



— BUREAU OF —  
RECLAMATION

# **Environmental Assessment and Finding of No Significant Impact Grand Valley Irrigation Company Phase V (550) Canal Lining Project**

**Colorado River Basin Salinity Control Program  
Western Colorado Area Office  
Interior Region 7: Upper Colorado Basin**



Estimated Lead Agency Total Costs  
Associated with Developing and  
Producing this EA: \$23,000

## **Mission Statements**

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

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

# **Environmental Assessment and Finding of No Significant Impact Grand Valley Irrigation Company Phase V (550) Canal Lining Project**

**Colorado River Basin Salinity Control Program  
Western Colorado Area Office  
Interior Region 7: Upper Colorado Basin**

*Prepared for the Bureau of Reclamation by WestWater Engineering*

**November 2020**

Cover Photo: Crown Point Section of the Grand Valley Highline Canal Salinity Project, Grand Junction, CO. (WestWater Engineering/Amie Wilsey)

**FINDING OF NO SIGNIFICANT IMPACT**

United States Department of the Interior  
Bureau of Reclamation  
Interior Region 7: Upper Colorado Basin  
Western Colorado Area Office  
Grand Junction, Colorado

**Grand Valley Irrigation Company  
Phase V (550) Canal Lining Project****Introduction**

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA), the Bureau of Reclamation (Reclamation) has conducted an environmental assessment (EA) for the Proposed Action of Grand Valley Irrigation Company's (GVIC) proposed Phase V (550) Canal Lining Project. Through Cooperative Agreement No. R20AC00010, Reclamation is providing funding for the project through the Colorado River Basinwide Salinity Control Program, and is the lead agency for purposes of compliance with the NEPA for this proposed action.

The EA was prepared to address the potential impacts to the human environment due to implementation of the proposed action. The EA is attached to this Finding of No Significant Impact (FONSI) and is incorporated by reference.

**Alternatives**

The EA analyzed the No Action Alternative and the Proposed Action Alternative to implement the GVIC 550 Canal Lining Project.

**Decision and Finding of No Significant Impact**

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

**Context**

The project is located in Mesa County, Colorado in Sections 20 and 34, Township 1 North, Range 1 West. The affected locality is along the Grand Valley Highline Canal located in the Grand Valley in the vicinity of the City of Grand Junction. Water that supplies the Grand Valley Highline Canal is sourced from the Colorado River and is diverted near the Town of Palisade. Affected interests include Reclamation and adjacent landowners.

**Intensity**

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

**1. Impacts may be both beneficial and adverse.** The proposed action would impact resources as described in the EA. Mitigating measures were incorporated into the design of the action alternative to reduce impacts. The predicted short-term effects of the proposed action include impacts to the human environment from increased traffic and noise during construction activities, and impacts to wildlife habitat due to increased noise and human activity during construction activities. The predicted long-term effects of the proposed action include a minor loss of artificial wetland along the banks of the canal where lining would occur. Reclamation has received an exemption from the U.S. Army Corps of Engineers for the proposed action. Beneficial effects include decreased salinity and selenium levels in the Colorado River Basin.

None of the environmental effects analyzed in the EA are considered significant. None of the effects from the proposed action, together with other past, current, and reasonably foreseeable future actions, rise to a significant cumulative impact.

**2. The degree to which the selected alternative will affect public health or safety or a minority or low-income population.** The proposal will have no significant impacts on public health or safety. No minority or low-income populations would be disproportionately affected by the proposed action.

**3. Unique characteristics of the geographic area.** There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas that would be negatively affected by the proposal.

**4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.** Reclamation contacted representatives of other federal agencies, state and local governments, public and private organizations, and individuals regarding the proposal and its effects on resources. Based on the responses received, the effects of the proposal on the quality of the human environment are not highly controversial.

**5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.** There are no predicted effects on the human environment that are considered highly uncertain or that involve unique or unknown risks.

**6. The degree to which the action may establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration.** Implementing the action will not establish a precedent for future actions with significant effects and will not represent a decision in principle about a future consideration.

**7. Whether the action is related to other actions which are individually insignificant but cumulatively significant.** Cumulative impacts are possible when the effects of the proposed action are added to other past, present, and reasonably foreseeable future actions as described under related NEPA documents and plans; however, significant cumulative effects are not predicted, as described in the EA in Section 3.3.

**8. The degree to which the action may adversely affect sites, districts, buildings, structures, and objects listed in or eligible for listing in the National Register of Historic Places.** The State Historic Preservation Officer has concurred with a determination of adverse effect to the Grand Valley Highline Canal. Reclamation has entered into a Memorandum of

Agreement (MOA) with the Colorado State Historic Preservation Officer (SHPO) to mitigate the impacts to the Grand Valley Highline Canal.

**9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.** The four endangered Colorado River fishes and their designated critical habitat occur downstream of the Proposed Action area in the Colorado River Basin, and may be affected by historic water depletions caused by consumptive use of water by the GVIC System. Reclamation previously consulted with FWS on Colorado River Basin historic water depletions caused by operation of the GVIC System (FWS File ES/GJ-6-CO-99-F-033-CP20). As a result of that consultation, the GVIC executed a Recovery Agreement with FWS to ensure compliance with the Endangered Species Act for its water depletions. The annual depletion rate is not expected to change as a result of the Proposed Action. Therefore, it is expected that the Proposed Action would not destroy or adversely modify designated critical habitat for the Colorado River endangered fishes. There are no other threatened and endangered species or suitable habitat in the Project Area. There would be no new effect to any threatened or endangered species, or occupied critical habitat, from implementing the proposed action.

**10. Whether the action threatens a violation of Federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment.** The project does not violate any federal, state, local, or tribal law, regulation, or policy imposed for the protection of the environment. In addition, this project is consistent with applicable land management plans, policies, and programs. State, local, and interested publics were given the opportunity to participate in the environmental analysis process.

### **Environmental Commitments**

The environmental commitments located in Section 4 of the Final EA will be implemented as part of the Proposed Action, and are incorporated here by reference.

Approved by:

**EZEKIAL  
DUNN**

Digitally signed by  
EZEKIAL DUNN  
Date: 2020.11.12  
13:41:13 -0700'

---

Ed Warner  
Area Manager, Western Colorado Area Office

This page left intentionally blank.

# TABLE OF CONTENTS

<b>CHAPTER 1 – INTRODUCTION</b> .....	<b>1</b>
1.1 – Project Location and Legal Description.....	1
1.2 – Need for and Purpose of the Proposed Action.....	1
1.3 – Overview of Proposed Action.....	1
1.4 – Decision to be Made.....	2
1.5 – Background.....	2
1.6 – Relationship to Other Projects.....	2
1.7 – Scoping.....	3
<b>CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES</b> .....	<b>4</b>
2.1 – Alternatives Considered but Not Carried Forward.....	4
2.2 – No Action Alternative.....	4
2.3 – Proposed Action.....	4
2.3.1 – Canal Lining.....	5
2.4 – Construction.....	5
2.4.1 – Equipment.....	5
2.4.2 – Access.....	6
2.4.3 – Staging and Borrow Areas.....	6
2.4.4 – Construction Timeframe.....	6
2.5 – Permits and Authorizations.....	6
2.5.1 – Natural Resource Protection Laws.....	6
2.5.2 – Cultural Resource Laws.....	7
2.5.3 – Paleontological Resource Laws.....	7
<b>CHAPTER 3 – AFFECTED ENVIRONMENT &amp; ENVIRONMENTAL CONSEQUENCES</b> .....	<b>7</b>
3.1 - Introduction.....	7
3.2 – Affected Environment and Environmental Consequences.....	7
3.2.1 – Water Rights & Use.....	7
3.2.2 – Water Quality.....	8
3.2.3 – Air Quality.....	8
3.2.4 – Access, Transportation, & Construction Impacts.....	9
3.2.5 – Vegetative Resources & Weeds.....	10
3.2.6 – Wildlife Resources.....	11
3.2.7 – Special Status Species.....	12
3.2.8 – Cultural Resources.....	18
3.2.9 – Soils and Farmlands of Agricultural Significance.....	18
3.3 – Cumulative Effects.....	19
3.4 – Summary.....	21
<b>CHAPTER 4 – ENVIRONMENTAL COMMITMENTS</b> .....	<b>24</b>
<b>CHAPTER 5 – CONSULTATION AND COORDINATION</b> .....	<b>27</b>
5.1 – Introduction.....	27
5.2 – Public Involvement.....	27
<b>CHAPTER 6 – PREPARERS</b> .....	<b>28</b>
<b>CHAPTER 7 – REFERENCES</b> .....	<b>29</b>
<b>CHAPTER 8 – ABBREVIATIONS AND ACRONYMS</b> .....	<b>31</b>



**FIGURES**

Figure 1. Location of Phase V (550) Canal Lining Project.....vii  
Figure 1a. Location of Crown Point Segment of Phase V (550) Canal Lining Project.....viii  
Figure 1b. Location of Bookcliff Segment of Phase V (550) Canal Lining Project.....ix  
Figure 2. Description of Regional Salinity Control Projects Occurring in the Grand Valley. ....x

**TABLES**

Table 1. Resources Eliminated from Further Analysis..... 3  
Table 2. Vegetation Species Observed in Crown Point and Bookcliff Sections of the Grand Valley Canal Lining Phase 550 Project..... 10  
Table 3. Special Status Species with Potential to Occur in the Proposed Action area..... 13  
Table 4. Cumulative Effects Analysis Spatial & Temporal Limits by Resource..... 19  
Table 5. Cumulative Impacts of the Proposed Action on potentially impacted resources. .... 20  
Table 6. Summary of Impacts for the No Action Alternative and Proposed Action Alternative.22

**APPENDICES**

- A. U.S. ARMY CORPS OF ENGINEERS EXEMPTION LETTER
- B. HABITAT LOSSES ASSESSMENT
- C. COLORADO STATE HISTORIC PRESERVATION OFFICER CONSULTATION
- D. DISTRIBUTION LIST
- E. SUMMARY OF COMMENTS ON THE DRAFT EA AND RESPONSES

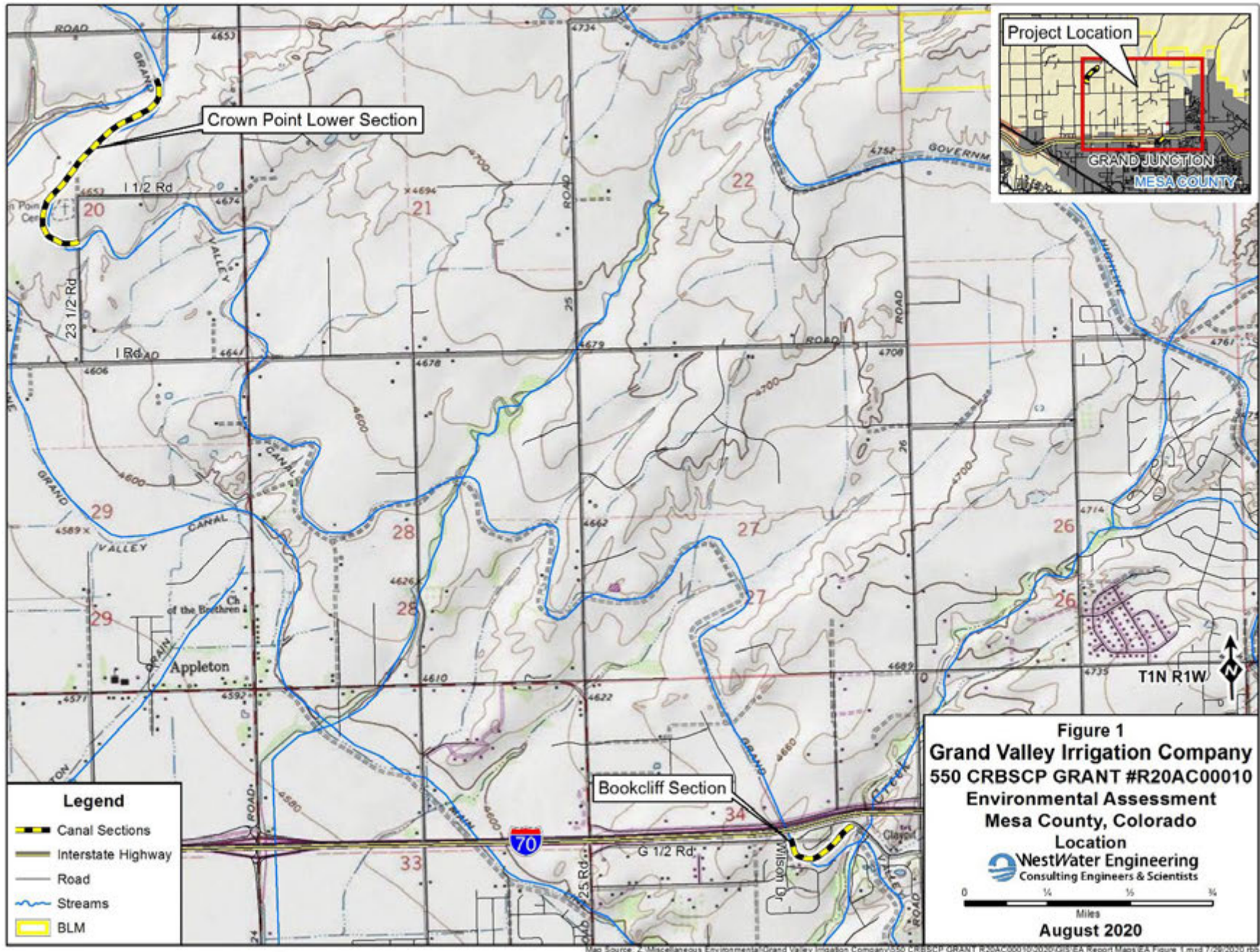


Figure 1. Location of Phase V (550) Canal Lining Project.

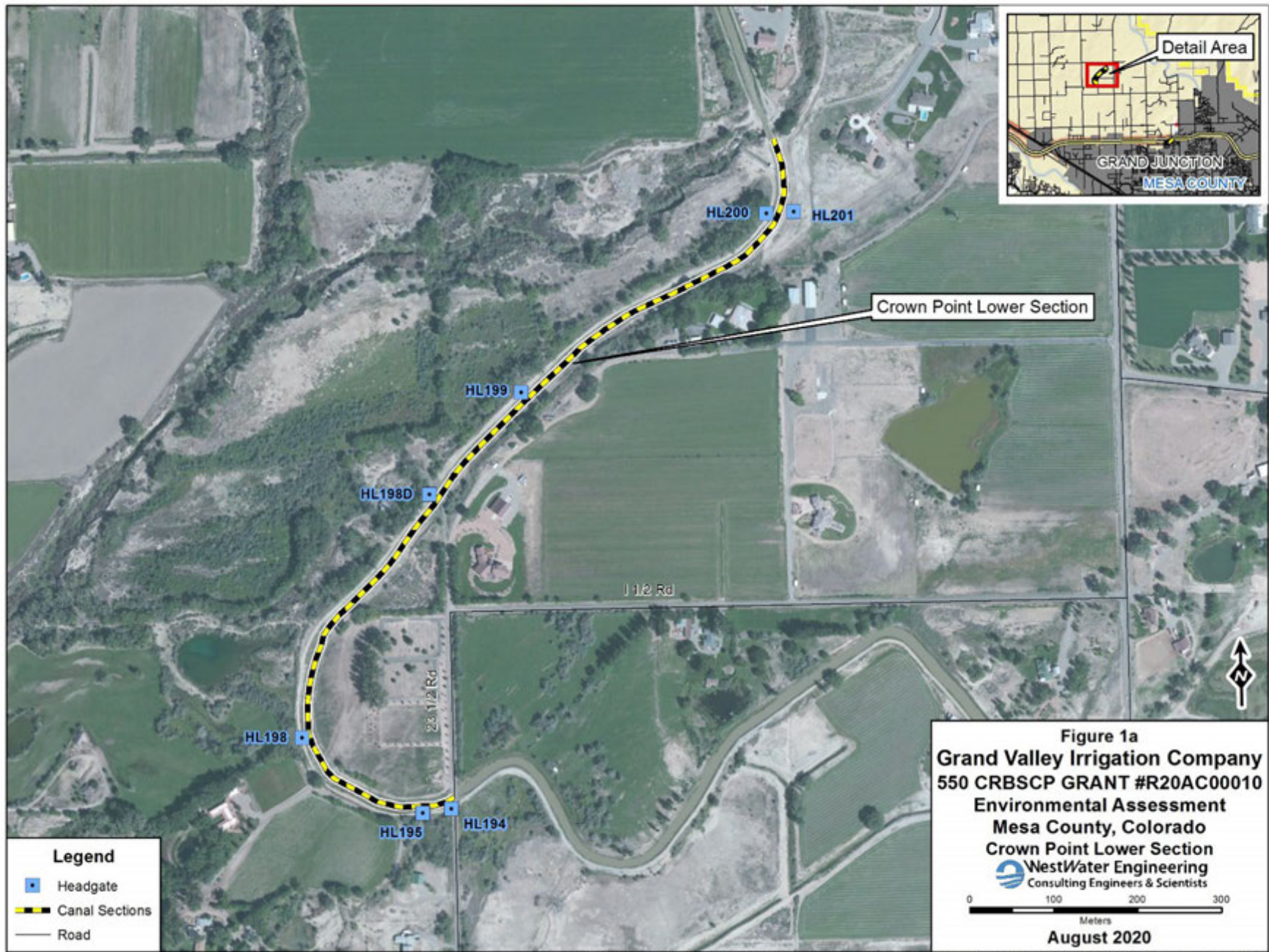


Figure 1a. Location of Crown Point Segment of Phase V (550) Canal Lining Project.

