

APPENDIX C-1
BIOLOGICAL RESOURCES ASSESSMENT, MALAKOFF
DIGGINS STATE HISTORIC PARK SITE,
CHARACTERIZATION AND REMEDIATION PROJECT
(NOVEMBER 2021)

Biological Resources Assessment

MALAKOFF DIGGINS STATE HISTORIC PARK SITE CHARACTERIZATION AND REMEDIATION PROJECT NEVADA COUNTY, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
BRA	Biological Resources Assessment
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CRLF	California Red-Legged Frog
CRPR	California Rare Plant Rank
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DPR	California Department of Parks and Recreation
EPA	Environmental Protection Agency
ESA	Federal Endangered Species Act
EFH	Essential Fish Habitat
FAC	Facultative
FACW	Facultative Wetland
FYLF	Foothill yellow-legged frog
MBTA	Migratory Bird Treaty Act
NRHP	National Register of Historic Places
NMFS	National Marine Fisheries Service
OBL	Obligate
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Rank
RWQCB	Regional Water Quality Control Board
SHP	Malakoff Diggins State Historic Park
SWRCB	State Water Resources Control Board
TSO	Time Schedule Order
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WDR	Waste Discharge Requirements
WPT	Western Pond Turtle
WRA	WRA, Inc.

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1.0 INTRODUCTION

California Department of Parks and Recreation is conducting environmental review of the proposed Malakoff Diggins State Historic Park (SHP) Sediment Control Best Management Practices Plan (Project). The Project would install and maintain sediment control best management practices (BMPs) in the Malakoff Diggins pit, a former hydraulic mine pit, to control the release of sediment from the pit to downstream receiving waters in compliance with requirements of the Central Valley Regional Water Quality Control Board (RWQCB) Order (R5-2017-0086) issued to DPR in August 2017. Malakoff Diggins SHP is a 3,200-acre area of state-owned lands in unincorporated Nevada County. Malakoff Diggins SHP includes the historic town of North Bloomfield, a public campground, a pond (Blair Lake), wooded areas with hiking trails, and the former hydraulic mine in the Malakoff Diggins Basin, which includes the surrounding hillsides and basin floor.

WRA, Inc. (WRA) prepared this biological resources assessment (BRA) report on behalf of Golder Associates for the California Department of Parks and Recreation (DPR) to assess potential biological resources impacts of the Project. The BRA Project Area (herein referred to as Project Area) consists of approximately 105.40 acres within the 3,200-acre Malakoff Diggins SHP in unincorporated Nevada County, California (Project Area; Appendix A, Figures 1 and 2). The Project Area is located approximately 8.5 miles northwest of downtown Nevada City, California. The Project Area includes the entirety of the historic Malakoff Diggins former hydraulic gold mining pit, a partially paved segment of North Bloomfield Road, construction access road alignments, and construction staging areas.

WRA conducted biological surveys and assessments in the Project Area on the following dates: August 14 and 15, 2017; January 12, 2018; June 10, 11, and 12, 2019; July 7, 8, and 9, 2020; and May 11 and 12, 2021. WRA conducted a protocol-level wetland delineation and rare plant surveys within the Project Area in 2020 and 2021 during the above-mentioned dates concurrent with the BRA assessment.

This BRA provides an analysis of the Project's potential impacts to biological resources, intended to support DPR's environmental review of the Project under the California Environmental Quality Act (CEQA). This report describes the results of the BRA, which assessed the Project Area for the potential to support special-status species and the presence of other sensitive biological resources protected by local, state, and federal laws and regulations. Consistent with the CEQA Guidelines, this BRA provides information on the potential for jurisdictional habitat, sensitive habitat, and special-status plant and wildlife species to occur. This assessment is based on information available at the time of the study and conditions observed during biological surveys within the Project Area.

1.1 Project Background

Malakoff Diggins SHP is a 3,200-acre area of state-owned lands with elevations ranging between approximately 3,050 to 3,400 feet above mean sea level. SHP was nominated to the National Register of Historic Places (NRHP) in 1972 and listed on the NRHP as the Malakoff Diggins-North Bloomfield Historic District in 1973. The site of the North Bloomfield Mining and Gravel Company is California Historical Landmark 852 and is therefore listed in the California Register of Historical Resources (Office of Historic Preservation 1990). SHP includes the historic town of North Bloomfield, a public campground, a pond (Blair Lake), wooded areas with hiking trails, and the former hydraulic mine, which includes the surrounding hillsides and pit floor.

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Placer mining began in the vicinity of SHP in 1852 after gold deposits were discovered in Humbug Creek, which drains from the east and to the south of SHP and discharges to the South Yuba River, approximately 2 miles south of the Pit. During the 1870s, concerns emerged about the massive amount of mining debris being discharged from hydraulic mines into rivers. Toward the end of the 1870s, as large-scale hydraulic mining operations got underway, the debris problem became severe and adversely impacted communities downstream of mining operations. In 1884, litigation over damage caused by mining debris resulted in the permanent injunction (i.e. Sawyer Decision) against discharging tailings into the Yuba River (Golder 2019).

Hydraulic mining operations between 1866 and 1900 mined approximately 64.4 million cubic yards of auriferous gravels, most of which were discharged from the mine pit through the North Bloomfield Tunnel which discharged to Humbug Creek about 1.5 miles south of the Pit. Gold was recovered from the auriferous gravels by various methods including panning, rockers, and sluicing through flumes and undercurrents. Elemental mercury was used to recover the finer gold. Efforts were made to recover the mercury for reuse when processing the captured gold. However, a portion of the mercury was not recovered and was washed with the tailings from the Pit and into Humbug Creek.

These hydraulic mining operations resulted in a pit approximately 4,600 feet long, 600 to 1,200 feet wide at the base, with walls that are 50 to 200 feet high above the current elevation of the Pit floor. The former inlet to the North Bloomfield Tunnel that historically served as an outlet drain for transporting surface water and entrained sediment from the Pit is thought to be blocked and no longer receives and transports water or sediment from the Pit. Erosion of the Pit walls has and continues to result in accumulation of sediment in the base of the Pit and has created a relatively level Pit floor with sediment depths of 75 feet or more in some areas (Golder 2019).

Under existing conditions, sediment continues to accumulate on the Pit floor, increasing the surface elevation of the Pit floor over time. Surface water and entrained sediment discharges from the Pit as runoff that exits the Pit via the Hiller Tunnel, which is located on the southern perimeter of the central portion of the Pit. The majority (approximately 75 percent) of sediment inflow to the Pit, including that resulting from erosion of the Pit walls, occurs in the eastern portion of the Pit. Stormwater runoff from the southeast portion of the Pit becomes channelized along the southern Pit floor perimeter and discharges directly to the Hiller Tunnel drainage with little opportunity for fine particle settling. The central portion of the Pit is a relatively level flood plain with braided drainage pattern where storm water from the east and northeast walls drains toward the west of the Pit where surface water ponds throughout the year. This western Pit ponded area is referred to as the Pit lake. Fine sediment generally settles from surface water flows in the central portion of the Pit and in the Pit lake during low-flow periods; however, during higher flow events, water moves more rapidly and much of the entrained fine sediment remains in storm water discharged via the Hiller Tunnel.

The size of the Pit lake varies depending on the season, but the lake generally retains some water throughout the year. A key hydrologic aspect of the Pit lake is that up to a surface elevation of approximately 3,040 feet above mean sea level, water within the Pit lake does not have a path to the Hiller Tunnel and therefore remains ponded, only discharging through Hiller Tunnel once the surface elevation reaches 3,040 feet above mean sea level. If the Hiller Tunnel were to become blocked and/or inflow to the pit exceeds the Hiller Tunnel conveyance capacity for a sufficient period of time, the water storage capacity of the Pit could be exceeded and discharges from the Pit would occur at an uncontrolled natural spillway in the southwest corner of the Pit at an elevation of 3,053 feet above mean sea level (Golder 2020). As sediment continues to accumulate in the Pit over time, the water storage capacity in the Pit continues to reduce.

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Since the late 1970s, several geologic and environmental assessments have been conducted at SHP. The studies indicate that small quantities of mercury are discharging from the Pit through the Hiller Tunnel. Concentrations of mercury tend to be very low and the primary mode of mercury transport is adsorption onto fine grained sediment (Golder, 2019).

Mine-related discharge from the pit is currently regulated by Waste Discharge Requirements (WDR) Order R5-2017-0086 (NPDES Permit No. CA0085332) (the Order) and Time Schedule Order R5-2017-0087 (TSO) adopted by the Central Valley Regional Water Quality Control Board (CVRWQCB) in August 2017, which became effective on October 1, 2017.

In the long-term, the Order establishes final numeric effluent limitations for the effluent point of compliance (EFF-001) at the Hiller Tunnel outfall, which are to be met by September 2027. In the interim, the Order establishes numeric effluent limitations for manganese and pH, and the TSO establishes interim numeric effluent limitations for copper (Cu), mercury (Hg), and nickel (Ni). These interim effluent limits apply in lieu of corresponding final effluent limitations for the same parameters at point of compliance EFF-001. Discharge from the Pit at EFF-001 complies with these interim effluent limits based on data collected monthly from 2017 to 2020.

In addition to the interim numeric effluent limits, the Order also specifies receiving water (Humbug Creek) narrative limitations for sediment, settleable material, suspended material, and turbidity. Section VI C (3) of the Order states that discharge from the Hiller Tunnel is in violation of the "Water Quality Control Plan, Fourth Edition (Revised July 2016), for the Sacramento and San Joaquin River Basins" (Basin Plan) water quality objectives for sediment, settleable material, suspended material, and turbidity and requires identification and implementation of BMPs to minimize, abate, or control the discharge of these constituents. The implementation of BMPs is required in lieu of numeric effluent limitations.

The Order required the preparation and submittal to RWQCB a BMP Options Assessment/Engineering Evaluation and a subsequent BMP Plan. In compliance with that requirement DPR prepared and submitted a "Best Management Practices Options Assessment / Engineering Evaluation Report" (BMP Options Assessment) on April 1, 2020 (Golder 2020). The BMP Options Assessment documented existing conditions and provided a preliminary and comprehensive evaluation of all required and additional BMPs having the potential to be implemented within the given regulatory timeframe to address the CVRWQCB's intent to minimize, abate, or control sediment discharge from the Hiller Tunnel. The BMP Options Assessment concluded that an integrated BMP strategy that incorporates a combination of BMPs may be the most effective viable approach for near-term sediment management and reducing sediment discharge from the Pit and recommended an integrated BMP strategy. The integrated BMP strategy consists of the following primary components:

- Coarse sediment management in the eastern portion of the Pit using a grade control structure and brush barriers to capture and retain gravel and sand.
- Interceptor swale in the south-central portion of the Pit to redirect flows from the eastern portion of the Pit away from the Hiller Tunnel and to the northwest into the Pit lake to allow for additional fine sediment settling.
- Enhancement of the Pit lake to increase its sediment settling capacity with construction of a soldier pile wall to manage surface water discharge to the Hiller Tunnel.

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The integrated BMP strategy in the BMP Options Assessment also recommended further consideration of potential application of soil stabilizers in certain areas of the Pit and potential introduction of flocculants to enhance fine particle settling within the Pit. Although these potential elements are not required for effective implementation of the primary components, their potential advantageous use is considered as part of the Project.

In compliance with the Order's requirement for a BMP Plan, DPR prepared and submitted to CVRWQCB on September 1, 2021, design drawings and specifications for "Malakoff Diggins State Historic Park Pit Drainage Runoff Best Management Plan Construction" (Golder 2021).

1.2 Project Objectives

The mission of DPR is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.

The objectives of the proposed Project are to:

- Implement sediment control BMPs to reduce sediment discharge from the Pit in compliance with CVRWQCB Order No. R5-2017-0086 Section VI C 3 (b) and TSO No. R5-2017-0087
- Implement BMPs that are effective at managing sediment and feasible to implement – requiring, among other things, consideration of cost, CEQA review, cultural review, regulatory approvals timing, and constructability
- Install and maintain BMPs that will be effective for a minimum of 3 to 5 years, with the ability to expand and modify to extend the functional life until such time as long-term measures to comply with numeric effluent limits are implemented
- Provide BMP implementation flexibility to respond to observed function over time
- Minimize adverse effects of BMPs on the visual, cultural, biological, and recreational values of Malakoff Diggins SHP
- Continue the collection of water quality and other data to aid in developing long-term sediment control strategies

In developing the proposed design and construction detail of the proposed Project, DPR considered site constraints and opportunities associated with existing resources, conditions, and uses at Malakoff Diggins SHP. The proposed BMP components, temporary construction areas and access routes, and proposed trail segment routing are designed to provide for sediment control in compliance with the RWQCB Order while minimizing potential effects to environmental, historical, and recreational resources.

1.3 Project Description

The proposed Project integrates three primary BMPs that would function interdependently to reduce fine sediment discharge from the Pit:

- 1) Coarse sediment management in the eastern portion of the Pit

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- 2) An interceptor swale to divert flows from the eastern portion of the pit from directly discharging to the Hiller Tunnel
- 3) Enhanced Pit lake function through the use of a Hiller Tunnel inlet control

Additionally, the Project includes the potential use of soil stabilizer in certain areas of the Pit to reduce sediment entrainment in stormwater flows, potential use of flocculent to enhance fine sediment settling within the Pit, and installation of brush barriers at various locations of the Pit walls and base to provide for increased sediment retention.

Project construction would involve the development and use of temporary construction staging areas and would install permanent vehicle access routes within the Pit. The Project also includes rerouting of certain existing trail segments within the Pit and removal of an existing boardwalk.

The various BMP components, staging areas, access road alignments, and the proposed trail realignment segment are illustrated on Figure 3 of Appendix A.

Coarse Sediment Management

The coarse sediment management component of the proposed Project consists of a grade control structure and brush barriers for coarse sediment management in the eastern portion of the Pit. The grade control structure would be the primary coarse sediment management structure and would consist of an approximately 3-foot-tall, 650-foot-long rock berm extending across the Pit floor, in the location shown on Figure 3. The grade control structure would have a base width of approximately 17 feet and a crest width of approximately 8 feet. The upper 2 feet of the structure would be constructed of rock ranging in size of about 1 to 3.5 feet in diameter, placed on an approximately 1-foot-thick bedding filter layer. The upgradient and downgradient faces of the structure would be sloped at approximately 1.5 horizontal to 1 vertical (1.5H:1V).

Construction of the grade control structure would involve clearing existing vegetation along the 17-foot-wide grade control structure alignment. Cleared vegetation would be stockpiled on the northwest side to be used for construction of the brush barriers. The rock berm would then be constructed by placing and pushing the bedding filter layer rock along the grade control structure alignment allowing construction vehicles to then drive on the bedding filter layer to back dump the larger rock onto the bedding filter layer. This construction method would limit disturbance to the grade control structure footprint and avoid direct impacts to adjacent areas.

Approximately 1,515 tons (900 in-place cubic yards) of rock would be required for construction of the grade control structure. The rock for the bedding filter layer and large rock for the structure (as well as rock needed for other BMP components and access roads) would be obtained from a permitted offsite source. A specific source for rock needed for BMP construction has not been identified, however, it is anticipated that local sources are available and proximity to SHP would be a factor in determining appropriate source(s).

Brush barriers would be installed upgradient of the grade control structure to dissipate concentrated flow and reduce storm water velocity. The brush barriers would be approximately 2.5 feet tall and supported by 2-inch treated wood posts. Stakes would be installed then infilled with vegetation cleared from the rock berm alignment. Vegetation would be manually tamped in place until the brush fills the space between the stakes to the height of the stake and tied in place with hemp ropes.

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The function of the grade control structures would be to manage and contain the coarse sediment fraction of the high sediment loads (approximately 75 percent of the total sediment inflow to the Pit) from the eastern Pit. Water, silts, and clays would percolate through the grade control structure while much of the coarse gravel/sand would be contained. During large events, storm water would spill over the grade control structure, yet much of the coarse fraction would still be contained.

The grade control structure and brush barriers would require little maintenance and would not require periodic sediment removal. Instead, the structures would be “sacrificial” and would provide storm water treatment in the near-term and base-level grade control afterwards. Over time, the containment areas upgradient of the grade control structure and brush barriers would fill with coarse sediment and lose their retention capacity. The 3-foot-tall grade control structure would have an estimated effective sediment capture duration of approximately 5 years. Additional brush barriers could be added over time as the initial barriers lose retention capacity or if DPR otherwise determines additional brush barriers are warranted. Installation of additional brush barriers would use the same techniques as described above and would be manually installed, not requiring use of heavy equipment.

In addition to the grade control structure and brush barriers, the coarse sediment management component of the Project potentially includes the use of a non-toxic powder or liquid soil stabilizer such as anionic polyacrylamide (PAM) or vinyl-based products that could be applied upgradient of the grade control structures. Stabilizer application would help form a “crust” over unconsolidated material and would provide immediate erosion control and reduce the total sediment load reaching the grade control structures during high-flow events. For coarse sediment management in the eastern portion of the Pit, a maximum area of approximately 20 acres would be considered for chemical stabilizer application. Stabilizers would be applied using low-ground pressure, all-terrain vehicles, rubber-tired equipment with PAM tanks, and spray bars or backpack sprayer, and would be reapplied periodically.

The coarse sediment management component (grade control structures and brush barriers with or without the use of stabilizers) would limit the sediment reaching the downstream BMPs, which would improve the performance and reduce the maintenance requirements for downstream BMPs.

Interceptor Swale for Diversion of Eastern Flows

The interceptor swale component of the proposed Project would divert surface water flows from the eastern portion of the Pit to limit direct flow to the Hiller Tunnel. Instead, this surface water would be directed to the northwest and into the Pit lake in the western portion of the Pit allowing fine particle settlement in the Pit lake. The interceptor swale would be approximately 800 feet in length and consist of a channel approximately 2 feet deep and 8 feet wide at its base and an adjacent earthen cutoff berm that would be approximately 2 feet tall and 30 feet wide.

Construction of the swale and cutoff berm would require clearing vegetation and earth work with an approximately 50-foot-wide corridor along the alignment. The interceptor swale channel would be mechanically excavated, and the excavated material would be used to construct the adjacent cutoff berm. The channel and berm would be revegetated with willow cuttings obtained during construction and other seeding and planting. Equipment used for construction could include a tracked “skid-steer” excavator with trench construction attachments. Wooden or other protective matting would be placed to minimize ground and vegetation disturbance maintain at-grade equipment positioning.

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Concentrated and accelerated flow conditions in the interceptor swale channel would provide a suitable location for passive introduction of flocculent to enhance fine particle settling once these flows enter the Pit lake. The proposed Project includes the potential addition of anionic PAM to flows within the diversion channel. Flocculent would be added passively with the placement of flocculent blocks in the drainage channel where flowing water would dissolve flocculent and allow for its mixing and attachment to fine sediment particles. Flocculant blocks or logs approximately 12 inches long, 6 inches wide, and 4 inches tall would be installed within the swale and secured in place with rebar and mesh covering. Once the flowing water enters the Pit lake and slows, fine particles with affixed flocculent would more rapidly settle out in the Pit lake.

Enhanced Pit Lake with Discharge Control

The enhanced Pit lake with discharge control component of the proposed Project would be created with installation of a soldier-pile wall with wooden-lagging and related features to control surface water discharges to the Hiller Tunnel. This component would enhance the sediment capture function of the Pit lake by increasing the lake’s volume and surface area and increasing the retention time to increase sediment settling. The soldier pile wall would slow the discharge of Pit lake flows to the Hiller Tunnel resulting in an increase in the surface water elevation of the Pit lake during and following storm events as compared to existing conditions. In addition to creating the enhanced Pit lake sediment capture as a BMP component, the soldier pile wall would also reduce the potential for the Hiller Tunnel to become blocked or plugged thereby reducing the potential for a nonengineered discharge from the Pit that could occur if the Hiller Tunnel were to become blocked or plugged (Golder 2019).

The wall would be configured in a box shape approximately 210 feet in length encompassing an approximately 0.4-acre area surrounding the Hiller Tunnel inlet. The wall would be supported with I-beams spaced at a maximum of 9.5 feet apart with burial depths of 14 feet into the underlying soils or socketed into the bedrock where the depth of soils is less than 14 feet below existing grade. The ends of the wall would terminate where steeply sloping bedrock is encountered at the surface. Water would be retained by horizontally placed pressure-treated wood lagging that would form the wall between I-beams. The top elevation of the soldier pile wall would be approximately 3,046 feet above mean sea level, with an approximately 45-foot-wide weir discharge elevation of approximately 3043.5 feet. The wall would be designed to maintain low flows by providing gaps in the lagging and/or holes drilled at lower elevations of the wall. Rock riprap would be placed downstream of the wall to provide scour protection.

The wall would be designed to slow, but not eliminate, surface water discharge to the Hiller Tunnel from the Pit and would increase water surface elevation during storm events to expand the surface area of the Pit lake as compared to baseline conditions. Table 1, below, provides the Pit lake surface elevations and surface areas for the 2-year, 10-year, and 100-year storm events under existing conditions and under conditions with the proposed soldier pile wall.

Table 1. Existing and Proposed Pit Lake Surface Elevations and Area

Storm Event	Existing Conditions		With Project Soldier Pile Wall	
	Surface Area (acres)	Elevation (feet NAVD88)	Surface Area (acres)	Elevation (NAVD88)
2-Year	7.9	3,041.3	21.6	3,044.2
10-Year	9.0	3,041.5	23.2	3,044.7

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100-Year	19.2	3,043.6	26.9	3,046.0
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Both the larger Pit lake surface area and the longer detention time resulting from the soldier pile wall would contribute to increased fine particle settling in the Pit lake as compared to existing conditions. As discussed previously, although the use of flocculant is not an essential element of the proposed Project, introduction of flocculant to surface runoff into the Pit lake would promote fine particle settling within the Pit lake. The proposed Project consider the potential use of flocculent blocks or logs that would be lashed together (e.g., using chicken wire, coir mat, etc.) and staked at select locations within Pit wall drainage channels and gullies above the Pit lake which would provide the hydraulic energy and mixing time necessary to properly dissolve the flocculant prior to entering the Pit lake. Additionally, soil stabilizers could be applied to select areas of the west Pit walls to reduce erosion and sedimentation from the west Pit walls into the Pit lake.

Construction Staging Areas

Construction of the BMP components would require establishing construction staging areas for equipment and materials storage and vehicle parking. The proposed Project includes three staging areas, as shown in Table 2, below.

Table 2. BMP Component Staging Areas

Staging Area	Location	Area	
		Sq Ft	Acres
In-Pit Construction Staging Area	In northwest portion of Pit, northwest of Pit lake on east side of construction access route	30,000	0.69
Boardwalk Staging Area	In southwest portion of Pit. south of Pit lake on east side of construction access road	9,250	0.21
Shooting Range Staging Area	Southeast and outside of Pit at existing DPR shooting range area, access from North Bloomfield Road	28,300	0.65

Staging areas within the Pit would include the Boardwalk Staging Area in the southwest portion of the Pit south of the Pit lake, and the In-Pit Construction Staging Area in the northwest portion of the Pit northwest of the Pit lake.

The two in-Pit staging areas would be accessed via the in-Pit access route to be developed for BMP component installation. These two staging areas would be used for temporary parking, equipment storage, construction materials storage, and similar purposes.

The Shooting Range Staging Area would be located southeast of the Pit, approximately 500 feet west of a shooting range area periodically used by DPR for firearms training and practice. The Shooting Range Staging Area would be accessed via an approximately 700-foot segment of

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existing unpaved access road from North Bloomfield Road. The existing access road would require limited grading and improvements for use by construction vehicles. It is anticipated that the Shooting Range Staging Area would be used for construction contractor portable offices as well as worker vehicle parking and other related activities.

Each of the staging areas would be enclosed with temporary fencing and lockable gates during the construction period. Construction contractors would be required to maintain construction staging areas in a neat and orderly conditions. Any debris or other accumulations of waste or materials no longer needed for construction would be removed and disposed at approved offsite locations on a weekly basis. Following the completion of BMP construction, all temporary construction-related facilities, material, and equipment would be removed, and areas would be restored to conditions similar to those prior to use.

In-Pit Construction Access Routes

Vehicle access into the Pit is restricted to authorized vehicles (no public vehicle access is allowed). There are no developed roads in the Pit, and existing vehicle access opportunities are limited to one location in the southwest portion of the Pit from a turnout along North Bloomfield Road where an unpaved road extends approximately 200 feet to the southwest Pit floor. During development of the conceptual BMP plan, other access options were considered but were determined infeasible due to anticipated engineering constraints and impacts to biological and cultural resources, aesthetics, and other important resources, so access for construction of the BMP components would utilize the southwest access location.

For construction of the BMP components, an access route would be developed extending to the north and then east along the perimeter of the Pit floor. Access to areas of construction for the coarse sediment grade control structures and brush barriers would require establishing an access approximately 25 to 30 feet wide for approximately 1 mile along the northern perimeter of the Pit floor. Access for construction of the diversion swale and soldier wall would be from along this same route and would then require a spur to the south to access these BMP areas.

Improvements to the existing access from North Bloomfield Road into the Pit would consist of grading and fill placement to widen the route for approximately 90 feet. Development of the access route along the Pit floor perimeter, to BMP construction areas and in saturated areas along the access road alignment to allow for drainage, would require vegetation clearing, grading, and construction of access roads. Two general types of access routes within the Pit would be used. Around the western and northwestern perimeter, a "causeway" cut and fill access road would be installed that would provide for vehicle access for installation of the three BMP components and would be maintained as a permanent feature providing for vehicle access for periodic maintenance and for use as a public trail. Additionally, a temporary access route consisting of composite or wooden matting would be placed to provide access for construction of the soldier pile wall. The temporary matting would be removed following construction of the soldier pile wall.

