

Appendix A
Mission Creek Habitat
Restoration and Monitoring Plan

Mission Canyon Stream Habitat Restoration Project
Initial Study/Mitigated Negative Declaration

Mission Creek Habitat Restoration and Monitoring Plan

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1 Introduction

In December 2019, Southern California Edison (SCE) performed maintenance operations that consisted of road grading and vegetation management along the Tunnel Trail access road in the Mission Canyon area of Santa Barbara County (County), California (hereafter referenced as the “December 2019 work”). SCE typically maintains dirt roads to allow for access to their existing infrastructure, in this case, transmission towers and associated transmission lines. The December 2019 work went beyond the normal maintenance of the road prism and berms, resulting in unauthorized impacts to the stream and the adjacent upland habitats (Road Areas 1 through 9). While smaller rocks and fine sediment material have settled on the slopes above the creek, larger rocks and additional fine material from the grading discharge have settled in the creek and tributary bottoms. The unauthorized activities in December 2019 caused impacts to Mission Creek and its associated fish and wildlife resources and the native habitats on which they depend.

The U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Regional Water Quality Control Board (RWQCB), Santa Barbara County (County), and City of Santa Barbara (City) were made aware of these activities affecting Mission Creek and its tributaries. CDFW determined the activities were subject to Fish and Game Code section 1602 notification and issued a Notice of Violation (NOV No. 1600-2020-9002-R5) on February 25, 2020. SCE submitted to CDFW a notification per Fish and Game Code section 1602, identified as Notification No. 1600-2020-0149-R5. On December 3, 2020, the People of the State of California, by and through the County District Attorney, filed an action in the Santa Barbara County Superior Court against SCE for violations including Fish and Game Code sections 1602 and 5650. On December 4, 2020, SCE and the People entered into a settlement agreement and stipulated to entry of the final judgement that required SCE to complete the Mission Canyon Stream Habitat Restoration Project (Project), among other things.

The goal of the Project is the restoration of impacted fish and wildlife resources with the objectives of full removal of all sidecast material¹ and restoration of impacted habitat within the Project Area to levels that existed prior to the December 2019 work. The purpose of this Habitat Restoration and Monitoring Plan (HRMP) is to identify the restoration goals, practices, and project activities associated with the Project. All other SCE activities shall be separately addressed outside of this HRMP. This HRMP addresses the habitat restoration and remediation of resource impacts to native habitats, trees, sensitive plants, sensitive wildlife, and waters of Mission Creek and adjacent areas. Specifically, the objectives of this HRMP include the following:

- Full removal of all sidecast material².
- Restore stream hydrology and habitat, including stabilizing creek bank/slopes, and repairing habitat features, such as pools within the stream bed.
- Restore and mitigate trees impacted by the road grading activities.
- Restore and mitigate impacted native habitats impacted by the grading activities.

¹ For purposes of this assessment, “sidecast materials” excludes materials repurposed as building materials (e.g., for berms).

² Full removal of sidecast material within the Project site at the time of Project construction, with noted constraints identified in Section 3.2 Constraints to Sidecast Removal.

- Mitigate impacts to sensitive plant species impacted by the grading activities.

To accomplish these objectives, the HRMP identifies the sidecast removal methods, restoration strategies, installation methods, maintenance requirements, monitoring criteria, and performance metrics to remediate the effects of the grading violation, including impacts to streambed and adjacent upland native habitats.

Required Permits

Areas addressed in this HRMP include restoration and revegetation measures associated with the Project, which will require SCE to obtain permits from several agencies (Table 1, *Required Regulatory Permits for Restoration and Revegetation Measures in Mission Creek*). Collectively the areas of Mission Creek and its tributaries are referenced in this document as “Regulatory Areas”. The Project site in this HRMP includes areas subject to the permitting authority of CDFW, Regional Water Quality Control Board (RWQCB), and County of Santa Barbara. As proposed, the Project would be authorized by the U.S. Army Corps of Engineers under a Non-notifying Nation Wide Permit –13. Initial activities to stabilize the Project area (e.g., weed removal, tree remediation) in upland sidecast areas were completed in fall 2020.

