

PROJECT LOCATION AND SETTING

The approximately 0.45-acre project site is located at 301 Schimke Road in the unincorporated community of Bear Valley, Alpine County, California. The approximate center of the project site is latitude 38.4727959°, -120.0439766°, NAD 83. The project site contains two structures and graveled and paved surfaces and is situated at the base of Bear Lake Reservoir at the end of Schimke Road. The project components would be located in Zone X, an area of minimal flood hazard, outside the 100-year flood zone mapped by the Federal Emergency Management Agency (FEMA 2024). The project site is not in an Alquist-Priolo Fault Zone (DOC 2024).

PROJECT DESCRIPTION

The Lake Alpine Water Company (LAWC) owns and operates a potable water treatment and distribution system in the unincorporated community of Bear Valley, Alpine County, California. The LAWC is proposing to replace and upgrade the existing treatment system with a new granular activated carbon filter and limestone contact system. The proposed replacement and improvements under the Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project (project) would include:

- Replacement of the existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement;
- Rerouting existing water and chemical piping as necessary to accommodate improvements;
- Repairing existing Water Treatment Building exterior and modifying upslope drainage area to address water seepage into building and dry rot;
- Replacing pump starters with new soft starter panels to reduce fire hazard; and,
- Relocating existing sodium hypochlorite generation system from Membrane Building to Filter Building.

The Preliminary Engineering Report (PER), prepared by Water Works Engineers, Inc, documents the current physical conditions of the facility and illustrates planned improvements; this document is included as Appendix A. In the winter months, the project site is covered in several feet of snow and only accessible by snowmobile, snowcat or skis. Consequently, construction would be limited from May to October, when the road is accessible by construction equipment.

PROJECT PURPOSE

The existing potable water treatment and distribution system owned by LAWC obtains its domestic water supply from Bear Lake, which is on an unnamed tributary of Bloods Creek, at the northern end of Bear Valley. The raw water is treated at the Lake Alpine Water Treatment Plant (LAWTP). The existing water system is currently deteriorating and reaching the end of its' useful life. Based on a LAWC staff report, the current water system is showing significant corrosion. Additionally, a site visit to the LAWTP indicated that the existing Water Treatment Plant building has significant structural and electrical

deficiencies. The existing water system does not provide reliable treatment to meet LAWC's water quality goals.

TECHNICAL STUDIES

Biological Resources Evaluation

HELIX conducted a biological resources evaluation for the proposed Granular Activated Carbon and Limestone Improvements Project (Appendix B). The purpose of the biological resources evaluation was to evaluate the potential for regionally occurring special-status plant and animal species, wetlands or other waters of the U.S. or waters of the State, and/or other sensitive biological resources to occur in the project site and/or be impacted by the proposed project.

Special-Status Species

Based on a desktop review and a query of databases and lists maintained by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and California Native Plant Society (CNPS), a total of 15 special-status plant species and 12 special-status animal species were identified as occurring in the project region and were evaluated for the potential to occur on the project site or be impacted by the proposed project. Based on the results of a biological reconnaissance survey, the project site is generally in a disturbed and developed condition and does not provide suitable habitat for any of the 27 regionally occurring special-status plant and animal species. Therefore, it is our determination that no special-status species have the potential to occur on the project site or be impacted by the proposed project.

Migratory Birds

There is a potential for common native raptors and other migratory birds to nest in the project site or on adjacent properties and be impacted by the proposed project if it were to occur during the nesting season. Implementation of the recommended mitigation measure for nesting bird surveys would reduce the potential for project impacts to nesting birds to less than significant.

Aquatic Resources

The project site does not contain any wetlands or other aquatic resources; therefore, there are no potential waters of the U.S. or State on the project site. No mitigation measures are required for aquatic resources.

Cultural Resources Assessment

HELIX prepared a cultural resources assessment (BRA) for the proposed Granular Activated Carbon and Limestone Improvements Project (Appendix C). The CRA was conducted to address the requirements of federal, state, and local laws and regulations as they relate to cultural and historical resources, including Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). This CRA consisted of background research, Native American outreach, and a pedestrian survey of the project area. Based on the results of this CRA, HELIX concluded that the following findings are appropriate for the project:

Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project

- **No Historic Properties Affected** under Section 106 (36 CFR Part 800.4(d)(1)).
- **No Significant Impact** to Historical or Unique Archaeological Resources under *CEQA Guidelines* Section 15064.5; and
- **No Significant Impact to Human Remains** resulting from disturbance.

No additional study or documentation for cultural resources are recommended. However, in the unlikely event that archaeological cultural resources, and/or human remains, or funerary objects are discovered during project construction, the provisions included below should be implemented to avoid or substantially reduce the severity of impacts to such finds.

Accidental Discovery of Cultural Resources

In the event that cultural resources are exposed during ground-disturbing activities, construction activities should be halted within 100 feet of the discovery. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features, including hearths, structural remains, or historic dumpsites. If the resources cannot be avoided during the remainder of construction, the retained archaeologist, who meets the Secretary of the Interior's *Professional Qualifications Standards*, should assess the resource and provide appropriate management recommendations. If the discovery proves to be California Register of Historical Resources (CRHR-) or National Register of Historic Places (NRHP-) eligible, additional documentation and analysis, such as data recovery excavation, may be warranted.

Accidental Discovery of Human Remains

Although considered highly unlikely, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, Public Resources Code (PRC) Section 5097.98 must be followed. Once project-related earthmoving begins and if there is a discovery or recognition of human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" of the deceased Native American. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or
2. Where the following conditions occur, the landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project area in a location not subject to further subsurface disturbance:

Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project

- The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
- The descendent identified fails to make a recommendation; or
- The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

REASONS WHY PROJECT IS EXEMPT

The Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project was designed to avoid direct and indirect impacts to the environment. Pursuant to CEQA Guidelines Section 15301(b), the proposed project would replace and upgrade an existing potable water treatment and distribution system with a new granular activated carbon filter and limestone contact system and would therefore result in negligible expansion of use.

Pursuant to CEQA Guidelines Section 15302(c), the proposed granular activated carbon filter and limestone contact system would have the same purpose as the structure replaced and would not change the permitted or operating capacity of the existing system.

Pursuant to CEQA Guidelines Section 15303 (d), the proposed project would include minor improvements and upgrades to the existing water system including the replacement of existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement, rerouting existing water and chemical piping as necessary to accommodate improvements, repairing the existing Water Treatment Building exterior and modifying upslope drainage area to address water seepage into building and dry rot, replacing pump starters with new soft starter panels to reduce fire hazard, and relocating the existing sodium hypochlorite generation system from Membrane Building to Filter Building.

Pursuant to CEQA Guidelines Section 15304 (a), the proposed project would replace and upgrade an existing potable water treatment and distribution system with a new granular activated carbon filter and limestone contact system; however, no healthy, mature, and/or scenic trees would be removed.

The proposed new granular activated carbon filter and limestone contact system would be located on the same project area as the existing potable water treatment and distribution system. The overall design of the project and the analyses provided in this document and appendices ensures the project would have no significant impacts to the environment and would be exempt from CEQA review.

REFERENCES

California Department of Conservation (DOC). 2024. EQ Zapp: California Earthquake Hazards Zone Application. Accessed September 18, 2024 at:
<https://maps.conservation.ca.gov/cgs/EQZApp/app/>

Federal Emergency Management Agency (FEMA). 2024. National Flood Hazard Layer (NFHL) Layer.

Accessed September 18, 2024 at: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE CONTACT SYSTEM REPLACEMENT PROJECT
PRELIMINARY ENGINEERING REPORT

Date: May 3rd, 2024
By: Allison Prater, P.E.
 Joe Riess, P.E.



Contents

1. Executive Summary	3
2. Background Project Information	3
2.1. Existing System Operation	3
2.2. Existing System Condition	5
2.3. Water System Plant Characteristics	5
3. Problem Description	6
3.1. Water Quality Problems	6
3.1.1. Disinfection Byproducts.....	6
3.1.2. Corrosion Control	7
3.2. Structural Problems.....	7
4. Consolidation Analysis.....	8
5. Alternative Analysis	8
5.1. Alternative 1 - Continued Maintenance of Existing Treatment System	8
5.1.1. Description.....	8
5.1.2. Design Criteria	8
5.1.3. Environmental Impacts.....	8
5.1.4. Land Requirements.....	8
5.1.5. Construction and Site Considerations	9
5.1.6. Cost Estimate	9
5.1.7. Advantages/Disadvantages	9
5.2. Alternative 2	9
5.2.1. Description.....	9
5.2.2. Design Criteria	9
5.2.3. Environmental Impacts.....	10
5.2.4. Land Requirements.....	10
5.2.5. Construction and Site Considerations	10
5.2.6. Cost Estimate	10
5.2.7. Advantages/Disadvantages	10
5.3. Alternative Evaluation and Selection	11
5.4. Selected Project.....	11
5.4.1. Description.....	11
5.4.2. Schematic and Map of System’s Proposed Facilities.....	11
5.4.3. Justification.....	13
5.4.4. O&M Challenges	13
5.4.5. Local/County Planning.....	13
5.4.6. Green and Resilient Components.....	13
5.4.7. Land Purchase Requirements	13
5.4.8. Describe final Plans and Specifications	13

5.4.9.	Water Demand and Capacity.....	14
5.4.10.	Estimated Useful Life.....	14
5.5.	Cost Estimate for Selected Project.....	14
5.6.	Proposed Schedule.....	14
5.7.	Comprehensive Response to Climate Change.....	14
5.7.1.	Vulnerability.....	14
5.7.2.	Adaptation.....	15
5.7.3.	Mitigation.....	15
5.8.	Permits.....	15

- Appendix A – 60% Design Drawings
- Appendix B – Preliminary Cost Estimate
- Appendix C – Corrective Action Plans
- Appendix D – Disinfection Byproduct Data
- Appendix E – Water Supply Projected Use Letter

1. Executive Summary

Lake Alpine Water Company (LAWC) is applying for funding through the Drinking Water State Revolving Fund for the GAC and Limestone Contact System Replacement Project (Project). The Project includes the design of a new granular activated carbon filter and limestone contact system to replace the existing treatment system. The Project is estimated to cost \$430k including design and construction contingencies.

The following alternatives are considered in this report:

- Alternative 1: Continued Maintenance of Existing Treatment System
- Alternative 2: GAC and Limestone Contact System Replacement and Building Improvements

Alternative 2 has been selected due to reliability of meeting water quality goals.

2. Background Project Information

The LAWC water system is located along California Highway 4, approximately two miles west of Lake Alpine, in the western portion of Alpine County. The LAWC owns, operates, and maintains the potable community water system. The water system serves a population of approximately 2,650 through approximately 485 service connections (per 2018 Domestic Water Supply Permit).

2.1. Existing System Operation

The water system obtains its domestic water supply from Bear Lake, which is on an unnamed tributary of Bloods Creek, at the northern end of Bear Valley. The raw water is treated at the water system's Lake Alpine Water Treatment Plant (LAWTP), which includes the following treatment processes.

1. Oxygen addition at the lake intake (oxidize iron and manganese)
2. Chemical pretreatment using potassium permanganate (oxidize iron and manganese)
3. Filtration (remove oxidized iron and manganese)
4. Granular activated carbon (reduce total organic carbon)
5. Limestone contact (increase hardness)
6. Sodium hypochlorite (onsite generated) addition (disinfection)
7. Soda ash addition (pH adjustment)
8. Phosphoric acid addition (corrosion control)
9. Settling ponds for backwash waste and building drains

The LAWTP has permitted maximum capacity of 0.485 million gallons per day (MGD), or 337 gallons per minute (GPM). Contact time for disinfection inactivation is provided by an on-site 0.2 million-gallon (MG) clearwell, located upslope of the LAWTP. The treated water is pumped from the clearwell to two distribution water storage tanks, located throughout the service area. The water storage tanks have a combined storage capacity of approximately 0.4 MG. Although the plant has a design capacity of 0.485 MGD, the system is typically operated at approximately 0.19 MGD (130 gpm). At treatment flows greater than 0.19 MGD, there is insufficient contact time for disinfection if the clearwell level is low.

A process flow diagram of the existing water treatment system is shown in Figure 1. **Error! Reference source not found.**

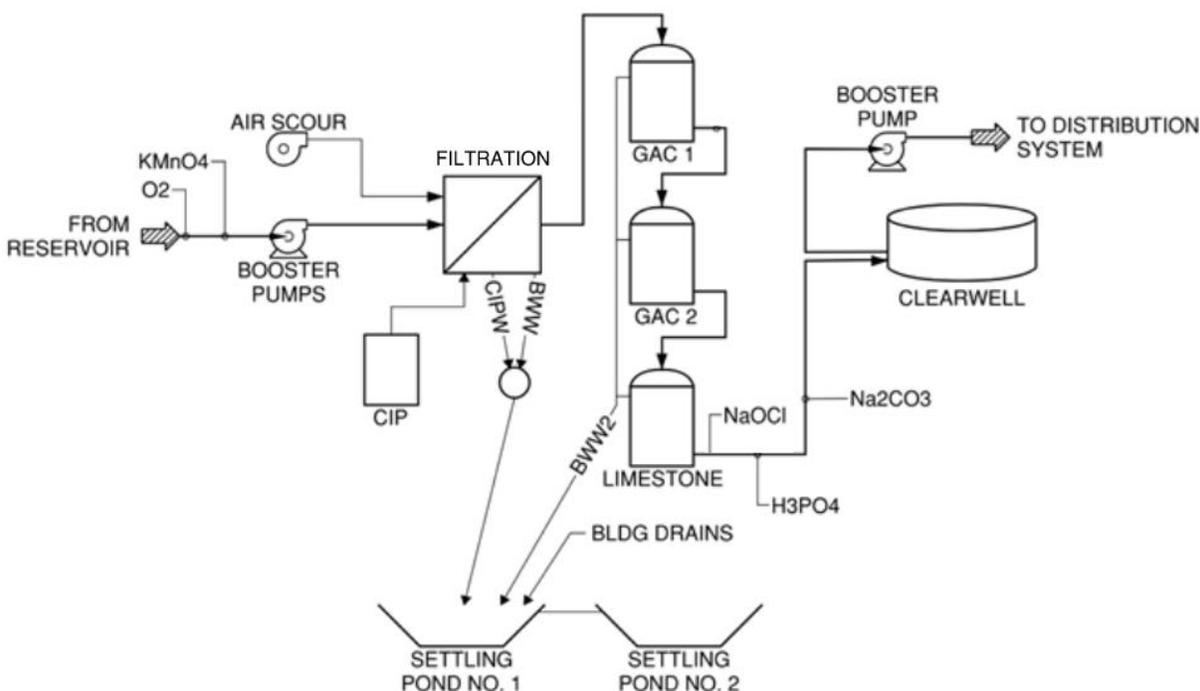


Figure 1. Existing Lake Alpine Water Treatment Plant Process Flow Diagram

The existing water treatment plant has the following main liquid stream treatment processes:

1. The plant intake is a single level intake in Bear Valley Lake. There is a debris screen. The intake has not been inspected during its time in operation.
2. Potassium Permanganate (KMnO_4) addition for the oxidation of iron and manganese. Following KMnO_4 addition, oxidation occurs in the approximately 100-ft of 8" diameter pipeline between the feed point and the filter feed pumps for the filtration system. This contact volume is approximately 260 gallons, which gives a contact time which varies from 45 seconds to 3 minutes over the plant flow range from a low flow of 80 gpm to the plant design flow rate of 336 gpm. KMnO_4 dose ranges from 0.2 to 9.0 mg/L, depending on raw water conditions.
3. Water is pumped through a filtration system. The filtration system will remove oxidized iron and manganese and other particles. Backwash is wasted to a backwash pond where it is disposed of via evaporation, percolation and periodic removal of solids.
4. Following filtration, water is conveyed through two GAC systems operated in series.
5. The limestone contactor is used to add hardness to the water. Empty bed contact time (EBCT) ranges from 10 to 45 minutes over the plant flow range of 80 gpm to 336 gpm. Recommended EBCT for limestone contactor is 20 to 45 minutes. To achieve 20 minutes of contact time, the maximum flow through the limestone contactor would be 180 gpm.
6. Chlorine is added for disinfection after GAC filtration and the limestone contactor. Chlorine is generated on-site using a MicroChlor chlorine generator.
7. Phosphoric Acid (Orthophosphate, H_3PO_4) is added for corrosion control in order to combine with metal pipe materials (iron and copper) and develop and maintain a protective film on the interior of distribution system and in-house piping to prevent lead and copper corrosion. Typical dose is 2 mg/L.

8. Soda Ash (Na_2CO_3) is added to increase pH and reduce the corrosivity of the water. A dose of 27 mg/L is typical and generally results in increasing the pH from a raw water pH of approximately 6.5 to a finished water pH of approximately 8.0.

2.2. Existing System Condition

Three vessels are located inside the treatment building: two granular activated carbon (GAC) vessels for total organic carbon (TOC) removal and one limestone contactor vessel for pH and alkalinity adjustment. These three vessels were originally used for surface water filtration and were located on the north side of the original water treatment building. The vessels were relocated to inside the building in 2004 when the microfiltration system was installed and repurposed as limestone contactors. Since then, two of the three vessels were converted for use as GAC vessels to address high TOC levels.

2.3. Water System Plant Characteristics

The Lake Alpine Water Treatment Plant characteristics including design capacity, average operating flowrate, and water quality parameters are summarized in the table below. The water system supplies mostly residential users with a few commercial users.

The maximum day demand for the plant is 0.209 MGD from August 2020. Hourly flow data for the plant is not available. The peak hourly demand for the plant of 220 GPM was calculated assuming 24 hours of operation and a peaking factor of 1.5 applied to the maximum day demand. Fire flow for the system is supplied by gravity flow from three distribution tanks.

Table 1. Lake Alpine Water Treatment Plant Characteristics¹

Characteristic	Value
Water Source	Bear Lake
Flows	
Raw Water Peak Design Flow (Plant Capacity)	0.485 MGD (337 GPM)
Raw Water Average Flow	0.187 MGD (130 GPM)
Demands	
Maximum Day Demand	0.209 MGD (145 GPM)
Peak Hourly Demand	13,000 GPH (220 GPM)
Water Quality	
Raw Water Average Turbidity	2.54 NTU
Finished Water Average Turbidity	0.04 NTU
Raw Water Average Manganese Conc.	0.1 mg/L
Average Manganese Removal	76.0%
Raw Water Average Iron Conc.	0.28 mg/L
Average Iron Removal	94.7%
Wasted Flow	
Average Percent Wasted	9%
Average Daily Waste Flow	12,000 GPD (8.3 GPM)
Full Capacity Average Daily Waste Flow	48,500 GPD (34 GPM)
Backwash Rate	350 GPM
Pressure Decay Test Waste Rate	350 -700 GPM

¹ Based on data provided by LAWC.

LAWC has water rights to a total of 577 acre-ft/year. Water demand projections for Bear Valley Village are summarized in the table below.

Table 2: LAWC Future Water Demands

Year	Water Service Customers	Municipal Water Demands (Acre-ft/Year)
2020	500	125
2025	554	153
2030	657	242
2035	672	307
2040	687	311
2045	702	315
2050	717	319
2060	747	327
2070	777	335

¹ Based on data provided in November 2022, Water Supply Assessment Projected Use Letter, Appendix E.

3. Problem Description

3.1. Water Quality Problems

The GAC vessels are used to remove TOC to minimize the formation of disinfection byproducts. The limestone contactor is part of the corrosion control strategy. The existing GAC and limestone vessels are difficult to access for inspection, media changeout and maintenance. LAWC staff report that visual inspection of the vessels during media changeout activities indicate that the interior vessels 2 and 3 (GAC #2 and limestone) are showing significant corrosion. Due to the configuration of the vessels, recoating the interior of the vessels in-place or removing the vessels from the building for recoating are not feasible alternatives.

3.1.1. Disinfection Byproducts

Disinfection byproduct formation (total trihalomethanes, TTHM and haloacetic acids, HAA5) has been a historical challenge for the Lake Alpine Water Company. The combination of moderate TOC (DBP formation is most prevalent at TOC >2 mg/L) and long water ages is leading to formation of TTHM and HAA5 at or above the regulatory limit. Typical DBP formation in the system, as measured on July 27, 2013 is shown in Figure 2. This data shows several items of note:

- Both TTHM and HAA5 are formed significantly in the Clearwell, prior to even entering distribution. Approximately 85% of the TTHM and 60% of HAA5 are formed before leaving the Clearwell. Given the size of the Clearwell (200,000 gallons) and typical residence time (the minimum residence time is approximately 3 days during August demand of 2,000,000 gallons/month, maximum residence time is 20 days during April demand of 300,000 gallons/month), this is not surprising.
- Almost all of the TTHM being formed is chloroform.

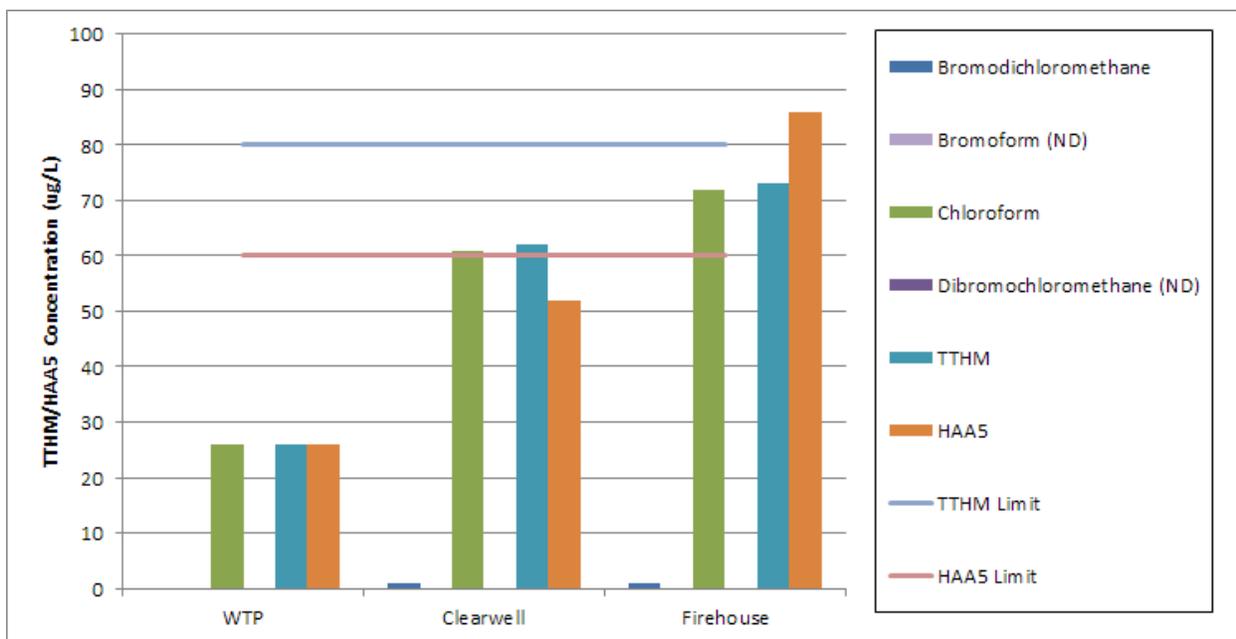


Figure 2: TTHM/HAA5 Formation in Lake Alpine Water Company Distribution System, July 17, 2013

Most recently, LAWC violated the Locational Running Annual Average (LRAA) for HAA5 in 2022. The 2022 to 2024 Corrective Action Plan Reports and Disinfection Byproduct Quarterly Summary Reports are saved in Appendix C and D, respectively.

3.1.2. Corrosion Control

The current corrosion control strategy is three-fold. First, hardness is increased through the limestone contactors. Second, phosphoric acid is added in order to complex with the metal pipe materials in the distribution system and form a corrosion-barrier film on the pipe walls. Last, pH is adjusted to approximately pH=8 using soda ash. This three-fold approach is generally a good strategy for controlling lead and copper and has generally proven effective with the exception of the limestone contactors. The limestone in the contactors is not currently effective in transferring calcium to the water. It is possible that it is coated or the available calcium at the surface of the limestone is spent. It may be worthwhile to change the limestone. This can be tested by purchasing a small amount of limestone and seeing if better dissolution is achieved with the water. Several sizes of limestone chips can be tested to see if one is more effective in dissolution into the water.

3.2. Structural Problems

On April 3, 2019, a site visit was made to LAWTP site to conduct a condition assessment of the existing Water Treatment Plant building. The purpose of the assessment was to assess the current condition of the building and determine the feasibility of modifying the building as required to replace the existing limestone and GAC vessels with new GAC vessels. The original portion of the Water Treatment Plant building was constructed in the late 1960's with the rest of the subdivision. The following concerns were documented and discussed during the assessment:

- The back wall, the wall nearest the Bear Lake Dam, was observed to have dry rot and showed evidence of past water penetration. Plant staff indicated that water can be observed flowing through the wall and

across the floor slab during the spring snow melt. Structural improvements are required to protect the treatment vessels from corrosion.

- The back wall has a section of wall studs that terminate at an intermediate top plate without any lateral support near the top of the first-floor wall. It is unclear why the wall studs terminate in this fashion, but this termination detailing method provides virtually zero lateral load capacity for loads applied normal to the face of the wall.
- The second-floor joists provide lateral support for the exterior bearing walls. Thus, it would not be possible to remove the second floor without providing additional lateral support to the exterior walls.
- While this assessment did not focus on the electrical portion of the building. Plant staff noted valid concerns of electrical deficiencies such as exposed wiring, faulty switches, and an area where an electrical fire in a control panel nearly caught the supporting wood framed wall on fire. The environmental conditions of the existing damp building should also be considered with respect to the electrical classification.
- The focus of the condition assessment was the building structure; however, the accessibility of the building was also assessed. The original building was constructed in the late 1960's under different building code criteria than today's standards. The building does not meet the current access and egress standards set forth by the California Building Code in some locations. Floor elevation changes, restroom clearance, door clearance, and path of travel clearances were noted as not meeting the current access and egress standards. However, given that this is not a public facility and it is under snow for half of the year, we do not see these minor access and egress discrepancies as cause for concern.

4. Consolidation Analysis

Consolidation analysis is not a feasible alternative project. The nearest water system of similar or larger size to the LAWC is in Arnold, over 25 miles SW on State Highway 4 (per California Drinking Water System Area Boundaries website).

5. Alternative Analysis

Two alternatives are considered for this project.

5.1. *Alternative 1 - Continued Maintenance of Existing Treatment System*

5.1.1. *Description*

In this alternative there are no major improvements to the GAC and Limestone contact systems. Instead, the treatment system is operated as is with continued maintenance to the building and treatment vessels.

5.1.2. *Design Criteria*

The treatment system will continue to operate as it currently does with this alternative.

5.1.3. *Environmental Impacts*

There are no environmental impacts expected from this alternative.

5.1.4. *Land Requirements*

There are no additional land requirements required for this alternative.

5.1.5. Construction and Site Considerations

Construction and site modifications are not required for this alternative.

5.1.6. Cost Estimate

The cost estimate for Alternative 1 is summarized below. The LAWC spends approximately \$35k every year to changeout the GAC Media. The limestone media has to be replaced every few years.

Table 3. Alternative 1 Cost Estimate

Parameter	Cost
Capital Cost	\$0
Annual GAC and Limestone Operation and Maintenance Cost	\$40k
20-Year Net Present Worth	\$500k

5.1.7. Advantages/Disadvantages

The advantages and disadvantages for Alternative 1 are summarized below:

- Advantages:
 - Alternative 1 is the lowest cost alternative.
- Disadvantages:
 - This alternative does not provide reliable water quality results, because it is currently difficult to impossible to change out the GAC media or make critical repairs to the treatment system.
 - The treatment vessels utilized for GAC and Limestone were not originally designed for those purposes. The treatment media may be exhausting faster due less efficient vessel design.
 - It is very difficult currently access top manway of vessels to replace media. There is very little clearance between top of vessels and ceiling.

