



— BUREAU OF —  
RECLAMATION

# **Finding of No Significant Impact and Environmental Assessment for Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project**

**Upper Colorado Basin Region  
Albuquerque Area Office**



**U.S. Department of the Interior**

**December 2025**

## **Mission Statement**

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors 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.

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*Prepared for the Bureau of Reclamation by  
Barr Engineering Co.*

**December 2025**

Cover Photo: Downstream view taken from the north riverbank of the Rio Grande approximately 300 feet upstream from the Farmers Union Canal headgates and diversion structure in July 2024. The Farmers Union Canal headgates and diversion structure are visible on the left side and center of the photograph, respectively. The smaller Rio Grande No. 1 Ditch diversion is visible on the far right of the photograph. Rio Grande flows were roughly 402 cubic feet per second at the time of the photograph as measured at the USGS Rio Grande Near Del Norte, CO gage (USGS 08220000), currently managed by the Colorado Division of Water Resources.

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# FINDING OF NO SIGNIFICANT IMPACT

## **Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project**

United States Department of the Interior

Bureau of Reclamation

Upper Colorado Basin Region

Albuquerque Area Office

Albuquerque, New Mexico

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, the Proposed Action does not constitute a major federal action with significant effects on the human environment. I have determined that the Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project will not have a significant effect, and an environmental impact statement is therefore not required, DOI NEPA Handbook Part 1.6; NEPA, § 106(a)(2), 2025.

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Manager, Environment and Lands Division

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EA/FONSI Number AAO-EA-26-1

## **Introduction**

In compliance with the National Environmental Policy Act of 1969, as amended (NEPA) and applicable regulations, the Bureau of Reclamation (Reclamation) has completed an environmental assessment (EA) for the Proposed Action of authorizing the use of federal funds to implement the Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project in Del Norte, Colorado. Reclamation prepared an EA to address the potential impacts on the human and natural 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 analyzes the No Action Alternative and the Proposed Action Alternative to implement the Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project. The Proposed Action Alternative would address irrigation inefficiency and allow for continued delivery of irrigation water to Farmers Union Canal and Rio Grande No. 1 Ditch users. The Proposed Action would repair or replace aging irrigation infrastructure, reduce required maintenance, mitigate river impacts, and improve fish passage and river safety on the Rio Grande.

Currently, the Farmers Union Canal diversion and Rio Grande No. 1 Ditch diversion require regular maintenance to continue delivering allocated irrigation water at low flows. This regular maintenance results in frequent disturbance within the Rio Grande. The Proposed Action would create a low maintenance diversion structure and improve bank protection to reduce the need for heavy equipment disturbance in the river channel. Restoring irrigation infrastructure and reinforcing riverbanks would decrease sedimentation, thereby improving water quality, supporting aquatic and riparian habitats, and promoting optimal river function both within and downstream of the project area. The Proposed Action was designed to reopen fish passage and improve river user safety along this reach of the Rio Grande by replacing the Farmers Union Canal diversion structure, which currently acts as a fish barrier and presents a safety issue for river users, with a grouted structure that will allow for fish passage and improved safety. The Proposed Action would enhance aquatic and riparian habitat by stabilizing banks with rock and root wad materials and native riparian revegetation.

## **Summary of Impacts**

A total of four resources were identified by Reclamation for detailed analysis in the EA. The following summarizes the impacts of the Proposed Action on these resources.

**Federally Listed Species:** The Proposed Action is not anticipated to affect the gray wolf, silverspot, or Suckley's cuckoo bumblebee. The Proposed Action may affect but is not likely to adversely affect the southwestern willow flycatcher, yellow-billed cuckoo, and monarch butterfly. The Proposed Action would disturb up to 2.9 acres of willow and riparian vegetation, resulting in short-term, minimal impacts to southwestern willow flycatcher, yellow-billed cuckoo, and monarch butterfly habitat. Based on

construction timing and implementing environmental commitments included in the EA, no direct impacts to federally listed species are anticipated. Potential impacts to riparian habitat are expected to be offset by planting native vegetation after project construction is complete, resulting in long-term, indirect benefits to riparian habitat and associated species within the project area.

Based on the determination that the Proposed Action is not likely to adversely affect listed species or critical habitat, informal consultation with the United States (U.S.) Fish and Wildlife Service (Service) was initiated on November 20, 2025, under Section 7 of the Endangered Species Act (Project code 2025-0129179). The Service issued a concurrence letter on December 12, 2025.

**Water Quality and Quantity:** The Proposed Action would have short-term, minor, adverse impacts on water quality from sediment transport during construction and potential for the discharge of petroleum, oils, and lubricants during construction. There would be long-term, minor beneficial impacts on water quality from channel stabilization and revegetation. Under the Proposed Action, ditch diversion efficiency at the Farmers Union Canal is expected to increase by 730 acre-feet per year, thereby removing an average annual shortfall of allocated irrigation water delivery and enabling water users to divert their full decreed water rights during all streamflow conditions. Proposed project features would have potential impacts on waters of the U.S. These impacts are assessed and included in the Clean Water Section 404 and 401 permit applications to the U.S. Army Corps of Engineers and Colorado Department of Public Health and Environment; resulting guidance and requirements from these agencies for this project will be adhered to during the construction phase.

A Pre-Construction Notification for the Proposed Action was submitted to the U.S Army Corps of Engineers (Corps) on November 12, 2025 (SPA-2025-00429). The Corps issued a no permit required letter for the project on December 9, 2025, stating that a permit is not required since the activity is exempted from regulation by a specific provision of the Clean Water Act as implemented by the Corps regulations at 33 CFR 323.4(a) because the activity consists of construction or maintenance of irrigation ditches or the maintenance of drainage ditches in accordance with 33 CFR 323.4(a)(3).

**Historic or Cultural Resources:** A cultural resource inventory of the project area and associated area of potential effect resulted in a revisit of the RG No. 1 Ditch (5RN.1375) and the San Luis & Rio Grande Railroad (5RN.1644.1), as well as the identification and documentation of the FUC headgate on the north channel of the Rio Grande (5RN.1646), the site of a historic barn (5RN.1645), and two isolated occurrences (5RN.1647 and 5RN.1648). No Native American resources were identified. The Rio Grande No. 1 Ditch and the segment of the San Luis & Rio Grande Railroad are the only resources to be recommended eligible for listing in the NRHP for their association with the historic events and should be treated as historic properties. All other resources are recommended as not eligible for listing in the NRHP.

The Rio Grande No. 1 Ditch headgate serves as a modern replacement for the original structure that previously occupied this site and would not be adversely affected by the Proposed Action than by any previous modifications. The bed of the San Luis & Rio Grande Railroad intersects an active access road where it is protected from damage by traffic and it will not be adversely affected by the Proposed Action. Additionally, the railroad is mostly buried at the access road intersection, so the possibility of adverse effects is minimal. Based on this information, Reclamation determined that the Proposed Action would not

have adverse effects on these two historic properties.

Reclamation initiated consultation with the Colorado State Historic Preservation Office (SHPO) on November 12, 2025 (HC# 86893). The consultation is ongoing. Reclamation will attach compliance documentation to the EA when it is received.

**Indian Trust Assets:** There are no Indian Trust Assets in the project vicinity and no effects on Indian Trust Assets are expected under the Proposed Action.

## **Environmental Commitments**

The environmental commitments located in Chapter 4 of the Final EA will be implemented to further reduce effects of the Proposed Action. All permits and authorizations listed in Section 2.4 of the Final EA will be obtained or completed prior to the implementation of the Proposed Action.

## **Decision and Finding of No Significant Impact**

Reclamation's decision is to implement the Proposed Action Alternative. Based on the EA, which analyzes potential impacts of the Proposed Action, Reclamation has determined that implementing the Proposed Action does not constitute a major federal action that will significantly affect the quality of the human or natural environment. Therefore, an environmental impact statement is not required for this Proposed Action. This finding is based on consideration of the degree of effects of the Proposed Action on the potentially affected environment, as analyzed in the EA.



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# **Environmental Assessment: Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project**

**Upper Colorado Basin Region; Albuquerque Area Office**



**December 2025**

**U.S. Department of the Interior**

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# **Environmental Assessment: Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project**

**Upper Colorado Basin Region, Albuquerque Area Office**

**December 2025**

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Cover Photo: Farmers Union Canal Headgates and Diversion Dam on the Rio Grande (Barr/Rohwer)

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# **CHAPTER 1 – Introduction**

This Environmental Assessment (EA) has been prepared to disclose and evaluate the potential environmental effects of the Bureau of Reclamation's (Reclamation) funding of the proposed Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project (Proposed Action). The federal action evaluated in this EA is Reclamation's funding of the Proposed Action and the Rio Grande Headwaters Restoration Project (RGHRP) implementation of repairs to existing irrigation infrastructure along the Rio Grande. This document has been prepared in compliance with the National Environmental Policy Act (NEPA), Department of Interior Regulations 43 CFR Part 46, and under Reclamation's former implementing NEPA guidance. Based on the analysis contained within, no significant impacts were identified and issuance of a Finding of No Significant Impact (FONSI) is appropriate.

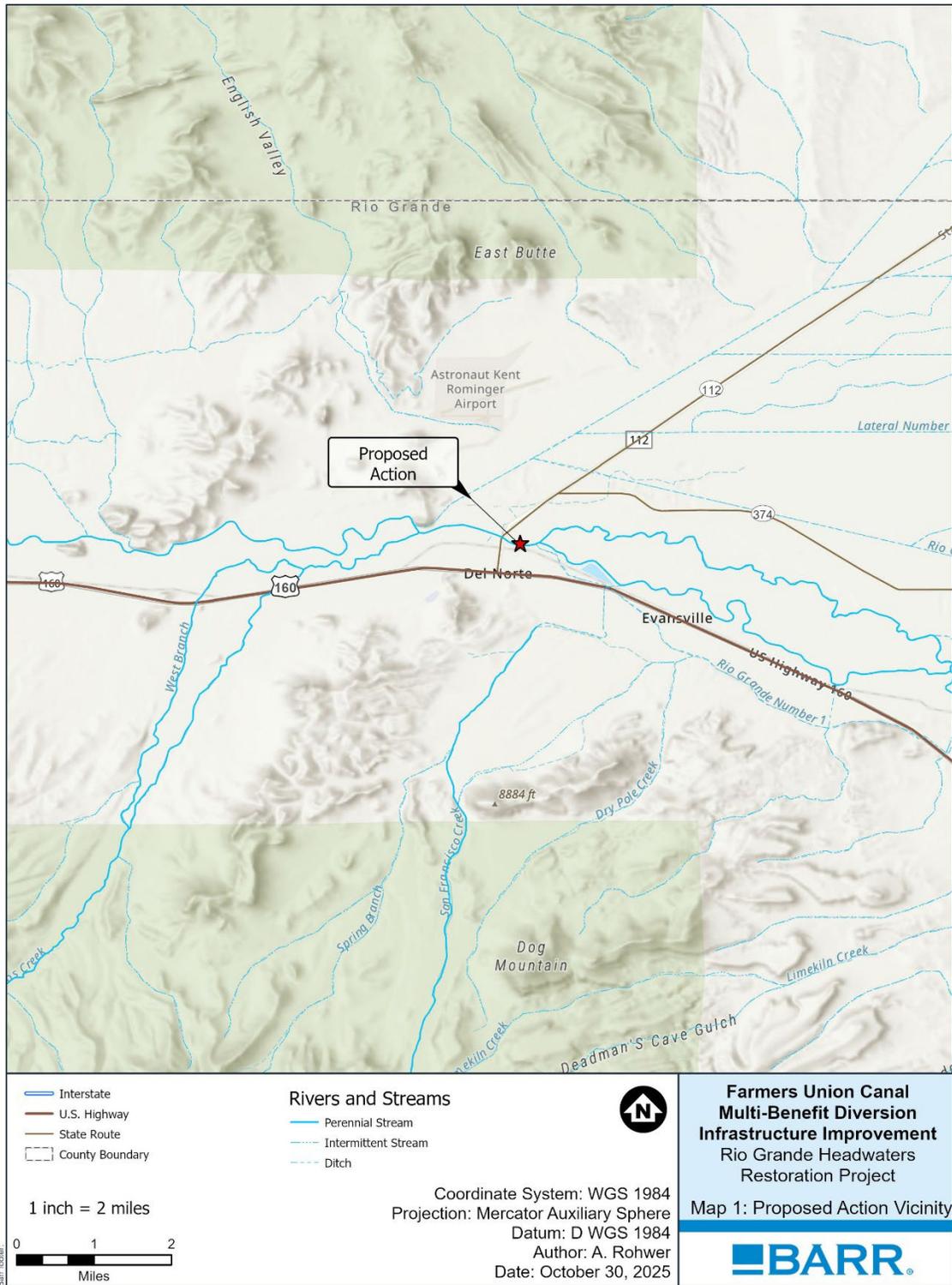
## **1.1 – Project Location and Legal Description**

The Proposed Action would be constructed on the Rio Grande and the Rio Grande (RG) #1 Ditch in Rio Grande County, Colorado (Map 1). The legal description of the Proposed Action is Section 30, Township 40 North, Range 6 East, New Mexico Principal Meridian. The Proposed Action is on private property just northeast of the Town of Del Norte, starting just downstream of the State Highway 112 bridge crossing to approximately 0.5 mile downstream on the Rio Grande Number 1 (RG #1) Ditch.

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

Reclamation's need for the Proposed Action is to address irrigation inefficiency and allow for continued delivery of irrigation water to users. The purpose of the Proposed Action is to repair or replace aging irrigation infrastructure, reduce maintenance, mitigate river impacts, and improve fish passage and river safety on the Rio Grande.

Currently, the Farmers Union Canal (FUC) diversion requires regular maintenance to continue to deliver allocated irrigation water to users through the FUC and RG #1 Ditch at low flows. This regular maintenance results in frequent disturbance within the Rio Grande. Repairing irrigation infrastructure and protecting the banks would improve water quality by reducing sediment in the river, enhance aquatic and riparian habitat, and restore river function within and downstream of the project area. The Proposed Action would mitigate river impacts by creating a low maintenance diversion structure that is expected to reduce the need for heavy equipment disturbance in the river channel. The Proposed Action was designed to reopen fish passage and improve river user safety along this reach of the Rio Grande. The Proposed Action would enhance aquatic and riparian habitat by stabilizing banks with rock and root wad materials and native riparian revegetation to enhance the function of diversion infrastructure and improve aquatic and riparian habitat.



**Map 1 Vicinity of the Proposed Action**

### **1.3 – Decision to be Made**

Reclamation and the RGHRP have worked together to decide on a preferred protection strategy to best fulfill the Proposed Action's purpose and need; Reclamation will determine whether to implement the Proposed Action to stabilize the riverbanks and maintain functioning irrigation infrastructure in the project area. Reclamation will review and approve the action and the RGHRP will implement/construct the approved project. Reclamation is a funding source for the proposed improvements and is the lead agency for NEPA compliance.

### **1.4 – Background**

The Farmers Union Irrigation Company and FUC were established in the early 1900's as part of the San Luis Valley Irrigation District (SLVID). The FUC is along a reach of the Rio Grande where the river divides into two channels; mapping shows the northern channel as the FUC and the southern channel as the Rio Grande mainstem. Flows into the FUC are manipulated by a bank of headgates crossing the entirety of the channel. The diversion structure (a check dam) for the FUC stretches across the entire southern (mainstem) channel. The diversion structure consists of steel plating, concrete blocks, and boulders piled in the river. This structure requires continuous maintenance and materials replenishment to provide adequate hydraulic head pressure to the FUC. In its current configuration, the diversion structure poses challenges for water users diverting allocated water rights at low flow levels, impedes fish passage, and poses a safety hazard to river users. In addition to the FUC, the RG #1 Ditch takes off from the southern riverbank just upstream of the FUC diversion. An additional push-up style dam upstream of the FUC diversion structure is required to provide adequate head pressure to the RG#1 Canal, which delivers additional agricultural irrigation flows to users in the area (Map 3).

The Proposed Action was designed to repair and improve aging irrigation infrastructure, while incorporating features intended to enhance fish passage, increase recreational user safety, and improve overall river health in the Rio Grande.



Map 2 Project Area

## 1.5 – Relationship to Other Projects

The Proposed Action does not include any additional phases or known relationship to other projects.

## 1.6 – Scoping and Issues

Scoping for this EA was completed by Reclamation, in consultation with the U.S. Army Corps of Engineers Albuquerque District, during the planning stages of the Proposed Action to identify the potential environmental and human environment issues and concerns associated with the implementation of the Proposed Action and No Action Alternatives.

### 1.6.1 – Issues

A list of the issues carried forward for detailed analysis in this EA was developed in accordance with guidelines outlined in the Reclamation NEPA Handbook (Reclamation 2012) and based on recent modifications to the Department of Interior’s NEPA guidance. The key issues identified are summarized in Table 1. The impact indicators provided describe the affected environment for each issue in Chapter 3, measure the change in the issue for the different alternatives, and assess the impacts of alternatives. Environmental commitments that would be implemented under the Proposed Action are provided in Chapter 4.

**Table 1 Issues Identified for Detailed Analysis**

Issue	Issue Statement	Impact Indicator
<b>Issue 1</b> Federally Listed Species and Critical Habitat	What are the potential impacts on federally listed threatened and endangered species?	<ul style="list-style-type: none"> <li>▪ Acres of habitat impacted</li> <li>▪ Disturbance during construction</li> <li>▪ Changes to primary constituent elements of critical habitat</li> </ul>
<b>Issue 2</b> Water Quality	How would the Proposed Action impact water quality and quantity?	<ul style="list-style-type: none"> <li>▪ Changes in water quality from sediment transport or spills/leaks of industrial fluids</li> <li>▪ Estimated water depletions from construction of the Proposed Action</li> <li>▪ Increased efficiency of water delivery for irrigation</li> </ul>
<b>Issue 3 &amp; 4</b> Historic or Cultural Resources, Indian Trust Assets	What are the expected impacts on cultural, historic resources and Indian Trust Assets?	<ul style="list-style-type: none"> <li>▪ Alterations to historically significant resources. Impact to identified ITAs.</li> </ul>

The issues identified in Table 2 were determined to be insignificant or not applicable to the project and are not analyzed further in this document.

