Print Form

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: El Dorado
360 Fair Lane
Placerville, CA 95667

From: (Public Agency): Georgetown Divide Public Utilities District
6425 Main Street
Georgetown, CA 95634
(Address)

Project Title: Georgetown Divide Public Utility District Canal Piping Resiliency Project

Project Applicant: Georgetown Divide Public Utilities District (GD PUD)

Project Location - Specific:

Start: 38°55'19.15"N 120°40'50.23"W End: 38°55'57.20"N 120°39'52.99"W

Project Location - City: Quintette Project Location - County: El Dorado County

Description of Nature, Purpose and Beneficiaries of Project:

Please see the attached PD

Name of Public Agency Approving Project: GD PUD

Name of Person or Agency Carrying Out Project: Adam Brown (abrown@gd-pud.org)

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: 15301(b); 15302(c)
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt:

The proposed project involves piping an existing public utility canal. The project will not involve expansion of capacity. The project qualifies under categorical exemption section 15301(b)- Existing Facilities/publicly owned utilities and 15302(c) Replacement or Reconstruction

Lead Agency Contact Person: Adam Brown Area Code/Telephone/Extension: 530-333-4356

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: Date: 7/31/2024 Title: Operations Manager

Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR:

FILED

JUL 31 2024

JANELLE K. HORNE, Recorder-Clerk
By

Revised 2011

State of California - Department of Fish and Wildlife

2024 ENVIRONMENTAL DOCUMENT FILING FEE CASH RECEIPT

DFW 753.5a (REV. 01/01/24) Previously DFG 753.5a

RECEIPT NUMBER: 09--07312024-085

STATE CLEARINGHOUSE NUMBER *(If applicable)*

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEAD AGENCY EMAIL	DATE
GEORGETOWN DIVIDE PUBLIC UTILITIES	abrown@gd-pud.org	07/31/2024

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
EL DORADO	FW2024-0085

PROJECT TITLE

GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT CANAL PIPING RESILIENCY PROJECT

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
GEORGETOWN DIVIDE PUBLIC UTILITIES	abrown@gd-pud.org	(530) 333-4356

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
6425 MAIN STREET	GEORGETOWN	CA	95634

PROJECT APPLICANT *(Check appropriate box)*

☐ Local Public Agency ☐ School District ☒ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$4,051.25	$
☐ Mitigated/Negative Declaration (MND)(ND)	$2,916.75	$
☐ Certified Regulatory Program (CRP) document - payment due directly to CDFW	$1,377.25	$

☒ Exempt from fee

- ☒ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$
☒ County documentary handling fee		$ $50.00
☐ Other		$

PAYMENT METHOD:

☐ Cash ☒ Credit ☐ Check ☐ Other **TOTAL RECEIVED** $ $50.00

SIGNATURE	AGENCY OF FILING PRINTED NAME AND TITLE
X	Janelle K. Horne Recorder-Clerk, by Hailey Cisneros, Dpty

Georgetown Divide Public Utility District
Canal Piping Resiliency Project

Project Description

1.0 PROJECT BACKGROUND

Georgetown Divide Public Utility District (GDPUD) is an urban water supplier formed under the authority of the California Public Utility District Act in 1946 with the responsibility to construct, finance, maintain, and operate a water system in El Dorado County. It is headquartered in the foothills of El Dorado County between the north and south forks of the American River in Georgetown, CA. GDPUD owns and operates a surface reservoir, canals, water treatment facilities and water distribution systems to provide water service to their customers. GDPUD also owns and operates a small wastewater collection system which is not included in the scope of this project.

GDPUD is applying for federal funding through United States Department of Agriculture (USDA) and the Rural Utilities Service (RUS). The grant provides funding for drinking water, sanitary sewer, solid waste and storm drainage facilities in rural communities of 10,000 or less.

1.1 Proposed Project

The Project consists of the installation of multiple piped segments of the Georgetown Ditch Water Conveyance System (canal) totaling approximately 8,000 linear feet and is generally located north of Wentworth Springs Road, north of Quintette, and along Georgetown Water Supply Road, as shown in Figure 1. In order to improve system reliability and resiliency, the Project entails the installation of irrigation piping within canal sections that were identified as priority for conversion from open ditch to piped conveyance due to significant water loss and exposure to erosion as a result of the Mosquito Fire of 2022. The Mosquito Fire burned 76,788 acres and there was a Presidential Disaster Declaration (FM-5453-CA) declared on September 9, 2022.

The proposed Project would include installing a 48-inch high-density polyethylene (HDPE) pipe within the existing canal footprint and backfilling over the pipe with native/imported material. Once the pipe is installed, the access road will be widened over the top of the pipe/canal trench, to provide a wider, more reliable access and maintenance road and protect the water supply from contaminated runoff entering the system. The Project would be constructed by contractors that were selected through public bidding.

The proposed Project would include removing sediment and/or gunite from the canal, recompacting the flow line and preparing the canal bottom for installation of the 48-inch HDPE pipe. In addition, maintenance access structures would be installed along the alignment to provide access to pipes for maintenance. The maintenance access structures would be concrete lined and equipped with trash racks to keep large debris from flowing into the pipe. The maintenance access structures would provide GDPUD access to remove sediment and or blockages from the piped segments. These structures would be installed where a new pipe section is ending at an existing pipe section, angle points, and on runs which exceed approximately 500 feet.

Backfill for the pipe would be sourced from the adjacent areas within GDPUD's existing prescriptive easements. In addition, supplemental backfill material may be provided from another approved source. Any supplemental material to be used would be obtained from stockpiles temporarily stored at the staging areas shown on Figure 2. Project construction on each segment would occur in phases to reduce canal shut down times. Each phase would begin with cutting off supply from Stumpy Meadows, damming the upstream ditch, pipe or maintenance access structure, then completing approximately 300 to 500 linear feet of pipe placement before restoring flows. The construction approach and methods are further described below.

The existing piped sections of the canal are 48-inch diameter. GDPUD has not experienced capacity issues and does not anticipate rapid population growth within the service area. The design diameter for the new piping would be consistent with the existing 48-inch piping and there is no additional capacity being proposed as part of this project. There is still available capacity in the existing pipe sections. Multiple pipe materials were considered but HDPE pipe was selected because it is light weight and easy to place with manual labor when an excavator cannot be used, which is important as access can be limited. HDPE is also more widely available, easier to transport and stage, lower in cost, easier to install, and is traffic rated with appropriate soil cover, as recommended by the manufacturer specifications.

1.1.1 Project Location and Access

The Project Area is generally located north of Wentworth Springs Road, north of Quintette, and along Georgetown Water Supply Road. The canal, along the El Dorado Conduit, is located within an approximate 50-foot-wide prescriptive easement (25-feet from centerline on each side) on private property and National Forest Land. The Project Area includes the approximately 8,000 linear-foot segments where piping installation would occur and the approximately 14,100-linear feet of the GDPUD access roads that would provide access to the installation sites. While only piping is proposed along the identified segments, access and staging would occur along the service roads within the project vicinity. The approximate 9.5-acre, 8,000 linear-foot total segments where the piping would be installed corresponds to Sections 31-32, Township 13 North, and Range 12 east (Mount Diablo Base and Meridian) of the "Tunnel Hill, California" 7.5-minute quadrangles (U.S. Geological Survey [USGS] 1950 [photo revised 1973]; (Appendix A, Figure 2). The approximate center of the Project Area is located at 38.928988° latitude and -120.676114° longitude within the North Fork American watershed (Hydrological Unit Code #18020128; Natural Resources Conservation Service [NRCS] et al. 2019).

The Project Site spans through 10 Assessor's Parcel Numbers (APN): 0632400810000; 0630700930000; 0630200210000; 0630200200000; 0630200280000; 0630200120000; 0630200290000; 0630200220000; 0630200230000; and 0630200130000.

1.1.2 Construction Approach/Methods

Construction Equipment and Materials

Possible construction equipment for the Project could include pickup trucks, an excavator/backhoe, dump trucks, concrete trucks, trailer mounted concrete pump, bypass pump, bulldozer, grader, sheep's foot roller/compactor, water trucks, and hand tools. Construction materials would include concrete maintenance access structures and drainage conveyance. Concrete trucks, smaller dump trucks, and pickup trucks would be used to transport all construction materials, equipment, and personnel to the construction site. Erosion and sediment controls would be applied within the 50-foot-wide easement. On the steeper slopes, erosion and sediment control may be required outside the 50-foot-wide easement and an agreement with private landowners may be required.

Construction Sequence

Project construction would progress as outlined below.

- The existing canal maintenance access road was impacted by fallen trees due to winter storms. Construction crews would first trim and/or remove overgrown vegetation and prune/remove fallen trees as needed to clear the maintenance road and gain access to the canal. Any vegetation removal would be similar to the routine maintenance for the area and no live trees are proposed to be removed.
- Following vegetation clearing, crews would mobilize to the Project Site, establish the current phase work limits, and install temporary construction fencing to protect any environmentally sensitive areas.
- Installation of the piping would generally be conducted outside the irrigation season, which is between fall and spring. GDPUD would provide source control and cut the water supply to dewater the canal in the Project Area. It is anticipated that the contractors will be able to complete approximately 300 to 500 linear feet of canal piping within four to five days. The canal would need to recover for two to three days between each dewatering session.
- The most challenging area for construction will be the most upstream section called "the narrows." This section will require handwork to remove existing gunite, rocks and sediment from the flow line. The flow line will need to be reshaped and compacted via handwork as well. Once the hand work is completed the pipe will be placed from the downstream maintenance access structure working upstream. Sections of pipe will be set, backfilled, and then utilized as a path for the excavator as the pipe is placed and backfilled from the downstream to the upstream maintenance access structure.
- For the unlined sections of the canal, the upstream maintenance access structures will be dammed or dewatered. Prior to the upstream maintenance access structures being dammed or

dewatered, native backfill will be sourced and stockpiled at the closest staging area. Once the backfill has been sourced and the canal dammed, sediment and rocks will be removed from the flow line, and the flow line will be reshaped, compacted, and bedding for the HDPE pipe will be placed. Once the bedding has been placed the HDPE pipe will be set and backfilling can begin. Backfill will be compacted, aggregate base will be placed over the top as a road surface and erosion control measures will be installed as appropriate.

- For the lined sections of the canal, the demolition of the gunite can be done prior to damming the upstream maintenance access structures to reduce shut down times. Sediment control measures will be required at the downstream section to prevent sediment transport and blockages. An excavator would be used to break up the gunite lining and place it into trucks for off haul. If possible, the gunite would be processed and used as pipe bedding, backfill or erosion protection to reduce material hauled. Once the gunite has been removed, the upstream maintenance access structures would be dammed, and the 48-inch pipe would be installed using the same methods as the unlined canal sections.
- Maintenance access structures would be installed at the termination of all piped sections. All maintenance access structures would include a concrete apron with positive drainage from the flow line of the proposed pipe to the existing lined or unlined flow line. If a proposed pipe section terminates at an existing pipe section a maintenance access structure would still be installed to provide maintenance access. All upstream maintenance access structures would be equipped with a trash rack to prevent debris and animals from blocking the pipe.
- There are two potential sources of backfill that could be used. The first and most likely source would be from the existing canal side slopes and the area immediately above the canal. This onsite material would be placed using a backhoe/excavator to push the canal side slopes over the pipe and pull additional material from the uphill side slope as needed to bury the pipe. This would be followed by smoothing, grading and compacting the ground surface to ensure positive drainage. As an alternative and/or to supplement available onsite material, approved off-site material may be sourced. Should this material be used, it would be trucked to the site and placed using a backhoe/excavator.
- Two bulk staging areas would be available for use during construction (Figure 2). Staging areas would be used to store construction equipment and materials, potentially including supplemental fill material sourced from other GDPUD projects. Smaller staging areas would be available along the canal.
- New culvert facilities would be installed to allow intermittent and ephemeral drainages that intersect the canal to pass under/over the canal and under the adjacent service road and discharge to their former water course below the canal. The location of these existing drainages is shown in Figure 3.
- Upon completion, all temporarily disturbed areas would be treated with anti-scouring measures such as hydroseeding, straw waddles and/or mulching.

1.1.3 Construction Schedule

The Project schedule is contingent on the funding award date, weather conditions and the linear feet of piping that could be supported by grant funding.

1.1.4 Construction Best Management Practices

Surveying for the Project will occur either by utilizing drones or Geographical Positioning System (GPS) to locate and stake the reaches slated for construction. Detailed design plans are not necessary as construction would be guided by typical cross-sections developed by GDPUD's design engineer for each segment. GDPUD maps and plans will be used to show limits of work, staging areas and any parcels requiring temporary construction easements, although temporary easements are not expected to be necessary at this time.

The work would be constructed by contractor crews with assistance from a concrete pumping subcontractor, if required. The construction crew would implement construction Best Management Practices (BMPs) to avoid and minimize impacts to sensitive resources. As discussed below, construction BMPs would include implementation of a Storm Water Pollution Prevention Plan (SWPPP) consistent with National Pollutant Discharge Elimination System (NPDES) permit requirements. SWPPP measures would minimize the potential for construction-related surface water pollution and ensure water quality is not compromised by erosion and/or sedimentation during construction. While Project construction is not expected to require surface water diversion because the canal would be taken out of service and dewatered prior to construction, should conditions require, any water diversion would be installed in accordance with the provisions outlined in California Department of Transportation's *Construction Site Best Management Practices for Clear Water Diversion* (Fact Sheet NS-5).

In addition, the following BMPs would be implemented as part of the Project by contractor construction crews.

BMP 1: **Temporary Fencing.** Construction crews shall install construction barrier fencing (including sediment fencing and straw wattles) to prevent contaminants and debris from entering canals or adjacent waterways. The Project biologist will identify the locations for the barrier fencing and mark those locations with stakes or flagging before construction begins.

BMP 2: **SWPPP.** A SWPPP shall be implemented as part of the NPDES Permit and a General Construction Activity Storm Water Permit to minimize the potential for sediments or contaminants to enter waterways.

BMP 3: **Erosion Control.** The Project design shall incorporate permanent erosion control elements to ensure stormwater runoff does not cause soil erosion.

BMP 4: **Toxic Materials Control and Spill Response Plan.** The following measures shall be implemented during construction to avoid or minimize the risk of spills or discharges of toxic materials into waterways:

- Prepare a hazardous material Spill Prevention, Control, and Countermeasure Plan (SPCCP) before construction and implement during construction. Clean up all spills immediately according to the SPCCP.
- Prevent raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life from contaminating the soil or entering waterways (other than the canals where piping is proposed).
- Prevent discharge of turbid water or sediment-laden runoff to waterways by using grass sediment filters, diverting the water to a settling tank, and/or implementing other erosion and water quality control BMPs to ensure compliance with water quality requirements prior to discharging water back to waterways.
- Provide areas located outside the Ordinary High-Water Mark (OHWM) for staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants.
- Remove vehicles from the normal high-water area before any refueling and lubricating to prevent contaminants from being discharged to waterways during storm runoff. Any contaminated water generated by Project construction would be pumped to a holding tank for proper disposal.
- Crews shall notify the GDPUD construction manager if evidence of soil or groundwater contamination is encountered during construction activities. Construction in that area shall be halted until the fire department has evaluated the find and remediation is completed, if necessary.
- Construction crews shall comply with the California Occupational Safety and Health Administration standards for the storage and handling of fuels, flammable materials, and common construction-related hazardous materials and for fire prevention (California Labor Code, Division 5, Chapter 2.5).

BMP 5: **Special-Status Plant Surveys and Avoidance.** Perform focused plant surveys of the Project Area according to CDFW, CNPS, and USFWS protocols prior to construction (CDFW 2018; CNPS 2001; USFWS 1996). Surveys shall be conducted by a qualified biologist according to the blooming period for target species and timed according to the appropriate phenological stage for identifying target species. Known reference populations will be visited and/or local herbaria records should be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the Project Area, no further measures pertaining to special-status plants are necessary.

If special-status plants are identified within 25-feet of the Project Area, implement the following measures:

The Project will avoid occurrences of special-status plant species by establishing and clearly demarcating avoidance zones around the plant occurrences prior to construction. Avoidance zones should include the extent of the special-status plants plus a minimum 25-foot buffer,

unless otherwise determined by a qualified biologist, and should be maintained until the completion of construction. Additional measures such as seed collection and/or transplantation may be developed in consultation with CDFW and the CEQA lead agency if special-status plant species are found within the Project Area and avoidance of the species is not possible.

BMP 6: **Aquatic Wildlife Surveys and Avoidance.** A qualified biologist will complete a preconstruction survey of the Project Area for California red-legged frog, foothill yellow-legged frog, and northwestern pond turtle immediately prior to dewatering activities.

The biologist will remain onsite to monitor the Project Area during dewatering. Non-sensitive biological resources found in the Project Area will be moved by the biologist out of harm's way. Any sensitive biological resources found by the biologist requiring take authorization or permission for relocation will be allowed to leave the Project Area by their own volition (i.e., no handling).

BMP 7: **Nesting Birds.** To the extent feasible, vegetation trimming for site access shall be conducted outside of the bird nesting season (typically February 1–August 31, and as early as January 1 for raptors).

If Project activities will occur during the nesting season (typically February 1 to August 31), a preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction.

The preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project boundaries, including any temporary disturbance areas. For raptors, the preconstruction nesting bird survey shall include accessible areas within 0.25 miles of the Project boundary.

If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with the CDFW, shall establish a buffer distance. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. The buffers will be removed once the young have fledged from the nest or the nest is determined to be otherwise unoccupied.

BMP 8: **Obtain Permits.** Obtain an approved jurisdictional determination from the USACE and/or Waters of the State from the Central Valley RWQCB to determine the jurisdiction of the aquatic features within the Study Area.

A permit authorization under Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S.

A permit authorization from the Central Valley RWQCB pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Act must be obtained prior to the discharge

of material in an area that could affect Waters of the U.S./State. Mitigation requirements for discharge to Waters of the U.S./State would be developed in consultation with the Central Valley RWQCB.

A Lake a Streambed Alteration Agreement (LSAA) from CDFW pursuant to Section 1602 of the California Fish and Game Code must be obtained for impacts to features (e.g., the bed, channel, or bank of any river, stream, or lake) that may be subject to Section 1600 of the Fish and Game Code. The construction contractor shall adhere to all conditions outlined in Section 1602 SAA.

BMP 9: **Oak Reserves.** The applicant shall obtain appropriate permit authorization from El Dorado County prior to trimming or cutting of any live native oak trees in the Project Area.

BMP 10: **Historic Preservation.** If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

A. If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.

B. If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the lead agencies. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined by CEQA or a historic property under Section 106 NHPA, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.

C. If the find includes human remains, or remains that are potentially human, they shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the El Dorado County Coroner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California PRC, and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (Section 5097.98 of the PRC). The designated MLD will have 48 hours from

the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

1.1.5 Required Permits and Approvals

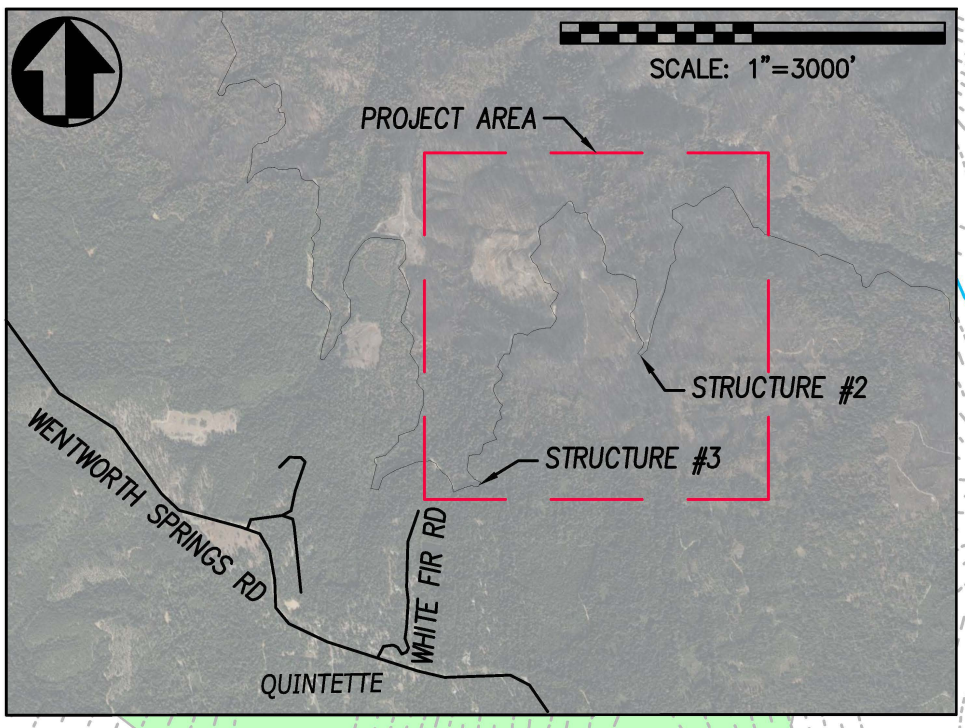
The Project is located exclusively within the maintained canal prescriptive easement by GDPUD; therefore, no new easements are required for Project implementation.

Based on the results of the Biological Resources Assessment (BRA), no federal or State-listed terrestrial or aquatic species would be impacted.

Because the canal is a constructed feature, excavated in uplands and subject to ongoing operation and maintenance as a water supply conveyance facility, it is exempt from Clean Water Act (CWA) Section 404 permitting. Thus, backfilling the canal following pipe placement would not trigger the need for CWA Section 404 or 401 permitting. However, because the canal would be backfilled, the existing intermittent and ephemeral drainages that intersect and drain to the canal will need to be addressed. To accomplish this, culverts would be constructed to convey these drainages under/over the canal and under adjacent access road for discharge to their former drainage courses below the access road. This culvert construction would require disturbance and/or cut or fill within the existing drainages on the uphill side of the water supply canal. Thus, CWA Section 404 and 401 permitting would be required for the Project.

The Project is also subject to a CDFW 1602 Lake and Streambed Alteration Agreement (LSAA)because the canal constitutes a bed and bank feature and some vegetation removal may be required for construction access. Finally, should construction ground disturbance exceed one acre, a NPDES permit and related SWPPP would also be required for Project implementation.

FIGURE 1 – PROJECT LOCATION AND VICINITY



PILOT CREEK

UC-4-19

THE NARROWS

UC-4-17

UC-4-18

PROPOSED 48" CMP IMPROVEMENTS APPROX 1,410 LF

PROPOSED 48" CMP IMPROVEMENTS APPROX 460 LF

UC-4-12

48" CMP (1997 REPAIR)

SECTION OF PIPE REPLACED IN 1970'S

PROPOSED 48" CMP IMPROVEMENTS APPROX 1,330 LF

UC-4-16

PROPOSED 48" CMP IMPROVEMENTS APPROX 1,040 LF

PROPOSED 48" CMP IMPROVEMENTS APPROX 350 LF

UC-4-13

UC-4-15

PROPOSED 48" CMP IMPROVEMENTS APPROX 230 LF

UC-4-11

CULVERT

UC-4-10

PROPOSED 48" CMP IMPROVEMENTS APPROX 520 LF

ROAD TO "YELLOW GATE"

UC-4-14

SLIDES BELOW DITCH/PIPE

UC-4-9

CONTROL STRUCTURE #2

UC-4-8

48" CMP (2000 REPAIR)

PROPOSED 48" CMP IMPROVEMENTS APPROX 2,800 LF

CONTROL STRUCTURE #3

UC-4-7

48" CMP (2000 REPAIR)

LEGEND

- PIPE
- LINED DITCH
- UN-LINED DITCH
- NATURAL FEATURE
- HEADWALL
- CONTROL STRUCTURE
- GRIZZLEY
- CONFLUENCE
- FOREST SERVICE LAND
- DITCH TO BE LINED WITH 48" PIPE

12/05/2023

BEN|EN Y&C

SCALE: 1"=500'

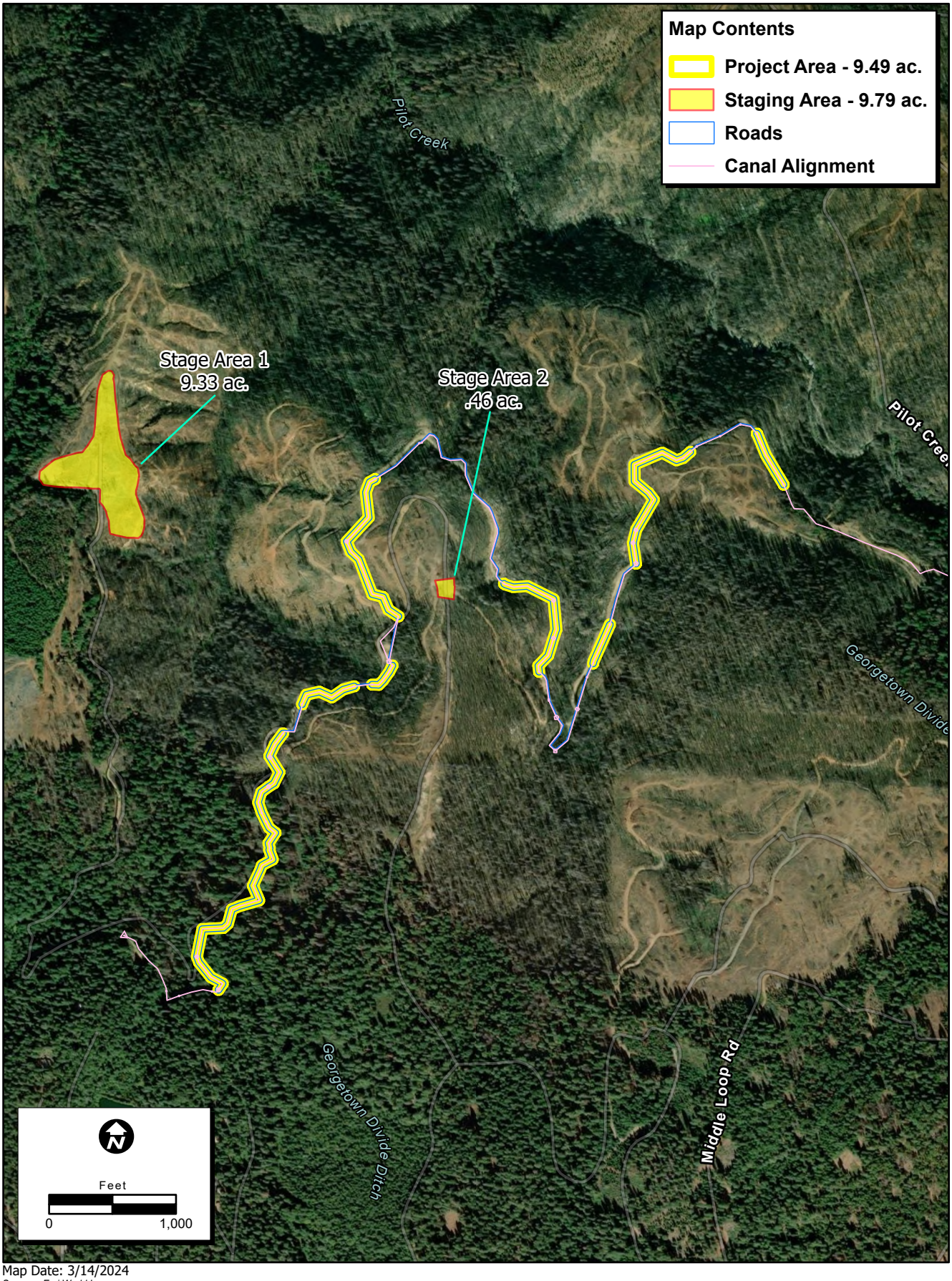
EXHIBIT A

GDPUD CANAL PIPING RESILIENCY PROJECT PROJECT No. 22110

GDPUD

Plot Date: December 05, 2023 - 5:01 pm
File Name: P:\Proj\22110-08-GDPUD-USDA Funding\03-PLANS\MASTERS\EXHIBITS\22110_Canal Piping Exhibit.dwg