5.2. Alternative 2

5.2.1. Description

Alternative 1 includes the following improvements:

- Replace existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement
- Reroute existing water and chemical piping as necessary to accommodate improvements
- Repair existing Water Treatment Building exterior and modify upslope drainage area to address water seepage into building and dry rot
- Replace pump starters with new soft starter panels to reduce fire hazard
- Relocate existing sodium hypochlorite generation system from Membrane Building to Filter Building

5.2.2. Design Criteria

The design criteria for the proposed treatment system are summarized in the following table:

Item Description	Unit	Value
GAC System		
Number of Systems / Vessels Per System		2 / 2
Treatment Flowrate	gpm	100
Vessel Size	ft	4-ft Diameter, 6-ft Sideshell Height
Vessel Volume	ft ³	86
Vessel Media		AV 1240 Coal-Based
Media Volume	ft ³	60
Limestone Contactor System		
Quantity		1
Treatment Flowrate	gpm	350
Vessel Size	ft	7-ft Diameter, 3-ft Sideshell Height
Vessel Volume	ft ³	185
Vessel Media		Limestone Chips

5.2.3. Environmental Impacts

There are no environmental impacts expected from this alternative.

5.2.4. Land Requirements

There are no additional land requirements required for this alternative. All improvements will be completed on the site owned by LAWC.

5.2.5. Construction and Site Considerations

In the winter months, the site is covered in several feet of snow and only accessible by snowmobile, snowcat or skis. Construction will be limited to the months May to October, when the road is accessible by construction equipment.

5.2.6. Cost Estimate

The cost estimate for Alternative 2 is summarized below. The LAWC currently spends approximately \$35k to changeout the GAC media every year. With the new treatment vessels and valve design, it is anticipated that the period between GAC media changeout every year will be extended about 10%. It is also anticipated that LAWC will have to contribute less operator time to maintaining and operating the vessels.

Table 4. Alternative 2 Cost Estimate

Parameter	Cost
Capital Cost	\$430k
Annual GAC and Limestone Operation and Maintenance Cost	\$36.5k
20-Year Net Present Worth	\$890k

5.2.7. Advantages/Disadvantages

The advantages and disadvantages for Alternative 2 are summarized below:

- Advantages:
 - The new GAC system will be designed to provide reliable adsorption of TOC to minimize formation of disinfection byproducts.

- Replacement of treatment vessels is expected to increase time between media changeouts, because the vessel design will be optimized for the media. Less short-circuiting is expected in the treatment media.
- The new limestone contactor will be designed to increase hardness in water as part of corrosion control plan.
- New treatment vessels, piping, and valves will be designed to provide easier access for media changeouts and repairs.
- Building repairs will protect electrical and treatment equipment from water damage.
- Electrical improvements and building repairs will decrease chance of fire or structural failure.
- Disadvantages:
 - This is the most expensive alternative.

5.3. Alternative Evaluation and Selection

Alternative 2 is the recommended alternative because it is designed to provide reliable treatment to meet LAWC's water quality goals. LAWC operators are familiar with the operation of GAC and limestone contactors. The project improvements will result in an easier to operate and maintain treatment system.

5.4. Selected Project

Alternative 2, with new GAC and limestone contactor systems and building improvements, is the selected project.

5.4.1. Description

The selected project includes the following components:

- Replace existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement
- Reroute existing water and chemical piping as necessary to accommodate improvements
- Repair existing Water Treatment Building exterior and modify upslope drainage area to address water seepage into building and dry rot
- Replace pump starters with new soft starter panels to reduce fire hazard
- Relocate existing sodium hypochlorite generation system from Membrane Building to Filter Building

5.4.2. Schematic and Map of System's Proposed Facilities

A site plan for the proposed facilities is shown in Figure 3. The proposed GAC and Limestone vessel arrangement is shown in Figure 4.

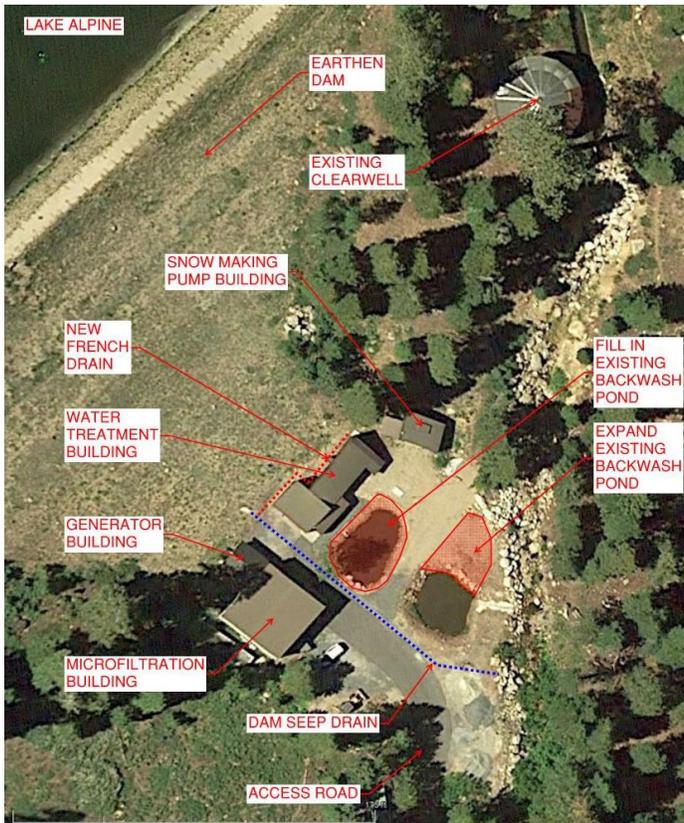


Figure 3: Site Plan

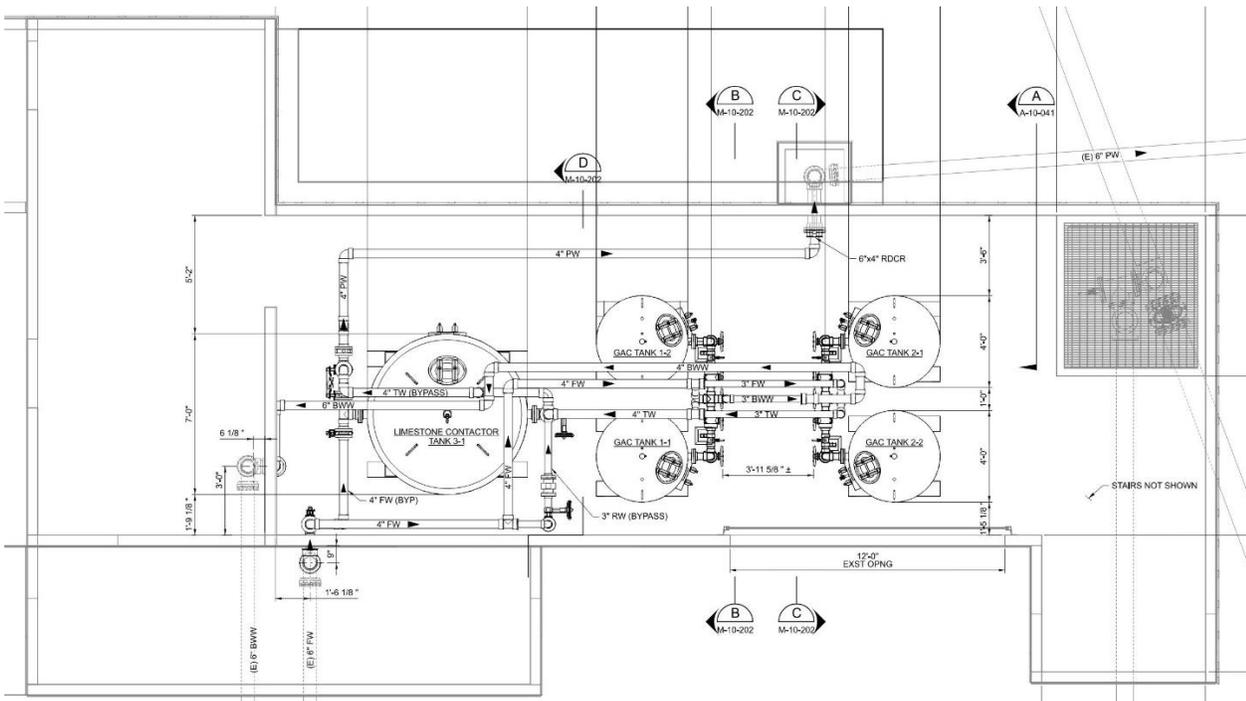


Figure 4: Proposed GAC and Limestone Arrangement

5.4.3. Justification

The selected project is designed to meet water quality goals and minimize required repairs in the system. It has a higher capital cost than Alternative 1, but lower annual maintenance costs. The current media vessels were repurposed and not originally designed for GAC or limestone. The new vessels will be designed with the treatment media in mind and are expected to be more efficient. Additionally, the existing vessels are nearing the end of their useful service life and are difficult to maintain due to low clearance in the building. The building improvements will protect the new vessels from corrosion due to water leaking into the building.

5.4.4. O&M Challenges

This project will result in an easier to operate and maintain system for LAWC staff. New piping and valves will allow operators to bypass and isolate parts of the treatment system to perform maintenance.

5.4.5. Local/County Planning

The project largely consists of the replacement of existing infrastructure. It is expected that the project is subject to a Categorical Exemption under CEQA, with Alpine County acting as the State Lead Agency. The Notice of Exemption is anticipated to be filed prior to bid advertisement for the project.

5.4.6. Green and Resilient Components

This project does not include any green or resilient components.

5.4.7. Land Purchase Requirements

There are no land purchase requirements for this project.

5.4.8. Describe final Plans and Specifications

The 60% Design Drawings are included in Appendix A. Specifications have not been completed for this project at the time of this report. The design includes the following components:

- GAC System
 - Two lead/lag GAC systems (four vessels total)
 - Parallel operation
 - Vessel isolation valves
 - Bypass piping, valves and flowmeter
- Limestone Contactor
 - One limestone contactor vessel
 - Limestone chips
 - Vessel isolation valves
 - Bypass piping and valves
- Chemical Improvements
 - New static mixer
 - Relocate chlorine generator
- Building Improvements

- Exterior wall repairs
- Site Improvements
 - Minor re-grading of slope behind building for drainage

5.4.9. Water Demand and Capacity

The plant is permitted to operate at 337 gpm, but the operating capacity is currently limited to 130 gpm. The proposed project will not change the permitted or operating capacity of the plant.

5.4.10. Estimated Useful Life

The estimated useful life for the project components are summarized in the table below.

Table 5. Project Useful Life

Equipment	Useful Life	Basis
GAC Vessels	20-30 years	Equipment Vendor
GAC Valves and Instrumentation	5-10 years	Equipment Vendor
GAC Media	1 years	Equipment Vendor
Limestone Contactor Vessel	20-years	Equipment Vendor
Limestone Chips	5 years	Estimate

5.5. Cost Estimate for Selected Project

The cost estimate for the project is included in Appendix B.

5.6. Proposed Schedule

Construction is expected to begin in May of 2025 and end in October 2025, pending financing. The schedule is summarized below:

- Technical Package Preparation: February 2024 – May 2024
- 90% Design: June 2024 – December 2024
- Final Design/Building Permitting: December 2024 - April 2025
- Environmental Package: December 2024 – April 2025
- Construction Bidding: April 2025 - May 2025
- Construction: May 2025 – October 2025

5.7. Comprehensive Response to Climate Change

5.7.1. Vulnerability

The project site is located at an elevation of 7,388 ft. Every year Lake Alpine receives an average of 190 inches of snow. The project is vulnerable to depleted water sources during periods of drought and increased structural loads during periods of heavy snowfall. In addition, the project is also vulnerable to water damage from heavy snow melt.

5.7.2. Adaptation

To protect from structural damage due to heavy snowfall and snow melt the follow measures will be implemented:

- Locate new treatment equipment in building
- Remove and replace building materials with water damage
- Wall improvements
- Grading to drain snowmelt away from building

To mitigate the impacts of water source depletion, the LAWC will implement water conservation practices during periods of drought.

5.7.3. Mitigation

The project is not expected increase greenhouse gas emissions from current operation.

5.8. Permits

The following permits are anticipated for this project:

- Building Permit through the Alpine County Community Development Building & Safety Division
- Water System Permit through the Division of Drinking Water

Appendix A – 60% Design Drawings

LAKE ALPINE WATER COMPANY

GAC AND LIMESTONE SYSTEM IMPROVEMENTS

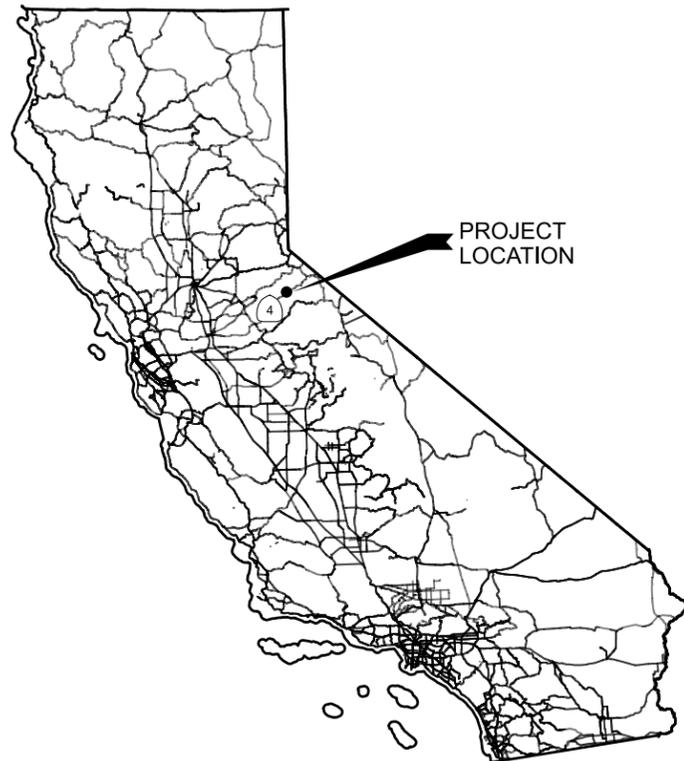
DRAWINGS

PROJECT INFORMATION

SITE ADDRESS: XXX, BEAR VALLEY, CALIFORNIA 95223
 ASSESSOR'S PARCEL NUMBER: XXX-XX-XXX

SUMMARY OF WORK:

- XXX



PROJECT
LOCATION

DRAWING INDEX

SHEET NUMBER	DISCIPLINE/ DRAWING NUMBER	TITLE
1	GENERAL G-001	COVER, VICINITY AND LOCATION MAPS
2	GENERAL G-002	PROCESS FLOW DIAGRAM
3	EXISTING CONDITIONS X-10-101	FILTER BUILDING - PLAN
4	ARCHITECTURAL A-10-041	EXTERIOR WALL - WEATHERPROOFING IMPROVEMENTS
5	MECHANICAL M-10-051	GAC AND LIMESTONE SYSTEM - ISOMETRIC NO. 1
6	MECHANICAL M-10-052	GAC AND LIMESTONE SYSTEM - ISOMETRIC NO. 2
7	MECHANICAL M-10-101	GAC AND LIMESTONE SYSTEM - PLAN
8	MECHANICAL M-10-201	GAC AND LIMESTONE SYSTEM - SECTION
9	MECHANICAL M-10-202	GAC AND LIMESTONE SYSTEM - SECTIONS
10	MECHANICAL MSD-001	STANDARD DETAILS

PROJECT
LOCATION
APN: XXX-XX-XXX



VICINITY MAP
NTS



LOCATION MAP
NTS

60% DESIGN SUBMITTAL

FOR INFORMATION REGARDING
THIS PROJECT CONTACT:

JOE RIESS
(530) 243-2113 EXT 328

NO	DATE	REVISION	BY	APVD

PRELIMINARY
NOT FOR
CONSTRUCTION

DESIGN J. RIESS
DRAWN J. RIESS
CHECKED XXX
APPROVED XXX

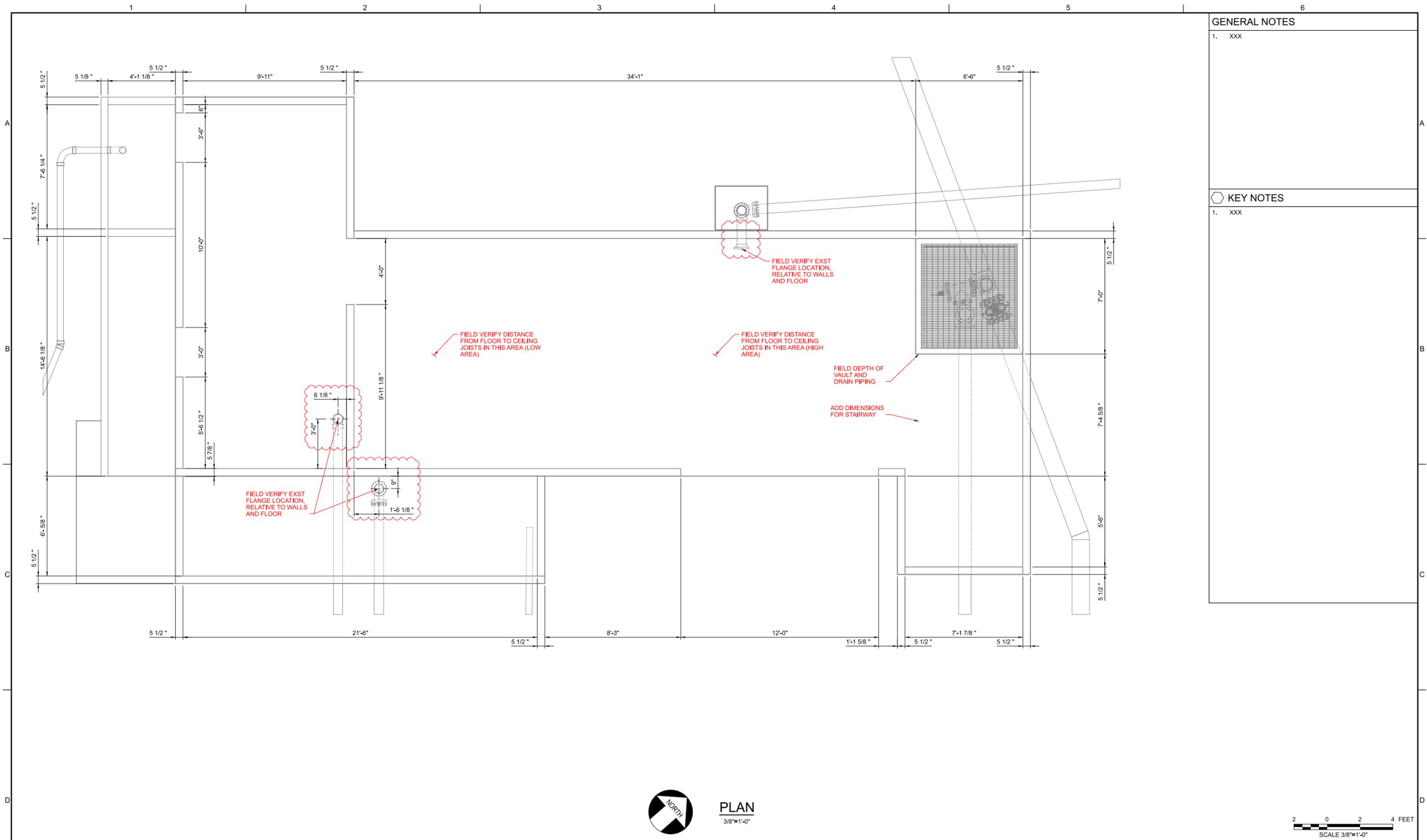


REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

GENERAL
COVER, VICINITY AND LOCATION MAPS

DATE MARCH 2023
PROJECT NO. 22-113
DRAWING NO. G-001
SHEET NO. 1



GENERAL NOTES

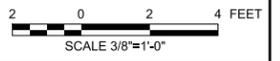
1. XXX

KEY NOTES

1. XXX



PLAN
3/8"=1'-0"



VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING	
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	
NO	DATE
REVISION	BY
APVD	

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	X. XXXX
APPROVED	X. XXXX



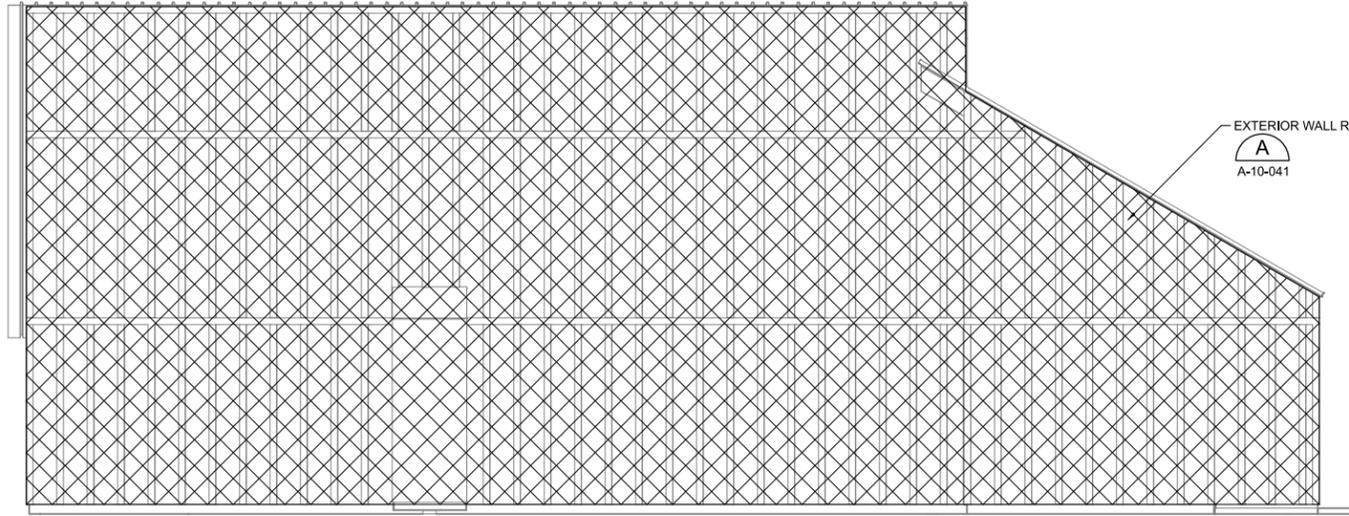
REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

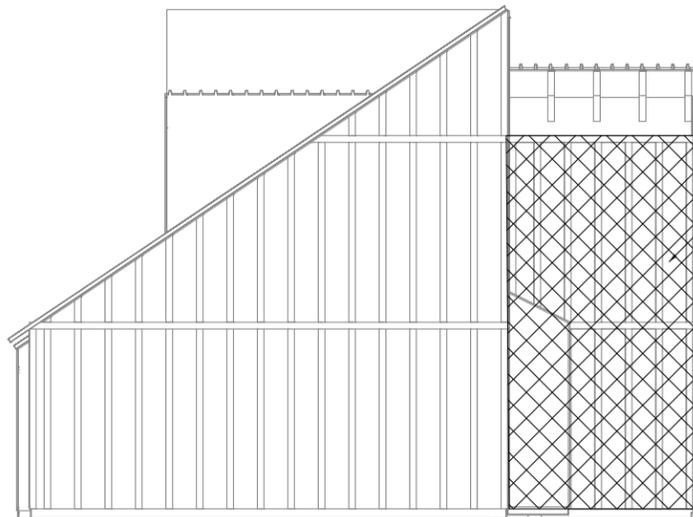
EXISTING CONDITIONS
**FILTER BUILDING
PLAN**

DATE	MARCH 2023
PROJECT NO.	22-113
DRAWING NO.	X-10-101
SHEET NO.	XXX

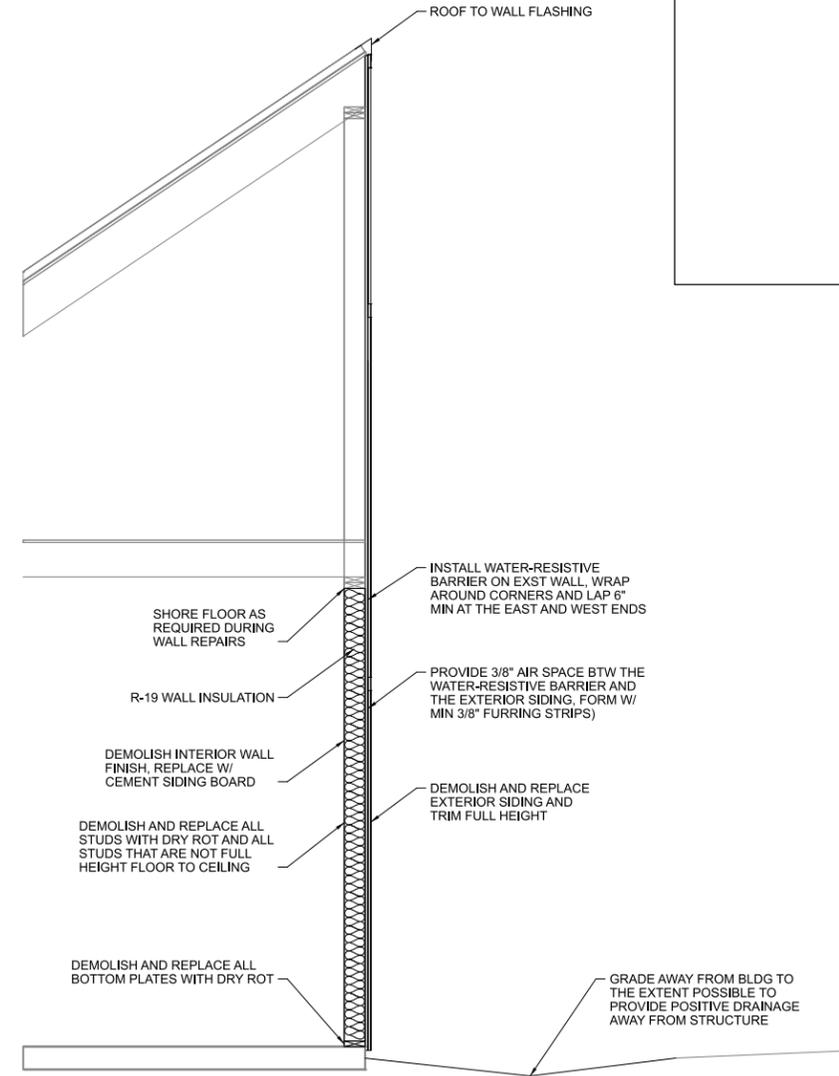
1 2 3 4 5 6



A REAR (WEST) ELEVATION
A-10-041 1/4"=1'-0"



B SIDE (NORTH) ELEVATION
A-10-041 1/4"=1'-0"



A SECTION
M-10-101 1/2"=1'-0"