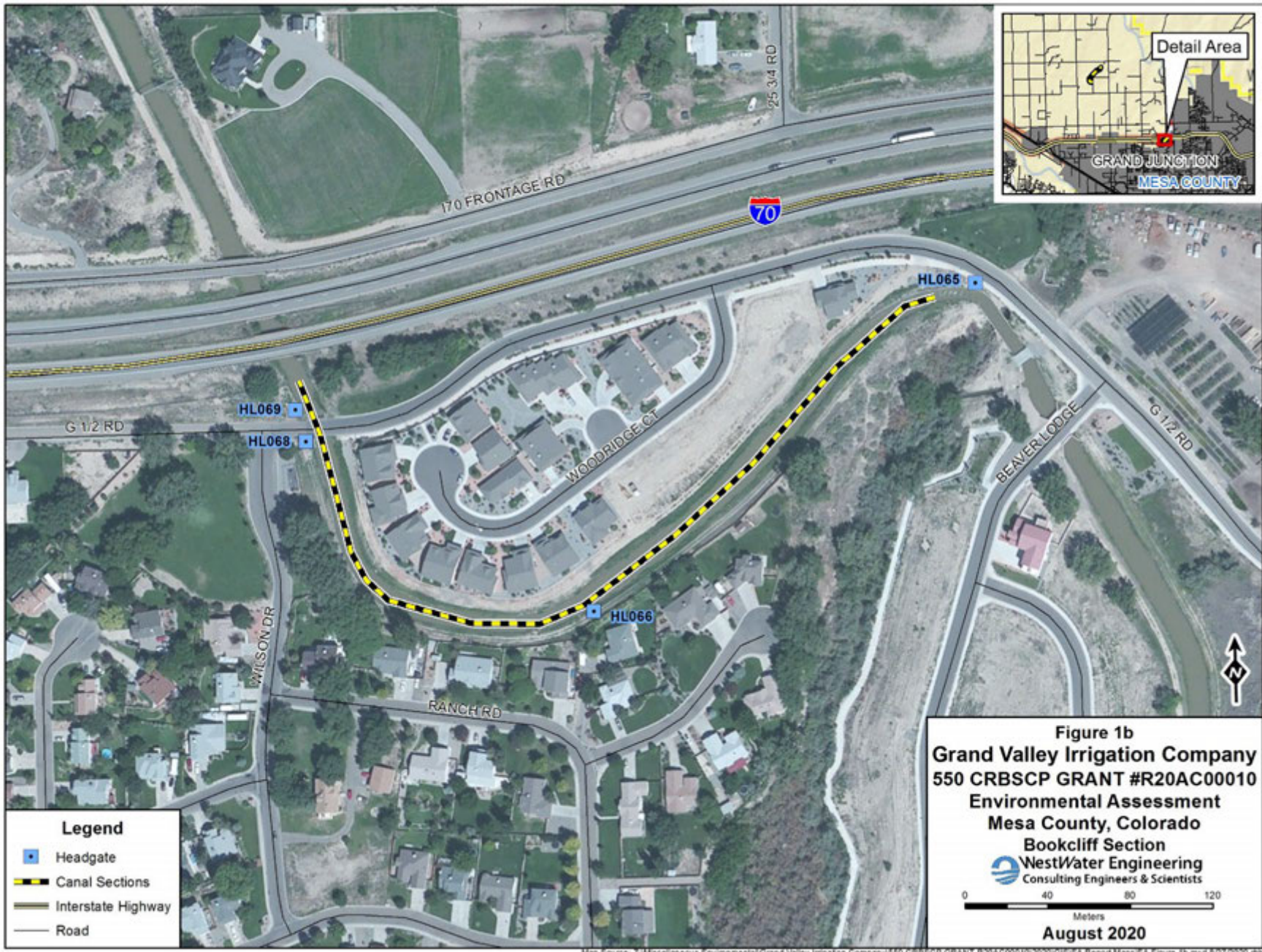


Figure 1b. Location of Bookcliff Segment of Phase V (550) Canal Lining Project.

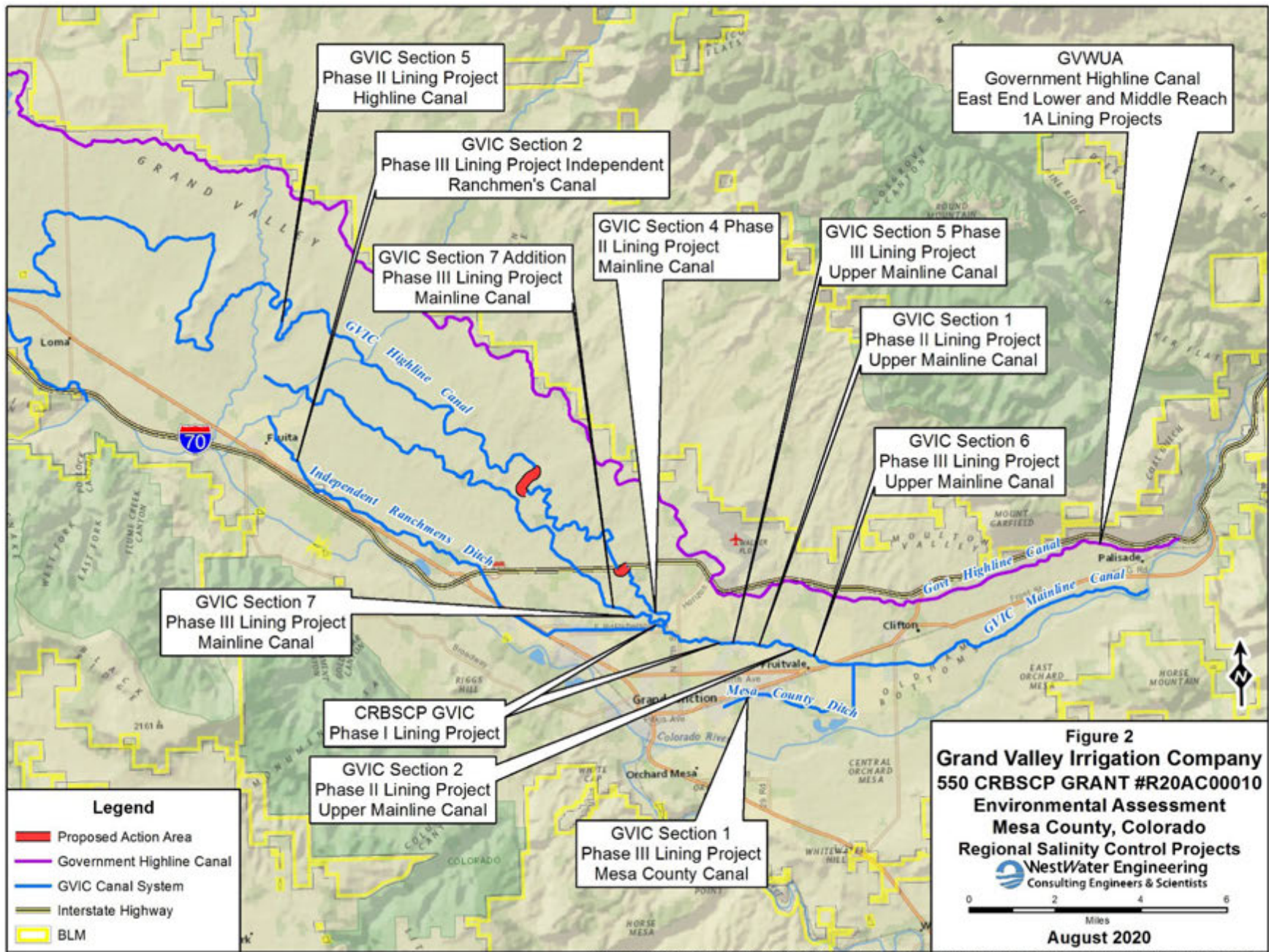


Figure 2. Description of Regional Salinity Control Projects Occurring in the Grand Valley.

# **CHAPTER 1 – INTRODUCTION**

This Environmental Assessment (EA) has been prepared to disclose and evaluate the potential environmental effects of the Grand Valley Irrigation Company’s (GVIC) Phase V (550) Canal Lining project (“Project” or “Proposed Action”). This document has been prepared in compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the U.S. Department of the Interior’s (Interior) NEPA implementing regulations. After a public review period for the Draft EA, Reclamation determined that a Finding of No Significant Impact (FONSI) for the Proposed Action is warranted.

## **1.1 – Project Location and Legal Description**

The Project Area is in Grand Junction, within Sections 20 and 34, Township 1 North, Range 1 West, Mesa County, Colorado (Figure 1). The Proposed Action involves the lining of two segments of canal, the Crown Point Section and the Bookcliff Section (Figures 1a and 1b). The Crown Point Section is located in Section 20, Township 1 North, Range 1 West. This segment of the canal is situated in a rural setting surrounded by irrigated agricultural lands and rural residential housing. The Bookcliff Section is located in Section 34, Township 1 North, Range 1 West, and is situated in an urban residential housing area.

## **1.2 – Need for and Purpose of the Proposed Action**

The need for the Proposed Action is to eliminate canal seepage along two segments of the Grand Valley Highline Canal to help reduce salinity in the Colorado River Basin by an estimated 743 tons per year. The reduction of salinity concentrations in the Colorado River Basin would provide benefits to downstream water users and wildlife habitat. In addition, the project would also help to reduce selenium loading into the basin by an unquantified amount. The purpose of the proposed action is to comply with the Colorado River Basin Salinity Control Act.

## **1.3 – Overview of Proposed Action**

The Proposed Action is to provide funding to GVIC to complete the GVIC Phase V (550) Canal Lining Project. The project would involve the lining of two segments of the Grand Valley Highline Canal system. Approximately 1.07 miles of the canal would be lined as a result of the Proposed Action. The Proposed Action is described in detail in Section 2.3 of this EA.

## **1.4 – Decision to be Made**

Reclamation will decide whether to authorize funding to GVIC to implement the Proposed Action under Cooperative Agreement No. R20AC00010.

## **1.5 – Background**

The Colorado River Basin Salinity Control Act was enacted by Congress in 1974 to create a program to protect the quality of water available in the Colorado River for use by the U.S and Mexico. The Colorado River and its tributaries provide water to approximately 40 million people and irrigation to approximately 5.5 million acres of land in the U.S. Salinity affects agricultural, municipal, and industrial water users (Reclamation 2020). Salinity damages in the U.S. is estimated to be approximately \$382 million per year (Reclamation 2017).

Salinity loading in river systems degrades water quality which affects downstream water users by impacting crop production, degrading wildlife habitat, and causing corrosion on residential and municipal plumbing. Irrigation practices throughout the Colorado River Basin contribute approximately 37% of the salinity to the basin (Reclamation 2017).

The Salinity Control Program is designed to help fund and implement projects and measures to control salinity loading into the Upper Colorado River Basin. Reclamation is authorized under the Secretary of the Interior to implement the salinity control program and provide funding for projects that meet the salinity control program's goals and objectives with a one-time grant that is limited to an applicant's competitive bid. Recent projects in the vicinity of the Proposed Action that have been completed using funding provided through the Basinwide Salinity Control Program are depicted on Figure 2.

## **1.6 – Relationship to Other Projects**

The proposed canal sections involved in this project are part of the larger GVIC irrigation water conveyance system. GVIC has recently completed other lining and improvement projects along their canal system including several sections along the Grand Valley Highline Canal. Other projects that have occurred in the general vicinity of the Proposed Action area are shown on Figure 2:

- GVIC Phase I Lining Project
- GVIC Phase II Lining Project
- GVIC Phase III Lining Project
- GVIC Phase IV Lining Project
- Grand Valley Water Users Association's Government Highline Canal East End Lower and Middle Reach 1A Lining Projects

## 1.7 – Scoping

Scoping for this EA was completed by Reclamation, in consultation with the following agencies and organizations, during the planning stages of the Proposed Action to identify the potential environmental and human environment issues and concerns associated with implementation of the Proposed Action and No Action Alternatives:

- Colorado State Historic Preservation Office, Denver, CO
- U.S. Fish and Wildlife Service, Ecological Services, Grand Junction, CO
- U.S. Army Corps of Engineers, Colorado West Regulatory Branch, Grand Junction, CO
- Southern Ute Tribe, Ute Mountain Ute Tribe, and Ute Indian Tribe (Uintah and Ouray Reservation)

Issues determined to be of potential significance, and therefore appropriate for further impact analysis under this EA, are discussed in Chapter 3. The following issues, described in Table 1, were determined to be insignificant or not applicable, and are not analyzed in greater detail within this document.

**Table 1. Resources Eliminated from Further Analysis.**

Resource	Rationale for Elimination from Further Analysis
Indian Trust Assets and Native American Religious Concerns	No Indian trust assets or Native American religious sites are known to occur or have been identified within the Proposed Action area. Neither the No Action Alternative nor the Proposed Action would have an effect on Indian trust assets or Native American Religious sacred sites.
Environmental Justice & Socio-economic Issues	The Proposed Action area would not occur within disproportionately adversely affected minority or low-income populations, nor would it occur within an Indian reservation. The Proposed Action would not involve populations relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. Neither the No Action Alternative nor the Proposed Action would have an effect to environmental justice or socio-economic issues.
Jurisdictional Waters of the U.S. including Wetlands	The Proposed Action area would affect surface and shallow subsurface hydrology supplied to wetland and riparian areas in the Proposed Action Area associated with the ditch and ditch seepage.  The U.S. Army Corps of Engineers verified that the Proposed Action is exempt from requiring a Section 404 Permit, pursuant to the Clean Water Act (33 USC 1344) exemption for Farm or Stock Pond or Irrigation Ditch Construction or Maintenance. This documentation is included in Appendix A.



Resource	Rationale for Elimination from Further Analysis
Wild and Scenic Rivers, Land with Wilderness Characteristics, or Wilderness Study Areas	The Proposed Action area would not occur within any designated wild and scenic rivers, land with wilderness characteristics, or wilderness study areas. The Proposed Action would occur within the Grand Valley near residential housing and rural housing/agricultural lands.
Recreation and Visual Resources	The Proposed Action would not change the existing recreation and/or visual characteristics of the surrounding landscape. The Proposed Action area would occur within an existing canal structure and no impacts are anticipated beyond the canal easement; thus, there would be no effects to recreation or visual resources.

# CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

Alternatives evaluated in this EA include the No Action Alternative and the Proposed Action Alternative.

## 2.1 – Alternatives Considered but Not Carried Forward

No other alternatives were presented to Reclamation for consideration.

## 2.2 – No Action Alternative

Under the No Action Alternative, Reclamation would not provide funding to GVIC for their proposed GVIC Phase V (550) Canal Lining Project.

