
Clay-loving wild buckwheat	*Erigonum pelinophilum*	Endangered
Colorado Basin hookless cactus	*Sclerocactus glaucus*	Threatened
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	Threatened
Gunnison sage-grouse	*Centrocercus minimus*	Proposed Threatened
Humpback chub	*Gila cypha*	Endangered
North American wolverine	*Gulo gulo luscus*	Proposed Threatened
Razorback sucker	*Xyrauchen texanus*	Endangered
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate

Black-footed Ferret

The black-footed ferret is 18 to 24 inches long, and weighs one-and-a-half to two-and-a-half pounds. Males are slightly larger than females. This species is a slender, wiry mammal with a black face mask, black feet, and a black-tipped tail. It has short legs with large front paws and claws developed for digging (USFWS Species Profile, July 2009). The black-footed ferret is known to inhabit white-tailed prairie dog towns or complexes. The species was listed as Endangered on March 11, 1967. A reintroduction program is underway for the black-footed ferret. This program includes northwest Colorado.

At the present time, there are no known populations in the Gunnison Basin. Potential habitat is fragmented in the Basin, with prairie dog towns separated by cropland and other human developments. At the present time, there are no known populations of black-footed ferrets in the project area or in the Gunnison Basin.

Bonytail Chub

The bonytail chub is a large freshwater minnow, up to 2 feet long with a slender caudal peduncle. This warm water species appears to favor mainstem rivers regardless of turbidity usually in or near deep swift water, in flowing pools and eddies just outside of the main current. Spawning occurs in spring over rocky substrates. Flooded bottomland habitats appear to be important growth and conditioning areas, particularly as nursery habitats for young. The bonytail was formerly widespread through much of the Colorado River Basin but is now widely extirpated and very rare, with no known self-sustaining populations. This species was listed as Endangered on April 23, 1980.

Canada Lynx

The Canada lynx is normally found in dense forested areas with an abundance of windfalls, swamps, and brushy thickets (Maas 1997). Lynx require heavy cover for concealment when stalking prey. In addition, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Maas 1997). In the western U.S., lynx occurrences generally are found only above 4,000 feet in elevation (McKelvey et al. 2000). Lynx may have

disappeared from Colorado by about 1973. In 1999 a program of lynx restoration began in the San Juan Mountains. By 2005, more than 200 animals had been released and lynx were expanding throughout the high country and occasionally beyond. The lynx is found in dense sub-alpine forests, wooded corridors along mountain streams, and avalanche chutes. Reintroduced lynx have entered the Gunnison Basin, where potential habitat occurs at higher elevations. The potential exists that the species may become permanently established in the upper areas of the Gunnison Basin. The project area is highly disturbed, there are no areas of high elevation, dense forested vegetation and no known habitat exists.

Clay-loving Wild Buckwheat

The Clay-loving wild buckwheat is a small shrub that is found in semi-desert shrub communities of adobe hills. It is normally located in specific microhabitats and can be associated with shadscale and mat saltbush. Its range is restricted to small acreages in Delta and Montrose Counties. Primary threats include fragmentation or clearing of habitat for urban development and off-road vehicle use. In the early twentieth century, habitat was probably more extensive but was likely cleared for agricultural uses. Soils supporting the species are derived from Mancos shale (Lyon and Williams 1998). Although the project site is near known habitat areas of the clay-loving wild buckwheat, no habitat or specimens were found within or directly adjacent to the project area.

Colorado Basin Hookless Cactus

The Colorado Basin hookless cactus is a small plant normally found on gravelly alluvial soils or in clay between 4,500 and 6,000 feet, and can be associated with shadscale, sagebrush, greasewood, saltbush, and other desert vegetation. In Colorado, the plant is known to occur in Montrose, Delta, Gunnison, Garfield, and Mesa Counties. Threats may include trampling from grazing, recreational use of lands, off-road vehicle use, and development on some lands. Past reports include populations on benches along the Gunnison River near Hotchkiss (Lyon and Williams 1998. There is no habitat or known occurrence of the species within the project area.

Colorado Pikeminnow

The Colorado pikeminnow is originally native to the Colorado River system. The near extinction of the Colorado pikeminnow can be linked to flow regulation, habitat loss, and competition and predation by nonnative fishes. Colorado pikeminnows are mainly piscivorous, meaning they eat fish. Younger pikeminnows also eat insects and other invertebrates. They spawn in the spring and summer over gravel or smaller cobble substrate situated in riffle habitat. Adult Colorado pikeminnows prefer medium to large rivers. Young pikeminnows prefer slow-moving backwaters. Historical accounts of six-foot long Colorado pikeminnows make this species the largest minnow in North America (UDWR 2010).

This long-lived fish was found throughout warm water reaches of the entire Colorado River Basin downstream to the Gulf of California. The pikeminnow was listed as endangered in 1967, and it is estimated that the pikeminnow no longer occurs in approximately 75 percent of its historic range. The Green River and its major tributaries support the largest population; the upper Colorado River population is more limited. The species occurred in the Gunnison River and has probably not ever been totally expatriated from the river. Its historical upstream limits on

the Gunnison are not known, but fish probably occurred at least upstream to the North Fork confluence.

The Action Alternative takes place entirely in irrigation ditches above the Gunnison River and offers no potential habitat sites for the Colorado pikeminnow.

Razorback Sucker

The razorback sucker is originally native to the Colorado River system. The near extinction of the razorback sucker can be linked to flow regulation or alterations, habitat loss, and competition and predation by non-native fishes. Razorback suckers mainly eat algae, zooplankton, and other aquatic invertebrates. They spawn between February and June. Adult razorback suckers prefer slow backwater habitats. The largest current concentration of razorback suckers can be found in Lake Mohave (an impounded water-body), located along the Arizona - Nevada border. Anecdotal accounts indicate that razorback sucker were common in the Gunnison River near Delta in the early and middle portions of the 20th Century (UDWR 2010).

The proposed piping area does not contain any known habitat for the razorback sucker.

Greenback Cutthroat Trout

The greenback cutthroat trout is a freshwater fish with numerous large spots and a green back. The species is found in clear, swift-flowing mountain streams with overhanging banks and vegetative cover. Juveniles tend to shelter in shallow backwaters and lakes. Spawning occurs in spring, or during the early summer in some high-elevation sites. Their numbers began to decline due to over-fishing, stocking of rainbow, brook, brown and Yellowstone cutthroat trout in their habitat, and loss of high-quality trout stream habitat due to logging, livestock over-grazing, water diversions and municipal and industrial pollution. No known habitat for the Greenback cutthroat trout is located within the project area.

Gunnison Sage-grouse

The Gunnison sage-grouse is a newly-classified, unique species of sage-grouse found south of the Colorado River. They are about one-third smaller than the typical sage-grouse, and males have more distinct, white tail feathers and filoplume. Female Gunnison sage-grouse and typical sage-grouse have nearly the same plumage. The separate populations in Colorado are the Pinion Mesa, Crawford, San Miguel Basin, Gunnison Basin, Dove Creek and Poncha Pass.

The Gunnison sage-grouse is a species of special concern in Colorado. Human development, livestock grazing, water diversion projects and increased ungulate populations have all contributed to historic losses of habitat for the Gunnison sage-grouse. In 2013, the Gunnison sage-grouse was proposed for an endangered listing on the ESA. There are no known occurrences of Gunnison sage-grouse or leks in the general vicinity of the project area.

Humpback Chub

The humpback chub is a federally listed endangered minnow that is originally native to the upper Colorado River system. The humpback chub originally thrived in the fast, deep, whitewater areas of the Colorado River and its major tributaries. Man-induced flow alterations have changed the turbidity, volume, current speed, and temperature of the water in those rivers and has contributed to the significant population declines. Humpback chub mainly eat insects and other invertebrates,

and occasionally algae and fish. The species spawns during the spring and summer in shallow, backwater areas with cobble substrate. Younger individuals reside in shallower, turbid habitats until they are large enough to move into white-water areas.

The proposed piping area does not contain any known habitat for the humpback chub.

North American Wolverine

The North American wolverine is approximately three feet long with a rather short tail, just one-quarter the total length. They are stocky mammals, weighing 20 to 30 pounds, and are built like a small bear. Their fur is dark brown to black and the sides have a characteristic yellowish brown to whitish stripe. In Colorado, nearly all historical and recent reports of wolverines are from higher elevation alpine areas. Until recently, the last confirmed wolverine sighting in Colorado was in 1919. Occasional reports of wolverine sightings were investigated, but wolverines were never officially documented. There is no known wolverine habitat in the proposed piping area.

Yellow-billed Cuckoo

As the name suggests, this avian species has a yellow lower mandible. It has rufous wings that contrast against the gray-brown wing coverts and upperparts. The underparts are white and they have large white spots on a long black undertail (Alsop 2001). It is a neotropical migrant, which winters in South America. Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (Ehrlich et al. 1992). Its incubation/nestling period is the shortest of any known bird because it is one of the last neotropical migrants to arrive in North America and chicks have very little rearing time before embarking on their transcontinental migration. Yellow-billed cuckoos arrive in Colorado in late May or early June and breed in late June through July. Cuckoos typically start their southerly migration by late August or early September (Parrish et al. 1999). Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 33 ft.). Based on historical accounts, the species was localized and uncommon along Colorado drainages while being locally common in other western areas (Fish and Wildlife Service 2005).