FIGURE 2 – STAGING AREA



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Aerial_Maps\GDPUD Canal Piping 1 Aerial.aprx - GDPUD .06 Staging Area (lgalvez - 3/14/2024)

Map Date: 3/14/2024

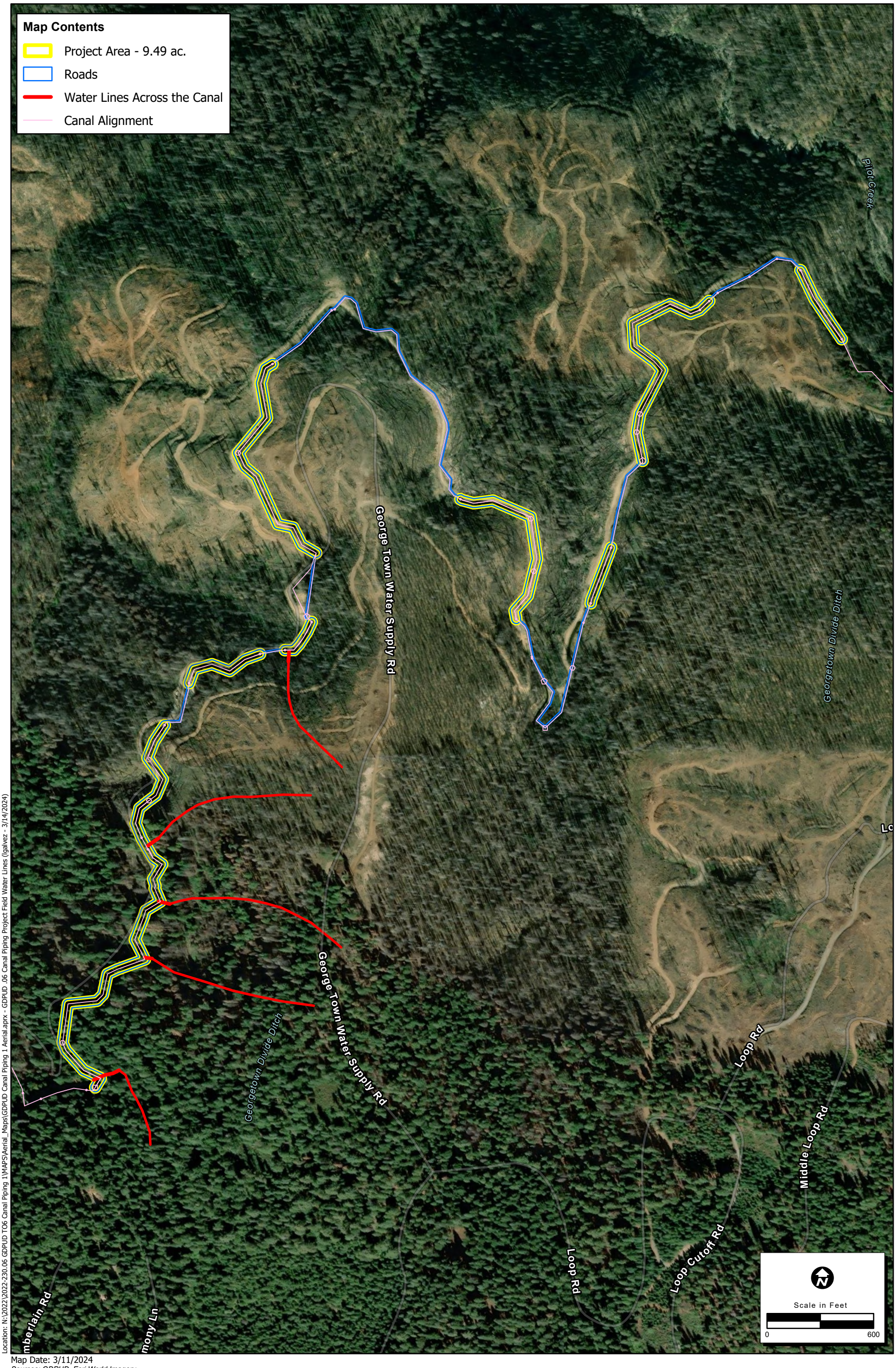
Sources: Esri World Imagery

Figure 2. Staging Areas

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

GDPUD Canal Lining Project

FIGURE 3 – Drainages that Intersect the Canal



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Aerial_Maps\GDPUD Canal Piping 1 Aerial.aprx - GDPUD .06 Canal Piping Project Field Water Lines (lgalvez - 3/14/2024)

Map Date: 3/11/2024

Sources: GDPUD, Esri World Imagery

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3. Drainages that Intersect the Canal

2022-230.06 GDPUD Canal Piping Project

BEN|EN
TRUSTED ENGINEERING ADVISORS

Georgetown Divide Public Utility District

CANAL PIPING RESILIENCY PROJECT
PRELIMINARY ENGINEERING REPORT

February 2024

Prepared for:
Georgetown Divide Public Utility District

Prepared By:
Dave Harden, PE
Ali Holladay, EIT
Jessica Ginnever, EIT



Table of Contents

1 PROJECT PLANNING 3

A. Location 4
B. Environmental Resources Present 7
C. Population Trends 7
D. Community Engagement 8

2 EXISTING FACILITIES 9

A. Facilities Layout Map 9
B. History 12
C. Condition of Existing Facilities 15
D. Financial Status of Existing Facilities 24
E. Water Audits 28

3 NEED FOR PROJECT 29

A. Health, Sanitation, and Security 29
B. Infrastructure Issues 29
C. Reasonable Design Capacity 30

4 ALTERNATIVES CONSIDERED 31

A. Project Need and Solution 31
B. Alternative 1 – Erosion Control 31
   i. Description 31
   ii. Design Criteria 31
   iii. Map 31
   iv. Environmental Impacts 33
   v. Land Requirements 34
   vi. Potential Construction Problems 34
   vii. Sustainability Considerations 34
   viii. Conclusion and Cost Estimate 34
C. Alternative 2 – Buried Pipe in Canal 34
   i. Description 34
   ii. Design Criteria 35
   iii. Map 35
   iv. Environmental Impacts 37
   v. Land Requirements 37
   vi. Potential Construction Problems 37
   vii. Sustainability Considerations 38
   viii. Cost Estimate 38
D. Alternative 3 – Rigid Unburied Pipe in Canal 38
   i. Description 38
   ii. Design Criteria 39
   iii. Map 39
   iv. Environmental Impacts 39
   v. Land Requirements 40
   vi. Potential Construction Problems 40
   vii. Sustainability Considerations 40
   viii. Cost Estimate 40

5 SELECTION OF ALTERNATIVE 41

6 PROPOSED PROJECT 42

A. Preliminary Project Design 42

Table of Contents

B. Project Schedule 43
C. Permits Requirements 43
D. Sustainability Considerations 43
i. Water and Energy Efficiency 43
ii. Resiliency 43
E. Total Project Cost Estimate 44
F. Annual Operating Budget 45
i. Income 45
ii. Annual O&M Costs 46
iii. Debt Repayments 46
iv. Reserves 46

7 CONCLUSIONS AND RECOMMENDATIONS 47

List of Tables

Table 1 - Population Forecast 8
Table 2- Summary of Existing Field Conditions 17
Table 3 - Priority Summary 19
Table 4 - Potable Water Monthly Base Rate 24
Table 5 - Potable Water Usage Rate per Cubic Foot 25
Table 6 - Raw Water Irrigation Monthly Charges 25
Table 7 - Capital Improvement Plan (Water Projects) 26
Table 8 - Grant Funded Capital Projects 27
Table 9 - Debt Payments 28
Table 10 - Total Project Cost 45
Table 11 - Preliminary Construction Cost Estimate 45
Table 12 - Short-Lived Assets 46

List of Figures

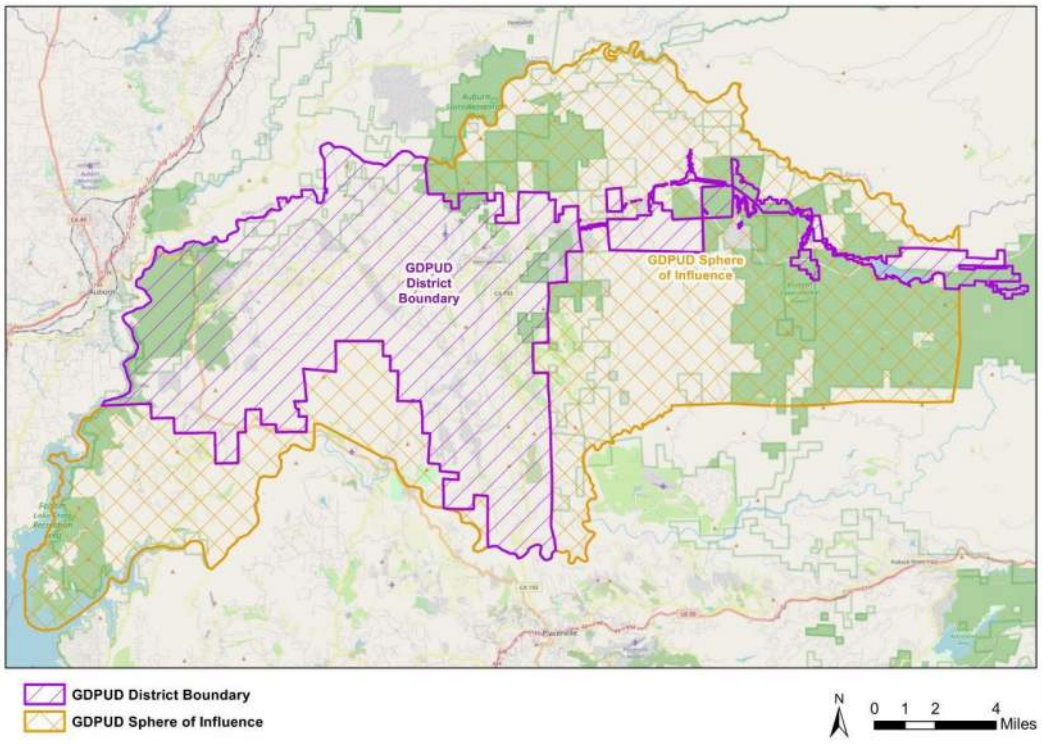
Figure 1 - GDPUD Service Area and Sphere of Influence 3
Figure 2 - Canal Slope Before and After Mosquito Fire 4
Figure 3 - USGS Topographic Map 5
Figure 4 - Project Area Aerial 6
Figure 5 - GDPUD Irrigation System Map 10
Figure 6 - GDPUD Water Distribution Map 11
Figure 7 - Mosquito Fire Soil Burn Severity Map 13
Figure 8 – Photos from Site Visit for Canal Assessment 20
Figure 9 - Areas of Concern 32
Figure 10 - Canal Piping Priorities 36

Appendices

Appendix A - Field Assessment of Conditions at GDPUD Pilot Creek Diversion
Appendix B - GDPUD Financials
Appendix C - GDPUD Water Audits
Appendix D - CalFire WERT Assessment
Appendix E - Mosquito Fire BAER Report

1 Project Planning

Georgetown Public Utility Divide (GDPUD) owns, operates, and maintains systems of raw water diversion, storage, and conveyance canals; drinking water treatment, storage, and distribution; and other facilities which serve the El Dorado County communities of Georgetown, Cool, Pilot Hill, Auburn Lake Trails, Greenwood, Garden Valley, Kelsey and surrounding rural areas. GDPUD's service area is located on the west slope of the Sierra Nevada foothills, approximately 45 miles northeast of Sacramento in El Dorado County. The District sits on the divide between the drainage basins of the Middle Fork American and the Rubicon Rivers to the north and the South Fork American River to the south. The District's boundary and sphere of influence is bound on the north, south and west by these rivers, see Figure 1. The existing service area encompasses approximately 75,000 acres.



Source: GDPUD Draft 2020 Urban Water Management Plan

Figure 1 - GDPUD Service Area and Sphere of Influence

GDPUD's conveyance canals span over 70 miles, however the focus of this preliminary engineering report will be from Structure 1 to Structure 3 in the Upper Conduit section of the El Dorado Conduit. GDPUD can only access the canals using the maintenance road which they share with Sierra Pacific Industries (SPI). When the access road becomes compromised due to heavy rains, erosion, or slope instability, the District is unable to access sections of the canal to perform visual inspection and critical maintenance to maintain water supply to the entire service area.

A. Location

The project area, along the El Dorado Conduit, is located within easements on private property and National Forest Land. The project is in heavily forested canyons along steep slopes but due to the Mosquito Fire most of the vegetation has burned and the severe winter storms have heavily eroded the slopes of the canyons. Figure 2 shows the condition of slopes after the Mosquito Fire prior to the Severe Winter Storms on the left, and the condition of the slopes after the Severe Winter Storms on the right.



Figure 2 - Canal Slope Before and After Mosquito Fire

The District is located within 38 degrees latitude north, 120 longitudes east and service area elevations extend from 1,200 feet above mean sea level (amsl) to 4,000 ft amsl. Figure 3 is an excerpt of the USGS topographic map, showing the approximate location of the project area just north of Quintette. Figure 4 is a current aerial photograph of the project area with visible burn scars.

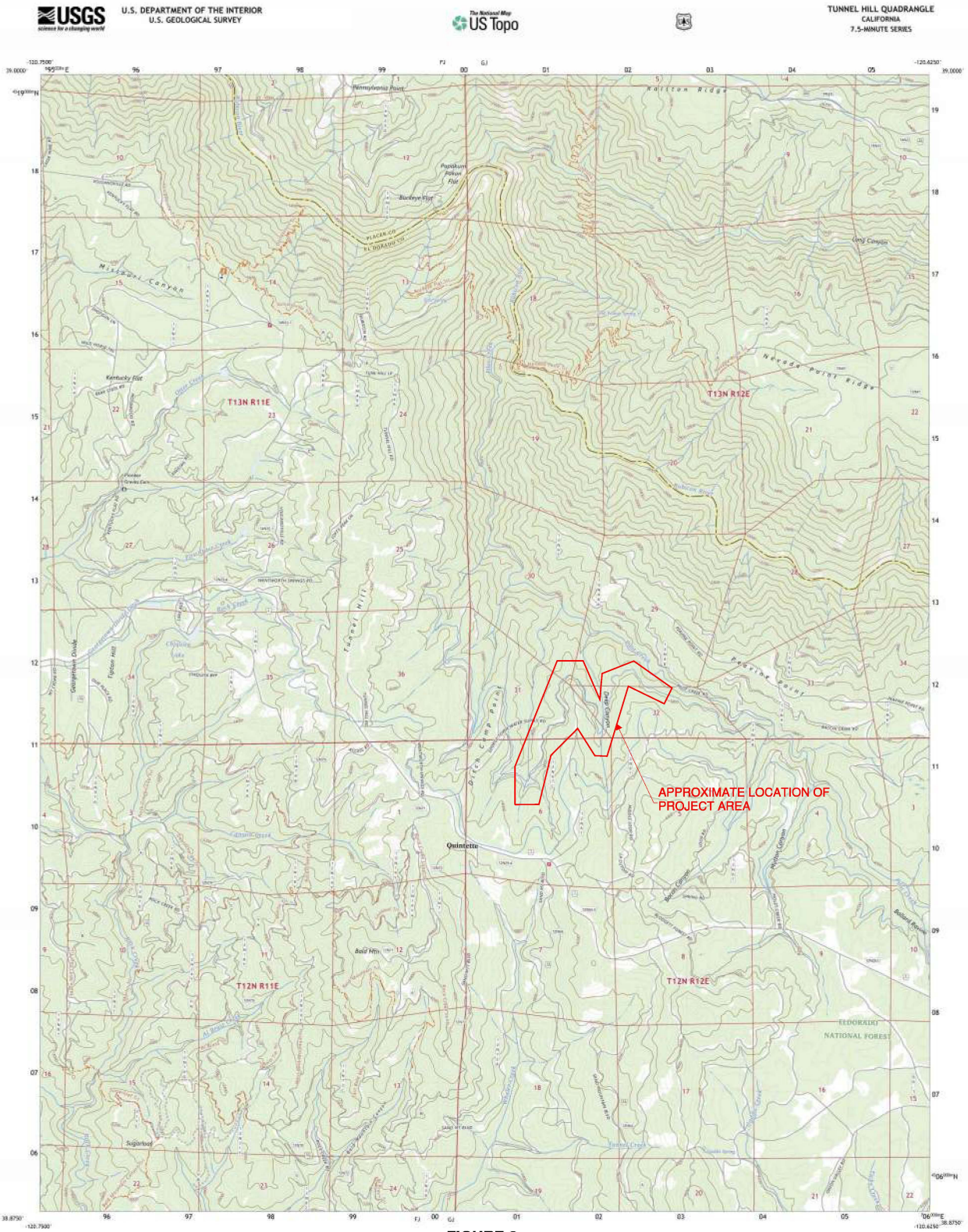
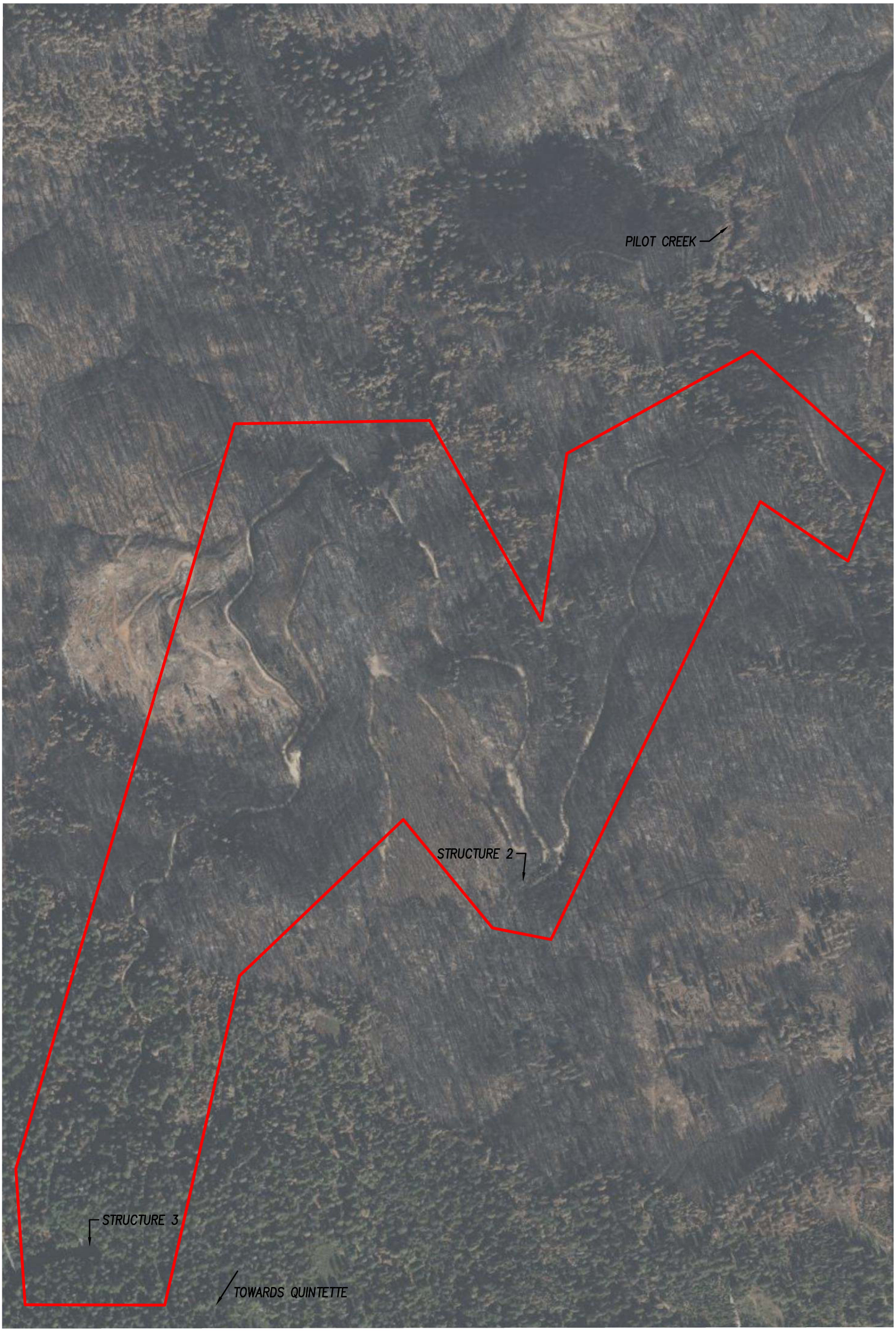

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
US Topo
TUNNEL HILL QUADRANGLE
CALIFORNIA
7.5-MINUTE SERIES
T13N R11E
T13N R12E
T12N R11E
T12N R12E
APPROXIMATE LOCATION OF PROJECT AREA
Quintette
Kentucky Flat
Pennsylvania Point
Nevada Point Ridge
Pegleg Point
Ditch Camp Point
Sugarloaf
Bald Hill
Deer Canyon
Grey Canyon
Nigger Canyon
Ballard Ridge
Tunnel Creek
Tunnel Hill
Georgetown Divide
Taylor Hill
Fairchild Hill
Kelton Ridge
Mississippi Canyon
Placer Co
El Dorado Co
Produced by the United States Geological Survey
SCALE 1:24 000
CONTOUR INTERVAL 40 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
ROAD CLASSIFICATION
TUNNEL HILL, CA
2023

FIGURE 3



12/19/2023

FIGURE 4

LEGEND
PROJECT AREA

SCALE: 1"=500'

GDPUD CANAL PIPING RESILIENCY PROJECT PROJECT No. 22110

Plot Date: December 19, 2023 - 4:21 pm
File Name: P:\Proj\22110-08-GDPUD-USDA Funding\03-PLANS\MASTERS\EXHIBITS\22110_Canal Piping Exhibit.dwg

B. Environmental Resources Present

During the biological survey, a total of three land covers were observed within the Project Area and buffer. These land covers include ditch-road terrace, burned mixed-conifer forest, and drainages. The ditch-road terrace cover is human-made, was cut from uplands and has been historically disturbed and remains disturbed today. The burned mixed-conifer land cover exhibits large erosional features including rutting, signs of high-intensity burns, evidence of salvage logging and hazard abatement, and other vehicular disturbances.

A U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) riverine drainage course was observed during the biological survey. This intermittent drainage feature flows over the Canal through a water-conveyance structure and is located in the southern portion of the study area. Other smaller intermittent and ephemeral drainages were also noted along the canal during the biological survey. Where these smaller drainages intersect the canal, they discharge into the canal.

The vegetation communities in the survey area provide habitat for a variety of wildlife species. Wildlife species observed onsite include ruby-crowned kinglet, hairy woodpecker, mountain chickadee, varied thrush, Steller's jay, and brown trout. The study area also has the potential to have the following special-status wildlife species: Monarch butterfly, Northwestern Pond turtle, nesting birds, and special species bats.

The study area does have native California black oak trees onsite, which would be subject to the El Dorado County Oak Resources Conservation Ordinance.

For additional information regarding the environmental resources present refer to the Environmental Documents provided with the application.

C. Population Trends

The District provides treated water to a total of 3,689 active customers according to the 2020 Urban Water Management Plan. The US Census does not have information related to GDPUD's Service Area or the rural communities which surround it. Instead the same population estimation will be used for this report as in the 2020 Urban Water Mangaement Plan. El Dorado County's calculated persons per houshold (pph) is 2.53. Using the pph and the total amount of residential households (3,689) the District's service area population can be estimated at 9,333. Accoridng to the El Dorado County Housing Element, the annual growth rate of the county is 0.9 percent per year. Table 1 illustrates the forecasted population growth of GDPUD's Service Area from 2023-2045 using the annual growth rate of 0.9 percent per year. While the county may have a growth rate of 0.9%,the District does not anticipate growth or development in the service area due to the terrain and lack of sanitary sewer services.

Table 1 - Population Forecast

	Year					
	2023	**2025**	**2030**	**2035**	**2040**	**2045**
Population	9,333	9,501	9,937	10,392	10,868	11,366
Increase in population	-	168	436	455	476	498

D. Community Engagement

This project is a result of the damage caused by the Mosquite Fire and Severe Winter Storms. On October 11, 2022 the District issued an Emergency Declaration via resolution at the Board meeting related to it's water sustem supply infastructure and allocation of funding to provide emergency repairs.

The Operations Manager of the District reports to the Board monthly. Since October of 2022 his reports have included status updates on the infastructure damaged due to the Fire and Storms as well as the progress for repairing them.

The Board also has an Ad Hoc Committee for Grant Writing, which Board Liasons present at the Board meeting. There was a Presidential Disaster Declartaion (FM-5453-CA) declared on September 9, 2022. At the September, 12, 2023 meeting the committeee reported that they were exploring a resiliency grant, which refers to the USDA Grant that this PER is being prepared for.

2 Existing Facilities

A. Facilities Layout Map

The District's only potable water supply flows from Stumpy Meadows Reservoir through the El Dorado Conduit to provide raw water to the downstream water treatment plants, as well as irrigation services throughout the service area. GDPUD separates their facilities between irrigation (raw water) and water distribution (potable water) for mapping purposes. The Irrigation System shows the components and location of the El Dorado Conduit, creek crossing structures, dams, diversion dams, and locations of raw water storage, see Figure 5. The upstream sections of the irrigation (raw water) system provide the only conveyance for all potable drinking water for the GDPUD service area. The project area is located along the El Dorado Conduit in what is called the "Upper Conduit."