The access road causeway section design would provide for stormwater runoff passage through a gravel base that would be placed on a geotextile fabric. The gravel base would then be surfaced with compacted gravel and soil. Causeway access route segments adjacent to lower gradient areas would have single-sided or double-sided reinforced edges depending on topography and surface drainage patterns along individual segments of the access routes. Drainage ditches would be installed along the perimeter of causeway sections as needed. Cross-section illustrations of the three primary causeway design cross-section types and temporary road construction mats.

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Boardwalk Removal and Trail Realignment

Visitor hiking opportunities are available along various trail segments within the Pit, including a trail in the southwest corner of the Pit. This trail segment includes a wooden boardwalk that crosses the shallow southern portion of the Pit lake. Under existing conditions, the boardwalk is normally situated above the Pit lake surface elevation and allows visitors to traverse this section of the Pit. The BMP soldier pile wall component would result in increased Pit lake levels as compared to existing conditions and would result in Pit lake inundation more frequently and for longer periods than under existing conditions. To provide for continued visitor access through the southwest area of the Pit, DPR proposes to develop an approximately 1,200-foot segment of new pedestrian trail around the southernmost perimeter of the southwest portion of the Pit. The trail would be approximately 4 feet wide and surfaced with compacted gravels and soils present within the trail alignment. Final trail routing would be selected in consideration of topography and to minimize vegetation disturbance. The existing boardwalk would be removed by manual or mechanical disassembly with the removed boarding transported for offsite disposal at an appropriate facility.

1.4 BMP Construction Sequence

Construction of the Project BMP components would be undertaken once DPR receives all necessary regulatory agency approvals and permits. It is anticipated that installation of the BMP components would take place during one season during mid to late summer to allow the pit floor to dry out as much as possible. Construction activities would generally consist of:

1. Conducting pre-construction surveying and staking
2. Installing public safety signage and demarcate exclusion areas
3. Installing temporary stormwater and sediment control for construction
4. Removing vegetation and grade in-Pit access routes
5. Removing vegetation from BMP component work areas
6. Installing temporary water diversions and/or other temporary surface water management to avoid surface water in work areas
7. Receiving and stage construction materials
8. Performing excavation and other earth moving for BMP component installation
9. installing structural features of BMP components (e.g., rock berms, rip-rap scour protection, soldier wall piles and lagging, etc.)
10. Cleaning up the construction site and staging areas
11. Regrading and revegetating construction and staging areas

Construction is expected to require approximately three months and would be scheduled to occur generally during June through September when conditions in the Pit are expected to be driest. Work would primarily be scheduled to occur on weekdays between 7:00 am and 6:00 pm.

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However, weekend work could be necessary under certain circumstances to accelerate schedule, address weather conditions, and other factors.

1.5 Construction BMPs

Many areas of the Pit floor are susceptible to saturated soil conditions, especially during and immediately following the rainy season. The use of heavy equipment has the potential to create short-term sediment disturbance. Sediment disturbance during construction would be managed to minimize the potential for sediment discharge to surface water using standard storm water and construction best management practices where necessary to minimize construction-related disturbance and potential sedimentation and water quality impacts. Construction BMPs to be implemented for the Project include:

- Using composite or wooden matting for wetland protection and temporary road
- Installing temporary silt fences, straw wattles, and/or other temporary construction area sediment filtration measures
- Stabilizing disturbed soils through compaction, vegetation, and/or application of stabilizers
- Performing construction activities during the dry season to the extent feasible.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the BRA, including applicable laws and regulations that were applied to the field investigations.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations, such as the Clean Water Act (CWA); state regulations, such as the Porter-Cologne Act, the California Fish and Game Code (CFGC), and CEQA; or local ordinances or policies, such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

Waters of the United States

Section 404 of the CWA gives the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States.” Section 502(7) of the CWA defines “navigable waters” as “waters of the United States, including territorial seas.” At the time of preparation of this BRA the EPA and Corps are interpreting “Waters of the United States” consistent with the pre-2015 regulatory regime. Therefore, the definition of “waters of the United States” in 40 Code of Federal Regulations (CFR) 230.3(s) is:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;

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- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - c. Which are or could be used for industrial purposes by industries in interstate commerce;
- (4) All impoundments of waters otherwise defined as Waters of the United States under this definition;
- (5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
- (6) The territorial sea;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not Waters of the United States.

In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, 521 U.S. 159 (2001), the U.S. Supreme Court (Court) held that CWA regulations, which require a permit from the Corps to discharge fill material into navigable waters, does not extend to isolated wetlands. In the consolidated cases *Rapanos v. United States* and *Carabell v. United States*, 126 S. Ct. 2208 (2006) (referred to as the Rapanos decision), the Court reviewed the Corps definition of Waters of the U.S. and whether or not it extended to isolated wetlands and other non-navigable aquatic areas. Guidance issued by EPA and the Corps on the Rapanos decision provides that agencies will assert jurisdiction over non-navigable, not relatively permanent tributaries and their adjacent wetlands only when such tributaries and wetlands have a “significant nexus” to a traditional navigable water. At the time this report was written, the Rapanos decision is currently in effect.

Wetlands are defined in the federal regulations as:

...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Western Mountains, Valleys, and Coast (WMVC) Supplement (Corps 2010).

The limit of federal jurisdiction in intermittent or perennial non-tidal, non-wetland waters extends to the Ordinary High Water Mark (OHWM), which is defined in the federal regulations as:

...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the

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presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

Waters of the State

The Porter-Cologne Water Quality Control Act gives the State Water Resources Control Board (SWRCB) authority to regulate discharge of dredged or fill material that may affect the quality of “waters of the state”. “Waters of the State” are defined broadly as:

any surface water or groundwater, including saline waters, within the boundaries of the state.

In April 2019, the SWRCB adopted the State Wetland Policy, which provides a State wetland definition, procedures and requirements for regulation of the discharge of dredge or fill material to wetlands and non-wetland waters of the State (SWRCB 2019). The State Wetland Policy also includes exemptions from regulation of dredge and fill discharges for certain types of wetland and waters features, as well as for certain classes of activities, such as activities covered by an existing RWQCB or SWRCB Order. The state wetland definition that became effective May 28, 2020, is similar to, but slightly different from that used by the Corps:

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 State Wetland Definition and Procedures utilize existing Corps delineation procedures (Environmental Laboratory 1987, Corps 2008, Corps 2010). According to the State Wetland Policy, the SWRCB and RWQCBs generally rely on the Corps for verification of wetland and waters as part of an aquatic resource report. Any potential wetland area not identified in a report verified by the Corps is required to be delineated using Corps methods for consideration as a state wetland and verification by SWRCB or RWQCB staff.

Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a CWA permit are also required to obtain a Water Quality Certification.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by the California Department of Fish and Wildlife (CDFW, formerly the California Department of Fish and Game [CDFG]) under Sections 1600-1616 of the CFGC. Alterations to, or work within or adjacent to, streambeds or lakes generally require a Section 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through

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a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from the CDFW.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities (alliances) as “threatened” or “very threatened” and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2021). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe’s (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or the U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 Special-Status Species

Special-status species include plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. In addition, CDFW Species of Special Concern (which are species that face extirpation in California if current population and habitat trends continue), CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW special-status invertebrates are considered special-status species. Although species in these categories generally have no special legal status, they are given special consideration under CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special-status under CEQA. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory with California Rare Plant Ranks (Rank) of 1 through 4 are also considered special-status plant species and must be considered under CEQA. A description of the CNPS Ranks is provided below in Table 3. In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the CFGC. Under these laws, destroying active bird nests, eggs, and/or young is illegal.

Table 3. Description of CNPS Ranks and Threat Codes

California Rare Plant Ranks (formerly known as CNPS Lists)	
Rank 1A	Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	Rare, threatened, or endangered in California and elsewhere

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Rank 2A	Presumed extirpated in California, but more common elsewhere
Rank 2B	Rare, threatened, or endangered in California, but more common elsewhere
Rank 3	Plants about which more information is needed - A review list
Rank 4	Plants of limited distribution - A watch list
Threat Ranks	
0.1	Seriously threatened in California
0.2	Moderately threatened in California
0.3	Not very threatened in California

Critical Habitat and Essential Fish Habitat

Critical habitat is a term defined in the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species but which are needed for the species' recovery are protected by the prohibition against adverse modification of critical habitat.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the U.S. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass [*Zostera* spp.]), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with the National Marine Fisheries Service (NMFS). Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

3.0 METHODS

WRA biologists conducted site visits in the Project Area on August 14 and 15, 2017, January 12, 2018, June 10, 11, and 12, 2019, July 7, 8, and 9, 2020, and May 11 and 12, 2021. The Project Area was traversed on foot to determine: (1) plant communities present within the Project Area, (2) whether existing conditions provide suitable habitat for any special-status plant or wildlife species, (3) whether sensitive habitats are present, and (4) Project-related impacts under CEQA. Project figures are provided in Appendix A. All plant and wildlife species identified in the Project Area were recorded and are summarized in Appendix B. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (Jepson eFlora 2021), except

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where noted. For cases in which regulatory agencies, the CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities. Special-status species with a potential for occurrence, determined based on field visits and habitat availability, are described in Appendix C. Representative photographs of the Project Area captured during field visits are included in Appendix D.

3.1 Biological Communities

Prior to June 2019 site visits, the *Soil Survey of Nevada County Area, California* (U.S. Department of Agriculture [USDA] 1975) and SoilWeb (California Soil Resources Laboratory [CSRL] 2021) were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities present in the Project Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and/or *A Manual of California Vegetation, Online Edition* (CNPS 2021a). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive, as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-Sensitive Biological Communities

Non-sensitive biological communities are not afforded special protection under CEQA, and other state, federal, and local laws, and regulations and ordinances. These communities may, however, provide suitable habitat for special-status plant or wildlife species, and are described in Section 4 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as communities that are given special protection under CEQA and other applicable federal, state, and local laws, and regulations and ordinances. Special methods used to identify sensitive biological communities are discussed below.

Aquatic Resources

The Project Area was surveyed to determine if any wetlands or non-wetland waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. The assessment (and follow-up delineation) was based primarily on the presence of wetland plant indicators, but also consider any observed indicators of wetland hydrology or wetland soils. Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status¹ of Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC) as provided on the Corps National Wetlands Plant List (Lichvar et al. 2016). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, algal mats, and oxidized root channels, or indirect (secondary) indicators, such as saturation visible on aerial imagery. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental

¹ OBL = Obligate, always found in wetlands (> 99 percent frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99 percent frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66 percent frequency of occurrence).

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Laboratory 1987) and *Field Indicators of Hydric Soils in the United States* (Natural Resources Conservation Service [NRCS] 2021). A formal protocol-level wetland delineation of the Project Area was conducted on July 7, 8, and 9, 2020. A follow-up wetland delineation was conducted on May 11 and 12, 2021 to confirm findings from the 2020 survey and to provide a delineation of the access road and the proposed staging area situated outside of the Pit. Results discussed in Section 4 are based on the findings of the wetland delineation.

Terrestrial Communities

The Project Area was evaluated for the presence of other sensitive biological communities, including riparian areas or other sensitive plant communities recognized by the CDFW. Prior to 2019, 2020, and 2021 site visits, aerial photographs, local soil maps, and *A Manual of California Vegetation, Online Edition* (CNPS 2021a) were reviewed to assess the potential for sensitive biological communities to occur in the Project Area. All alliances within the Project Area with a ranking of 1 through 3 were considered sensitive biological communities and were mapped. These communities are described in Section 4 below.

3.2 Special-Status Species

3.2.1 Literature Review

The potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database search. The Project Area is situated along the northern boundary of the *North Bloomfield* 7.5-minute U.S. Geological Survey (USGS) quadrangle less than 0.5 mile from the *Pike* 7.5-minute USGS quadrangle. As such the database searches for known occurrences of special-status species focused on the *North Bloomfield*, *Pike*, and 10 surrounding quadrangles, expanded from the typical nine quadrangle search due to the size of the site. Quadrangle maps included in the database searches included: *North Bloomfield*, *Pike*, *Camptonville*, *Strawberry Valley*, *Goodyears Bar*, *Downieville*, *Alleghany Washington*, *Dutch Flat*, *Chicago Park*, *Grass Valley*, and *Nevada City*. Additional information was provided through discourse with DPR staff via verbal communications and summaries of previous reports and studies. The following sources were also reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project Area:

- CNDDDB records (CDFW 2021)
- eBird (online 2021)
- USFWS Information for Planning and Conservation Report (IPaC; USFWS 2021a)
- National Wetlands Inventory (USFWS 2021b)
- CNPS Rare and Endangered Plant Inventory (CNPS 2021b)
- CDFG publication “California’s Wildlife, Volumes I-III” (Zeiner et al. 1990)
- CDFG publication “California Bird Species of Special Concern” (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)

3.2.2 Site Assessment

Multiple site visits were made to the Project Area to search for suitable habitats for special-status species. Habitat conditions observed in the Project Area were used to evaluate the potential for

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presence of special-status species based on these searches and the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Project Area was then evaluated according to the following criteria:

- **No Potential:** Habitat on and adjacent to the Project Area is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely:** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Area is unsuitable or of very poor quality. The species is not likely to be found in the Project Area.
- **Moderate Potential:** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Project Area is unsuitable. The species has a moderate probability of being found in the Project Area.
- **High Potential:** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Area is highly suitable. The species has a high probability of being found in the Project Area.
- **Present:** Species was observed on the site during WRA site visits or has been recorded (i.e., CNDDDB, other reports) in the Project Area.

The BRA identified the presence or absence of suitable habitat for each special-status species known to occur in the vicinity of the Project Area to determine its potential to occur in the Project Area. In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on the best professional judgment of WRA biologists with experience working with the subject species and habitats. In some instances, recognized experts in individual species biology were contacted to obtain the most up-to-date information regarding the subject species' biology and ecology.

Targeted rare plant surveys were conducted on July 7, 8, and 9, 2020 and on May 11 and 12, 2021 to account for both early and late-blooming species. During these surveys, all species identified as having a moderate or high potential to occur in the Project Area were surveyed for. Surveys were conducted within all subject species' published bloom periods.

4.0 RESULTS

A general description of the Project Area and the results of the BRA are provided in the following sections. Project figures are provided in Appendix A. A list of plant and wildlife species observed is included as Appendix B. The assessment of the potential for special-status plant and wildlife species to occur in the Project Area is provided as Appendix C. Photographs of the Project Area are provided as Appendix D.

Project Area Description

The Project Area consists of approximately 105.40 acres of the 3,200-acre Malakoff Diggins SHP, located in unincorporated Nevada County, California. The Project Area is located approximately 8.5 miles northeast of Nevada City, California. The Project Area includes the Pit, an access road, and a staging area (Appendix A; Figures 1 and 2).

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To reach the Project Area from Nevada City, head northwest on Highway 49 for approximately 10.6 miles before exiting right onto Tyler Foote Road. Follow Tyler Foote Road east for approximately 15.6 miles before taking a slight right onto Cruzon Grade Road for 3.3 miles before the road changes once again to Back Bone Road. Once on Back Bone Road, follow it east for approximately 1 mile, then make a right on Derbec Road. Continue south for approximately 1 mile. Next, turn right on North Bloomfield Road, travel south for approximately 1 mile into Malakoff Diggins SHP and the historic townsite of North Bloomfield, then proceed west along North Bloomfield Road for approximately 1 mile.

Topography and Soils

The Project Area is located within the northern Sierra Nevada mountain range. Topography in the Project Area is mountainous, concave, and generally sloping in a southerly direction with elevations ranging from approximately 3,400 feet above mean sea level at the northern edge along the cliffs of the Malakoff Diggins within the Project Area to approximately 3,050 feet above mean sea level within the bottom of the Diggins. The lowest point of the Malakoff Diggins mining pit is located in the southeastern portion of the Project Area (approximately 3,000 feet above mean sea level), while a majority of the Malakoff Diggins slopes range from 3,100 to 3,400 feet above mean sea level, depending on their location within the Project Area.

SoilWeb (CSRL 2021) indicates that the Project Area contains five soil mapping units that includes: three soils series, tailings, and water. Soil mapping units within the Project Area include: (1) Horseshoe gravelly loam, 15 to 30 percent slopes; (2) Josephine- Mariposa complex, 15 to 50 percent slopes, eroded; (3) Mariposa-Rock outcrop complex, 2 to 50 percent slopes; (4) Tailings; and (5) Water (Appendix A, Figure 4). The soil series that comprise the mapping units within the Project Area are described below.

Horseshoe Series: The Horseshoe series consists of very deep, well-drained, shallow soils that formed in material weathered from gravelly tertiary terrace remnants and basic volcanic rocks, principally tuff breccia (CSRL 2021). These soils occur on broad tabular ridges and side slopes with slopes of 2 to 50 percent. In a representative profile, there is an organic layer of litter, duff, leaves, and twigs from 3 to 0 inches. The surface layer (A/AB-horizon) is a medium acid (pH 6.0 to 5.8), dark reddish brown (5YR 3/3 to 2.5YR 3/4) gravelly loam from 0 to 10 inches. This is underlain by a Bt-horizon of medium to very strongly acidic (pH 5.6 to 5.0), dark red to red (2.5YR 3/6 to 2.5YR 4/8) gravelly clay loam from 10 to 43 inches. This is underlain by a BCt and 2BCt horizon consisting of very strongly acidic gravelly clay loam to very gravelly loam from 43 to 59 inches. Finally, this is underlain by a 3C horizon of stratified sands and gravel from 59 to 65 inches (CSRL 2021). Native vegetation in areas mapped as containing the Horseshoe series soils is mainly composed of Ponderosa pine, sugar pine (*Pinus lambertiana*), Douglas fir (*Pseudotsuga menziesii*), California black oak (*Quercus kelloggii*), tanoak (*Notholithocarpus densiflorus*), and whiteleaf manzanita (*Arctostaphylos viscida*) (CSRL 2021). Horseshoe gravelly loam, 15 to 30 percent slopes is not considered a hydric soil (USDA 2021).

Josephine Series: The Josephine series consists of deep, well-drained soils that formed in colluvium and residuum weathered from altered sedimentary and extrusive igneous rocks. These soils occur on broad ridgetops, toeslopes, footslopes, and side slopes of mountains with slopes of 2 to 75 percent. In a representative profile, there is an organic layer of partially decomposing needles and leaves from 2 to 0 inches. The surface layer (A-horizon) is a moderately acidic (pH 6.0), dark brown (7.5YR 3/2) gravelly loam from 0 to 3 inches. This is underlain by a BA horizon of slightly acidic (pH 6.2), brown (7.5YR 4/4) gravelly loam from 3 to 9 inches. This is underlain by a Bt-horizon of slightly to very strongly acidic (pH 6.2 to 5.0), reddish brown (5YR 4/4) to

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yellowish red (5YR 4/6) loam from 9 to 42 inches. This is underlain by a BC and BCt horizon of very strongly acidic (pH 4.9), yellowish red (5YR 4/6 to 5YR 5/6) gravelly clay loam from 42 to 59 inches. Finally, this is underlain by a Crt horizon consisting of very strongly acidic (pH 4.9) saprolitic siltstone from 59 inches and below (CSRL 2021). Native vegetation is composed of Douglas fir, Ponderosa pine, Pacific madrone (*Arbutus menziesii*), California black oak, tanoak, incense cedar (*Calocedrus decurrens*), and sugar pine (CSRL 2021). Josephine-Mariposa complex, 15 to 50 percent slopes, eroded are not considered hydric (USDA 2021).

Mariposa Series: The Mariposa series consists of moderately deep, well-drained soils that formed in material weathered from metasedimentary rocks. These soils occur on mountains with slopes of 2 to 75 percent. In a representative profile, there is an organic layer of pine needles, duff, and partly decomposed litter from 0 to 1 inch. The surface layer (A-horizon) is a moderately acidic (pH 6.0), reddish brown (7.5YR 7/4) gravelly silt loam from 1 to 9 inches. This is underlain by a Bt horizon of moderately to strongly acidic (pH 5.6 to 5.5), yellowish red (5YR 4/6) gravelly silt loam from 9 to 27 inches. This is underlain by an R (bedrock) horizon of yellowish brown, weathered slate from 27 inches and below (CSRL 2021). Native vegetation is typically composed of mixed coniferous forest-shrub dominated by Douglas fir, white fir, Ponderosa pine, sugar pine, California black oak, tanoak, whiteleaf manzanita and poison oak (*Toxicodendron diversilobum*) (CSRL 2021). Mariposa-Rock outcrop complex, 2 to 50 percent slopes is considered a hydric soil (USDA 2021).

Tailings: Tailings are miscellaneous land types consisting of hard rock mine dumps and hydraulic diggings that are remnants of tertiary river deposits left over from historic gold mining. These areas include hydraulically mined areas, placer-mined areas along stream channels, and areas of natural deposits along stream channels. The hydraulically mined areas are typically in association with areas of Josephine, Mariposa, and Horseshoe series soils in the Project Area. Areas mapped as tailings typically have steep, cliff-like slopes as high as 100 feet in elevation as a result of historic hydraulic mining. Tailings are considered a hydric soil (USDA 2021).

Climate and Hydrology

The Project Area is situated on the western slope of the Sierra Nevada Mountain Range in the transition zone between the Sierra Nevada foothills and mountains. The climate is characterized by dry, hot summers and relatively mild winters with 40 to 60 inches of annual rainfall. Snow is common at higher elevations and frost is common from November through March. Spring, summer, and fall temperatures range from the high 50s to the mid-80s (California State Parks 2017).

Surface water enters the pit as precipitation, with occasional, non-persistent snowfall. Surface inflow largely occurs as intermittent streams flowing down the steep pit walls during and following storm events. After reaching the pit floor, surface runoff flows westerly, with water in the north areas of the pit flowing to the pit lake in the southwest end of the pit, and runoff in the south areas of the pit flowing directly to the Hiller Tunnel. The pit lake surface area increases in the wet season and the 541-foot-long Hiller Tunnel drains surface runoff from the pit at the southwest pit perimeter. Originally constructed as a mining era drainage tunnel, the Hiller Tunnel conveys surface flow out of the pit and into Diggins Creek. Diggins Creek flows into Humbug Creek approximately 1,690 feet downstream. Approximately 2 miles downstream from there, Humbug Creek flows into the South Yuba River. The entire Malakoff Diggins basin lies within the Humbug Creek-South Yuba Watershed Hydrologic Unit (USGS 2014).

4.1 Biological Communities

Table 4 summarizes the area of each biological community observed and mapped in the Project Area. Non-sensitive biological communities and/or land cover types include: Developed, Ponderosa pine forest, rock outcrop/barren land, and whiteleaf manzanita chaparral. Potentially sensitive biological communities include: arroyo willow thickets, cattail marsh, open water, sandbar willow thickets, and streams (ephemeral and intermittent; no perennial streams are located within the Project Area). All streams are mapped up to top of bank. Descriptions of each biological community are included in the following sections and are depicted on Figure 5 of Appendix A.

Table 4. Biological Communities in the Project Area

Biological Community Type	Size (acres [linear feet])
Non-sensitive Communities	
Ponderosa pine forest	21.00
Developed	4.14
Rock outcrop/barren	2.67
Whiteleaf manzanita chaparral	1.29
Subtotal	29.10
Sensitive Communities	
Arroyo willow thickets	51.17
Sandbar willow thickets	18.04
Cattail marsh	4.94
Open water	1.88
Intermittent stream	0.21 (677)
Ephemeral stream	0.06 (486)
Subtotal	76.30 (1,163)
Total	105.40 (1,163)

4.1.1 Non-Sensitive Biological Communities

Ponderosa pine forest (*Pinus Ponderosa* Forest Alliance); Rank G5/S4. The Project Area contains Ponderosa pine forest. Ponderosa pine forest occurs in a broad range of topographic positions and aspects. It occurs on slopes, floodplains, low-gradient depositions along streams and raised benches, and on a variety of substrates extending from the Pacific Northwest south to Mexico (CNPS 2021a). This community typically occurs from 900 to 6,900 feet in elevation (CNPS 2021a). Within the Project Area, Ponderosa pine forest occurs along ridges, slopes, and flats in former mine tailings. Ponderosa pine forest within the Project Area was mapped according to

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membership rules (CNPS 2021a) as containing a greater than 50 percent relative cover of Ponderosa pine in the tree canopy, with hardwoods (e.g., canyon live oak [*Quercus chrysolepis*] and California black oak) present in low cover.

Ponderosa pine forest within the Project Area is dominated by Ponderosa pine, with interstitial, subdominant conifers and hardwoods, including Douglas fir, incense cedar, and California black oak. The tree canopy is continuous to open with an intermittent understory of shrubs, including whiteleaf manzanita. The herbaceous layer contains sparse grasses, forbs, and subshrubs amongst a dense thatch layer of decomposing pine needles. Observed species in the herbaceous layer include blue wildrye (*Elymus glaucus*), white stemmed lupine (*Lupinus albicaulis*), and Sierra mountain misery (*Chamaebatia foliolosa*). Ponderosa pine forest has a sensitivity ranking of G5/S4 indicating that it is believed to be secure globally and in California. Thus, this community is not considered to be sensitive.