Cottonwood woodlands have been lost or fragmented in the study area due to clearing residential and agricultural uses, fires, invasion of tamarisk and other nonnative plants, and reduction of spring peaks that are important for regeneration of cottonwood stands. The lack of cottonwood thickets and dense habitat along the proposed piping area makes it highly unlikely that cuckoo habitat exists in the project area. Furthermore there are no known occurrences of the species in the project area.

3.7.1 No Action Alternative

Salinity loading of the Colorado River Basin would continue at current rates due to seepage from the Slack and Patterson laterals, which would impact water quality within the drainage, thereby impacting wildlife using the area. There would continue to be minor direct or indirect impacts to threatened, endangered, or candidate species from the continued salt loading in the Colorado River Basin. Any existing impacts to federally listed species and their habitat from the salt loading would continue under the No Action Alternative.

3.7.2 Action Alternative

On July 31, August 21, and September 12, 2013, Michael Zeman, Qualified Biologist, conducted a biological assessment along the Slack and Patterson laterals (see Appendix C). No threatened,

endangered, candidate or sensitive species or critical habitat was identified within the project area during the site assessments.

No new depletions to the Colorado River Basin would occur as a result of the Action Alternative. RMWDA's historic depletions 5,766 acre feet per year would continue to adversely impact endangered fish. Consultation with USFWS regarding historic depletions associated with RMWDA in pending(Appendix C). Through consultation, USFWS may determine that the project fits under the umbrella of the Gunnison River Basin Programmatic Biological Opinion (PBO) and would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts. RMWDA would then enter into a Recovery Agreement to provide certainty that its depletions can occur consistent with Section 7 of the ESA.

In addition, the cumulative efforts of the Colorado River Basin Salinity Control Program would improve water quality within designated critical habitats for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub throughout the Colorado River and Gunnison River basins by reducing salt and selenium loads.

The Action Alternative would have no adverse effect on Federally listed or candidate species including the black-footed ferret, the bonytail chub, the Canada lynx, clay-loving wild buckwheat, the Colorado Basin hookless cactus, the Colorado pikeminnow, the greenback cutthroat trout, the Gunnison sage-grouse, the humpback chub, the razorback sucker, the North American wolverine, and the yellow-billed cuckoo.

3.8 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for federally recognized Indian tribes or individuals. The Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with the tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety (please refer to the Departmental manual, 512 DM 2). Under this policy, as well as Reclamation's ITA policy, Reclamation is committed to carrying out its activities in a manner which avoids adverse impacts to ITAs when possible, and to mitigate or compensate for such impacts when it cannot. All impacts to ITAs, even those considered insignificant, must be discussed in the trust analyses in NEPA compliance documents and appropriate compensation or mitigation must be implemented.

Trust assets may include lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. Impacts to ITAs are evaluated by assessing how the action affects the use and quality of ITAs. Any action that adversely affects the use, value, quality or enjoyment of an ITA is considered to have an adverse impact on the resources.

There are no known ITAs in the project area vicinity. Therefore, the No Action and Action Alternative would have no effect on ITAs.

3.9 Environmental Justice

Executive Order 12898 on Environmental Justice provides that Federal agencies analyze programs to assure that they do not disproportionately adversely affect minority or low income populations or Indian Tribes.

3.9.1 No Action Alternative

The No Action Alternative would have no effect on environmental justice populations in the project area.

3.9.2 Action Alternative

While a minority population may exist in the general project area, implementation of the Action Alternative would not disproportionately affect low-income or minority populations. The proposed action would not involve population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. The Action Alternative would therefore have no adverse effects to human health or the environment and would not disproportionately affect minority and low-income populations.

3.10 Cultural Resources

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

On August 13, 2013, Alpine Archaeological Consultants, Inc. conducted a Class III cultural resource inventory of the Area of Potential Effect (APE) for the proposed action, which includes the irrigation features and staging areas. A total of 137.4 acres were inventoried. Three cultural resources were recorded within the APE: the Slack Lateral, the Patterson Lateral, and a segment of the North Fork Branch of the Denver and Rio Grande Railroad.

The Patterson Lateral was recorded from its headgate on the Fire Mountain Canal southward. This lateral, with its branches, is 4.7 miles long. Typical takeout structures on the Patterson Lateral fit a standard pattern. They are all concrete channels with 2-foot tall, 8-inch thick, concrete walls, have concrete floors, and triangular-shaped channel dividers with their points extending upstream near the downstream ends of the channels.

The Slack Lateral was also recorded from its headgate on the Fire Mountain Canal. This lateral with its branches is approximately 3.5 miles long. Numerous takeout structures are present on the various branches of the lateral. Like the Patterson Lateral, these takeout structures typically fit a standard pattern. They are all concrete channels with 2-foot tall, 8-inch thick, concrete walls, have concrete floors, and triangular-shaped channel dividers with their points extending upstream near the downstream ends of the channels. The widths and lengths of the channels are variable.

The North Fork Branch of the Denver and Rio Grande Railroad (Site 5DT1961.1) is a 725-foot long segment rail that runs east to west on private land immediately south of the community of Lazear. The railroad is outside of the disturbance area for the proposed action.

3.10.1 No Action Alternative

There would be no adverse effects to cultural resources under the No Action Alternative. There would be no need for ground disturbance for any pipe installation, staging areas, or access roads. The existing conditions and cultural resources would remain intact and would not be affected.

3.10.2 Action Alternative

There would be an adverse effect to the Slack and Patterson laterals from the implementation of the Action Alternative. The existing unlined earthen irrigation laterals would be replaced with a pipeline and buried. Mitigation measures for the adverse effect to the Slack and Patterson laterals would be outlined in a Memorandum of Agreement (MOA) between Reclamation, RMWDA and the Colorado Office of Archaeology and Historic Preservation in accordance with 36 CFR 800.6(c). *SHPO consultation is pending.*

3.11 Public Safety, Access, and Transportation

Major transportation resources in the area include Colorado State Highway 92, the Denver and Rio Grande Railroad, Delta County roadways, and local roads. Highway 92 runs from Hotchkiss to Sapinero and is approximately 73 miles long. County and local roads provide access and mobility for residents in Lazear. There are no public safety or emergency services located within the project area. The Hotchkiss Police Department provides emergency services for the town of Lazear.

3.11.1 No Action Alternative

Public Safety and transportation resources would not be impacted by the No Action Alternative.

3.11.2 Action Alternative

The proposed action may cause limited delays along roadways adjacent to the project area from construction vehicles entering and exiting the roads. Although no temporary road closures are planned, any temporary road or access closure would be coordinated with local law enforcement and emergency services.

3.12 Recreation Resources

The proposed project is located entirely on private lands with easements held by RMWDA. There are no public lands or public recreational resources within or directly adjacent to the project area. Therefore, the No Action and Action Alternatives would have no effect on recreation resources.

3.13 Visual Resources

The visual resources within the project area are generally related to the area's population, agricultural activities, and adjacent topographic features. The elevation of the proposed project area ranges from 5,400 to 5,880 feet above sea level. Most of the project area has been previously disturbed and converted to agricultural or residential uses. No part of the existing RMWDA canal system is located on public lands managed by the BLM.

3.13.1 No Action Alternative
There would be no impacts on the visual resources from the No Action Alternative.

3.13.2 Action Alternative
Under the Action Alternative the proposed pipeline would be buried and the site would be restored to its original condition. Visual impacts associated with construction activities would be temporary. During preconstruction staging of materials, construction, and post-construction rehabilitation of the project area, the existing ditch would be filled, graded, and re-vegetated to match the surrounding landscape.

3.14 Prime, Unique and Statewide Important Farmland
Farmland protected under the Farmland Protection Policy Act (FPPA) of 1981 is defined in Section 4201 of the FPPA as prime farmland, farmland of statewide or local importance, and unique farmland. Prime farmland soils are those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and are available for these land uses. Prime farmland can be either non-irrigated land or land that would be considered prime if irrigated. Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops. Farmland of statewide importance is land, other than prime and unique farmland, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops.

Information on soils was obtained from the NRCS to determine the presence of prime, unique, statewide, or locally important farmland within the project footprint. Table 3.2 details the soil information for the project area. Figure 3.1 shows the soil information from the NRCS Web Soil Survey.