The Water Distribution Map shows the components and locations of the potable water system including potable treatment facilities, water storage tanks, and potable water distribution pipes, see Figure 6.

Georgetown Divide Public Utilities District
Irrigation System

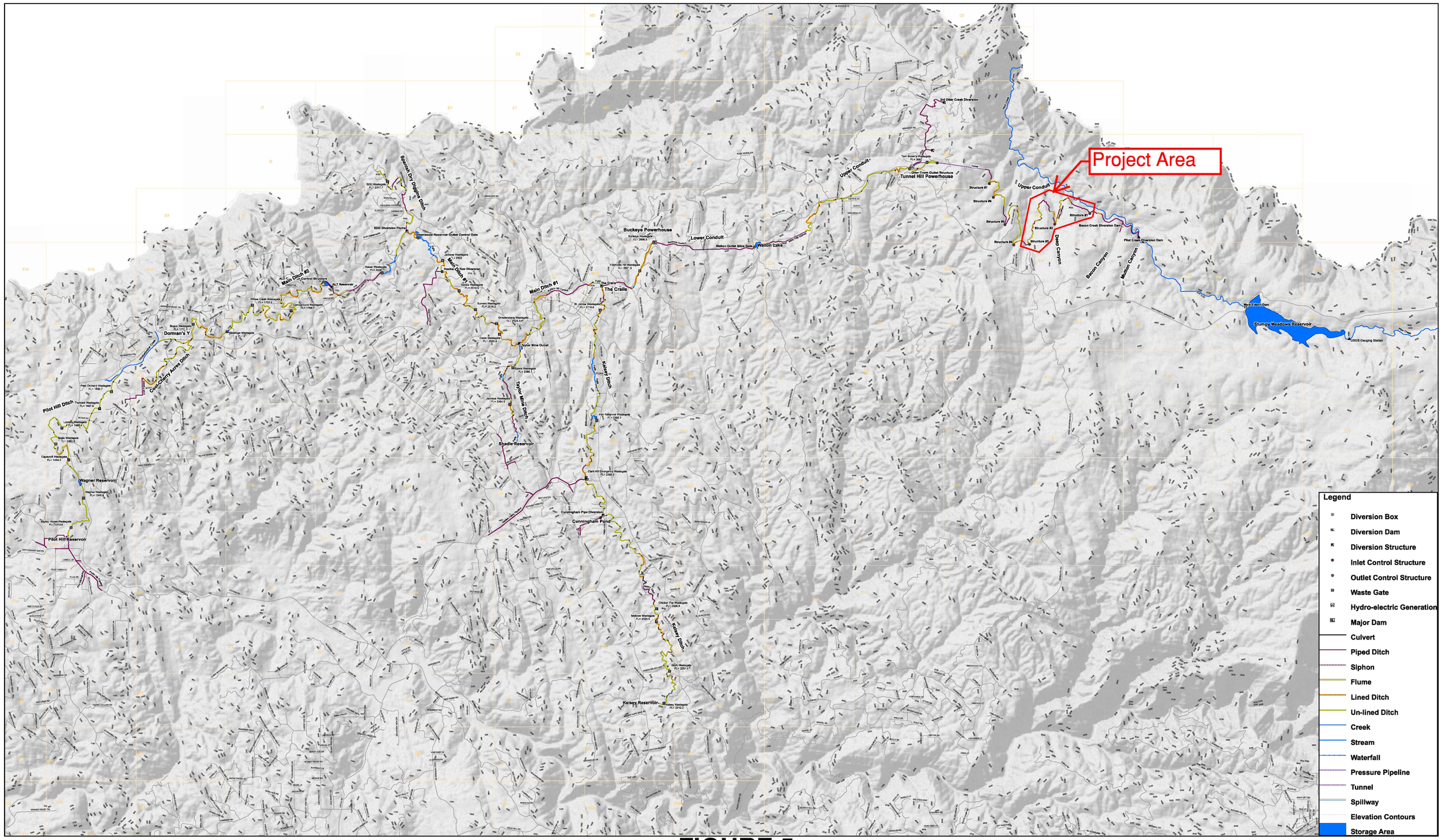


FIGURE 5

0 0.5 1 2 3 4 Miles

Georgetown Divide Public Utilities District
Water Distribution System

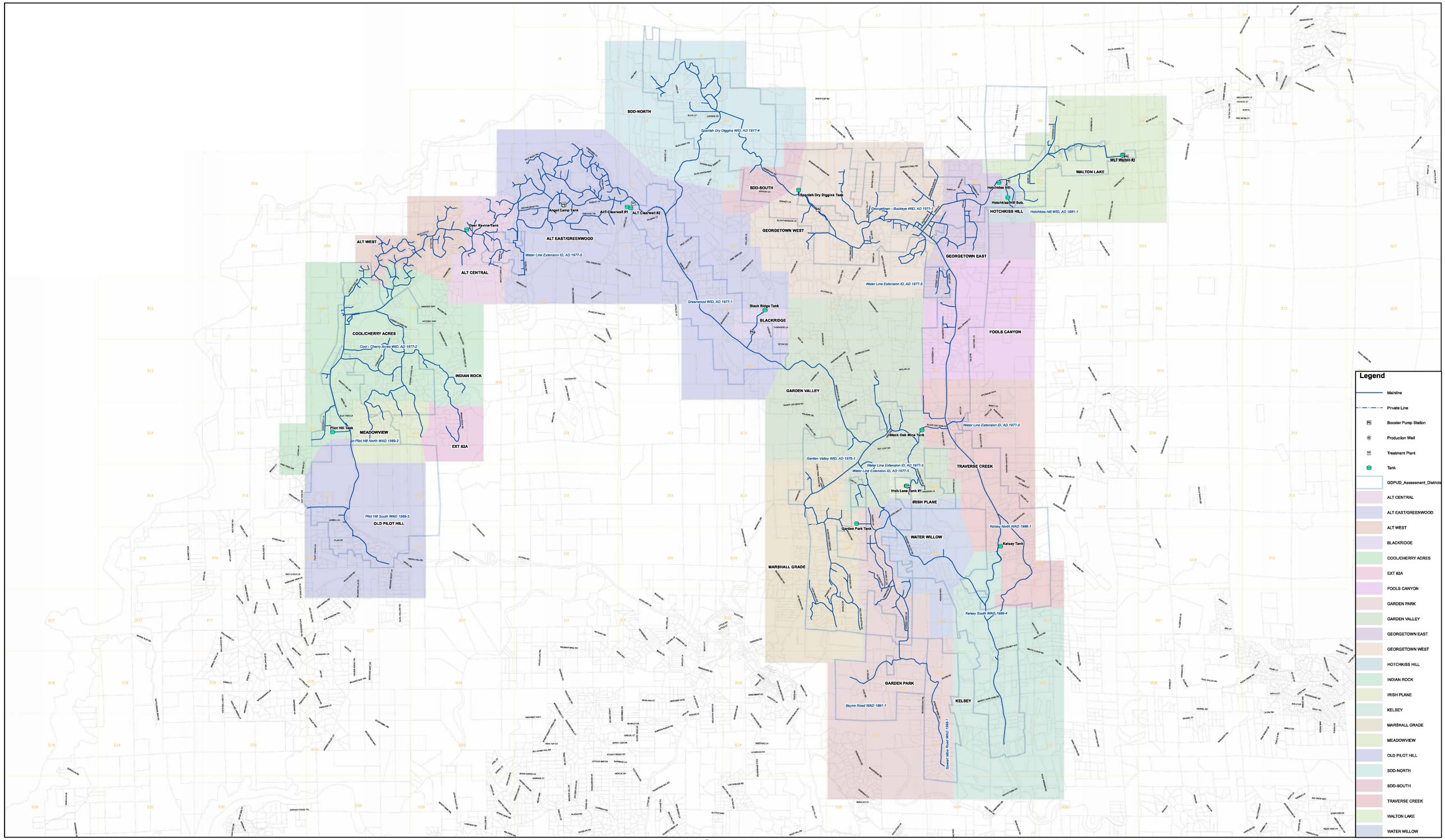


FIGURE 6

B. History

The District is a Public Utility District and operates under a five-member Board of Directors who are elected at large for four year overlapping terms. GDPUD was originally formed in 1946 per the California Public Utility code, Division 7, Chapter 2, and approved by the electorate of the proposed District.

For additional history and information related to water rights refer to GDPUD's 2020 Urban Water Management Plan on their website at https://www.gd-pud.org/draft-2020-urban-water-management-plan.

In September 2022, the Mosquito Fire consumed 76,788 acres of land. The fire caused over 11,000 people to evacuate, including parts of GDPUD's service area. A portion of the 76,778 acres of land burned was within GDPUD's service area along the El Dorado Conduit. The Mosquito Fire burned trees and vegetation which protected the steep slopes along the El Dorado Conduit from erosion, leaving burn scars.

United States Department of Agriculture: Forest Service provided a burned-area report for the area (BAER). Following that report, CalFire's WERT completed a post fire assessment evaluating the effects of the burn severity on infrastructure. After the Mosquito Fire, CalFire's Watershed Emergency Response Team (WERT) completed an assessment of key infrastructure at risk or impacted by the Mosquito Fire. The WERT identified seven locations of GDPUD's key infrastructure that was at risk post fire. Three of the locations identified by WERT are within the proposed project area. The WERT observed High and Moderate soil burn severity (SBS) in the vicinity of the project area. The WERT indicated that GDPUD should develop contingency water supply measures in the event of a significant failure along the canal rendering it inoperable. It also indicated that the expected runoff post fire would contain chemical contaminants, in addition to ash, fire related sediment and debris. See Figure 7 for the Mosquito Fire Soil Burn Severity Map.

MOSQUITO FIRE BAER ASSESSMENT 2022

Tahoe National Forest, American River Ranger District
& Eldorado National Forest, Georgetown Ranger District
Region 5

Mosquito Burn Boundary (9/26/22)

National Forest Boundary

Soil Burn Severity

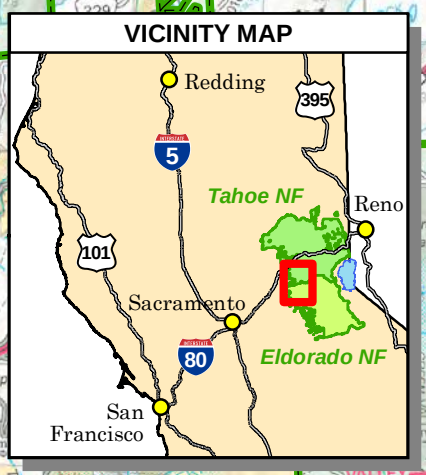
- Unburned / Very Low
- Low
- Moderate
- High

This map is a product of a Burned Area Emergency Response (BAER) Team rapid assessment. This product is reproduced from geospatial information prepared by the USDA Forest Service. Geospatial information and GIS product accuracy may vary. Using GIS products for purposes other than those for which they were created may yield inaccurate or misleading results. The USDA Forest Service reserves the right to correct, update, modify or replace GIS products without notification.
Mosquito Fire soil burn severity derived from 9/26/2022 Sentinel 2 BARC256 and subsequent adjustments per field observations.

1:120,000

NORTH

0 1 2 3 4 5 Miles



TAHOE NATIONAL FOREST

ELDORADO NATIONAL FOREST

Approximate location of GDPUD Project Area

FIGURE 7

Soil Burn Severity	Acres	Percentage	Land Ownership					
			Tahoe National Forest	Eldorado National Forest	Bureau of Land Management	Bureau of Reclamation	Other Federal Lands	Private
Unburned / Very Low	5,691	7.4%	1,297	1,848	24	27	8	2,419
Low	45,077	58.4%	18,280	13,393	600	261	39	12,573
Moderate	19,292	25%	7,438	5,589	455	193	1	5,616
High	7,147	9.3%	1,640	2,848	127	37	0	2,494
GRAND TOTAL	*77,207*	*100.0%*	*28,655*	*23,678*	*1,206*	*518*	*48*	*23,102*

Starting December 27, 2022, severe winter storms struck California including GDPUD's service area. California's Governor issued a Proclamation of a State of Emergency 1.4.23-SOE due to the severe storms. The severe storms threatened, and their lasting effects continue to threaten, GDPUD's critical water supply infrastructure. The severe storms which followed the Mosquito Fire caused erosion along the steep embankments above and below the canal. This erosion resulted in copious amounts of debris flowing into the canals and the post fire runoff causing landslides along the access roads. Large trees and their root systems along the access roads burned during the Mosquito Fire, providing conduits for the postfire runoff to further erode the slopes of the access road and canal. The root systems caused leaks from the canal to become much worse than pre-fire leaks. The storm damage on the burn scarred slopes prohibited vehicular access along the maintenance road and washed-out portions of the -road, further threatening the only water supply conveyance system.

GDPUD took immediate action to prevent the canals from overtopping the access road causing catastrophic failure and a loss of the El Dorado Conduit, the only source of drinking water. GDPUD implemented erosion control measures including removal of debris and downed trees from the road and canal to protect access to their canal. At locations of washouts and landslides the District crews rebuilt and reinforced the access roads in preparation for additional storm events to protect access to the water supply. Despite the District's best efforts, the canal and access road still incurred damage and failures with the additional storm events and copious amounts of mobilized debris and sediment left behind from the Mosquito Fire.

C. Condition of Existing Facilities

GDPUD owns and operates both potable water and irrigation facilities; for the purpose of this report only the conditions of existing facilities of the irrigation (raw water supply system) will be discussed, which is the only conveyance for water supply to downstream potable water treatment and distribution system.

Source

The primary source of drinking water and irrigation water for the District is the Stumpy Meadows Reservoir. The outlet structure of the reservoir is a precast reinforced concrete intake tower. Water is released from the reservoir into a 30-inch diameter steel pipeline which discharges to Pilot Creek. The reservoir has an unregulated horseshoe shaped overflow spillway, which also flows to Pilot Creek. The reservoir is regularly inspected by the District and the Division of Dam Safety to insure proper operations. The District performs required monitoring and reporting, as well as periodic maintenance on the spillway at the recommendation of the Division of Dam Safety. A volume study was completed in 2022 revising the storage capacity and full pool level to 21,206 ac-ft when the water surface level is at 4,262 ft amsl.

Conveyance

Water is released into Pilot Creek from Stumpy Meadows Reservoir and is diverted into the District's El Dorado Conduit via the Pilot Creek Diversion Dam. The Diversion Structure is in a very remote area and can only be accessed by foot. The El Dorado Conduit conveys water across the meandering slopes throughout the District by means of unlined ditches, gunite lined ditches, piped sections, flumes, siphons, creek crossing structures, and a tunnel.

The District hired KASL Consulting Engineers to complete a Field Assessment of the Pilot Creek Diversion Structure following the Mosquito Fire and the Severe Winter Storms. Overall, the Structure is in good working condition, but needs access and safety improvements, as well as spalling concrete repair. Refer to Appendix A for more information.

The remote location, high elevation and steep slopes of the Upper Conduit makes the canals difficult to access and remove from service for repairs due to the irrigation schedule, climate, and copious amounts of water that would require bypass pumping. The access roads adjacent to the canals are narrow with steep slopes below them limiting the size and type of equipment which can be used for construction, maintenance, and repairs. Construction materials are also difficult to get to the remote location of the Upper Conduit.

For this report, an in-depth condition assessment is provided from "the narrows" section just downstream from Structure 1 to Structure 3 of the Upper Conduit. The condition assessment is based on a site visit with GDPUD in November 2023. During the site visit the Operations Manager and Assistant District Engineer prioritized

sections of canals that are at risk, identified potential staging areas, and noted areas where construction access would be limited. The project area was split into two separate alignments. Alignment A starts at “the narrows” and ends downstream of Structure 2, at the inlet to the piped section named “UC 4-12.” Alignment B starts at the outlet of the piped section named “UC 4-12” and ends downstream at Structure 3. Arbitrary Stationing was given to the segments based on lengths measured in the field, the alignments are not based on survey or mile markers on the canal. Table 2 summarizes the priority of each section evaluated in the field, along with comments from the site assessment.

Table 2 - Summary of Existing Field Conditions

Legend	
#1	#1 Priority
#2	#2 Priority
#3	#3 Priority
N/A	Not Evaluated or Included in this Project

Service Area: GDPUD Structure 1 to 3 near Quintette
Attendees: Ali Holladay (BEN|EN); Adam Brown (GDPUD)
Date: 12/7/2023

Alignment A - Narrows to UC 4-12

Priority	Start	End	Linear Foot*	Section Name/ Detail	Field Comments
#1	1000	1460	460	The Narrows	Inlet Pipe is flowing 50% Full. From the upstream to approx. 211 ft downstream the flow is slow due to sediment buildup. At approx. 211 ft downstream a decrease in sediment is seen and flow rate increases. Water is flowing fast into the outlet of this section with good freeboard.
N/A	1460	1630	170	UC 4-19	Piped Section
N/A	1630	1818	188	Gunited Section	Gunite is in good condition, plenty of freeboard.
N/A	1818	2014	196	UC 4-18	Piped Section
N/A	2014	2087	73	Gunited Section	Gunite is in good condition.
#3	2087	2162	75	UC 4-17	Existing Pipe CMP, and the coating is failing. The invert seems lower than the outlet invert.
#1	2162	2525	363	Unlined	Steep slopes uphill and downhill of canal. Canal alignment has tight bends where debris can build up and become blocked.
#1	2525	3210	685	Unlined	Steep slopes uphill and downhill of canal. Canal alignment has tight bends where debris can build up and become blocked. Nearby slopes could be used for backfill.
#1	3210	3317	107	Gunited Section	This section is at risk of the unlined canals undermining the gunite. This section could be rehabilitated to be a grizzley structure between piped sections.
#1	3317	3496	179	Unlined	Drainage Course flows directly into canal along this section from the uphill slope.
N/A	3496	4007	511	UC 4-16	Piped Section, Techite.
#3	4007	4352	345	Gunited Section	This section is lined, but does not have much freeboard available.
N/A	4352	4467	115	UC 4-15	Piped Section
N/A	4467	5116	649	Unlined	Funding to pipe this section was request from CalOES after it was identified as a high risk area by CalFire's WERT.
N/A	5116	5841	725	Structure 2 to end of UC-4-13	
#1	5841	6052	211	Unlined	Inlet pipe is flowing fuller than designed. This is likely do to adverse canal slopes in the downstream section.
#2	6052	6363	311	Gunited Section	40 linear feet of the canal narrows decreasing available freeboard. Other than the first 40 feet the section has decent freeboard.
#1	6363	6762	399	Unlined	Very narrow access road with a steep downhill slope. Uphill slope drains directly into canal the entire length.
N/A	6762	6762	0	Inlet Structure of UC 4-12	Good area for staging and backfill dirt.

*Linear footage was measured in the field using a wheel on 11/13/23 with District

Table 2 - Summary of Existing Field Conditions

Legend	
#1	#1 Priority
#2	#2 Priority
#3	#3 Priority
N/A	Not Evaluated or Included in this Project

Service Area: GDPUD Structure 1 to 3 near Quintette
Attendees: Ali Holladay (BEN|EN); Adam Brown (GDPUD)
Date: 12/7/2023

Alignment B - UC-4-12 Outlet to Structure 3

Priority	Start	End	Linear Foot*	Section	Field Comments
#2	8000	8626	626	Start at end of UC-4-12 Pipe, Gunite	The section is gunited, but the access road is narrow with a steep slope on the downhill side.
#1	8626	8889	263	Unlined	The access road is very narrow and the uphill slope drains into the canal along the entire length.
#3	8889	9150	261	Gunited Section	Uphill Slope is not very steep. Canal is wide and lined.
#1	9150	9330	180	Unlined	Access road is very narrow and there have been leaks and slides in this area before. The downhill slope has a very steep drop off.
N/A	9330	9739	409	Piped Section (September 2023)	GDPUD piped with HDPE in September of 2023, tied into Existing pipe section UC 4-11
N/A	9739	9780	41	UC-4-11	Piped Section
#1	9780	10005	225	Unlined	Steep uphill slope which drains into canal the entire length with a tight bend.
N/A	10005	10155	150	UC-4-10	Piped Section, good staging area with backfill.
#1	10155	10471	316	Unlined	Steep slopes uphill and downhill of canal. Canal alignment has tight bends where debris can build up and become blocked.
#2	10471	10671	200	Unlined	Access road is of standard width, canal is wide. Tight bend makes it a #2 priority.
N/A	10671	10996	325	UC-4-9	Piped Section
#2	10996	11267	271	Unlined	Access road is of standard width, canal is wide. Tight bend makes it a #2 priority.
#1	11267	11601	334	Gunited Section	Although the section is lined there have been road failures here and the access road is already narrow.
#1	11601	11814	213	Unlined	Steep uphill slope which drains into canal the entire length with a tight bend.
#1	11814	11889	75	UC 4-8	Should be included in the piping project. 48" CMP is not in great condition and allows flexibility of inverts when completed other piped section if this is replaced.
#1	11889	12136	247	Unlined	Steep slopes uphill and downhill of canal. Canal alignment has tight bends where debris can build up and become blocked.
#1	12136	12436	300	Unlined	Steep slopes uphill and downhill of canal. Canal alignment has tight bends where debris can build up and become blocked.
#2	12436	12581	145	Unlined	Access road is of standard width, canal is wide. Tight bend makes it a #2 priority. Backfill can be pulled from here.
#2	12581	12776	195	Unlined	Access road is of standard width, canal is wide. Tight bend makes it a #2 priority. Backfill can be pulled from here.
#2	12776	13169	393	Portions are Unlined, others include Gunite	Short gunite sections are at risk of water flowing under them and eroding the access road.
#1	13169	13358	189	Unlined	Very little available freeboard at low flows. At risk of overtopping with higher flows or blockages.
#1	13358	13704	346	Gunited Section	Very little available freeboard at low flows. At risk of overtopping with higher flows or blockages.
N/A	13704	13704	0	End at Structure 3	

*Linear footage was measured in the field using a wheel on 11/13/23 with District

The following conditions/criteria were used to determine each priority level.

- #1 Priority: Areas where the canal is likely to overtop and cause access road failure. This may include sections with tight bends and narrow access, areas where debris could collect and overflow (tight bends and structures), areas of increased risk of slope failure (uphill and downhill slopes are very steep), generally unlined.
- #2 Priority: Areas where the canal is less likely to overtop but is at increased risk of water loss and debris collection increasing operations and maintenance and putting the area at a medium risk of overtopping and causing access road failure (tight bends with wider access road), generally unlined.
- #3 Priority: Areas where the canal is less likely to overtop and is typically lined or piped. These areas were identified to be replaced as the lining or piping is deteriorating.

Table 3 - Priority Summary

Priority	Alignment A (Linear Feet)	Alignment B (Linear Feet)	Total (Linear Feet)
#1	2,400	2,690	5,090
#2	310	1,830	2,140
#3	420	260	680
Total	3,130	4,780	7,910

Overall, sections of the El Dorado Conduit in the Upper Conduit section have incurred damage from the Mosquito Fire and the Severe Winter Storms. It is recommended that the District investigate alternatives to reduce the risk of catastrophic failure to the canal or by proxy to the access road; in turn increasing the reliability and resiliency of the District's water system. For example, if the access road were to fail the District would not be able to access and maintain portions of the canal, losing access to the only source of drinking and irrigation water for the District. Figure 8 includes photos documenting the condition of the Upper Conduit from the site visit.



Picture 1 - Narrow Access Road Along Canal in The Narrows



Picture 2 - High Priority Nearly Vertical Uphill Sloped in The Narrows



Picture 3 - The Narrows Directly Upstream of UC 4-19 Inlet

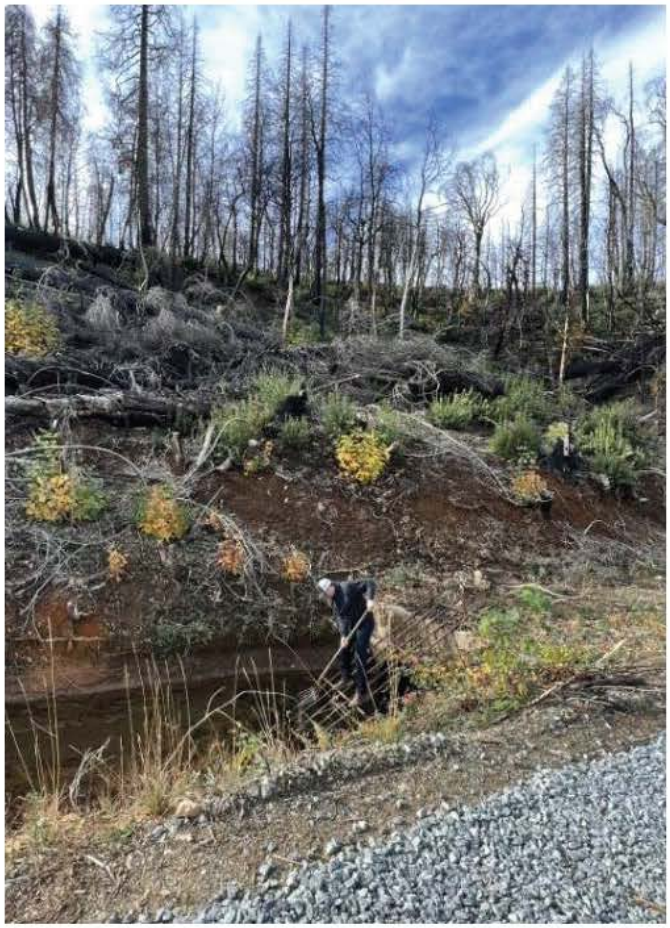


Picture 4 - High Priority Before UC 4-16 Inlet

FIGURE 8



Picture 5 - Unlined Canal Downstream UC 4-13



Picture 6 - Inlet of UC 4-12



Picture 7 - Medium Priority Section South of UC 4-12 Outlet



Picture 8 - High Priority Section Upstream of Piped Section Installed in Sept. 2023

FIGURE 8



Picture 9 - Piped Section Terminating into Unlined Canal



Picture 10 - High Priority Section between UC 4-11 and UC 4-10



Picture 11 - High Priority Section between UC 4-11 and UC 4-10



Picture 12 - Possible Staging Area Upstream of UC 4-10 Outlet

FIGURE 8



Picture 13 - High Priority Section Downstream of UC 4-10



Picture 14 - High Priority Section Downstream of UC 4-9



Picture 15 - High Priority Unlined Section Upstream of Structure 3



Picture 16 - Start of Lined Section Upstream of Structure 3

FIGURE 8

Raw Water Storage

The Districts main supply of water and raw storage is the Stumpy Meadows Reservoir, which provides a storage capacity of 21,206-acre feet of water. Stumpy Meadows Reservoir has a 162-foot-high rock and earth filled dam (Mark Edson Dam) located on Pilot Creek.

