

**CHRISTIAN VALLEY PARK COMMUNITY SERVICE
DISTRICT WATER STORAGE TANK PROJECT
Initial Study/Mitigated Negative Declaration**

Prepared for:

March 2018

**Christian Valley Park CSD
P.O. Box 6857
Auburn, CA 95604**

**CHRISTIAN VALLEY PARK COMMUNITY SERVICE DISTRICT
NOTICE OF INTENT TO ADOPT
A MITIGATED NEGATIVE DECLARATION
UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

DATE OF NOTICE: March 16, 2018

NOTICE IS HEREBY GIVEN pursuant to California Public Resources Code Section 21092 and CEQA Guidelines Section 15072 that the Christian Valley Park Community Service District (the Lead Agency) has prepared and proposes to adopt a Mitigated Negative Declaration in connection with the project described in this notice.

PROJECT TITLE: Christian Valley Park Community Service District Water Storage Tank Project

PROJECT LOCATION: 5174 Westridge Circle, Auburn, CA (APN 077-251-006) (Placer County)

PROJECT DESCRIPTION: The Christian Valley Park Community Service District Water Storage Tank Project would construct two 0.75 million gallon water storage tanks on a 1.75-acre site to replace the existing storage volume stored in the existing reservoir on the project site. The cover of the existing reservoir has deteriorated such that it is now considered too much of a risk, and replacing the cover would be too costly and would result in a substandard project compared to replacing the reservoir with steel tanks. No expansion of the storage service area, storage capacity, or other facilities is proposed.

REVIEW PERIOD: Pursuant to CEQA Guidelines Section 15105, the public review period for the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) begins on **March 16, 2018** and ends on **April 21, 2018** for interested individuals and public agencies to submit written comments on the Draft IS/MND. A copy of the Draft IS/MND is available for review online at the Christian Valley Park Community Service District website at <https://sites.google.com/site/christianvalleyparkcsd/> and at the Auburn Library (350 Nevada Street, Auburn, CA 95603) during normal library hours (location is closed on Sunday and Monday).

The Draft IS/MND identifies environmental impacts associated with the project and presents mitigation measures, which if adopted by the Christian Valley Park Community Service District, would avoid or minimize these impacts to less-than-significant levels. All comments must be postmarked or received by fax or e-mail **no later than April 21, 2018**. Written comments on the Draft IS/MND should be submitted by U.S. mail, fax, or email to:

**Christian Valley Park Community Service District
Attn: Christian Valley Park CSD Water Storage Tank Project**

c/o RCH Group
11060 White Rock Road, Suite #150-A
Rancho Cordova, CA 95670

Fax: (916) 782-2666

Email: DJones@theRCHgroup.com

**CHRISTIAN VALLEY PARK COMMUNITY SERVICE
DISTRICT WATER STORAGE TANK PROJECT
Initial Study/Mitigated Negative Declaration**

Prepared for:

March 2018

**Christian Valley Park CSD
P.O. Box 6857
Auburn, CA 95604**

Prepared by:

**RCH Group
11060 White Rock Road, Suite 150-A
Rancho Cordova, CA 95670
916.782.4427**

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ENVIRONMENTAL CHECKLIST

Initial Study/Mitigated Negative Declaration

1. **Project Title:** Christian Valley Park Community Service District
Water Storage Tank Project
2. **Lead Agency Name and Address:** Christian Valley Park Community Service District
P.O. Box 6857
Auburn, CA 95604
3. **Contact Person and Phone Number:** Gerry LaBudde, PE
Hydros Engineering, Inc.
(530) 637-4441
4. **Project Location:** APN 077-251-006
5174 Westridge Circle
Auburn, CA (Placer County)
5. **Project Sponsor's Name and Address:** Christian Valley Park Community Service District
P.O. Box 6857
Auburn, CA 95604
6. **General Plan Designation:** Rural Residential
7. **Zoning:** RS-AG-B-100-AO (Residential Single-family,
combining Agriculture, combining minimum
Building Site of 100,000 square feet, combining
Airport Overflight zone)

8. Description of Project:

Figure 1 shows the regional location of the project.

Existing Setting

The Christian Valley Park Community Service District (CSD) (the Applicant) was formed in 1962 and provides potable water to an area of approximately 2.3 square miles in the unincorporated community of Christian Valley Park (See **Figure 2, District Boundary Map**).

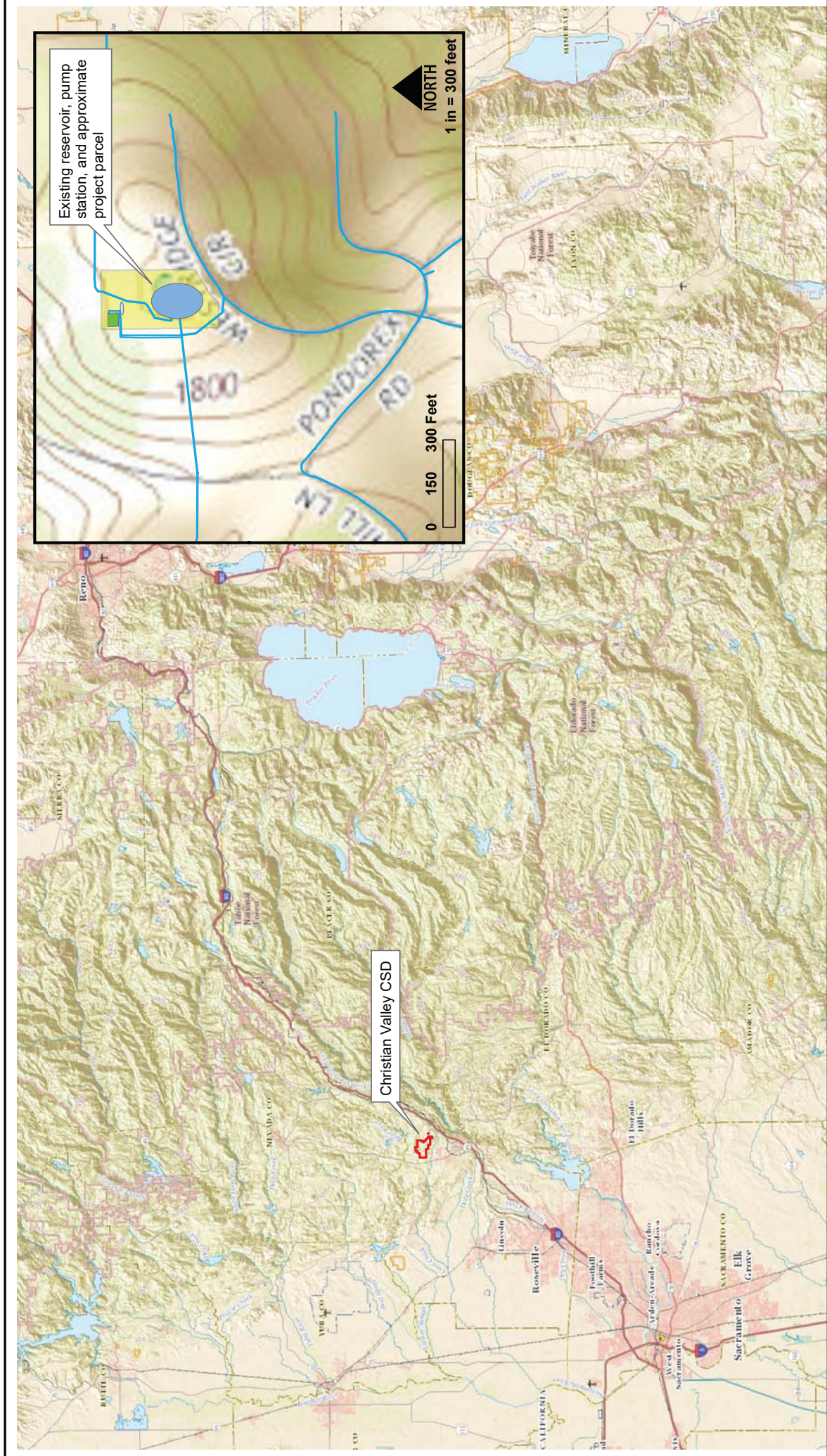


Figure 1 - Vicinity Map

HydrosEngineering
 Planning · Design · Operations
 PO Box 81
 Weimar CA, 95736
 (530) 637-4441
 hydros-engineering.com

Existing Reservoir  Existing Pump Station  Project Parcel  CVPCSD 

By: Daniel Stephens, 4/13/17, Revision 1, USDA (PER)

COORDINATE SYSTEM:
 CALIFORNIA STATE PLANE, ZONE II, NAD83, U.S. SURVEY FEET

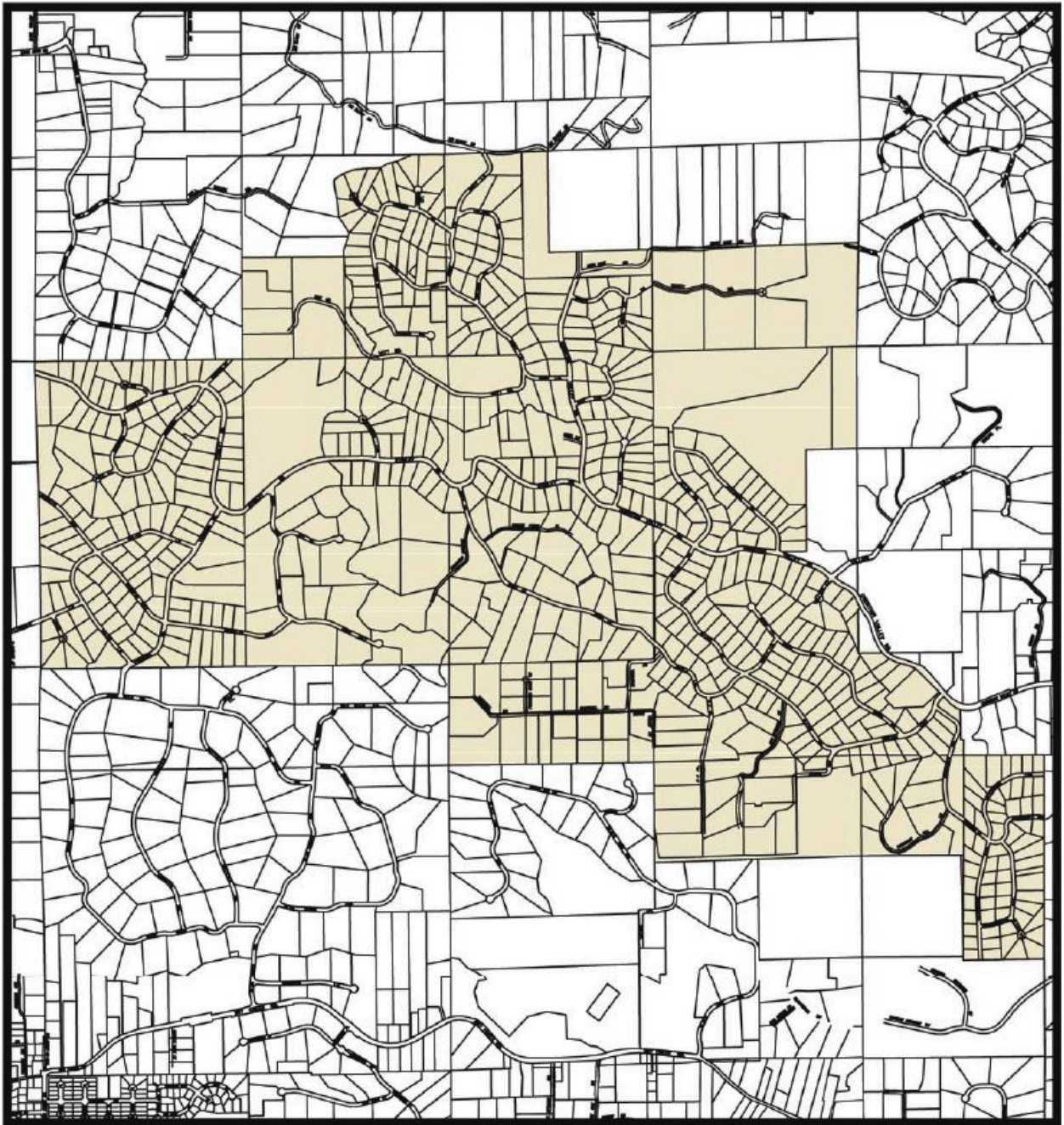
SOURCES:
 - HYDROS ENGINEERING
 - PLACER COUNTY GIS DATA

Water Mains  0 5 10 Miles

1" = 10 miles

NORTH

Figure 2: District Boundary Map



CHRISTIAN VALLEY CSD

Christian Valley Park is situated approximately 2 miles northeast of Auburn in Placer County, northwest of Interstate 80.

Raw water is purchased from the Placer County Water Agency (PCWA) and treated at the District's treatment plant. The PCWA is the primary water resource agency for Placer County. The Christian Valley Park CSD Water System currently has 623 service connections (this number

could increase depending on new connections) with a population of approximately 1,800. The service area is comprised primarily of single-family residences.

The distribution system consists of 4 to 10-inch diameter pipelines and has three pressure zones. There is one in-ground reservoir within the water system, which this project proposes to replace with two steel tanks. The existing reservoir has a total capacity of 1.5 million gallons, and is located on a 1.75-acre parcel (APN 077-251-006) at 1,830 feet in elevation (See **Figure 3, Project Area**). The existing reservoir is adequately sized for the ultimate buildout of the District based on Title 22 of the California Code of Regulations, Section 64554, which requires storage of one maximum day demand for systems having fewer than 1,000 connections.

Project Need

The existing reservoir was originally constructed in 1960 as an uncovered below grade reservoir with a gunite liner and earthen embankments. A floating Hypalon cover and liner were installed in 1990. The reservoir cover has deteriorated significantly over the years primarily due to ultraviolet damage that has caused the material to become brittle. The cover and liner have been repaired on multiple occasions by operations staff and by contract divers. The last work was done in 2016 and the dive crew advised the District that the cover has become extremely brittle and could suffer a large tear or rip if workers walked on it for maintenance purposes. The inlet pipe to the existing reservoir was abandoned in about 2010, when a leak developed under the levee. A new 'temporary' inlet was constructed as an interim project.

Although there have been no incidences of contamination in the reservoir or the distribution system, the cover has deteriorated such that it is now considered too much of a risk, and replacing the cover would be costly and result in a substandard project compared to replacing the reservoir with steel tanks.

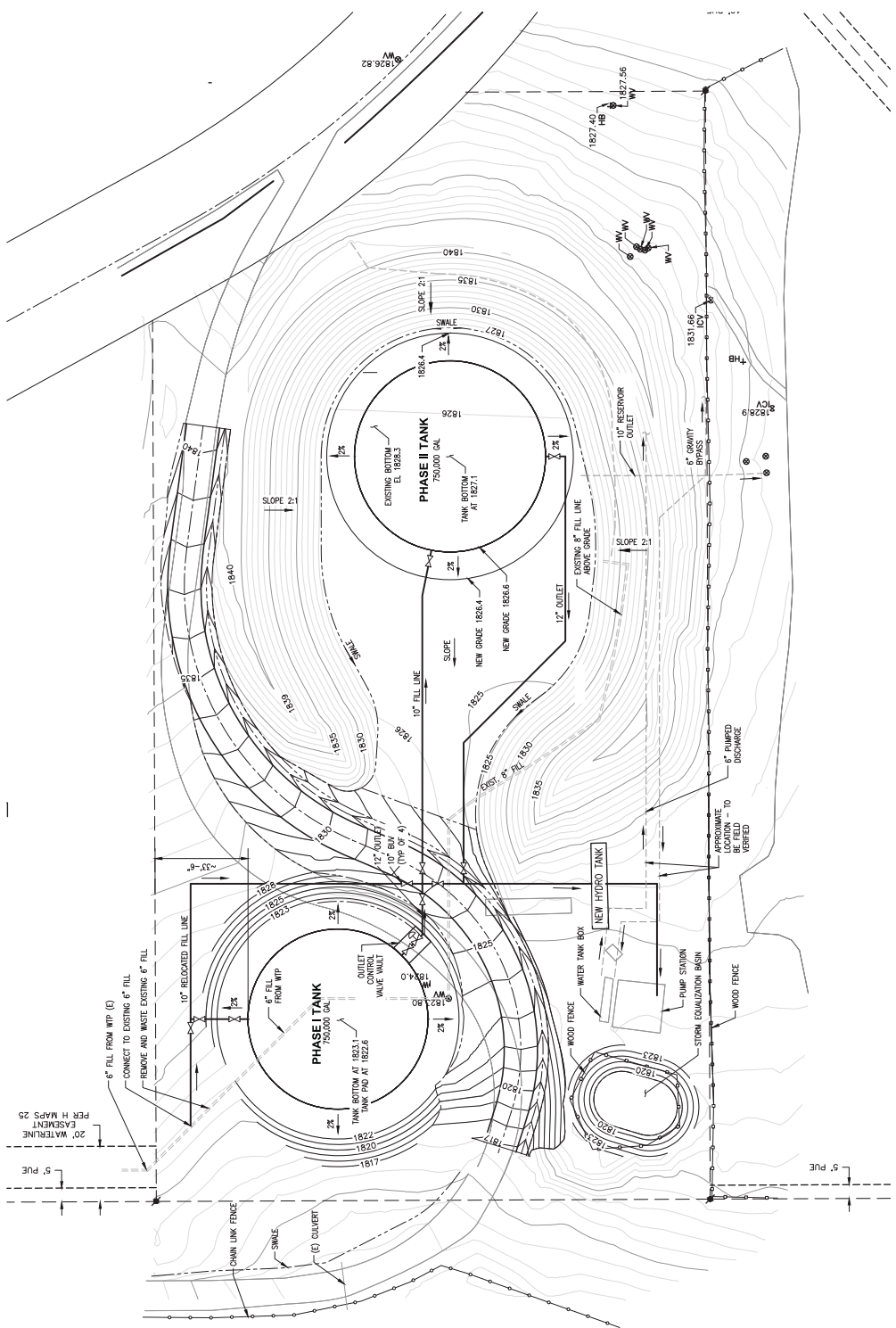
Project Action

The Christian Valley Park CSD Water Storage Tank Project (project) would construct two 0.75 million gallon water storage tanks to replace the existing storage volume. No expansion of the storage service area or other facilities is proposed. Thus, the project would not have the potential to induce population growth.

The first tank would be constructed about 100 feet north of the existing reservoir on District owned property. After the first tank would be completed and placed into service, the existing reservoir would be abandoned and drained. The second steel tank would be constructed within the footprint of the existing reservoir (see **Figure 4, Site Plan**).

The tank foundations would be constructed so that the first tank has an invert elevation approximately four-feet lower than the existing reservoir. The second tank, constructed within the footprint of the existing reservoir, would be constructed to match the invert elevation of the existing reservoir. The tanks would be steel with 750,000 gallons of storage in each tank. The first tank would be approximately 65 feet in diameter and 32 feet in height. The second tank would be approximately 69 feet in diameter and 36 feet in height.

10 9 8 7 6 5 4 3 2 1



HydrosEngineering
 Planning - Design - Operations

REVISIONS

NO	DESCRIPTION	DATE BY

NOT FOR CONSTRUCTION

LINE IS 3/8 INCHES AT FULL SCALE
 IF NOT IN INCHES SCALE ACCORDINGLY

DESIGN: GN
 DRAWN: RD
 CHECKED: FJF

DATE

PO BOX 3138
 AUBURN CA 95604

CHRISTIAN VALLEY PARK CSD
 PHASE 1 STORAGE PROJECT

REV. DATE OF

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Work associated with the project would include: site piping and grading; demolition of existing reservoir, construction of two new steel storage tanks, instrumentation including a programmable logic controller (PLC), radio and antenna, level sensors and controls; upgrade of the existing supervisory, control and data acquisition system at the water treatment plant; and potentially replacement or modification of the existing filter pumps to maintain capacity with increased discharge head pressure due to the tank heights and an emergency propane generator. A chain-link fence and gate would be installed for security. All cut and fill areas would be revegetated as soon as possible following grading activities, using native seed mix and compatible plantings.

Facilities would be constructed to comply with California Title 22 regulations and American Water Works Association (AWWA) standards for potable water treatment, storage and distribution facilities.

Duration

The estimated construction period is approximately eight to ten months, with construction projected to begin in spring of 2019.

Access

The project would be constructed on District owned property at APN 077-251-006. Westridge Circle road would serve the project, with use of an existing north-south access road within the parcel for maintenance vehicles to access and perform inspections of the tanks.

9. Surrounding Land Uses and Setting:

The project site is located on the north side of Westridge Circle road, northwest of Interstate 80 and south of Christian Valley Road. The project site is adjacent to single-family residences.

10. Other Public Agencies:

The following permits and regulations are applicable to the project and involve other public agencies whose approval may be required:

- Water Supply Permit Amendment, State Water Resources Control Board, Division of Drinking Water
- National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater Permit, Central Valley Regional Water Quality Control Board
- Grading Permit, Placer County, Engineering and Surveying Division
- Authority to Construct/ Permit to Operate Emergency Propane Generator, Placer County Air Pollution Control District.
- Dust Control Plan Approval, Placer County Air Pollution Control District

It should be noted that the United States Department of Agriculture (USDA) would provide funds for the project through the USDA Rural Utilities Water and Waste Disposal Loan and Grant Program. As part of that process, the USDA plans to prepare a Categorical Exclusion / Environmental Report to address requirements of the USDA Instruction 1970-B Exhibit C.

11. Tribal Consultation:

No California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1.

Environmental Factors Potentially Affected

The project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology, Soils and Seismicity |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology and Water Quality |
| <input type="checkbox"/> Land Use and Land Use Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation and Traffic | <input checked="" type="checkbox"/> Tribal Cultural Resources | <input checked="" type="checkbox"/> Utilities and Service Systems |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance | | |

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Don S. Elias
Signature

3-13-2018
Date

Don S. Elias
Printed Name

Christian Valley Park, CSD
For

Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Background

Photos 1-6 show existing views at the project site. The project site is industrial, with an existing reservoir, pump station, hydro-pneumatic tank and chain-link fence. A portion of the project site is foothill woodland, with moderately dense vegetation.

The project site is adjacent to single-family residences. **Figure 5** shows a map of residences surrounding the site. Residence A would have an unobstructed view of where the Phase I tank would be constructed, but does not have a yard fronting in that direction (residents would have to look to the northwest from their backyard, which is north facing). Residence B is shielded from views of the project site by a 6-foot fence. Residence C is mostly shielded from views of the project site by vegetation. Residence D is shielded from views of the project site by vegetation and fencing. Residence E is completely shielded from views.

Photos 7-8 show views of tanks that are the same style as the tanks that would be installed at the project site. These tanks are a little bit wider and shorter (approximately 77 feet in diameter and 30 feet in height).

Discussion

- a) **No Impact.** No scenic vistas would be affected by the project. Therefore, the project would have no impact.
- b) **No Impact.** The project site is not within or near a designated state scenic highway. No scenic resources within a state scenic highway would be affected by the project. Therefore, the project would have no impact.
- c) **Less-than-Significant Impact.** Existing views would be minimally altered by the addition of the two tanks. The Phase II tank would largely be shielded from viewing by the slopes surrounding the reservoir footprint. The Phase I tank would be visible from the eastern and northern residences (Residence A and C). Photos 9-10 show views from these

vantage points with a wire frame imposed on the photos showing the approximate outline of the tank.

Photo 9 shows the view from the west side of the eastern residence (Residence A). The Phase I tank would occupy a portion of the view when looking out to the northwest. However, the backyard fronts to the north and the tank would be consistent with the industrial nature of the parcel. **Figure 6** shows an aerial view of the tank locations.

Photo 10 shows the view from the front porch of the northern residence (Residence C). The tank would occupy a small portion of the view. There is also substantial screening of the project site by existing trees on the northern neighbor's property.

To avoid any potential visual impacts, the District proposes to paint the tanks to blend into the environment. The removal of trees from the project site, for grading and safety purposes, would also slightly alter views.

Water storage tanks are typical of residential areas and the existing project site looks industrial with the existing reservoir, fencing and associated equipment. The project would not substantially degrade the existing visual character or quality of the project site and its surroundings. Therefore, the project would have a less-than-significant impact.

- d) **No Impact.** The project would not introduce significant sources of light and glare (such as automobile headlights, structure lighting, and streetlights). Therefore, the project would have no impact.



SOURCE: Google Earth and RCH Group 2018

Christian Valley Park CSD Tank Project
Figure 5
Map of Residences



NORTH
 1" = 50'

COORDINATE SYSTEM:
 CALIFORNIA STATE PLANE, ZONE II, NAD83, U.S. SURVEY FEET
 SOURCES:
 - HYDROS ENGINEERING
 - PLACER COUNTY GIS DATA

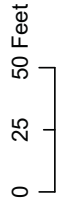


Figure 6 - Tank Locations



 New Tanks  Parcels



Photo #1) View of reservoir from the south, through the fence. December 5, 2017.



Photo #2) View of reservoir from the southeast, outside of fence. December 5, 2017.



Photo #3) Eastern residence (A). December 5, 2017.

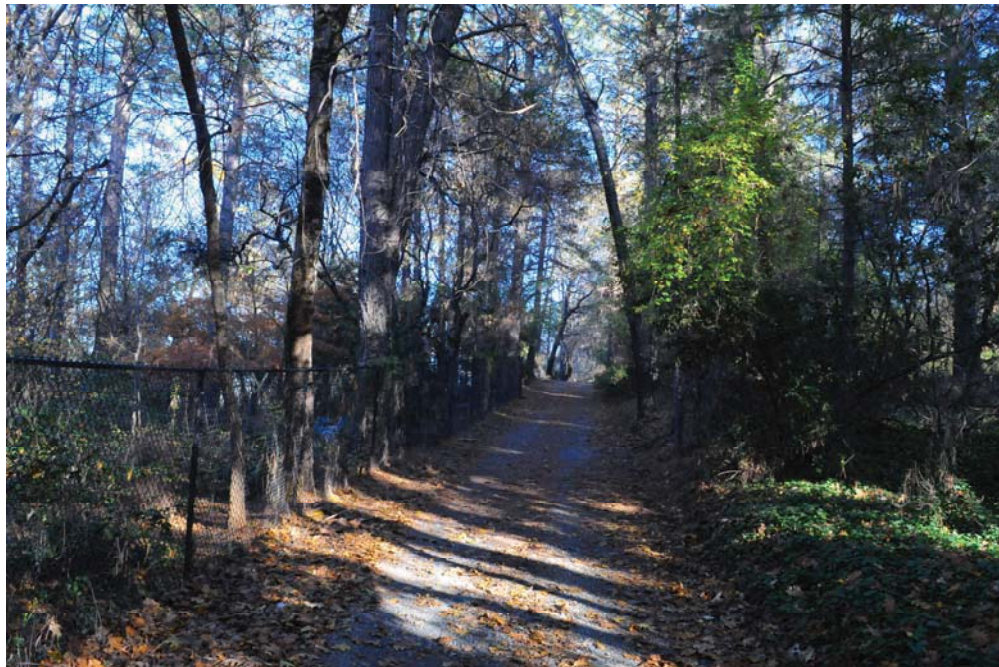


Photo #4) Path along north edge of parcel, showing existing vegetative barriers on neighboring property (C) (left of fence). December 5, 2017.



Photo #5) Fence between western residence (B) and project site (6 feet tall). January 17, 2018.



Photo #6) Slope on north side of reservoir that would be opened up as part of project construction. December 5, 2017.



Photo #7) View of similar tank from 80 feet away.



Photo #8) View of similar tank from 125 feet away.



Photo #9) View from eastern residence (A) with wire frame showing approximate outline of where the tank would be.



Photo #10) View from northern residence (C) with wire frame showing approximate outline of where the tank would be.

Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
2. AGRICULTURAL AND FOREST RESOURCES —				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a) **No Impact.** There is no farmland located on or near the project site. Therefore, the project would have no impact.
- b) **No Impact.** The project site is not zoned for agricultural use and is not subject to a Williamson Act contract. Therefore, the project would have no impact.
- c) **No Impact.** The project site is not zoned for forest land or timberland. Therefore, the project would have no impact.
- d) **No Impact.** Forest land [as defined by Public Resources Code section 12220(g)] is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The project site is zoned residential and does not fit this definition of forest land. Therefore, the project would have no impact.

- e) **No Impact.** The project would not involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use. Therefore, the project would have no impact.

Air Quality

<u>Issues (and Supporting Information Sources):</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporation</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>
3. AIR QUALITY —				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Introduction

This air quality analysis is consistent with the methodology for project review and analysis as described in the Placer County Air Pollution Control District (PCAPCD)'s *CEQA Air Quality Handbook* (PCAPCD, 2017). Additional information related to air quality such as existing setting and detailed construction emissions inventory for the project is in **Appendix A** of this Initial Study.

Discussion

- a) **Less-than-Significant Impact.** The PCAPCD along with other local air districts in the Sacramento region are required to comply and implement the State Implementation Plan (SIP) to demonstrate how and when the region can attain the federal ozone standards. Accordingly, the Sacramento Metropolitan Air Quality Management District (SMAQMD) prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* in December 2008, with input from the other air districts in the region. The PCAPCD adopted the Plan on February 19, 2009. The California Air Resources Board (CARB) determined that the Plan meets Clean Air Act requirements and approved the Plan on March 26, 2009 as revision to the SIP. An update

to the Plan, the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions)*, has been prepared and was approved and adopted on September 26, 2013. The *2013 SIP Revisions Plan* is the applicable air quality plan for the project.

A conflict with, or obstruction of, implementation of the *2013 SIP Revisions Plan* could occur if a project generates greater emissions than what has been projected for the project site in the emissions inventory of the *2013 SIP Revisions Plan*. Emissions inventories are developed based on projected increases in population, employment, regional vehicle miles traveled, and associated area sources within the region, which are based on regional projections that are, in turn, based on the Placer County General Plan and zoning designations for the region. The project would not change existing general plan or zoning designations for the project site nor would it increase operational emissions of criteria pollutants in the region. Therefore, the project would not generate greater emissions than what has been projected for the site in the emissions inventory of the *2013 SIP Revisions Plan*.

The project would support the primary goals of the *2013 SIP Revisions Plan*, it would be consistent with all applicable *2013 SIP Revisions Plan* control measures, and would not disrupt or hinder implementation of any *2013 SIP Revisions Plan* control measures. Therefore, the project would have a less-than-significant impact.

- b) **Less-than-Significant Impact.** The project would replace an existing reservoir with two storage tanks, which would generate criteria pollutant emissions from construction. The project would not increase operational emissions, as the project is a replacement project. The project would require a propane-fueled emergency generator, but emissions would be negligible due to the limited use and would require a authority to construct/permit to operate from the PCAPCD. The project would be constructed over approximately eight to ten months and construction is expected to begin in the spring of 2019. Tank I would be constructed first, then the existing reservoir would be drained and graded, and then Tank II would be constructed in the existing footprint of the reservoir. Construction is expected to occur in the following phases:

1. Site Preparation (including mobilization, clearing and grubbing)
2. Grading/Excavation for Tank I
3. Site Piping for Tank I
4. Construction and Painting of Tank I
5. Demolition of Existing Reservoir (once Tank I is placed into service)
6. Grading/Excavation for Tank II
7. Site Piping for Tank II
8. Construction and Painting of Tank II
9. Site Finish Grading and Paving

Construction equipment would consist of air compressors, cranes, excavators, generator sets, off-highway trucks, paving equipment, plate compactors, pumps, rollers, rough terrain forklifts, tractors/loaders/backhoes and welders. The project would export approximately 6,000 cubic yards of soil material, which would require approximately 600 total haul truck trips (or 300 round trips [based on a 20 cubic yard haul truck capacity]). The project would also require approximately 25 truck trips for importing construction materials and approximately five truck trips for exporting the existing reservoir cover and associated equipment. The emissions generated from these construction activities include:

- Dust (including particulate matter less than 10 micrometers (coarse or PM10) and particulate matter less than 2.5 micrometers (fine or PM2.5)) primarily from “fugitive” sources (i.e., emissions released through means other than through a stack or tailpipe) such as material handling and travel on unpaved surfaces;
- Combustion emissions of criteria air pollutants (carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOC) as reactive organic gases (ROG), PM10, and PM2.5) primarily from operation of heavy off-road construction equipment, haul trucks, (primarily diesel-operated), and construction worker automobile trips (primarily gasoline-operated); and
- VOC emissions from painting.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. Poor construction practices could result in substantial emissions of fugitive dust that could become a nuisance. The PCAPCD requires construction projects to comply with District Rules & Regulations for Construction. Compliance with the PCAPCD District Rules & Regulations for construction, specifically Rule 228 – Fugitive Dust, which requires implementation of minimum dust control requirements, would prevent and control fugitive dust emissions. The minimum dust control requirements required by Rule 228 are in **Appendix A** for reference.

Estimated maximum daily emissions of criteria pollutant emissions that would be generated by construction of the project are shown in **Table 1**. Construction emissions were estimated using the California Emission Estimator Model (CalEEMod) Version 2016.3.2. There are no significance thresholds for CO or PM2.5. As shown in **Table 1**, criteria pollutant emissions from construction would be below the PCAPCD’s maximum daily significance thresholds for ROG, NO_x, and PM10. Therefore, the project would have a less-than-significant impact.