Table 3.2: Prime, Unique, and Statewide Important Farmland

Map Symbol	Map Unit Name	Farmland Classification
3	Agua Fria stony loam, 3 to 12% slopes	Farmland of unique importance
5	Agua Fria clay loam, 1 to 6% slopes	Prime farmland if irrigated
10	Avalon loam, 3 to 6% slopes	Prime farmland if irrigated
53	Mesa loam, 0 to 3% slopes	Prime farmland if irrigated
54	Mesa loam, 3 to 6% slopes	Prime farmland if irrigated
55	Mesa-Utaline stony loams, 3 to 12% slopes	Farmland of unique importance

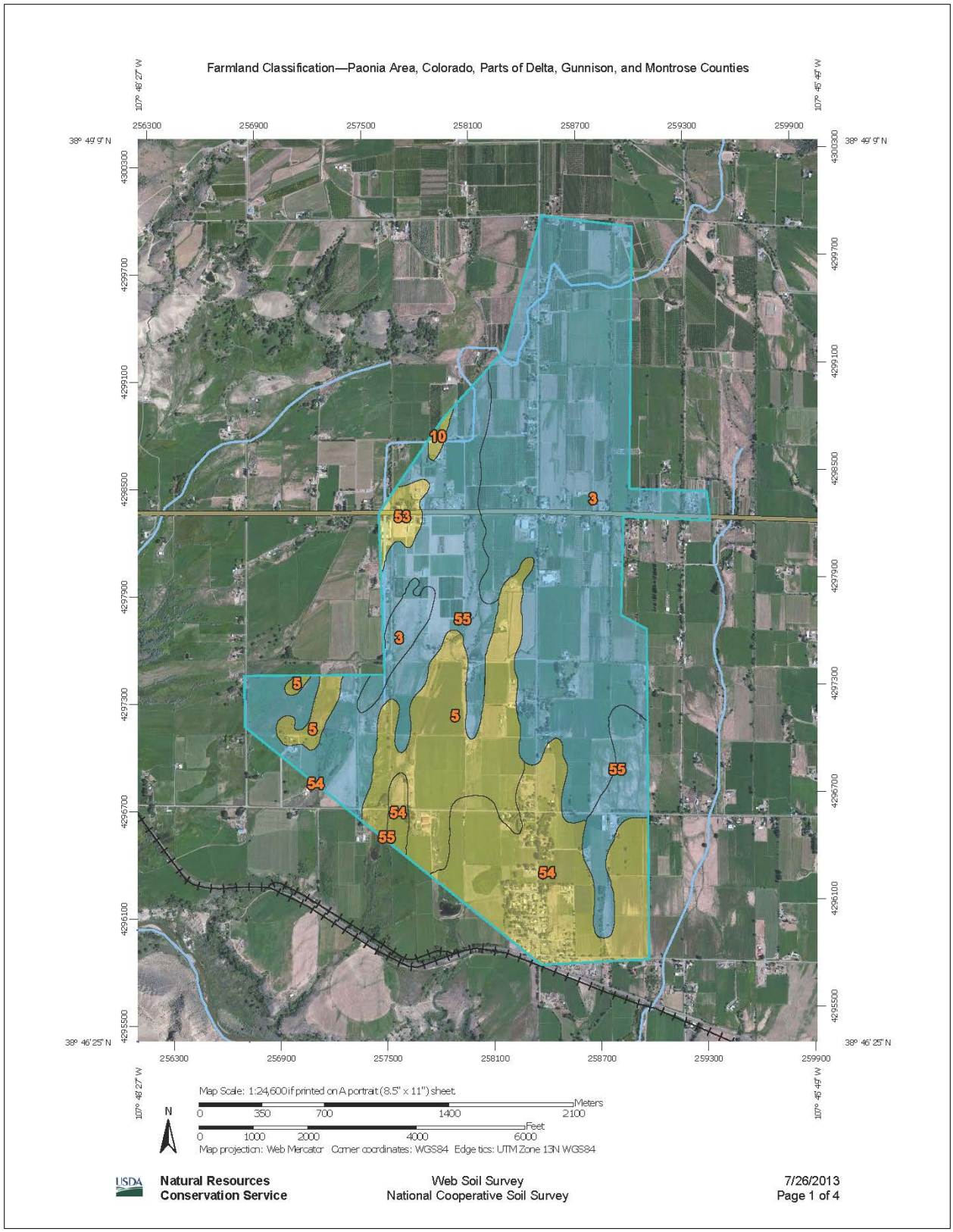

Figure 3.1 Farmlands Map

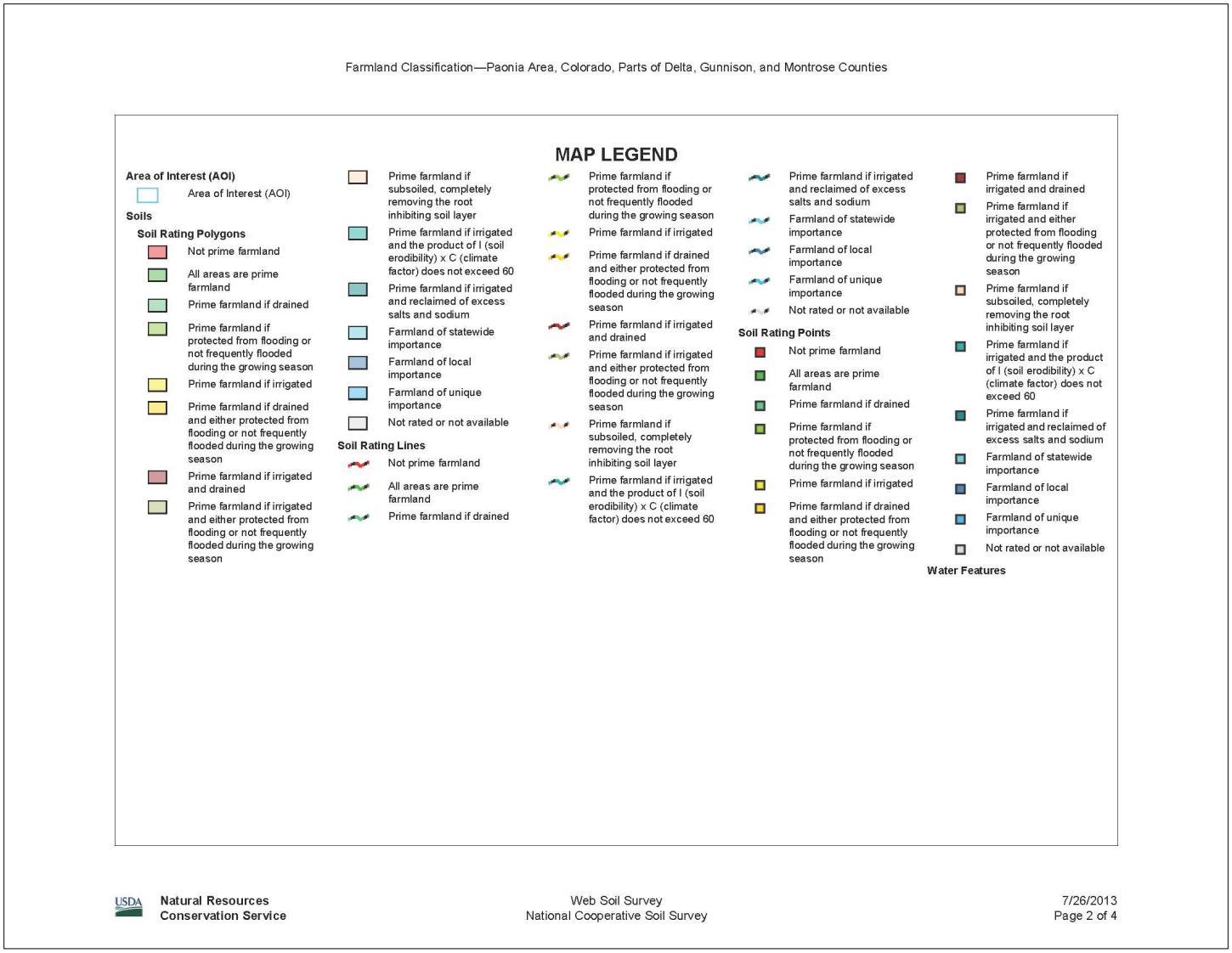

Figure 3:1 Farmlands Map Legend

3.13.1 No Action Alternative

The No Action Alternative would have no new impact on the farmlands in the project area. Existing maintenance on the laterals would continue to disturb areas of farmland, and irrigation water may be insufficient in dry years.

3.13.2 Action Alternative

The construction of the Action Alternative may have short-term impacts from the ground disturbing activities. Post-construction, the canal prisms would be filled, contoured and reseeded. Once constructed, annual maintenance activities along the laterals adjacent to these farmlands would greatly reduce. In addition, improved water delivery should assist in keeping these agricultural lands in production. The increased efficiency of the irrigation system along with the reduction in maintenance activities from the Action Alternative would result in a beneficial effect to farmland in the project area.

3.14 Wild and Scenic Rivers, Wilderness, or Wilderness Study Areas

There are no Wild and Scenic Rivers, Wilderness, or Wilderness Study Areas within or adjacent to the project area. Therefore, there would be no impact to these resources from the No Action Alternative or the Action Alternative.