## 2.3 – Proposed Action

Under the Proposed Action, Reclamation would authorize federal funding to GVIC under Cooperative Agreement No. R20AC00010 to implement their GVIC Phase V (550) Canal Lining Project, as shown on Figures 1, 1a, and 1b.

The Grand Valley Highline Canal system is primarily used for agricultural irrigation, residential, and municipality use. GVIC currently diverts 245,101 acre-feet per year from the Colorado River near the Town of Palisade, Colorado. No new water diversions or use would occur as part of this project.

### **2.3.1 – Canal Lining**

GVIC plans to line two segments of their Grand Valley Highline Canal. The canal would be lined with an impermeable membrane covered in shotcrete. An underdrain system would be installed under the liner as needed to drain any groundwater that could float the canal when it is empty. The two segments of canal that would be lined as part of this project include the Bookcliff Section (Figure 1b) and the Crown Point Section (Figure 1a). The liner system would conform to Reclamation specifications. The two segments of canal are described below:

- The Bookcliff section begins at the Leech Creek Spill Structure and continues to G ½ Road for approximately 1,430 feet (Figure 1b). The majority of this segment is an earthen canal. Approximately 100 feet of the canal is currently lined with gunite that is in poor condition. There are three headgates along this segment of the canal. This portion of the canal is capable of carrying 344 cfs. The existing gunite liner would be removed and the new liner system would be installed along the entire segment. All three headgates located within this segment would be replaced with new concrete structures with punch plate trash screens. The gunite liner and other debris and vegetation removed prior to lining placement would be hauled off-site and properly disposed of in an existing landfill. The canal would be re-graded using a combination of imported and on-site materials.
- The Crown Point section is approximately 3,862 feet in length and is located along the Grand Valley Highline Canal from 23 ½ Road to the Persigo Wash Spill Structure (Figure 1a). There are currently 7 headgates located along this segment of the canal. This portion of the canal is currently an earthen canal system. The canal is estimated to carry 327 cfs of water in this segment. The new liner system would be installed along the entire segment. All seven headgates located within this segment would be replaced with new concrete structures with punch plate trash screens. Any debris and vegetation removed prior to lining placement would be hauled off-site and properly disposed of in an existing landfill. The canal would be re-graded using a combination of imported and on-site materials.

## **2.4 – Construction**

### **2.4.1 – Equipment**

Equipment that would be used during project construction would include the following:

- Track mounted excavators
- Rubber track mounted skidsteer
- Backhoe
- Grader
- Trailer mounted vac tank for utility potholing
- Dump trucks for aggregate delivery
- Side dump trailers for aggregate delivery
- Trailer air compressor and shotcrete pump for placing shotcrete
- Concrete delivery trucks

Equipment would be both GVIC-owned and subcontractor-owned and leased. All equipment would be properly maintained and operated during project construction activities.

### **2.4.2 – Access**

Access to the project site would be along existing and maintained City of Grand Junction and Mesa County roads. Access to the Bookcliff section is available along G 1/2 Road to the canal easement. Access to the Crown Point section is along 23 1/2 Road. GVIC maintains an existing right-of-way (ROW), which is approximately 80 to 100 feet wide and includes the canal. Existing access roads typically parallel both sides of the canal within the ROW and would be used for construction access during lining of the canal. The access roads along the canal are typically graveled surfaces and are generally kept free of vegetation and are used for ongoing maintenance and operation of the GVIC canal system. No new access roads would be constructed as part of the Proposed Action. Some minor grading and improvements, such as graveled the surface, would be completed along the access roads prior to lining of the canal.

### **2.4.3 – Staging and Borrow Areas**

Staging of material and equipment would occur along the canal ROW or at the GVIC yard off of 26 Road. Material used during project construction would be sourced from stockpiled material stored at GVIC's storage yards off of 21 Road and 26 3/4 Road near the Grand Valley Highline Canal and from material purchased from the MA Concrete Pit and the Whitewater Pit. No material would be borrowed from on-site.

### **2.4.4 – Construction Timeframe**

Project construction and lining along the canal system would occur outside the irrigation season, from November through March, annually through 2023. Typical hours of construction work would be 7 am to 5:30 pm Monday through Friday and possibly 7:30 am to 4 pm on Saturdays when necessary. Construction would likely begin during January 2021 and would be completed by March 2023.

## **2.5 – Permits and Authorizations**

If the Proposed Action is approved, the following permits would be required prior to project implementation:

- Colorado Department of Transportation Utility Permit
- City of Grand Junction Work in Right-of-Way Permit
- Colorado Department of Health and Environment Stormwater Discharge General Permit

GVIC would acquire and comply with all necessary federal, state, county, and local permits.

Compliance with the following laws and Executive Orders (E.O.) are required prior to and during project implementation:

### **2.5.1 – Natural Resource Protection Laws**

- Clean Air Act of 1963 (42 U.S.C. § 7401)
- Endangered Species Act of 1973 as amended (16 U.S.C. 1531-1544, 87 Stat. 884)

- Clean Water Act of 1972 as amended (33 U.S.C. 1251 et seq.)
- Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712)
- Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668- 668c)

### **2.5.2 – Cultural Resource Laws**

- National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-470mm et seq.)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001 et seq.)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. Public Law 95-341)
- Archaeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines (48 FR 44716)

### **2.5.3 – Paleontological Resource Laws**

- Paleontological Resources Preservation Act of 2009 [Section 6301-6312 of the Omnibus Land Management Act of 2009 (Public Law 111-11 123 Stat. 991-1456)]

## **CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES**

### **3.1 - Introduction**

This chapter discusses resources that may be affected by the Proposed Action Alternative and the No Action Alternative. For each resource, the potentially affected area and/or interests are identified, existing conditions described, and potential impacts predicted under the No Action and Proposed Action Alternatives. This section is concluded with a summary of impacts and a list of environmental commitments.

### **3.2 – Affected Environment and Environmental Consequences**

#### **3.2.1 – Water Rights & Use**

The GVIC system delivers water diverted from the Colorado River near the Town of Palisade. The first water rights were issued to the Grand Valley Canal in 1882. GVIC was incorporated in 1894. GVIC was awarded a decree from the Colorado River for 520.81-second feet of water with a priority date of August 22, 1882. Initially, GVIC supplied water to irrigate approximately 30,000 acres and now supplies water to irrigate approximately 44,000 acres in the Grand Valley. The system also provides water for domestic, municipality, residential lawn, and gardening purposes. Currently, GVIC diverts 245,101 acre-feet per year from the Colorado River. The irrigation season typically runs from April 1 through November 1.

*No Action Alternative:* The No Action Alternative would have no effect on water rights and uses within the Upper Colorado River Basin. The GVIC system would continue to function as it has in the past.

*Proposed Action:* The existing water rights and uses of the current GVIC system would not be altered under the Proposed Action. GVIC would gain efficiencies with managing their current water rights by eliminating seepage along portions of the canal. The Proposed Action does not include new storage and/or new diversions. No new lands would be irrigated as a result of the Proposed Action. No adverse effects on water rights in the Colorado River Basin would occur as a result of the Proposed Action.

### **3.2.2 – Water Quality**

Regional and local irrigation practices in the Colorado River Basin contribute to downstream salinity and selenium levels negatively impacting water quality of the Colorado River Basin. The primary source of salts are from marine shale and shale residuum underlying the soils in much of the basin. Selenium is a naturally occurring trace element commonly found throughout the western United States in marine sedimentary rocks. It is an essential micronutrient in trace amounts for many organisms but can be highly toxic even at lightly elevated amounts. Selenium mobility in the environment can be increased by irrigation practices. Applied irrigation water can leach salts and selenium out of the soils, increasing salt loading for receiving ground and surface water resources.

*No Action Alternative:* Under the No Action Alternative, an estimated 743 tons of salt per year would continue to load into the Colorado River. Current selenium loading levels would continue.

*Proposed Action:* The Proposed Action would eliminate seepage from 1.07 miles of the GVIC System, reducing annual salt loading to the Colorado River at an estimated rate of 743 tons per year at an estimated cost savings of approximately \$62.70 per ton (as per the Funding Application). The Proposed Action is also expected to reduce selenium loading to the Colorado River Basin; however, this reduction has not been quantified. Water quality improvements resulting from the Proposed Action most likely would benefit downstream aquatic species by reducing salt and selenium loading in the Upper and Lower Colorado River Basin. Construction activities may potentially discharge sediment, which would impact water quality in the short-term, but mitigating stormwater control measures employed during the irrigation off-season (no water flowing in the canals) would keep turbidity to a minimum. A Clean Water Act Section 401 Water Quality Certification is not required for the Proposed Action because the Proposed Action is exempt from Section 404 of the Clean Water Act as an irrigation maintenance activity. The U.S. Army Corps of Engineers has provided written verification of this exemption (Appendix A).

### **3.2.3 – Air Quality**

The National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency (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 exceed the NAAQS, the airshed is designated as a nonattainment area. Areas that meet the NAAQS for criteria pollutants are designated as attainment areas. Mesa County currently meets NAAQS for criteria pollutants and is designated as an attainment area. Seasonally, during the winter months, Mesa County is out of attainment for PM 2.5 pollutants (CDPHE 2018).

*No Action Alternative:* There would be no effect on air quality under the No Action Alternative. Operation and maintenance of the canal system would continue to function under current conditions.

*Proposed Action:* There is the potential for short-term impacts to air quality associated with dust and exhaust fumes generated during construction activities associated with the Proposed Action. Due to the short duration of the construction activity, the Proposed Action would not have any long-term impacts on air quality for Mesa County. The proposed project would not generate particulate matter or exhaust fumes that would cause criteria pollutants to reach non-attainment levels for Mesa County. The project is short in duration and dust abatement would be implemented as needed, when large plumes of dust are visible during project construction activities.

### **3.2.4 – Access, Transportation, & Construction Impacts**

The GVIC system currently operates in a combination of dedicated and prescribed rights-of-way (ROW) and fee title land. Current access to the Proposed Action area is available on Mesa County roads and an access road along the canal ROW. Access to the Crown Point section of the canal is available from 23 ½ Road (north of I Road) and then along the canal ROW to the Persigo Wash spill structure. Access to the Bookcliff section is available from G ½ Road (east of Wilson Drive) and then along the canal ROW. The public roads are currently used for commercial and residential traffic.

The canal ROW is currently maintained by GVIC. Occasional truck traffic and equipment for routine maintenance and operation of the canal system occurs on the canal ROW throughout the year. Underground utilities may be present within and near the Proposed Action area which may include (but not limited to): Ute Water waterlines, City of Grand Junction water and sewer lines, and Xcel Energy powerlines.

*No Action Alternative:* Residential and commercial traffic would continue to use the county roads present near the Proposed Action area. GVIC would continue routine maintenance and operation activities along the canal ROW. There would be no effects to access and transportation in the project area related to construction activities under the No Action Alternative.

*Proposed Action:* Access to the Proposed Action area would occur along existing county roads. No new roads would be constructed as a result of this project. During construction and lining of the canal, GVIC would use their existing canal ROW for access, staging, and construction activities. It is anticipated that the Proposed Action would incrementally increase truck traffic along county roads to access the project site. This is expected to have a short-term term effect on local roads and transportation. The increase in traffic would occur when accessing the site during the morning hours and when leaving the site during the evening hours. There are no weight restrictions on bridges or overpasses along routes that would be used to access the project area. Appropriate signage would be placed at ingress/egress locations along the canal to notify traffic of construction activities. If traffic delays are anticipated as a result of the Proposed Action, appropriate signage would be installed to notify the public. Once project construction is completed, traffic and transportation use along the county roads is expected to return to pre-construction traffic patterns. Prior to the initiation of project construction activities, all utilities would be located and marked, and if necessary, relocated or raised. GVIC would coordinate with the City of Grand Junction and Mesa County Road and Bridge Department for any lining activities that would occur within their ROWs

and for coordination of appropriate traffic control and signage at construction ingress and egress locations.

Project construction activities would generate noise and visual impacts to local residents during daylight hours (7 am to 5 pm) Monday through Saturday.

### 3.2.5 – Vegetative Resources & Weeds

The majority of the Proposed Action area is devoid of vegetation due to the canal and the existing access road, which is kept free of vegetation along the driving surface. Vegetation is present within the Proposed Action area along the banks of the canal and the edges of the access road where travel is not frequent. Existing vegetation consists largely of herbaceous emergent wetland species extending out to four feet in some instances along the edges of the canal. Stands of cottonwood trees and Siberian Elms intermixed with Russian olives and willows are present beyond the canal ROW near the Crown Point Section. A small stand of cottonwood trees is also present near the Bookcliff Section of the canal project. Upland vegetation is also present, and includes greasewood and rabbitbrush with an understory of cheatgrass and annual wheatgrass. Common plant species observed during the habitat assessment for the proposed project area shown in Table 2 (WestWater 2020a).

**Table 2. Vegetation Species Observed in Crown Point and Bookcliff Sections of the Grand Valley Canal Lining Phase 550 Project.**

Common Name	Scientific Name	Abundance **
Arctic rush	<i>Juncus arcticus</i>	X
Beaked sedge	<i>Carex utriculata</i>	Xx
Broadleaf cattail	<i>Typha latifolia</i>	Xx
Common reed	<i>Phragmites australis</i>	X
Common threesquare	<i>Shoenoplectus pungens</i>	X
Field horsetail	<i>Equisetum arvense</i>	Xxx
Foxtail barley	<i>Hordeum jubatum</i>	X
Inland saltgrass	<i>Distichlis spicata</i>	Xxx
Johnsongrass	<i>Sorghum halepense</i>	Xx
Kochia	<i>Bassia scoparia</i>	X
Reed canarygrass	<i>Phalaris arundinacea</i>	X
Russian knapweed*	<i>Acroptilon repens</i>	X
Russian olive*	<i>Elaeagnus angustifolia</i>	X
Scouring horsetail	<i>Equisetum hyemale</i>	Xxx
Showy milkweed	<i>Asclepias speciosa</i>	X
Smooth brome	<i>Bromus inermis</i>	Xx
Tall wheatgrass	<i>Thinopyrum ponticum</i>	X
Annual rabbitsfoot grass	<i>Polypogon monspeliensis</i>	X

\*Colorado State listed noxious weeds

\*\*Abundance: x = uncommon frequency, xx = moderate frequency, xxx = common frequency

Noxious weeds observed within the Proposed Action area include scattered Russian olive trees, Russian knapweed, and cheatgrass. Noxious weeds were scattered and present in low densities along the canal ROW. GVIC currently treats noxious weeds along their ROW throughout the growing season using mechanical and chemical treatments. Vegetation along the driving surface is kept clear through mowing operations and chemical treatments when needed.

*No Action Alternative:* Under the No Action Alternative, current vegetation conditions would remain unaltered. GVIC would continue to manage and control noxious weeds annually along their canal system ROW.

*Proposed Action:* The Proposed Action would contribute to the long-term loss of approximately 0.43 acre of emergent wetland vegetation along the Crown Point Section and approximately 0.11 acre of emergent wetland vegetation along the Bookcliff Section (WestWater 2020a). The Colorado River Basin Salinity Control Act requires that the Secretary of the Interior “provide for the mitigation of incidental fish and wildlife values that are lost” as a result of salinity control projects. Habitat losses associated with the Proposed Action were calculated based on Reclamation methodology as described in the April 2018 *Basinwide Salinity Control Program: Procedures for Habitat Replacement*. Habitat losses associated with the Proposed Action were calculated to be a total of 1.87 habitat units for the Crown Point and Bookcliff Sections (WestWater 2020a). The Habitat Losses Assessment is attached to this EA as Appendix B. GVIC currently has a banked excess of 5 habitat credits available from a previous habitat replacement project. The total habitat units that would be lost as part of this project would be debited from their bank of habitat credits. There is the potential that the lining of the canal would reduce water supply to nearby trees; however, the depth to groundwater in these areas is expected to be 10 to 15 feet, and is expected to supply the trees with a sufficient water source.

There is the potential for the introduction and/or spread of noxious weeds as a result of project construction activities. GVIC would continue to monitor and control noxious weeds along the canal ROW prior to and after construction of the Proposed Action. All vehicles and equipment entering the project site would be cleaned and free of noxious weed seed and debris.