Table 1: Estimated Maximum Daily Construction Emissions (pounds)

Year	ROG	NO_x	PM₁₀
Summer 2019	3.96	42.72	8.45
Winter 2019	3.96	43.21	8.45
Maximum Daily Emissions	3.96	43.21	8.45
Significance Threshold	82	82	82
Potentially Significant (Yes or No)?	No	No	No

Source: CalEEMod Version 2016.3.2.

- c) **Less-than-Significant Impact.** The PCAPCD cumulative significance thresholds are the same as the project-level significance thresholds. Therefore, a project would have a significant cumulative impact if the project exceeds the project-level significance thresholds. As disclosed in this air quality analysis, the project would not exceed project-level significance thresholds. Therefore, the project would have a less-than-significant impact.
- d) **Less-than-Significant Impact.** Land uses such as schools, children’s daycare centers, hospitals, and convalescent homes are considered more sensitive to poor air quality than other land uses because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time outside their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. The project site is adjacent to single-family residences.

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, TACs high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

The project would constitute a new emission source of diesel particulate matter (DPM¹) due to construction activities. Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. The project has short-term construction activities that would use diesel construction equipment intermittently and would not generate substantial TAC emissions. Therefore, the project would have a less-than-significant impact.

Naturally Occurring Asbestos (NOA) can be of concern in Placer County due to the known presence of chrysotile and amphibole asbestos. However, the project site is in the area least likely to contain NOA according to Placer County's NOA Hazard Map (Placer County, 2008). Although unlikely, if NOA is discovered during project construction the project would be required to adhere to CARB's Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations. Therefore, the project would have a less-than-significant impact.

- e) **Less-than-Significant Impact.** Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a potentially significant impact. As a general matter, the types of development that pose potential odor problems include agriculture, food processing, dairies, rendering, refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. No such odiferous uses would be a part of the project. Water storage projects generally do not cause odor problems or complaints. Therefore, the project would have a less-than-significant impact.

References

California Air Pollution Control Officers Association, *CalEEMod User's Guide Version 2016.3.2*, November 2017, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4

Placer County Air Pollution Control District (PCAPCD), *CEQA Air Quality Handbook*, November 2017. <http://www.placerair.org/landuseandceqa/ceqaairqualityhandbook>

Placer County. *Naturally Occurring Asbestos Hazard*. November 4, 2008. <http://www.placer.ca.gov/~media/apc/documents/NOA/NaturallyOccuringAsbestosMapIndexMap092908.pdf>

Sacramento Metropolitan Air Quality Management District, *2013 Update to the 8-Hour Ozone*

¹ In August of 1998, CARB identified particulate emissions from diesel-fueled engines as a toxic air contaminant. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solid and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon; heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons found in diesel exhaust. Diesel particulates include small nuclei particles of diameters below 0.04 micrometers (μm) and their agglomerates of diameters up to 1 μm .

Attainment and Reasonable Further Progress Plan, January 29, 2015,
<http://www.arb.ca.gov/planning/sip/planarea/sacsip/sacmetsip.htm#2013update>

US EPA. *Near Roadway Air Pollution and Health: Frequently Asked Questions*. August 2014.
<http://www3.epa.gov/otaq/documents/nearroadway/420f14044.pdf>

US EPA. *Near Roadway Air Pollution and Health: Frequently Asked Questions*. August 2014.
<http://www3.epa.gov/otaq/documents/nearroadway/420f14044.pdf>

Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
4. BIOLOGICAL RESOURCES — Would the project:				
a) 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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Introduction

This biological resources analysis is based on a Biological Resources Assessment conducted by an independent biological consultant, Salix Consulting, Inc. (Salix Consulting, 2018). The Biological Resources Assessment is in **Appendix D** of this Initial Study.

The Biological Resources Assessment concluded the following:

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- The project site provides no suitable habitat for special-status plants or animal species known to occur within the region, and no such species were observed during field surveys in December 2017 and January 2018. Except for nesting raptor and migratory bird preconstruction surveys, no further surveys for special-status wildlife or plants are recommended.
 - The project site does not contain features that qualify as wetlands or waters of the United States.
 - The project site does not contain streams, ponds or riparian habitat, thus no Streamed Alteration Agreement with the California Department of Fish and Wildlife (CDFW) is required.

Discussion

- a) **Less-than-Significant Impact with Mitigation.** Approximately 0.8 acre of the project site is developed/disturbed, including a 0.4-acre shallow, lined reservoir used for water storage. Aside from the reservoir and road network, the project site is wooded and just over half of it (0.9-acre) is foothill woodland. The woodland areas are comprised primarily of interior live oak, black oak, and foothill pine. Shrubs in the woodland area include buck brush, coyote bush, and toyon.

The foothill woodland components of the project site provide habitat for many common resident species. Mammal species observed include western gray squirrel and mule deer. Birds are common, and the project site may support nesting of common resident and migratory songbirds. Species observed foraging in the foothill woodland at the time of the field surveys include: western scrub-jay, acorn woodpecker, dark-eyed junco, turkey vulture (soaring above), American crow, and white-breasted nuthatch.

The project site provides no habitat to support special-status plant species known to occur within the region, and none were observed during field surveys. Three special-status animal species are known to occur within a 5-mile radius of the project site. However, the project site provides no suitable habitat to support these species, and none were observed during field surveys.

The potential for raptors and migratory birds to nest within or directly adjacent to the project site is possible. **Mitigation Measure BIO-1** would reduce any potentially significant impacts to less than significant.

Mitigation Measure BIO-1: If ground disturbance activities take place during the breeding/nesting season (February 1 through August 31), a pre-construction survey shall be conducted by a qualified biologist no more than 15 days prior to initiation of proposed construction activities. If active nests are found on or immediately adjacent to the project site, a nest avoidance plan shall be implemented with approval from Placer County Planning Department. The avoidance plan shall include appropriate buffers to the nest(s), and a qualified biologist should monitor the nest(s) and project activities to ensure no harm or agitation affects the nestlings. Once the birds have

fledged, there is no longer a need for the buffer, and project activities could then proceed. If no nesting is found to occur, necessary tree removal could then proceed. If no nesting is found to occur, necessary tree and shrub removal could then proceed. This survey shall not be necessary if tree removal and vegetation clearing occur outside of the nesting period.

- b, c) **Less-than-Significant Impact.** The project site contains no potential waters of the United States, nor any streams, ponds, or riparian habitat. No other sensitive natural community is present on the project site. Therefore, the project would have a less-than-significant impact.
- d) **Less-than-Significant Impact.** The project site is small (1.75-acre) and the land use on all adjacent sides is large-lot residential. The project would be consistent with the surrounding area and would not substantially affect wildlife movement. There are no watercourses or native wildlife nursery sites on the project site. Therefore, the project would have a less-than-significant impact.
- e) **Less-than-Significant Impact.** The project would require the removal of trees for constructing the foundation for the northern tank and for safety purposes (i.e., to protect from trees falling on and damaging the northern tank and thus rendering it incapable of delivering water). Placer County Code, Article 12.16.050 states “A tree permit is not required for the removal of a protected tree when compliance would interfere with activities of a public utility necessary to comply with applicable safety regulations and/or necessary to repair or avoid the interruption of services provided by such utility. Routine repair and maintenance of utilities would be exempt; new construction projects (i.e., installation of high power, transmission line corridor) are subject to review.”

The Arborist Report and Tree Inventory Summary for the project prepared by Acorn Arboricultural Services, Inc. (February 2018) identifies 72 trees on the project site. The Arborist Report and Tree Inventory Summary is in **Appendix E** of this Initial Study. Trees on site consist of one Blue Oak, 18 California Black Oak, 14 Foothill Pine, 21 Interior Live Oak, and 18 Ponderosa Pine. According to Placer County Code, Article 12.16.050, 58 of the 72 trees are protected trees; the 14 Foothill Pines are exempt and not protected. Many trees on the project site would be preserved, however tree removal numbers would be finalized with final grading plans for the project.

The District believes they should be exempt from a tree permit because the project is necessary to provide a more redundant and secure water supply for District customers. The existing reservoir cover and liner is extremely brittle and has been repaired on multiple occasions and is now considered too much of a risk because failure of the cover and liner could risk contamination in the reservoir and/or distribution system. The project is necessary to avoid the interruption of services provided by the District. Regardless of if the tree permit exemption applies to the project, the project would comply Placer County

Code, Article 12.16 -- Tree Preservation Generally. Therefore, the project would have a less-than-significant impact.

- f) **No Impact.** The Placer County Conservation Plan (PCCP) is a habitat conservation plan and a natural community conservation plan that covers approximately 201,000 acres of Western Placer County. The Christian Valley Park CSD project site lies outside of the Potential Future Growth Area for the PCCP. Therefore, the project would have no impact.

References

Acorn Arboricultural Services Inc. *Arborist Report and Tree Inventory Summary, Christian Valley Reservoir Project Site*, February 19, 2018.

County of Placer. *Placer County Conservation Plan*.

<https://www.placer.ca.gov/Departments/CommunityDevelopment/Planning/PCCP.aspx>

County of Placer. *Placer County Code, Article 12.16 Tree Preservation Generally*.

Salix Consulting. *Biological Resources Assessment*, January 2018.

Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Introduction

This cultural resources analysis is based on a Cultural and Paleontological Resources Inventory for the project conducted by an independent cultural resources consultant, Natural Investigations Company, Inc. (Natural Investigations Company, 2018).

The Cultural and Paleontological Resources Inventory concluded that following:

- There are no historic properties or historical resources present within the project site. Therefore, no historic properties or historical resources would be affected by implementation of the project.

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- The probability that cultural resources remain within the disturbed project site is low.
 - There is no record of fossils and no potential for unique or significant paleontological resources to be present in the plutonic igneous rocks underlying the project site. Development of the project would have a low potential to uncover or damage fossils and would not have a high potential to cause a significant impact on any resource that currently qualifies as a significant paleontological resource.
 - Construction monitoring of ground-disturbing activity for the presence of cultural or paleontological resources is not recommended.

Discussion

a) **Less-than-Significant Impact.** No archaeological or built environment resources were identified or recorded during the survey in November 2017, and no cultural resources were previously recorded within the project area (Natural Investigations Company, 2018). Thus, the project does not have the potential to cause a significant impact on any resource that currently qualifies as a historical resource, or that has been recommended eligible for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR). Therefore, the project would have a less-than-significant impact.

b, c) **Less-than-Significant Impact with Mitigation.** The potential for discovery of buried archaeological or paleontological resources is considered low (Natural Investigations Company, 2018). No unique geologic features are known to exist within the project area (Natural Investigations Company, 2018). Should any archaeological or paleontological resources be discovered during ground disturbing activities for the project the implementation of **Mitigation Measure CUL-1** would reduce impacts to a less-than-significant level.

Mitigation Measure CUL-1: If archaeological or paleontological resources are discovered during ground disturbing activities for the project, work shall be halted in that area within 50 feet of the find and a qualified paleontologist shall be notified immediately to evaluate the find. If the discovery proves to be significant, additional work, such as data or fossil recovery excavation, may be warranted and would be discussed in consultation with the Christian Valley Park CSD and any other relevant regulatory agency, as appropriate.

d) **Less-than-Significant Impact with Mitigation.** Although unlikely, grading and excavation could potentially uncover human remains. Should human remains be discovered during ground disturbing activities for the project the implementation of **Mitigation Measure CUL-2** would reduce impacts to a less-than-significant level.

Mitigation Measure CUL-2: If human remains are discovered during ground disturbing activities for the project, work shall be halted and the County Coroner shall be notified of the find immediately. No further work shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC

Section 5097.98. If the human remains are determined to be of Native American origin, the County Coroner shall notify the Native American Heritage Commission (NAHC), which will determine and notify the Most Likely Descendent (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

References

Natural Investigations Company. *Cultural and Paleontological Resources Inventory and Effects Assessment for the Christian Valley Park Community Service District Tank Project*, January 2018.

Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Introduction

The geology, soils and seismicity analysis is based on a Geotechnical Report conducted by Crawford & Associates, Inc. (CAInc, 2017). The 2017 Geotechnical Report concluded that the project site is suitable for the proposed structures provided recommendations presented in the report are followed. In 2015, CAInc provided preliminary geotechnical recommendations for design and construction of the first tank, including new tank foundation and site grading (CAInc, 2015). The 2015 Geotechnical Report concluded that the project site would be suitable for support of the proposed tank. The Geotechnical Reports are in **Appendix C** of this Initial Study.

Discussion

- ai) **Less-than-Significant Impact.** The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones by the California Department of Conservation, Geological Survey (CGS) along sufficiently active and well-defined faults.² The purpose of the Act is to restrict construction of structures intended for human occupancy along traces of known active faults. Alquist-Priolo Zones are designated areas most likely to experience surface fault rupture, although fault rupture is not necessarily restricted to those specifically zoned areas.

The most recent listing of Earthquake Fault Zones under the Alquist-Priolo Earthquake Fault Zoning Act does not include Placer County. The 2017 Geotechnical Report noted that the project site is not within a special studies zone boundary for fault rupture hazard (CAInc, 2017). The project site is not located in an Alquist-Priolo Earthquake Fault Zone and is not located on or immediately adjacent to an active fault. Therefore, the project would have a less-than-significant impact.

- aii, aiii) **Less-than-Significant Impact.** Several factors influence the amount of ground shaking at any locality. The principal ones are the distance from the epicenter of the fault movement and the local bedrock-soil conditions. Bedrock areas will have a different shaking impact compared with areas underlain with softer, less consolidated materials. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, and fine-grained sands. The proposed structures would be designed using sound engineering judgment and would be constructed to American Water Works Association standards for carbon steel tanks (AWWA D100-11). The project site is not known to be in the proximity of any active faults. Therefore, the project would have a less-than-significant impact.

- a.iv) **Less-than-Significant Impact.** Slope failure due to mass movement processes under the influence of gravity can occur without an earthquake. Some of the most common conditions leading to slope failure include the types of materials (unconsolidated, soft

² An active fault is defined by the State of California is a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A potentially active fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer. This definition does not, of course, mean that faults lacking evidence of surface displacement are necessarily inactive. Sufficiently active is also used to describe a fault if there is some evidence that Holocene displacement occurred on one or more of its segments or branches (Hart, 1997).

sediments or surficial deposits will move downslope more easily than consolidated, hard bedrock), structural properties of materials, steepness of slopes, water, vegetation type, and earthquake-generated ground shaking. Slopes appear stable at the project site and no signs of landsliding or other land instability were observed (CAInc, 2015). Therefore, the project would have a less-than-significant impact.

- b) **Less-than-Significant Impact.** The project site is less than two acres in size, so not much land would be disturbed by site preparation or grading activities. Approximately 6,000 cubic yards of soil material would be exported from the project site. A grading permit from Placer County would be required prior to project construction, which also requires review of the drainage study and geotechnical report for project. The Placer County grading permit requires the preparation of a detailed erosion and sediment control plan and a revegetation plan. Therefore, the project would have a less-than-significant impact.
- c) **Less-than-Significant Impact.** No signs of landsliding or other land instability were observed at the project site (CAInc, 2015). The project would not expose people or structures to unstable earth conditions or changes in geologic substructures. Therefore, the project would have a less-than-significant impact.
- d) **Less-than-Significant Impact.** Most of the subsurface exploration encountered clay with sand and silt with sand to approximate depths of two to nine feet. Visual classification and laboratory tests indicated the near-surface soils at the project site exhibit low to medium plasticity (CAInc, 2017); expansion potential is not of concern (Crawford, 2018). Therefore, the project would have a less-than-significant impact.
- e) **No Impact.** The project does not require the use of septic tanks or any other alternative wastewater disposal system. Therefore, the project would have no impact.

References

- Crawford & Associates, Inc. (CAInc). *Draft Preliminary Geologic/Geotechnical Memo, Christian Valley Park CSD – Water Storage Tank Feasibility Study, Auburn, California.* March 18, 2015.
- Crawford & Associates, Inc. (CAInc). *Geologic/Geotechnical Design Memorandum, Christian Valley Park CSD, Auburn, California.* July 23, 2017.
- Crawford, Benjamin D. Personal Communication with Benjamin Crawford, Crawford & Associates Inc., February 6, 2018.
- Hart, E.W. and W.A. Bryant, *Fault Rupture Hazard Zones in California: Alquist-Priolo Special Studies Zones Act of 1972 with Index to Special Studies Zone Maps.* California Division of Mines and Geology, Special Publication 42, 1990. Revised and updated 1997.

Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Introduction

This greenhouse gas (GHG) emissions analysis presented in this section is consistent with the methodology for project review and analysis as described in the PCAPCD’s *CEQA Air Quality Handbook* (PCAPCD, 2017). Additional information related to GHG emissions such as existing setting and regulations, as well as a detailed construction emissions inventory for the project is in **Appendix A** of this Initial Study.

Discussion

- a) **Less-than-Significant Impact.** The CalEEMod air quality model was used to quantify GHG emissions associated with project construction activities. The project would generate approximately 175 metric tons of CO₂e³ during construction. The estimated construction GHG emissions are less than the PCAPCD construction significance threshold of 10,000 metric tons of CO₂e per year. Therefore, the project would have a less-than-significant impact.

- b) **Less-than-Significant Impact.** Placer County is currently in the process of drafting a Climate Action Plan (CAP) regarding the reduction of GHG emissions. The applicable regulation adopted for the purpose of reducing the emissions of GHGs is AB 32. The project would result in a significant impact if it would conflict with AB 32 State goals. The assumption is that AB 32 and associated regulations and Executive Orders will be successful in reducing GHG emissions and reducing the cumulative GHG emissions statewide to meet 2020 goals. The State has taken these measures, because no project individually could have a major impact (either positively or negatively) on the global concentration of GHG. The project has been reviewed relative to the AB 32 measures and it has been determined that the project would not conflict with the goals of AB 32. Therefore, the project would have a less-than-significant impact.

References

California Air Pollution Control Officers Association, *CalEEMod User’s Guide Version*

³ GHG emissions are reported in metric tons of CO₂ equivalents (CO₂e). CO₂e are calculated as the product of the mass emitted of a given GHG and its specific global warming potential.

Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a, b) **Less-than-Significant Impact.** During construction of the project, the use of hazardous substances would be limited in nature and subject to standard handling and storage requirements. The existing asbestos cement pipe would be abandoned in place. After construction is complete, the project would not use or store hazardous materials. Therefore, the project would have a less-than-significant impact.

-
- c) **No Impact.** There are no existing or proposed schools within one-quarter mile of the project. Therefore, the project would have no impact.
 - d) **No Impact.** The Department of Toxic Substances Control and State Water Resources Control Board compile and update lists of hazardous material sites pursuant to Government Code Section 65962.5. The project site is not included on the databases maintained by the Department of Toxic Substances Control (Envirostor) and the State Water Resources Control Board (Geotracker) (DTSC, 2017 and SWRCB, 2017). Therefore, the project would have no impact.
 - e) **Less-than-Significant Impact.** The project site is within two miles of a public airport (1.5 miles northeast of the Auburn Municipal Airport). The project is small and would not result in a safety hazard for people residing or working in the project area. Therefore, the project would have a less-than-significant impact.
 - f) **No Impact.** There are no known private airstrips within two miles of the project site. Therefore, the project would have no impact.
 - g) **No Impact.** The project would not interfere with emergency response plans or evacuation plans. The project would not impede or require diversion of rescue vehicles or evacuation traffic in the event of a life-threatening emergency. Therefore, the project would have no impact.
 - h) **No Impact.** The project site is bordered by residential uses. Development of the project would require vegetation removal, which could reduce the risk of wildland fires. Therefore, the project would have no impact.

References

Department of Toxic Substances Control (DTSC), *DTSC's Envirostor Database*, <https://www.envirostor.dtsc.ca.gov/public/>, accessed November 27, 2017.

State Water Resources Control Board (SWRCB), *Geotracker*, <https://geotracker.waterboards.ca.gov/>, accessed November 27, 2017.

Hydrology and Water Quality

<u>Issues (and Supporting Information Sources):</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a,f) **Less-than-Significant Impact.** The Clean Water Act (CWA) has nationally regulated the discharge of pollutants to waters of the U.S. from any point source since 1972. In 1987, amendments to the CWA added section 402(p), which established a framework for regulating non-point source stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). Projects that disturb one or more acres are required to obtain coverage under the General Permit for Discharges of Stormwater

Associated with Construction Activity, Construction General Permit (CGP) Order 2009-0009-DWQ.

General Permit applicants are required to submit (to the appropriate regional board) Permit Registration Documents, which include a Notice of Intent, an annual fee, and a Stormwater Pollution Prevention Plan (SWPPP). Additional requirements include compliance with post construction standards focusing on Low Impact Development (LID), preparation of Rain Event Action Plans, and specific certification requirements for specific project personnel. The SWPPP must include implementing Best Management Practices (BMPs) to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Contaminated runoff from the project site could potentially cause negative water quality impacts. Potential water quality impacts may occur during project construction and after project development. During construction, the increased area of disturbed soils would result in increased erosion and potentially introduce sediment into stormwater during rain events. After construction is completed, the increased runoff from areas of new impervious surfaces would increase the potential for erosion and the amount of sediment in stormwater runoff. Therefore, the polluted water runoff from the project could have a potentially significant impact.

Coverage under the General Construction Stormwater Permit would be obtained prior to performing any land disturbing activities (because greater than one acre would be disturbed during construction). As part of the requirements of the General Permit, a SWPPP would be prepared for the project. The SWPPP would be designed to reduce or eliminate pollutant discharges to waters. The SWPPP practices would apply to both the original construction and the site improvements. It would specify the implementation of site-specific BMPs. Monitoring of the BMPs would be performed pursuant to the requirements of the General Permit. Implementation of BMPs would help meet stormwater discharge water quality criteria for the project by capturing pollutants before they enter the waterways.

Monitoring of BMPs would be performed during construction under the General Construction Stormwater Permit. Monitoring consists of performing routine and storm-based site inspections and making specific recommendations to the project manager, such as installing additional BMPs and performing maintenance on existing BMPs. Typical construction-related (temporary) BMPs that could be implemented as part of the project include, but are not limited to, the following:

- Proper installation of erosion control measures to all disturbed areas including, but not limited to, the installation of straw mulch, hydraulic mulch, hydroseed, and erosion control blankets.
- Proper installation of sediment control measures below all areas that have a moderate to high potential for erosion. Sediment control measures to be installed on-

site include, but are not limited to, silt fence, straw wattles, gravel bag check dams, sediment traps, drainage inlet (DI) bags and gravel bags.

The implementation of BMPs would help meet stormwater discharge water quality criteria for the project by capturing urban runoff pollutants before they can enter the area waterways. Coverage under the General Construction Stormwater Permit and preparation of a SWPPP would ensure no water quality or waste discharge requirements are violated and reduce the potential for substantially degrading water quality. Therefore, the project would have a less-than-significant impact.

- b) **No Impact.** During construction and operation of the project, the Placer County Water Agency (PCWA) would supply the water. Water from the Yuba-Bear and American River watersheds and snow pack runoff supplement the PCWA. The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Therefore, the project would have no impact.
- c, d, e) **Less-than-Significant Impact with Mitigation.** Currently, runoff from the existing reservoir and the top of the hill drains to the south, and the rest of the site drains to the north. The project would follow the existing drainage pattern of the project site and vicinity, and would not alter the course of any stream or river. Project design measures would be implemented to prevent water from spilling from the constructed tanks. BMPs would be implemented through the SWPPP. **Mitigation Measure HYD-1** would reduce any potentially significant impacts to less than significant.

Mitigation Measure HYD-1: Prior to construction, the Applicant shall complete a Drainage Study in conformance with the Placer County flood control and water conservation district's stormwater management manual (latest edition). The Drainage Study would be submitted to Placer County as part of the Grading Permit Application for the project as required by Placer County Code, Chapter 15, "Grading, Erosion and Sediment Control Ordinance."

- g) **No Impact.** The project site is not located within a 100-year flood hazard area, therefore the project would have no impact.
- h) **No Impact.** The project site is not located within a 100-year flood hazard area, therefore the project would have no impact.
- i) **No Impact.** The project site is not located near a levee. The closest dam is at Halsey Forebay, one mile to the east of the project site. The project would not expose people or structures to a significant risk of loss, injury or death involving flooding. Therefore, the project would have no impact.
- j) **Less-than-Significant Impact.** A tsunami is a sea wave or a series of waves caused by submarine earth movement, by either an earthquake or volcanic eruption. A seiche is an oscillation of the surface of a lake or landlocked sea. The project site is not in close

proximity to the ocean or a landlocked sea; therefore the site is not at risk of inundation from these phenomena. The site is not located near a lake that is identified as having a potential threat from a seiche. The project site is in a hilly area, but project construction would build the tanks on flat pads, and there would not be a substantial risk of landslides or mudflows. Therefore, the project would have a less-than-significant impact.

References

United States EPA, *National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities*, February 6, 2012

Land Use and Land Use Planning

<u>Issues (and Supporting Information Sources):</u>	<u>Potentially Significant Impact</u>	<u>Less Than Significant with Mitigation Incorporation</u>	<u>Less Than Significant Impact</u>	<u>No Impact</u>
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a) **No Impact.** The project would not physically divide an established community. Therefore, the project would have no impact.
- b) **Less-than-Significant Impact.** The project site is designated Rural Residential in the Placer County General Plan and is zoned RS-AG-B-100-AO Single-Family Residential. The project would not alter the existing General Plan land use designations or zoning, nor would new land use designations or zones be created. The project would not conflict with any land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the project would have a less-than-significant impact.
- c) **No Impact.** The Placer County Conservation Plan (PCCP) is a habitat conservation plan and a natural community conservation plan that covers approximately 201,000 acres of Western Placer County. The Christian Valley Park CSD project site lies outside of the Potential Future Growth Area for the PCCP. Therefore, the project would have no impact.

References

County of Placer. *Placer County Conservation Plan*.

<https://www.placer.ca.gov/Departments/CommunityDevelopment/Planning/PCCP.aspx>

County of Placer. *Placer County General Plan*. Land Use and Circulation. May 2013.

County of Placer. *Zoning*. <http://gis-placercounty.opendata.arcgis.com/datasets/zoning>

Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a-b) **No Impact.** The California Department of Conservation Mines Online tool does not identify any documented mines on the project site. There are no mineral deposit sites within the vicinity of the project and there are no known mineral resources of value on the project site. The project site does not contain a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, the project would have no impact.

References

Department of Conservation, Division of Mine Reclamation, *Mines Online*.

<http://maps.conservation.ca.gov/mol/index.html>

Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
12. NOISE — Would the project:				
a) Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in exposure of persons to or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Introduction

This noise analysis includes a Noise Appendix (**Appendix B**). The Noise Appendix includes background noise information and a map of the noise measurement locations.

Discussion

a), d) **Less-than-Significant Impact with Mitigation.**

Existing Noise

To quantify existing ambient noise levels in the immediate project vicinity, RCH conducted short-term (10-minute) measurements at the entrance to the parcel (Site 1) and at the proposed location of the Phase 1 Tank (Site 2). (Note: At the time of measurement on November 29, noise levels at Site 2 were compromised by noise from a generator running. Site 1 is downslope from the existing reservoir and was shielded from the generator noise.)

These noise measurements were made using a Metrosonics db308 sound level meter, calibrated before and after the measurements, and are summarized in **Table 2** below. In general, the project site is a quiet location. The dominant sources of existing noise are airplanes and traffic.

Noise Standards

State Guidelines

The State Land Use Compatibility standards for Community Noise (Table 4 of the Noise Appendix) indicate that for Low Density Residential, a Community Noise Exposure up to 60 dB (Ldn or CNEL) is Normally Acceptable, and a Community Noise Exposure up to 70 dB (Ldn or CNEL) is Conditionally Acceptable.

Placer County General Plan

The Noise Section of the Placer County General Plan establishes goals and policies for non-transportation noise sources. Allowable noise levels within specified zone districts applicable to new projects affected by or including non-transportation noise sources are shown in **Table 3**.

The Noise Section of the Placer County General Plan lists noise sensitive land uses as including: residential; transient lodging; hospitals, nursing homes; theaters, auditoriums, music halls; churches, meeting halls; office buildings; schools, libraries, museums; and playgrounds, neighborhood parks.

Table 2: Existing Noise Measurements

Location	Time Period	Leq (dB)	Noise Sources
Site 1. Westridge Circle, at the entrance to the parcel	Wednesday November 29, 2017 2:40 – 2:50 P.M.	5-minute Leqs: 43, 53 dB	Passing car is 70 dB. Idling car is 56 dB. Airplane is 50 dB. Back-up beep is 44 dB. Construction equipment is 43 dB. Background noise is <41.5 dB. Quieter noises include yard equipment, dogs barking, birds, and wind rustling leaves.
Site 1. Westridge Circle, at the entrance to the parcel	Wednesday January 17, 2018 1:45 – 1:55 P.M.	5-minute Leqs: 46, 45 dB	Airplanes are 54 dB. Background noise is <41.5 dB. Quieter noises include birds, frogs, neighbor watering plants, insects, and a squirrel.
Site 2. South side of proposed location of the Phase 1 Tank	Wednesday January 17, 2018 1:30 – 1:40 P.M.	5-minute Leqs: 41.5, 41.5 dB	Background noise is <41.5 dB. Quieter noises include birds, frogs, barking dogs, distant vehicles, wind in trees, and an airplane.

Source: RCH Group, 2018

Placer County Noise Ordinance

The Placer County Noise Ordinance (Placer County, 2004) sets limits for sensitive receptors and makes it unlawful for any person at any location to create any sound, or to allow the creation of any sound, on property owned, leased, occupied or otherwise controlled by such person that:

1. Causes the exterior sound level when measured at the property line of any affected sensitive receptor to exceed the ambient sound level by five dBA; or
2. Exceeds the sound level standards as set forth in **Table 4**, whichever is the greater

The Placer County Noise Ordinance exempts construction between the hours of 6:00 a.m. and 8:00 p.m. Monday through Friday, and between the hours of 8:00 a.m. and 8:00 p.m. Saturday and Sunday, provided that all construction equipment is fitted with factory-installed muffling devices and maintained in good working order.

Auburn Bowman Community Plan

The Auburn Bowman Community Plan sets noise level performance standards for new projects affected by or including non-transportation sources. These standards are compatible with the Placer County Noise Ordinance sound level standards (**Table 4**), except that the daytime hourly Leq is 50 dB instead of 55 dB.

Table 3: Allowable Ldn Noise Levels Within Specified Zone Districts Applicable to New Projects Affected by or Including Non-Transportation Noise Sources

Zone District of Receptor	Property Line of Receiving Land Use Ldn, dB	Interior Spaces Ldn, dB
Residential Adjacent to Industrial	60	45
Other Residential	50	45
Professional Office	70	45
Neighborhood Commercial	70	45
General Commercial	70	45
Shopping Center	70	45
Farm/Agriculture	See footnote	-

Source: Placer County General Plan, 2013

Notes: Normally, agricultural uses are noise insensitive and will be treated this way. However, conflicts with agricultural noise emissions can occur where single-family residences exist within or adjacent to agricultural zone districts. Therefore where effects of agricultural noise upon residences located in these areas is a concern, an Ldn of 70 dBA will be considered acceptable outdoor exposure at a residence.

Table 4: Placer County Noise Ordinance Sound Level Standards (On-site)

Sound Level Descriptor	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
Hourly Leq, dB	55	45
Maximum level, (Lmax) dB	70	65

Source: Placer County Code, 2004

Temporary Construction Noise

The primary noise impact of the project would be the impact of noise from construction on nearby residences. Nearby residences would be sensitive receptors for the construction noise, and are no closer than 25 feet from the area of construction. Project construction activities would cause a temporary increase of ambient noise levels in the project vicinity. After construction, noise in the project vicinity would not differ from existing conditions.

Construction activities would include clearing and stripping of vegetation, excavation and grading, demolition, trenching, etc. These activities would require the use of numerous pieces of noise-generating equipment, such as air compressors, cranes, excavators, trucks, rollers, forklifts, tractors, loaders, and backhoes.

Construction worker traffic and construction-related material haul trips would generate noise and incrementally raise ambient noise levels along local haul routes, depending on the number of haul trips made and types of vehicles used. Construction activities and associated traffic would occur primarily during the daytime.

The implementation of **Mitigation Measure NOI-1** would reduce temporary construction noise impacts to less than significant.

Mitigation Measure NOI-1: To reduce noise impacts due to construction at nearby sensitive receptors, the applicant shall employ the following mitigation measures:

1. Construction activities shall only take place during the hours between 6:00 a.m. and 8:00 p.m. on weekdays and between 8:00 a.m. and 8:00 p.m. on weekends.
2. Construction equipment shall be properly equipped with standard mufflers properly maintained in good working order.
3. If stationary construction equipment would cause a substantial noise impact, it shall be located as far away from sensitive residences as necessary to reduce noise to acceptable levels and/or be equipped with engine-housing enclosures.
4. Designate a “construction noise coordinator” who would be responsible for responding to local complaints about construction noise. The construction noise coordinator shall determine the cause of the complaint and shall require that reasonable measures warranted to correct the problem be implemented. The telephone for the construction noise coordinator shall be conspicuously posted at the construction site.