Table 1. Required Regulatory Permits for Restoration and Revegetation Measures in Mission Canyon.

Regulatory Agency ¹	Permit
California Department of Fish and Wildlife (CDFW) ²	Lake and Streambed Alteration Agreement
Regional Water Quality Control Board (RWQCB)	CWA Section 401 Water Quality Certification
U.S. Army Corps of Engineers (USACE)	CWA Section 404 Permit
Santa Barbara County (County)	Land Use Permit and Grading Permit

¹ As proposed, the Project would be authorized by U.S Army Corps of Engineers under a Non-notifying Nation Wide Permit -13
² Pursuant to Fish and Game Code (FGC) sections 1600- et seq., CDFW regulates all substantial diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake. CDFW does not have a specific definition of what constitutes a stream as it relates to regulation under Sections 1600-1603 of the FGC.

1.1 Project Location

The Project site is located along portions of Mission Creek within Mission Canyon, Santa Barbara County, California (Figure 1, *Regional Location*). The site access coordinates are Latitude: 34.465018, Longitude: -119.712531. The Project is in the Mission Canyon Watershed (*Figure 2 Site Overview*).

The total Project Construction Footprint encompasses 7.24 acres within Mission Canyon, including 2.48 acres of sidecast removal areas where rock and sediment have slid into Mission Creek’s bed and bank and adjacent upland slopes. The total area of habitat restoration of the Stream Restoration Project encompasses 2.60 acres consisting of 2.48 acres of sidecast removal and habitat restoration (of which 1.01 acres are within CDFW/RWQCB regulated areas) and habitat restoration of 0.12 acres of currently unvegetated staging areas (Non-Sidecast Areas). Habitats to be restored by sidecast removal and restoration consist of 1.06 acres of woodland and forest habitats and 1.42 acres of upland habitats. The Project will also implement 0.91 acre of Habitat Enhancement by seeding exposed road cut areas and conducting species-targeted weed abatement (a total of 1.27 acres of road cuts will be seeded to make allowances for rock surfaces where seeding may not take hold).

The Project makes use of 1.8 acres of Existing Maintenance Roads (for vehicular and equipment travel, access to the sites, etc.) and utilizes 0.37 acres of unvegetated Parking/Storage Areas (for storage of materials and staging equipment). The Project also consists of 0.5 acres of Berm Stabilization or Reconstruction and Revegetation. A total of 0.27 acre has been identified as Contingency Areas to allow for foot trails for crews to access sidecast piles and conduct removal operations safely within Road Areas 1 and 2 and Creek Sites 1-4. Following Project activities, disturbance within the contingency buffer will be mapped and restored in accordance with this HRMP. Finally, the Project includes the removal and replacement of an existing McCarthy drain in Road Area 1 following sidecast removal activities. These proposed project activities by area are listed in Table 2, *Proposed Project Activity by Project Area*.

Table 2. Proposed Project Activity by Area

Proposed Project Activity¹	Acres
Sidecast Removal and Habitat Restoration	2.48
Habitat Restoration of Non-Sidecast Areas	0.12
Habitat Enhancement (reseed rock slopes/ targeted weed abatement) ²	1.27
Berm Stabilization or Reconstruction and Revegetation ³	0.5
Parking/Storage Areas	0.37
Staging Areas	0.43
Contingency Areas	0.27
Existing Maintenance Roads	1.8
Total Construction Footprint	7.24

¹ Proposed restoration of non-sidecast areas overlap with staging or parking/ storage areas. All values are approximate, actual acreage of Proposed Project Activity may vary.

² A total of 1.27 acres of rock slopes will be reseeded to achieve 0.91 acres of Habitat Enhancement required by the County of Santa Barbara.

³ Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.

The Project area is in the Mission Creek – Frontal Santa Barbara Channel hydrologic unit (HUC12: 180600130203). Mission Creek flows for 16 miles from its headwaters directly to the Pacific Ocean and is an intermittent stream that is mapped as Freshwater Forested/Shrub Wetland and Riverine in the U.S. Fish and Wildlife Service National Wetland Inventory. Mission Creek and its tributaries are considered waters of the United States and waters of the State. Mission Creek in the Project area is an intermittent waterway that has been impacted by current land use practices and drought.