**Table 2 Resources Eliminated from Further Analysis**

Resource	Rationale for Elimination from Further Analysis
How would fugitive dust and emissions generated by ground-disturbing activities impact air quality and visibility?	All areas within Rio Grande County, Colorado, are in attainment with National Ambient Air Quality Standards. During construction, air quality would temporarily be directly impacted by pollution from exhaust emissions and dust. Air pollution from motorized construction equipment and dust dissemination would discontinue after the construction phase. The minor increase in emissions from short-term construction activity would not be expected to exceed the ambient air quality standards for any criteria pollutants in the project area or Rio Grande County. Fugitive dust from construction activities would be controlled on the access roads and other locations, as necessary, with the application of water.
How would constructing the Proposed Action affect hydrologic variability?	The Proposed Action is not expected to contribute to hydrologic variability; instead, it would repair aging infrastructure to accommodate current hydrologic conditions.
Would the Proposed Action use or produce hazardous materials?	No chemicals subject to reporting under the Superfund Amendments and Reauthorization Act Title III would be used, produced, stored, or disposed of in association with the Proposed Action. No extremely hazardous substances, as defined in 40 CFR 355, would be used, produced, stored, transported, or disposed of in association with the Proposed Action. Design features have been identified to minimize or avoid effects from solid and hazardous wastes, including fueling equipment away from surface waters.
How would the Proposed Action impact migratory birds?	Direct impacts on migratory birds would be avoided by conducting work activities outside of the normal breeding and nesting season (April 15 to August 15). If work is necessary between April 15 to August 15, suitable/occupied migratory bird habitat will be avoided during construction activities to the greatest extent possible; this may require completion of a pre-construction nesting bird survey. If nesting birds are detected, RGHRP contractors will coordinate with Reclamation to consult with USFWS and conduct necessary surveys according to approved protocols before work commences on that portion of the project. Potential impacts to migratory birds would be further avoided or minimized with environmental commitments listed in Chapter 4.
How would the Proposed Action impact bald eagles?	Colorado Parks and Wildlife (CPW) species activity mapping indicates the Proposed Action is in bald eagle winter concentration, winter forage, and winter range habitats. There are bald eagle roost sites mapped within three miles of the Proposed Action. Direct impacts on bald eagles would be avoided by implementing guidance from CPW. Current CPW recommendations include seasonal and spatial avoidance of active nests, winter night roosts, and communal roosts (CPW 2020). Some riparian woodland vegetation along the banks of the Rio Grande may be removed during construction, thereby reducing perching opportunities for bald eagles. This impact is expected to be negligible, as individuals would likely use adjacent cottonwood trees outside of the project area for perching. Additionally, construction impacts to mature cottonwood trees would be avoided.

Resource	Rationale for Elimination from Further Analysis
How would the Proposed Action impact vegetation?	Vegetation removal in work areas would be avoided to the extent possible; however, some impacts to native riparian vegetation—including crushing, trampling, and removal—are anticipated. The Proposed Action design proposes planting native riparian vegetation in newly restored areas. In addition, impacts to vegetation would be minimized by using established routes for access and presently disturbed areas for material staging. Disturbed areas would be reseeded or revegetated by hand or by mechanized means.
How would the Proposed Action affect the potential introduction and spread of noxious weeds?	Under the Proposed Action, project-specific environmental commitments and design features would be implemented to prevent the spread of noxious weeds. Surface disturbance related to the Proposed Action may result in increased opportunities for the spread of noxious weeds; however, implementing standard noxious weed design features and post-construction monitoring is effective at preventing the spread of noxious weeds and invasive plants.
What are the potential impacts on project area jurisdictional wetlands and waters of the U.S.?	Barr Engineering Co. was contracted to complete Clean Water Act (CWA) Section 404 Permitting through the U.S. Army Corps of Engineers (Corps) before construction begins. On December 9, 2025, the Corps issued a No Permit Required Letter for the Proposed Action. The Corps determined that the Proposed Action is exempted from regulation by a specific provision of the CWA as implemented by the Corps regulations at 33 Code of Federal Regulations (CFR) 323.4(a) because the activity consists of construction or maintenance of irrigation ditches or the maintenance of drainage ditches in accordance with 33 CFR 323.4(a)(3).
Is the Proposed Action expected to impact Cultural, Sacred, and Traditional Properties?	No Traditional Cultural Properties have been identified in the project area.
How would the Proposed Action impact transportation and the existing road network?	Materials would be transported to the project area using existing roadways appropriate for heavy vehicles; material transport is not expected to impact roadways outside of the project area. The project area includes existing graded, dirt-surface access roads, which would be used to haul equipment to the work locations. The access road to the FUC headgate on the northern riverbank is approximately 0.4 mile long; no road improvement needs are anticipated for this location. The access road to the southern riverbank is approximately 0.6 mile long. Both road surfaces are in fair condition; however, small-scale improvements (installation of gravel and cobble material) may be needed to allow construction equipment access. Both riverbanks are accessed through private property, and the northern access road is behind a locked gate. The Proposed Action is not expected to impede traffic or affect the existing road network.

Resource	Rationale for Elimination from Further Analysis
Would the Proposed Action impact public health and safety?	Construction of the Proposed Action would be completed per the Reclamation Safety and Health Standards Manual (2009). In addition, construction access to the project area would be limited by locked gates, thereby minimizing public health and safety risks. The Proposed Action would remove existing concrete rubble at a push-up dam in the Rio Grande and additional rubble along the riverbanks, thereby eliminating an existing safety hazard in the river. The existing push-up dam requires frequent maintenance using heavy equipment; replacing the dam with the proposed rock ramp and fish passage structure would minimize the need for maintenance equipment entering the river, resulting in additional benefits to public health and safety.

## CHAPTER 2 – Proposed Action and Alternatives

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

### 2.1 – No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. The aging and increasingly inefficient irrigation infrastructure would not be upgraded or replaced, fish passage would not be opened within this reach of the Rio Grande, river safety concerns would continue for river users, and river health and function would continue to deteriorate. There would be no restoration of riparian conditions or aquatic habitats in the project area. Erosion and sedimentation would continue to degrade the existing infrastructure, necessitating increased maintenance needs over time. Water rights decreed to SLVID users may be unmet during low-flow conditions.

### 2.2 – Proposed Action

The Proposed Action would modernize the existing FUC headgates to divert water more efficiently and to deliver allocated water rights to downstream agricultural users. Automated headgates are needed to improve ditch operations, reduce maintenance, and protect the FUC’s full water rights into the future. In addition, improvements to the FUC diversion would allow fish and boat passage, connect aquatic habitat through this reach of the Rio Grande, and improve safety of recreational users. The Proposed Action proposes stabilizing the adjacent streambank to protect the diversion infrastructure, reduce sedimentation in the river, improve water quality for downstream users, and enhance surrounding wildlife habitat. In addition to work proposed at the FUC headgates and diversion structure, two aging headgates would be replaced along the RG #1 Ditch, and an associated small diversion dam would be removed.

## **2.3 – Components of the Proposed Action**

Detailed design drawings depicting components of the Proposed Action can be found in Appendix A; these components are shown on Map 3 and described further below.

### **2.3.1 – Farmers Union Headgate Repair/Replacement**

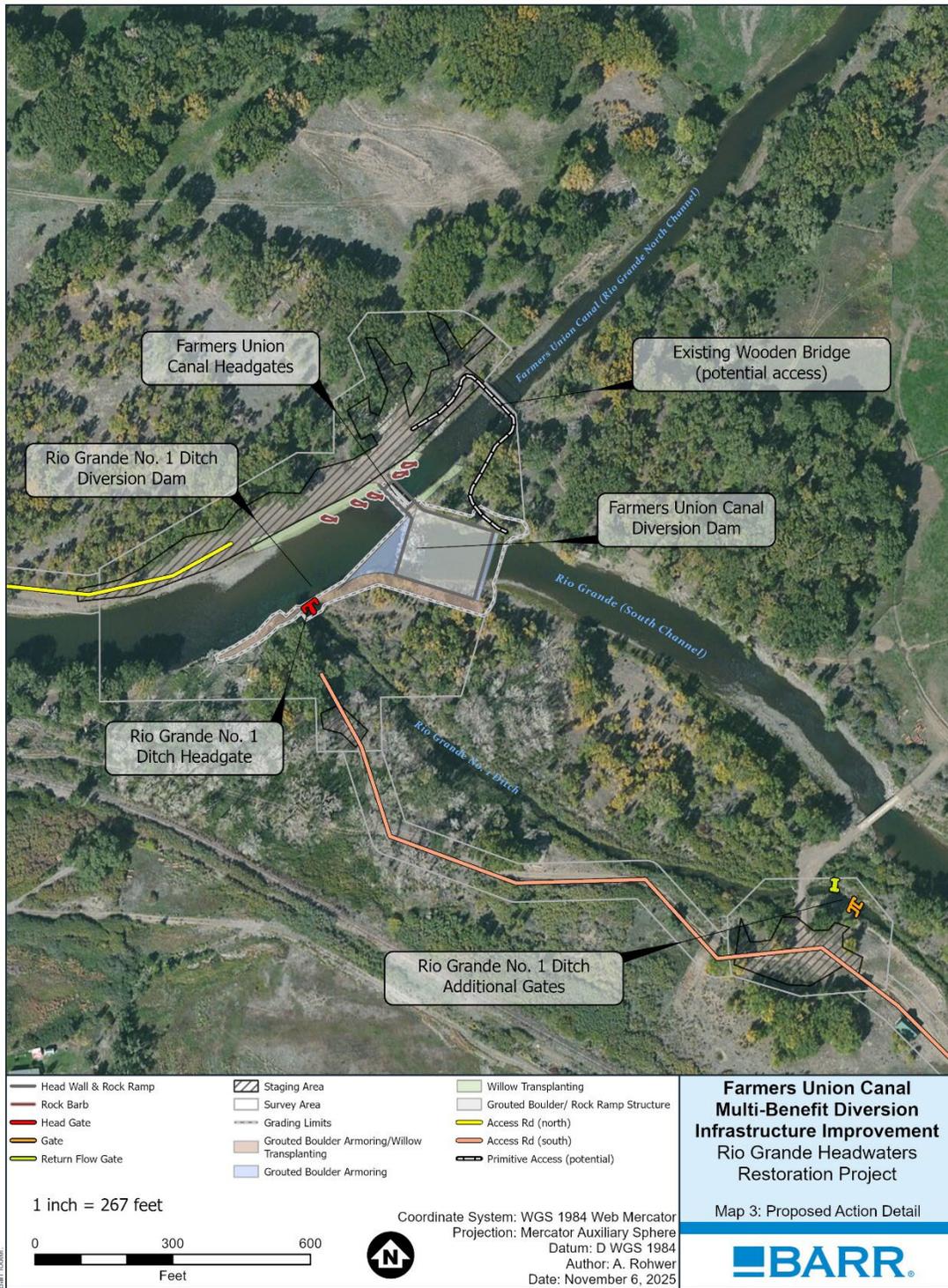
The existing FUC headgate structure across the north channel of the Rio Grande includes eight wooden headgates set in concrete supported by concrete wingwalls (Photograph 1). These headgates must be operated manually and are difficult to operate efficiently, and portions of the concrete are eroding and leaking. Four of the eight existing wooden headgates would be replaced by automated aluminum slidegates. The automation system would consist of solar power, electric motors, and Supervisory Control and Data Acquisition (SCADA) technology to allow for remote operation and accurate flow measurements. The concrete support structure would be repaired and armored and a headgate footing scour plate protection would be added.



**Photograph 1 Looking Upstream along the Farmers Union Canal to the Headgates**

### **2.3.2 – Rock Ramp Diversion Structure**

The existing diversion structure for the FUC stretches across the southern channel of the Rio Grande and consists of steel plating, concrete blocks, and boulders piled in the river. The Project would include construction of a permanent diversion structure at the location of the current structure. The current structure requires frequent maintenance with heavy equipment in the river channel, does not allow for fish passage, and presents a safety hazard for river users.



**Map 3 Proposed Action Detail**

The Project would replace the current diversion dam (Photograph 2) with a grouted ramp structure at a maximum slope of 4.5 percent. The ramp structure was designed with input from CPW to create resting refugia for fish traveling upstream and allow safe river passage for recreational users.



**Photograph 2 Upstream View of the Rio Grande at the Farmers Union Canal Diversion Dam**

The ramp would include placement of about 1,050 3- to 5-foot diameter boulders in the river, resulting in 550 to 2,545 cubic yards (CY) of fill material within the ordinary high-water mark (OHWM) of the mainstem Rio Grande. In addition, approximately 150 CY of concrete grout and 980 CY of void-filled riprap are anticipated to be used for ramp construction. These materials would replace the undetermined quantity of concrete rubble currently at the ramp location. An estimated 2,760 CY of excavation, backfill, and compaction of native, on-site and in place materials are anticipated to be re-used for in-channel work. The current FUC diversion structure is about 0.15 acre; the new ramp footprint would be about 0.37 acre. The increased size is a direct result of limiting the maximum slope to 4.5 percent, as recommended by CPW to allow for fish passage and safe recreational user passage. Table 3 includes anticipated fill quantities for Project components.

The new FUC diversion structure was designed to create enough hydraulic head pressure to allow for the removal of the small diversion structure that is currently used for the RG #1 Ditch, approximately 150 feet upstream of the FUC diversion.

**Table 3 Anticipated Fill Material Quantities**

Project Component: Fill Materials	Fill Quantity
Rock Ramp Diversion Structure: 3- to 5-foot diameter boulders	1,050 boulders approximately 550 to 2,545 cubic yards (CY)
Rock Ramp Diversion Structure: Concrete for minor structures (grouting boulders)	180 CY
Rock Ramp Diversion Structure: void filled rip rap	980 CY
Bank Protection: 3- to 5-foot diameter boulders for armoring and rock and root wad structures	480 boulders approximately 250 to 1,165 CY
Bank Protection: concrete grout	85 CY
<b>Total Material Quantities</b>	<b>2,045 to 4,955 CY of fill material within the mainstem Rio Grande (below the ordinary high-water mark/bank line)</b>

### 2.3.3 – Bank Protection

Bank protection would be used to protect the irrigation infrastructure, as shown on Map 3 and in the Project Design Sheets (Appendix A). The Project would include approximately 400 feet of armoring with a grouted boulder overhang along the south bank of the Rio Grande to replace the current armoring along this bank, which includes a mix of grouted boulders and large pieces of stacked concrete rubble (Photograph 3). Five rock barbs with root wads would be installed along the north bank of the Rio Grande and a portion of the FUC. About 480 3- to 5-foot diameter boulders are expected to be used for bank protection, resulting in 250 to 1,165 CY of fill material within the OHWM of the FUC and the mainstem Rio Grande. An additional 85 CY of concrete grout would be used to place rocks for bank armoring. Improved bank armoring would replace the existing stacked concrete in the Project area. Willow transplanting along the north and south channels would add additional bank protection throughout the Project area.



**Photograph 3 Existing Bank Armoring on the Rio Grande Upstream of the Farmers Union Canal**

### **2.3.4 – Rio Grande Canal #1 Replacement Headgates**

The existing headgate for the RG #1 Ditch at the Rio Grande (Photograph 4) would be replaced with an automated steel slide gate as described above. Additionally, two new headgates would be installed on the RG #1 Ditch approximately 980 feet downstream of the diversion gate. These gates are intended to provide additional control for diverting water back into the Rio Grande main channel if necessary.



**Photograph 4 Existing RG #1 Ditch Headgate and Diversion Dam**

### **2.3.5 – Access and Staging Areas**

Construction traffic would enter the Project area via two existing gravel-surface access roads. Four staging areas would be used for materials and equipment storage during construction; Staging Areas A and B would be located north of the Rio Grande, and Staging Areas C and D would be to the south of the river (Map 2). All access and staging areas would be located on privately-owned land, and no road upgrades are proposed.

Access to the northern riverbank would use the gated maintenance access road, about 1,800 feet in length, to the FUC headgate structure. Two staging areas would be accessed by this road. Staging Area A (0.7 acres) would be adjacent to State Highway 112 on the north side of the Rio Grande. Staging Area B (1.3 acres) would parallel the northern access route.

Access to the southern riverbank and RG #1 Ditch would use an existing ditch maintenance road. The road takes off from Highway 160 and continues north for about 790 feet to Staging Area C (0.4 acres). From here, the existing road continues another 1,100 feet to Staging Area D (0.1 acre).

A wooden bridge across the FUC and a primitive access road on the island between the FUC and mainstem channel of the Rio Grande may also be used to move equipment and materials across the river.

### **2.3.6 – Construction**

Construction of the Proposed Action would include using heavy equipment such as backhoes, excavators, dump trucks, and skid steer scrapers. Construction materials would include large boulders approximately 3- to 5-feet in diameter, large rock rip rap, concrete grout, root wads, willow transplants, aluminum and steel headgates, and geotextile material. Materials and equipment would be staged in upland areas as shown on Map 2.

Construction of the Proposed Action if approved would be expected to take 2 to 4 months to complete and is planned to occur during low flows between November 2025 and April 2026.