With the implementation of **Mitigation Measure NOI-1**, project construction would comply with the Placer County Noise Ordinance. Therefore, the project would have a less-than-significant impact with mitigation incorporated.

- b) **Less-than-Significant Impact.** Construction would occur no closer than 25 feet from the nearest residences. As shown in **Table 3 of the Noise Appendix (Appendix B)**, the predicted vibration levels from rollers and trucks at a distance of 25 feet would not exceed the 0.5 in/sec PPV threshold for residential and commercial structures. Therefore, the project would have a less-than-significant impact.
- c) **Less-than-Significant Impact.** As discussed in a), construction of the project would be temporary, and operational noise (after construction) would not differ from existing conditions. Therefore, the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity. Therefore, the project would have a less-than-significant impact.
- e) **No Impact.** The project site is within two miles of a public airport (1.5 miles northeast of the Auburn Municipal Airport). The project would not expose people residing or working in the area to excessive noise levels. Therefore, the project would have a less-than-significant impact.
- f) **No Impact.** There are no known private airstrips within two miles of the project site. Therefore, the project would have no impact.

References

Placer County, 2013. *Placer County General Plan*, Section 9: Noise. May 21, 2013.

Placer County, 2004. *Placer County Code*. Chapter 9, Article 9.36 Noise. Ord. 5280-B.

Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a) **No Impact.** The project would construct water tanks to replace the existing reservoir. The replacement tanks would have the same capacity as the reservoir and would not store more water than is currently stored. Thus, the project would not have the potential to induce population growth. Therefore, the project would have no impact.
- b-c) **No Impact.** The project would not displace any existing housing units or people, necessitating the construction of replacement housing elsewhere. Therefore, the project would have no impact.

Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a.i) **No Impact.** Placer County Fire Department provides fire protection services to the project site. The closest full-time fire station to the site is the Atwood Station at 11645 Atwood Road in Auburn. Project construction and operation would not require additional fire protection personnel or equipment. Therefore, the project would have no impact.
- a.ii) **No Impact.** The Placer County Sheriff’s Office provides law enforcement to the unincorporated areas. The Auburn Justice Center is the headquarters, located at 2929 Richardson Drive in Auburn. Project construction and operation would not require additional police protection personnel or equipment. Therefore, the project would have no impact.
- a.iii) **No Impact.** The project site is within the Placer Hills Union School District (Elementary) and Placer Union High School District. Placer Hills Union School District includes Sierra Hills and Weimar Hills Schools (in Meadow Vista and Weimar, respectively). Placer

High School is part of the Placer Union School District. Placer High School is at 275 Orange Street in Auburn. Project construction and operation would not require additional school staff and materials. Therefore, the project would have no impact.

- a.iv) **No Impact.** Parks in the vicinity of the project site include Sugar Pine Ridge Park and Christian Valley Park (both within the Auburn Area Recreation and Parks District). Project construction and operation would not require additional park and recreation facilities and trail systems. Therefore, the project would have no impact.
- a.v) **No Impact.** The project would replace an existing reservoir and would not increase the need for public services. Therefore, the project would have no impact.

Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a-b) **No Impact.** The project would not include recreational facilities, nor require the construction or expansion of recreational facilities, nor affect use of existing recreational facilities. Therefore, the project would have no impact.

Transportation and Traffic

<u>Issues (and Supporting Information Sources):</u>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

a-b) **Less-than-Significant Impact.** The project site fronts Westridge Circle. Westridge Circle connects to Christian Valley Road via Pondorex Road and Gregg Way. Christian Valley Road connects to Interstate-80 (I-80) via Lake Arthur Road and Neils Road.

Although development of the project would slightly increase traffic volumes along this route during construction, these intersections have little existing traffic, and would not require improvements.

The project would not conflict with any plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. The project would not conflict with a congestion management program. Level of Service (LOS) would not change at any location. Therefore, the project would have a less-than-significant impact.

c) **No Impact.** The project site is 1.5 miles northeast of the Auburn Municipal Airport. The project site is small and the project would not change air traffic patterns. Therefore, the project would have no impact.

- d) **No Impact.** The project would not involve any new hazardous design features nor introduce any new uses that may be incompatible with transportation. Therefore, the project will have no impact.
- e) **No Impact.** The project would not affect emergency response routes. Therefore, the project would have no impact.
- f) **No Impact.** The project would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities. Therefore, the project would have no impact.

Tribal Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. TRIBAL CULTURAL RESOURCES —				
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **Less-than-Significant Impact.** As discussed in impact a) of the Cultural Resources discussion, there are no archaeological or built environment resources at the project site and no cultural resources were previously recorded within the project area (Natural Investigations Company, 2018). Thus, the project does not have the potential to cause a significant impact on any resource that currently qualifies as a historical resource, or that has been recommended eligible for listing in the NRHP or CRHR. Therefore, the project would have a less-than-significant impact.
- b) **Less-than-Significant Impact with Mitigation.** As discussed in impact b,c) of the Cultural Resources discussion, the potential for discovery of buried archaeological or paleontological resources is considered low (Natural Investigations Company, 2018). No

tribal cultural resources (TCRs) are known to exist within the project area (Natural Investigations Company, 2018). No tribes requested AB52 consultation.

Natural Investigations contacted the NAHC requesting a search of their Sacred Lands File for traditional cultural resources within or near the project site. The NAHC replied that sacred sites were identified in the project vicinity and to directly contact the Tsi Akim Maidu Tribe for more information regarding potential TCRs or sacred sites. Natural Investigations contacted the Tsi Akim Maidu and four other Native American tribes provided by the NAHC requesting information regarding sacred lands, TCRs or other heritage sites that could be impacted by the project. The United Auburn Indian Community (UAIC) requested a site visit and after walking around the project site, the UAIC representatives concluded they have no concerns regarding the project. No other tribes requested a site visit or had concerns regarding the project.

Should any TCRs be discovered during ground disturbing activities for the project the implementation of **Mitigation Measure CUL-1 and CUL-2** would reduce impacts to a less-than-significant level.

References

Natural Investigations Company. *Cultural and Paleontological Resources Inventory and Effects Assessment for the Christian Valley Park Community Service District Tank Project*, January 2018.

Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
17. UTILITIES AND SERVICE SYSTEMS —				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a, b, e) **Less-than-Significant Impact.** Sewer service at the project site is handled by Placer County, and the project would utilize the County's sewer system. The type of wastewater to be produced by the project is typical of wastewater already collected and treated by the County. The project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board. The project would not result in the construction or expansion of water treatment facilities. Therefore, the project would have a less-than-significant impact.
- c) **Less-than-Significant Impact with Mitigation.** Currently, runoff from the existing reservoir and the top of the hill go to the south, and the rest of the site drains to the north. Any necessary construction of on-site stormwater drainage features would be controlled by BMP's required by the SWPPP for the project and implementation of **Mitigation Measure HYD-1**, which would reduce any potential impacts to less than significant. Therefore, the project would have a less-than-significant impact with mitigation.

- d) **No Impact.** The project would only replace the existing water storage volume, and no expansion of the storage service area is proposed. No new water supplies nor new or expanded entitlements are needed. Therefore, the project would have no impact.
- f, g) **No Impact.** During construction, the project may require minimal solid waste disposal, but after construction is completed, the project would have no solid waste disposal needs. Therefore, the project would only result in a negligible increase in solid waste due to construction worker activity, which would not require any significant additional landfill capacity to accommodate it. The project would comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, the project would have no impact.

Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
18. MANDATORY FINDINGS OF SIGNIFICANCE —				
Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a) **Less-than-Significant with Mitigation.** The project would involve disturbances to the site such as grading, excavation and soil disruption. The project would also increase impervious surfaces on the project site because of the construction tanks and associated tank pads. With implementation of Mitigation Measures **BIO-1, CUL-1, CUL-2, HYD-1, and NOI-1**, the project would not substantially degrade the quality of the environment, reduce habitat, or restrict the range of a rare or endangered plant or animal, or eliminate a plant or animal community. The project would not affect any historic

structures. Therefore, the project would have a less-than-significant impact with mitigation incorporated.

- b) **Less-than-Significant Impact.** The project would not have a cumulatively considerable impact on any of the environmental factors discussed above. Therefore, the project would have a less-than-significant impact.
- c) **Less-than-Significant Impact.** The project would not result in impacts to human beings that would result in substantial adverse effects on human beings, directly or indirectly. Therefore, the project would have a less-than-significant impact.

APPENDIX A

Air Quality and Greenhouse Gas Supporting Information

Appendix A

Air Quality and GHG Emissions Supporting Information

Christian Valley Park CSD Water Tank Project

Air Quality Setting

The project site is located within the Placer County portion of the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Sacramento, Yolo, Yuba, Sutter, Colusa, Glenn, Butte, Tehama, and Shasta Counties and portions of Solano and Placer Counties. The SVAB is the northern half of California's Great Valley and is bordered on three sides (west, north, and east) by mountain ranges, with peaks in the eastern range above 9,000 feet. The SVAB is approximately 13,700 square miles and essentially a smooth valley floor with elevations ranging from 40 to 500 feet. The rolling valley is interrupted by the Sutter Buttes, an area of 80 square miles in northern Sutter County, which rise abruptly to more than 2,100 feet above the valley floor.

The United States Environmental Protection Agency (USEPA) has established the National Ambient Air Quality Standards (NAAQS) under the Clean Air Act (CAA) for six common air pollutants known as "criteria pollutants".¹ These air pollutants consist of carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), and lead (Pb). An ambient air quality standard establishes the concentration above which the pollutant is known to cause adverse health effects to sensitive groups within the population such as children and the elderly.

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional Air Pollution Control Districts and Air Quality Management Districts. CARB regulates local air quality indirectly by establishing State ambient air quality standards and vehicle emissions and fuel standards; and by conducting research, planning and coordinating activities. California has adopted ambient standards (known as California Ambient Air Quality Standards or CAAQS) that are more stringent than the federal standards for some criteria air pollutants.

Air quality in Placer County is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD). The PCAPCD has the responsibility of managing air quality within Placer County to protect and promote public health through education, regulation, voluntary emission reductions programs, and by funding activities that reduce air pollutants. The PCAPCD controls air pollution emissions including criteria air pollutants and toxic air pollutants from direct sources (such as factories) and indirect sources (such as land-use projects) to improve air quality in Placer County.

The western Placer County portion of the SVAB is designated as a non-attainment area for State standards for ozone and PM₁₀, and for federal standards for ozone and PM_{2.5}.² Placer County is designated as either attainment or unclassified for State and federal standards for all other criteria pollutants.

¹ U.S. Environmental Protection Agency, *Six Common Air Pollutants*, <https://www.epa.gov/criteria-air-pollutants>

² California Air Resources Board, *Area Designation Maps/State and National*, <http://www.arb.ca.gov/desig/adm/adm.htm>

Placer County General Plan

The Placer County Board of Supervisors approved the Placer County General Plan on May 21, 2013.³ The General Plan provides an overall framework for development of the county and protection of its natural resources including air quality. The General Plan contains the following policies related to air quality:

- The County shall cooperate with other agencies to develop a consistent and effective approach to air quality planning and management.
- The County shall develop mitigation measures to minimize stationary source and area source emissions.
- The County shall support the PCAPCD in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development.
- The County shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality.
- The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and area wide source programs and transportation control measures programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.
- The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.
- The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.
- The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.
- In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.
- The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the PCAPCD's Air Quality Attainment Plan.
- The County shall apply policy buffer standards and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

³ Placer County General Plan, Approved May 21, 2013,
<https://www.placer.ca.gov/departments/communitydevelopment/planning/documentlibrary/commplans/placer-county-gp>

The General Plan also is intended to integrate air quality planning with the land use and transportation planning process by implementing the following policies:

- The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra-and inter-neighborhood connections where significant reductions in overall emissions can be achieved.
- The County shall continue and, where appropriate, expand the use of synchronized traffic signals on roadways susceptible to emissions improvement through approach control.
- The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.
- The County shall consider instituting disincentives for single-occupant vehicle trips, including limitations in parking supply in areas where alternative transportation modes are available and other measures identified by the PCAPCD and incorporated into regional plans.
- The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.
- The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.
- The County shall require stationary-source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design.

PCAPCD Rules and Regulations

All projects are subject to rules and regulations adopted by the PCAPCD in effect at the time of construction. Specific rules applicable to future construction resulting from the implementation of the proposed project may include, but are not limited to:

- Rule 202 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- Rule 205 – Nuisances. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to business or property.
- Rule 207 – Particulate Matter. For the Sacramento Valley Air Basin and the Mountain Counties Air Basin portions of the PCAPCD, a person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of: 0.1 grains per cubic foot of gas at Air District standard conditions.

- Rule 217 – Cutback and Emulsified Asphalt Paving Materials. A person shall not manufacture for sale nor use for paving, road construction, or road maintenance any rapid cure cutback asphalt; slow cure cutback asphalt containing organic compounds which evaporate at 500°F or lower as determined by current American Society for Testing and Materials (ASTM) Method D402; medium cure cutback asphalt except as provided in Section 1.2.; or emulsified asphalt containing organic compounds which evaporate at 500°F or lower as determined by current ASTM Method D244, in excess of 3 percent by volume.
- Rule 218 – Application of Architectural Coatings. No person shall manufacture, blend, or repackage for sale within the PCAPCD; supply, sell, or offer for sale within the PCAPCD; or solicit for application or apply within the PCAPCD, any architectural coating with a VOC content in excess of the corresponding specified manufacturer’s maximum recommendation.
- Rule 228 – Fugitive Dust
 - Visible Emissions Not Allowed Beyond the Boundary Line: A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area (including disturbance as a result of the raising and/or keeping of animals or by vehicle use), such that the presence of such dust remains visible in the atmosphere beyond the boundary line of the emission source.
 - Visible Emissions from Active Operations: In addition to the requirements of Rule 202, Visible Emissions, a person shall not cause or allow fugitive dust generated by active operations, an open storage pile, or a disturbed surface area, such that the fugitive dust is of such opacity as to obscure an observer’s view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as number 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.
 - Concentration Limit: A person shall not cause or allow PM₁₀ levels to exceed 50 micrograms per cubic meter (µg/m³) (24-hour average) when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other USEPA-approved equivalent method for PM₁₀ monitoring.
 - Track-Out onto Paved Public Roadways: Visible roadway dust as a result of active operations, spillage from transport trucks, and the track-out of bulk material onto public paved roadways shall be minimized and removed.
 - The track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventative measures, and removed within one hour from adjacent streets such material anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations.
 - All visible roadway dust tracked out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a

High Efficiency Particulate Air filter-equipped vacuum device shall be used for roadway dust removal.

- Any material tracked out, or carried by erosion, and cleanup water shall be prevented from entering waterways or stormwater inlets as required to comply water quality control requirements.
- Minimum Dust Control Requirements. The following dust mitigation measures are to be initiated at the start and maintained throughout the duration of any construction or grading activity, including any construction or grading for road construction or maintenance.
 - Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered.
 - The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2 or visible emissions from crossing the project boundary line.
 - Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.
 - Prior to any ground disturbance, including grading, excavating, and land clearing, sufficient water must be applied to the area to be disturbed to prevent emitting dust exceeding Ringelmann 2 and to minimize visible emissions from crossing the boundary line.
 - Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt, from being released or tracked offsite.
 - When wind speeds are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures, grading and earthmoving operations shall be suspended.
 - No trucks are allowed to transport excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps; or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.
- Wind-Driven Fugitive Dust Control. A person shall take action(s), such as surface stabilization, establishment of a vegetative cover, or paving, to minimize wind-driven dust from inactive disturbed surface areas.

GHG Setting

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing greenhouse gas (GHG) concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth’s atmosphere are thought to be the main cause of human-induced climate change. GHG naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHG occur naturally and are necessary for keeping the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHG because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO₂, CH₄, and N₂O are also emitted from human activities, accelerating the rate at which these compounds occur within earth’s atmosphere. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

CO₂ is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. CH₄ and N₂O are substantially more potent GHG than CO₂, with GWP of 25 and 310 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in metric tons of CO₂ equivalents (CO₂e). CO₂e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH₄ and N₂O have much higher GWP than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e.

There is international scientific consensus that human-caused increases in GHG have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not

limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.⁴

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted amendments to the CEQA Guidelines, as required by SB 97. These CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

Assembly Bill 1493

In 2002, Assembly Bill (AB) 1493 was passed, which required the CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, the CARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the Federal CAA, California applied to the USEPA for a waiver under the Federal CAA. This waiver was initially denied in 2008. In 2009, however, the USEPA granted the waiver.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05, which sets forth the following target dates by which statewide GHG emissions would be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

⁴ California Environmental Protection Agency, *2006 Final Climate Action Team Report to the Governor and Legislature*, March 2006. Accessed December 11, 2017 at http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations to achieve reductions in GHG to meet the 1990 emissions cap by 2020.

Climate Change Scoping Plan

AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to reduce GHG to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every five years. The initial AB 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The initial Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program. In August 2011, the initial Scoping Plan was approved by CARB.

The 2013 Scoping Plan Update builds upon the initial Scoping Plan with new strategies and recommendations. The 2013 Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2013 Update defines CARB climate change priorities for the next five years and sets the groundwork to reach California's long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. The 2013 Update highlights California progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan. In the 2013 Update, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program. On May 22, 2014, the First Update to the Climate Change Scoping Plan was approved by the Board, along with the finalized environmental documents.

Executive Order No. B-30-15

On April 29, 2015, Executive Order No. B-30-15 was issued to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Executive Order No. B-30-15 sets a new, interim, 2030 reduction

goal intended to provide a smooth transition to the existing ultimate 2050 reduction goal set by Executive Order No. S-3-05 (signed by Governor Schwarzenegger in June 2005). It is designed so State agencies do not fall behind the pace of reductions necessary to reach the existing 2050 reduction goal. Executive Order No. B-30-15 orders “All State agencies with jurisdiction over sources of GHG emissions shall implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 targets.” The Executive Order also states that “CARB shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.” The CARB is currently moving forward with a second update to the Climate Change Scoping Plan to reflect the 2030 reduction target. The updated Scoping Plan will provide a framework for achieving the 2030 target. In September of 2016, the AB 32 was extended to achieve reductions in GHG of 40 percent below 1990 levels by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

Significance Criteria

The PCAPCD has developed thresholds of significance for criteria pollutants and GHGs for CEQA purposes. Significance thresholds are presented in the PCAPCD’s *CEQA Air Quality Handbook*. The thresholds of significance applied to assess project-level air quality impacts for criteria pollutants are:

- Maximum daily construction emissions of 82 pounds per day of ROG, NO_x, or PM₁₀; and
- Maximum daily operational emissions of 55 pounds per day of ROG or NO_x, and 82 pounds per day of PM₁₀.

The thresholds of significance applied to assess cumulative-level air quality impacts for criteria pollutants are:

- Maximum daily operational emissions of 55 pounds per day of ROG or NO_x, and 82 pounds per day of PM₁₀ (Same as project-level).

The thresholds of significance applied to assess project-level air quality impacts for GHG emissions are:

- Construction phases of all projects and operational phases of stationary source projects with GHG emissions less than 10,000 metric tons of CO₂e per year are considered less than significant.
- Operational phases of land use projects with GHG emissions below the De Minimis Level of 1,100 metric tons of CO₂e per year are considered less than significant.
- Operational phases of land use projects with GHG emissions greater than 1,100 metric tons of CO₂e per year but less than 10,000 metric tons of CO₂e per year are compared to the following Efficiency Matrix to determine significance:
 - Residential land use projects with operational GHG emissions that meet the following efficiencies are considered less than significant:
 - Residential land use projects in urban areas with GHG emissions at or below 4.5 metric tons of CO₂e per year/capita
 - Residential land use projects in rural areas with GHG emissions at or below 5.5 metric tons of CO₂e per year/capita
 - Non-Residential land use projects with operational GHG emissions that meet the following efficiencies are considered less than significant:

- Non-Residential land use projects in urban areas with GHG emissions at or below 26.5 metric tons of CO₂e per year/capita
- Non-Residential land use projects in rural areas with GHG emissions at or below 27.3 metric tons of CO₂e per year/capita
- Operational phases of land use projects with GHG emissions greater than 10,000 metric tons of CO₂e per year are deemed to have a potentially significant GHG impact and would be deemed to have a cumulatively considerable contribution to global climate change

CalEEMod Version 2016.3.2 Emissions Output

- Annual Construction Emissions
- Summer Daily Construction Emissions
- Winter Daily Construction Emissions

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Annual

Christian Valley Park CSD Water Tank
Placer-Mountain Counties County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	2.00	User Defined Unit	1.75	76,230.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	74
Climate Zone	2			Operational Year	2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MW/hr)	641.35	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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1.3 User Entered Comments & Non-Default Data

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Annual

Project Characteristics -

Land Use - Two 0.75 million gallon water storage tanks

Construction Phase - approximately 8 months of construction beginning in Spring 2019

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Trips and VMT - Hydros Engineering, 2017

Demolition -

Architectural Coating - TNEMEC, Estimating Guide for Surface Areas of Water Tanks, 2009

Vehicle Trips - No increase in operations -- construction only

Consumer Products - No increase in operations -- construction only

Area Coating - No increase in operations -- construction only

Landscape Equipment - No increase in operations -- construction only

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	38,115.00	23,015.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	114,345.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	38115	0

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tblAreaCoating	Area_Nonresidential_Interior	114345	0
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	2.00	5.00
tblLandUse	LandUseSquareFeet	0.00	76,230.00
tblLandUse	LotAcreage	0.00	1.75
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps

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tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Air Compressors
tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Rollers
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIProjectCharacteristics	UrbanizationLevel	Urban		Rural
tblTripsAndVMT	HaulingTripNumber	0.00		600.00
tblTripsAndVMT	HaulingTripNumber	0.00		5.00
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	WorkerTripNumber	13.00		8.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		3.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00

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tblTripsAndVMT	WorkerTripNumber	15.00	10.00
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	tons/yr										MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	0.1837	1.1995	0.9173	1.9600e-003	0.0932	0.0585	0.1517	0.0405	0.0555	0.0960	0.0000	173.7741	173.7741	0.0328	0.0000	174.5934
Maximum	0.1837	1.1995	0.9173	1.9600e-003	0.0932	0.0585	0.1517	0.0405	0.0555	0.0960	0.0000	173.7741	173.7741	0.0328	0.0000	174.5934

Mitigated Construction

Year	tons/yr										MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	0.1837	1.1995	0.9173	1.9600e-003	0.0932	0.0585	0.1517	0.0405	0.0555	0.0960	0.0000	173.7739	173.7739	0.0328	0.0000	174.5932
Maximum	0.1837	1.1995	0.9173	1.9600e-003	0.0932	0.0585	0.1517	0.0405	0.0555	0.0960	0.0000	173.7739	173.7739	0.0328	0.0000	174.5932

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ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOx (tons/quarter)	Maximum Mitigated ROG + NOx (tons/quarter)
1	3-20-2019	6-19-2019	0.7271	0.7271
2	6-20-2019	9-19-2019	0.5802	0.5802
3	9-20-2019	9-30-2019	0.0283	0.0283
		Highest	0.7271	0.7271

2.2 Overall Operational Unmitigated Operational

Category	tons/yr											MT/yr				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Area	0.2977	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste																
Water																
Total	0.2977	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	4.0000e-005

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2.2 Overall Operational

Mitigated Operational

Category	tons/yr											MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Area	0.2977	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	0.0000	4.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste																	
Water																	
Total	0.2977	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000e-005	4.0000e-005	0.0000	0.0000	0.0000	4.0000e-005

Percent Reduction	tons/yr											MT/yr				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2019	3/26/2019	5	5	
2	Grading Tank 1	Grading	3/27/2019	4/9/2019	5	10	
3	Tank 1 Paving	Paving	4/24/2019	4/24/2019	5	1	
4	Tank 1 Construction	Building Construction	4/25/2019	6/19/2019	5	40	
5	Demolition of Reservoir	Demolition	6/20/2019	6/21/2019	5	2	
6	Grading Tank 2	Grading	6/22/2019	7/5/2019	5	10	
7	Tank 2 Paving	Paving	7/9/2019	7/9/2019	5	1	
8	Tank 2 Construction	Building Construction	7/10/2019	9/3/2019	5	40	
9	Tank 1 & 2 Painting	Architectural Coating	9/4/2019	10/15/2019	5	30	
10	Tank 1 Site Piping	Trenching	4/10/2019	4/23/2019	5	10	
11	Tank 2 Site Piping	Trenching	7/6/2019	7/8/2019	5	1	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 23,015; Striped Parking Area: 0
(Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Tank 1	Rollers	1	6.00	80	0.38
Site Preparation	Excavators	1	8.00	158	0.38
Tank 1 Site Piping	Excavators	1	6.00	158	0.38
Site Preparation	Off-Highway Trucks	1	7.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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Tank 1 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Excavators	1	6.00	158	0.38
Tank 1 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading Tank 2	Rough Terrain Forklifts	1	6.00	100	0.40
Grading Tank 1	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 1 & 2 Painting	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Site Piping	Excavators	1	6.00	158	0.38
Tank 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 1 Paving	Pavers	1	6.00	130	0.42
Tank 1 Paving	Paving Equipment	1	8.00	132	0.36
Tank 2 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Tank 1 Paving	Pumps	1	7.00	84	0.74
Tank 2 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition of Reservoir	Concrete/Industrial Saws	1	8.00	81	0.73
Tank 1 Construction	Cranes	1	6.00	231	0.29
Tank 1 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 1 Construction	Generator Sets	1	8.00	84	0.74
Tank 1 Construction	Air Compressors	1	6.00	78	0.48
Tank 1 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Other Construction Equipment	1	8.00	172	0.42
Tank 1 Construction	Forklifts	1	6.00	89	0.20
Tank 2 Construction	Forklifts	1	6.00	89	0.20
Grading Tank 1	Graders	1	6.00	187	0.41
Grading Tank 2	Graders	1	6.00	187	0.41
Grading Tank 2	Excavators	1	6.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41

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Tank 1 Paving	Rollers	1	7.00	80	0.38
Grading Tank 2	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 2 Paving	Rollers	1	7.00	80	0.38
Tank 2 Construction	Cranes	1	6.00	231	0.29
Tank 2 Construction	Air Compressors	1	6.00	78	0.48
Tank 2 Construction	Generator Sets	1	8.00	84	0.74
Tank 2 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Rubber Tired Dozers	1	8.00	247	0.40
Grading Tank 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading Tank 2	Rubber Tired Dozers	1	6.00	247	0.40
Tank 2 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 2 Paving	Pavers	1	6.00	130	0.42
Tank 2 Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Tank 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 2 Paving	Pumps	1	7.00	84	0.74
Tank 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 1 & 2 Painting	Air Compressors	1	6.00	78	0.48
Demolition of Reservoir	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Tank 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Tank 2 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	600.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of Reservoir	6	3.00	0.00	5.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 2	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 & 2 Painting	2	6.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

Christian Valley Park CSD Water Tank
Placer-Mountain Counties County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	2.00	User Defined Unit	1.75	76,230.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	74
Climate Zone	2			Operational Year	2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MW/hr)	641.35	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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1.3 User Entered Comments & Non-Default Data

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

Project Characteristics -

Land Use - Two 0.75 million gallon water storage tanks

Construction Phase - approximately 8 months of construction beginning in Spring 2019

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Trips and VMT - Hydros Engineering, 2017

Demolition -

Architectural Coating - TNEMEC, Estimating Guide for Surface Areas of Water Tanks, 2009

Vehicle Trips - No increase in operations -- construction only

Consumer Products - No increase in operations -- construction only

Area Coating - No increase in operations -- construction only

Landscape Equipment - No increase in operations -- construction only

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	38,115.00	23,015.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	114,345.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	38115	0

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

tblAreaCoating	Area_Nonresidential_Interior	114345	0
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	2.00	5.00
tblLandUse	LandUseSquareFeet	0.00	76,230.00
tblLandUse	LotAcreage	0.00	1.75
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Air Compressors
tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Rollers
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIProjectCharacteristics	UrbanizationLevel	Urban		Rural
tblTripsAndVMT	HaulingTripNumber	0.00		600.00
tblTripsAndVMT	HaulingTripNumber	0.00		5.00
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	WorkerTripNumber	13.00		8.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		3.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

tblTripsAndVMT	WorkerTripNumber	15.00	10.00
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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	lb/day															
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	3.9640	42.7248	19.2566	0.0826	7.2348	1.5838	8.4514	3.1303	1.4756	4.2524	0.0000	8,468.392	8,468.392	1.1172	0.0000	8,496.321
Maximum	3.9640	42.7248	19.2566	0.0826	7.2348	1.5838	8.4514	3.1303	1.4756	4.2524	0.0000	8,468.392	8,468.392	1.1172	0.0000	8,496.321

Mitigated Construction

Year	lb/day															
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	3.9640	42.7248	19.2566	0.0826	7.2348	1.5838	8.4514	3.1303	1.4756	4.2524	0.0000	8,468.392	8,468.392	1.1172	0.0000	8,496.321
Maximum	3.9640	42.7248	19.2566	0.0826	7.2348	1.5838	8.4514	3.1303	1.4756	4.2524	0.0000	8,468.392	8,468.392	1.1172	0.0000	8,496.321

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

2.2 Overall Operational
Unmitigated Operational

Category	lb/day											CO2e				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2		NBio- CO2	Total CO2	CH4	N2O
Area	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004

Mitigated Operational

Category	lb/day											CO2e				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2		NBio- CO2	Total CO2	CH4	N2O
Area	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2019	3/26/2019	5	5	
2	Grading Tank 1	Grading	3/27/2019	4/9/2019	5	10	
3	Tank 1 Paving	Paving	4/24/2019	4/24/2019	5	1	
4	Tank 1 Construction	Building Construction	4/25/2019	6/19/2019	5	40	
5	Demolition of Reservoir	Demolition	6/20/2019	6/21/2019	5	2	
6	Grading Tank 2	Grading	6/22/2019	7/5/2019	5	10	
7	Tank 2 Paving	Paving	7/9/2019	7/9/2019	5	1	
8	Tank 2 Construction	Building Construction	7/10/2019	9/3/2019	5	40	
9	Tank 1 & 2 Painting	Architectural Coating	9/4/2019	10/15/2019	5	30	
10	Tank 1 Site Piping	Trenching	4/10/2019	4/23/2019	5	10	
11	Tank 2 Site Piping	Trenching	7/6/2019	7/8/2019	5	1	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 23,015; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Tank 1	Rollers	1	6.00	80	0.38
Site Preparation	Excavators	1	8.00	158	0.38
Tank 1 Site Piping	Excavators	1	6.00	158	0.38
Site Preparation	Off-Highway Trucks	1	7.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Tank 1 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Excavators	1	6.00	158	0.38
Tank 1 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading Tank 2	Rough Terrain Forklifts	1	6.00	100	0.40
Grading Tank 1	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 1 & 2 Painting	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Site Piping	Excavators	1	6.00	158	0.38
Tank 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 1 Paving	Pavers	1	6.00	130	0.42
Tank 1 Paving	Paving Equipment	1	8.00	132	0.36
Tank 2 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Tank 1 Paving	Pumps	1	7.00	84	0.74
Tank 2 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition of Reservoir	Concrete/Industrial Saws	1	8.00	81	0.73
Tank 1 Construction	Cranes	1	6.00	231	0.29
Tank 1 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 1 Construction	Generator Sets	1	8.00	84	0.74
Tank 1 Construction	Air Compressors	1	6.00	78	0.48
Tank 1 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Other Construction Equipment	1	8.00	172	0.42

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

Tank 1 Construction	Forklifts	1	6.00	89	0.20
Tank 2 Construction	Forklifts	1	6.00	89	0.20
Grading Tank 1	Graders	1	6.00	187	0.41
Grading Tank 2	Graders	1	6.00	187	0.41
Grading Tank 2	Excavators	1	6.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41
Tank 1 Paving	Rollers	1	7.00	80	0.38
Grading Tank 2	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 2 Paving	Rollers	1	7.00	80	0.38
Tank 2 Construction	Cranes	1	6.00	231	0.29
Tank 2 Construction	Air Compressors	1	6.00	78	0.48
Tank 2 Construction	Generator Sets	1	8.00	84	0.74
Tank 2 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Rubber Tired Dozers	1	8.00	247	0.40
Grading Tank 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading Tank 2	Rubber Tired Dozers	1	6.00	247	0.40
Tank 2 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 2 Paving	Pavers	1	6.00	130	0.42
Tank 2 Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Tank 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 2 Paving	Pumps	1	7.00	84	0.74
Tank 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 1 & 2 Painting	Air Compressors	1	6.00	78	0.48
Demolition of Reservoir	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Summer

Tank 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Tank 2 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	600.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of Reservoir	6	3.00	0.00	5.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 2	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 & 2 Painting	2	6.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

