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RECLAMATION

# **DRAFT** Environmental Assessment for the Root and Ratliff Ditch Pipeline Project

**Colorado River Basin Salinity Control Program  
Interior Region 7, Upper Colorado Basin**



## **Mission Statements**

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

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.

# **Draft** Environmental Assessment for the Root and Ratliff Ditch Piping Project

**Colorado River Basin Salinity Control Program  
Interior Region 7, Upper Colorado Basin**

*prepared by*

**SGM Inc.  
555 RiverGate Lane Suite B4-82  
Durango, CO 81301**

*On behalf of*

**Western Colorado Area Office**

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## Abbreviations and Acronyms

BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health & Environment
cfs	cubic feet per second
CPW	Colorado Parks & Wildlife
CWA	Clean Water Act
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	U.S. Endangered Species Act
FONSI	Finding of No Significant Impact
HDPE	high-density polyethylene
HU	Habitat Unit
HUC	Hydrologic Unit Code
iPaC	USFWS Information for Planning and Consultation website
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMMJM	New Mexico meadow jumping mouse
NMPM	New Mexico Principal Meridian
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
OAHP	Colorado Office of Archaeology and Historic Preservation
pikeminnow	Colorado pikeminnow
PIP	plastic irrigation pipe
PM	particulate matter
psi	pounds per square inch
PVC	polyvinyl chloride
Reclamation	Bureau of Reclamation
SCP	Salinity Control Program
SHPO	State Historic Preservation Office
SWFL	Southwestern willow flycatcher
UDP	Unanticipated Discovery Plan
USFWS	U.S. Fish & Wildlife Service
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
YBCU	Yellow-billed cuckoo

# 1.0 Purpose and Need for Proposed Action

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, to disclose and evaluate the potential environmental impacts of the Root and Ratliff Ditch Company's (Applicant's) proposed Root and Ratliff Ditch Piping Project (hereinafter, Project or Proposed Action). The Applicant is a non-profit corporation formed in May 1947 to operate and maintain the Root and Ratliff Ditch (note: the ditch was incorporated under the name of the Ratliff and Root Ditch; however, it is now referred to as the Root and Ratliff Ditch by its shareholders and for the purposes of this report).

The Proposed Action is to replace approximately 5.4 miles of the Root and Ratliff Ditch with a buried pipe. The Root and Ratliff Ditch is currently an unlined, open irrigation ditch system. The piping of the ditch would include the re-alignment of certain reaches of the ditch for efficiency. The purpose of the Proposed Action is to reduce salinity concentrations in the Colorado River Basin as well as increase the efficiency of the existing delivery system by preventing water loss through both evaporation and deep percolation. The Project would be funded through a financial assistance agreement from the U.S. Bureau of Reclamation (Reclamation) under the Colorado River Basin Salinity Control Program (SCP). The Federal action is authorizing the use of federal funds to implement the salinity control project.

## 1.1 Background

The Colorado River system is naturally very saline. While natural sources account for 47% of the salinity in the Colorado River, irrigation practices account for 37% (Reclamation 2017). Irrigation can increase the salinity in a system by mobilizing salts found in the soils of an unlined ditch or flooded field. Water loss due to evaporation can also contribute to an increase in salinity by concentrating any salts in the remaining water. Increases in water salinity can result in reduced agricultural yields as well as the corrosion and plugging of pipes in houses and industry (Reclamation 2017).

The SCP was authorized under Title II of the Colorado River Basin Salinity Control Act (Salinity Control Act) (Public Law 93-320, as amended by Public Laws 98-569, 104-20, 104-127, and 106-459). The Salinity Control Act authorizes the secretaries of the U.S. Department of the Interior and U.S. Department of Agriculture (USDA) to enhance and protect the quality of water available in the Colorado River for use in the United States and the Republic of Mexico. Through a broad range of specific and general salinity control measures the SCP prevents further degradation of water quality in the United States. Salinity control measures under the SCP are implemented by Reclamation, the Bureau of Land Management (BLM), and the USDA Natural Resources Conservation Service (NRCS). These federal agencies are required to work together under the Salinity Control Act, as amended; with Reclamation being the lead federal agency (Reclamation 2017).

Reclamation awarded a financial assistance agreement to the Applicant for the Project under Funding Opportunity Announcement No. BOR-UC-17-F003 and Agreement No. R18AC00078. Funding assistance for construction costs have also been committed by the USDA NRCS Regional Conservation Partnership Program and the State of Colorado Non-Point Source Program. The Root and Ratliff Ditch Company would construct, operate, and maintain the Project.

## **2.0 Proposed Action and Alternatives**

The alternatives evaluated in this EA include a No Action Alternative and the Proposed Action.

### **2.1 No Action Alternative**

In accordance with the NEPA and the Council on Environmental Quality regulations, a No Action Alternative is presented and analyzed in this EA in order to provide a baseline for comparison to the Proposed Action. Under the No Action Alternative, Reclamation would not authorize funding to the Root and Ratliff Ditch Company to pipe the Root and Ratliff Ditch. Irrigation practices and seepage from the unlined ditch would continue to contribute to salt loading in the Colorado River Basin. Riparian and wetland habitats associated with the unlined ditch would likely remain in place and continue to provide habitat to local wildlife.

### **2.2 Proposed Action**

The Proposed Action would replace approximately 5.4 miles of open, unlined irrigation ditch with approximately 4.7 miles of buried irrigation pipe. The Root and Ratliff Ditch is located in Montezuma County, Colorado, east and south of the town of Mancos (Figure 1). The legal description for the ditch includes Sections 26, 27, 28, and 33 in Township 36 North, Range 13 West, New Mexico Principal Meridian (NMPM) and Sections 4, 5, and 8 in Township 35 North, Range 13 West, NMPM. The Project area is primarily on private property. The project also includes improvements within the rights-of-way for U.S. Highway 160 and Montezuma County Roads 43, 41, G, and H. Figure 2 shows the alignment of the existing ditch and the location of the proposed pipeline alignment.

The proposed pipeline alignment roughly follows the existing ditch, although the pipeline would leave the existing ditch alignment in several sections in order to create a straighter alignment and improve efficiency. Approximately 2.4 miles of the new pipeline would be located outside of the existing ditch easement. The existing ditch is in a prescriptive easement on private lands and crosses 42 separate parcels. The new pipeline would be located in dedicated easements negotiated with landowners. The pipeline would cross the parcels of 37 private landowners, three of which did not previously have the Root and Ratliff Ditch on their land. The general pipeline easement would be 50 feet during construction and 30 feet after the alignment has been reclaimed. Dedicated easements would be recorded with Montezuma County.

In accordance with the SCP, three habitat replacement sites have been proposed to mitigate riparian and wetland habitat loss resulting from the removal of an open irrigation ditch. The habitat replacement sites are located west of the Root and Ratliff Ditch and south of G Road in Section 8, Township 35 North, Range 13 West, NMPM. The sites are on private lands owned by three different landowners and are in close proximity to each other. The Hoessle property is located on the northern end of Mormon Lake. The Willenbuecher and Strother properties share a common boundary line with each other and are located west of the Hoessle property. Figure 2 shows the location of the three habitat replacement sites in relation to each other, the existing ditch, and the proposed pipeline alignment.

Several staging areas have been identified for the Proposed Action and are shown on Figure 2. These staging areas would be used for the storage of pipe, construction equipment, fencing materials, fill materials, and other construction materials. Pipe arriving at the staging areas would be transported on flatbed trucks and/or trailers. Front end loaders with pallet forks would likely be used to handle pipe in the staging areas. The areas would also be used for contractor office trailers (if needed) and construction staff parking. The working surfaces of all staging locations would be graded with stormwater erosion control installed for the duration of construction.

Construction and access footprints would be limited to only those necessary to safely implement the Proposed Action. Existing county roads, private roads, and rights-of-way would be used for construction access as much as possible. Some access routes may require minor grading to provide for truck travel to the project alignment. Access routes and road crossings would be returned to the same or better condition than they were prior to construction once the pipeline has been completed. There would be no new permanent roads. All cattle guards and fences affected by construction activities would be returned to conditions substantially similar to those existing prior to construction.

### **2.2.1 Habitat Replacement Sites**

An “Evaluation of Habitat Impacts Associated with Piping of the Root and Ratliff Ditch” was written by SGM in July 2019 and approved by Reclamation. This report determined that 44.5 habitat units (HUs) would be lost from filling in the open Root and Ratliff Ditch. HUs are defined in Appendix A of the “National Environmental Policy Act (NEPA)-Guidance for Preparing Salinity Control Program Projects” (Reclamation 2018). The “Root and Ratliff Ditch Piping Project Habitat Replacement Plan” was prepared by SGM to replace the 44.5 HUs by creating additional wildlife habitat.

The three proposed habitat replacement sites total approximately 15 acres. The sites already include some open water and wetland habitat. The value of these areas for wildlife is presently limited by several factors, including the overall lack of trees and shrubs, the presence of weeds, cattle grazing, and fencing. In order to enlarge and improve the quality of wildlife habitat on the three parcels several enhancement activities are proposed. The proposed work for the habitat replacement sites is listed below. Figures 3a-c show the proposed work plans for the sites.

- Existing wetland habitat would be expanded by 0.37 acre on the Hoessle habitat replacement site.
- A new 0.20-acre pond would be built along an existing ditch on the Willenbuecher property.
- Emergent wetland vegetation would be planted in the shallow areas of the existing ponds and new pond on the Willenbuecher and Strother properties. The addition of vegetation that is interspersed with open water would promote use of the habitat by waterfowl.
- Mixed tree and shrub plantings on all three properties would increase the habitat diversity and functionality of the sites for wildlife. Both riparian and upland species would be planted.
- The upland area to the north of the wetland on the Hoessle property contains appreciable noxious weeds. These weeds would be treated with an approved herbicide and the area would be revegetated.

- Areas of noxious weeds on the Willenbuecher and Strother properties would be treated using biological agents or herbicides.
- A series of nest boxes would be installed at the sites to encourage use by birds.
- The connectivity of the Willenbuecher property with adjacent areas of value to wildlife would be increased by reducing fencing and modifying fencing to be more wildlife friendly.
- The outlet structure for the existing pond on the Willenbuecher property can be controlled from above the pond but needs to be reconnected to the ditch downstream. Approximately 16 linear feet of pipe would be installed to allow the structure to take water from the bottom of the pond rather than the top.
- The reliability of the water supply for the sites would be increased through dedication of water rights. Ten shares of Jackson Reservoir water (delivering approximately 10 acre-feet per year) would be purchased by the applicant for the mitigation sites.
- The sites would be protected from future disturbance through the use of deed restrictions that prevent any development or activities that could negatively impact the wildlife habitat, such as construction of roads, structures, or filling any portion of the site.

The habitat replacement site work would be completed concurrently with the ditch piping project. The Habitat Replacement Plan would be implemented in accordance with the environmental commitments listed in Section 4. The habitat replacement project is required to function for 50 years following construction. The Root and Ratliff Ditch Company would be responsible for maintenance and monitoring to ensure success.

### **2.2.2 Headgate Replacement**

The existing headgate would be replaced with a screen structure and intake box to accommodate the pipe. A totalizer meter would be installed that records continuous flows to enable measurement of diversions. The existing headgate for the ditch is located in a forebay that detains water below the diversion structure on the south bank of the Mancos River. The diversion structure is an in-stream rock check with an adjacent screw gate and headwall structure that can be adjusted to divert the required flow for the time of year and ditch operations.

After the headgate replacement, water would flow from the diversion structure, through the forebay, and over the fish screen. The screen would sit between the forebay and an overflow channel that flows back to the Mancos River approximately 230 feet downstream of the main diversion. The fish screen would consist of a 12-foot wide coanda-effect wedge-wire screen that is sloped downhill at 30 degrees with openings of approximately 1.0 mm. The screen would be attached to a concrete box, complete with aprons and wingwalls to fit the geometry of the channel, to help guide flow through the structure. Clean water that passes through the screen would feed the Root and Ratliff Ditch. Any excess water, debris, or aquatic organisms greater in size than 1.0 mm that enter the forebay would continue over and past the fish screen into the overflow channel. When the ditch is in operation, there would always be a small amount of water in the overflow channel to ensure the ditch is fully pressurized and that fish have passage back to the Mancos River. Flows through the diversion and forebay would typically be between 2 and 30 cubic feet per second (cfs) depending on the season, water needs, and availability.

To construct the new fish screen, the headgate on the Mancos River would simply be closed and any residual water (groundwater, seepage, etc.) would be directed to the overflow channel or pumped out if needed. No work on the main channel diversion or headgate on the Mancos River, or grading of the diversion channel would be required. The return flow channel from the screen structure to the river would be flattened and lowered to provide adequate operation of the self-cleaning screen structure.

### **2.2.3 Pipeline Installation**

The pipeline component of the Proposed Action was designed and engineered by SGM of Durango, Colorado. The entire length of the Root and Ratliff Ditch would be piped, from the headgate below the diversion structure on the Mancos River to a concrete splitter box that represents the end of the ditch as owned and operated by the Root and Ratliff Ditch Company. A total of 26 outlets would release water to farm turnouts or laterals along the length of the pipeline, including three at the splitter box that lead to the privately-owned Graf and Cox Pipeline and Doerfer Ditch. The turnout structures would be replaced with new structures equipped with electronic flow meters and control valves.

The new irrigation pipeline would begin with a 30-inch nominal diameter in the initial reach below the intake. The nominal diameter would be reduced as the amount of flow required decreases. The pipeline would reduce down to a 24-inch nominal diameter at the end of the pipeline, south of Road G. The maximum rating of the pipe would be 125 pounds per square inch (psi). The majority of the pipeline would be plastic irrigation pipe (PIP) and the larger pipes (sizes above 27-inch nominal diameter) would be C-900 PVC. A short run of pipe that would cross under U.S. Highway 160 through an existing irrigation culvert would be high-density polyethylene (HDPE) pipe. The irrigation pipeline would be gravity-pressurized and no pumps, compressor stations, or water storage facilities would be included in the project.

Portions of the proposed pipeline alignment that are outside of the existing ditch alignment would be cleared of vegetation with a bulldozer. The construction workspace would be graded as needed in steeper areas to allow for safe operation of construction equipment. A track hoe would be used to excavate a maximum trench of approximately 4 feet wide and 6 feet deep and position pipe in the trench. No blasting is expected. Crews would utilize rock-saws or hydraulic hammers to excavate if rock formations are encountered unexpectedly during construction. Excavated material would be side cast for backfilling after pipeline installation. All available topsoil to a depth of approximately 1-foot would be stockpiled separately from the subsoil for use in reclamation. Sifted soil fines from the excavated subsoils would provide rock-free pipeline padding and bedding. Sandbags may be used to pad the bottom of the trench instead of, or in combination with, padding with soil fines. In rocky areas, padding material or a rock shield would be used to protect the pipe. Sections of the proposed pipeline alignment that would overlap the existing ditch alignment would first be prepared by backfilling the existing irrigation ditch with a bulldozer. An excavator would then trench in the prepared bed to place the pipe.