Developed. The Project Area contains developed land cover, which includes the Diggins Loop Trail alignment an approximately 1-mile segment of North Bloomfield Road. The Diggins Loop Trail varies in width from approximately 3 to 6 feet and is unpaved but is generally devoid of vegetation due to use by park visitors. The segment of North Bloomfield Road within the Project Area is a combination of paved asphalt and unpaved surface.

Rock outcrop/barren. The Project Area contains unvegetated, barren slopes located within the Malakoff Diggins. Areas mapped as barren rock outcrops have cliff-like slopes as high as 100 feet, which are a result of historic hydraulic mining and subsequent ongoing erosion processes. Areas mapped as barren rock outcrops have less than 10 percent vegetative cover due to the presence of steep, actively eroding slopes and/or lack of soil development.

Whiteleaf manzanita chaparral (*Arctostaphylos viscida* Shrubland Alliance); Rank G4/S4. The Project Area contains whiteleaf manzanita chaparral. Whiteleaf manzanita chaparral typically occurs on ridges and slopes, and on shallow soils derived from sandstone, granitic, or ultramafic substrates, extending from the Northern California Coast Ranges (interior) to the southern Sierra Nevada (CNPS 2021a). This community typically occurs from 500 to 6,100 feet in elevation (CNPS 2021a).

Within the Project Area, whiteleaf manzanita chaparral occurs on ridgelines, natural and disturbed slopes, and flats in former mine tailings. Whiteleaf manzanita chaparral within the Project Area was mapped according to membership rules (CNPS 2021a) as containing a greater than 30 percent relative cover of whiteleaf manzanita in the shrub canopy. Here, the shrub canopy is variably open to continuous, and is dominated by whiteleaf manzanita, with occasional subdominant shrubs, including green leaf manzanita (*Arctostaphylos patula*) and buck brush (*Ceanothus cuneatus*). The understory is composed of sparse non-native grasses, including brome fescue (*Festuca bromoides*) and silvery hairgrass (*Aira caryophyllea*), with a sparse mixture of native forbs, such as Spanish lotus (*Acmispon americanus* var. *americanus*). In most portions of the Project Area, whiteleaf manzanita chaparral intergrades with Ponderosa pine forest. Emergent Ponderosa pines are present in this community at less than 10 percent cover. Whiteleaf manzanita chaparral has a sensitivity ranking of G4/S4 indicating that it is understood to be secure globally and in California. Thus, this community is not considered to be sensitive.

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4.1.2 Sensitive Biological Communities

Arroyo willow thickets (*Salix lasiolepis* Woodland Alliance); G4/S4. The Project Area contains arroyo willow (*Salix lasiolepis*) thickets. Arroyo willow thickets occur throughout California on stream banks and terraces, seeps, and along drainages (CNPS 2021a).

Arroyo willow thickets in the Project Area were mapped, per CNPS guidelines (2021a), as having arroyo willow greater than 50 percent relative cover in the shrub or tree canopy. Within the Project Area, this community occurs within the central and northwestern portion of the Pit floor. This community does not grow along stream margins and is not directly associated with streams in the Project Area (i.e., this is not a riparian community). The overstory is dominated by arroyo willow, with occasional Ponderosa pine on the drier fringes of the community. The herbaceous layer, which varies from wetland to upland, with is dominated by soft rush (*Juncus effusus*), and iris-leaved rush (*Juncus xiphioides*) in areas characterized as wetlands. Arroyo willow thickets have CDFW rarity ranking of G4/S4, meaning they are considered secure globally and in California. However, arroyo willow thickets mapped in the Project Area contain a prevalence and/or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology sufficient to meet the requirements 3-parameter freshwater scrub-shrub wetlands. As such, arroyo willow thickets in the Project Area are considered sensitive.

Sandbar willow thickets (*Salix exigua* Woodland Alliance); G5/S4. The Project Area contains sandbar willow (*Salix exigua*) thickets. Sandbar willow thickets occur throughout California on temporarily flooded floodplains, depositions along rivers and streams, and at springs (CNPS 2021a).

Sandbar willow thickets in the Project Area were mapped, per CNPS guidelines (2021a), as having greater than 50 percent relative cover of sandbar willow in the shrub canopy. Within the Project Area, this community occurs in the eastern portion of the Pit floor, in an area that functions as an active floodplain. This community does not grow along stream margins and is not directly associated with streams in the Project Area (i.e., this is not a riparian community). The overstory is dominated by sandbar willow, emergent red willow (*Salix laevigata*), and Ponderosa pine. The understory herbaceous layer is sparse due to the seasonal flooding and active erosion and sedimentation. Forbs observed in the understory include broad leaved lupine (*Lupinus latifolius* var. *columbianus*), and horsetail (*Equisetum arvense*). Sandbar willow thickets have a CDFW rarity ranking of G5/S4, meaning they are considered secure globally and in California. However, this community is situated in an active floodplain, which is hydrologically connected to the rest of the Pit. Therefore, sandbar willow thickets in the Project Area are considered sensitive.

Cattail marsh (*Typha [angustifolia, domingensis, latifolia]* Herbaceous Alliance); G5/S5. The Project Area contains cattail (*Typha* sp.) marsh. Cattail marshes occur throughout California in flat to concave topographic positions in semi-permanently flooded freshwater or brackish marshes, low-gradient stream fringes, and lake fringes at elevations ranging from 0 to 1,200 feet (CNPS 2021a).

Cattail marsh in the Project Area was mapped, per CNPS guidelines (2021a), as having greater than 50 percent relative cover of cattail in the herbaceous layer. Within the Project Area, this community occurs in one discrete freshwater emergent wetland in the western portion of the Project Area. Cattail marsh is situated in a flat to slightly concave topographic position in a low-elevation portion in the southwestern portion of the Pit generally surrounding and adjacent to the open water areas of the Pit lake. Cattail marsh within the Project Area is dominated by broadleaf cattail (*Typha latifolia*). Subdominant hydrophytic graminoids and forbs present in this community

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include soft rush, iris-leaved rush, and horsetail. Cattail marshes have a CDFW rarity ranking of G5/S5, meaning they are considered secure globally and in California. However, areas mapped as cattail marsh also contain a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology sufficient to meet the 3 parameters requirements as freshwater emergent marsh wetland. As such, cattail marsh in the Project Area is considered sensitive.

Open Water. The western portion of the Project Area contains open water habitat, which appeared as two distinct ponds during WRA surveys for this BRA. (Surveys for this BRA were conducted during periods of low or no surface water runoff within the Pit. During and following storm events, water surface elevations in these two ponded areas rise and the ponded areas merge. Collectively, these ponds are commonly referred to as the Pit lake.) Both ponds are surrounded by cattail marsh and contained water during the site visits. These ponds appear to have formed as a result of stormwater capture in this area of the Pit floor which is separated from the Hiller Tunnel inlet by areas of higher elevation. While the central areas of the ponds have limited surface vegetation exposure, the fringes of these features contained a sparse assortment of wetland species including pondweed (*Potamogeton* sp.), and other species that were identified in the adjacent cattail marsh, including soft rush and iris-leaved rush. Open water habitat is considered a sensitive community.

Intermittent Stream. The Project Area contains eight intermittent streams. Seven of the eight intermittent streams flow down the steep slopes along the north pit walls and originate flow from upgradient areas. At the toe of slope, these streams fan out onto alluvial floodplains on the Pit floor, where they convey flow into the Pit. From there, water continues to flow into the arroyo willow thickets, sandbar willow thickets, and cattail marsh within the Pit before eventually flowing into the Pit lake area or to the Hiller Tunnel. The runoff is then conveyed out of the Pit and Project Area via the Hiller Tunnel (approximately 541 feet in length), which connects to Diggins Creek to the south and eventually Humbug Creek (a USGS blue-line stream that is a tributary to the South Yuba River).

These features varied greatly in size and length when observed in the field. Each intermittent stream displayed indicators of flow, such as breaks in slope, changes in sediment texture, and drift/wrack. Intermittent streams contained wetted soils and larger, more defined beds and banks and larger rocks and cobbles relative to those observed in ephemeral streams (where wetted soils and evidence of recent flow were not observed). Intermittent streams in the Project Area are considered sensitive.

Ephemeral Streams. The Project Area contains six ephemeral streams. Most ephemeral streams in the Project Area originate from higher elevations, often fanning out into alluvial floodplains on the Pit floor at the toe of slope, where they convey flows into the Pit. Six of the seven ephemeral streams are situated in the northern portion of the Project Area and convey flows into the arroyo willow thickets, sandbar willow thickets, and cattail marsh in the Pit. These ephemeral streams are fed by precipitation and sheet flow associated with the steep slopes in Ponderosa pine forest that surrounds the Pit. The six ephemeral streams varied in size and length, and exhibited indicators of flow, such as breaks in slope, changes in sediment texture (ranging from gravel to silt/sand), shifts in vegetation characteristics (e.g., density and structure), and drift/wrack. Ephemeral streams in the Project Area are considered sensitive.

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4.2 Special-Status Species

4.2.1 Special-Status Plants

Based upon a review of the resources and databases listed in Section 3 for the *Pike, North Bloomfield, Strawberry Valley, Goodyears Bar, Downieville, Alleghany, Washington, Dutch Flat, Chicago Park, Grass Valley, Nevada City, and Camptonville* 7.5-minute USGS quadrangles, it was determined that 45 special-status plant species have been documented within the vicinity of the Project Area. Of the 45 special-status species known from the region, 23 species were determined to have a moderate or high potential to occur within the Project Area (Appendix C). The remaining species documented to occur in the vicinity of the Project Area are unlikely or have no potential to occur due to one or more of the following factors:

- The previously disturbed nature of the Project Area has diminished local habitat availability for special-status plant species, and likely precludes the species from persisting in the Project Area
- Vegetation communities commonly associated with the special-status species (e.g., chaparral, lower montane coniferous forest) are absent from the Project Area
- Specific edaphic characteristics, such as gabbroic, or serpentine-derived soils, are absent from the Project Area
- The Project Area is well below or above the documented elevation range of the species

All special-status plant species determined to have a moderate or high potential to occur in the Project Area are described in detail below. Each species' California Rare Plant Rank (CRPR) is included as well.

On July 8, 2020, a reference site for Humboldt lily was visited on the south side of Tyler Foote Road near the intersection of Jackass Flats Road and Old Mill Road (observed from the roadside; not associated with a CNDDDB occurrence number). Here, Humboldt lily was observed in bloom. On May 11, 2021, a reference site for Brandegee's clarkia was visited adjacent to the South Yuba River Bridge parking lot (CNDDDB occurrence number 13). Here, Brandegee's clarkia was observed in bloom.

Protocol-level surveys were conducted on July 7, 8, and 9, 2020, and May 11 and 12, 2021 during the blooming period for the 23 rare plant species with potential to occur in the Project Area. No rare plant species were observed by WRA in the Project Area during the surveys as reported in the Rare Plant Survey Report, Malakoff Diggins Site Characterization and Remediation Project (WRA 2021). Thus, it was determined that no special-status plant species occur within the Project Area.

Special-status plant species with a moderate or high potential to occur in the Project Area

Congdon's onion (*Allium sanbornii* var. *congdonii*). CRPR 4.3. Moderate Potential. Congdon's onion is a perennial bulbiferous forb in the onion family (Alliaceae) that blooms from April through July. It typically occurs in chaparral or cismontane woodland on serpentine or volcanic soils at elevation ranges from 980 to 3,250 feet (CNPS 2021a). Known associated species include Ponderosa pine, incense cedar, sugar pine, Douglas fir, gray pine (*Pinus sabiniana*), manzanita (*Arctostaphylos* spp.), and buck brush (*Ceanothus cuneatus*) (CCH 2021). Congdon's onion is determined to have moderate potential to occur in the Project Area due to the presence of whiteleaf manzanita chaparral and Ponderosa pine forest habitat underlain by volcanic soils where this species could occur, and the presence of known associated species.

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True's manzanita (*Arctostaphylos mewukka* ssp. *truei*). CRPR 4.2. Moderate Potential. True's manzanita is a perennial shrub in the heath family (Ericaceae) that blooms from February through July. It typically occurs in chaparral, lower montane coniferous forest, and sometimes roadsides at elevation ranges from 1,390 to 4,560 feet above mean sea level (CNPS 2021a). Known associated species include Douglas fir, sugar pine, Ponderosa pine, incense cedar, black oak, canyon live oak, and whiteleaf manzanita (CCH 2021). True's manzanita is determined to have moderate potential to occur in the Project Area due to the presence of whiteleaf chaparral and coniferous forest habitat which could support this species, and the presence of known associated species.

Sierra foothills brodiaea (*Brodiaea sierra*). CRPR 4.3. Moderate Potential. Sierra foothills brodiaea is a perennial herb in the asparagus (Themidaceae) family that blooms from May to August. It typically occurs in Ponderosa pine forest from 1,500 to 3,000 feet (CNPS 2021a). Sierra foothills brodiaea has a moderate potential to occur in the Project Area due to the presence of Ponderosa pine forest that may support this species.

Sheldon's sedge (*Carex sheldonii*). CRPR 2B.2. Moderate Potential. Sheldon's sedge is a perennial graminoid in the sedge family (Cyperaceae) that blooms from May through August. It typically occurs in mesic areas within lower montane coniferous forest, freshwater marshes and swamps, and riparian scrub at elevation ranges from 3,940 to 6,600 feet above mean sea level (CNPS 2021a). Known associated species include Ponderosa pine, beaked sedge (*Carex utriculata*), green sheathed sedge (*C. feta*), rush (*Juncus* spp.), Pacific willow (*Salix lasiandra*), poison hemlock (*Conium maculatum*), Fuller's teasel (*Dipsacus fullonum*), bulrush (*Scirpus* spp.), and horsetail (CDFW 2021). Sheldon's sedge is determined to have a moderate potential to occur in the Project Area due to the presence cattail marsh where this species could occur and the presence of known associated species.

Fresno ceanothus (*Ceanothus fresnensis*). CRPR 4.3. Moderate Potential. Fresno ceanothus is a perennial shrub in the buckthorn family (Rhamnaceae) that blooms from May through July. It typically occurs in openings in cismontane woodland and lower montane coniferous forest at elevation ranges from 2,950 to 6,900 feet above mean sea level (CNPS 2021a). Known associated species include sugar pine, black oak, Douglas fir, incense cedar, Ponderosa pine, and manzanita (CCH 2021). Fresno ceanothus is determined to have moderate potential to occur in the Project Area due to presence of Ponderosa pine forest which could support this species and known associated species.

Brandege's clarkia (*Clarkia biloba* ssp. *brandegeae*). CRPR 4.2. High Potential. Brandege's clarkia is an annual herb in the evening primrose family (Onagraceae) that blooms from May through July. It typically occurs in roadcuts in chaparral, cismontane woodland, and lower montane coniferous forests at elevations ranging from 250 to 3,000 feet above mean sea level (CNPS 2021a). Known associated species include canyon live oak, arroyo willow, Pacific willow, coyote bush (*Baccharis pilularis*), deer grass (*Muhlenbergia rigens*), yampah (*Perideridia* spp.), sedge (*Carex* spp.), mugwort (*Artemisia douglasiana*), self-heal (*Prunella vulgaris*), gray pine, and bracken fern (*Pteridium aquilinum*) (CCH 2021). Brandege's clarkia is determined to have a high potential to occur in the Project Area due to the presence of whiteleaf manzanita chaparral, and Ponderosa pine forest, which could support this species, and close proximity to numerous documented occurrences.

Golden-anthered clarkia (*Clarkia mildrediae* ssp. *lutescens*). CRPR 4.2. Moderate Potential. Golden-anthered clarkia is an annual herb in the evening primrose family (Onagraceae) that blooms from June through August. It typically occurs in rocky areas, often in roadcuts in

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cismontane woodland and openings in lower montane coniferous forest at elevation ranges from 900 to 5,740 feet above mean sea level (CNPS 2021a). Known associated species include Ponderosa pine, California black oak, Douglas fir, sugar pine, incense cedar, deerbrush, naked buckwheat (*Eriogonum nudum*), California helianthella (*Helianthella californica* var. *nevadensis*), groundsmoke (*Gayophytum* spp.), Sierran morning glory (*Calystegia malacophylla*), mountain monardella (*Monardella odoratissima*), woolly malacothrix (*Malacothrix floccifera*), and blue field gilia (*Gilia capitata*) (CCH 2021). Golden-anthered clarkia is determined to have a moderate potential to occur in the Project Area due to presence of Ponderosa pine forest with openings and rocky soil which could support this species and many associated species.

Sierra clarkia (*Clarkia virgata*). CRPR 4.3. Moderate Potential. Sierra clarkia is an annual forb in the evening primrose family (Onagraceae) that blooms from May through August. It typically occurs in cismontane woodland and lower montane coniferous forest at elevation ranges from 1,310 to 5,300 feet above mean sea level (CNPS 2021a). Known associated species include Ponderosa pine, Sierran mountain misery, and Indian manzanita (*Arctostaphylos mewukka*) (CCH 2021). Sierra clarkia is determined to have moderate potential to occur in the Project Area due to the presence of Ponderosa pine forest where this species could occur and presence of known associated species.

Butte County fritillary (*Fritillaria eastwoodiae*). CRPR 3.2. Moderate Potential. Butte County fritillary is a perennial bulb in the lily family (Liliaceae) that blooms from March through June. It typically occurs in openings on dry (sometimes moist) slopes in chaparral, cismontane woodland, and lower montane coniferous forest at elevation ranges from 160 to 4,920 feet above mean sea level (CNPS 2021a). Known associated species include Douglas fir, California yew (*Taxus brevifolia*), incense cedar, canyon live oak, California black oak, Ponderosa pine, sugar pine, Hartweg's wild ginger (*Asarum hartwegii*), Pacific starflower, Oregon boxwood (*Paxistima myrsinites*), rattlesnake plantain (*Goodyera oblongifolia*), rose (*Rosa* spp.), and violet (*Viola* spp.) (CCH 2021). Butte County fritillary is determined to have moderate potential to occur in the Project Area due to the presence of chaparral and lower montane coniferous forest with known associated species and the presence of several known occurrences within 5 miles (CDFW 2021).

Finger rush (*Juncus digitatus*). CRPR 1B.1 Moderate Potential. Finger rush is a perennial grass-like herb in the rush (Juncaceae) family that blooms from May through June. It typically occurs in seasonal wetlands from 2,100 to 2,700 feet (CNPS 2021a). Finger rush was determined to have a moderate potential to occur in the Project Area due to wetlands that may be able to support this species.

Dubious pea (*Lathyrus sulphureus* var. *argillaceus*). CRPR 3. Moderate Potential. Dubious pea is a perennial forb in the pea (Fabaceae) family that blooms from April through May. It typically occurs in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest at elevation ranges from 490 to 3,050 feet above mean sea level (CNPS 2021a). Known associated species include blue oak, California bay (*Umbellularia californica*), Ponderosa pine, incense cedar, California black oak, yarrow (*Achillea millefolium*), Brewer's rock cress (*Boechera breweri*), turpentine cymopterus (*Cymopterus terebinthinus*), canyon larkspur (*Delphinium nudicaule*), silk tassel (*Garrya* spp.), poison oak, and manzanita (CCH 2021). Dubious pea is determined to have moderate potential to occur in the Project Area due to the presence of Ponderosa pine forest where this species could occur and presences of known associated species.

Cantelow's lewisia (*Lewisia cantelovii*). CRPR 1B.2. Moderate Potential. Cantelow's lewisia is a perennial herb in the miner's lettuce (Montiaceae) family that blooms from May to October. It

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typically occurs in mesic outcrops in riparian areas along creeks between 1,300 and 4,500 feet in elevation (CNPS 2021a). It is generally found in broadleaved upland forests, chaparral, cismontane woodland, lower montane coniferous forests on mesic granite areas and sometimes on serpentine seeps. Cantelow's lewisia is determined to have a moderate potential to occur in the Project Area, as it may occur in mesic outcrops along on-site streams.

Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*). CRPR 4.2. **Moderate Potential.** Humboldt lily is a perennial bulb in the lily (Liliaceae) family that blooms from May through July. It typically occurs in openings in chaparral, cismontane woodland, and lower montane coniferous forest at elevation ranges from 300 to 4,200 feet above mean sea level (CNPS 2021a). Known associated species include Ponderosa pine, black oak, incense cedar, sugar pine, Douglas fir, canyon live oak, and whiteleaf manzanita (CCH 2021). Humboldt lily is determined to have a moderate potential to occur in the Project Area due to the presence of Ponderosa pine forest and whiteleaf manzanita chaparral where this species could occur, and due to the presence of known associated species.

Inundated bog club-moss (*Lycopodiella inundata*). CRPR 2B.2. **High Potential.** Inundated bog club-moss is a perennial bryophyte in the club-moss family (Lycopodiaceae) that produces gametophytes from June through September. It typically occurs in coastal bogs and fens, mesic areas in lower montane coniferous forest, marshes and swamps along lake margins at elevation ranges from 20 to 3,280 feet above mean sea level (CNPS 2021a). Known associated species include capitate beaked rush (*Rhynchospora capitellata*), grassleaf rush (*Juncus marginatus*), sharp fruited rush (*J. acuminatus*), smooth stem sedge (*Carex laeviculmis*), diffuse rush (*Scirpus diffusus*), Pacific panic grass (*Panicum pacificum*), California oat grass (*Danthonia californica*), sundew (*Drosera rotundifolia*), seaside arrow grass (*Triglochin maritima*), and little green sedge (*Carex viridula*) (CDFW 2021). Inundated bog club moss is determined to have a high potential to occur in the Project Area due to the presence of cattail marsh which could support this species and documented occurrences within the Project Area and several occurrences within 5 miles of the Project Area in historic mining areas (CDFW 2021).

Western waterfan lichen (*Peltigera gowardii*). CRPR 4.2. **Moderate Potential.** Western waterfan lichen is a foliose lichen in the Peltigeraceae (toadpelt) family. It typically occurs on rocks in cold water creeks with little sediment at elevation ranges from 3,490 to 8,600 feet above mean sea level (CNPS 2021a). Western waterfan lichen is determined to have a moderate potential to occur within intermittent streams in the Project Area.

Sierra blue grass (*Poa sierrae*). CRPR 1B.3. **Moderate Potential.** Sierra blue grass is a perennial grass in the grass family (Poaceae) that blooms from April through June. It typically occurs on moist, rocky slopes on the edges of openings in lower montane coniferous forest at elevation ranges from 1,200 to 4,920 feet above mean sea level (CNPS 2021a). Known associated species includes Douglas fir, white fir, incense cedar, and oaks (CDFW 2021). Sierra blue grass is determined to have a moderate potential to occur in the Project Area due to the presence of mesic lower montane coniferous forest with rocky slopes and associated species.

Flexuose threadmoss (*Pohlia flexuosa*). CRPR 2B.1 **Moderate Potential.** Flexuose threadmoss is a moss in the Mielichhoferiaceae family that is identifiable year-round. It typically occurs in seasonal wetlands associated with Ponderosa pine forests, generally along roadsides or rocky slopes (CNPS 2021a). Flexuose threadmoss is determined to have a moderate potential to occur in the Project Area due to the presence of Ponderosa pine forests that may support this species.

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Brownish beaked-rush (*Rhynchospora capitellata*). CRPR 2B.2. High Potential. Brownish beaked-rush is a perennial graminoid in the sedge family (Cyperaceae) that blooms from July through August. It typically occurs in mesic areas within lower and upper montane coniferous forest, meadows and seeps, and marshes and swamps at elevation ranges from 150 to 6,560 feet (CNPS 2021a). Known associated species include Ponderosa pine, pondweed (*Potamogeton* spp.), manna grass (*Glyceria* spp.), fuzzy sedge (*Carex hirtissima*), soft rush, bulrush, whiteleaf manzanita, bog orchid (*Spiranthes* spp.), Bigelow's sneezeweed (*Helenium bigelovii*), tinker's penny (*Hypericum anagalloides*), and mosses (CDFW 2021). Brownish beaked-rush is determined to have a high potential to occur in the Project Area due to the presence of cattail marsh which could support this species, previously documented occurrences within the Project Area, and several documented occurrences within 5 miles of the Project Area in historic mining areas.

Giant checkerbloom (*Sidalcea gigantea*). CRPR 4.3. Moderate Potential. Giant checkerbloom is a perennial herb in the mallow (Malvaceae) family that blooms from July through September. It occurs on mesic sites in Ponderosa pine forests and in seasonal wetlands that occur in stream margins at elevations from 2,000 to 6,200 feet (CNPS 2021a). Giant checkerbloom was determined to have a moderate potential to occur in the Project Area due to the presence of Ponderosa pines and wetlands that may be capable of supporting this species.

Scadden Flat checkerbloom (*Sidalcea stipularis*). State Endangered, CRPR 1B.1. Moderate Potential. Scadden Flat checkerbloom is a perennial rhizomatous herb in the mallow family (Malvaceae) that blooms from July through August. It typically occurs in wet montane marshes fed by springs at elevation ranges from 2,300 to 2,400 feet above mean sea level (CDFW 2021, CNPS 2021a). Known associated species include Ponderosa pine, blue eyed grass (*Sisyrinchium bellum*), velvet grass, broad-leaved cattail (*Typha latifolia*), rushes, hairy rush (*Luzula* spp.), bulrushes, sedges, and Himalayan blackberry (CDFW 2021). Scadden Flat checkerbloom is determined to have a moderate potential to occur in the Project Area due to the presence of cattail marsh which could support this species and known associated species.