Christian Valley Park CSD Water Tank
Placer-Mountain Counties County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	2.00	User Defined Unit	1.75	76,230.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	74
Climate Zone	2			Operational Year	2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MW/hr)	641.35	CH4 Intensity (lb/MW/hr)	0.029	N2O Intensity (lb/MW/hr)	0.006
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1.3 User Entered Comments & Non-Default Data

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

Project Characteristics -

Land Use - Two 0.75 million gallon water storage tanks

Construction Phase - approximately 8 months of construction beginning in Spring 2019

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Off-road Equipment - Hydros Engineering, 2017

Trips and VMT - Hydros Engineering, 2017

Demolition -

Architectural Coating - TNEMEC, Estimating Guide for Surface Areas of Water Tanks, 2009

Vehicle Trips - No increase in operations -- construction only

Consumer Products - No increase in operations -- construction only

Area Coating - No increase in operations -- construction only

Landscape Equipment - No increase in operations -- construction only

Stationary Sources - User Defined -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	38,115.00	23,015.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	114,345.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	38115	0

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

tblAreaCoating	Area_Nonresidential_Interior	114345	0
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	20.00	2.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	10.00	1.00
tblConstructionPhase	NumDays	2.00	5.00
tblLandUse	LandUseSquareFeet	0.00	76,230.00
tblLandUse	LotAcreage	0.00	1.75
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType	Forklifts	Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Pumps

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers		Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType	Tractors/Loaders/Backhoes		Air Compressors
tbIOffRoadEquipment	OffRoadEquipmentType			Rough Terrain Forklifts
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Rollers
tbIOffRoadEquipment	OffRoadEquipmentType			Excavators
tbIOffRoadEquipment	OffRoadEquipmentType			Off-Highway Trucks
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentType			Tractors/Loaders/Backhoes
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00		1.00
tbIProjectCharacteristics	UrbanizationLevel	Urban		Rural
tblTripsAndVMT	HaulingTripNumber	0.00		600.00
tblTripsAndVMT	HaulingTripNumber	0.00		5.00
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	VendorTripNumber	12.00		0.63
tblTripsAndVMT	WorkerTripNumber	13.00		8.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00
tblTripsAndVMT	WorkerTripNumber	15.00		3.00
tblTripsAndVMT	WorkerTripNumber	15.00		10.00

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

tblTripsAndVMT	WorkerTripNumber	15.00	10.00
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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

Year	lb/day															
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	3.9647	43.2131	19.2536	0.0812	7.2348	1.5839	8.4533	3.1303	1.4757	4.2542	0.0000	8,319,083	8,319,083	1,1380	0.0000	8,347.532
Maximum	3.9647	43.2131	19.2536	0.0812	7.2348	1.5839	8.4533	3.1303	1.4757	4.2542	0.0000	8,319,083	8,319,083	1,1380	0.0000	8,347.532

Mitigated Construction

Year	lb/day															
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
2019	3.9647	43.2131	19.2536	0.0812	7.2348	1.5839	8.4533	3.1303	1.4757	4.2542	0.0000	8,319,083	8,319,083	1,1380	0.0000	8,347.532
Maximum	3.9647	43.2131	19.2536	0.0812	7.2348	1.5839	8.4533	3.1303	1.4757	4.2542	0.0000	8,319,083	8,319,083	1,1380	0.0000	8,347.532

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

2.2 Overall Operational
Unmitigated Operational

Category	lb/day											CO2e				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2		NBio- CO2	Total CO2	CH4	N2O
Area	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004

Mitigated Operational

Category	lb/day											CO2e				
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2		NBio- CO2	Total CO2	CH4	N2O
Area	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6313	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.4000e-004	4.4000e-004	0.0000	0.0000	4.7000e-004

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/20/2019	3/26/2019	5	5	
2	Grading Tank 1	Grading	3/27/2019	4/9/2019	5	10	
3	Tank 1 Paving	Paving	4/24/2019	4/24/2019	5	1	
4	Tank 1 Construction	Building Construction	4/25/2019	6/19/2019	5	40	
5	Demolition of Reservoir	Demolition	6/20/2019	6/21/2019	5	2	
6	Grading Tank 2	Grading	6/22/2019	7/5/2019	5	10	
7	Tank 2 Paving	Paving	7/9/2019	7/9/2019	5	1	
8	Tank 2 Construction	Building Construction	7/10/2019	9/3/2019	5	40	
9	Tank 1 & 2 Painting	Architectural Coating	9/4/2019	10/15/2019	5	30	
10	Tank 1 Site Piping	Trenching	4/10/2019	4/23/2019	5	10	
11	Tank 2 Site Piping	Trenching	7/6/2019	7/8/2019	5	1	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 23,015; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading Tank 1	Rollers	1	6.00	80	0.38
Site Preparation	Excavators	1	8.00	158	0.38
Tank 1 Site Piping	Excavators	1	6.00	158	0.38
Site Preparation	Off-Highway Trucks	1	7.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Tank 1 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Excavators	1	6.00	158	0.38
Tank 1 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading Tank 2	Rough Terrain Forklifts	1	6.00	100	0.40
Grading Tank 1	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 1	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 1 & 2 Painting	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Site Piping	Excavators	1	6.00	158	0.38
Tank 1 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 1 Paving	Pavers	1	6.00	130	0.42
Tank 1 Paving	Paving Equipment	1	8.00	132	0.36
Tank 2 Site Piping	Off-Highway Trucks	1	6.00	402	0.38
Tank 1 Paving	Pumps	1	7.00	84	0.74
Tank 2 Site Piping	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition of Reservoir	Concrete/Industrial Saws	1	8.00	81	0.73
Tank 1 Construction	Cranes	1	6.00	231	0.29
Tank 1 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 1 Construction	Generator Sets	1	8.00	84	0.74
Tank 1 Construction	Air Compressors	1	6.00	78	0.48
Tank 1 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Other Construction Equipment	1	8.00	172	0.42

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

Tank 1 Construction	Forklifts	1	6.00	89	0.20
Tank 2 Construction	Forklifts	1	6.00	89	0.20
Grading Tank 1	Graders	1	6.00	187	0.41
Grading Tank 2	Graders	1	6.00	187	0.41
Grading Tank 2	Excavators	1	6.00	158	0.38
Site Preparation	Graders	1	8.00	187	0.41
Tank 1 Paving	Rollers	1	7.00	80	0.38
Grading Tank 2	Off-Highway Trucks	1	6.00	402	0.38
Grading Tank 2	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tank 2 Paving	Rollers	1	7.00	80	0.38
Tank 2 Construction	Cranes	1	6.00	231	0.29
Tank 2 Construction	Air Compressors	1	6.00	78	0.48
Tank 2 Construction	Generator Sets	1	8.00	84	0.74
Tank 2 Construction	Rough Terrain Forklifts	1	6.00	100	0.40
Tank 2 Construction	Welders	1	8.00	46	0.45
Demolition of Reservoir	Rubber Tired Dozers	1	8.00	247	0.40
Grading Tank 1	Rubber Tired Dozers	1	6.00	247	0.40
Grading Tank 2	Rubber Tired Dozers	1	6.00	247	0.40
Tank 2 Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Tank 2 Paving	Pavers	1	6.00	130	0.42
Tank 2 Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Tank 1 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 2 Paving	Pumps	1	7.00	84	0.74
Tank 2 Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Tank 1 & 2 Painting	Air Compressors	1	6.00	78	0.48
Demolition of Reservoir	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Christian Valley Park CSD Water Tank - Placer-Mountain Counties County, Winter

Tank 1 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Tank 2 Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	600.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 1	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Demolition of Reservoir	6	3.00	0.00	5.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading Tank 2	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Construction	7	32.00	0.63	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Site Piping	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 2 Paving	6	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tank 1 & 2 Painting	2	6.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

APPENDIX B

Noise Appendix

NOISE APPENDIX

Noise Descriptors

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound pressure level has become the most common descriptor used to characterize the “loudness” of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Decibels are measured using different scales, and it has been found that A-weighting of sound levels best reflects the human ear’s reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A-weighted sound level over a given time period (Leq)⁴; day–night 24-hour average sound level (Ldn)⁵ with a nighttime increase of 10 dB to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL)⁶, also a 24-hour average that includes both an evening and a nighttime sensitivity weighting.

Table 1 identifies decibel levels for common sounds heard in the environment.

Noise Attenuation

Stationary point sources of noise, including construction equipment, attenuate (lessen) at a rate of 6 to 7.5 dB per doubling of distance from the source, depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling because they have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and therefore have less attenuation (6.0 dB per doubling). A street or roadway with moving vehicles (known as a “line” source), would typically attenuate at a lower rate, approximately 3 to 4.5 dB each time the distance doubles from the source, which also depends on ground absorption (Caltrans, 1998b). Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, will increase the attenuation that occurs by distance alone.

Temporary Construction Noise

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. **Table 2** shows typical noise levels from construction equipment.

⁴The Equivalent Sound Level (Leq) is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time-varying sound energy in the measurement period.

⁵Ldn is the day–night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to night between 10:00 p.m. and 7:00 a.m.

⁶CNEL is the average A-weighted noise level during a 24-hour day, obtained by addition of 5 decibels in the evening from 7:00 to 10:00 p.m., and an addition of a 10-decibel penalty in the night between 10:00 p.m. and 7:00 a.m.

Table 1: Typical Noise Levels

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock Band
80–90	Diesel truck at 50 feet	Loud television at 3 feet
70–80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60–70	Commercial area	Normal speech at 3 feet
40–60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20–40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10–20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

Source: modified from Caltrans, 1998a

Groundborne Vibration

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in **Table 3**. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. For most structures, a peak particle velocity (PPV) threshold of 0.5 inches per second (in/sec) or less is sufficient to avoid structural damage. The Federal Transit Administration recommends a PPV threshold of 0.5 in/sec for residential and commercial structures, 0.25 in/sec for historic buildings and archaeological sites, and 0.2 in/sec for non-engineered timber and masonry buildings (FTA, 2006).

Table 2: Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dB, Lmax at 50 feet)
Air Compressor	78
Backhoe	78
Concrete Mixer Truck	79
Concrete Pump Truck	81
Crane	81
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Grader	85
Impact Pile Driver	101
Jackhammer	89
Loader	79
Paver	77
Pickup Truck	75
Roller	80

Source: FHWA, 2006

Table 3: Representative Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity at 25 Feet (in/sec)
Pile Driver (impact)	upper range	1.518
	typical	0.644
Pile Driver (sonic)	upper range	0.734
	typical	0.170
Vibratory Roller		0.210
Large Bulldozer		0.089
Loaded Trucks		0.076
Jackhammer		0.035
Small Bulldozer		0.003

Source: FTA, 2006

State Guidelines

State Land Use Compatibility standards for Community Noise (**Table 4**) are provided in the State of California General Plan Guidelines.

Table 4: Land Use Compatibility for Community Noise Environment

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE - Ldn or CNEL (db)							
	50	55	60	65	70	75	80	
Residential - Low Density Single Family, Duplex, Mobile Homes	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Residential - Multi-Family	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Transient Lodging – Motel/ Hotel	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Auditorium, Concert Hall, Amphitheaters	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Sports Arena, Outdoor Spectator Sports	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Playgrounds, Neighborhood Parks	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Office Buildings: Business, Commercial, and Professional	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable
Industrial, Manufacturing, Utilities, Agriculture	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable	Normally Acceptable
	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable	Conditionally Acceptable
	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable	Normally Unacceptable

	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable: New construction or development generally should not be undertaken.

Source: OPR, 2003

REFERENCES

- California Department of Transportation (Caltrans), 1998a. *Technical Noise Supplement*.
- California Department of Transportation (Caltrans), 1998b. *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, October 1998.
- Federal Highway Administration (FHWA), 2006. *Roadway Construction Noise Model User's Guide*.
- Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment* (FTA-VA-90-1003-06).
- Governor's Office of Planning and Research (OPR), 2003. *State of California General Plan Guidelines*. Appendix A: Noise Element Guidelines.

APPENDIX C

Geotechnical Reports

CAInc No. 15-208.1
July 23, 2017

Gerry LaBudde, PE
Christian Valley Park CSD
P.O. Box 3138
Auburn, CA 95604

Subject: **GEOLOGIC/GEOTECHNICAL DESIGN MEMORANDUM**
Christian Valley Park CSD
Auburn, California

Reference: **DRAFT PRELIMINARY GEOLOGIC/GEOTECHNICAL MEMO**
Christian Valley Park CSD – Water Storage Tank Feasibility Study
Auburn, California

Crawford & Associates, Inc. (CAInc) prepared this Geologic/Geotechnical Design Memorandum (memo) to augment our referenced March 18, 2015 Draft Preliminary Geologic/Geotechnical Memo. Our 2015 recommendations apply to final design unless amended in this memo (i.e., the 2015 memo applies and this memo controls). This work was performed in accordance with our July 3, 2017 contract.

SCOPE OF WORK

To prepare this memorandum, CAInc:

- Discussed the project with Gerry LaBudde, PE of Hydros Consulting;
- Logged and sampled one exploratory test pit to 7.5ft below ground surface (bgs) on May 2, 2017;
- Performed laboratory testing on soil samples recovered from the test pit; and
- Performed engineering analyses.

SITE AND PROJECT DESCRIPTION

The Christian Valley Park Community Services District (CSD) facility is located approximately 5.5 miles northeast of Auburn, California in the Sierra Nevada foothills. The facility stores and treats water for the local community. We understand there will be two phases of construction for the final build-out of this Christian Valley Park CSD facility. This memo applies to Phase I. Additional exploration will be required for Phase 2.

Phase I includes a 750,000-gallon (65±ft diameter by 32±ft tall) steel water storage tank supported on 2-4ft of engineered fill with an access road around the tank.

Current site elevations at the proposed Phase I tank location range from 1815 to 1841 ft based on the preliminary plan provided to us by Hydros Consulting. Proposed grading north of the tank indicates a 2:1 (H:V) fill slope down to a proposed 70±ft long, 5±ft tall retaining wall at the property line. Existing slope gradients average 10:1 around and beneath the proposed tank. The nearest tank edge will be approximately 25±ft south of the proposed retaining wall.

Additionally, a 5,000 gallon, 72±inch outer diameter, 25±ft long cylindrical steel hydropneumatic tank will be added as part of Phase I, north of the existing facility reservoir and west of the existing water tank box. The tank will have “saddle” supports spaced 15±ft apart bearing on 4ft by 6ft spread footings, each with a contact pressure of 1,040±psf when fully loaded.

Phase II is in preliminary design and will likely include a similar sized steel water storage tank inside the existing reservoir after it is decommissioned. Phase II will require a separate investigation and design.

We show the site plan with both phases on Figure 1.

EXPLORATION & SUBSURFACE CONDITIONS

EXPLORATION

To supplement our previous explorations, CAInc logged and sampled one exploratory test pit to 7.5ft below ground surface (bgs) on May 2, 2017. CAInc’s Project Engineer, Nick Anderson, logged the exploratory test pit consistent with the Unified Soil Classification System (USCS) and the Caltrans 2010 Logging Manual. Periodic sampling and insitu strength testing was performed during test pit excavation. CAInc retained relatively undisturbed samples and bulk samples from the test pit for laboratory testing. The test pit was backfilled with soil cuttings and bucket tamped with the backhoe.

We provide current and previous exploration locations on Figure 1.

SOIL/ROCK CONDITIONS

HYDROPNEUMATIC TANK LOCATION

We divide the soil into three descending and overlapping units at the hydropneumatic tank.

Unit 1 is dark red and brown, medium stiff to stiff, low plasticity SILT with SAND to about 2.5ft bgs. This may be fill soil that was placed during the excavation of the reservoir immediately south-southeast.

Unit 2 is orangish red decomposed rock, which can be modeled as a soil. It had a pocket pen of 2.5 tsf and excavates as a lean CLAY with SAND. Unit 2 is generally about 2ft thick.

Unit 3 is orangish yellow to yellow intensely weathered rock with isolated intact rock (fresh rock that is less resistant to weathering surrounded by more weathered rock). Pocket pens were unable to be performed on this unit due to the depth of the test pit. Unit 3 was heavily friable (except the intact rock) and excavates as a lean CLAY with SAND. This unit was encountered to the depth explored (7.5ft bgs).

PHASE I WATER STORAGE TANK AND RETAINING WALL LOCATION

We divide the soil into two descending and overlapping units at this location.

Unit 1 is brownish red, very stiff to hard, medium plasticity lean CLAY with SAND to about 9ft bgs. Pocket pens were ranging from 3.0 tsf to over 4.5 tsf.

Unit 2 is yellowish red brown intensely weathered rock. Excavation became more difficult at 9ft bgs as the material becomes less weathered. Unit 2 generally underlies Unit 1 in our test pits.

We present more detailed soil conditions on the test pit logs in Appendix A.

GROUNDWATER

We did not encounter groundwater during our current exploration (May 2, 2017 to 7.5ft bgs) or our previous exploration (February 25, 2015 to 14.5ft bgs). Nearby well and groundwater information was not available as of this writing.

LABORATORY TESTING

CAInc completed the following laboratory tests on representative soil samples obtained from our test pits:

- Moisture Content / Dry Density (ASTM D2216/D2937)
- Atterberg Limits (ASTM D4318)
- #200 Wash (ASTM D1140)

We present the laboratory test results in Appendix B.

FAULTING AND SEISMICITY

Based on the California Geologic Survey earthquake fault zone map, the site is not within a special studies zone boundary for fault rupture hazard. The nearest known active fault is the Cleveland Hill fault approximately 38 miles north-northwest of the site.

Based on our exploratory borings, we provide the California Building Code (CBC) and American Water Works Association (AWWA) design parameters below. CAINc determined these values using a site latitude of 38.971°N and longitude of -121.054°W and the U.S. Seismic Design Maps webtool¹ developed by the United States Geological Survey.

¹ <https://earthquake.usgs.gov/designmaps/us/application.php>

Table 1: Seismic Design Parameters

Site Class	C
Risk Category	I/II/III
S_s – Acceleration Parameter	0.493 g
S_1 – Acceleration Parameter	0.236 g
F_a – Site Coefficient	1.200
F_v – Site Coefficient	1.564
S_{MS} – Adjusted MCE* Spectral Response Acceleration Parameter	0.592 g
S_{M1} – Adjusted MCE* Spectral Response Acceleration Parameter	0.369 g
S_{DS} – Design Spectral Acceleration Parameter	0.395 g
S_{D1} – Design Spectral Acceleration Parameter	0.246 g
T_L – Long-Period Transition Period**	12 sec

* Maximum Considered Earthquake

** Figure 22-12, ASCE 7-10

CONCLUSIONS AND RECOMMENDATIONS

Based on our findings, it is our professional opinion that the site is suitable from a geotechnical standpoint for the proposed structures provided the following recommendations are followed.

PHASE I WATER STORAGE TANK FOUNDATION

Use the preliminary recommendations provided in the draft Preliminary Geologic/Geotechnical Memo dated March 18, 2015 as final recommendations.

RETAINING WALL

FOUNDATION

Use an allowable net bearing capacity of 3,000 psf for minimum width 18-inch footing established at a minimum 18-inches below the prepared subgrade. We expect total and differential settlement on the order of 1-inch or less.

Lateral forces will be resisted by passive resistance of the soil adjacent to the foundations and/or friction developed between the base of the footing and the underlying soil. Use a coefficient of friction of 0.35 and a passive earth pressure of 166 pcf to resist sliding, up to a maximum of 2,000 psf. Apply a Factor of Safety of 1.5 against sliding and overturning. Increase the Factor of Safety to 2.0 against sliding if both passive resistance and the coefficient of friction are used in conjunction. Reduce the passive pressure to 152 pcf during a seismic event.

The retaining wall should be drained to prevent a hydrostatic pressure condition behind the wall. Typical drainage consists of a one-foot thick vertical layer of pervious material behind the wall with a nonwoven filter fabric between the pervious backfill and structural backfill. A synthetic geocomposite drain (e.g. TenCate Mirafi G-Series) can be substituted for the pervious material, if desired. Drain any collected

water by means of weep holes at the base of the walls or perforated drain pipes that discharge to suitable drainage facilities.

EQUIVALENT FLUID WEIGHTS

Use the equivalent fluid weights (EFWs) shown in the tables below for design. We assume compacted native materials with 2:1 (H:V) backfill conditions.

Table 2: Equivalent Fluid Weights

Condition	Static Earth Pressure (pcf)	Additional Seismic Earth Pressure (pcf)
Active	76	43
At-Rest	93	53

The EFW values provided are based on in-place native materials with an average unit weight of approximately 120 pcf and an angle of internal friction (ϕ) of 28°.

For *static design*, apply the resultant of the static at-rest or active earth pressure at a depth of 0.33H from the base of the wall where H equals the wall height. These pressures do not include a factor of safety.

For *seismic design*, apply the resultant of the additive seismic at-rest or active earth pressure at a depth of 0.66H from the base of the wall where H equals the wall height. Add the resultant of the seismic earth pressure to the resultant of the static active or at-rest earth pressure.

The active equivalent fluid weight is only applicable if the retained earth is allowed to strain sufficiently to achieve the active state. The required minimum horizontal strain to achieve the active state is approximately 0.002H away from the retained soil, with H being the height of the wall. Retaining structures should be designed to resist an at-rest equivalent fluid weight if this horizontal strain cannot be achieved.

No surcharge load will be applied to the proposed retaining wall due to water storage tank and access road setbacks (horizontally 25±ft and 15±ft, respectively) from the retaining wall. This office should be consulted if these geometries change.

NEW HYDROPNEUMATIC TANK

For the 4ft by 6ft spread footings, use an allowable bearing capacity of 1,250psf. Construct both spread footings at least 12-inches below lowest adjacent finish grade. The allowable bearing capacity values may be increased by one-third for wind and/or seismic loads. We estimate a total settlement on the order of ½-inch and differential settlement on the order of ¼-inch.

Use a coefficient of friction of 0.35 and a passive earth pressure of 166 pcf to resist sliding, up to a maximum of 2,000 psf. Apply a Factor of Safety of 1.5 against sliding and overturning. Increase the Factor of Safety to 2.0 against sliding if both passive resistance and the coefficient of friction are used in conjunction. Reduce the passive pressure to 152 pcf during a seismic event.

Clean excavation of debris and loose soil prior to placing concrete. If loose or disturbed soil is encountered, scarify and compact as engineered fill.

GRADING

ORIGINAL GROUND & SUBGRADE PREPARATION

Prior to site grading, clear the site to remove vegetation, tree roots, debris, abandoned utilities, soft or unstable areas, and other deleterious materials. Process and compact the exposed subgrade in new structure and/or fill areas as follows:

- Scarify the subgrade to a depth of approximately 10 inches.
- Moisture condition subgrade soil and compacted fill to within 2% of optimum moisture content and compact to a minimum 90% relative compaction per ASTM D1557.

FILL PLACEMENT & COMPACTION

Fill slopes should be built fat and cut back to ensure proper compaction throughout the slope-face. Track walking fill slopes is not an acceptable method of compaction. We do not expect groundwater to be a construction issue within the anticipated grading limits.

Place fill in maximum 8-inch-thick loose lifts, moisture condition to within 2% of optimum moisture content and compact to a minimum 90% relative compaction per ASTM D1557. Native materials, minus organics, debris, and other deleterious materials, are suitable for engineered fill with a maximum particle size of 4 inches. Excavated materials unsuitable for use as structural fill should be placed outside the structure limits.

During our investigation, test pits were loosely backfilled with soil/rock cuttings. Where proposed improvements are within the test pit locations, remove the test pit backfill and recompact per above.

OVER-OPTIMUM SOIL MOISTURE

Excessively over-optimum (wet) soil conditions can make proper compaction difficult or impossible. Wet soil is commonly encountered during the winter and spring months. Excessively over-optimum soil conditions are not expected but in general, wet soil can be mitigated by:

- Discing the soil during prolonged periods of dry weather,
- Overexcavating and replacing with drier material,
- Stabilizing using aggregate and/or stabilization fabric or grid.

If wet, unstable soil is encountered, CAInc should observe the conditions and provide more specific mitigation recommendations.

EXCAVATABILITY/RIPPABILITY

We expect typical grading equipment such as bulldozers, backhoes, and excavators will be adequate to accomplish the anticipated site grading. More robust equipment may be necessary if an outcrop of bedrock is encountered.

RISK MANAGEMENT

Our experience and that of our profession clearly indicates that the risks of costly design, construction, and maintenance problems can be significantly lowered by retaining the geotechnical engineer of record to provide additional services. At a minimum for this project, CAInc should be retained to:

- Observe foundation excavations.
- Update this memorandum if design changes occur, 2 years lapse between this memorandum and construction, or site conditions change.

LIMITATIONS

CAInc performed these services in accordance with generally accepted geotechnical engineering principles and practices currently used in this area. Where referenced, we used ASTM or Caltrans standards as a general (not strict) *guidelines* only.

CAInc based this memo on the current site conditions. We assumed the soil and groundwater conditions are representative of the subsurface conditions on the site. Actual conditions between explorations could be different.

Our scope did not include evaluation of on-site hazardous materials or laboratory testing.

Logs of our exploratory test pits are presented in Appendix A. The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our recommendations are based on the final logs, which represent our interpretation of the field logs and general knowledge of the site and geological conditions.

Sincerely,

Crawford & Associates, Inc.,

Adam Killinger, PE, GE
Project Manager

Ben Crawford, PE, GE
Principal

ATTACHMENTS:

- | | |
|-------------------|---|
| Figures | Figure 1: Exploration Location Map |
| Appendix A | Test Pit Log Legend |
| | Test Pit Logs |
| Appendix B | Laboratory Test Data |

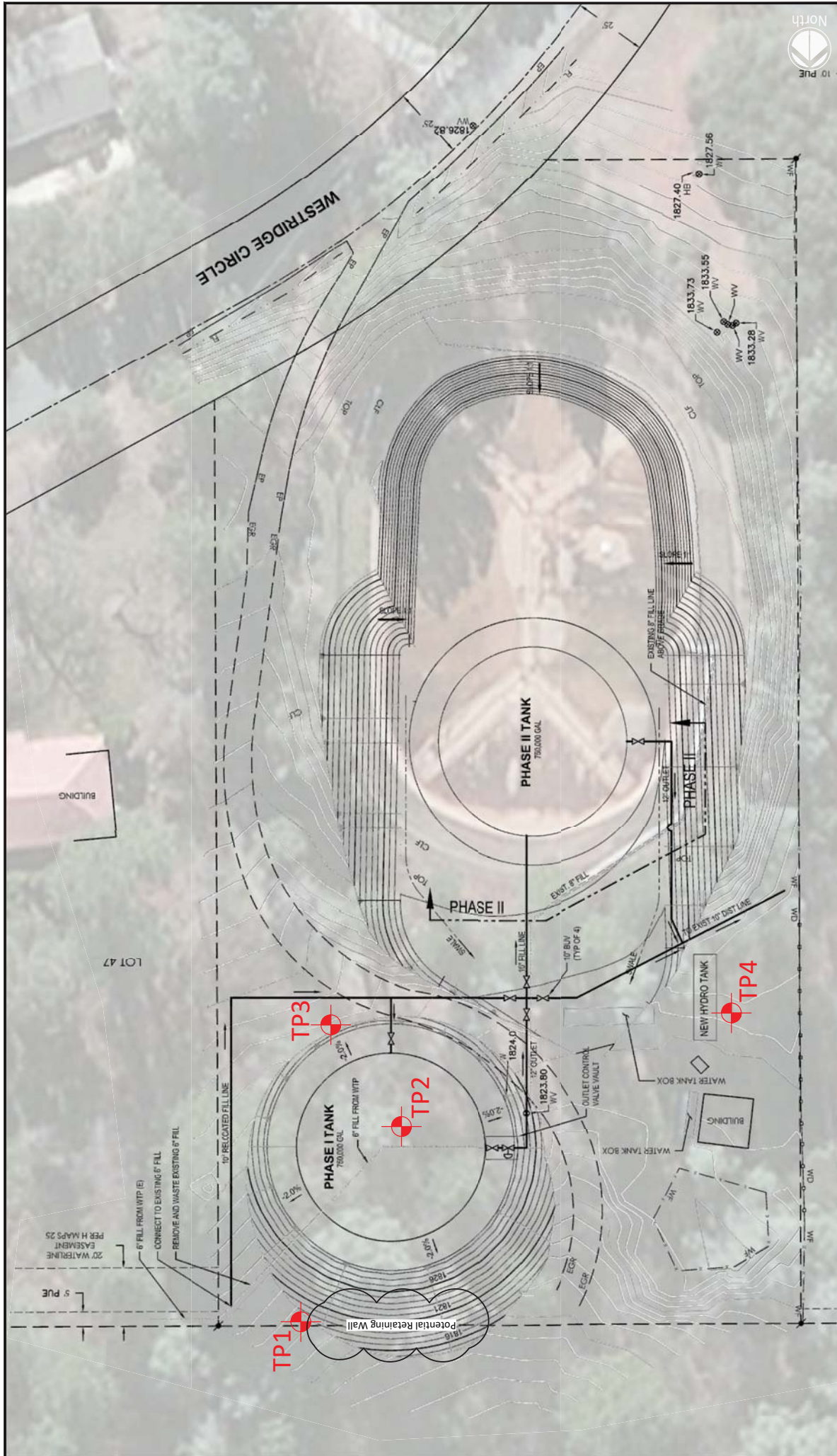


Figure 1
Exploration Location Map
Project No. 15-208.1
Scale 1"=30'
Date 7/12/17

Christian Valley Park Water Tank Project
Placer County, California

Project Mgr.	AKK	7/12/17	By	Date
Project Eng.	NRA	7/12/17		
Designer	AKK	7/12/17		
Checked By	NRA	7/12/17		
Drawn By				

Crawford & Associates, Inc.
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and Construction Services
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LEGEND
TP1 TEST PIT LOCATIONS

LOT 46

APPENDIX A

Test Pit Log Legend

Test Pit Logs

DRAFT

UNIFIED SOIL CLASSIFICATION (ASTM D 2487-06)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GRAPHIC SYMBOL	GROUP SYMBOL	SOIL GROUP NAMES	
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS <5% FINES	$Cu \geq 4$ AND $1 \leq Cc \leq 3$		GW	WELL-GRADED GRAVEL	
		GRAVELS WITH FINES >12% FINES	$Cu < 4$ AND/OR $1 > Cc > 3$		GP	POORLY-GRADED GRAVEL	
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR MH		GM	SILTY GRAVEL	
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS CL OR CH		GC	CLAYEY GRAVEL	
	SANDS <50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN SANDS <5% FINES	$Cu \geq 6$ AND $1 \leq Cc \leq 3$		SW	WELL-GRADED SAND	
		SANDS WITH FINES >12% FINES	$Cu < 6$ AND/OR $1 > Cc > 3$		SP	POORLY-GRADED SAND	
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR MH		SM	SILTY SAND	
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS CL OR CH		SC	CLAYEY SAND	
FINE-GRAINED SOILS >50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT <50	INORGANIC	PI>7 AND PLOTS ON OR ABOVE "A" LINE		CL	LEAN CLAY	
		INORGANIC	PI>4 AND PLOTS BELOW "A" LINE		ML	SILT	
	SILTS AND CLAYS LIQUID LIMIT >50	ORGANIC	LL (oven dried)<0.75/LL (not dried)			OL	ORGANIC CLAY OR SILT
		INORGANIC	PI PLOTS ON OR ABOVE "A" LINE			CH	FAT CLAY
		INORGANIC	PI PLOTS BELOW "A" LINE			MH	ELASTIC SILT
		ORGANIC	LL (oven dried)<0.75/LL (not dried)			OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK COLOR, ORGANIC ODOR			PT	PEAT	

NOTE: $Cu = D_{60}/D_{10}$
 $Cc = (D_{30})^2 / D_{10} \times D_{60}$

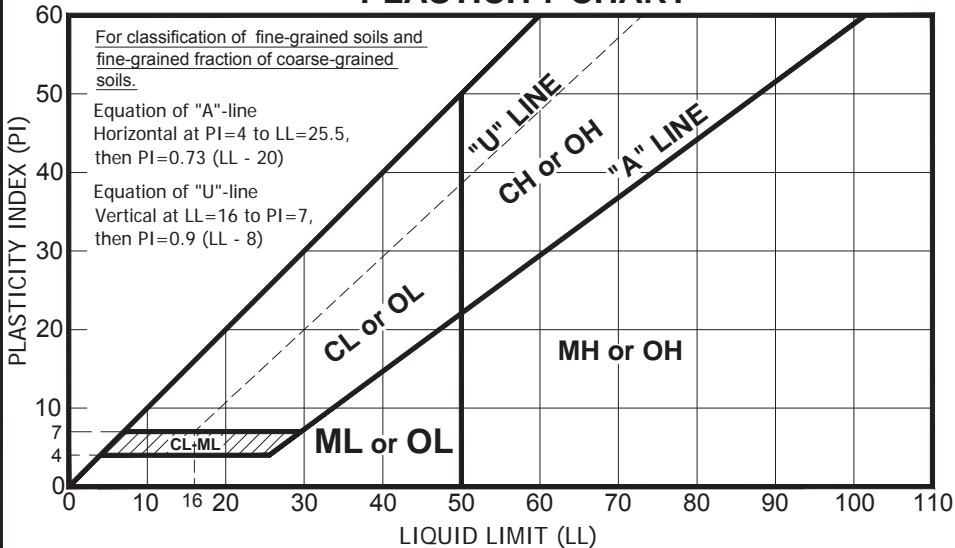
BLOW COUNT

The number of blows of a 140-lb. hammer falling 30-inches required to drive the sampler the last 12-inches of an 18-inch drive. The notation 50/0.4 indicates 4-inches of penetration achieved in 50 blows.