Backfilling would be conducted using an excavator, bulldozer, or other suitable equipment. Backfilling the trench would generally use the subsoil previously excavated from the trench except in rocky areas where imported fill material may be needed. Backfill would be graded and compacted. Any excavated materials that are not used for backfilling operations would either be spread out in pastures adjacent to the pipeline or would be used to backfill the existing Root & Ratliff Ditch.

At the state and county road crossings, the pipeline would cross through existing culverts if feasible. Otherwise, an open trench would be required to construct the pipeline. The portion of the pipeline that would cross under the Colorado Department of Transportation (CDOT) right-of-way along U.S. Highway 160 east of the Mancos River would be slip lined through the existing irrigation culvert in lieu of open cutting.

The piping component of the Proposed Action would occur incrementally across the Proposed Action area during the non-irrigation season (approximately October through March). The proposed pipeline outside the existing ditch alignment could be installed any time of year.

#### **2.2.4 Ditch Decommissioning**

Decommissioning of the existing ditch would be accomplished by filling the ditch with clean, local soil material, compacting the material, and grading the surface to match surrounding contours and restore drainage patterns. Car tires and household waste that exist in some reaches of the ditch would be recycled or disposed of in a suitable land fill. A bulldozer would be used to grub vegetation and fill and bed the existing ditch. The material needed for construction fill would be generated within the construction footprint as much as possible. However, it is anticipated that additional fill would be required from a commercial source. Fill material would be transported in tandem dump trucks. Decommissioning and backfilling of the ditch to be abandoned would be performed after proper operation of the new pipeline has been verified. These activities could be performed any time of the year.

#### **2.2.5 Revegetation**

All areas disturbed during construction of the Proposed Action would be reclaimed subject to any conditions from private land owners. Disturbed surfaces would be contoured to match the surrounding area and restore drainage patterns. Drought-tolerant seed mixes appropriate for the surrounding native vegetation would be used as approved by private land owners and Reclamation.

The contractor would employ drill or broadcast seed methods to ensure proper seed placement. Drill seeding is preferred and would be used wherever soil characteristics and slope allow effective operation of a rangeland seed drill. Drill seeding would be performed perpendicular to the slope; seed would be placed in direct contact with the soil at an average depth of 0.5 inches, covered with soil, and compacted to eliminate air pockets around the seeds. Broadcast seeding would be employed in areas where drill seeding is unsafe or physically impossible. Seed would be applied uniformly over disturbed areas with manually operated cyclone-bucket spreaders, mechanical spreaders, or other methods. Broadcast application rates would be twice that of drill rates. The seed would be uniformly raked, chained, dragged, or cultipacked to incorporate seed to a sufficient seeding depth, if possible. Reseeded sites would be mulched to facilitate germination and growth.

Best Management Practices (BMPs) would be used to control erosion, minimize harm to wildlife, and minimize the spread of noxious weeds during and following construction. Noxious weeds would be controlled in disturbed areas according to right-of-way stipulations and Montezuma County standards. BMPs and other protective measures are described and analyzed as part of the Proposed Action in Section 3 (Affected Environment & Environmental Consequences) under each resource topic and summarized in Section 4 (Environmental Commitments).

## **2.3 Alternatives Considered but Not Carried Forward**

Several alternatives were considered during the conceptual design process for the Project but were not proposed to Reclamation because they were determined to be technically challenging, economically prohibitive, and/or potentially more destructive to existing habitat than the Proposed Alternative.

# **3.0 Affected Environment and Environmental Consequences**

This section discusses resources that may be affected by the Proposed Action and the No Action Alternative.

For each resource the existing conditions are described, and potential impacts and environmental consequences predicted under the No Action and Proposed Action alternatives. BMPs or other mitigative or protective measures described below are considered part of the Proposed Action and are taken into consideration when predicting environmental consequences. These measures are listed in Section 4.0, Environmental Commitments. A summary of impacts/environmental consequences of the Proposed Action is included at the end of this section.

## **3.1 Water Rights and Use**

Figure 4 shows the hydrologic units in the vicinity of the Proposed Action. Both the Proposed Action area and the habitat replacement sites are located within the Mancos River watershed [hydrologic unit code (HUC) 14080107] in the Upper Colorado Region. Official designated uses for this unit are a combination of recreation, water supply, and agriculture.

The Root and Ratliff Ditch delivers irrigation water to approximately 1,290 acres. On-farm irrigation is accomplished using laterals, gated pipe, or sprinkler systems. The main crops grown are hay and pasture grass. The irrigation season typically runs for approximately 153 days from May through September, during which the average diversion from the Mancos River is 12.8 cfs. The ditch also delivers an average of 2.44 cfs of stock water to shareholders during the non-irrigation season. During the period of record from 1950 through 2019, the average annual total diversions to the ditch were 4,144 acre-feet. The minimum annual diversions during this period were 2,182 acre-feet, while the maximum annual diversions were 5,895 acre-feet. Irrigation return flows eventually reach the Mancos River through tributaries (Weber Creek) generally south of the Project area.

The Root and Ratliff is owned and operated as a mutual ditch company under Colorado Water Law. There are 2,337 shares in the Root and Ratliff Ditch Company which total 37.8 cfs of decreed water rights. The Root and Ratliff Ditch also conveys water to the Webber and Smith ditches which have 4.5 and 2.3 cfs of decreed water rights, respectively. In addition, several water users along the Root and Ratliff Ditch have contract water stored in Jackson Gulch Reservoir, upstream of the Root and Ratliff Ditch diversion point on the Mancos River. The water for this supplemental supply is transported through the Root and Ratliff Ditch. There is a cumulative total of 44.8 cfs of water rights conveyed by the Root and Ratliff Ditch. The water rights are administered by the Colorado Division of Water Resources and subject to the system of prior appropriation, so the ditch does not transport

this total amount of water at one time. The new pipeline would be designed to carry approximately 30 cfs from the diversion point on the Mancos River. The Mancos River is over appropriated in terms of water rights and the river in proximity to the Project area often has little to no flow in it during times of peak irrigation demand.

No Action: The No Action alternative would have no effect on water rights and uses within the Mancos River Basin. The water delivery system would continue to function as it has in the past. The improved efficiency due to less evaporation and seepage and improved control over irrigation flows from the installation of meters and valves would not be realized by water users.

Proposed Action: The Proposed Action would increase the efficiency of the Root and Ratliff Ditch by eliminating the seepage and evaporation from 5.4 miles of open, unlined ditch. The Project would also provide more reliable and flexible flow because diversions to users would be metered and irrigators would have the ability to shut off water when their irrigation is complete. The increased efficiency may result in more water being available during the irrigation season; however, the irrigation of new land is not a part of the Proposed Action. The Proposed Action would also allow for the development of a gravity fed pressurized delivery system for improved on-farm water management and potential conversion to more high-efficiency irrigation systems for certain users.

Under the Proposed Action alternative, the Root and Ratliff Ditch would be administered under Colorado Water Law as it has in the past. No adverse effects on water rights in the Mancos or San Juan River basins would occur. An increase in efficiency may allow for less water demand and less water diverted.

The proposed expansion of wetland habitat and a new pond on the habitat replacement sites would slightly increase evaporative water loss. The wetland habitat on the Hoessle property would be expanded by 0.37 acres and a new 0.2-acre pond would be constructed on the Willenbuecher property. The predicted total annual depletions from the pond and expanded wetland (0.57 acres total) based on the gross annual evaporation and average annual precipitation for the area would be 0.95 acre-feet (DWR 2019, Farnsworth et al. 1982, WRCC 2009). Shares in the Root and Ratliff Ditch would be dedicated to improve the supply of water to these sites.

## **3.2 Water Quality**

The Proposed Action is in the Mancos River watershed. The Mancos River is a tributary of the San Juan River, which is a major tributary of the Colorado River. Parameters of concern for the Mancos River include salinity, selenium, and bacteria (Larrick and Ashmore 2013). Irrigation practices in the region and in the Proposed Action area contribute to downstream salinity and selenium levels. Mancos shale exists through much of the Mancos River watershed. This geologic formation is naturally high in mobile selenium, arsenic, and salt compounds. As irrigation return flows travel through the underlying formations, salts and minerals are mobilized and flow into the river system, especially during flood irrigation practices. Irrigated agriculture contributes approximately 37 percent of the salinity in the Colorado River system (Reclamation 2017). In the Mancos watershed, as water moves downstream from just below the mountain tributaries and across irrigated lands, salinity increases approximately 5-fold (Larrick and Ashmore 2013). High salinity levels make it difficult to grow agricultural crops. In addition, salt in water systems plugs and damages municipal and household pipes

and fixtures. Water conservation within irrigation projects on saline soils is the single most effective salinity control measure found in the past 30 years of investigations (Reclamation 2017).

Selenium occurs in the region's soils in soluble forms such as selenite and is leached into surface water by runoff and irrigation return flows. Though trace amounts of selenium are necessary for cellular functioning of many organisms, it is toxic in slightly elevated amounts. Elevated selenium levels can cause reproductive failure and deformities in fish and aquatic birds.

The presence of fecal coliform bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of man or other animals. High bacteria levels in the Mancos River are likely due to the presence of intensive cattle grazing (Larrick and Ashmore 2013).

No Action: Under the No Action alternative, the estimated 2,347 tons of salt annually contributed to the Colorado River Basin from this system would continue. Current selenium loading levels would also continue.

Proposed Action: Piping the existing ditch would help to reduce salinity loading to the Mancos River and Colorado River Basin. Upon completion of the Project, the annual reduction of approximately 2,347 tons of salt loading to the Colorado River at a cost of \$58.21 per ton of salt is anticipated. The Proposed Action is also expected to reduce selenium loading into the downstream river systems. The reduced salt and selenium loading would benefit downstream water users as well as fish and aquatic birds.

In the short term, construction activities have the potential to mobilize sediments. There may be localized, short-term effects to water quality as a result of headgate construction in the forebay below the Mancos River diversion and the flattening and lowering of the return flow channel to the river. Burial of irrigation pipe in the Root and Ratliff Ditch would occur during the irrigation off-season while no water is flowing in the ditch. In addition, the Proposed Action would include stormwater BMPs, revegetation of disturbed areas, and the restoration of drainage patterns in the Project area.

The Proposed Action would affect surface and shallow subsurface hydrology supplied to wetland and riparian areas in the Project area. A jurisdictional determination indicating the existing ditch is not a Water of the U.S. and therefore not subject to U.S. Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act (CWA) (33 USC 1344) was approved in March 2019. The approval letter is included in Appendix B.

Construction of the proposed project would involve the discharge of fill material into waters that could be considered jurisdictional. Replacement of the ditch headgate would occur in a forebay that detains water on the south bank of the Mancos River. The return flow channel from the headgate to the river would be flattened and lowered. No grading of the diversion channel from the river to the forebay would be required. Also, the proposed pipeline would cross Watercress Canyon, a drainage located downstream of County Road H. The drainage contains a riparian area with dense stands of willow (*Salix* sp.) and areas of Nebraska sedge (*Carex nebrascensis*) and broadleaf cattail (*Typha latifolia*). The pipeline would be constructed in this area using an open trench. Pipeline construction in areas of potential jurisdictional waters would be exempt from permitting requirements under Section 404(f)(1) of the CWA, which allows for the construction

and maintenance of irrigation ditches. Drainage patterns would be restored and disturbed areas would be revegetated in these areas.

The proposed work at the habitat replacement sites would fall under NWP No. 27 for “Aquatic Habitat Restoration, Enhancement, and Establishment Activities”. A Pre-Construction Notification would be submitted to the USACE prior to beginning construction at these sites.

### **3.3 Air Quality**

The National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act specify limits for criteria air pollutants. Criteria pollutants include carbon monoxide, particulate matter (PM 10 and PM 2.5), ozone, sulfur dioxide, lead, and nitrogen. If the levels of a criteria pollutant in an area are higher than the NAAQS, the airshed is designated as a nonattainment area. Areas that meet the NAAQS for criteria pollutants are designated as attainment areas. Montezuma County is in attainment for all criteria pollutants (EPA 2019a).

No Action: There would be no effect on air quality in the Proposed Action area from the No Action alternative. The ditch system would continue to operate in its current configuration and dust and exhaust would occasionally be generated by vehicles and equipment conducting routine ditch maintenance.

Proposed Action: There would be no long-term impacts to air quality from the Proposed Action. Dust from construction activities would have a temporary, short-term effect on the air quality in the vicinity of the Proposed Action area. Dust would be generated by earthwork activities and the movement of construction equipment on unpaved roads. BMPs would be implemented to minimize dust and would include measures such as watering the construction site and access roads, as appropriate, and long-term revegetation to stabilize disturbed areas. Impacts on air quality would cease once construction is complete.

Following construction, impacts to air quality from routine maintenance and operation activities along the pipeline corridor would be similar in magnitude to those currently occurring for the existing ditch. Impacts to air quality from routine maintenance include dust from occasional travel in light vehicles along the Project corridor.

### **3.4 Access, Transportation, and Public Safety**

The major access route for the Proposed Action area is U.S. Highway 160 east of the Town of Mancos (Figure 1). The Project area and habitat replacement sites would be accessed from local county roads, including Montezuma County Roads 41, G, and H. Several private roads and drives would also be used for construction access. The county roads and private roads in the Project area are primarily used by local residents for traveling in and out of the area. The existing ditch is in a prescriptive easement on private lands and crosses 42 separate parcels.

No Action: There would be no effect to public safety, transportation, or public access from the No Action Alternative since no additional traffic from construction activities would occur.

Proposed Action: The Proposed Action would increase large vehicle and truck traffic on the county roads and private roads in the Project area. Construction and access footprints would be limited to only those necessary to safely implement the Proposed Action. There would be no new permanent roads. Some access routes may require minor grading to provide for truck travel to the project alignment. Access routes and road crossings would be returned to the same or better condition than they were prior to construction once the pipeline has been completed.

Implementation of the Proposed Action may cause brief delays along public roadways adjacent to the Proposed Action area from construction vehicles entering and exiting the roadways. If open trench road crossings are necessary, traffic would be temporarily re-routed around the construction zone. The proposed pipeline would use the existing culvert under U.S. Highway 160 and would not impact U.S. Highway 160 traffic. The Root and Ratliff Ditch Company and the construction contractor would coordinate with the Colorado Department of Transportation (CDOT) on work within the highway right-of-way, and with the Montezuma County Public Works Department for work within the county road rights-of-way. The County Sheriff Department would be notified when traffic or access would be delayed or significantly re-routed.