Long-fruit jewelflower (*Streptanthus longisiliquus*). CRPR 4.3. Moderate Potential. Long-fruit jewelflower is a biennial herb in the mustard family (Brassicaceae) that blooms from April through September. It typically occurs in openings in cismontane woodland and lower montane coniferous forest at elevation ranges from 2,350 to 4,920 feet above mean sea level (CNPS 2021a). Known associated species include canyon live oak, Ponderosa pine, mountain mahogany (*Cercocarpus betuloides*), green leaf manzanita (*Arctostaphylos patula*), deer brush, Sierra milkwort (*Polygala cornuta*), mahala mat (*Ceanothus prostratus*), and Hall's rupertia (*Rupertia hallii*) (CCH 2021). Long-fruit jewelflower is determined to have a moderate potential to occur in the Project Area due to the presence of openings in Ponderosa pine forest which could support this species.

True's mountain jewelflower (*Streptanthus tortuosus* ssp. *truei*). CRPR 1B.1. Moderate Potential. True's mountain jewelflower is a biennial herb in the mustard family (Brassicaceae) that blooms from June through July, and sometimes into September. It typically occurs in partial shade on steep rocky slopes in lower montane coniferous forest at elevation ranges from 2,295 to 2,580 feet above mean sea level (CNPS 2021a). Known associated species includes Douglas fir, interior live oak (*Quercus wislizenii*), incense cedar, mock orange (*Philadelphus lewisii*), Cantelow's lewisia, alum root, diamond petaled clarkia (*Clarkia rhomboidea*), blue field gilia, wooly sunflower (*Eriophyllum lanatum*), and imbricate phacelia (*Phacelia imbricata*) (CDFW 2021). True's mountain jewelflower is determined to have a moderate potential to occur in the Project

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Area due to the presence of shady, rocky, steep slopes in Ponderosa pine forest which could support this species and known associated species.

Felt-leaved violet (*Viola tomentosa*). CRPR 4.2. Moderate Potential. Felt-leaved violet is a perennial herb in the violet (Violaceae) family that blooms from May through October. It typically occurs in openings on dry, gravelly soils in lower montane coniferous forest, subalpine coniferous forest, and upper montane coniferous forest at elevation ranges from 4,710 to 6,560 feet above mean sea level (CNPS 2021a). Known associated species includes Jeffery pine, Ponderosa pine, incense cedar, white fir, huckleberry oak (*Quercus vaccinifolia*), and green leaf manzanita (CCH 2021). Felt-leaved violet is determined to have a moderate potential to occur in the Project Area due to the presence of gravelly openings in Ponderosa pine forest which could support this species.

4.2.2 Special-Status Wildlife

Based upon a review of the resources and databases listed in Section 3.2.1, it was determined that 56 special-status wildlife species have been documented within the Project Area or the surrounding region. Of the 55 special-status species known from the vicinity, 21 were determined to be present or have a moderate or high potential to occur within the Project Area. Five of these special-status species were documented within the Project Area by DPR staff, in previous studies provided by DPR staff, or by WRA. These species include: (1) yellow warbler (*Setophaga petechia*), (2) yellow-breasted chat (*Icteria virens*), (3) little willow flycatcher (*Empidonax traillii*), (4) olive-sided flycatcher (*Empidonax cooperi*), and (5) ringtail (*Bassariscus astutus*).

The remaining species documented to occur in the vicinity of the Project Area are unlikely or have no potential to occur. The Project Area is outside of the documented or historical range or lacks suitable habitat (e.g., old-growth and/or dense coniferous forests, estuaries, large lakes etc.) for several special-status species. Species that were determined to be unlikely or have no potential to occur in the Project Area are not discussed further here, but determinations regarding their potential to occur are included in Appendix C. Species that were determined to be present or have a moderate or high potential to occur are discussed in detail below.

Special-status wildlife species that are present or have previously been detected within the Project Area

Olive-sided Flycatcher (*Contopus cooperi*). CDFW Species of Special Concern. Present. The olive-sided flycatcher is a summer resident in California, wintering in Latin America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas). Nests are usually in conifers and are placed at variable heights on the outer portions of branches. This species forages for insects, usually on prominent tree snags.

This species was detected in the Project Area during WRA site visits in 2019, which corresponded to the time of year when the species would be expected to be nesting. Suitable habitat to support nesting is prevalent in the Project Area and it is assumed that the species nests there.

Little willow flycatcher (*Empidonax traillii brewsteri*). California Endangered. Present. The little willow flycatcher nests in thickets of willow and riparian woodland habitats. Historically, the species nested between 100 feet to 8,000 feet above mean sea level (Grinnell and Miller 1944). Males may establish territories up to almost 1 acre, though most territories are smaller than 0.5

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acre and there is very little overlap with neighboring males. Most of the remaining breeding populations occur in the mountain meadows of the Sierra Nevada and Cascades. Little willow flycatchers are late season migrants and arrive at breeding locations in the Sierras during the latter part of May or in early June (Garrett and Dunn 1981). An open cup nest is usually placed in the fork of a branch with several small-diameter stems supporting the nest. Nests are usually located between 1 and 2.5 meters above the ground. Nest material in the Sierras is fine sedges and grasses (McCabe 1991).

This species was documented in the Project Area in 2007 and 2011. During WRA's 2019 site visit, several *Empidonax* species were detected visually, but none called. Call play-back surveys were not conducted, thus the species was undetermined. As of 2019, this species has not been confirmed to breed in the Project Area. However, due to the presence of suitable habitat and occasional documented occurrences, this species has potential to nest in the Project Area and is assumed to be present.

Yellow-breasted chat (*Icteria virens*). CDFW Species of Special Concern. Present. The yellow-breasted chat is a generally uncommon summer resident that occurs throughout California. It is an aberrantly large member of the wood-warbler (*Parulidae*) family. Breeding habitat consists of early succession riparian habitats where a dense understory of thickets and tangles forms below an open canopy. Plant species typically used for nesting include blackberry, wild grape, and willows (Shuford and Gardali 2008). Though males often sing from exposed perches in trees, this species is generally secretive and difficult to observe.

WRA did not detect this species during site visits. However, this species has been documented to occur in the Project Area by DPR staff. The Project Area is somewhat outside of the typical breeding range for this species, as noted in communications with DPR staff (Shuford and Gardali 2008). There are numerous records in eBird (an online database of bird distribution and abundance) for this species west of the Project Area, though none occur in the Project Area or in its immediate vicinity (eBird 2021). Habitat within riparian areas in the Project Area provide suitable habitat for this species and it should be assumed that yellow-breasted chat has potential to nest in the Project Area.

Yellow (Brewster's) warbler (*Setophaga petechia brewsteri*). CDFW Species of Special Concern. Present. Yellow warblers are a neotropical migrant that is widespread in North America but has declined throughout much of its California breeding range. The Brewster's (*brewsteri*) subspecies is a summer resident and represents the vast majority of yellow warblers that breed in California. West of the Central Valley, typical yellow warbler breeding habitat consists of dense riparian vegetation along watercourses, including wet meadows, with willow growth especially being favored (Shuford and Gardali 2008). Insects comprise the majority of its diet.

The Project Area contains willow stands that are suitable for nesting by this species. This species was detected in the Project Area during WRA's 2019 site visit. It has also been documented in the Project Area during prior survey efforts by DPR staff.

Ringtail (*Bassariscus astutus*). CDFW Fully Protected Species. Present. Ringtail is an uncommon but widespread resident of California, excluding the Central Valley, south to Mexico. This species is found in remote riparian habitats, rocky canyons, and brush stands of forest and shrub habitats that contain trees, brush, and rock crevices for cover. This species is also usually found within 0.6 mile of water (Zeiner et al. 1990). Hollow trees, snags, rock crevices, and other cavities are used for cover and nesting. Ringtails are primarily carnivorous and mostly nocturnal.

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A deceased ringtail was discovered in the Malakoff Diggins by DPR staff in 2015. This species is infamously difficult to detect. However, camera trapping efforts have detected ringtail on two occasions at Malakoff Diggins SHP: once near Blair Lake in 2016 and once along the Rim Trail in 2019 (pers. Com. A. Lewis 2020), both locations near but outside of the Project Area. Habitat in the Project Area is typical for the species and the recent detections of a deceased specimen and two camera trap detections indicates that ringtail persist in the vicinity of the Project Area.

Special-status wildlife species with high potential or moderate potential to occur in the Project Area

Townsend's western big-eared bat, (*Corynorhinus townsendii townsendii*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. This species occurs throughout western North America, from British Columbia to central Mexico. The local distribution for this species is strongly associated with the presence of caves, but roosting also occurs within man-made structures, including mines and buildings. While many bats species wedge themselves into tight cracks and crevices, big-eared bats hang from walls and ceilings in the open. Males roost singly during the spring and summer months whereas females aggregate in the spring at maternity roosts to give birth. Females roost with their young until late summer or early fall, until the young become independent, flying and foraging on their own. In central and southern California, hibernation roosts tend to comprise small aggregations of individuals (Pierson and Rainey 1998). Foraging typically occurs along edge habitats near streams and wooded areas, where moths are the primary prey (WBWG 2018).

This species has been documented in buildings in the vicinity of the Project Area. However, the Project Area does not contain buildings, mine shafts, or caves to support maternity roosting by this species. The Project Area contains crevices and cavities within rocks which may be suitable day roosts. Aquatic features in the Project Area provide an adequate water source for this species.

Hoary bat (*Lasiurus cinereus*). WBWG Medium Priority. High Potential. Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in the foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings (though this behavior is not common). Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats likely mate in the fall, with delayed implantation leading to birth from May through July. They usually emerge late in the evening to forage, typically from just over one hour after sunset to after midnight. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2018).

The Project Area supports stands of trees which may support roosting for hoary bats. This species was acoustically detected near the Project Area during a site assessment in June 2019. Foraging habitat and adequate water are available within the Project Area.

Silver-haired bat (*Lasionycteris noctivagans*). WBWG Medium Priority. High Potential. Silver-haired bats occur in temperate forests (i.e., coniferous, deciduous, and mixed) from southern Alaska to northeastern Mexico. Females form maternity roosts almost exclusively inside hollows or under loose bark of large trees and can switch roosts several times (WBWG 2018).

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Hibernation occurs in trees, rock crevices, leaf litter, in and under buildings, and in caves and mines. Foraging for insects occurs above the tree canopy. Silver-haired bats are known to migrate south in the winter, although overwintering at northern latitudes has also been documented (WBWG 2018).

The Project Area supports stands of trees which may support roosting for this species. This species was acoustically detected near the Project Area during a site assessment in June 2019. Foraging habitat and adequate water are available within the Project Area.

Foothill yellow-legged frog (FYLF, *Rana boylei*). CDFW Species of Special Concern. State Threatened. Moderate Potential. The Northeast/Northern Sierra clade of this species is listed as Threatened under the CESA and is a state Species of Special Concern. The foothill yellow-legged frog historically occurred in coastal and mountain streams from southern Oregon to Los Angeles County, but has declined in many parts of this range. This species is strongly associated with rivers and creeks, and prefers shallow, flowing water with a rocky substrate. Individuals do not typically move overland and are rarely observed far from a source of permanent water. In northern California, it was observed adults were on average within ten feet and rarely over 40 feet from the stream (Bourque 2008). Although upland habitat usage is not well studied, the data suggest that movements away from water are related to flood events (Kupferberg 1996, Bourque 2008, Thomson et al. 2016). Frogs in intermittent drainages may move more than those in perennial drainages, but movements are within the creek corridors (Kupferberg 1996, Bourque 2008, Gonsolin 2010). There were opportunistic observations that coastal yellow-legged frogs may use upland habitats in winter (Nussbaum et al. 1983, Welsh, H. per. comm. as reported in Bourque 2008); however, this has not been supported by data and these movements away from water into terrestrial habitat are likely in response to high flows and flood events (Kupferberg 1996, Bourque 2008). Aquatic breeding sites are often near stream confluences, with egg masses typically deposited behind or sometimes under rocks in low-flow areas with cobble and/or gravel (Thomson et al. 2016).

FYLF were not detected by WRA during the June 2019 site visits nor have they been documented in this area by DPR staff or in the literature. The Project Area is unsuitable for oviposition or larval FYLF, but it is possible that FYLF could enter the Project Area through the Hiller Tunnel, where they have been documented. Habitat within the Project Area is atypical for FYLF because it is primarily lentic. Intermittent streams that are present lack the complexity that FYLF favor. While the Malakoff Diggins Pit is not suitable for breeding or larval development of FYLF, the possibility of FYLF entering and temporarily occupying the Pit cannot be ruled out because of its connectivity to suitable habitat downstream.

FYLF have been documented to occur in Humbug Creek (which is located outside of the Project Area but is connected to it hydrologically) during multiple surveys since at least 2000. FYLF were documented in Humbug Creek and in some of its tributary confluences by WRA during the June 2019 site visit. In addition to Humbug Creek, the Hiller Tunnel also supports FYLF, though WRA did not detect this species here in 2019 (possibly because tunnel discharge was too high). However, a bullfrog was detected at the exit of the tunnel by WRA in 2019. Generally, Humbug Creek provides suitable habitat for all life stages of FYLF. However, the population of bullfrogs, which is supported by the numerous anthropogenic, lentic, breeding sites (e.g., perennially inundated shafts, ponds, marshes etc.), likely curtails the FYLF population through competition and direct predation.

Northern Goshawk (*Accipiter gentilis*). CDFW Species of Special Concern. Moderate Potential. Holarctic in distribution, goshawks inhabit mature and old-growth coniferous forests

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and mature aspen forests on the eastern side of the Sierra/Cascade Mountains. Nesting habitat is characterized by larger trees and more open understories than adjacent non-nesting habitat. Nest tree selection generally favors larger trees and occasionally snags, with nests being located predominately in the lower third of the tree, below the forest canopy. Goshawk feed primarily on rodents (especially squirrels), lagomorphs, and birds. Reproduction probability varies from year-to-year and is most significantly correlated with prey abundance. Goshawks require relatively large territories and habitat suitability and prey base dictates the carrying capacity of a given area.

Historic breeding occurrences exist in the vicinity of the Project Area. The majority of the Project Area is arroyo willow and is not suitable for nesting by this species. In addition, no recent breeding occurrences have been documented in the vicinity. While nesting habitat within the Project Area is limited, stands of mature trees may support this species.

California Spotted Owl (*Strix occidentalis occidentalis*). CDFW Species of Special Concern. Moderate Potential. Typical habitats consist of structurally complex, mature coniferous forest and mixed coniferous-hardwood forest. Younger forest with stands of mature trees may also be occupied. High-quality breeding habitat features a tall, multi-tiered, multi-species canopy dominated by big trees, trees with cavities and/or broken tops, and woody debris and space under the canopy. This species is most often associated with deep-shaded canyons. It is a small mammal specialist.

No California spotted owls were detected during WRA's June 2019 and prior site visits. The species has been documented to occur and breed in the vicinity of Blair Lake near the Project Area by DPR staff in 2013 and 2014, and a pair was observed in the same area in April of 2019, though no nesting was documented (pers. com. A. Lewis 2020). The Ponderosa pine forest within the Project Area does not have the structural complexity typically associated with nesting by this species. California spotted owl may nest in nearby suitable habitat.

Golden eagle (*Aquila chrysaetos*). Bald and Golden Eagle Protection Act, CDFW Fully Protected Species. Moderate Potential. Golden eagle is a large raptor that occurs in open and semi-open areas from sea level to high elevation. Typical occupied habitats include grasslands, shrublands, deserts, woodlands, and coniferous forests. Breeding activity occurs broadly from January through August, and in California it is usually initiated from January to March. The large stick nests of this species are reused across years and may be maintained throughout the year. Nests are most often placed on the ledges of steep cliffs but nesting also occurs in trees and on tall manmade structures (e.g., utility towers) (Kochert et al. 2002). Golden eagles forage over wide areas, feeding primarily on medium-sized mammals (e.g., ground squirrels and rabbits), large birds, and carrion.

The Project Area itself provides limited foraging habitat for golden eagles. The majority of the Project Area is arroyo willow and is not suitable for nesting by this species. Areas near the Project Area have some foraging habitat that is typically favored by this species, specifically open expanses of foothills with contiguous grassland interspersed with woodland and rocky outcrops (though these areas are relatively limited in their extent). There are no nearby golden eagle nest occurrences in the Project Area or in the USGS 7.5-minute quadrangles that surround the Project Area (CDFW 2019). Golden eagle was determined to have a moderate potential to occur and possibly nest near the Project Area due to the presence of suitable nesting habitat and proximal foraging habitat.

Bald eagle (*Haliaeetus leucocephalus*). State Endangered, Bald and Golden Eagle Protection Act, CDFW Fully Protected Species. Moderate Potential. Bald eagles occur

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primarily as winter visitors but also as a year-round (breeding) residents throughout most of California. Habitat for this species is somewhat variable, but the bald eagle is usually strongly associated with larger bodies of water, including lakes, reservoirs, major river systems, estuaries, and the ocean. Breeding occurs primarily in forested areas near water bodies. Wintering habitat is more general, though water is usually present. Large nests are typically constructed in the upper portions of large living trees that provide expansive views of surrounding areas. Bald eagles are highly opportunistic foragers that favor fish and waterfowl, but a variety of live prey and carrion are consumed.

The Project Area contains several waterbodies that bald eagles could occasionally forage in, though these areas are generally of limited value because they are small in comparison to aquatic features that bald eagles typically occupy for extended periods, such as reservoirs with large fish species. However, larger, more suitable foraging areas are located in the general vicinity of the Project Area and there have been documented occurrences of bald eagles at the Scotts Flat Reservoir, located approximately 4 miles south of the Project Area (eBird 2021). WRA did not detect bald eagles during the June 2019 and prior site visits and there are no CNDDDB occurrences reported for the Project Area. Bald eagle has a moderate potential to nest in the Project Area due to the presence of nearby suitable nesting habitat and proximal foraging habitat.

Long-eared owl (*Asio otus*). CDFW Species of Special Concern. Moderate Potential. This generally uncommon species is a resident throughout much of California, outside of the Central Valley. Long-eared owls breed in a variety of woodland and forest habitats, including coniferous, oak, and riparian communities, as well as in planted tree groves. Nearby open communities with small mammal populations, such as grasslands, meadows and marshes, are also required for foraging. Breeding typically relies on the presence of old nests made by similar-sized birds, including hawks and crows (Shuford and Gardali 2008). Communal roosting often occurs during the winter.

The Project Area contains mostly marginal or poor habitat for nesting long-eared owls. However, some forest edges may be suitable. This species has not been detected in the Project Area by DPR staff or WRA biologists, and there are no nearby documented occurrences in the CNDDDB (CDFW 2021) or eBird (2021). However, the Project Area is within the current breeding range of the species (Shuford and Gardali 2008). Thus, this species has a moderate potential to occur in the Project Area due to the presence of suitable habitat.

Pallid bat (*Antrozous pallidus*). CDFW Species of Special Concern, WBWG High Priority. High Potential. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species occurs in a number of habitats, ranging from rocky arid deserts and grasslands to higher-elevation coniferous forests. Pallid bats are most abundant in the arid Sonoran life zones below 6,000 feet above mean sea level but have been found up to 10,000 feet above mean sea level in the Sierra Nevada. Pallid bats often roost in colonies of 20 to several hundred. Roosts are typically located in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags (e.g., Ponderosa pine), inside basal hollows of redwoods and giant sequoias (*Sequoiadendron giganteum*), and within bole cavities in oak trees. They have also been reported roosting in stacks of burlap sacks and in stone piles. Pallid bats are primarily insectivorous, feeding on large prey that are usually taken on the ground but sometimes in flight. Prey can include arthropods, such as scorpions, ground crickets, and cicadas (WBWG 2018).

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The Project Area has areas that are likely to be suitable for pallid bats including rock crevices and tree cavities. In addition, the aquatic features in Project Area provide an adequate water source for this species. Therefore, this species has a moderate potential to occur within the Project Area.

Western mastiff bat (*Eumops perotis californicus*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. Western mastiff bat ranges from Central Mexico across the southwestern US. In California, this species roosts at elevations up to 4,600 feet above mean sea level, where significant rock features are present (WBWG 2018). Mastiff bat roosts are primarily located high on cliffs under exfoliating rock slabs but have also been found in similar crevices in large boulders and buildings. This species forages in groups high above the ground in broad, open areas and is most often found in desert washes, flood plains, chaparral, oak woodland, open pine forest, grasslands, and agricultural areas (WBWG 2018).

The Project Area contains rock structures that could be used by this species. In addition, the ponds, wetlands and streams in the Project Area provide an adequate water source for this species. Therefore, this species has a moderate potential to occur within the Project Area.

Western red bat (*Lasiurus blossevillei*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. This species is highly migratory and broadly distributed, ranging from southern Canada through much of the western United States. Western red bats are believed to make seasonal shifts in their distribution, although there is no evidence of mass migrations (Pierson et al. 2006). Western red bat are typically solitary, roosting primarily in the foliage of broadleaved trees or shrubs. Day roosts are commonly located in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas possibly in association with riparian trees (particularly willows, cottonwoods, and sycamores) (Pierson et al. 2006). Males and females likely maintain different distributions during pupping. Females take advantage of warmer inland areas, whereas males move to cooler areas along the coast.

The Project Area contains several areas that are likely to be suitable for this species, including large willow stands within the Project Area. Foraging habitat and adequate water resources are available within the Project Area. Thus, western red bat has a moderate potential to occur in the Project Area due to the presence of suitable habitat.

Long-eared myotis (*Myotis evotis*), WBWG Medium Priority. Moderate Potential. Long-eared myotis is primarily associated with coniferous forests, but it is also found in semiarid shrublands, sage, chaparral, and agricultural areas. This species roosts under loose tree bark, in tree hollows, caves, mines, crevices in rocky outcrops, in buildings, under bridges, and occasionally on the ground. Long-eared myotis primarily consume beetles and moths, gleaning prey from foliage, trees, rocks, and from the ground (WBWG 2018).

The Project Area supports stands of trees which may support roosting for this species. Foraging habitat and adequate water are available within the Project Area. Foraging habitat and adequate water are available within the Project Area. Thus, this species has a moderate potential to occur in the Project Area.

Fringed myotis (*Myotis thysanodes*). WBWG High Priority. High Potential. The fringed myotis occurs through much of western North America. Its range extends from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota. This species is found in desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used by this species. The fringed myotis roosts in colonies

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from 10 to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts. Hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2018).

The Project Area contains several areas that are likely to be suitable for this species. Foraging habitat and adequate water resources are available within the Project Area. This species has been detected in horse stables located approximately 1 mile east of the Project Area by DPR staff, which is reported in the CNDDDB (CDFW 2021). Due to the proximity of the Project Area to this occurrence and the presence of suitable habitat, fringed myotis has a high potential to occur in the Project Area.

Long-legged myotis (*Myotis volans*). WBWG High Priority. High Potential. Long-legged myotis occurs across western North America. Its range extends from southeastern Alaska to Baja California, and east to the Great Plains and central Texas. This species is usually found in coniferous forests, but also occurs seasonally in riparian and desert habitats. This species uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts. Caves and mines are used as hibernation roosts. Long-legged myotis forage in and around the forest canopy and feed on moths and other soft-bodied insects (WBWG 2018).

The Project Area has several areas that are likely to be suitable for this species. Foraging habitat and adequate water are available within the Project Area. Therefore, this species has a High Potential to occur.

Western pond turtle (WPT; *Emys marmorata*). CDFW Species of Special Concern. High Potential. The western pond turtle (WPT) is the only native freshwater turtle in California. This turtle occurs in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and Transverse Ranges. WPT inhabits annual and perennial aquatic habitats, such as coastal lagoons, lakes, ponds, marshes, rivers, and streams from sea level to 5,500 feet above mean sea level. WPT also occupies artificial habitats, such as stock ponds, wastewater storage structures, percolation ponds, canals, and reservoirs. This species requires low-flowing or stagnant freshwater aquatic habitat with suitable basking structures, including rocks, logs, algal mats, mud banks, and sand. Warm, shallow, nutrient-rich waters are ideal, as they support WPT prey, which include aquatic invertebrates and occasionally fish, carrion, and vegetation. WPT require suitable aquatic habitat for most of the year. However, WPT often occupy creeks, rivers, and coastal lagoons that become seasonally unsuitable. To escape periods of high water flow, high salinity, or prolonged dry conditions, WPT may move upstream and/or take refuge in vegetated upland habitat for up to four months (Rathbun et al. 2002). Although upland habitat is utilized for refuging and nesting, this species preferentially utilizes aquatic and riparian corridors for movement and dispersal.

No WPT were detected by WRA during the 2019 site visits and no WPT have been documented in the Project Area by DPR staff. However, the Project Area contains ponds and other surface water features that could support WPT. The majority of these aquatic features are considered less suitable due to the presence of bullfrogs, which would likely have a negative influence on the recruitment of WPT in the area. However, habitat for this species is present in the Project Area and WPT have been documented less than 0.5 miles west of the Project Area (CDFW 2019). Thus, WPT have a high potential to occur in the Project Area.

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Species that are unlikely to occur but are CESA and/or ESA listed and have documented occurrences near the Project Area

California red-legged frog (CRLF; *Rana draytonii*). Federally Threatened Species, CDFW Species of Special Concern. Unlikely. California red-legged frog is dependent on suitable aquatic, estivation, and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse from their estivation sites to seek suitable breeding habitat. Aquatic breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April on the coast and during the spring or early summer in the foothills. California red-legged frogs estivate (i.e., period of inactivity) in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds during the dry months.