3.15 Cumulative Impacts

Cumulative impacts result from the incremental effect of the proposed action, when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

At this time, there are no known Federal, state, or local projects occurring within the project area or vicinity. The proposed action would comply with all relevant Federal, state, and local permits (detailed in Chapter 4). The proposed project action and the duration of disturbance under the proposed action are anticipated to be small scale and short-term. Long-term impacts are not expected to raise cumulative negative impacts to a significant level.

There are three Federal programs that include the project area at a basin-wide scale. The first program is the Colorado River Basin Salinity Control Program, which provided the funding for implementation of the Proposed Action. Collectively, projects funded under the Colorado River Basin Salinity Control Program, result in improved water quality with the goal of reducing salt loading in the Colorado River. The second is the Upper Colorado River Endangered Fish Recovery Program. The Recovery Program involves Federal, state, and private organizations and agencies in Colorado, Utah, and Wyoming. Partners of the Recovery Program are recovering four species of endangered fish in the Colorado River and its tributaries while water use and development continues to meet human needs in compliance with interstate compacts and applicable Federal and state laws. The third program is the development and implementation of the Gunnison Basin Selenium Management Plan which was incorporated as a conservation measure in the Gunnison Basin Programmatic Biological Opinion (Fish and Wildlife Service 2009). Reclamation, working with entities in the Gunnison Basin, developed a plan to reduce selenium levels in the Gunnison River at Whitewater. When the Proposed Action is analyzed with the components of these basin-wide programs, the cumulative beneficial effects on water quality are significant.

3.16 Summary of Impacts

Table 3.3 provides a summary of the environmental consequences for each resource evaluated in this EA. Resource impacts are outlined for both the No Action Alternative and the Action Alternative.

Table 3.3: Summary of Impacts

Resource Issue	No Action	Proposed Action
Air Quality	No Effect	Minor short-term effects due to fugitive dust and equipment exhaust from construction activity. Mitigate with BMPs.
Water Rights and Use	No Effect	No Effect
Water Quality	Continued salt loading from the project area to the Colorado River Basin and selenium contributions to the North Fork and Leroux Creek	Estimated annual reduction of 3, 415 tons of salt loading to the Colorado River Basin from off-farm improvements. Also potential selenium loading reductions to the North Fork and Leroux Creek.
Vegetative Resources	No Effect	Estimated loss of 20.24 habitat units from reduced seepage and canal prism habitat. A Habitat Replacement Plan would be implemented to mitigate for the habitat units lost from the construction of the Action Alternative.
Fish and Wildlife Resources	No Effect	Short-term temporary impact to local wildlife during construction. Estimate loss of 20.24 habitat units from reduced seepage and canal prism habitat. A Habitat Replacement Plan would be implemented to mitigate for the habitat units lost from the construction of the Action Alternative.

Table 3.3: Summary of Impacts (continued)

Resource Issue	No Action	Proposed Action
Threatened and Endangered Species	Selenium and salinity loading from the project area would continue to affect aquatic dependent species, as would historic depletions.	Historic depletions would continue to adversely affect the Colorado River fish. *Pending consultation with USFWS.*
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Cultural Resources	No Effect	Adverse Effect to Slack and Patterson laterals (5DT1959/ 5DT1960). An MOA outlining mitigation measures for the adverse effect would be signed and implemented prior to commencement of construction activities.
Public Safety, Access, and Transportation	No Effect	Minor temporary disruptions to local roadways from construction traffic entering and exiting the roadways. No long-term effects from the Action Alternative.
Recreation Resources	No Effect	No Effect
Visual Resources	No Effect	Minor temporary impacts from construction activities. No long-term effects from the Action Alternative.
Prime, Unique and Statewide Important Farmlands	Minor direct and indirect impacts may occur due to inefficiency of the existing water delivery system and increased selenium levels.	Beneficial Effects
Other Impacts	No Effect	No Effect
Cumulative Impacts	No Effect	Beneficial Effects

Chapter 4: Environmental Commitments and Mitigation Measures

4.1 Introduction

This section discusses the environmental commitments and related mitigation measures developed to protect resources and mitigate adverse impacts to a non-significant level. The cooperative agreement between Reclamation and RMWDA requires that RMWDA be responsible for "…implementing and/or complying with the environmental commitments contained in the NEPA/ESA compliance documents to be developed by Reclamation for the project".

4.2 Environmental Commitments

The following environmental commitments would be implemented as an integral part of the proposed action. Environmental commitments include:

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 personnel and included in contract specifications.

2. **Construction Activities Confined to the Surveyed Corridor** – All construction activities would be confined within the 100-foot wide corridor and staging areas that have been surveyed for cultural, paleontological and biological resources. Construction activities outside of this corridor would require additional review by Reclamation to determine if the existing surveys and information are adequate to evaluate additional impacts outside this corridor. If additional borrow or waste areas are identified, the areas would be inventoried, surveyed, and evaluated prior to use. Additional NEPA/ESA compliance activities may be required if determined by Reclamation.

3. **Disturbed Areas** – During construction, topsoil would be preserved and then redistributed after completion of construction activities. All disturbed areas would be smoothed, shaped, contoured and reseeded to as near their pre-project conditions as practicable. Seeding and planting would occur at appropriate times with weed-free seed mixes of native plants and agricultural grasses on disturbed areas, where appropriate.

4. **Water Quality** – BMPs would be implemented to minimize erosion and protect water quality of downstream resources. BMPs are described in detail in the Water Quality section of this document. In the event that dewatering during construction is needed, RMWDA and its contractor would obtain required CWA Section 402 permits prior to dewatering.

5. **Vegetation Resources** – Ground disturbances would be limited to those areas necessary to safely implement the proposed action. BMPs would be implemented to reduce disturbance to vegetation resources and reduce the amount of planting or reseeding needed. Planting and reseeding disturbed areas, per landowner specifications, monitoring plantings to ensure establishment, control of noxious weeds in disturbed areas, and the

use of accepted erosion control measures during construction are all incorporated as environmental commitments for the proposed action.

6. **Noxious Weeds** – Noxious weeds shall be controlled following Reclamation's BMPs. Areas that are disturbed may be more vulnerable to nonnative and noxious weed infestation. To minimize impact to native vegetation, previously disturbed areas would be used for construction activities, wherever possible. After any surface disturbance, proper rehabilitation procedures would be followed to prevent the infestation of invasive species. This would include weed-free seeding mixtures of desirable native species and agricultural grasses, where appropriate.

7. **Fish and Wildlife Resources** – Construction areas would be confined to the smallest feasible area to limit disturbance to wildlife within the project area.

8. **Habitat Replacement** – Development and/or enhancement to replace the predicted fish and wildlife habitat units lost under the proposed action are required under the Colorado River Salinity Control Act. RMWDA is responsible for developing and implementing a Reclamation approved wildlife habitat replacement plan. Habitat replacement would be implemented concurrently with the proposed action.

9. **Federally Listed Species** – RMWDA entered into a recovery agreement with the USFWS to incorporate its historic depletions under the umbrella of the Gunnison Basin Programmatic Biological Opinion. *A recovery agreement is pending USFWS consultation.*

10. **Cultural Resources** – Reclamation, RMWDA, and the CSHPO would enter into a Memorandum of Agreement (MOA) to mitigate for the adverse effects to cultural resources. The MOA would commit to historic resource documentation of the Slack and Patterson laterals (5DT1959 & 5DT1960) recording prior to construction activities in accordance with the guidance for Level 1 documentation found in "Historic Resource Documentation, Standards for Level I, II, and III Documentation" (COAHP 2007). *MOA requirements are pending SHPO consultation*

11. **Hazardous Materials** – During construction, the use, storage and disposal of hazardous waste materials and waste onsite would be managed in accordance with all Federal, state and local standards.

Chapter 5: Consultation and Coordination

5.0 Introduction

Reclamation's consultation and coordination process presents other agencies, interest groups, and the general public with opportunities to obtain information about a given project and allows interested parties to participate in the project through written comments. The key objective is to create and maintain a well-informed, active public that assists decision-makers throughout the process, culminating in the implementation of an alternative. This section of the EA discusses consultation and coordination activities undertaken to date for the Slack and Patterson Laterals Salinity Control Project.

The Slack and Patterson Laterals Salinity Control Project was developed by RMWDA as a means to address the guidelines in the Colorado River Salinity Control Program and to improve the efficiency of the RMWDA system. Conceptual plans were developed by RMWDA with assistance from J-U-B Engineers, Inc. of Salt Lake City, Utah. RMWDA prepared and submitted a formal funding application for salinity funding through Reclamation's Funding Opportunity Announcement (FOA).

5.1 Agency Consultation

This EA was prepared by J-U-B Engineers, Inc. for Reclamation and RMWDA. Local, state, and Federal agencies were contacted and consulted in the preparation of this document. Agencies and organizations consulted during the document development include the following:

- U.S. Army Corps of Engineers, Grand Junction, CO
- Colorado Parks and Wildlife, Gunnison, CO
- Roger's Mesa Water Distribution Association, Roger's Mesa, CO
- Delta County, CO
- U.S. Fish and Wildlife Service, Grand Junction, CO
- Colorado Office of Archaeology and Historic Preservation, Denver, CO
- Colorado Water Conservation Board, Denver, CO
- Hotchkiss-Crawford Historical Society, Hotchkiss, CO

5.2 Draft EA Comments

[Pending Draft EA distribution]

5.3 Distribution List

Appendix A contains the distribution list for this draft EA.