### **3.2.6 – Wildlife Resources**

The Proposed Action is situated in an urban residential setting along the Bookcliff Section of the canal and within an irrigated agricultural field and rural residential housing setting along the Crown Point Section. Due to the current anthropogenic influences occurring along the segments of the canal, the Proposed Action area does not provide high quality wildlife habitat.

The Proposed Action would be located within overall range for mule deer, black bear, mountain lion, and white-tailed prairie dog (CPW 2019). The project area would not be located within any sensitive wildlife habitat areas (i.e. winter concentration area, production areas, etc.) for mule deer, bighorn sheep, black bear, or mountain lion. Terrestrial wildlife species may utilize the Proposed Action area for foraging and passage through urban settings.

Trees are present beyond the canal ROW to provide nesting and foraging habitat for a variety of birds, including raptors. Special Status Wildlife Species including migratory birds, raptors, and Birds of Conservation Concern are described below in Section 3.2.7.



Small mammals, amphibians, birds, and reptiles likely utilize the project area at various times of year for breeding, foraging, cover, and passage.

*No Action Alternative:* Wildlife resources within the Proposed Action area would not be altered under the No Action Alternative. However, salinity and selenium loading contributed to the Colorado River Basin from the Proposed Action would continue to occur and potentially decrease water quality and wildlife habitat in the downstream Colorado River basin.

*Proposed Action:* There would be a long-term loss of approximately 0.5-acre of disconnected linear herbaceous emergent wetland vegetation along the canal banks as a result of the Proposed Action. Irrigated residential lawns and agricultural fields are adjacent to the canal and would provide similar habitat. No trees or shrubs would be removed as a result of the Proposed Action and the canal would remain an open water source. Therefore, there would be negligible impacts on wildlife species that utilize this habitat type for foraging, cover, and passage. There is the potential for direct mortality and displacement to small mammals, reptiles, amphibians, and birds that utilize the canal banks for crucial life functions during project construction. However, it is unlikely the Proposed Action would have an impact at a population level to these species due to their abundance and suitable habitat availability at a landscape scale.

There is the potential for short-term wildlife displacement and avoidance of the Proposed Action area during project construction due to increased human presence and activity. However, wildlife in the area are likely somewhat habituated to human presence due to the proximity to residential housing in the area. Once project construction activities are completed, it is likely that wildlife that utilize the canal for passage, cover, and forage would continue to do so.

In the long-term, the reduction of salinity and selenium loading to downstream habitat areas as a result of this project would help to enhance wildlife habitat.

### **3.2.7 – Special Status Species**

Special status wildlife species include threatened, endangered, proposed and candidate species listed under the Endangered Species Act, migratory birds including Birds of Conservation Concern (USFWS 2008) and raptors, and threatened, endangered, and Species of Concern listed by Colorado Parks and Wildlife (CPW). Literature reviews were conducted to determine the species that might occur in the project area and to help evaluate potential effects from the project. Threatened and endangered species with potential to occur were generated from the Information for Planning and Consultation (IPAC) website for the Proposed Action area (USFWS 2020a). Habitat suitability for these species was based on survey observations and habitat and nesting records as described in the *Colorado Rare Plant Field Guide* (Spackman et al. 1997), *Colorado Breeding Bird Atlas* (Wickersham 2016, and references therein), *Colorado Birds* (Andrews and Righter 1992), *Birds of North America* (Online) (Poole 2020), *Mammals of Colorado* (Armstrong et al. 2011), and *Amphibians and Reptiles in Colorado* (Hammerson 1999). Species that may occur in the project area are summarized in Table 3.

**Table 3. Special Status Species with Potential to Occur in the Proposed Action area.**

Species Name ( <i>Scientific Name</i> )	Status*	Habitat Description	Habitat or Species Potentially Occurring within Landscape Area
Townsend's Big-eared Bat ( <i>Corynorhinus townsendii pallascens</i> )	SC	Occurs in semi-desert shrublands, pinyon-juniper woodlands, and open montane forests.	Potential to occur. Likely forages and passes through Proposed Action area.
<b>BIRDS</b>			
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	SC, BCC	Nests in mature cottonwoods or large pines usually near large rivers or other bodies of water.	Potential to occur in project area; however, no nests were observed near the Proposed Action area.
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )	T	Found in old-growth riparian woodlands (cottonwood) with dense understories and low in elevation. Has been observed on the Colorado, Uncompahgre, and Yampa Rivers.	Potential to occur; however, nesting and breeding activities unlikely to occur in the Proposed Action area.
<b>FISH</b>			
Bonytail ( <i>Gila elegans</i> )	E	Warmer water reaches of large main-stem rivers in the Western U.S. No self-sustaining populations in the wild. Fish have been captured in the Gunnison, Green, Yampa and Colorado Rivers.	Occurs downstream of the project in the Colorado River.
Colorado pikeminnow ( <i>Ptychocheilus lucius</i> )	E	Adults require pools, deep runs, and eddy habitats and high spring run-off flows that flush sediment from spawning areas. Spawn on gravel and cobble substrates. Nursery habitat includes backwaters and flooded lowlands. Known to inhabit Colorado, Gunnison, Green, San Juan, White and Yampa Rivers.	Occurs downstream of project area in the Colorado River.
Colorado roundtail chub ( <i>Gila robusta</i> )	SC	Occurs in medium to large tributaries to the Colorado River in stream reaches with riffle and pool complexes. Occupies deep, slow areas with debris and cover on rocky, gravel, silt, or sandy substrate.	Potential to occur downstream of the project area in the Colorado River.

**Table 3. Special Status Species with Potential to Occur in the Proposed Action area.**

Species Name ( <i>Scientific Name</i> )	Status*	Habitat Description	Habitat or Species Potentially Occurring within Landscape Area
Humpback chub ( <i>Gila cypha</i> )	E	Versatile in habitat preference; associated with fast currents as well as deep pools with large boulders. Canyon habitat with swift flows and deep water seems important in the Upper Colorado River Basin. Known in the Colorado, Green and Yampa Rivers.	Occurs downstream of the project in the Colorado River.
Mountain sucker ( <i>Catostomus platyrhynchus</i> )	SC	Occurs in small streams to large rivers with low gradient segments, with riffles, runs, and pools associated with woody debris and a variety of substrates.	Potential to occur downstream in the Colorado River.
Razorback sucker ( <i>Xyrauchen texanus</i> )	E	Seasonal pattern to habitat use by adult fish; fall/winter preference for pools and slow eddies, runs and backwater in early spring, backwaters and flooded lowlands in June, and runs and pools in late summer and early fall. May also utilized reservoir habitats. Known in the Colorado, Green, Gunnison, San Juan, White and Yampa River basins.	Occurs downstream of the project in the Colorado River.
<b>Amphibians &amp; Reptiles</b>			
Northern leopard frog ( <i>Rana/Lithobates pipiens</i> )	SC	Occurs in wet meadows, and along the banks of shallow areas of ponds, marshes, lakes, streams, reservoirs, and ditches.	Occurs along the banks of the canal.
<b>Plants</b>			
Colorado hookless cactus ( <i>Sclerocactus glaucus</i> )	T	Rocky hills, mesa slopes, and alluvial benches; in desert shrub communities.	Unlikely to occur in project area due to lack of suitable habitat.

\* T = Federally Threatened, E= Federally Endangered, SC = Colorado State Species of Concern, BCC = Bird of Conservation Concern

**Mammals:** The trees and shrubs along the edges of the canal ROW and beyond the ROW provide suitable foraging habitat for Townsend’s big-eared bat. Townsend’s big-eared bats roost and breed in caves, mines, abandoned buildings, and rocky outcrops (Armstrong et al. 2011). Suitable roosting and hibernacula habitat does not occur within the Proposed Action area.

**Birds:** Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act which prohibits the take of eagles, including their parts, nests, or eggs, unless permitted by the Secretary of the Interior (USFWS 2020b). Bald Eagles nest in mature cottonwood trees along the Colorado River corridor in the Grand Valley. The nearest known nest to the Proposed Action area is approximately 3.18 miles from the Crown Point section of the canal (CPW 2019). No eagles were observed or are known to nest within the Proposed Action area.

The Western Yellow-billed Cuckoo occurs in western Colorado along the Uncompahgre, Yampa, Rio Grande, Conejos, San Miguel, Colorado, and Gunnison river corridors. Proposed critical habitat for this species is located approximately 2.85 miles and 2.27 miles from the Crown Point and Bookcliff canal sections, respectively. They typically nest in willow thickets and old growth cottonwood galleries with dense understories (Wickersham 2016). The nesting season typically occurs from June through August for this species (Wickersham 2016). The Colorado River corridor from Palisade to Fruita has been proposed as critical habitat for this species. It is unlikely that the Yellow-billed Cuckoo would nest or utilize the project area for crucial life functions due to the lack of extensive cottonwood galleries and riparian woodlands present adjacent to and within the project area. The Yellow-billed Cuckoo requires an estimated 10 hectares of densely wooded riparian habitat for nesting (RMBO 2012). The cottonwood and Siberian elm stands observed along the canal do not meet the minimum requirements needed for canopy structure, density, and size to support nesting birds (WestWater 2020b).

The trees and shrubs present along the edges of the canal ROW provide suitable nesting and foraging habitat for a variety of migratory birds, including raptors. No suitable cliff or rocky outcrops are present near the Proposed Action area to provide suitable nesting habitat for falcons and Golden Eagles. No migratory bird nests were observed during biological surveys within the Proposed Action area. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) which prohibits the killing, capturing, selling, trading, and transport of protected migratory bird species (USFWS 2020b). The only BCC species with potential to occur or pass through the Proposed Action area is the Bald Eagle. The habitat requirements for other BCC species are not met within the Proposed Action area. There are several raptor species that have potential to pass through, nest, hunt, and forage in the Proposed Action area. These species include the following: Red-tailed Hawk, Great Horned Owl, Sharp-shinned Hawk, Cooper's Hawk, Swainson's Hawk, Western Screech Owl, Long-eared Owl, Northern Harrier, and American Kestrel. No raptor nests were detected during the raptor surveys within the Proposed Action area. The nesting season for migratory birds and raptors with potential to occur in the Proposed Action area typically occurs from March 1<sup>st</sup> through August 31<sup>st</sup>. Owls and Red-tailed Hawks are typically the first to begin the nesting season in early March with courtship and nest building occurring as early as mid-February.

A baseline level of disturbance in the area to migratory birds and raptors occurs from residential, commercial, and farming activities, from vehicles traveling along the nearby interstate, highways, and other roads, and from regular canal maintenance activities conducted by GVIC.

**Fish:** The Colorado pikeminnow, razorback sucker, bonytail, and the humpback chub are federally listed as endangered and they occur in the Colorado River; collectively they will be referred to as the Colorado River endangered fishes throughout this document. The proposed project would not occur within designated critical habitat for these species of fish. Designated critical habitat for the Colorado pikeminnow and the razorback sucker includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle and Interstate 70 exit 90, respectively.

Occasionally, the bonytail and humpback chub are found in Colorado near Grand Junction; however, their extent is not known to occur east of Grand Junction (Ryden, D., USFWS, Personnel Communication, November 2015). One population of humpback chub occurs at Black Rocks within the Colorado River west of Grand Junction, Colorado (USFWS 1994).

These species are associated with a variety of habitats ranging from turbulent riffles and runs to pools and backwaters with little to no current; substrates are composed of silt, sand, boulder, or bedrock. Spawning season for the four endangered fish occurs from May to July as spring runoff subsides and water temperatures warm (USFWS 1994). Still backwaters and flooded bottomlands provide important rearing and nursery habitats for juvenile fish. Much is still unknown about the exact spawning requirements for the endangered fishes.

Colorado roundtail chub and mountain sucker are listed as Species of Concern by the State of Colorado and likely occur downstream of the Proposed Action area in the Colorado River. Both of these species occur in mid-size to large rivers and streams with riffle and pool complexes where debris is present to provide cover over a variety of substrates.

The Grand Valley Highline Canal does not provide suitable habitat for fish species; however, fish enter the canal at the diversion on the Colorado River. A fish screen was installed by GVIC to prevent Colorado River endangered fish species and other fish from entering the canal. The fish screen is located on the Colorado River south of the Town of Palisade, Mesa County, Colorado. For various reasons, the fish screen is not always operational. Therefore, USFWS conducts fish salvage work every year when the canal is dewatered for the winter.

**Amphibians:** The northern leopard frog, a Colorado State Species of Concern, occurs along the banks of irrigation ditches/canals, reservoirs, ponds, streams and rivers throughout the Grand Valley including the GVIC canal system within the Proposed Action area.

**Plants:** The Colorado hookless cactus occurs throughout the Grand Valley in desert shrublands. The proposed project would be located along an existing canal that undergoes routine maintenance. No Colorado hookless cactus were observed during the threatened and endangered species assessment and it is unlikely they would occur along these portions of the canal lining project due to the anthropogenic influences occurring in the project area (i.e. active agricultural farming, canal maintenance, residential and urban development) (WestWater 2020b).

*No Action Alternative:* Under the No Action Alternative there would be no direct impacts to Special Status Species with potential to occur in the project area. GVIC would continue routine maintenance and operation of the canal system. Downstream water quality in the Colorado River would continue to be affected by the salinity and selenium loading to the Colorado River Basin, thus the Colorado River endangered fish species that occur downstream of the project area would not see improved water quality as a result of the Proposed Action.

*Proposed Action:* Under the Proposed Action, there would be no direct or indirect effects to threatened and endangered species. There is the potential for the migratory birds (including raptors) and a state listed species of concern to be impacted by the Proposed Action as described below.

**Birds:** No direct or indirect impacts to the yellow-billed cuckoo are expected as a result of this project as the construction timeline would occur outside the period when cuckoos are present in the

Grand Valley, suitable nesting habitat is absent, and no trees or riparian shrubland habitat that could provide foraging habitat would be removed during project construction. Proposed critical habitat does not occur within or near the project area and would therefore not be impacted.

There would be no effects to Bald Eagles as a result of the Proposed Action. No eagle nests or roost sites occur within the Proposed Action area. The nearest Bald Eagle nest is approximately 3.18 miles from the Crown Point section of the canal.

The planned construction for the Proposed Action would occur outside the typical nesting season for most species with potential to occur in the Proposed Action area. Project construction is planned to begin during January 2021 and be completed by March 2023. Construction activities would occur annually from November through March, which is outside the typical nesting season for migratory birds in this region. In addition, no shrubs or trees suitable for nesting would be removed during project construction. Due to the timing of the project construction, the abundance of hunting and foraging habitat in the surrounding area, and the distance from known raptor nests, it is unlikely that the Proposed Action would have any direct or indirect effects to migratory birds. Some individual raptors are habituated to anthropogenic activities; therefore, if a raptor initiates nesting activities within 1/3 mile of the Proposed Action area during project construction, it is likely that these birds would be tolerant to human presence due to the existing urban setting and ongoing maintenance of the canal system. In this scenario, as long as construction activities associated with the Proposed Action are ongoing prior to and continuous through nesting season the Proposed Action would not cause nest abandonment or failure.

**Fish:** There would be no direct impact on Colorado River endangered fishes, since project construction would occur when the canal is dewatered from November through March.

Water use due to the operation of the GVIC canal system results in an average annual depletion from the Upper Colorado River Basin of 58,515 acre-feet. Reclamation previously consulted with FWS on Colorado River Basin historic water depletions caused by operation of the GVIC System (FWS File ES/GJ-6-CO-99-F-033-CP20). As a result of that consultation, the GVIC executed a Recovery Agreement with FWS to ensure compliance with the Endangered Species Act for its water depletions. No new water depletions would occur as a result of the canal lining project.

The Proposed Action would ultimately improve water quality and habitat for the Colorado River endangered fish species. Over the long-term, the project would have a positive effect on the Colorado River endangered fish species and their designated critical habitat areas.

**Amphibians:** There would be a minor direct loss of habitat for the northern leopard frog along the banks of the canal. This loss would be minor in the context of the landscape scale. Similar suitable habitat is available along other portions of the GVIC system, adjacent to the project area, and throughout the Grand Valley along the banks of irrigation ditches, reservoirs, ponds, streams, and rivers. This project would not cause detrimental effects at a population level to the northern leopard frog.

**Plants:** There were no Colorado hookless cactus observed on site and the site assessment determined the area lacks suitable habitat; therefore, there would be no effect to this species.