Access to the new pipeline alignment would be negotiated with private landowners and dedicated easements would be obtained. The pipeline would cross the parcels of 37 private landowners, three of which did not previously have the Root and Ratliff Ditch on their land. The general pipeline easement would be 50 feet during construction and 30 feet after the alignment has been reclaimed.

### **3.5 Recreational and Visual Resources**

The Project area is located entirely on private lands, with the exception of several public rights-of-way for road crossings. The habitat replacement sites are located on private property as well and do not have public access. The majority of the area in the immediate vicinity of the ditch and habitat replacement sites has been disturbed by agricultural activities and rural residential development. Viewsheds from the proposed Project area include Menefee Mountain to the south and east, Weber Mountain and Mesa Verde to the south and west, and the La Plata Mountains to the northeast. There are no designated visual resources in the proposed Project area.

There is no public land, except for road rights-of-way, or public recreation areas in the proposed Project area. There is no public access for fishing on the Mancos River. Recreation use is limited to sporadic use of roads by local residents for walking, jogging, and biking.

No Action: The No Action alternative would have no effect on recreational or visual resources. Recreation in the Proposed Action area would continue as in the past and visual resources would remain unchanged.

Proposed Action: The Proposed Action alternative would have minimal effect on visual resources. The piping and backfilling of the ditch would change the appearance of the land along the ditch, including the loss of some trees and shrubs. However, the overall appearance would be consistent with the rural and agricultural character of the surrounding area. Many car tires have been placed in the ditch for bank protection between County Road 41 and H Road. These tires would be removed and disposed of properly. Following construction, any construction debris would be removed and properly disposed.

The Proposed Action could disrupt local recreational use of county roads during construction of the pipeline at road crossings and due to an increase in traffic. However, these disruptions would be temporary. Disruptions from pipeline construction in the road right-of-way would take place incrementally over the course of the Project and are not likely to last more than 36 hours. To ensure public safety, pipe trenches left open while unattended (e.g. overnight) that could pose a hazard to recreators would be covered and marked. Upon completion of the Proposed Action, there would be no further impact to recreation.

### **3.6 Livestock Grazing**

The Project area includes private lands used for livestock grazing. Most of these lands are seeded pasture with and without irrigation and are dominated by grasses. Evidence of significant grazing exists in some areas. There are no public grazing allotments within the proposed Project area.

No Action: The No Action alternative would have no effect on grazing. Livestock grazing in the proposed Action area would continue as in the past.

Proposed Action: Under the Proposed Action alternative, temporary disturbance to pastures used for grazing would occur. Disturbances would be from construction traffic and activity in fenced pastures. Livestock may need to be relocated during construction activities. The contractor would contact landowners before trenching a section of the pipeline in order to ensure livestock are not released due to downed fences or prevented from reaching water sources because of open trenches. All cattle guards and fences affected by construction activities would be returned to conditions substantially similar to those existing prior to construction. Any surface disturbance in pastures would be reclaimed and reseeded as approved by private landowners and specified in easement agreements.

The habitat replacement site on the Willenbuecher property is located in an actively grazed pasture. The existing pond and new pond would be fenced to protect the riparian vegetation from grazing impacts. A portion of the ditch between the ponds would be left unfenced to provide livestock access to water.

### **3.7 Vegetative Resources and Weeds**

The Project is located in the Colorado Plateau physiographic province. The climate is semi-arid continental characterized by low humidity and moderately low precipitation. The Project area averages about 16.87 inches annually (WRCC 2009). The average elevation in the Project area is about 7,100 feet above mean sea level. Land cover in the vicinity of the Project area consists primarily of irrigated agricultural lands with pinon-juniper on hills and ridges. Rural, residential development occurs throughout the area. Appendix A contains photographs of the vegetation along the ditch alignment.

Habitat along the Mancos River, where the ditch diversion structure is located, is riparian woodlands. The Mancos River is approximately 26 feet wide and is approximately 200 feet north of U.S. Highway 160. Upstream of the headgate, the Mancos River's riparian corridor is very narrow. Much of the riparian woodland habitat has been replaced by irrigated agricultural meadows, small ponds, and ranch facilities. The riparian corridor in these areas ranges in width from 10 to just over 100 feet in width. Downgradient from the headgate, riparian woodlands are much more extensive, averaging around 400

feet in width. However, these woodlands are somewhat fragmented by ponds, residences, driveways, and access roads, including County Road 43. Dominant species include thinleaf alder (*Alnus incana* ssp. *tenuifolia*), narrowleaf cottonwood (*Populus angustifolia*), river hawthorn (*Crataegus rivularis*), narrowleaf willow (*Salix exigua*), cattail (*Typha* sp.), mountain rush (*Juncus arcticus*), reed canarygrass (*Phalaris arundinacea*), and Woods' rose (*Rosa woodsii*). This area also includes noxious weed species such as Russian olive (*Elaeagnus angustifolia*), cocklebur (*Xanthium* sp.), lesser burdock (*Arctium minus*), and Canada thistle (*Cirsium arvense*). The ditch also passes through more managed landscape in this area such as residential lawns.

After approximately 0.5 mile, the ditch leaves the riparian woodlands and runs through a relatively consistent agricultural meadow habitat type for the remaining 5.1 miles to the end of the Project. Adjacent to the ditch more mesic species exist, including reed canarygrass, redtop (*Agrostis gigantea*), common reed (*Phragmites australis*), narrowleaf willow, narrowleaf cottonwood saplings, and Woods' rose. The density and cover of willows, cottonwood saplings, and grass varies.

The surrounding lands are dominated by agricultural hay fields. Agricultural fields are dominated by orchardgrass (*Dactylis glomerata*), smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), common dandelion (*Taraxacum officinale*), and alfalfa (*Medicago sativa*). There is one 550-foot section of the ditch that occurs adjacent to a hillside dominated by pinyon-juniper forest (*Pinus edulis* and *Juniperus osteosperma*, respectively).

The three habitat replacement sites are located on private properties with scattered rural residential development. The properties each contain some wetland or riparian habitat that is surrounded by fenced pasture. Most of the Hoessle property consists of upland pasture grasses and weeds. It lacks trees and shrubs and has a large prairie dog colony. A robust emergent wetland exists along the northern shore of Mormon Lake. This wetland is dominated by softstem bulrush (*Schoenoplectus tabernaemontani*), hardstem bulrush (*S. acutus*), and broadleaf cattail.

The Willenbuecher property contains primarily pasture grass with some areas of Canada thistle. An approximate 1-acre pond on the Willenbuecher property contains wetland vegetation along the shoreline. A patch of broadleaf cattail exists below the pond on the north side; a wetland dominated by reed canarygrass exists south of the pond; mountain rush occurs northeast of the pond; and a narrow band of wetland vegetation occurs along a swale downstream of the pond. The owner planted ornamental willows around the pond and buffaloberry (*Shepherdia* sp.) in areas. Relatively large alders also occur around the pond.

The Strother property contains pasture grass with some forbs. An emergent wetland exists around much of the shoreline of a 0.79-acre pond. The wetland is dominated by bulrush species and broadleaf cattails. The extent of this wetland varies depending on the slope of the shore/bank. There are some cottonwood trees and shrubs on an old berm from a previous and larger pond at the site, but the wetland generally lacks trees and shrubs. A relatively small area of Canada thistle and whitetop (*Cardaria draba*) exists on the west side of the pond and there is a medium-sized tamarisk (*Tamarix* sp.) on the northeast shore.

**No Action:** There would be no effect on existing vegetation or habitat from the No Action alternative. Riparian habitat along the existing irrigation ditch would remain undisturbed and the additional habitat replacement activities would not occur.

**Proposed Action:** The Proposed Action would result in the permanent loss of riparian vegetation associated with approximately 5.4 miles of open irrigation ditch. Approximately 4,000 linear feet of riparian woodland habitat would be removed at the northern end of the Project area adjacent

to the Mancos River. In addition, approximately 2.4 miles of undisturbed pastureland would be disturbed for construction of the new pipeline outside of the existing ditch alignment. Vegetation removal would be confined to the smallest portion of the Proposed Action area necessary for completion of the work. Any areas disturbed for construction of the pipeline and after backfilling the existing ditch would be revegetated. Drought-tolerant and weed-free seed mixes appropriate for the surrounding native vegetation would be used as approved by private landowners and Reclamation.

To compensate for the loss of riparian habitat along the irrigation ditch, additional riparian habitat would be expanded and improved at the three habitat replacement sites. The three proposed habitat replacement sites total approximately 15 acres. The work proposed at these sites includes the expansion of 0.37 acres of wetland habitat, the construction of a new 0.2-acre pond, and the planting of additional wetland vegetation, trees, and shrubs.

Construction footprints in certain areas would extend into previously undisturbed ground, creating conditions for weeds to spread. Efforts to remove and curtail the spread of noxious weeds would be undertaken during the construction of the Proposed Action. BMPs, including cleaning vehicles and equipment prior to bringing them onsite, would be implemented to help minimize the risk of weed infestations. In addition, disturbed areas would be revegetated as soon as possible following disturbance. The upland area to the north of the wetland on the Hoessle property contains appreciable noxious weeds. These weeds would be treated with an approved herbicide and the area would be revegetated. Areas of noxious weeds on the Willenbuecher and Strother properties would be treated using biological agents or herbicides. In the long-term, piping the ditch would remove an important vector of weed seed transport, which is the open water in the ditch.

### 3.8 Wildlife Resources

In the Proposed Action area, the ditch provides a ribbon of riparian and wetland habitat within a mainly rural, agricultural area. The vegetation and water associated with the ditch provide habitat for wildlife for nesting, breeding, foraging, cover, and movement corridors. The quality of the habitat varies along the ditch, depending on the extent and nature of the vegetation community and degree of development in proximity to the ditch. The ditch mostly runs through agricultural fields used for grazing and/or hay production that have limited wildlife value. It crosses and has connectivity with higher value wildlife habitat in several areas that include the Mancos River riparian corridor, a riparian area along H Road, and Mormon Lake.

The Project area has been identified by Colorado Parks and Wildlife (CPW) as including mule deer (*Odocoileus hemionus*) winter range south of the Town of Mancos and summer range in the vicinity of Mormon Lake. The portion of the pipeline alignment around U.S. Highway 160 has been identified as a winter concentration area for elk (*Cervus elaphus*) and overall range occurs throughout the Project area. The Project occurs in an area that has also been identified by CPW as overall mountain lion (*Felis concolor*) range and overall black bear (*Ursus americanus*) range (CPW 2018). A variety of small mammals, reptiles, and amphibians also inhabit the general area. Those that would be likely to use the canal or adjacent areas include ground-dwelling rodents, such as white-tailed prairie dog (*Cynomys leucurus*) and several species of mice, voles (*Microtus* spp.), and shrews (family Soricidae). Some of the other wildlife in the area includes cottontail rabbit (*Sylvilagus* sp.), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), ground squirrels (*Spermophilus* spp.), terrestrial gartersnake (*Thamnophis elegans*), smooth greensnake (*Opheodrys vernalis*), and tiger salamander

(*Ambystoma tigrinum*) (CPW 2019). The Mancos River in the vicinity of the Project area contains some fish species including rainbow trout (*Oncorhynchus mykiss*) and bluehead sucker (*Catostomus discobolus*).

No Action: Under the No Action alternative, terrestrial wildlife habitat would remain in its current condition and no displacement of wildlife would occur. Salinity loading of the Colorado River Basin would continue at its current rate, which would continue to affect water quality within the drainage, potentially affecting the wildlife using the area.

Proposed Action: The Proposed Action would remove riparian habitat along approximately 5.4 miles of open irrigation ditch, including approximately 4,000 linear feet of riparian woodland habitat adjacent to the Mancos River. It would also remove a source of drinking water for wildlife by filling in the ditch. However, other drinking water sources are available throughout the area, including the Mancos River, small on-farm irrigation ditches, stock water ponds, and Mormon Lake.

Impacts to small animals, especially burrowing amphibians, reptiles, and small mammals, could include direct mortality and displacement during construction activities. Impacts to big game could include disturbance and displacement due to noise, traffic, and increased human presence. Pipeline trenches may also present a hazard to wildlife that could become trapped in the trench. Temporary wooden escape ramps would be placed in any trenches left open overnight to provide a way for wildlife or livestock to escape from or cross the trench. Disturbances to wildlife would be short-term during construction activities and would occur in an area where human presence is not uncommon.

The installation of a new headgate and the flattening and lowering of the return flow channel may temporarily increase the sediment in the Mancos River at the ditch diversion. These impacts would be localized and short-term. In the long-term, the reduction in salinity and selenium contributed to the river basins downstream of the Project area would benefit fish and aquatic birds.

To prevent fish from entering the water pipeline after construction, a fish screen would be placed over the intake structure of the headgate. The forebay at the Mancos River diversion would help to slow the water approach velocity and reduce fish impingement and injury at the screen. In addition, the proposed coanda style fish screen excludes fine debris and small aquatic organisms since the screen design encourages shallow, high velocity flow across the screen face (Reclamation 2006). The fast water flow would sweep fish and other organisms across the screen and back to the Mancos River through the return flow channel. A long-term benefit is expected from reduced fish entrainment in the pipeline.

To compensate for the loss of riparian habitat along the irrigation ditch, additional riparian habitat would be expanded and improved at the three habitat replacement sites. The work proposed at these sites includes the expansion of 0.37 acres of wetland habitat, the construction of a new 0.2-acre pond, and the planting of additional wetland vegetation, trees, and shrubs. A series of nest boxes would be installed at all three sites to encourage use by birds. On the Willenbuecher property, fencing would be reduced and replaced with wildlife friendly fencing. The sites would be protected from future disturbance through deed restrictions that prevent any development or activities that could negatively impact the wildlife habitat.

## 3.9 Special Status Species

### 3.9.1 Migratory Birds and Bald and Golden Eagles

The Migratory Bird Treaty Act (MBTA) provides federal protection to all migratory birds, as well as their nests and eggs. Destruction of vegetation that harbors active bird nests during nesting season can result in direct loss (i.e. “take”) of eggs or young or cause adult birds to abandon eggs. The primary nesting season for migratory birds in the Proposed Action area is April 1 through July 15.

The U.S. Fish & Wildlife Service (USFWS) Birds of Conservation Concern for the project area include Grace’s warbler (*Dendroica graciae*), Lewis’s woodpecker (*Melanerpes lewis*), pinyon jay (*Gymnorhinus cyanocephalus*), rufous hummingbird (*Selasphorus rufus*), and Virginia’s warbler (*Vermivora virginiae*) (USFWS 2019). Of these species, the rufous hummingbird is the only one with potential habitat in the project area where tubular flowers in pastures or feeders in backyards may provide a food source. This species does not breed in Colorado, but rather moves through the area while migrating.