### **2.3.7 – Riparian and Aquatic Restoration**

Streambank restoration would be completed upstream and downstream of the irrigation infrastructure for a total distance of approximately 650 feet. Banks would be reshaped after construction and armored to protect irrigation infrastructure and to minimize erosion and sedimentation. Rock barb structures with integrated root wads would be anchored into the bank to minimize erosion and enhance aquatic habitat. Approximately 0.2 acres of floodplain terrace adjacent to the river would be planted with willow transplants and seeded with native species to restore riparian habitat and stabilize soils. Instream work would be limited to that required for the rock ramp structure, which would include rock clusters and a fish ladder to facilitate fish passage. The Project would increase aquatic habitat complexity and connectivity through this reach of the Rio Grande.

## **2.4 – Permits and Authorizations**

If the Proposed Action is approved, the following permits would be required before project initiation:

- CWA Section 404 Permit Authorization
- CWA Section 401 Water Quality Certification

Compliance with the following laws is required before and during project implementation:

- Clean Air Act of 1963 (42 United States Code [U.S.C.] § 7401)
- Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. 1531-1544, 87 Stat. 884)
- CWA 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)
- 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)

# **CHAPTER 3 – Affected Environment and Environmental Consequences**

## **3.1 – Introduction**

This chapter includes an analysis of how resources may be affected by the No Action Alternative and the Proposed Action. The potentially affected area and/or interests are identified, existing conditions described, and potential impacts evaluated by alternative for each resource. This section includes a summary of effects and a list of environmental commitments.

Effects can be either long term (permanent, residual) or short term (incidental, temporary). Short-term effects are sustained for a limited time, and the environment usually reverts rapidly to pre-construction conditions. Short-term effects are often disruptive and obvious. Long-term effects are defined, for purposes of this EA, as those that endure more than 5 years.

## 3.2 – Federally Listed Species and Critical Habitat

According to Section 7(a)(2) of the ESA of 1973, as amended, federally funded, constructed, permitted, or licensed projects must consider impacts to federally threatened and endangered species, species that are proposed or candidates for listing, and designated critical habitat.

### 3.2.1 – Federally Listed Species

Based on the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system species list, four federally listed species and two species proposed for federal listing were included in the review of the Proposed Action (USFWS 2025). Table 4 lists these species, their status, and potential to occur in the project area. The official IPaC species list is included in the project record, on file with Reclamation.

**Table 4** Federally Listed Species Analyzed for Potential to Occur in the Project Area

Species	Listing Status	Occurrence Potential
Gray wolf ( <i>Canis lupus</i> )	Experimental Population, Non-Essential	No potential for occurrence
Southwestern Willow Flycatcher ( <i>Empidonax traillii extimus</i> )	Endangered	Potential for occurrence
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )	Threatened	Potential for occurrence
Monarch butterfly ( <i>Danaus plexippus plexippus</i> )	Proposed Threatened	Potential for occurrence
Silverspot ( <i>Speyeria nokomis nokomis</i> )	Threatened	No potential for occurrence
Suckley's Cuckoo Bumble Bee ( <i>Bombus suckleyi</i> )	Proposed Endangered	No potential for occurrence

Source: USFWS 2025; IPaC consultation Number 2025-0129179 dated October 13, 2025

Three federally listed species—southwestern willow flycatcher, yellow-billed cuckoo, and monarch butterfly—have been recorded as occurring within or near the project area and were assessed for potential to be impacted by the Proposed Action. A Biological Assessment has been prepared under a separate cover, the findings of which are summarized below.

**Southwestern Willow Flycatcher:** The project area contains suitable breeding, nesting, and foraging habitat for southwestern willow flycatcher. Dense, shrubby riparian vegetation, including willows and alders, dominates the midstory along the RG #1 Canal and occurs in scattered patches along the Rio Grande and FUC. Shrubby riparian vegetation is limited at project staging and access areas. There are no known occurrence records for the southwestern willow flycatcher in the project area; however, a likely migrant southwestern willow flycatcher was detected in 2022-2023, approximately 9 miles upstream of the project (personal communication, T. Ireland, USFWS fish and wildlife biologist, August 6, 2025).

There is potential for this species to occur within the project area based on the presence of suitable habitat and the species' life history.

**Yellow-billed Cuckoo:** The project area provides suitable migration and foraging habitat for the yellow-billed cuckoo. The woodland canopy in the area is dominated by mature cottonwoods with a variable riparian understory. The area includes narrow bands of cottonwood gallery forest with an open stand structure and small patch size, which would likely preclude use of the area for breeding or nesting. The overstory is dominated by mature cottonwood gallery forest, and the midstory includes a moderate density of shrubby riparian species such as willow and alder. Mature cottonwood trees occur along the river channel and are limited at project staging and access areas. There are no known yellow-billed cuckoo occurrence records in the project area; however, there have been yellow-billed cuckoo detections in the past 2- to 3 years approximately 9 miles upstream of the project (personal communication, T. Ireland, USFWS fish and wildlife biologist, August 6, 2025). There is potential for this species to occur within the project area based on the presence of suitable habitat and the species' life history.

**Monarch Butterfly:** The project area contains breeding and foraging habitat for monarch butterflies, with a broad riparian corridor, scattered milkweed plants, and abundant flowering plant to provide nectar sources during the summer growing season. The Rocky Mountain states, including Colorado, are considered a contact zone between the eastern and western migratory populations; however, Colorado is not located along a migration pathway (USFWS 2020). Monarchs are known to occur in the action area and may occur anywhere with adequate milkweed and nectar sources.

### **3.2.2 – Critical Habitat**

The project area does not contain federally designated or proposed critical habitat.

### **3.2.3 – Effects from the No Action Alternative**

Under the No Action Alternative, long-term adverse effects on threatened and endangered species would include continued aquatic and riparian habitat degradation, streambank erosion, and frequent maintenance in the river channel. Maintenance needs would be expected to increase over time under the No Action Alternative, resulting in increased human presence, equipment use, and vegetation disturbance in the project area. Maintenance is generally completed when the need arises and may take place during the breeding or migration season for southwestern willow flycatcher, yellow-billed cuckoo, or monarch butterfly, thereby increasing the potential for negative impacts to these species. Due to the anticipated and perpetual need for routine maintenance, the no action alternative may affect but is not likely to adversely affect all three species.

### **3.2.4 – Effects from the Proposed Action**

**Southwestern Willow Flycatcher:** Site preparation activities and construction of the Proposed Action would occur outside of the breeding and nesting season for southwestern willow flycatcher; therefore no direct impacts to breeding or nesting individuals are expected. Should construction activities occur during the migration or nesting seasons, individuals may avoid the project area; however, this impact is expected to be minimal based on the local abundance of foraging habitat adjacent to the project area, the temporary nature of construction, and surrounding human-driven agricultural land uses.

Direct impacts to southwestern willow flycatchers would be short-term and would result from disturbance of scattered willows where headgate and diversion structures are replaced. No suitable nesting habitat would be directly impacted by construction. In addition, a short-term increase in equipment noise and human presence is anticipated during construction. Indirect impacts may include an increase in recreational river use through the project area after construction.

After construction, native willows would be planted to aid in bank stabilization, offsetting disturbance impacts to willow habitat available to southwestern willow flycatchers in the project area. Willow planting is expected to result in long-term increases in the amount of willow habitat in the project area.

Based on the short-term duration of construction impacts, project implementation outside of the breeding season, and avoidance of impacts to suitable nesting habitat, the project may affect, but is not likely to adversely affect, the southwestern willow flycatcher. The project may result in long-term indirect benefits to habitat for the species within the project area through planting of additional willow habitat.

**Yellow-billed Cuckoo:** Site preparation activities and construction of the Proposed Action would occur outside of the breeding and nesting season for the yellow-billed cuckoo; therefore no direct impacts to breeding or nesting individuals are expected. Should construction activities occur during the migration or nesting seasons, project construction could result in avoidance of the project area by individuals; however, this impact is expected to be minimal based on the local abundance of foraging habitat adjacent to the project area, the temporary nature of construction, and surrounding human-driven agricultural land uses.

Direct impacts to the yellow-billed cuckoo would be minimal. No mature cottonwood trees would be removed during project construction. Disturbed mid-story and herbaceous vegetation would likely return to pre-construction composition and cover following site restoration. The project revegetation plan includes planting native willows along the Rio Grande in the project area, which may improve cuckoo habitat by increasing structural complexity in the cottonwood forest.

Based on the short-term duration of construction impacts, implementation outside of the breeding season, and avoidance of impacts to suitable nesting habitat, the Proposed Action may affect, but is not likely to adversely affect, the yellow-billed cuckoo. The Proposed Action may result in long-term indirect benefits to habitat for the species within the project area through planting of additional willow habitat.

**Monarch Butterfly:** Site preparation for construction of the Proposed Action would occur outside of the migration season for the monarch butterfly; therefore, no direct impacts to individuals are expected. Should construction activities occur during the migration season, individuals may avoid the project area; however, this impact is expected to be minimal based on the local abundance of foraging habitat adjacent to the project area and the temporary nature of construction, and surrounding agricultural land uses, which may include management using herbicides and/or insecticides. If vegetation disturbance takes place during the migration season, it may be necessary to conduct surveys for active use of project area milkweeds prior to construction.

Direct long-term impacts to the Monarch would be minimal. Herbaceous vegetation may be trampled or crushed during construction; however, vegetation would likely return to pre-construction composition

and recover relatively quickly after construction is complete. The Proposed Action includes a revegetation plan that involves seeding with native forbs which may increase availability of monarch foraging habitat.

Based on the construction timing outside of the breeding and migration season and short-term vegetation impacts related to Project construction, the Project may affect but is not likely to adversely affect the monarch butterfly.

**Critical Habitat:** The project area does not contain federally designated or proposed critical habitat; no impacts to critical habitat are anticipated.

**Summary:** Table 5 summarizes the effect determinations for federally listed species from implementing the Proposed Action.

**Table 5 Effect Determinations for Federally Listed Species Analyzed for the Proposed Action**

Species	Effect Determination
Southwestern Willow Flycatcher	May affect, not likely to adversely affect
Yellow-billed Cuckoo	May affect, not likely to adversely affect
Monarch Butterfly	May affect, not likely to adversely affect

### 3.3 – Water Quality and Quantity

The Colorado Division of Water Resources (DWR) shows a U.S. Geological Survey (USGS) stream gauge (ID 08220000) on the Rio Grande near Del Norte, Colorado approximately 8 river miles (rm) upstream of the Proposed Action at rm 108.6 (Colorado DWR 2025). According to DWR records, the average daily discharge at this location is approximately 750 cubic feet per second (cfs). The lowest average daily discharge volumes are recorded in the winter months (December, January, February) and range from about 150 to 250 cubic feet per second (cfs); peak discharge volumes occur between May, June and July and range from about 1,300 to 3,500 cfs. The average annual peak flow from 2014 to 2024 was about 5,000 cfs.

The amounts of water diverted by the FUC and the RG #1 Canal varies from year to year, depending on streamflow. The point of diversion for the FUC (structure name 2000631) is at rm 94.3, approximately 6 rm downstream of the FUC headgates. Colorado DWR records indicate the maximum decreed rate of diversion is 280.47 cfs (Colorado DWR 2025). Between 2014 and 2024, the FUC diverted an average of 36,457 acre-feet annually. The smallest amount diverted was 16,095 acre-feet in 2022, and the greatest was 63,599 acre-feet in 2019.

The RG #1 Ditch is at rm 100.3. Colorado DWR records for the RG #1 Ditch (structure ID 2002111) are limited; however, from 2022 – 2024 the RG #1 Ditch diverted an average of 556 acre-feet per year. The smallest amount diverted was 450 acre-feet in 2022, and the greatest was 610 acre-feet in 2023.

Colorado DWR diversion structures and gages are shown on Map 4; records can be viewed at the following URLs:

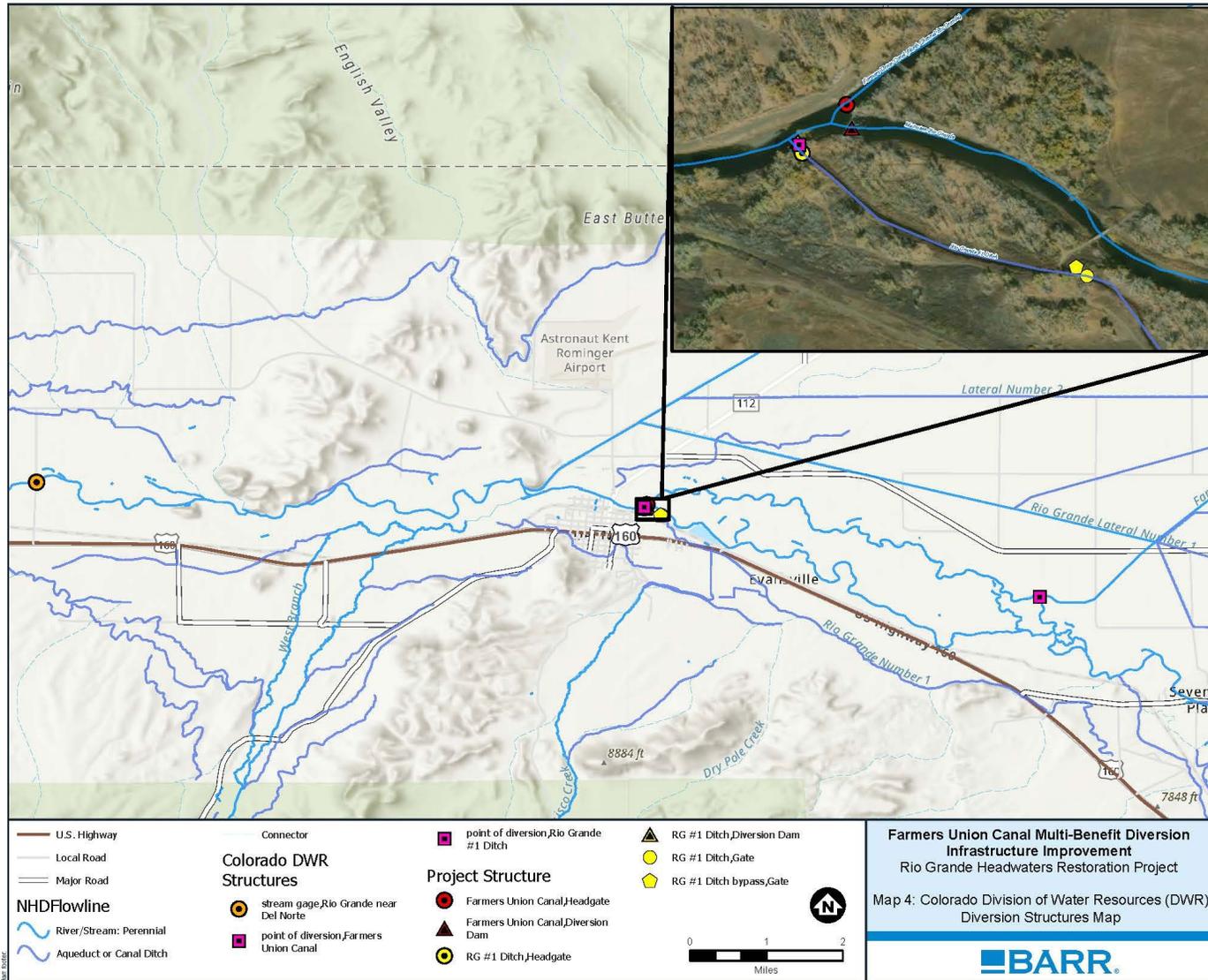
- Rio Grande near Del Norte Gage: <https://dwr.state.co.us/Tools/Stations/RIODELCO?params=DISCHRG>
- Farmers Union Canal: <https://dwr.state.co.us/Tools/Structures/2000631>
- RG #1 Ditch: <https://dwr.state.co.us/Tools/Structures/2002111>

Current water quality data is not readily available for the project area. However, the U.S. Environmental Protection Agency’s My Waterway Tool lists the mainstem of the Rio Grande near the project area as impaired for drinking water and aquatic life, listing metals and temperatures as identified issues (EPA 2025).

### **3.3.1 – Effects from the No Action Alternative**

Under the No Action Alternative, irrigation infrastructure and equipment would continue to deteriorate. Stream bank erosion would continue in the project area, resulting in increasing inefficiency of irrigation infrastructure and continued degradation of aquatic and riparian habitats in the project area. Turbidity and suspended sediment downstream of the project area would be expected to persist at current levels. Maintenance needs would be expected to increase over time, necessitating additional work to keep the aging equipment functioning. During low streamflow conditions, the FUC and the RG #1 diversion structures are unable to create adequate hydraulic head pressure to divert their full water rights. Currently, the FUC under-delivers an average 730-acre-feet per year of allocated irrigation flows due to the aging infrastructure’s inability to function at low flows; this condition would be expected to persist under the No Action Alternative.

In addition, the impairment issues identified for the Rio Grande in the project area—water temperature and metals—would be expected to persist under the No Action Alternative.



Map 4 Colorado Division of Water Resources Diversion Structures Map

### **3.3.2 – Effects from the Proposed Action**

Proposed Action construction would result in short term, temporary increases in turbidity and/or suspended sediment in the mainstem of the Rio Grande, the FUC, and the RG #1 Ditch. In-stream impacts from the Proposed Action would include approximately 0.51 acre of disturbance at the FUC headgates and diversion dam, and 0.04 acres of disturbance at the RG #1 Ditch. Equipment staging and access routes would be limited to upland areas. No vegetation removal is planned in staging or access areas, limiting the potential for sediment migration into area waterways.

