

Biological Resources Habitat Assessment for:
The Argonaut Mine Stormwater Upgrade Project



Prepared for:



California Department of
Toxic Substances Control

AECOM

January 2022

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ACRONYMS AND ABBREVIATIONS

BSA	biological study area
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
Dam	Argonaut Eastwood Multi-Arch Dam
DBH	diameter at breast height
DTSC	California Department of Toxic Substances Control
ECOS	Environmental Conservation Online System
FACW	Facultative Wetland
IPaC	Information for Planning and Conservation
Project	Argonaut Mine Dam Retrofit Project
USACE	United States Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	(Jackson) U.S. Geological Survey

1 INTRODUCTION

The California Department of Toxic Substances Control (DTSC) contracted with AECOM (formerly URS) for services to assist DTSC with environmental compliance requirements for the Phase II Argonaut Mine Dam Retrofit Project (project). The United States Army Corp of Engineers (USACE) performed geotechnical and structural evaluations of the Argonaut Mine Tailing dams and found the dam to be structurally weak and unstable (USACE 2015). Based on these findings, DTSC has undertaken a stability and retrofit design project for the Argonaut dam. Design of the selected alternative consisted of filling the arches of the dam with cellular concrete, creating a stormwater drainage system, and constructing an earthen berm adjacent to the dam for additional stability. Construction began in May 2018 and was completed in December 2018. This work was referred to as Phase 1 of the Argonaut Dam Retrofit. The Phase 1 Dam Retrofit mitigates a dam failure but poses a potential stormwater flood risk downstream due to under-designed city infrastructure. The Phase II Stormwater upgrade project will expand the capacity of the downstream stormwater drainage system to current standards to mitigate potential stormwater flood risk.

The upgrade will involve the construction of a pipeline (42") which will be trenched along Sutter St., from Vogan Toll Road to the intersection of Sutter St. and Hwy 49. The pipeline will then be jacked and bored underneath Highway 49 to minimize disruption of existing public facilities. Open trenching will be performed on the East side of Hwy 49. Currently, stormwater discharges into Jackson Creek at a 10-foot by 10-foot box culvert via a 36-inch storm drainpipe. The existing 36-inch storm drain-pipe that drains into the culvert will be replaced by a 60-inch pipe.

2 SETTING AND PROJECT SITE DESCRIPTION

The project site is located within the City of Jackson, in Amador County, California, extending from the intersection of Vogan Toll Road and Sutter Street to the intersection of Sutter Street and Hwy 49 (Exhibit 1). The project site work area (2.95 acres) is approximately 0.2 miles in length and includes the stormwater drainpipe location plus a construction buffer on all sides (Exhibit 2). Surrounding land use includes a residential neighborhood and Jackson High School to the south and downtown Jackson to the southeast, commercial property to the north, and open space to the west. Elevations at the project site range from approximately 1,300 to 1,200 feet above mean sea level. Soil consists of Auburn soil series very rocky silt loams of varying depth (NRCS 2020). Auburn soils are well-drained and have a slightly acid pH (NCSS 2018).

Habitat within the project site limits of work is characterized primarily as developed and largely devoid of vegetation. Other habitats in the limits of work, listed in approximate descending percentage of cover, include the following: ruderal, valley oak woodland, Himalayan blackberry thicket, valley oak riparian, and annual grassland. In addition to the project limits of work, the biological resources habitat assessment survey included an approximately 100-foot buffer, where accessible (i.e., the biological study area, or BSA). The BSA covered a total area of 12.94 acres. In addition to the habitat types mapped within the limits of work, the BSA included interior live oak woodland, common velvet grass meadow, and Baltic rush meadow. (Exhibit 3). These habitats are summarized in Table 1, below, and are described in the next section.