GENERAL NOTES

1. XXX

KEY NOTES

1. XXX

NO	DATE	REVISION	BY	APVD

PRELIMINARY
NOT FOR
CONSTRUCTION

DESIGN
J. RIESS
DRAWN
J. RIESS
CHECKED
X. XXXX
APPROVED
X. XXXX

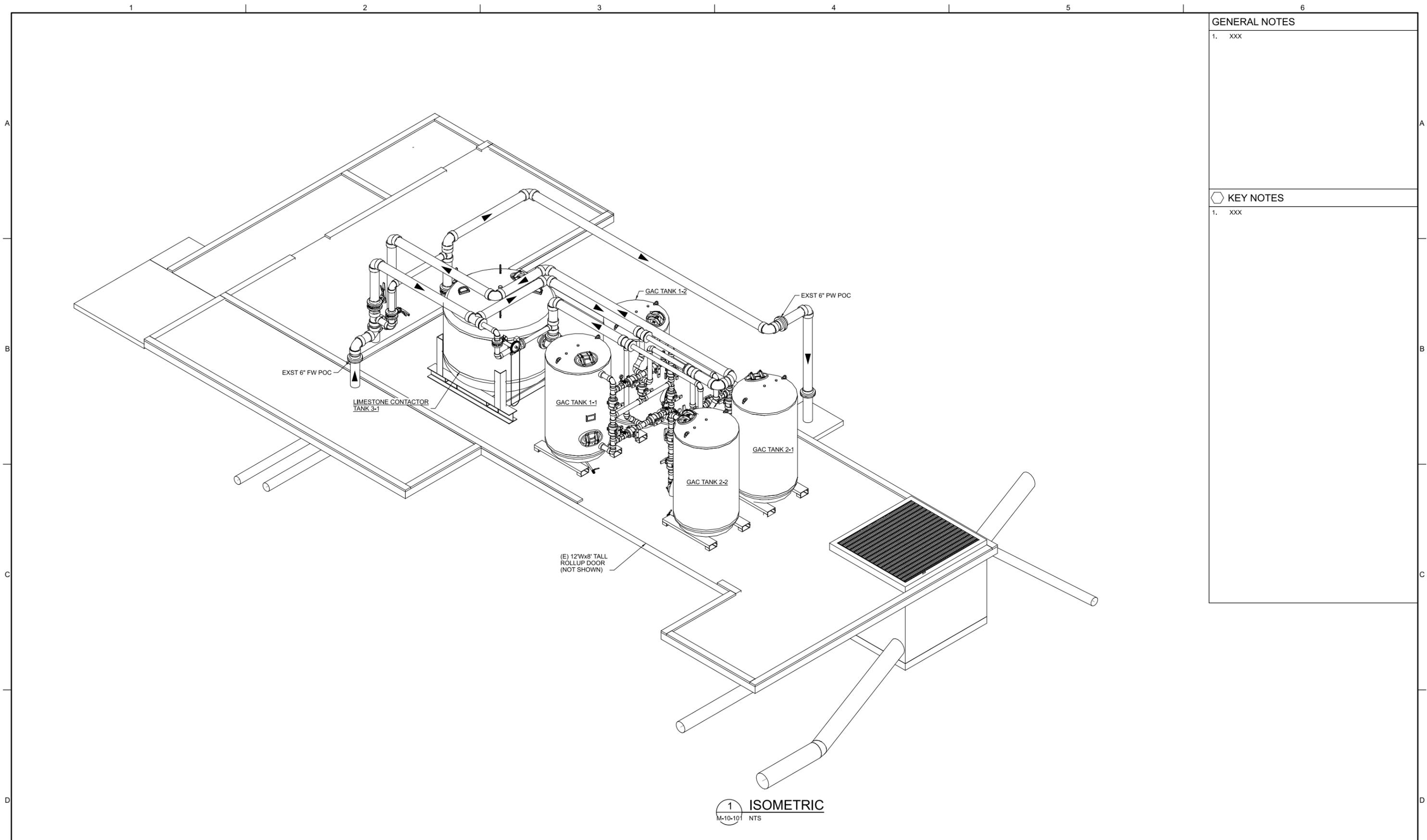


REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

ARCHITECTURAL
EXTERIOR WALL
WEATHERPROOFING IMPROVEMENTS

DATE
MARCH 2023
PROJECT NO.
22-113
DRAWING NO.
A-10-041
SHEET NO.
XXX



GENERAL NOTES

1. xxx

KEY NOTES

1. xxx

1 ISOMETRIC
M-10-101 NTS

VERIFY SCALE		NO	DATE	REVISION	BY	APVD
BAR IS ONE INCH ON ORIGINAL DRAWING	0					
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	1"					

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	X. XXXX
APPROVED	X. XXXX



LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

MECHANICAL

**GAC AND LIMESTONE SYSTEM
ISOMETRIC NO. 1**

DATE	MARCH 2023
PROJECT NO.	22-113
DRAWING NO.	M-10-051
SHEET NO.	XXX

1

2

3

4

5

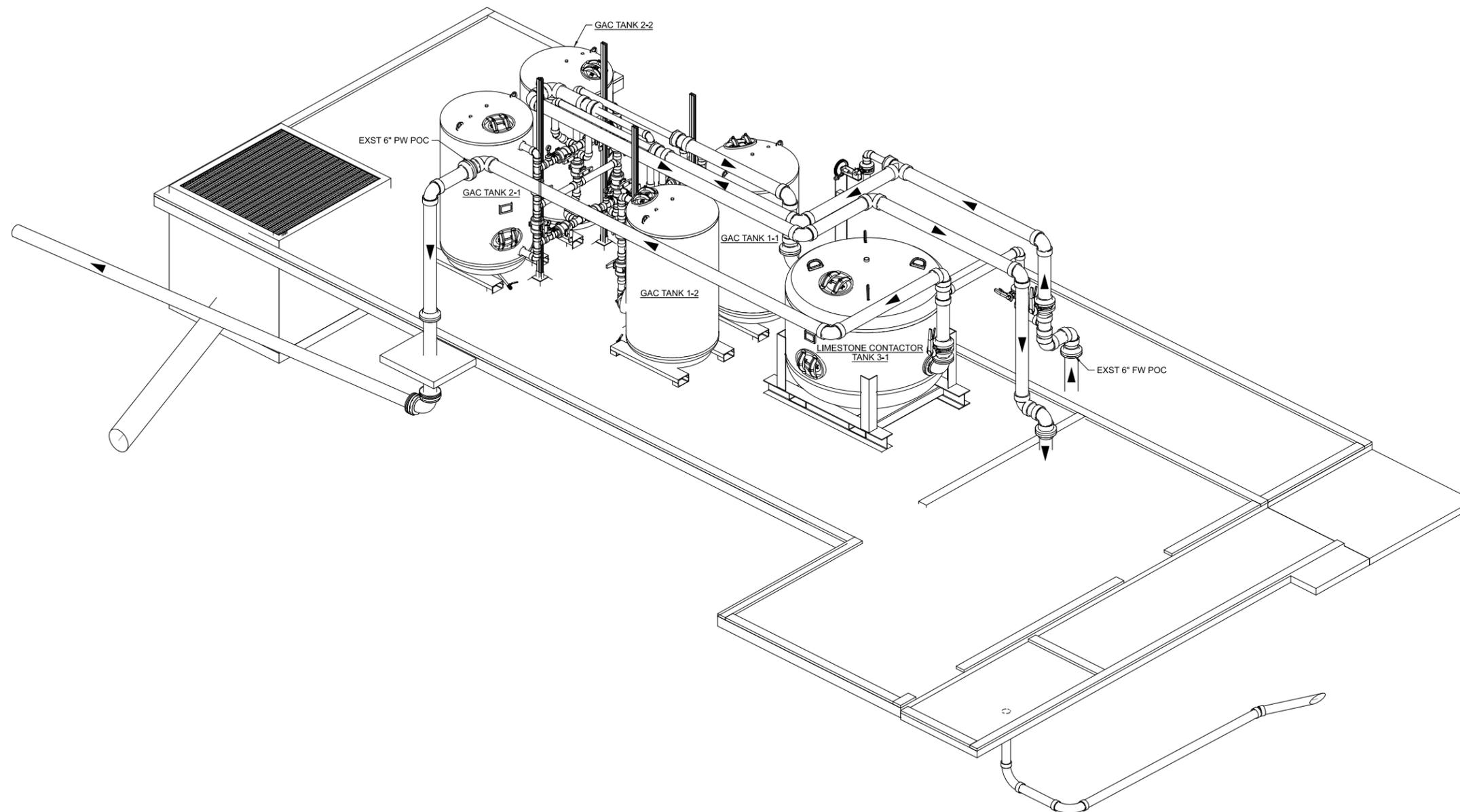
6

GENERAL NOTES

1. XXX

KEY NOTES

1. XXX



2 ISOMETRIC
M-10-101 NTS

VERIFY SCALE		NO	DATE	REVISION	BY	APVD
BAR IS ONE INCH ON ORIGINAL DRAWING	0					
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	1"					

PRELIMINARY
NOT FOR
CONSTRUCTION

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	X. XXXX
APPROVED	X. XXXX



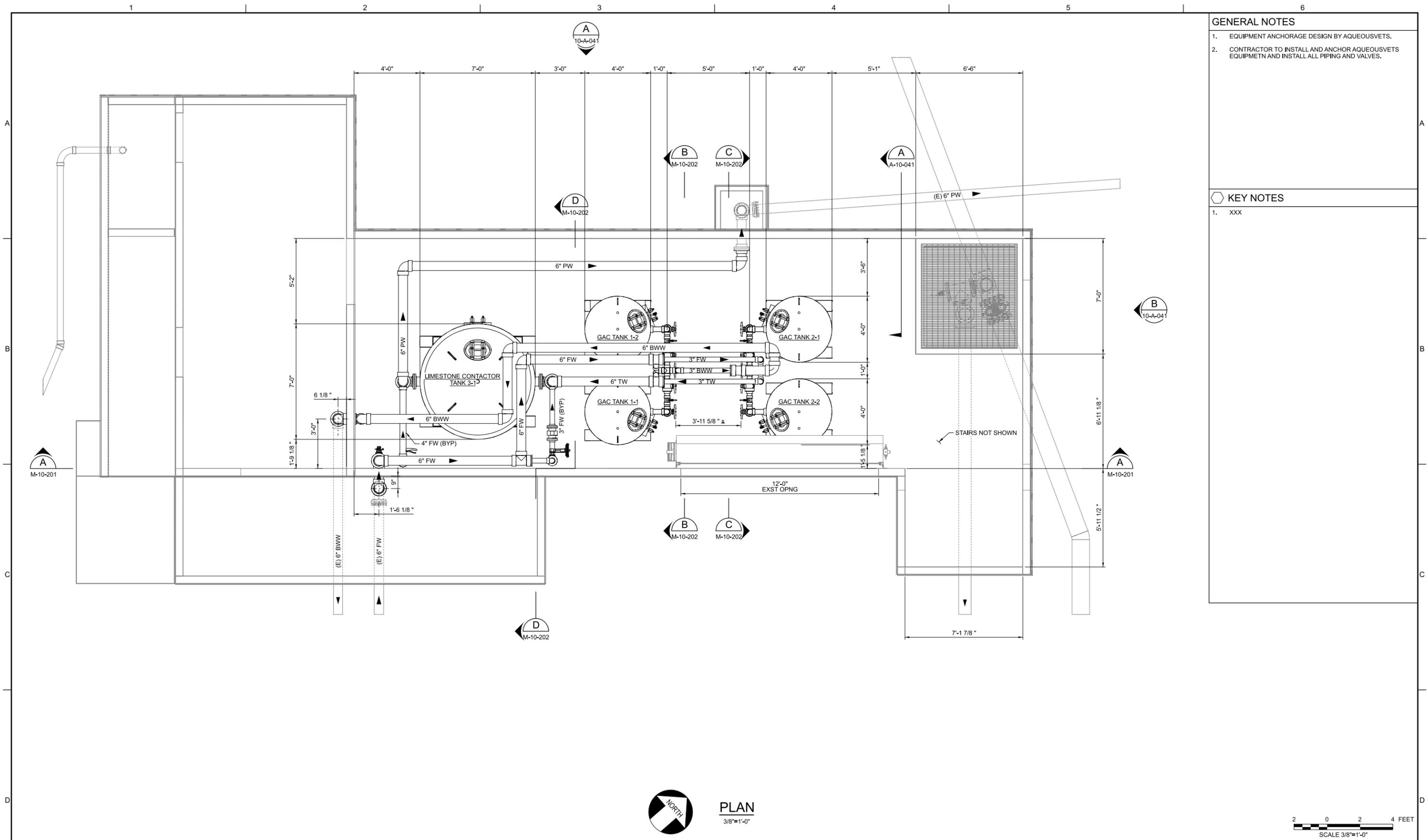
WATERWORKS
ENGINEERS

REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

MECHANICAL
GAC AND LIMESTONE SYSTEM
ISOMETRIC NO. 2

DATE	MARCH 2023
PROJECT NO.	22-113
DRAWING NO.	M-10-052
SHEET NO.	XXX



GENERAL NOTES

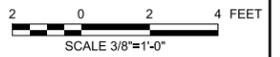
- EQUIPMENT ANCHORAGE DESIGN BY AQUEOUSVETS.
- CONTRACTOR TO INSTALL AND ANCHOR AQUEOUSVETS EQUIPMETN AND INSTALL ALL PIPING AND VALVES.

KEY NOTES

- XXX



PLAN
3/8"=1'-0"



VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	
NO	DATE
REVISION	BY
APVD	

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	X. XXXX
APPROVED	X. XXXX



REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

MECHANICAL
**GAC AND LIMESTONE SYSTEM
PLAN**

DATE	MARCH 2023
PROJECT NO.	22-113
DRAWING NO.	M-10-101
SHEET NO.	XXX

1

2

3

4

5

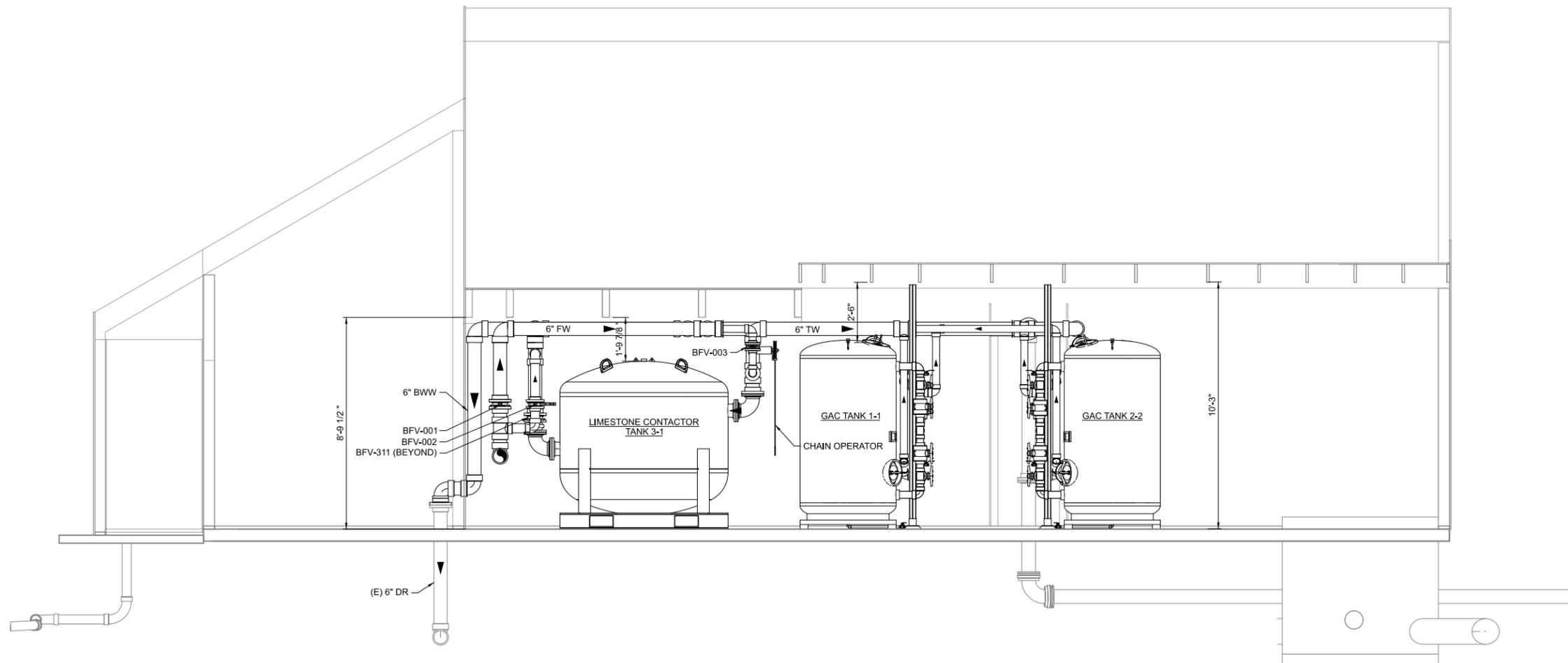
6

GENERAL NOTES

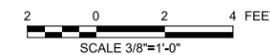
- 1. EQUIPMENT ANCHORAGE DESIGN BY AQUEOUSVETS.
- 2. CONTRACTOR TO INSTALL AND ANCHOR AQUEOUSVETS EQUIPMETN AND INSTALL ALL PIPING AND VALVES.

KEY NOTES

- 1. XXX



A SECTION
M-10-101 3/8"=1'-0"



VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING	
0 1"	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	
NO	DATE
REVISION	BY
	APVD

PRELIMINARY
NOT FOR
CONSTRUCTION

DESIGN
J. RIESS
DRAWN
J. RIESS
CHECKED
X. XXXX
APPROVED
X. XXXX



REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

MECHANICAL
GAC AND LIMESTONE SYSTEM
SECTION

DATE
MARCH 2023
PROJECT NO.
22-113
DRAWING NO.
M-10-201
SHEET NO.
XXX

1

2

3

4

5

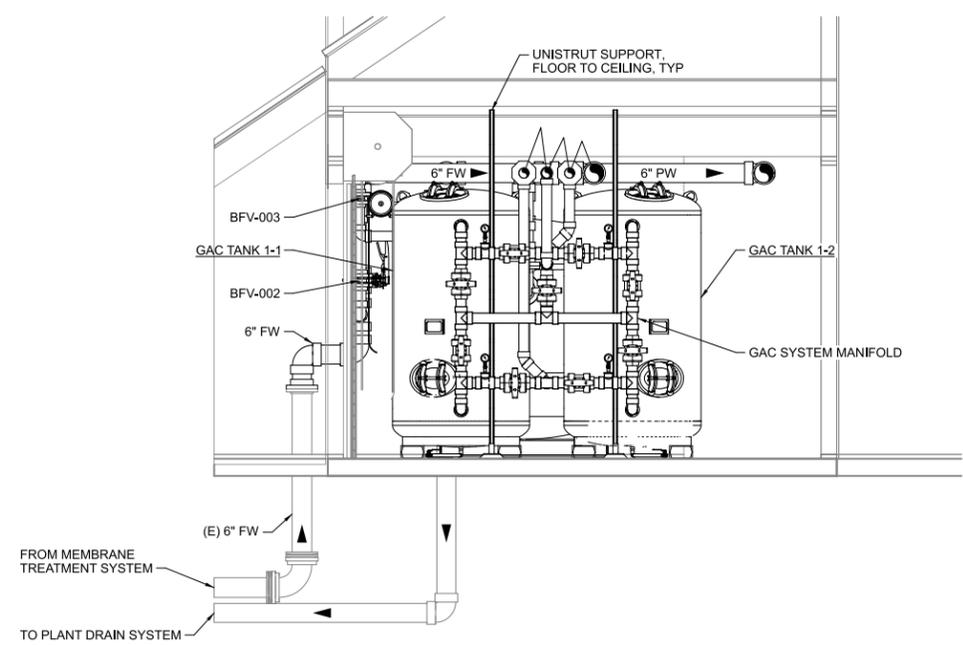
6

GENERAL NOTES

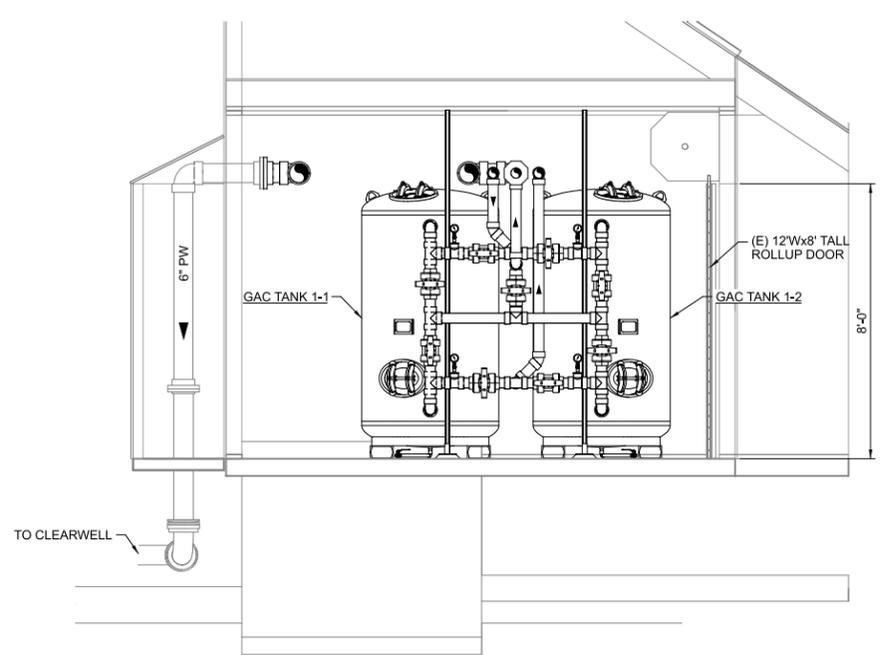
- EQUIPMENT ANCHORAGE DESIGN BY AQUEOUSVETS.
- CONTRACTOR TO INSTALL AND ANCHOR AQUEOUSVETS EQUIPMENT AND INSTALL ALL PIPING AND VALVES.

KEY NOTES

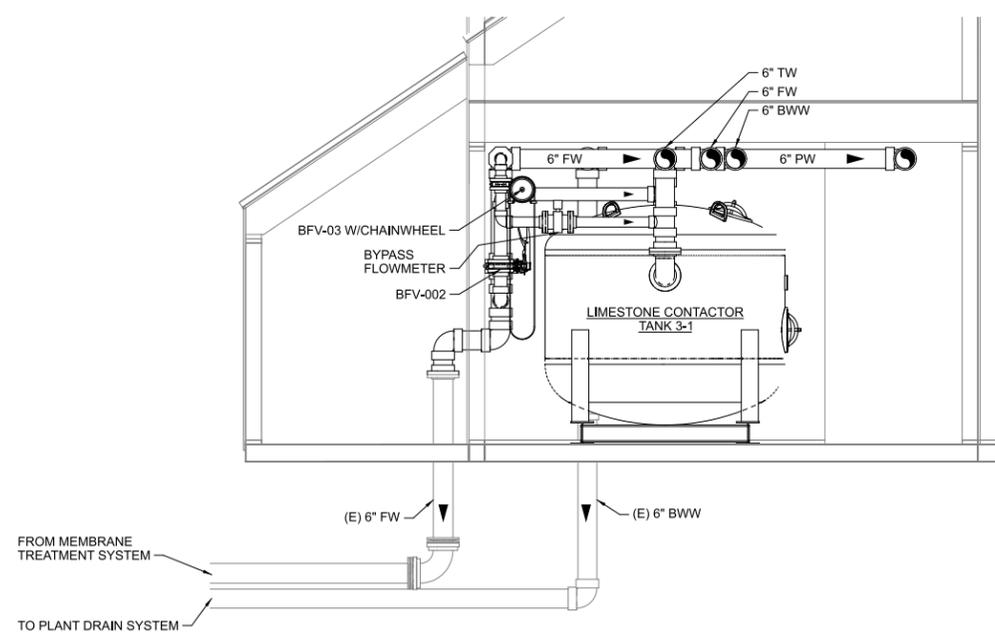
- XXX



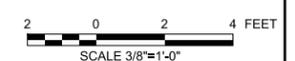
B SECTION
M-10-101 3/8"=1'-0"



C SECTION
M-10-101 3/8"=1'-0"



D SECTION
M-10-101 3/8"=1'-0"



NO	DATE	REVISION	BY	APVD

**PRELIMINARY
NOT FOR
CONSTRUCTION**

DESIGN	J. RIESS
DRAWN	J. RIESS
CHECKED	X. XXXX
APPROVED	X. XXXX



REDDING, CALIFORNIA

LAKE ALPINE WATER COMPANY
GAC AND LIMESTONE SYSTEM IMPROVEMENTS
BEAR VALLEY, CALIFORNIA

MECHANICAL
GAC AND LIMESTONE SYSTEM SECTIONS

DATE	MARCH 2023
PROJECT NO.	22-113
DRAWING NO.	M-10-202
SHEET NO.	XXX

Appendix B – Preliminary Cost Estimate Details



Project No.: 22-113
 Title: Lake Alpine Water Company
 GAC and Limestone Improvement Project
 60% Cost Estimate

By: Joe Riess
 Date: 2/8/2023

Estimated Avg. Hourly Labor Rate \$ 100.00

Description	Qty	Unit	Material Unit Cost ¹	Material Cost	Labor Cost	Subtotal	Design Contingency	Markups	Total	Rounded
Building Upgrades										
Demolish Existing Conc Slabs on North Side of Building	1	LS	\$500	\$500	\$1,600	\$2,100	\$420	\$479	\$2,999	\$3,000
Demolish Existing Siding/Studs on North Side of Building	1	LS	\$1,000	\$1,000	\$4,000	\$5,000	\$1,000	\$1,140	\$7,140	\$7,100
Replace Damaged Framing, Install New Siding, Weatherproofing	1	LS	\$10,000	\$10,000	\$20,000	\$30,000	\$6,000	\$6,840	\$42,840	\$42,800
Move Electrical Devices to Non-Combustible Backboard	1	LS	\$1,000	\$1,000	\$1,000	\$2,000	\$400	\$456	\$2,856	\$2,900
				\$0		\$0	\$0	\$0	\$0	\$0
Total Building Upgrades										\$55,800
GAC and Limestone System										
Demolish Existing Vessels, Piping and Appurtenances	1	LS	\$2,000	\$2,000	\$8,000	\$10,000	\$2,000	\$2,280	\$14,280	\$14,300
GAC and Limestone Contactor Vessel Procurement ²	1	LS	\$155,513	\$155,513	\$0	\$155,513	\$0	\$0	\$155,513	\$155,500
GAC and Limestone Contactor Vessel Installation ³	1	LS	\$500	\$500	\$4,800	\$5,300	\$1,060	\$1,208	\$7,568	\$7,600
Sonic Devices	2	EA	\$6,000	\$12,000	\$500	\$12,500	\$0	\$0	\$12,500	\$12,500
3/4" Copper Piping	10	FT	\$5.4	\$54.0	\$400	\$454	\$91	\$104	\$648	\$600
3" SCH 80 PVC Piping	52	FT	\$8.4	\$437	\$1,600	\$2,037	\$407	\$464	\$2,909	\$2,900
4" SCH 80 PVC Piping	8	FT	\$12.6	\$101	\$400	\$501	\$100	\$114	\$715	\$700
6" SCH 80 PVC Piping	102	FT	\$23.2	\$2,366	\$8,000	\$10,366	\$2,073	\$2,364	\$14,803	\$14,800
SCH 80 PVC Fittings	1	LS	\$3,000.0	\$3,000	\$0	\$3,000	\$600	\$684	\$4,284	\$4,300
3/4" Bronze Ball Valves	7	EA	\$96.0	\$672	\$700	\$1,372	\$274	\$313	\$1,959	\$2,000
3" Lugged Butterfly Valve	1	EA	\$160.0	\$160	\$400	\$560	\$112	\$128	\$800	\$800
4" Lugged Butterfly Valve	1	EA	\$220.0	\$220	\$400	\$620	\$124	\$141	\$885	\$900
6" Lugged Butterfly Valve	1	EA	\$480.0	\$480	\$400	\$880	\$176	\$201	\$1,257	\$1,300
TOC Analyzer (RealTech)	1	EA	\$17,495.0	\$17,495	\$1,600	\$19,095	\$3,819	\$4,354	\$27,268	\$27,300
Strut Channel Pipe Supports	4	EA	\$150.0	\$600	\$800	\$1,400	\$280	\$319	\$1,999	\$2,000
Pipe Hanger Supports	1	LS	\$1,000.0	\$1,000	\$1,600	\$2,600	\$520	\$593	\$3,713	\$3,700
3" Magnetic Flowmeter	1	EA	\$1,500.0	\$1,500	\$1,600	\$3,100	\$620	\$707	\$4,427	\$4,400
				\$0		\$0	\$0	\$0	\$0	\$0
				\$0		\$0	\$0	\$0	\$0	\$0
				\$0		\$0	\$0	\$0	\$0	\$0
Total GAC and Limestone System										\$255,600
Chlorine Generator Relocation										
Clear Out Existing Room	1	LS	\$500	\$500	\$1,600	\$2,100	\$420	\$479	\$2,999	\$3,000
Relocate Existing Chlorine Generator System	1	LS	\$2,000	\$2,000	\$12,000	\$14,000	\$2,800	\$3,192	\$19,992	\$20,000
				\$0		\$0	\$0	\$0	\$0	\$0
				\$0		\$0	\$0	\$0	\$0	\$0
				\$0		\$0	\$0	\$0	\$0	\$0
Total Building Upgrades										\$23,000
TOTALS						\$284,498	\$23,297	\$26,559	\$334,353	\$334,400

Markups	%
Design Contingency	20%
Contractor General, Mobilization, Overhead and Profit	15%
General Conditions, Bonds, Insurance, and Taxes	4%
Additional Markups (not used)	0%

12/18/21 GAC Estimate	\$ 323,000
Difference	\$11,400
	4%
	\$ 155,513
Construction Cost	\$178,888

Project Total	Cost
Engineering Design and Services During Construction (TO# 3)	\$63,564
Construction	\$334,400
Construction Contingency (10%)	\$33,440
Total Estimated Project Cost	\$431,404

Notes:

1. Includes cost for disposal
2. Equipment cost per AqueoUSVets 0/5/2022 proposal (\$145,000) + 7.25% Shasta County sales tax.
3. Contractor responsible for moving equipment into place, anchoring and grouting. AqueoUSVets' scope includes setting and site assembly.