SAMPLE TYPES

<ul style="list-style-type: none"> Auger or backhoe cuttings Shelby tube Standard Penetration (SPT) Bulk Sample 	<ul style="list-style-type: none"> Modified California 2" California Standard 2.5" Rock core
---	--

PLASTICITY CHART



ADDITIONAL TESTS

- C - Consolidation
- CP - Compaction Curve
- CR - Corrosivity Testing
- CU - Consolidated Undrained Triaxial
- DS - Direct Shear
- EI - Expansion Index
- P - Permeability
- PA - Partical Size Analysis
- PI - Plasticity Index
- PP - Pocket Penetrometer
- R - R-Value
- SE - Sand Equivalent
- SG - Specific Gravity
- SL - Shrinkage Limit
- SW - Swell Potential
- TV - Pocket Torvane Shear Test
- UC - Unconfined Compression
- UU - Unconsolidated Undrained Triaxial

GROUND WATER LEVELS

- Later water level after drilling
- Water level at time of drilling



BORING LOG / TEST PIT LEGEND AND SOIL DESCRIPTIONS

LOG OF TEST PIT TP1

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 COUNTY: Placer
 CLIENT: Christian Valley Park CSD
 LOGGED BY: JJW

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 SURFACE CONDITION: Soil
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015

CONTRACTOR: Triton Construction
 EQUIPMENT: John Deere 310SE
 TEST PIT WIDTH: Unknown
 DEPTH OF TEST PIT: 11 (ft)
 SAMPLER TYPE & SIZE: Bulk
 BACKFILL METHOD: Tamped cuttings

FIELD					DESCRIPTION	LABORATORY					REMARKS
ELEVATION (ft)	DEPTH (ft)	SAMPLE	SAMPLE NO	POCKET PEN. (TSF)		GRAPHIC LOG	PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	D. DENSITY (PCF)		% PASSING 200 SIEVE
	1				Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.						Relatively smooth digging
	2										
	3			3.0 to 3.5	Very stiff.						
	4		A								
	5			4.0 to >4.5	Very stiff to hard.						
	6										
	7										Harder digging
	8										
	9		B		IGNEOUS ROCK (GRANITE), yellowish red brown, intensely weathered.						
	10										Very hard digging to essential refusal
	11				Bottom of borehole at 11.0 ft bgs						
	12										
	13										
	14										
	15										
	16										



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PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 EXPLORATION: TP1
 ENTRY BY: JJW
 CHECKED BY:

LOG OF TEST PIT TP2

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 COUNTY: Placer
 CLIENT: Christian Valley Park CSD
 LOGGED BY: JJW

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 SURFACE CONDITION: Soil
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015

CONTRACTOR: Triton Construction
 EQUIPMENT: John Deere 310SE
 TEST PIT WIDTH: Unknown
 DEPTH OF TEST PIT: 14.5 (ft)
 SAMPLER TYPE & SIZE: Bulk
 BACKFILL METHOD: Tamped cuttings

FIELD					DESCRIPTION	LABORATORY					REMARKS	
ELEVATION (ft)	DEPTH (ft)	SAMPLE	SAMPLE NO	POCKET PEN. (TSF)		GRAPHIC LOG	PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	D. DENSITY (PCF)		% PASSING 200 SIEVE
	1					Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.						Relatively smooth digging
	2		C	1.0		Stiff.						
	3			3.0		Very stiff.						
	4											
	5			4.0 to 4.5		Very stiff to hard.						
	6											
	7											
	8											
	9											
	10					IGNEOUS ROCK (GRANITE), yellowish red brown, intensely weathered.						Harder digging
	11		D									
	12											
	13											
	14											
	15					Bottom of borehole at 14.5 ft bgs						Very hard digging to essential refusal
	16											



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PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 EXPLORATION: TP2
 ENTRY BY: JJW
 CHECKED BY: SHEET 1 of 1

LOG OF TEST PIT TP3

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 COUNTY: Placer
 CLIENT: Christian Valley Park CSD
 LOGGED BY: JJW

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 SURFACE CONDITION: Soil
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015

CONTRACTOR: Triton Construction
 EQUIPMENT: John Deere 310SE
 TEST PIT WIDTH: Unknown
 DEPTH OF TEST PIT: 12 (ft)
 SAMPLER TYPE & SIZE: Bulk
 BACKFILL METHOD: Tamped cuttings

FIELD					DESCRIPTION	LABORATORY					REMARKS
ELEVATION (ft)	DEPTH (ft)	SAMPLE	SAMPLE NO	POCKET PEN. (TSF)		GRAPHIC LOG	PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	D. DENSITY (PCF)		% PASSING 200 SIEVE
	1				Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.						Relatively smooth digging
	2			1.5		Stiff.					
	3			2.5		Very stiff.					
	4			4							
	5										
	6										
	7										
	8										
	9				IGNEOUS ROCK (GRANITE), yellowish red brown, intensely weathered.						Harder digging
	10										
	11										
	12				Bottom of borehole at 12.0 ft bgs						Very hard digging to essential refusal
	13										
	14										
	15										
	16										



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PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 EXPLORATION: TP3
 ENTRY BY: JJW
 CHECKED BY: SHEET 1 of 1

LOG OF TEST PIT TP4

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 COUNTY: Placer
 CLIENT: Christian Valley Park CSD
 LOGGED BY: NRA

BEGIN DATE: 5/2/2017
 COMPLETION DATE: 5/2/2017
 SURFACE ELEVATION: (ft)
 SURFACE CONDITION: Soil
 WATER DEPTH: Not encountered
 READING TAKEN: 5/2/2017

CONTRACTOR: Triton Construction
 EQUIPMENT: John Deere 310SE
 TEST PIT WIDTH: 24 (in)
 DEPTH OF TEST PIT: 7.5 (ft)
 SAMPLER TYPE & SIZE: 2.4"ID, Bulk
 BACKFILL METHOD: Tamped cuttings

FIELD					GRAPHIC LOG	DESCRIPTION	LABORATORY					REMARKS
ELEVATION (ft)	DEPTH (ft)	SAMPLE	SAMPLE NO	POCKET PEN. (TSF)			PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	D. DENSITY (PCF)	% PASSING 200 SIEVE	
						SANDY SILT (ML); dark brown; moist; about 30% coarse to fine SAND; about 70% nonplastic to low plasticity fines; topsoil.						
	1			1.0		SILT with SAND (ML); medium stiff to stiff; dark red; moist; about 25% medium to fine SAND; about 75% low plasticity, low toughness fines; (FILL?).						
	2		1			Floater (weathered boulder) encountered.	22	30	20.7	105.2	73	Roots to 1.5ft
	3		2			SEDIMENTARY ROCK, orangish red, decomposed.						
	4		3									
	5					Orangish yellow, intensely weathered, floater (fresh boulder) encountered.						
	6		4			Some rock scratching.						
	7											
	8					Bottom of borehole at 7.5 ft bgs						
	9					Consistent digging						



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PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 EXPLORATION: TP4
 ENTRY BY: NRA
 CHECKED BY:

APPENDIX B

Laboratory Test Data

DRAFT

Project Name: Christain Valley Park Tank

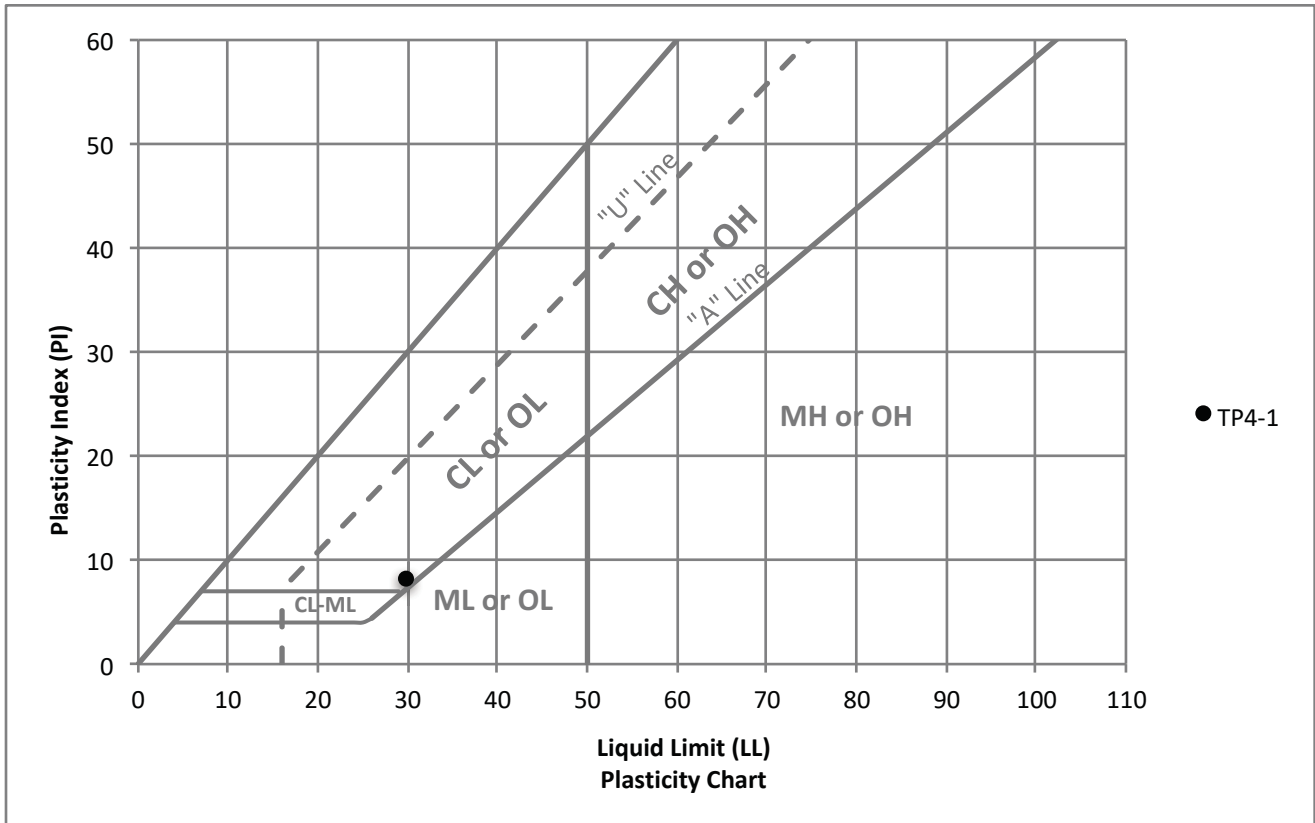
CAInc File No: 15-208.1

Date: 5/23/17

Technician: MEA/HFW

Plastic Index - ASTM D4318

Sample ID	Depth (ft)	Liquid Limit	Plastic Limit	PI
TP4-1	1.5	30	22	8





Project Name: Christain Valley Park Tank

CAInc File No: 15-208.1

Date: 5/10/17

Technician: HFW

MOISTURE-DENSITY TESTS - D2216

	1	2	3	4	5
Sample No.	TP4-1				
USCS Symbol	CL				
Depth (ft.)	1.5				
Sample Length (in.)	5.597				
Diameter (in.)	2.356				
Sample Volume (ft ³)	0.01412				
Total Mass Soil+Tube (g)	813.8				
Mass of Tube (g)	0.0				
Tare No.	R19				
Tare (g)	131.0				
Wet Soil + Tare (g)	380.3				
Dry Soil + Tare (g)	337.5				
Dry Soil (g)	206.5				
Water (g)	42.8				
Moisture (%)	20.7				
Dry Density (pcf)	105.2				

Notes:



Project Name: Christain Valley Park Tank

CAInc File No: 15-208.1

Date: 5/11/17

Technician: CAP

200 Wash - ASTM D1140

Max Particle Size (100% Passing)	Standard Sieve Size	Recommended Min Mass of Test Specimens
2 mm or less	No. 10	20 g
4.75 mm	No. 4	100 g
9.5 mm	3/8 "	500 g
19.0 mm	3/4 "	2.5 kg
37.5 mm	1 1/2 "	10 kg
75.0 mm	3 "	50 kg

Table from 6.2 of ASTM D1140

Sample No.	TP4-1				
USCS Symbol	CL				
Depth (ft.)	1.5				
Tare No.	R19				
Tare (g)	131				
Dry Soil + Tare (g)	337.5				
Dry Mass before (g)	206.5				
Dry Mass after (g)	54.9				
Percent Fines (%)	73				



Sacramento • Modesto • Pleasanton • Rocklin • Ukiah

File No. 15-208.1
March 18, 2015

Gerry LaBudde, PE
Christian Valley Park CSD
P.O. Box 3138
Auburn, CA 95604

Subject: **DRAFT PRELIMINARY GEOLOGIC/GEOTECHNICAL MEMO**
Christian Valley Park CSD – Water Storage Tank Feasibility Study
Auburn, California

Dear Mr. LaBudde,

Crawford & Associates, Inc (CAInc) is pleased to submit this Preliminary Geologic/Geotechnical Memo for the Christian Valley Park CSD – Water Storage Tank Feasibility Study project. CAInc prepared this memo in accordance with our December 8, 2014 proposal. This memo includes a project description, our scope of work, and preliminary geotechnical considerations for design and construction. We expect to perform additional study for final design once the location and pad grade is defined.

Thank you for selecting CAInc to be on your design team. Please call if you have questions or require additional information.

Sincerely,

Crawford & Associates, Inc,

Rick Sowers, P.E., C.E.G.
Principal Engineering Geologist

Benjamin D. Crawford, P.E., G.E.
Principal Geotechnical Engineer

Attachments

Figure 1, Vicinity and Exploration Location Map
Figure 2, Geologic Map
Test Pit Log Legend and logs

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Ukiah: 100 N. Pine Street • Ukiah, CA 95482 • (707) 240-4400

1 INTRODUCTION

1.1 Project Description

Crawford & Associates, Inc (CAInc) prepared this Preliminary Geologic/Geotechnical Memo for the Christian Valley Park CSD – Water Storage Tank Feasibility Study project northeast of Auburn, California. Based on our discussions with you, we understand that the District currently utilizes a small concrete lined reservoir to store their water supply. Due to ongoing maintenance concerns the District would like to update their storage system using a steel storage tank. An initial tank would be constructed outside of the existing reservoir with a potential second tank constructed following the decommissioning of the reservoir. We expect the new tank will be supported on 1 to 4 ft of fill to meet the required elevations. Due to site constraints the new tank will likely impact the existing access road and reservoir embankment and may require the use of temporary retaining structures.

This memo provides preliminary geotechnical recommendations for design and construction of the proposed project, including new tank foundation and site grading. Additional study, including laboratory testing and engineering analysis, is anticipated for final design based on the selected tank location and grade. Do not use this memo for different locations and/or projects without the written consent of CAInc.

1.2 Scope of Services

To prepare this memo, CAInc:

1. Reviewed available geologic maps of the site;
2. Discussed the project with Gerry LaBudde of Hydros Consulting;
3. Excavated and logged three exploratory backhoe test pits to depths ranging from about 11 to 14.5 feet below ground surface (bgs) on February 25, 2015;
4. Calculated CBC seismic design parameters;
5. Developed preliminary geotechnical recommendations for new tank foundation and site grading.

1.3 Site Descriptions

The Christian Valley Park CSD reservoir is located approximately 5.5 miles northeast of Auburn, California. Original site elevations range from 199 to 205 ft based on the 2015 Andregg Geomatics survey. The reservoir is constructed above original grade with embankments extending to approximately 217 ft. We show the site location on Figure 1.

2 SUBSURFACE CONDITIONS

CAInc observed three exploratory test pits to depths of about 11, 12, and 14.5 feet below ground surface (bgs) on February 25, 2015 to characterize the subsurface conditions at the proposed tank site. The approximate locations of the test pits are shown on Figure 1.

Below, we summarize the subsurface conditions encountered in the exploratory test pits. More detailed information is shown on the attached test pit logs.

2.1 Geology/Soils

Geologic mapping by the California Geologic Survey (CGS) shows the site underlain by Mesozoic dioritic rock. We observed area cut slopes to expose deeply weathered (“soil like”) materials; no hard rock outcrops were noted. Area slopes appear stable and we did not observe any signs of landsliding or other land instability at the site.

In the test pits, we encountered lean clay with sand in the upper 9 to 10 feet bgs, underlain by decomposed to intensely weathered granitic rock. The clay soil was generally stiff to very stiff and dug easily without caving. The underlying decomposed rock was readily excavated, although moderately hard digging was encountered at the bottom of the pits (below a depth of about 12 ft).

2.2 Ground Water

We did not encounter free groundwater during our site investigation to a maximum depth of 14.5 feet bgs. Nearby well and groundwater information was not available.

3 FAULTING AND SEISMICITY

Based on the California Geologic Survey earthquake fault zone map, the site is not within a special studies zone boundary for fault rupture hazard. The nearest known active fault is the Cleveland Hill fault approximately 38 miles north-northwest of the site.

The California Geological Survey, Probabilistic Seismic Hazards Mapping Ground Motion Page (www.conservation.ca.gov) indicates a maximum peak horizontal ground acceleration (PGA_M) on the order of 0.25 g for a seismic event with a 10% probability of exceedance in 50 years (design basis earthquake).

Based on our exploratory test pits, we provide the California Building Code (CBC) seismic design parameters below. Table 1 shows the 2013 California Building Code and ASCE 7-10 seismic design parameters for the site. CAInc determined the values using a site latitude of 38.97132°N and longitude of 121.05465°W with the Earthquake Ground Motion Parameters - Version 5.1.0

developed by the United States Geological Survey. A Zone Coefficient (Z) per current AWWA standards of 0.30 applies to this site.

Table 1: Seismic Design Parameters

Site Class	C
S_s – Acceleration Parameter	0.493 g
S_1 – Acceleration Parameter	0.236 g
F_a – Site Coefficient	1.20
F_v – Site Coefficient	1.564
S_{MS} – Adjusted MCE* Spectral Response Acceleration Parameter	0.592 g
S_{M1} – Adjusted MCE* Spectral Response Acceleration Parameter	0.369 g
S_{DS} – Design Spectral Acceleration Parameter	0.394 g
S_{D1} – Design Spectral Acceleration Parameter	0.246 g
T_L – Long-Period Transition Period**	12

* Maximum Considered Earthquake

** Figure 22-12, ASCE 7-10

4 CONCLUSIONS

Based on our findings, it is our professional opinion that the site is suitable from a geotechnical standpoint for support of the proposed tank. The primary concerns from a geotechnical standpoint are (1) the combination cut/fill pad that will need to be designed to provide firm, uniform tank support and (2) design of new cut/fill slopes or retaining structures to avoid impacts to the existing access road and reservoir while maintaining required setbacks.

5 PRELIMINARY RECOMMENDATIONS

5.1 Grading

Construction of the tank pad and adjacent area can be accomplished using conventional grading equipment. Existing tree roots may require stripping and disposal to several feet, especially along the cut/fill “daylight” line. Native soils, less roots or other unsuitable material, are considered acceptable for use as compacted fill. Place fill in maximum 8-inch-thick loose lifts, moisture condition to approximately 2% above optimum, and compact to a minimum 90% relative compaction per ASTM D1557. Within the cut section, scarify and compact the pad

subgrade to similar minimum 90% relative compaction. The pad subgrade should be firm and unyielding prior to tank construction.

Soil expansion and/or corrosion potential may be a design consideration and will be addressed in final design. If required, the upper 1-2 feet of pad subgrade may need to be over-excavated and replaced with granular (low-expansive) material.

New cut and/or fill slopes constructed at an overall gradient of 2:1 (H:V) or flatter appear appropriate for preliminary design. Fill slopes should be built fat and cut back or track rolled to ensure proper compaction throughout the slope-face. We do not expect groundwater to be a construction issue within the anticipated grading limits.

5.2 Tank Foundation

Support for the new tank is available on a concrete ringwall footing established within undisturbed native soil or compacted fill placed per above. For preliminary design, assume an allowable bearing capacity of approximately 3,000 pounds per square foot (psf) for minimum width 18 inch footing established at a minimum 18 inches below the prepared subgrade. This value will be confirmed by further subsurface exploration during the design phase.

Uplift loads, in addition to the weight of the tank, can likely be developed, if needed, by soil anchors extended into native soil/rock.

Lateral forces will be resisted by passive resistance of the soil adjacent to the foundations and/or friction developed between the base of the footing and the underlying soil. For preliminary design, use a coefficient of friction of 0.35 and passive earth pressure of 250 psf per foot of embedment depth, up to a maximum of 2,000 psf (to be confirmed by future subsurface investigation and testing).

We do not expect total or differential settlement to be a significant design consideration for the new tank supported on an engineered pad per above. For preliminary design, assume total and differential settlement on the order of 1-inch or less.

6 RISK MANAGEMENT

Our experience and that of our profession clearly indicates that the risks of costly design, construction, and maintenance problems can be significantly lowered by retaining the geotechnical engineer to provide additional services during design and construction. For this project, CAInc should be provided the opportunity to:

- Propose and perform a final geotechnical report when the tank site and grade is determined.
- Review and provide comments on the civil plans and specifications prior to construction.

- Monitor construction to check and document our memo and report assumptions. At a minimum, CAInc should monitor foundation excavations and bedding/backfill operations.

If CAInc is not retained to perform the above applicable services, we are not responsible for any other party's interpretation of our memo, and subsequent reports, addendums, letters, and discussions.

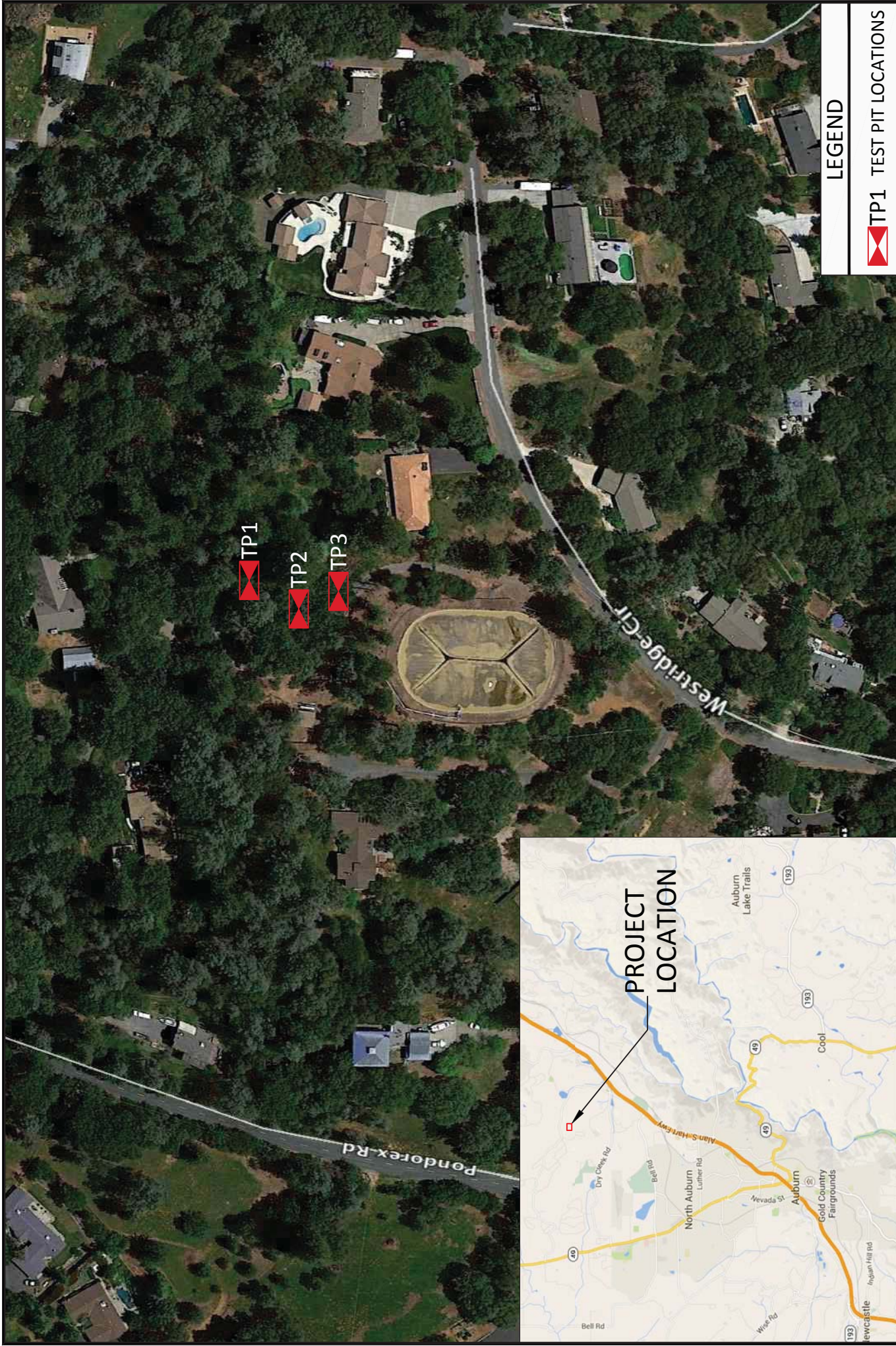
7 LIMITATIONS

CAInc performed services in accordance with generally accepted geotechnical engineering principles and practices currently used in this area. Where referenced, we used ASTM or Caltrans standards as a general (not strict) *guideline* only.

CAInc based this memo on the current site conditions. We assumed the soil and ground water conditions are representative of the subsurface conditions on the site. Actual conditions between explorations could be different.

Our scope did not include evaluation of on-site hazardous materials or laboratory testing.

Logs of our exploratory test pits are presented in Appendix A. The lines designating the interface between soil types are approximate. The transition between soil types may be abrupt or gradual. Our recommendations are based on the final logs, which represent our interpretation of the field logs and general knowledge of the site and geological conditions.

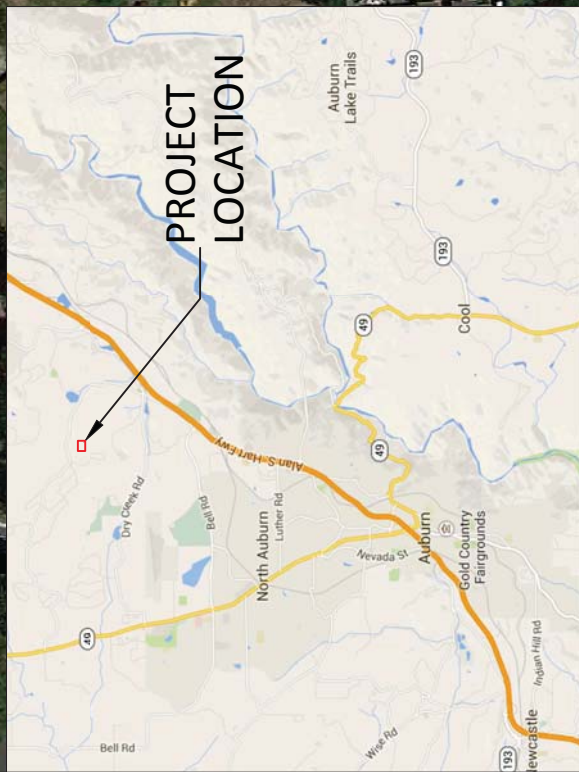


LEGEND

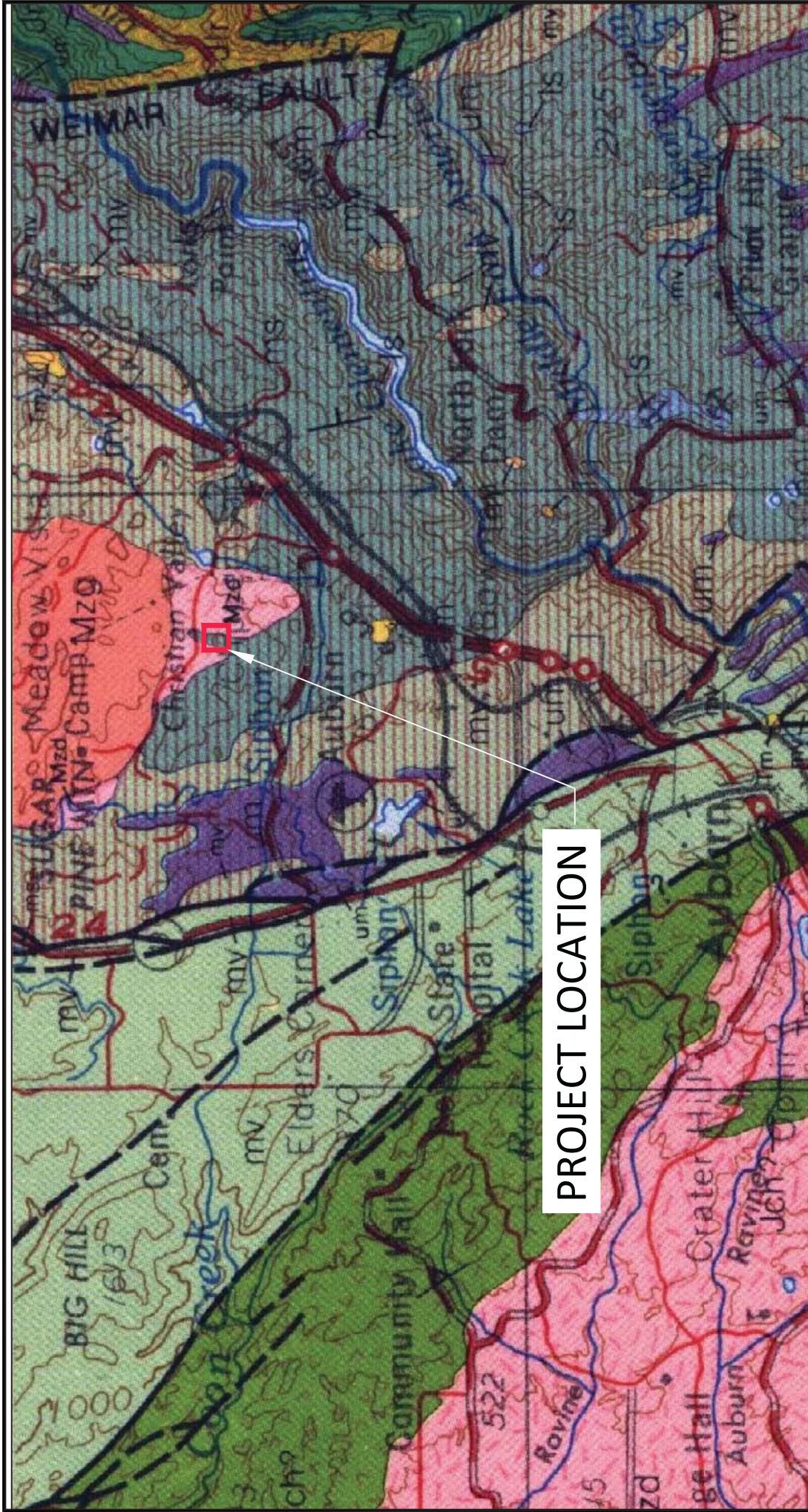
TP1 TEST PIT LOCATIONS

Project No.	15-208.1
Scale	1"=150'
Date	2/26/15

Figure 1
 Vicinity and
 Exploration
 Location Map
 Christian Valley Park
 Water Tank
 Placer County, CA




Project Mgr.			
Project Eng.			
Designer			
Checked By	RRH	2/26/15	
Drawn By			
	By		Date



PROJECT LOCATION

LEGEND

-  Metasedimentary rocks*
- * Horizontal line pattern denotes melange terrane.



Mesozoic granitic rocks



Mesozoic dioritic rocks

Project Mgr.	
Project Eng.	
Designer	
Checked By	
Drawn By	RRH
	2/26/15
By	
Date	



Christian Valley Park
Water Tank
Placer County, CA

Figure 2
GEOLOGIC MAP

Project No.	15-208.1
Scale	1"=7500'
Date	2/26/15

UNIFIED SOIL CLASSIFICATION (ASTM D 2487-06)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GRAPHIC SYMBOL	GROUP SYMBOL	SOIL GROUP NAMES
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS <5% FINES	$Cu \geq 4$ AND $1 \leq Cc \leq 3$		GW	WELL-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	$Cu < 4$ AND/OR $1 > Cc > 3$		GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR MH		GM	SILTY GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS CL OR CH		GC	CLAYEY GRAVEL
	SANDS <50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN SANDS <5% FINES	$Cu \geq 6$ AND $1 \leq Cc \leq 3$		SW	WELL-GRADED SAND
		SANDS WITH FINES >12% FINES	$Cu < 6$ AND/OR $1 > Cc > 3$		SP	POORLY-GRADED SAND
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR MH		SM	SILTY SAND
		SANDS WITH FINES >12% FINES	FINES CLASSIFY AS CL OR CH		SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSING NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT <50	INORGANIC	PI>7 AND PLOTS ON OR ABOVE "A" LINE		CL	LEAN CLAY
		INORGANIC	PI>4 AND PLOTS BELOW "A" LINE		ML	SILT
	SILTS AND CLAYS LIQUID LIMIT >50	ORGANIC	LL (oven dried)<0.75/LL (not dried)		OL	ORGANIC CLAY OR SILT
		INORGANIC	PI PLOTS ON OR ABOVE "A" LINE		CH	FAT CLAY
		INORGANIC	PI PLOTS BELOW "A" LINE		MH	ELASTIC SILT
		ORGANIC	LL (oven dried)<0.75/LL (not dried)		OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK COLOR, ORGANIC ODOR			PT	PEAT

NOTE: $Cu = D_{60}/D_{10}$
 $Cc = (D_{30})^2 / D_{10} \times D_{60}$

BLOW COUNT

The number of blows of a 140-lb. hammer falling 30-inches required to drive the sampler the last 12-inches of an 18-inch drive. The notation 50/0.4 indicates 4-inches of penetration achieved in 50 blows.