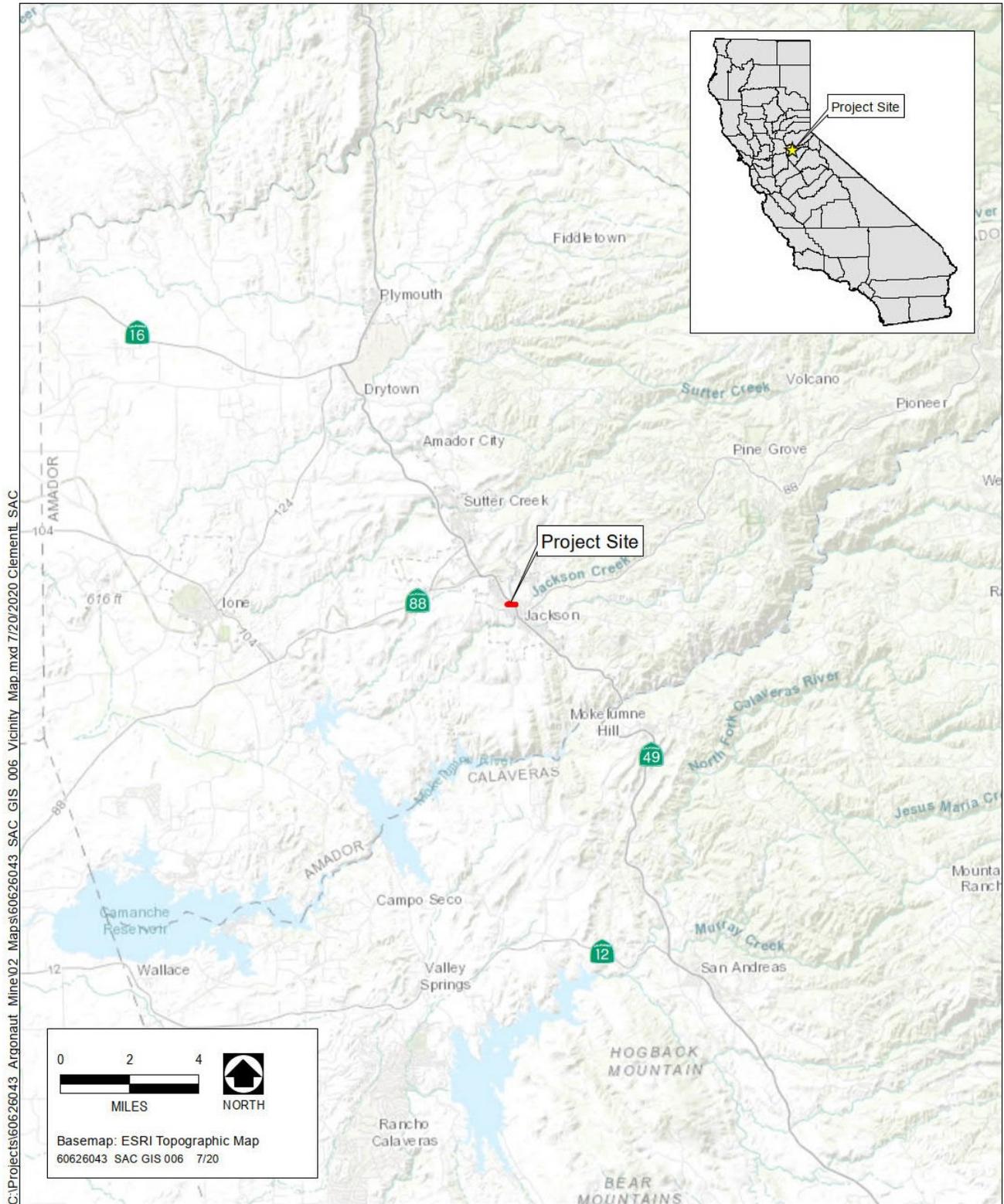


Exhibit 1. Project Site Location

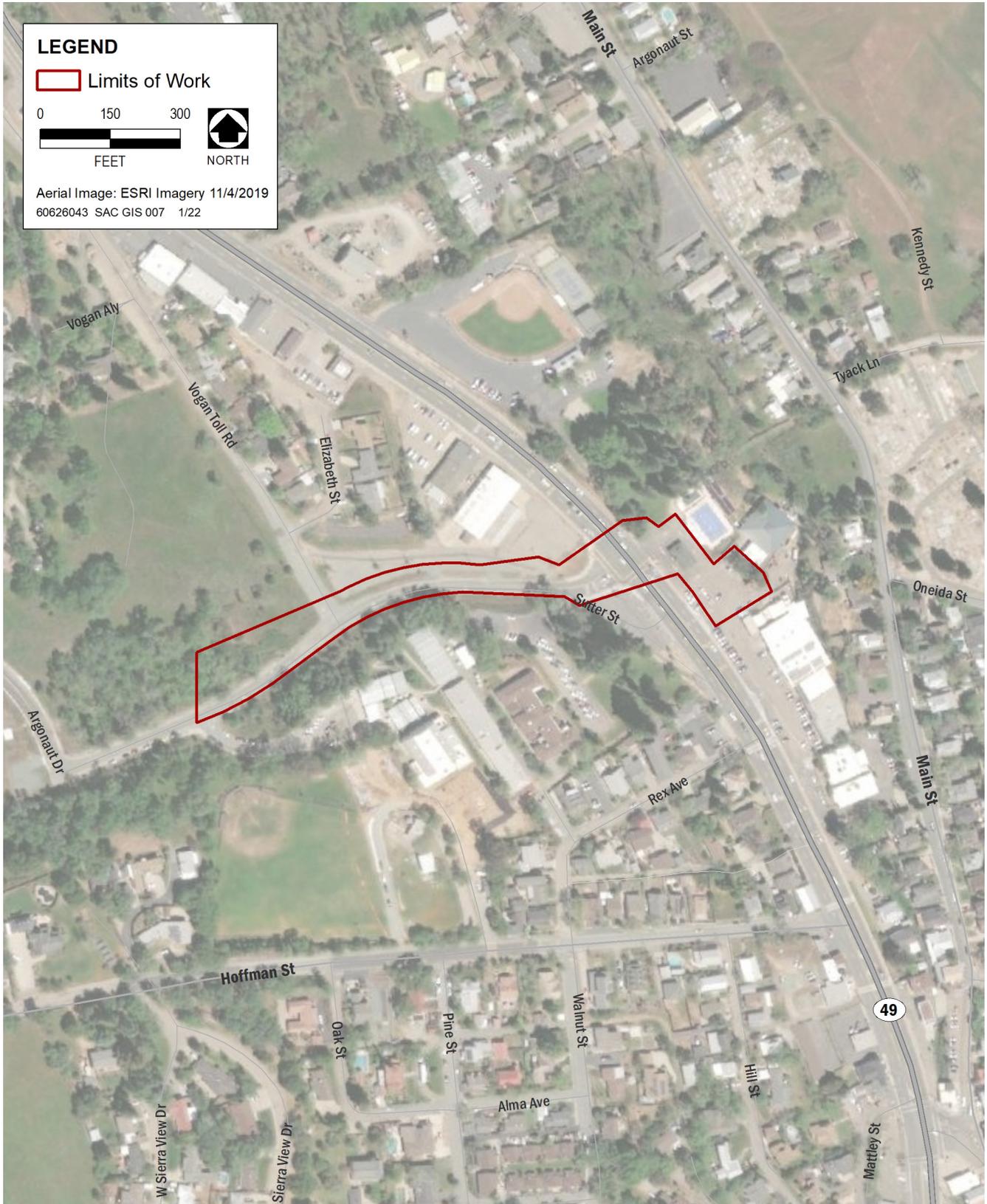


Exhibit 2. Project Limits of Work

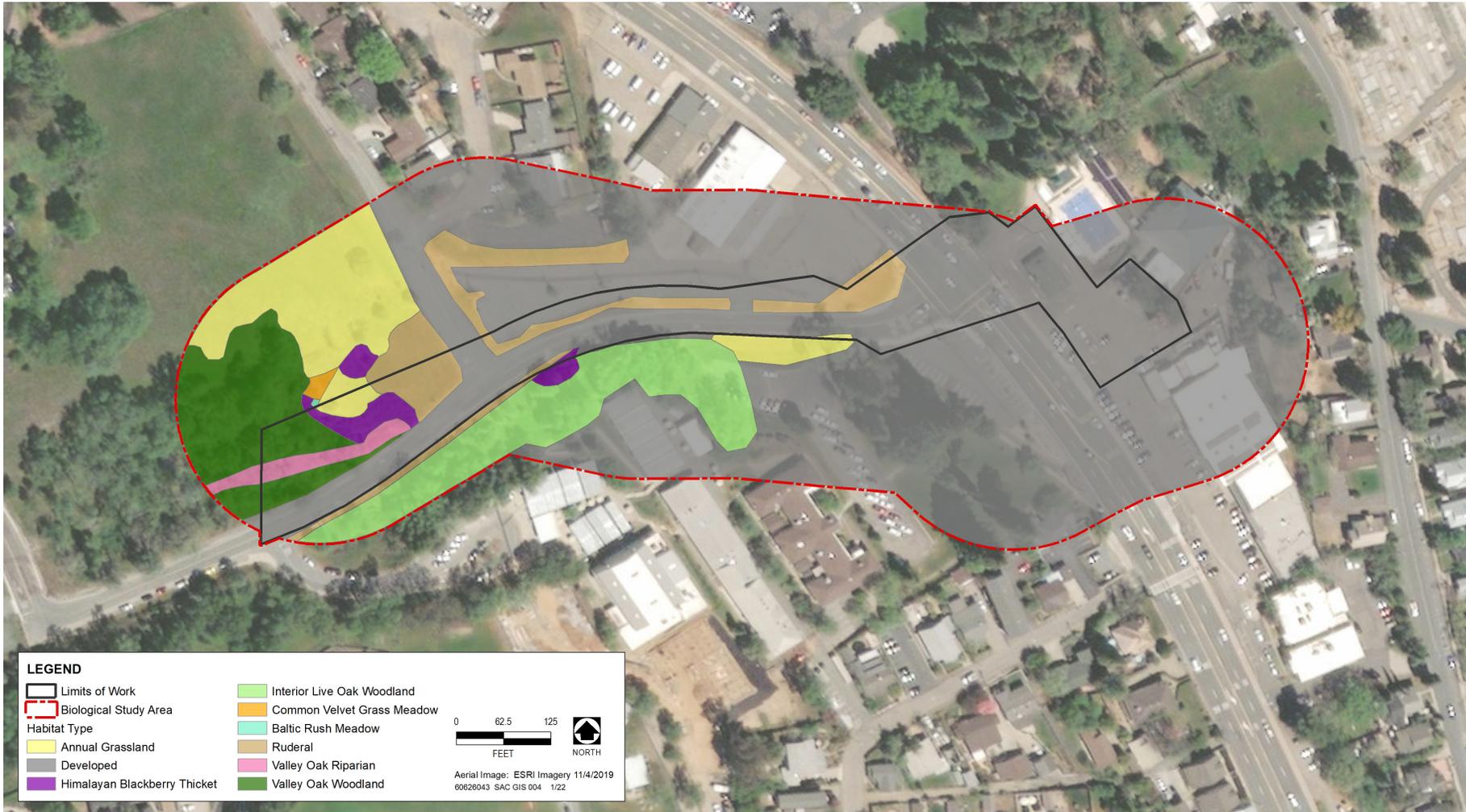


Exhibit 3. Habitat Map

Table 1. Habitat Types in the Project Site Limits of Work and Biological Study Area (BSA)