Alternative 1 20-Year Net Present Worth (NPW)

Parameter	Units	Value
Total Capital Project Cost	\$	\$0
Total O&M Cost	\$/year	\$40,000
	\$/month	\$3,333
20-Year NPW Parameters		
Discount Rate	%	5%
Period of Analysis	years	20
Present Worth Factor		12.462
20-Year NPW	\$	\$500,000

Alternative 2 20-Year Net Present Worth (NPW)

Parameter	Units	Value
Total Capital Project Cost	\$	\$431,404
Total O&M Cost	\$/year	\$36,500
	\$/month	\$3,042
20-Year NPW Parameters		
Discount Rate	%	5%
Period of Analysis	years	20
Present Worth Factor		12.462
20-Year NPW	\$	\$890,000

Appendix C – Corrective Action Plans



Lake Alpine Water Company

May 4, 2022

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District
31 E. Channel Street, Room 270
Stockton, CA 95202

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) has violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

Timeline of CAP:

May 2022 – GAC media exchange completed on May 4, 2022

On April 30 when we operated the plant, we were able to decrease the feed flow at 65 gpm which allowed 20 minutes of contact time in the GAC tank. As an immediate result, chlorine demand decreased by 0.60ppm while still achieving the same chlorine residual.

Comparative samples for TOC collected pre and post GAC are at the lab.

We have requested a quote from Calgon Carbon for gravel, garnet and GAC media to recreate the second GAC contact tank. We have also requested a quote from Sonic Solutions for a second ultrasonic device to be installed in the second GAC tank to prevent iron bacteria blooms.

Next steps, monthly TOC comparative samples will be collected. Interim DBP samples will be collected at the end of May. Quarterly DBP samples will be collected July 6. Once materials are received, assemble the second GAC.

June - October 2022 – Renovate backwash discharge pond area

June 2022 – Repurpose second vessel as a GAC filter

October 2022 – Replenish GAC media in tank 1 and add GAC media to tank 2 for the winter

June – October 2023 – Install prefabricated, new 4 vessel GAC array and new limestone vessel

Sincerely,

Kimi Johnson
General Manager



Lake Alpine Water Company

August 5, 2022

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District
31 E. Channel Street, Room 270
Stockton, CA 95202

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) has violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

Since late April 2022, we have been operating the plant at a reduced flow rate of 72 gpm to increase the contact time of water in the GAC vessel. Occasionally, to recover from high use weekends, we have to operate the plant at its normal rate of 138 gpm but this is only for a temporary period of time.

To build the second GAC contact vessel, we have the gravel and carbon on site. We have not been able to get the garnet delivered. As a substitute, we may order a smaller sized gravel and proceed with finishing the second vessel without garnet. We have received a second ultrasonic device to be installed in the second GAC tank to prevent iron bacteria blooms. Once materials are received, we will assemble the second GAC vessel and put it online.

Monthly TOC comparative samples are being collected. A second set of DBP samples were collected on June 1 and averaged with the April results for the Q2 RAA. Results were significantly lower and although the June samples were in compliance the RAA was still too high. Third quarter DBP samples were collected on July 1 and results were in compliance. Another set of Q3 samples were collected on August 3 but results are not yet available. Once the August results are available, we will produce the quarterly report and the public notice for your review before sending it to our customers.

We are proceeding with the following CAP:

June - October 2022 – Renovate backwash discharge pond area

August 2022 – Repurpose second vessel as a GAC filter

November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter

June – October 2023 – Install prefabricated, new 4 vessel GAC array and new limestone vessel

Sincerely,

Kimi Johnson
General Manager

PO Box 5013, Bear Valley, CA 95223
209-753-2409 209-753-2345 FAX
info@lakealpinewater.com



Lake Alpine Water Company

November 4, 2022

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) has violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

LAWC put a second GAC contact vessel into operation on September 19, 2022. Like the first GAC vessel, the filtrate flows through the top, hits a splash plate and travels through the GAC to a PVC drain array at the bottom and then it flows into the limestone tank. In the GAC filter, there are 6 inches of gravel, 4 inches of a smaller gravel and 2000 pounds of GAC. Now with the second vessel in operation, we can operate the plant at the usual flow of 135 gpm. The second vessel also has a Sonic Solutions sonic producing device which can prevent iron bacteria blooms between plant runs.

During the backwash of the new GAC vessel, we scrubbed the GAC in the first vessel with sodium hydroxide. The TOC removal rate improved from 9% removal before the wash to 41% removal after the wash. We still need to install a new sample port so that we collect a TOC sample after the filtrate has passed through both GAC's vessels. Once completed, we will continue to collect monthly TOC pre and post comparison samples.

Monthly DBP samples were collected in July, August and September and averaged to get the Q3 RAAs. Results were modestly lower than Q2 at 61 and 68 ug/L at the 2 sites. A customer notice was sent with the October invoice. Strangely, TTHMs increased for Q3 averages of 64 and 78 ug/L at the 2 sites. We discovered that the submersible pump in the Clearwell has failed. This pump moves water through the aeration spray heads in the Clearwell tank to volatilize chloroform, our primary TTHM. A replacement pump has been ordered and will be installed by November 15.

We are proceeding with the following CAP:

October 2022 – Removal of backwash discharge pond project - DONE

September 2022 – Repurpose second vessel as a GAC filter - DONE

November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter - SCHEDULED

June – October 2023 – Install prefabricated, new 4 vessel GAC array and new limestone vessel

Sincerely,

Kimi Johnson
General Manager

PO Box 5013, Bear Valley, CA 95223
209-753-2409 209-753-2345 FAX
info@lakealpinewater.com



Lake Alpine Water Company

February 2, 2023

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

The GAC media was exchanged in both GAC contact vessels on November 4, 2022. With both GAC vessels in operation, we can operate the plant at the usual flow of 140-180 gpm. The second vessel also has a Sonic Solutions sonic producing device which can prevent iron bacteria blooms between plant runs.

We collected TOC pre and post comparison samples on December 7, 2022 and January 6, 2023, and both batches showed significant removal of the TOC such that the post sample had an undetectable level of TOC.

Quarterly DBP samples were collected January 6, 2023. Results for HAA5 were significantly lower than Q4 at 8 ug/L at one site and 50 ug/L at the second site. Both LRAA's were in compliance. By December 8, 2022, we had replaced the aeration pump in the clearwell. This pump moves water through the aeration spray heads in the top of the Clearwell tank to volatize chloroform, our primary TTHM. TTHMs were significantly lower for Q1 at 15.34 and 79.57 ug/L at the 2 sites. Both LRAA's were in compliance. The exhaust fan for purging air in the head space where the aeration takes place has now failed. We have a replacement part on hand but cannot access the tank while it is loaded with snow.

We are proceeding with the following CAP:

October 2022 – Removal of backwash discharge pond project - DONE

September 2022 – Repurpose second vessel as a GAC filter - DONE

November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter - DONE

June – October 2023 – Install new 4 vessel GAC array and new limestone vessel - On schedule

Sincerely,

Kimi Johnson
General Manager



Lake Alpine Water Company

April 29, 2023

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

No major changes in operations since the last report in February 2023. The GAC is still actively filtering TOC for removal. Here are the rates of removal since the last GAC exchange of November 4, 2022.

Date	Sample Site	CCF	TOC	units	% removal
4.7.23	Pre GAC Filter	1911	2.99	mg/L	74.25%
	Post GAC Filter		0.77	mg/L	
3.8.23	Pre GAC Filter	1637	3.12	mg/L	62.82%
	Post GAC Filter		1.16	mg/L	
2.1.23	Pre GAC Filter	1402	3.16	mg/L	86.39%
	Post GAC Filter		0.43	mg/L	
1.6.23	Pre GAC Filter	1389	3.28	mg/L	100.00%
	Post GAC Filter		0	mg/L	
12.7.22	Pre GAC Filter	944	3.04	mg/L	100.00%
	Post GAC Filter		0	mg/L	

Quarterly DBP samples were collected April 7, 2023. Both LRAA's were in compliance.

The aeration pump and exhaust fan for stripping TTHM's from the water in the clearwell have not been functional since January 20, 2023. Snow unloaded from the clearwell tank roof and removed the power supply conduit and exhaust fan housing. We have been unable to safely restore the power supply to the aeration pump and fan until the snow melts and we can locate the equipment.



Lake Alpine Water Company

We are proceeding with the following CAP:

October 2022 – Removal of backwash discharge pond project -	DONE
September 2022 – Repurpose second vessel as a GAC filter -	DONE
November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter –	DONE
February 2023 – Working with RCAC and WaterWorks Engineers to apply for a SAFER grant to fund the installation of new 4 vessel GAC array and new limestone vessel -	On schedule
October 2023 – Complete phase 1 to secure access to the old treatment plant building	On schedule
November 2023 – Exchange GAC media in tank 1 and tank 2 for the winter –	On schedule

Through the facilitation of Rural Community Assistance Corporation and grant writing consultants through California Water Association, we are applying for a SAFER grant to fund the installation of the GAC vessels, limestone vessel and building repairs to house those vessels. The grant application may be completed by the end of 2023 and could be reviewed for a decision by the end of 2024. Construction could begin in the summer of 2025.

Sincerely,

Kimi Johnson
General Manager



Lake Alpine Water Company

July 25, 2023

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

No major changes in operations since the last report in February 2023. The GAC is still actively filtering TOC for removal.

Quarterly DBP samples were collected July 5, 2023. Both LRAA's were in compliance.

The aeration pump and exhaust fan for stripping TTHM's from the water in the clearwell have been functional again since early May 2023. We have contacted Calgon carbon for a GAC exchange to schedule for late September.

We are proceeding with the following CAP:

- | | |
|--|---------------|
| October 2022 – Removal of backwash discharge pond project - | DONE |
| September 2022 – Repurpose second vessel as a GAC filter - | DONE |
| November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter – | DONE |
| February 2023 –RCAC and WaterWorks Engineers filed an expediated application for a SAFER grant to fund the installation of new 4 vessel GAC array and new limestone vessel - | DONE |
| October 2023 – Complete phase 1 to secure access to the old treatment plant - | Starts Aug 15 |
| November 2023 – Exchange GAC media in tank 1 and tank 2 for the winter – | On schedule |

Through the facilitation of Rural Community Assistance Corporation and grant writing consultants through California Water Association, we have applied for a SAFER grant to fund the installation of the GAC vessels, limestone vessel and building repairs to house those vessels. The grant application may be completed by the end of 2023 and could be reviewed for a decision by the end of 2024. Construction could begin in the summer of 2025.

Sincerely,

Kimi Johnson
General Manager



Lake Alpine Water Company

November 13, 2023

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

No major changes in operations since the last report in July 2023. The GAC is still actively filtering TOC for removal.

Quarterly DBP samples were collected on October 11, 2023. Both LRAA's were in compliance.

The aeration pump and exhaust fan for stripping TTHM's from the water in the clearwell is not currently functional. We are making repairs to the electrical supply and had to replace the motor for the pump. We should be fully functional again by November 30. We contracted with Calgon carbon for a GAC exchange that was completed on November 8, 2023.

We are proceeding with the following CAP:

October 2022 – Removal of backwash discharge pond project -	DONE
September 2022 – Repurpose second vessel as a GAC filter -	DONE
November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter –	DONE
February 2023 –RCAC and WaterWorks Engineers filed an expediated application for a SAFER grant to fund the installation of new 4 vessel GAC array and new limestone vessel -	DONE
October 2023 – Complete phase 1 to secure access to the old treatment plant -	DONE
November 2023 – Exchange GAC media in tank 1 and tank 2 for the winter –	DONE
Kickoff meeting facilitated by RCAC for the grant application	October 26

Through the facilitation of Rural Community Assistance Corporation and grant writing consultants through California Water Association, we have applied for a SAFER grant to fund the installation of the GAC vessels, limestone vessel and building repairs to house those vessels. The grant application may be completed by the end of 2023 and could be reviewed for a decision by the end of 2024. Construction could begin in the summer of 2025.

Sincerely,

Kimi Johnson
General Manager

PO Box 5013, Bear Valley, CA 95223
209-753-2409 209-753-2345 FAX
info@lakealpinewater.com



Lake Alpine Water Company

February 7, 2024

Bhupinder Sahota, PE
District Engineer
State Water Resources Control Board
Division of Drinking Water-Stockton District

Re: Corrective Action Plan

Lake Alpine Water Company (LAWC) violated the Locational Running Annual Average (LRAA) for HAA5 at Q1 and Q2 of 2022 at both Stage 2 sample sites.

Here is the quarterly update:

No major changes in operations since the last report in November 2023.

- The GAC is still actively filtering TOC for removal.
- Quarterly DBP samples were collected on January 3, 2023. Both LRAA's were in compliance.
- The aeration pump and exhaust fan for stripping TTHM's from the water in the clearwell is fully functional.

We are proceeding with the following CAP:

October 2022 – Removal of backwash discharge pond project -	DONE
September 2022 – Repurpose second vessel as a GAC filter -	DONE
November 2022 – Exchange GAC media in tank 1 and tank 2 for the winter –	DONE
February 2023 –RCAC and WaterWorks Engineers filed an expediated application for a SAFER grant to fund the installation of new 4 vessel GAC array and new limestone vessel -	DONE
October 2023 – Complete phase 1 to secure access to the old treatment plant -	DONE
November 2023 – Exchange GAC media in tank 1 and tank 2 for the winter –	DONE
Next meeting facilitated by RCAC for the grant application	February 29
Estimated time of construction/installation of GAC vessels	Summer 2026

Sincerely,

Kimi Johnson
General Manager

Appendix D– Disinfection Byproduct Data

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAA5)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>4.7.21</i>	<i>7.7.21</i>	<i>10.6.21</i>	<i>1.5.22</i>				
STDBP - 88 Bear Valley Rd.	22.60	70.30	40.70	112.50	61.53	N	84.00	Y
STDBP - 660 Bloods Ridge Rd.	46.50	78.40	39.30	136.80	75.25	N	97.83	Y
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances. Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
 LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
 OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
 HAA5 MCL= 0.060 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
TOTAL TRIHALOMETHANE (TTHM)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	TTHM (ppb)							
	Monitoring Periods				LRAA (TTHM)	Meets Standard? (Y/N)	OEL (TTHM)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>7.7.21</i>	<i>10.6.21</i>	<i>1.5.22</i>	<i>Qtr Ave</i>				
STDBP - 88 Bear Valley Rd.	68.70	21.83	54.83	60.57	51.48	Y	49.45	N
STDBP - 660 Bloods Ridge Rd.	87.47	31.30	63.59	76.73	64.77	Y	62.09	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	86.17	34.96	60.57
ST2DBP – 660 Bloods Ridge Rd	57.60	95.85	76.73

Comments:

Note: If your OEL is higher than the TTHM MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to TTHM formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
TTHM MCL = 0.080 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAA5)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	7.7.21	10.6.21	1.5.22	<i>Qtr Ave</i>				
STDBP - 88 Bear Valley Rd.	70.30	40.70	112.50	80.90	76.10	N	78.75	Y
STDBP - 660 Bloods Ridge Rd.	78.40	39.30	136.80	75.80	82.58	N	81.93	Y
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	4.6.22	6.1.22	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	130.7	31.0	80.9
ST2DBP – 660 Bloods Ridge Rd	113.1	38.5	75.8

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
 LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
 OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
 HAA5 MCL= 0.060 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
TOTAL TRIHALOMETHANE (TTHM)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	TTHM (ppb)							
	Monitoring Periods				LRAA (TTHM)	Meets Standard? (Y/N)	OEL (TTHM)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>10.6.21</i>	<i>1.5.22</i>	<i>Qtr Ave</i>	<i>Qtr Ave</i>				
STDBP - 88 Bear Valley Rd.	21.83	54.83	34.96	68.66	45.07	Y	56.78	N
STDBP - 660 Bloods Ridge Rd.	31.30	63.59	95.85	60.56	62.83	Y	70.14	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtr AVE</i>
ST2DBP - 88 Bear Valley Rd	86.17	34.96	60.57
ST2DBP - 660 Bloods Ridge Rd	57.60	95.85	76.73

<i>Sample Date (month/date/year):</i>	<i>7.1.22</i>	<i>8.3.22</i>	<i>9.21.22</i>	<i>Qtr AVE</i>
ST2DBP - 88 Bear Valley Rd	87.61	54.62	63.74	68.66
ST2DBP - 660 Bloods Ridge Rd	53.53	49.47	78.68	60.56

Comments:

Note: If your OEL is higher than the TTHM MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to TTHM formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
TTHM MCL = 0.080 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAA5)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>10.6.21</i>	<i>1.5.22</i>	<i>Qtr Ave</i>	<i>Qtr Ave</i>				
STDBP - 88 Bear Valley Rd.	40.70	112.50	80.90	56.00	72.53	N	76.35	Y
STDBP - 660 Bloods Ridge Rd.	39.30	136.80	75.80	56.50	77.10	N	81.40	Y
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	130.7	31.0	80.9
ST2DBP – 660 Bloods Ridge Rd	113.1	38.5	75.8

<i>Sample Date (month/date/year):</i>	<i>7.1.22</i>	<i>8.3.22</i>	<i>9.21.22</i>	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	42.9	64.0	61.1	56.0
ST2DBP – 660 Bloods Ridge Rd	52.5	48.7	68.3	56.5

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report

Date

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
HAA5 MCL= 0.060 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
TOTAL TRIHALOMETHANE (TTHM)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company
System No. 0210001

	TTHM (ppb)							
	Monitoring Periods				LRAA (TTHM)	Meets Standard? (Y/N)	OEL (TTHM)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	1.5.22	<i>Qtr Ave</i>	<i>Qtr Ave</i>	10.5.22				
STDBP - 88 Bear Valley Rd.	54.83	60.57	68.66	77.35	65.35	Y	70.98	N
STDBP - 660 Bloods Ridge Rd.	63.59	76.73	60.56	64.11	66.25	Y	66.38	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	4.6.22	6.1.22	<i>Qtr AVE</i>
ST2DBP - 88 Bear Valley Rd	86.17	34.96	60.57
ST2DBP - 660 Bloods Ridge Rd	57.60	95.85	76.73

<i>Sample Date (month/date/year):</i>	7.1.22	8.3.22	9.21.22	<i>Qtr AVE</i>
ST2DBP - 88 Bear Valley Rd	87.61	54.62	63.74	68.66
ST2DBP - 660 Bloods Ridge Rd	53.53	49.47	78.68	60.56

Comments:

Note: If your OEL is higher than the TTHM MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to TTHM formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
TTHM MCL = 0.080 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAA5)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>1.5.22</i>	<i>Qtr Ave</i>	<i>Qtr Ave</i>	<i>10.5.22</i>				
STDBP - 88 Bear Valley Rd.	112.50	80.90	56.00	14.10	65.88	N	41.28	N
STDBP - 660 Bloods Ridge Rd.	136.80	75.80	56.50	25.00	73.53	N	45.58	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	130.7	31.0	80.9
ST2DBP – 660 Bloods Ridge Rd	113.1	38.5	75.8

<i>Sample Date (month/date/year):</i>	<i>7.1.22</i>	<i>8.3.22</i>	<i>9.21.22</i>	<i>Qtr AVE</i>
ST2DBP – 88 Bear Valley Rd	42.9	64.0	61.1	56.0
ST2DBP – 660 Bloods Ridge Rd	52.5	48.7	68.3	56.5

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report

Date

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
HAA5 MCL= 0.060 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
TOTAL TRIHALOMETHANE (TTHM)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	TTHM (ppb)							
	Monitoring Periods				LRAA (TTHM)	Meets Standard? (Y/N)	OEL (TTHM)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>1.6.23</i>	<i>4.7.23</i>	<i>7.5.23</i>	<i>10.11.23</i>				
STDBP - 88 Bear Valley Rd.	15.34	23.40	31.11	29.24	24.77	Y	28.25	N
STDBP - 660 Bloods Ridge Rd.	79.57	20.36	22.15	39.86	40.49	Y	30.56	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtrr AVE</i>
ST2DBP - 88 Bear Valley Rd	86.17	34.96	60.57
ST2DBP - 660 Bloods Ridge Rd	57.60	95.85	76.73

<i>Sample Date (month/date/year):</i>	<i>7.1.22</i>	<i>8.3.22</i>	<i>9.21.22</i>	<i>Qtrr AVE</i>
ST2DBP - 88 Bear Valley Rd	87.61	54.62	63.74	68.66
ST2DBP - 660 Bloods Ridge Rd	53.53	49.47	78.68	60.56

Comments:

Note: If your OEL is higher than the TTHM MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to TTHM formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
TTHM MCL = 0.080 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAAS)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>1.6.23</i>	<i>4.7.23</i>	<i>7.5.23</i>	<i>10.11.23</i>				
STDBP - 88 Bear Valley Rd.	8.00	25.20	42.70	24.10	25.00	Y	29.03	N
STDBP - 660 Bloods Ridge Rd.	50.00	26.40	49.40	72.90	49.68	Y	55.40	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>	<i>4.6.22</i>	<i>6.1.22</i>	<i>Qtrr AVE</i>
ST2DBP – 88 Bear Valley Rd	130.7	31.0	80.9
ST2DBP – 660 Bloods Ridge Rd	113.1	38.5	75.8

<i>Sample Date (month/date/year):</i>	<i>7.1.22</i>	<i>8.3.22</i>	<i>9.21.22</i>	<i>Qtrr AVE</i>
ST2DBP – 88 Bear Valley Rd	42.9	64.0	61.1	56.0
ST2DBP – 660 Bloods Ridge Rd	52.5	48.7	68.3	56.5

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
HAA5 MCL= 0.060 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
TOTAL TRIHALOMETHANE (TTHM)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	TTHM (ppb)							
	Monitoring Periods				LRAA (TTHM)	Meets Standard? (Y/N)	OEL (TTHM)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>7.5.23</i>	<i>10.11.23</i>	<i>1.3.24</i>	<i>4.3.24</i>				
STDBP - 88 Bear Valley Rd.	31.11	29.24	6.74	27.51	23.65	Y	22.75	N
STDBP - 660 Bloods Ridge Rd.	22.15	39.86	7.96	25.25	23.81	Y	24.58	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>			
ST2DBP - 88 Bear Valley Rd			
ST2DBP - 660 Bloods Ridge Rd			

<i>Sample Date (month/date/year):</i>			
ST2DBP - 88 Bear Valley Rd			
ST2DBP - 660 Bloods Ridge Rd			

Comments:

Note: If your OEL is higher than the TTHM MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to TTHM formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
TTHM MCL = 0.080 mg/L

STAGE 2 DISINFECTION BYPRODUCT RULE
HALOACETIC ACIDS (HAA5)
QUARTERLY SUMMARY REPORT

Water System Name: Lake Alpine Water Company

System No. 0210001

	HAA5 (ppb)							
	Monitoring Periods				LRAA (HAA5)	Meets Standard? (Y/N)	OEL (HAA5)	Exceed OEL (Y/N)
	MP1	MP2	MP3	MP4 (Current Qtr)				
<i>Sample Date (month/date/year):</i>	<i>7.5.23</i>	<i>10.11.23</i>	<i>1.3.24</i>	<i>4.3.24</i>				
STDBP - 88 Bear Valley Rd.	42.70	24.10	7.50	29.10	25.85	Y	22.45	N
STDBP - 660 Bloods Ridge Rd.	49.40	72.90	21.10	37.90	45.33	Y	42.45	N
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								
Enter Site Name								

<i>Sample Date (month/date/year):</i>			
ST2DBP – 88 Bear Valley Rd			
ST2DBP – 660 Bloods Ridge Rd			

<i>Sample Date (month/date/year):</i>			
ST2DBP – 88 Bear Valley Rd			
ST2DBP – 660 Bloods Ridge Rd			

Comments:

Note: If your OEL is higher than the HAA5 MCL at any location in the distribution system, you must conduct an operational evaluation by examining the system treatment and distribution operational practices, including: storage tank operations; excess storage capacity; distribution system flushing; changes in sources or source water quality; treatment changes; and any problems that may contribute to HAA5 formation. From this evaluation you must identify what steps could be taken to minimize future OEL exceedances: Please submit your operational evaluation report to the State for review within 90 days.

Name & Title of Person Submitting Report **Date**

MP1=3 Qtrs Ago, MP2=2 Qtrs Ago, MP3= Last Qtr, MP4=Current Qtr
 LRAA = Locational Running Annual Avg = (MP1+MP2+MP3+MP4)/4
 OEL = Operational Evaluation Levels = (MP2 + MP3 + 2MP4)/4
 HAA5 MCL= 0.060 mg/L

Appendix E – Water Supply Projected Use Letter

Projected Use

LAWC and Alpine County prepared a Water Supply Assessment (WSA) to evaluate whether sufficient water supplies were available to meet water demands associated with the Bear Valley Village (Diane Wagner Consulting 2008). The WSA evaluated current water demands as well as projected water demands associated with the Bear Valley Village as well as water service customers (population). The WSA evaluated and projected water use and demands over a planning horizon of 22 years (from 2008 to 2030). Due to unforeseen circumstances, the development of the Bear Valley Village did not occur on schedule. Construction and development of the Bear Valley Village as described in the 2008 WSA is scheduled to begin within the next 12 months.

Because the construction of the Bear Valley Village did not occur in the time frame projected in the 2008 WSA, from 2008 to present (2022), growth and development within the LAWK service area was minimal. To estimate projected increases in water diversion and use specific to Permit 21237, proposed water demands (and population growth) associated with the Bear Valley Village in the 2008 WSA were re-projected for the current period of development beginning in 2022. LAWK will meet the water demands of its customers with License 10840, License 11007, and Permit 21237. As their water demands increase and License(s) 10840 and 11007 are fully utilized, LAWK’s reliance on Permit 21237 as a source of supply will increase. Table 2 shows projected water demands and population growth from 2020 over the next 50 years compared to the face value of its three water rights (577 AFY).

Table 2
Lake Alpine Water Company
Proposed Bear Valley Village and Projected Water Demands
Projected Water Use License 10840, License 11007, Permit 21237

Year	Water Service Customers	Municipal Water Demands (AF)	Face Value of Water Right(s) (AF)	Water Right(s) Remaining (AF)
2020	500	125	577	452
2025	554	153	577	424
2030	657	242	577	335
2035	672	307	577	270
2040	687	311	577	266
2045	702	315	577	262
2050	717	319	577	258
2060	747	327	577	250
2070	777	335	577	242

Notes:
 Source: Diane Wagner Consulting 2008
 Source: LAWK Personal Communication

November 1, 2024

Project # 04114.00043.001

Mr. Joe Riess, PE
Water Works Engineers
PO Box 3150
Weaverville, CA 96093

Subject: Biological Resources Evaluation Letter Report for the Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project, Alpine County, CA

Dear Mr. Riess,

HELIX Environmental Planning, Inc. (HELIX) has prepared this biological resources evaluation letter report in support of the proposed Granular Activated Carbon and Limestone Improvements Project (proposed project) on behalf of the Lake Alpine Water Company (LAWC). The purpose of the biological resources evaluation is to evaluate the potential for regionally occurring special-status plant and animal species, wetlands or other waters of the U.S. or waters of the State, and/or other sensitive biological resources to occur in the Study Area and/or be impacted by the proposed project. This letter report describes the methods and results of our biological resources evaluation.

