

The proposed project is part of Richvale Irrigation District's (RID) comprehensive plan for system modernization and boundary flow monitoring developed as part of the 2014 Feather River Regional Agricultural Water Management Plan (FRRAWMP). The project will implement modernization improvements at 12 locations to reduce operational spillage and increase on-farm efficiency to provide multiple water use efficiency (WUE) benefits. The District has received implementation funding through the California Department of Water Resources (DWR) and the U.S. Bureau of Reclamation, and the proposed actions are expected to be completed by mid-2021. (**Figure 1-Location Map**)

Description of Construction Activities

Project activities will vary according to the needs of each specific location. These activities will include structural improvements at lateral canal headings along the Main Canal and Main West Canal to provide control of water level, flow, measurement and automation. Improvements will mostly consist of retrofitting of existing structures with new automated gates or the installation of weir boxes and Remote Tracker (RT) brackets. In addition, at some locations, improvements will include the construction of a concrete-lined section of the irrigation canal which will include buried conduit. Construction activities will vary according to the needs of each specific improvement location.

For purposes of this assessment, project activities were divided into eight separate improvement types, four of which would result in ground disturbing activities ranging in size from 2,020 square feet (sf) to 18,915 sq. A list of improvement types and if ground disturbance is required can be seen in **Table 1**.

Table 1. Types of Improvements To be Implemented as Part of the Project.

Site Name	Construction Activity	Ground Disturbance Required
Ollies Weir/Humpy West/Humpy Weir	Line section, bury conduit (105 ft), replace board bays with metal slide gates. Humpy West to be abandoned, boards removed.	Yes
Humpy South	Line section, bury conduit (270 ft)	Yes
Mixing Box	Line sections, actuated slide gate retrofit, replace 4 bays with slide gates and High Pump heading, bury conduit (470 ft)	Yes
Bradford Lateral	Weir box and RT bracket	Yes
Peterson Lateral	Weir box and RT bracket	Yes
Jones Weir	Actuated slide gate – retrofit	No

Site Name	Construction Activity	Ground Disturbance Required
Banyon Flume Resolution/Watts Heading	Replace board bays with metal slide gates and ITRC flap gate	No
9010 Weir	Replace board bays with metal slide gates	No
Rystrom Weir	Replace board bays with metal slide gates	No
Low Pump Heading and Drop Structure	New actuated radial gates	No
Floyd's Weir	Actuated slide gate – retrofit	No
Tower Weir	Actuated slide gate – retrofit	No

Activities that require ground disturbance and structural modification will consist of excavation trenching, concrete lining, new structure placement, and backfilling. Depending on the project type, construction activities will be completed with an excavator, skid steer-loader, skid-steer trencher, dump truck, concrete mix truck, concrete pump truck, a flatbed truck with a crane, and pickup trucks.

Typical excavation activities associated with the lining of canals, will consist of removing, re-contouring, and re-compacting earthen material along the canal banks to create a landform that will facilitate the lining of the section with concrete. Rock slope protection would be placed along the side slopes of transition points to protect the concrete lined portions from scour. Earthen material from excavations of the lined portions of canal may be temporarily stockpiled adjacent to the canal along the access road within the staging area. All work will be performed adjacent to the structure from the point of access.

Work areas vary depending on the improvement type and will include the improvement project, construction staging, and stockpile areas, if applicable. Construction staging will take place on the canal access roads adjacent to the improvement area. If equipment and construction materials are stored outside of the work area, they will be located within the District's maintenance yard and/or a construction easement would be obtained from adjacent landowners to utilize their existing agricultural operations yard. These yards are generally improved with gravel parking and outbuildings and are used for equipment storage, agricultural processing, vehicle maintenance, etc. All work areas will be clearly defined and marked to confine the areas of disturbance. In addition to the work areas, there are approximately 9.2 miles of access roads providing ingress and egress to the improvement sites. Since the project is occurring at discrete locations along longer portions of canal, it is important to differentiate between work areas and disturbance area. As such, the project areas include all the activities at each improvement site (i.e. staging, stockpiling, equipment movement, etc.) while the disturbance area is the where temporary and permanent ground disturbing activities will occur. It should be noted; the disturbance area is contained within the greater project area. See **Appendix C** for maps of project work locations.

Construction at each work location would be short in duration as the project mostly involves small replacements of water control structures such as weir boxes although lining canal sections may be longer

in duration. Due to water delivery constraints during the irrigation season it is anticipated that some work may be necessary during the GGS inactive season, as this also coincides with a time when the District's canals are typically dry. However, when feasible, project construction will be conducted during the snake's active season (May-October). It is assumed that construction activities would likely occur concurrently at multiple locations. For activities involving retrofitting existing structures, the ease of construction and reduction in earthmoving activities has the potential to shorten the construction window for those types.

Construction is slated to begin in 2020. The schedule is influenced by inclement weather, timing of the execution of access agreements and permits, work windows and constraints that may be imposed by conditions defined in applicable permits. The project and construction activities are slated for completion in 2021. An extended timeframe may be required for construction completion dependent upon weather and permit requirements.

For construction activities anticipated to occur between October 1 through April 30 (GGS inactive season), any pre-construction activities that can occur, such as mechanical mowing, hand cutting, and site preparation, would be completed prior to September 15 of the year in which winter work is expected. Proposed avoidance and minimization measures that impact work scheduling are discussed in Avoidance and Minimization Measures