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the Bald and Golden Eagle Protection Act and the MBTA. The golden eagle nests primarily on rock ledges or cliffs, less often in large trees, at elevations ranging from 4,000 to 10,000 feet. They are typically found in mountainous regions of open country, prairies, arctic and alpine tundra, open wooded areas, and barren areas. Golden eagles feed mainly on small mammals, as well as invertebrates, carrion, and other wildlife. Golden eagles nest between December 15 and July 15. Suitable cliff nesting sites for golden eagles do not exist in or within a mile of the Proposed Action area.

The bald eagle is typically found in various riparian habitats such as seacoasts, rivers, lakes, and marshes. They require mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Bald eagles prey on fish as well as mammals, especially prairie dogs. Bald eagles nest during the period between October 15 and July 31. According to CPW, the Project is located within Bald Eagle winter range and a portion of the Project area south of the Town of Mancos and U.S. Highway 160 runs along the southern edge of a mapped winter concentration area. Tall cottonwoods suitable for tree-nesting raptors exist along the Mancos River corridor and at Mormon Lake. The nearest known active bald eagle nest is north of the Mancos River more than 2.5 miles from any part of the Proposed Action area.

**No Action:** In the absence of the Proposed Action, migratory bird and bald and golden eagle nesting and foraging habitat would remain in its current condition. No temporary displacement of migratory birds or eagles would occur. Salinity and selenium loading in the Colorado River Basin would continue at its current rate, potentially affecting migratory aquatic bird species.

**Proposed Action:** Direct impacts to migratory birds and eagles would include short-term disturbance and displacement during construction activities due to noise, traffic, and increased human presence. Wintering and migrating birds are not expected to experience measurable effects since adult birds have the flexibility to move away from disturbances to other suitable areas.

The removal of vegetation prior to construction activities has the potential to cause the loss of eggs or young if active nests are present. In addition, noise and human presence associated with construction activity has the potential to cause adult birds to abandon active nests. If feasible, any vegetation removal would occur outside the primary migratory bird breeding season (April 1 –

July 15). Any vegetation removal during the breeding season would be preceded by nesting surveys to identify any occupied nests and establish avoidance buffers until the young have fledged.

The nearest documented active bald eagle nest lies more than 2.5 miles from any part of the Proposed Action and lies outside the CPW recommended buffer distance for human encroachment. Therefore, nesting bald eagles are not likely to be affected by the Proposed Action. If during construction a new active raptor nest or a bald eagle roost site is discovered within 0.5 mile of the Proposed Action, construction would cease until Reclamation could complete consultations with USFWS and CPW.

### 3.9.2 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 protects federally listed endangered, threatened, and candidate plant and animal species and their critical habitats. Table 1 presents the federally listed species that may occur within or near the Proposed Action area according to the USFWS Information for Planning and Consultation (IPaC) website (USFWS 2019). This table also summarizes habitat requirements and the potential for a species to occur in the Project area. An assessment of the actual potential for occurrence and potential for adverse impacts is based on known species habitat requirements, species geographic ranges, the presence of habitat within the Project area, and potential threats associated with the Project. There is no critical habitat within or directly adjacent to the Project area.

**Table 1. Federally Listed Species Potentially Occurring in or Near the Project Area**

Species	Status <sup>1</sup>	Habitat Requirements and Range	Potential to Occur in Project Area	Determination of Effect
<b>MAMMALS</b>				
New Mexico meadow jumping mouse ( <i>Zapus hudsonius luteus</i> )	E	Perennial flowing water with dense, herbaceous riparian vegetation and adjacent xeric upland areas for nesting. Historically found in the Sangre De Cristo Mountains and San Juan Mountains from southern Colorado to central New Mexico and into eastern Arizona.	Yes	May affect, is not likely to adversely affect
<b>BIRDS</b>				
Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	T	Deep, shaded canyons and closed canopy old growth forests in canyons. Occurs in mountains and canyonlands in Utah, southern Colorado, and into New Mexico.	No. Project area does not include canyons or old growth forests.	No effect

Species	Status <sup>1</sup>	Habitat Requirements and Range	Potential to Occur in Project Area	Determination of Effect
Southwestern willow flycatcher ( <i>Empidonax traillii extimus</i> )	E	Shrubby areas with standing water or along streams, woodland edges, and brush thickets. Occurs in the southwestern U.S. Occupies suitable habitats throughout New Mexico and the Pecos River.	Yes	May affect, is not likely to adversely affect
Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	T	Mature cottonwood forests along major rivers in the southwestern U.S.	Yes	May affect, is not likely to adversely affect
<b>FISH</b>				
Colorado pikeminnow ( <i>Ptychocheilus lucius</i> )	E	Occurs in large rivers in the Colorado River Basin. May be affected by water depletions in the upper Colorado River basin.	No. Minor water depletions may affect.	May affect, is likely to adversely affect
Greenback cutthroat trout ( <i>Oncorhynchus clarkii stomias</i> )	T	Clear, cold mountain streams. Native to the headwaters of the South Platte and Arkansas River drainages in eastern Colorado, and a few headwater tributaries of the South Platte in southeastern Wyoming. Also occurs on the west slope of Colorado in tributaries to the Dolores River.	No. No streams in the action area or downstream are tributaries to any occupied greenback cutthroat trout streams.	No effect
Razorback sucker ( <i>Xyrauchen texanus</i> )	E	Occurs in large rivers in Colorado River Basin. May be affected by water depletions in the upper Colorado River basin.	No. Minor water depletions may affect.	May affect, is likely to adversely affect
<b>FLOWERING PLANTS</b>				

Species	Status <sup>1</sup>	Habitat Requirements and Range	Potential to Occur in Project Area	Determination of Effect
Chapin mesa milkvetch ( <i>Astragalus schmolliae</i> )	C	Pinyon-juniper habitat on Chapin Mesa in deep red loess soils. Known only to occur in Mesa Verde National Park and Ute Mountain Tribal Park.	No. No loess soils are present in the Project area and only minimal areas of pinyon-juniper woodland occur.	No effect

(1) USFWS status definitions:

- E – Endangered. An animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
- T – Threatened. Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- C – Candidate. An animal or plant for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

The three federally listed threatened, endangered, and candidate species that were considered to have the potential to occur in the Project area or vicinity based on the presence of suitable habitat are discussed in further detail below. In addition, the Colorado pikeminnow and razorback sucker are discussed in further detail due to the potential for water depletions associated with the Proposed Action to impact downstream critical habitat. Designated critical habitat for the Colorado pikeminnow and razorback sucker is present in the San Juan River, more than 50 miles downriver from the Project area.

#### *New Mexico meadow jumping mouse*

Potential New Mexico meadow jumping mouse (NMMJM) habitat occurs in the riparian vegetation along the existing irrigation ditch where the vegetation is not heavily managed by landowners and where pinyon-juniper or pastureland does not directly abut the ditch. The areas of potential habitat were confined to the portion of the ditch north of U.S. Highway 160, where dense herbaceous vegetation and isolated willows dominate the banks of the ditch. Approximately 4,000 linear feet of the existing ditch alignment was surveyed for the presence of NMMJM following the USFWS protocols. No NMMJM were captured during the survey (Zahratka 2019).

#### *Southwestern willow flycatcher*

The Project Area contains approximately 25 acres of riparian areas considered suitable habitat for the southwestern willow flycatcher (SWFL). The large majority of suitable habitat, approximately 22 acres, is concentrated at the north end of the Project area within or near the riparian corridor of the Mancos River. The remaining suitable habitat, approximately 3 acres, occurs along the southern portion of the Project area where narrow bands of willow and Russian olive are present. The open agricultural fields and areas bordered by pinyon-juniper woodlands were not considered suitable SWFL habitat. The project area was intensively surveyed by SGM staff in accordance with protocols established by USFWS (Sogge et al. 2010). There were no observed SWFL adults or nests found during the surveys.

### *Yellow-billed cuckoo*

Potential suitable habitat for the yellow-billed cuckoo (YBCU) was identified in the Project area along the riparian corridor of the Mancos River. Vegetated portions along the southern part of the ditch were not considered potential habitat due to a lack of continuous riparian vegetation and the narrowness of the vegetation corridor along the ditch. Surveys for the presence of YBCU were conducted within 0.5 mile of the Mancos River from U.S. Highway 160 north to the diversion point for the Proposed Action and along a 0.5 mile stretch above the diversion point. Surveys were conducted in accordance with USFWS protocols by SGM staff (Halterman et al. 2015). Approximately 52 acres were included in the survey. There were no observed YBCU adults or nests found during the surveys.

### *Colorado pikeminnow*

No habitat for the Colorado pikeminnow (pikeminnow) exists within or adjacent to the Root & Ratliff Ditch or within the Mancos River adjacent to the Project area. The Mancos River is too cold and fast to support pikeminnow. The Mancos River is tributary to pikeminnow critical habitat in the San Juan River. A naturally reproducing population of pikeminnow is known to inhabit the San Juan River at its confluence with the Mancos River, more than 50 miles downstream of the Project area. In addition, return flows from the irrigation ditch eventually run back to the Mancos River south of the project area through Weber Creek.

### *Razorback sucker*

The Mancos River is tributary to razorback sucker critical habitat in the San Juan River, located more than 50 miles downstream of the Project area. Larval razorback suckers have been collected from the San Juan River between Farmington, New Mexico and Shiprock, New Mexico, indicating the fish are spawning in this area (Platania and Farrington 2019). No habitat for the razorback sucker exists within or adjacent to the Root & Ratliff Ditch or within the Mancos River adjacent to the Project area.

No Action: The No Action alternative would have no effect on threatened and endangered species.

#### Proposed Action:

Formal consultation with the USFWS in accordance with Section 7 of the ESA has been requested by Reclamation for these species and will be completed prior to finalizing the EA. ESA compliance documents will be provided in Appendix D.

*New Mexico meadow jumping mouse.* Potential direct impacts to the NMMJM from the proposed Project include the loss of approximately 4,000 linear feet of habitat along the north end of the current ditch alignment adjacent to the Mancos River riparian corridor. Due to the level of grazing that occurs along the Mancos River corridor, the area is not highly suitable for NMMJM. Indirectly, the piping and backfilling of the ditch could result in disturbance to potential NMMJM habitat surrounding the Project area due to construction activity and noise.

*Southwestern willow flycatcher.* Potential direct impacts to the SWFL from the proposed Project include the loss of possible habitat along the current ditch alignment. These impacts would be located primarily on the north end of the Project area where vegetation is denser and meets the characteristics of potential SWFL habitat. Although an area of riparian vegetation along the southern part of the Project area was identified as meeting the characteristics of SWFL habitat, this area is not considered great habitat since it is narrow and adjacent to active hay fields.

Indirectly, the piping and backfilling of the ditch could result in disturbance to potential SWFL habitat surrounding the Project area due to construction activity and noise. An increase in potential SWFL habitat is expected from the proposed work at the habitat replacement sites. An improved water supply and the addition of trees and shrubs, as well as fences, would improve the quality of potential habitat at these locations.

*Yellow-Billed Cuckoo.* Potential direct impacts to the YBCU from the proposed Project include the loss of possible habitat along an approximate 0.5-mile length of the Mancos River riparian corridor. Indirectly, the piping and backfilling of the ditch could result in disturbance to potential YBCU habitat surrounding the ditch in this area due to construction activity and noise. Ground disturbance associated with the construction of the Proposed Action could create an avenue for invasive species to increase their presence in the riparian corridor as well. Of concern to YBCU is a potential increase in tamarisk abundance. Tamarisk invasion of riparian forests reduces the habitat effectiveness of an area for YBCU, with habitat effectiveness reaching near-zero as tamarisk approaches dominance.

*Colorado pikeminnow and Razorback sucker.* Water loss from evaporation would be slightly increased at the habitat replacement sites due to the proposed expansion of wetland habitat and construction of a new pond. The predicted total annual depletions from the pond and expanded wetland (0.57 acres total) based on the gross annual evaporation and average annual precipitation for the area would be 0.95 acre-feet (DWR 2019, Farnsworth et al. 1982, WRCC 2009). In addition, the Root and Ratliff Ditch has been diverting water from the Mancos River since 1875 with an estimated historic diversion of 4,144 acre-feet annually.

Water depletions occurring within the upper San Juan River Basin diminish backwater spawning areas for the pikeminnow and razorback sucker in downstream designated critical habitat. "Depletion" is defined as water which would contribute to the river flow if not intercepted and not returned to the system. This includes both surface and groundwater. Irrigation practices in the San Juan River Basin have diverted water from the basin rivers for over 140 years and continue to contribute to water depletions from the San Juan River.

A Biological Opinion (BO) was issued for the Animas-La Plata Project and again for the Navajo-Gallup Water Supply Project that analyzed historic depletions from the San Juan and Mancos Rivers in their environmental baselines. In 1999, the USFWS issued a BO to address the impact of individual minor water depletions of 100 acre-feet or less from the San Juan River Basin up to a cumulative annual total of 3,000 acre-feet. The BO determined that projects with minor water depletions less than 100 acre-feet within the aggregate total of 3,000 acre-feet are not likely to jeopardize the continued existence of the Colorado pikeminnow or razorback sucker and are not likely to destroy or adversely modify designated critical habitat.

Based on the BO issued in 1999, any actions which contribute to the cumulative effect of water depletions in the San Juan Basin constitute "may affect" determinations. Depletions associated with the Proposed Action include 4,144 acre-feet of historic depletions, which began in approximately 1875, and 0.95 acre-feet of new depletions. Although the historic depletions from the Mancos River were included in the environmental baselines for the Animas-La Plata Project and Navajo-Gallup Water Supply Project, the USFWS has not been directly consulted regarding the historic depletions from the Root and Ratliff Ditch. Due to the associated water depletions, the Proposed Action "may affect, is likely to adversely affect" the Colorado pikeminnow and razorback sucker and their designated critical habitats..

### 3.10 Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation. Title 54 USC 300101 et seq., National Park Service and Related Programs (formerly known as the NHPA of 1966), requires Federal agencies to take into account the potential effects of a proposed Federal undertaking on historic properties. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites, isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historical significance.

SWCA, Inc. conducted a Class III cultural resource inventory of the Proposed Action area. The inventory was conducted in November 2018 and July and September 2019. The cultural resource inventory covered 121.67 acres and included the proposed pipe alignment in a 100-foot wide corridor as well as the existing ditch, proposed access roads, staging areas, and habitat replacement sites. The purpose of a Class III cultural resource inventory is to identify and record all visible cultural resources within the Proposed Action area, including previously recorded cultural resources; evaluate the significance of the cultural resources and make recommendations regarding their eligibility to be recorded in the National Register of Historic Places (NRHP); assess the potential impact of the Proposed Action on significant cultural resources; and identify possible measures to mitigate such impacts. A total of 15 cultural resource sites were documented in the proposed Project area during the inventory. A summary of the results of the inventory is shown in Table 2.