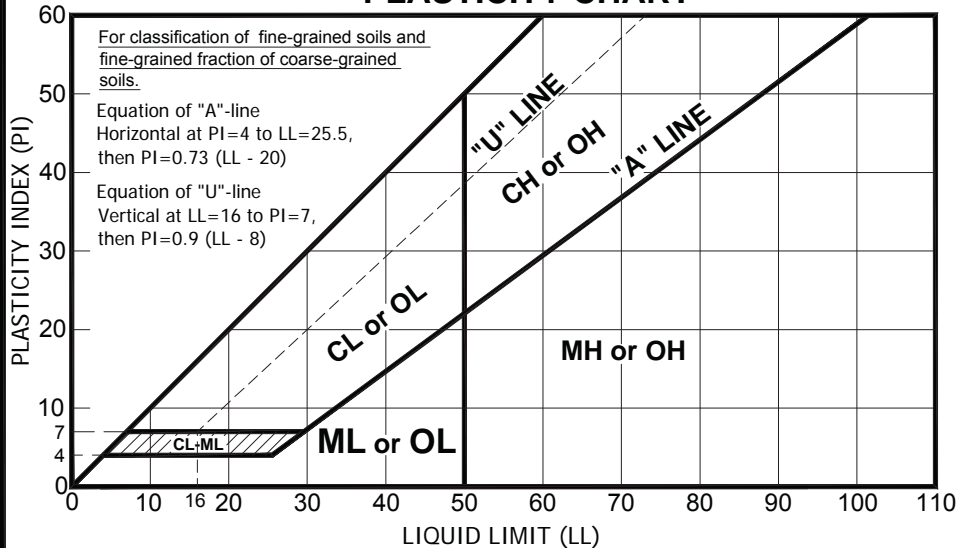
SAMPLE TYPES

- Auger or backhoe cuttings
- Shelby tube
- Standard Penetration (SPT)
- Bulk Sample
- Modified California 2"
- California Standard 2.5"
- Rock core

ADDITIONAL TESTS

- C - Consolidation
- CP - Compaction Curve
- CR - Corrosivity Testing
- CU - Consolidated Undrained Triaxial
- DS - Direct Shear
- EI - Expansion Index
- P - Permeability
- PA - Partical Size Analysis
- PI - Plasticity Index
- PP - Pocket Penetrometer
- R - R-Value
- SE - Sand Equivalent
- SG - Specific Gravity
- SL - Shrinkage Limit
- SW - Swell Potential
- TV - Pocket Torvane Shear Test
- UC - Unconfined Compression
- UU - Unconsolidated Undrained Triaxial

PLASTICITY CHART



GROUND WATER LEVELS

- Later water level after drilling
- Water level at time of drilling



BORING LOG / TEST PIT LEGEND AND SOIL DESCRIPTIONS

LOG OF TESTPIT TP1

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 CLIENT: Hydros-Consulting
 LOGGED BY: JJW
 DEPTH OF BORING: 11(ft)

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 SURFACE CONDITION: Soil
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015
 HAMMER EFFICIENCY: N/A

DRILLING CONTRACTOR:
 DRILLING METHOD: Backhoe
 DRILL RIG: Deere 310SE
 HAMMER TYPE: N/A
 SAMPLER TYPE & SIZE: Bulk
 BOREHOLE DIAMETER:
 BACKFILL METHOD: Tamped cuttings

ELEVATION (ft)	DEPTH (ft)	FIELD					GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	LABORATORY					REMARKS
		SAMPLE	SAMPLE NO	BLOWS PER 6 IN.	BLOWS PER FOOT	POCKET PEN. (TSF)				PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200 SIEVE	
1							Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.								Relatively smooth digging
2															
3						3.0 to 3.5	Very stiff.								
4		A						100							
5						4.0 to >4.5	Very stiff to hard.								
6															
7															
8															
9		B					IGNEOUS ROCK (GRANITE), yellowish red brown, decomposed to intensely weathered.	100							Harder digging
10															
11							Bottom of borehole at 11.0 ft bgs								Very hard digging to essential refusal
12							Side walls stable, no caving								
13							Draft Log								
14															
15															
16															



Crawford & Associates, Inc.
 4030 S Land Park Drive, Ste. C
 Sacramento, CA 95822
 (916) 455 4225

PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 BORING: TP1
 ENTRY BY: JJW
 CHECKED BY:

LOG OF TESTPIT TP2

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 CLIENT: Hydros-Consulting
 LOGGED BY: JJW
 DEPTH OF BORING: 14.5 (ft)

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015
 HAMMER EFFICIENCY: N/A

DRILLING CONTRACTOR:
 DRILLING METHOD: Backhoe
 DRILL RIG: Deere 310SE
 HAMMER TYPE: N/A
 SAMPLER TYPE & SIZE: Bulk
 BOREHOLE DIAMETER:
 BACKFILL METHOD: Tamped cuttings

ELEVATION (ft)	DEPTH (ft)	FIELD				GRAPHIC LOG	DESCRIPTION	RECOVERY (%)	LABORATORY					REMARKS	
		SAMPLE	SAMPLE NO	BLOWS PER 6 IN.	BLOWS PER FOOT				POCKET PEN. (TSF)	PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	DRY DENSITY (PCF)		% PASSING 200 SIEVE
1							Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.								Relatively smooth digging
2			C			1.0	Stiff.	100							
3						3.0	Very stiff.								
4						4.0 to 4.5	Very stiff to hard.								
5															
6															
7															
8															
9															
10							IGNEOUS ROCK (GRANITE), yellowish red brown, decomposed to intensely weathered.								Harder digging
11			D					100							
12															
13															
14															
15							Bottom of borehole at 14.5 ft bgs Side walls stable, no caving Draft Log								Very hard digging to essential refusal
16															



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 Sacramento, CA 95822
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PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 BORING: TP2
 ENTRY BY: JJW
 CHECKED BY:

LOG OF TESTPIT TP3

PROJECT NO: 15-208.1
 PROJECT: Christian Valley Park Tank
 LOCATION: Christian Valley
 CLIENT: Hydros-Consulting
 LOGGED BY: JJW
 DEPTH OF BORING: 12(ft)

BEGIN DATE: 2/25/2015
 COMPLETION DATE: 2/25/2015
 SURFACE ELEVATION: (ft)
 WATER DEPTH: Not encountered
 READING TAKEN: 2/25/2015
 HAMMER EFFICIENCY: N/A

DRILLING CONTRACTOR:
 DRILLING METHOD: Backhoe
 DRILL RIG: Deere 310SE
 HAMMER TYPE: N/A
 SAMPLER TYPE & SIZE: Bulk
 BOREHOLE DIAMETER:
 BACKFILL METHOD: Tamped cuttings

ELEVATION (ft)	DEPTH (ft)	FIELD					GRAPHIC LOG	DESCRIPTION	RECOVERY(%)	LABORATORY					REMARKS
		SAMPLE	SAMPLE NO	BLOWS PER 6 IN.	BLOWS PER FOOT	POCKET PEN. (TSF)				PLASTIC LIMIT	LIQUID LIMIT	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200 SIEVE	
1							Lean CLAY with SAND (CL); brownish red; moist; about 20 to 30% fine SAND; medium plasticity fines.								Relatively smooth digging
2						1.5	Stiff.								
3						2.5	Very stiff.								
4															
5						4									
6															
7															
8															
9							IGNEOUS ROCK (GRANITE), yellowish red brown, intensely weathered.								Harder digging
10															
11															
12							Bottom of borehole at 12.0 ft bgs								Very hard digging to essential refusal
13							Side walls stable, no caving								
14							Draft Log								
15															
16															



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 (916) 455 4225

PROJECT NUMBER: 15-208.1
 PROJECT: Christian Valley Park Tank
 BORING: TP3
 ENTRY BY: JJW
 CHECKED BY:

APPENDIX D

Biological Resources Assessment

**BIOLOGICAL RESOURCES ASSESSMENT
FOR THE
±1.7-ACRE CHRISTIAN VALLEY PARK CSD PARCEL
PLACER COUNTY, CALIFORNIA**



Prepared for:
RCH Group, Inc.
11060 White Rock Rd., Ste. 150-A
Rancho Cordova, CA 95670

Prepared by:
**Salix**
consulting, inc.
11601 Blocker Drive, Ste. 100
Auburn, California 95603
(530) 888-0130

JANUARY 2018

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TABLES

Table 1. Biological Communities Present Within the Christian Valley CSD Park Study Area..... 6

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Appendix A. Plant Species Observed Within the Study Area

Appendix B. Wildlife Species Observed Within the Study Area

Appendix C. Potentially-Occurring Special-Status Plants in the Region of the Study Area

Appendix D. Potentially-Occurring Special-Status Animals in the Region of the Study Area

Biological Resources Assessment for the ±1.7-ACRE CHRISTIAN VALLEY PARK CSD PARCEL

INTRODUCTION

Project Location

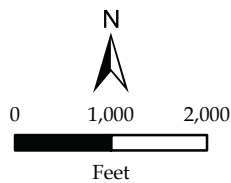
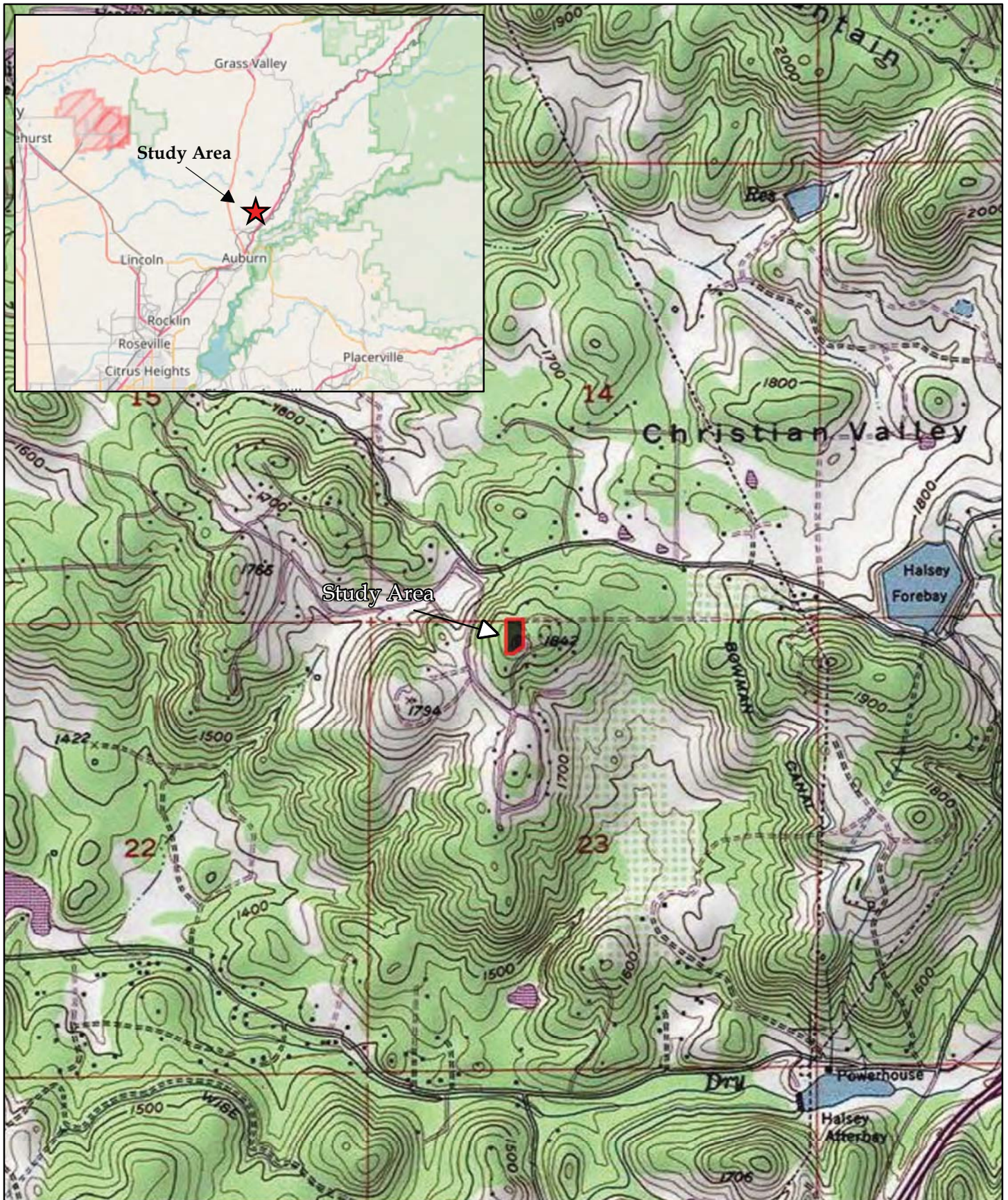
Salix Consulting, Inc. (Salix) has prepared a Biological Resources Assessment for the ±1.7-acre Christian Valley Park Community Services District (CSD) parcel located on Westridge Circle in the Christian Valley area of unincorporated Placer County (study area). The parcel is situated in Section 23, Township 13 North and Range 8 East on the Auburn, California 7.5-minute USGS topographic quadrangle (Figure 1). The approximate coordinates for the center of study area are 38°58'13.96"N and 121°03'17.44"W (Figure 2).

Project Setting and Surrounding Land Uses

The study area is located within the unincorporated community of Christian Valley, Placer County. It has variable topography, ranging in elevation from approximately 1828' in the southwest corner of the site to approximately 1850' in the northeast corner of the site. Approximately 0.4 acre of the site is occupied by a plastic-lined, shallow reservoir that is used for water storage by the CSD. This is the dominant feature in the southern half of the study area. An outbuilding and propane tanks are located in the northwestern area of the site, within the foothill woodland. The land use on all adjacent sides of the study area is large-lot residential.

Objectives of Biological Resources Assessment

- Identify and describe the biological communities present in the study area;
- Evaluate and identify if any sensitive habitats or special-status plant and animal species exist or could exist on the site;
- Conduct an analysis to determine if waters of the U.S. are present, and
- Provide conclusions and recommendations.



Source Maps: USGS Topographic Map
Auburn Quad 1:24,000
S23 T13N R8E

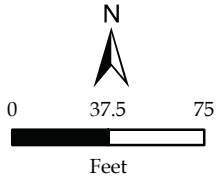
Figure 1

SITE AND VICINITY MAP

Christian Valley CSD
Placer County, CA



Westridge Circle



Study Area
(±1.7 acre)

Imagery:12-7-17 Salix Consulting, Inc.

Figure 2

AERIAL MAP
Christian Valley CSD
Placer County, CA

METHODS

Literature Review

Salix biologists reviewed recent and historic aerial photographs, USGS maps, engineering exhibits, and site maps for the study area. In addition, the site was flown with a UAV to obtain an orthomosaic aerial photograph. Standard publications were reviewed to provide information on life history, habitat requirements, and distribution of regionally occurring animal species. They include published books, peer-reviewed articles, field guides, and the California Wildlife Habitats Relationships Program. Publications utilized in this assessment are included in the References section of this document.

Special-Status Species Reports

To determine which special-status species could occur within or near the study area Salix biologists queried the California Natural Diversity Data Base (CDFW 2017) and the California Native Plant Society Inventory (CNPS 2017) and the USFWS Information for Planning and Consultation (IPaC) database for reported occurrences of special-status fish, wildlife, and plant species in the region surrounding the study area. The four-quadrangle search area included the Auburn, Lake Combie, Greenwood, and Colfax USGS quadrangles. Salix biologists also reviewed the following special-status species list for the project vicinity:

- California Department of Fish and Wildlife list of Species of Special Concern.

For the purposes of this report, special-status species are those that fall into one or more of the following categories:

- Listed as endangered or threatened under the federal Endangered Species Act (or candidate species, or formally proposed for listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- Designated a Species of Special Concern by the California Department of Fish and Wildlife, or
- Designated as Ranks 1, 2, or 3 on lists maintained by the California Native Plant Society.

Field Assessments

Field assessments of the study area were conducted by Jeff Glazner and Hunter Gallant during December 2017 and January 2018 to characterize existing conditions and to assess the potential for sensitive plant and wildlife resources to occur. During the field assessments, plants and animals observed were documented, and habitat types were

determined. Biological communities of the study area were mapped and representative ground and aerial photographs were taken.

Plants observed are listed in Appendix A, and animals observed are listed in Appendix B. Plant names are according to *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et. al. 2012) and updated literature that supersedes the Jepson Manual. Standard manuals were used as needed to identify wildlife species observed.

SURVEY AND LITERATURE SEARCH RESULTS

Soils

Four soil units have been mapped within the study area and include the following (NRCS 2017):

Boomer-Rock outcrop complex, 5 to 30 percent slopes

The Boomer component of this complex makes up 55 percent of the soil map unit. Slopes are 5 to 30 percent. This component is on mountains, mountains. The parent material consists of residuum weathered from metavolcanics. Depth to a root restrictive layer, bedrock, paralithic, is 58 to 62 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Boomer-Rock outcrop complex, 30 to 50 percent slopes

The Boomer component of this complex makes up 55 percent of the soil map unit. Slopes are 30 to 50 percent. This component is on mountains, mountains. The parent material consists of residuum weathered from metavolcanics. Depth to a root restrictive layer, bedrock, paralithic, is 58 to 62 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Boomer variant very stony sandy loam, 15 to 50 percent slopes

The Boomer variant component makes up 75 percent of the soil map unit. Slopes are 15 to 50 percent. This component is on ridges. The parent material consists of residuum weathered from syenite. Depth to a root restrictive layer, bedrock, paralithic, is 60 to 64 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter

content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Water (100%)

The existing reservoir was mapped as water by USDA/NRCS.

Biological Communities

Two habitat components of the study area were mapped and are shown in Figure 3. Representative site photographs are presented in Figures 4a-c.

Table 1 Habitat Components within the Christian Valley Park CSD Study Area	
Habitat Component	Approximate Acreage
Foothill Woodland	0.9
Developed/Disturbed	0.8
Total	1.7

Foothill Woodland

The study area occurs in the foothill woodland belt of the western slope of the Sierra Nevada foothills. Christian Valley is highly developed, but the lot sizes are large (generally greater than 2-acres) so, although fragmented, much of the woodland is intact. Aside from the reservoir and road network, the site is wooded just over half of it (0.9-acre) is foothill woodland. The woodland areas are comprised primarily of interior live oak (*Quercus wislizeni*), black oak (*Q. kelloggii*), and foothill pine (*Pinus sabiniana*). Shrubs in the woodland area include buck brush (*Ceanothus cuneatus*), coyote bush (*Baccharis pilularis*), and toyon (*Heteromeles arbutifolia*).

Developed/Disturbed

Approximately 0.8 acre of the study area is developed/ disturbed, including a 0.4-acre shallow, lined reservoir used for water storage. The rest of the developed/ disturbed area includes a paved driveway along the eastern parcel boundary, leading to an area where an outbuilding and several propane tanks are located.



Waters of the U.S

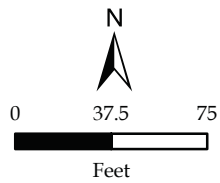
The site was evaluated for potential waters of the U.S. and none are present.


Wildlife Occurrence and Use

The foothill woodland components of the study area provided habitat for many common resident species including mule deer, coyote, striped skunk, western grey squirrel, opossum, and raccoon. Birds are common and the site may support nesting of

Habitat Components

-  Foothill Woodland (± 0.9 acre)
-  Developeped/Disturbed (± 0.8 acre)



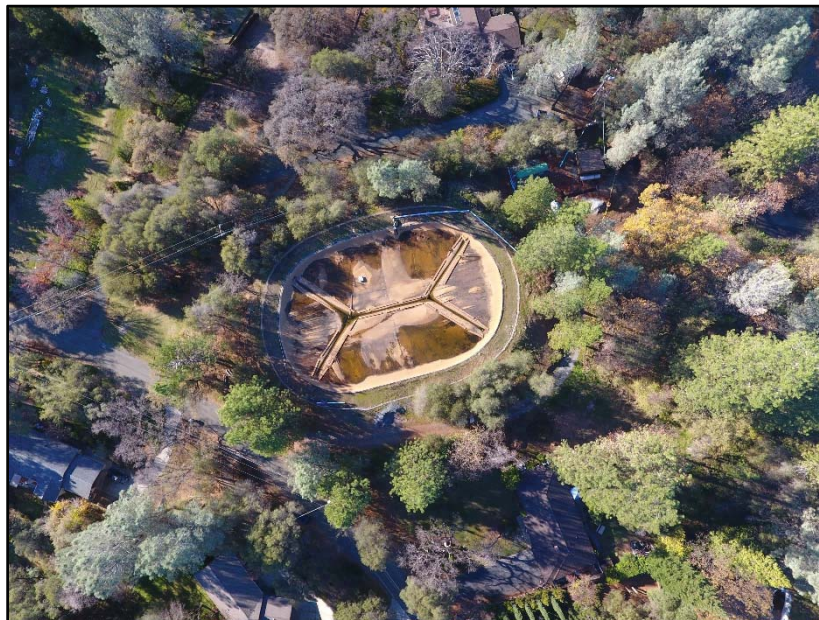
 Study Area
(± 1.7 acres)

Imagery:12-7-17 Salix Consulting, Inc.

Figure 3
HABITAT MAP
Christian Valley CSD
Placer County, CA



Aerial view of study area looking west. *Photo date 12-7-17.*



Aerial view of study area and existing reservoir.
Photo date 12-7-17.



Figure 4a

SITE PHOTOS
Christian Valley CSD
Placer County, CA



View of existing reservoir. *Photo date 12-7-17.*



Looking south along entry road toward Westridge Circle.
Existing reservoir to the west. *Photo date 12-7-17.*



Figure 4b

SITE PHOTOS
Christian Valley CSD
Placer County, CA



Looking south toward existing reservoir from north end of property. *Photo date 12-7-17.*



Looking south along fenceline of existing reservoir. *Photo date 12-7-17.*



Figure 4c

SITE PHOTOS
Christian Valley CSD
Placer County, CA

common resident and migratory songbirds. In addition to the species found in the ruderal area, the following species were observed foraging in the foothill woodland at the time of the field survey: western scrub-jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), dark-eyed junco (*Junco hyemalis*), turkey vulture (*Cathartes aura*)(soaring above), American crow (*Corvus brachyrhynchos*), and white-breasted nuthatch (*Sitta carolinensis*). A list of species observed during the site assessments is provided in Appendix B.

Special-Status Species

To determine potentially-occurring special-status species, the standard databases from the CDFW (CNDDDB 2017), CNPS, and USFWS were queried and reviewed. These searches provided a thorough list of regionally-occurring special-status species and were used to determine which species had at least some potential to occur within or near the study area. Figure 5 shows approximate locations of CNDDDB special-status plants and animals within a five-mile radius of the study area.

Appendix C lists potentially-occurring special-status plants, and Appendix D lists special-status animals compiled from our queries as described above. The field survey and the best professional judgment of Salix biologists were used to further refine the tables in Appendices C and D. Additionally, CNPS Rank 4 plant species are not considered further in the document.

Of the eight (8) potentially-occurring plant species in Appendix C, four (4) species were identified as occurring within the surrounding region (generally within a 5-mile radius of the study area) (Figure 5).

The site lacks serpentine/ gabbroic soils and for this reason, the following four (4) plant species have been dismissed from further consideration.

- Red Hills soaproot (*Chlorogalum grandiflorum*)
- Jepson's onion (*Allium jepsonii*)
- Stebbin's morning-glory (*Calystegia stebbinsii*)
- Butte County fritillary (*Fritillaria eastwoodiae*)

Jepson's coyote thistle (*Eryngium jepsonii*) has been dismissed due to the absence of vernal pools on the site.

Additionally, there is no probability for the following three (3) species to occur due to the absence of suitable habitat:

- Western viburnum (*Viburnum ellipticum*)
- Dubious pea (*Lathyrus sulphureus argillaceus*)
- Sierra bluegrass (*Poa sierrae*)

Of the nine (9) animal species in Appendix D three (3) species were identified as occurring within the surrounding region (within a 5-mile radius of the study area) (Figure 5).

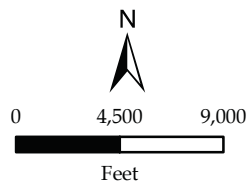
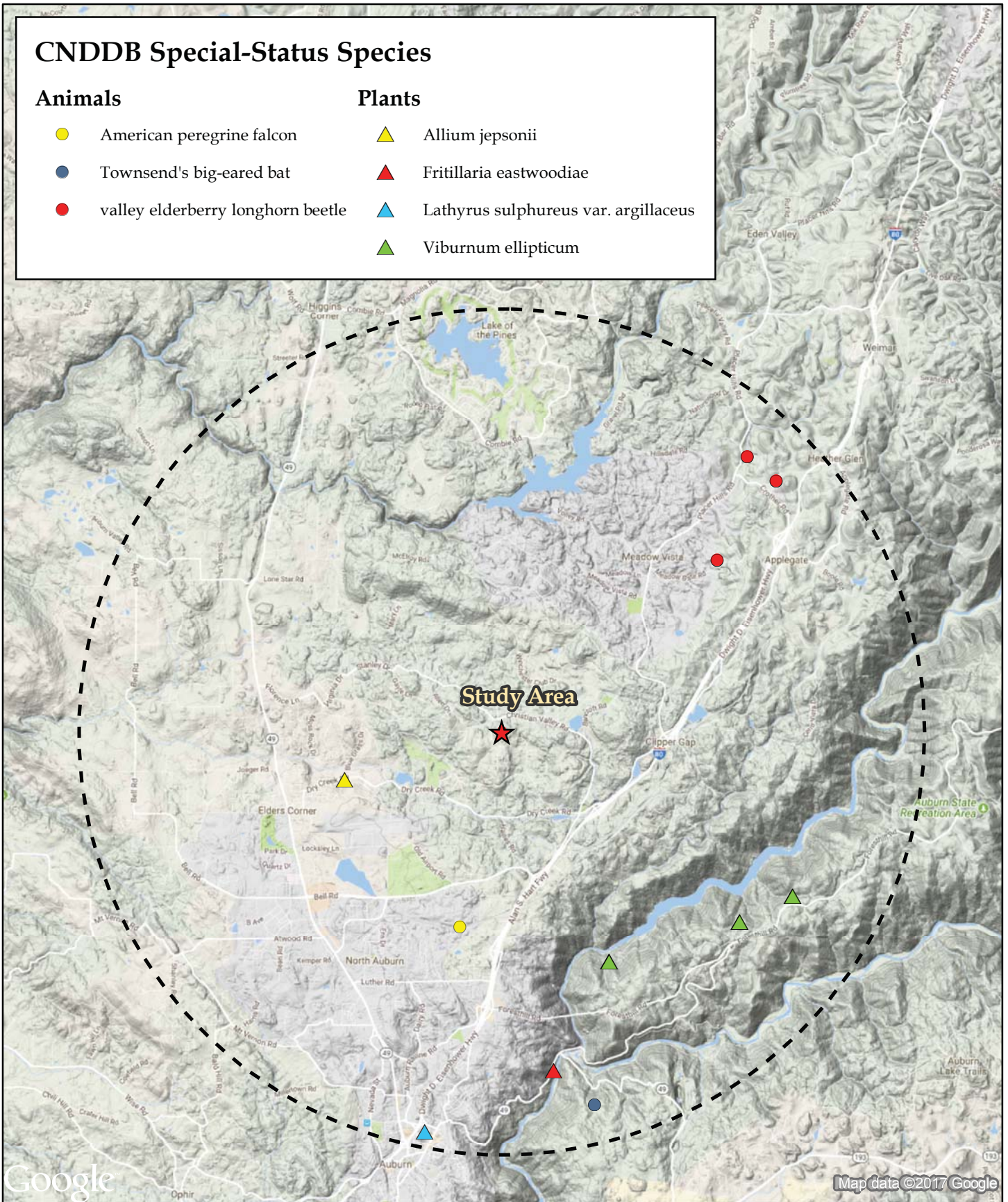
CNDDDB Special-Status Species

Animals

- American peregrine falcon
- Townsend's big-eared bat
- valley elderberry longhorn beetle

Plants

- ▲ Allium jepsonii
- ▲ Fritillaria eastwoodiae
- ▲ Lathyrus sulphureus var. argillaceus
- ▲ Viburnum ellipticum



- ★ Study Area
- 5-Mile Radius

Figure 5

CNDDDB OCCURRENCES MAP

Christian Valley CSD

Placer County, CA

Because the site lacks suitable habitat (specific host plant or suitable breeding or nesting habitat) or is located outside the range of the species, all nine animal species listed in Appendix D have been dismissed from further consideration:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Delta smelt (*Hypomesus transpacificus*)
- California red-legged frog (*Rana draytonii*)
- Foothill yellow-legged frog (*Rana boylei*)
- Western pond turtle (*Emys marmorata*)
- Coast horned lizard (*Phrynosoma blainvillii*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
- Fisher-West Coast DPS (*Pekania pennanti*)

No elderberry shrubs (*Sambucus nigra*) are present within the study area; thus there is no potential for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) to occur.

RECOMMENDATIONS

Waters of the United States

The site contains no potential waters of the U.S. Thus, Clean Water Act permits (Section 404 from U.S. Army Corps of Engineers and Section 401 Water Quality Certification from Regional Water Quality Control Board) will not be required.

Streams, Pond, and Riparian Habitat

The site contains no streams, ponds, or riparian habitat. Thus, a Lake and Streambed Alteration Agreement (LSAA) with the California Department of Fish and Wildlife (CDFW) will not be required.

Trees

Approximately half of the site is foothill woodland habitat. An arborist study was not conducted as part of this Biological Assessment. The Placer County Planning Department should be consulted regarding conformance with Placer County ordinances regarding tree preservation.

Special-Status Plants

The site provides no habitat to support special-status plant species known to occur within the region, and none were observed. No further studies are recommended

Special-Status Wildlife

The site provides no habitat to support special-status animal species known to occur within the region, and none were observed.

Nesting Raptors and Migratory Birds

Suitable habitat for nesting raptors occurs on the site both within the foothill woodland. In addition, the study area may support nesting songbirds that are protected by the Migratory Bird Treaty Act. If ground disturbance activities take place during the breeding/nesting season (February 1 through August 31), disturbance of nesting activities could occur. Thus, a pre-construction survey should be conducted by a qualified biologist no more than 15 days prior to initiation of proposed activities. If active nests are found on or immediately adjacent to the site, a nest avoidance plan shall be implemented with approval from Placer County Planning Department. The avoidance plan shall include appropriate buffers to the nest(s), and a qualified biologist should monitor the nest(s) and project activities to ensure no harm or agitation affects the nestlings. Once the birds have fledged, there is no longer a need for the buffer, and project activities could then proceed. If no nesting is found to occur, necessary tree and shrub removal could then proceed.