Habitat Type	Limits of Work (Acres)	Study Area Buffer (Acres)	Total BSA (Acres)
Developed	2.13	6.95	9.08
Ruderal	0.37	0.42	0.79
Valley Oak Woodland	0.20	0.64	0.84
Himalayan blackberry thicket	0.10	0.07	0.17
Valley Oak Riparian	0.10	0.03	0.13
Annual Grassland	0.05	0.92	0.97
Interior Live Oak Woodland	0.00	0.94	0.94
Common Velvet Grass Meadow	0.00	0.02	0.02
Baltic Rush Meadow	0.00	0.002	0.002
Grand Total	2.95	9.99	12.94

2.1 HABITAT TYPES

2.1.1 DEVELOPED

Most of the BSA (9.08 acres) consists of developed lands, 2.13 acres of which overlaps with the eastern two-thirds of the proposed limits of work. Developed areas include paved parking lots, paved two-lane roads (Sutter Street, Vogan Toll Road, Hwy 49), and roadside drainage ditches lined with rip-rap. Residential and commercial buildings and horticultural landscapes are present to the north, east and south of the project site.

2.1.2 RUDERAL

Ruderal vegetation is present throughout the BSA (0.79 acre), of which 0.37 acre overlaps with the project limits of work. Patches of ruderal vegetation exist on the edges of developed lands and are largely dominated by annual herbs and grasses. This habitat is most like the Upland Mustards and Other Ruderal Forbs vegetation community as described in the *Manual of California Vegetation* (CNPS 2020a). This community is dominated by mustards (*Brassica nigra*, *Hirschfeldia incana*) and/or wild radish (*Raphanus sativus*). In the project site, this habitat is dominated by field mustard (*Hirschfeldia incana*), with numerous other non-native herbs intermixed, including Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), whitestem filaree (*Erodium moschatum*), winter vetch (*Vicia villosa* ssp. *varia*), rose clover (*Trifolium hirtum*), bullthistle (*Cirsium vulgare*), henbit (*Lamium amplexicaule*), cleavers (*Galium aparine*), wild geranium (*Geranium dissectum*), tall sock-destroyer (*Torilis arvensis*), coastal heron's bill (*Erodium cicutarium*), sweet pea (*Lathyrus latifolius*), and stinkwort (*Dittrichia graveolens*). Other ruderal species scattered in the project site include salsify (*Tragopogon porrifolius*), vinegarweed (*Trichostema lanceolatum*), tree-of-heaven (*Ailanthus altissima*), and prickly lettuce (*Lactuca serriola*).

2.1.3 VALLEY OAK WOODLAND

Valley oak (*Quercus lobata*) woodland habitat comprises 0.84 acre of the BSA, of which 0.20 acre overlaps with the project limits of work. This habitat fits the Valley Oak Forest and Woodland vegetation alliance as described in the *Manual of California Vegetation* (CNPS 2020b). This vegetation community

is characterized by valley oak being dominant or co-dominant in the tree canopy with other native trees. In the project site, this habitat is dominated by valley oak with occasional red willow (*Salix laevigata*) and foothill pine (*Pinus sabiniana*).

2.1.4 HIMALAYAN BLACKBERRY THICKET

Himalayan blackberry (*Rubus armeniacus*) thickets were observed along the south side of Sutter St., with small patches also present to the north and south of the western terminus of the proposed pipeline, totaling 0.17 acre of the BSA, of which 0.10 acre overlaps with the project site limits of work. Thickets were approximately 8 feet in height and consisted entirely of dense Himalayan blackberry.

2.1.5 VALLEY OAK RIPARIAN

A narrow corridor of valley oak riparian habitat is present in the southwestern extent of the project limits of work area (0.10 acre), and extends another 0.03 acre west in the BSA, where it follows a perennial drainage that flows downslope parallel to the north side of Sutter Street, terminating at the existing 36-inch culvert at the junction of Vogan Toll Road and Sutter Street. The tree canopy consists of the valley oak woodland vegetation community, described above, with narrow-leaved willow (*Salix exigua*) intermixed along the drainage banks. Within and adjacent to the drainage, facultative and wetland plants dominate the understory. Observed species include fiddleleaf dock (*Rumex pulcher*), Himalayan blackberry, watercress (*Nasturtium officinale*), broadleaf cattail (*Typha latifolia*), chokecherry (*Prunus virginiana*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*), poison oak (*Toxicodendron diversilobum*), willow herb (*Epilobium ciliatum* ssp. *ciliatum*), Mexican rush (*Juncus mexicanus*), common snowberry (*Symphoricarpos albus*), and Douglas' baccharis (*Baccharis glutinosa*). Douglas' baccharis is dominant in upstream portions of the riparian drainage; cattail and watercress are dominant downstream, adjacent to the culvert and road.

2.1.6 ANNUAL GRASSLAND

Annual grassland habitat (0.97 acre) is present in the northwestern portions of the BSA, of which 0.05 acre overlaps with the project limits of work. This habitat is most like the Wild Oats and Annual Brome Grasslands vegetation community as described in the *Manual of California Vegetation* (CNPS 2020c). The vegetation community is characterized by a predominance of wild oats (*Avena* spp.) and annual brome grasses (*Bromus* spp.). In the project site, the annual grassland is dominated by softchess brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), medusahead (*Elymus caput-medusae*), and Mediterranean barley (*Hordeum marinum gussoneanum*). Other common species in this vegetation community include narrow tarplant (*Holocarpha virgata*), California poppy (*Eschscholiza californica*), Italian ryegrass (*Festuca perennis*), tall sock-destroyer (*Torilis arvensis*), Italian thistle (*Carduus pycnocephalus*), bristly dogtail grass (*Cynosurus echinatus*), rose clover (*Trifolium hirtum*), black medick (*Medicago lupulina*), blue wild rye (*Elymus glaucus*), miner's lettuce (*Claytonia perfoliata*), orchardgrass (*Dactylis glomerata*), and Spanish clover (*Acmispon americanus*). Interior Live Oak Woodland

Interior live oak woodland habitat (0.94 acre) exists to the south of Vogan Toll Road and Sutter Street, on a hillside adjacent to developed areas, none of which overlaps with the project site limits of work. This habitat is most like the Interior Live Oak Woodland and Forest vegetation community as described in the *Manual of California Vegetation* (CNPS 2020d). This vegetation community is defined as 50

percent or greater relative cover of interior live oak (*Quercus wislizeni*), with other trees present at lower cover. The interior live oak woodland in the BSA, south of the project site, is dominated by interior live oak, intermixed with valley oak (*Quercus lobata*), foothill pine, blue oak (*Quercus douglasii*), and tree-of-heaven.

2.1.7 COMMON VELVET GRASS MEADOW

A small patch (0.02 acre) of perennial grassland dominated by common velvet grass (*Holcus lanatus*) is immediately north of the northwestern terminus of the project site. This habitat is most like the Common Velvet Grass-Sweet Vernal Grass Meadow vegetation community as described in the *Manual of California Vegetation* (CNPS 2020e). This vegetation community is defined as 50 percent or greater relative cover of common velvet grass, a non-native grass species. In the BSA, this vegetation community is co-dominated by common velvet grass and Italian ryegrass (*Festuca perennis*), with other species along the meadow edges, including Santa Barbara sedge (*Carex barbarae*), curly dock (*Rumex crispus*), western goldenrod (*Euthamia occidentalis*), Bermudagrass (*Cynodon dactylon*), Baltic rush (*Juncus balticus*), wild parsley (*Torilis nodosa*), bigleaf periwinkle (*Vinca major*), and wild geranium.