**Table 2. Summary of Documented Cultural Resource Sites**

Site Number	Site Type	NHRP Eligibility Recommendation	Project Effect	Management Recommendations
5MT22131.4	Historic road segment	Needs data	No adverse effect	No further work
5MT23084	Historic/structural	Eligible	No adverse effect	Monitoring
5MT23085	Prehistoric artifact scatter with feature	Needs data	No adverse effect	Monitoring
5MT23086	Prehistoric artifact scatter	Eligible	No effect	No further work
5MT23087	Prehistoric artifact scatter	Needs data	No adverse effect	Monitoring and Constriction of construction right-of-way
5MT23088.1	Historic road segment	Needs data	No adverse effect	No further work
5MT23089.1	Historic road segment	Needs data	No adverse effect	No further work
5MT23090.1	Historic road segment	Needs data	No adverse effect	No further work
5MT23091	Historic road segment	Needs data	No adverse effect	No further work

Site Number	Site Type	NHRP Eligibility Recommendation	Project Effect	Management Recommendations
5MT23092	Historic ditch	Eligible	Adverse effect	Mitigation (Level II Documentation)
5MT23093	Isolated find	Not eligible	No effect	No further work
5MT23518	Historic building	Not eligible	No effect	No further work
5MT23519.1	Historic lateral irrigation ditch	Not eligible	No effect	No further work
5MT23520	Prehistoric artifact scatter	Needs data	No adverse effect	Monitoring
5MT23521	Historic homestead	Not eligible	No effect	No further work

Three sites were recommended eligible for inclusion in the NRHP, including the existing Root and Ratliff Ditch (5MT23092). The Root and Ratliff Ditch was one of the first irrigation systems in southwestern Colorado in the late nineteenth and early twentieth centuries and falls within the scope of the Water and Irrigation portion of the *Colorado Plateau Country Historic Context* (Hubbard 1984). The Ratliff and Root Ditch was constructed at the very beginning of the period of significance (1874–1922) and was instrumental in facilitating irrigation of the arid land near Mancos and settlement of the region, including successful cattle ranching and farming. SWCA Inc. recommended a finding of *Adverse Effects to Historic Properties* for the proposed Project since the historic feature of the Ratliff and Root Ditch would be adversely affected. A Colorado Office of Archaeology and Historic Preservation (OAHP) Level II Historic Site Documentation of the ditch was recommended to mitigate impacts to the ditch.

Four sites (5MT23084, 5MT23085, 5MT23087, and 5MT23520) were recommended for monitoring by a qualified archaeologist during ground-disturbing activities within 100 feet. Other recommendations for these sites include backfilling the ditch with clean dirt obtained from outside of the site and raking and reseeding any vehicle tracks within the site boundaries after project completion to restore the sites to pre-project conditions. Additional recommendations for two of the four sites (5MT23085 and 5MT23087) included constricting the construction area immediately adjacent to and within 100 feet of the site to ensure site avoidance and avoiding infilling the ditch within the site boundary. If the recommendations are followed, then SWCA Inc. recommends no adverse effect on these four sites.

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

Proposed Action: As a result of the Class III cultural resources inventory completed for the Proposed Action and in consultation with the Colorado State Historic Preservation Office (SHPO), Reclamation has determined that the Proposed Action would have an adverse effect on cultural resources within the Project area. The Root and Ratliff Ditch itself has been identified as eligible for inclusion in the NRHP. Reclamation has initiated consultation with the SHPO regarding impacts to cultural resources in the Project area. A Memorandum of Agreement (MOA) will be executed between Reclamation and the Colorado SHPO, with the Root and Ratliff Ditch

Company participating as an invited party, to identify the measures that would be implemented to mitigate the adverse effects of the Proposed Action. The MOA will be included as Appendix C upon finalization of the EA. The MOA stipulates that Level II documentation be completed prior to any earth disturbances for the Proposed Action and requires that any post-review discoveries trigger an Unanticipated Discovery Plan (UDP). A UDP would outline procedures that would be followed in order to protect potential archaeological materials or cultural resources discovered during implementation of the Proposed Action.

### **3.11 Agricultural Resources and Soils**

The Root and Ratliff is owned and operated as a mutual ditch company under Colorado Water Law. There are 2,337 shares in the Root and Ratliff Ditch Company. The ditch delivers water to approximately 1,290 acres. On-farm irrigation is accomplished using laterals, gated pipe, or sprinkler systems. The main crops grown are hay and pasture grass. The irrigation season typically runs for approximately 153 days from May through September, during which the average diversion from the Mancos River is 12.8 cfs. The ditch also delivers an average of 2.44 cfs of stock water to shareholders during the non-irrigation season.

NRCS identifies categories of farmlands of national and statewide importance in the region, based on soil types and irrigation status. According to USDA, prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops. There are areas of prime farmland throughout the Project area. These areas are shown in Figure 4 along with the mapped soils for the Project area.

The major mapped soil units found in the Proposed Action Area are Pogo loam, Sideshow silty clay loam, Sideslide silty clay loam, Ustorthents, Collide clay loam, and Purcella loam. The Sideshow silty clay loam and Sideslide silty clay loam soils are derived from Mancos Shale, which formed in a marine environment and now contribute salinity and selenium loading in the Colorado River Basin.

No Action: The No Action alternative would have no effect on prime farmlands or agriculture. Farmlands in the Proposed Action area would continue to produce as in the past. Salinity loading from irrigation water contact with Mancos Shale-derived soils in the current irrigation ditch system would continue as it has in the past.

Proposed Action: Under the Proposed Action alternative, installation of the pipeline would disturb areas of existing agricultural production or pasture. Some of these areas have been designated as prime farmland by the NRCS. These areas would be reclaimed and reseeded as approved by private landowners and specified in easement agreements. No change in the amount or configuration of irrigated lands would occur as a result of the Proposed Action. Pipeline construction would occur during the off-season when no water is running through the ditch. Once the pipeline is functional, then the existing ditch would be decommissioned. No interruption to agricultural production is anticipated.

To minimize soil erosion during implementation of the Proposed Action, disturbed areas would be revegetated as soon as possible following disturbance. BMPs to promote revegetation success, such as stockpiling topsoil and using it for reclamation activities, would be followed.

In the long-term, the users of the Root and Ratliff Ditch would benefit from the increased efficiency of the ditch. The ditch would also provide a more reliable and flexible flow because diversions to users would be metered and irrigators would have the ability to shut off water when their irrigation is complete. The increased efficiency may result in more water being available during the irrigation season. The Proposed Action would also allow for the development of a gravity fed pressurized delivery system for improved on-farm water management and potential conversion to more high-efficiency irrigation systems for certain users.

### 3.12 Cumulative Impacts

Cumulative impacts are impacts on the environment, which result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Past, present, and reasonably foreseeable future actions which may contribute cumulatively to impacts from the Proposed Action are described below. The cumulative area of analysis is limited to those actions identified within the immediate vicinity of the Proposed Action.

The Proposed Action may contribute to a reduction in riparian wildlife habitat that results from water management and land-use practices. As irrigation water is used more efficiently by agricultural producers, it becomes less available for wildlife. The Project would also continue to support grazing activities in the area, which can be destructive to riparian habitat. Ultimately, the intent of the proposed habitat replacement work is to offset the cumulative impacts from habitat loss associated with the Proposed Action.

The main cumulative impact expected from the Proposed Action is a decrease in the amount of salinity and selenium loading contributed to the Colorado River Basin from the Project Area. With the support of the Salinity Control Act, such projects are expected to continue in the overall basin with an overall improvement in the water quality downstream.

### 3.13 Summary of Impacts

Table 3 summarizes the predicted impacts/environmental consequences of the No Action and Proposed Action alternatives analyzed in this EA.

**Table 3. Summary of Impacts of the Proposed Action**

<b>Resource</b>	<b>Impacts of No Action Alternative</b>	<b>Impacts of Proposed Action Alternative</b>
Water Rights & Use	No effect	Positive long-term impact to water users from increased efficiency and control of irrigation water. No effect on water rights.
Water Quality	Negative long-term impact to downstream water quality.	Positive long-term impact to downstream water quality. Short-term impact to local water quality during headgate construction.
Air Quality	No effect	Short-term increase in local dust during construction.

Resource	Impacts of No Action Alternative	Impacts of Proposed Action Alternative
Access, Transportation, & Public Safety	No effect	Short-term increase in large vehicle and truck traffic on local roads. Short-term increase in traffic delays on local roads. Short-term increase in safety hazards to local residents on roads in Project area.
Recreation & Visual Resources	No effect	Minor impact on local viewshed with removal of riparian vegetation. Short-term impact to local residents using local roads for recreation.
Livestock Grazing	No effect	Short-term impact to livestock during construction due to trenches and possible need for relocation. Short-term impact to pasturelands and fences during construction.
Vegetative Resources & Weeds	No effect	Long-term impact to riparian vegetation along existing ditch and riparian woodland at Mancos River diversion. Possible impact to construction areas following revegetation due to an increased likelihood of noxious weed infestation. Positive impact at habitat replacement sites with expanded habitat, improved vegetation, and weed control.
Wildlife Resources	Negative long-term impact to downstream fish and aquatic birds from selenium loading.	Long-term loss of water and riparian habitat along ditch and riparian woodland at Mancos River diversion. Possible mortality of small burrowing animals during construction. Short-term impacts to wildlife during construction from noise, increased human presence, increased traffic, and the possible presence of pipeline trenches left open overnight. Short-term impacts to local fish in Mancos River from sediment mobilization during headgate construction. Positive impact at habitat replacement sites with expanded habitat, improved vegetation, improved fencing, and the installation of nest boxes. Positive long-term impact to downstream fish and aquatic birds from improved water quality.

Resource	Impacts of No Action Alternative	Impacts of Proposed Action Alternative
Special Status Species	No effect	<p>Short-term disturbance and displacement during construction due to noise, traffic, and increased human presence.</p> <p>Long-term loss of riparian habitat along ditch and riparian woodland at Mancos River diversion.</p> <p>Positive impact at habitat replacement sites with expanded habitat, improved vegetation, and weed control.</p> <p>Positive long-term impact to downstream endangered fish and migratory aquatic birds from improved water quality.</p> <p>Minor impact to downstream endangered fish from increased water depletions at habitat replacement sites.</p>
Cultural Resources	No effect	<p>Long-term impact due to loss of Ratliff and Root Ditch historic feature. Impact would be mitigated through a Level II Historic Site Documentation of the ditch.</p>
Agricultural Resources & Soils	No effect	<p>Short-term impact to agricultural land during construction.</p> <p>Positive long-term impact to water users from increased efficiency and control of irrigation water.</p>
Cumulative Impacts	No effect	<p>Cumulative decrease in the amount of salinity and selenium loading contributed to the Colorado River Basin and an overall improvement in the water quality downstream.</p> <p>Cumulative reduction in riparian wildlife habitat from water management and land-use practices.</p>

## 4.0 Environmental Commitments

This section summarizes the environmental protection measures committed by the applicant to avoid or minimize resource impacts. These measures have been incorporated into the design of the Proposed Action and shall be included in the contractor bid specifications. Some commitments may be subject to approval by private landowners as addressed in individual easement agreements. The environmental commitments for the Proposed Action are described below under the resource they are designed to protect, although some of these measures are designed to protect or mitigate impacts to multiple resources.

### Water Rights and Use

- The reliability of the water supply for the habitat replacement sites would be increased through the dedication of water rights (shares) in the Root and Ratliff Ditch.

## Water Quality

- Construction activities and the storage of construction equipment and materials would be restricted to the established construction areas and staging areas. The boundaries of staging areas would be clearly marked.
- A Stormwater Management Plan would be prepared and submitted to the Colorado Department of Public Health & Environment (CDPHE) by the construction contractor prior to construction disturbance.
- Creek crossings would be constructed during periods when the watercourse is not flowing or flowing at low levels. If a small amount of flow is present, appropriate water control measures would be employed, such as temporary impoundments or drain ditches, which allow for construction to proceed while minimizing potential for mobilization of silt or erosion.
- Culverts would be appropriately sized to allow for normal stream flow and bedded and stabilized to prevent erosion. Embankments would be stabilized and appropriately vegetated.
- The working surfaces of all staging locations would be graded with stormwater erosion control installed for the duration of construction.
- Construction equipment would be stored and serviced only at an approved staging area.
- Equipment would be inspected daily and immediately repaired as necessary to ensure equipment is free of petrochemical leaks.
- A Spill Response Plan would be prepared in advance of construction by the contractor for areas of work where contaminants could flow into water bodies.
- Portable secondary containment would be provided for any fuel or lubricant containers. Any staging of fuel or lubricants, or fueling or maintenance of vehicles or equipment, would not be conducted within 100 feet of any surface water or drainage.
- No hazardous materials would be stored along the pipeline or ditch right-of-way.
- Gaps would be left at regular intervals in windrowed topsoil and subsoil stock piles to avoid ponding and excess diversion of natural runoff during storm events. Dry drainages or washes that cross the construction workspace would not be blocked with topsoil or subsoil piles. Topsoil and subsoil would be placed outside of the ordinary high-water mark of drainages.
- Any concrete pours would occur in forms and/or behind cofferdams to prevent discharge into waterways. Any wastewater from concrete-batching, vehicle wash down, and aggregate processing would be contained and treated or removed for off-site disposal.
- Work at the habitat replacement sites would be completed during the non-irrigation season (Approximately October through March) when the site has less water.
- Pre-construction notification would be given to the USACE under Nationwide Permit (NWP) No. 27. Care would be taken to minimize disturbance to wetland areas and restore these areas to pre-construction conditions as quickly as possible. Erosion and sediment controls would be used and all temporary fill, including sediment, mats, etc. would be removed once construction is complete and prior to reclamation activities.

## **Air Quality**

- Fugitive dust would be minimized by wetting down exposed soils with potable water as necessary. Soil stockpiles may be compacted where appropriate.
- Traffic speeds would be minimized on unpaved roads.
- Open trucks would be covered while transporting materials likely to produce airborne dust.