Introduction

Project Location and Description

The approximately 0.45-acre Study Area is located in the unincorporated community of Bear Valley in Alpine County, California (Attachment A). The Study Area contains two structures and graveled and paved surfaces and is situated at the base of Bear Lake Reservoir at the end of Schimke Road. The approximate center of the Study Area is latitude 38.4727959°, -120.0439766°, NAD 83. The approximate boundary of the Study Area depicted on a topographic map is included as Figure 2. Figure 3 depicts the Study Area on an aerial image. All figures are included in Attachment A.

LAWC owns and operates a potable water treatment and distribution system in the unincorporated community of Bear Valley. LAWC is proposing to replace and upgrade the existing treatment system with a new granular activated carbon filter and limestone contact system. The proposed replacement/improvements under the project would include:

- Replace existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement;

- Reroute existing water and chemical piping as necessary to accommodate improvements;
- Repair existing Water Treatment Building exterior and modify upslope drainage area to address water seepage into building and dry rot;
- Replace pump starters with new soft starter panels to reduce fire hazard; and
- Relocate existing sodium hypochlorite generation system from Membrane Building to Filter Building.

In the winter months, the project site is covered in several feet of snow and only accessible by snowmobile, snowcat or skis. Construction would be limited from May to October, when the road is accessible by construction equipment.

Methods

Studies conducted in support of this report included a special-status species evaluation, an aquatic resources evaluation, and a biological and wetlands reconnaissance survey.

Special-Status Species Evaluation

Regulations pertaining to the protection of biological resources in the Study Area are summarized in Attachment B. For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- listed as endangered or threatened under the Federal Endangered Species Act (FESA; including candidates and species proposed for listing);
- listed as endangered or threatened under the California Endangered Species Act (CESA; including candidates and species proposed for listing);
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- designated a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- considered by CDFW to be a Watch List species with potential to become an SSC;
- defined as rare or endangered under Section 15380 of the California Environmental Quality Act (CEQA); or,
- Having a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, or 3.

In order to evaluate special-status species and/or their habitats with the potential to occur in the Study Area and/or be impacted by the proposed project, HELIX obtained lists of special-status species known to occur and/or having the potential to occur in the Study Area and vicinity from the U.S. Fish and Wildlife Service (USFWS; USFWS 2024), the California Native Plant Society (CNPS; CNPS 2024), and the California Natural Diversity Database (CNDDDB; CDFW 2024). These are included as Attachment C. The potential for these regionally occurring special-status species to occur in the Study Area is analyzed in Attachment D.

Aquatic Resources Evaluation

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) online database¹ was reviewed to determine if there are any wetlands or other waters of the U.S. mapped by the USFWS in the Study Area. The NWI provides reconnaissance level information on wetlands and deepwater habitats from analysis of high-altitude aerial imagery. Historic aerial imagery from National Environmental Title Research (NETR)² was reviewed for information on past land uses and presence of aquatic features visible on aerial imagery. NETR provides aerial imagery covering the Study Area at irregular intervals from 1973 to 2022 and topographic maps from 1959 to 2022 (NETR 2024).

Biological and Wetlands Reconnaissance Survey

A biological and wetlands reconnaissance survey were conducted on August 8, 2024 by HELIX senior scientist Patrick Martin between 1030 and 1215 hours. The Study Area was assessed to identify the habitat type(s) present on-site and the potential to support special-status plant and wildlife species. The survey consisted of a pedestrian survey of the Study Area and the surrounding area. Meandering transects of the site were performed to obtain visual coverage of the site. Plant species were identified to the level necessary to determine whether they were a special-status species. The three-parameter method was used to determine the presence/absence of wetlands, which involves identifying indicators of hydrophytic vegetation, hydric soils, and wetland hydrology according to the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; USACE 2008). A determination was also made regarding the presence of regulated trees within the project footprint and their potential to be impacted by the proposed construction activities.

The weather during the survey was clear and warm, with light wind and was typical for summer in the region. A complete list of plant and animal species observed on the Study Area during the biological reconnaissance survey is included as Attachment E.

Results

Environmental Setting

The Study Area is located within a rural neighborhood in Bear Valley, west of Alpine Lake. The site is generally bordered by residential parcels but abuts wildlands to the south.

Site Conditions

The Study Area is developed and lacks native plant assemblages and is best described as urban. The surrounding area is a rural residential community with a small resident population. The surrounding area is dominated by a coniferous forest vegetation community best described as Jeffrey Pine forest.

¹ <https://www.fws.gov/wetlands/Data/Mapper.html>

² <https://www.historicaerials.com>

Habitat Types/Vegetation Communities

Habitat types/vegetation communities in the Study Area include urban. Aquatic habitat is not present in the Study Area. Habitats and land covers are depicted in Figure 4. Representative site photographs are included as Attachment F.

Urban

Urban or developed areas, comprise the entire 0.45-acre Study Area. Urban areas consist of graveled and paved roads or support buildings used for water treatment for the community of Bear Valley. Vegetation adjacent to the Study Area is consistent with Jeffrey Pine vegetation community. Overall, the Study Area is part of a developed community. Dominant vegetation along the edge of the Study Area consists of Jeffrey pine (*Pinus jeffreyi*), lodgepole pine (*Pinus contorta*) and white fir (*Abies concolor*).

Topography

The Study Area is located on a relatively flat area below the dam that forms Bear Lake. The elevation in the Study Area is approximately 7,190 feet above mean sea level.

Soils

The Study Area includes one soil mapping unit (NRCS 2024): Windy family, deep-moderately deep complex, 5 to 35 percent slopes.

Windy family, deep-moderately deep complex, 5 to 35 percent slopes, occurs on mountains, summits, shoulders and backslopes. This soil unit is residuum weathered from tuff breccia. A typical profile of this soil unit is gravelly coarse sandy loam from 0 to 5 inches, very gravelly sandy loam from 5 to 30 inches, and weathered bedrock from 30 to 60 inches. This soil unit and its minor components are not considered hydric (NRCS 2024).

Special-Status Species Evaluation

A total of 15 regionally occurring special-status plant species and 12 regionally occurring special-status wildlife species were identified during the database queries and desktop review and are evaluated in Attachment D. Species determined to have no potential to occur or those that are not expected to occur in the Study Area or be impacted by the proposed project are not discussed further in this report.

Special Status Plant Species

No special-status plant species were determined to have the potential to occur in the Study Area or be impacted by the proposed project. Of the 15 regionally occurring special-status plant species that were identified during the database queries and desktop review, the majority occur in wetland habitats such as marshes or seeps, which are absent within the Study Area. Other potentially occurring special-status plant species are limited to clay or volcanic soils, which are also absent, as the Study Area has been developed, graveled and partially paved. No special-status species were observed during the biological survey, which was conducted during the summer blooming season when most of these species would have been evident. The Study Area is developed and lacks native plant assemblages and soil formations

that may provide habitat for special-status species in the Study Area. Therefore, special-status plant species are presumed absent from the Study Area and will not be impacted by the proposed project.

Special Status Wildlife Species

No special-status wildlife species were determined to have the potential to occur in the Study Area or be impacted by the proposed project. There are no reported occurrences of special-status animal species on or adjacent to the Study Area. Of the 12 regionally occurring special-status wildlife species that were identified during the database searches and desktop review, the majority are associated with specific aquatic habitats which are not present in the Study Area. The remaining potentially occurring special-status wildlife species are associated with riparian habitat or mature or late-successional coniferous forest habitats which do not occur within the Study Area. There is no habitat for any of the regionally occurring special-status wildlife species in the Study Area and no impacts to special-status wildlife species are anticipated as a result of the proposed project with the exception of migratory birds as discussed below.

Migratory Birds and Raptors

The Study Area provides suitable habitat for nesting migratory birds and raptors. As noted in Attachment B, migratory and non-game birds are protected during the nesting season by California Fish and Game Codes and the federal Migratory Bird Treaty Act. The Study Area and immediate vicinity provides nesting and foraging habitat for a variety of native birds common to the area. Nests were not observed during surveys; however, a variety of migratory birds have the potential to nest in and adjacent to the Study Area, in trees, shrubs and on the ground in vegetation.

Project activities such as clearing and grubbing during the avian breeding season (February 1 – August 31) could result in injury or mortality of eggs and chicks directly through destruction or indirectly through forced nest abandonment due to noise and other disturbance. Needless destruction of nests, eggs, and chicks would be a violation of Fish and Game Codes and a significant impact.

The recommended mitigation measures for nesting migratory birds and raptors in the following section would reduce potential impacts to these species to less than significant.

Aquatic Resources Evaluation

The Study Area is located below the dam of Bear Lake in the Upper Stanislaus River hydrologic unit (HUC8: 18040010). NWI mapping based on 1984 aerial imagery shows no aquatic features on the Study Area. Bear Lake and the associated outlet stream, which both occur adjacent to the Study Area are mapped by the NWI.

HELIX conducted a routine assessment for waters of the U.S. and State on May 19, 2023, in accordance with the U.S. Army Corps of Engineers' (USACE) *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0). There are no wetlands or other aquatic features in the Study Area and therefore no potential waters of the U.S. or waters of the State. All habitats are depicted on the Habitat Map, which is included in Attachment A as Figure 5.

Sensitive Natural Communities

There are no natural communities in the Study Area that are considered sensitive or are otherwise regulated. The proposed project will not impact any sensitive natural communities.

Recommended Mitigation Measures

Migratory Birds and Raptors

The Study Area provides suitable nesting habitat for native songbirds and large trees adjacent to the Study Area provide nesting habitat for raptors. Removal of vegetation containing active nests would potentially result in destruction of eggs and/or chicks. Noise, dust, and other anthropogenic stressors in the vicinity of an active nest could lead to forced nest abandonment and mortality of eggs and/or chicks. Needless destruction of eggs or chicks would be a violation of the Fish and Game Code and a significant impact. Pre-construction surveys should be conducted prior to project implementation if they were to occur during the nesting season to determine if nesting birds are present on or adjacent to the site, so that measures could be implemented if needed to avoid harming nesting birds.

The following mitigation is recommended to reduce potential project impacts to nesting birds:

- If project (construction) ground-disturbing or vegetation clearing and grubbing activities commence during the avian breeding season (February 1 – August 31), a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to initiation of project activities. The survey area shall include suitable raptor nesting habitat within 500 feet of the project boundary (inaccessible areas outside of the Study Area can be surveyed from public roads using binoculars or spotting scopes). Pre-construction surveys are not required in areas where project activities have been continuous since prior to February 1, as determined by a qualified biologist. Areas that have been inactive for more than 14 days during the avian breeding season must be re-surveyed prior to resumption of project activities. If no active nests are identified, no further mitigation is required. If active nests are identified, the following measure is required:
 - A suitable buffer (e.g., up to 500 feet for raptors; 100 feet for passerines or other native nesting birds) shall be established by a qualified biologist around active nests and no construction activities within the buffer shall be allowed until a qualified biologist has determined that the nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest, or the nest has failed). Encroachment into the buffer may occur at the discretion of a qualified biologist after discussion with CDFW. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted.

Summary/Conclusions:

Special-Status Species

HELIX conducted a biological resources evaluation for the proposed Granular Activated Carbon and Limestone Improvements Project. Based on a desktop review and a query of databases and lists maintained by the USFWS, CDFW, and CNPS, a total of 15 special-status plant species and 12 special-

status animal species were identified as occurring in the project region and were evaluated for the potential to occur on the Study Area or be impacted by the proposed project. Based on the results of a biological reconnaissance survey, the Study Area is generally in a disturbed and developed condition and does not provide suitable habitat for any of the 27 regionally occurring special-status plant and animal species. Therefore, it is our determination that no special-status species have the potential to occur on the Study Area or be impacted by the proposed project.

Migratory Birds

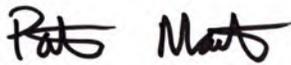
There is a potential for common native raptors and other migratory birds to nest in the Study Area or on adjacent properties and be impacted by the proposed project if it were to occur during the nesting season. Implementation of the recommended mitigation measure for nesting bird surveys would reduce the potential for project impacts to nesting birds to less than significant.

Aquatic Resources

The Study Area does not contain any wetlands or other aquatic resources; therefore, there are no potential waters of the U.S. or State on the Study Area. No mitigation measures are required for aquatic resources.

We appreciate the opportunity to assist you on this project. Feel free to contact me with any questions at 916-435-1205.

Sincerely,



Patrick Martin
Senior Scientist

Attachments:

- A – Figures
- B – Regulatory Context
- C – Database Query Results
- D – Potential for Regionally Occurring Special-status Species to Occur in the Study Area
- E – Species Observed in the Study Area
- F – Site Photographs

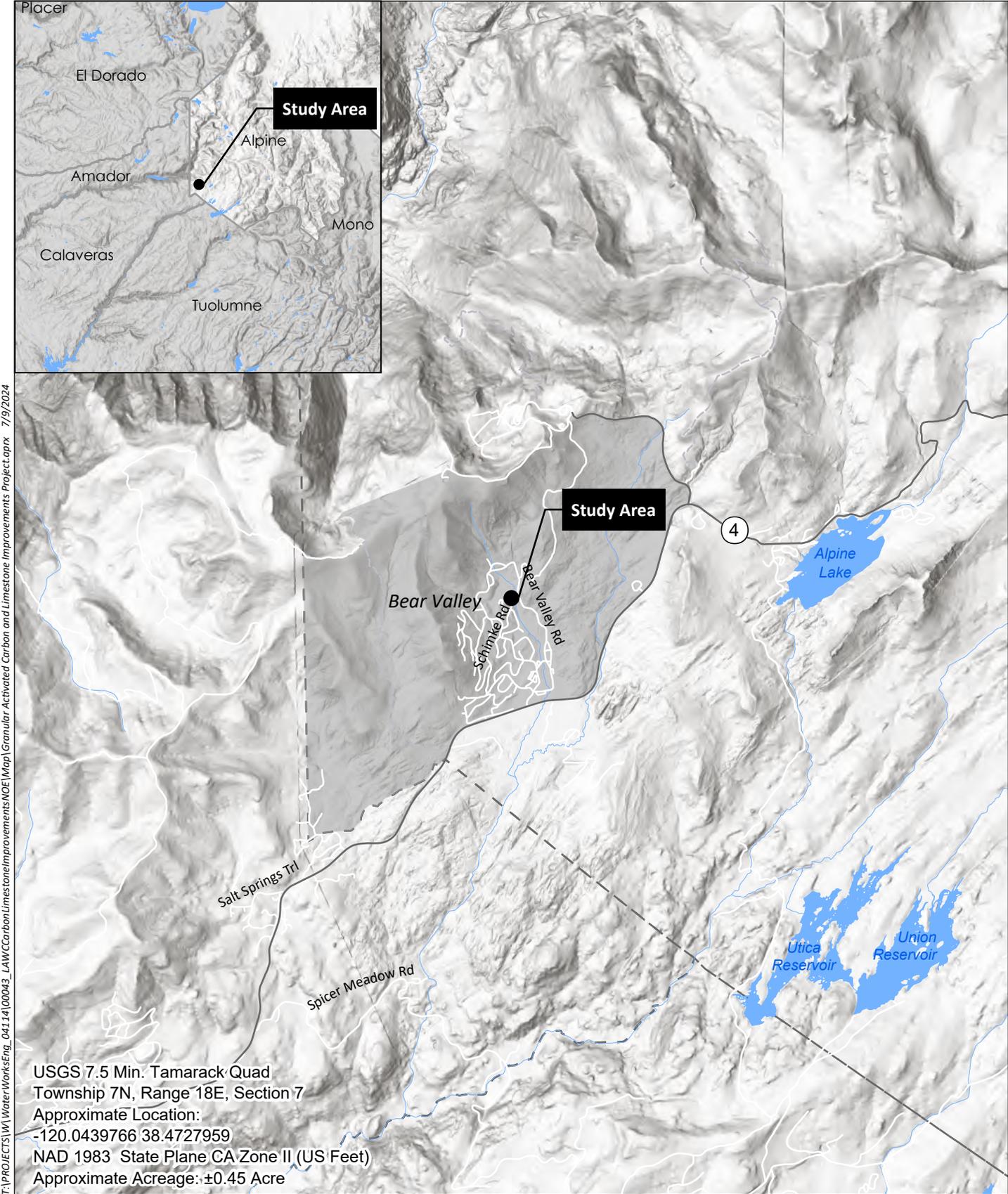
REFERENCES:

- California Department of Fish and Wildlife (CDFW). 2005. The Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004: 2005 Annual Report Summary. Sacramento, California, USA.
2024. RareFind 5.0, California Natural Diversity Database. Sacramento, California. Accessed on August 2, 2024. Information expires 12/30/2024.
- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org>. [Accessed on August 2, 2024].
- Natural Resources Conservation Service (NRCS). 2024. Web Soil Survey. Available online at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed on August 2, 2024.
- U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Wakeley, R.W. Lichvar, and C.V. Noble, eds., Technical Report prepared for the U.S. Army Engineer Research and Development Center, Vicksburg, MS.
- U.S. Fish and Wildlife Service (USFWS). 2024. Information for Planning and Consultation (IPaC). List of threatened and endangered species that may occur in your proposed project location and/or be affected by your proposed project. Accessed on August 2, 2024.

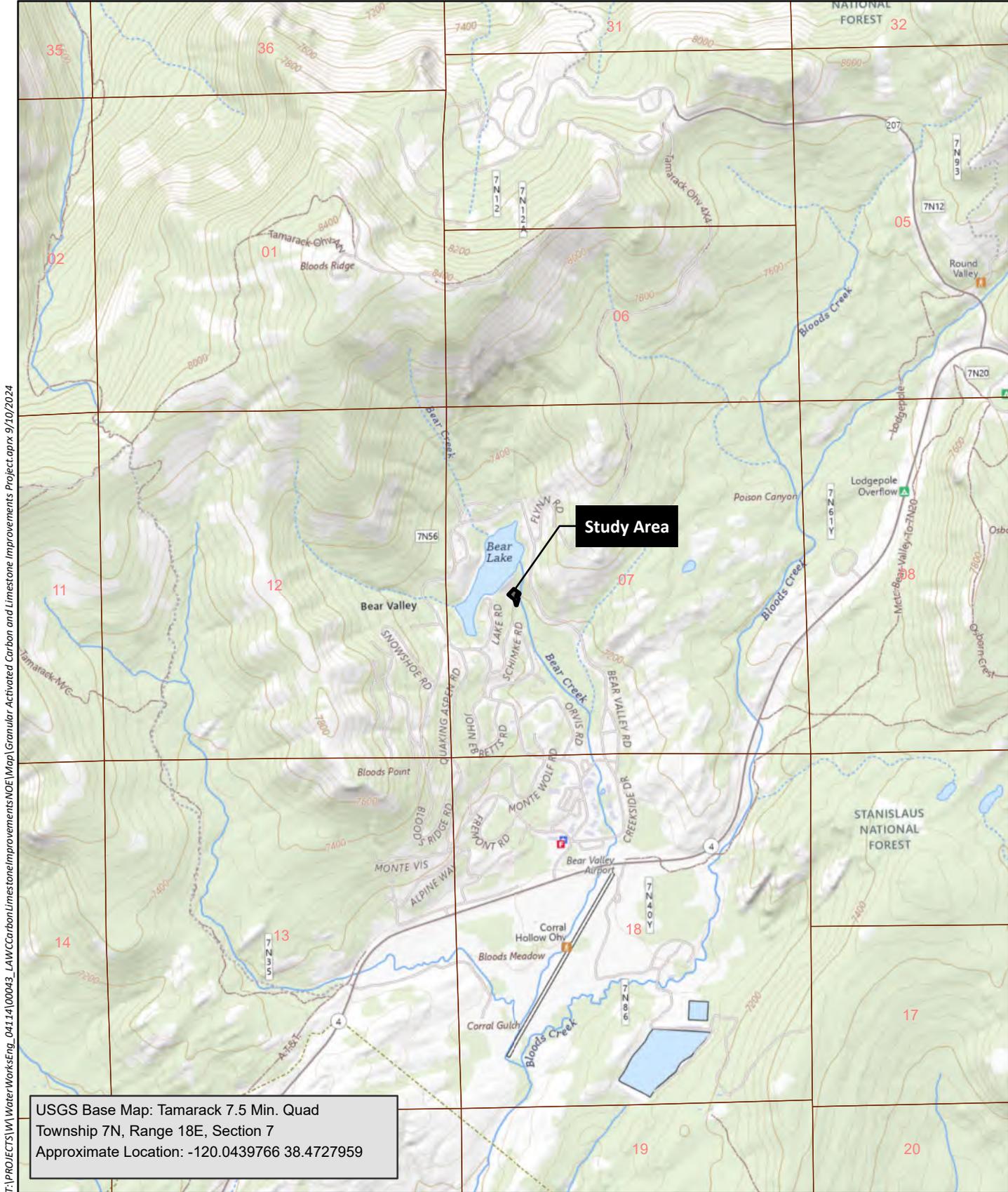
Attachment A

A

Figures



T:\PROJECTS\W\Water-Works\Eng_04114\00043_LAW\Carbon\Limestone\Improvements\NDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 7/9/2024



T:\PROJECTS\W\WaterWorksEng_04114\00043_LAW\CarbonLimestoneImprovements\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/10/2024

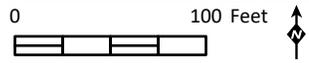
USGS Base Map: Tamarack 7.5 Min. Quad
 Township 7N, Range 18E, Section 7
 Approximate Location: -120.0439766 38.4727959

Source: USGS, The National Map, 2021

Legend

Study Area - 0.45 Acre

T:\PROJECTS\WaterWorksEng_04114\00043_LAWCarbonLimestoneImprovementsNDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/10/2024



Source: Aerial (Maxar, 8/20/2020)

Legend

-  Study Area - 0.45 Acre
-  Windy family, deep-Moderately deep complex, 5 - 35% slopes - 193



T:\PROJECTS\WaterWorksEng_04114\00043_LAW\CarbonLimestone\ImprovementsNDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/10/2024

Source: NRCS, 2022; Aerial (Maxar, 8/20/2020)





T:\PROJECTS\W\Water-Works\Eng_04114\00043_LAW\CarbonLimestone\Improvements\NDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/10/2024

Source: Aerial (Maxar, 8/20/2020)

Attachment B

Regulatory Context

Regulatory Setting

Policies, regulations, and plans pertaining to the protection of biological resources on the project site are summarized in the following sections.

Federal Requirements

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) enforces the provisions stipulated within the Federal Endangered Species Act of 1973 (FESA; 16 USC 1531 *et seq.*). Species identified as federally threatened or endangered (50 CFR 17.11, and 17.12) are protected from take, defined as direct or indirect harm, unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the study area and determine whether the proposed project will jeopardize the continued existence of or result in the destruction or adverse modification of critical habitat of such species (16 USC 1536 (a)[3], [4]). Other federal agencies designate species of concern (species that have the potential to become listed), which are evaluated during environmental review under the National Environmental Protection Act (NEPA) or California Environmental Quality Act (CEQA) although they are not otherwise protected under FESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. Section 16 U.S.C. 703–712 of the Act states “unless and except as permitted by regulations, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill” a migratory bird. A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Currently, there are 836 migratory birds protected nationwide by the Migratory Bird Treaty Act, of which 58 are legal to hunt. The U.S. Court of Appeals for the 9th Circuit (with jurisdiction over California) has ruled that the MBTA does not prohibit incidental take (952 F 2d 297 – Court of Appeals, 9th Circuit 1991).

Clean Water Act

On May 25, 2023, the United States (U.S.) Supreme Court issued a decision in the case of *Sackett v. Environmental Protection Agency (EPA)* (Supreme Court of the United States 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* determined that “the CWA extends to only those ‘wetlands with a continuous surface connection to bodies that are “waters of the U.S.” in their own right,’ so that they are ‘indistinguishable’ from those waters.” The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review of the decision issued a final rule to replace the 2023 rule that amends the “Revised Definition of “Waters of the U.S.” to conform key aspects of the

regulatory text to the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 United States Code [USC] 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found at 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

State Requirements

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. “Take” under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The California Department of Fish and Wildlife (CDFW) can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the “take” of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as “fully protected animals.” These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of fully protected species unless any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (CEQA; Public Resources Code Section 21000 *et seq.*), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These “special-status” species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.¹

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (*i.e.*, candidate species) would occur.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) empowers the Fish and Game Commission to list native plant species, subspecies, or varieties as endangered or rare following a public hearing. To the extent that the location of such plants is known, CDFW must notify property owners that a listed plant is known to occur on their property. Where a property owner has been so notified by CDFW, the owner must notify CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), in order that CDFW may salvage listed plants that would otherwise be destroyed. Currently, 64 taxa of native plants have been listed as rare under the act.

¹ The California Rare Plant Rank system can be found online at < <http://www.cnps.org/cnps/rareplants/ranking.php>>

Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.

Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by section 401 of the Federal CWA. Although the CWA is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that the issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within waters of the U.S. and now also implements the State's wetland protection and hydromodification regulation program under the Porter-Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

- I. A wetland definition;
- II. A framework for determining if a feature that meets the wetland definition is a water of the State;
- III. Wetland delineation procedures; and
- IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State." Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to waters of the State, which includes waters of the U.S. and non-federal waters of the State, requires filing of an application under the Procedures.

More specifically, a wetland is defined as: *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks*

vegetation.” The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act, Water Code Section 13000 *et seq.*) is California’s statutory authority for the protection of water quality in conjunction with the federal CWA. The Porter-Cologne Act requires the SWRCB and RWQCBs under CWA to adopt and periodically update water quality control plans or basin plans. Basin plans are plans in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Porter-Cologne Act also requires dischargers of pollutants or dredged or fill material to notify the RWQCBs of such activities by filing Reports of Waste Discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

California Fish and Game Code Section 1602 – Lake and Streambed Alteration Program

Diversions or obstructions of the natural flow of, or substantial changes or use of material from the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW, pursuant to Section 1602 of the California Fish and Game Code. The CDFW requires notification prior to commencement of any such activities, and a Streambed Alteration Agreement (SAA) pursuant to Fish and Game Code Sections 1601-1603, if the activity may substantially adversely affect an existing fish or wildlife resource. A lake under CDFW jurisdiction is defined as “a permanent natural body of water of any size or an artificially impounded body of water of at least one acre, isolated from the sea, and having an area of open water of sufficient depth and permanency to prevent complete coverage by rooted aquatic plants” (CCR Vol. 18 Title 14, Section 1562.1). Streambeds within CDFW jurisdiction are based on the definition of a stream as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life” (CCR Vol. 18 Title 14, Section 1.72).