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Appendix A

Christian Valley Park CSD - Plants Observed - Dec. 2017, Jan. 2018

Gymnosperms

Pinaceae - Pine Family

<i>Pinus ponderosa</i>	Ponderosa pine
<i>Pinus sabiniana</i>	Gray pine

Angiosperms - Dicots

Anacardiaceae - Cashew or Sumac Family

<i>Toxicodendron diversilobum</i>	Western poison-oak
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Apiaceae (Umbelliferae) - Carrot Family

* <i>Torilis arvensis</i>	Field hedgeparsley
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Asteraceae (Compositae) - Sunflower Family

<i>Baccharis pilularis</i>	Coyote brush
* <i>Carduus pycnocephalus</i>	Italian thistle
* <i>Centaurea solstitialis</i>	Yellow starthistle
<i>Erigeron canadensis</i>	Canadian horseweed
* <i>Hypochaeris glabra</i>	Smooth cat's-ear
* <i>Lactuca serriola</i>	Prickly lettuce
* <i>Matricaria discoidea</i>	Pineapple-weed
* <i>Sonchus asper subsp. asper</i>	Prickly sow-thistle
* <i>Sonchus oleraceus</i>	Common sow-thistle

Caprifoliaceae - Honeysuckle Family

<i>Symphoricarpos mollis</i>	Creeping snowberry
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Caryophyllaceae - Pink Family

* <i>Stellaria media</i>	Common chickweed
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Ericaceae - Heath Family

<i>Arctostaphylos viscida</i>	Whiteleaf manzanita
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Fabaceae (Leguminosae) - Legume Family

* <i>Cytisus scoparius</i>	Scotch broom
* <i>Trifolium hirtum</i>	Rose clover
* <i>Vicia sativa</i>	Common vetch

Fagaceae - Oak Family

<i>Quercus kelloggii</i>	California black oak
<i>Quercus wislizeni</i>	Interior live oak

Geraniaceae - Geranium Family

* <i>Erodium botrys</i>	Broad-leaf filaree
* <i>Geranium dissectum</i>	Cut-leaf geranium

Hypericaceae - St. John's Wort Family

* <i>Hypericum perforatum subsp. perforatum</i>	Klamathweed
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Montiaceae - Miner's Lettuce Family

<i>Claytonia perfoliata</i>	Common miner's lettuce
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* Indicates a non-native species

Plantaginaceae - Plantain Family

**Plantago lanceolata*

English plantain

Polygonaceae - Buckwheat Family

**Polygonum aviculare*

Common knotweed

**Rumex crispus*

Curly dock

Rhamnaceae - Buckthorn Family

Ceanothus cuneatus var. *cuneatus*

Buck brush

Frangula californica subsp. *toментella*

Hoary coffeeberry

Rosaceae - Rose Family

Heteromeles arbutifolia

Toyon

**Rubus armeniacus*

Himalayan blackberry

Rubiaceae - Madder Family

Galium aparine

Goose grass

**Sherardia arvensis*

Common field madder

Angiosperms -Monocots

Agavaceae - Agave Family

Chlorogalum pomeridianum

Soaproot

Poaceae (Gramineae) - Grass Family

**Aira caryophylla*

Silver European hairgrass

**Avena barbata*

Slender wild oat

**Bromus diandrus*

Ripgut grass

**Bromus hordeaceus*

Soft chess

**Cynosurus echinatus*

Hedgehog dogtail

Elymus glaucus

Blue wildrye

**Festuca perennis*

Italian ryegrass

**Gastridium phleoides*

Nit grass

**Paspalum dilatatum*

Dallis grass

**Poa annua*

Annual bluegrass

Appendix B

Christian Valley Park CSD - Wildlife Observed - Dec. 2017-Jan. 2018

Birds

Turkey vulture	<i>Cathartes aura</i>
Acorn woodpecker	<i>Melanerpes formicivorus</i>
Western scrub-jay	<i>Aphelocoma californica</i>
American crow	<i>Corvus brachyrhynchos</i>
Oak titmouse	<i>Baeolophus inornatus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Bewick's wren	<i>Thryomanes bewickii</i>
Spotted towhee	<i>Pipilo maculatus</i>
Dark-eyed junco	<i>Junco hyemalis</i>
House sparrow	<i>Passer domesticus</i>

Mammals

Western gray squirrel	<i>Sciurus griseus</i>
Mule deer	<i>Odocoileus hemionus</i>

Appendix C

Christian Valley Park CSD - Potentially-occurring Special-status Plants

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Adoxaceae <i>Viburnum ellipticum</i> Western viburnum	Fed: - State: - CNPS: Rank 2B.3	May-July	Chaparral; cismontane woodland; lower montane coniferous forest.	None. No suitable habitat present.
Agavaceae <i>Chlorogalum grandiflorum</i> Red Hills soaproot	Fed: FSW State: - CNPS: Rank 1B.2	May-June	Chaparral; cismontane woodland; [serpentinite or gabbroic].	None. No suitable soils (serpentine) present.
Alliaceae <i>Allium jepsonii</i> Jepson's onion	Fed: FSW State: - CNPS: Rank 1B.2	May-August	Cismontane woodland; lower montane coniferous forest [serpentinite or volcanic]. 300 to 1160 meters.	None. No suitable soils (serpentine) present.
Apiaceae (Umbelliferae) <i>Eryngium jepsonii</i> Jepson's coyote thistle	Fed: - State: - CNPS: Rank 1B.2	April-August	Clay. Valley and foothill grassland. Vernal pools.	None. No suitable habitat (clay, vernal pools) present.
Convolvulaceae <i>Calystegia stebbinsii</i> Stebbins' morning-glory	Fed: FE State: CE CNPS: Rank 1B.1	May-June	Chaparral (openings); cismontane woodland; [serpentinite or gabbroic].	None. No suitable soils (serpentine) present.
Fabaceae (Leguminosae) <i>Lathyrus sulphureus argillaceus</i> Dubious pea	Fed: - State: - CNPS: Rank 3.	April-May	Cismontane woodland; upper and lower montane coniferous forest.	None. No suitable habitat present.

Appendix C

Christian Valley Park CSD - Potentially-occurring Special-status Plants

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Liliaceae <i>Fritillaria eastwoodiae</i> Butte County fritillary	Fed: - State: - CNPS: Rank 3.2	March-June	Chaparral; cismontane woodland; lower montane coniferous forest (openings); [sometimes serpentine].	None. No suitable habitat, no serpentine, present.
Poaceae (Gramineae) <i>Poa sierrae</i> Sierra bluegrass	Fed: FSS State: - CNPS: Rank 1B.3	April-June	Lower montane coniferous forest. 365-1500 m.	None. No suitable habitat present.

***Status**

<p>Federal: FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate FSS - Forest Service Sensitive FSW - Forest Service Watchlist</p>	<p>State: CE - California Endangered CT - California Threatened CR - California Rare CSC - California Species of Special Concern</p>	<p>CNPS (California Native Plant Society - List.RED Code): Rank 1A - Extinct Rank 1B - Plants rare, threatened, or endangered in California and elsewhere Rank 2A- Plants extinct in California, but more common elsewhere Rank 2B - Plants rare, threatened, or endangered in California, more common elsewhere Rank 3 - Plants about which more information is needed, a review list Rank 4 - Plants of limited distribution, a watch list RED Code 1 - Seriously endangered (>80% of occurrences threatened) 2 - Fairly endangered (20 to 80% of occurrences threatened) 3 - Not very endangered (<20% of occurrences threatened)</p>
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Appendix D

Christian Valley Park CSD - Potentially-occurring Special-status Animals

	Status*	Habitat	Probability on Project Site
Insects			
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	Fed: FT State: - Other: *	Requires host plant, elderberry (<i>Sambucus nigra</i>) for most of its life cycle. Shrubs must have stem diameters at ground level of 1.0 inch or greater and shrubs must be found less than 3,000 feet in elevation. Typically riparian and upland associated.	None. No elderberry plants present within study area.
Fish			
Delta smelt <i>Hypomesus transpacificus</i>	Fed: FT State: CT Other: -	Endemic to the Sacramento-San Joaquin Delta in coastal and brackish waters. Occurs seasonally in Suisun and San Pablo bays. Spawning usually occurs in dead-end sloughs and shallow channels.	None. No suitable habitat present within study area.
Amphibians			
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: SSC Other: -	Occurs in lowlands and foothills in deeper pools and slow-moving streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	None. No suitable habitat present within study area.
Foothill yellow-legged frog <i>Rana boylei</i>	Fed: - State: CC Other: *	Found in partially shaded, shallow streams with rocky substrates. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	None. No suitable habitat present within study area.
Reptiles			
Western pond turtle <i>Actinemys marmorata</i>	Fed: - State: SSC Other: -	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying.	None. No suitable habitat present within study area.
Coast horned lizard <i>Phrynosoma blainvillii</i>	Fed: - State: SSC Other: -	Open lowlands, washes, and sandy areas with an exposed gravelly-sandy substrate containing scattered shrubs. Edge of Sacramento Valley and in the Sierra Nevada foothills. Also observed in riparian woodland clearings and dry uniform chamise chaparral.	None. No suitable habitat present within study area.

Appendix D Christian Valley Park CSD - Potentially-occurring Special-status Animals

Status*	Habitat	Probability on Project Site
Birds		
American peregrine falcon <i>Falco peregrinus anatum</i>	Nests on cliffs, banks, dunes, mounds, and tall man-made structures.	None. No suitable nesting habitat present within study area.
Fed: - State: CFP Other: *		
Mammals		
Townsend's big-eared bat <i>Corynorhinus townsendii townsendii</i>	Found in a variety of habitats. Most common in mesic sites with forest or woodland component. Roosting and maternity sites in caves, mines, lava tubes, tunnels, and buildings. Gleans insects from brush or trees and feeds along habitat edges.	None. No suitable habitat present within study area.
Fed: - State: - Other: SSC		
Fisher - West Coast DPS <i>Pekania pennanti</i>	Occurs in intermediate to large-tree stage coniferous forests and riparian woodlands with a high percent level of canopy closure. .	None. No suitable habitat present within study area.
Fed: FPT State: CC Other: SSC		
*Status	Federal: FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate FPD - Federal Proposed for Delisting	State: CE - California Endangered CT - California Threatened CR - California Rare CC - California Candidate CFP - California Fully Protected CSC - California Species of Special Concern
	Other: Some species have protection under the other designations, such as the California Department of Forestry Sensitive Species, Bureau of Land Management Sensitive Species, U.S.D.A. Forest Service Sensitive Species, and the Migratory Bird Treaty Act. Raptors and their nests are protected by provisions of the California Fish and Game Code. Certain areas, such as wintering areas of the monarch butterfly, may be protected by policies of the California Department of Fish and Game. WL - CDFG Watch List	

APPENDIX E

Arborist Report and Tree Inventory Summary

**ARBORIST REPORT
AND
TREE INVENTORY SUMMARY**

**CHRISTIAN VALLEY RESERVOIR PROJECT SITE
5174 Westridge Circle, Auburn
[APN 077-215-006-000]
County of Placer, California**

Prepared for:

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Prepared by:

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ISA Certified Arborist WE-0959A, 1992
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February 19, 2018

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APPENDICES:

- A. Tree Inventory Summary (sorted by tree number)
- B. Tree Inventory Exhibit

COPYRIGHT STATEMENT

This consultant's report, dated February 19, 2018, is for the exclusive and confidential use of Christian Valley Park, CDS concerning potential development of Christian Valley Reservoir Project Site, located at 5174 Westridge Circle, Auburn, in the County of Placer, California. Any use of this report, the accompanying appendices, or portions thereof, other than for project review and approval by appropriate governmental authorities, shall be subject to and require the written permission of Acorn Arboricultural Services, Inc.. Unauthorized modification, distribution and/or use of this report, including the data or portions thereof contained within the accompanying appendices, is strictly prohibited.

QUALIFICATION STATEMENT

Acorn Arboricultural Services, Inc. is a fully insured, Roseville based, professional arboricultural services company which was founded in 2010 following a parent corporation restructuring. The principals are Delinda and Jay Bate. Wayne McKee is an ISA Certified Arborist and is Tree Risk Assessment Qualified. He graduated from Humboldt State University with a B.S. in Forestry. Wayne has more than 36 years' experience in the horticulture, forestry, and arboricultural fields. He has a background working as a consulting arborist compiling tree value assessments, tree inventories, and tree risk assessments, as well as acting as a project arborist on many commercial and residential development projects.

INTRODUCTION

Acorn Arboricultural Services, Inc. is pleased to present this Arborist Report and Tree Inventory Summary for the trees located within and/or overhanging the property located at the Christian Valley Reservoir, located at 5174 Westridge Circle, Auburn, in the County of Placer, California. This Arborist Report and Tree Inventory Summary memorializes tree data obtained by Wayne McKee, ISA Certified Arborist WE-0959A, at the time of field reconnaissance and inventory efforts on February 11, 2018.

SCOPE OF INVENTORY EFFORT

The County of Placer has enacted a Tree Preservation and Protection Ordinance which regulates both the removal of “protected trees” and the encroachment of construction activities within their driplines. The County of Placer Code requires as an element of a tree permit application preparation of a site plan which depicts, among other things, the location and protected zones for each protected tree on the proposed project site, and further requires an inventory and preparation of an Arborist Report which includes specific data for the protected trees within the project boundaries.

The Code defines a “Protected Tree” as any tree, including a landmark tree, for which a tree permit is required prior to any removal or development activity being conducted within the protected zone. The Code also defines a “Tree” as a tall woody plant native to California, with a single main stem or trunk at least six inches DBH or a multiple trunk with an aggregate of at least ten inches DBH. (Note: Digger Pines (foothill pines) are exempt from this article. Also, see “riparian zone” definition.) Certain plants which are more commonly found as “brush,” such as manzanita, are not considered to be a tree in this article regardless of size.

At the request of Christian Valley Park, CDS, Wayne McKee of Acorn Arboricultural Services, Inc. visited the Christian Valley Reservoir Project Site, located in the County of Placer, California. The purpose of this field reconnaissance effort was to identify, inventory, and comment upon the current structure and vigor of the “Trees” located within and/or overhanging the proposed project area.

The Tree Inventory Summary presents information concerning the species, size, and current condition of the “Trees” within and/or overhanging the proposed project area, along with pre-development recommendations on a tree-by-tree basis which logically follow the characteristics noted within the trees at the time of field inventory efforts. Information concerning the nature and extent of root system and canopy impacts which will be sustained by the trees from proposed development activities, along with specific tree-by-tree mitigation recommendations for the trees which will sustain encroachment into their protected root zones can be provided in a Supplemental Arborist Report and Construction Impact

Assessment once development plans have been refined and finalized for the proposed project area if requested by the County of Placer.

METHODOLOGY

During field reconnaissance and inventory efforts, Wayne McKee of Acorn Arboricultural Services, Inc. conducted a visual review from ground level of the trees within and/or overhanging the project site area. The tree numbers utilized in this report and accompanying Tree Inventory Summary correspond to the tree tags which were affixed to the trees in the field, and those tree numbers or grouping of numbers were recorded next to the locations shown on the Topographic Survey, Christian Valley Reservoir Site by Andregg Geomatics, dated January 28, 2015, referenced as the Tree Inventory Exhibit (Appendix B). Gaps in the numbering sequence are tags not found or not used, the trees were numbered by others using oval stamped metal tags, with the exception of numbers 130 through 141. Numbers 130 through 141 are ordinance trees that had not been tagged or located and were numbered by us using square stamped metal tags backed by blue flagging and plotted on the Tree Inventory Exhibit.

At the time of field identification and inventory efforts, specific data was gathered for each tagged tree including the species, diameter measured at breast height (“DBH”), and dripline radius (“DLR”). Utilizing this data, the tree’s overall structural condition and vigor were separately assessed, ranging from “excellent”¹ to “poor” based upon the observed characteristics noted within the tree and the Arborist’s best professional judgment. Ratings are subjective and are dependent upon both the structure and vigor of the tree. The vigor rating considers factors such as the size, color, and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency and insect infestation. The structural rating reflects the root crown/collar, trunk and branch configurations; canopy balance; the presence of included bark, weak crotches and other structural defects and decay and the potential for structural failure. Finally, notable characteristics were documented and recommendations on a tree-by-tree basis were made which logically followed the observed characteristics noted within the trees at the time of the field inventory effort. The recommendations are based on the assumption that the tree would be introduced into a developed environment and may require maintenance and/or may not be suitable for retention within a post-development setting.

¹ It is rare that a tree qualifies in an “excellent” category, and it should be noted that there were no trees observed within the project area which fell within the criteria of an “excellent” or “good” rating. A complete description of the terms and ratings utilized in this report and accompany inventory summary are found on pages 8- 9.

SUMMARY OF INVENTORY EFFORT

Field reconnaissance and inventory efforts found 58 “Trees” measuring 6 inches in diameter and larger single stems, multiple trunk with an aggregate of at least ten inches measured at breast height within and/or overhanging the proposed project area and 14 foothill pines (exempt) tagged by others. Composition of the 72 inventoried trees includes the following species and accompanying aggregate diameter inches:

SPECIES DIVERSIFICATION			
Blue Oak	=	1 tree	(11 aggregate diameter inches)
California Black Oak	=	18 trees	(227 aggregate diameter inches)
Foothill Pine	=	14 trees	(221 aggregate diameter inches)
Interior Live Oak	=	21 trees	(338 aggregate diameter inches)
Ponderosa Pine	=	18 trees	(331 aggregate diameter inches)
TOTAL	=	72 trees	(1,128 aggregate diameter inches)

NON-EXEMPT / EXEMPT			
Total Non-Exempt	=	58 trees	(907 aggregate diameter inches)
Total Exempt	=	14 trees	(221 aggregate diameter inches)
TOTAL	=	72 trees	(1,128 aggregate diameter inches)

Recommended Removals

At this time, no trees have been recommended for removal from the proposed project area due to the nature and extent of defects, compromised health, and/or structural instability noted at the time of field inventory efforts.

It should also be noted that some of the trees within the proposed project area are trees which may be undesirable on residential lots, or are trees which will require periodic/seasonal monitoring to assess the trees’ ongoing structural integrity. At this early stage of the project Acorn Arboricultural Services, Inc. has not recommended the removal of these trees since development plans, including proposed home sites and building footprints, have not yet been finalized and the precise location of these trees in proximity to planned improvement activities is not known. At this time it is recommended that these trees be monitored and thoroughly inspected by a qualified ISA Certified Arborist on at least an annual basis to keep abreast of the trees’ changing condition(s) and to assess the trees’ ongoing structural integrity and potential for hazard in a developed environment.

GENERAL COMMENTS AND ARBORISTS’ DISCLAIMER

The County of Placer regulates both the removal of “protected trees” and the encroachment of construction activities within their driplines. Therefore, a tree permit and/or additional

of any trees within the proposed project area. All terms and conditions of the tree permit and/or other Conditions of Approval are the sole and exclusive responsibility of the project applicant. It should be noted that prior to final inspection written verification from an ISA Certified Arborist may be required certifying the approved removal activities and/or implementation of other Conditions of Approval outlined for the retained trees on the site. ***Acorn Arboricultural Services, Inc. will not provide written Certification of Compliance unless we have been provided with a copy of the approved site development plans, applicable permits and/or Conditions of Approval, and are on site to monitor and observe regulated activities during the course of construction.*** Therefore, it will be necessary for the project applicant to notify Acorn Arboricultural Services, Inc. well in advance (at least 72 hours prior notice) of any regulated activities which are scheduled to occur on site so that those activities can be properly monitored and documented for compliance certification.

Please bear in mind that implementation of the recommendations provided within this report will help to reduce adverse impacts of construction on the retained trees; however, implementation of any recommendations should not be viewed as a guarantee or warranty against the trees' ultimate demise and/or failure in the future. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of the trees and ***attempt to reduce the risk of living near trees.*** Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Entities who choose to construct homes on wooded property are accepting a certain level of risk from unpredictable tree related hazards such as toppling in storms, limbs falling and fires that may damage property at some time in the future. Since trees are living organisms their structure and vigor constantly change over time, and they are not immune to changes in site conditions or seasonal variations in the weather. Further, conditions are often hidden within the tree and/or below ground. Arborists and other tree care professionals cannot guarantee that a tree will be healthy and/or safe under all circumstances or for a specific period of time. Likewise remedial treatments cannot be guaranteed. Trees can be managed but they cannot be controlled. To develop land and live near trees is to accept some degree of risk and the only way to eliminate all risk associated with trees would be to eliminate all of the trees. ***An entity who develops land and builds a home with a tree in the vicinity should be aware of and inform their future residents of this Arborists' Disclaimer, and be further advised that the developer and the future residents assume the risk that a tree could at any time suffer a branch and/or limb failure, blow over in a storm and/or fail for no apparent reason which may cause bodily injury or property damage.*** Acorn Arboricultural Services, Inc. cannot predict acts of nature including, without limitation, storms of sufficient strength which can even take down a tree with a structurally sound and vigorous appearance.

Finally, the trees preserved within and/or overhanging the proposed project area will experience a physical environment different from the pre-development environment. As a result, tree health and structural stability should be regularly monitored. Occasional pruning, fertilization, mulch, pest management, replanting and/or irrigation may be required. In addition, ***provisions for monitoring both tree health and structural stability following***

construction must be made a priority. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, ***the future management plan must include an annual inspection*** by a qualified ISA Certified Arborist to keep abreast of the trees' changing condition(s) and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

Thank you for allowing Acorn Arboricultural Services, Inc. to assist you with this review. Please feel free to give me a call if you have any questions or require additional information and/or clarification.

Sincerely,



Wayne McKee
ISA Certified Arborist WE-0959A, 1992
ISA Tree Risk Assessment Qualified, 2017
B S Forestry, Humboldt State University, 1983

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant shall not be required to give a deposition and/or attend court by reason of this report unless subsequent contractual arrangements are made for in advance, including payment of an additional fee for such services according to our standard fee schedule, adjusted yearly, and terms of the subsequent contract of engagement.
5. Loss or alteration of any part of this report invalidates the entire report. Ownership of any documents produced passes to the Client only when all fees have been paid.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.
7. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of the consultant, particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in his qualifications.
8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, drawings and photographs within this report are intended as visual aids and are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by other consultants is for coordination and ease of

reference. Inclusion of such information does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing or coring, unless otherwise stated.
11. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.
12. This report is based on the observations and opinions of Wayne McKee, and does not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described herein. Neither this author nor Acorn Arboricultural Services, Inc. has assumed any responsibility for liability associated with the trees on or adjacent to this project site, their future demise and/or any damage which may result therefrom.
13. The information contained within this report is true to the best of the author's knowledge and experience as of the date it was prepared; however, certain conditions may exist which only a comprehensive, scientific, investigation might reveal which should be performed by other consulting professionals.
14. The legal description, dimensions, and areas herein are assumed to be correct. No responsibility is assumed for matters that are legal in nature.
15. Any changes to an established tree's environment can cause its decline, death and/or structural failure.

DEFINITIONS

Tree Number:	Corresponds to aluminum tag attached to the tree.
Species Identification:	Scientific and common species name.
Diameter (“DBH”):	This is the trunk diameter measured at breast height (industry standard 4.5 feet above ground level).
Dripline radius (“DLR”):	A radius equal to the horizontal distance from the trunk of the tree to the end of the farthest most branch tip prior to any cutting. When depicted on a map, the dripline will appear as an irregularly shaped circle that follows the contour of the tree’s branches as seen from overhead.
Protected Zone:	A circle equal to the largest radius of a protected tree’s dripline plus 1 foot.
Root Crown:	Assessment of the root crown/collar area located at the base of the trunk of the tree at soil level.
Trunk:	Assessment of the tree’s main trunk from ground level generally to the point of the primary crotch structure.
Limbs:	Assessment of both smaller and larger branching, generally from primary crotch structure to branch tips.
Foliage:	Tree’s leaves.
Overall Condition:	Describes overall condition of the tree in terms of structure and vigor.
Recommendation:	Pre-development recommendations based upon observed characteristics noted at the time of the field inventory effort.
Obscured:	Occasionally some portion of the tree may be obscured from visual inspection due to the presence of dense vegetation which, during the course of inspection for the arborist report, prevented a complete evaluation of the tree. In these cases, if the tree is to be retained on site the vegetation should be removed to allow for a complete assessment of the tree prior to making final decisions regarding the suitability for retention.

TREE CONDITION RATING CRITERIA

RATING TERM	ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR
Good	No apparent injuries, decay, cavities or evidence of hollowing; no anchoring roots exposed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; no codominant attachments or multiple trunk attachments are observed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; below average amount of dead limbs or twigs; no major limb failures or included bark; callus growth is vigorous	Leaf size, color and density are typical for the species; buds are normal in size, viable, abundant and uniform throughout the canopy; annual seasonal growth increments are average or above average; no insect or disease infestations/infections evident	No apparent structural defects; no weak crotches; no excessively weighted branches and no significant cavities or decay	Tree appears healthy and has little or no significant deadwood; foliage is normal and healthy
Fair	Small to moderate injuries, decay, cavities or hollowing may be evident but are not currently affecting the overall structure; some evidence of infestation or disease may be present but is not currently affecting the tree's structure	Small to moderate injuries, decay, cavities or hollowing may be evident; codominant branching or multiple trunk attachments or minor bark inclusion may be observed; some infestation or disease may be present but not currently affecting the tree's structure	Small to moderate injuries, decay or cavities may be present; average or above average dead limbs or twigs may be present; some limb failures or bark inclusion observed; callus growth is average	Leaf size, color and density are typical or slightly below typical for the species; buds are normal or slightly sparse with potentially varied viability, abundance and distribution throughout the canopy; annual seasonal growth increments are average or slightly below average; minor insect or disease infestation/infection may be present	Minor structural problems such as weak crotches, minor wounds and/or cavities or moderate amount of excessive weight; non-critical structural defects which can be mitigated through pruning, cabling or bracing	Tree appears stressed or partially damaged; minimal vegetative growth since previous season; moderate amount of deadwood, abnormal foliage and minor lesions or cambium dieback
Poor	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the overall structure; presence of infestation or disease may be significant and affecting the tree's structure	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the tree's structure; presence of infestation or disease may be significant and affecting the tree's structure	Severe injuries, decay or cavities may be present; major deadwood, twig dieback, limb failures or bark inclusion observed; callus growth is below average	Leaf size, color and density are obviously abnormal; buds are obviously abnormal or absent; annual seasonal growth is well below average for the species; insect or disease problems may be severe	Obvious major structural problems which cannot be corrected with mitigation; potential for major limb, trunk or root system failure is high; significant decay or dieback may be present	Tree health is declining; no new vegetative growth; large amounts of deadwood; foliage is severely abnormal

The ratings "good to fair" and "fair to poor" are used to describe trees that fall between the described major categories and have elements of both

GENERAL PROTECTION GUIDELINES **FOR TREES PLANNED FOR PRESERVATION**

Great care must be exercised when work is conducted upon or around protected trees. The purpose of these General Protection Measures is to provide guidelines to protect the health of the affected protected trees. These guidelines apply to all encroachments into the protected zone of a protected tree, and may be incorporated into tree permits and/or other Conditions of Approval as deemed appropriate by the applicable governing body.

A circle with a radius measurement from the trunk of the tree to the tip of its longest limb, plus one foot, shall constitute the critical root zone protection area of each protected tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each protected tree. Removing limbs that make up the dripline does not change the protected area.

Any protected trees on site which require pruning shall be pruned by an ISA Certified Arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute (ANSI) A300 pruning standards, ANSI Standard 2133.1-2000 regarding safety practices, and the International Society of Arboriculture (ISA) "Tree Pruning Guidelines" and Best Management Practices.

Prior to initiating construction, temporary protective fencing shall be installed at least one foot outside the root protection zone of the protected trees in order to avoid damage to the tree canopies and root systems. Fencing shall be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the review body. The developer shall contact the Project Arborist and the Planning Department for an inspection of the fencing prior to commencing construction activities on site.

Signs shall be installed on the protective fence in four (4) equidistant locations around each individual protected tree. The size of each sign must be a minimum of two (2) feet by two (2) feet and must contain the following language:

**WARNING: THIS FENCE SHALL NOT BE REMOVED OR RELOCATED
WITHOUT WRITTEN AUTHORIZATION FROM THE COUNTY OF
PLACER.**

Once approval has been obtained by the County of Placer, protective fencing shall remain in place throughout the entire construction period and shall not be removed, relocated, taken down or otherwise modified in whole or in part without prior written authorization from the Agency, or as deemed necessary by the Project Arborist to facilitate approved activities within the root protection zone.

Any removal of paving or structures (i.e. demolition) that occurs within the dripline of a protected tree shall be done under the direct supervision of the Project Arborist. To the maximum extent feasible, demolition work within the dripline protection area of the protected tree shall be performed by hand. If the Project Arborist determines that it is not feasible to perform some portion(s) of this work by hand, then the smallest/lightest weight equipment that will adequately perform the demolition work shall be used.

No signs, ropes, cables (except those which may be installed by an ISA Certified Arborist to provide limb support) or any other items shall be attached to the protected trees. Small metallic numbering tags for the purpose of identification in preparing tree reports and inventories shall be allowed.

No vehicles, construction equipment, mobile homes/office, supplies, materials or facilities shall be driven, parked, stockpiled or located within the driplines of protected trees.

Drainage patterns on the site shall not be modified so that water collects, stands or is diverted across the dripline of any protected tree.

No trenching shall be allowed within the driplines of protected trees, except as specifically approved by the Planning Department as set forth in the project's Conditions of Approval and/or approved tree permit. If it is absolutely necessary to install underground utilities within the dripline of a protected tree the utility line within the protected zone shall be "bored and jacked" or performed utilizing hand tools to avoid root injury under the direct supervision of the Project Arborist.

Grading within the protected zone of a protected tree shall be minimized. Cuts within the protected zone shall be maintained at less than 20% of the critical root zone area. Grade cuts shall be monitored by the Project Arborist. Any damaged roots encountered shall be root pruned and properly treated as deemed necessary by the Project Arborist.

Minor roots less than one (1) inch in diameter encountered during approved excavation and/or grading activities may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area as deemed necessary by the Project Arborist.

Major roots greater than one (1) inch in diameter encountered during approved excavation and/or grading activities may not be cut without approval of the Project Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the roots and the tree.

Cut faces, which will be exposed for more than 2-3 days, shall be covered with dense burlap fabric and watered to maintain soil moisture at least on a daily basis (or possibly more frequently during summer months). If any native ground surface fabric within the protected zone must be removed for any reason, it shall be replaced within forty-eight (48) hours.

If fills exceed 1 foot in depth up to 20% of the critical root zone area, aeration systems may serve to mitigate the presence of the fill materials as determined by the Project Arborist.

When fill materials are deemed necessary on two or three sides of a tree it is critical to provide for drainage away from the critical root zone area of the tree (particularly when considering heavy winter rainfalls). Overland releases and subterranean drains dug outside the critical root zone area and tied directly to the main storm drain system are two options.

In cases where a permit has been approved for construction of a retaining wall(s) within the protected zone of a protected tree the applicant will be required to provide for immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall within the protected zone of the protected tree shall be constructed within seventy-two (72) hours after completion of grading within the root protection zone.

The construction of impervious surfaces within the dripline of a protected tree shall be minimized. When necessary, a piped aeration system shall be installed under the direct supervision of the Project Arborist.

Preservation devices such as aeration systems, tree wells, drains, special paving and cabling systems must be installed in conformance with approved plans and certified by the Project Arborist.

No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the dripline of a protected tree. An above ground drip irrigation system is recommended. An independent low-flow drip irrigation system may be used for establishing drought-tolerant plants within the protected zone of a protected tree. Irrigation shall be gradually reduced and discontinued after a two (2) year period.

All portions of permanent fencing that will encroach into the protected zone of a protected tree shall be constructed using posts set no closer than ten (10) feet on center. Posts shall be spaced in such a manner as to maximize the separation between the tree trunks and the posts in order to reduce impacts to the tree(s).

Landscaping beneath native oak trees may include non-plant materials such as bark mulch, wood chips, boulders, etc. Planting live material under protected native oak trees is generally discouraged, and is not recommended within six (6) feet of the trunk of a native oak tree with a diameter at breast height (DBH) of eighteen (18) inches or less, or within ten (10) feet of the trunk of a native oak tree with a DBH of more than eighteen (18) inches. The only plant species which shall be planted within the dripline of native oak trees are those which are tolerant of the natural, semi-arid environs of the tree(s).