## **Access, Transportation, and Public Safety**

- The Root and Ratliff Ditch Company and the construction contractor would coordinate with the CDOT on work within the highway right-of-way, and with the Montezuma County Public Works Department for work within the county road right-of-way.
- Utility clearances would be obtained by the construction contractor prior to construction activities from local utilities in the area.
- The County Sheriff Department would be notified when traffic or access would be delayed or significantly re-routed.
- Existing county roads, private roads, and rights-of-way would be used for construction access as much as possible. Some access routes may require minor grading to provide for truck travel to the project alignment.
- The construction workspace would be graded as needed in steeper areas to allow for safe operation of construction equipment.
- Access routes and road crossings would be returned to the same or better condition than they were prior to construction once the pipeline has been completed.
- Dedicated easements would be negotiated with private landowners for the pipeline right-of-way prior to construction. Easements would be recorded with Montezuma County.
- The depth to the top of the pipeline would not be less than 2 feet.
- All pipeline welds would be visually inspected by a qualified inspector before backfilling operations.
- Larger rocks would be sifted out from excavated material and not used for backfilling around the installed pipeline. In rocky areas, padding material or a rock shield would be used to protect the pipe.

## **Recreational and Visual Resources**

- Following construction, any construction debris would be removed and disposed of properly.
- Car tires and household waste that exist in some reaches of the ditch would be recycled or disposed of in a suitable land fill.
- To ensure public safety, pipe trenches left open while unattended (e.g. overnight) that could pose a hazard to recreators on public roads would be covered and marked.

## **Livestock Grazing**

- The contractor would contact landowners before trenching a section of the pipeline in order to ensure livestock are not released due to downed fences or prevented from reaching water sources because of open trenches.
- A portion of the ditch on the Willenbuecher property habitat replacement site would be left unfenced to provide access to water for livestock.
- All cattle guards and fences affected by construction activities would be returned to conditions substantially similar to those existing prior to construction.

## **Vegetative Resources and Weeds**

- Vegetation removal would be confined to the smallest portion of the Proposed Action area necessary for completion of the work.
- The top 12 inches of topsoil excavated from the pipeline trench would be stockpiled and used in reclamation activities following construction. Topsoil would be stockpiled separately from subsoil.
- All areas disturbed during construction would be reclaimed subject to any conditions from private land owners. Disturbed surfaces would be contoured to match the surrounding area and restore drainage patterns.
- Drought-tolerant and weed-free seed mixes appropriate for the surrounding native vegetation would be used as approved by private land owners and Reclamation.
- The contractor would employ drill or broadcast seed methods to ensure proper seed placement. The seed would be uniformly raked, chained, dragged, or cultipacked to incorporate seed to a sufficient seeding depth, if possible. Reseeded sites would be mulched to facilitate germination and growth.
- Drill seeding is preferred and would be used wherever soil characteristics and slope allow effective operation of a rangeland seed drill. Drill seeding would be performed perpendicular to the slope; seed would be placed in direct contact with the soil at an average depth of 0.5 inches, covered with soil, and compacted to eliminate air pockets around the seeds.
- Broadcast seeding would be employed in areas where drill seeding is unsafe or physically impossible. Seed would be applied uniformly over disturbed areas with manually operated cyclone-bucket spreaders, mechanical spreaders, or other methods. Broadcast application rates would be twice that of drill rates.
- Weed control would be implemented by the ditch company contractor in accordance with right-of-way stipulations and current Montezuma County weed control standards.
- All equipment would be cleaned before it is brought to the construction area to remove seeds and/or pieces of noxious weeds in order to minimize the introduction and spread of noxious weeds.
- Weed-free straw or hay bales would be required to be used on the site for erosion control. Seed applied in reclamation would be required to be weed free. Only clean fill materials would be imported onto the site for use during construction.

- Revegetation would occur at the earliest practical time to re-establish a ground cover on exposed soils that would help prevent the encroachment, establishment, and/or spread of invasive species.
- Areas of noxious weeds on the habitat replacement sites would be treated using biological agents or herbicides as approved by the landowner.

### **Wildlife Resources**

- Temporary wooden escape ramps or dirt plugs would be placed in any trenches left open overnight to provide a way for wildlife or livestock to escape from or cross the trench.
- To prevent fish from entering the water pipeline, screens would be placed over the intake structure at the Mancos River diversion.
- The habitat replacement sites would be protected from future disturbance through the use of deed restrictions that prevent any development or activities that could negatively impact the wildlife habitat.
- Fencing would be reduced and replaced with wildlife friendly fencing on the Willenbuecher property habitat replacement site.
- A series of nest boxes would be installed at the habitat replacement sites to encourage use by birds.

### **Special Status Species**

- If feasible, any vegetation removal would occur outside the migratory bird breeding season (April 1 – July 15). Any vegetation removal during the breeding season would be preceded by nesting surveys to identify any occupied nests and establish avoidance buffers until the young have fledged.
- If during construction a new active raptor nest or a bald eagle roost site is discovered within 0.5 mile of the Proposed Action, construction would cease until Reclamation could complete consultations with USFWS and CPW.
- In the event that threatened or endangered species are encountered during construction, the ditch company shall stop construction activities until Reclamation has consulted with USFWS to ensure that adequate measures are in place to avoid or reduce impacts to the species.

### **Cultural Resources**

- A Colorado OAHP Level II Historic Site Documentation would be completed for the existing Root and Ratliff Ditch (cultural site 5MT23092) prior to any ground-disturbing activities.
- Ground-disturbing activities within 100 feet of cultural sites 5MT23084, 5MT23085, 5MT23087, and 5MT23520 would be monitoring by a qualified archaeologist.
- The irrigation ditch in the vicinity of cultural sites 5MT23084, 5MT23085, 5MT23087, and 5MT23520 would be backfilled with clean dirt obtained from outside of the site.
- After project completion, any vehicle tracks within the boundary of cultural sites 5MT23084, 5MT23085, 5MT23087, and 5MT23520 would be raked and reseeded to restore the sites to pre-project conditions.

- The construction area immediately adjacent to and within 100 feet of cultural sites 5MT23085 and 5MT23087 would be constricted to ensure site avoidance and any ditch infill would not occur within the cultural site boundaries.
- If previously undiscovered human remains, or cultural or paleontological resources are discovered during construction, construction activities would immediately cease in the vicinity of the discovery, the area would be fenced off, and Reclamation would be notified. A Reclamation archaeologist would then evaluate the site. Should a discovery be evaluated as significant under Title 54 USC 300101 et seq., the Native American Graves Protection and Repatriation Act, or the Archaeological Resource Protection Act, it would be protected in place until mitigation measures could be developed and implemented according to guidelines set by the Reclamation.

### **Agricultural Resources and Soils**

- Construction of the pipeline in the existing ditch alignment would occur during the non-irrigation season (approximately October through March) in order to allow use of the irrigation ditch by water users. Decommissioning and backfilling of the ditch would be performed after proper operation of the new pipeline has been verified.

## **5.0 Consultation and Coordination**

Reclamation’s consultation and coordination process presents other agencies, interest groups, and the general public with opportunities to obtain information about a given project and allows interested parties to participate in the project through written comments. The key objective is to facilitate a well-informed, active public that assists decision-makers throughout the process, culminating in the implementation of an alternative. This section explains consultation and coordination undertaken for the Proposed Action.

### **5.1 Scoping and Coordination**

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

- Montezuma County
- U.S. Fish & Wildlife Service, Ecological Services, Grand Junction, CO
- U.S. Army Corps of Engineers, Colorado West Regulatory Branch, Durango, CO

Consultation with the Colorado Office of Archaeology and Historic Preservation, the Southern Ute Indian Tribe, the Ute Indian Tribe of the Uintah and Ouray Reservation, and the Ute Mountain Ute Tribe was conducted pursuant to Title 54 USC 300101 et seq.

## 5.2 Public Review

In compliance with NEPA, this Draft EA will be available for public comment for a 30-day period (via Reclamation's website at <https://www.usbr.gov/uc/envdocs/index.html>). Notice of publication of this Draft EA will be distributed to Root and Ratliff Ditch shareholders, private landowners adjacent to the Proposed Action, and the organizations and agencies listed in Appendix E. Substantive comments received during the review period will be included and addressed in the Final EA, which will be made available on Reclamation's website.

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## **Figures**

**Figure 1. Vicinity Map**

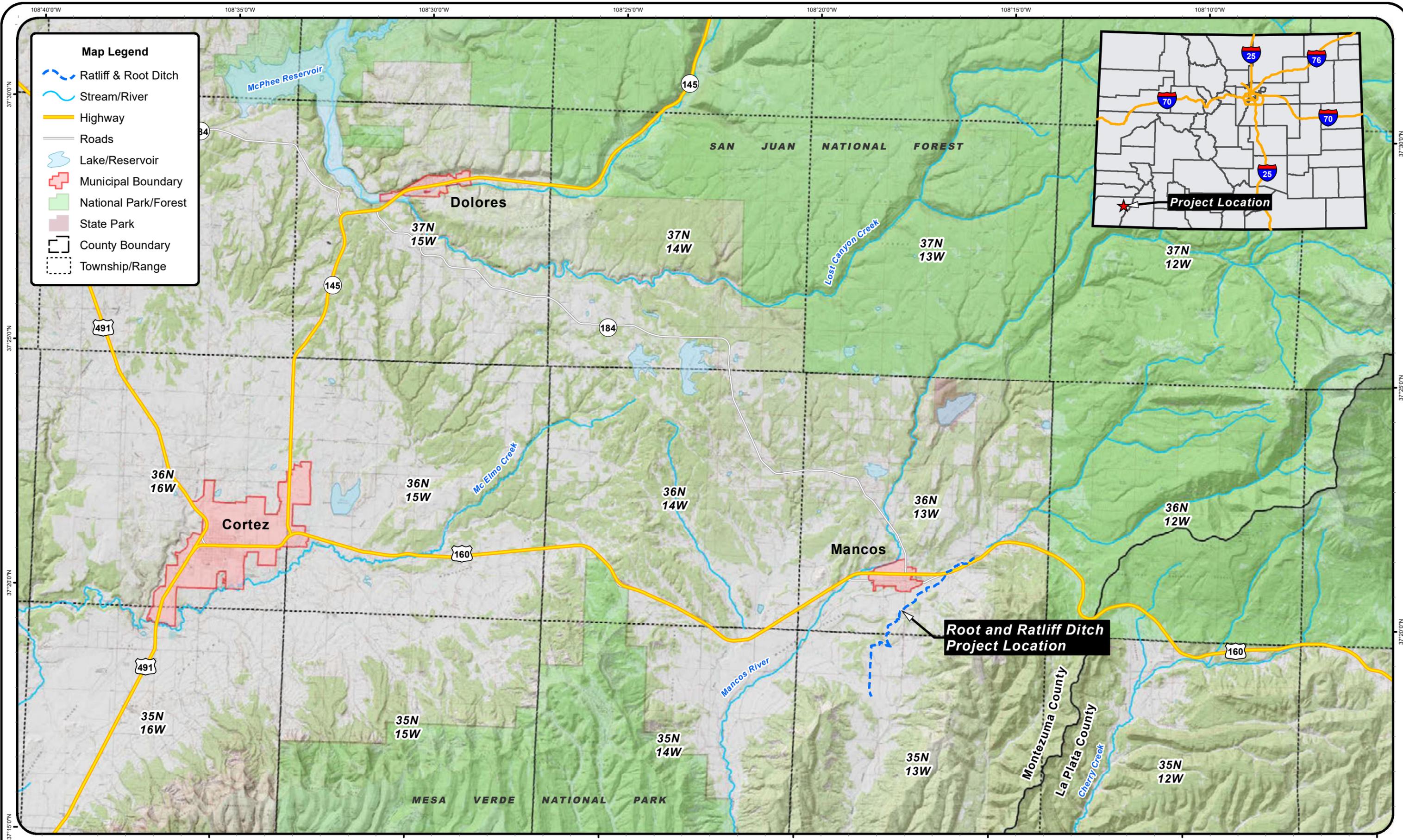
**Figure 2. Project Area Map**

**Figure 3a. Proposed Work Plan for Hoessle Site**

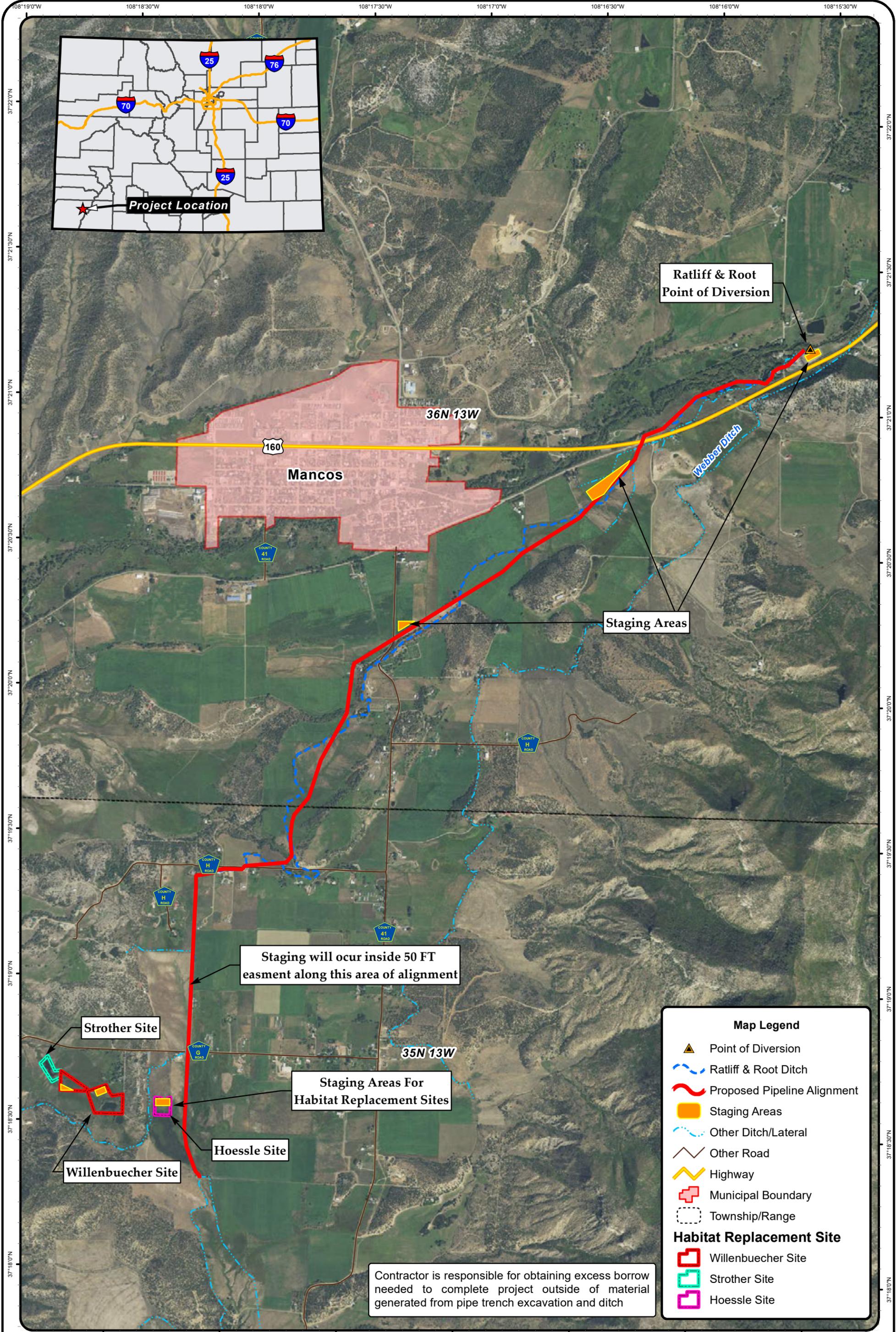
**Figure 3b. Proposed Work Plan for Willenbuecher Site**

**Figure 3c. Proposed Work Plan for Strother Property**

**Figure 4. Soils and Prime Farmlands**



**Figure 1.**  
**Ratliff and Root Ditch Vicinity Map**



Ratliff & Root  
Point of Diversion

36N 13W

Mancos

160

Webber Ditch

Staging Areas

Staging will occur inside 50 FT easment along this area of alignment

Strother Site

Staging Areas For  
Habitat Replacement Sites

Hoessle Site

Willenbuecher Site

35N 13W

Contractor is responsible for obtaining excess borrow needed to complete project outside of material generated from pipe trench excavation and ditch

**Map Legend**

- Point of Diversion
- Ratliff & Root Ditch
- Proposed Pipeline Alignment
- Staging Areas
- Other Ditch/Lateral
- Other Road
- Highway
- Municipal Boundary
- Township/Range

**Habitat Replacement Site**

- Willenbuecher Site
- Strother Site
- Hoessle Site

•Current habitat units = 7.7  
 •Habitat units with enhancements = 18.1  
 •Net increase +10.5

HTHT, LLC

SCITURRO  
WILSON, RENA

ROUSSEAU,  
BARBARA

HOESSELE,  
BRADLEY

HERNDON,  
WILLIAM C. III  
& NANCY J.