2.1.8 BALTIC RUSH MEADOW

A small meadow (0.002 acre) dominated by Baltic rush (*Juncus balticus subsp. ater*) is present in the BSA to the north of the western terminus of the project limits of work. Baltic rush, a Facultative Wetland species (Lichvar, et al. 2016), constitutes approximately 60% of cover in this area¹. Himalayan blackberry, a Facultative species, makes up the canopy layer and constitutes approximately 15% of cover. Small patches of Bermudagrass, a Facultative Upland species, occurs only on the edges of this feature, constituting about 5% of cover.

3 METHODS

Before conducting fieldwork, AECOM conducted background research and a literature review to obtain pertinent information regarding known occurrences of special-status plant and wildlife species in the project vicinity. This background research included a review of available environmental documentation, recent and historic aerial photographs and the following sources:

- ▶ The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDDB) (CDFW 2022) for the Jackson U.S. Geological Survey (USGS) 7.5-minute quadrangle and nine surrounding quadrangles (USGS 2018a-i);
- ▶ The U.S. Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS) – Information for Planning and Conservation (IPaC) (USFWS 2022a);
- ▶ The USFWS National Wetlands Inventory (USFWS 2020); and

¹ Because a Facultative Wetland (FACW) plant is more than 50% cover of this habitat, this community is hydrophytic according to Indicator 1 (the vegetation dominance test) (Environmental Laboratory 1987).

- ▶ The California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Plants (CNPS 2022) for the Jackson U.S. Geological Survey (USGS) 7.5-minute quadrangle and nine surrounding quadrangles (USGS 2018a-i).

For this document, special-status species are defined as follows:

- Species listed by the State of California or the federal government as endangered, threatened, or rare;
- Candidates for state or federal listing as endangered or threatened;
- Taxa (i.e., taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the CEQA Guidelines;
- Species identified by CDFW as species of special concern or watch list;
- Species listed as fully protected under the California Fish and Game Code;
- Species afforded protection under local or regional planning documents; and
- Taxa considered by CDFW to be “rare, threatened, or endangered in California” and assigned a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, 3 or 4.

AECOM botanist Kristin Asmus, biologist Jasmine Wurlitzer, and biologist/bat specialist Kim Fettke walked the project site plus an approximately 100-foot buffer from project boundaries (i.e., the biological study area) as defined above in Setting and Site Description on May 21, 2020 to coincide with the blooming period of target special status species of interest. Weather conditions were sunny and warm with temperatures near 70° Fahrenheit and winds of 6-10 miles per hour. All plants encountered during the survey were identified to species if possible. The plant communities on site were characterized and evaluated for the potential to support the target special-status species identified during the pre-field investigation. Every plant encountered in the study area was identified to the taxonomic level necessary to determine if it was a special-status species.

Biologists J. Wurlitzer and K. Asmus conducted a botanical survey and wildlife habitat assessment, within the BSA. Biologist K. Fettke surveyed for bat roosting and foraging sites.

4 RESULTS

No special-status species were observed on or adjacent to the project site during the field surveys. Exhibit 4 and Exhibit 5 show the location of CNDDDB occurrences of special-status species and critical habitat for federally listed species, respectively, within five miles of the project site. Table 2 and Table 3 provide a list of special-status plant and wildlife species with potential to occur in the project site based on the pre-field investigation (database and literature review). The following criteria were applied to assess the potential for species occurrence at the project site:

- ▶ **Present:** Species known to occur onsite, based on occurrence records, and/or was observed onsite during the field survey(s).
- ▶ **Could Occur:** Species is known to occur on or near the site or within the site (based on occurrence records within five miles, and/or based on professional expertise specific to the site or species) and suitable habitat is present onsite.
- ▶ **Not Likely to Occur:** Species is known to occur in the vicinity of the site and there is marginal habitat onsite; or species is not known to occur in the vicinity of the site but there is suitable habitat onsite.
- ▶ **No Potential to Occur:** Species is not known to occur on or in the vicinity of the site or there is no suitable habitat for the species onsite, or species was surveyed for during the appropriate season with negative results.

4.1 SPECIAL-STATUS PLANT SPECIES

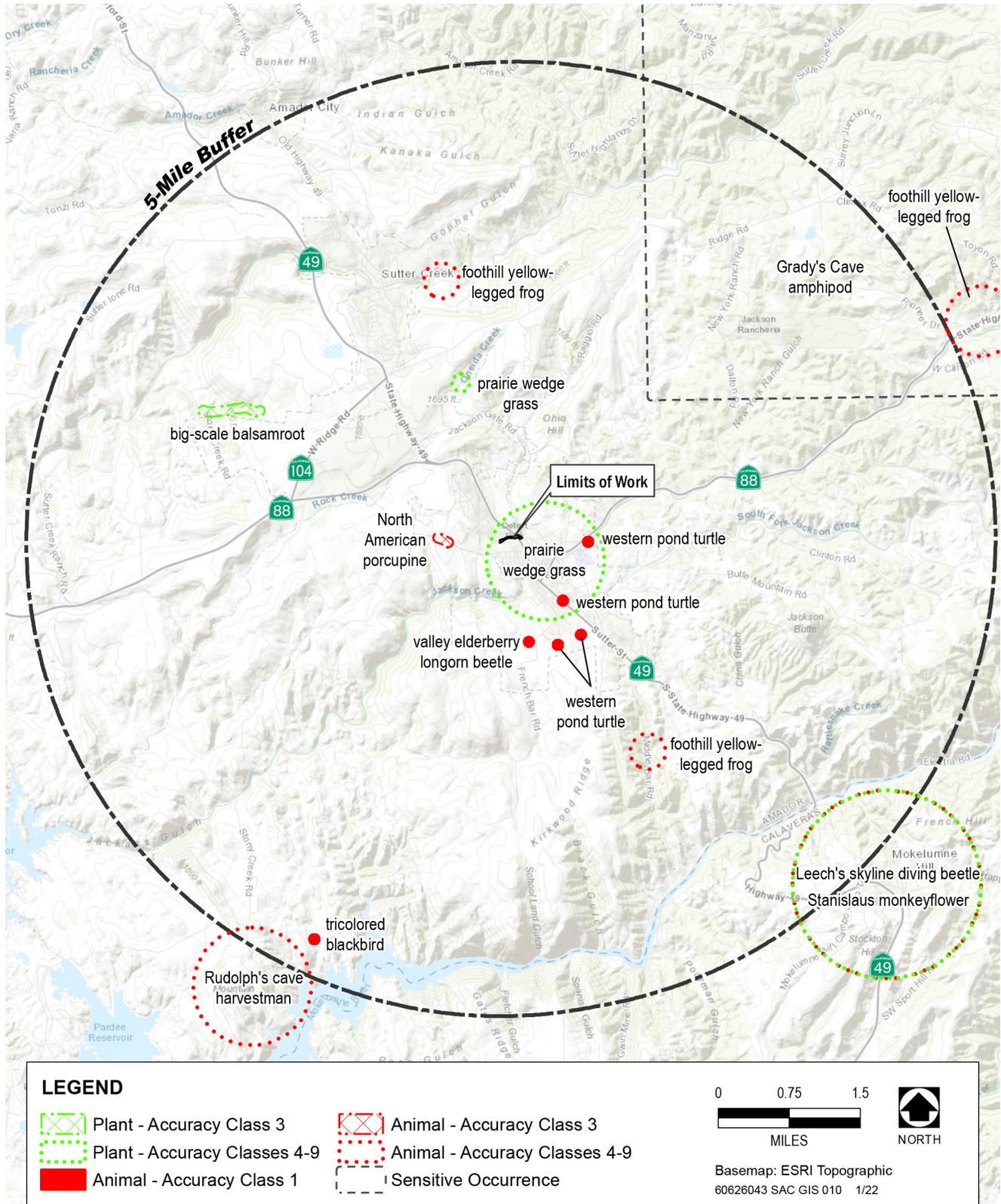
No special status plant species were found within the study area during the botanical survey. The surveys were conducted during the appropriate time of year to identify the target species. Therefore, AECOM concludes that no special-status plant species are present in the study area at the present time and no impacts are expected to occur as a result of project implementation. No additional mitigation for rare plants is required at this time. A comprehensive plant species list of all taxa observed in the study area is included in Appendix A.