Once water is discharged from Stumpy Meadows Reservoir it flows down Pilot Creek, where the first diversion is into Walton Lake. Walton Lake is a raw water surface impoundment which supplies raw water to the Walton Lake Treatment Plant. Walton Lake has seen a reduction in capacity due to the Mosquito Fire and the Severe Storms. Sediment from the upstream watershed has collected in Walton Lake reducing the capacity by about 24%. Based on a volume survey conducted post Mosquito Fire and Severe Winter Storms that the capacity of Walton Lake is 40.24 acre-feet.

The District is in the process of developing a formal asset management plan but currently utilizes asset management software to track and identify asset condition and work.

D. Financial Status of Existing Facilities

The District has two rate schedules for the water system, potable and irrigation.

For potable water, the monthly base charge is set to increase every year on January 1, and the cost is based on the meter size, see Table 4. One of the communities within the service area, Auburn Lake Trails has a supplemental charge of $15.08 per month.

Table 4 - Potable Water Monthly Base Rate

Meter Size	Jan 1, 2018	Jan 1, 2019	Jan 1, 2020	Jan 1, 2021	Jan 1, 2022
5/8, 3/4, 1”	$ 29.41	$ 30.88	$ 32.42	$ 34.04	$ 35.74
1.5”	$ 98.02	$ 102.92	$ 108.07	$ 113.47	$ 119.15
2”	$ 156.83	$ 164.67	$ 172.91	$ 181.55	$ 190.63
3”	$ 313.66	$ 329.34	$ 345.81	$ 363.10	$ 381.25
4”	$ 490.09	$ 514.60	$ 540.33	$ 567.34	$ 595.71

In addition to the monthly base charge the potable water customers are charged based on their usage, see Table 5.

Table 5 - Potable Water Usage Rate per Cubic Foot

Tier	Jan 1, 2018	Jan 1, 2019	Jan 1, 2020	Jan 1, 2021	Jan 1, 2022
All Usage	$ 0.0255	$ 0.0268	$ 0.0281	$ 0.0295	$ 0.0310

* *Note: One cubic foot is equal to 7.48 gallons*

The water rates are frozen with no increases until further notice due to Board Action in 2019.

For the seasonal irrigation (Raw Water) the irrigation season is from May 1st through September 30th but is subject to change. For monthly raw water charges see Table 6.

Table 6 - Raw Water Irrigation Monthly Charges

Meter Size	Jan 1, 2018	Jan 1, 2019	Jan 1, 2020	Jan 1, 2021	Jan 1, 2022
½ Miner's Inch (Pipelines only)	$ 77.00	$ 84.80	$ 93.20	$ 102.60	$ 112.80
Per each 1 Miner's Inch	$ 154.20	$ 169.60	$ 186.60	$ 205.20	$ 225.80

The District budgeted approximately $2,070,906 for Operations and Maintenance for the 2023-2024 Fiscal Year for the Water System. $335,688 of the budget was allocated for the source of supply as well as the transmission and distribution of Raw Water. The District provided Operations and Maintenance costs, Budgeted Revenues and Restricted and Reserve Funds, see Appendix B.

The District maintains and updates their Capital Improvement Plan. This Plan includes both the water and sewer system, for the purpose of this report only the water system priorities have been included. Table 7 lists water projects by priority that the District plans to fund with their own capital.

Table 7 - Capital Improvement Plan (Water Projects)

CIP Project (Water)	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Total 22-28
Priority 1						
Tunnel Inspection and Lining	$65,000					$65,000
Infrastructure Replacement/HQ Building	$200,000	$10,000	$10,000	$10,000		$230,000
Distribution Tank Coating	$275,000	$175,000	$175,000			$625,000
Paving	$75,000	$75,000	$ 75,000	$75,000	$75,000	$375,000
Vehicle Replacements	$250,000	$100,000	$125,000	$100,000	$125,000	$700,000
- Dump Truck Less than $75,000						
- Utility Truck for 5400 F-450 $75,000						
- 1/2 Ton Trucks (3) $100,000						
Master Meters	$80,000					$80,000
Priority 2						
Pump Station Retrofit	$12,000	$12,000	$12,000	$12,000		$48,000
Repair Safety Walkways	$35,000	$2,000	$ 2,000	$2,000		$41,000
Treated Water line Replacement	$65,000	$50,000	$50,000	$50,000		$215,000
Pressure Regulating Valves	$ 50,000	$50,000	$25,000	$25,000		$150,000
VFD Replacement Sweetwater Treatment Plant		$ -	$100,000			$100,000
Priority 3						
Annual Canal Lining/ Canal Improvements			$100,000	$100,000	$100,000	$300,000
Replace Air Release Valves	$10,000	$10,000	$10,000	$10,000		$40,000
Solar on Walton and Sweetwater		$1,000,000				$1,000,000
SCADA Upgrades		$225,000	$100,000			$325,000
Total	$1,117,000	$1,709,000	$784,000	$384,000	$300,000	$4,294,000

The District separates out the Potential Grant Funded Capital Projects into their own table. See Table 8 for a list of projects that the District is pursuing grant funding for. At this time most of the projects related to the raw water system are on the grant funded capital projects list, due to the high price of construction.

Table 8 - Grant Funded Capital Projects

Potential Grant Funded Capital Projects	**FY 23/24**	**FY 24/25**	**FY 25/26**	**FY 26/27**	**FY 27/28**	**Total 22-28**
Annual Canal Lining/Canal Improvements	$120,000	$120,000	$ -			$240,000
GRANT - USBR (AWARDED)	$ (40,000)	$(40,000)	$ -			$ (80,000)
Dredging of Holding Reservoirs and Erosion	$285,000	$ -	$ -			$285,000
GRANT - FEMA Emergency Funds (AWARDED)	$ (285,000)	$ -	$ -			
AMI Meter Infrastructure	$125,000	$125,000	$ -			$250,000
GRANT - California State Appropriation	$ (125,000)	$ (125,000)	$ -			$ (250,000)
Infrastructure Generators	$100,000		$ -			$100,000
GRANT - California State Appropriation	$ (100,000)		$ -			$ (100,000)
Canal Pipeline Improvements	$1,333,333	$1,333,333	$1,333,333			$3,999,999
Potential Grant Funded Capital Projects(cont'd)	**FY 23/24**	**FY 24/25**	**FY 25/26**	**FY 26/27**	**FY 27/28**	**Total 22-28**
GRANT - CalOES HMPG	$(1,000,000)	$(1,000,000)	$(1,000,000)			$(3,000,000)
Skid Steer w/Masticator	$162,500	$162,500	$ -			$325,000
GRANT - CalFire	$ (162,500)	$ (162,500)	$ -			$(325,000)
Excavator w/Masticator	$162,500	$162,500	$ -			$325,000
GRANT - CalFire	$(162,500)	$(162,500)	$ -			$(325,000)
Sweetwater Water Treatment 2MG Water Tank	$-	$ 3,000,000	$ -			$3,000,000
GRANT - Federal Appropriation	-	$(1,500,000)	$ -			$ (1,500,000)
Water Wheel for Ditch	$50,000	$50,000	$50,000	$50,000	$50,000	$250,000
GRANT - Greenhouse Gas	$ (50,000)	$(50,000)	$ (50,000)	$(50,000)	$(50,000)	$(250,000)
Develop Alternative Water Sources	$85,000	$10,000,000	$ -			$10,085,000
Grant Total	(1,925,000)	(1,540,000)	$(2,550,000)			$(6,015,000)
Total	$ 418,333	$11,833,333	$ 333,333	$-	$-	$12,584,999

The District is currently repaying four loans for upgrades across the service area. The loans are for the Sweetwater Treatment Plant, an AMR Loan though the State Water Resource Control Board, Kelsey North Assessment District, and the Stewart Mine Assessment District. See Table 9 for information regarding the payments.

Table 9 - Debt Payments

Debt Name	Total Liability	Outstanding Balance	Loan Payment (Annual Total)
SWRCB - Sweetwater Treatment Plant	$7,127,951	$7,127,951.16	$567,356
AMR Loan	$1,383,122	$72,934	$72,934
Kelsey North Assessment District	$114,341	$109,512.12	$30,795
Stewart Mine Assessment District	$138,839	$29,225.97	$14,248

E. Water Audits

The District conducts Water Audits for the water system. Based on the 2020 Urban Water Management Plan the losses for the raw water system vary between 39 to 60% from 2016 to 2019. Water loss in the raw water system can be attributed to unlined canals, leaks in the canal system and water turn out due to poor water quality (suspended sediment). Refer to the most recent Water Audit conducted in 2022 for the Water System in Appendix C.

3 Need for Project

A. Health, Sanitation, and Security

The District is not currently in violation with any of the agencies which regulate the District. However, since the Mosquito Fire water quality, and the security of the Districts infrastructure has been a high priority.

United States Department of Agriculture: Forest Service provided a burned-area report for the area (BAER). Following that report, CalFire's WERT completed a post fire assessment evaluating the effects of the burn severity on infrastructure. The WERT identified six areas of GDPUD Infrastructure which was a "Risk to Life-Safety." The WERT anticipated that that runoff from the burned area would contain chemical contaminants and may pose an environmental impact to the water supply. GDPUD mitigated the potential impact to the water supply, but future fires and storms will always pose a threat to the water supply unless the canal is piped. Refer to Appendix D and E for additional information.

The District requested KASL, Bennett Engineering and ECORP to provide post fire and post storm surveys of infrastructure which was damaged. Multiple reports have been generated and are included in the Appendices of this report.

The project is needed to increase resiliency of the District's water system. If the canal or access road were to fail in these remote locations it would leave the District without access to the only source of water for over 9,000 people within GDPUD's service area.

B. Infrastructure Issues

The District's canals and diversions date as far back as the 1850s, well before the District was formed. Over the years the ownership of the infrastructure changed many times and each company constructed additional canals. After the District's formation the District began to develop the Stumpy Meadows Project. The Stumpy Meadows Project included a storage reservoir at Stumpy Meadows, and a re-diversion from Pilot Creek at the Dam. As part of this project the ditch which ran between Stumpy Meadows and Tunnel Hill was abandoned and a new conveyance system, the El Dorado Conduit, was constructed in 1962.

The El Dorado Conduit requires a higher level of maintenance than ditches at lower elevations. The El Dorado Conduit is over 60 years old and is exposed to harsher winters, has a higher risk of slope instability and damage from storms and fire due to its elevation and remote location. Refer to Section 2 for an assessment of the El Dorado Conduit.

The original open canals were unlined and over time the sides eroded. The open canal system has a higher risk for debris and sediment to build up and overtop the canal, resulting in damage, loss of water and decreased water quality. Open, unlined canals lose water via percolation and evaporation and are inefficient in terms of operations

and maintenance. Open canal systems are much less reliable than closed systems such as pipelines.

C. Reasonable Design Capacity

This project's design capacity does not include future growth as the District is not anticipating a significant increase in services due to the service area topography, zoning, and the lack of sanitary sewer service. Pipe sizing will be based on the current sizing of the pipes nearby which are sized appropriately and do not have capacity issues.

4 Alternatives Considered

A. Project Need and Solution

The project is needed to increase the reliability and resiliency of the District's conveyance from their only water source for both potable and irrigation water. Currently the Upper Conduit of the El Dorado Conduit is threatening the reliability and resiliency of the water system. If the Upper Conduit section were to fail, there is limited access to complete repairs and the District would only rely on water stored downstream in Walton Lake and the canals.

The District must increase resiliency of the canal to provide a reliable and safe water supply for their potable customers.

The alternatives were evaluated based on the following criteria:

- Will it prevent water loss in the system?
- Will it Increase reliability of the system?
- Will it reduce the risk of slope failures along the canal?
- Will it increase overall water quality?

See the next sections for detailed descriptions of the alternatives evaluated.

B. Alternative 1 – Erosion Control

i. Description

This alternative would include the application of erosion control methods to stabilize the canal during the winter months. Erosion Control methods may include but are not limited to; hydroseeding, straw mulch, erosion control blankets, silt fences, fiber rolls, and straw bale barriers.

This alternative will not prevent water loss in the system. This alternative may increase the access for operating and maintaining the canal while reducing the risk of slope failures. In addition, sediment control measures can be used to mitigate water quality from sediment transport. This alternative is a short-term solution which does not provide protection of the canal during future storms or fires.

ii. Design Criteria

The design criteria used for the application of erosion control would be the Environmental Protection Agency's fact sheets for the selected erosion and sediment controls.

iii. Map

See Figure 9 for areas of concern around the canal that need erosion control.

SCALE: 1"=3000'

PROJECT AREA

STRUCTURE #2

STRUCTURE #3

WENTWORTH SPRINGS RD

WHITE FIR RD

QUINTETTE

PILOT CREEK

UC-4-19

THE NARROWS

UC-4-17

UC-4-18

UC-4-12

48" CMP (1997 REPAIR)

SECTION OF PIPE REPLACED IN 1970'S

UC-4-16

UC-4-15

UC-4-13

UC-4-14

FUNDING FOR THIS SECTION WAS REQUESTED FROM CALOES

CONTROL STRUCTURE #2

SECTION PIPED BY GDPUD (SEPTEMBER 2023)

UN-LINED DITCH FILLED IN

UC-4-11

CULVERT

UC-4-10

ROAD TO "YELLOW GATE"

SLIDES BELOW DITCH/PIPE

UC-4-9

UC-4-8

48" CMP (2000 REPAIR)

CONTROL STRUCTURE #3

UC-4-7

48" CMP (2000 REPAIR)

LEGEND

PIPE

LINED DITCH

UN-LINED DITCH

NATURAL FEATURE

HEADWALL

CONTROL STRUCTURE

GRIZZLEY

CONFLUENCE

FOREST SERVICE LAND

AREAS OF CONCERN

12/19/2023

SCALE: 1"=500'

FIGURE 9

GDPUD CANAL PIPING RESILIENCY PROJECT PROJECT No. 22110

BEN|EN Y&C

GDPUD

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iv. Environmental Impacts

The following setting description applies to all alternatives.

Based on a cultural resource inventory and evaluation prepared for the Project, there are no known cultural or historic resources present in the Project area.

The project area includes the following primary vegetation communities/land cover types (based on the classification systems presented in A Manual of California Vegetation Online (CNPS 2023b):

Ponderosa Pine - Incense Cedar Forest

The ponderosa pine (Pinus ponderosa) - incense cedar (Calocedrus decurrens) forest comprises the majority of the Project area. Living and standing dead ponderosa pines and incense cedars are co-dominant in the canopy. In the Project area, this vegetation community also exhibits burn damage ranging from lower intensity burns of the southern end of the Project to increasing intensity and severity progressing northwards along the Canal. The Ponderosa Pine – Incense Cedar Forst is not considered a sensitive natural community.

Disturbed/Developed

The disturbed or developed land cover type includes roads and roadside ditches. The road has been recently graveled for a majority of its length. Vegetation is limited to road margins and is composed of species found in the adjacent forest. The disturbed/developed cover type is not considered sensitive.

Aquatic Resources

Aquatic resources in the Project area include one mapped riverine drainage aquatic feature, several intermittent and ephemeral drainages, and the canal itself. Some of the intermittent and ephemeral drainages intersect with the canal and at least one runs over the canal via a conveyance structure. While the Canal does not appear to meet the criteria for a Water of the U.S. or Water of the State, the drainages are likely to be jurisdiction under Section 404 of the Clean Water Act.

Impact summary

Alternative 1 would include ground-disturbing activities to unvegetated, vegetated, and variably burned portions of the Ponderosa Pine - Incense Cedar Forest and Disturbed/Developed land cover types. These communities are not considered sensitive and any related Project effects can be minimized by implementing standard avoidance and minimization measures such as: demark the work area to minimize unnecessary ground disturbance; avoid aquatic resources (or obtain appropriate permits); conduct preconstruction special-status species and nesting bird surveys; stop work should an unknown cultural resource

be discovered and evaluate the find; and, implement post construction erosion control measures. No significant and unavoidable impacts or compensatory mitigation are anticipated due to implementation of Alternative 1.

v. Land Requirements

It is anticipated that erosion and sediment controls would be applied within the 35-foot-wide easement. On the steeper slopes, erosion and sediment control may be required outside the 35-foot-wide easement and an agreement with private landowners would be required.

vi. Potential Construction Problems

There are staging areas for materials such as hay bales, jute fabric, and fiber rolls. However, due to the location and steep terrain access is limited. Based on conversations with local erosion control contractors, they would have a difficult time getting the hydroseeding pump truck out to the canals. The truck would be able to reach certain sections, but others may need to be done aerially (helicopter). The narrows section would be the most difficult to access for application of erosion control and the slopes are nearly vertical and are not suited for hydroseeding.

There are also limitations on the effectiveness of hydroseeding specifically in very steep areas. In addition, seeding does not immediately stabilize soils; therefore, temporary erosion and sediment control will still be required.

vii. Sustainability Considerations

This alternative does not implement sustainable utility management practices. The alternative does not reduce water loss or increase water efficiency, water is still lost through percolation into the soil and evaporation. The alternative does not provide resiliency to the water system as a whole or provide operational simplicity. This alternative does not provide any protection against future fires or severe winter storms.

viii. Conclusion and Cost Estimate

A preliminary Cost Estimate was not prepared as this alternative is not technically feasible. While the alternative may increase water quality and reduce the risk of slope failures it is only a short-term solution. In addition, this alternative does not prevent water loss in the system or increase reliability of the system.

C. Alternative 2 – Buried Pipe in Canal

i. Description

This alternative would include installing a 48-inch high-density polyethylene (HDPE) pipe within the existing canal footprint and backfilling over the pipe with

native material. Once the pipe is installed, the access road will be widened over the top of the pipe, providing better access.

The alternative would include removing sediment and/or gunite from the canal, recompacting the flow line and preparing the canal bottom for installation of the 48-inch HDPE pipe. In addition, culverts would be installed along the alignment to provide access for maintenance. The culverts would be concrete lined and equipped with trash racks to keep large debris from flowing into the pipe. The culverts provide the district access to remove sediment and or blockages from the piped segments. These culverts would be installed where a new pipe section is ending at an existing pipe section and on runs which exceed 500 feet.

Backfill for the pipe would be sourced from land nearby, and staging areas were identified during the site visit in November 2023. This project would be constructed in phases, damming the upstream pipe or culvert, completing approximately 300 linear feet of pipe before restoring flows.

This alternative would include erosion control measures for areas which have been recently graded or impacted by grading activities. This would include straw mulch, hay bale barriers and fiber rolls.

ii. Design Criteria

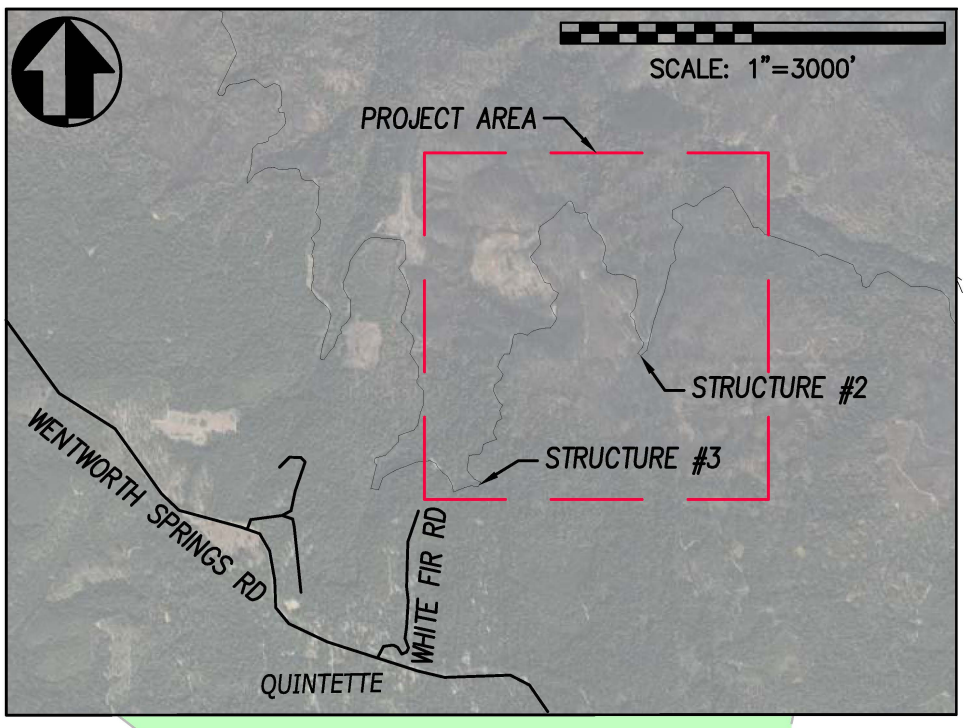
The existing piped sections of the canal are 48-inch diameter. The District has not experienced any capacity issues and does not anticipate a large growth of the District. The design diameter chosen is 48 inches as there is no growth component built in. HDPE pipe was selected as the material as it is light and easy to place with physical labor when the excavator cannot be used. HDPE is also more widely available, easier to transport and stage, lower in cost, easier to install and traffic rated with appropriate cover as recommended by the manufacturer specifications.

The District has completed other piping projects utilizing the same design criteria and construction methods which have been successful.

Environmental Protection Agency's fact sheets will be used for the erosion control measures selected to be most suitable.

iii. Map

See Figure 10 for the proposed segments of the canal to be piped.



PILOT CREEK

UC-4-19

THE NARROWS

UC-4-17

UC-4-18

UC-4-12

48" CMP (1997 REPAIR)

SECTION OF PIPE REPLACED IN 1970'S

UC-4-16

SECTION PIPED BY GDPUD (SEPTEMBER 2023)

UN-LINED DITCH FILLED IN

UC-4-11

CULVERT

UC-4-10

UC-4-13

UC-4-15

ROAD TO "YELLOW GATE"

UC-4-14

FUNDING FOR THIS SECTION WAS REQUESTED FROM CALOES

SLIDES BELOW DITCH/PIPE

UC-4-9

CONTROL STRUCTURE #2

UC-4-8

48" CMP (2000 REPAIR)

CONTROL STRUCTURE #3

UC-4-7

48" CMP (2000 REPAIR)

STRUCTURE 3 TO UC-4-12	
PRIORITY	LINEAR FEET
#1	2690
#2	1830
#3	260

UC-4-12 TO STRUCTURE 2	
PRIORITY	LINEAR FEET
#1	2400
#2	310
#3	420

LEGEND

- PIPE
- LINED DITCH
- UN-LINED DITCH
- NATURAL FEATURE
- HEADWALL
- CONTROL STRUCTURE
- GRIZZLEY
- CONFLUENCE
- FOREST SERVICE LAND

LEVEL OF PRIORITY

- #1
- #2
- #3

FEBRUARY 2024

SCALE: 1"=500'

FIGURE 10

GDPUD CANAL PIPING RESILIENCY PROJECT PROJECT No. 22110

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iv. Environmental Impacts

Based on a cultural resource inventory and evaluation prepared for the Project, there are no known cultural or historic resources present in the Project area.

See Section 4 *B* iv. for a description of the land cover types found in the Project area.

Impact summary

Similar to Alternative 1, Alternative 2 would include ground-disturbing activities to unvegetated, vegetated, and variably burned portions of the Ponderosa Pine - Incense Cedar Forest, disturbed/developed, and aquatic resource cover types. These impacts could be minimized by implementing the same avoidance and minimization measures identified for Alternative 1 above. While these measures would ensure potential impacts are mitigated, the total area of Alternative 2 disturbance would be greater than Alternative 1. This is due in part to work within the Canal to remove sediment and/or gunite and recompact the flow line in preparation for pipe and culvert installation. Additionally, following pipe placement, the existing Canal would be filled, and the existing adjacent maintenance access road widened over the former Canal adding to the total disturbed/developed land cover impact. Finally, new conveyance facilities would be installed to allow intermittent and ephemeral drainages that intersect the Canal to pass over and discharge to their former water course below the Canal. Because the Canal is a constructed feature, excavated in uplands and subject to ongoing operation and maintenance as a water supply conveyance facility, it is considered exempt from Section 404 and no impacts to waters are anticipated due to Canal filling. Furthermore, because the proposed conveyance facilities over the Canal do not require fill in waters or wetlands, no Section 404 permitting is anticipated for Alternative 2. Thus, although impacts to the Ponderosa Pine - Incense Cedar Forest and disturbed/developed land cover types would be greater than Alternative 1, no significant and unavoidable impacts or compensatory mitigation are anticipated due to implementation of Alternative 2.

v. Land Requirements

The work proposed as part of this alternative can be completed within the 35-foot-wide easement. There will be no additional temporary construction easements or permanent easements required. An agreement would be formed with Sierra Pacific Industries (SPI) to complete work within the easement. There are no anticipated complications to arise from the temporary agreement with SPI.

vi. Potential Construction Problems

There are staging areas for materials such as hay bales, jute fabric, and fiber rolls. However, due to the location and steep terrain access is limited and the equipment used will be limited to smaller sized excavators and pick-up trucks with

trailers. Some work may be required to be done by hand due to maneuverability of the equipment, this is especially true in the narrows section.

Due to the irrigation season and inclement weather the construction will need to be staged.

vii. Sustainability Considerations

This alternative implements sustainable utility management practices. This alternative reduces water losses and increases water efficiency by piping the canal. Water would not be lost through percolation into the soil, or evaporation. A piped canal is simpler to operate and maintain than an open canal. In addition, the piped canal increases the resiliency of the system. The piped sections are at lower risk of failure and widen the access road. Lastly, a piped canal will increase the water quality by reducing the amount of sediment and debris that can enter the canal system.

viii. Cost Estimate

A Total Project Cost Estimate was prepared for this alternative. See Section 6 Proposed Project.

D. Alternative 3 – Rigid Unburied Pipe in Canal

i. Description

This alternative would include installing a 48-inch rigid, ductile iron (DI) pipe within the existing canal footprint and leaving the pipe exposed (no backfill).

The alternative would include removing sediment and/or gunite from the canal, recompacting the flow line and preparing the canal bottom for installation of the 48-inch DI pipe. In addition, culverts would be installed along the alignment to provide access for maintenance. The culverts would be concrete lined and equipped with trash racks to keep large debris from flowing into the pipe. The culverts provide the district access to remove sediment and or blockages from the piped segments. These culverts would be installed where a new pipe section is ending at an existing pipe section and on runs which exceed 500 feet.