Habitat characteristics necessary for California red-legged frog are present in the Project Area. The nearest occurrence of this species was documented less than 2.5 miles southwest of the Project Area, across the South Yuba River. However, this area has been extensively searched for this species due to its rarity in the foothills and its proximity to the only known nearby extant occurrence. Nearly all of the ponds that would otherwise be suitable for this species have high densities of bullfrogs. Moreover, predatory fish have been documented by DPR staff in many of these ponds. During the 2019 and prior site visits conducted by WRA, neither bullfrogs nor California red-legged frogs were detected. One area near the Project Area, Bear Pond, has not been shown to support bullfrogs (DPR 2016) and has been identified as the best potential habitat for CRLF in the immediate vicinity of the Project Area. Bear Pond has been documented to dry during some parts of the year (DPR 2016). Bear Pond was surveyed by WRA during the 2019 site visit, during the day and again at night, using the visual encounter survey protocols recommended for detection of CRLF (USFWS 2005). DPR staff conducted daytime surveys for CRLF in 2016 at Bear Pond and other potentially suitable lentic features in and around the Project Area. However, no CRLF were detected during any of these surveys. California red-legged frog is unlikely to be present in the Project Area due to the rarity of the species in the region, negative findings of all surveys that have occurred in this area and the prevalence of bullfrogs and other non-native predators that would deter this species.

4.3 Wildlife Corridors, Native Wildlife Nursery Sites and Critical Habitat

No native wildlife nursery sites or Critical Habitat are present in the Project Area. NMFS has determined that the upper Yuba River watershed contains EFH for Pacific salmon (NMFS 2007). However, the Project Area does not contain habitat or substrate to support spawning, breeding, feeding, or growth of Pacifica salmon.

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier and Loe 1992; Soulé and Terbough 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2012).

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The Project Area may function as a wildlife movement corridor. This is based on the Essential Connectivity Areas geospatial dataset, which uses habitat modelling on a broad scale to identify areas of land with value as wildlife corridors (CDFW and CDOT 2021). The Project Area is classified in this dataset as highly permeable, meaning that wildlife may use the Project Area as a corridor, and it is generally high quality. However, the Project Area is subject to a low level of anthropogenic disturbance and activities from pedestrians (primarily visitor access on hiking trails in the Pit and vehicle travel on North Bloomfield Road.)

5.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These thresholds were utilized in completing the analysis of potential project impacts for CEQA purposes. For the purposes of this analysis, a “substantial adverse effect” is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

6.0 IMPACTS AND MITIGATION EVALUATION

Using the CEQA analysis methodology outlined in Section 5.0 above, the following section describes potential significant impacts to sensitive biological resources within the Project Area and includes suggested mitigation measures which are expected to reduce impacts to less than significant.

Potential impacts on existing biological resources were evaluated by comparing the quantity and quality of habitats present in the Project Area under baseline conditions to the anticipated conditions after implementation of proposed Project activities and are depicted on Figure 6 in Appendix A. Direct and indirect impacts on special-status species and sensitive natural communities were assessed based on the potential for the species, their habitat, or the natural community in question to be disturbed or enhanced by construction or maintenance of the proposed Project. Table 5, below, depicts temporary and permanent impacts that would result from Project activities.

Table 5. Project Impacts within Each Biological Community

Biological Community	Impact Type (P - Permanent; T - Temporary)	Total in Project Area (acres [linear feet])	Permanent (acres [linear feet])	Temporary (acres [linear feet])
Non-sensitive Communities				
Ponderosa pine forest	Rock wall (P), access route (P), boardwalk (P), brush dams (P), diversion swale (P), soldier pile wall (P), staging area (T)	21.00	0.99	0.73
Developed	Rock wall (P), access route (P), boardwalk (P), brush dams (P), staging area (T)	4.14	0.73	0.03
Rock outcrop/barren	Access route (P), boardwalk (P), brush dams (P)	2.67	0.11	0.00
Whiteleaf manzanita chaparral	Rock wall (P), access route (P), brush dams (P), staging area (T)	1.29	0.12	0.01
Subtotal		29.10	1.95	0.77
Sensitive Communities				
Arroyo willow thickets	Access routes (P), brush dams (P), diversion swale (P), soldier pile wall (P), staging area (T), temporary construction mats (T)	51.17	1.91	0.82
Sandbar willow thickets	Rock wall (P), access routes (P), brush dams (P)	18.04	1.27	0.00
Cattail marsh	Access routes (P), boardwalk (P), staging area (T)	4.94	0.02	0.11
Open water	Staging area (T)	1.88	0.00	<0.01

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Intermittent stream	Access routes (P), brush dams (P)	0.21 (677)	0.01 (22)	0.00
Ephemeral stream	Brush dams (P)	0.06 (486)	<0.01 (17)	0.00
Subtotal		76.30 (1,163)	3.21 (39)	0.93
Total		105.40 (1,163)	5.16 (39)	1.70

6.1 Special-status Species

This section analyzes the Project’s potential impacts and mitigation for special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV (a):

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

Potential impacts and mitigation for potentially significant impacts are discussed below.

Ringtail

The Project Area contains areas that may provide refuge for California fully protected ringtail including tree hollows and rock gaps for dens. Most Project activities will occur in arroyo willow thickets which are unlikely to provide denning habitat. The Project installation of BMP components would temporarily disturb and permanently remove 0.73 and 0.99 acre, respectively, of the 21 acres of Ponderosa pine forest within the Project Area, which may have tree hollows or cavities to support denning. If dens are present, construction activities such as vegetation removal or ground disturbance may result in impacts to ringtail dens and mortality of individuals. Indirect impacts to ringtail could include increased noise, sound, and vehicle operation in the vicinity during construction. Mortality to individuals, or disturbance of denning individuals from construction activities is considered a potentially significant impact under CEQA.

Potential Impact BIO-1: Project construction activities could result in injury or mortality of individuals present within the Project Area. The Project could indirectly impact individuals from increased noise and disturbance during construction. This impact is considered potentially significant.

To reduce potential impacts to ringtail to a **less-than-significant** level, the following measures shall be implemented:

Mitigation Measure BIO-1a: A DPR-approved biologist shall hold a training session for staff responsible for performing ground disturbing construction activities (e.g., operation of heavy equipment, vegetation removal, grading) in suitable habitat. Staff shall be trained to recognize special-status species and their habitat. Staff shall also be trained to use protective measures to ensure that special-status species are not adversely impacted by ground disturbing construction activities.

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Mitigation Measure BIO-1b: No more than 21 days before the start of ground disturbance activities, a DPR-approved biologist shall conduct pre-construction surveys in suitable ringtail habitat within 50 feet of the disturbance area to determine if potential ringtail dens are present. If potential dens are determined to be present and the den cannot be avoided, the biologist shall monitor them for activity with camera or track trapping, or a similar method to determine whether the den is active. If the den is determined to be occupied, ground disturbance and construction activity shall be avoided (size and configuration of an exclusionary buffer would be determined by a DPR-approved biologist depending on the status, location, and proposed Project activities occurring in the vicinity) until the den is determined to no longer be active.

Mitigation Measure BIO-1c: If a CDFW fully protected species (e.g., ringtail, golden eagle, bald eagle) is observed denning or nesting within or adjacent to construction activities, a DPR-approved biologist shall monitor the area during the first day of Project activities adjacent to the exclusion zone. If the biologist observes potential disturbance behavior, the exclusion zone shall be increased based on the biologist's recommendation as necessary to avoid disturbance behavior. The Project shall avoid take of CDFW fully protected species.

Roosting Bats

Special-status bats including pallid bat, hoary bat, silver-haired bat, western mastiff bat, western red bat, long-eared myotis, fringed myotis, long-legged myotis, and Townsend's bat have potential to occur within the Project Area including in rock structures, trees, and dense willow stands. Common bats protected under the CFGC may also roost within the Project Area. Project construction activities could directly impact special-status and non-status bat roosting through ground disturbance or vegetation removal. Construction activities could also create audible, vibratory, and/or visual disturbances that cause bats to abandon their roost site. Activities that result in the direct removal of active roosts or disturbance to maternity roosting bats sufficient to result in the abandonment of the roost is a potentially significant impact under CEQA.

Potential Impact BIO-2: Project construction activities could directly or indirectly impact roosting bats during vegetation removal, ground disturbance, or other noise generating activities.

To reduce potential impacts to special-status and non-status roosting bats to a **less-than-significant** level, the following measures shall be implemented:

Mitigation Measure BIO-2: At least 30 days prior to the initiation of construction activities, a bat roost assessment shall be conducted by a DPR-approved biologist to determine if potential roost habitat is present. If rocky outcroppings or vegetation within the project boundary and surrounding 100 feet has no potential to support roosting bats (e.g., no large basal cavities, exfoliating bark, interstitial spaces, or suitable foliage), project work may be initiated with no further measures required to protect roosting bats.

If potential bat roost habitat is present, and work is occurring between September 1 and April 31 (outside of the maternity season), the DPR-approved biologist shall conduct an emergence survey no more than 7 days prior to tree removal to determine if the roost is occupied. If the emergence survey confirms the roost is inactive, the tree may be felled with no further measures required to protect roosting bats. If the roost is confirmed active, or is assumed to be active, a two-phased cut shall be employed to remove the tree. The DPR-approved biologist shall oversee removal of branches and small limbs not containing potential bat roost habitat using hand tools such as chainsaws or handsaws. The following day, the rest of the tree may be removed.

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If potential bat roosting habitat is present and work is occurring during the maternity season, the DPR-approved biologist may either conduct an emergence survey to determine if the roost is occupied; or assume the roost is occupied and a buffer shall be implemented. If the emergence survey does not detect bats, the tree may be removed with no further measures required to protect roosting bats. If roosting bats are detected, or the tree is assumed to be an active roost, the tree shall be given a 100-foot buffer within which construction activities shall be avoided until the roost is determined no longer active or the maternity season is complete.

Bald and Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-669c). The Bald and Golden Eagle Protection Act protects eagles from being taken or disturbed. Take under the Bald and Golden Eagle Protection Act is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect molest or disturb”, whereas Disturb is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause based on the best scientific information available:

1. Injury of an eagle;
2. A decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or
3. Nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

Direct or indirect effects to bald and golden eagles would be considered significant under CEQA and unlawful under the Bald and Golden Eagle Protection Act, the MBTA, and potentially CESA.

Potential Impact BIO-3: Project construction could directly destroy active nests or cause disturbance that results in nest abandonment.

To reduce potential impacts to a less than significant level, **Mitigation Measures BIO-1a and BIO-1c**, above, shall be implemented and the following additional measure shall be implemented:

Mitigation Measure BIO-3: Initiation of construction activities during the eagle nesting season (January 1 through August 31) shall be avoided to the extent feasible. If construction initiation during the nesting season cannot be avoided, then a DPR-approved biologist shall conduct at least two pre-construction eagle surveys spaced at least 30 days apart, with the last survey occurring within 30 days prior to initiation of ground disturbance or vegetation removal or other construction activities. Surveys shall encompass potentially suitable habitat within 1 mile of construction activities. If preconstruction surveys determine that golden eagles are nesting in the area, a 0.25-mile exclusion zone where no construction would be allowed shall be established around the active nest. The exclusion zone can be reduced as determined by a DPR-approved biologist based on the location of the nest, ambient noise, and site topography, with a minimum exclusion zone of 500 feet. The buffer shall remain in place until the biologist determines the nest is no longer active.

Special-Status and Other Nesting Bird Species

The following special-status avian species have potential to occur within or adjacent to the Project Area: olive-sided flycatcher, little willow flycatcher, yellow-breasted chat, yellow warbler, northern goshawk, California spotted owl, and long-eared owl.

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The Project is anticipated to be beneficial to nesting bird habitat by reducing sedimentation and erosion. The Project will revegetate construction and staging areas. Impacts to nesting birds from a loss of habitat would be less than significant.

Special-status and non-status nesting birds protected under the CFGC have the potential to nest in trees, shrubs, herbaceous vegetation, and on bare ground within and adjacent to the Project Area. Project construction activities have the potential to impact nests in these areas if construction is initiated during the breeding bird season (February 1 through August 31). Potential impacts include direct destruction of nests as well as indirect visual and acoustic disturbance to nesting birds from construction in adjacent areas that has the potential to result in nest abandonment. Destruction of nests or indirect disturbance that may result in nest abandonment is a potentially significant impact.

Potential Impact BIO-4: Project construction activities have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

To reduce potential impacts to nesting birds to a **less-than-significant** level, the following measures shall be implemented:

Mitigation Measure BIO-4a: Initiation of construction activities during the avian nesting season (February 1 through August 31) shall be avoided to the extent feasible. If construction initiation during the nesting season cannot be avoided, then a DPR-approved biologist shall conduct pre-construction nesting bird surveys within 14 days prior to initial ground disturbance or vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys shall be used to detect the nests of special-status as well as non-special-status birds. Surveys shall encompass the entire construction area and the surrounding 500 feet. If an active nest is located, an exclusion zone where no construction would be allowed shall be established around any active nests of any protected avian species. A DPR-approved biologist shall determine an appropriate exclusion zone based on the species, location, and placement of the nest. A minimum exclusion zone of 50 feet from non-raptor species and 300 feet from raptors (including white-tailed kite and northern harrier) shall be employed to assure protection of any nesting birds on or near the Project Area. The exclusion zone shall remain until a DPR-approved biologist has determined that all young have fledged and are independent of the nest. These surveys would remain valid as long as construction activity continues in a given area and shall be conducted again if there is a lapse in construction activities of more than 14 consecutive days during the breeding bird season.

Western Pond Turtle

Western pond turtle is considered a Species of Special Concern by the CDFW. The Project Area contains ponds and other surface water features that could support WPT. The Project is anticipated to be beneficial to pond turtle habitat by reducing sedimentation and erosion and by enhancing conditions in the Pit lake. The Project would revegetate construction and staging areas. Impacts to WPT from a loss of habitat would be less than significant.

Project activities within or adjacent to aquatic habitat including vegetation removal, grading, or operation of heavy equipment could impact WPT and could result in direct mortality of individuals

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or nests if present. Mortality or injury of individuals and destruction of nests is a potentially significant impact under CEQA.

Potential Impact BIO-5: Project construction activities have the potential to result in direct mortality or injury of WPT. Construction equipment could destroy active nests or injure or kill individuals.

To reduce potential impacts to WPT to a **less-than-significant** level, **Mitigation Measure BIO-1a**, above, shall be implemented and the following measures shall be implemented:

Mitigation Measure BIO-5: To minimize potential injury or mortality of individuals:

- Ground disturbing activities in aquatic habitat shall occur during the summer dry season where flows are low or streams are dry. Work shall be restricted to the period of June 1 through October 31. If work is not completed by October 31, and significant precipitation is not forecast within 48 hours, work may extend beyond with approval from CDFW. Initial ground-disturbing activities shall be avoided between November 1 and March 31, the time period when aquatic species are most likely to be moving through upland areas.
- Within 48 hours prior to any construction activities, a DPR-approved biologist shall conduct surveys for special-status species within and adjacent to the disturbance area.

Foothill Yellow-legged Frog

State threatened FYLF has been documented in Humbug Creek and its tributaries downstream of the Malakoff Diggins, including in the Hiller Tunnel. However, the aquatic habitats within the Project Area are intermittent or lotic are not suitable for FYLF breeding or larval development.

The Project would implement sediment control BMPs to control sediment discharge from the Pit. The reduced sediment discharge that would occur as a result of the Project is anticipated to be beneficial for FYLF habitat downstream of the Project Area by reducing particles that enter the Hiller Tunnel and downstream aquatic habitat.

This species is typically found within ten feet of suitable stream features. However, this species may move into upland during periods of high flow. Project construction activities could injure or kill FYLF if present during construction including vegetation removal or ground disturbance.

Potential Impact BIO-6: Project construction activities including grading and operation of equipment could result in injury or mortality of FYLF.

Implementation of **Mitigation Measures BIO-1a and BIO-5**, above, would reduce impacts to a **less than significant** level.

Essential Fish Habitat

Despite being above the Englebright Dam, NMFS has determined that the upper Yuba River watershed contains EFH for Pacific salmon (NMFS 2007). However, the Project Area does not contain habitat or substrate to support spawning, breeding, feeding, or growth of Pacifica salmon. The Project would implement sediment control BMPs to reduce sediment discharge from the Pit. The Project is anticipated to be beneficial for aquatic habitat downstream of the Project Area by

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reducing particles that enter the Hiller Tunnel and downstream areas. As such, the Project would have a beneficial and **less than significant** impact on Essential Fish Habitat.

Special-status Plant Species

Based on a literature review, it was determined that 23 special-status plant species have a moderate or high potential to occur in the Project Area based on availability of suitable habitat, the presence of associated plant species, and the proximity to documented occurrences.

Potential Impact BIO-7: Project construction activities including grading and operation of equipment could result in the harm of potentially present special-status plant species if present within construction disturbance areas. Two targeted, protocol-level special-status plant surveys were conducted within each potentially occurring species' bloom period to evaluate the potential presence of any of the 23 species in the Project Area. Targeted, protocol-level special-status plant surveys were conducted on July 7, 8, and 9, 2020, and May 11 and 12, 2021. During the surveys, no special-status plant species were observed. As such, the Project would have **no impact** on special-status plant species.

6.2 Sensitive Natural Communities and Land Cover Types

This section addresses the question:

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

The CDFW defines sensitive natural communities and vegetation alliances using NatureServe's standard heritage program methodology (CDFG 2007). Project impacts to CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, were considered and evaluated. Furthermore, aquatic, wetland, and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the Corps, RWQCB, CDFW, and/or the USFWS.

Potential Impact BIO-8: The Project Area does not contain any natural communities or land cover types with a CDFW rarity ranking of G3 or lower, or S3 or lower, meaning that all communities are considered secure globally and in California. The Project Area does not contain any riparian habitat or habitat protected by the USFWS. Additionally, no communities in the Project Area are considered natural communities in local or regional plans, policies, or regulations. Therefore, the Project would have **no impact** on sensitive natural communities or land cover types.

6.3 Aquatic Resources

This section analyzes the Project's potential impacts and mitigation for wetlands and other areas presumed or determined to be within the jurisdiction of the Corps in reference to the significance threshold outlined in CEQA Appendix G, Part IV (c):

c) Does the Project have the potential to have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean

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Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Wetlands are considered sensitive environmental resources protected at federal, state, and local levels. They provide unique habitat functions and values for wildlife, and provide habitat for plant species adapted to wetland hydrology. Throughout California, the quality and quantity of wetlands has dramatically declined owing to the construction of dams, dikes, and levees, as well as because of water diversions, the filling of wetlands for development, and the overall degradation of water quality by inputs of runoff from agricultural, urban, and infrastructure development and other sources.

Potential Impact BIO-9: The Project would permanently impact approximately 3.21 acres (39 linear feet) of aquatic resources, including arroyo willow thickets (1.91 acres), sandbar willow thickets (1.27 acres), cattail marsh (0.02 acre), intermittent stream (0.01 acre; 22 linear feet), and ephemeral stream (<0.01 acre; 17 linear feet), to construct a rock grade control structure, access routes, brush dams, a diversion swale, relocation of an existing boardwalk, and a soldier pile wall. The Project would also temporarily impact approximately 0.93 acre of aquatic resources, including arroyo willow thickets (0.82 acre), cattail marsh (0.11 acre), and open water (<0.01 acre), for the use of temporary construction mats and staging areas during the construction period. However, the Project would provide a net benefit to wetland resources within and downstream of the Project Area by improving water quality and reducing sediment discharge from the Pit. The Project has been designed to ensure that Project activities would result in the smallest possible environmental footprint while installing BMPs sufficient to achieve the Project sediment control purpose. As discussed in Section 1, the Project would also implement construction BMPs, as well as applicable avoidance and minimization measures, to reduce potential environmental impacts and protect water quality to the greatest extent feasible during construction. Though the Project would have a beneficial impact on aquatic resources in the Project Area and would be self-mitigating, the Project would still require aquatic resource permits from state and federal regulatory agencies for compliance with Sections 404 and 401 of the CWA, the Porter-Cologne Water Quality Control Act, and Section 1602 of the CFGC.

To ensure compliance with applicable federal and state permitting requirements and to document measures to avoid or reduce potential impacts to aquatic resources to a **less-than-significant** level, the following measure shall be implemented:

Mitigation Measure BIO-6: Obtain and comply with all conditions of a Section 404 permit from the Corps, a Section 401 Water Quality Certification from the RWQCB, and a Section 1602 Lake and Streambed Alteration Agreement from the CDFW prior to Project implementation.

6.4 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the Project's potential impacts and mitigation for habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV (d):

d) Does the Project have the potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

As noted in Section 4.3, the Project Area is within a larger wildlife movement corridor. Project construction activities could result in a temporary decrease in wildlife movement through the Project Area as a result of increased activity and acoustic and visual disturbance. Following

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construction, the condition of the Project Area would function much the way it does under current conditions, and the BMPs are not considered to have the potential to reduce wildlife movement through the Project Area. The Project would be beneficial for aquatic and semi-aquatic species in the vicinity by reducing sediment discharge from the Pit. Based on these factors, the Project would result in **less than significant impact** to migratory corridors and habitat linkages.

6.5 Local Policies and Ordinances

This section analyzes the Project's potential impacts and mitigation based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV (e):

e) Does the Project have the potential to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project would not conflict with any local policies or ordinances that protect biological resources. All work would occur within Malakoff Diggins SHP under the land use jurisdiction of the state of California and managed by DPR, and would adhere to all DPR policies and regulations. Therefore, the Project would result in **no impact** regarding conflicts with local policies and ordinances.

6.6 Habitat Conservation Plans

This section analyzes the Project's potential impacts and mitigation based on conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV (f):

f) Does the Project have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Cumulative impacts on the biological resources that could be affected by the Project could result from a number of past, current, and reasonably foreseeable future projects that occur in the area. Although such projects could result in impacts on these sensitive habitats and species, it is expected that most current and future projects that impact these species and their habitats would be required to mitigate these impacts through DPR's land management procedures, CEQA review, Section 1602, or Section 404/401 permitting process, as well as through the ESA Section 7 consultation process, if and when applicable. As a result, most projects in the region are reasonably expected to mitigate their impacts on these resources, minimizing cumulative impacts on these species. Additionally, some projects, including the long-term sediment control Project within the Project, which will be designed at a future date, may provide net environmental benefits and may be self-mitigating.

Through implementation of the avoidance and minimization measures incorporated into the Project, it will not result in a cumulatively considerable contribution to any significant cumulative impacts to biological resources. Therefore, the Project would have **no impact** on the function of a Habitat Conservation Plan.