4.2 SPECIAL-STATUS WILDLIFE SPECIES

Based on record searches of the CNDDDB and the USFWS list, four special-status wildlife species have the potential to occur onsite or in the vicinity. Based on field observations and literature review specific to the special-status species listed in Table 3, the potential for occurrence was assigned for each species. Species with potential to occur are tricolored blackbird (*Agelaius tricolor*), western pond turtle (*Emys marmorata*), North American porcupine (*Erethizon dorsatum*), and pallid bat (*Antrozous pallidus*). In addition, raptors and migratory birds not listed in Table 3 are protected under the Federal Migratory Bird Treaty Act and the California Fish and Game Code and have potential to nest in or near the project site.

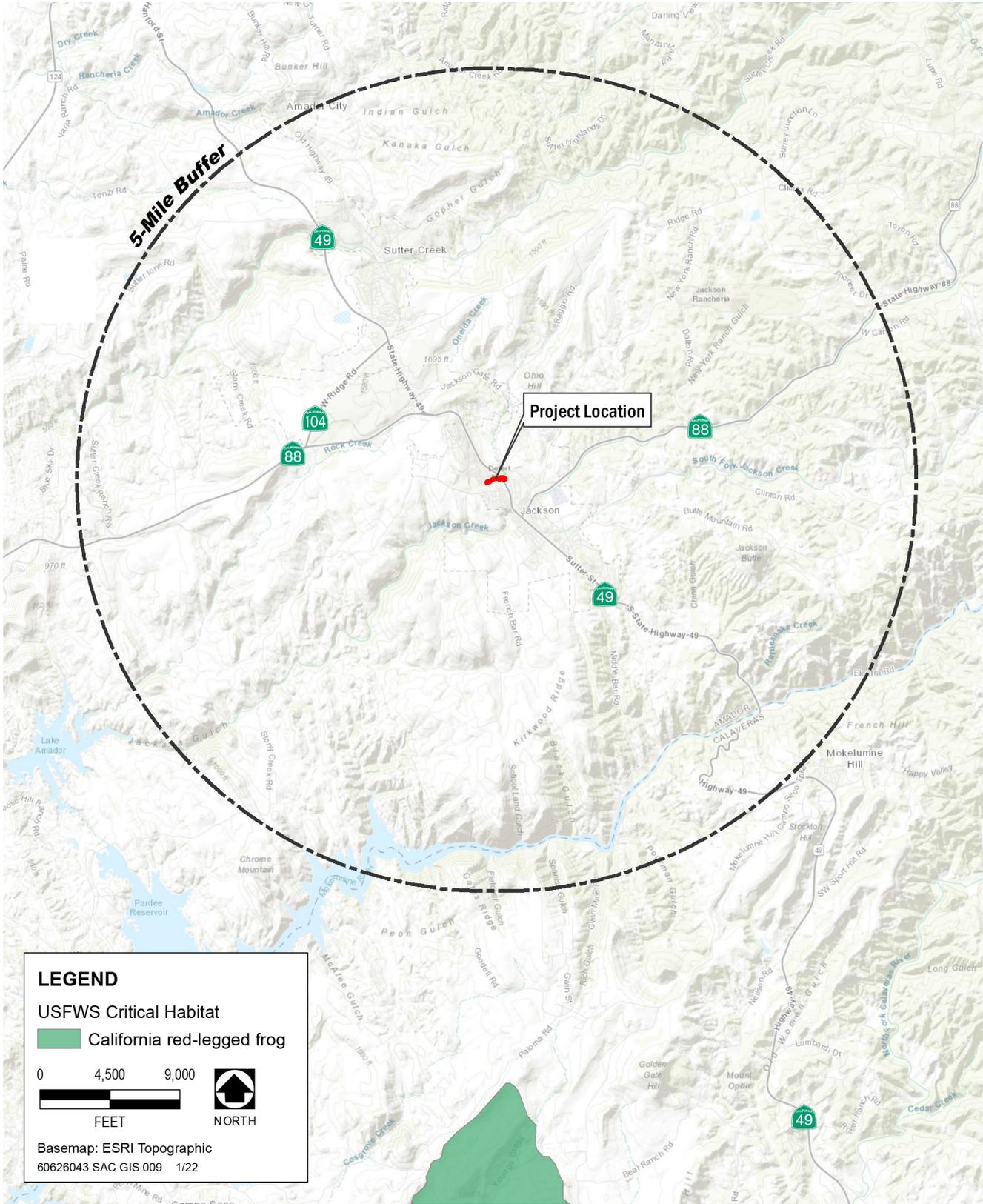
4.3 CRITICAL HABITAT

There is no critical habitat in or near the project site (Exhibit 5). The nearest designated critical habitat is for California red-legged frog (*Rana draytonii*) more than five miles to the south of the project site (USFWS 2022b).



Source: CDFW 2022

Exhibit 4. CNDDB Records within 5 Miles of the Proposed Project Site



Source: USFWS 2022b

Exhibit 5. Critical Habitat within 5 Miles of the Proposed Project Site

Table 2. Special-Status Plants Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project

Latin Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (ft)	Bloom Period	Potential for Occurrence on the Project Site
		Federal	State	CRPR ²				
<i>Agrostis hendersonii</i>	Henderson's bent grass	–	–	3.2	Mesic sites in valley and foothill grassland, vernal pools	230–1,000	Apr–Jun	No potential to occur; the project site is above the elevation range of this species, and no suitable habitat (vernal pools) present.
<i>Arctostaphylos myrtifolia</i>	lone manzanita	FT	–	1B.2	Acidic, clay or sandy, lone soil in chaparral and cismontane woodland.	195–1,905	Nov–Mar	No potential to occur; no suitable habitat (lone, clay or sandy soils) present.
<i>Balsamorhiza macrolepis</i>	bigscale balsamroot	–	–	1B.2	Open rocky or grassy slopes in chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite.	295 to 5,100	Mar–Jun	Not present. Species was not detected during biological surveys conducted during its blooming period. Marginally suitable habitat (open grassy slopes) present to the south of Sutter Street; however, no serpentine soils present. Recorded within 3 miles of project site in 1895 but has not been observed in the vicinity since (CDFW 2022).
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	Valley brodiaea	–	–	4.2	Swales and vernal pools in valley and foothill grasslands and alluvial terraces with sandy, gravelly loam.	30 to 1,100	April–May (Jun)	Not present. Species was not detected during biological surveys conducted during its blooming period. The BSA is above the elevation range of this species and there are no occurrences within 3 miles of the BSA (CDFW 2022).
<i>Bryum chryseum</i>	brassy bryum	–	–	4.3	Openings in chaparral, cismontane woodland, and valley and foothill grassland.	165–1,970	n/a	Not present. Species was not detected during biological surveys.
<i>Calycadenia hooveri</i>	Hoover's calycadenia	–	–	1B.3	Rocky, exposed places in cismontane woodland; and rocky sites in valley and foothill grassland.	215–985	July–Sep	No potential to occur; the BSA is above the elevation range of this species, and the species' preferred microhabitat (exposed rocky sites) is not present. The nearest occurrence of this species is over 12 miles southwest of the BSA (CDFW 2022).