### **3.2.8 – Cultural Resources**

A cultural resource inventory was completed for this project during the spring of 2020 to identify and assess cultural resources within the Proposed Action area and to evaluate their significance under applicable federal cultural resource laws (Alpine 2020).

The Grand Valley Highline Canal system has been a water delivery system in the Grand Valley since the 1880's. The majority of the canal system operates and appears as it did when it was first constructed. The urban growth of Grand Junction since the 1970's has resulted in the greatest change in the canal system setting (Alpine 2020).

*No Action Alternative:* There would be no impact to cultural resources. GVIC would continue to operate and maintain the canal system.

*Proposed Action:* The two canal segments that are proposed to be lined under the Proposed Action qualify as eligible for listing under the National Register of Historic Places (NHRP). Reclamation has consulted with the Colorado State Historic Preservation Officer (SHPO) and has determined the proposed action would have an adverse effect on the two canal segments. A Memorandum of Agreement (MOA) has been executed to mitigate for the adverse effect. Consultation documentation is included in Appendix C.

### **3.2.9 – Soils and Farmlands of Agricultural Significance**

The inventory of prime and unique farmland in the Proposed Action area is based on soil types and irrigation status of mapped soil units identified by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). The purpose of the inventory is to identify the extent and location of important rural farmlands needed to produce food, feed, fiber, forage, and oilseed crops. Soils mapped as Prime Farmland if irrigated are generally silt and clay loams with some sandy loam derived from sandstone and shale. The Not Prime Farmland silty clay loam soils are derived from shale.

Surface disturbance of farmland designated as Prime Farmland if irrigated and Not Prime Farmland would be limited to previously disturbed areas within existing GVIC right-of-way. No surface disturbance would occur on farmlands irrigated by the GVIC System. Disruption to the irrigation season would not occur as the Proposed Action would be implemented during the irrigation off-season.

*No Action Alternative:* The No Action Alternative would have no effect on soils and farmland of agricultural significance. Farmland production goals in the Proposed Action Area would remain same as past years.

*Proposed Action:* Under the Proposed Action Alternative, irrigated farmland production would not be removed or added; therefore, there would be no adverse effect to soils and farmlands of agricultural significance. The water delivery system efficiencies would increase from the Proposed Action resulting in a longer irrigation season and associated agricultural production increase.

### 3.3 – Cumulative Effects

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the CEQ regulations 40 CFR §1508.7 as “...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency...or person undertakes such other actions.” The CEQ states that the “cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds” using the concept of “project impact zone” or more simply put, the area that might be affected by the Proposed Action.

The analysis of cumulative effects for the Proposed Action considers both spatial (geographic) boundaries and temporal limits of impacts, on a resource-by-resource basis. Spatial and temporal analysis limits vary by resource, as appropriate (see Table 4 for the spatial and temporal limits of analysis for each resource). Spatial analysis limits were selected to be commensurate with the impacts on, and realm of influence of, each resource type. The temporal limits of analysis were established as 50 years for each resource type (a standard timeframe for cumulative impacts analysis), except for resource types perceived to have only temporary impacts (impacts that end following construction of the Proposed Action or within a few seasons following construction).

**Table 4. Cumulative Effects Analysis Spatial & Temporal Limits by Resource.**

Resource	Spatial Limits of Analysis	Temporal Limits of Analysis
Water Rights and Use	Colorado River Basin	50 years
Water Quality	Colorado River Basin	50 years
Air Quality	Project Area plus 2-mile spatial buffer	Duration of the Project
Access, Transportation, & Construction Impacts	Project Area	Duration of Project
Vegetative Resources & Weeds	Project Area	50 years
Wildlife Resources	Project Area	50 years
Special Status Species (Migratory Birds, State Species of Concern, Threatened and Endangered Species)	Project Area plus 0.5-mile buffer area, except for the Colorado River endangered fishes, where the designated critical habitat is considered the spatial limit of analysis.	50 years
Cultural Resources	Project Area	50 years



Resource	Spatial Limits of Analysis	Temporal Limits of Analysis
Soils and Farmlands of Agricultural Significance	Project Area	50 years

The direct and indirect effects of past and ongoing (present) actions are reflected in the current conditions described in the affected environment above in each of the resource topics of Section 3. Reasonably foreseeable future actions are *specific* actions in that they have approved NEPA documentation or approved plans with the potential to impact the same resources affected by the Proposed Action. Reasonably foreseeable future actions potentially affecting resources within the spatial and temporal limits of this analysis (Table 4) are: the Colorado River Basin Salinity Control Program, the Upper Colorado River Endangered Fish Recovery Program, and the Gunnison Basin Selenium Management Program.

Cumulative impacts of the Proposed Action when added to the reasonably foreseeable future action are described in Table 5.

**Table 5. Cumulative Impacts of the Proposed Action on potentially impacted resources.**

Resource	Cumulative Impacts
Water Rights & Use	The Proposed Action would have no adverse effect to water rights and use on the Colorado River Basin, and therefore would have no effect to contribute towards a cumulative impact on Water Rights & Use.
Water Quality	The Proposed Action would reduce salinity loading the Colorado River by an estimated 743 tons per year, and would reduce selenium loading by an unquantified amount. Three ongoing federal programs at a basin-wide scale are producing significant cumulative beneficial effects on water quality: the Colorado River Basin Salinity Control Program, the Upper Colorado River Endangered Fish Recovery Program, and the Gunnison Basin Selenium Management Program. The Proposed action, in combination with future projects implemented by the three federal programs, would result in an increased reduction of salinity and selenium loading into the Colorado River.
Air Quality	The Proposed Action would contribute negligible amounts of exhaust gases and dust during project construction in the analysis area, and therefore would have no effect to contribute towards a cumulative impact on air quality.
Access, Transportation, & Construction Impacts	The Proposed Action would slightly increase traffic and temporarily disrupt transportation on public roads during construction activities; however, these effects would be temporary in duration. There are no known future actions in the Proposed Action area within the temporal time limit of analysis which would contribute to a cumulative impact to access, transportation, and construction impacts.

Resource	Cumulative Impacts
Vegetative Resources & Weeds	There would be a minor loss of wetland and upland vegetation as a result of the Proposed Action. There are no known future actions in the Proposed Action area within the temporal time limit of analysis which would contribute to a cumulative impact to vegetative resources and weeds.
Wildlife Resources	The Proposed Action would temporarily impact wildlife resources during project construction activities. There would be a minor loss in wetland habitat along the banks of the canal. There are no known future actions in the Proposed Action area within the temporal time limit of analysis which would contribute to a cumulative impact to wildlife resources.
Special Status Species (Migratory Birds, State Species of Concern, Threatened & Endangered Species)	Three ongoing federal programs at a basin-wide scale are producing significant cumulative beneficial effects on water quality: the Colorado River Basin Salinity Control Program, the Upper Colorado River Endangered Fish Recovery Program, and the Gunnison Basin Selenium Management Program. The Proposed Action, in combination with future projects implemented by the three ongoing federal programs, would contribute to a beneficial cumulative effect to downstream habitat for the Colorado River endangered fish species by reducing salinity and selenium loading from the Colorado River Basin.
Cultural Resources	The Proposed Action is anticipated to have an adverse effect on the Grand Valley Highline Canal, which is an historic property eligible for listing to the NRHP. There are no reasonably foreseeable future actions on the Grand Valley Highline Canal system which would contribute to a cumulative impact on this resource.
Soils and Farmlands of Agricultural Significance	The Proposed Action would have no adverse effect on agricultural resources and soils, and therefore would have no effect to contribute towards a cumulative impact on agricultural resources and soils.

### 3.4 – Summary

Table 6 provides a summary of environmental impacts for the resources evaluated in this EA. Resource impacts are outlined for both the No Action and the Proposed Action Alternatives. Mitigation, if required, is also described.

**Table 6. Summary of Impacts for the No Action Alternative and Proposed Action Alternative.**

<b>Resource</b>	<b>Impacts: No Action Alternative</b>	<b>Impacts: Proposed Action Alternative</b>
Water Rights & Use	There would be no effects.	There would be no change in water rights and/or use under the Proposed Action. GVIC system would continue to operate with its current water rights and there would be no change in water use.
Water Quality	Salt and selenium loading from the Project area would continue to affect water quality in the Colorado River Basin.	Salt loading into the Colorado River would be reduced by an estimated 743 tons per year. The Proposed Action is also expected to reduce selenium loading in the Colorado River; however, these benefits have not been quantified. Improved water quality would likely benefit downstream water users and aquatic species in the Colorado River.
Air Quality	There would be no direct or indirect effects.	There would be a short-term increase in particulate matter and exhaust gases generated during project construction activities; however, these impacts would not cause Mesa County to reach non-attainment air quality levels. Dust control measures would be implemented to help mitigate fugitive dust during project construction. Post- construction air quality is anticipated to return to pre-construction conditions.
Access, Transportation, and Construction Impacts	There would be no direct or indirect effects.	There would be a short-term incremental increase in vehicle traffic along public roads near the project area during project construction. Impacts to traffic and transportation would be short in duration and appropriate signage would be placed to notify the public of construction activity. There would also be an increase in noise and activity during daylight hours while project construction is occurring. Post-construction, traffic patterns and noise levels would return to pre-construction conditions.

Resource	Impacts: No Action Alternative	Impacts: Proposed Action Alternative
Vegetative Resources & Weeds	There would be no direct or indirect effects.	There would be a loss of approximately 0.54 acres of emergent wetland vegetation with a habitat value of 1.87 units. GVIC has banked habitat credits available from a previous project that would be applied towards the Proposed Action to mitigate for the loss of 1.87 habitat units. There is the potential that project construction equipment could introduce or spread noxious weeds in the Proposed Action area. All equipment would be cleaned of debris and GVIC would continue to monitor and control noxious weeds along their ROW post-construction of the Proposed Action.
Wildlife Resources	There would be no direct or indirect effects to terrestrial wildlife species. However, downstream aquatic habitats would not see an improvement in water quality under the no action alternative. Salinity and selenium loading would continue to occur.	There would be a loss of disconnected linear herbaceous wetland habitat along the banks of the canal that provide cover, forage, and passage for small mammal, reptile, and amphibian species. However, the loss of this habitat would be minimal compared to the amount of available habitat nearby and at a landscape scale. There is the potential that project construction activities would cause temporary displacement of wildlife species. There would be an overall improvement to downstream aquatic habitat areas as a result of the Proposed Action by decreasing salinity and selenium loading to the Colorado River Basin.
Special Status Species (Migratory Birds, State Species of Concern, Threatened & Endangered Species)	There would be no direct or indirect effects to terrestrial Special Status Species. However, downstream aquatic habitats for the Colorado River endangered fish species would not see an improvement in water quality under the no action alternative. Salinity and selenium loading would continue to occur.	Due to the lack of suitable nesting habitat, the existing level of anthropogenic disturbances, and/or timing of project construction there would be no impacts to migratory birds, Bald Eagles, the Yellow-billed Cuckoo, or their habitat. Lining of the canal would help to improve downstream water quality habitat for the Colorado River endangered fish species by reducing the amount of salinity and selenium occurring in the Colorado River Basin. No other threatened and endangered species would be impacted as a result of the Proposed Action. There would be a minor loss habitat for the northern leopard frog; however, this loss is not expected to impact the species at a population level.
Cultural Resources	There would be no direct or indirect effects to cultural resources. GVIC would continue to maintain and operate their canal system.	The proposed action would have an adverse effect on the two canal segments, and a Memorandum of Agreement (MOA) has been executed to mitigate for the adverse effect. Consultation documentation is included in Appendix C.

<b>Resource</b>	<b>Impacts: No Action Alternative</b>	<b>Impacts: Proposed Action Alternative</b>
Soils and Farmlands of Agricultural Significance	There would be no direct or indirect effects.	There would be no disturbance of soils of agricultural significance. Overall, the water delivery efficiencies gained from the Proposed Action may result in longer irrigation season, and potentially in increased agricultural productivity, but these increases are not quantified.

## **CHAPTER 4 – ENVIRONMENTAL COMMITMENTS**

This section discusses the environmental commitments developed to protect resources and reduce unavoidable adverse impacts to a non-significant level. The environmental commitments will be implemented by Reclamation if the Proposed Action is implemented. The environmental commitments will be included in the contractor bid specifications. If the Proposed Action is approved, the Company shall use this checklist to document compliance with each environmental commitment. The Company shall submit the relevant component of the completed checklist to Reclamation immediately following each phase of the Project, i.e., Pre-Construction, During Construction, and Post-Construction, along with documents generated to meet environmental commitments.

Note that any construction activities proposed outside of the inventoried Proposed Action Area or the planned timeframes would first require additional review by Reclamation to determine if the existing surveys and information are adequate to evaluate additional impacts to special status plants and wildlife, including threatened, endangered, or migratory bird species.

<b>Environmental Commitment</b>	<b>Resource(s) that Benefit</b>	<b>Date of Compliance and Initials</b>
<i>Pre-construction</i>		
A Spill Response Plan shall be prepared in advance of construction by the contractor for areas of work where spilled contaminants could flow into water bodies.	Water Quality	
A Stormwater Management Plan shall be prepared and submitted to Colorado Department of Public Health & Environment (CDPHE) by the construction contractor prior to construction disturbance.	Water Quality	
A Clean Water Act (CWA) Section 402 Storm Water Discharge Permit compliant with the National Pollutant	Water Quality	

<b>Environmental Commitment</b>	<b>Resource(s) that Benefit</b>	<b>Date of Compliance and Initials</b>
Discharge Elimination System (NPDES) shall be obtained from CDPHE by the construction contractor prior to construction disturbance (regardless of whether dewatering would take place during construction).		
Certification under CDPHE Water Quality Division Construction Dewatering Discharges Permit COG070000 shall be obtained by the construction contractor prior to any dewatering activities related to construction.	Water Quality	
Construction limits shall be clearly flagged onsite to avoid unnecessary plant loss or ground disturbance.	Vegetation, Weeds, and Wildlife Habitat	
Any disturbed areas outside of the canal prism and O&M road shall be seeded with an appropriate weed free seed mixture.	Vegetation, Weeds, and Wildlife Habitat	
Utility clearances must be obtained by the construction contractor prior to construction activities from local utility companies.	Transportation and Access	
All equipment shall be cleaned before it is brought to the construction area, to minimize transport of new weed species to the construction area.	Vegetation, Weeds, Wildlife Habitat	
A City of Grand Junction “Work in ROW” permit shall be obtained prior to project construction activities.	Access and Transportation	
A Colorado Department of Transportation Utility Permit shall be obtained prior to project construction activities.	Access and Transportation	
<b><i>During Construction</i></b>		
During construction, the use, storage, and disposal of hazardous materials and wastes within the project area will be managed in accordance with all federal, state, and local standards, including Toxic Substances Control Act of 1976, as amended (15 USC 2601, et seq., 40 CFR Part 702-799, and 40 CFR 761.1-761.193). Any trash or solid wastes generated during the project will be properly disposed offsite.	Water Quality, Wildlife Habitat, Soils	

<b>Environmental Commitment</b>	<b>Resource(s) that Benefit</b>	<b>Date of Compliance and Initials</b>
Equipment shall be inspected daily and immediately repaired as necessary to ensure equipment is free of petrochemical leaks.	Water Quality, Soil	
Construction equipment shall be parked, stored, and serviced only at an approved staging area.	Water Quality, Soil	
Ground disturbances and construction areas shall be limited to only those areas necessary to safely implement the Proposed Action.	Soil, Vegetation, Weeds, Wildlife Habitat	
Equipment shall be inspected daily and immediately repaired as necessary to ensure equipment is free of petrochemical leaks.	Water Quality, Soil	
If previously undiscovered cultural or paleontological resources are discovered during construction, construction activities must immediately cease in the vicinity of the discovery and Reclamation must be notified. In this event, the SHPO shall be consulted, and work shall not be resumed until consultation has been completed, as outlined in the Unanticipated Discovery Plan in the attached MOA. Stipulations in the MOA with the SHPO are incorporated herein by reference. Additional surveys shall be required for cultural resources if construction plans or proposed disturbance areas are changed.	Cultural Resources	
In the event that threatened or endangered species are encountered during construction, the Company shall stop construction activities until Reclamation has consulted with FWS to ensure that adequate measures are in place to avoid or reduce impacts to the species.	Special Status Species	
Construction activities shall take place only in accordance with the schedule and any timing restrictions outlined in Sections 2.4 and 3.2 of this EA (no vegetation grubbing during the core migratory bird nesting season of April 1 through July 15; no construction work during June 1 through September 15 in potentially sensitive areas for western yellow-billed cuckoo).	Special Status Species	
If an active bald eagle nest or bald eagle roost site is discovered within ¼ mile of the Proposed Action during construction, or if any other active raptor nest is discovered	Special Status Species	

Environmental Commitment	Resource(s) that Benefit	Date of Compliance and Initials
within 1/3-mile of the Proposed Action Area during construction, construction shall cease until Reclamation can complete consultations with FWS and CPW.		
<i>Post-Construction</i>		
All equipment shall be cleaned before it is transported to another job site, to avoid introducing weed species from the construction area to another job site.	Vegetation, Weeds, Wildlife Habitat	
Weed control shall be implemented by the Company or a contractor in accordance with current County weed control standards.	Vegetation, Weeds, Wildlife Habitat	

# CHAPTER 5 – CONSULTATION AND COORDINATION

## 5.1 – Introduction

Reclamation’s public involvement process presents the public with opportunities to obtain information about a given project, and allows interested parties to participate in the project through written comments. This chapter discusses public involvement activities taken to date for the Proposed Action.