Attachment C x

C
Database Query
Results



United States Department of the Interior



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

In Reply Refer To:

08/02/2024 21:37:10 UTC

Project Code: 2024-0125511

Project Name: Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

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

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

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

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

This species list is provided by:

Sacramento Fish And Wildlife Office

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

PROJECT SUMMARY

Project Code: 2024-0125511
Project Name: Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project
Project Type: Water Supply Facility - Maintenance / Modification
Project Description: Municipal water improvement project.
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.47284955,-120.04406212327342,14z>



Counties: Alpine County, California

ENDANGERED SPECIES ACT SPECIES

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

MAMMALS

NAME	STATUS
Sierra Nevada Red Fox <i>Vulpes vulpes necator</i> Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4252	Endangered

BIRDS

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

REPTILES

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

AMPHIBIANS

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

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

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

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

IPAC USER CONTACT INFORMATION

Agency: HELIX Environmental Planning, Inc.
Name: Patrick Martin
Address: 1180 Iron Point Road
Address Line 2: Suite 130
City: Folsom
State: CA
Zip: 95630
Email: patrickm@helixepi.com
Phone: 9164351205



Selected Elements by Element Code
 California Department of Fish and Wildlife
 California Natural Diversity Database



Query Criteria: Quad (Donnell Lake (3811938) OR Pacific Valley (3811958) OR Spicer Meadows Res. (3811948) OR Liberty Hill (3812031) OR Boards Crossing (3812032) OR Tamarack (3812041) OR Mokelumne Peak (3812051) OR Calaveras Dome (3812042) OR Bear River Reservoir (3812052)) AND Elevation greater than OR equal to "6800" AND Elevation less than OR equal to "8700"

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01085	<i>Ambystoma macrodactylum sigillatum</i> southern long-toed salamander	None	None	G5T4	S2	SSC
AAABB01040	<i>Anaxyrus canorus</i> Yosemite toad	Threatened	None	G2	S2	SSC
AAABH01340	<i>Rana sierrae</i> Sierra Nevada yellow-legged frog	Endangered	Threatened	G1	S2	WL
ABNKC12061	<i>Accipiter atricapillus</i> American goshawk	None	None	G5	S3	SSC
ABNYF07090	<i>Picoides arcticus</i> black-backed woodpecker	None	None	G5	S2	
AFCHA02081	<i>Oncorhynchus clarkii henshawi</i> Lahontan cutthroat trout	Threatened	None	G5T3	S2	SSC
AMAEA0102L	<i>Ochotona princeps schisticeps</i> gray-headed pika	None	None	G5T4	S2S4	
AMAFJ01010	<i>Erethizon dorsatum</i> North American porcupine	None	None	G5	S3	
AMAJF01014	<i>Martes caurina sierrae</i> Sierra marten	None	None	G4G5T3	S3	
AMAJF01020	<i>Pekania pennanti</i> Fisher	None	None	G5	S2S3	SSC
AMAJF03010	<i>Gulo gulo</i> wolverine	Threatened	Threatened	G4	S1	FP
AMAJF04010	<i>Taxidea taxus</i> American badger	None	None	G5	S3	SSC
IIHYM24460	<i>Bombus morrisoni</i> Morrison bumble bee	None	None	G3	S1S2	
PDAP11B1V0	<i>Lomatium stebbinsii</i> Stebbins' lomatium	None	None	G2	S2	1B.1
PDBOR0A0R0	<i>Oreocarya crymophila</i> subalpine cryptantha	None	None	G3	S3	1B.3
PDBRA11210	<i>Draba praealta</i> tall draba	None	None	G5	S3	2B.3
PMCYP033H0	<i>Carex davyi</i> Davy's sedge	None	None	G3	S3	1B.3
PMLIL022D0	<i>Allium tribracteatum</i> three-bracted onion	None	None	G2	S2	1B.2



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PPOPH010K0	<i>Botrychium montanum</i> western goblin	None	None	G3G4	S2	2B.1
PPOPH010L0	<i>Botrychium crenulatum</i> scalloped moonwort	None	None	G4	S3	2B.2
PPOPH010R0	<i>Botrychium minganense</i> Mingan moonwort	None	None	G5	S4	4.2

Record Count: 21

Search Results

15 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B:3] , 9-Quad include

[3811938:3811958:3811948:3812031:3812032:3812041:3812051:3812042:3812052], 1700 meters between Plant low elevation and high elevation, 2700 meters between Plant low elevation and high elevation

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<u>Allium</u> <u>tribracteatum</u>	three-bracted onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	1988-01-01	 © 2018 Sierra Pacific Industries
<u>Botrychium</u> <u>ascendens</u>	upswept moonwort	Ophioglossaceae	perennial rhizomatous herb	(Jun)Jul-Aug	None	None	G4	S2	2B.3		1994-01-01	 © 2005 Steve Matson
<u>Botrychium</u> <u>crenulatum</u>	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	None	None	G4	S3	2B.2		1984-01-01	 © 2016 Steve Matson
<u>Botrychium</u> <u>montanum</u>	western goblin	Ophioglossaceae	perennial rhizomatous herb	Jul-Sep	None	None	G3G4	S2	2B.1		1994-01-01	 ©2012 Belinda Lo
<u>Carex</u> <u>davyi</u>	Davy's sedge	Cyperaceae	perennial herb	May-Aug	None	None	G3	S3	1B.3		1974-01-01	No Photo Available
<u>Claytonia</u> <u>crawfordii</u>	Crawford's spring beauty	Montiaceae	perennial herb	Apr-May	None	None	G1	S1	1B.2		2021-10-14	No Photo Available
<u>Draba</u> <u>praealta</u>	tall draba	Brassicaceae	perennial herb	Jul-Aug	None	None	G5	S3	2B.3		2001-01-01	No Photo Available
<u>Dryopteris</u> <u>filix-mas</u>	male fern	Dryopteridaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S2	2B.3		1974-01-01	No Photo Available

<u><i>Jensia</i></u> <u><i>yosemitana</i></u>	Yosemite tarplant	Asteraceae	annual herb	(Apr)May- Jul	None	None	G3	S3	3.2	Yes	1994- 01-01	No Photo Available
<u><i>Lewinskya</i></u> <u><i>holzingeri</i></u>	Holzinger's bristle moss	Orthotrichaceae	moss		None	None	G3G4	S2	1B.3		2014- 06-03	 © 2021 Scot Loring
<u><i>Lewisia</i></u> <u><i>kelloggii</i></u> ssp. <u><i>hutchisonii</i></u>	Hutchison's lewisia	Montiaceae	perennial herb	(Apr)May- Aug	None	None	G3G4T3Q	S3	3.2	Yes	2001- 01-01	 Dean Wm. Taylor 2006
<u><i>Lewisia</i></u> <u><i>kelloggii</i></u> ssp. <u><i>kelloggii</i></u>	Kellogg's lewisia	Montiaceae	perennial herb	(Apr)May- Aug	None	None	G3G4T2T3Q	S2S3	3.2	Yes	2013- 10-02	 © 2019 Barry Breckling
<u><i>Lomatium</i></u> <u><i>stebbinsii</i></u>	Stebbins' lomatium	Apiaceae	perennial herb	Mar-May	None	None	G2	S2	1B.1	Yes	1980- 01-01	No Photo Available
<u><i>Oreocarya</i></u> <u><i>crymophila</i></u>	subalpine oreocarya	Boraginaceae	perennial herb	Jul-Aug	None	None	G3	S3	1B.3	Yes	1974- 01-01	No Photo Available
<u><i>Potamogeton</i></u> <u><i>robbinsii</i></u>	Robbins' pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	Jul-Aug	None	None	G5	S3	2B.3		1994- 01-01	 ©2014 Dana York

Showing 1 to 15 of 15 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 2 August 2024].

Attachment D x

C
Potential for Regionally
Occurring Special-
status Species to Occur
in the Study Area

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
Plants			
<i>Allium tribactatum</i> Three-bracted onion	--/--/1B.2	A perennial bulbiferous herb found on volcanic soils in chaparral, lower montane coniferous forest, and upper montane coniferous forest from 1,100 – 3,000 meters elevation. Blooms April – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no extant CNDDDB reported occurrences of this species within a 5-mile radius of the Study Area (CDFW 2024). There is one historic occurrence from 1978, which represents a nonspecific account (CDFW 2024).
<i>Botrychium ascendens</i> upswept moonwort	--/--/2B.3	A perennial non-flowering plant (pteridophyte) found in mesic lower montane coniferous forest and meadows and seeps from 1,115 – 3,045 meters elevation. Reproduces (June) July – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Botrychium crenulatum</i> Scalloped moonwort	--/--/2B.2	A perennial rhizomatous non-flowering plant (pteridophyte) found in bogs, fens, lower and upper montane coniferous forest, meadows and seeps, freshwater marshes, and swamps from 1,258 – 3,280 meters elevation. Reproduces June – September (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Botrychium montanum</i> Western goblin	--/--/2B.1	A perennial rhizomatous non-flowering plant (pteridophyte) found in mesic sites in meadows, seeps, and upper montane coniferous forest from 1,465 to 2,180 meters elevation. Reproduces July – September (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
			in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Carex davyi</i> Davy's sedge	--/--/1B.3	A perennial herb found in subalpine coniferous forest and upper montane coniferous forest from 1,500 – 3,200 meters elevation. Blooms May – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Claytonia crawfordii</i> Crawford's spring beauty	--/--/1B.2	A perennial herb found in upper montane coniferous forest from 1,540 – 1,920 meters elevation. Blooms April – May (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Draba praealta</i> Tall draba	--/--/2B.3	A perennial herb found on mesic soils in meadows and seeps from 2,500 – 3,415 meters elevation. Blooms July – August (CNPS 2024)	No Potential. The Study Area occurs below this species' elevational range and suitable wetland habitat for this species is not present. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Dryopteris filix-mas</i> Male fern	--/--/2B.3	A perennial rhizomatous non-flowering plant (pteridophyte) found in rocky, granitic sites in upper montane coniferous forest from 1,850 – 3,100 meters elevation. Known from only 6 extant locations. Reproduces July – September (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
			species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Jensia yosemitana</i> Yosemite tarplant	--/--/3.2	An annual herb found in meadows, seeps, and lower montane coniferous forest from 1,200 – 2,300 meters elevation. Blooms (April) May – July (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Lewinskya holzingeri</i> Holzinger’s bristle moss	--/--/1B.3	A moss found in cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest, from 715 – 1,800 meters elevation (CNPS 2024).	No Potential. The Study Area occurs above this species’ elevational range. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Lewisia kelloggii ssp. hutchisonii</i> Hutchison’s lewisia	--/--/3.2	A perennial herb found along ridgetops in upper montane coniferous forest, often on slate or rhyolite substrates, from 765 – 2,365 meters elevation. Blooms (April) May – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Lewisia kelloggii ssp. kelloggii</i> Kellogg’s lewisia	--/--/3.2	A perennial herb found along ridgetops in upper montane coniferous forest, often on slate or rhyolite tuff substrates, from 1,465 – 2,365 meters elevation. Blooms (April) May – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
<i>Lomatium stebbinsii</i> Stebbins' lomatium	--/--/1B.1	A perennial herb found on gravelly, volcanic clay soils in chaparral and cismontane woodlands from 1,245 – 2,375 meters elevation. Blooms March – May (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There is one CNDDDB reported occurrence within a 5-mile radius of the Study Area. The record documents this species in 2013 on a lava cap approximately 3.3 miles west of the Study Area (CDFW 2024).
<i>Oreocarya cymophila</i> Subalpine cryptantha	--/--/1B.3	A perennial herb found on rocky volcanic soils in subalpine coniferous forest 2,600 – 3,200 meters elevation. Blooms July – August (CNPS 2024).	No Potential. The Study Area occurs below this species' elevational range and suitable habitat for this species is not present. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
<i>Potamogeton robbinsii</i> Robbins' pondweed	--/--/2B.3	A perennial, aquatic rhizomatous herb found in deep water, lakes, marshes and swamps from 1,530 – 3,300 meters elevation. Blooms July – August (CNPS 2024).	No Potential. Suitable habitat is not present, as the Study Area is developed and lacks native plant assemblages and soil formations that may provide habitat for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).
Animals			
Invertebrates			
<i>Danaus Plexippus</i> Monarch butterfly	FC/--/--	The federal listing on December 17, 2020 was for overwintering populations of Monarch butterflies that roost in wind protected tree groves, especially with Eucalyptus sp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites	No Potential. Suitable roosting or breeding habitat is not present for this species in the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
		<p>extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (<i>Asclepias</i> sp.) (Nial <i>et al.</i> 2019 and USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring (USFWS 2020). The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).</p>	
Fishes			
<p><i>Oncorhynchus clarkia henshawi</i> Lahontan cutthroat trout</p>	<p>FT/--/SSC</p>	<p>Lahontan cutthroat trout historically occurred in large freshwater and alkaline lakes, small mountain streams and lakes, small tributary streams, and major rivers of the Lahontan Basin of California, Nevada and Oregon that included the Truckee, Carson, Walker, Susan, Humboldt, Quinn, Summit Lake/Black Rock Desert, and Coyote Lake watersheds (USFWS 2009). This species is an obligatory stream spawner, and requires clear, well-oxygenated, shallow rivers with gravel bottoms with silt free substrate and a 1:1 pool to riffle ratio. Most occupied habitat occurs on federal land, with approximately 38% of habitat occurring on private lands (USFWS 2009). This species is typically limited to the eastern Sierra Nevada in California, but translocated populations are present on the western slope of the Sierra Nevada (USFWS 2009).</p>	<p>No Potential. There is no suitable stream or lake habitat for this species within the Study Area and the Study Area is outside of this species' known range. There are no translocated populations within a 5-mile radius of the Study Area (CDFW 2024).</p>
Amphibians			
<p><i>Ambystoma macrodactylum sigillatum</i> Southern long-toed salamander</p>	<p>--/--/SSC</p>	<p>Inhabits alpine meadows, high mountain ponds and lakes. Adults spend much of their lives</p>	<p>No Potential. Suitable habitat is not present for this species that could</p>

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
		underground, often utilizing the tunnels of burrowing mammals such as moles and ground squirrels (Stebbins and McGinnis 2012).	support upland or aquatic habitat. There are several CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest extant occurrence of this species is located approximately 0.5 mile east of the Study Area. The CNDDB record documents three larvae in a pond in 2005 (CDFW 2024).
<i>Anaxyrus canorus</i> Yosemite toad	FT/--/SSC	A high elevation toad that breeds in wet meadows and snowmelt pools from 1,460 – 3,360 m. This species has a maximum known upland movement of 1.09 miles from breeding ponds. In uplands, springheads and seeps are important upland habitats for this species. They also utilize ground cover, such as mammal burrows, logs, rocks (USFWS 2014).	No Potential. Suitable habitat is not present for this species that could support upland or aquatic habitat for this species. There is one CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest extant occurrence of this species is located approximately 4.5 miles northeast of the Study Area at Wheeler Lake. The CNDDB record documents three adults and six larvae in 2001 (CDFW 2024).
<i>Rana sierrae</i> Sierra Nevada yellow-legged frog	FE/ST/--	A high elevation frog that requires permanent water bodies that do not freeze solid over winter, which may include lakes, streams, tarns, perennial plunge pools in intermittent streams. Aquatic habitat for overwintering must be a minimum of 5.6 feet, but 8.2 feet or deeper or other habitat structures is preferred to avoid freezing conditions (USFWS 2016). Tadpoles require two years to develop, so water bodies that do not freeze solid or dry up during normal years are essential (USFWS 2016). This species has a maximum known upland movement of 82 feet from streams and	No Potential. Suitable habitat is not present for this species that could support upland or aquatic habitat for this species. Deep overwintering habitat for larvae is also absent. There are four CNDDB reported occurrences for this species within a 5-mile radius of the Study Area. The nearest extant occurrence of this species is located approximately 2.9 miles southeast of the Study Area at Duck Creek. The CNDDB record documents three 30 larvae in 1992

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
		up to 984 feet between water bodies around lakes (USFWS 2016).	and no individuals in subsequent visits in 1993 and 1994 (CDFW 2024).
Reptiles			
<p><i>Actinemys marmorata</i> Northwestern pond turtle</p>	FPT/--/--	<p>Occurs in a variety of aquatic habitats; typically, semi-permanent ponds, lakes, streams, irrigation ditches, canals, marshes, or pools in intermittent drainages up to 2,000 meters elevation. Prefers areas lined with abundant vegetation and either rocky or muddy substrates. Requires basking sites such as logs, rocks, cattail mats or exposed banks. Active from February to November, and breeding occurs from April to May. Females typically nest in compact and dry soils from 3 to 400 meters from water, with a preference for south facing slopes between 0 and 60 degrees with little vegetation cover, however pond turtles occurring in forested areas will select nest sites under forest canopy that is more open. Overwintering occurs in upland terrestrial habitats close to water sources in open areas (up to 500 meters from water), in which they will bury themselves under loose soil where leaf litter is present (USFWS 2023). In intermittent water systems, this species spends less time in water and more time at refuges sites in uplands.</p>	<p>No Potential. Suitable habitat is not present for this species that could support upland or aquatic habitat for this species. The Study Area is above the elevational range of this species. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2024).</p>
Birds			
<p><i>Accipiter atricapillus</i> American goshawk</p>	--/--/SSC	<p>Nests and forages in mature and old-growth forest stands in a broad range of conifer and coniferous hardwood types, including Pacific Ponderosa, Jeffrey and lodgepole pine, mixed conifer, firs, and pinyon-juniper with relatively dense canopies. May also forage in meadow edges and open sagebrush. Nesting and</p>	<p>No Potential. Suitable habitat is not present, as the Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings. This species could forage within the Study Area. There are no CNDDDB reported occurrences for this species</p>

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
<i>Strix occidentalis occidentalis</i> California spotted owl	FPT/--/--	<p>fledgling period: March 1 – August 15 (Woodbridge and Hargis 2006).</p> <p>Lives in old-growth coniferous forests and rocky canyons. Prefers late seral-stage forests with large, old trees, multiple canopy layers, and downed woody debris. In the Sierra Nevada it uses Sierran mixed conifer forests at mid-elevations (Shuford and Gardali 2008). At lower elevations it inhabits ponderosa pine forests and blue oak-gray pine woodlands and valley foothill riparian forests (Shuford and Gardali 2008). At higher elevations, this species occupies red fir forests at high elevations (Shuford and Gardali 2008). Nests in tree cavities, broken-topped trees, and platforms, such as old raptor or squirrel nests. Does not build own nest (Zeiner <i>et al.</i> 1990).</p>	<p>within a 5-mile radius of the Study Area (CDFW 2024).</p> <p>No Potential. Suitable habitat is not present, as the Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings. The Study Area lacks old-growth forest habitat. This species could forage within the Study Area. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area, however there are five activity centers from the early 1990s located within a 5-mile radius of the Study Area (CDFW 2024). Most activity centers of California spotted owl are located downslope of the Study Area (CDFW 2024).</p>
Mammals			
<i>Gulo gulo</i> Wolverine	FT/ST/FP	<p>Found in alpine, subalpine and riparian habitats in remote areas with low levels of human use. In the Sierra Nevada may also use red fir, mixed conifer and lodgepole forests, typically above 1,311 meters elevation in areas that typically support deep snow through May in most years (Spencer and Rustigian-Romsos 2012). Dens in caves, cliffs, log hollows and/or burrows (Zeiner <i>et al.</i> 1990). Considered to be extirpated from California (Moriarity <i>et al.</i> 2009). Recent wolverine detections in California were determined to be dispersers from Idaho (Moriarity <i>et al.</i> 2009).</p>	<p>No Potential. Suitable habitat is not present, as the Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings. There are no extant CNDDDB reported occurrences of this species within a 5-mile radius of the Study Area (CDFW 2024). There is one historic occurrence from Lake Alpine in 1958 (CDFW 2024).</p>
<i>Pekania pennanti</i> fisher	--/--/SSC	<p>Occupy late-successional conifer and mixed conifer-hardwood forests with an abundance of downed wood, snags, large trees, and a</p>	<p>No Potential. Suitable mature forest habitat with downed logs, tree snags or other refuge areas or potential den</p>

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
		<p>dense canopy (Zielinski 2014). Typically found at elevations from 1,070 – 2,135 m amsl, where persistent snow does not accumulate and impede movement (Zielinski 2014). Riparian forests and habitat close to open water such as streams are important. Cavities and branches in trees, snags, stumps, rock piles, and downed timber are used as resting sites, and large diameter live, or dead trees are selected for natal and maternal dens (Zielinski 2014). There is a significant gap in the range of fisher between the southern Sierra Nevada population and the northern Sierra Nevada/southern Cascade population that stretches approximately 400 km wide (Zielinski 2014).</p>	<p>sites are not present in the Study Area. The Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings. There are several CNDDDB reported occurrences within a 5-mile radius of the Study Area that are non-specific and historic from the 1960s and 1970s (CDFW 2024).</p>
<p><i>Taxidea taxus</i> American badger</p>	<p>--/--/SSC</p>	<p>Inhabits drier open stages of most shrub, forest, and herbaceous habitats with loose, friable soils. Preys on a wide variety of mammals, reptiles, birds, and carrion, and hunts mostly by digging out fossorial prey. Occasionally takes prey on the surface. Not tolerant of cultivation (Williams 1986).</p>	<p>No Potential. Suitable habitat is not present, as the Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).</p>
<p><i>Vulpes vulpes necator</i> Sierra Nevada red fox</p>	<p>FE/ST/--</p>	<p>Habitat consists of subalpine habitat characterized by a mosaic of high-elevation meadows, rocky areas, scrub vegetation, and woodlands. Has been documented migrating down to high elevation forested habitats below subalpine zones in the Sierra Nevada from 6,000 to 9,000 feet elevation in the Cascades (USFWS 2018). Opportunistic predator of rodents and lagomorphs and also eats seeds such as pine nuts. Currently in California, this species is limited to a small population near</p>	<p>No Potential. Suitable habitat is not present in the Study Area. Additionally, the Study Area is developed and is frequently trafficked by workers associated with the dam and associated buildings and this species range is limited to only a few scattered populations. There are no CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area (CDFW 2024).</p>

Scientific Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur ³
		Sonora Pass and another near Mt. Lassen (USFWS 2018). These populations include hybrids.	

¹ Sensitive species reported in CNDDDB or CNPS on the “Donnell Lake, Pacific Valley, Spicer Meadows Reservoir, Liberty Hill, Boards Crossing, Tamarack, Mokelumne Peak, Calaveras Dome, and Bear River Reservoir” USGS quads, or in USFWS lists for the project site.

² Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate; FP=Fully Protected; SSC=Species of Special Concern.

³ Status in the Project site is assessed as follows. **No Potential:** The Study Area is outside the known distribution of the species; or there is no suitable habitat present for the species; or, the species is not known to occur within five miles of the Study Area boundary, and its dispersal capability is less than five miles. **Low Potential:** There are no documented occurrences within five miles of the Study Area boundary, and the existing habitat is of low or marginal quality, or all documented occurrences within five miles of the Study Area line are believed to be extirpated, and existing habitat is of low or marginal quality, or extant occurrences are documented within five miles of the Study Area, and the most recent occurrence is greater than or equal to 25 years old. **Moderate Potential:** Documented occurrences are reported within five miles of the Study Area, the most recent occurrence is less than 25 but greater than 10 years old, and suitable habitat is present; or critical habitat is mapped within the Study Area, all PCEs are present within the Study Area, and suitable habitat is present. **High Potential:** There are extant occurrences within one mile of the Study Area, the most recent occurrence is less than 10 years old, and there is suitable habitat within the Study Area; or critical habitat is mapped within the Study Area, documented occurrences are present within one mile of the Study Area, suitable habitat is present, and all PCEs are present within the Study Area.

CRPR = California Rare Plant Rank: 1B – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 – seriously endangered; .2 – moderately endangered.

REFERENCES

- California Department of Fish and Wildlife (CDFW). 2024. RareFind 5.0, California Natural Diversity Database. Sacramento, California. Accessed on August 2, 2024. Information expires 12/30/2024.
- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org>. [Accessed on August 2, 2024].
- Nial K.R., Drizd, L. and Voorhies K.J. (2019.) Butterflies Across the Globe: A Synthesis of the Current Status and Characteristics of Monarch (*Danaus plexippus*) Populations Worldwide. *Front. Ecol. Evol.* 7:362. doi: 10.3389/fevo.2019.00362
- Shuford, W.D., and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Spencer, W.D., and Rustigian-Romsos, H. 2012. Decision-support maps and recommendations for conserving rare carnivores in the interior mountains of California. Corvallis, OR: Conservation Biology Institute.
- Stebbins, Robert C., and McGinnis, Samuel M. Field Guide to Amphibians and Reptiles of California: Revised Edition (California Natural History Guides) University of California Press, 2012.
- U.S. Fish and Wildlife Service (USFWS). 2009. 5-Year Review: Summary and Evaluation. Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*). Region 8, Sacramento, California. 199 pp. <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=E00Y>
2014. Endangered and Threatened Wildlife and Plants; Endangered Species Status for Sierra Nevada Yellow-Legged Frog and Northern Distinct Population Segment of the Mountain Yellow-Legged Frog and Threatened Species Status for Yosemite Toad. *Federal Register* Vol. 79, No. 89, April 29, 2014.
2016. 50 CFR Part 17 RIN-1018-AY07 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Sierra Nevada Yellow-legged frog, the Northern DPS of the Mountain Yellow-legged Frog, and the Yosemite Toad; Final Rule. *Federal Register* Vol. 81, No. 166. August 26.
2018. Species Status Assessment Report for the Sierra Nevada Distinct Population Segment of the Sierra Nevada Red Fox. US Fish and Wildlife Service Region 8 Sacramento, CA.
2020. Monarch (*Danaus plexippus*) Species Status Assessment Report. V2.1 96 pp + appendices.
2023. Species status assessment report for the northwestern pond turtle (*Actinemys marmorata*) and southwestern pond turtle (*Actinemys pallida*), Version 1.1, April 2023. U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, Ventura, California.

- Williams, D.F. 1986. California Mammal Species of Special Concern in California. Department of Biological Sciences California State University, Stanislaus and California Department of Fish and Game, Sacramento.
- Woodbridge, B. and Hargis, C.D. 2006. Northern goshawk inventory and monitoring technical guide. Gen. Tech. Rep. WO-71. Washington, DC: U.S. Department of Agriculture, Forest Service. 80 p.
- Zielinski, W. J. 2014. The forest carnivores: marten and fisher. General Technical Report: PSW-GTR-247. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California.

Attachment 5

Species Observed in the Study
Area

Family	Scientific Name	Common Name
Native		
Apiaceae	<i>Heracleum maximum</i>	common cowparsnip
Asteraceae	<i>Achillea millefolium</i>	common yarrow
	<i>Cirsium andersonii</i>	Anderson's thistle
	<i>Madia gracilis</i>	grassy tarweed
	<i>Symphyotrichum spathulatum</i>	western mountain aster
	<i>Wyethia mollis</i>	woolly mule's ears
Brassicaceae	<i>Lepidium densiflorum</i>	common pepper grass
	<i>Rorippa curvipes</i>	bluntleaf yellow cress
Cyperaceae	<i>Carex athrostachya</i>	slender beak sedge
Fabaceae	<i>Lupinus microcarpus</i>	chick lupine
Hydrophyllaceae	<i>Hydrophyllum occidentale</i>	California waterleaf
Juncaceae	<i>Juncus ensifolius</i>	swordleaf rush
Lamiaceae	<i>Monardella odoratissima</i>	mountain coyote mint
Malvaceae	<i>Sidalcea glaucescens</i>	waxy checkerbloom
Onagraceae	<i>Epilobium brachycarpum</i>	annual fireweed
	<i>Epilobium minutum</i>	minute willowherb
	<i>Gayophytum diffusum</i>	spreading groundsmoke
Pinaceae	<i>Abies concolor</i>	white fir
	<i>Pinus contorta</i>	lodgepole pine
	<i>Pinus jeffreyi</i>	Jeffrey pine
	<i>Pinus monticola</i>	western white pine
Plantaginaceae	<i>Penstemon speciosus</i>	showy penstemon
Poaceae	<i>Bromus sitchensis</i>	California brome
	<i>Elymus elymoides</i>	squirrel tail grass
	<i>Elymus glaucus</i>	blue wildrye
	<i>Poa secunda</i>	pine blue grass
Polygonaceae	<i>Eragrostis nudum</i>	nude buckwheat
Grossulariaceae	<i>Ribes roezlii</i>	Sierra gooseberry
Salicaceae	<i>Populus tremuloides</i>	quacking aspen
	<i>Salix scouleriana</i>	Scouler's willow
Non-native		
Poaceae	<i>Phleum pratense</i>	Timothy grass
Scrophulariaceae	<i>Verbascum Thapsus</i>	woolly mullein

Cal-IPC Rating = Limited –; Moderate –; High
 CDFA Rating = C –

Family	Scientific Name	Common Name
Birds		
Cathartidae	<i>Cathartes aura</i>	turkey vulture
Corvidae	<i>Cyanocitta stelleri</i>	Steller's jay
Fringillidae	<i>Spinus psaltria</i>	lesser goldfinch
Paridae	<i>Poecile gambeli</i>	mountain chickadee
Passerellidae	<i>Junco hyemalis</i>	dark-eyed junco
Trochilidae	<i>Selasphorus rufus</i>	rufous hummingbird

Attachment F

Site Photographs



Photo 1. Representative view of urban areas in the Study Area. Photo date 8/8/2024.



Photo 2. Representative view of urban areas in the Study Area. Photo date 8/8/2024.



Photo 3. Representative view of the dam for Bear Lake that abuts the Study Area. Photo date 8/8/2024.



Photo 4. Representative view of drainage adjacent to the Study Area. Photo date 8/8/2024.



Photo 5. Representative view of a storage area along the access road to the Study Area. Photo date 8/8/2024.