MARTINEZ, DAVID  
V. & ELIZABETH  
J. TRUST

Area for Deed Restriction (2.55 acres)

Access



Cattail/Bulrush Wetland

Mormon Lake  
± 5.3 acres

HTHT, LLC

HTHT, LLC

Map Legend

- West Lateral
- Existing Wetland
- Deed Restriction (2.55 acres)
- Wetland/Aquatic Area (1.37 acres)
- Parcel Boundary
- Enhancement Activities**
  - Bird Nesting Structure
  - Shrub Plantings\*
  - Tree Plantings\*
  - Expanded Wetlands (Created 0.37 acres)
  - Weed Control

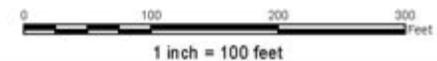
\*Exact locations to be field fit. Refer to Table 2 in report.

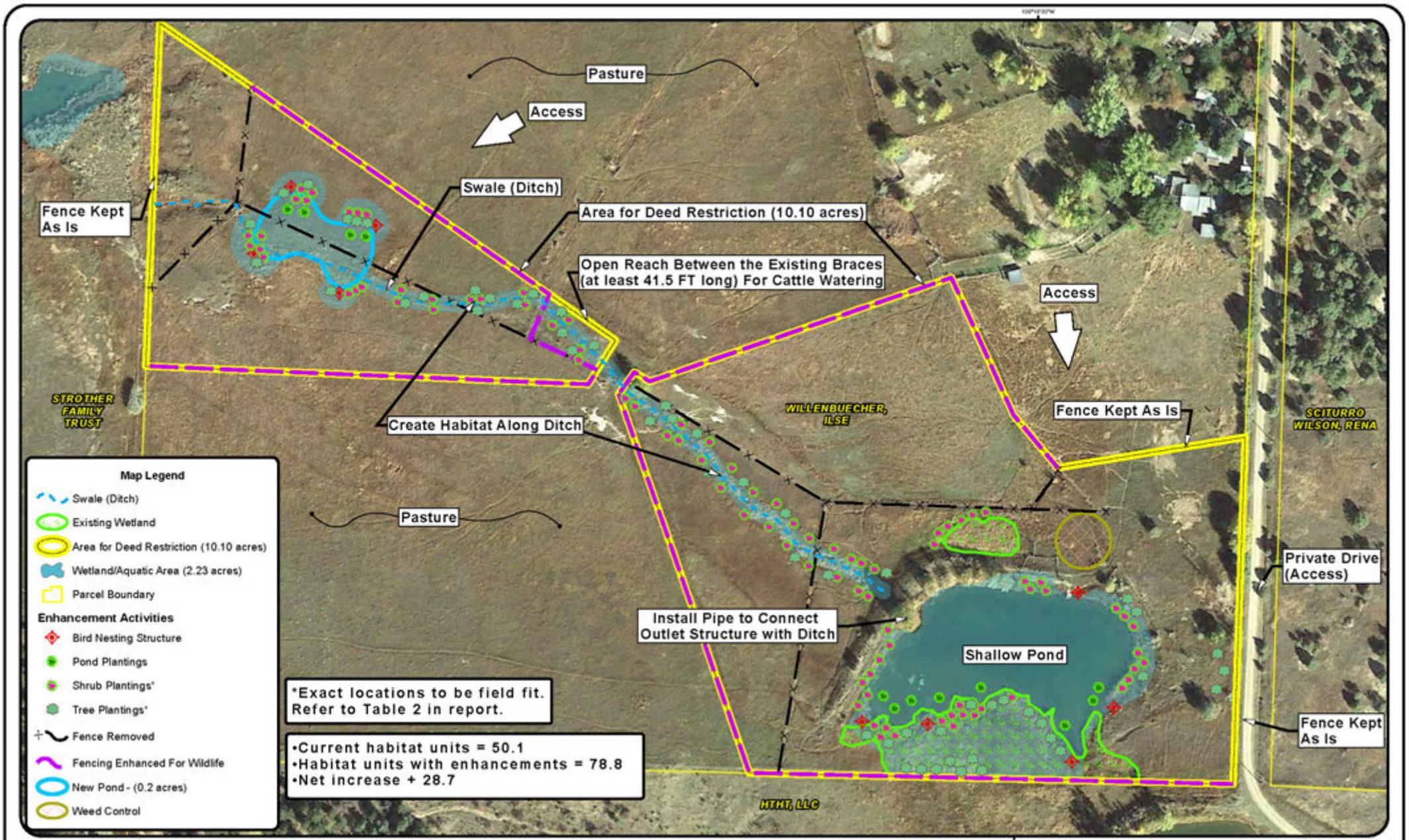
Root and Ratliff Ditch



**Figure 3a**  
**Proposed Work Plan for Hoessle Site**  
 Root and Ratliff Ditch

Date: 12/27/2019 | Job No: 2018-391.001 | Map by: DSS | Checked by: DBM | Scale: 1:1,200  
 Data Sources: Morteuzuma County GIS, Google Earth Imagery - 10/12/2017  
 File: P:\Project Files\2018-391.001 Root & Ratliff Ditch\GIS\MXD\5\BA\Fig3a-WorkPlan-Hoessle0220191213.mxd  
 The information displayed above is intended for general planning purposes. Refer to legal documentation/data sources for descriptions/locations.





**Figure 3b**  
**Proposed Work Plan for Willenbuecher Site**  
 Root and Ratliff Ditch

Date: 12/27/2019 | Job No: 2019-391.001 | Map by: DGS | Checked by: DBM | Scale: 1:1,200  
 Data Sources: Morteuzuma County GIS, Google Earth Imagery - 10/12/2017  
 File: P:\Project Files\2019-391.001 Root & Ratliff Ditch\GIS\MXD\3b\Fig3b-WorkPlan-WillenbuecherSite.mxd  
 The information displayed above is intended for general planning purposes. Refer to legal documentation/data sources for descriptions/locations.

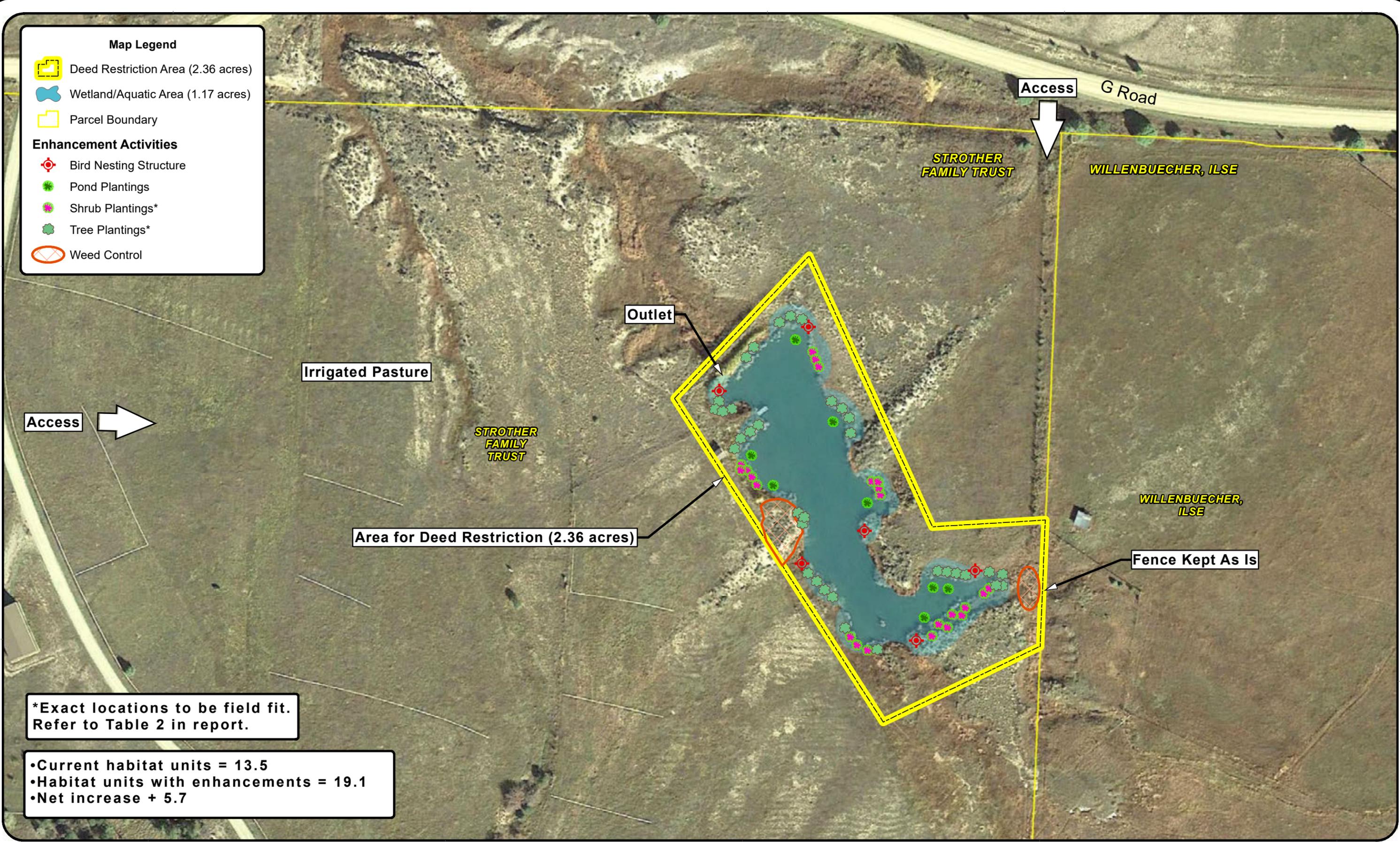


**Map Legend**

-  Deed Restriction Area (2.36 acres)
-  Wetland/Aquatic Area (1.17 acres)
-  Parcel Boundary

**Enhancement Activities**

-  Bird Nesting Structure
-  Pond Plantings
-  Shrub Plantings\*
-  Tree Plantings\*
-  Weed Control



\*Exact locations to be field fit. Refer to Table 2 in report.

- Current habitat units = 13.5
- Habitat units with enhancements = 19.1
- Net increase + 5.7

# **Appendix A**

## **Photographs of Project Area**

Appendix A  
Photographs of Project Area  
Root & Ratliff Ditch

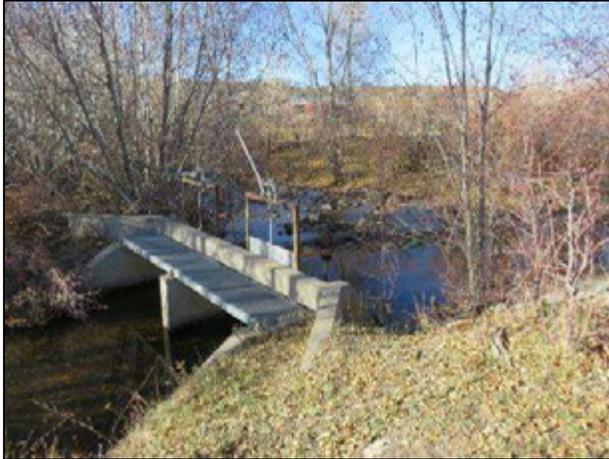


Photo 1. Ditch headgate on the Mancos River.



Photo 3. Large alders in incised ditch north of State Highway 160.



Photo 2. Segment with riparian forest north of State Highway 160.

Appendix A  
Photographs of Project Area  
Root & Ratliff Ditch



Photo 4. Reach with trampled banks and dead willows south of State Highway 160.



Photo 5. Reach of ditch below cemetery on dry hillside with no wildlife habitat.



Photo 6. Segment with monoculture of reed canarygrass on both lower banks.

Appendix A  
Photographs of Project Area  
Root & Ratliff Ditch

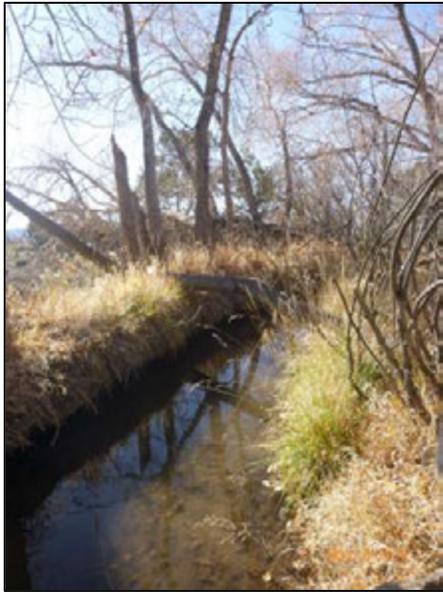


Photo 7. Segment with old cottonwoods along ditch.



Photo 8. Reach with herbaceous and shrub layers.



Photo 9. Reach with large, narrowleaf cottonwoods, willows, and herbaceous layer (and tires in the ditch).