## 5.2 – Public Involvement

The Draft EA was released for public review (via Reclamation’s website at <https://www.usbr.gov/uc/DocLibrary/ea.html>). Notification of the release of the Draft EA for public comment was sent to the individuals and entities included on the distribution list in Appendix D. Publicly available electronic versions of the Draft EA met the technical standards of Section 508 of the Rehabilitation Act of 1973, so that the documents could be accessed by people with disabilities using accessibility software tools. Comments received from the public, regulatory agencies, or other entities during the Draft EA review period were addressed and are attached in Appendix E.



## CHAPTER 6 – PREPARERS

The following list contains the WestWater Engineering staff and Reclamation employees who participated in the preparation of this EA.

Name	Title	Areas of Responsibility
Amie Wilsey	Environmental Scientist/Biologist	NEPA Lead, Air Quality, Access, Transportation, and Construction Impacts, Vegetative Resources and Weeds, Wildlife Resources, Special Status Species, Cultural Resources
Dean Goebel	Hydrogeologist	Water Rights and Use, Water Quality, Agricultural Resource and Soils
Lesley McWhirter	Reclamation's WCAO Environmental Planning Group Lead	NEPA Lead
Amanda Ewing	Reclamation WCAO Biologist	Habitat replacement, special status species
Jenny Ward	Reclamation WCAO Environmental Protection Specialist	EA review, cultural resources
Kristin Bowen	Reclamation's WCAO Lead Archaeologist	Cultural resources

## CHAPTER 7 – REFERENCES

- Alpine. 2020. Class III Inventory of the Grand Valley Irrigation Company's 550 Project in Mesa County, Colorado. Alpine Archaeological Consultants, Inc. Montrose, CO.
- Andrews, R., and R. Righter. 1992. Colorado Birds: A Reference to Their Distribution and Habitat. Denver Museum of Natural History, Colorado.
- Armstrong, D.M., Fitzgerald, J. P., and C. A. Meaney. 2011. Mammals of Colorado, Second Edition. University Press of Colorado, Boulder, CO.
- CDPHE. 2018. Colorado Air Quality Data Report, Oct. 21, 2019. Air Pollution Control Division. Denver, CO.
- CPW. 2019. Colorado Parks and Wildlife All Species Activity Mapping Data, updated October 26, 2017. Available at <https://www.arcgis.com/home/item.html?id=190573c5aba643a0bc058e6f7f0510b7>.
- Hammerson, Geoffrey. 1999. Amphibians and Reptiles of Colorado. 2nd edition, University Press of Colorado and Colorado Division of Wildlife.
- Poole, A. (editor). 2020. The Birds of North America Online: <http://bna.birds.cornell.edu/BNA/>. Cornell Laboratory of Ornithology, Ithaca, New York.
- Reclamation. 2020. Colorado River Basin Salinity Control Program, available online at: <https://www.usbr.gov/uc/progact/salinity/>. Bureau of Reclamation, Interior Region 7, Upper Colorado Basin.
- Reclamation. 2017. Quality of Water, Colorado River Basin, Progress Report No. 25. Bureau of Reclamation, Upper Colorado Region.
- RMBO. 2012. 2011 Yellow-billed Cuckoo Surveys in Western Colorado. Tech Rep. R-YBCU-USFWS-09-03. Rocky Mountain Bird Observatory, Brighton, CO.
- Spackman, S., B. Jennings, J. Coles, C. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado Rare Plant Field Guide, Prepared for the U.S. Bureau of Land Management, the U.S. Forest Service and the U.S. Fish and Wildlife Service by the Colorado Natural Heritage Program.
- USFWS. 2020a. Threatened and endangered species in the mountain prairie region, project list, Mesa County, CO. <http://ecos.fws.gov/ipac/project/ZM2AFKS4KZFK5IX4FVKXX24FIE/resources>
- USFWS. 2020b. Migratory Bird Treaty Act, available online at: <https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php#>. Migratory Bird Program, U.S. Fish and Wildlife Service.
- USFWS. 2008. Birds of Conservation Concern 2008. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Arlington, Virginia.

- USFWS. 1999. Final Programmatic Biological Opinion for Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River. U.S. Fish and Wildlife Service, Denver, CO.
- USFWS. 1994. Endangered and Threatened Wildlife and Plants: Determination of Critical Habitat for the Colorado River Endangered Fishes: Razorback Sucker, Colorado Squawfish, Humpback Chub, and Bonytail Chub. Federal Register (Volume 49, No. 54, March 21, 1994, pp. 13374-13400).
- WestWater. 2020a. 550 CRBSCP Habitat Loss Assessment, June 2020. WestWater Engineering. Grand Junction, CO.
- WestWater. 2020b. 550 CRBSCP Threatened and Endangered Species Assessment, July 2020. WestWater Engineering. Grand Junction, CO.
- Wickersham, L.E. (editor). 2016. Colorado Breeding Bird Atlas, Second Edition. Colorado Bird Atlas Partnership and Colorado Division of Wildlife, Denver.

# CHAPTER 8 – ABBREVIATIONS AND ACRONYMS

Abbreviation or Acronym	Definition
BLM	U.S. Bureau of Land Management
BMP	Best management practice
CAA	Clean Air Act
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CPW	Colorado Parks and Wildlife
CRSP	Colorado River Storage Project
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
E.O.	Executive Order
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
Interior	U.S. Department of the Interior
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PM	Particulate Matter

Abbreviation or Acronym	Definition
Reclamation	U.S. Bureau of Reclamation
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers

**APPENDIX A**  
**U.S. ARMY CORPS OF ENGINEERS**  
**EXEMPTION LETTER**



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT  
1325 J STREET  
SACRAMENTO CA 95814-2922

October 16, 2020

Regulatory Division (SPK-2020-00638)

Grand Valley Irrigation Company  
Attn: Mr. Charles D. Guenther  
688 26 Road  
Grand Junction, CO 81506  
[charlieg@sprynet.com](mailto:charlieg@sprynet.com)

Dear Mr. Guenther:

This concerns your proposed Canal Lining Phase 550 Project which entails lining two sections of the Grand Valley Highline Canal (Canal) referred to as Crown Point and Bookcliff. The Crown Point section extends from Headgate HL 194 at 23 ½ Road 3,862 feet downstream to the Persigo Wash Spill Structure in Section 20, Township 1 North, Range 1 West, Ute Principal Meridian, centered approximately at Latitude 39.143812°, Longitude -108.617506°, Mesa County, Colorado; and the Bookcliff section extends from the Leach Creek Spill Structure 1,342 feet downstream to G ½ Road within Section 34, Township 1 North, Range 1 West, Ute Principal Meridian, centered approximately at Latitude 39.112819°, Longitude -108.576616, City of Grand Junction, Mesa County, Colorado (Enclosure).

Based on the information you have provided, the Canal Lining Phase 550 Project involves grading and lining 5,204 linear feet of the Canal with an impermeable membrane covered in shotcrete. An underdrain will be installed beneath the liner, and nine headgates will be replaced and may include removal of any existing liner in need of replacement. The proposed activities would be conducted in accordance with the GVIC Salinity Project 550 email and attachments submitted to this office on August 17, 2020.

We have determined that the proposed work is exempt under Section 404(f)(1) of the Clean Water Act. Therefore, a Department of the Army Permit is not required for this work. Measures should be taken to prevent construction materials and/or activities from entering any waters of the United States. Appropriate soil erosion and sediment controls should be implemented on site to achieve this end.

Our disclaimer of jurisdiction is only for this activity as it pertains to Section 404 of the Clean Water Act, and does not refer to, nor affect jurisdiction over any waters present on site. Other federal, state, and local laws may apply to your activities. Therefore, in addition to contacting other federal and local agencies, you should also contact state regulatory authorities to determine whether your activities may require other authorizations or permits.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under [Customer Service Survey](#).

Please refer to identification number SPK-2020-00638 in any correspondence concerning this project. If you have any questions, please contact me at the Grand Junction Regulatory Office, Colorado West Section, 400 Rood Avenue, Room 224, Grand Junction, Colorado 81501, by email at [w.travis.morse@usace.army.mil](mailto:w.travis.morse@usace.army.mil), or telephone at (970) 243-1199 X 1014.

Sincerely,

A handwritten signature in blue ink, appearing to read 'T. Morse', is positioned above the typed name.

Travis Morse  
Senior Project Manager  
CO West Section

Enclosure

cc:

Mr. Trent Prall, City of Grand Junction, [trentonp@gjcity.org](mailto:trentonp@gjcity.org)

Mr. Teddy Martinez, Mesa County, [teddy.martinez@mesacounty.us](mailto:teddy.martinez@mesacounty.us)

Ms. Lesley McWhirter, U.S. Bureau of Reclamation, [lmcwhirter@usbr.gov](mailto:lmcwhirter@usbr.gov)



**APPENDIX B**  
**HABITAT LOSSES ASSESSMENT**

**Grand Valley Irrigation Company  
Canal Lining Phase 550 Project  
Crown Point and Bookcliff Sections  
NO. R20AC00010  
Habitat Assessment**



*Cover Photo: View of Crown Point Section along the Grand Valley Highline Canal*

**Prepared for:**

Grand Valley Irrigation Company  
688 26 Road  
Grand Junction, CO 81506  
and  
Bureau of Reclamation  
Western Colorado Office  
445 West Gunnison, Suite 221  
Grand Junction, CO 81501

**Prepared by:**

WestWater Engineering  
2516 Foresight Circle #1  
Grand Junction, CO 81505

**June 2020**

## **INTRODUCTION**

WestWater Engineering (WestWater) was requested by Grand Valley Irrigation Company (GVIC) to perform a habitat assessment along portions of the Grand Valley Highline Canal located in Grand Junction, Colorado. GVIC plans to line 3,862 linear feet along the Crown Point Section and 1,342 feet along the Bookcliff Section of the canal as part of their Canal Lining 550 Project (Figure 1). As required by the Salinity Control Act, mitigation is required for incidental fish and wildlife values lost as a result of salinity control improvement projects. The purpose of the habitat assessment is to establish a Habitat Quality Score (HQS) of the habitat that will be lost because of project activities. The HQS will be used to determine the Habitat Units that will need to be replaced in order to offset lost habitat values. It was determined there would be a loss of 1.87 habitat units due to the project.

## **PROJECT LOCATION**

The Crown Point Section of the project is located in Section 20, Township 1 North, Range 1 West, and the Bookcliff Section is located in Section 34, Township 1 North, Range 1 West (Figure 1). This project is located along the Grand Valley Highline Canal in Mesa County, Colorado. The Crown Point Section is located in a rural setting near irrigated agricultural fields and residential housing near 23 ½ Road and I ½ Road. The Bookcliff Section is located in the City of Grand Junction in an urban setting adjacent to residential houses south of G ½ Road and Interstate 70.

## **EXISTING CONDITIONS**

Existing vegetation communities adjacent to the canal consist largely of emergent wetland at varying widths along the edges of the canal. Cottonwood stands and Siberian Elms intermixed with Russian olives and willows are present near the canal along the Crown Point Section. A small stand of cottonwood trees is also present near the Bookcliff Section of the canal project. Upland vegetation is also present which includes greasewood and rabbitbrush with an understory of cheatgrass and annual wheatgrass. Habitat types present along the canal provide nesting, foraging and cover for various wildlife species including: waterfowl and other migratory bird species, amphibians, small mammal species, and mule deer. The surrounding areas are composed of irrigated agricultural fields, cemetery, and residential areas.

## **METHODS**

Habitat was assessed using the protocols outlined in the Basin Wide Salinity Control Program: Procedures for Habitat Replacement document prepared by the Bureau of Reclamation (BOR) and U.S. Fish and Wildlife Service (USFWS) (BOR 2018). Field work was performed by WestWater biologists on May 27, 2020 to determine the total acres of wetland/riparian vegetation that would be impacted by the project.

All survey field data was recorded using handheld Global Positioning System (GPS) receivers. Wetland and riparian vegetation habitat areas were mapped on the basis of proximity to the canal, plant species composition, and soil types. The wetland/riparian boundaries were mapped by using GPS units. Polygons were then created using ArcMap GIS software to calculate wetland/riparian acreage along the banks of the canal.

Vegetation types were determined through field identification of plants, aerial photography, and on-the-ground assessment of plant abundance visible during the survey. Identification of plant species was aided by using pertinent published field guides (Ackerfield 2015, CWMA 2009, Weber and Wittmann 2012, Whitson et al. 2006).

Scores for the evaluation criteria for each section were determined by averaging the total score of each bank of the canal. Criteria for each of the two sections were totaled to determine the HQS and Habitat Units then combined to determine the final Habitat Units needing replacement for the overall project.

## RESULTS

Wetland/Riparian vegetation along the Grand Valley Canal totaled 0.54 acres. Wetland/riparian vegetation was calculated based on the field measurements recorded using GPS units to delineate the boundary. Figures 1 through 3 display the vegetation widths along the bank of the Grand Valley Highline Canal, which varied from no wetland/riparian vegetation to 2.5 feet along portions of the canal. There are two areas near the canal where large cottonwood tree stands intermixed with Russian olives, Siberian elm, and willows occurs; however, these stands are adjacent to irrigated agricultural fields along the Crown Point Section and irrigated residential housing along the Bookcliff Section and it is unlikely that the trees would perish as a result of lining the canal in these areas. The depth to groundwater in this area is likely 12 to 15 feet which also supplies the trees in these areas with a sufficient source of water.

**Table 1. Vegetation Species Observed in Crown Point and Bookcliff Sections of the Grand Valley Canal Lining Phase 550 Project.**

Common Name	Scientific Name	Abundance **
Arctic rush	<i>Juncus arcticus</i>	x
Beaked sedge	<i>Carex utriculata</i>	xx
Broadleaf cattail	<i>Typha latifolia</i>	xx
Common reed	<i>Phragmites australis</i>	x
Common threesquare	<i>Shoenoplectus pungens</i>	x
Field horsetail	<i>Equisetum arvense</i>	xxx
Foxtail barley	<i>Hordeum jubatum</i>	x
Inland saltgrass	<i>Distichlis spicata</i>	xxx
Johnsongrass	<i>Sorghum halepense</i>	xx
Kochia	<i>Bassia scoparia</i>	x
Reed canarygrass	<i>Phalaris arundinacea</i>	x
Russian knapweed*	<i>Acroptilon repens</i>	x
Russian olive*	<i>Elaeagnus angustifolia</i>	x

**Table 1. Vegetation Species Observed in Crown Point and Bookcliff Sections of the Grand Valley Canal Lining Phase 550 Project.**

Common Name	Scientific Name	Abundance **
Scouring horsetail	<i>Equisetum hyemale</i>	xxx
Showy milkweed	<i>Asclepias speciosa</i>	x
Smooth brome	<i>Bromus inermis</i>	xx
Tall wheatgrass	<i>Thinopyrum ponticum</i>	x
Annual rabbitsfoot grass	<i>Polypogon monspeliensis</i>	x

\*Colorado State listed noxious weeds

\*\*Abundance: x = uncommon frequency, xx = moderate frequency, xxx = common frequency

The Crown Point Section is located in a rural residential and agricultural setting. This section is approximately 3,862 linear feet. General site conditions are displayed in Photo 1. Wetland and riparian vegetation varied along the banks along this portion of the canal from less than 1 foot wide to approximately 4 feet wide. Approximately 0.43 acres of wetland vegetation was mapped along this section of the canal (Figure 2). Wetland/riparian vegetation was calculated based on the field measurements recorded using GPS units to delineate the boundary.