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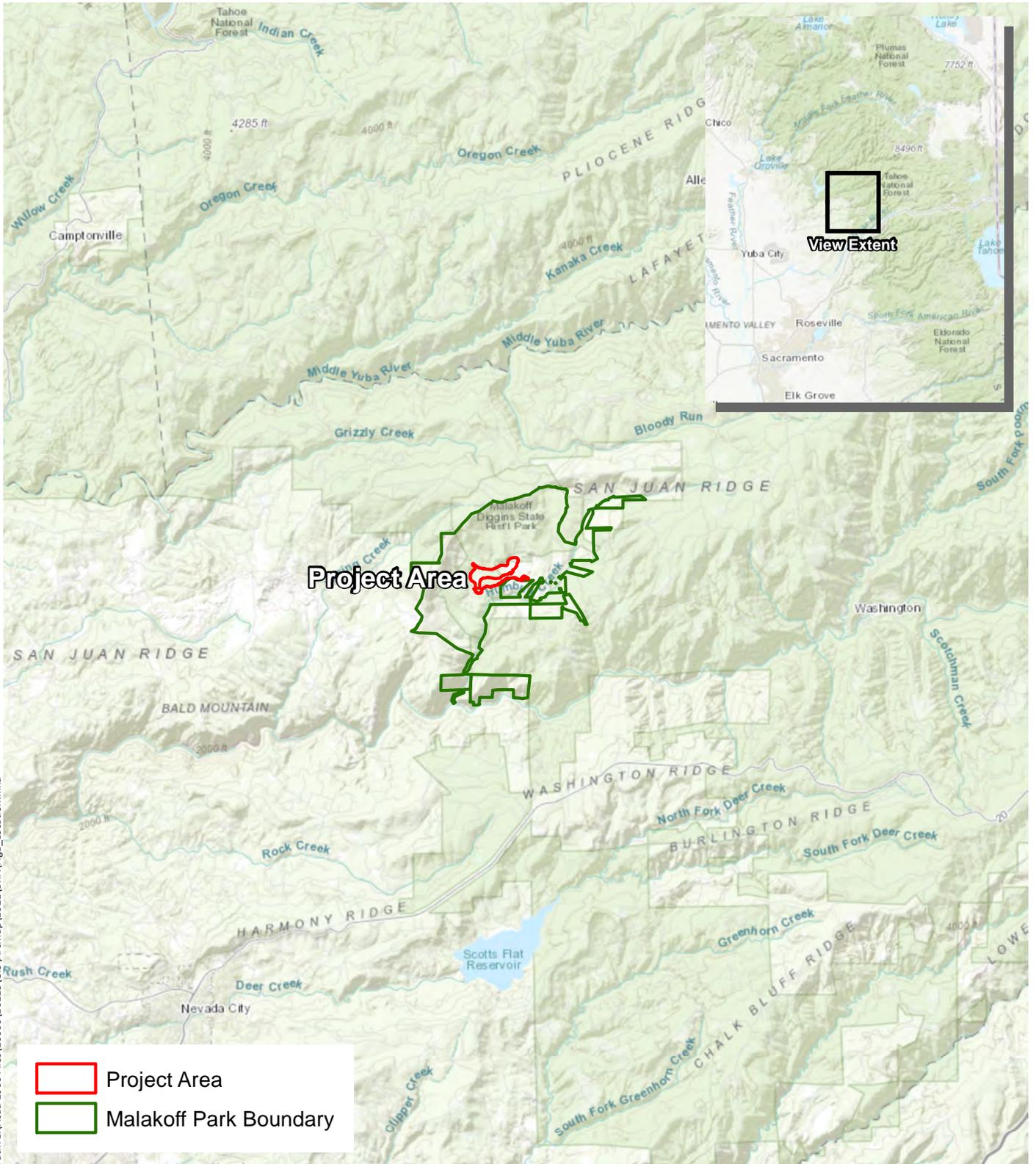
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APPENDIX A
PROJECT FIGURES

November 2021

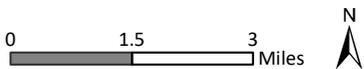
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Sources: ESRI World Topo, WRA | Prepared By: mrochelle, 10/13/2021

Figure 1. Project Area Regional Location Map

Malakoff Diggins State Park
 Biological Resources Assessment
 Nevada County, California



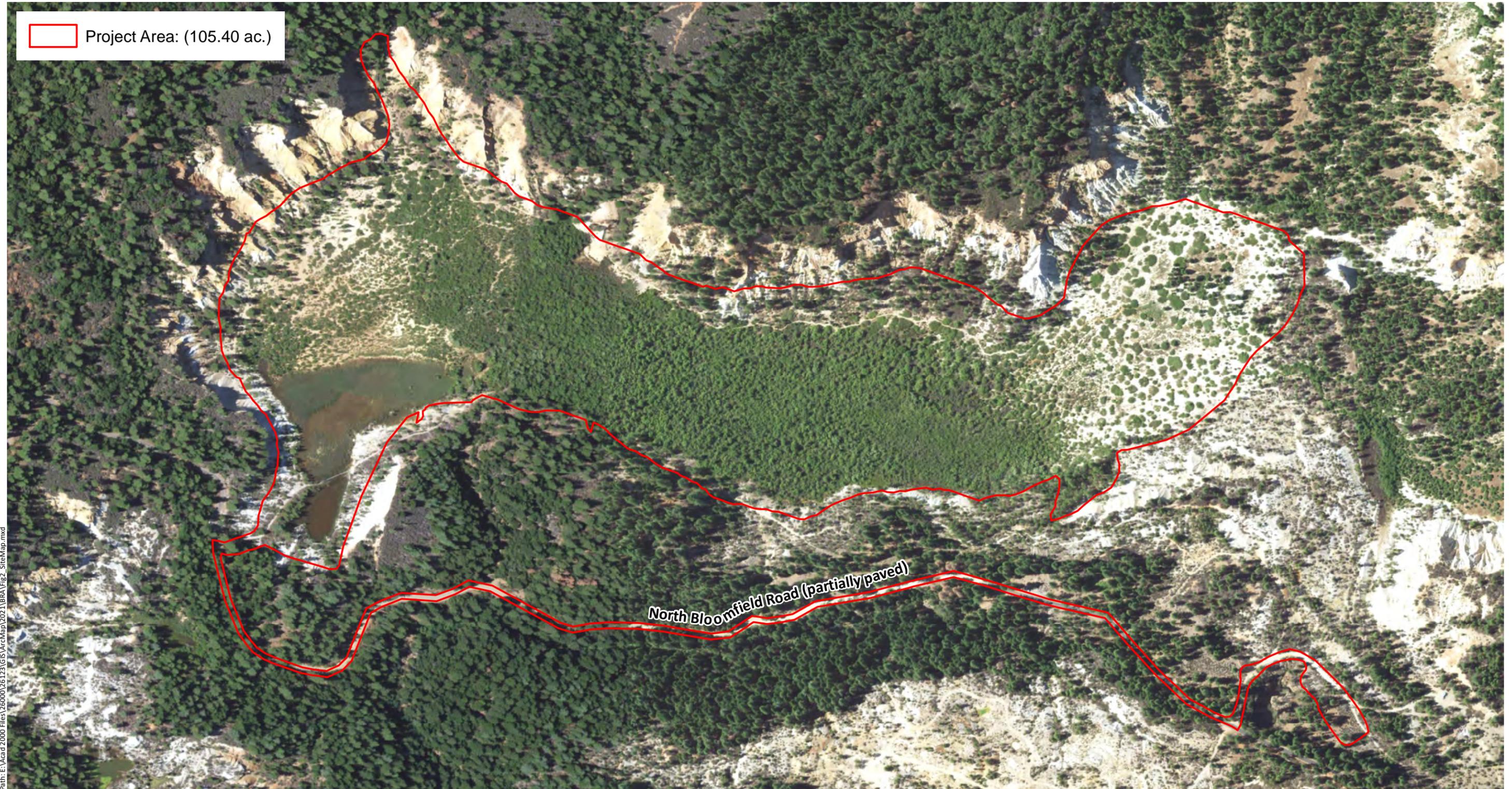
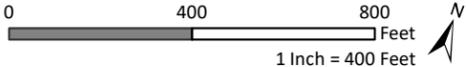


Figure 2. Site Aerial Map

Malakoff Diggins State Park
Biological Resources Assessment
Nevada County, California



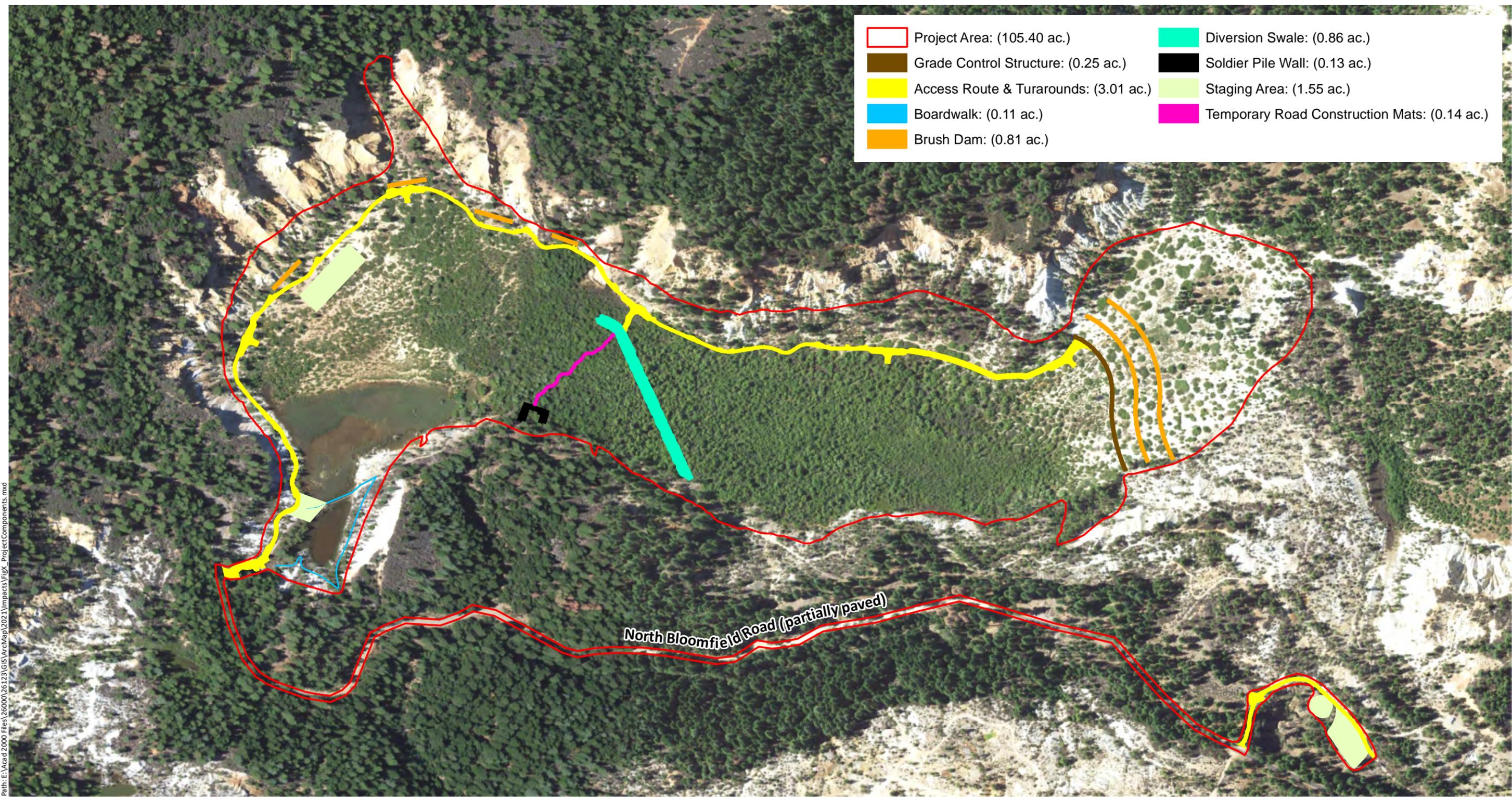
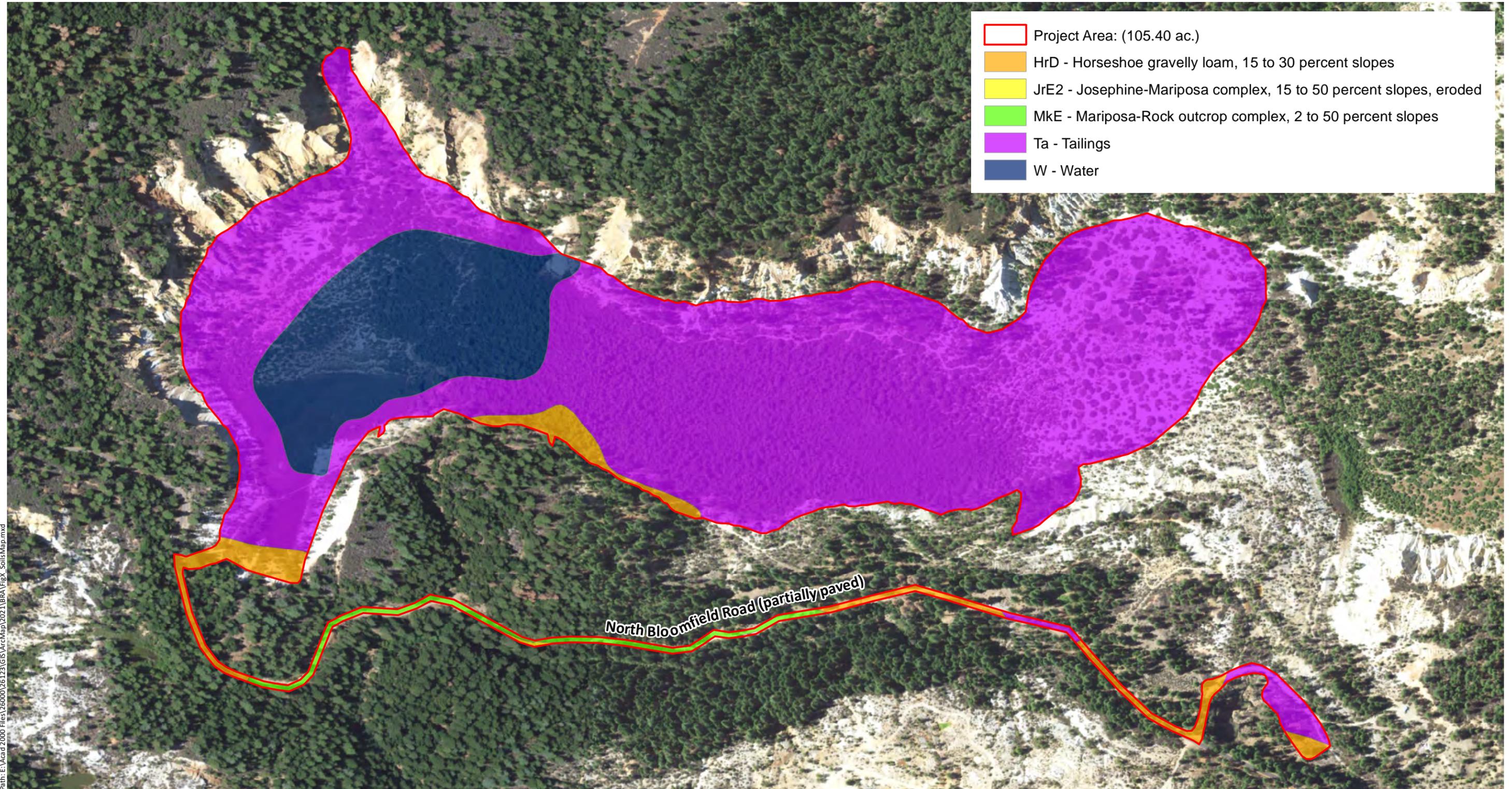


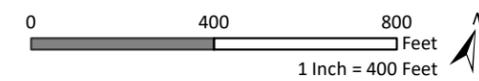
Figure 3. Project Components

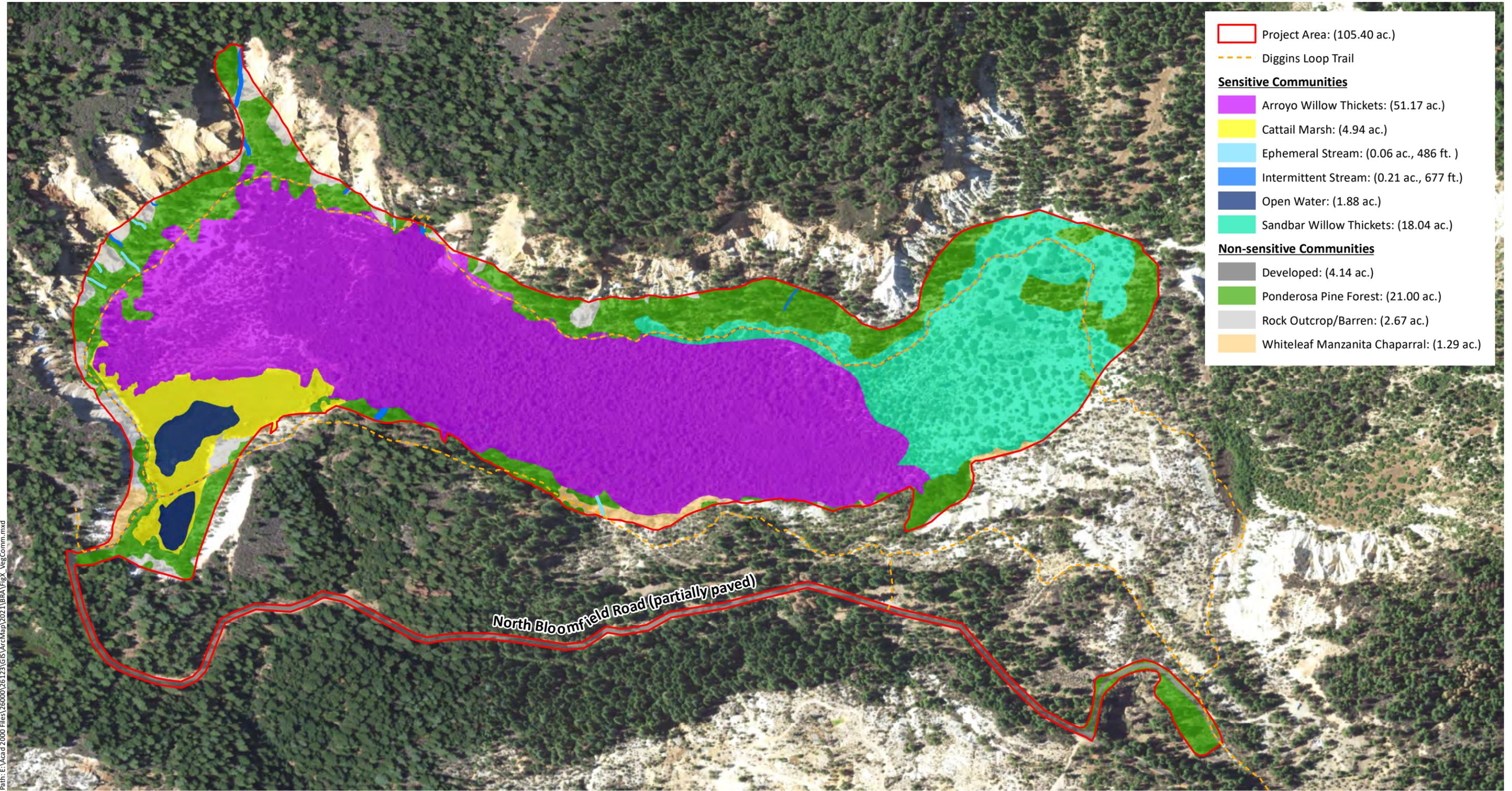


- Project Area: (105.40 ac.)
- HrD - Horseshoe gravelly loam, 15 to 30 percent slopes
- JrE2 - Josephine-Mariposa complex, 15 to 50 percent slopes, eroded
- MkE - Mariposa-Rock outcrop complex, 2 to 50 percent slopes
- Ta - Tailings
- W - Water

Figure 4. Soils Map

Malakoff Diggins State Park
 Biological Resources Assessment
 Nevada County, California



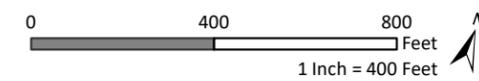


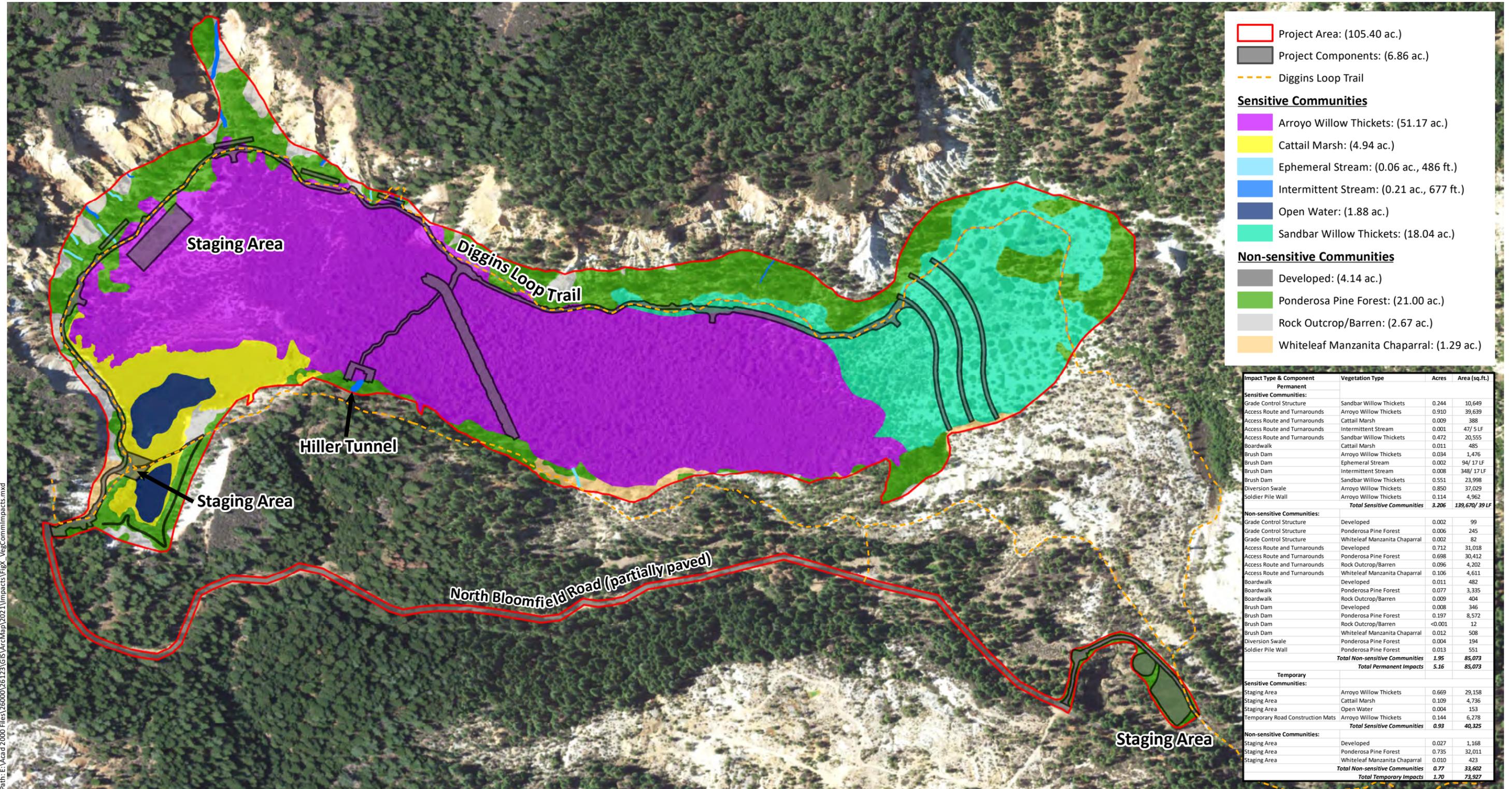
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Sources: State Parks 2019, WRA | Prepared By: mrochelle, 12/21/2021

Figure 5. Vegetation Communities

Malakoff Diggins State Park
 Biological Resources Assessment
 Nevada County, California





Sources: State Parks 2019, WRA | Prepared By: mrochelle, 12/21/2021

Figure 6. Proposed Impacts to Vegetation Communities

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APPENDIX B

LIST OF OBSERVED PLANT AND WILDLIFE SPECIES

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Appendix B-1. Plant Species Observed within the Study Area Throughout All Surveys

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Abies concolor</i>	White fir	native	tree	-	-	-
<i>Acer macrophyllum</i>	Bigleaf maple	native	tree	-	-	FACU
<i>Achillea millefolium</i>	Yarrow	native	perennial herb	-	-	FACU
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish lotus	native	annual herb	-	-	FACU
<i>Adenocaulon bicolor</i>	Trail plant	native	perennial herb	-	-	-
<i>Aesculus californica</i>	Buckeye	native	tree	-	-	-
<i>Agoseris heterophylla</i>	Mountain dandelion	native	annual herb	-	-	-
<i>Agrostis pallens</i>	Diego bent grass	native	perennial grass	-	-	UPL
<i>Agrostis scabra</i>	Rough bentgrass	native	perennial grass	-	-	FAC
<i>Aira caryophyllea</i>	Silvery hairgrass	non-native	annual grass	-	-	FACU
<i>Alisma triviale</i>	Northern water plantain	native	perennial herb (aquatic)	-	-	OBL
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	Creek alder	native	tree, shrub	-	-	FACW
<i>Alnus rhombifolia</i>	White alder	native	tree	-	-	FACW
<i>Amelanchier alnifolia</i>	Service berry	native	shrub	-	-	FACU
<i>Apocynum androsaemifolium</i>	Spreading dogbane	native	shrub	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Aquilegia formosa</i>	Columbine	native	perennial herb	-	-	FAC
<i>Aralia californica</i>	California spikenard	native	perennial herb	-	-	FAC
<i>Arbutus menziesii</i>	Madrone	native	tree	-	-	-
<i>Arctostaphylos viscida</i>	Whiteleaf manzanita	native	tree, shrub	-	-	-
<i>Asarum sp.</i>	-	-	-	-	-	-
<i>Athyrium filix-femina</i> var. <i>cyclosorum</i>	Western lady fern	native	fern	-	-	FAC
<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
<i>Bromus laevipes</i>	Narrow-flowered brome	native	annual, perennial grass	-	-	-
<i>Bromus madritensis</i>	Foxtail brome	non-native	annual grass	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Bromus tectorum</i>	Cheat grass	non-native (invasive)	annual grass	-	High	-
<i>Calocedrus decurrens</i>	Incense cedar	native	tree	-	-	-
<i>Calochortus monophyllus</i>	Yellow star tulip	native	perennial herb	-	-	-
<i>Calycanthus occidentalis</i>	Spicebush	native	shrub	-	-	FAC
<i>Carex feta</i>	Green sheathed sedge	native	perennial grasslike herb	-	-	FACW
<i>Carex</i> sp.	Sedge	unknown	perennial grasslike herb	-	-	-
<i>Ceanothus cuneatus</i>	Buck brush	native	shrub	-	-	-
<i>Ceanothus integerrimus</i>	Deer brush	native	shrub	-	-	-
<i>Chamaebatia foliolosa</i>	Sierran mountain misery	native	shrub	-	-	-
<i>Chimaphila umbellata</i>	Blake's prince's pine	native	perennial herb	-	-	-
<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	Common soaproot	native	perennial herb	-	-	-
<i>Cirsium occidentale</i>	Western thistle	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Cirsium vulgare</i>	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Claytonia parviflora</i>	Narrow leaved miner's lettuce	native	annual herb	-	-	FACU
<i>Collinsia heterophylla</i>	Chinese houses	native	annual herb	-	-	-
<i>Corallorhiza maculata</i>	Summer corral root	native	perennial herb	-	-	UPL
<i>Cornus nuttallii</i>	Mountain dogwood	native	shrub	-	-	FACU
<i>Cornus sericea</i>	American dogwood	native	shrub	-	-	FACW
<i>Corylus cornuta ssp. californica</i>	Beaked hazelnut	native	shrub	-	-	FACU
<i>Cyperus eragrostis</i>	Tall cyperus	native	perennial grasslike herb	-	-	FACW
<i>Cyperus scoparius</i>	Scotch broom	non-native (invasive)	shrub	-	High	-
<i>Darmera peltate</i>	Umbrella plant	native	perennial herb	-	-	OBL
<i>Delphinium gracilentum</i>	Meadow larkspur	native	perennial herb	-	-	-
<i>Dicentra Formosa</i>	Pacific bleedinghearts	native	perennial herb	-	-	FACU
<i>Dipterostemon capitatus ssp. capitatus</i>	Wild hyacinth	native	perennial herb	-	-	FACU
<i>Drymocallis glandulosa</i>	Sticky cinquefoil	native	perennial herb	-	-	FAC