The Project site is in an unincorporated area of Santa Barbara County on two distinct parcels: a majority of the Project site lies within Assessor’s Parcel Number (APN) 153-270-009 (owned by the City of Santa Barbara), while a small portion (approximately 120 linear feet of road and 0.028 acre of sidecast area) at the northeast corner of the Project site occurs within APN 153-270-028 (under private ownership). The Project area is in Sections 33 and 34 of Township 5 North, Range 27 West, San Bernardino meridian, and is depicted on the U.S. Geological Survey’s (USGS) “Santa Barbara, CA” 7.5-minute quadrangle map. The Project area is on the southern slopes of the Santa Ynez Mountains, between 900 and 1,500 feet above mean sea level. Aspects are mostly southwest or east, and slopes average 40 to 65 percent.

1.2 Environmental Setting

Determination of natural vegetation communities was assessed throughout 2020, using field-based surveys and mapping for determining dominant species, percent cover, and community boundaries; communities were refined using ArcGIS post-survey (SWCA 2021). Vegetation community names correspond to the Manual of California Vegetation online (CNPS 2020), with the sensitivities compared to the current list of sensitive natural communities (CDFW 2019). Communities were mapped to the alliance; however, state sensitive communities were mapped to the association when their overarching alliance was not state sensitive. Vegetation in the study area is composed of a matrix of eight different plant communities, five of which are deemed sensitive (Figures 3a-e, *Vegetation and Sensitive Species Within the Study Area*).

The non-sensitive communities found within the Project area include:

- *Ceanothus megacarpus* Shrubland Alliance (Big pod ceanothus chaparral)
- Holly leaf cherry – toyon – greenbark ceanothus chaparral with *Ceanothus spinosus* – *Ceanothus megacarpus* Association
- *Quercus agrifolia* Forest and Woodland Alliance (Coast live oak woodland and forest)

The sensitive communities found within the Project area include:

- Big pod ceanothus chaparral with *Ceanothus megacarpus* – *Salvia mellifera* Association
- *Ceanothus (oliganthus, tomentosus)* Shrubland Alliance (Hairy leaf – woolly leaf ceanothus chaparral Alliance) with *Ceanothus oliganthus* Association
- Coast live oak woodland and forest with *Quercus agrifolia* – *Umbellularia californica* Association
- *Quercus dumosa* – *Quercus pacifica* Shrubland Alliance (Coastal sage and Island scrub oak chaparral)
- *Umbellularia californica* Forest and Woodland Alliance (California bay woodland and forest)

1.2.1 Woodland Alliances

***Quercus agrifolia* Forest and Woodland Alliance (Coast live oak woodland and forest)**

Coast live oak woodland and forest is dominated by coast live oak and occurs on-site primarily within the ravines and along Mission Creek and the drainages that feed it. Coast live oak is an evergreen tree in the Oak Family (Fagaceae). This community is common throughout Southern California from the coast to the inland foothills and mountains and is typically associated with waterways or the upper reaches of drainages. Occasional California sycamore and black cottonwood (*Populus trichocarpa*) trees were present in a few locations. Shrub species within the understory include buckthorns (*Ceanothus* spp.), bush monkeyflower, toyon, laurel sumac (*Malosma laurina*), holly-leaved cherry (*Prunus ilicifolia* ssp. *ilicifolia*), chaparral currant (*Ribes malvaceum*), blue elderberry, and poison oak. Conspicuous herbaceous species include bittercress (*Cardamine californica*), pipestems (*Clematis lasiantha*), wood

fern, California fuchsia, spotted eucrypta (*Eucrypta chrysanthemifolia*), California melic, hummingbird sage, California figwort (*Scrophularia californica*), and canyon sunflower. Plummer's baccharis, a California sensitive plant with a rank (CRPR) 4.3 occurs in the coast live oak woodland that is present within Creek Sites 2, 3, and 4; Santa Barbara honeysuckle, a CRPR 1B.2; and coastal sage scrub oak, a CRPR 1B.1, occur within the upland portions of coast live oak woodland and forest community and outside of the creek restoration areas.