Appendix A  
Photographs of Project Area  
Root & Ratliff Ditch



Photo 10. Relatively large wetland with willows and herbaceous understory at H Road.



Photo 11. Reach with dense willows along H Road.



Photo 12. Willows along ditch south of H Road. Note grazed/cut field up to willows.



Photo 13. Towards the end of ditch looking west at Mormon Lake in the background. The ditch is incised 2-3 feet in this reach.

Appendix A  
Photographs of Project Area  
Root & Ratliff Ditch



Photo 14. Ditch through large wetland area with Mormon lake to the right off the photo.



Photo 15. Concrete splitter box at the end of the ditch.

# **Appendix B**

## **U.S. Army Corps of Engineers Approved Jurisdictional Determination**



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

March 25, 2019

Regulatory Division (SPK-2019-00108)

Root and Ratliff Ditch Company  
Attn: Mr. Sam Perry  
Root and Ratliff Ditch  
Mancos, Colorado 81328  
[salomesam@gmail.com](mailto:salomesam@gmail.com)

Dear Mr. Perry:

We are responding to your February 12, 2019, request for an approved jurisdictional determination for the Root and Ratliff Ditch Pipeline site. The project site is located along the Root and Ratcliff irrigation ditch that starts at the Mancos River at Latitude 37.353940°, Longitude -108.260298°, and terminates below Mormon Lake, Latitude 37.305245°, Longitude -108.301836°, Montezuma County, Colorado.

Based on available information, we concur with your aquatic resources delineation for the site, as depicted on the enclosed map of the review area, prepared by SGM (enclosure 1). The review area is limited to the Root and Ratliff Ditch, which is an irrigation ditch that does not convey water to a waters of the United States. The ditch is located in uplands and does not act as a drainage ditch. During normal conditions, in which irrigation water is not turned on, this ditch would not have an ordinary high-water mark or support wetland conditions. The preamble to 33 CFR Parts 320 through 330 states that non-tidal drainage and irrigation ditches excavated on dry land are generally not waters of the United States. Therefore, this ditch is not a waters of the United States. We are enclosing a copy of the *Approved Jurisdictional Determination Form* for your site (enclosure 2).

This approved jurisdictional determination is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331.

A *Notification of Appeal Process (NAP) and Request for Appeal (RFA) Form* is enclosed (enclosure 3). If you request to appeal this determination, you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPDPDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, we must determine that the form is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that the form was received by the Division Office within 60 days of the date of the NAP. It is not necessary to submit an RFA form to the Division Office unless you object to the determination in this letter.

We recommend that you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This approved jurisdictional determination has been conducted to identify the limits of aquatic resources subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act for the particular site identified in this request.

We appreciate feedback, especially about interaction with our staff and our processes.

Please refer to identification number SPK-2019-00108 in any correspondence concerning this project. If you have any questions, please contact me at the Durango Regulatory Office, 1970 E 3rd Ave., #109, Durango, Colorado 81301, by email at [Kara.A.Hellige@usace.army.mil](mailto:Kara.A.Hellige@usace.army.mil), or telephone at (970) 259-1604. For program information or to complete our Customer Survey, visit our website at [www.spk.usace.army.mil/Missions/Regulatory.aspx](http://www.spk.usace.army.mil/Missions/Regulatory.aspx).

Sincerely,

HELLIGE.KAR  
A.A.1230362  
676

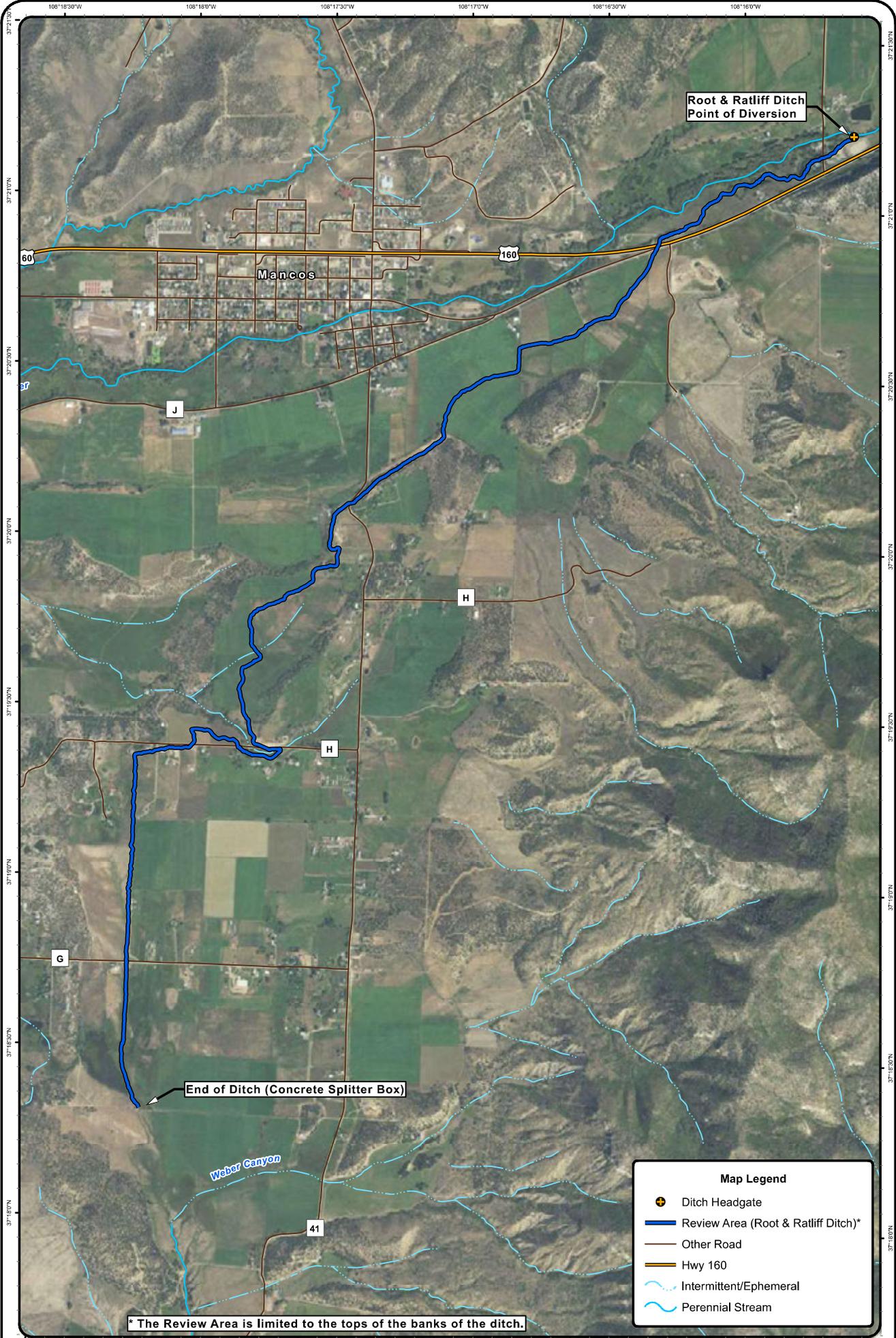
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HELLIGE.KARA.A.1230362676  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=HELLIGE.KARA.A.1230362676  
Date: 2019.03.25 15:16:29 -06'00'

Kara A. Hellige  
Senior Project Manager  
CO West Section

Enclosures

cc:

Mr. Dave Mehan, SGM, [davem@sgm-inc.com](mailto:davem@sgm-inc.com)



Root & Ratliff Ditch  
Point of Diversion

Mancos

J

H

H

G

End of Ditch (Concrete Splitter Box)

Weber Canyon

41

**Map Legend**

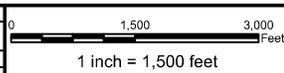
- Ditch Headgate
- Review Area (Root & Ratliff Ditch)\*
- Other Road
- Hwy 160
- Intermittent/Ephemeral
- Perennial Stream

\* The Review Area is limited to the tops of the banks of the ditch.



Figure 3  
Review Area Root and Ratliff Ditch  
Approved JD Request (SPK - 2009 - 00108)

Date: 3/21/2019 Job No: 2018-391.001 Map by: RZM Checked by: DBM Scale: 1:18,000  
Data Sources: NAIP 2017, Montezuma County GIS, CDOT, USGS  
File: P:\Project Files\2018-391.001 Ratliff & Root Ditch\H-Dwgs\GIS\MXD\Fig3-ReviewArea.mxd  
The information displayed above is intended for general planning purposes. Refer to legal documentation/data sources for descriptions/locations.



**APPROVED JURISDICTIONAL DETERMINATION FORM  
U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):** March 22, 2019

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Sacramento District, **Root and Ratliff Ditch Pipeline, SPK-2019-00108**

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: **Colorado** County/parish/borough: **Montezuma County** City:  
Center coordinates of site (lat/long in degree decimal format): Lat. **37.3538333333333°**, Long. **-108.259791666667°**  
Universal Transverse Mercator: **12 742703.18 4137648.28**

Name of nearest waterbody: **Weber Canyon**

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **East Mancos River**

Name of watershed or Hydrologic Unit Code (HUC): **Mancos, 14080107**

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form:

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

Office (Desk) Determination. Date: **March 22, 2019**

Field Determination. Date(s):

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There **are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There **are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet, wide, and/or acres.

Wetlands: acres.

**c. Limits (boundaries) of jurisdiction based on: **Pick List****

Elevation of established OHWM (if known):

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **The review area contains an irrigation ditch that does not convey water to a waters of the United States. The ditch is located in uplands and does not act as a drainage ditch. During normal conditions, in which irrigation water is not turned on, this ditch would not have an ordinary high-water**

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

mark or support wetland conditions. The preamble to 33 CFR Parts 320 through 330 states that non-tidal drainage and irrigation ditches excavated on dry land are generally not waters of the United States.

**SECTION III: CWA ANALYSIS**

**A. TNWs AND WETLANDS ADJACENT TO TNWs**

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

**1. TNW**

Identify TNW:

Summarize rationale supporting determination:

**2. Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent":

**B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):**

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

**1. Characteristics of non-TNWs that flow directly or indirectly into TNW**

**(i) General Area Conditions:**

Watershed size: **Pick List**  
Drainage area: **Pick List**  
Average annual rainfall: inches  
Average annual snowfall: inches

**(ii) Physical Characteristics:**

**(a) Relationship with TNW:**

- Tributary flows directly into TNW.
- Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.  
Project waters are **Pick List** river miles from RPW.  
Project waters are **Pick List** aerial (straight) miles from TNW.  
Project waters are **Pick List** aerial (straight) miles from RPW.  
Project waters cross or serve as state boundaries. Explain:

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW<sup>5</sup>:  
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

**Tributary is:**  Natural  
 Artificial (man-made). Explain:  
 Manipulated (man-altered). Explain:

**Tributary properties with respect to top of bank (estimate):**

Average width: feet  
Average depth: feet  
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

Silts  Sands  Concrete  
 Cobbles  Gravel  Muck  
 Bedrock  Vegetation. Type/% cover:  
 Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List.** Characteristics:

Subsurface flow: **Pick List.** Explain findings:

Dye (or other) test performed:

Tributary has (check all that apply):

Bed and banks  
 OHWM<sup>6</sup> (check all indicators that apply):  
 clear, natural line impressed on the bank  the presence of litter and debris  
 changes in the character of soil  destruction of terrestrial vegetation  
 shelving  the presence of wrack line  
 vegetation matted down, bent, or absent  sediment sorting  
 leaf litter disturbed or washed away  scour  
 sediment deposition  multiple observed or predicted flow events  
 water staining  abrupt change in plant community  
 other (list):  
 Discontinuous OHWM.<sup>7</sup> Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by:  
 oil or scum line along shore objects  
 fine shell or debris deposits (foreshore)  
 physical markings/characteristics  
 tidal gauges  
 other (list):  
 Mean High Water Mark indicated by:  
 survey to available datum;  
 physical markings;  
 vegetation lines/changes in vegetation types.

**(iii) Chemical Characteristics:**

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain:  
Identify specific pollutants, if known:

**(iv) Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

**2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

**(i) Physical Characteristics:**

**(a) General Wetland Characteristics:**

Properties:

Wetland size: \_\_\_\_\_ acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

**(b) General Flow Relationship with Non-TNW:**

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- Dye (or other) test performed:

**(c) Wetland Adjacency Determination with Non-TNW:**

- Directly abutting
- Not directly abutting
  - Discrete wetland hydrologic connection. Explain:
  - Ecological connection. Explain:
  - Separated by berm/barrier. Explain:

**(d) Proximity (Relationship) to TNW**

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

**(ii) Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:  
Identify specific pollutants, if known:

**(iii) Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain:
- Habitat for:
  - Federally Listed species. Explain findings:
  - Fish/spawn areas. Explain findings:
  - Other environmentally-sensitive species. Explain findings:
  - Aquatic/wildlife diversity. Explain findings:

**3. Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately \_\_\_\_\_ acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:**

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

- TNWs:            linear feet,            wide, Or            acres.
- Wetlands adjacent to TNWs:            acres.

2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters:            linear feet            wide.
- Other non-wetland waters:            acres.

Identify type(s) of waters:

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet, wide.  
 Other non-wetland waters: acres.

Identify type(s) of waters:

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.  
 Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

- Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from "waters of the U.S.," or  
 Demonstrate that water meets the criteria for one of the categories presented above (1-6), or  
 Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

- which are or could be used by interstate or foreign travelers for recreational or other purposes.  
 from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.  
 which are or could be used for industrial purposes by industries in interstate commerce.  
 Interstate isolated waters. Explain:  
 Other factors. Explain:

**Identify water body and summarize rationale supporting determination:**

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet, wide.  
 Other non-wetland waters: acres.

Identify type(s) of waters:

- Wetlands: acres.

<sup>8</sup>See Footnote # 3.

<sup>9</sup> To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup> Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.



# **Appendix C**

## **Cultural Resources Compliance Documentation**

(Cultural resources compliance to be included in the Final EA)

# **Appendix D**

## **Endangered Species Act Compliance Documentation**

(Section 7 documentation to be included in the Final EA)

# **Appendix E**

## **Distribution List**

## **Environmental Assessment Distribution List**

All landowners adjacent to the Proposed Action  
Colorado Department of Transportation  
Colorado Division of Water Resources  
Colorado Parks and Wildlife  
Colorado River Water Conservation District  
Colorado State Historic Preservation Office  
Colorado Water Conservation Board  
Montezuma County Planning Department  
Montezuma County Public Works Department  
Montezuma County Sheriff's Department  
Navajo Nation  
Root and Ratliff Ditch Company Board  
Southern Ute Indian Tribe  
Town of Mancos  
U.S. Army Corps of Engineers Durango Regulatory Office  
Ute Mountain Ute Indian Tribe