[Pending Draft EA distribution]

5.4 List of Preparers

Table 5.1: List of Preparers

Name	Title/Position	Contributions
Agency Representatives		
Terry Stroh	Grand Junction BOR, Environmental and Planning Group	Environmental Project Manager
Mark Wernke	Grand Junction BOR, Design and Construction Group	Project Manager
Jenny Hamilton	Grand Junction BOR, Environmental Protection Specialist	Project Coordination and Oversight
Consultants		
Brian Deeter, P.E.	Area Manager, J-U-B Engineers, Inc.	Project Manager
Bryce Wilcox, P.E.	Design Engineer, J-U-B Engineers, Inc.	Alternative Analysis
Marti Hoge	Environmental Lead, J-U-B Engineers, Inc.	NEPA Oversight
Jordan Hansen	GIS Specialist, Gateway Mapping, Inc.	GIS, Document Graphics
Becky Lang	Environmental Planner, J-U-B Engineers, Inc.	Affected Environment & Environmental Consequences
Michael Zeman	Biologist, Wildlife and Natural Resource Concepts & Solutions, LLC.	Biological Resources
Jonathon C. Horn	Archaeologist, Alpine Archaeological Consultants, Inc.	Cultural Resources
Jack Pfertsh	Archaeologist, Alpine Archaeological Consultants, Inc.	Cultural Resources

Chapter 6: References

Colorado Department of Public Health and Environment. "Delta County Noxious Weed Management Plan". April 2010. Accessed July 25, 2013. http://www.deltacounty.com/DocumentCenter/Home/View/1013

Colorado River Water Conservation District. "Ecological and Physical Processes During Spring Peak Flow and Summer Baseflows in the 15-Mile Reach of the Colorado River". Volume 1-Final Report, March 2008. Accessed August 15, 2013. http://www.crwcd.org/media/uploads/20080331_Final_15-Mile_Reach_Rept.pdf

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State of Colorado. "Water Quality Control Commission". Classifications and Numeric Standards for Colorado River Basins Report. Accessed August 8, 2013.http://www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251595703337

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U.S. Bureau of Reclamation. "Quality of Water- Colorado River Basin". *Progress Report No. 22, 2005.*Accessed July 30, 2013. http://www.usbr.gov/uc/progact/salinity/pdfs/PR22.pdf

Chapter 7: Abbreviations and Acronyms

AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effects
ARPA	Archaeological Resources Protection Act
BGEPA	Bald and Golden Eagle Protection Act
BLM	U.S. Bureau of Land Management
BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CPW	Colorado Parks and Wildlife
CSHPO	Colorado State Historic Preservation Office
CWA	Clean Water Act
DEQ	Department of Environmental Quality
DPS	Distinct Population Segment
E.O.	Executive Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
Interior	U.S. Department of the Interior
ITAs	Indian Trust Assets

MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PM 10	Particulate Matter 10 Micrograms for Cubic Meter
PM 2.5	Particulate Matter 2.5 Micrograms for Cubic Meter
PRPA	Paleontological Resources Preservation Act
RCRA	Resource Conservation and Recovery Act
Reclamation	U.S. Bureau of Reclamation
RMWDA	Roger's Mesa Water Distribution Association
SOPs	Standard Operating Procedures
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

Appendix A: Distribution List

All landowners within a 0.5-mile radius of the project alignment were contacted regarding the release of the Draft Environmental Assessment. For a complete list of the 485 property owners please contact the Bureau of Reclamation, Grand Junction Field Office. The following agencies were sent copies of the Draft Environmental Assessment:

Mr. Kyle Banks
District Wildlife Manager
Colorado Parks and Wildlife

Mr. J. Wenum
Gunnison Area Wildlife Manager
Colorado Parks and Wildlife

Mr. David Rice
Delta County Planning and Development
Delta, CO

Mr. Larry Record
Delta County Road and Bridge
Delta, CO

Ms. Patty Gelatt
Assistant Field Supervisor
US Fish and Wildlife Service

Mr. Nathan Green
US Army Corps of Engineers
Colorado West Regulatory Branch

Mr. Steve Miller
Colorado Water Conservation Board
Denver, CO

Mr. Dave Kanzer
Colorado Water Conservation District
Glenwood Springs, CO

Mr. Ralph D'Alessandro
Delta Conservation District
Delta, CO

Mr. Chuck Farmer
Hotchkiss-Crawford Historical Society
Hotchkiss, CO

Appendix B: Clean Water Act Exemptions

Irrigation Exemption Summary

US Army Corps of Engineers

Sacramento District
1325 J Street
Sacramento, CA 95814-2922

FARM OR STOCK POND OR IRRIGATION DITCH CONSTRUCTION OR MAINTENANCE

Pursuant to Section 404 of the Clean Water Act (33 USC 1344) and Federal Regulations (33 CFR 323.4(a)(3)), certain discharges for the construction or maintenance of farm or stock ponds or irrigation ditches have been exempted from requiring a Section 404 permit. Included in the exemption are the construction or maintenance of farm or stock ponds or irrigation ditches, or the maintenance (but not the construction) of drainage ditches. Discharges associated with siphons, pumps, headgates, wingwalls, weirs, diversion structures, and such other facilities as are appurtenant and functionally related to irrigation ditches are included in this exemption.

A Section 404 permit is required if either of the following occurs:

(1) Any discharge of dredged or fill material resulting from the above activities which contains any toxic pollutant listed under Section 307 of the Clean Water Act shall be subject to any applicable toxic effluent standard or prohibition, and shall require a permit.

(2) Any discharge of dredged or fill material into waters of the United States incidental to the above activities must have a permit if it is part of an activity whose purpose is to convert an area of the waters of the United States into a use to which it was not previously subject, where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced. Where the proposed discharge will result in significant discernible alterations to flow or circulation, the presumption is that flow or circulation may be impaired by such alteration. For example, a permit will be required for the conversion of a wetland from silvicultural to agricultural use when there is a discharge of dredged or fill material into waters of the United States in conjunction with construction of dikes, drainage ditches, or other works or structures used to effect such conversion. A discharge which elevates the bottom of waters of the United States without converting it to dry land does not thereby reduce the reach of, but may alter the flow or circulation of, waters of the United States.

If the proposed discharge satisfies all of the above restrictions, it is automatically exempted and no further permit action from the Corps of Engineers is required. If any of the restrictions of this exemption will not be complied with, a permit is required and should be requested using ENG Form 4345 (Application for a Department of the Army permit). A nationwide permit authorized by the Clean Water Act may be available for the proposed work. State or local approval of the work may also be required.

For general information on the Corps' Regulatory Program please check our web site at www.spk.army.mil/regulatory. For additional information or for a written determination regarding a specific project, please contact the Corps at the following addresses:

Sacramento Main Office-1325 J Street, Room 1480, Sacramento, CA 95814	(916) 557-5250
Redding Field Office-152 Hartnell, Redding, CA 96002	(530) 223-9534
Reno Office-300 Booth Street, Room 2103, Reno, NV 89509	(775) 784-5304
Intermountain Region Main Office-533 West 2600 South, Suite 150, Bountiful, UT 84010	(801) 295-8380
Colorado/Gunnison Basin Office-402 Rood Ave., Room 142, Grand Junction, CO 81501	(970) 243-1199
Durango Office-278 Sawyer Dr., Unit #1, Durango, CO 81301	(970) 375-9506
Frisco Office-301 W Main, Suite 202, P.O. Box 607, Frisco, CO 80443	(970) 668-9676
St. George Office-321 North Mall Drive, Suite L-101, St. George, UT 84790	(435) 986-3979

Appendix C: ESA Compliance Documents

(pending USFWS Consultation)

Appendix D: Cultural Resource Compliance Documents

HISTORY Colorado

January 14, 2014

Ed Warner
Area Manager
Bureau of Reclamation
Upper Colorado Region
Western Colorado Area Office
2764 Compass Drive, Suite 106
Grand Junction, Colorado 81506

Re: Finding of Adverse [E]ffect to the Patterson Lateral, the Slack Lateral, and a Segment of the North Fork Branch of the D&RG Railroad, Delta, Colorado (CHS #65236)

Dear Mr. Warner:

Thank you for your correspondence dated January 7, 2014 (received by our office on January 9, 2014) regarding the subject project.

Based on our review of the documentation provided, we concur with your determination that the Patterson Lateral (5DT1959) and Slack Lateral (5DT1960) are eligible for listing to the National Register of Historic Places (NRHP) under Criterion A for agriculture and settlement at the local level of significance from the 1880s through the early 1960s. Further, we concur with your determination that linear segment 5DT1961.1 retains sufficient historical integrity to support the overall eligibility of the Denver & Rio Grande Railroad. Finally, pursuant to 36 CFR 800.5(a)(1) we concur that the proposed undertaking will result in an adverse effect and find the proposed treatment satisfactory. Consequently, we look forward to further consultation regarding the development of a Memorandum of Agreement to avoid, minimize or mitigate this effect, as stipulated by 36 CFR 800.6.