CHRISTIAN VALLEY PARK, CDS
Christian Valley Reservoir Project Site
5174 Westridge Circle, Auburn
County of Placer, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT		NOTABLE CHARACTERISTICS	MAINTENANCE RECOMMENDATIONS	EXEMPT TREES
						STRUCTURE	VIGOR			
130	Ponderosa Pine	<i>(Pinus ponderosa)</i>		27	23	Fair	Fair		None at this time.	
131	Interior Live Oak	<i>(Quercus wislizeni)</i>	4,6	10	17	Fair	Fair		None at this time.	
132	Blue Oak	<i>(Quercus douglasii)</i>	5,6	11	14	Fair	Fair		None at this time.	
133	Interior Live Oak	<i>(Quercus wislizeni)</i>	3,4,4,4,5,5	25	15	Fair	Fair		None at this time.	
134	California Black Oak	<i>(Quercus kelloggii)</i>		7	12	Fair	Fair		None at this time.	
135	Interior Live Oak	<i>(Quercus wislizeni)</i>		6	15	Fair	Fair		None at this time.	
136	Interior Live Oak	<i>(Quercus wislizeni)</i>		6	18	Fair	Fair		None at this time.	
137	California Black Oak	<i>(Quercus kelloggii)</i>		7	12	Fair	Poor to fair		None at this time.	
138	California Black Oak	<i>(Quercus kelloggii)</i>		6	14	Fair	Fair		None at this time.	
139	Interior Live Oak	<i>(Quercus wislizeni)</i>		6	13	Fair	Fair		None at this time.	
140	Interior Live Oak	<i>(Quercus wislizeni)</i>	3,4,5	12	13	Fair	Fair		None at this time.	
141	Interior Live Oak	<i>(Quercus wislizeni)</i>	5,5	10	14	Fair	Fair		None at this time.	
548	California Black Oak	<i>(Quercus kelloggii)</i>		12	18	Fair	Fair		None at this time.	
549	Interior Live Oak	<i>(Quercus wislizeni)</i>		9	17	Poor to fair	Poor	Located offsite about 2' to the north.	None at this time.	
552	Interior Live Oak	<i>(Quercus wislizeni)</i>		12	20	Fair	Fair		None at this time.	
553	Interior Live Oak	<i>(Quercus wislizeni)</i>	6,7,8,9	30	26	Poor to fair	Poor to fair	Excessive amount of deadwood; several branch failures.	None at this time.	
554	California Black Oak	<i>(Quercus kelloggii)</i>		11	16	Fair	Fair		None at this time.	
556	Foothill Pine	<i>(Pinus sabiniana)</i>		18	34	Poor to fair	Fair	Leans significantly to the south.	None at this time.	X
555	Interior Live Oak	<i>(Quercus wislizeni)</i>	7,7	14	24	Poor to fair	Poor to fair	Excessive amount of deadwood; leans and bends to the east.	None at this time.	
558	Interior Live Oak	<i>(Quercus wislizeni)</i>	3,6	9	16	Poor to fair	Fair	Split in the lower trunk at the point of an old attachment.	None at this time.	X
559	California Black Oak	<i>(Quercus kelloggii)</i>		11	26	Fair	Fair		None at this time.	
562	California Black Oak	<i>(Quercus kelloggii)</i>		12	23	Fair	Fair		None at this time.	
563	California Black Oak	<i>(Quercus kelloggii)</i>		8	15	Fair	Fair		None at this time.	
564	California Black Oak	<i>(Quercus kelloggii)</i>		14	18	Fair	Fair		None at this time.	
565	California Black Oak	<i>(Quercus kelloggii)</i>		17	24	Fair	Fair		None at this time.	
566	California Black Oak	<i>(Quercus kelloggii)</i>		10	16	Poor to fair	Poor to fair	Callusing trunk wounds, various locations, with minor decay; past branch failures.	None at this time.	
567	California Black Oak	<i>(Quercus kelloggii)</i>		14	28	Poor to fair	Fair	Past branch failure.	None at this time.	
568	Ponderosa Pine	<i>(Pinus ponderosa)</i>		16	16	Fair	Fair		None at this time.	
569	California Black Oak	<i>(Quercus kelloggii)</i>		14	25	Fair	Fair		None at this time.	
570	Interior Live Oak	<i>(Quercus wislizeni)</i>		6	13	Fair	Fair		None at this time.	

CHRISTIAN VALLEY PARK, CDS
Christian Valley Reservoir Project Site
5174 Westridge Circle, Auburn
County of Placer, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT		NOTABLE CHARACTERISTICS	MAINTENANCE RECOMMENDATIONS	EXEMPT TREES
						STRUCTURE	VIGOR			
571	Ponderosa Pine	<i>(Pinus ponderosa)</i>		19	17	Fair	Poor to fair	Dieback throughout the crown; bark beetle infestation.	Consider for removal and disposal due to nature and extent of noted defects.	
572	California Black Oak	<i>(Quercus kelloggii)</i>		31	34	Poor to fair	Fair	Large deadwood throughout the crown.	None at this time.	
573	Foothill Pine	<i>(Pinus sabiniana)</i>		32	25	Poor to fair	Fair	Leans southwest; forks at 10' and 20' above grade; inherently weak crotches.	None at this time.	X
574	California Black Oak	<i>(Quercus kelloggii)</i>		7	13	Fair	Fair		None at this time.	
575	California Black Oak	<i>(Quercus kelloggii)</i>		12	23	Fair	Fair		None at this time.	
576	Foothill Pine	<i>(Pinus sabiniana)</i>		7	7	Fair	Fair		None at this time.	X
577	Interior Live Oak	<i>(Quercus wislizeni)</i>	5,5,6,7	23	15	Fair	Fair		None at this time.	X
579	Foothill Pine	<i>(Pinus sabiniana)</i>		24	18	Fair	Fair		None at this time.	X
580	Foothill Pine	<i>(Pinus sabiniana)</i>		11	8	Fair	Fair		None at this time.	X
582	Ponderosa Pine	<i>(Pinus ponderosa)</i>		20	20	Fair	Fair		None at this time.	X
583	Foothill Pine	<i>(Pinus sabiniana)</i>		10	26	Fair	Fair		None at this time.	X
584	Foothill Pine	<i>(Pinus sabiniana)</i>		9	10	Fair	Poor to fair		None at this time.	X
585	Interior Live Oak	<i>(Quercus wislizeni)</i>	6,6	12	15	Fair	Fair		None at this time.	
586	Ponderosa Pine	<i>(Pinus ponderosa)</i>		26	18	Fair	Fair		None at this time.	
587	Ponderosa Pine	<i>(Pinus ponderosa)</i>		18	17	Fair	Fair		None at this time.	
588	Foothill Pine	<i>(Pinus sabiniana)</i>		14	18	Poor to fair	Fair	Leans west.	None at this time.	X
589	Ponderosa Pine	<i>(Pinus ponderosa)</i>		12	12	Fair	Fair		None at this time.	
590	Foothill Pine	<i>(Pinus sabiniana)</i>		12	23	Poor to fair	Fair	Leans north.	None at this time.	X
591	Ponderosa Pine	<i>(Pinus ponderosa)</i>		17	15	Fair	Fair		None at this time.	
592	Foothill Pine	<i>(Pinus sabiniana)</i>		12	14	Fair	Fair		None at this time.	X
593	Ponderosa Pine	<i>(Pinus ponderosa)</i>		16	13	Fair	Fair		None at this time.	
597	Foothill Pine	<i>(Pinus sabiniana)</i>		15	17	Poor	Poor to fair	Severely pruned for utility line clearance.	None at this time.	X
598	Foothill Pine	<i>(Pinus sabiniana)</i>		17	15	Poor to fair	Fair	Pruned for utility line clearance.	None at this time.	X
599	Foothill Pine	<i>(Pinus sabiniana)</i>		18	12	Poor to fair	Fair	Pruned for utility line clearance.	None at this time.	X
600	Interior Live Oak	<i>(Quercus wislizeni)</i>	4,4,4,6,6	24	17	Fair	Fair		None at this time.	
903	Interior Live Oak	<i>(Quercus wislizeni)</i>	3,4,7	14	13	Fair	Fair		None at this time.	
904	Interior Live Oak	<i>(Quercus wislizeni)</i>	5,5,7,7,8	32	16	Fair	Fair		None at this time.	
905	California Black Oak	<i>(Quercus kelloggii)</i>		8	8	Fair	Poor to fair	Mistletoe infestation.	None at this time.	
906	Interior Live Oak	<i>(Quercus wislizeni)</i>	5,6,7	18	16	Fair	Fair		None at this time.	
907	Ponderosa Pine	<i>(Pinus ponderosa)</i>		18	17	Poor to fair	Poor to fair	Top is dead.	None at this time.	
908	Ponderosa Pine	<i>(Pinus ponderosa)</i>		21	18	Poor to fair	Poor to fair	Top is dead.	None at this time.	
909	California Black Oak	<i>(Quercus kelloggii)</i>	9,17	26	22	Fair	Fair		None at this time.	



TREE INVENTORY EXHIBIT
TOPOGRAPHIC SURVEY

CHRISTIAN VALLEY
RESERVOIR SITE

A PORTION OF NW 1/4
SECTION 23, T.13 N., R.8 E., M.D.B.&M.
PLACER COUNTY, CALIFORNIA
SCALE: 1"=20' JANUARY 28, 2015

ANDREGG
GEOMATICS

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X: \C3D\14673\dwg\14673TPO.dwg

PREPARED AT THE REQUEST OF:
GERRY LABUDDE
CHRISTIAN VALLEY PARK CSD

DATES OF GROUND SURVEY:
01/28/2015 & 03/08/17
TOPOGRAPHIC SURVEY COMPILED AT 1"=20' WITH A 1' CONTOUR INTERVAL

BOUNDARY SHOWN HEREON IS BASED ON BOOK 'H' OF MAPS, PAGE 25,
OFFICIAL RECORDS PLACER COUNTY

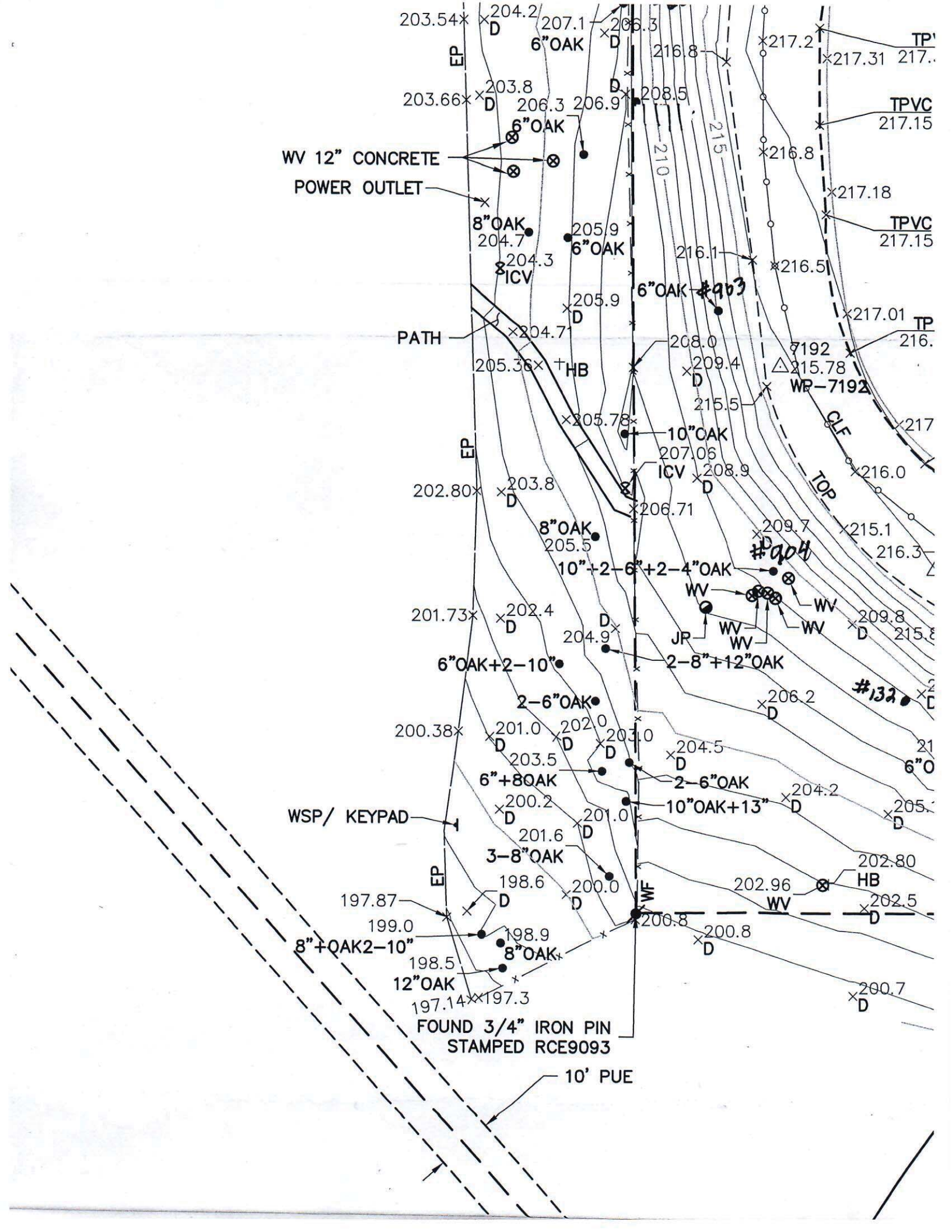
HORIZONTAL DATUM:
LOCAL GROUND COORDINATES

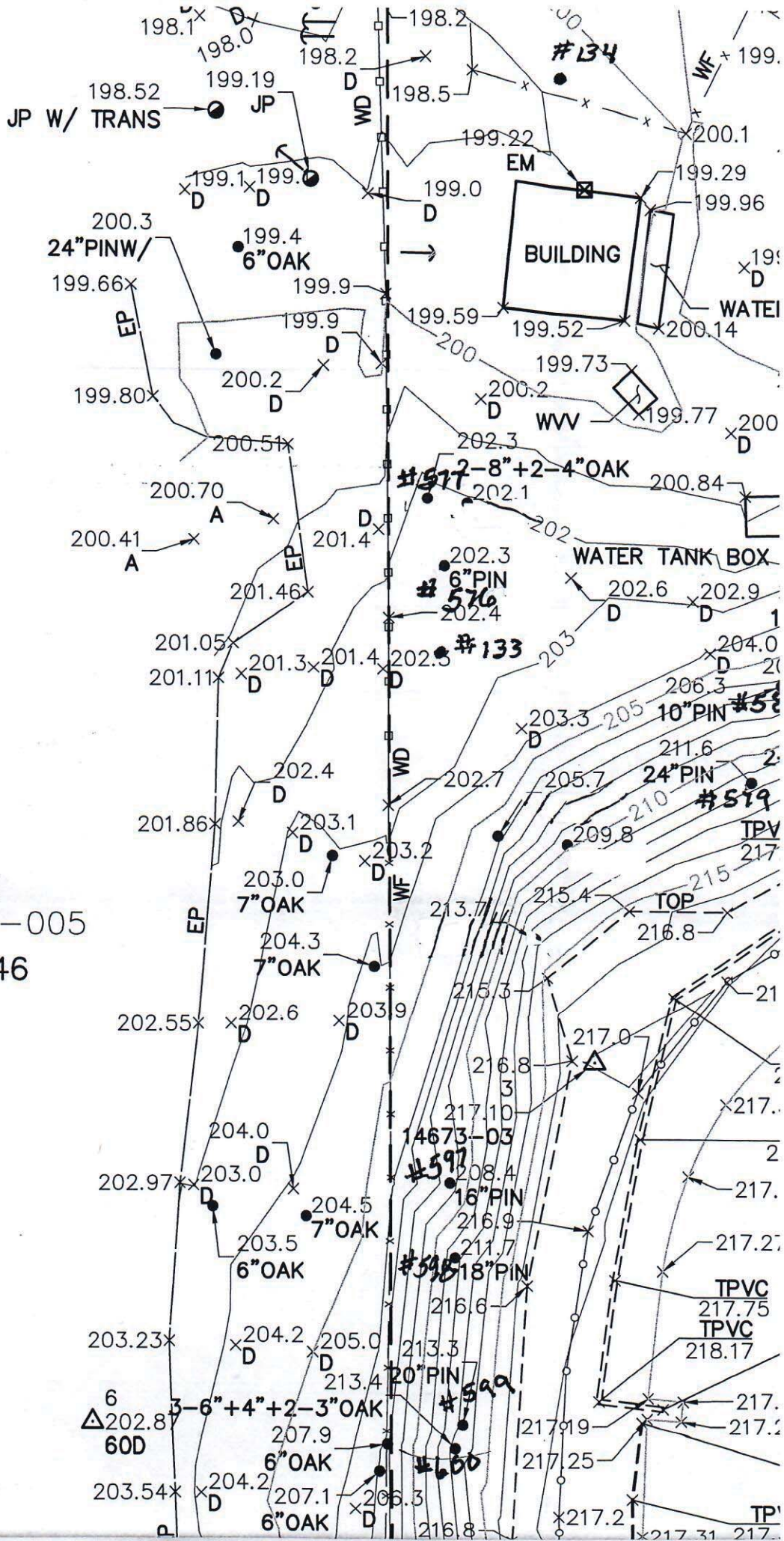
VERTICAL DATUM:
APPROXIMATE DIFFERENCE BETWEEN THIS ASSUMED
VERTICAL DATUM AND NAVD88 = 1625.9 FEET.
BASED ON GPS/RTK/VRS

INT
S NOTED
NUMBER

AD

MENT



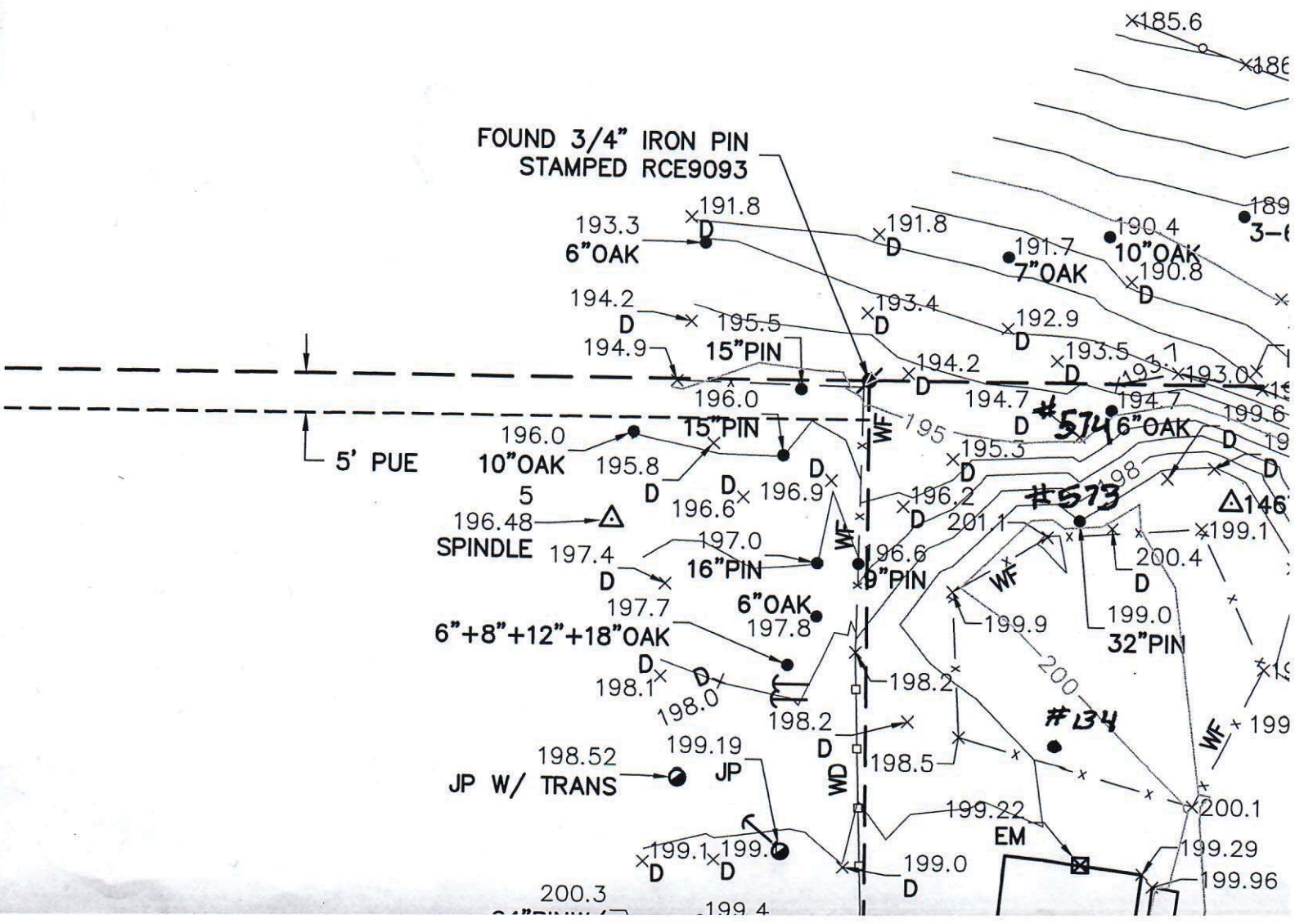


APN
077-251-005
LOT 46

6
△ 202.87
60D

TPV
217.2

FOUND 3/4" IRON PIN
STAMPED RCE9093



25'

LEGEND

△	.....	SURVEY CONTROL POINT
●	.....	FOUND MONUMENT AS NOTE
● #556	.....	TREE SYMBOL AND NUM
CLF	.....	CHAIN LINK FENCE
D	.....	DIRT SPOT ELEVATION
EGR	.....	EDGE OF GRAVEL ROAD
EP	.....	EDGE OF PAVEMENT
FL	.....	FLOW LINE
← GA	.....	GUY ANCHOR
• GPOST	.....	GATE POST
+ HB	.....	HOSE BIB
● JP	.....	JOINT POLE
PIN	.....	PINE TREE
● PP	.....	POWER POLE
PUE	.....	PUBLIC UTILITY EASEMENT
PVC	.....	PLASTIC PIPE
TOP	.....	TOP OF SLOPE
TPVC	.....	TOP OF PLASTIC PIPE
⋔ W	.....	WATER PIN FLAG
WD	.....	WOOD FENCE
WF	.....	WIRE FENCE
⊗ WV	.....	WATER VALVE
WVV	.....	WATER VALVE VAULT

INV 217.17
PVC TOP 217.34
34

APN
077-251-006

PVC
94

7.10 TPVC
216.89

7193
215.92
WP-27193

209.3
D #131

210.1
OAK #905

207.9
20" PIN #906

207.5
22" PIN #907

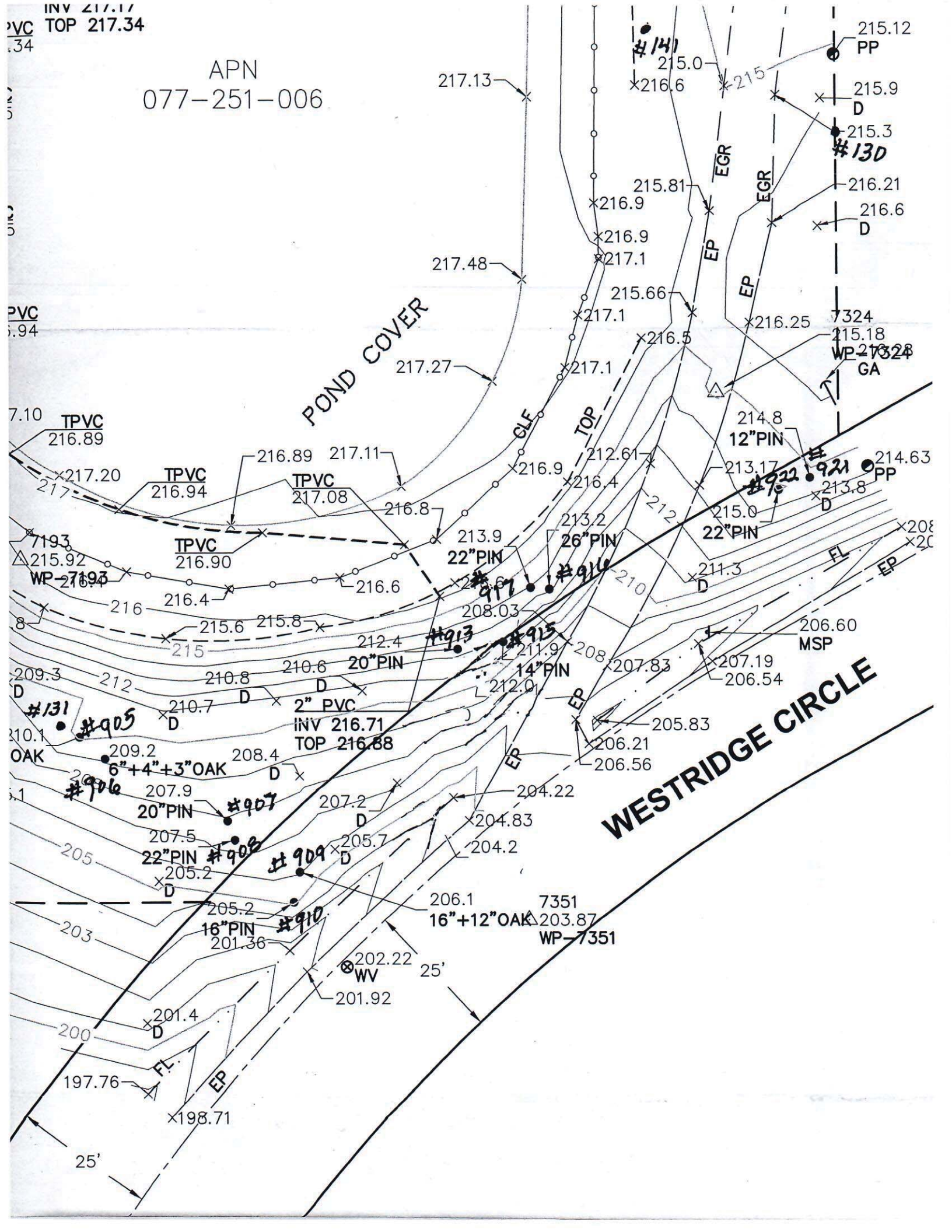
205.2
16" PIN #908

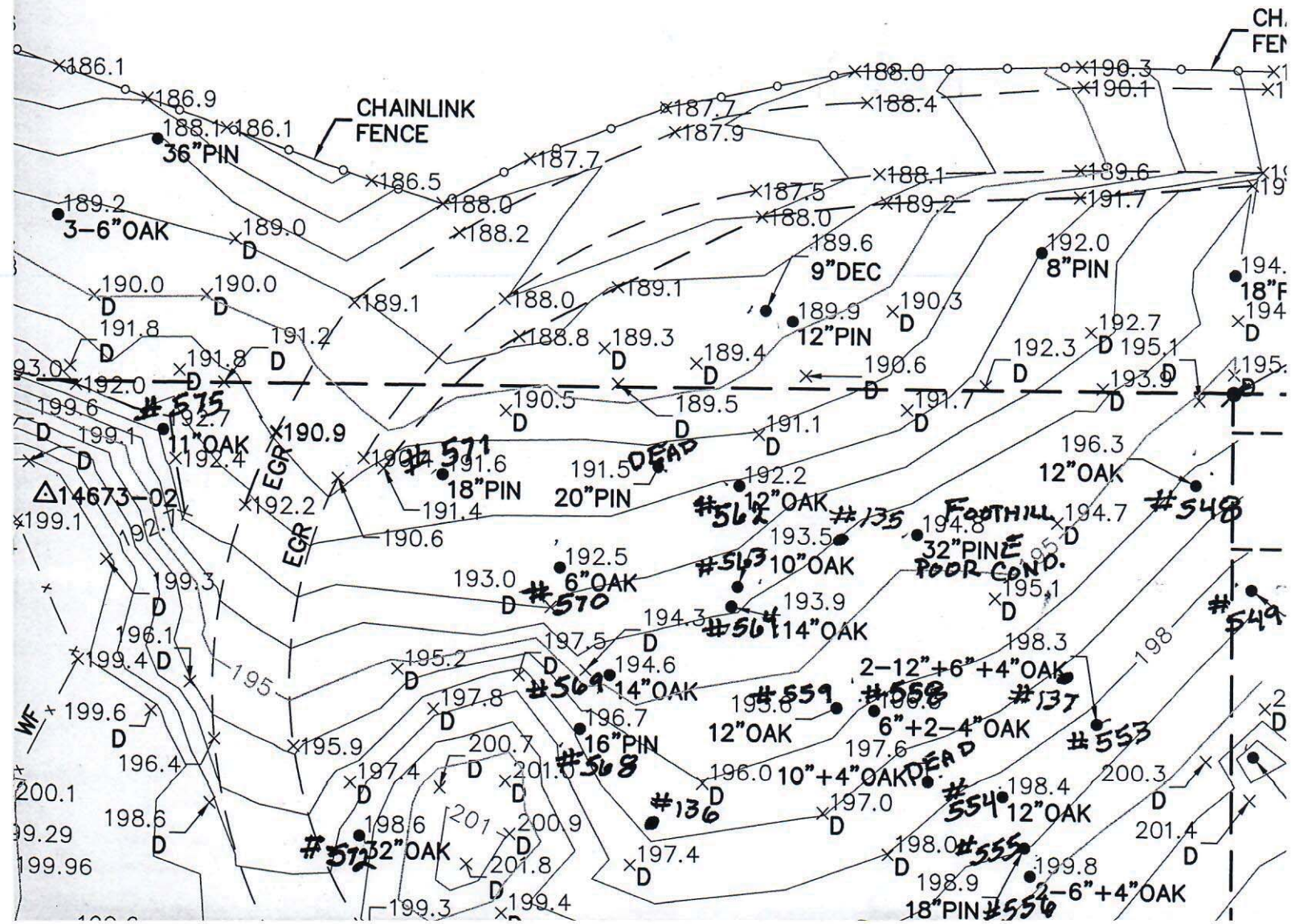
201.4
D #909

197.76
FL #910

POND COVER

WESTRIDGE CIRCLE





CHAINLINK
FENCE

x192.4
x192.3

x192.0
x193.9

194.6
18" PIN
x194.4
D

FOUND 3/4" OPEN IRON PIPE
NO ID

x195.3

5' PUE

48

#549
198.7
12" OAK

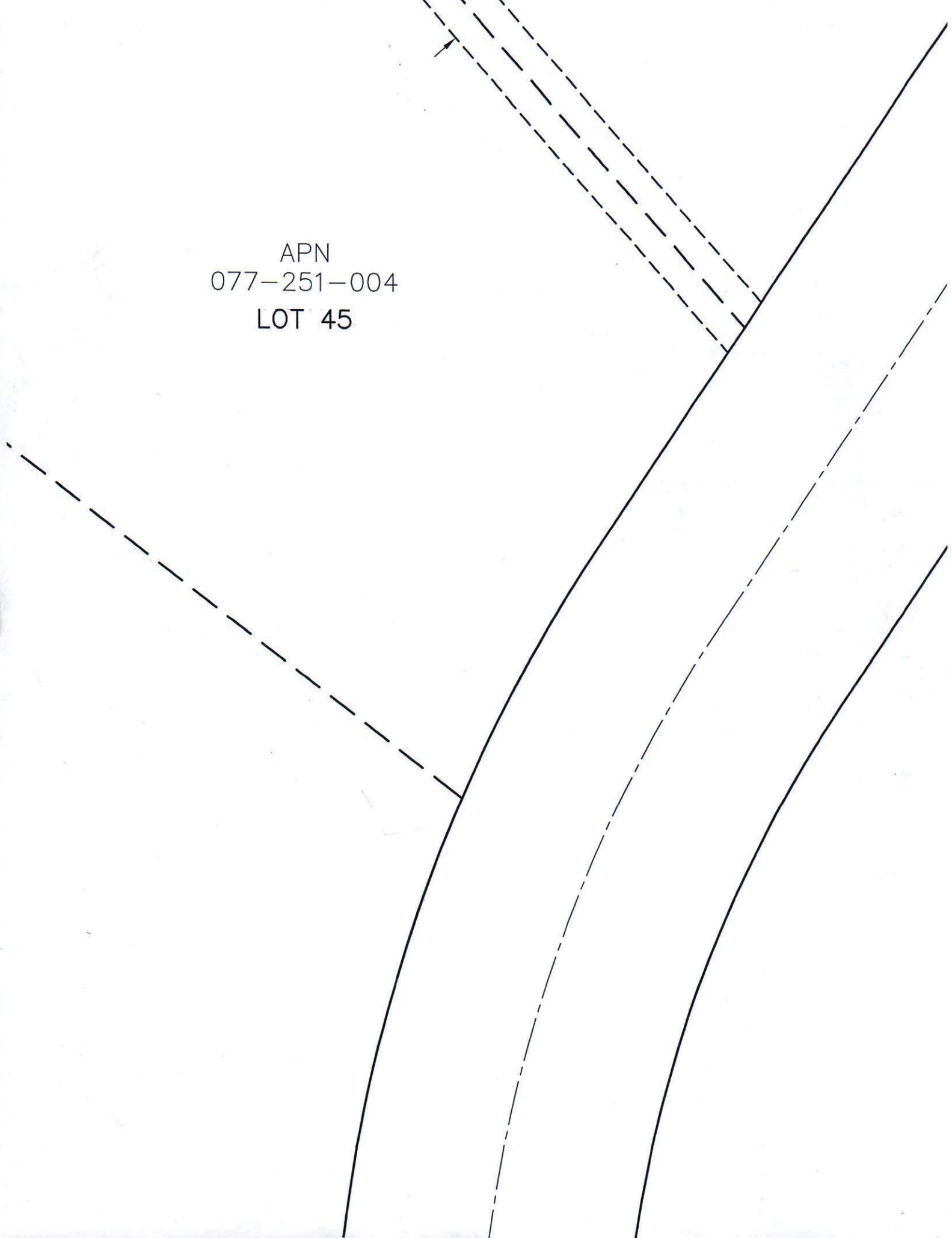
20' WATERLINE
EASEMENT
PER H MAPS 25

x200.4
D

x201.4
D

202.9
66" PIN

APN
077-251-004
LOT 45



200.4
D
201.4
D
202.9
66" PIN

203.2
D

205.4
D

APN
077-251-007
LOT 47

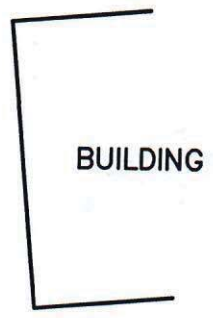
DEAD

208.3
D

208.9
D

208.9

4
209.43
14673-04



210.9

211.4
D

212.3
GPOST

213.0
D

212.5

215.12



215.12

PP

215.9

D

215.3

#130

216.21

216.6

D

7324

215.18

WP-21324

GA

21 214.63

13.8

PP

x208.15

x208.55

FL

EP

.60

LE