Table 2. Special-Status Plants Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project

Latin Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (ft)	Bloom Period	Potential for Occurrence on the Project Site
		Federal	State	CRPR ²				
<i>Chlorogalum grandiflorum</i>	Red Hills soaproot	–	–	1B.2	Chaparral and cismontane woodland; lower montane coniferous forest typically on serpentinite and gabbroic soils and other rocky soils types.	800–4,065	May–Jun	Not present. Species was not detected during biological surveys conducted during its blooming period. Marginally suitable habitat (rocky soil) present; however, no serpentine or gabbroic soils present. The nearest occurrence of this species is over 8 miles northeast of the BSA (CDFW 2022).
<i>Clarkia virgata</i>	Sierra clarkia	–	–	4.3	Cismontane woodland and lower montane coniferous forest.	1,310–5,300	May–Aug	Not present. Species was not detected during biological surveys conducted during its blooming period.
<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>	streambank spring beauty	–	–	4.2	Cismontane woodland/rocky.	820–3,940	Feb–May	Not present. Species was not detected during biological surveys conducted during its blooming period
<i>Crocanthemum suffrutescens</i>	Bisbee Peak rush-rose	–	–	3.2	Chaparral, often gabbroic or lone soils; often on burned or disturbed areas.	245–2,200	Apr–Aug	No potential to occur; no suitable habitat (chaparral, gabbroic or lone soils) present. Nearest occurrence to the BSA is over 13 miles to the southeast (CDFW 2022).
<i>Eriogonum apricum</i> var. <i>apricum</i>	lone buckwheat	FE	SE	1B.1	Chaparral (openings, lone soil)	195–475	July–Oct	No potential to occur; the project site is above the elevation range of this species, and no suitable habitat (chaparral) present.
<i>Eriogonum apricum</i> var. <i>prostratum</i>	Irish Hill buckwheat	FE	SE	1B.1	Chaparral (openings, lone soil)	295–395	June–Jul	No potential to occur; the project site is above the elevation range of this species, and no suitable habitat (chaparral) present.
<i>Eriophyllum confertiflorum</i> var. <i>tanacetiflorum</i>	tansy-flowered woolly sunflower	–	–	4.3	Shrub found in cismontane woodland and lower montane coniferous forest.	1,000–4,395	May–Jul	Not present. Species was not detected during biological surveys conducted during its blooming period
<i>Eryngium jepsonii</i>	Jepson's coyote thistle	–	–	1B.2	Valley and foothill grassland, vernal pools, on clay soils.	5–985	Apr–Aug	No potential to occur; the project site is above the elevation range of this species, and no suitable habitat (clay soils) present.
<i>Eryngium pinnatisectum</i>	Tuolumne button-celery	–	–	1B.2	Vernal pools and swales in cismontane woodland and lower montane coniferous forest.	230–3,000	May–Aug	No potential to occur; no suitable habitat (vernal pools) present.

Table 2. Special-Status Plants Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project

Latin Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (ft)	Bloom Period	Potential for Occurrence on the Project Site
		Federal	State	CRPR ²				
<i>Erythranthe inconspicua</i>	small-flowered monkeyflower	–	–	4.3	Mesic sites in chaparral, cismontane woodland, and lower montane coniferous forest.	900–2,495	May–Jun	Not present. Species was not detected during biological surveys conducted during its blooming period
<i>Erythranthe marmorata</i>	Stanislaus monkeyflower	–	–	1B.1	Seeps and streambanks in cismontane woodland and lower montane coniferous forest.	330–2,950	Mar–May	Not present. Species was not detected during biological surveys conducted during its blooming period.
<i>Githopsis pulchella</i> ssp. <i>serpentinicola</i>	serpentine bluecup	–	–	4.3	Serpentine loam in cismontane woodland.	1,050–2,000	May–Jun	No potential to occur; no suitable habitat (serpentine soil) present.
<i>Horkelia parryi</i>	Parry's horkelia	–	–	1B.2	On lone formation and other soils in chaparral and cismontane woodland.	260–3,510	Apr–Sep	Not present. Species was not detected during biological surveys conducted during its blooming period.
<i>Jepsonia heterandra</i>	foothill jepsonia	–	–	4.3	Rocky (metamorphic) sites in cismontane woodland and lower montane coniferous forest.	165–1,640	Aug–Dec	No potential to occur; no suitable habitat (metamorphic rock or rocky sites) present.
<i>Legenere limosa</i>	legenere	–	–	1B.1	Vernal pools and other seasonal wetlands, ditches.	0–2,885	Apr–Jun	No potential to occur; no suitable habitat (vernal pools) present.
<i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	Humboldt lily	–	–	4.2	Openings in chaparral, cismontane woodland, and lower montane coniferous forest.	295–4,200	May–July (Aug)	Not present. Species was not detected during biological surveys conducted during its blooming period.
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	–	–	1B.1	Vernal pools, often acidic.	65–1,080	Apr–May	No potential to occur; no suitable habitat (vernal pools) present.
<i>Navarretia paradoxiclara</i>	Patterson's navarretia	–	–	1B.3	Meadows and seeps/serpentinite, openings, vernal mesic, often drainages.	490–1,410	May–June (July)	No potential to occur; No suitable habitat (serpentine soils) present.
<i>Perideridia bacigalupii</i>	Bacigalupi's yampah	–	–	4.2	Serpentine soils in chaparral and lower montane coniferous forest.	1,475–3,395	Jun–Aug	No potential to occur; the project site is below the elevation range of this species, and no suitable habitat (serpentine soils) present.
<i>Sphenopholis obtusata</i>	prairie wedge grass	–	–	2B.2	Seeps, meadows, and other mesic sites in cismontane woodland.	985–6,560	Apr–July	Not present. Species was not detected during biological surveys conducted during its blooming period.