HELIX Environmental Planning, Inc.
1180 Iron Point Road, Suite 130
Folsom, CA 95630
916.365.8700 tel
619.462.0552 fax
www.helixepi.com



November 1, 2024

Project # 04114.00043.001

Joe Riess, P.E.
Water Works Engineers
PO Box 3150
Weaverville, CA 96093
joer@wwengineers.com | 530.604.5977

Subject: Cultural Resources Letter Report for the Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project in Bear Valley, Alpine County, California

Dear Mr. Riess,

This letter report documents the results of a Cultural Resources Assessment (CRA) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project (project). The project, which is located at 301 Schmike Road in Bear Valley, Alpine County, California, involves the replacement of existing water filtration infrastructure with a new granular activated carbon filter and limestone contact system (Attachment A, Figure 1). As this project has been allocated federal funding, it qualifies as an undertaking under Section 106 of the National Historic Preservation Act (NHPA). As a result, this CRA was conducted to address the requirements of federal, state, and local laws and regulations as they relate to cultural and historical resources, including Section 106 of the NHPA and the California Environmental Quality Act (CEQA). This CRA entailed background research, Native American outreach, and a pedestrian survey of the project area.

Project Description

The Lake Alpine Water Company (LAWC) owns and operates a potable water treatment and distribution system in the unincorporated community of Bear Valley, Alpine County, California. The LAWC is proposing to replace and upgrade the existing treatment system with a new granular activated carbon filter and limestone contact system. The proposed replacement/ improvements under the project would include:

- Replace existing GAC and limestone systems with new systems to replace aging equipment and improve accessibility of valves and vessels for GAC replacement;
- Reroute existing water and chemical piping as necessary to accommodate improvements;

- Repair existing Water Treatment Building exterior and modify upslope drainage area to address water seepage into building and dry rot;
- Replace pump starters with new soft starter panels to reduce fire hazard; and,
- Relocate existing sodium hypochlorite generation system from Membrane Building to Filter Building.

In the winter months, the project site is covered in several feet of snow and only accessible by snowmobile, snowcat or skis. Construction would be limited from May to October, when the road is accessible by construction equipment.

The project area is located within Section 7 of Township 7 North, Range 18 East, Mount Diablo Baseline and Meridian, and is depicted on the United States Geological Service (USGS) 7.5-minute *Tamarack, California* quadrangle (Attachment A, Figures 1, 2, and 3).

Qualifications

This CRA was conducted by HELIX Senior Archaeologist Benjamin Siegel, MA, RPA. Mr. Siegel meets the Secretary of the Interior's *Professional Qualifications Standards* for Archeology (36 CFR Part 61) and has 15 years of professional cultural resource experience throughout California and the United States. He has overseen numerous projects for compliance with CEQA and Section 106 of the NHPA. A resume for Mr. Siegel is included in Attachment B.

REGULATORY FRAMEWORK

National Historic Preservation Act of 1966 (16 USC 470)

The National Historic Preservation Act of 1966 (16 USC 470), enacted in 1966, declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer (SHPO) and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

Section 106

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in or eligible for inclusion in the NRHP, and that the ACHP must be afforded an opportunity to comment on such undertakings through a process outlined in 36 CFR Part 800. The Section 106 process involves the identification of historic properties within the APE; the determination of whether the undertaking will cause an adverse effect on historic properties; and the resolution of those adverse effects through consultation with parties to the Section 106 review process, most prominently including the SHPO and Native American tribes.

National Register of Historic Places

The NRHP was established by the NHPA of 1966 as “an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation’s cultural resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR Part 60.2).

The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: It is associated with the lives of persons who are significant in our past.
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Cemeteries, birthplaces, graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years old to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

California Environmental Quality Act

Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources, or identified as significant in a local survey conducted in accordance with state guidelines, are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in, or determined eligible for listing in, the CRHR, or is not included in a local register or survey, shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) §5024.1.7.

CEQA applies to archaeological resources when: (1) the historic or prehistoric archaeological resource satisfies the definition of a historical resource; or, (2) the historic or prehistoric archaeological resource satisfies the definition of a “unique archaeological resource.” A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria (PRC §21083.2(g)):

1. The archaeological resource contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.
2. The archaeological resource has a special and particular quality, such as being the oldest of its type or the best available example of its type.
3. The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC §5024.1(a)). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks (CHL), numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR.

A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria (PRC §5024.1(c)):

- Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- Criterion 2: It is associated with the lives of persons important in our past.
- Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
- Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

California Health and Safety Code §7050.5

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie

adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of this identification.

California Public Resources Code §5097.98

Section 5097.98 of the California Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Part 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant or "MLD") it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

Native American Heritage Commission

PRC Section 5097.91 established the Native American Heritage Commission (NAHC), whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands (PRC § 5097.94). The NAHC is responsible for bring forth actions regarding the prohibition or mitigation of severe or irreparable damage to Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property. PRC § 5097.94 and § 5097.98 specify steps to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner, including repatriation under the Native American Graves and Repatriation Act of 2001 and assisting landowners with developing agreements with appropriate Native American groups for the dignified treatment of Native American burials and associated cultural material.

METHODS

To inform this CRA, HELIX requested records searches at the Central California Information Center (CCIC), located at California State University Stanislaus, in Turlock, California, and a search of the Sacred Lands File (SLF) maintained by the Native American Heritage Commission (NAHC); conducted tribal informational outreach to parties recommended for contact by the NAHC; and conducted pedestrian survey of the proposed project area. Each of these tasks is described below.

Records Search

HELIX requested a records search for the project area and a 0.25-mile radius at the CCIC on July 18, 2024. The objective of the records search was to identify prior cultural resource investigations and documented cultural resources in the project area. Additional desktop research included a review of previous study reports, cultural resource records, historic-era aerial imagery, and the Built Environment Resource Directory of the Office of Historic Preservation.

Native American Outreach. On July 18, 2024, HELIX requested a records search of the SLF to identify recorded locations of Native American sacred sites, human remains, or other areas of traditional or religious value within the project area. The request letter is provided in Attachment C.

Pedestrian Survey

On August 8, 2024, HELIX Senior Archaeologist Benjamin Siegel M.A., RPA surveyed the currently proposed project area, where construction activities are anticipated to occur. The surveyor used transects spaced 10-meters apart to conduct a systematic investigation of the project area. During the survey, the ground surface of the APE was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, prehistoric ceramics), soil discoloration that might indicate the presence of a prehistoric cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations, wells) or historic debris (e.g., metal, glass, ceramics).

RESULTS

This section describes the results of the background research, Native American outreach, and pedestrian survey.

Records Search

Previous Studies

The CCIC Records Search revealed that seven cultural studies have been conducted within the 0.25-mile search radius, four of which partially overlap the project area. Table 1 lists all studies within the search radius, and those studies that overlap the project area are described below the table.

Table 1
PREVIOUS STUDIES CONDUCTED WITHIN ONE-QUARTER MILE OF THE PROJECT AREA

Report	Year	Author(s)	Title	Includes APE?	Affiliation
AP-00034	1978	McGuire, K.	Archaeological Survey of Bear Valley, Alpine County	Yes	Consultant for Western Planning and Research
AP-04120	2000	Wilcox, Susan	Archaeological Survey Report for Lake Alpine Water Company (Bear Valley) Treatment Plant Upgrade, California Department of Health Services, Safe Drinking Water State Revolving Fund Project No. 0210001-01	Yes	California Department of Health Services
AP-05527	2004	Stickers, Donald	Emergency Notice Confidential Archaeological Letter: Fuel Hazard Reduction, Bear Valley, Alpine County	Yes	RPF for CAL FIRE
AP-05748	2005	Stickers, Donald	An Archaeological Survey Report for the Bear Valley Timber Harvest Plan, Alpine County, California. 4-05-4/ALP-1	Yes	RPF for CAL FIRE
AP-01925	1993	Deis, R. W.	Cultural Resource Survey of the Proposed Bear Valley Lodge	No	Stanislaus National Forest

Report	Year	Author(s)	Title	Includes APE?	Affiliation
			Fuelwood Sale; Cultural Resource Management Report 05-16-2015 in Alpine County, California		
AP-03510	1996	Dean, M.	Cultural Resource Survey of the Proposed Alpine Water Co. Water System, Cultural Resource Management Report 05-16-2112 in Alpine County, California	No	Merideth Dean
AP-04742	2002	Franics, C.M.	Cultural Resource Assessment, Bear Valley Tract 9 – Bear Paw Ridge Units 2 & 3, Alpine County, California	No	C. M. Francis

Report AP-00034 – Entitled *Archaeological Survey of Bear Valley, Alpine County, report AP-00034* was written by Kelly McGuire of Western Planning and Research in 1978. The study area for report AP-00034 consisted of 450 acres for a proposed housing development in Bear Valley. The report’s study area entirely encompassed the currently proposed APE and extends to the north, south, and east of Bear Lake. The investigation associated with report AP-00034 consisted of a reconnaissance survey of the report’s study area. Ultimately report AP-00034 identified 8 cultural resources including precontact-era lithic scatters, historic-era trash scatters, and historic-era cement foundations, but none of these cultural resources were located within 0.25-miles of the currently proposed APE.

Report AP-04120 – Entitled *Archaeological Survey Report for Lake Alpine Water Company (Bear Valley) Treatment Plant Upgrade, California Department of Health Services, Safe Drinking Water State Revolving Fund Project No. 0210001-01*, report AP-04120 was written by Susan Wilcox in 2000. The study area for report AP-04120 completely enveloped the currently proposed APE, covering an area of less than 1 acre lying to the adjacent southeast of Bear Lake. The cultural resources investigation associated with report AP-04120 included background research at the CCIC, and an on foot archaeological survey of the report’s APE. Ultimately no archaeological, historical, or traditional cultural resources were identified within the report’s APE through these investigations.

Report AP-05527 – Entitled *Emergency Notice Confidential Archaeological Letter: Fuel Hazard Reduction, Bear Valley, Alpine County*, report AP-05527 was written by Donald E. Stickers in 2004. The study area associated with report AP-05527 consisted of 21 acres, which entirely enveloped the currently proposed APE, and covered areas to the north, south, east, and west of Bear Lake. Report AP-05527 consisted of a records search at the CCIC, and a systematic pedestrian survey of the report’s APE. Ultimately the investigations associated with report AP-05527 did not encounter any evidence of cultural or historic resources within the report’s study area.

Report AP-05748 – Entitled *An Archaeological Survey Report for the Bear Valley Timber Harvest Plan, Alpine County, California. 4-05-4/ALP-1*, report AP-05748 was written by Donald Stickers in 2005. The study area associated with report AP-05527 consisted of 18 acres, spread over two distinct locations, one just to the southwest of Bear Lake, and a larger area to the southeast of Bear Lake (which partially overlaps with the currently proposed APE). Report AP-05527 consisted of a records search at the CCIC,

Native American outreach, and a systematic pedestrian survey of the report’s APE. Ultimately no cultural resources were found within report AP-05748’s study area.

Previously Recorded Resources

The CCIC records search revealed that there are no previously recorded cultural resources within a 0.25-mile radius of the proposed project area.

Historic-Era Aerial Imagery Review

Historic-era aerial photographs examined for this analysis included photographs taken in 1973, 1984, 1998, 2005, 2009, 2010, 2012, 2014, 2016, 2018, 2020, 2022 (NETROnline 2024). The findings from this historic-era aerial photograph analysis are presented in Table 2.

Table 2
SUMMARY OF FINDINGS FROM HISTORIC-ERA AERIAL PHOTOGRAPHS DEPICTING THE PROJECT AREA

Aerial Photograph Edition	Features Depicted
<i>Aerial Photograph from 1973</i>	<ul style="list-style-type: none"> • Schimke Road is a cleared dirt road. • APE is cleared, but does not show signs of structures, features, or current water purification system. • Area to south and east of APE is covered in grasses and sparse trees.
<i>Aerial Photograph from 1984</i>	<ul style="list-style-type: none"> • APE is cleared of trees, and a rectangular structure (spanning southwest to northeast) is now present in the northeastern quadrant of the APE, and a retention pond is present to the southeast of this structure. • Conditions outside the APE remain constant from 1973.
<i>Aerial Photograph from 1998</i>	<ul style="list-style-type: none"> • No changes observed within project area since 1984.
<i>Aerial Photograph from 2005</i>	<ul style="list-style-type: none"> • Second rectangular structure is now visible, presumably built between 1998 and 2005, to the southwest of the first. • A second retention pond is also now present, slightly further northwest than the first one observed. • Conditions outside the APE remain constant from 1998
<i>Aerial Photograph from 2009</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2005
<i>Aerial Photograph from 2010</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2009
<i>Aerial Photograph from 2012</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2010
<i>Aerial Photograph from 2014</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2012
<i>Aerial Photograph from 2016</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2014
<i>Aerial Photograph from 2018</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2016
<i>Aerial Photograph from 2020</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2018
<i>Aerial Photograph from 2022</i>	<ul style="list-style-type: none"> • No changes observed within the project area or its vicinity since 2020

Native American Outreach

On July 18, 2024, HELIX requested that the NAHC conduct a search of the SLF for the presence of Native American sacred sites or human remains in the vicinity of the currently proposed project area. A written response received from the NAHC on July 24, 2024, stated that the results of the SLF search were negative. On August 19, 2024, HELIX sent letters to five Native American contacts that were

recommended by the NAHC as potential sources of information related to cultural resources in the vicinity of the project area. These Native American contacts included:

- Deana Bovee, Chairperson, Susanville Indian Rancheria
- Darrel Cruz, Cultural Resources Department, Washoe Tribe of Nevada and California
- Dahlton Brown, Executive Director of Administration, Wilton Rancheria
- Herbert Griffin, Executive Director of Cultural Preservation, Wilton Rancheria
- Representative at the Cultural Preservation Department, Wilton Rancheria

As of the date of this report no responses have been received from these Native American points of contact. The initial correspondence with the NAHC, and a representative outreach letter sent out to the identified points of tribal contact are included in Attachment C of this report.

Pedestrian Survey

On August 8, 2024, HELIX Senior Archaeologist Benjamin Siegel, M.A., RPA, surveyed the proposed project area. The survey involved the systematic investigation of the APE's ground surface by walking in parallel 10-meter transects. Representative site photographs are provided in Attachment D.

The topography of the APE slopes down towards the south. Just east of the APE is Bear Creek, a small seasonal watercourse that flows from Bear Lake down the hill located to the APE's northeast towards the southeast, outside the eastern side of the APE. Large river worn stones have been artificially placed to armor the western bank of Bear Creek which runs along the eastern side of the APE, obscuring the natural creek bank (Photograph 1). HELIX's surveyor examined the creek bank and rocks along the western bank of the creek and found no evidence of cultural resources.

The ground surface of the APE is occupied by a paved access road which extends northeast from Schimke Road, a gravel driveway/work area, and two structures which house in-use water filtration equipment (Photograph 2). The gravel driveway/work area shows signs of having been heavily disturbed, including the presence of electrical utility boxes and manholes, and a metallic access vault (Photograph 3). According to Steven Schnitter, Chief Plant Operator for the LAWC, the gravel driveway/work area was once a retention pond which has since been filled in with water filtration equipment, including pumps, small reservoirs, utility lines, and imported fill (Steven Schnitter pers. comm. 8/8/24). The ground surface of the entire portion of the APE was examined for cultural resources but none were found.

The field survey also confirmed the presence of two buildings in the APE which have distinct but interrelated histories. According to files kept at the Lake Alpine Water Company, the older of the two buildings is a wood-framed structure with a metal corrugated roof that was built in the summer of 1973, though the architect, designer, and builders are unknown (Photograph 4). A 1988 Engineering Report (on file with the Lake Alpine Water Company) reveals that a gas chlorinator was installed in this building in 1985. The report also refers to the structure as "abandoned" prior to the installation of this chlorinator, suggesting a period of disuse between 1973 and 1985. In 1987, the structure underwent significant modifications, with the addition of more storage space in the form of an external expansion

on the west side of the building, and the pouring of concrete slabs to support and house four additional water filters. In 2005, additional upgrades to the Lake Alpine Water Company's filtration system prompted several additional modifications of the building. These included the removal of a shelter over the exterior concrete slab located on the north side of the building, facing the dam; a reconstruction of the lean-to extension on the west side of the building; and the installation of a roll up door on the front (south side) of the building (Photographs 5, 6, and 7, respectively). One other modification to the building since its original construction was the construction of an insulated box on the exterior of the north side of the building to house a discharge pipe associated with the filtration systems (Photograph 8) (pers. comm. Kimi Johnson, Lake Alpine Water Company Site Manager 8/8/24). HELIX staff prepared a set of California State Parks Department of Parks and Recreation (DPR) forms for the older of the two buildings on site. These completed DPR forms can be found in Attachment E of this report.

While the original building is older than 45 years of age, numerous piecemeal and modern modifications since its original date of construction have substantially altered its original form, components, and fabric such that its original appearance is not discernable. Regardless, the proposed project will not fundamentally alter the building's physical structure due to the improvements solely involving the replacement and updating of water filtration systems and infrastructure inside the building. The building will remain in its original use as an ancillary treatment facility that is part of the Lake Alpine Water Company, and it will retain its external appearance that has transitioned through physical alterations during the years since its construction. This is because proposed project activities: a) will not fundamentally or meaningfully alter the structure (as they merely include the replacement of water filtration materials inside the structure as well as the installation of subterranean piping leading to and from the structure); and, b) are directly in line with the structure's originally intended use (which was to house and protect Lake Alpine Water Company water filtration systems and infrastructure).

The second of the two buildings (located to the west of the first building) is built of poured concrete, stone bricks, and a metal roof (Photograph 9). This building was constructed in 2005 as part of a broader water filtration system upgrade. Buried water filtration infrastructure and utility lines which lie beneath the APE's graveled parking/work area run between this second structure and the first (Steven Schnitter pers comms 8/8/24).

Ultimately, the entirety of the APE underwent a systematic pedestrian survey. HELIX did not identify any cultural resources that would be subject to impact by activities associated with the proposed project.

CONCLUSION AND RECOMMENDATIONS

This CRA consisted of background research, Native American outreach, and a pedestrian survey of the project area. Based on the results of this CRA, HELIX concludes that the following findings are appropriate for the project:

- **No Historic Properties Affected** under Section 106 (36 CFR Part 800.4(d)(1)).
- **No Significant Impact** to Historical or Unique Archaeological Resources under *CEQA Guidelines* Section 15064.5; and
- **No Significant Impact to Human Remains** resulting from disturbance.

No additional study or documentation for cultural resources are recommended. However, in the unlikely event that archaeological cultural resources, and/or human remains, or funerary objects are discovered during project construction, the provisions included below should be implemented to avoid or substantially reduce the severity of impacts to such finds.

Accidental Discovery of Cultural Resources

In the event that cultural resources are exposed during ground-disturbing activities, construction activities should be halted within 100 feet of the discovery. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features, including hearths, structural remains, or historic dumpsites. If the resources cannot be avoided during the remainder of construction, the retained archaeologist, who meets the Secretary of the Interior's *Professional Qualifications Standards*, should assess the resource and provide appropriate management recommendations. If the discovery proves to be CRHR- or NRHP-eligible, additional documentation and analysis, such as data recovery excavation, may be warranted.

Accidental Discovery of Human Remains

Although considered highly unlikely, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, PRC Section 5097.98 must be followed. Once project-related earthmoving begins and if there is a discovery or recognition of human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" of the deceased Native American. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or
2. Where the following conditions occur, the landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project area in a location not subject to further subsurface disturbance:
 - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
 - The descendent identified fails to make a recommendation; or,
 - The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

Letter to Mr. Joe Riess, P.E.
November 1, 2024

Page 12 of 13

Sincerely,

Benjamin D. Siegel

Benjamin Siegel, M.A., RPA.
Cultural Resource Project Manager II

Attachments:

Attachment A: Figure 1: Site and Vicinity Map of Project Area
Figure 2: USGS Topographic Map of Study Area
Figure 3: Aerial Map of Study Area

Attachment B: Resumes of Cultural Resources Staff

Attachment C: Native American Correspondence

Attachment D: Representative Survey Photographs

Attachment E: Completed DPR Forms

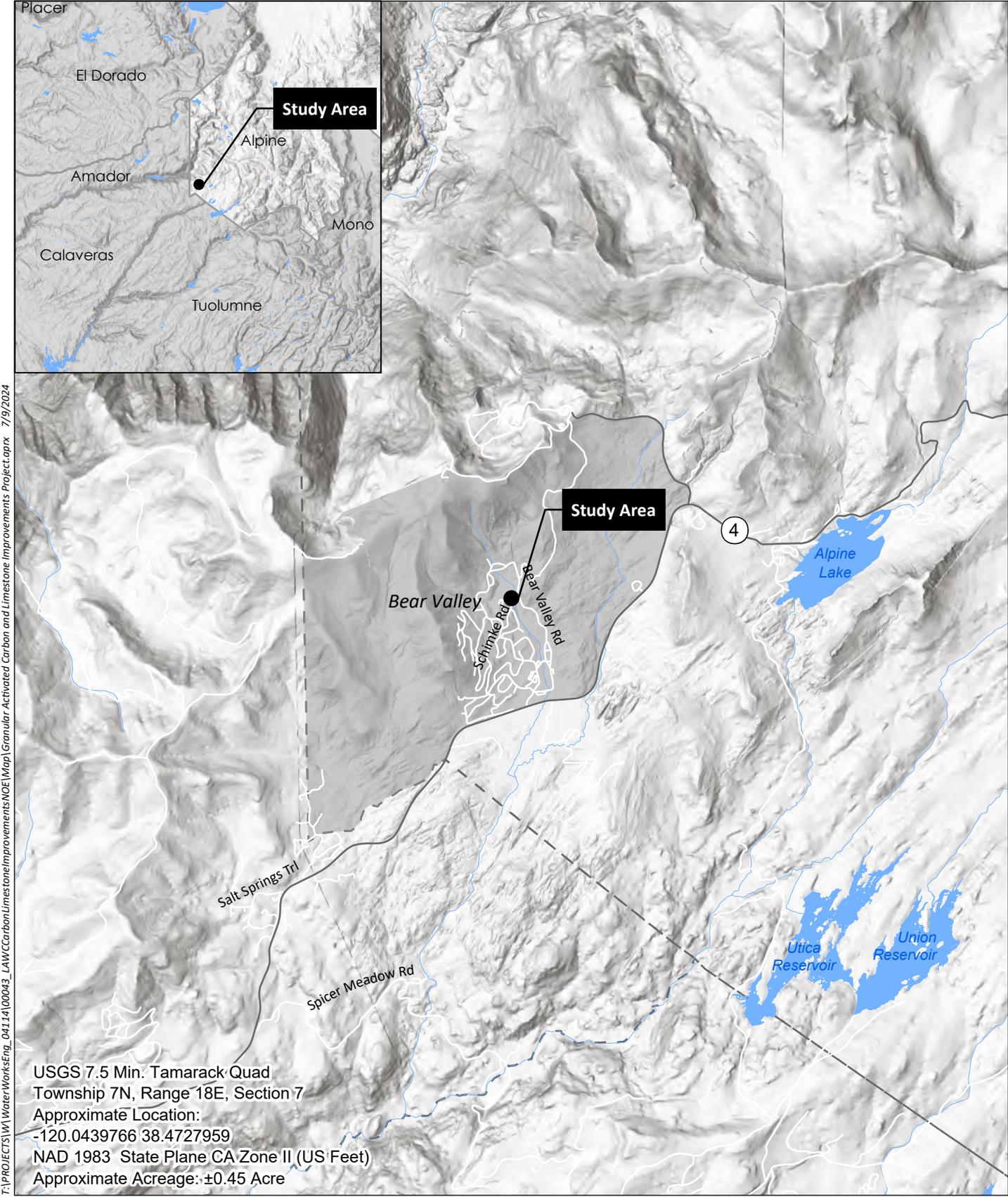
REFERENCES

NETROnline. 2024. Historic Aerials. Electronic resource, <https://www.historicaerials.com/viewer>.
Accessed July 24, 2024.

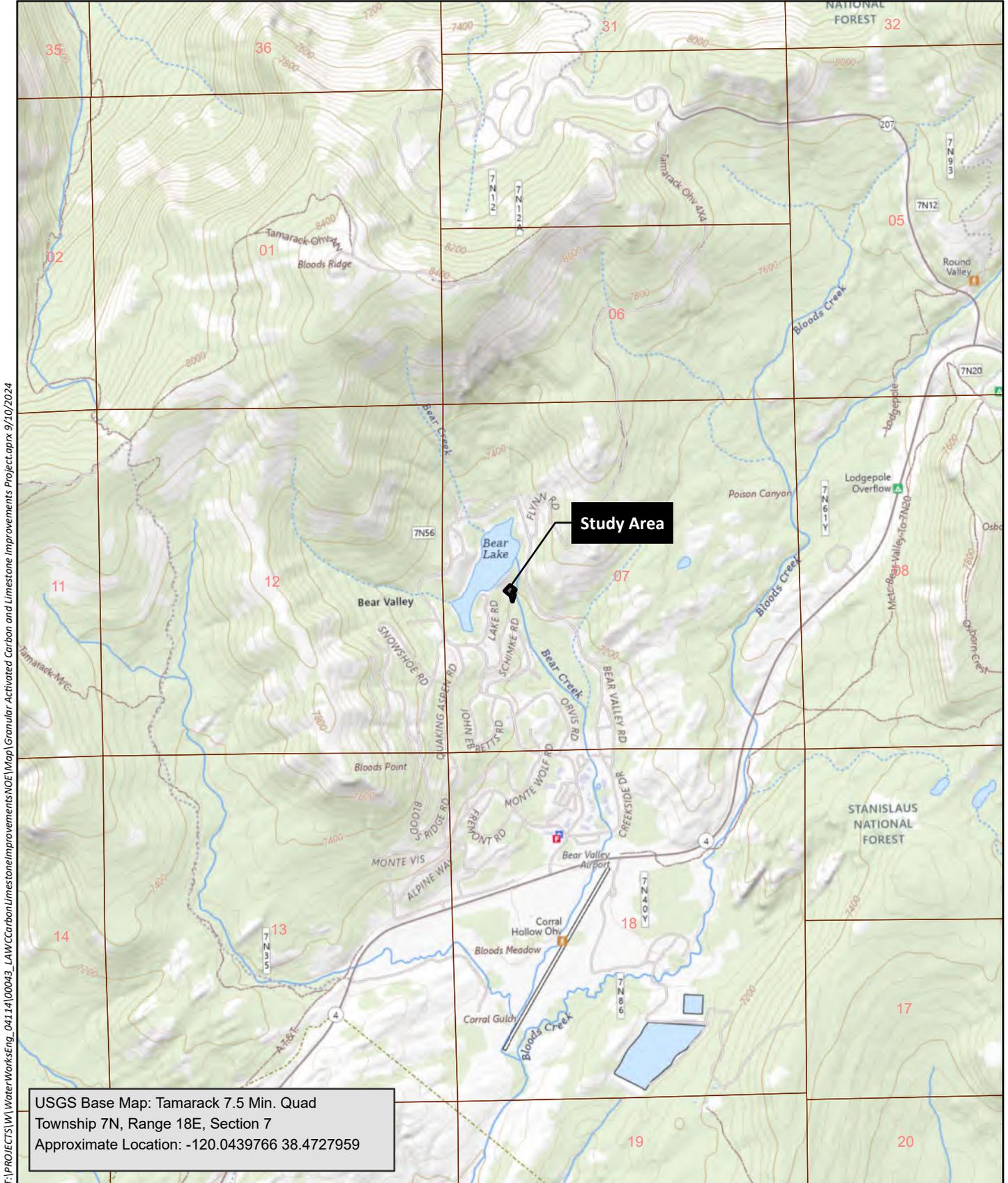
Attachment A

A

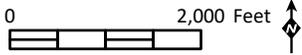
Figures



T:\PROJECTS\W\Water-Works\Eng_04114\00043_LAW\Carbon\Limestone\Improvements\NDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 7/9/2024



USGS Base Map: Tamarack 7.5 Min. Quad
 Township 7N, Range 18E, Section 7
 Approximate Location: -120.0439766 38.4727959



Source: USGS, The National Map, 2021

T:\PROJECTS\W\WaterWorksEng_04114\00043_LAW\CarbonLimestoneImprovements\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/10/2024

Legend

Area of Potential Effects - 0.45 Acre

T:\PROJECTS\WaterWorksEng_04114\00043_LAWCarbonLimestoneImprovementsNDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 9/11/2024



Source: Aerial (Maxar, 8/20/2020)



Attachment B

Resumes of Cultural
Resources Staff

EDUCATION

Doctor of Philosophy
Candidate,
Anthropology, University
of California, Berkeley,
2024

Master of Arts,
Anthropology, University
of California, Berkeley,
2019

Master of Arts, Maritime
Studies and Nautical
Archaeology, East
Carolina University, 2011

Master of Arts, American
History, Emory University,
2007

Bachelor of Arts, History,
Cum Laude, Emory
University, 2007

CERTIFICATIONS

Registered Professional
Archaeologist,
No. 989542

U.S. SOI Qualified for
Historic Archaeology,
Prehistoric Archaeology,
and History

PROFESSIONAL AFFILIATIONS

Society for Historical
Archaeology

BENJAMIN SIEGEL, RPA

Cultural Resources Project Manager



Mr. Siegel is an archaeologist and cultural resource manager with 14 years of experience directing cultural resource management efforts across the United States and in countries abroad. He regularly authors or co-authors cultural resource assessments and reports associated with projects requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), and California Environmental Quality Act (CEQA). He has applicable experience in directing records searches, field

surveys, site evaluations, data recovery efforts, and developing resource mitigation plans for large scale cultural resource efforts. Mr. Siegel is also experienced in the application of the California Register of Historical Resources (CRHR) and National Register of Historic Places (NRHP) evaluation criteria to various cultural resources. He meets the Secretary of the Interior's (SOI) Professional Qualifications Standards for prehistoric archaeology, historic archaeology, and history and is a member of the Register of Professional Archaeologists.