The Section 106 consultation process does involve other consulting parties such as local governments and Tribes, which as stipulated in 36 CFR 800.3 are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations.

We do request that Reclamation provide our office with an electronic copy of this agreement document as this will enable us to provide comments electronically and ultimately expedite consultation. This document may be sent directly to the e-mail address below.

Thank you for the opportunity to comment and we look forward to continued consultation on the subject project. If we may be of further assistance, please contact Mark Tobias, Section 106 Compliance Manager at (303) 866-4674 or mark.tobias@state.co.us.

Sincerely,

for Edward C. Nichols
State Historic Preservation Officer
ECN/MAT

MEMORANDUM OF AGREEMENT

BETWEEN

THE WESTERN COLORADO AREA OFFICE, BUREAU OF RECLAMATION

AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER

REGARDING THE SLACK AND PATTERSON LATERALS OF THE ROGER'S MESA PIPING PROJECT, COLORADO RIVER BASIN SALINITY CONTROL PROGRAM

WHEREAS, the Bureau of Reclamation (Reclamation) as lead Federal agency has determined that the Slack and Patterson Laterals of the Roger's Mesa Piping Project will have an adverse effect on the Patterson Lateral (5DT1959), the Slack Lateral (5DT1960), and a segment of the North Fork Branch of the D&RG Railroad (5DT1961.1). The laterals and railroad segment have been determined by Reclamation and the Colorado State Historic Preservation Officer (SHPO) to be eligible for inclusion in the National Register of Historic Places (NRHP). Reclamation has consulted with the SHPO pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (26 U.S.C. 470f); and

WHEREAS, the Roger's Mesa Water Distribution Association is the sponsor of the Slack and Patterson Laterals of the Roger's Mesa Piping Project and has participated in the consultation and has been invited to sign the Memorandum of Agreement (MOA) as a concurring party; and

WHEREAS, the Hotchkiss-Crawford Historical Society has been invited to participate and sign the Memorandum of Agreement (MOA) as a concurring party; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), Reclamation has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination providing the specified documentation, and the Council has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii);

NOW, THEREFORE, pursuant to Section 106 of the NHPA, Reclamation and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect on historic properties.

STIPULATIONS

1. It is mutually understood and agreed by and between the parties that:

    a. Prior to any modification of the Slack and Patterson Laterals and a segment of the North Fork Branch of the D&RG Railroad (5DT1960, 5DT1959, and 5DT1961.1), Reclamation will ensure that this property will be recorded in accordance with the guidance for Level I Documentation found in "Historic Resource Documentation, Standards for Level I, II, and III Documentation" (Office of Archaeology and Historic Preservation Publication 1595, October 2007). The documentation will include mapping of the property and photographic documentation of those portions of the historic property to be included in the piping project. Photographs will be black and white archival quality (4" x 6") prints. Features will be plotted on the maps with GPS waypoints and will be extensively described and indexed in the report.

    b. Reclamation will supplement the Level I Documentation with a descriptive and historical narrative. The narrative will synthesize the existing documentation on Sites 5DT1960, 5DT1959, and 5DT1961.1 and describe them in the context of the development and history of the Smith Fork area. The narrative will include photographs of the landscape features taken during the cultural resources survey. A Summary Report for the recorded segment, which includes the Level I Documentation and the narrative, will be prepared.

    The Summary Report will be prepared within one year of the execution of this MOA.

2. Monitoring: The signatories may monitor activities pursuant to this MOA, and the Council will review such activities if so requested by a party to this MOA. Reclamation will cooperate with the signatories in carrying out their review and monitoring responsibilities.

3. Dispute Resolution: Should the SHPO object within 30 days to any documentation provided for its review pursuant to this agreement, Reclamation shall consult with the SHPO to resolve the objection. If Reclamation determines the objection cannot be resolved Reclamation shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation the Council will:

    a. Advise the agency that the Council concurs in the agency's proposed response to the objection, whereupon the agency will respond to the objection accordingly;

    b. Provide the agency with recommendations, which the agency shall take into account in reaching a final decision regarding its response to the objection; or

    c. Notify the agency that the objection will be referred for comment pursuant to 36 CFR § 800.7(a)(4), and proceed to refer the objection and comment. The agency shall take the resulting comment into account in accordance with 36 CFR § 800.7(c)(4).

4. Amendment and Termination: Any signatory to this agreement may request that it be amended, whereupon the parties will consult to reach a consensus on the proposed amendment. Where no consensus can be reached, the agreement will not be amended.

5. Duration: This MOA will be null and void if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, Reclamation shall either (a) execute a MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the Council under 36 CFR § 800.7. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation 4 above. Reclamation shall notify the signatories as to the course of action it will pursue.

6. In the event that Congress amends Section 106 of the NHPA or in the case of substantial changes to 36 CFR Part 800, the parties to this agreement will consider whether it would be appropriate to amend the agreement. Any signatory to this agreement may terminate it by providing thirty (30) days' notice to the other parties, provided that the signatories and concurring parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

7. Failure to Carryout Terms: Failure to carry out the terms of this MOA requires that Reclamation again request the Council's comments in accordance with 36 CFR Part 800. If Reclamation cannot carry out the terms of the MOA, it will not take or sanction any action or make an irreversible commitment that would result in an adverse effect to the historic property covered by the MOA or that would foreclose the Council's considerations of modifications or alternatives that could avoid or mitigate the adverse effect on the properties until the commenting process has been completed.

Execution of this MOA by Reclamation and the SHPO, its subsequent acceptance by the Council, and implementation of its terms, evidence that Reclamation has afforded the Council an opportunity to comment on the effects of the Roger's Mesa Piping Project on the three historic properties and that Reclamation has taken into account the effects of the undertaking on the historic properties.

SIGNATORIES:

Colorado State Historic Preservation Officer

By:_____ Date:

Edward C. Nichols, SHPO

Bureau of Reclamation, Western Colorado Area Office

By:_____ Date:

Ed Warner, Area Manager

CONCURRING PARTIES:

Roger's Mesa Water Distribution Association

By:_____ Date:

Myles Roberts, President

Appendix E: Site Plan

Appendix F: Delta County Noxious Weed List

1.08 Weed Lists: State of Colorado

Under the Colorado Noxious Weed Act, the Colorado Department of Agriculture has appointed a Colorado State Noxious Weed Advisory Board. The Colorado State Noxious Weed Advisory Board and the Department of Agriculture Commissioner have designated the following classifications and management goals for the noxious weed species below:

List A Species

List A species in Colorado are designated by the Commissioner for eradication. These weeds are either relatively rare or have not been found in Colorado. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009.

African rue (*Peganum harmala*)
Camelthorn (*Alhagi pseudalhagi*)
Common crupina (*Cupina vulgaris*)
Cypress spurge (*Euphorbia cyparissias*)
Dyers woad (*Isatis tinctoria*)
Giant salvinia (*Salvinia molesta*)
Hydrilla (*Hydrilla verticillata*)
Meadow knapweed (*Centaurea pratensis*)
Mediterranean sage (*Salvia aethopsis*)
Medusahead (*Taeniatherum caput-medusae*)
Myrtle spurge *(Euphorbia myrsinites)*
Orange hawkweed *(Hieracium aurantiacum)*
Purple loosestrife (*Lythrum salicaria*)
Rush skeletonweed (*Chondrilla juncea*)
Sericea lespedeza (*Lespedeza cuneata*)
Squarrose knapweed (*Centaurea virgata*)
Tansy ragwort (*Senecio jabobaea*)
Yellow starthistle (*Centaurea solstitialis*)

List B Species

List B weed species are species for which the Commissioner (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) develops and implements state noxious weed management plans designed to stop the continued spread of these species. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009

Absinth wormwood (*Artemisia absinthium*)
Black henbane *(Hyoscyamus niger)*
Bouncingbet (*Saponaria officinalis*)

Bull thistle *(Cirsium vulgare)*
Canada thistle *(Cirsium arvense)*
Chinese clematis *(Clematis orientalis)*
Common tansy *(Tanacetum vulgare)*
Common teasel (*Dipsacus fullonum*)
Dalmatian toadflax *(Linaria dalmatica)*
Dame's rocket *(Hesperis matronalis)*
Diffuse knapweed *(Centaurea diffusa)*
Eurasian watermilfoil *(Myriophyllum spicahim*)
Hoary cress or Whitetop *(Cardaria draba)*
Houndstongue *(Cynoglossum officinale)*
Leafy spurge *(Euphorbia esula)*
Moth mullein (*Verbascum blattaria*)
Musk thistle *(Carduus nutans)*
Oxeye daisy *(Chrysantheum leucanthemum)*
Perennial pepperweed (*Lepidium latifolium*)
Plumeless thistle *(Carduus acanthoides)*
Quackgrass (*Elytrigian repens*)
Redstem filaree (*Erodium cicutarium*)
Russian knapweed *(Centaurea repens)*
Russian olive (*Elaneagnus angustifolia*)
Saltcedar *(Tamarix ramossissima)*
Scentless chamomile *(Matricaria perorate)*
Scotch thistle (*Onopordum acanthium*)
Spotted knapweed *(Centaurea maculosa)*
Spurred anoda (*Anoda cristata*)
Sulfur cinquefoil (*Potentilla recta*)
Venice mallow (*Hibiscus trionum*)
Wild caraway *(Carum carvi)*
Yellow nutsedge (*Cyperus esculentus*)
Yellow toadflax *(Linaria vulgaris)*