In-stream construction would increase turbidity and adversely impact water quality. These impacts would be short term in duration, persisting only during and immediately after construction. A temporary water exclusionary berm would be used to minimize sediment transfer during channel construction. Water quality would be monitored during construction and after equipment operates in the river channel. Monitoring would include visual observations and may include direct sampling, as appropriate. When excavating within the channel, the excavator track movement and the bucket contact with the riverbed would be minimized to decrease sediment disturbance. Additional project design features, construction specifications, and environmental commitments would minimize sediment inputs and disturbance of the stream channel and surrounding riparian area.

There would be potential for accidental spills or release of materials (e.g., diesel, gasoline, or oil) that could impact local water quality. Potential surface water quality impacts from accidental spills or hazardous materials releases would be short term during construction. Design features, Project specific environmental commitments (Chapter 4), and adherence to the conditions of applicable CWA permits would minimize the potential for adverse effects on water quality from accidental spills or releases.

The Proposed Action does not include any new depletions. Increasing the efficiency of the irrigation infrastructure is expected to improve the timing of water available in the long term, benefitting water quality, water temperature, and downstream aquatic habitat. As noted above, replacing and improving the diversions and their corresponding headgates would increase irrigation infrastructure efficiency. Under the Proposed Action, ditch diversion efficiency at the FUC is expected to increase by 730 acre-feet per year, thereby removing the average annual shortfall of allocated irrigation water delivery and enabling water users to divert their full decreed water rights during all streamflow conditions. Irrigation structures would require less maintenance, and ditch shareholders would have more reliable irrigation water. As a result, water managers would be able to administer water rights more effectively and plan for streamflow changes with greater certainty. More efficient water administration, in turn, provides water managers with increased flexibility in water management, such as reservoir release schedules, which can benefit aquatic habitat. For example, increased efficiency and flexibility may allow water managers to augment streamflow during low flow conditions by releasing stored water.

The Proposed Action would include planting willows along the banks of the Rio Grande after construction, thereby increasing shade along the waterway. The increased shade is expected to help maintain cooler water temperatures, indirectly addressing one of the identified impairment issues for this reach (water temperature). In addition, the proposed rock barbs and rock ramp and fish ladder would increase aquatic habitat complexity and connectivity through this reach of the Rio Grande.

Environmental commitments detailed in Chapter 4 would be implemented during construction to protect water quality. The temporary effects of construction on water quality and quantity would not be significant.

### **3.4 – Historic or Cultural Resources**

A cultural resource inventory of the project area and associated area of potential effect (APE) resulted in a revisit of the RG #1 Ditch (5RN.1375) and the San Luis & Rio Grande Railroad (5RN.1644.1), as well as the identification and documentation of the FUC headgate on the north channel of the Rio Grande (5RN.1646), the site of a historic barn (5RN.1645), and two isolated occurrences (5RN.1647 and 5RN.1648). No Native American resources were identified.

The RG #1 Ditch is recommended supporting eligibility for the National Register of Historic Places (NRHP) under Criterion A for its association with the growth of Del Norte. The segment of the San Luis & Rio Grande Railroad examined during the survey also supports a recommendation of eligibility for listing in the NRHP under Criterion A for the role it played in the 1880s silver mining boom and broader economic development and settlement in the region. The FUC headgate and the site of the historic barn are recommended as not eligible for listing in the NRHP.

Detailed historical site descriptions of these findings are included in the project record, on file with Reclamation. Appendix B includes cultural resource compliance documentation.

#### **3.4.1 – Effects from the No Action Alternative**

Under the No Action Alternative, there would be no changes to the current condition of irrigation infrastructure. Equipment would continue to deteriorate, and increased maintenance would be required to continue irrigation operations. Long-term effects of the No Action Alternative may include deterioration of the irrigation structures, including those which may be eligible for listing on the NRHP.

#### **3.4.2 – Effects from the Proposed Action**

The RG #1 Ditch headgate serves as a modern replacement for the original structure that previously occupied this site. The Proposed Action would not adversely affect this headgate more extensively than it has already been modified, and there are no recommended mitigation measures. Assuming agency and State Historic Preservation Office concurrence with the recommendation of non-eligibility for the headgate on the RG #1 Ditch, no mitigation measures are necessary for that aspect of the project.

The bed of the San Luis & Rio Grande Railroad intersects an active access road where it is protected from damage by traffic and would not be adversely affected by the Proposed Action. Vehicles would use an existing road along the southern edge of the historic barn site to access a staging area, but the impacts would likely be avoided.

In summary, the Proposed Action would have no adverse effects on the two potentially eligible historic properties- the RG #1 Ditch (5RN.1375) and the San Luis & Rio Grande Railroad (5RN.1644.1).

### 3.5 – Indian Trust Assets

Indian Trust Assets, or resources, are defined as legal interests in assets held in trust by the U.S. Government for Native American Indian tribes or individual tribal members. Examples of Indian Trust Assets are lands, minerals, water rights, other natural resources, money, or claims. Secretarial Order 3175 and Reclamation policy require the assessment of effects on Indian Trust Assets.

There are no Indian Trust Assets in the project vicinity.

#### 3.5.1 – Effects from the No Action Alternative

No effects on Indian Trust Assets are expected under the No Action Alternative.

#### 3.5.2 – Effects from the Proposed Action

No effects on Indian Trust Assets are expected under the Proposed Action.

### 3.6 – Summary

Table 6 summarizes the environmental consequences for the resources evaluated in this EA. Resource effects are outlined for the No Action Alternative and the Proposed Action. None of these actions require mitigation.

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

Resource	Effects: No Action Alternative	Effects: Proposed Action
Threatened and Endangered Species	<b>Long-term:</b> Habitat degradation and loss of functionality from continued bank erosion. Increased human presence, equipment use, and vegetation disturbance in the project area as maintenance needs increase. May affect, not likely to adversely affect.	<b>Short-term:</b> May affect, not likely to adversely affect. <b>Long-term:</b> May affect, not likely to adversely affect. Potential for beneficial impacts.
Water Resources and Water Quality	<b>Long-term:</b> Increased sediment in the river due to continued bank erosion. Continued inefficiency and potential failure of irrigation infrastructure. Average annual shortage of 730-acre-feet of decreed water rights delivered would continue.	<b>Short-term:</b> During construction, increased turbidity and sedimentation and the potential for accidental spills or release of materials/fluids. <b>Long-term:</b> potential for reduced water temperature due to willow plantings, addressing an identified impairment issue on this reach. Ditch diversion efficiency is expected to increase by 730-acre-feet per year, thereby removing the average annual shortfall and enabling water users to divert their full decreed water rights during all streamflow conditions

Resource	Effects: No Action Alternative	Effects: Proposed Action
Historic or Cultural Resources	<b>Long-term:</b> Continued degradation of existing infrastructure may affect historic resources.	<b>Short-term:</b> During construction, disturbance within the APE.
Indian Trust Assets	No effects expected	No effects expected

## 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 would be implemented if the Proposed Action is implemented.

### 4.1 – Timing of the Proposed Action

1. Reclamation will seek to avoid impacts to birds protected by the Migratory Bird Treaty Act (16 U.S.C. 703), including the southwest willow flycatcher and yellow-billed cuckoo, by conducting work activities outside of the normal breeding and nesting seasons (April 15 to August 15, or September 1 for work in suitable yellow-billed cuckoo habitat).
2. If work is necessary between April 15 and August 15 (or September 1 for work in suitable yellow-billed cuckoo habitat), suitable/occupied migratory bird habitat will be avoided during the construction activities as much as possible, utilizing the most current survey results in conjunction with habitat suitability. Coordination and consultation with Reclamation Biologists and USFWS will occur prior to such work activities.
3. If construction activities or vegetation removal occur during the monarch butterfly migration season (May 1 through September 30), presence/absence surveys to determine if monarchs actively use the project area may be necessary. If individuals are observed using project area milkweed plants, the appropriate agency biologist will be contacted for guidance on how to proceed. Timing restrictions and activity buffers may be required around milkweed plants if active use is observed.
4. If construction activities take place during the bald eagle winter roosting season (November 15 through March 15), bald eagle winter roosting surveys to determine active use of night or communal roosts near the project area may be necessary. Timing restrictions and activity buffers may be required around active roosts.

### 4.2 – Water Quality

1. The RGHRP will obtain all applicable permits before implementing the project, including CWA permits. RGHRP will comply with any requirements of the CWA and other permits associated

with the project, including required reporting to the appropriate authorities as needed, and will not begin work until all required permits are obtained.

2. RGHRP and its contractors will visually monitor for changes in water quality in the areas downstream of river work before and during the workday. Water quality will be monitored during construction and after equipment operates in the river channel. Monitoring will include visual observations and may include direct sampling, as appropriate.

### **4.3 – Equipment and Operations**

1. Work activities that have the potential for adverse impacts will be monitored by properly trained personnel to ensure compliance.
2. Excavation will be minimized to limit the disturbance of sediments. When excavating within the wetted channel, the following practices will be used to minimize the disturbance of sediments:
  - a. Minimize movement of excavator tracks;
  - b. Minimize excavator bucket contact with riverbed when not excavating.
3. Each individual operator will be briefed on local environmental considerations specific to the project tasks.
4. To minimize the potential for hydrocarbon spills into or contamination of aquatic habitat:
  - a. Hydraulic lines will be checked each morning for leaks and periodically throughout each workday. Any leaky or damaged hydraulic hoses will be replaced.
  - b. All fueling will take place outside the active floodplain, where possible. All fueling will occur with a spill kit ready. Fuel, hydraulic fluids, and other hazardous materials may be stored on-site overnight, outside the normal floodplain, not near the waterway or any location where a spill could affect the waterway.
  - c. All equipment will undergo high-pressure spray cleaning and inspection before initial operation in the project area.
  - d. Equipment will be parked on pre-determined locations on high ground away from the river overnight, on weekends, and holidays.
  - e. Spill protection kits will be on-site, and operators will be trained in the correct deployment of the kits.
  - f. External hydraulic lines are composed of braided steel covered with rubber. When there is an increased risk of puncture, external hydraulic lines will be covered with additional puncture-resistant material, such as steel-mesh guards, Kevlar, etc., to offer additional protection.
5. Equipment will be removed from the channel during high storm surges.
6. Equipment will initially enter the water slowly to allow fish the time to leave the area before in-water work begins. In-water work will be fairly continuous during workdays so fish are less likely to return to the area once work begins.

7. Riprap to be placed in the water will be reasonably clean to the extent possible. If there are large clumps of soil bigger than 1 foot within the riprap, those clumps will be set aside during the loading or placing operations.

#### **4.4 – Access and Staging**

1. Impacts on terrestrial habitats will be minimized by using existing roads whenever possible. In general, equipment operation will occur in the most open area available, and all efforts will be made to minimize damage to native vegetation.
2. Equipment staging will occur in upland areas that require minimal to no vegetation clearing.
3. All necessary permits for access points, staging areas, and study sites will be acquired before construction activity begins.

#### **4.5 – Vegetation Replanting and Control**

1. Areas disturbed during construction will be reseeded with native species or sterile annuals (as needed) and be certified weed free after construction.
2. Native vegetation at worksites will be avoided to the extent possible.

#### **4.6 – Other Measures**

1. All project spoils and waste will be disposed of off-site at approved locations or may be used on-site as appropriate to the project purpose, consistent with applicable environmental requirements.

## **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 Proposed Action is on privately-owned land. The RGHRP consulted with multiple local stakeholders in designing the Proposed Action, including the SLVID and San Luis Valley Water

Conservation District, local staff representing Colorado DWR, CPW, and the U.S. Army Corps of Engineers.

Publicly available electronic versions of the EA meet the technical standards of Section 508 of the Rehabilitation Act of 1973, so that the documents can be accessed by people with disabilities using accessibility software tools.

## CHAPTER 6 – Preparers

Reclamation worked with Rio Grande Headwaters Restoration Project and a third-party contractor to develop the content and analysis in this EA. A list of preparers who participated in the development of this EA is provided in Table 7.

**Table 7 List of Preparers**

Name	Title	Areas of Responsibility	Organization or Agency
Scott Hebner	Environmental Protection Specialist	Report Review	Bureau of Reclamation
Chris Grosso	Biologist	Report Review	Bureau of Reclamation
John Cater	Archeologist	Report Review	Bureau of Reclamation
Robert Demeule	Professional Engineer	Project Design and Engineering	Huitt-Zollars, Inc.
Shanna Braun	Vice President, Senior Environmental Scientist	QA/QC	Barr Engineering Co.
Alison Rohwer	Senior Biologist	Fieldwork/Data Collection Report Preparation Threatened and Endangered Species Evaluation EA Preparation Project Management	Barr Engineering Co.
Pete Skartvedt	Senior Ecologist	Fieldwork/Data Collection Report Preparation Threatened and Endangered Species Evaluation	Barr Engineering Co.

## CHAPTER 7 – References

- Colorado Division of Water Resources (DWR). 2025. Colorado DWR Map Viewer. Accessed October 16, 2025 at <https://dwr.colorado.gov/services/data-information/gis>.
- Colorado Parks and Wildlife. 2020. Recommended buffer zones and seasonal restrictions for Colorado raptors.
- Reclamation. 2009. Safety and Health Standards Manual. U.S. Department of the Interior. Bureau of Reclamation.
- Reclamation. 2012. Reclamation's NEPA Handbook. U.S. Department of the Interior. Bureau of Reclamation.
- U.S. Environmental Protection Agency. 2025. My Waterway Tool. Accessed October 16, 2025, at <https://mywaterway.epa.gov/>.
- USFWS. 2020. Monarch (*Danaus Plexippus*) Species Status Assessment Report, version 2.1. Accessed October 15, 2025 at <https://ecos.fws.gov/ServCat/DownloadFile/191345>.
- USFWS 2025. IPaC consultation Number 2025-0129179. Farmers Union – Rio Grande Headwaters: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project. Dated October 13, 2025.

## CHAPTER 8 – Abbreviations or Acronyms

APE	Area of Potential Effect
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CPW	Colorado Parks and Wildlife
CWA	Clean Water Act
CY	cubic yards
DWR	Division of Water Resources
EA	Environmental Assessment
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FUC	Farmers Union Canal
IPaC	Information for Planning and Consultation
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
Proposed Action	Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project
Reclamation	U.S. Bureau of Reclamation
RG	Rio Grande
RG #1 Ditch	Rio Grande Number 1 Ditch
RGHRP	Rio Grande Headwaters Restoration Project
rm	river mile
SCADA	Supervisory Control and Data Acquisition
SLVID	San Louis Valley Irrigation District
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

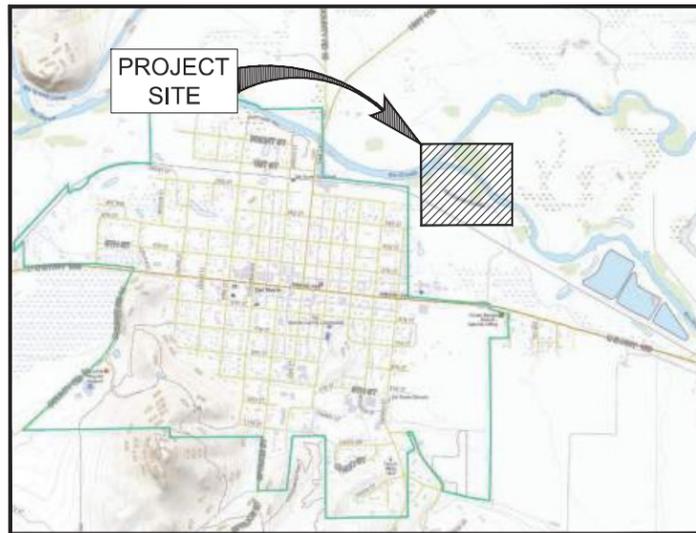
# **Appendix A – Project Design Sheets**