Notes for Table 2

¹Status Definitions:

Federally Listed Species:

FE = federal endangered
FT = federal threatened
– = not applicable

California State Listed Species:

SE = California state endangered
– = not applicable

²California Rare Plant Rank (CRPR) Categories:

1A = plants presumed extinct in California
1B = plants rare, threatened, or endangered in California and elsewhere
2 = plants rare, threatened, or endangered in California, but common elsewhere
3 = plants about which we need more information
4 = plants of limited distribution

Ranks at each level also include a threat rank (e.g., CRPR 4.2) and are determined as follows:

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

BSA = biological study area

ft = feet

n/a = not applicable

Source: CDFW 2022, CNPS 2022, USFWS 2022a

Table 3 Special-Status Wildlife Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project Site

Special-Status Species		Regulatory Status ¹			Habitat Requirements	Potential for Occurrence on Project Site
Common Name	Scientific Name	Federal	State	CDFW ²		
Invertebrates						
Monarch butterfly	<i>Danaus plexippus</i>	FC	–	–	Milkweed (<i>Asclepias</i> spp.) is the required host plant for the monarch butterfly.	No potential to occur; no suitable habitat (milkweed plants) present in the BSA.
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	–	–	Elderberry shrubs, typically found in valley riparian habitats.	No potential to occur; no suitable habitat (elderberry host shrubs) present in the BSA.
Vernal pool fairy shrimp	<i>Brachinecta lynchi</i>	FT	–	–	Vernal pools	No potential to occur; no suitable habitat (vernal pools) present in the BSA.
Amphibians/Reptiles						
California tiger salamander	<i>Ambystoma californiense</i>	FT	ST	WL	Grasslands and low (typically below 2,000 feet) foothill regions where lowland aquatic sites are available for breeding. Required breeding sites are natural ephemeral pools or stock ponds that are dry for the summer season.	No potential to occur; no suitable aquatic habitat in or within BSA. No CNDDDB records within 10 miles of the project area (CDFW 2022).
Western pond turtle	<i>Emys marmorata</i>	–	–	SSC	Still or slow-moving permanent and intermittent waters, including marshes, streams, rivers, ponds, and lakes. Prefers habitats with abundant material such as logs or rocks to bask in sunlight and suitable upland habitat for nesting.	Could occur; marginally suitable aquatic habitat (marsh) present in the BSA, and suitable upland nesting habitat within 300 feet in grasslands and ruderal vegetation. There are several records of this species approximately 1 mile east and southeast of the project site in Jackson Creek and its tributaries (CDFW 2022).
Foothill yellow-legged frog	<i>Rana boylei</i>	–	SE	SSC	Shallow, flowing, small- to medium-sized streams with cobble substrate with sunny banks for basking.	Not likely to occur; marginally suitable habitat within BSA (flowing water with rocky substrate), but no open or sunny banks for basking. The two nearby records (i.e., within 3 miles) are historic (CDFW 2022) and the species locality in Amador County is considered extirpated (CDFW 2019).
California red-legged frog	<i>Rana draytonii</i>	FT	–	SSC	Quiet, slow moving streams or pools, or backwaters within swifter streams and creeks; ponds, marshes, springs, and sometimes stock ponds, all with permanent sources of deep water (3 feet or more) and dense shrubby or emergent vegetation.	Not likely to occur; marginally suitable aquatic habitat (marsh) present within BSA, where water drains to an existing large culvert at the junction of Vogan Toll Road and Sutter Street. However, water depth at the time of the survey appeared to be less than 2 feet. The nearest record is from Young Creek in Calaveras County (CDFW 2022).

Table 3 Special-Status Wildlife Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project Site

Special-Status Species		Regulatory Status ¹			Habitat Requirements	Potential for Occurrence on Project Site
Common Name	Scientific Name	Federal	State	CDFW ²		
Western spadefoot	<i>Spea hammondi</i>	–	–	SSC	Found in vernal pools and in uplands with burrows and other below-ground refuges.	No potential to occur; no suitable habitat is present within the BSA.
Fish						
Delta smelt	<i>Hypomesus transpacificus</i>	FT	–	–	Streams with deep, low velocity pools during the winter, such as the Sacramento River and perennial tributaries. Spawning habitat consists of gravel substrates free of excessive silt.	No potential to occur; no suitable aquatic habitat is present within the BSA.
Steelhead – Central Valley DPS	<i>Oncorhynchus mykiss irideus</i> pop.11	FT	–	–	Sacramento River and perennial tributaries.	No potential to occur; no suitable aquatic habitat is present within the BSA.
Birds						
Tricolored blackbird	<i>Agelaius tricolor</i>	–	ST	SSC	Breeds in freshwater wetlands, with tall dense vegetation including tule, cattail, blackberry and rose. Forages in grasslands and croplands.	Could occur; suitable nesting habitat (emergent marsh and blackberry thickets) and suitable foraging grassland habitat present within the BSA. There are 8 records of this species in Amador County from blackberry thickets and cattail marsh habitat in proximity to grassland (CDFW 2022).
Prairie falcon	<i>Falco mexicanus</i>	–	–	WL	Nests in a wide variety of habitats including woodlands, dense coniferous forest, and coastal habitats near wetlands, lakes, or rivers on high cliffs, banks, dunes, or mounds.	No potential to occur; no suitable breeding/nesting habitat present in the BSA.
Bald eagle	<i>Haliaeetus leucocephalus</i>	FD	SE	FP	Large trees close to lakes and large rivers.	No potential to occur; no suitable breeding or foraging habitat present in the BSA.
Mammals						
Pallid bat	<i>Antrozous pallidus</i>	–	–	SSC	A wide variety of low-elevation habitats such as grasslands, shrublands, woodlands, and forests. Roosts in large oaks, caves, mines, tunnels, or other man-made structures.	Could occur; marginally suitable roosting habitat and suitable foraging habitat present on site. There is only one CNDDDB record of this species in Amador County, consisting of one female collected in 2006 near Plymouth (CDFW 2022).

Table 3 Special-Status Wildlife Potentially Occurring on the Argonaut Mine Stormwater Upgrade Project Site

Special-Status Species		Regulatory Status ¹			Habitat Requirements	Potential for Occurrence on Project Site
Common Name	Scientific Name	Federal	State	CDFW ²		
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	-	-	SSC	Variety of habitats throughout California, including coniferous forests. Requires caves, mines, tunnels, or other man-made structures.	No potential to occur; no suitable roosting habitat is present on site.
North American porcupine	<i>Erethizon dorsatum</i>	-	-	-	Montane conifer and wet meadow habitats. Feeds on the bark of hardwood and conifer trees.	Could occur; suitable forage trees in the BSA and one record of the species within three miles to the northwest, where a roadkill carcass was found along Argonaut Lane in 2013 (CDFW 2022).
<p>¹Status Definitions:</p> <p>Federally Listed Species: FT = federal threatened FC = federal candidate FD = delisted - = not applicable</p> <p>California State Listed Species: SE = California state endangered ST = California state threatened - = not applicable</p> <p>²California Department of Fish and Wildlife (CDFW) Status: SSC = Species of Special Concern FP = Fully Protected WL = Watch List - = not applicable</p> <p>BSA = biological study area CDFW = California Department of Fish and Wildlife CNDDDB = California Natural Diversity Database DPS = Distinct Population Segments Source: CDFW 2022, USFWS 2022a</p>						

5 CONCLUSIONS AND RECOMMENDATIONS

No special-status plants were found during the floristic survey. Many of the target special-status plant species listed in Table 2 can be eliminated from further consideration because the study area is outside of the species known elevation or geographic range. Based on the results of the survey, several additional species can be eliminated from further consideration because there is no suitable habitat in the study area. All the remaining species for which suitable habitat is present in the study area are considered absent from the study area because they were not found during the floristic survey conducted during their blooming period.

Suitable habitat is present on or adjacent to the study area for several special-status wildlife species that occur within the Sierra Nevada foothills. Most of the potential habitat is useful to wildlife only for foraging or dispersal, however, nesting habitat is present for tricolored blackbird and other migratory birds; aquatic habitat is present for western pond turtle; and roosting habitat is present for pallid bat.