Coast live oak woodlands and forest is not considered to be a state sensitive alliance (G5 S4); however, one association (*Quercus agrifolia-Umbellularia californica* Association) observed on-site is state sensitive (G3 S3). The *Quercus agrifolia-Umbellularia californica* Association occurs in Mission Creek, near the crossing of an unnamed tributary west of Mission Creek and several other drainages associated with the Mission Creek watershed. In these areas, California bay is co-dominant with coast live oak in the tree canopy layer. Both *Quercus agrifolia-Umbellularia californica* Association and *Quercus agrifolia* Forest and Woodland Alliance occur within Regulatory Areas and upland areas, depending on their topographic position within the watershed.

***Umbellularia californica* Forest and Woodland Alliance (California bay woodland and forest)**

California bay woodland and forest is co-dominated by California bay and coast live oak; however, the bay has relative cover greater than 30 percent and can be classified as California bay woodland and forest. It occurs on-site, only within a small area of Mission Creek; the areas adjacent to this community fall within the previously described *Quercus agrifolia-Umbellularia californica* Association. California bay is an evergreen tree in the Laurel Family (Lauraceae). Some California sycamores are present in a few locations. Shrub species within the understory include greenbark ceanothus, toyon, and poison oak. Conspicuous herbaceous species include wood fern and creeping snowberry (*Symphoricarpos mollis*).

California bay woodland and forest is a state sensitive alliance (G4 S3). It is also a semi-riparian vegetation community that occupies the woodland/forest habitat zone on-site.

1.2.2 Shrubland Alliances

***Ceanothus megacarpus* Shrubland Alliance (Big pod ceanothus chaparral)**

Big pod ceanothus chaparral is dominated by Big pod ceanothus (*Ceanothus megacarpus* var. *megacarpus*) and codominant with chamise, laurel sumac, and greenbark ceanothus. It occurs on-site, primarily on the south-facing slopes in well-drained soils. It was the most common vegetation community encountered during the vegetation mapping surveys. Big pod ceanothus is an evergreen shrub in the Buckthorn Family (Rhamnaceae). Other species that occur in the shrub canopy include birch-leaved mountain mahogany, toyon, holly-leaved cherry, redberry (*Rhamnus crocea*), and black sage (*Salvia mellifera*). Conspicuous herbaceous species include coast morning glory (*Calystegia macrostegia* ssp. *cyclostegia*), common sandaster (*Corethrogyne filaginifolia*), blue dicks, lance-leaved liveforever (*Dudleya lanceolata*), and southern hedge nettle (*Stachys bullata*). The low-growing chaparral yucca also occupies the herbaceous canopy layer below the more prominent shrubs. Santa Barbara honeysuckle, Plummer's baccharis, and coastal sage scrub oak also occur within the Big pod ceanothus community.

Big pod ceanothus chaparral is not considered to be a state sensitive alliance (G4 S4); however, one association (*Ceanothus megacarpus-Salvia mellifera* Association) observed on site is considered to be

state sensitive (G3 S3). The *Ceanothus megacarpus-Salvia mellifera* Association occurs in several, small, discrete locations adjacent to the road, where the plants are primarily Big pod ceanothus and black sage and little to no other shrub species. It is an upland community.

Ceanothus (oliganthus, tomentosus) Shrubland Alliance (Hairy leaf – woolly leaf ceanothus chaparral Alliance)

Hairy leaf – woolly leaf ceanothus chaparral is dominated by hairy-leaf ceanothus (*Ceanothus oliganthus*) and occurs in a few discrete areas on-site, typically at the margins of coast live oak woodlands before transitioning to the drier Big pod ceanothus chaparral. Woolly leaf ceanothus is absent on site, meaning all associations fall under the hairy leafed ceanothus category. Hairy-leafed ceanothus is an evergreen shrub in the Buckthorn Family (Rhamnaceae). Other species that occur in the shrub canopy include chamise, Big pod ceanothus, toyon, laurel sumac, black sage, and poison oak. Emergent coast live oaks were often found in this community. Given the high shrub density inhibiting herbaceous growth, only a few species were observed; the most prominent species include pipestems and spotted eucrypta.