# FARMERS UNION CANAL IMPROVEMENT PROJECT

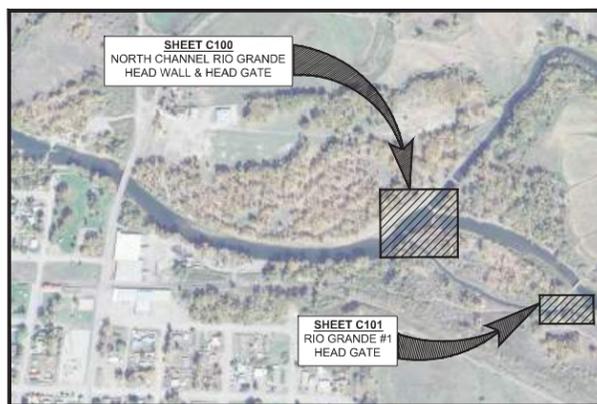
DEL NORTE, COLORADO

## CONSTRUCTION PLANS

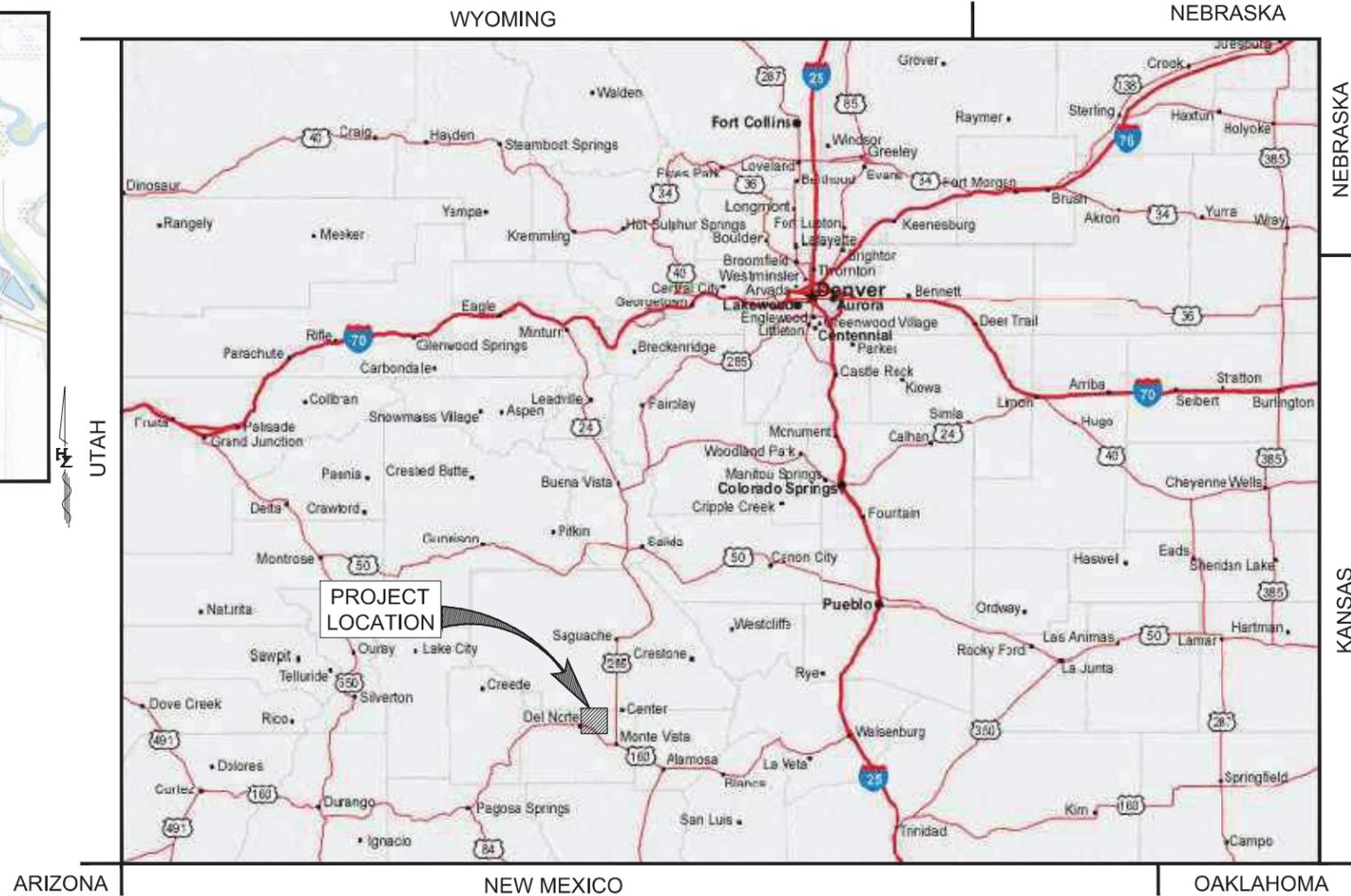
APRIL, 2025



VICINITY MAP  
NOT TO SCALE



FARMER'S UNION HEADGATE  
NOT TO SCALE



STATE LOCATION MAP  
NOT TO SCALE

INDEX OF SHEETS	
SHEET NUMBER	SHEET TITLE
G-100	COVER SHEET
G-101	GENERAL NOTES, ABBREVIATIONS & LEGEND
C-100	SITE PLAN - CHECK DAM, ROCK RAMP & METAL HEAD WALL #1
C-101	SITE PLAN - METAL HEAD WALL #2 & #3
C-501	DETAILS - EMBEDDED ROCK AND HEADWALL
C-502	DETAILS - BARB & FISH PASSAGE
C-503	DETAILS - CHECK DAM & SLIP GATE
C-504	DETAILS - METAL HEADWALL #s 1, 2, & 3
C-600	PROJECT STAGING AREA MAP

REVISIONS (OR CHANGE NOTICES)	
NO.	DESCRIPTION
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2	
1	

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Huit-Zollars, Inc.  
Rio Rancho  
333 Rio Rancho Drive NE, Suite 101  
Rio Rancho, New Mexico 87124  
Phone (505) 892-5141 Fax (505) 892-3259  
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Designed For:  
**COLORADO RIO GRANDE RESTORATION FOUNDATION**

COVER SHEET  
FARMERS UNION CANAL IMPROVEMENT PROJECT  
DEL NORTE COLORADO

APPROVALS

San Luis Valley Irrigation District

NAME \_\_\_\_\_ DATE \_\_\_\_\_

Rio Grande Headwaters Restoration Project

NAME \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NO. R312571.01

DESIGNED BY: RD

DRAWN BY: STAFF

CHECKED BY: NV

DATE: APRIL, 2025

DPW CHK:

SHEET:

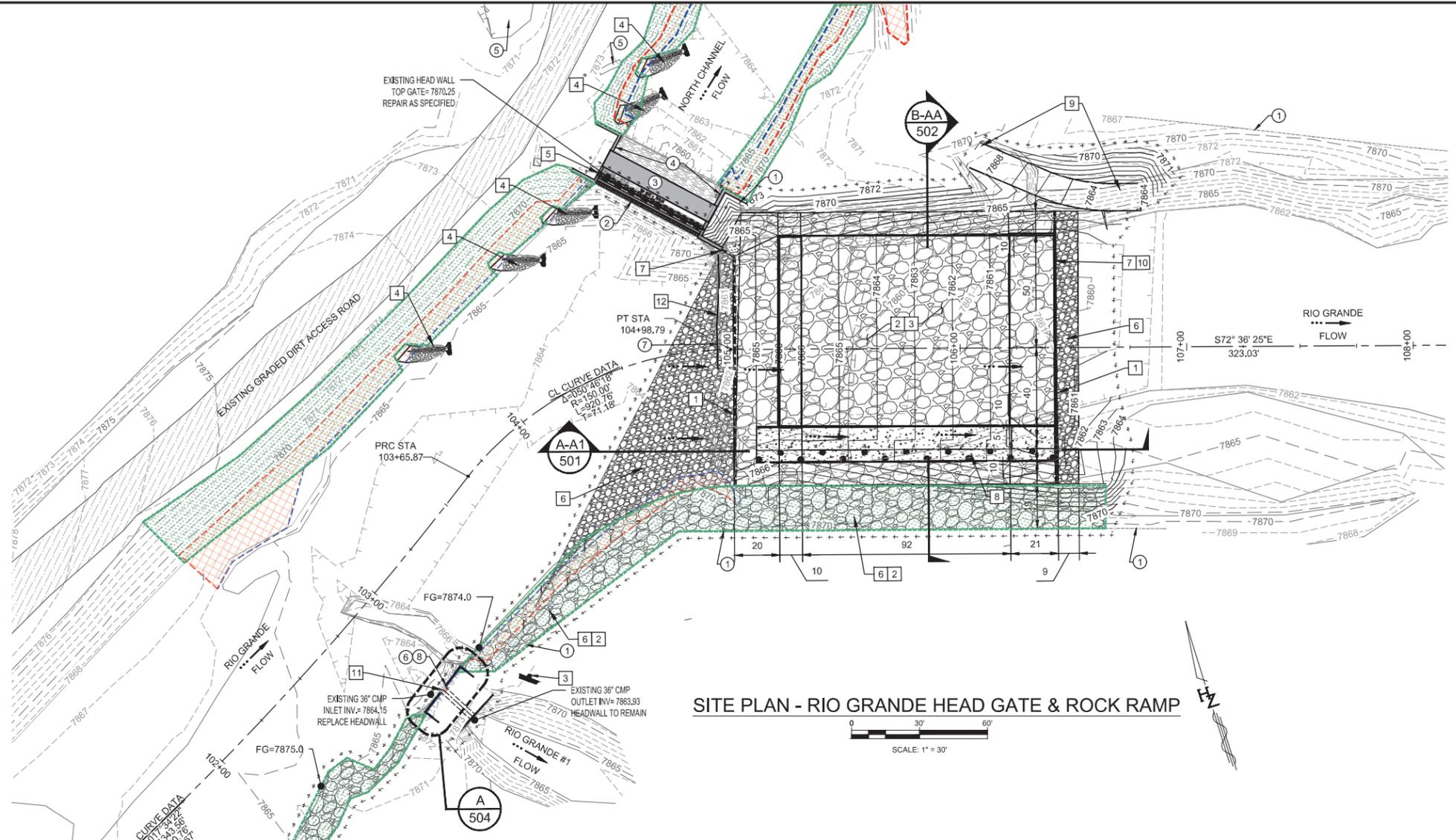
G-100

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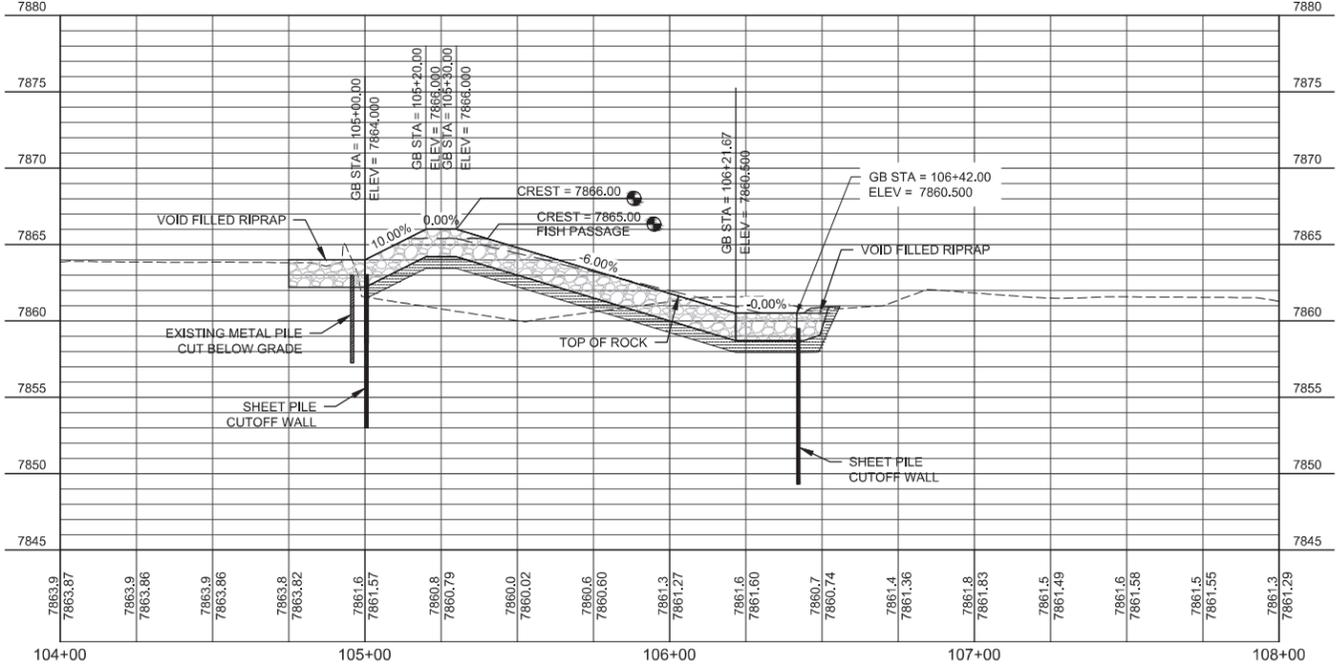




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**SITE PLAN - RIO GRANDE HEAD GATE & ROCK RAMP**



**DROP STRUCTURE**



**GENERAL NOTES**

1. CONTRACTOR SHALL REMOVE EXISTING RUBBLE AND SHEET PILING PRIOR TO PREPARATION FOR NEW GROUDED BOULDER STRUCTURE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DE-WATERING THE SITE FOR THE CONSTRUCTION OF THE NEW GROUDED BOULDER/ ROCK RAMP STRUCTURE.
3. CONTRACTOR SHALL GRADE RIVER BED AS REQUIRED TO INSTALL VOID FILLED RIP-RAP. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL MEASURES AROUND THE CONSTRUCTION AREA AS PER EROSION CONTROL NOTES ON SHEET G-101
4. NOMINAL BOULDER SIZE FOR THE GROUDED BOULDER STRUCTURE SHALL BE 3' MIN. IN DIAMETER.
5. NOMINAL BOULDER SIZE FOR THE VOID FILLED RIP-RAP SHALL BE 2' MIN. IN DIAMETER.
6. WILLOW TRANSPLANTING - BANK PROTECTION "BARBS" SEE DETAIL "D", SHEET "C-501"

**KEY NOTES - EXISTING**

1. EXISTING FENCING SHALL REMAIN.
2. EXISTING WOOD PLANK CROSSING WITH GUARD RAILING
3. EXISTING WOODEN BRIDGE CROSSING
4. EXISTING CONCRETE WING WALLS
5. EXISTING CONCRETE DEBRIS PILE. ALL EXISTING DEBRIS SHALL BE REMOVED FROM SITE.
6. EXISTING METAL SHEET PILE HEAD WALL TO BE REMOVED
7. EXISTING METAL SHEET PILE TO BE CUT BELOW GRADE AND CAPPED WITH CONCRETE AS PER DETAIL "B", ON SHEET "C-501"
8. EXISTING 36" CMP PIPE, TRIM AND PREP RIM OF PIPE FOR NEW HEAD WALL AND CHANNEL SCREW GATE.

**KEY NOTES**

1. CONSTRUCT SHEET PILE CUTOFF CONNECTION PER DETAIL "B", SHEET "C-501"
2. CONSTRUCT WEEP DRAINS PER DETAIL "C", SHEET "C-501" AT 10' O.C.
3. CONSTRUCT GROUDED BOULDER/ ROCK RAMP PER DETAILS, SHEET "C-501"
4. CONSTRUCT NRCS ROCK BARB WITH ROOT WAD PER DETAIL "A", SHEET "C-502"
5. REPLACE GATES PER NOTES AND DETAILS ON SHEET SHEET "C-503"
6. INSTALL GROUDED BOULDER OVERHANG ARMORING DETAIL "B", "SECTION A-A", SHEET "C-502"
7. GROUT SEAL CONNECTION BETWEEN SHEET PILE AND CONCRETE HEADWALL
8. CONSTRUCT FISH PASSAGE PER DETAIL "B", SHEET "C-502"
9. GRADE EXISTING ACCESS RAMP/ROAD TO GROUDED BOULDER/ ROCK RAMP
10. INSTALL 2' TALL END SILL ON SHEET PILE CUTOFF WALL WITH 4' WIDE LOW FLOW OPENING CENTERED ON "FISH PASSAGE" IN END SILL.
11. REMOVE EXISTING HEAD GATE AND REPLACE WITH FRESNO SERIES 8200 FABRICATED ALUMINUM SLIDE GATE PER DETAIL "C", SHEET "C-503" (SALVAGE EXISTING HEAD GATE TO OWNER)
12. CUT EXISTING STEEL SHEET PILE TO 6" BELOW NEW GROUDED BOULDER/ ROCK RAMP.

**LEGEND**

- 100 YEAR FLOOD LEVEL
- BANK FULL
- 100 YEAR FLOOD ZONE
- WILLOW TRANSPLANTING

NO.	DESCRIPTION	DATE	BY

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**HUIT-ZOLLARS**  
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 Rio Rancho  
 333 Rio Rancho Drive NE, Suite 101  
 Rio Rancho, New Mexico 87124  
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**ADVANCEDESIGN**  
 COLORADO RIO GRANDE  
 RESTORATION FOUNDATION

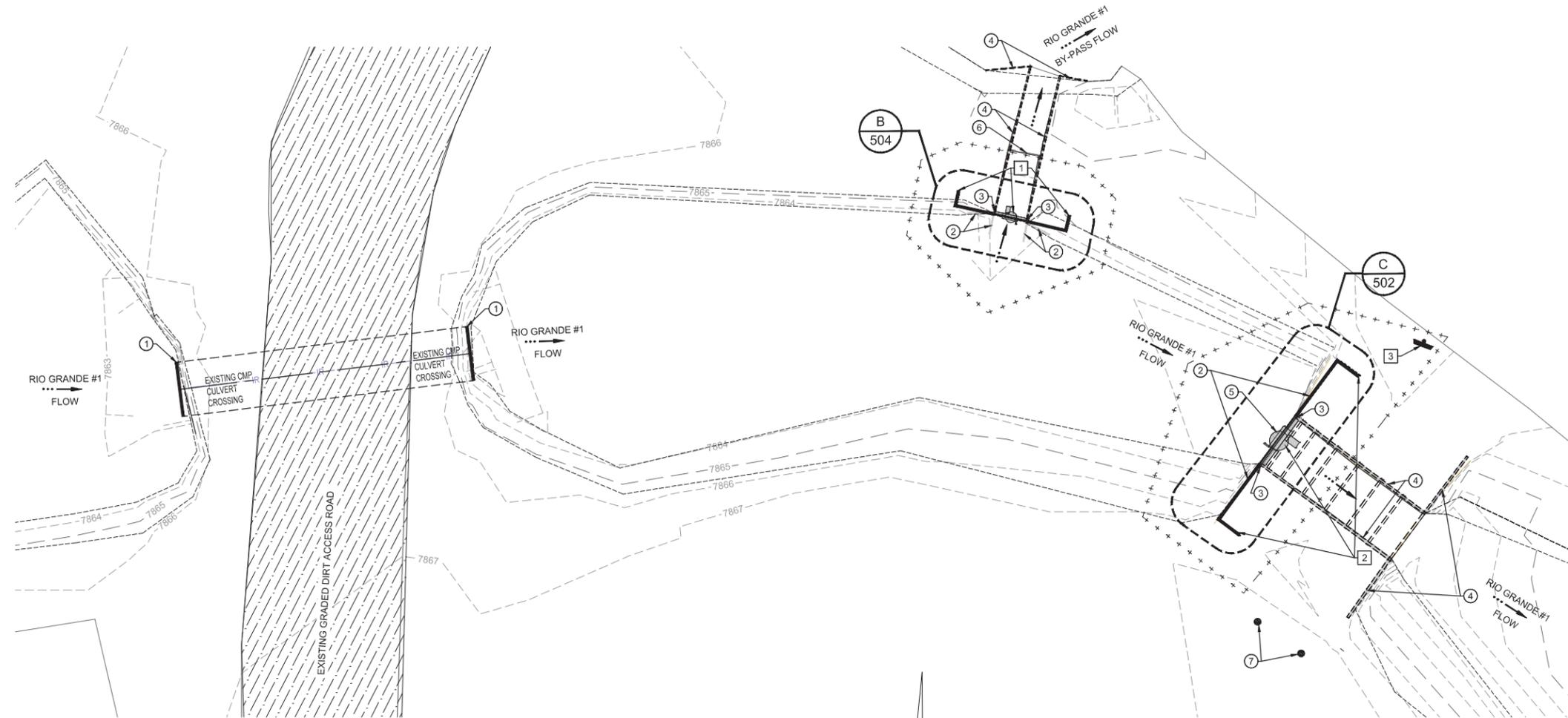
**SITE PLAN**  
**CHECK DAM, ROCK RAMP & METAL HEADWALL #1**  
**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO.	R312571.01
DESIGNED BY:	RD
DRAWN BY:	STAFF
CHECKED BY:	NV
DATE:	APRIL, 2025
DPW CHK:	

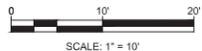
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**C-100**



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**SITE PLAN - CHECK STRUCTURE 3 & 4**



**GENERAL NOTES**

1. CONTRACTOR SHALL BE RESPONSIBLE FOR DE-WATERING THE SITE FOR CONSTRUCTION.
2. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL MEASURES AROUND THE CONSTRUCTION AREA AS PER EROSION CONTROL NOTES ON SHEET G-101
3. RIVER/CHANNEL BED SHALL BE RETURNED TO NATURAL STATE AS MUCH AS POSSIBLE UPON COMPLETION OF NEW CONSTRUCTION.
4. ANY VEGETATION DAMAGED OR DESTROYED SHALL BE REPLACED WITH EQUAL OR APPROVED BY AHJ.