Bedding for the pipe would be pulled from land slopes nearby, and staging areas were identified during the site visit in November 2023. This project would be constructed in phases, damming the upstream pipe or culvert, completing approximately 300 linear feet of pipe before restoring flows.

This alternative would include erosion control measures for areas which have been recently graded or impacted by grading activities. This would include straw mulch, hay bale barriers and fiber rolls. This alternative would have less areas impacted by grading activities than alternative 2, as there are no backfilling activities.

ii. Design Criteria

The existing piped sections of the canal are 48-inch in diameter. The District has not experienced any capacity issues and does not anticipate a large growth of the District. The design diameter chosen is 48 inches as there is no growth component built in. DI pipe was selected as the material as it is rigid and without backfill can withstand damage from trees and rocks falling.

Environmental Protection Agency's fact sheets will be used for the erosion control measures selected to be most suitable.

iii. Map

See Figure 10 for the proposed segments of the canal to be piped.

iv. Environmental Impacts

Based on a cultural resource inventory and evaluation prepared for the Project, there are no known cultural or historic resources present in the Project area.

See Section 4 *B* iv. for a description of the land cover types found in the Project area.

Impact summary

Similar to Alternative 2, Alternative 3 would include ground-disturbing activities to unvegetated, vegetated, and variably burned portions of the Ponderosa Pine - Incense Cedar Forest, disturbed/developed, and aquatic resource cover types. These impacts could be minimized by implementing the same avoidance and minimization measures identified for Alternative 2 above. These measures would ensure potential impacts remain less than significant. In addition, Alternative 3 grading is expected to be less than Alternative 2 because the Canal would not be backfilled, although sediment and/or gunite would still be removed and the Canal bottom and the flow line would be recompacted to prepare for installation of the DI pipe.

Similar to Alternative 2, Alternative 3 would also include new conveyance facilities to allow intermittent and ephemeral drainages that intersect the Canal to pass over and discharge to their former water course below the Canal. As discussed above for Alternative 2, the Canal is considered exempt from Section 404 and thus no impacts to waters are anticipated due to preparing the Canal bottom for DI pipe installation or for proposed conveyance facilities over the Canal. Thus, although Alternative 3 would include impacts to the Ponderosa Pine - Incense Cedar Forest and disturbed/developed land cover types, no significant and unavoidable impacts or compensatory mitigation is anticipated due to implementation of Alternative 3.

v. Land Requirements

The work proposed as part of this alternative can be completed within the 35-foot-wide easement. There will be no additional temporary construction easements or permanent easements required. An agreement would be formed with Sierra Pacific Industries (SPI) to complete work within the easement. There are no anticipated complications to arise from the temporary agreement with SPI.

vi. Potential Construction Problems

There are staging areas for materials such as hay bales, jute fabric, and fiber rolls. However, due to the location and steep terrain access is limited and the equipment used will be limited to smaller sized excavators and pickup trucks with trailers. In addition, it would require more trips to transport the DI pipe out to the staging areas on the tow behind trailers due to weight limitations. Some work may be required to be done by hand due to maneuverability of the equipment, this is especially true in the narrows section. DI pipe is very heavy and would require an excavator to set and place the pipe, unlike HDPE pipes. Placement of the rigid pipe would be particularly challenging in the narrows. In addition, the installation of rigid pipe does not allow for a wider access road, reducing the working area.

vii. Sustainability Considerations

This alternative implements sustainable utility management practices. This alternative reduced water losses and increases water efficiency by piping the canal. Water would not be lost through percolation into the soil, or evaporation. A piped canal is simpler to operate and maintain than an open canal. In addition, the piped canal increases the resiliency of the system. The piped sections are at lower risk of failure. Lastly, a piped canal will increase the water quality by reducing the amount of sediment and debris that can enter the canal system.

viii. Cost Estimate

A preliminary Cost Estimate was not prepared as this alternative is not technically feasible. While the alternative implements sustainable utility management practices similarly to Alternative 2, it is not feasible due to constructability problems.

5 Selection of Alternative

Alternative 2 – Buried Pipe in Canal is the only technically feasible alternative which provides a solution to the District's problem. Alternative 2 increases resiliency of the entire water system by preventing water losses in the canal system, simplifying operations, and maintaining flow in the canal. A Life Cyle Analysis was not conducted as there was only one technically feasible alternative identified.

6 Proposed Project

A. Preliminary Project Design

The proposed project will include piping approximately 7,910 linear feet of the existing Upper Conduit canal to increase reliability and access for maintenance of the canal, reduce risk of slope failures around the canal, and increase water quality in the canal.

The most challenging for construction will be the most upstream section called “the narrows.” This section will require handwork to remove existing gunite, rocks and sediment from the flow line. The flow line will need to be reshaped and compacted via handwork as well. Once the hand work is completed the pipe will be placed from the downstream culvert working upstream. Sections of pipe will be set, backfilled, and then utilized as a path for the excavator as the pipe is placed and backfilled from the downstream to the upstream culvert.

In all other areas the sections will require less handwork as the excavator will be able to use the access road adjacent to the canal.

For unlined sections of the canal, the upstream culvert will be damned. Prior to the upstream culvert being damned it is recommended that the native backfill be sourced and stockpiled at the closest staging area. Once the backfill has been sourced and the canal is damned sediment and rocks will be removed from the flow line, and the flow line will be reshaped, compacted, and bedding for the HDPE pipe will be placed. Once the bedding has been placed the HDPE pipe will be set and backfilling can begin. Backfill will be compacted, aggregate base will be placed over the top as a road surface and erosion control methods will be installed as appropriate.

For lined sections of the canal, the demolition of the gunite can be done prior to damming the upstream culvert to reduce shut down times. Sediment control measures will be required at the downstream section to prevent sediment transport and blockages. The excavator will be used to break up the gunite lining and place it into trucks for off haul. If possible, the gunite will be processed and used as pipe bedding to reduce material hauled. Once the gunite has been removed, the upstream culvert will be damned, and the 48-inch pipe will be installed the same way as the unlined canal sections.

At the termination of all piped sections a culvert will be installed. All culverts will include a concrete apron with positive drainage from the flow line of the proposed pipe to the existing lined or unlined flow line. If a proposed pipe section terminates at an existing pipe section a culvert will still be installed to provide maintenance access. All upstream culverts will be equipped with a trash rack to prevent debris and animals from blocking the pipe.

B. Project Schedule

The project schedule will be contingent on the funding award date, weather and the linear feet amount of the replacement funded.

C. Permits Requirements

The project is located exclusively within the maintained canal right-of-way owned and operated by GDPUD; therefore, no new easements are required for project implementation.

Based on the results of the Biological Resources Assessment, no federal or State-listed terrestrial or aquatic species would be impacted, and no related permitting would be required.

Because the Canal is a constructed feature, excavated in uplands and subject to ongoing operation and maintenance as a water supply conveyance facility, it is exempt from Clean Water Act Section 404 permitting. Thus, backfilling the Canal following pipe placement would not trigger the need for Section 404 or 401 permitting. However, because the Canal would be backfilled, the existing intermittent and ephemeral drainages that intersect and drain to the Canal will need to be addressed. To accomplish this, it is expected that culverts would be constructed to convey these drainages under the Canal and adjacent access road for discharge to their former drainage courses below the access road. This culvert construction would require disturbance and/or fill within the existing drainages on the uphill side of the Canal. Thus, Section 404 and 401 permitting would be required for the project.

Regarding CDFW, because the Canal constitutes a bed and bank feature and some vegetation removal may be required for construction access, the Project is also subject to a CDFW 1602 Lake and Streambed Alteration Agreement (LSAA). Finally, should construction ground disturbance exceed one acre, a National Pollutant Discharge Elimination System (NPDES) permit and related Storm Water Pollution Prevention Plan (SWPPP) would also be required for Project implementation.

D. Sustainability Considerations

i. Water and Energy Efficiency

The proposed project will pipe the open canal increasing water efficiency by decreasing water losses. Open canal systems lose water through percolation into the soil, evaporation, and leaks from erosion.

ii. Resiliency

The proposed pipe will simplify operations and maintenance of the piped section for the District. These sections will require fewer visual inspections after heavy storms and less repairs than an open canal system would. This will decrease the

District's operations and maintenance budget and reduce the risk of operators being injured when conducting assessments in inclement weather.

Future maintenance has been considered in the design and culverts will be installed to provide access to clean the pipe, and trash racks to prevent debris from creating blockages.

The access road adjacent to the piped canal will be at a lower risk of failure once the canal has been piped. The piped canal will reduce pore pressure in the soil, reduce likelihood of supersaturated soils and reduce the risk of slope failure due to "piping" from canal leaks. This will reduce operations and maintenance of the access road, which is shared by the District and SPI, and increase access to the remainder of the system increasing resiliency of the water system.

E. Total Project Cost Estimate

A Total Project Cost Estimate was prepared for this project. The Total Project Cost Estimate includes Non-Construction and Construction Costs in Table 10 and Table 11 includes a breakdown of Construction Costs.

Table 10 - Total Project Cost

ITEM		Amount
Legal Counsel		$35,000
Environmental Report Services		$57,000
Engineering Services	Subtotal	
- Study and Report (Planning) Phase (PER)	$43,530	
- Design Phase	$250,000	
- Bidding/Award Phase	$15,000	
- Construction Management	$200,000	
- Permitting	$15,000	
- Surveying (Construction Phase)	$75,000	
- As Built Record Drawings	$65,000	
- Temporary Construction Agreements	$50,000	
Total - Engineering Services:		$713,530
Owner Direct Procurement Agreements (Equipment/Materials/Testing)	Subtotal	
- Materials Testing Lab (construction phase) (compaction, sieve analysis, test material being used to backfill, cylinder testing, etc.)	$10,000	
- SWPPP/Inspections	$75,000	
Total - Direct Procurement:		$85,000
Construction Contract (attach construction cost breakdown)		$6,910,250
Contingency (recommend 15% of construction cost)		$1,036,538
Total Project Cost Estimate:		$8,837,318

Table 11 - Preliminary Construction Cost Estimate

Item No.	ITEM DESCRIPTION	Estimated Quantity	Unit	Unit Price ($/Unit)	Amount ($)
	Construction				
1	Mobilization/Demobilization	1	LS	$550,000.00	$550,000
2	48" HDPE Pipe	7910	LF	$575.00	$4,548,250
3	Crushed Rock (Pipe Bedding)	4270	CY	$150.00	$640,500
4	Aggregate Base	1550	CY	$175.00	$271,250
5	Excavation	8670	CY	$75.00	$650,250
6	Erosion Control BMPs	1	LS	$250,000.00	$250,000
				Construction Subtotal	$6,910,250

F. Annual Operating Budget

i. Income

Appendix B contains the District's Budgeted Revenues in FY 23-24. This project will not affect the revenues collected, but it will decrease the amount of water loss in

the system. A future income projection was not prepared as the District is not expecting significant growth in the service area due to topography and limited sewer service.

ii. Annual O&M Costs

Appendix B contains the District's Operations and Maintenance costs for FY 23-24. This project will reduce the overall O&M costs in the future for the segments of canal which are lined. It is difficult to project the O&M cost for the future as the hillsides are unstable and O&M costs are affected by the weather.

iii. Debt Repayments

The proposed project does not change the debt repayments as described in Section 2 in Table 9.

iv. Reserves

Appendix B contains the District's Restricted and Reserve Funds. Table 12 is a list of short-lived assets related to the Raw Water Distribution System. The District plans for replacements of assets by programming them into their fiscal year budget or the CIP.

Table 12 - Short-Lived Assets

Infrastructure	Useful Life (years)	Replacement Cost	Annual Reserve
Brushcutters (5)	10	$16,500.00	$1,650.00
Vibratory Rammer	10	$14,900.00	$1,490.00
Hedge Trimmer	5	$1,400.00	$280.00
Self-Propelled Mower (2)	10	$10,800.00	$1,080.00
Backflow Test Kit	15	$2,300.00	$153.33
Transfer Pump	15	$3,100.00	$206.67
2016 Dodge Ram 5500	15	$95,300.00	$6,353.33
2017 Ford F150	15	$40,800.00	$2,720.00
2020 Ram	15	$43,100.00	$2,873.33
2020 Ram	15	$43,100.00	$2,873.33
Water Trailer	15	$11,700.00	$780.00
2020 Ram	15	$43,100.00	$2,873.33
2019 Ford F550	15	$140,100.00	$9,340.00
John Deere 35G	15	$117,200.00	$7,813.33
		Total:	$41,156.67

7 Conclusions and Recommendations

The District's canal was damaged by Mosquito Fire burning vegetation above and below the canal, as well as the Severe Winter Storms causing erosion of the burn scars, slope failures, and leaks along the canal. The only technically feasible alternative to mitigate the impacts of the Fire and the Severe Winter Storms is to pipe priority sections of the canal. If the slopes adjacent to the canal were to fail the access road would be impassable limiting the District from making repairs or removing blockages along the canal. If the access road becomes impassable there is a high risk of total loss of the canal, which is the only conveyance for potable and irrigation water to the service area.

This report recommends that the District move forward with piping sections of the canal to reduce water loss, reduce the risk of slope failure, simplify operations and maintenance, and provide resiliency to the system.

Appendices

Biological Resources Assessment
for the
Georgetown Divide Public Utility District
Canal Piping Resiliency Project

El Dorado County, California

Prepared For:

Georgetown Divide Public Utility District

Prepared By:

ECORP Consulting, Inc.
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April 2024

CONTENTS

1.0 INTRODUCTION 1
1.1 Project Location and Description 1
1.2 Biological Study Area 3
1.3 Purpose of this Biological Resources Assessment 3
2.0 REGULATORY SETTING 5
2.1 Federal Regulations 5
2.1.1 Federal Endangered Species Act 5
2.1.2 Migratory Bird Treaty Act 5
2.1.3 Federal Clean Water Act 5
2.2 State or Local Regulations 6
2.2.1 California Fish and Game Code 6
2.2.2 Porter-Cologne Water Quality Act 8
2.2.3 California Environmental Quality Act 8
2.2.4 El Dorado County General Plan 12
2.2.5 El Dorado County Oak Resources Conservation Ordinance 12
3.0 METHODS 12
3.1 Literature Review 12
3.2 Site Reconnaissance 13
4.0 RESULTS 14
4.1 Site Characteristics and Land Use 14
4.2 Soils and Geology 14
4.3 Vegetation Communities and Land Cover Types 16
4.3.1 Ponderosa Pine - Incense Cedar Forest 16
4.3.2 Disturbed/Developed 16
4.4 Aquatic Resources 16
4.4.1 Canal 18
4.4.2 Intermittent Drainage 18
4.4.3 Ephemeral Drainages 20
4.5 Wildlife 20
4.6 Special-Status Species 20
4.7 Critical Habitat or Essential Fish Habitat 36
4.8 Wildlife Movement Corridors and Nursery Sites 36
4.9 Protected Trees/Oak Woodlands 37
5.0 IMPACT ASSESSMENT AND RECOMMENDATIONS 37

5.1 CEQA Checklist Criteria IV(a) – Special-Status Species 37
5.1.1 Special-Status Plants 37
5.1.2 Special-Status Wildlife Species 38
5.2 CEQA Checklist Criteria IV(b) – Sensitive Natural Communities 40
5.3 CEQA Checklist Criteria IV(c) – Aquatic Resources 40
5.4 CEQA Checklist Criteria IV(d) – Movement Corridors and Nursery Sites 41
5.5 CEQA Checklist Criteria IV(e) – Conflicts with Local Policies or Ordinances 42
5.6 CEQA Checklist Criteria IV(f) – Conflicts with Conservation Plans 42
6.0 REFERENCES 43

LIST OF FIGURES

Figure 1. Project Location and Vicinity 2
Figure 2. Biological Study Area 4
Figure 3. Natural Resources Conservation Service Soil Types 15
Figure 4. National Wetlands Inventory 17
Figure 5. Preliminary Aquatic Resources Assessment 19

LIST OF TABLES

Table 1. Soil Series Mapped in the Biological Study Area 14
Table 2. Special-Status Species Evaluation 21

LIST OF APPENDICES

Appendix A – Results of Database Queries
Appendix B – Representative Photographs
Appendix C – Plant Species Observed

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
˚F	Degrees Fahrenheit
BCC	Birds of Conservation Concern
BIOS	Biogeographic Information and Observation System
BRA	Biological Resources Assessment
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife

Term	Definition
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DPS	Distinct Population Segment
DSH	Diameter at Standard Height
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
GDPUD	Georgetown Divide Public Utility District
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDPE	High-Density Polyethylene
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MCV	*A Manual of California Vegetation*
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
Plan	County of El Dorado Adopted General Plan
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

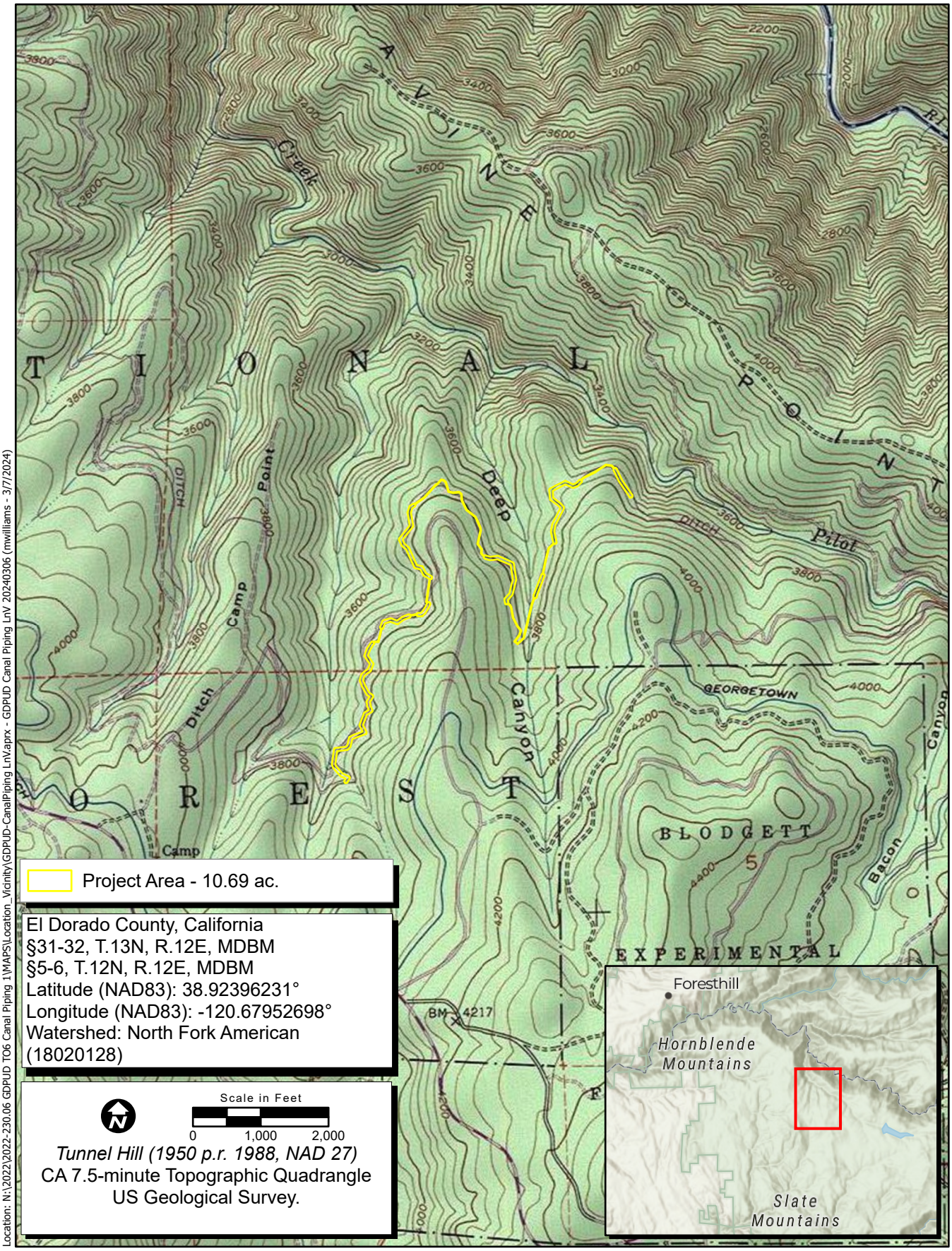
At the request of Georgetown Divide Public Utility District (GDPUD), ECORP Consulting, Inc. has conducted a Biological Resources Assessment (BRA) for the proposed GDPUD Canal Piping Resiliency (Project) located near Quintette, El Dorado County, California. The results of this assessment will support environmental review of the Project in accordance with the California Environmental Quality Act (CEQA) under a Categorical Exemption and the National Environmental Policy Act and will provide the basis for identifying appropriate measures to reduce or avoid significant impacts to biological resources.

1.1 Project Location and Description

The Project consists of the installation of multiple piped segments of the Georgetown Ditch Water Conveyance System (Canal) totaling approximately 8,000 linear feet and is generally located north of Wentworth Springs Road, north of Quintette, and along Georgetown Water Supply Road (Figure 1). In order to improve system reliability and resiliency, the Project entails the installation of irrigation piping within Canal sections that were identified as priority for conversion from open ditch to piped conveyance due to significant water loss and exposure to erosion as a result of the Mosquito Fire of 2022. The Mosquito Fire burned 76,788 acres and there was a Presidential Disaster Declaration (FM-5453-CA) declared on September 9, 2022. The proposed Project would include installing a 48-inch high-density polyethylene (HDPE) pipe within the existing Canal footprint and backfilling over the pipe with native/imported material. Once the pipe is installed, the access road will be widened over the top of the pipe/canal trench, to provide a wider, more reliable access and maintenance road and protect the water supply from contaminated runoff entering the system.

The proposed Project would include removing sediment and/or gunite from the Canal, recompacting the flow line and preparing the Canal bottom for installation of the 48-inch HDPE pipe. In addition, maintenance access structures would be installed along the alignment to provide access to pipes for maintenance. The culverts would be concrete lined and equipped with trash racks to keep large debris from flowing into the pipe. The culverts would provide GDPUD access to remove sediment and or blockages from the piped segments. These culverts would be installed where a new pipe section is ending at an existing pipe section, angle points, and on runs which exceed approximately 500 feet.

Backfill for the pipe would be sourced from the adjacent areas within GDPUD's existing easements. In addition, supplemental backfill material may be provided from another approved source. Any supplemental material to be used would be obtained from stockpiles temporarily stored at GDPUD staging areas off-site. Project construction on each segment would occur in phases to reduce Canal shut down times. Each phase would begin with cutting off supply from Stumpy Meadows, damming the upstream ditch, pipe or maintenance access structure, then completing approximately 300 linear feet of pipe placement before restoring flows. Construction is anticipated to occur over multiple seasons.



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Location_Vicinity\GDPUD-CanalPiping LnV.aprx - GDPUD Canal Piping LnV 20240306 (mwilliams - 3/7/2024)

Map Date: 3/6/2024
Sources: ESRI, USGS

Figure 1. Project Location and Vicinity

1.2 Biological Study Area

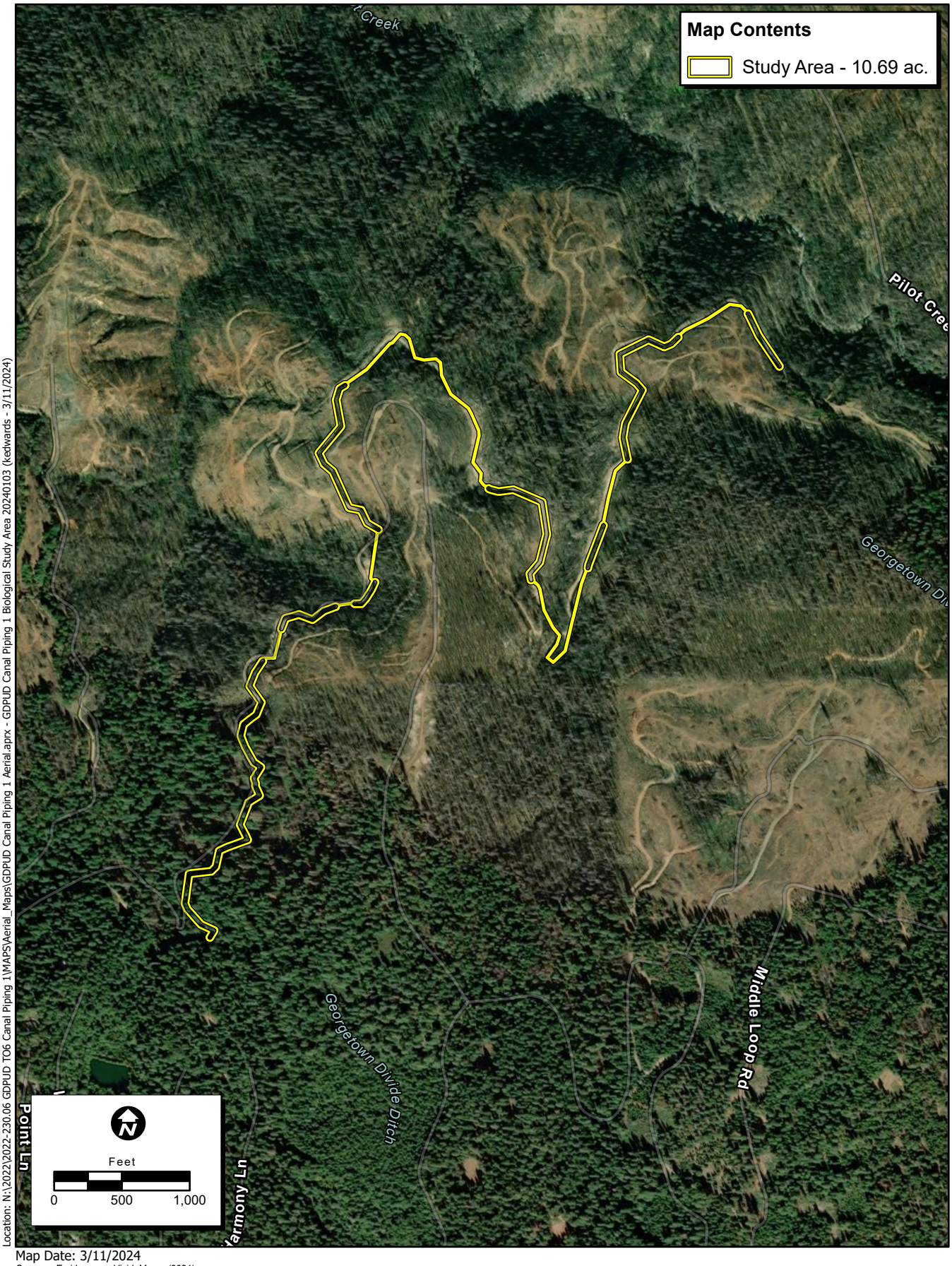
The Biological Study Area (BSA) includes all areas where Project-related activities may result in impacts to sensitive biological resources (Figure 2). The BSA includes eight lengths of the Project Area consisting of the segment's accompanying lengths of service road and, the Canal, and the surrounding easement that will be used to access the Canal. The easement extends 25 feet in both directions from the centerline of the Canal. Additional service road connectors with no associated Canal work connect these eight segments. The approximately 10.7-acre BSA corresponds to Sections 31 and 32, Township 13 North, and Range 12 East and Sections 5 and 6, Township 12 North, Range 12 East (Mount Diablo Base and Meridian) of the "Tunnel Hill, California" 7.5-minute quadrangles (U.S. Geological Survey [USGS] 1950 [photo revised 1988]; Figure 1). The approximate center of the BSA is located at 38.92396231° latitude and -120.67952698° longitude within the North Fork American watershed (Hydrological Unit Code #18020128; Natural Resources Conservation Service [NRCS] et al. 2019).