*Photo 1. Crown Point Section*

The Bookcliff Section is located in an urban residential setting and is 1,342 linear feet. Approximately 0.11 acres of wetland vegetation was mapped along this section of the canal

(Figure 3). General site conditions are displayed in Photo 2. Wetland/riparian vegetation was calculated based on the field measurements recorded using GPS units to delineate the boundary.



*Photo 2. Bookcliff Section*

### **HABITAT QUALITY SCORE and HABITAT REPLACEMENT UNITS**

There are 10 evaluation criteria used to determine the HQS and replacement Habitat Units for the site. Tables 2 and 3 lists the scores given to each of the sections of this project for each criterion, the HQS, and the Habitat Units lost as a result of this project.

**Table 2. Habitat Quality Score and Habitat Units to be Replaced for Crown Point Section**

<b>Evaluation Criteria</b>	<b>Score</b>	<b>Rationale</b>
Vegetative Diversity	2	Low diversity present consisting of limited wetland/riparian species (Table 1). This section is dominated by one or two species (scouring rush and field horsetail).
Stratification	0	Herbaceous layer present. No overstory component.
Noxious Weeds	8	Overall noxious weeds are not present along much of the canal.
Overall Vegetative Condition/Health	9	10% of species appear stressed, 90% of plants healthy.

**Table 2. Habitat Quality Score and Habitat Units to be Replaced for Crown Point Section**

<b>Evaluation Criteria</b>	<b>Score</b>	<b>Rationale</b>
Interspersion of Open Water	1	Low interspersion of open water with the vegetation since vegetation is located linear to the canal.
Connectivity	3	Adjacent to wildlife habitat with no agreement. Wildlife may utilize the agricultural fields adjacent the canal.
Wildlife Use	5	The canal corridor provides some suitable wildlife habitat for birds, amphibians, and mule deer.
Uniqueness or Abundance	2	Site does not provide special or critical habitat or exhibit unique or valuable attributes for wildlife. Exhibits medium to low value for wildlife and is relatively abundant.
Water Supply	6	Water supply is not from a natural flowing stream but is dependent on irrigation delivery systems. Water is present seasonally and supply is uncertain.
Alteration	0	80% or more of land has been heavily developed or altered.
<b>Total Habitat Value</b>	<b>36</b>	
<b>Habitat Quality Score</b>	<b>3.6</b>	
<b>Total Acres</b>	<b>0.43</b>	
<b>Habitat Units</b>	<b>1.55</b>	

**Table 3. Habitat Quality Score and Habitat Units to be Replaced for the Bookcliff Section**

<b>Evaluation Criteria</b>	<b>Score</b>	<b>Rationale</b>
Vegetative Diversity	2	Low diversity present consisting of limited wetland/riparian species (Table 1). This section is dominated by one or two species (inland saltgrass and scouring rush).
Stratification	0	Herbaceous layer present only.
Noxious Weeds	8	Overall noxious weeds are not present along much of the canal.
Overall Vegetative Condition/Health	9	10% of species appear stressed, 90% of plants healthy.
Interspersion of Open Water	1	Low interspersion of open water with the vegetation since vegetation is located linear to the canal.
Connectivity	0	Site is isolated from most wildlife areas due to I-70, residential and commercial activities in the area.

**Table 3. Habitat Quality Score and Habitat Units to be Replaced for the Bookcliff Section**

<b>Evaluation Criteria</b>	<b>Score</b>	<b>Rationale</b>
Wildlife Use	3	Use along the canal banks is seasonally used by birds (including ducks) and amphibians when water is present in the canal.
Uniqueness or Abundance	0	Site does not provide special or critical habitat or exhibit unique or valuable attributes for wildlife. Exhibits very low wildlife value regardless of abundance or scarcity.
Water Supply	6	Water supply is not from a natural flowing stream but is dependent on irrigation delivery systems. Water is present seasonally and supply is uncertain.
Alteration	0	80% or more of land has been heavily developed or altered.
<b>Total Habitat Value</b>	<b>29</b>	
<b>Habitat Quality Score</b>	<b>2.9</b>	
<b>Total Acres</b>	<b>0.11</b>	
<b>Habitat Units</b>	<b>0.32</b>	

Total Habitat Units needing to be replaced for both the Crown Point and Bookcliff sections combined are 1.87.

**REFERENCES**

Ackerfield, J. 2015. Flora of Colorado. Colorado State University Herbarium, Brit Press.

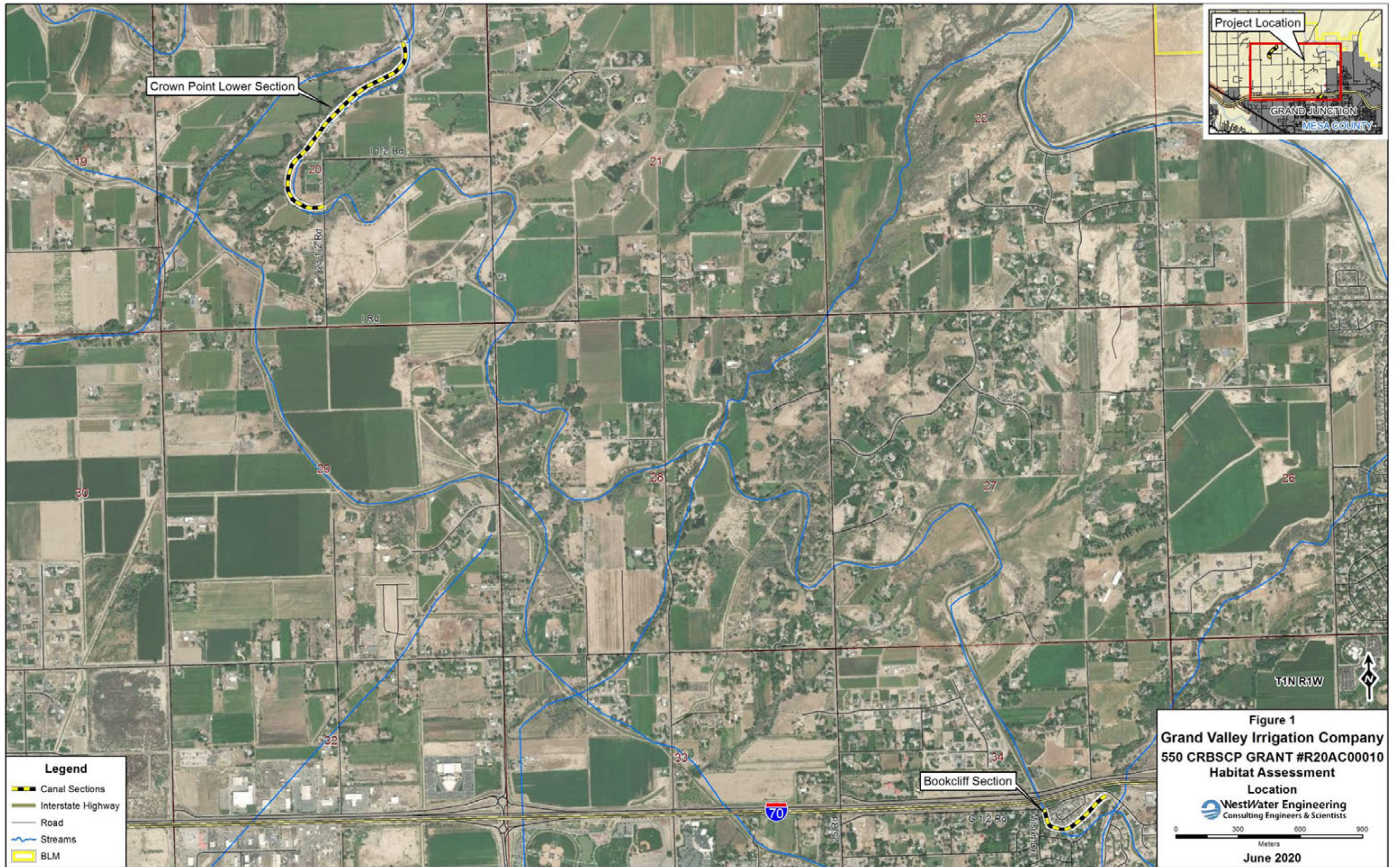
BOR. 2018. Basinwide Salinity Control Program: Procedures for Habitat Replacement, updated: April 2018. Bureau of Reclamation and U. S. Fish and Wildlife Service.

CWMA. 2009. A. Doran, S. Anthony, and. C. Shelton. Noxious Weeds of Colorado, Tenth Edition. Colorado Weed Management Association, Centennial.

Weber, W. A., and R. C. Wittman. 2012. Colorado Flora, Western Slope. Fourth Edition. University Press of Colorado, Boulder.

Whitson, T. D. (editor), L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and Robert Parker. 2006. Weeds of the West, Ninth Edition. Western Society of Weed Science in cooperation with Cooperative Extension Services, University of Wyoming. Laramie.





**Legend**

- Canal Sections
- Interstate Highway
- Road
- Streams
- BLM

**Figure 1**  
**Grand Valley Irrigation Company**  
**550 CRBSCP GRANT #R20AC00010**  
**Habitat Assessment**  
**Location**

**WestWater Engineering**  
 Consulting Engineers & Scientists

0 300 600 900  
 Meters

**June 2020**



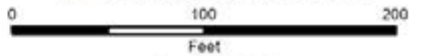


Bookcliff Section  
Wetlands 0.114 Acres

**Legend**

- Wetlands
- Canal Sections
- Interstate Highway
- Road

**Figure 3**  
**Grand Valley Irrigation Company**  
**550 CRBSCP GRANT #R20AC00010**  
**Habitat Assessment**  
**Bookcliff Section**  
 WestWater Engineering  
 Consulting Engineers & Scientists



June 2020

Map Source: Z:\Miscellaneous Environmental\Grand Valley Irrigation Company\550 CRBSCP GRANT #R20AC00010\2020\Habitat Assessment Report\GIS\Figure 3.mxd 6/2/2020 rbo

**APPENDIX C**  
**COLORADO STATE HISTORIC PRESERVATION OFFICER**  
**CONSULTATION**

**MEMORANDUM OF AGREEMENT  
AMONG  
THE BUREAU OF RECLAMATION WESTERN COLORADO AREA OFFICE,  
THE GRAND VALLEY IRRIGATION COMPANY,  
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE  
GRAND VALLEY IRRIGATION COMPANY PHASE V (550) LINING PROJECT,  
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,  
LOCATED IN MESA COUNTY, COLORADO**

**WHEREAS**, the Bureau of Reclamation (Reclamation) and the Grand Valley Irrigation Company (GVIC) plan to line 1.07 miles of the Highline of the Grand Valley Canal (Project); and

**WHEREAS**, Reclamation plans to fund GVIC to line the Highline of the Grand Valley Canal, as authorized by the Basinwide Program under the Colorado River Basin Salinity Control Program, thereby making the Project a federal undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800; and

**WHEREAS**, Reclamation has defined the undertaking's Area of Potential Effect (APE) as contained within a varied-width corridor centered on 1.07 miles of the Highline of the Grand Valley Canal and 7.22 acres of associated staging areas, totaling 26.62 acres on private lands, as depicted in Attachment A; and

**WHEREAS**, Reclamation as lead Federal agency has determined, in consultation with the Colorado State Historic Preservation Officer (SHPO), that the Highline of the Grand Valley Canal (5ME4680) is eligible for inclusion on the National Register of Historic Places (NRHP) under Criteria A and C, and 5ME4680.76 and 5ME4680.77 are supporting segments to the eligibility of that overall linear resource, and that the Project will result in an adverse effect to the historic property; and

**WHEREAS**, the GVIC as the sponsor of the Project, has been invited to participate in the Memorandum of Agreement (MOA) as a Signatory, and has chosen to participate in the consultation; and

**WHEREAS**, Reclamation consulted with the Southern Ute Indian Tribe, the Ute Indian Tribe of the Uintah and Ouray Reservation, and the Ute Mountain Ute Tribe via an August 26, 2020 letter to invite the tribes to participate in the proposed undertaking. The Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, and the Ute Indian Tribe of the Uintah and Ouray Reservation have not responded as of the signing of this document; and

**WHEREAS**, Reclamation consulted with the Mesa County Commissioners, the Mesa County Planning Commission, the City of Grand Junction Historic Preservation Board, and the Museum of Western Colorado via an August 26, 2020 letter to invite the local government and other potentially interested entities to participate in the proposed undertaking. The Grand Junction

Historic Preservation Board declined to participate in the proposed undertaking, and the Mesa County Commissioners, Mesa County Planning Commission, and the Museum of Western Colorado have not responded as of the signing of this document; and

**WHEREAS**, in accordance with 36 CFR § 800.6(a)(1), Reclamation has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP 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**

Reclamation shall ensure that the following measures are carried out:

### **I. MITIGATION**

Prior to any modification of the Highline of the Grand Valley Canal, Reclamation will ensure that a historic context report on the Highline of the Grand Valley Canal is prepared. The report will be presented as a hard back, bound book and as a pdf, and will include a detailed narrative history of the canal and its relation to the development of the Grand Valley. In addition, photographic documentation of the Highline of the Grand Valley Canal shall be obtained and included in the report. Copies of the report will be provided to Mesa County Public Library's Main Branch, Fruita Branch, and Palisade Branch, and to the Mesa County Historical Society and the Colorado Mesa University Hutchins Water Center.

Information required to produce the report detailed in Stipulation I shall be satisfied prior to construction and/or any earth disturbances within the APE.

### **II. GENERAL REQUIREMENTS AND STANDARDS**

Reclamation will submit a draft copy of the historic context report to the SHPO within two (2) years of the execution of this MOA. The SHPO shall review and provide comments within thirty (30) calendar days of receipt. Once accepted by SHPO, SHPO shall receive a minimum of one archivally stable hard copy and one digital (PDF) copy of the final recordation for its files and provide documentation of acceptance. The activities prescribed by the stipulations of this MOA shall be carried out by or under the direct supervision of a person or persons meeting, at minimum, the Secretary of the Interior Professional Qualifications Standards (48 FR 44738-39) (PQS) in the appropriate discipline. This does not preclude the use of properly supervised persons who do not meet the PQS.

### **III. INFORMATION ACCESSIBILITY**

A Rehabilitation Act Section 508 compliant copy of the historic context report will be placed on the Reclamation Western Colorado Area Office's cultural resource webpage (webpage). The SHPO shall receive notification once the document is placed on the webpage.

#### **IV. DURATION**

This MOA will expire if its terms are not carried out within two (2) years from the date of its execution. Prior to such time, Reclamation may consult with the other signatories to reconsider the terms of the agreement and amend it in accordance with Stipulation VIII below.

#### **V. POST-REVIEW DISCOVERIES**

If potential historic properties are discovered or unanticipated effects on historic properties found, the GVIC on behalf of Reclamation shall implement the discovery plan included as Attachment B of this MOA.

#### **VI. MONITORING AND REPORTING**

No later than December 31<sup>st</sup> of each year following the execution of this MOA until its stipulations are carried out, it expires, or is terminated, GVIC on behalf of Reclamation shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in GVIC's efforts to carry out the terms of this MOA.

The signatories may monitor activities pursuant to this MOA, and the ACHP 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.

#### **VII. DISPUTE RESOLUTION**

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, Reclamation shall consult with such party to resolve the objection. If Reclamation determines that such objection cannot be resolved, Reclamation will:

a. Forward all documentation relevant to this dispute, including Reclamation's proposed resolution, to the ACHP. The ACHP shall provide Reclamation with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, Reclamation shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. Reclamation will then proceed according to its final decision.

b. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, Reclamation may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, Reclamation shall prepare a written response that takes

into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

c. Reclamation's ability to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

## **VIII. AMENDMENTS**

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

## **IX. TERMINATION**

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, Reclamation must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Reclamation shall notify the signatories as to the course of action it will pursue.