**KEY NOTES - EXISTING**

1. PROTECT IN PLACE EXISTING CULVERT (NO WORK SCHEDULED)
2. DEMOLISH EXISTING OPEN METAL SLUICE HEAD/WING WALLS @ INLET ONLY.
3. CUT METAL SLUICE SIDE WALLS AND BASE TO RECEIVE NEW HEAD WALL CONSTRUCTION, AS PER DETAIL.
4. PROTECT IN PLACE EXISTING OPEN METAL SLUICE CHANNEL STRUCTURE AND OUTLET HEAD/WING WALLS.
5. REMOVE EXISTING CHANNEL SCREW GATE AND SALVAGE TO OWNER.
6. EXISTING METAL WEIR TO REMAIN.
7. EXISTING WOOD POST

**KEY NOTES - CONSTRUCTION**

1. CONSTRUCT NEW HEAD WALL & NEW CONTROL CHANNEL SCREW GATE AS PER DETAIL "B", ON SHEET "C-504", CONTINUOUS WELD TO EXISTING STRUCTURE TO ENSURE NO UNDERCUTTING.
2. CONSTRUCT NEW HEAD WALL AND NEW CONTROL CHANNEL AUTOMATED SCREW GATE AS PER DETAIL "C", ON SHEET "C-504", CONTINUOUS WELD TO EXISTING STRUCTURE TO ENSURE NO UNDERCUTTING.
3. INSTALL PEDESTAL POST FOR CONTROLLER AND SOLAR CHARGING STATION.
4. NO AUTOMATION SCHEDULED FOR THIS GATE. PREP POST AND STRUCTURE FOR FUTURE RETROFITTING.

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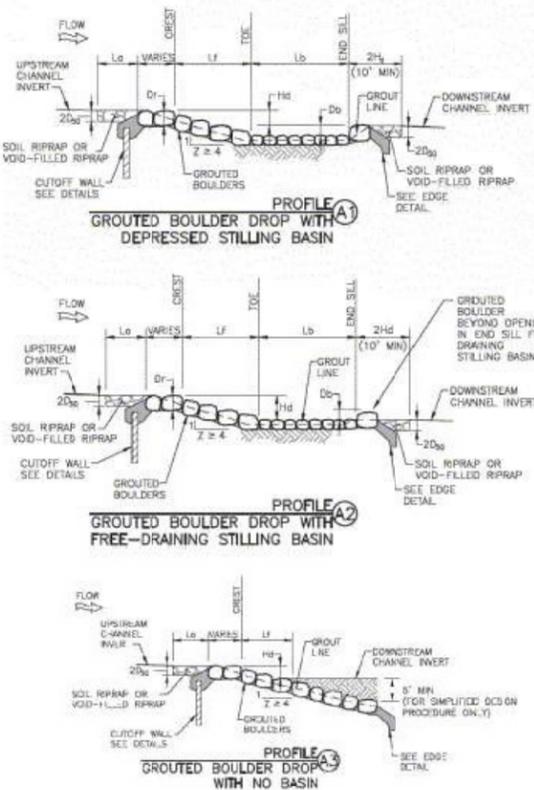
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**SITE PLAN - METAL HEADWALL #2 & #3**  
**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO.	R312571.01
DESIGNED BY:	RD
DRAWN BY:	STAFF
CHECKED BY:	NV
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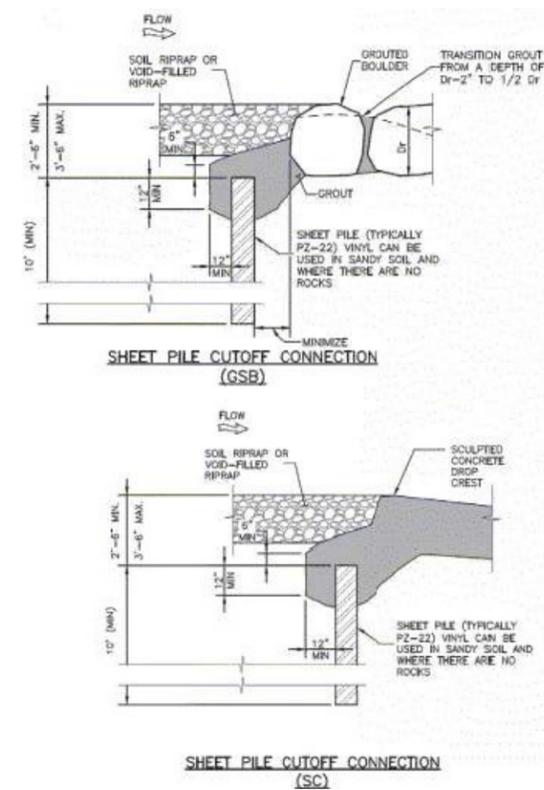
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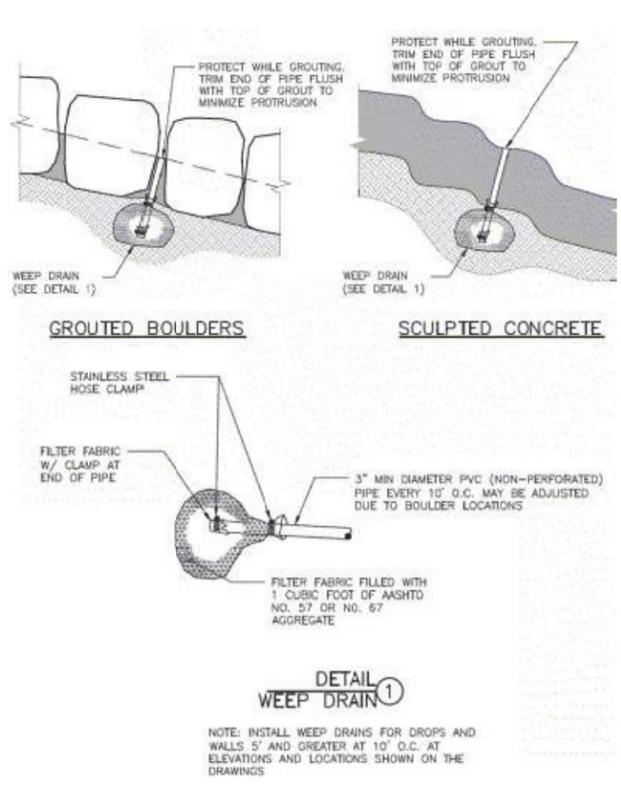
**DETAIL A - ROCK RAMP OPTIONS**

N.T.S.  
NOTE:  
DESIGN BASED OFF PROFILE "A1". OTHER PROFILES ARE SHOWN AS  
OPTIONS DUE TO FIELD CONDITIONS.



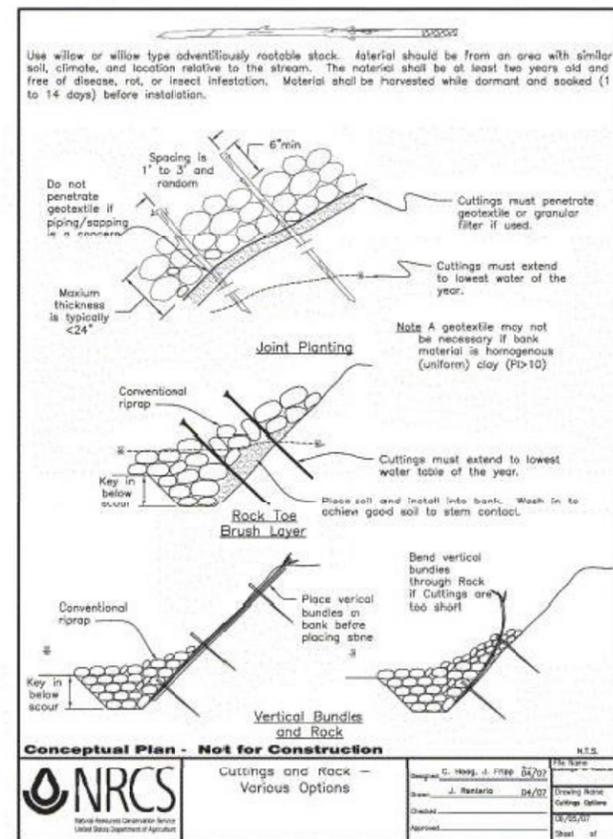
**DETAIL B - ENCAPSULATED STEEL PILE CUTOFF**

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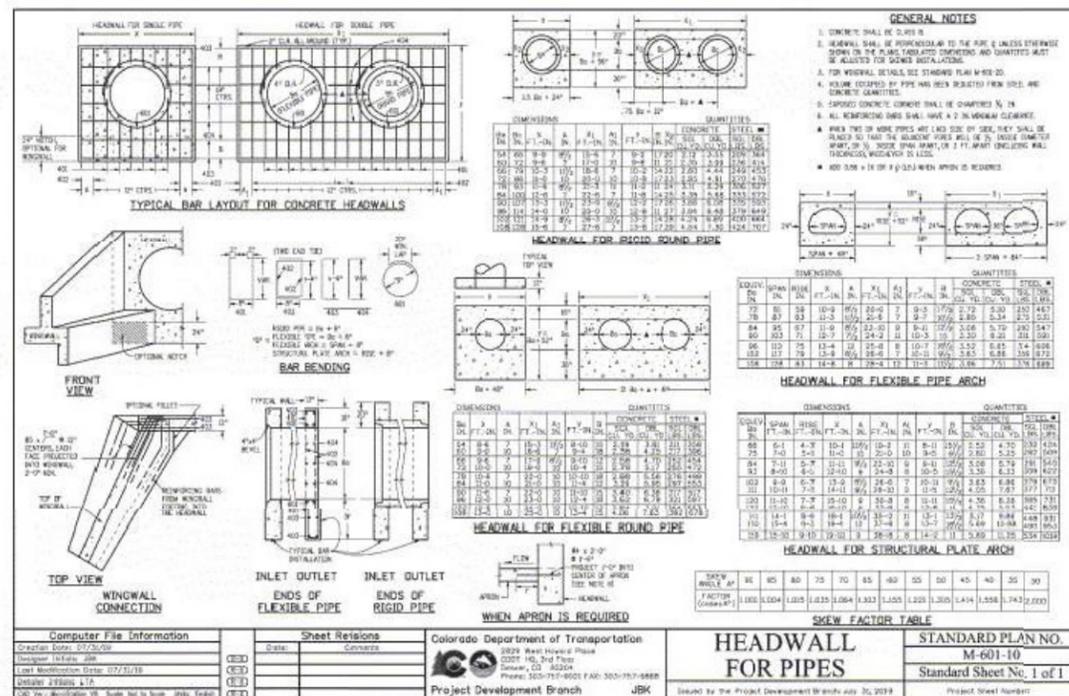
**DETAIL C - TYPICAL WEEP DRAIN**

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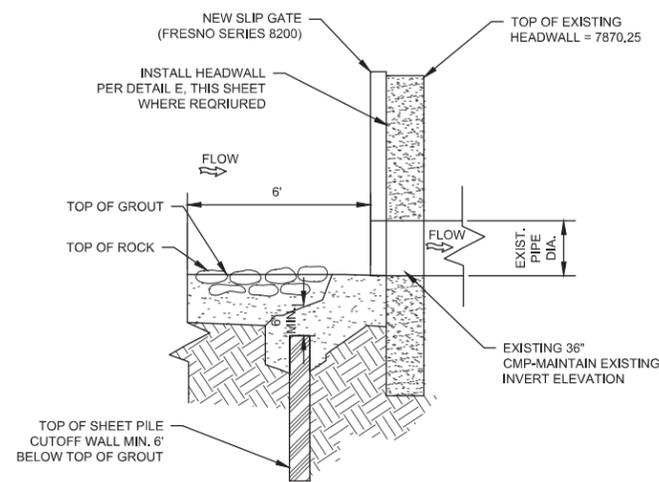
**DETAIL D - "NRCS" EMBANKMENT PROTECTION**

N.T.S.



**DETAIL E - HEAD WALL/ CHECK DAM**

N.T.S.



**DETAIL F - SHEET PILE CUT-OFF**

N.T.S.

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**DETAILS**

**EMBEDDED ROCK & HEAD WALL**

**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

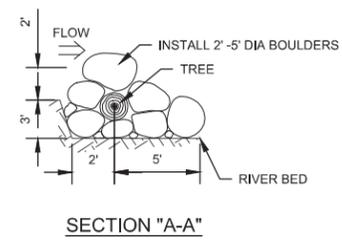
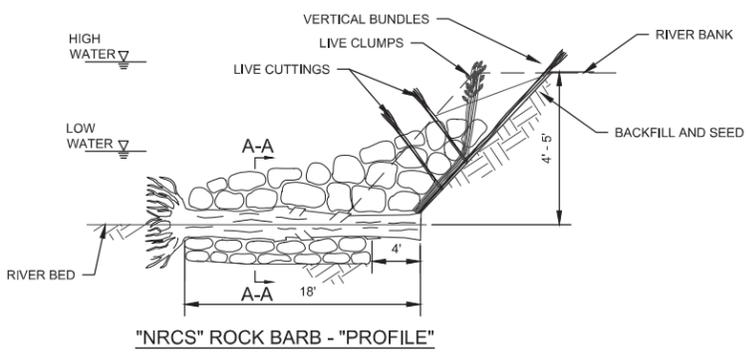
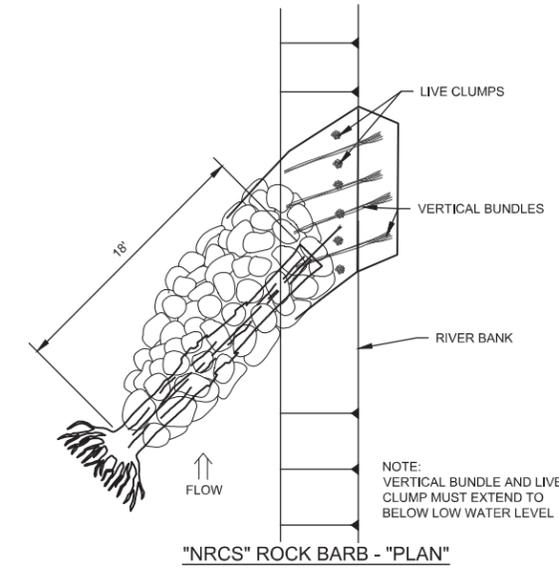
PROJECT NO.	R312571.01
DESIGNED BY:	RD
DRAWN BY:	STAFF
CHECKED BY:	NV
DATE:	MARCH, 2025
DPW CHK:	