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Dudleya cymose</i>	Rock lettuce	native	perennial herb	-	-	-
<i>Eleocharis palustris</i>	Common spikerush	native	perennial grasslike herb	-	-	OBL
<i>Elymus glaucus</i>	Blue wildrye	native	perennial grass	-	-	FACU
<i>Epilobium brachycarpum</i>	Willow herb	native	annual herb	-	-	FAC
<i>Epilobium ciliatum</i>	Slender willow herb	native	perennial herb	-	-	FACW
<i>Equisetum arvense</i>	Common horsetail	native	fern	-	-	FAC
<i>Eriophyllum lanatum</i>	Woolly sunflower	native	perennial herb	-	-	-
<i>Erythranthe guttata</i>	Seep monkeyflower	native	perennial herb (rhizomatous)	-	-	OBL
<i>Festuca bromoides</i>	Brome fescue	non-native	annual grass	-	-	FAC
<i>Festuca microstachys</i>	Small fescue	native	annual grass	-	-	-
<i>Festuca myuros</i>	Rattail sixweeks grass	non-native (invasive)	annual grass	-	Moderate	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Fragaria virginiana</i>	Mountain strawberry	native	perennial herb	-	-	FACU
<i>Frangula californica</i>	California coffeeberry	native	shrub	-	-	-
<i>Galium aparine</i>	Cleavers	native	annual herb	-	-	FACU
<i>Galium porrigens</i>	Climbing bedstraw	native	vine, shrub	-	-	-
<i>Gilia capitata</i>	Blue field gilia	native	annual herb	-	-	-
<i>Grindelia camporum</i>	Gumweed	native	perennial herb	-	-	FACW
<i>Heuchera microcantha</i>	Alum root	native	perennial herb	-	-	-
<i>Hieracium albiflorum</i>	White flowered hawkweed	native	perennial herb	-	-	-
<i>Hypericum perforatum</i> ssp. <i>perforatum</i>	Klamathweed	non-native	perennial herb	-	Moderate	FACU
<i>Hypochaeris radicata</i>	Hairy cats ear	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Iris hartwegii</i> ssp. <i>hartwegii</i>	Hartweg's iris	native	perennial herb	-	-	FACU
<i>Juncus articulatus</i> ssp. <i>articulatus</i>	Jointed rush	native	perennial grasslike herb	-	-	OBL
<i>Juncus bufonius</i>	Common toad rush	native	annual grasslike herb	-	-	FACW

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Juncus effusus</i> ssp. <i>pacificus</i>	Pacific rush	native	perennial grasslike herb	-	-	FACW
<i>Juncus oxymeris</i>	Pointed rush	native	perennial grasslike herb	-	-	FACW
<i>Juncus tenuis</i>	Slender rush	native	perennial grasslike herb	-	-	FAC
<i>Juncus xiphioides</i>	Iris leaved rush	native	perennial grasslike herb	-	-	OBL
<i>Lathyrus sulphureus</i> var. <i>sulphureus</i>	Sulphur pea	native	perennial herb	-	-	-
<i>Lepidium heterophyllum</i>	Variable leaved pepperwort	non-native	annual herb	-	-	-
<i>Lilium pardalinum</i> ssp. <i>pardalinum</i>	Leopard lily	native	perennial herb	-	-	FACW
<i>Lonicera hispidula</i>	Pink honeysuckle	native	vine, shrub	-	-	FACU
<i>Lupinus albicaulis</i>	White stemmed lupine	native	perennial herb	-	-	-
<i>Lupinus bicolor</i>	Miniature lupine	native	annual, perennial herb	-	-	-
<i>Lupinus nanus</i>	Sky lupine	native	annual herb	-	-	-
<i>Luzula comosa</i>	Hairy wood rush	native	perennial-like grass	-	-	FAC

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Lysimachia latifolia</i>	Pacific starflower	native	perennial herb	-	-	FACW
<i>Maianthemum racemosum</i>	Feathery false lily of the valley	native	perennial herb	-	-	FAC
<i>Montia parvifolia</i>	Showy rock montia	native	perennial herb	-	-	FAC
<i>Nemophila heterophylla</i>	Canyon nemophila	native	annual herb	-	-	-
<i>Osmorhiza berteroi</i>	Sweetcicely	native	perennial herb	-	-	FACU
<i>Panicum hillmanii</i>	Hillman's panicgrass	non-native	annual grass	-	-	FACU
<i>Penstemon</i> sp.	Beardtongue	native	perennial herb	-	-	-
<i>Pentagramma triangularis</i>	Gold back fern	native	fern	-	-	-
<i>Petrorhagia dubia</i>	Windmill pink	non-native	annual herb	-	-	-
<i>Phacelia heterophylla</i> var. <i>virgata</i>	Varied leaf phacelia	native	perennial herb	-	-	FACU
<i>Philadelphus lewisii</i>	Wild mock orange	native	shrub	-	-	-
<i>Pinus lambertiana</i>	Sugar pine	native	tree	-	-	-
<i>Pinus ponderosa</i>	Ponderosa pine	native	tree	-	-	FACU
<i>Plantago lanceolata</i>	Ribwort	non-native (invasive)	perennial herb	-	Limited	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Poa bulbosa</i>	Bulbous blue grass	non-native	perennial grass	-	-	FACU
<i>Polypodium sp.</i>	-	-	-	-	-	-
<i>Polystichum munitum</i>	Western sword fern	native	fern	-	-	FACU
<i>Populus fremontii ssp. fremontii</i>	Cottonwood	native	tree	-	-	FAC
<i>Potamogeton sp.</i>	Pondweed	unknown	perennial herb	-	-	OBL
<i>Poterium sanguisorba</i>	Garden burnet	non-native	perennial herb	-	-	UPL
<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	non-native	annual herb	-	-	FACW
<i>Pseudotsuga menziesii var. menziesii</i>	Douglas fir	native	tree	-	-	FACU
<i>Quercus kelloggii</i>	California black oak	native	tree	-	-	-
<i>Rhododendron occidentale</i>	Western azalea	native	tree, shrub	-	-	FAC
<i>Robinia pseudoacacia</i>	Black locust	non-native (invasive)	tree	-	Limited	FACU
<i>Rosa californica</i>	California wild rose	native	shrub	-	-	FAC
<i>Rosa gymnocarpa</i>	Wood rose	native	shrub	-	-	FACU
<i>Rubus armeniacus</i>	Himalayan blackberry	non-native (invasive)	shrub	-	High	FAC

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Rubus laciniatus</i>	Cut leaved blackberry	non-native	shrub	-	-	FACU
<i>Rubus parviflorus</i>	Thimbleberry	native	vine, shrub	-	-	FACU
<i>Rumex acetosella</i>	Sheep sorrel	non-native (invasive)	perennial herb	-	Moderate	FACU
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
<i>Salix exigua</i>	Narrowleaf willow	native	tree, shrub	-	-	FACW
<i>Salix laevigata</i>	Red willow	native	tree	-	-	FACW
<i>Salix lasiandra</i> var. <i>lasiandra</i>	Pacific willow	native	tree	-	-	FACW
<i>Salix lasiolepis</i>	Arroyo willow	native	tree, shrub	-	-	FACW
<i>Salix scouleriana</i>	Scouler willow	native	tree, shrub	-	-	FAC
<i>Sanicula crassicaulis</i>	Pacific sanicle	native	perennial herb	-	-	-
<i>Scirpus microcarpus</i>	Mountain bog bulrush	native	perennial grasslike herb	-	-	OBL
<i>Sedum spathulifolium</i>	Pacific stonecrop	native	perennial herb	-	-	-
<i>Silene laciniata</i>	Cardinal catchfly	native	perennial herb	-	-	-
<i>Silene lemmonii</i>	Lemmon's catchfly	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Sonchus asper</i> ssp. <i>asper</i>	Prickly sow thistle	non-native	annual herb	-	-	FACU
<i>Sonchus oleraceus</i>	Common sow thistle	non-native	annual herb	-	-	UPL
<i>Spiraea douglasii</i>	Douglas spiraea	native	shrub	-	-	FACW
<i>Symphoricarpus albus</i> var. <i>laevigatus</i>	Common snowberry	native	shrub	-	-	FACU
<i>Taxus brevifolia</i>	Pacific yew	native	tree	-	-	FACU
<i>Tellima grandiflora</i>	Fringe cups	native	perennial herb	-	-	FACU
<i>Toxicodendron diversilobum</i>	Poison oak	native	vine, shrub	-	-	FAC
<i>Trifolium ciliolatum</i>	Tree clover	native	annual herb	-	-	-
<i>Trifolium microcephalum</i>	Small head clover	native	annual herb	-	-	FAC
<i>Typha angustifolia</i>	Narrow leaf cattail	non-native	perennial herb (aquatic)	-	-	OBL
<i>Typha latifolia</i>	Broadleaf cattail	native	perennial herb (aquatic)	-	-	OBL
<i>Uropappus lindleyi</i>	Silver puffs	native	annual herb	-	-	-
<i>Verbascum blattaria</i>	Moth mullein	non-native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status ¹	CAL-IPC Status ²	Wetland Status ³
<i>Verbascum thapsus</i>	Woolly mullein	non-native (invasive)	perennial herb	-	Limited	FACU
<i>Vicia sativa</i>	Spring vetch	non-native	annual herb, vine	-	-	UPL
<i>Viola lobata</i>	Moose horn violet	native	perennial herb	-	-	-
<i>Woodwardia fimbriata</i>	Western chain fern	native	fern	-	-	FACW

▪ All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2020]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2020]

¹ California Native Plant Society. 2021. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). Sacramento, California. Online at: <http://rareplants.cnps.org/>; most recently accessed: November 2021

FE: Federal Endangered
 FT: Federal Threatened
 SE: State Endangered
 ST: State Threatened
 SR: State Rare

Rank 1A: Plants presumed extinct in California

Rank 1B: Plants rare, threatened, or endangered in California and elsewhere

Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere

Rank 3: Plants about which we need more information – a review list

Rank 4: Plants of limited distribution – a watch list

² California Invasive Plant Council. November 2021

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

³ U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: <http://wetland-plants.usace.army.mil/>; most recently accessed: November 2021.

OBL: Almost always found in wetlands

FACW: Usually found in wetlands

FAC: Equally found in wetlands and uplands

FACU: Usually not found in wetlands

UPL: Almost never found in wetlands

NL: Not listed, assumed almost never found in wetlands
NI: No information; not factored during wetland delineation

Table B-2. Wildlife Species Observed within the Study Area Throughout All Surveys

Common Name (status if applicable)	Species
BIRDS	
mourning dove	<i>Zenaida macroura</i>
band-tailed pigeon	<i>Patagioenas fasciata</i>
common raven	<i>Covrus corvax</i>
Steller's Jay	<i>Cyanocitta stelleri</i>
western scrub jay	<i>Aphelocoma californica</i>
red-winged blackbird	<i>Agelaius pheoniceus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
spotted towhee	<i>Pipilo maculatus</i>
American robin	<i>Turdus migratorius</i>
red-breasted nuthatch	<i>Sitta canadensis</i>
Hairy woodpecker	<i>Dryobates villosus</i>
Northern flicker	<i>Colaptes auratus</i>
downy woodpecker	<i>Dryobates pubescens</i>
dark-eyed junco	<i>Junco hyemalis</i>
brown creeper	<i>Certhia americana</i>
bushtit	<i>Psaltriparus minimus</i>
chestnut-backed chickadee	<i>Poecile rufescens</i>
yellow warbler	<i>Setophaga petechia</i>
Townsend's warbler	<i>Setophaga townsendi</i>
Nashville's warbler	<i>Oreothlypis ruficapilla</i>
lesser goldfinch	<i>Spinus psaltria</i>
American dipper	<i>Cinclus mexicanus</i>
black phoebe	<i>Sayornis nigricans</i>
Unknown flycatcher	<i>Empidonax sp.</i>
Pacific-slope flycatcher	<i>Empidonax difficilis</i>
olive-sided flycatcher	<i>Contopus cooperi</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
western wood-pewee	<i>Contopus sordidulus</i>
blue-gray gnatcatcher	<i>Polioptila caerulea</i>
Bewick's wren	<i>Thryomanes bewickii</i>
song sparrow	<i>Melospiza melodia</i>
Lincoln's sparrow	<i>Melospiza lincolnii</i>
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
violet-green swallow	<i>Tachycineta thalassina</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>

Common Name (status if applicable)	Species
wrentit	<i>Chamaea fasciata</i>
black-headed grosbeak	<i>Pheucticus melanocephalus</i>
mallard duck	<i>Anas platyrhynchos</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
turkey vulture	<i>Cathartes aura</i>
Anna's hummingbird	<i>Calypte anna</i>
REPTILES	
Pacific rattlesnake	<i>Crotalus oreganus</i>
AMPHIBIANS	
Pacific chorus frog	<i>Hyla regilla</i>
American bullfrog	<i>Lithobates catesbeiana</i>
foothill yellow-legged frog	<i>Rana boylei</i>
MAMMALS	
California ground squirrel	<i>Otospermophilus beecheyi</i>
pocket gopher	<i>Thomomys bottae</i> (burrow)
Douglas squirrel	<i>Tamiasciurus douglassii</i>
coyote	<i>Canis latrans</i> (scat)
Townsend's big-eared bat	<i>Corynorhinus townsendii townsendii</i> (day roost)
silver-haired bat	<i>Lasionycteris noctivagans</i> (detected acoustically)
hoary bat	<i>Lasiurus cinereus</i> (detected acoustically)
California myotis	<i>Myotis californicus</i> (acoustic)
Yuma myotis	<i>Myotis yumamensis</i> (acoustic)

November 2021

APPENDIX C

POTENTIAL FOR SPECIAL-STATUS PLANT AND WILDLIFE SPECIES TO OCCUR IN THE PROJECT AREA

November 2021

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Appendix C-1. Potential for Special-status Plant Species to Occur in the Study Area

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Congdon's onion <i>Allium sanbornii</i> var. <i>congdonii</i>	Rank 4.3	Chaparral, cismontane woodland/serpentine or volcanic. Elevation ranges from 980 to 3250 feet (300 to 990 meters). Blooms Apr-Jul.	Moderate Potential. The Study Area contains chaparral underlain by volcanic soils and known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Sanborn's onion <i>Allium sanbornii</i> var. <i>sanbornii</i>	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest/usually serpentine, gravelly. Elevation ranges from 850 to 4950 feet (260 to 1510 meters). Blooms May-Sep.	Unlikely. The Study Area does not contain serpentine soils.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
stoloniferous pussy-toes <i>Antennaria flagellaris</i>	Rank 4.2	Great basin scrub (vernally mesic). Elevation ranges from 4760 to 7280 feet (1450 to 2220 meters). Blooms (Apr), May-Aug.	No Potential. The Study Area does not contain habitat types suitable for this species.	No further actions are recommended for this species.
True's manzanita <i>Arctostaphylos mewukka ssp. truei</i>	Rank 4.2	Chaparral, lower montane coniferous forest/sometimes roadside. Elevation ranges from 1390 to 4560 feet (425 to 1390 meters). Blooms Feb-Jul.	Moderate potential. The Study Area contains known habitat types, dominated by known associated species.	Conduct targeted survey for subject species during published bloom period.
Sierra foothills brodiaea <i>Brodiaea sierrae</i>	Rank 4.3	Chaparral, cismontane woodland/usually serpentine or gabbroic. Elevation ranges from 160 to 3100 feet (50 to 945 meters). Blooms May-Aug.	Moderate potential. The Study Area contains woodlands that may support this species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
buxbaumia moss <i>Buxbaumia viridis</i>	Rank 2B.2	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest/fallen, decorticated wood or humus. Elevation ranges from 3200 to 7220 feet (975 to 2200 meters).	Unlikely. This species typically occurs in damp forests on humus or peaty soils, which is absent within the Study Area.	No further actions are recommended for this species.
Stebbins' morning-glory <i>Calystegia stebbinsii</i>	FE, SE, Rank 1B.1	Chaparral (openings), cismontane woodland/gabbroic or serpentine. Elevation ranges from 610 to 3580 feet (185 to 1090 meters). Blooms Apr-Jul.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Van Zuur's morning-glory <i>Calystegia vanzuukiae</i>	Rank 1B.3	Chaparral, cismontane woodland/gabbro, serpentine. Elevation ranges from 1640 to 3870 feet (500 to 1180 meters). Blooms May-Aug.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Sheldon's sedge <i>Carex sheldonii</i>	Rank 2B.2	Lower montane coniferous forest (mesic), marshes and swamps (freshwater), riparian scrub. Elevation ranges from 3940 to 6600 feet (1200 to 2012 meters). Blooms May-Aug.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
chaparral sedge <i>Carex xerophila</i>	Rank 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest on serpentine, gabbroic soil. Elevation ranges from 1,320 to 2,310 feet (440 to 770 meters) Blooms Mar-Jun.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Fresno ceanothus <i>Ceanothus fresnensis</i>	Rank 4.3	Cismontane woodland (openings), lower montane coniferous forest. Elevation ranges from 2950 to 6900 feet (900 to 2103 meters). Blooms May-Jul.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
Brandegee's clarkia <i>Clarkia biloba ssp. brandegeae</i>	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest/often roadcuts. Elevation ranges from 250 to 3000 feet (75 to 915 meters). Blooms May-Jul.	High Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
golden-anthered clarkia <i>Clarkia mildrediae ssp. lutescens</i>	Rank 4.2	Cismontane woodland, lower montane coniferous forest (openings)/often roadcuts, often rocky. Elevation ranges from 900 to 5740 feet (275 to 1750 meters). Blooms Jun-Aug.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Mosquin's clarkia <i>Clarkia mosquinii</i>	Rank 1B.1	Cismontane woodland, lower montane coniferous forest/rocky, roadsides. Elevation ranges from 610 to 4450 feet (185 to 1355 meters). Blooms May-Jul (Sep).	Unlikely. No known occurrences in Nevada County; nearest known occurrence is 18 miles northwest, near Brownsville, on different geological substrates.	No further actions are recommended for this species.
Sierra clarkia <i>Clarkia virgata</i>	Rank 4.3	Cismontane woodland, lower montane coniferous forest. Elevation ranges from 1310 to 5300 feet (400 to 1615 meters). Blooms May-Aug.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
California lady's-slipper <i>Cypripedium californicum</i>	Rank 4.2	Bogs and fens, lower montane coniferous forest/seeps and streambanks, usually serpentine. Elevation ranges from 100 to 9020 feet (30 to 2750 meters). Blooms Apr-Aug (Sep).	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
clustered lady's-slipper <i>Cypripedium fasciculatum</i>	Rank 4.2	Lower montane coniferous forest, north coast coniferous forest/usually serpentine seeps and streambanks. Elevation ranges from 330 to 7990 feet (100 to 2435 meters). Blooms Mar-Aug.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
northern yellow lady's-slipper <i>Cypripedium parviflorum var. makasin</i>	Rank 3.1	Bogs and fens, meadows and seeps/mesic. Elevation ranges from 0 to 4920 feet (0 to 1500 meters). Blooms May-Aug.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California pitcherplant <i>Darlingtonia californica</i>	Rank 4.2	Bogs and fens, meadows and seeps/mesic, generally serpentine seeps. Elevation ranges from 0 to 8480 feet (0 to 2585 meters). Blooms Apr-Jul.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Plumas rayless daisy <i>Erigeron lassenianus var. deficiens</i>	Rank 1B.3	Lower montane coniferous forest/gravelly, sometimes serpentine, sometimes disturbed sites. Elevation ranges from 4460 to 6500 feet (1360 to 1980 meters). Blooms Jun-Sep.	Unlikely. No known occurrences in Nevada County or south. Nearest occurrence is 16 miles northwest; population centered around Pumas NF.	No further actions are recommended for this species.
Ahart's buckwheat <i>Eriogonum umbellatum var. ahartii</i>	Rank 1B.2	Chaparral, cismontane woodland/serpentine, slopes, openings. Elevation ranges from 1310 to 6560 feet (400 to 2000 meters). Blooms Jun-Sep.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	FE, SR, Rank 1B.2	Chaparral, cismontane woodland/gabbroic or serpentine, rocky. Elevation ranges from 1390 to 2490 feet (425 to 760 meters). Blooms Apr-Jul.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Butte County fritillary <i>Fritillaria eastwoodiae</i>	Rank 3.2	Chaparral, cismontane woodland, lower montane coniferous forest (openings)/sometimes serpentine. Elevation ranges from 160 to 4920 feet (50 to 1500 meters). Blooms Mar-Jun.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
finger rush <i>Juncus digitatus</i>	Rank 1B.1	Cismontane woodland (openings), lower montane coniferous forest (openings), vernal pools (xeric). Elevation ranges from 2170 to 2590 feet (660 to 790 meters). Blooms (Apr), May-Jun.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
dubious pea <i>Lathyrus sulphureus var. argillaceus</i>	Rank 3	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. Elevation ranges from 490 to 3050 feet (150 to 930 meters). Blooms Apr-May.	Moderate Potential. The Study Area contains known habitat types. Synonym with <i>L. sulphureus</i> and not recognized by Jepson eFlora as a taxa. <i>L. sulphureus</i> was observed near the Study Area during site visit.	Conduct targeted survey for subject species during published bloom period.
Cantelow's lewisia <i>Lewisia cantelovii</i>	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest/mesic, granitic, sometimes serpentine seeps. Elevation ranges from 1080 to 4490 feet (330 to 1370 meters). Blooms May-Oct.	High Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Hutchison's lewisia <i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Rank 3.2	Upper montane coniferous forest/openings, ridgetops, often slate, sometimes rhyolite tuff. Elevation ranges from 2510 to 7760 feet (765 to 2365 meters). Blooms (Apr), May-Aug.	Unlikely. The Study Area does not contain slate or rhyolitic tuff.	No further actions are recommended for this species.
Humboldt lily <i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest/openings. Elevation ranges from 300 to 4200 feet (90 to 1280 meters). Blooms May-Jul.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
inundated bog club-moss <i>Lycopodiella inundata</i>	Rank 2B.2	Bogs and fens (coastal), lower montane coniferous forest (mesic), marshes and swamps (lake margins). Elevation ranges from 20 to 3280 feet (5 to 1000 meters). Blooms Jun-Sep.	High Potential. There is a known occurrence within Study Area; Study Area contains suitable habitat with known associated species.	Conduct targeted survey for subject species during published bloom period.
elongate copper moss <i>Mielichhoferia elongata</i>	Rank 4.3	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, subalpine coniferous forest/metamorphic rock, usually acidic, usually vernal mesic, often roadsides, sometimes carbonate. Elevation ranges from 0 to 6430 feet (0 to 1960 meters).	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Follett's monardella <i>Monardella follettii</i>	Rank 1B.2	Lower montane coniferous forest (rocky, serpentine). Elevation ranges from 1970 to 6560 feet (600 to 2000 meters). Blooms Jun-Sep.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
western waterfan lichen <i>Peltigera gowardii</i>	Rank 4.2	Riparian forest/on rocks in cold water creeks with little or no sediment or disturbance. Elevation ranges from 3490 to 8600 feet (1065 to 2620 meters).	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
Bacigalupi's yampah <i>Perideridia bacigalupii</i>	Rank 4.2	Chaparral, lower montane coniferous forest/serpentine. Elevation ranges from 1480 to 3400 feet (450 to 1035 meters). Blooms Jun-Aug.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Stebbins' phacelia <i>Phacelia stebbinsii</i>	Rank 1B.2	Cismontane woodland, lower montane coniferous forest, meadows and seeps. Elevation ranges from 2000 to 6590 feet (610 to 2010 meters). Blooms May-Jul.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
Cedar Crest popcornflower <i>Plagiobothrys glyptocarpus var. modestus</i>	Rank 3	Cismontane woodland, valley and foothill grassland (mesic). Elevation ranges from 2850 to 2850 feet (870 to 870 meters). Blooms Apr-Jun.	Unlikely. The Study Area does not contain cismontane woodland or grassland habitat.	No further actions are recommended for this species.
Sierra blue grass <i>Poa sierrae</i>	Rank 1B.3	Lower montane coniferous forest/openings. Elevation ranges from 1200 to 4920 feet (365 to 1500 meters). Blooms Apr-Jun.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
flexuose threadmoss <i>Pohlia flexuosa</i>	Rank 2B.1	Lower montane coniferous forest/roadsides, rocky seeps. Elevation ranges from 3120 to 3360 feet (950 to 1025 meters).	Moderate Potential. The Study Area contains rocky seeps within lower montane coniferous forest.	Conduct targeted survey for subject species during published bloom period.
sticky pyrrocoma <i>Pyrrocoma lucida</i>	Rank 1B.2	Great basin scrub, lower montane coniferous forest, meadows and seeps/alkaline clay. Elevation ranges from 2300 to 6400 feet (700 to 1950 meters). Blooms Jul-Oct.	Unlikely. The Study Area does not contain alkaline soils or clay soils	No further actions are recommended for this species.
brownish beaked-rush <i>Rhynchospora capitellata</i>	Rank 2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest/mesic. Elevation ranges from 150 to 6560 feet (45 to 2000 meters). Blooms Jul-Aug.	High Potential. There is a known occurrence within Study Area; other known occurrences within nearby diggings.	Conduct targeted survey for subject species during published bloom period.
giant checkerbloom <i>Sidalcea gigantea</i>	Rank 4.3	Lower montane coniferous forest, upper montane coniferous forest/meadows and seeps. Elevation ranges from 2200 to 6400 feet (670 to 1950 meters). Blooms (Jan), (Jun), Jul-Oct.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
Scadden Flat checkerbloom <i>Sidalcea stipularis</i>	SE, Rank 1B.1	Marshes and swamps (montane freshwater). Elevation ranges from 2300 to 2400 feet (700 to 730 meters). Blooms Jul-Aug.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
long-fruit jewelflower <i>Streptanthus longisiliquus</i>	Rank 4.3	Cismontane woodland, lower montane coniferous forest/openings. Elevation ranges from 2350 to 4920 feet (715 to 1500 meters). Blooms Apr-Sep.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
True's mountain jewelflower <i>Streptanthus tortuosus ssp. truei</i>	Rank 1B.1	Lower montane coniferous forest/partial shade on steep rocky slopes. Elevation ranges from 2,295 to 2,580 feet (765 to 860 meters). Blooms Jun-Jul (Sep).	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.
Siskiyou Mountains huckleberry <i>Vaccinium coccineum</i>	Rank 3.3	Lower montane coniferous forest, upper montane coniferous forest/often serpentine. Elevation ranges from 3590 to 7000 feet (1095 to 2135 meters). Blooms Jun-Aug.	Unlikely. The Study Area does not contain serpentine or gabbroic soils.	No further actions are recommended for this species.
felt-leaved violet <i>Viola tomentosa</i>	Rank 4.2	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest/gravelly. Elevation ranges from 4710 to 6560 feet (1435 to 2000 meters). Blooms May-Oct.	Moderate Potential. The Study Area contains known habitat types with known associated species.	Conduct targeted survey for subject species during published bloom period.