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitats, and other sensitive or protected resources such as migratory birds, sensitive natural communities, riparian habitat, oak woodlands, and potential waters of the U.S. or State, including wetlands, within the BSA. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of available literature and the results of site reconnaissance field surveys.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" or "rare, threatened, or endangered in California but more common elsewhere" (California Rare Plant Ranks [CRPRs] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (California Rare Plant Rank [CRPR] 3), or plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.); or



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Aerial_Maps\GDPUD Canal Piping 1 Aerial.aprx - GDPUD Canal Piping 1 Biological Study Area 20240103 (kedwards - 3/11/2024)

Map Date: 3/11/2024

Sources: Esri Imagery, Vivid, Maxar (2021)

Figure 2. Biological Study Area

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ENVIRONMENTAL CONSULTANTS

2022-230.06 GDPUD Canal Piping 1

- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS or the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (50 Code of Federal Regulations [CFR] 17.3). For plants, the ESA prohibits removing or possessing any listed plant on federal land, maliciously damaging or destroying any listed plant in any area, or removing, cutting, digging up, damaging, or destroying any such species in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its designated Critical Habitat. Through consultation and the issuance of a Biological Opinion, the USFWS may issue an incidental take statement allowing take of a listed species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. The USFWS may issue permits to qualified applicants as authorized by the MBTA for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> "…that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b).

The U.S. Environmental Protection Agency also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California ESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the state). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 allows CDFW to authorize incidental take permits if species-specific minimization and avoidance measures are incorporated to fully mitigate the impacts of the project.

2.2.1.2 Fully Protected Species

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. Previously, the regulations that implement the Fully Protected Species Statute (California Fish and Game Code Sections 4700 for mammals, 3511 for birds, 5050 for reptiles and amphibians, and 5515 for fish) provided that fully protected species may not be taken or possessed at any time. However, on July 10, 2023, Senate Bill 147 was signed into law, authorizing CDFW to issue take permits under the California ESA for fully protected species for qualifying projects through 2033. Qualifying projects include:

- a maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources;

- a maintenance, repair, or improvement project to critical regional or local water agency infrastructure;
- a transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a state, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel;
- a wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California based balancing authority; or
- a solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the State to a point of junction with any California-based balancing authority.

CDFW may also issue licenses or permits for take of these species for necessary scientific research or live capture and relocation, and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.1.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.1.4 California Fish and Game Code Special Protections for Birds

Sections 3503, 3513, and 3800 of the California Fish and Game Code specifically protect birds. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 prohibits the take, possession, or destruction of any birds in the orders Strigiformes (owls) or Falconiformes (hawks and eagles), as well as their nests and eggs. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA. Section 3800 states that, with limited exceptions, it is unlawful to take any nongame bird, defined as all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. These provisions, along with the federal MBTA, serve to protect all nongame birds and their nests and eggs, except as otherwise provided in the code.

2.2.1.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The notification must

incorporate proposed measures to protect affected fish and wildlife resources. CDFW may suggest additional protective measures during their review. A Lake or Streambed Alteration Agreement (LSAA) is the final proposal mutually agreed upon by CDFW and the applicant. Projects that require an LSAA often also require a permit from the USACE under Section 404 of the CWA. The conditions of the Section 404 permit and the LSAA frequently overlap in these instances.

2.2.2 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb 1 or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB also regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

2.2.3 California Environmental Quality Act

Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal and California ESAs, and Sections 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

2.2.3.1 CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (i.e., rare, threatened, or endangered) species are considered significant. Assessment of *impact significance* to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Pursuant to Appendix G, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on federally protected Waters of the U.S. including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.3.2 Species of Special Concern

Species of Special Concern (SSC) are defined by the CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the ESA, the California ESA or the California Fish and Game Code, but currently satisfy one or more of the following criteria:

- The species has been completely extirpated from the State or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not State) threatened or endangered, and meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.

- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

SSC are typically associated with threatened habitats. Projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.3.3 USFWS Bird of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, the USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.3.4 Watch List Species

The CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Depending on the policy of the lead agency, projects that result in substantial impacts to species on the Watch List may be considered significant under CEQA.

2.2.3.5 California Rare Plant Ranks

The CNPS maintains the *Rare Plant Inventory* (CNPS 2024a), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academic, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere;
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere;
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere;
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere;
- Rare Plant Rank 3 – a review list of plants about which more information is needed; and
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 0.1 through 0.3, with 0.1 being the most threatened and 0.3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat);
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat); and
- Threat Rank 0.3 – Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2024a). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2A, or 2B are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.3.6 Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are imperiled or vulnerable to environmental effects of projects. CDFW maintains the California Natural Community List (CDFW 2024b), which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation* (*MCV*) *Online* (CNPS 2024b), along with their respective state and global rarity ranks, if applicable. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

2.2.3.7 Wildlife Movement Corridors and Nursery Sites

Impacts to wildlife movement corridors or nursery sites may be considered significant under CEQA. As part of the California Essential Habitat Connectivity Project, CDFW and California Department of Transportation maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife. In urban settings, riparian vegetated stream corridors can also serve as wildlife movement corridors. Nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries, bat maternity roosts, and mule deer critical fawning areas. These data are available through CDFW's Biogeographic Information and Observation System (BIOS) database or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance.

2.2.4 El Dorado County General Plan

The County of El Dorado Adopted General Plan (Plan) is the governing document for planning and development related decisions within El Dorado County limits (County of El Dorado 2019).

The Conservation and Open Space Element of the Plan generally outlines goals, objectives, policies, mitigation requirements, and programs related to the protection of special-status species, aquatic resources, riparian areas, wildlife, and vegetation of significant biological, ecological, and recreational value, including Pine Hill rare plant species, forest, oak woodland, and tree resources.

2.2.5 El Dorado County Oak Resources Conservation Ordinance

Chapter 130.39 of the El Dorado County Code of Ordinances establishes standards for implementing the El Dorado County Oak Resources Management Plan in compliance with Plan Policy 7.4.4.4 and Implementation Measure CO-P (mitigation requirements for impacts to oak resources). An Oak Tree and/or Oak Woodland Removal Permit is required for all discretionary projects with impacts to Oak Resources. Oak Resources include individual native oaks, Heritage Trees, and oak woodlands, and are defined as follows (Municode 2022):

- *Individual native oak tree*: any live tree of the genus *Quercus* and species *douglasii* (blue oak), *lobata* (valley oak), *kelloggii* (California black oak), *wislizenii* (interior live oak), *chrysolepis* (canyon live oak), *garryana* (Oregon oak), or hybrids, thereof, and Oracle oak (*Quercus x morehus*) with a single-trunk measuring greater than 6 inches Diameter at Standard Height (DSH), or a multiple trunk with an aggregate DSH measuring greater than 10 inches, and is not a Heritage Tree.
- *Heritage tree*: any live native oak tree of the species listed above with a single trunk measuring 36 inches DSH or greater, or a multiple trunk with an aggregate DSH of 36 inches or greater.
- *Oak woodland*(s): an oak stand with greater than ten percent canopy cover or that may have historically supported greater than ten percent canopy cover.
- Mitigation is required for impacts to Oak Resources, and may occur through in-lieu fee payment, Deed Restriction or Conservation Easement (for oak woodland only), on-site or off-site replacement planting, or a combination of those options. Additional details, including mitigation ratios, replacement tree quantities, and mitigation maintenance, monitoring and reporting, are further described in the Chapter.

3.0 METHODS

3.1 Literature Review

ECORP biologists performed a review of existing available information for the BSA. Literature sources included current and historical aerial imagery, previous biological studies conducted for the area (if any), topographic mapping, soil survey mapping available from the NRCS *Web Soil Survey*, and USFWS National Wetlands Inventory (NWI) mapping. Note that the NWI inventory mapping is a national dataset based on data prepared from the analysis of high-altitude imagery in conjunction with collateral data sources and

field work. A margin of error is inherent in the use of imagery; thus, on-the-ground inspection of a particular study area is needed to confirm wetland boundaries and classifications.

ECORP reviewed the following resources to identify special-status plant and wildlife species that have been documented in or near the BSA:

- CDFW's California Natural Diversity Database (CNDDB) data for the "Tunnel Hill, California" 7.5-minute quadrangles and the surrounding 8 quadrangles (CDFW 2024a);
- CNPS Rare Plant Inventory data for the "Tunnel Hill, California" 7.5-minute quadrangle and the surrounding 8 quadrangles (CNPS 2024a); and
- USFWS Information for Planning and Consultation (IPaC) Resource Report List for the BSA (USFWS 2024a).

The results of the database queries are provided in Appendix A. Each special-status species identified in the literature review is evaluated for its potential to occur in the BSA in Section 4 based on available information concerning species habitat requirements and distribution, occurrence data, and the findings of the site reconnaissance.

3.2 Site Reconnaissance

ECORP biologists Jedidiah Dowell and Griffin Capehart conducted a site reconnaissance visit on December 16, 2023. The biologists visually assessed the BSA while walking meandering transects through all portions of the site. All areas were accessible by foot or vehicle. The following biological resource information was collected:

- Characteristics of vegetation communities and other land cover types;
- Plant and animal species or their sign directly observed;
- Characteristics and approximate extents of potential aquatic resources observed; and
- Incidental observations of special habitat features such as burrows, active raptor nests, and potential bat roost sites.

Vegetation communities were qualitatively assessed and mapped based on dominant plant composition. Vegetation community classification was based on the classification systems presented in *MCV Online* (CNPS 2024b). Special attention was given to identifying those portions of the BSA with the potential to support special-status species or sensitive habitats. Data were recorded on a Global Positioning System (GPS) unit, field notebooks, and/or maps. Photographs were taken during the survey to provide visual representation of the conditions within the BSA.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The BSA is relatively level and located along the topographic contour of a highly sloping greater terrain and topography. The BSA occurs in a remote and rural area and is situated at an elevational range of approximately 3,730 to 3,830 feet above mean sea level in the Northern High Sierra Nevada District of the California floristic province (Jepson eFlora 2023). The average winter low temperature is 44.3 degrees Fahrenheit (˚F) and the average summer high temperature is 74.0˚F; the average annual precipitation is approximately 50.62 inches at the Georgetown, California station, which is approximately 10 miles from the BSA (National Oceanic and Atmospheric Administration [NOAA] 2024).

The BSA is currently occupied by the Canal, associated infrastructure and constructs, and roads. Vegetation communities and plant species composition are described in further detail in Section 4.3.

Land uses surrounding the BSA include fire salvage logging operations and greater forest rangelands within the El Dorado National Forest. Figure 2 provides an overview of the Project setting.

Representative photographs of the BSA are provided in Appendix B.

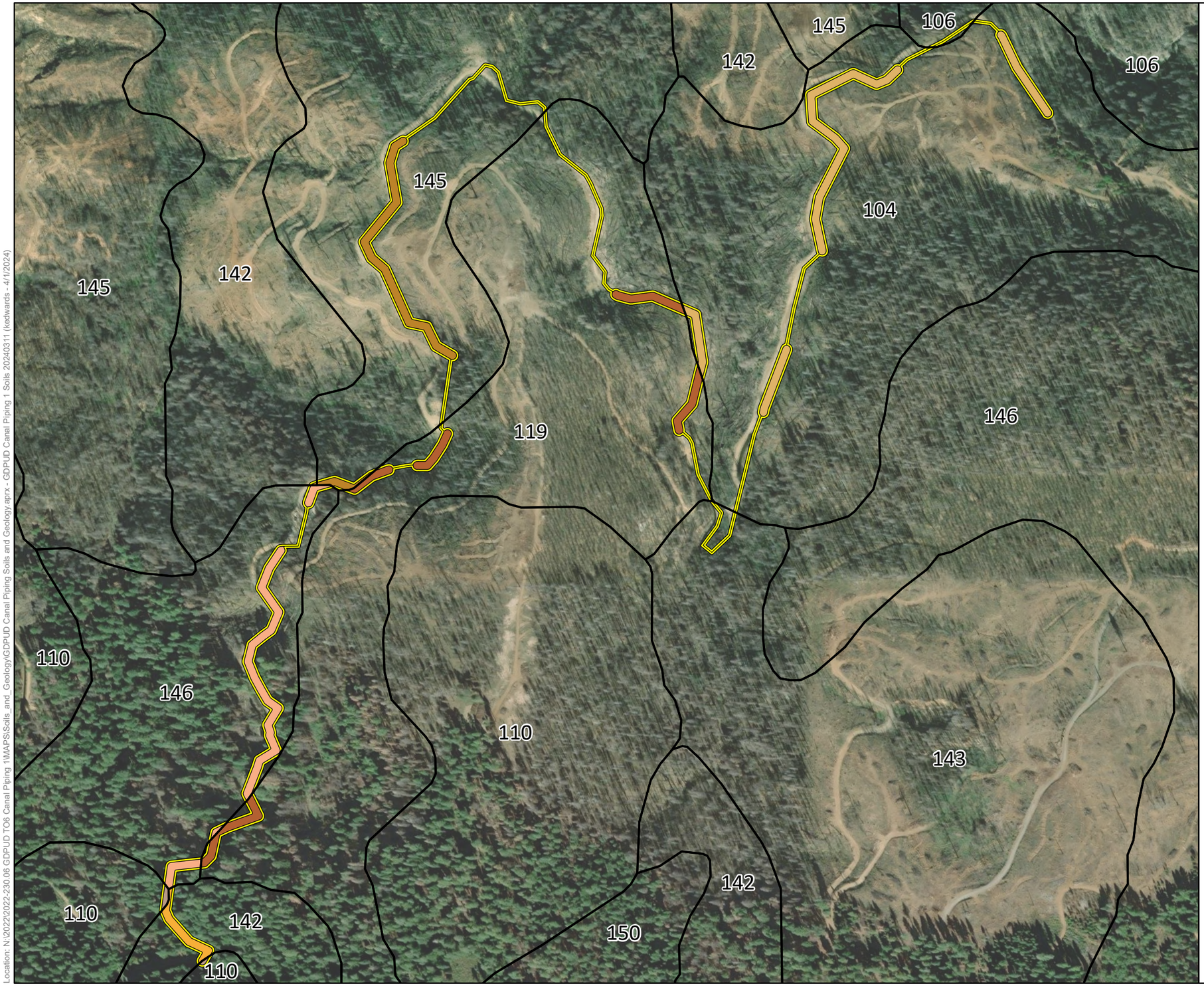
4.2 Soils and Geology

Soil survey mapping for the BSA was obtained from the NRCS *Web Soil Survey* (NRCS 2024c; Figure 3). Table 1 provides an overview of the soil series mapped within the BSA and key features of the soil series, such as hydric rating or the presence of serpentine or gabbroic soil material.

Table 1. Soil Series Mapped in the Biological Study Area

Map Unit	Key Features
104 - Bighill-Musick complex, 50 to 75 percent slopes	Parent material of residuum of weathered granite
106 - Chaix coarse sandy loam, 30 to 75 percent slopes	Parent material of residuum of weathered granite
110 – Cohasset loam, 2 to 30 percent slopes	Parent material of lahar derived from andesite
119 – Crozier-McCarthy complex, 30 to 50 percent slopes	Parent material of lahar derived from andesite
142 – Holland loam, 5 to 30 percent slopes	Parent material of residuum of weathered granite
145 – Holland-Bighill complex 30 to 75 percent slopes	Parent material of residuum of weathered granite
146 – Holland-Musick loams, 5 to 30 percent slopes complex	Parent material of residuum of weathered granite

No soils mapped within the BSA are considered hydric (NRCS 2024a). No soils derived from serpentine or gabbroic parent materials are mapped within the BSA or its immediate vicinity (Horton 2017; Jennings et al. 1977; NRCS 2024b).



Map Features

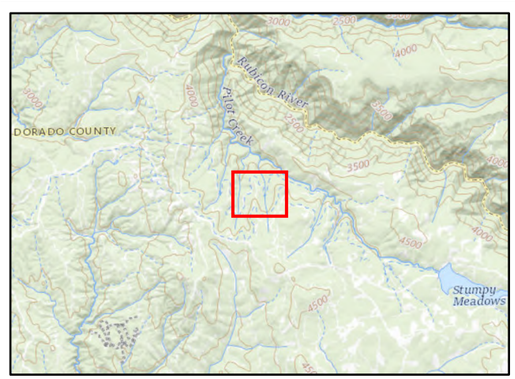
- Study Area - 10.69 ac.

Series Number - Series Name

- 104 - Bighill-Musick complex, 50 to 75 percent slopes
- 106 - Chaix coarse sandy loam, 30 to 75 percent slopes
- 110 - Cohasset loam, 2 to 30 percent slopes
- 119 - Crozier-McCarthy complex, 30 to 50 percent slopes
- 142 - Holland loam, 5 to 30 percent slopes
- 143 - Holland loam, 30 to 50 percent slopes
- 145 - Holland-Bighill complex 30 to 75 percent slopes
- 146 - Holland-Musick loams, 5 to 30 percent slopes complex

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for El Dorado, CA

Sources: Esri Imagery, Maxar (2023), El Dorado County, gSSURGO



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Soils_and_Geology\GDPUD Canal Piping Soils and Geology.aprx - GDPUD Canal Piping 1 Soils 20240311 (kedwards - 4/1/2024)

Map Date: 4/1/2024

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Scale in Feet
0 500

Figure 3. Natural Resources Conservation Service Soil Types
2022-230.06 GDPUD Canal Piping Resiliency Project

4.3 Vegetation Communities and Land Cover Types

Vegetation communities and land cover types within the BSA are described in the following sections and as observed during the BRA site reconnaissance and during a prior site visit at the Study Area on September 18, 2023 for a separate GDPUD emergency repair project. Vegetation community classification was based on the classification systems presented in *MCV Online* (CNPS 2024b). A list of plants observed onsite can be found in Appendix C.

4.3.1 Ponderosa Pine - Incense Cedar Forest

The ponderosa pine (*Pinus ponderosa*) - incense cedar (*Calocedrus decurrens*) forest comprises the majority of the BSA. Living and standing dead ponderosa pines and incense cedars are co-dominant in the canopy. Additional subcanopy species include California black oak (*Quercus kelloggii*) and Pacific madrone (*Arbutus menziesii*).

The understory and forest floor coverage ranged from being denuded from high-intensity fire, covered with dead and downed wood and/or duff, and, where vegetated, contained primarily Himalayan blackberry (*Rubus armeniacus*), violet draperia (*Draperia systyla*), blackfruit dogwood (*Cornus sessilis*), cut-leaved blackberry (*Rubus laciniatus*), and stump-resprouting and fire-resprouting canopy and subcanopy species including tanoak (*Notholithocarpus densiflorus*).

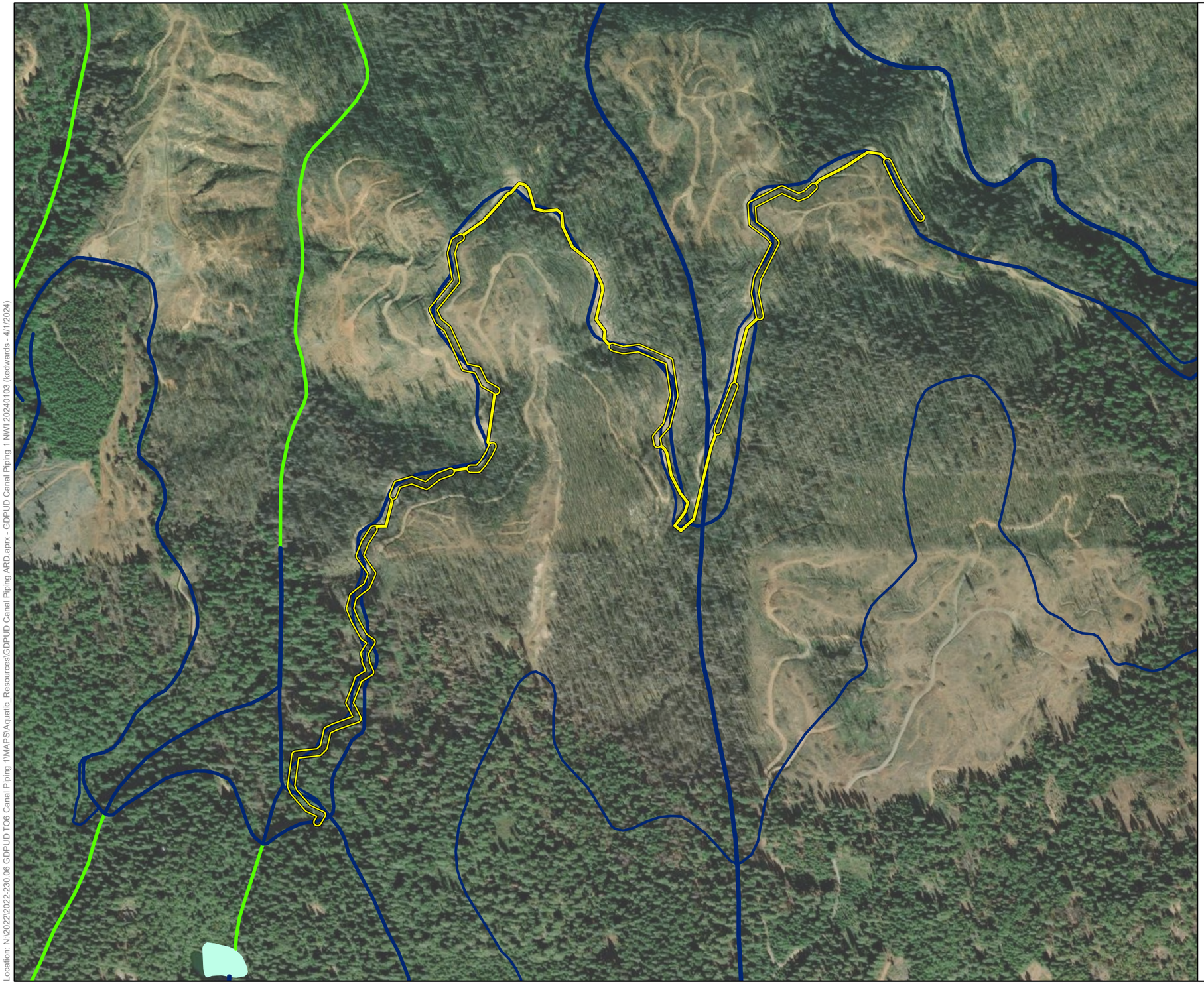
This vegetation community most resembles the *Pinus ponderosa - Calocedrus decurrens - Pseudotsuga menziesii* Forest and Woodland Alliance as listed in CDFW's California Natural Community List (CDFW 2024b). This alliance has a state rarity ranking of S4 and is not considered a sensitive natural community (CNPS 2024b). The ponderosa pine – incense cedar forest within the BSA does not resemble any known sensitive associations. This vegetation community also exhibits fire damage ranging from low severity in the southern end of the BSA to high severity progressing northwards along the Canal route and road of the BSA. A small portion of the forest within the BSA is unburned, with the most intact forest occurring around the southern intermittent drainage.

4.3.2 Disturbed/Developed

The disturbed or developed land cover type includes roads and roadside ditches. The road has been recently graveled for the majority of its length. Vegetation is limited to road margins and is composed of species found in the adjacent ponderosa pine - incense cedar forest with higher presence of ruderal species including Himalayan blackberry, cut-leaved blackberry, Italian thistle (*Carduus pycnocephalus*), and Scotch broom (*Cytisus scoparius*).

4.4 Aquatic Resources

The desktop review of the NWI data showed one mapped aquatic feature type in the vicinity of the BSA. This type was solely riverine drainage courses (USFWS 2024b). The BSA is shown to intersect and encompass this NWI feature type by way of the Canal (Figure 4). The Canal runs a singular flow path while NWI displays the feature as a braided channel in some areas. The Canal is a constructed channel used to convey surface water.



Map Contents

Study Area - 10.69 ac.