SHEET: **C-501**

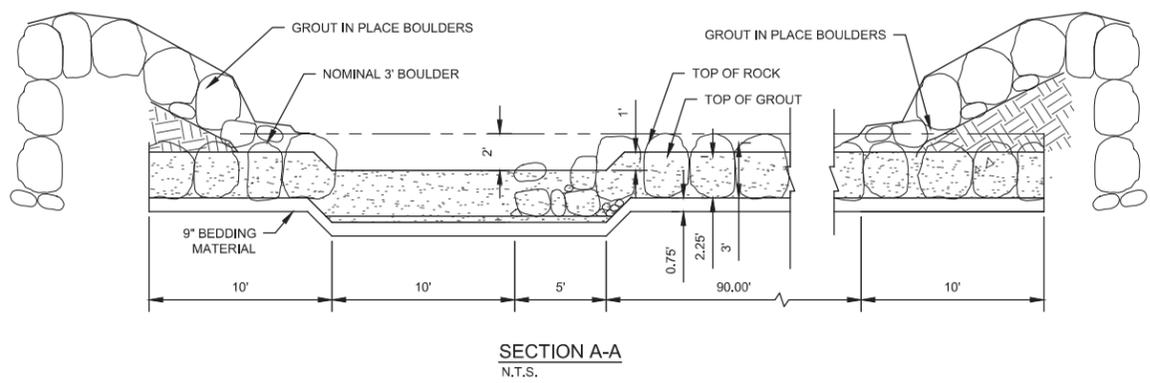
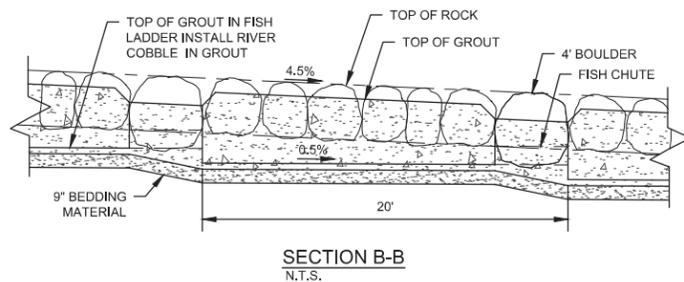
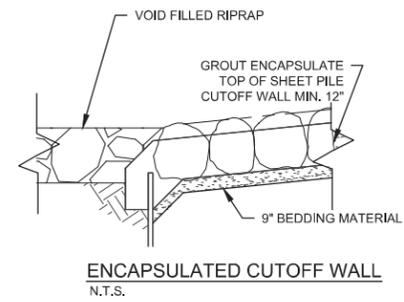


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**DETAIL A - "NRCS" ROCK BARB**  
 N.T.S.  
 NOTE:  
 FIELD VERIFY ALL DIMENSION OF EXISTING STRUCTURE



**DETAIL B - FISH PASSAGE**  
 N.T.S.

NO.	DESCRIPTION	DATE	BY
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**DETAILS - BARB & FISH PASSAGE**

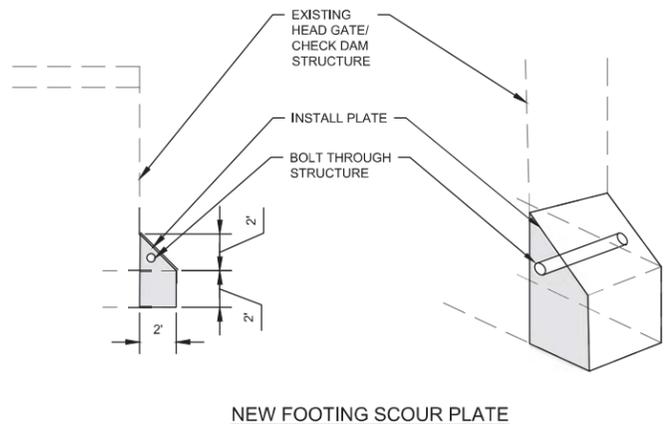
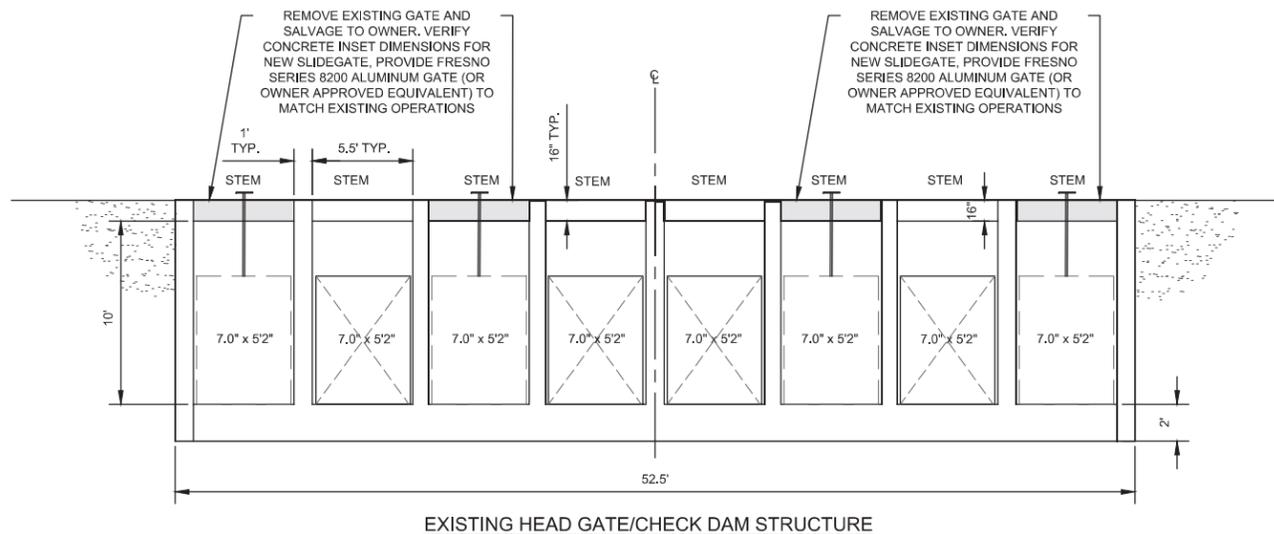
**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO. R312571.01  
 DESIGNED BY: RD  
 DRAWN BY: STAFF  
 CHECKED BY: NV  
 DATE: MARCH, 2025  
 DPW CHK:

SHEET:  
**C-502**

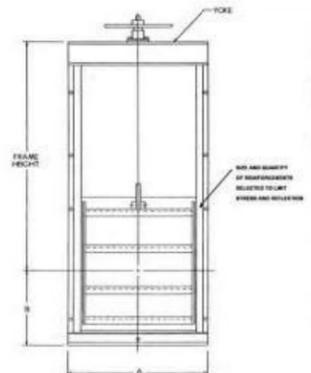


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**DETAIL A - EXISTING HEAD GATE/ CHECK DAM**  
 N.T.S. NOTE: FIELD VERIFY ALL DIMENSION OF EXISTING STRUCTURE

**SPECIFICATIONS**



- Available Operating Ranges**  
 Standard Seating Heads - 5 ft. and 10 ft.  
 Maximum Seating Head - 20 ft. (specify)
- Installation**  
 Mounted to headwall or in a channel.
- Options**
- Carbon Steel, Galvanized Carbon Steel, Stainless Steel or Aluminum.
  - Bearing, Handwheel or Gear operated lifts.
  - Self-contained or non self-contained construction.
  - U.H.M.W. Poly Liner.
  - J-Seals.
  - Stainless Steel or Cold Finish Steel stem.

**Dimensional Information**

Width x Height	Carbon Steel & Galvanized		Stainless Steel		Aluminum		Stem Diameter	Lift	Minimum Frame Height (H)	
	A	B	A	B	A	B				
12" x 12"	20.00	10.00	20.00	10.00	21.50	10.00	1.12	H-1	10"	30"
12" x 24"	20.00	16.00	20.00	16.00	21.50	16.00	1.12	H-1	10"	38"
18" x 18"	26.00	13.00	26.00	13.00	27.50	13.00	1.12	H-1	10"	29"
18" x 30"	26.00	19.00	26.00	19.00	27.50	19.00	1.12	H-1	10"	47"
24" x 24"	32.00	16.00	33.50	16.00	33.50	16.00	1.12	H-1	10"	38"
24" x 36"	32.00	22.00	32.00	22.00	33.50	22.00	1.12	H-1	10"	50"
30" x 30"	38.00	19.00	38.00	19.00	39.00	19.00	1.12	H-1	10"	47"
30" x 42"	38.00	25.00	38.00	25.00	39.00	25.00	1.30	H-2	18"	63"
36" x 36"	44.00	22.00	44.00	22.00	45.50	22.00	1.12	H-1	24"	50"
36" x 48"	44.00	28.00	44.00	28.00	45.50	28.00	1.50	H-2	18"	74"
42" x 42"	50.00	25.00	50.00	25.00	51.50	25.00	1.50	H-2	24"	69"
42" x 60"	50.00	34.00	50.00	34.00	51.50	34.00	2.00	H-3	24"	92"
48" x 36"	56.00	22.00	56.00	22.00	57.50	22.00	1.12	H-2	18"	50"
48" x 48"	56.00	28.00	56.00	28.00	57.50	28.00	1.50	H-2	30"	74"

**FRESNO**  
 Valves & Castings, Inc.

Fresno Valves & Castings, Inc.  
 7726 East Springfield Avenue  
 P.O. Box 40, Solano, CA 94642, U.S.A.  
 (800) 333-1658  
 www.fresnovalves.com

Specifications subject to change without notice. Fresno Valves & Castings, Inc. Printed in USA

**DETAIL B - NEW SLIP GATE DETAILS**  
 N.T.S.

NO.	DESCRIPTION	DATE	BY
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 Huitz-Zollars, Inc.  
 Rio Rancho  
 333 Rio Rancho Drive NE, Suite 101  
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**DETAILS - CHECK DAM AND SLIP GATE**

**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO. R312571.01

DESIGNED BY: RD

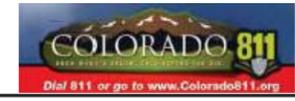
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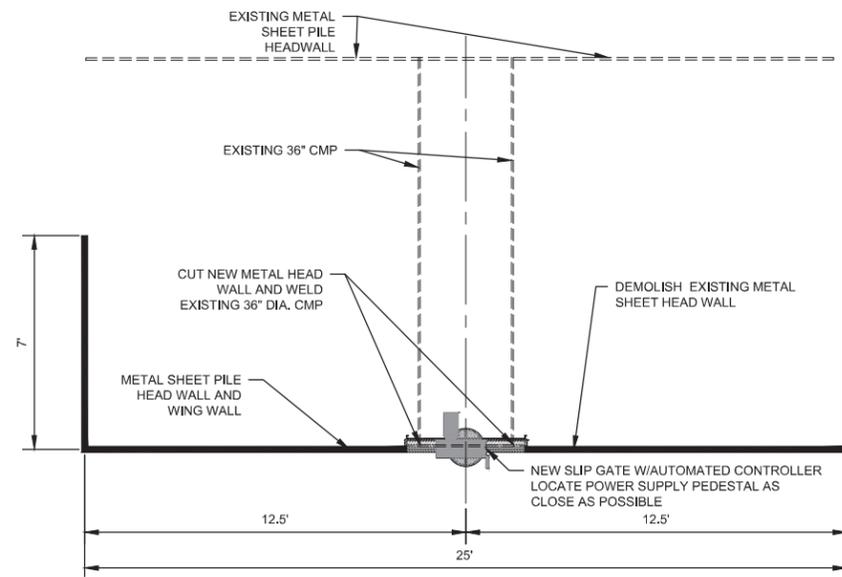
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DATE: MARCH, 2025

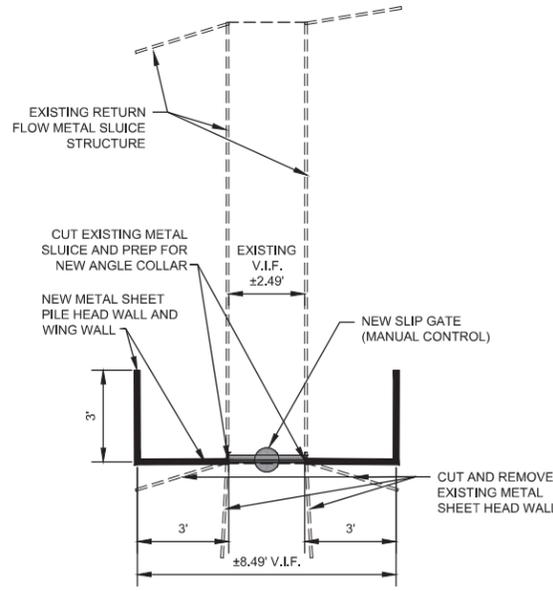
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SHEET: **C-503**

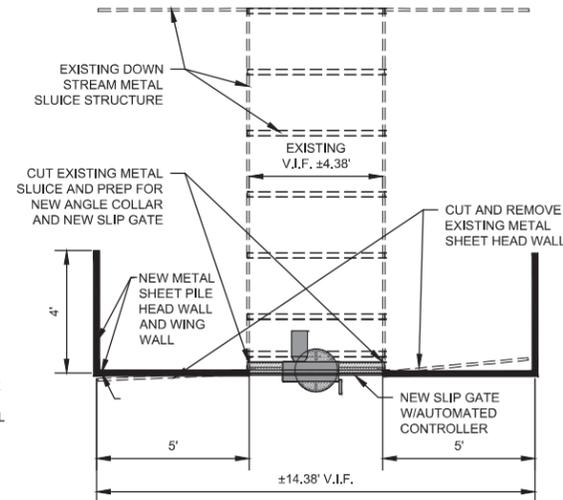




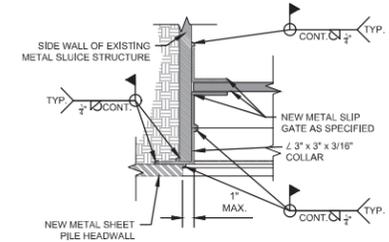
**DETAIL A - METAL HEAD WALL #1**  
SCALE: 1" = 3'



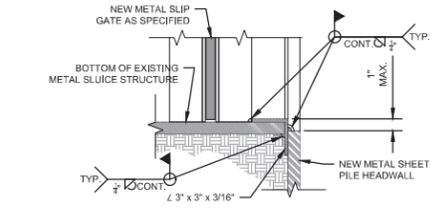
**DETAIL B - METAL HEAD WALL #2**  
SCALE: 1" = 3'



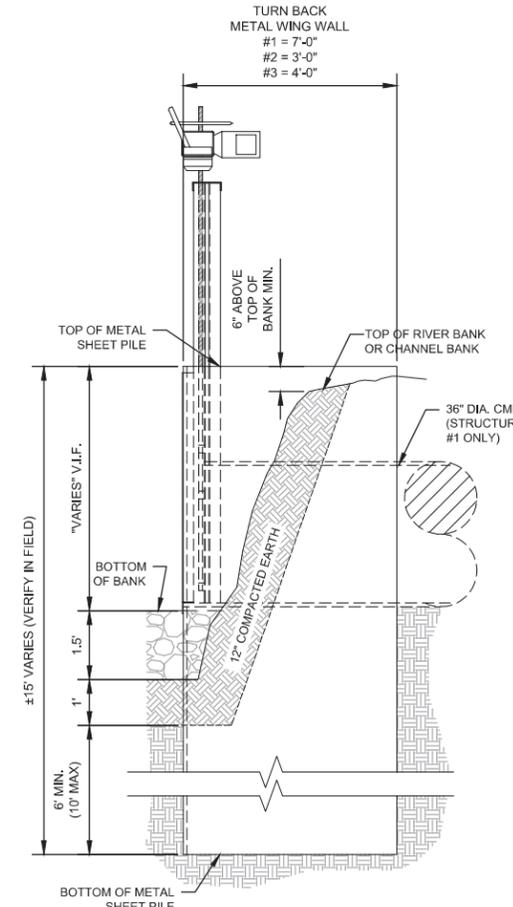
**DETAIL C - METAL HEAD WALL #3**  
SCALE: 1" = 3'



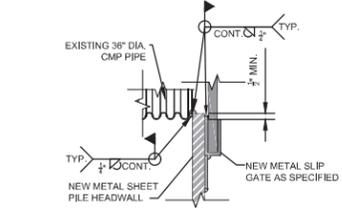
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N.T.S.



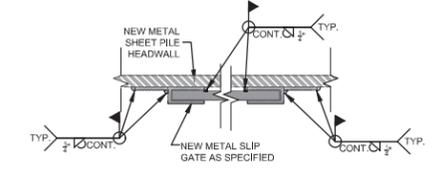
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N.T.S.



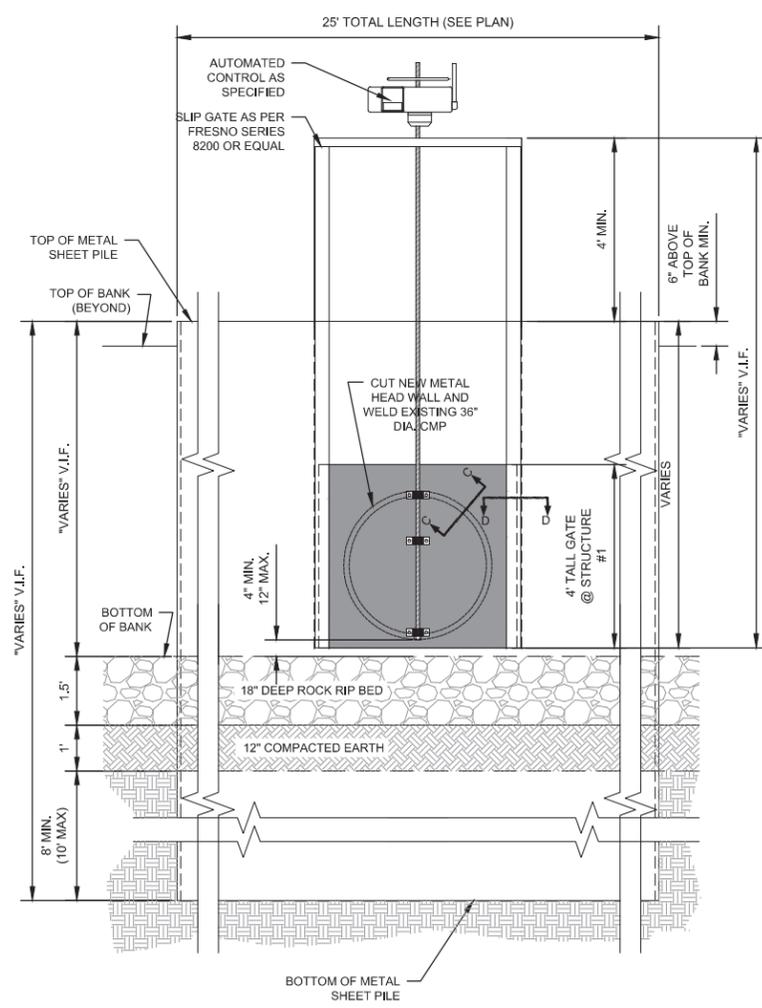
**DETAIL E - TYPICAL METAL SHEET PILE HEAD WALL - SECTION**  
N.T.S.