**Execution** of this MOA by GVIC, Reclamation and SHPO and implementation of its terms evidence that Reclamation has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

## **LIST OF ATTACHMENTS**

Attachment A: Area of Potential Effect and Site Locations  
Attachment B: Unanticipated Discovery Plan

## **SIGNATORIES:**

Colorado State Historic Preservation Office  
Bureau of Reclamation, Western Colorado Area Office

**INVITED SIGNATORIES:** Grand Valley Irrigation Company



SIGNATORY PAGE

MEMORANDUM OF AGREEMENT  
AMONG  
THE WESTERN COLORADO AREA OFFICE, BUREAU OF RECLAMATION,  
THE GRAND VALLEY IRRIGATION COMPANY,  
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE  
GRAND VALLEY IRRIGATION COMPANY PHASE V (550) LINING PROJECT,  
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,  
LOCATED IN MESA COUNTY, COLORADO

Colorado State Historic Preservation Office

Dr. Holly

Digitally signed by Dr.  
Holly Kathryn Norton

Kathryn Norton

Date: 2020.11.02  
16:17:09 -07'00'

By: \_\_\_\_\_

Steve Turner, AIA, State Historic Preservation Officer

SIGNATORY PAGE

MEMORANDUM OF AGREEMENT  
AMONG  
THE WESTERN COLORADO AREA OFFICE, BUREAU OF RECLAMATION,  
THE GRAND VALLEY IRRIGATION COMPANY,  
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE  
GRAND VALLEY IRRIGATION COMPANY PHASE V (550) LINING PROJECT,  
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,  
LOCATED IN MESA COUNTY, COLORADO

Bureau of Reclamation, Western Colorado Area Office



Digitally signed by LOUIS  
WARNER  
Date: 2020.10.29  
13:19:46 -06'00'

By: \_\_\_\_\_

Ed Warner, Area Manager

SIGNATORY PAGE

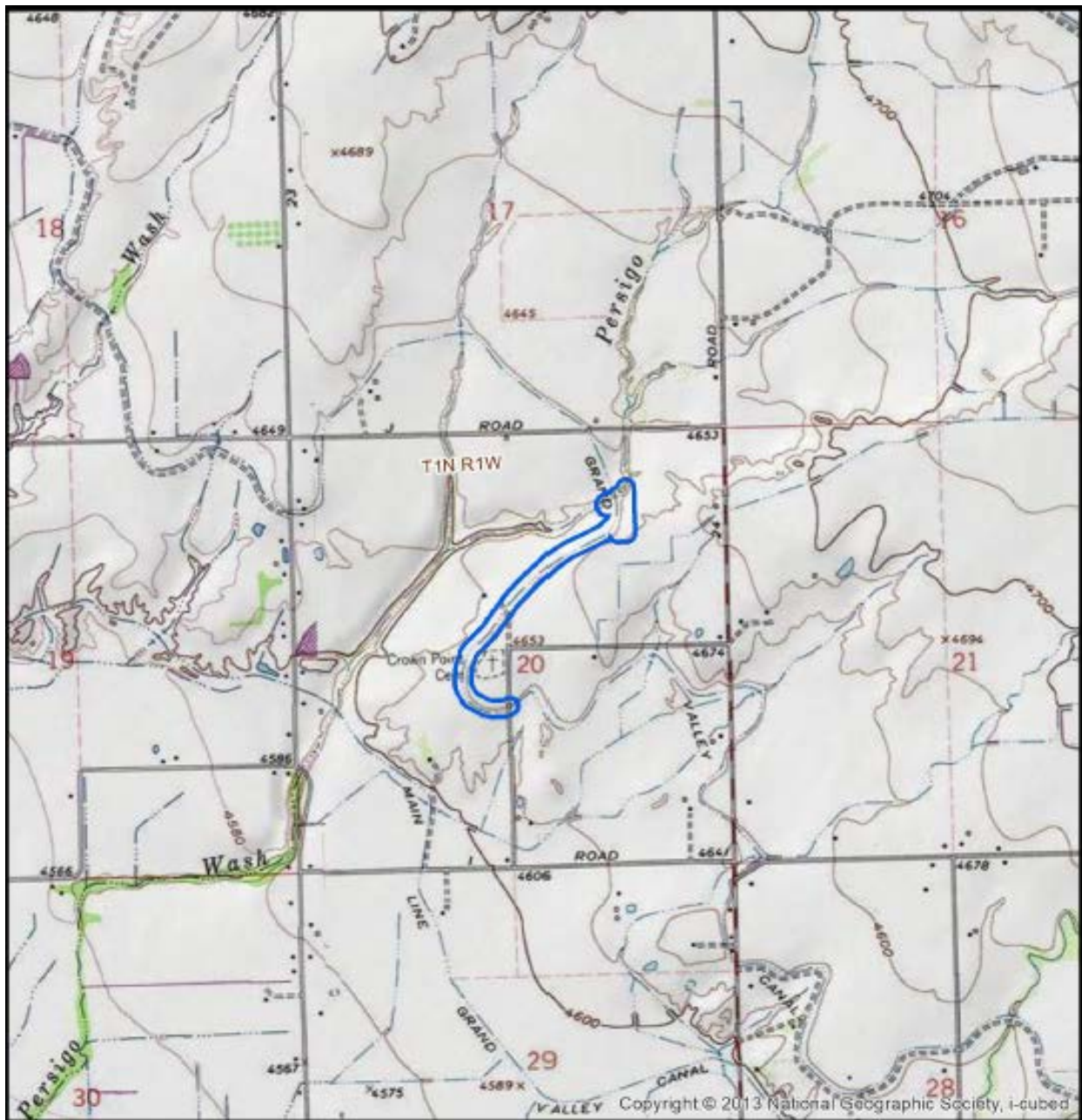
MEMORANDUM OF AGREEMENT  
AMONG

THE WESTERN COLORADO AREA OFFICE, BUREAU OF RECLAMATION,  
THE GRAND VALLEY IRRIGATION COMPANY,  
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER  
REGARDING THE  
GRAND VALLEY IRRIGATION COMPANY PHASE V (550) LINING PROJECT,  
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM,  
LOCATED IN MESA COUNTY, COLORADO

Grand Valley Irrigation Company

By: Phil Bertrand 10-29-2020  
Phil Bertrand, Superintendent

# ATTACHMENT A – AREA OF POTENTIAL EFFECT



## Grand Valley Irrigation Company's 550 Project

 Project Area



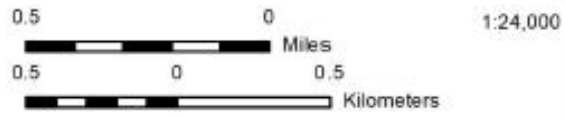
USGS Topo Map:  
Corcoran Point, CO





**Grand Valley Irrigation Company's 550 Project**

 Project Area



USGS Topo Map:  
Grand Junction, CO



# ATTACHMENT B – UNANTICIPATED DISCOVERY PLAN

## PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

### THE GRAND VALLEY IRRIGATION COMPANY PHASE V (550) LINING PROJECT, SALINITY CONTROL PROGRAM, MESA COUNTY, COLORADO

#### **1. INTRODUCTION**

The Grand Valley Irrigation Company (GVIC) plans to line approximately 1.07 miles of the Highline of the Grand Valley Canal. The purpose of this project is to reduce the salt load in the Colorado River Basin. The following Unanticipated Discovery Plan outlines procedures to follow, in accordance with state and federal laws, if archaeological materials are discovered.

#### **2. RECOGNIZING CULTURAL RESOURCES**

A cultural resource discovery could be prehistoric or historic. Examples include, but are not limited to:

- An accumulation of shell, burned rocks, or other food related materials
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Abandoned mining structures and features (i.e. mine shafts or adits, head frames, processing mills, or tailings and waste rock piles),
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

#### **3. ON-SITE RESPONSIBILITIES**

**STEP 1: STOP WORK.** If any GVIC employee, contractor or subcontractor believes that he or she has uncovered a cultural resource at any point in the project, all work adjacent to the discovery must immediately stop. The discovery location should be secured at all times.

STEP 2: NOTIFY BUREAU OF RECLAMATION. Contact the Reclamation Cultural Resources Manager (CR Manager) at the Bureau of Reclamation immediately upon becoming aware of the discovery:

Project Manager:

Phil Bertrand  
(970)-242-2762  
[gvic@sprynet.com](mailto:gvic@sprynet.com)

CR Manager:

Kristin Bowen  
970-385-6540  
[kbowen@usbr.gov](mailto:kbowen@usbr.gov)

The CR Manager will make all other calls and notifications.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media. The CR Manager will contact the county coroner and sheriff.

#### **4. FURTHER CONTACTS AND CONSULTATION**

##### **A. Project Manager's Responsibilities:**

- Protect Find: The GVIC Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.
- Contact CR Manager: If the CR Program Manager at the Bureau of Reclamation has not yet been contacted, the Project Manager will do so.

##### **B. CR Manager's Responsibilities**

- Notify SHPO: The CR Manager will notify the Colorado State Historic Preservation Office (SHPO) within 48 hours of the discovery.

Colorado State Historic Preservation Office:

Mr. Steve Turner, AIA  
State Historic Preservation Officer  
History Colorado  
1200 Broadway  
Denver CO, 80203  
(303)866-3355

- Direct Construction Elsewhere On-site: The CR Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.

- Identify Find: The CR Manager will ensure that a qualified professional archaeologist examines the find to determine if it is archaeological.
  - If a qualified archaeologist determines that the discovery is not archaeological, work may proceed with no further delay.
  - If a qualified archaeologist determines the discovery to be archaeological, the CR Manager will continue with notification.
  - If the discovery may represent human skeletal remains or associated funerary objects, the CR Manager will immediately notify the county coroner and the sheriff or police chief. If the county coroner and local law enforcement determine that the skeletal remains are human remains, the procedure described in Section 5 will be followed.

#### C. Further Activities

- Archaeological discoveries will be documented as described in Section 6.
- Construction in the discovery area may resume as described in Section 7.

### **5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL**

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect.

The project is located on private lands, and the requirements under State Law Colorado Revised Statute (CRS) 24-80 part 13 apply. The Unmarked Human Graves Colorado Statute (CRS 24-80-1301-1305) applies if the human remains on private lands are determined to be of archaeological interest.

In the event possible human skeletal remains are discovered, work in that portion of the project shall stop immediately. The remains shall be covered and/or protected in place in such a way that minimizes further exposure of and damage to the individual. If the remains are found to have no forensic value, the coroner shall notify the SHPO. A plan of action shall be developed by SHPO in consultation with appropriate federally recognized Indian tribes, the Colorado Commission of Indian Affairs and the landowner following the Process for Consultation, Transfer, and Reburial of Culturally Unidentifiable Native American Human Remains and Associated Funerary Objects Originating from Inadvertent Discoveries on Colorado State and Private Lands. If the remains are not Native American, and are otherwise unclaimed, the county coroner shall consult with SHPO and the State Anatomical Board to determine final disposition of the remains.

Avoidance and preservation in place are the preferred option for treating human remains.

GVIC and the CR Manager will comply with the procedures outlined, and will coordinate with the following contacts:



CR Manager  
Kristin Bowen  
(970) 385-6540

Mesa County Coroner  
Victor Yahn  
(970) 256-6462

Mesa County Sheriff  
Matt Lewis  
(970) 242-6707

Colorado Deputy State Historic Preservation Officer and State Archaeologist  
Holly Norton  
(303) 866-2736

A. Further Activities:

When consultation and documentation activities are complete, construction in the discovery area may resume as described in Section 7.

## **6. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS**

Archaeological deposits discovered during construction will be assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The CR Manager will ensure the proper documentation and assessment of any discovered cultural resources in consultation with Reclamation, SHPO, affiliated tribes, and a contracted consultant (if any). All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist in accordance with all state and federal laws and Stipulation II above.

## **7. PROCEEDING WITH CONSTRUCTION**

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A professional archaeologist must determine the boundaries of the discovery location. In consultation with SHPO and affiliated tribes, the CR Manager will determine the appropriate level of documentation and treatment of the resource.

Construction may continue at the discovery location only after the process outlined in this plan is followed and GVIC, Reclamation, and SHPO determine that compliance with state and federal laws is complete.

**APPENDIX D**  
**DISTRIBUTION LIST**

All landowners adjacent to the Proposed Action

City of Grand Junction Public Works

Colorado Department of Archaeology and Historic Preservation

Colorado Department of Transportation

Colorado Parks and Wildlife

Colorado River Water Conservation District

Colorado Water Conservation Board

Mesa County Commissioners

Mesa County Planning and Development

Mesa County Road and Bridge

Natural Resources Conservation Services

Trout Unlimited

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

## **APPENDIX E**

### **Summary of Comments on the Draft EA and Responses**

(Note: Personal contact information for the commenters is redacted)

# Public Comment Summaries and Responses

One comment document was received during the comment period. The comment is concerned with wildlife habitat loss due to lining of the canal. In compliance with 40 CFR 1503.4, possible responses to comment include:

- Modifying the alternatives or developing and evaluating new alternatives
- Supplementing, improving, or modifying the analyses
- Making factual corrections

Reclamation's summary of the comment and response follow.

Summary of the comment: The commenter noted that based on daily observations, the Bookcliff section of the Grand Valley Highline Canal provides more wildlife value than the EA suggests, and that the wildlife value that it does possess is of great importance to homeowners along this section of the canal.

Response: Comment noted. Reclamation consistently reviews projects for wildlife habitat impacts and applicants are required to conduct habitat replacement for lost wildlife functions. Figure 3 of the habitat assessment displays the width of wetland habitat that is expected to be lost due to the canal lining project in the Bookcliff section. As the EA discloses in section 3.2.5, the total acreage of wetland habitat lost along the approximately 1,430 feet of the Bookcliff section totals 0.11 acre. The application of banked habitat credits will offset this loss. As discussed in section 3.2.6, no shrubs or trees will be removed as part of the canal lining project, so the majority of the wildlife habitat value within and outside of the GVIC ROW along the Bookcliff section will be left intact. Only wildlife habitat immediately adjacent to the water's edge will be lost on-site and replaced off-site at the existing mitigation site. No change has been made to the Final EA.

From: Eric Freeman

Ed Warner/Lesley McWhirter,

As a resident living along the 1.07 miles of the Bookcliff Section of the Grand Valley Highline Canal slated for lining to reduce salinity and selenium loading, my comments are not an argument in favor of a No Action Alternative. Rather, my comments are intended to point out that there is more wildlife use along this stretch of the canal than your draft EA suggests. My hope is that the need for salinity mitigation can be incorporated with efforts aimed at wildlife protection.

The basis of my observations is a daily view of wildlife activity rather than a point in time assessment made by the BoR. Contrary to the draft EA, use of the canal and the canal banks are heavily used from approximately April 1 through November 1, months when irrigation water is present in the canal. Ducks, raptors, and amphibians make regular use of the canal corridor and ducklings are regularly seen feeding throughout the season. Despite being seasonal, the canal is a living entity.

In an era of diminishing water in the Colorado River system and increasing threats to riparian areas in the Grand Valley, the canal has taken on an unintended purpose in providing quality aquatic habitats for various species. I dispute the rationale in the draft EA that claims the Bookcliff Section "does not provide special or critical habitat or exhibit unique or valuable attributes for wildlife." I believe this difference in perspective goes beyond semantic niceties. The claim of "very low wildlife value" is patently erroneous and I urge you to reconsider how you undertake the lining project. The preservation of the wildlife habitat along this Bookcliff Section is of great importance to me and other residents of this neighborhood. We strongly encourage you to treat the canal banks in a more wildlife friendly manner than in already completed sections that have left the canal banks a largely sterile, gravel-covered dead zone. While utilizing a different approach might entail slightly greater initial expense, short-term economic efficiencies would be more than compensated by long-term prospects for Grand Valley wildlife health and diversity.

The BoR has a crucial role in finding common ground between agricultural use and urban development in the valley. Please consider lining the canal in an environmentally constructive way that contributes to the overall sustainability of wildlife in the area rather than removing this important resource from the overall equation because of a current surplus of wildlife habitat credits.

Thank you.