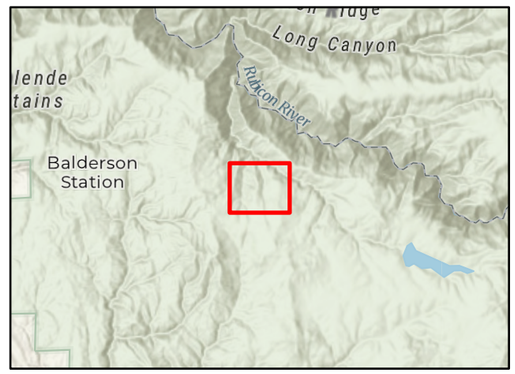
NWI Features

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

Sources: Esri Imagery, Vivid, Maxar (2021), El Dorado County, USFWS



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Aquatic_Resources\GDPUD Canal Piping ARD.aprx - GDPUD Canal Piping 1 NWI 20240103 (kedwards - 4/1/2024)

Map Date: 4/1/2024

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Scale in Feet
0 350 700

Figure 4. National Wetlands Inventory

2022-230.06 GDPUD Canal Piping Resiliency Project

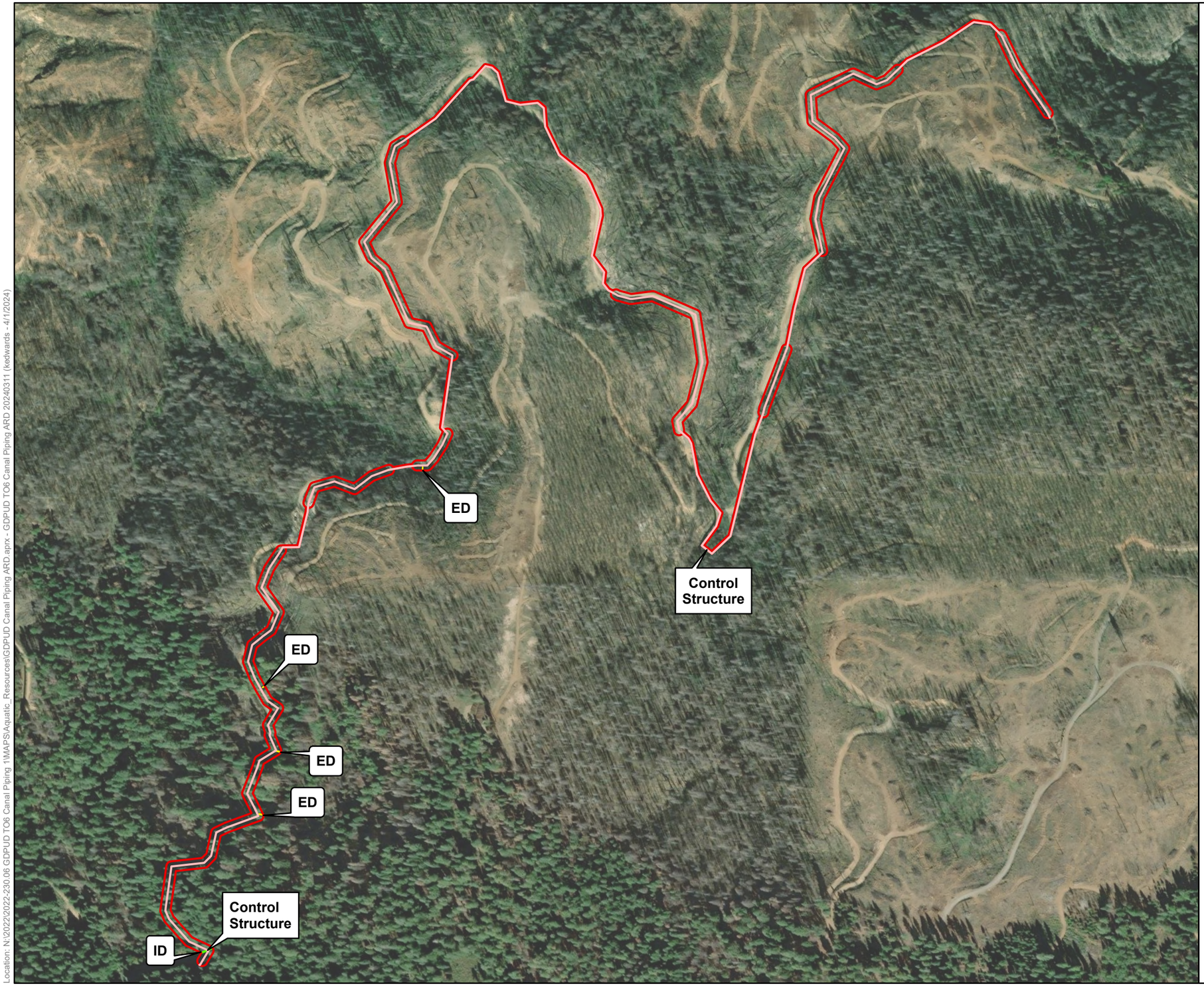
Based on the site reconnaissance and a review of historic topographic quadrangle maps and aerial photos, the Canal appears to have been constructed entirely in uplands, and neither relocated nor drained a natural aquatic resource. This constructed facility is operated and regularly maintained by GDPUD as a water supply conveyance facility. Based on this evaluation, the Canal does not appear to meet the criteria for a Water of the U.S. or Water of the State. One of the NWI-mapped non-Canal features was identified in and near the BSA during the ECORP field reconnaissance site visit. This identified feature was an intermittent drainage that ran over and into the Canal through a water-conveyance structure within the southernmost area of the BSA. Flows within this intermittent drainage below the Canal were low to absent. This lower channel appeared to be able to convey larger storm flows below the Canal when the Canal is overtopped and/or at capacity. Based on the reconnaissance site visit conducted by ECORP, an intermittent drainage and ephemeral drainages not identified by the NWI intersected the BSA and the Canal (Figure 5). Ephemeral drainages occurred upslope and terminated into the Canal. Ephemeral drainages are detailed below.

4.4.1 Canal

The Canal is a constructed channel used for water conveyance west from Stumpy Meadows Reservoir to Georgetown and beyond. The Canal is owned and operated by GDPUD who maintains the Canal and keeps the channel free of emergent vegetation and downed woody debris. Within the BSA, the Canal is of earthen construction and variably lined with gunite. Portions of Canal infrastructure such as headwalls, gates, and other hardscape are found within this cover type as well. The channel banks often range from vertically incised to slightly undercut. Evidence of vegetation management of Himalayan blackberry dominated some of the margins of the Canal while more vegetated areas were interspersed with variable cover levels of blackfruit dogwood, thimbleberry (*Rubus parviflorus*), violet draperia, mountain misery (*Chamaebatia foliolosa*), assorted grasses including unidentified grasses. Other groundcovers included downed woody debris, pine needles and leaf duff, and gravels.

4.4.2 Intermittent Drainage

One intermittent drainage intersecting a Project Canal segment is found at the southernmost end of the BSA (Figure 5). The intermittent drainage channel width was approximately four feet wide and with a depth of approximately one foot. The bed was primarily composed of cobbles and small boulders, contained a high coverage of mosses on its banks and rocks, and was predominately unburned with canopy cover of ponderosa pine – incense cedar forest species and bigleaf maples (*Acer macrophyllum*). This intermittent drainage conveys water into the Canal and manipulation of Canal structures, including a gate and/or a bypass water bridge over the Canal, allows this drainage to be able to bypass the Canal manually or possibly bypass the Canal during high flow events. This drainage is double-culverted downslope and perpendicular to the Canal and was situated within steep concave hillslope topography and exhibited steady flows uphill draining into the Canal at the time of the survey. An additional offsite intermittent drainage drains below the BSA service road and interfaces with a segment of Canal not proposed for piping nor Project activities and its associated control structure (Figure 5).



Map Contents

Study Area - 10.69 ac.

Canal Limits

Aquatic Resources - 0.02 ac.

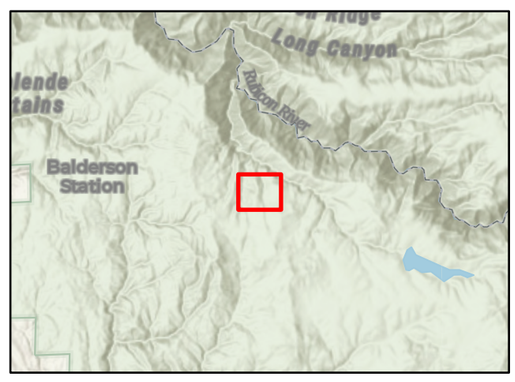
Ephemeral Drainage (ED) - 0.01 ac./91 lin. ft.

Intermittent Drainage (ID) - 0.01 ac./62 lin. ft.

Photo Source: Esri Imagery, Maxar (2023)
Boundary Source: GDPUD
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2022\2022-230.06 GDPUD TO6 Canal Piping 1\MAPS\Aquatic_Resources\GDPUD Canal Piping ARD.aprx - GDPUD TO6 Canal Piping ARD 20240311 (kedwards - 4/1/2024)

Map Date: 4/1/2024

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Scale in Feet
0 500

Figure 5. Preliminary Aquatic Resources Assessment

2022-230.06 GDPUD Canal Piping Resiliency Project

4.4.3 Ephemeral Drainages

A total of four ephemeral drainages occur within the BSA (Figure 5). These features were not identified by the NWI. The ephemeral drainages exhibited channels with lines of scour, a distinct bed and bank, and sediment sorting with some exposed cobbles. Ephemeral drainages channel widths ranged from two to three feet wide with depths of less than one foot maximum. The ephemeral drainages conveyed water from uplands higher in the watershed above the Canal and terminated into the Canal. All ephemeral drainages were found within variably burned areas, often having coverage of dead and downed trees spanning or blocking channels and were situated within concave topography. At the time of the survey, ephemeral drainages exhibited low trickle flow to no flow.

4.5 Wildlife

The vegetation communities in the BSA provide habitat for a variety of wildlife species. Wildlife species observed onsite include ruby-crowned kinglet (*Corthylio calendula*), hairy woodpecker (*Dryobates villosus*), mountain chickadee (*Poecile gambeli*), varied thrush (*Ixoreus naevius*), Steller's jay (*Cyanocitta stelleri*), and brown trout (*Salmo trutta*).

4.6 Special-Status Species

Table 2 presents the list of special-status plant and animal species identified through the literature review. For each species, the table provides the listing status, a brief description of habitat requirements and/or species ecology, a determination of the potential to occur within the BSA, and the rationale for that determination. The potential for each species to occur onsite was assessed using the following criteria:

- **Present** – Species was observed during the site visit or is known to occur within the BSA based on recent documented occurrences within the CNDDB or other literature.
- **Potential to Occur** – Suitable habitat (including soils and elevation requirements) occurs in the BSA and the species is known or expected to occur in the Project vicinity based on available data sources or professional knowledge/experience.
- **Low Potential to Occur** – Marginal or limited amounts of habitat occur or the species is not known to occur in the vicinity of the Project based on CNDDB records and other available information.
- **Presumed Absent** – No suitable habitat (including soils and elevation requirements) or the species is not known to occur within the vicinity of the Project based on CNDDB records and other documentation.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Plants					
Congdon's onion *(Allium sanbornii* var. *congdonii)*	–	–	4.3	Chaparral and cismontane woodland with serpentine or volcanic soils. Elevation: 985'–4,575' Bloom Period: April–July	Presumed absent. No suitable soils within the BSA.
Sanborn's onion *(Allium sanbornii* var. *sanbornii)*	–	–	4.2	Chaparral, cismontane woodland, and lower montane coniferous forests, usually with gravelly, serpentine soil. Elevation: 855'–4,955' Bloom Period: May–September	Low potential to occur. There are no serpentine soils within the BSA (Horton 2017; Jennings et al. 1977), however the forest within the BSA may provide marginally suitable habitat.
True's manzanita *(Arctostaphylos mewukka* ssp. *truei)*	–	–	4.2	Chaparral and lower montane coniferous forest, sometimes on roadsides. Elevation: 1,395'–4,560' Bloom Period: February–July	Low potential to occur. While there are no chaparral openings within the forest, the forest within the BSA may provide marginally suitable habitat.
Nissenan manzanita *(Arctostaphylos nissenana)*	–	–	1B.2	Rocky soils within closed–cone coniferous forest or chaparral. Elevation: 1,475'–3,610' Bloom Period: February–March	Presumed absent. No suitable habitat within the BSA.
Sierra bolandra *(Bolandra californica)*	–	–	4.3	Mesic, rocky soils in lower montane coniferous forest and upper montane coniferous forest. Elevation: 3,200'–8,040'	Potential to occur. Suitable rocky habitat within the BSA's intermittent drainage may provide suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				Bloom Period: June–July	
Pleasant valley mariposa–lily *(Calochortus clavatus* var. *avius)*	–	–	1B.2	Josephine silt loam and volcanic soils within lower montane coniferous forest. Elevation: 1,000′–5,905′ Bloom Period: May–July	Presumed absent. No suitable soils within the BSA.
Van Zuuk's morning–glory *(Calystegia vanzuukiae)*	–	–	1B.3	Gabbroic or serpentine soils within chaparral and cismontane woodlands. Elevation: 1,640′–3,870′ Bloom Period: May–August	Presumed absent. No suitable soils within the BSA.
Sierra arching sedge *(Carex cyrtostachya)*	–	–	1B.2	Meadows and seeps, marshes and swamps, in mesic areas of lower montane coniferous forest, and margins of riparian forests. Elevation: 2,000′–4,460′ Bloom Period: May–August	Potential to occur. The mesic areas of the forest within the BSA may provide suitable habitat. There are nine CNDDB occurrences within five miles of the BSA.
Fresno ceanothus *(Ceanothus fresnensis)*	–	–	4.3	Cismontane woodland openings and lower montane coniferous forests. Elevation: 2,955′–7,250′ Bloom Period: May–July	Potential to occur. The forest within the BSA may provide suitable habitat.
Red Hills soaproot	–	–	1B.2	Serpentine or gabbroic soils in chaparral, cismontane	Potential to occur. The forest within the BSA may provide suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
(Chlorogalum grandiflorum)				woodland, and lower montane coniferous forest, occasionally on non–ultramafic soils. Elevation: 805'–5,545' Bloom Period: May–June	There are 13 CNDDB occurrences within five miles of the BSA.
Brandegee's clarkia *(Clarkia biloba* ssp. *brandegeeae)*	–	–	4.2	Chaparral, cismontane woodlands, and lower montane coniferous forest often along roadcuts. Elevation: 245'–3,000' Bloom Period: May–July	Presumed absent. The BSA is outside of the known elevational range for this species.
Sierra clarkia (*Clarkia virgata*)	–	–	4.3	Cismontane woodland and lower montane coniferous forest. Elevation: 1,310'–5,300' Bloom Period: May–August	Potential to occur. The forest within the BSA may provide suitable habitat.
Bisbee Peak spring beauty *(Claytonia parviflora* ssp. *grandiflora)*	–	–	4.2	Occurs in rocky cismontane woodland. Elevation: 820'–3,935' Bloom Period: February–May	Presumed absent. No suitable habitat within the BSA.
Ewan's larkspur *(Delphinium hansenii* ssp. *ewanianum)*	–	–	4.2	Rocky soils in cismontane woodland, and valley and foothill grassland. Elevation: 195'–1,970' Bloom Period: March–May	Presumed absent. The BSA is outside of the known elevational range for this species and does not include suitable habitat.
Obtuse starwort *(Engellaria obtuse)*	–	–	4.3	Lower and upper montane coniferous forest and riparian woodland. Elevation: 490' – 7515' Bloom Period: May-September	Potential to occur. The forest within the BSA may provide suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Starved daisy *(Erigeron miser)*	–	–	1B.3	Rocky, granitic outcrops of upper montane coniferous forests. Elevation: 6,035'–8,595' Bloom Period: June–October	Presumed absent. The BSA is outside of the known elevational range for this species and does not include suitable habitat.
Northern Sierra daisy *(Erigeron petrophilus* var. *sierrensis)*	–	–	4.3	Cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest; sometimes on serpentine soils. Elevation: 985'–6,800' Bloom Period: June–October	Presumed absent. No suitable soils within the BSA.
Tripod buckwheat *(Eriogonum tripodum)*	–	–	4.2	Often serpentine soils of chaparral and cismontane woodland. Elevation: 655'–5,250' Bloom Period: May–July	Presumed absent. No suitable soils within the BSA.
Butte County fritillary *(Fritillaria eastwoodiae)*	–	–	3.2	Chaparral, cismontane woodland, and openings in lower montane coniferous forest and occasionally is found on serpentine soils. Elevation: 165'–4,920' Bloom Period: March–June	Potential to occur. The forest within the BSA may provide suitable habitat.
Serpentine bluecup *(Githopsis pulchella* ssp. *serpentinicola)*	–	–	4.3	Serpentine or Ione cismontane woodland. Elevation: 1,050'–2,000' Bloom Period: May–June	Presumed absent. The BSA is outside of the known elevational range for this species and does not include suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Sierra starwort *(Hartmaniella sierrae)*	–	–	4.2	Chaparral, cismontane woodland, and lower and upper montane coniferous forest. Elevation: 4,020'–7,200' Bloom Period: May-August	Potential to occur. The forest within the BSA may provide suitable habitat.
Parry's horkelia *(Horkelia parryi)*	–	–	1B.2	Ione and other soil formations in chaparral and cismontane woodlands. Elevation: 260'–3,510' Bloom Period: April–September	Presumed absent. No suitable habitat within the BSA. There is one CNDDB occurrence within five miles of the BSA.
Saw–toothed lewisia *(Lewisia serrata)*	–	–	1B.1	Rocky slopes in mesic areas of broad–leafed upland forest, lower montane coniferous forest, and riparian forest. Elevation: 2,525'–4,710' Bloom Period: May–June	Potential to occur. The rocky habitat within the BSA's intermittent drainage may provide suitable habitat. There are eight CNDDB occurrences within five miles of the BSA.
Humboldt lily *(Lilium humboldtii* ssp. *humboldtii)*	–	–	4.2	Occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 295'–4,200' Bloom Period: May–July	Potential to occur. The forest within the BSA may provide suitable habitat.
Sierra sweet bay (*Myrica hartwegii*)	–	–	4.3	Riparian forest, cismontane woodland, and lower montane coniferous forest. Elevation: 490'–5,740' Bloom Period: May–June	Potential to occur. The forest within the BSA may provide suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Yellow bur navarretia (*Navarretia prolifera* ssp. *lutea*)	–	–	4.3	Chaparral and cismontane woodland. Elevation: 2,800'–4,600' Bloom Period: May–July	Presumed absent. No suitable habitat within the BSA.
Layne's ragwort (*Packera layneae*)	FT	CR	1B.2	Rocky serpentine or gabbroic soil in chaparral and cismontane woodland communities. Elevation: 655'–3,560' Bloom Period: April–August	Presumed absent. No suitable soils within the BSA.
Western waterfan lichen (*Peltigera gowardii)*	–	–	4.2	On rocks in cold water creeks with little or no sediment or disturbance. Elevation: 3,495'–8,595' Bloom Period: Any Season	Presumed absent. No suitable habitat within the BSA.
Stebbins' phacelia *(Phacelia stebbinsii)*	–	–	1B.2	Cismontane woodland, lower montane coniferous forest, and meadows and seeps. Elevation: 2,000'–6,595' Bloom Period: May–July	Potential to occur. The forest within the BSA may provide suitable habitat. There are 11 CNDDB occurrences within five miles of the BSA.
Coleman's rein orchid *(Piperia colemanii)*	–	–	4.3	Sandy soils in chaparral and lower montane coniferous forest. Elevation: 3,935'–7,545' Bloom Period: June–August	Low potential to occur. The sandy soils within the BSA may provide suitable habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Sierra blue grass *(Poa sierrae)*	–	–	1B.3	Lower montane coniferous forest openings. Elevation: 1,200'–4,920' Bloom Period: April–July	Potential to occur. The forest within the BSA may provide suitable habitat. There are five CNDDB occurrences within five miles of the BSA.
Brownish beaked–rush *(Rhynchospora capitellata)*	–	–	2B.2	Mesic areas in lower montane coniferous forest, upper montane coniferous forests, meadows, seeps, marshes, and swamps. Elevation: 150'–6,560' Bloom Period: July–August	Potential to occur. The intermittent and ephemeral drainages and Canal margins within the BSA may provide suitable habitat. There is one CNDDB occurrence within five miles of the BSA.
Long–fruit jewelflower *(Streptanthus longisiliquus)*	–	–	4.3	Openings in cismontane woodland and lower montane coniferous forest. Elevation: 2,345'–4,920' Bloom Period: April–September	Potential to occur. The forest within the BSA may provide suitable habitat.
Felt–leaved violet *(Viola tomentosa)*	–	–	4.2	Gravelly soils in lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest. Elevation: 4,710'–6,560' Bloom Period: May–October	Presumed absent. The BSA is outside of the known elevational range for this species.
Invertebrates					
Western bumble bee *(Bombus occidentalis)*	–	CC	–	Meadows and grasslands with abundant floral resources. Primarily nests underground. Largely restricted to	Presumed absent. Outside current species range (CDFW 2023).

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				high elevation sites in the Sierra Nevada, although rarely detected on the California coast. Survey Period: April-November	
Monarch butterfly (*Danaus plexippus*)	FC	–	–	Overwinters along coastal California in wind-protected groves of eucalyptus, Monterey pine and cypress with nearby nectar and water sources; disperses in spring throughout California. Adults breed and lay eggs during the spring and summer, feeding on a variety of nectar sources; eggs are laid exclusively on milkweed plants.	Presumed absent. Suitable nectaring habitat occurs; however, there is no overwintering habitat within the Study Area.
Amphibians					
California red-legged frog (*Rana draytonii*)	FT	–	SSC	Lowlands and foothills of the northern and southern Coast Ranges and Sierra Nevada. Found in deep standing or flowing water with dense shrubby or emergent riparian vegetation; requires 11-20 weeks of permanent water for larval development. Adults require aestivation habitat to endure summer dry down.	Low potential to occur. There is no suitable breeding habitat within the Canal. California red-legged frog may use the Canal as dispersal habitat. Three CNDDB occurrences within five miles of the BSA.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				Survey Period: January – Sept.	
Foothill yellow-legged frog Northeast/Northern Sierra Clade (*Rana boylii*)	–	CT	SSC	Partly shaded shallow streams and riffles in variety of habitats. Needs cobble-sized substrate for egg-laying and at least 15 weeks of permanent water to attain metamorphosis. Can be active all year in warmer locations; become inactive or hibernate in colder climates. Yuba River to Middle Fork American River and Sutter Buttes. Survey Period: May–October.	Presumed absent. The Study Area is south of the southern boundary of the Northeast/Northern Sierra Clade of foothill yellow-legged frog.
Foothill yellow-legged frog East/Southern Sierra Clade (*Rana boylii*)	FE	CE	SSC	Partly shaded shallow streams and riffles in variety of habitats. Needs cobble-sized substrate for egg-laying and at least 15 weeks of permanent water to attain metamorphosis. Can be active all year in warmer locations; become inactive or hibernate in colder climates. Sierra Nevada from the northern limits of the South Fork American River watershed to Tehachapi Mountains. Survey Period: May–October.	Low potential to occur. There is no suitable breeding habitat within the Canal. Foothill yellow-legged frog may use the Canal as dispersal habitat. Five CNDDB occurrences within five miles of the BSA.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Sierra Nevada yellow-legged frog *(Rana sierrae)*	FE	CT	SSC	Lakes, ponds, marshes, meadows, and streams from 4,500 to 12,000 feet. Tadpoles may require 2 to 4 years to complete larval development. Sierra Nevada Mountains north of Fresno County and east to Inyo and Mono Counties. Survey Period: March – September.	Presumed absent. There is no suitable habitat within the BSA.
Reptiles					
Northwestern pond turtle (*Actinemys marmorata*)	FPT	–	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches. Survey Period: April-September	Low potential to occur. There is marginally suitable habitat within the BSA.
Birds					
Black swift *(Cypseloides niger)*	–	–	BCC, SSC	In California, nests from Cascade-Sierra Nevada region south to Tulare and Mono counties; coastal ranges (Santa Cruz south to San Luis Obispo counties), San Gabriel, San Bernardino, and San Jacinto Mountains. Nests on ledges or shallow caves on steep rock faces, usually behind waterfalls. Winter	Presumed absent. No suitable nesting habitat within the BSA.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				range, unknown, but thought to be northern and western South America, and West Indies. Nesting: May-September	
American goshawk *(Accipiter atricapillus)*	–	–	SSC	Nesting occurs in mature to old-growth forests composed primarily of large trees with high canopy closure. In California, nests are built primarily in conifer trees in the Sierra Nevada, Cascade and northwestern coastal Ranges. Nesting: March-August	Presumed absent. No suitable nesting habitat within the BSA. One CNDDB occurrence within five miles.
California spotted owl *(Strix occidentalis occidentalis)*	–	–	BCC, SSC	Found in the southern Cascade Range and northern Sierra Nevada from Pit River, Shasta County south to Tehachapi Mountains, Kern County, in the coastal ranges from Monterey County to Santa Barbara County, in Transverse and Peninsular Ranges south to northern Baja California. At lower elevations, they breed in hardwood forests and coniferous forests at higher elevations. They use forests with greater complexity and structure.	Low potential to occur. There is marginally suitable breeding habitat within the BSA and its vicinity in unburned areas, and the species may forage in the vicinity.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				Nesting: March-September	
Olive-sided flycatcher *(Contopus cooperi)*	–	–	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semiopen forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America. Nesting: May-August	Potential to occur. The forests of the BSA provide suitable nesting habitat.
Bank swallow (*Riparia riparia*)	–	CT	–	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes northern and central California. Nesting: May-July	Presumed absent. No suitable nesting habitat within the BSA.
Evening grosbeak (*Coccothraustes vespertinus*)	–	–	BCC	In Sierra Nevada, they nest in trees and large shrubs in open canopy mixed conifer, open canopy red fir, and closed canopy red fir forests. Nesting: May-August	Potential to occur. The forests of the BSA provide suitable nesting habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Tricolored blackbird (*Agelaius tricolor*)	–	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields (Beedy et al. 2020). Nesting: March-August	Presumed absent. No suitable nesting habitat within the BSA.
Black-throated gray warbler (*Setophaga nigrescens*)	–	–	BCC	Breeding habitat includes open coniferous or mixed coniferous-deciduous woodland with brushy undergrowth, pinyon-juniper and pine-oak associates, and oak scrub. Their deep cup nests are often built on horizontal branches and constructed of a variety of plant material, feathers, and	Potential to occur. The forests of the BSA provide suitable nesting habitat.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
				mammal fur (Guzy and Lowther 2020). Nesting: May-July	
Mammals					
Pallid bat *(Antrozous pallidus)*	–	–	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human occupied as well as vacant buildings (Western Bat Working Group 2024. Survey Period: April-September	Potential to occur. Trees within the BSA represent potential roosting habitat.
Sierra Nevada Mountain Beaver (*Aplodontia rufa californica*)	–	–	SSC	Dense growth of small deciduous trees and shrubs, wet soil, and abundance of forbs in the Sierra Nevada and East slope. Needs dense understory for food and cover. Burrows into soft soil. Needs abundant supply of water. Survey Period: Any season	Presumed absent. There is no suitable habitat within the BSA.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
Townsend's big-eared bat *(Corynorhinus townsendii)*	–	–	SSC	Occurs throughout the west and is distributed from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. It has been reported in a wide variety of habitat types ranging from sea level to 3,300 meters. Habitat associations include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Roosting can occur within caves, mines, buildings, rock crevices, trees. Survey Period: April-September	Potential to occur. Trees within the BSA represent potential roosting habitat. One CNDDB occurrence within five miles of the BSA.
Fisher- Northern California/Southern Oregon DPS *(Pekania pennanti)*	–	–	SSC	Coastal northern California and includes reintroduced populations in the northern Sierra Nevada and southern Oregon Cascades. Survey Period: Any season	Presumed absent. The BSA is outside of the current known range for the species.

Table 2. Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description/ Species Ecology	Potential To Occur Onsite
	ESA	California ESA/ NPPA	Other		
California wolverine *(Gulo gulo)*	FPT	CT	–	Scarce resident of North Coast mountains and Sierra Nevada. Wide variety of high elevation habitats. Survey Period: Any season	Presumed absent. The BSA is outside of the current known range for the species.