List C Species

List C weed species are species for which the Commissioner (in consultation with the state noxious weed advisory committee, local governments, and other interested parties) will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will be to stop the continued spread of these species and provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species. Species that are in **bold print** are known to exist in Delta County as of January 1, 2009

Cheatgrass *(Bromus tectorum)*
Chicory (*Cichorium intybus*)

Common burdock (*Arctium minus*)
Common mullein *(Verbascum thapsus)*
Field bindweed *(Convolvulus arvensis)*
Halogeton (*Halogeton glomeratus*)
Johnsongrass (*Sorghum halepense*)
Jointed goatgrass (*Aegilops cylindrica*)
Perennial sowthistle (*Sonchus arvensis*)
Poison hemlock (*Conium maculatum*)
Puncturevine (*Tribulus terrestris*)
St. Johnswort *(Hypericum perforatum*)
Velvetleaf *(Abutilon theophrasti*)
Volunteer rye (*Secale cereale*)
Wild-prose millet (*Panicum miliaceum*)

1.09 Delta County Noxious Weed List

Yellow starthistle (*Centaurea solstitialis)*
Purple loosestrife (*Lythrim salicaria)*
Myrtle spurge *(Euphorbia myrsinites)*
Common burdock (*Arctium minus*)
Diffuse knapweed *(Centaurea diffusa)*
Spotted knapweed (*Centaurea maculosa*)
Russian knapweed *(Centaurea repens)*
Hoary cress or Whitetop *(Cardaria draba)*
Leafy spurge *(Euphorbia esula)*
Canada thistle *(Cirsium arvense)*
Musk thistle *(Carduus nutans)*
Scotch thistle (*Onopordum acanthium*)
Bull thistle *(Cirsium vulgare)*
Yellow toadflax *(Linaria vulgaris)*
Oxeye daisy *(Chrysantheum leucanthemum)*
Poison hemlock (*Conium maculatum*)
Halogeton (*Halogeton glomeratus*)
Russian olive (*Elaneagnus angustifolia*)
Saltcedar *(Tamarix ramossissima)*

II: GEOGRAPHICAL OVERVIEW OF COUNTY DESIGNATED NOXIOUS WEED INFESTATIONS IN DELTA COUNTY

2.01 Description of Delta County

1. Major Natural Features:
   a. Lakes and Reservoirs: Crawford Reservoir, Sweitzer Lake, Fruitgrowers Reservoir, numerous Grand Mesa lakes and reservoirs.

Appendix G: Comment Letters

(Pending Draft EA Distribution)

Appendix H: Habitat Scoring and Draft Habitat Replacement Plan

Habitat Impacts of Rogers Mesa Piping Project
(Patterson & Slack Laterals)

By Michael Zeman
Wildlife and Natural Resource Concepts & Solutions, LLC
August 27, 2013

The Roger's Mesa Piping Project will put approximately 8 miles of open ditch into underground pipe on the Patterson and Slack Laterals. The project location is about 5800 feet in elevation and located about 3 miles west of Hotchkiss. The project will cross mostly irrigated farm lands. Coyote willows and native plums are two of the most prevalent vegetations found along the ditch. Other plant species observed include: narrow leaf and Fremont cottonwoods; sumac; wild rose; bullrush; carex; cattails; and a number of small forbs and grasses. Invasive weed encountered included: Russian olive; Canada thistle; Siberian elm; Scotch thistle; Russian knapweed; whitetop; chicory; cheatgrass; burdock; Dyer's woad; and tamarisk.

Many sections of the Roger's Mesa project are adjacent to irrigated fields and/or waste water ditches which flow back alongside the ditch. The proximity of these water sources will help lessen the effect on existing habitat when the open ditch is put into pipe. Most trees along the ditch (such as cottonwoods, elm, and Russian olives) will probably be lost during the construction phase of the project. A few more will die out because of lack of water after the piping goes in. The plant diversity and habitat value along the ditch is sometimes limited because of current farming practices and the locations of houses and roads to the ditch. Changes in expected habitat values are listed in the table labeled *Roger's Mesa Habitat Quality Scoring.*

Areas heavily infested with weeds should benefit from the piping project. Soils used to bury the pipeline will be reseeded and the use of selective herbicides will help keep the weeds from returning. Segments of the ditch within irrigated fields will probably see little difference in use because ranchers will still continue to irrigate the hay and probably farm over the top of the pipeline.

A total of 20.34 habitat units * are expected to be lost due to the piping of the Patterson and Slack Laterals [See Roger' Mesa Piping Project (Patterson a Slack Laterals) - Habitat Areas Affected]. Impacts to habitat along the piping project can be minimized by: avoiding the removal of trees as much as possible when installing the pipe; proper choice of plants and replanting methods used when reclaiming the area over the pipeline; and implementing an effective weed control program over the disturbed areas.

* Calculations were made using criteria set forth in the *Basinwide Salinity Control Program: Procedures for Habitat Replacement* - (A manual developed by the Bureau of Reclamation and U.S. Fish & Wildlife Service).

27-Aug-13

Roger's Mesa Habitat Quality Scoring
Patterson & Slack Laterals - Proposed Piping

Habitat Site	H 1		H 2		H 3		H 3A		H 4		H 5		H 6		H 7	
Habitat Type	Forest/Shrub		Forest/Shrub		Shrub/Grass		Grass/Forb		Forest/Shrub		Shrub/Grass		Shrub/Grass		Forest/shrub	
Mapped Acres/Adjustment	0.34	100%	0.78	100%	0.44	100%	0.23	0%	1.08	100%	0.23	100%	0.38	100%	0.44	100%
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Vegetation Diversity	10	7	9	3	3	3	1	1	7	4	4	3	4	3	9	4
Stratification	10	10	10	8	8	8	2	2	10	8	6	6	10	6	10	8
Native vs. Non-Native species	10	9	8	4	3	3	1	1	8	7	5	5	5	5	8	8
Noxious Weeds *	10	9	9	8	8	8	9	9	7	8	8	9	8	9	9	8
Overall Vegetative Condition	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Disease Additional scoring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interspersion of open water	2	1	1	0	1	0	0	0	1	0	1	0	1	0	1	0
Connectivity	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Uniqueness or Abundance	8	6	8	3	3	2	1	1	8	4	4	2	4	2	8	4
Water Supply	4	2	4	2	4	2	4	4	4	2	4	2	4	2	4	3
Alteration	3	3	2	2	1	1	0	0	4	4	2	2	2	2	2	2
Raw Scores	72	62	66	45	46	42	33	33	64	52	49	44	53	44	66	52
Habitat Quality Score (HQS)	**7.2**	**6.2**	**6.6**	**4.5**	**4.6**	**4.2**	**3.3**	**3.3**	**6.4**	**5.2**	**4.9**	**4.4**	**5.3**	**4.4**	**6.6**	**5.2**
Habitat Score Difference	1.0		2.1		0.4		0.0		1.2		0.5		0.9		1.4	

Habitat Site	H 8		H 9		H 10		H 11		H 12		H 13		H 14		H 15	
Habitat Type	Grass/Shrub		Shrub/Forest		Shrub/Grass		Shrub/Forest		Shrub/Forest		Grass/Shrub		Shrub		Forest/Shrub	
Mapped Acres/Adjustment	1.51	100%	0.75	100%	1.51	100%	1.22	100%	1.06	100%	0.43	100%	2.16	100%	3.07	100%
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Vegetation Diversity	4	2	5	2	5	3	5	3	4	2	4	3	5	2	6	2
Stratification	10	6	10	6	8	4	10	6	10	6	6	4	10	4	10	4
Native vs. Non-Native species	3	5	8	4	7	6	6	5	5	5	6	6	9	7	7	6
Noxious Weeds *	3	8	9	9	6	8	2	7	2	7	1	7	9	9	7	9
Overall Vegetative Condition	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Disease Additional scoring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interspersion of open water	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
Connectivity	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Uniqueness or Abundance	3	2	4	2	4	2	3	2	2	1	3	2	6	3	6	3
Water Supply	4	2	4	3	4	2	4	2	4	1	4	2	4	2	4	2
Alteration	2	2	3	3	2	2	1	1	1	1	2	2	3	3	3	3
Raw Scores	44	41	59	44	52	42	47	41	44	38	42	41	62	45	59	44
Habitat Quality Score (HQS)	**4.4**	**4.1**	**5.9**	**4.4**	**5.2**	**4.2**	**4.7**	**4.1**	**4.4**	**3.8**	**4.2**	**4.1**	**6.2**	**4.5**	**5.9**	**4.4**
Habitat Score Difference	0.3		1.5		1.0		0.6		0.6		0.1		1.7		1.5	