Social and Ecological Resilience Across the Landscape Fire Management Features Cultural Resources (2021 - 2022). Senior Archeologist managing a fuel break expansion project extending through Stanislaus National Forest lands. Cultural resources studies included Section 106 compliance with the Stanislaus National Forest as the lead agency, and CEQA compliance with the County of Tuolumne as the lead agency. Project activities managed included leading intensive pedestrian surveys of fuel break areas totaling approximately 8,500 acres, documenting over 100 cultural resources using California DPR 523 site recordation forms and following Stanislaus National Forest protocols, developing avoidance and minimization strategies for at-risk cultural resources, and producing a comprehensive Cultural Resources Inventory Report. Work performed for the County of Tuolumne with the U.S. Forest Service as project partners.

West Point Water Supply Drought Resiliency Biological and Cultural Resource Evaluations (2022). Senior Archaeologist for a dam enhancement project, approximately four acres in size, located in West Point, Calaveras County. Responsible for conducting a California Historical Resources Information System (CHRIS) records search and leading a pedestrian survey of the project area. Author of a cultural resource assessment that meets with CEQA and Section 106 requirements. Work performed for Calaveras County Water District.

Forebay Park Improvements (2022). Senior Archaeologist for proposed recreation improvements to the approximately six-acre Forebay Park located in Pollock Pines, El Dorado County. Responsible for conducting a California Historical Resources Information System (CHRIS) records search, Native American outreach, and directing a pedestrian survey of the project area. Author of the project's cultural resource assessment which meets with CEQA requirements. Work performed for El Dorado County.

North Vista Plaza Project (2021 - 2022). Senior Archaeologist for an approximately 41-acre residential development project in Valley Springs, Calaveras County. Responsible for California Historical Resources Information System (CHRIS) records search and Native American Heritage Commission Sacred Lands File. Directed the pedestrian survey of the project area. Authored the cultural resource technical report to comply with USACE and Section 106 of the National Historic Preservation Act. Work performed for LGI Homes.

Orleans Mutual Water Company, Water Treatment and Storage Improvements IS/MND (2022). Senior Archaeologist for replacement of an existing in-line filtration plant and water distribution system with a new water treatment plant system and storage in unincorporated Orleans, Humboldt County. Prepared cultural resources assessment in support of CEQA IS/MND. Work performed as a subconsultant to Water Works Engineers with Orleans Mutual Water Company as the project owner, and State Water Resources Control Board as the lead agency.

Creekside Ridge Drive Development Cultural Extended Phase I Plan & Letter Reports (2021). Senior Archaeologist for approximately two-acre developmental project located in Roseville, Placer County. Responsible for developing and planning an Extended Phase I archaeological study based on previous cultural resource efforts in the project vicinity and for the proposed development project. Work performed for RSC Engineering, Inc. with the City of Roseville as the lead agency.

Mowry Village Residential Development (2021). Senior Archaeologist responsible for conducting a California Historical Resources Information System (CHRIS) records search, historic aerial photograph analysis, tribal outreach, and an intensive pedestrian survey to inform a cultural resource assessment of a 35-acre project area in the City of Newark in Alameda County. The project site had a high potential to contain prehistoric archaeological sites and resources. Served as the primary author for the final cultural resource assessment report for the project to comply with CEQA requirements for the management of cultural resources. Work performed for Integral Communities.

Folsom Corporate Center Apartments IS/MND (2021). Senior Archaeologist for proposed multi-family apartment community project approximately seven acres in size, in Folsom, Sacramento County. Responsible for conducting a California Historical Resources Information System (CHRIS) records search, Native American outreach, and directing a pedestrian survey of the project area. Author of the project's cultural resource assessment which meet with CEQA requirements. Work performed for the City of Folsom Community Development Department.

Natoma Senior Apartments IS/MND (2022). Senior Archaeologist for proposed senior apartment housing project approximately five acres in size, in Folsom, Sacramento County. Responsible for conducting a California Historical Resources Information System (CHRIS) records search, Native American outreach, and directing a pedestrian survey of the project area. Author of a cultural resource assessment that meets with CEQA and Section 106 requirements. Work performed for City of Folsom Community Development Department.

Fred Jackson First Mile/Last Mile Connection Environmental Compliance (2021). Senior Archaeologist for construction monitoring during roadway improvement project located in unincorporated community of North Richmond, Contra Costa County. Responsible for California Historical Resources Information System records search, Native American Heritage Commission Sacred Lands File search, technical cultural report authorship, and for the development of a Worker Environmental Awareness Program training for project construction crews and contractors before excavation and ground disturbance activities. Work performed for Contra Costa County.

Watt Avenue Apartments (2021). Senior Archaeologist for seven-acre apartment complex development project located in North Highlands, Sacramento County. Responsible for producing the Cultural Resource Assessments associated with CEQA and Section 106 compliance. Work performed for New Green Properties, LLC.

Attachment C x

C
Native American
Correspondence

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Lake Alpine Project (04114.00043.001)

County: Alpine County

USGS Quadrangle Name: Tamarack

Township: 7N **Range:** 18E **Section(s):** 7

Company/Firm/Agency: HELIX Environmental Planning, Inc.

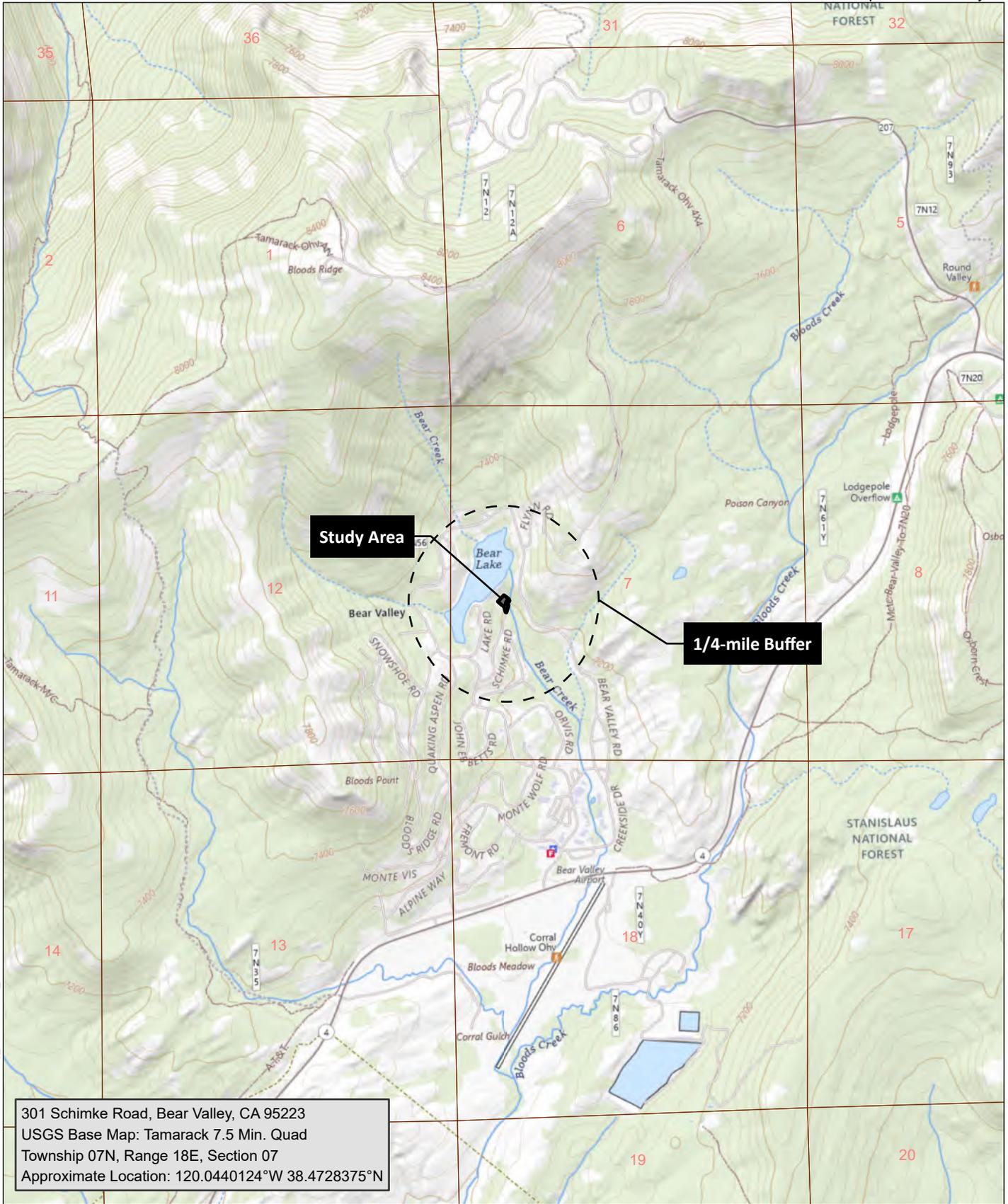
Street Address: 1180 Iron Point Road, Suite 130

City: Folsom, CA **Zip:** 95630

Phone: (916)-435-1205

Project Description: The Lake Alpine Water Company (LAWC) owns and operates a potable water treatment and distribution system near the unincorporated community of Bear Valley, California. For this project the LAWC proposes replacement and upgrade of existing equipment associated with a backwash recovery system. Per the 60 percent design plan prepared by Water Works Engineers (WWE), the proposed replacement/improvements include: 1) demolition and removal of two existing granular activated carbon (GAC) tanks, one limestone tank, and associated piping/valves inside an existing building, 2) replacement/installation of four new GAC tanks and one limestone tank inside an existing building, 3) replacement/installation of new piping/valves connecting new equipment to an existing system inside an existing building, 4) removal of lower 4' of exterior siding on north side of an existing building, and assess wood framing for water damage, repair damaged framing (as needed) and install new siding to replace the old siding, and 5) demolish approximately 1 cubic yard of concrete slab on the north side of an existing building, pouring a new concrete curb to keep snowmelt from entering an existing building and making minor drainage improvements to the area north of the existing building. The Project Area is depicted on the attached map for your reference.

T:\PROJECTS\W\Water-Works\Eng_04114\00043_LAW\Carbon\Limestone\Improvements\NDE\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 7/16/2024



301 Schimke Road, Bear Valley, CA 95223
 USGS Base Map: Tamarack 7.5 Min. Quad
 Township 07N, Range 18E, Section 07
 Approximate Location: 120.0440124°W 38.4728375°N



Source: USGS National Map, 2020

NATIVE AMERICAN HERITAGE COMMISSION

July 24, 2024

Ben Siegel
HELIX Environmental Planning, Inc

Via Email to: BenS@helixepi.com

Re: Lake Alpine (04114.00043.001) Project, Alpine County

Dear Mr. Siegel:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment



CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki,
Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Stanley Rodriguez
Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of
Luiseño Indians

EXECUTIVE SECRETARY
**Raymond C.
Hitchcock**
Miwok, Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710

HELIX Environmental Planning, Inc.
1180 Iron Point Road, Suite 130
Folsom, CA 95630
916.435.1205 tel
www.helixepi.com



August 22, 2024

04114.00043.001

Cultural Preservation Department
Wilton Rancheria
9728 Kent Street
Elk Grove, CA, 95624

Subject: Lake Alpine Water Company, Granular Activated Carbon (GAC) Project

Dear Cultural Preservation Department,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Lake Alpine Water Company (LAWC) Granular Activated Carbon Project (Project) located within the unincorporated community of Bear Valley, Alpine County, California. The LAWC proposes the replacement and upgrade of existing equipment for its water treatment and distribution system associated with the system's ability to recover backwash. The proposed replacement/improvements include: 1) demolition and removal of two existing granular activated carbon (GAC) tanks, one limestone tank, and associated piping/valves inside an existing building; 2) replacement/installation of four new GAC tanks and one limestone tank inside an existing building; 3) replacement/installation of new piping/valves connecting new equipment to an existing system inside an existing building; 4) removal of the lower 4' of exterior siding on the north side of an existing building to assess wood framing for water damage, repair damaged framing, and installation of new siding; and, 5) demolition of approximately 1 cubic yard of concrete slab on the north side of an existing building, installation of concrete curb to keep snowmelt from entering an existing building, and minor drainage improvements to the area north of the existing building.

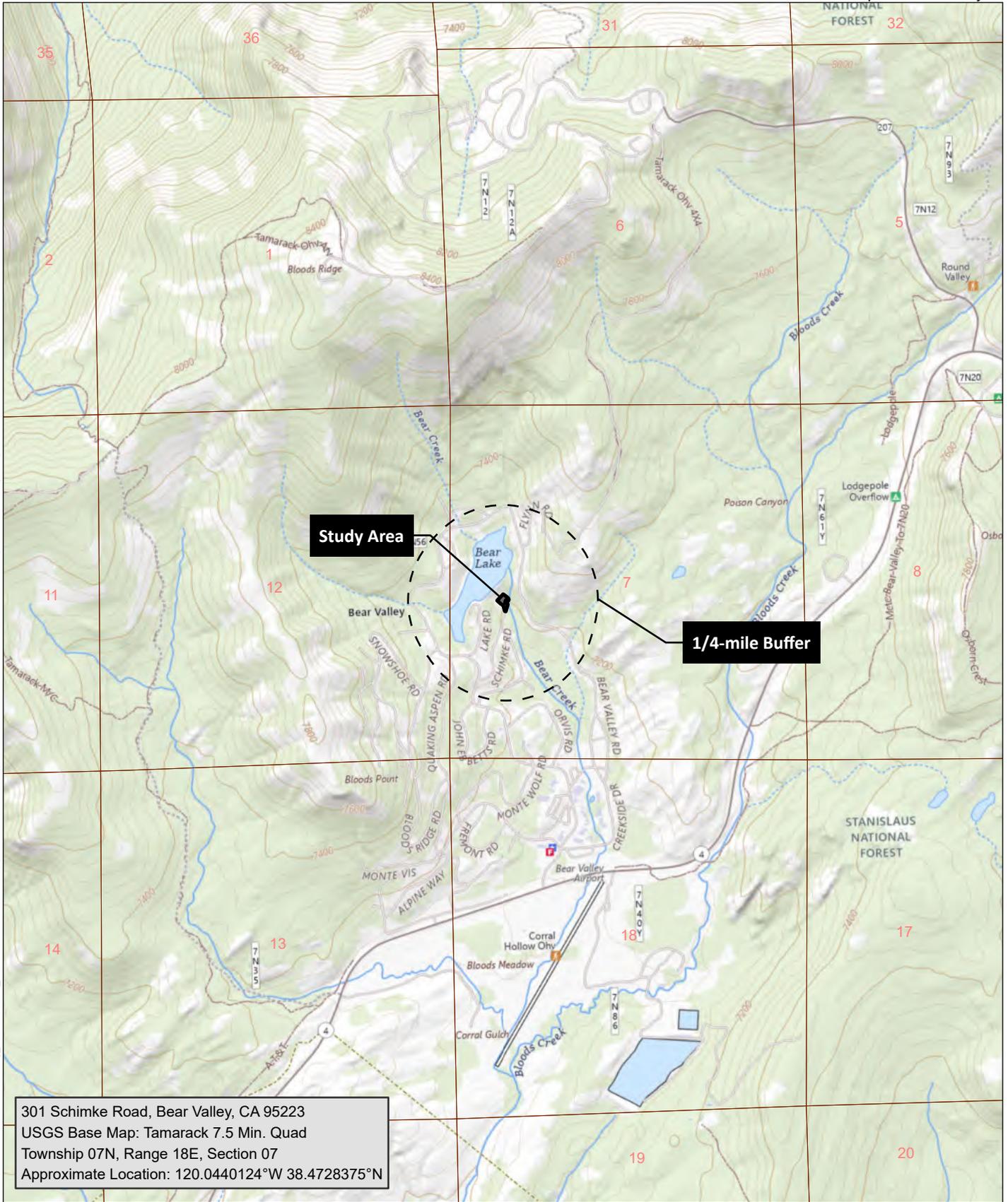
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned negative results, and the NAHC suggested we contact you to ask if you have information you would like to share regarding Native American resources in or near the Project Area. The Project Area is located within portions of Section 7 of Township 7 North, Range 18 East, Mount Diablo Meridian, and is depicted on the U.S. Geological Survey (USGS) 7.5-minute *Tamarack, California* topographic quadrangle map. A map showing the Project Area is included with this letter for your reference.

If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have any information, questions, or concerns regarding the proposed Project, please feel free to contact me directly at bens@helixepi.com or over the phone at (404) 312-5883.

Sincerely,

Benjamin D. Siegel
Benjamin D. Siegel, M.A., M.A., M.A., RPA
Cultural Resources Project Manager II
HELIX Environmental Planning,

T:\PROJECTS\WaterWorksEng_04114\00043_LAWCarbonLimestoneImprovements\Map\Granular Activated Carbon and Limestone Improvements Project.aprx 7/16/2024



301 Schimke Road, Bear Valley, CA 95223
 USGS Base Map: Tamarack 7.5 Min. Quad
 Township 07N, Range 18E, Section 07
 Approximate Location: 120.0440124°W 38.4728375°N

Source: USGS National Map, 2020



Attachment D

Representative
Survey Photographs



Photograph 1. View of Gravel Driveway/Work Area and Artificially Placed Stones located on Western Bank of Unnamed Creek which lies outside of the APE, facing southeast, taken 8/8/24.



Photograph 2. APE Overview showing paved access road, Gravel Driveway/Work Area, and Two Water Filtration Structures, facing northwest, taken 8/8/24.



Photograph 3. View of Gravel Driveway/Work Area within Center of APE, this area has been heavily disturbed, facing northeast, taken 8/8/24.



Photograph 4. View of Structure #1 within APE Which Houses Lake Alpine Water Company Filtration Systems, facing northwest, taken 8/8/24.



Photograph 5. View of Dam (north) Side of Structure #1, where Exterior Shelter was removed in 2005, facing southwest, taken 8/8/24.



Photograph 6. View of Re-constructed Lean-to Extension on West Side of Structure #1 built in 2005, facing northeast, taken 8/8/24.



Photograph 7. View of Installed Roll Up Door on Structure #1, from Interior of Structure #1, facing southeast, taken 8/8/24.



Photograph 8. View of Dam (north) Side of Structure #1 Showing Recently Installed Insulated Box Which Houses a Water Filtration Discharge Pipe, facing southeast, taken 8/8/24.



Photograph 9. View of Structure #2, built in 2005, facing west, taken 8/8/24.

Attachment E

Completed DPR Forms

State of California & The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code _____ Reviewer _____ Date _____

Page 1 of 3 *Resource Name or #: (Assigned by recorder) Lake Alpine Water Company Filtration Building #1

P1. Other Identifier:

*P2. Location: Not for Publication Unrestricted

*a. County Alpine and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Tamarack CA Date 2001 T 7N; R 18E Sec 7

c. Address: 301 Schmike Road City: Bear Valley Zip: 95223

d. UTM: (Give more than one for large and/or linear resources) Zone 10N, 757873 mE/ 4262436 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

The subject building is located at 301 Schmike Road, Bear Valley, Alpine County, CA. Follow the short paved driveway to the gravel parking lot in front of the building.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The building is a wood-framed structure with a metal corrugated roof that was built in the summer of 1973, for use by the Lake Alpine Water Company (LAWC) as facility for housing water filtration tanks and equipment. The architect, designer, and builders are unknown. A 1988 Engineering Report (on file with the LAWC) reveals that a gas chlorinator was installed in this building in 1985. The report also refers to the structure as "abandoned" prior to the installation of this chlorinator, suggesting a period of disuse between 1973 and 1985. In 1987, the structure underwent significant modifications, with the addition of more storage space in the form of an external expansion on the west side of the building, and the pouring of concrete slabs to support and house four additional water filters. See continuation sheet for additional information.

P3b. Resource Attributes: (List attributes and codes) HP 9. Public Utility Building

*P4. Resources Present: Building Structure Object Site District Element of District Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings,



P5b. Description of Photo: (view, date, accession #) View of Structure #1 Which Houses Lake Alpine Water Company Filtration Systems, facing northwest, taken 8/8/24.

*P6. Date Constructed/Age and Source: Historic Prehistoric Both

1973 (pers comm. Steven Schnitter Chief Plant Operator for the Lake Alpine Water Company)

*P7. Owner and Address:

Lake Alpine Water Company
301 Schimke Rd
Bear Valley, CA 95223

*P8. Recorded by:
HELIX Environmental Planning
1180 Iron Point Road, Suite 130
Folsom, CA 95630

*P9. Date Recorded:

August 8, 2024

*P10. Survey Type: (Describe)

Intensive Survey

*P11. Report Citation: (Cite survey report and other sources, or enter "none.")

Cultural Resources Letter Report for the Lake Alpine Water Company Granular Activated Carbon and Limestone Improvements Project in Bear Valley, Alpine County, California (HELIX Environmental Planning, Inc)

*Attachments: NONE Location Map Continuation Sheet Building, Structure, and Object Record
 Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
 Artifact Record Photograph Record Other (List):

CONTINUATION SHEET

Page 2 of 3

*Resource Name or # (Assigned by recorder) Lake Alpine Water Company Filtration Building #1

*Recorded by: HELIX Environmental Planning *Date 8/8/24

Continuation

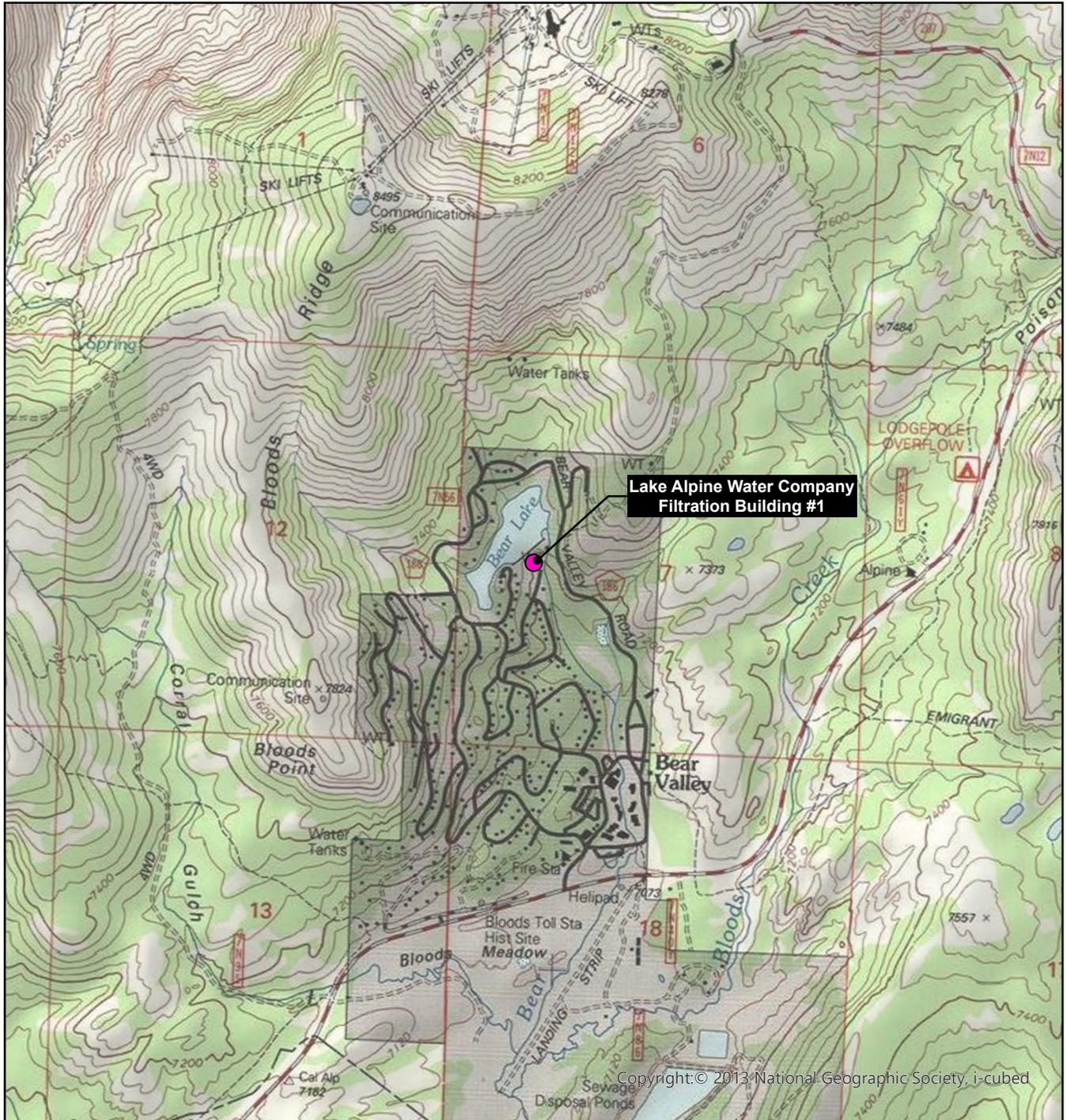
Update

***P3a. Description: Continued** - In 2005, additional upgrades to the LAWC filtration system prompted several additional modifications of the building. These included the removal of a shelter over the exterior concrete slab located on the north side of the building, facing the dam; a reconstruction of the lean-to extension on the west side of the building; and the installation of a roll up door on the front (south side) of the building. One other modification to the building since its original construction was the construction of an insulated box on the exterior of the north side of the building to house a discharge pipe associated with the filtration systems. Info received from Steven Schnitter, Chief Plant Operator for the LAWC, and Kimi Johnson, LAWC Site Manager on 8/8/24.

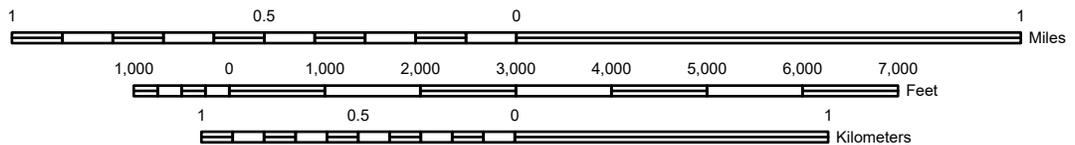


View of Backside (north) of Structure #1 Showing Recently Installed Insulated Box Which Houses a Water Filtration Discharge Pipe, facing southeast, taken 8/8/24.

LOCATION MAP



SCALE 1:24,000



TRUE NORTH