Status Codes:

ESA	Federal Endangered Species Act
FE	ESA listed, Endangered
FT	ESA listed, Threatened
FPT	Formally Proposed for ESA listing as Threatened
FC	Candidate for ESA listing as Threatened or Endangered
BCC	USFWS Bird of Conservation Concern (USFWS 2021)
CE	California ESA- or NPPA listed, Endangered
CT	California ESA- or NPPA-listed, Threatened
CR	California ESA- or NPPA-listed, Rare
CC	Candidate for California ESA listing as Endangered or Threatened
SSC	CDFW Species of Special Concern
1B	CRPR/Rare or Endangered in California and elsewhere
2B	CRPR/Plants rare, threatened, or endangered in California but more common elsewhere
3	CRPR/Plants About Which More Information is Needed – A Review List
4	CRPR/Plants of Limited Distribution – A Watch List
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Note: BSA = Biological Study Area; CDFW = California Department of Fish and Wildlife; CNDDB = California Natural Diversity Database; DPS = Distinct Population Segment; km = kilometer; NPPA = Native Plant Protection Act

4.7 Critical Habitat or Essential Fish Habitat

There is no designated critical habitat or Essential Fish Habitat (EFH) mapped within the BSA (NOAA 2016; USFWS 2024a). No further discussion of critical habitat or EFH is provided within this assessment.

4.8 Wildlife Movement Corridors and Nursery Sites

The Essential Connectivity Areas map identifies larger, relatively natural habitat blocks that support native biodiversity and areas essential for connectivity between them. The BSA does not fall within a natural habitat block (CDFW 2024c) or an Essential Habitat Connectivity area (CDFW 2024d). However, the BSA

includes small natural areas that could support ecological value (CDFW 2024e) and movement corridors for native residents and migratory wildlife and is adjacent to natural habitat blocks to the west of the BSA.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's BIOS database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the BSA (CDFW 2024a) and none were observed during the site reconnaissance.

4.9 Protected Trees/Oak Woodlands

An arborist survey has not been conducted for the BSA; however, native California black oak trees are present within the BSA. Impacts to living native oak trees would be subject to the El Dorado County Oak Resources Conservation Ordinance.

5.0 IMPACT ASSESSMENT AND RECOMMENDATIONS

This section specifically addresses questions raised by the Biological Resources section of the Environmental Checklist Form in Appendix G of the CEQA Guidelines.

5.1 CEQA Checklist Criteria IV(a) – Special-Status Species

Would the Project:

> Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

5.1.1 Special-Status Plants

The BSA supports potential habitat for special-status plants, as identified in Table 2. The Project would include ground-disturbing activities to unvegetated, vegetated, and variably burned portions of the Canal and adjacent uplands which may provide habitat for special-status plants. Aquatic resources that could support special-status plants are not anticipated to be significantly impacted as part of the Project, reducing potential impacts to special-status plants. A qualified biologist will perform a preconstruction survey to determine if special-status plant species are present in the work area. If present, they would be completely avoided or measures would be developed to ensure impacts are not significant. Therefore, the Project would have a less-than-significant effect on special-status plants with the implementation of BIO-1:

BIO-1: Special-Status Plant Surveys and Avoidance

- Perform focused plant surveys of the Project Area according to CDFW, CNPS, and USFWS protocols prior to construction (CDFW 2018; CNPS 2001; USFWS 1996). Surveys shall be conducted by a qualified biologist according to the blooming

period for target species and timed according to the appropriate phenological stage for identifying target species. Known reference populations will be visited and/or local herbaria records should be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the Project Area, no further measures pertaining to special-status plants are necessary.

- If special-status plants are identified within 25-feet of the Project Area, implement the following measures:
  - The Project will avoid occurrences of special-status plant species by establishing and clearly demarcating avoidance zones around the plant occurrences prior to construction. Avoidance zones should include the extent of the special-status plants plus a minimum 25-foot buffer, unless otherwise determined by a qualified biologist, and should be maintained until the completion of construction. Additional measures such as seed collection and/or transplantation may be developed in consultation with CDFW and the CEQA lead agency if special-status plant species are found within the Project Area and avoidance of the species is not possible.

5.1.2 Special-Status Wildlife Species

5.1.2.1 Amphibians

The BSA contains potential dispersal habitat for California red-legged frog and foothill yellow-legged frog. The Canal will be dewatered, and a qualified biologist will perform a preconstruction survey prior to work beginning to ensure no individuals of these species are present in the dewatered working area. With implementation of these avoidance measures, the Project would have a less-than-significant effect on special-status amphibians.

To avoid impacts to special-status amphibians, the implementation of BIO-2 is recommended:

BIO-2: Aquatic Wildlife Surveys and Avoidance.

- A qualified biologist will complete a preconstruction survey of the Project Area for California red-legged frog, foothill yellow-legged frog, and northwestern pond turtle immediately prior to dewatering activities.
- The biologist will remain onsite to monitor the Project Area during dewatering. Non-sensitive biological resources found in the Project Area will be moved by the biologist out of harm's way. Any sensitive biological resources found by the biologist requiring take authorization or permission for relocation will be allowed to leave the Project Area by their own volition (i.e., no handling).

5.1.2.2 Northwestern Pond Turtle

The BSA contains dispersal habitat for northwestern pond turtle. The Canal will be dewatered, and a qualified biologist will perform a preconstruction survey prior to work beginning to ensure no individuals of these species are present in the dewatered area. Therefore, the Project would have a less-than-significant impact on northwestern pond turtle.

To avoid impacts to northwestern pond turtle, the implementation of BIO-2 is recommended.

5.1.2.3 Special-Status and Other Protected Nesting Birds (including Raptors)

The BSA contains marginally suitable nesting and foraging habitat for California spotted owl, nesting habitat for special-status birds, as well as suitable habitat for other migratory birds, non-migratory nongame birds, and raptors protected under the California Fish and Game Code and MBTA. If Project-related activities occur during the nesting season, potential impacts to protected birds and their nests could occur.

To avoid or minimize impacts to protected bird and their nests, the following mitigation measure BIO-3 is recommended:

BIO-3: Nesting Birds

- To the extent feasible, vegetation trimming for site access shall be conducted outside of the bird nesting season (typically February 1–August 31, and as early as January 1 for raptors).
- If Project activities will occur during the nesting season (typically February 1 to August 31), a preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction.
- The preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project boundaries, including any temporary disturbance areas. For raptors, the preconstruction nesting bird survey shall include accessible areas within 0.25 miles of the Project boundary.
- If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with the CDFW, shall establish a buffer distance. The buffer shall be maintained until the fledglings are capable of flight and become independent of the nest tree, to be determined by a qualified biologist. The buffers will be removed once the young have fledged from the nest or the nest is determined to be otherwise unoccupied.

5.1.2.4 Special-Status Bats and Maternity Roosts

The BSA contains potential roosting habitat for two special-status bats. The Project has the potential to impact roosting habitat (i.e., trees) should tree and standing dead tree removal be part of backfilling the

piped Canal segments. However, living tree and standing dead tree removal is not expected as part of the Project. Limited or circumstantial handling of storm-fallen trees obstructing Project work would occur and woody debris would be moved aside and removed as needed. Suitable roosting habitat is limited across the BSA and its vicinity due to the high ratio of conifer and other tree species within the BSA exhibiting no cavitation or sloughing bark due to high-intensity burn damage, present structure, or immaturity. Therefore, the Project would have a less-than-significant impact on special-status bats.

5.2 CEQA Checklist Criteria IV(b) – Sensitive Natural Communities

Would the Project:

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No sensitive natural communities were identified within the BSA during the site reconnaissance. Therefore, the Project will have a less-than-significant impact on sensitive natural communities.

5.3 CEQA Checklist Criteria IV(c) – Aquatic Resources

Would the Project:

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Canal, an intermittent drainage, and ephemeral drainages are the aquatic resources present within the BSA. The jurisdictional status of the Canal has not been verified with the U.S. Army Corps of Engineers or the state. However, the Canal is a constructed feature, excavated in uplands and subject to ongoing operation and maintenance as a water supply conveyance facility. Installation of the pipeline may require backfilling the trench with uphill soils and material. Drainages would be avoided for use as borrow material for Canal backfill, and the ephemeral drainages' flows would be conveyed beyond and downslope of the Canal upon completion of the Project, restoring historic connectivity to the watershed downslope of the BSA and Canal. The Project may impact federally or state-protected waters.

The Canal constitutes a bed-and-bank feature that may be subject to the jurisdiction of CDFW under Section 1602 of the California Fish and Game Code. The Project proponent will notify CDFW of the proposed Project and implement Best Management Practices as mutually agreed upon with CDFW if an LSAA is required for Canal work. The BSA ephemeral drainages and the intermittent drainage constitute potentially USACE jurisdictional and/or RWQCB jurisdictional aquatic features that may also be subject to the jurisdiction of CDFW under Section 1602 of the California Fish and Game Code. The following measure BIO-4 is recommended to avoid or minimize impacts to Waters of the U.S./State, reducing impacts to aquatic resources to less-than-significant:

BIO-4: Obtain Permits

- Obtain an approved jurisdictional determination from the USACE and/or Waters of the State from the Central Valley RWQCB to determine the jurisdiction of the aquatic features within the Study Area.

A permit authorization under Section 404 of the federal CWA (Section 404 Permit) must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S.

A permit authorization from the Central Valley RWQCB pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Act must be obtained prior to the discharge of material in an area that could affect Waters of the U.S./State. Mitigation requirements for discharge to Waters of the U.S./State would be developed in consultation with the Central Valley RWQCB.

- A Lake a Streambed Alteration Agreement (LSAA) from CDFW pursuant to Section 1602 of the California Fish and Game Code must be obtained for impacts to features (e.g., the bed, channel, or bank of any river, stream, or lake) that may be subject to Section 1600 of the Fish and Game Code. The construction contractor shall adhere to all conditions outlined in Section 1602 Streamline Alteration Agreement.

5.4 CEQA Checklist Criteria IV(d) – Movement Corridors and Nursery Sites

Would the Project:

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Project implementation may temporarily disturb and displace wildlife from the BSA. Some wildlife (e.g., birds or nocturnal species) are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume. Therefore, the Project is expected to have a less-than-significant impact on wildlife movement.

There are no documented nursery sites and no nursery sites were observed within the BSA during the site reconnaissance.

5.5 CEQA Checklist Criteria IV(e) – Conflicts with Local Policies or Ordinances

Would the Project:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Trees subject to the El Dorado County Oak Resources Conservation Ordinance are present within the BSA. The Project would entail minor trimming of vegetation and removal of dead and/or downed trees as needed to obtain site access and obtain piping backfill within the BSA. No removal of protected trees is expected as a result of Project implementation. Any changes in the Project that would result in impacts to living protected trees would be reduced to less-than-significant with the implementation of measure BIO-5.

BIO-5: Oak Resources

- The applicant shall obtain appropriate permit authorization from El Dorado County prior to trimming or cutting of any live native oak trees in the Project Area.

5.6 CEQA Checklist Criteria IV(f) – Conflicts with Conservation Plans

Would the Project:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The BSA is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with any plans.

6.0 REFERENCES

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LIST OF APPENDICES

Appendix A – Results of Database Queries

Appendix B – Representative Photographs

Appendix C – Plant Species Observed

APPENDIX A

Results of Database Queries

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Project Code: 2024-0028628
Project Name: GDPUD Canal Piping

February 21, 2024

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0028628
Project Name: GDPUD Canal Piping
Project Type: Irrigation
Project Description: Open lined and mineral base irrigation canal to be piped to prevent leakage and damage.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.928208299999994,-120.67832026898051,14z



Counties: El Dorado County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
California Spotted Owl *Strix occidentalis occidentalis* Population: Sierra Nevada No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7266	Proposed Threatened

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
Sierra Nevada Yellow-legged Frog *Rana sierrae* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9529	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: ECORP
Name: Jedidiah Dowell
Address: 2525 Warren Drive
City: Rocklin
State: CA
Zip: 95677
Email jdowell@ecorpconsulting.com
Phone: 9167829100

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Tunnel Hill (3812086) OR Devil Peak (3812085) OR Slate Mtn. (3812076) OR Garden Valley (3812077) OR Georgetown (3812087) OR Foresthill (3912017) OR Michigan Bluff (3912016) OR Greek Store (3912015) OR Pollock Pines (3812075))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01053	***Rana boylii pop. 3*** foothill yellow-legged frog - north Sierra DPS	None	Threatened	G3T2	S2	
AAABH01055	***Rana boylii pop. 5*** foothill yellow-legged frog - south Sierra DPS	Endangered	Endangered	G3T2	S2	
ABNKC12061	***Accipiter atricapillus*** American goshawk	None	None	G5	S3	SSC
ABNUA01010	***Cypseloides niger*** black swift	None	None	G4	S3	SSC
ABPAU08010	***Riparia riparia*** bank swallow	None	Threatened	G5	S3	
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S2	SSC
AMACC01020	***Myotis yumanensis*** Yuma myotis	None	None	G5	S4	
AMACC02010	***Lasionycteris noctivagans*** silver-haired bat	None	None	G3G4	S3S4	
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC
AMAFA01013	***Aplodontia rufa californica*** Sierra Nevada mountain beaver	None	None	G5T3T4	S2S3	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
AMAJF01014	***Martes caurina sierrae*** Sierra marten	None	None	G4G5T3	S3	
AMAJF01020	***Pekania pennanti*** Fisher	None	None	G5	S2S3	SSC
AMAJF03010	***Gulo gulo*** wolverine	Threatened	Threatened	G4	S1	FP
ARAAD02030	***Emys marmorata*** western pond turtle	Proposed Threatened	None	G3G4	S3	SSC
CTT51110CA	***Sphagnum Bog*** Sphagnum Bog	None	None	G3	S1.2	
CTT84250CA	***Big Tree Forest*** Big Tree Forest	None	None	G3	S3.2	
ICMAL05920	***Stygobromus grahami*** Graham's Cave amphipod	None	None	G2	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IICOL58010	***Atractelmis wawona*** Wawona riffle beetle	None	None	G3	S1S2	
IICOL6L100	***Nebria darlingtoni*** South Forks ground beetle	None	None	G1	S1	
IIHYM24252	***Bombus occidentalis*** western bumble bee	None	Candidate Endangered	G3	S1	
IIMEC07010	***Orobittacus obscurus*** gold rush hanging scorpionfly	None	None	G1	S1	
IITRI19080	***Rhyacophila spinata*** spiny rhyacophilan caddisfly	None	None	G1G2	S3	
PDAST8H1V0	***Packera layneae*** Layne's ragwort	Threatened	Rare	G2	S2	1B.2
PDCON040Q0	***Calystegia vanzuukiae*** Van Zuuk's morning-glory	None	None	G2Q	S2	1B.3
PDERI040V0	***Arctostaphylos nissenana*** Nissenan manzanita	None	None	G1	S1	1B.2
PDHYD0C4D0	***Phacelia stebbinsii*** Stebbins' phacelia	None	None	G3	S3	1B.2
PDONA05053	***Clarkia biloba ssp. brandegeeae*** Brandegee's clarkia	None	None	G4G5T4	S4	4.2
PDPOR040E0	***Lewisia serrata*** saw-toothed lewisia	None	None	G1G2	S1S2	1B.1
PDROS0W0C0	***Horkelia parryi*** Parry's horkelia	None	None	G2	S2	1B.2
PDVIO04280	***Viola tomentosa*** felt-leaved violet	None	None	G3	S3	4.2
PMCYP03M00	***Carex cyrtostachya*** Sierra arching sedge	None	None	G2	S2	1B.2
PMCYP0N080	***Rhynchospora capitellata*** brownish beaked-rush	None	None	G5	S1	2B.2
PMLIL0D095	***Calochortus clavatus var. avius*** Pleasant Valley mariposa-lily	None	None	G4T2	S2	1B.2
PMLIL0G020	***Chlorogalum grandiflorum*** Red Hills soaproot	None	None	G3	S3	1B.2
PMLIL0V060	***Fritillaria eastwoodiae*** Butte County fritillary	None	None	G3Q	S3	3.2
PMPOA4Z310	***Poa sierrae*** Sierra blue grass	None	None	G3	S3	1B.3

Record Count: 38

California Native Plant Society

CNPS Rare Plant Inventory

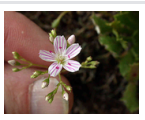
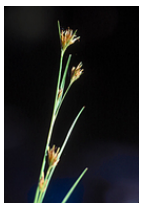
Search Results

34 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3:4**] , Quad is one of [**3812086:3912017:3912016:3912015:3812085:3812075:3812076:3812077:3812087**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Allium sanbornii var. *congdonii*	Congdon's onion	Alliaceae	perennial bulbiferous herb	Apr-Jul	None	None	G4T3	S3	4.3	Yes	1994-01-01	 © 2008 Steven Perry
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	G4T4?	S3S4	4.2		1994-01-01	 ©2018 Steven Perry
Arctostaphylos mewukka ssp. *truei*	True's manzanita	Ericaceae	perennial evergreen shrub	Feb-Jul	None	None	G4?T3	S3	4.2	Yes	1984-01-01	 © 2008 George W. Hartwell
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	None	None	G1	S1	1B.2	Yes	1974-01-01	No Photo Available
Bolandra californica	Sierra bolandra	Saxifragaceae	perennial herb	Jun-Jul	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
Calochortus clavatus var. *avius*	Pleasant Valley mariposa-lily	Liliaceae	perennial bulbiferous herb	May-Jul	None	None	G4T2	S2	1B.2	Yes	1980-01-01	No Photo Available
Calystegia vanzuukiae	Van Zuuk's morning-glory	Convolvulaceae	perennial rhizomatous herb	May-Aug	None	None	G2Q	S2	1B.3	Yes	2014-07-16	No Photo Available
Carex cyrtostachya	Sierra arching sedge	Cyperaceae	perennial herb	May-Aug	None	None	G2	S2	1B.2	Yes	2015-08-18	No Photo Available
Ceanothus fresnensis	Fresno ceanothus	Rhamnaceae	perennial evergreen shrub	(Apr)May-Jul	None	None	G4	S4	4.3	Yes	1980-01-01	No Photo Available

Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	No Photo Available
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	Onagraceae	annual herb	(Mar)May-Jul	None	None	G4G5T4	S4	4.2	Yes	2001-01-01	No Photo Available
Clarkia virgata	Sierra clarkia	Onagraceae	annual herb	May-Aug	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	Yes	2006-09-29	No Photo Available
Delphinium hansenii ssp. *ewanianum*	Ewan's larkspur	Ranunculaceae	perennial herb	Mar-May	None	None	G4T3	S3	4.2	Yes	1994-01-01	No Photo Available
Engellaria obtusa	obtuse starwort	Caryophyllaceae	perennial rhizomatous herb	May-Sep(Oct)	None	None	G5	S4	4.3		1988-01-01	 ©2014 Kirsten Bovee
Erigeron miser	starved daisy	Asteraceae	perennial herb	Jun-Oct	None	None	G3?	S3?	1B.3	Yes	1974-01-01	No Photo Available
Erigeron petrophilus var. *sierrensis*	northern Sierra daisy	Asteraceae	perennial rhizomatous herb	Jun-Oct	None	None	G4T4	S4	4.3	Yes	1994-01-01	No Photo Available
Eriogonum tripodum	tripod buckwheat	Polygonaceae	perennial deciduous shrub	May-Jul	None	None	G4	S4	4.2	Yes	1974-01-01	 ©2008 Steven Perry
Fritillaria eastwoodiae	Butte County fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3Q	S3	3.2		1974-01-01	 ©2009 Sierra Pacific Industries
Githopsis pulchella ssp. *serpentinicola*	serpentine bluecup	Campanulaceae	annual herb	May-Jun	None	None	G4T3	S3	4.3	Yes	2001-01-01	 © 2019 Barry Breckling
Hartmaniella sierrae	Sierra starwort	Caryophyllaceae	perennial rhizomatous herb	May-Aug	None	None	G3G4	S3	4.2	Yes	2004-01-01	No Photo Available

Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2009 Barry Breckling
Lewisia serrata	saw-toothed lewisia	Montiaceae	perennial herb	May-Jun	None	None	G2	S2	1B.1	Yes	1980-01-01	 © 2002 Steve Tyron
Lilium humboldtii ssp. *humboldtii*	Humboldt lily	Liliaceae	perennial bulbiferous herb	May-Jul(Aug)	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 2008 Sierra Pacific Industries
Myrica hartwegii	Sierra sweet bay	Myricaceae	perennial deciduous shrub	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
Navarretia prolifera ssp. *lutea*	yellow bur navarretia	Polemoniaceae	annual herb	May-Jul	None	None	G4T3	S3	4.3	Yes	1974-01-01	No Photo Available
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	Apr-Aug	FT	CR	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Peltigera gowardii	western waterfan lichen	Peltigeraceae	foliose lichen (aquatic)		None	None	G4?	S3	4.2		2014-03-01	 © 2021 Scot Loring
Phacelia stebbinsii	Stebbins' phacelia	Hydrophyllaceae	annual herb	May-Jul	None	None	G3	S3	1B.2	Yes	1974-01-01	No Photo Available
Piperia colemanii	Coleman's rein orchid	Orchidaceae	perennial herb	Jun-Aug	None	None	G4	S4	4.3	Yes	2001-01-01	 © 2005 Dean Wm. Taylor
Poa sierrae	Sierra blue grass	Poaceae	perennial rhizomatous herb	Apr-Jul	None	None	G3	S3	1B.3	Yes	2010-06-10	 © 2012 Belinda Lo
Rhynchospora capitellata	brownish beaked-rush	Cyperaceae	perennial herb	Jul-Aug	None	None	G5	S1	2B.2		1974-01-01	 ©2004 Dean Wm. Taylor

Streptanthus longisiliquus	long-fruit jewelflower	Brassicaceae	perennial herb	Apr-Sep	None	None	G3	S3	4.3	Yes	2007-08-31	 ©2008 Sierra Pacific Industries
Viola tomentosa	felt-leaved violet	Violaceae	perennial herb	(Apr)May-Oct	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available

Showing 1 to 34 of 34 entries

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APPENDIX B

Representative Photographs



Photo 1: Northeast facing view of road and Canal within low intensity burn area. Photo taken December 14, 2023.



Photo 2: Northeast facing view of road and Canal within high intensity burn area. Photo taken December 14, 2023.



Photo 3: East facing view of an ephemeral drainage entering the southernmost Canal segment. Photo taken December 14, 2023.



Photo 4: South facing view of and northeastern-most Canal and BSA easement segment. Photo taken December 14, 2023.

APPENDIX C

Plant Species Observed

SCIENTIFIC NAME	COMMON NAME
APIACEAE	CARROT FAMILY
*Torilis arvensis**	Field hedge parsley
ARISTOLOCHIACEAE	PIPEVINE FAMILY
Asarum sp.	Wild ginger
ASTERACEAE	SUNFLOWER FAMILY
*Carduus pycnocephalus**	Italian thistle
*Chondrilla juncea**	Skeleton weed
Eriophyllum lanatum var. croceum	Common sunflower
*Lactuca serriola**	Prickly lettuce
Solidago	Goldenrod
BETULACEAE	BIRCH FAMILY
Corylus cornuta	Beaked hazelnut
BLECHNACEAE	DEER FERN FAMILY
Struthiopteris spicant	Deer fern
BORAGINACEAE	FORGET-ME-NOT FAMILY
Draperia systyla	Violet draperia
BRASSICACEAE	MUSTARD FAMILY
Nasturtium officinale	Water cress
CORNACEAE	DOGWOOD FAMILY
Cornus sessilis	Blackfruit dogwood
CUPRESSACEAE	CYPRESS FAMILY
Calocedrus decurrens	Incense cedar
DENNSTAEDTIACEAE	BRACKEN FERN FAMILY
Pteridium aquilinum	Bracken fern
ERICACEAE	HEATH FAMILY
Arbutus menziesii	Pacific madrone
Arctostaphylos manzanita	Common manzanita
FABACEAE	LEGUME FAMILY
*Cytisus scoparius**	Scotch broom
Lupinus sp.	Lupine
FAGACEAE	OAK FAMILY
Lithocarpus densiflorus	Tanoak
Quercus kelloggii	California black oak
GROSSULARIACEAE	GOOSEBERRY FAMILY
Ribes sp.	Gooseberry
HYPERICACEAE	ST. JOHN'S WORT FAMILY
*Hypericum perforatum**	Klamath weed

*Nonnative Species

SCIENTIFIC NAME	COMMON NAME
IRIDACEAE	IRIS FAMILY
Iris sp.	Iris
JUNCACEAE	RUSH FAMILY
Juncus sp.	Rush
ONAGRACEAE	EVENING PRIMROSE FAMILY
Epilobium sp.	Willowherb
PHRYMACEAE	LOPSEED FAMILY
Erythranthe cardinalis	Scarlet monkeyflower
PINACEAE	PINE FAMILY
Abies concolor	White fir
Pinus lambertiana	Sugar pine
Pinus ponderosa	Ponderosa pine
Pseudotsuga menziesii	Douglas fir
PLANTAGINACEAE	PLANTAIN FAMILY
*Plantago lanceolata**	English plantain
POACEAE	GRASS FAMILY
*Cynosurus echinatus**	Hedgehog dog-tail grass
*Festuca myuros**	Rat-tail fescue
Deschampsia cespitosa	Tufted hairgrass
*Paspalum dilatatum**	Dallis grass
*Phalaris aquatica**	Harding grass
POLYGONACEAE	BUCKWHEAT FAMILY
Polygala cornuta var. cornuta	Sierra milkwort
*Rumex acetosella**	Sheep sorrel
RANUNCULACEAE	BUTTERCUP FAMILY
Dicentra formosa	Pacific bleeding heart
RHAMNACEAE	BUCKTHORN FAMILY
Ceanothus integerrimus	Deer brush
ROSACEAE	ROSE FAMILY
Chamaebatia foliolosa	Mountain misery
Fragaria vesca	California strawberry
*Rubus armeniacus**	Himalayan blackberry
*Rubus laciniatus**	Cut-leaved blackberry
Rubus parviflorus	Thimbleberry
Rubus ursinus	California blackberry
RUBIACEAE	MADDER FAMILY
Galium aparine	Common bedstraw

*Nonnative Species

SCIENTIFIC NAME	COMMON NAME
SALICACEAE	WILLOW FAMILY
Salix spp.	Willows
SAPINDACEAE	SOAPBERRY FAMILY
Acer macrophyllum	Big leaf maple
SAXIFRAGACEAE	SAXIFRAGE FAMILY
Heuchera micrantha	Alum root
SCROPHULARIACEAE	FIGWORT FAMILY
Penstemon sp.	Penstemon
*Verbascum thapsus**	Common mullein

*Nonnative Species