27-Aug-13

Roger's Mesa Habitat Quality Scoring
Patterson & Slack Laterals - Proposed Piping

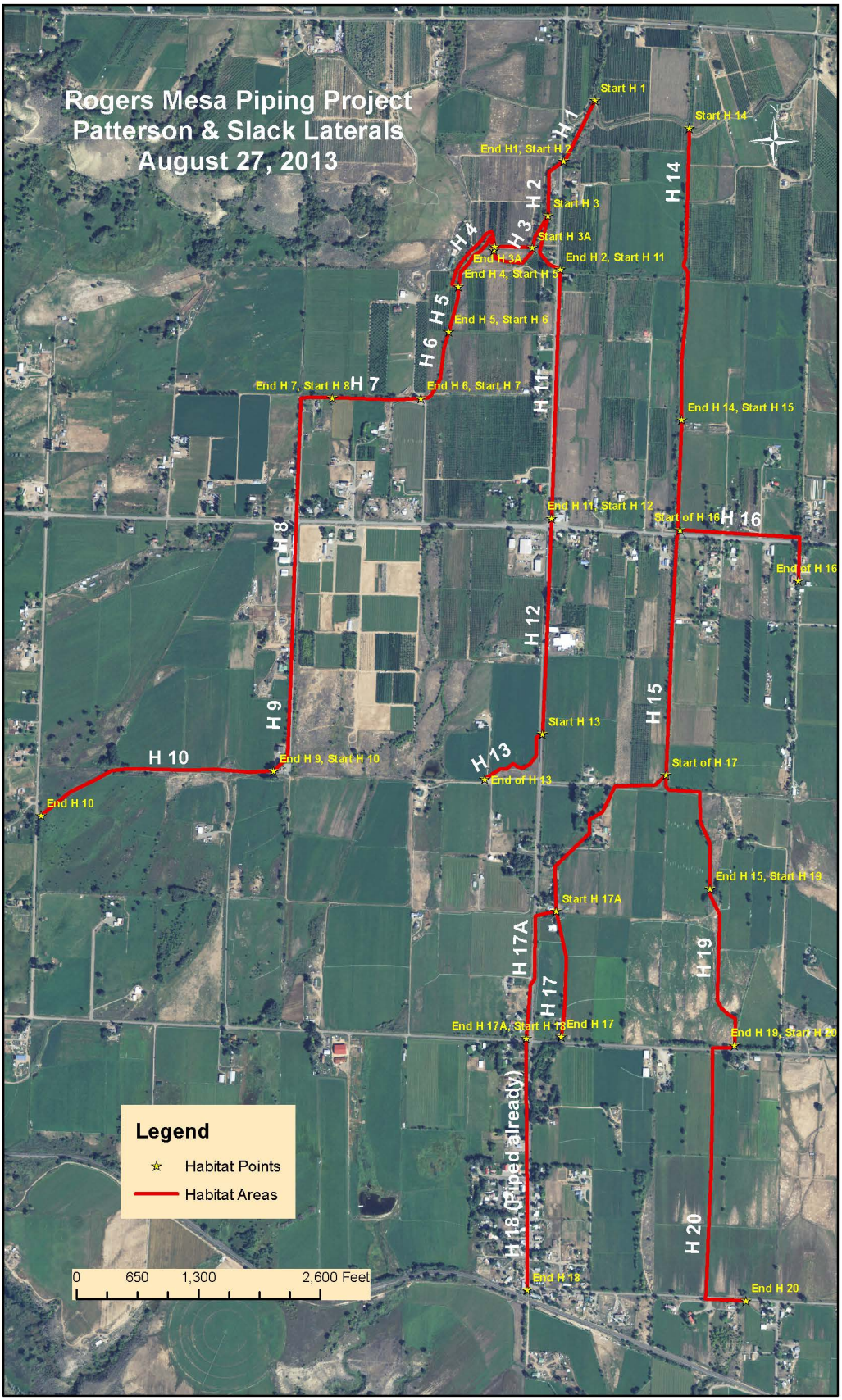
Habitat Type	Shrub/Grass		Forest/Shrub		Grass/Forbs		Yards/Streets		Scrub/Grass		Grass/Forbs					
Mapped Acres/Adjustment	0.80	100%	1.63	100%	0.71	100%	1.23	0%	0.82	100%	1.54	100%	0.00	100%	0.00	100%
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Vegetation Diversity	4	2	4	2	3	1	2	2	2	1	3	2				
Stratification	10	4	10	8	8	2	8	8	6	6	2	2				
Native vs. Non-Native species	4	4	5	5	5	3	2	2	5	4	6	5				
Noxious Weeds *	7	9	4	8	4	8	7	7	7	9	5	8				
Overall Vegetative Condition	10	10	10	10	10	10	10	10	10	10	10	10				
Disease Additional scoring	0	0	0	0	0	0	0	0	0	0	0	0				
Interspersion of open water	1	0	1	0	1	0	0	0	1	0	1	0				
Connectivity	5	5	4	4	4	4	0	0	4	4	4	4				
Uniqueness or Abundance	3	2	3	2	2	1	1	1	3	1	2	1				
Water Supply	4	2	4	2	3	2	2	2	4	1	4	2				
Alteration	1	1	2	2	1	1	0	0	2	2	4	4				
Raw Scores	49	39	47	43	41	32	32	32	44	38	41	38	0	0	0	0
Habitat Quality Score (HQS)	**4.9**	**3.9**	**4.7**	**4.3**	**4.1**	**3.2**	**3.2**	**3.2**	**4.4**	**3.8**	**4.1**	**3.8**	**0**	**0**	**0**	**0**
Habitat Score Difference	1.0		0.4		0.9		0		0.6		0.3		0		0	

*** Noxious weed scores are often higher after the piping because a weed control program is assumed to be in place after project completion.**

8/27/2013

Roger's Mesa Piping Project (Patterson & Slack Laterals)
Habitat Areas Affected

Habitat Point	Habitat Type	Feet of Ditch	Width of Impact (Ft.)	Acres of Impact	Habitat Score Difference	Habitat Credits Lost
H 1	Forest/Shrub	731	20	0.34	1.00	0.34
H 2	Forest/Shrub	1362	25	0.78	2.10	1.64
H 3	Shrub/Grass	968	20	0.44	0.40	0.18
H 3A	Grass/Forb	401	25	0.23	0.00	0.00
H 4	Forest/Shrub			1.08	1.20	1.30
H 5	Shrub/Grass	496	20	0.23	0.50	0.11
H 6	Shrub/Grass	832	20	0.38	0.90	0.34
H 7	Forest/Shrub	948	20	0.44	1.40	0.61
H 8	Grass/Shrub	3297	20	1.51	0.30	0.45
H 9	Shrub/Forest	1083	30	0.75	1.50	1.12
H 10	Shrub/Grass	2630	25	1.51	1.00	1.51
H 11	Shrub/Forest	2659	20	1.22	0.60	0.73
H 12	Shrub/Forest	2307	20	1.06	0.60	0.64
H 13	Grass/Shrub	932	20	0.43	0.10	0.04
H 14	Shrub	3139	30	2.16	1.70	3.68
H 15	Forest/Shrub	5357	25	3.07	1.50	4.61
H 16	Shrub/Grass	1741	20	0.80	1.00	0.80
H 17	Forest/Shrub	3541	20	1.63	0.40	0.65
H 17A	Grass/Forb	1544	20	0.71	0.90	0.64
H 18	Yards/Streets	2688	20	1.23	0.00	0.00
H 19	Shrub/Grass	1781	20	0.82	0.60	0.49
H 20	Grass/Forb	3365	20	1.54	0.30	0.46
					Total Habitat Credits Lost	**20.34**


Rogers Mesa Piping Project
Patterson & Slack Laterals
August 27, 2013
Start H 1
Start H 14
End H1; Start H 2
H 7
H 2
H 14
Start H 3
H 3
H 4
Start H 3A
End H 3A
End H 2, Start H 11
End H 4, Start H 5
H 5
End H 5, Start H 6
H 6
End H 7, Start H 8
H 7
End H 6, Start H 7
H 11
End H 14, Start H 15
End H 11, Start H 12
Start of H 16
H 16
End of H 16
H 8
H 12
H 9
H 15
Start H 13
H 10
End H 9, Start H 10
H 13
End of H 13
Start of H 17
End H 10
End H 15, Start H 19
Start H 17A
H 17A
H 19
H 17
End H 17A, Start H 18
End H 17
End H 19, Start H 20
H 18 (Piped already)
H 20
End H 18
End H 20
Legend
Habitat Points
Habitat Areas
0
650
1,300
2,600 Feet

(Pending Habitat Replacement Plan Approval)