The following elements are recommended to be incorporated into the project description to address sensitive biological resources that may be present within the project area:

- ▶ Schedule project work, including vegetation removal and ground disturbing activities, to occur outside of the nesting season for migratory birds (February 1 through August 15).
- ▶ If removal of trees and vegetation will occur during the nesting season for migratory birds, (February 1 through August 15), a qualified biologist should conduct surveys for nesting raptors and other nesting birds no more than 14 days before the start of vegetation removal. Typically, these nest surveys need to extend 300 feet beyond the boundaries of the project impact area for nesting raptors, and 50 feet for other nesting birds. If active bird nests are detected during the surveys, a non-disturbance protective buffer should be established around the nest (typically 300 feet for raptors, 50 feet for other nesting migratory birds). A smaller buffer may be established in consultation with CDFW if the qualified biologist determines that construction closer to the nest would not adversely affect nesting activities.
- ▶ Minimize tree trimming and restrict vegetation removal to areas outside of oak woodland vegetation communities and limit vegetation trimming to smaller (under 6" diameter at breast height [DBH]), shrub-like trees that are not likely to support roosting bats or North American porcupine. If removal of trees larger than 6" DBH cannot be avoided during construction, a qualified biologist experienced with bat species should conduct a survey to search for evidence of bat roosts in trees to be removed. Bat roost surveys will be conducted at least 6 months before proposed tree removal. If evidence of roosting bats is found during the pre-construction survey, the qualified biologist will provide guidance on the appropriate time to conduct tree removal (typically during the fall, September– October 31) and will be present during tree removal to avoid impacts on roosting bats.
- ▶ A qualified biologist with experience conducting western pond turtle surveys should conduct two preconstruction surveys for adult western pond turtle one week and within 48 hours before vegetation removal and initial ground-disturbing activities in or adjacent to suitable aquatic habitat. The survey area will include the marsh habitat present in the BSA (Exhibit 3) and grassland and ruderal habitat within 300 feet of the marsh. If a western pond turtle is found during the pre-

construction surveys, a biological monitor will be present during construction activities occurring in the marsh or adjacent habitats within 300 feet of the marsh to provide guidance on avoiding impacts to western pond turtles during construction.

- ▶ A wetland delineation will be conducted to identify any aquatic features on site that are potentially jurisdictional under Section 404 and 401 of the Clean Water Act or under the jurisdiction of CDFW. If the proposed project will result in impacts on jurisdictional waters of the U.S. or the State, the applicant should secure the appropriate permits from the U.S. Army Corps of Engineers, the State Water Resource Control Board and CDFW.
- ▶ Before any work occurs in the project footprint, including grading or vegetation removal, a qualified wildlife biologist will provide Worker Environmental Awareness Program training for all construction personnel. The training will include a description of the avoidance and minimization measures that will be implemented during construction to protect sensitive biological resources. If new construction personnel are added to the project, the contractor will provide them with the mandatory training before they start work.

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_____. 2018e. California Lone Quadrangle map.

_____. 2018f. California Mokelumne Hill Quadrangle map.

_____. 2018g. California Wallace Quadrangle map.

_____. 2018h. California Valley Springs Quadrangle map.

_____. 2018i. California San Andreas Quadrangle map.

APPENDIX A

Plant Species List

Plant Species Observed in the Biological Study Area in May 2020		
Scientific Name	Common Name	NWPL1 Status
<i>Acmispon americanus</i>	Spanish clover	UPL
<i>Ailanthus altissima</i> *	tree-of-heaven	FACU
<i>Avena barbata</i> *	slender wild oat	NL
<i>Baccharis glutinosa</i>	Douglas' baccharis	FACW
<i>Bromus diandrus</i> *	ripgut brome	NL
<i>Bromus hordeaceus</i> *	soft chess brome	FACU
<i>Carduus pycnocephalus</i> *	Italian thistle	NL
<i>Carex barbarae</i>	Santa Barbara sedge	FAC
<i>Centaurea solstitialis</i> *	yellow starthistle	NL
<i>Cirsium vulgare</i> *	bull thistle	NL
<i>Claytonia perfoliata</i>	miner's lettuce	FAC
<i>Cynodon dactylon</i> *	Bermuda grass	FACU
<i>Cynosurus echinatus</i> *	bristly dogtail grass	NL
<i>Dactylis glomerata</i> *	orchardgrass	FACU
<i>Dittrichia graveolens</i> *	stinkwort	NL
<i>Epilobium ciliatum</i> var. <i>ciliatum</i>	willoherb	FACW
<i>Elymus caput-medusae</i> *	medusahead grass	NL
<i>Elymus glaucus</i>	blue wild rye	FACU
<i>Erodium cicutarium</i> *	coastal heron's bill	NL
<i>Erodium moschatum</i> *	whitestem filaree	NL
<i>Eschscholzia californica</i>	California poppy	NL
<i>Euthamia occidentalis</i>	western goldenrod	FACW
<i>Festuca perennis</i> *	Italian ryegrass	FAC
<i>Galium aparine</i>	cleavers	FACU
<i>Geranium dissectum</i> *	wild geranium	NL
<i>Hirschfeldia incana</i> *	field mustard	NL
<i>Holcus lanatus</i> *	common velvet grass	FAC
<i>Holocarpha virgata</i>	narrow tarplant	NL
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i> *	Mediterranean barley	FAC
<i>Juncus balticus</i> ssp. <i>ater</i>	Baltic rush	FACW
<i>Juncus mexicanus</i>	Mexican rush	FACW
<i>Lactuca serriola</i> *	prickly lettuce	FACU
<i>Lamium amplexicaule</i> *	henbit	NL
<i>Lathyrus latifolius</i> *	sweet pea	NL
<i>Medicago lupulina</i> *	black medick	FAC
<i>Nasturtium officinale</i> *	water cress	OBL
<i>Pinus sabiniana</i>	foothill pine	NL
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	FAC
<i>Prunus</i> sp.*	cherry	NL
<i>Prunus virginiana</i>	chokecherry	FAC
<i>Pyracantha angustifolia</i> *	slender firethorn	NL

Plant Species Observed in the Biological Study Area in May 2020		
Scientific Name	Common Name	NWPL1 Status
<i>Quercus douglasii</i>	blue oak	NL
<i>Quercus lobata</i>	valley oak	FACU
<i>Quercus wislizeni</i>	interior live oak	NL
<i>Rubus armeniacus*</i>	Himalayan blackberry	FAC
<i>Rumex crispus*</i>	curly dock	FAC
<i>Rumex pulcher*</i>	fiddledock	FAC
<i>Salix exigua</i>	narrow-leaved willow	FACW
<i>Salix laevigata</i>	red willow	FACW
<i>Salix lasiolepis</i>	arroyo willow	FACW
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	snowberry	FACU
<i>Torilis arvensis</i> *	tall sock-destroyer	NL
<i>Torilis nodosa*</i>	wild parsley	NL
<i>Toxicodendron diversilobum</i>	poison oak	FAC
<i>Tragopogon porrifolius*</i>	salsify	NL
<i>Trichostemma lanceolatum</i>	vinegarweed	NL
<i>Trifolium hirtum*</i>	rose clover	NL
<i>Typha latifolia</i>	broad-leaved cattail	OBL
<i>Vicia americana</i> ssp. <i>americana</i>	American vetch	FAC
<i>Vicia villosa</i> ssp. <i>varia*</i>	winter vetch	FAC
<i>Vinca major*</i>	bigleaf periwinkle	NL
<p>* Species denoted with an asterisk are not native to California. Notes: Nomenclature follows <i>The Jepson eFlora, Revision 9</i> (Jepson Flora Project 2022)</p> <p>1</p> <p>FAC = facultative FACU = facultative upland FACW = facultative wetland NL = not listed NWPL = National Wetland Plant List (Lichvar, et al. 2016) OBL = obligate wetland UPL = upland</p>		