

March 2026

**COMPONENT 3: RED BLUFF MULTI-BENEFIT
PROJECTS MONITORING PLAN**

**SUSTAINABLE GROUNDWATER MANAGEMENT ACT
(SGMA) IMPLEMENTATION GRANT AGREEMENT
NUMBER 4600015877**

PREPARED FOR

TEHAMA COUNTY FLOOD CONTROL AND WATER
CONSERVATION DISTRICT



TEHAMA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

PREPARED BY



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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
GSP	Groundwater Sustainability Plan
PMA	Projects and Management Actions
RCDTC	Resource Conservation District of Tehama County
SGMA	Sustainable Groundwater Management Act
TCFCWCD	Tehama County Flood Control and Water Conservation District

1. GOALS AND OBJECTIVES OF THE MULTI-BENEFIT PROJECTS

According to the Groundwater Sustainability Plan (GSP) and subsequent annual reports prepared for the Red Bluff Subbasin, the Subbasin is currently in a state of groundwater overdraft (TCFCWCD 2024). In order to address this overdraft, the Tehama County Flood Control and Water Conservation District (TCFCWCD), acting as the Groundwater Sustainability Agency (GSA) for the Subbasin has developed Projects and Management Actions (PMAs) to decrease groundwater use and increase groundwater recharge.

Multi-Benefit projects, are those projects which provide additional benefits beyond groundwater recharge as a function of their design and operation. In most cases, the additional expected benefit from projects is creation or maintenance of wildlife habitat. However, multiple other benefits may be realized from various types of projects. For instance, water efficiency projects, while providing in-lieu recharge benefits, can also save energy through reduced pumping. In addition, such efficiency projects can also reduce the amount of excess nutrients (nitrogen, potassium, phosphorus) entering the environment by more precisely controlling application of fertilizers through improved irrigation systems.

The Resource Conservation District of Tehama County (RCDTC), in partnership with TCFCWCD, implemented a comprehensive program of outreach, technical assistance, and irrigation infrastructure improvements to support groundwater sustainability and provide other benefits. These projects were designed to address both immediate and long-term groundwater challenges by combining grower education with direct technical assistance and on-the-ground infrastructure improvements. By integrating these approaches, RCDTC worked to ensure that outreach efforts and infrastructure improvements provided groundwater conservation benefits through irrigation efficiency. In addition, the greater efficiency and control afforded by these improvements provide energy savings and improve the environment by reducing excess nutrients from the subject properties.

2. SITE LOCATIONS AND DETAILS

The Multi-Benefit Projects were identified through landowner outreach and are located within Red Bluff Subbasin. Ultimately, four project sites were identified for construction and repair of irrigation infrastructure to encourage irrigation efficiency and improve groundwater sustainability. A listing of the project locations is shown in **Table 1**. Their locations are visible on **Figure 1**.

Table 1. Completed Multi-Benefit Project Details	
Project Name	Area (Acres)
Lindauer River Ranch	440
Pacific Farms	210
River Oaks Farm	217
J. Garcia Olive Company	175



Figure 1. Project Locations

3. IMPROVEMENTS IMPLEMENTED

Projects varied by location, size and complexity. However, each project is intended to enhance irrigation efficiency to provide groundwater sustainability and other benefits.

3.1. Lindauer River Ranch

A network of soil moisture sensors (5 total) was installed to aid with efficient irrigation scheduling along with 2 flow meters to track pumping water use. Two automated and remote-controlled fertigation pumps for increased fertilizer application efficiency. Two In-field valves were replaced, and 14 total valves were retrofitted with remote control capabilities and at 4 pump stations. All monitoring equipment and automation are compiled in a digital network allowing farm managers hands-on control for precision irrigation scheduling. For photos of project work see **Appendix A: Project Photos**.

3.2. Pacific Farms

Replacement of 7 buried and antiquated valves with a new above ground (Nelson hydraulic) that includes remote automation and retrofitting valves in 4 other locations. Replacement of one failed soil moisture sensor (part of an existing monitoring network) and the installation of 2 automated flow meters to track pumping water use. For photos of project work see **Appendix A: Project Photos**.

3.3. River Oaks Farm

The existing irrigation system, which operated as two interconnected blocks with variable soil characteristics, was retrofitted to enhance operational efficiency and adaptability. Two new mainline pipelines were installed and equipped with automated Nelson hydraulic control valves, subdividing the existing system into four independently controlled irrigation blocks. The existing single line drip hose was buried to reduce maintenance work, minimize wildlife damage and limit water losses due to leaks. The existing spin clean filter was replaced with a sand media filter station, providing higher-quality filtration for the drip irrigation system, improved backflush water efficiency, and reduced maintenance requirements. The pump station also included the installation of two injection pumps—one for fertilizer and one for acid—allowing greater precision and control over application rates. Both injection systems are equipped with sensors that enable remote monitoring and control. For photos of project work see **Appendix A: Project Photos**.

3.4. J. Garcia Olive Company

Antiquated drip line (20+ years) was replaced with .61 gph pressure compensating double line drip. Remote control equipment was installed at 2 pump stations and on 19 valves to allow farm managers hands-on control of irrigation schedules that will be incorporated with previously installed monitoring equipment. For photos of project work see **Appendix A: Project Photos**.

4. QUANTIFICATION OF PROJECT BENEFITS

The project resulted benefits at both the individual grower level and across the broader groundwater system. Growers participating in the program gained increased knowledge of irrigation efficiency practices and access to technical and financial resources. Infrastructure improvements implemented through the construction projects reduced water loss associated with aging systems and improved irrigation uniformity and control. Automation and system upgrades allow for more precise irrigation scheduling and management, contributing to long-term reductions in groundwater demand.

Average water savings across the projects cannot be precisely determined at this time as the projects have not yet been utilized through an irrigation season. However, based on RCDTC experience with previous projects of similar size and scope, an estimated savings of 0.5 acre-feet per acre per year is anticipated. The total acreage of all projects is approximately 1042 acres, so the total anticipated groundwater savings across the subbasin is estimated at about 520 acre-feet per year.

5. MONITORING AND REPORTING PLAN

Monitoring and reporting for each of the projects will consist of ongoing outreach with landowners to determine actual groundwater savings through the improvements implemented. RCDTC will collect data on actual project benefits by reviewing pumping totals through the irrigation season with landowners as part of their ongoing technical assistance. Pumping data for the irrigation season following the improvements will be compared with historical data, controlling for precipitation, evapotranspiration, and other factors to accurately quantify water savings at each project location.

Water savings data will be shared with the GSA for inclusion in GSP annual report PMA updates and will be used for informing decisions on the sustainability of the subbasin.

6. REFERENCES

Tehama County Flood Control and Water Conservation District (TCFCWCD). 2024. Corning Subbasin Groundwater Sustainability Plan.

Appendix A: Project Photos

Lindauer River Ranch



Pacific Farms



River Oaks Farm



J. Garcia Olive Company