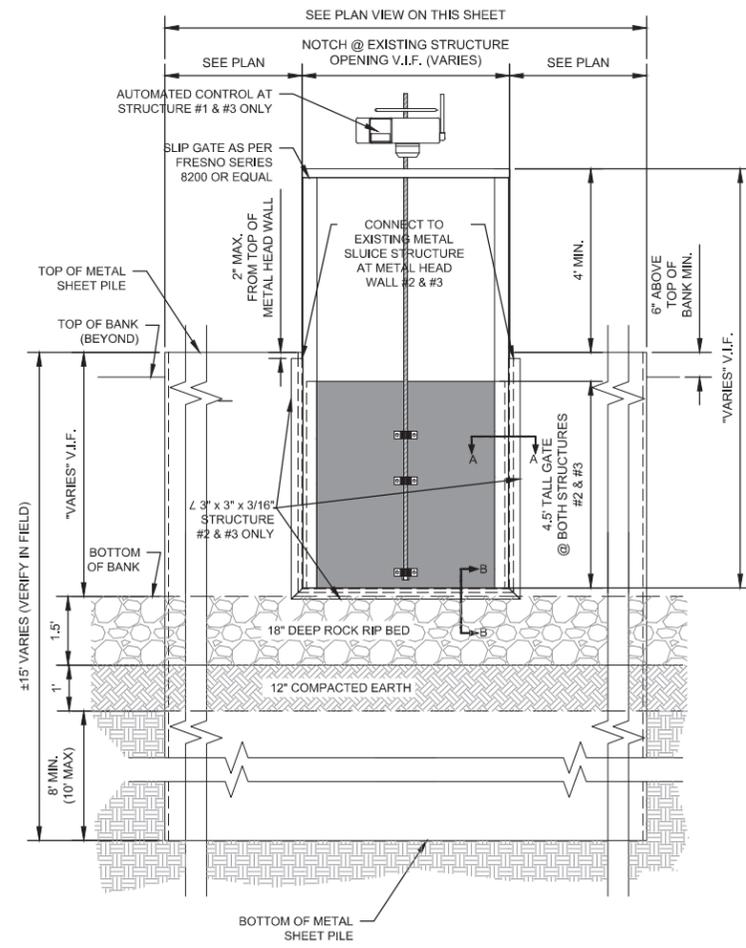
**SECTION C-C**  
N.T.S.



**SECTION D-D**  
N.T.S.



**DETAIL D - TYPICAL METAL SHEET PILE HEAD WALL - ELEVATION**  
N.T.S.



**DETAIL D - TYPICAL METAL SHEET PILE HEAD WALL - ELEVATION**  
N.T.S.

REVISIONS (OR CHANGE NOTICES)	
NO.	DESCRIPTION
7	
6	
5	
4	
3	
2	
1	

Designed By: **HUIT-ZOLLARS**  
Huit-Zollars, Inc.  
Rio Rancho  
333 Rio Rancho Drive NE, Suite 101  
Rio Rancho, New Mexico 87124  
Phone (505) 892-5141 Fax (505) 892-3259  
**ADVANCEDESIGN**  
Designed For: **COLORADO RIO GRANDE RESTORATION FOUNDATION**

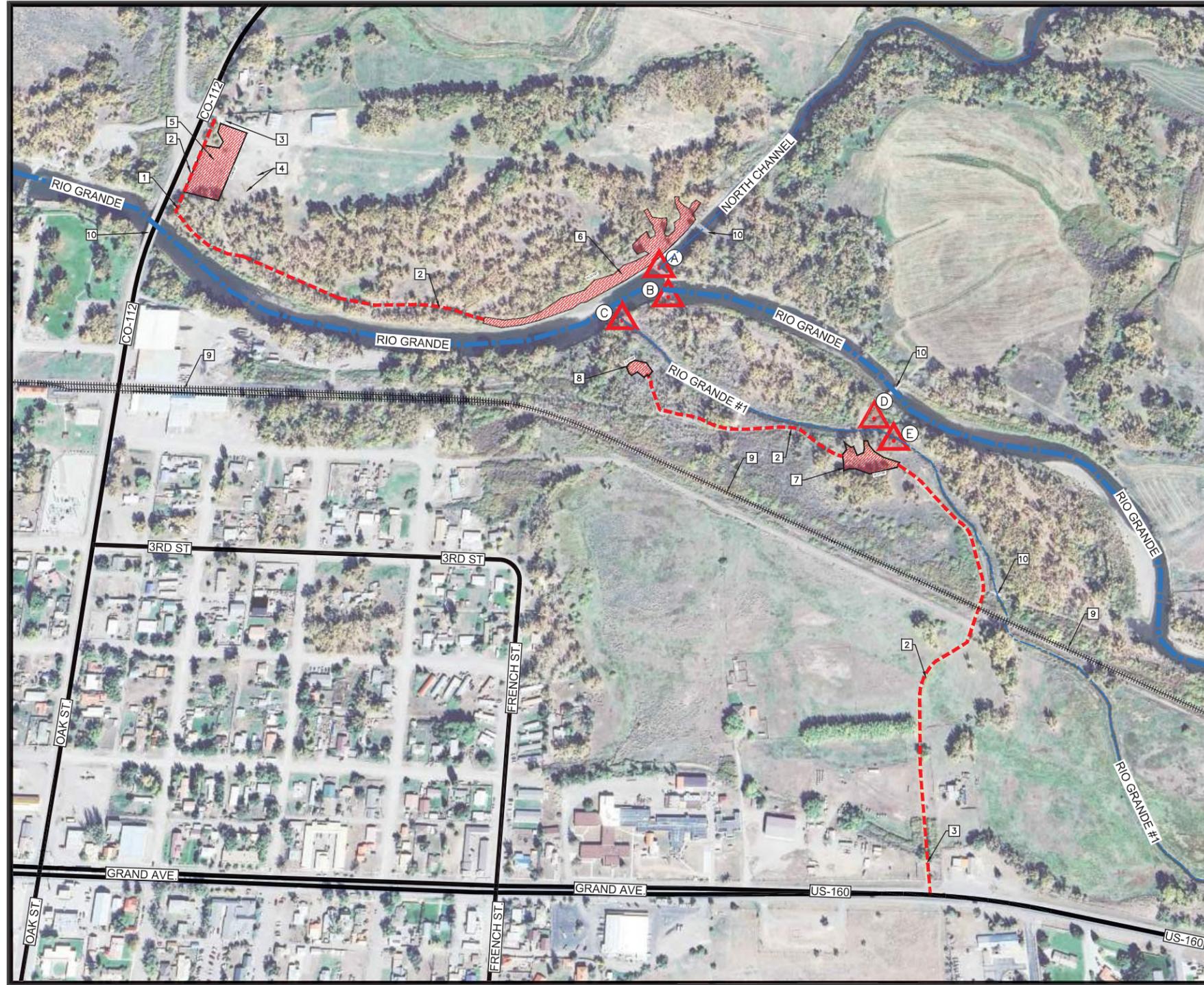
**DETAILS - METAL SHEET PILE HEADWALLS**  
**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO.	R312571.01
DESIGNED BY:	RD
DRAWN BY:	STAFF
CHECKED BY:	NV
DATE:	APRIL, 2025
DPW CHK:	

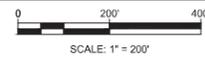
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**STAGING AREA MAP**



**GENERAL NOTES**

1. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL MEASURES AROUND THE CONSTRUCTION AREA AS PER EROSION CONTROL NOTES ON SHEET G-101
2. TRAFFIC INGOING AND OUTGOING SHALL BE KEPT TO A MINIMUM.
3. ALL STAGING AREAS SHALL BE CLEANED AND MAINTAINED SO AS TO MINIMIZE DUST AND EROSION OR POLLUTION
4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ACCESS OFF OF MAIN ROADWAYS AND SHALL BE ESTABLISHED WITH PROPERTY OWNERS PRIOR TO RECEIVING MATERIALS, TRANSPORTING EQUIPMENT AND BEGINNING CONSTRUCTION.

**KEY NOTES**

1. EXISTING ACCESS PIPE GATE.
2. EXISTING DIRT ACCESS ROAD
3. EXISTING PRIVATE GATE
4. EXISTING POWER POLE TO BE PROTECTED
5. STAGING AREA "A"
6. STAGING AREA "B"
7. STAGING AREA "C"
8. STAGING AREA "D"
9. EXISTING RAILROAD CROSSING
10. EXISTING WATER CROSSING STRUCTURE

**LEGEND**

- CONSTRUCTION TRAFFIC ROUTE
- CONSTRUCTION STAGING AREA
- NEW SLIP GATES @ EXISTING CONC DIVERSION HEAD WALL/ CHECK DAM TO NORTH CHANNEL (RECONSTRUCT GATE STRUCTURE)
- NEW EMBEDDED BOULDER/ROCK RAMP & FISH PASSAGE
- NEW SLIP GATE INSTALL @ NEW STEEL HEAD WALL (HW&G #1)
- NEW SLIP GATE INSTALL @ NEW STEEL HEAD WALL (HW&G #2)
- NEW SLIP GATE INSTALL @ NEW STEEL HEAD WALL (HW&G #3)

NO.	DESCRIPTION	DATE	BY
7			
6			
5			
4			
3			
2			
1			

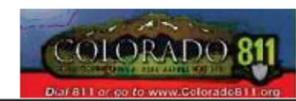
Designed By:  
**HUITZOLARS**  
 Huitzolars, Inc.  
 Rio Rancho  
 333 Rio Rancho Drive NE, Suite 101  
 Rio Rancho, New Mexico 87124  
 Phone (505) 892-5141 Fax (505) 892-3259  
**ADVANCEDESIGN™**

Designed For:  
**COLORADO RIO GRANDE RESTORATION FOUNDATION**

**STAGING AREA MAP**  
**FARMERS UNION CANAL IMPROVEMENT PROJECT DEL NORTE COLORADO**

PROJECT NO. R312571.01  
 DESIGNED BY: RD  
 DRAWN BY: STAFF  
 CHECKED BY: NV  
 DATE: APRIL, 2025  
 DPW CHK:

SHEET: **C-600**



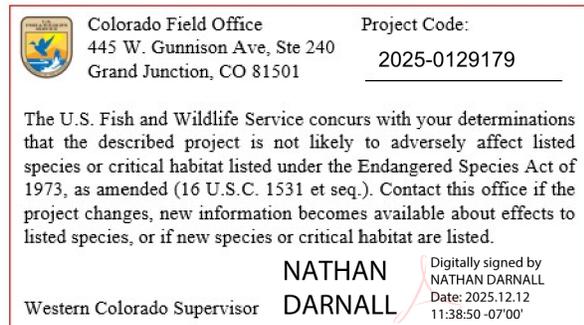
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 Call Center: 4717282, 47651 PH, Sotomayor

# **Appendix B – Cultural Resources Compliance Documentation**

# **Appendix C – Federally Listed Species Compliance Documentation**

November 20, 2025

Acting Supervisor  
U.S. Fish and Wildlife Service  
Western Colorado Ecological Services Field Office  
445 West Gunnison Avenue Suite 240  
Grand Junction, Colorado 81501-5711



**Re: Request for Consultation Pursuant to Section 7 of the Endangered Species Act for the Rio Grande Headwaters Restoration Project's Farmers Union Canal Multi Benefit Diversion Infrastructure Improvement Project (Project Code 2025-0129179)**

Dear Supervisor:

The Rio Grande Headwaters Restoration Project (RGHRP) proposes to construct the Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project (Project) in the winter of 2025-2026. To initiate consultation under Section 7(a)(2) of the Endangered Species Act, we have enclosed the Project Biological Assessment (BA). Barr Engineering Co. (Barr) prepared the BA as a designated non-federal representative of the Bureau of Reclamation (Reclamation), which serves as the lead federal agency for the Project.

The Project's intended purpose is to repair and replace the aging Farmers Union Canal (FUC) headgates and diversion dam and upgrade irrigation infrastructure along the Rio Grande #1 (RG #1) Ditch, thereby increasing diversion efficiency while providing watershed health benefits and allowing for fish passage and increased user safety through the river corridor. The Project is proposed along the Rio Grande just downstream of the Town of Del Norte, in Rio Grande County, Colorado.

We have analyzed the effects of the Project on endangered, threatened, proposed, and candidate species and critical habitats that may occur within the action area or with potential to be impacted by the proposed Project. As described in the enclosed BA, it is our determination that the Project would have no effect on the following species: gray wolf, Mexican spotted owl, silverspot butterfly, and Suckley's cuckoo bumblebee. However, the proposed Project "may affect, not likely to adversely affect" the southwestern willow flycatcher, yellow-billed cuckoo, and monarch butterfly.

Communications between the U. S. Fish and Wildlife Service (USFWS) and Barr biologists regarding the proposed Project occurred in 2025, as described below:

- On August 4, 2025, Barr contacted Terry Ireland (USFWS) via email to introduce the proposed Project and discuss survey history for USFWS-listed species with suitable habitat in the Project vicinity.

Additional federal involvement with the Project includes a request for coverage under Nationwide Permit submitted to the US Army Corps of Engineers in November 2025 (File Number: SPA-2025-00429).

For questions or more information, please contact Alison Rohwer at 970-759-2702 ([ARohwer@Barr.com](mailto:ARohwer@Barr.com)) or Shanna Braun ([SBraun@Barr.com](mailto:SBraun@Barr.com)).

Kind Regards,

A handwritten signature in black ink that reads "Alison Rohwer". The signature is written in a cursive style with a light grey background behind the text.

Alison Rohwer

Attachments:

Biological Assessment- Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project  
Official Species List

CC:

Chris Grosso, Bureau of Reclamation  
Scott Hebner, Bureau of Reclamation

# **Appendix D – Clean Water Act Compliance Documentation**



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS ALBUQUERQUE DISTRICT REGULATORY DIVISION  
SOUTHERN COLORADO BRANCH, FORT CARSON OFFICE  
6082 MAGRATH, BLDG 1359  
FORT CARSON, CO 80913

December 9, 2025

Regulatory Division

SUBJECT: No Permit Required (SPA-2025-00429)

San Luis Valley Irrigation District  
Attn: Rob Phillips  
269 Miles Street  
Center, CO 81125  
[Robert@SLVID.org](mailto:Robert@SLVID.org)

Dear Mr. Boyes:

This letter responds to your request for a determination of Department of the Army permit requirements for the proposed San Luis Valley Irrigation District's *Farmers Union Canal Multi-Benefit Diversion Infrastructure Improvement Project* located at approximately latitude 37.68341, longitude -106.34369, in Rio Grande County, Colorado. The work, as described in your letter, will consist of installing automated headgates at the existing Farmers Union Canal, replacing an existing rock pushup dam within the Rio Grande with a permanent grouted boulder ramp structure, stabilizing streambanks along the southern streambank with grouted rock boulders and along the northern streambank with five (5) stream barbs composed of rock boulders encapsulating a log with attached root wad, installing two (2) new headgates within the Rio Grande No. 1 Ditch, and removing an existing rock push-up dam near the Rio Grande No. 1 Ditch diversion inlet. We have assigned Action No. SPA-2025-00429 to this project. Please reference this number in all future correspondence concerning the project.

Based on the information provided, we have determined that a Department of the Army permit is not required since the activity is exempted from regulation by a specific provision of the Clean Water Act as implemented by the U.S. Army Corps of Engineers (Corps) regulations at 33 CFR 323.4(a) because the activity consists of construction or maintenance of irrigation ditches or the maintenance of drainage ditches in accordance with 33 CFR 323.4(a)(3).

Please note that the Corps did not make a determination of geographic jurisdiction under any of our permitting authorities for this project.

Please also note that a Corps permit decision does not constitute approval of project design features, nor does it imply that the construction is adequate for its intended purpose. Additionally, a Corps permit decision does not authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations. The responsible party and/or any contractors acting on behalf of the responsible party must possess the authority and any other approvals required by law, including property rights, in order to undertake the proposed work.

This determination applies only to this project. Other project proposals require a new determination. If your plans change, please contact our office for a reevaluation of permit requirements.

If you have any questions, please contact me at (719) 457-0918 or by e-mail at [Daniel.i.Delgado@usace.army.mil](mailto:Daniel.i.Delgado@usace.army.mil). At your convenience, please complete a Customer Service Survey on-line available at <https://regulatory.ops.usace.army.mil/customer-service-survey/>.

Sincerely,

A handwritten signature in black ink, appearing to read 'Daniel Delgado', with a stylized flourish at the end.

Daniel Delgado  
Senior Project Manager  
Southern Colorado Branch

cc:

Alison Rohwer, Barr Engineering Co., [ARohwer@Barr.com](mailto:ARohwer@Barr.com)  
Daniel Boyes, Rio Grande Headwaters Restoration Project,  
[Daniel@RioGrandeHeadwaters.org](mailto:Daniel@RioGrandeHeadwaters.org)