Appendix C-2. Potential for Special Status Animal Species to Occur in the Project Area. List compiled from the California Department of Fish and Wildlife Natural Diversity Database (CNDDDB 2021), U.S. Fish and Wildlife Service Information for Planning and Conservation Database (IPaC 2021), and U.S. Fish and Wildlife Service Threatened and Endangered Species Lists for the Pike, North Bloomfield, Strawberry Valley, Goodyears Bar, Downieville, Alleghany, Washington, Dutch Flat, Chicago Park, Grass Valley, Nevada City, and Camptonville USGS 7.5-minute quadrangles, a review of historical and current satellite imagery via Google Earth (2021).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Mammals				
Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i>	SSC	Sierra Nevada Mountains and eastern slope. Occurs in areas with dense growth of small deciduous trees and shrubs, wet soil, and abundant forbs. Needs dense understory for food and cover and an abundant supply of water. Burrows in soft soil.	No Potential. The Project Area is west of the range of this species and there are no documented occurrences near the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
ringtail <i>Bassariscus astutus</i>	CFP	Widely distributed throughout most of California, absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. in elevation. Typically uses cliffs or large trees for shelter.	Present. The Project Area has numerous rock crevices and tree cavities that would provide refuge for ringtail. The species has been detected in the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
gray wolf <i>Canis lupus</i>	FE	A keystone predator, that largest native canid species in North America has historic range in California. Prey include ungulates and mammals. Since prey species may migrate, wolves are required to migrate as well. This species has been documented in Lassen, Shasta, Siskiyou, and Plumas Counties.	Unlikely. The Project Area is outside of the current accepted range of the species in California. Wolves are a highly monitored species and as such, would be unlikely to go undetected in a high-traffic area like the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California wolverine <i>Gulo gulo</i>	ST, CFP	Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high elevation habitats. Needs water source. Uses caves, logs, burrows for cover and den area. Hunts in more open areas. Can travel long distances	Unlikely. The Project Area is outside of the current accepted range of the species in California. Only one wolverine has been known to exist in California in recent years and inhabits the Tahoe National Forest, near Truckee.	No further actions are recommended for this species.
Sierra Nevada snowshoe hare <i>Lepus americanus tahoensis</i>	SSC	Habitat consists of boreal riparian areas in the Sierra Nevada. Requires thickets of deciduous trees in riparian areas and thickets of young conifers.	No Potential. The Project Area lacks boreal forests and is west of the accepted range of occurrence for this species.	No further actions are recommended for this species.
fisher, west coast DPS <i>Martes pennanti</i> (formerly <i>Martes pennant pacifica</i>)	SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	Unlikely. The Project Area does contain coniferous forest, but these areas are less dense and are less mature than the forest types that this species is associated with. No CNDDDB records for this species are documented near the Project Area and the species has not been reported to occur in the Park.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. The Project Area has few contiguous areas of undisturbed ground within open dry habitats and friable soils. No burrows similar to those made by badgers were observed during the site visit. No documented occurrences for the species are in the CNDDDB (CDFW 2019).	No further actions are recommended for this species.
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	ST	Found from the cascades down to the Sierra Nevada. Found in a variety of habitats from wet meadows to forested areas. Use dense vegetation and rocky areas for cover and den sites. Prefer forests interspersed with meadows or alpine fell-fields.	Unlikely. The mosaic of habitats in and around the Project Area is suitable for this species. However, there are no recent records for the species in the CNDDDB (CDFW 2019) and those records that do exist are for foxes of unknown province. Because foxes are conspicuous and the Project Area receives a lot of visitors and is heavily occupied by staff, it was determined that Sierra Nevada red fox is unlikely to be present.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
<p>pallid bat <i>Antrozous pallidus</i></p>	<p>SSC, WBWG High</p>	<p>Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.</p>	<p>High Potential. The Project Area has areas that are likely to be suitable for pallid bats including rock crevices and tree cavities. Suitable foraging habitat and adequate water are available within the Project Area.</p>	<p>See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.</p>
<p>Townsend's big-eared bat <i>Corynorhinus townsendii</i></p>	<p>SSC, WBWG High</p>	<p>This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.</p>	<p>Moderate Potential. This species has been documented in buildings in the vicinity of the Project Area. However, the Project Area does not contain buildings, mines, or caves to support maternity roosting by this species. The Project Area contains crevices and cavities which may be suitable day roosts.</p>	<p>See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.</p>

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western mastiff bat <i>Eumops perotis</i>	SSC, WBWG High	In California this species roosts at elevations up to 4,600 feet where significant rock features are present (WBWG 2019). Mastiff bat roosts are primarily located high on cliffs under exfoliating rock slabs, but have also been found in similar crevices in large boulders and buildings. This species forages in groups high above the ground in broad, open areas and is most often found in desert washes, flood plains, chaparral, oak woodland, open pine forest, grasslands, and agricultural areas (WBWG 2018).	Moderate Potential. The Project Area contains rocky outcroppings that may support roosting by this species..	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
western red bat <i>Lasiurus blossevillii</i>	SSC, WBWG High	This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).	Moderate Potential. The Project Area has several areas that are likely to be suitable for this species, including some large willow stands. Foraging habitat and adequate water are available within the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
hoary bat <i>Lasiurus cinereus</i>	WBWG Medium	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	High Potential. The Project Area supports stands of trees which may support roosting for hoary bats. This species was acoustically detected near the Project Area during a site assessment in June 2019. Foraging habitat and adequate water are available within the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
silver-haired bat <i>Lasionycteris noctivagans.</i>	WBWG Medium	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	High Potential. The Project Area supports stands of trees which may support roosting for hoary bats. This species was acoustically detected near the Project Area during a site assessment in June 2019. Foraging habitat and adequate water are available within the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
long-eared myotis <i>Myotis evotis</i>	WBWG Medium	Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests from sea level to 9000 feet. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges.	Moderate Potential. The Project Area supports stands of trees which may support roosting for this species. Foraging habitat and adequate water are available within the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
fringed myotis <i>Myotis thysanodes</i>	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	High Potential. The Project Area has several areas that are likely to be suitable for this species. Foraging habitat and adequate water are available within the Project Area. This species has been detected in a structure near the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
long-legged myotis <i>Myotis volans</i>	WBWG High	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	High Potential. The Project Area has several areas that are likely to be suitable for this species. Foraging habitat and adequate water are available within the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Birds				
northern goshawk <i>Accipiter gentilis</i>	SSC	Year-round resident in extensive forest habitats, primarily those with old growth or otherwise mature stands of conifer and/or conifer/hardwood. Nests in trees. Preys on birds and mammals.	Moderate Potential. Historic breeding occurrences exist in the vicinity of the Project Area. The majority of the Project Area is arroyo willow and is not suitable for nesting by this species. In addition, no recent breeding occurrences have been documented in the vicinity. While nesting habitat within the Project Area is limited, stands of mature trees may support this species.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
golden eagle <i>Aquila chrysaetos</i>	BCC, CFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	Moderate Potential. The majority of the Project Area is arroyo willow and is not suitable for nesting by this species. However, some adequate nesting habitat is present within and adjacent to the Project Area. No evidence of eagle nests was observed during the site visit.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Swainson's hawk <i>Buteo swainsoni</i>	ST, BCC	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	Unlikely. Project Area does not contain the open grasslands and agricultural fields that this species is typically associated with. Some nesting records in the Sierra foothills exist, but these are closer to the Valley floor than the Project Area. Additionally, there are no nearby documented nesting occurrences for this species in the CNDDDB (CDFW 2019).	No further actions are recommended for this species.
northern harrier <i>Circus cyaneus</i>	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	Unlikely. The Project Area is outside of the documented breeding range for the species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
American peregrine falcon <i>Falco peregrinus anatum</i>	CFP	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	Unlikely. The Project Area is not near any documented occurrences for this species (CDFW 2019). The eBird (2019) species list for the Malakoff Diggins “hotspot” does not indicate that this species has ever been detected here. Due to the high profile nature of the species and frequency of visiting birders to the site, it is unlikely that this species would go undetected if present.	No further actions are recommended for this species.
bald eagle <i>Haliaeetus leucocephalus</i>	SE, CFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	Moderate Potential. Bald eagles are documented to breed in the area, though nesting opportunities in the Project Area are limited. The majority of the Project Area is arroyo willow and is not suitable for nesting by this species. Waterbodies in the Project Area are too small to support this species long-term but the species may occasionally forage in them.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
burrowing owl <i>Athene cunicularia</i>	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	No Potential. Areas containing suitable burrows also have a higher density of trees than would be typical for burrowing owl habitat. Due to these potential perches for raptors that prey on owls, it is unlikely that burrowing owls would be present. The Project Area is outside the documented breeding range for the species and there are no documented nearby occurrences in the CNDDDB (CDFW 2019).	No further actions are recommended for this species.
short-eared owl <i>Asio flammeus</i>	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	Unlikely. This species is not documented to breed in Nevada County. Most of the habitat in the Project Area contains more trees than this species is typically associated with.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
<p>long-eared owl <i>Asio otus</i></p>	<p>SSC</p>	<p>Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.</p>	<p>Moderate Potential. The Project Area contains mostly marginal or poor habitat for nesting long-eared owls. However, some forest edges may be suitable.</p>	<p>See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.</p>
<p>great gray owl <i>Strix nebulosa</i></p>	<p>SE</p>	<p>The largest owl in North America is an elusive resident to the Sierra Nevada mountains. Nests in dense conifer forests. Requires open meadows for foraging. Preys on birds and mammals.</p>	<p>Unlikely. The Project Area lacks dense stands of large conifers that this species typically favors and the Project Area is lower in elevation than most of the documented Sierra Nevada occurrences. The species has not been recorded in the Project Area or within 5 miles of it (CDFW 2019).</p>	<p>No further actions are recommended for this species.</p>

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California spotted owl <i>Strix occidentalis occidentalis</i>	SSC	Year-round resident in dense, structurally complex forests, including coniferous, hardwood, and mixed forests. Most often found in deep-shaded canyons, on north-facing slopes, and within 1,000 feet of water. Nests on platform-like substrates in the forest canopy. Preys on mammals.	Moderate Potential. This species has been detected by park staff near Blair pond. However, the Ponderosa pine forest within the Project Area does not have the structural complexity typically associated with nesting by this species. California spotted owl may nest in nearby suitable habitat.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
American white pelican <i>Pelecanus erythrorhynchos</i>	SSC	Non-breeding visitor in most of California. Nests colonially on large interior lakes or rivers; breeding restricted to portions of eastern California. Winters on sheltered inland and estuarine waters with abundant small fishes for forage.	No Potential to Nest. The Project Area does not contain the large water bodies associated with nesting habitat for this species and is outside its documented breeding range. However, it may occasionally forage in the smaller ponds and lakes in the Project Area.	No further actions are recommended for this species.
greater sandhill crane <i>Grus canadensis tabida</i>	ST, CFP	(Nesting and wintering). Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefer grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loaf sites.	No Potential. The Project Area does not contain grain fields and extensive shallow water or irrigated pasture. There are no documented occurrences of nest sites for this species near the Project Area (CDFW 2019).	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	Unlikely. The Project Area is located within 15 miles of documented occurrences of a resident foothills breeding population. However, the habitat in the Project Area is marginal and disjointed; atypical nesting habitat for this species.	No further actions are recommended for this species.
redhead <i>Aythya americana</i>	SSC	Year-round resident and winter visitor. Typically breeds in freshwater emergent marshes, usually with deeper water (>3 ft), and dense cattail and/or tule stands. Typical wintering habitat consists of large, deep bodies of water.	Unlikely. The Project Area is outside of the documented breeding range of this species.	No further actions are recommended for this species.
Barrow's goldeneye <i>Bucephala islandica</i>	SSC	(Nesting). Breeds in high central and northern Sierra Nevada mountains, near wooded mountain lakes or large streams. Nests in tree cavities, such as a deserted nest-hole of a pileated woodpecker or flicker; also use nest boxes.	Unlikely to nest. This species typically breeds at higher elevations than those present in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
olive-sided flycatcher <i>Contopus cooperi</i>	SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	Present. The edges of coniferous and mixed forests in the Project Area contain suitable habitat for this species, the species was detected during 2019 survey efforts by WRA and the species is documented to breed in the region.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
little willow flycatcher <i>Empidonax traillii brewsteri</i>	SE	Summer resident in the Sierra Nevada and Cascades, breeding in extensive thickets of low, dense willows adjacent to wet meadows, ponds, or backwaters at 2,000 to 8,000 feet elevation. Current breeding population small and declining.	Present. The dense willow thickets in the Project Area are suitable habitat for this species. During bird surveys in 2019, several <i>Empidonax</i> flycatchers were observed within the Project Area, but the birds were not calling and call-playback surveys were not performed to confirm species-level identification.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
black swift <i>Cypseloides niger</i>	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas.	Unlikely. The Project Area does not contain waterfall or cliff habitat to support nesting by this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
bank swallow <i>Riparia riparia</i>	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	No Potential. The Project Area is outside the documented breeding range for this species.	No further actions are recommended for this species.
Vaux's swift <i>Chaetura vauxi</i>	SSC	Summer resident, breeding primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent; also uses chimneys and other man-made substrates. Forages aerially for insects.	Unlikely. This species is usually closely associated with old-growth and otherwise large diameter trees for breeding. Trees in the Project Area are generally too small to be attractive to this species. Furthermore, the species has only rarely been documented to breed in the western Sierra.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
purple martin <i>Progne subis</i>	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.	Unlikely. Purple martins are sporadic breeders in the region and there are no documented occurrences nearby (CDFW 2019). Some potentially suitable habitat exists in the Project Area, in the form of snags near open water areas in the "Diggins". However, this species is conspicuous where it is present and because it has not been documented in the Project Area, it is unlikely to be present.	No further actions are recommended for this species.
loggerhead shrike <i>Lanius ludovicianus</i>	SSC	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	Unlikely. The Project Area is east of the documented breeding range for this species.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Oregon vesper sparrow <i>Pooecetes gramineus affinis</i>	SSC	Winters mostly in California in the lower valleys and plains west of the Sierras. Its winter habitat is open ground with little vegetation or grown to short grass and low annuals, including stubble fields, meadows, and road edges.	No Potential. The Project Area is outside of the breeding range and east of the winter of the species and habitat for wintering habitat is very limited.	No further actions are recommended for this species.
(Brester's) yellow warbler <i>Setophaga (= Dendroica) petechia brewsteri</i>	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting variable, but dense willow growth is typical. Occurs widely on migration.	Present. The Project Area has adequate riparian habitat to support nesting by this species around some of the ponds. This species was detected in the Project Area during the May 2019 site visit by WRA and has been documented to occur in the Project Area in previous years.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
yellow-breasted chat <i>Icteria virens</i>	SSC	Summer resident, occurring in riparian areas along stream courses with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	Present. This species is associated with riparian areas along stream courses and is documented to occur in the diggins. However, none were detected during the 2019 bird surveys conducted by WRA in the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Reptiles and Amphibians				
Western pond turtle <i>Emmys marmorata</i>	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	High Potential. Suitable habitat for pond turtles exists in the aquatic features present in the Project Area. This species has been documented in one of the ponds in the Park adjacent to the Project Area.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.
southern long-toed salamander <i>Ambystoma macrodactylum sigillatum</i>	SSC	Occurs in varies habitats including, grassland, sagebrush, woodlands and coniferous forests. Requires permanent bodies of water for breeding and larvae overwintering. Hardwood forests, meadows and granite slopes are used for upland habitat.	Unlikely. The Project Area is west of the accepted range of this species at this latitude. The Project Area is lower in elevation than most of this subspecies' range in California.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Blainville's (Coast) horned lizard <i>Phrynosoma blainvillii (coronatum)</i>	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Prefers friable, rocky, or shallow sandy soils for burial; open areas for sunning; bushes for cover; and an abundant supply of ants and other insects.	Unlikely. The Project Area is east of the accepted range of the species. The nearest documented occurrences for this species are more than 10 miles away.	No further actions are recommended for this species.
foothill yellow-legged frog <i>Rana boylei</i>	FT, SSC	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	Moderate Potential. This species has been documented to occur in Humbug Creek and its tributaries, south of the Project Area. The Project Area does not contain rocky stream habitat to support breeding by this species. However, FYLF may move across the landscape during the autumnal rains and may seek refuge in upland areas or intermittent streams during the winter. The Project Area has hydrological connectivity to occupied areas and may temporarily support FYLF. Due to the proximity of the Project Area to suitable stream habitat and the presence of aquatic habitat within the Project Area, FYLF has a moderate potential to occur.	See section 6.1 for a discussion of mitigation measures to reduce level of impact to less than significant.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
<p>California red-legged frog <i>Rana draytonii</i></p>	<p>FT, SSC</p>	<p>Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.</p>	<p>Unlikely. The nearest occurrence for this species is less than 2.5 miles southwest from the Project Area, on the other side of the SF Yuba River. The Project Area contains habitat characteristics necessary for the species. However, this area has been extensively searched for this species due to its rarity in the foothills and its proximity to the only known nearby extant occurrence. Nearly all of the ponds that would otherwise be suitable for this species have high densities of bullfrogs. During 2019 surveys, one pond was found to not contain bullfrogs and this pond was surveyed during the day and at night, but no red-legged frogs were detected. Due to the number of surveys that have occurred and the prevalence of bullfrogs in the Project Area, it was determined that this species is unlikely to be present.</p>	<p>No further actions are recommended for this species.</p>

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	FE, ST	Inhabits high elevation lakes, meadow streams, isolated pools, sunny riverbanks in the Sierra Nevada. Open stream and lake edges with a gentle slope up to a depth of 5-8 cm. are preferred.	No Potential. The Project Area is west of the accepted range for this species.	No further actions are recommended for this species.
Fishes				
riffle sculpin <i>Cottus gulosus</i>	SSC	Found in headwater streams with cold water and rocky or gravelly substrate. May occupy riffles or pools, though they tend to favor areas that have adequate cover in the form of rocks, logs, or overhanging banks. Have similar habitat requirements to those of rainbow trout and are often found in association with them.	No Potential. Riffle sculpin are considered absent from the south Yuba watershed as they have never been detected there. No stream habitat is present in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
Chinook salmon - Central Valley fall / late fall-run ESU <i>Oncorhynchus tshawytscha</i>	SSC	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	No Potential. No perennial stream habitat is present in the Project Area.	No further actions are recommended for this species.
Chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i>	FT, ST	Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings.	No Potential. No perennial stream habitat is present in the Project Area.	No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
<p>Chinook salmon - Sacramento River winter-run ESU <i>Oncorhynchus tshawytscha</i></p>	<p>FE, SE</p>	<p>Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.</p>	<p>No Potential. No perennial stream habitat is present in the Project Area.</p>	<p>No further actions are recommended for this species.</p>

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
steelhead - central valley DPS <i>Oncorhynchus mykiss irideus</i>	FT	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	No Potential. No perennial stream habitat is present in the Project Area.	No further actions are recommended for this species.
Invertebrates				
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	Occurs only in the central valley of California, in association with blue elderberry (<i>Sambucus</i> sp.). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	No Potential. The Project Area is outside the accepted range of the species.	No further actions are recommended for this species.

FE	Federal Endangered
FT	Federal Threatened
SE	State Endangered
ST	State Threatened
SSC	CDFW Species of Special Concern
CFP	CDFW Fully Protected Animal
WBWG	Western Bat Working Group High or Medium Priority species

Potential to Occur:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

November 2021

APPENDIX D
PROJECT AREA PHOTOGRAPHS

November 2021

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Photograph 1. Malakoff Diggins rock outcrop/barren habitat. Taken July 7th, 2020.



Photograph 2. Malakoff Diggins ponderosa pine forest community. Taken July 7th, 2020.



Photograph 3. Malakoff Diggins ponderosa pine forest community. Taken July 7th, 2020.



Photograph 4. Soils within the Malakoff Diggins ponderosa pine slopes. Taken July 7th, 2020.



Photograph 5. Malakoff Diggins pit within the Study Area. Taken July 7th, 2020.



Photograph 6. Slope leading into Malakoff Diggins pit within the Study Area. Taken July 7th, 2020.



Photograph 7. Cattail marsh within the Study Area, facing north. Taken July 7th, 2020.



Photograph 8. Sandbar willow thickets in the Malakoff Diggins pit within the Study Area. Taken July 7th, 2020.



Photograph 9. Arroyo willow thickets within central portion of the Study Area with overstory of willow species. Taken July 7th, 2020.



Photograph 10. Arroyo willow thickets within the northern portion of the Study Area with overstory of willow species. Taken July 8th, 2020.



Photograph 11. Arroyo willow thickets within the Study Area. Taken July 7th, 2020.



Photograph 12. Arroyo willow thickets within the Study Area with understory of herbaceous vegetation (field horsetail). Taken July 8th, 2020.



Photograph 13. Arroyo willow thickets within the Study Area. Taken July 8th, 2020.



Photograph 14. Slope leading down to Malakoff Diggins pit. Taken July 8th, 2020.



Photograph 15. Arroyo willow thickets within the northern portion of the Study Area. Taken July 8th, 2020.



Photograph 16. Soils within the arroyo willow thickets community in the Study Area. Taken July 8th, 2020.



Photograph 17. Ephemeral stream (ES) 05 within the Study Area. Taken July 7th, 2020.



Photograph 18. Ephemeral stream (ES) 05 within the Study Area. Taken July 7th, 2020.



Photograph 19. Ephemeral stream (ES) 05 and flow indicator drift/wrack within the Study Area. Taken July 7th, 2020.



Photograph 20. Ephemeral stream (ES) 03 within the Study Area. Taken July 7th, 2020.



Photograph 21. Intermittent stream (IS) 03 within the Study Area. Taken July 7th, 2020.



Photograph 22. Intermittent stream (IS) 03 within the Study Area. Taken July 7th, 2020.



Photograph 23. Intermittent stream (IS) 05 within the Study Area. Taken July 7th, 2020.



Photograph 24. Intermittent stream (IS) 01 within the Study Area. Taken July 7th, 2020.



Photograph 29. Hiller Tunnel exit flowing into Humbug Creek. Taken July 8th, 2020.



Photograph 30. Hiller tunnel entrance within the southwestern portion of the pit. Taken July 8th, 2020.



Photograph 31. Culvert entrance that conveys Humbug Creek under North Bloomfield Rd within the Study Area. Taken July 8th, 2020.



Photograph 32. Evidence of sedimentation within Malakoff Diggins pit. Taken July 9th, 2020.



Photograph 33. Open waters (ponds) with vegetative fringe within the Study Area facing north. Taken July 8th, 2020.



Photograph 34. Open waters (ponds) with vegetative fringe within the Study Area facing north. Taken July 8th, 2020.



Photograph 35. Open waters (ponds) within the Study Area facing north. Taken July 8th, 2020.



Photograph 36. Open waters (ponds) with vegetative fringe within the Study Area facing north. Taken July 8th, 2020.



Photograph 37. Sandbar willow thickets with alder and willows within the eastern portion of the Study Area. Taken July 7th, 2020.



Photograph 38. Sandbar willow thickets with manzanita and willows within the Study Area. Taken July 7th, 2020.



Photograph 39. Sandbar willow thickets with willows within the eastern portion of the Study Area. Taken July 7th, 2020.



Photograph 40. Sandbar willow thickets within the eastern portion with ponderosa pine and manzanita within the Study Area. Taken July 7th, 2020.