Hairy leaf – woolly leaf ceanothus chaparral is a state sensitive alliance (G3 S3). It is also typically associated with upland communities.

Ceanothus spinosus Shrubland Alliance (Holly leaf cherry – toyon – greenbark ceanothus chaparral)

Holly leaf cherry – toyon – greenbark ceanothus chaparral is co-dominated by holly-leaved cherry, toyon, greenbark ceanothus, and Big pod ceanothus, and is the second most common alliance documented on-site. It was often found in more sheltered ravines in transitional zones between coast live oak woodlands and the drier Big pod ceanothus chaparral. All three species are evergreen shrubs belonging to the Rose Family (Rosaceae) or Buckthorn Family (Rhamnaceae). Other species that occur in the shrub canopy include birch-leaved mountain mahogany, laurel sumac, heart-leaved keckiella (*Keckiella cordifolia*), black sage, and blue elderberry. Conspicuous herbaceous species include pipestems, blue dicks, golden yarrow (*Eriophyllum confertiflorum* var. *confertiflorum*), and California melic. Plummer's baccharis and Santa Barbara honeysuckle also occur within this community.

Holly leaf cherry – toyon – greenbark ceanothus chaparral is not considered to be a state sensitive alliance (G5 S4) and is typically associated with upland communities.

Quercus dumosa - Quercus pacifica Shrubland Alliance (Coastal sage and Island scrub oak chaparral)

Given that island scrub oak (*Quercus pacifica*) occurs only on the Channel Islands, the chaparral community on-site is coastal sage scrub oak chaparral and dominated by a stand of coastal sage scrub oak. It occurs on-site only near the gate entrance, where approximately five to seven individuals are present. Coastal sage scrub oak is an evergreen shrub in the Oak Family (Fagaceae), and it is a sensitive plant (CRPR 1B.1). Shrub species associated with the community (primarily at the edges) include deerweed (*Acmispon glaber*), California brittlebush, California buckwheat, laurel sumac, lemonade berry (*Rhus integrifolia*), and black sage.

Coastal sage scrub oak chaparral is a state sensitive alliance (G2 S2). It is also typically associated with upland communities.

1.2.3 Unvegetated Areas

Developed areas refer only to the road/trail and bridge.

1.2.4 Plants

SWCA conducted botanical surveys related to the Project in 2020, and Forde Biological Consultants conducted supplemental botanical surveys in 2021. Initial site assessments relating to the December 2019 work occurred on December 27, 2019, January 8, 9, and 31, and February 2 through 5, 2020. Surveys for late-blooming species were conducted from June 23 to 24, 2020, and October 22, 2021 (SWCA 2021). Vegetation mapping occurred on March 30 through April 1, 2020, and sensitive plant surveys occurred on April 20 and 21, June 23 and 24, and July 21, 2020. A delineation was conducted on July 20 and 21, 2020 (Rincon 2020) and then updated in November 2021 (MBI 2021). New resource observations during the delineation surveys were used to supplement the botanical inventory.

The spring 2020 field surveys yielded 193 plant species and confirmed that four sensitive plant species occur within the study area that possess a California Sensitive Plant Rank (CRPR): Santa Barbara honeysuckle (CRPR 1B.2), Plummer's baccharis (CRPR 4.3), Hubby's phacelia (*Phacelia hubbyi*) (CRPR 4.2), and coastal sage scrub oak (CRPR1B.1).

The 2020 late-blooming field survey confirmed the absence of the late-flowered mariposa lily (CRPR 1B.3) and the white-veined monardella (*Monardella hypoleuca* ssp. *hypoleuca*, CRPR 1B.3) from the Project area. In addition, the location of the historic population of the Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*, CRPR 2B.2) was also found to be outside of the Project area. Surveys from the creek bed allowed SWCA to identify additional Plummer's baccharis and Santa Barbara honeysuckle located on the mid and lower slopes where the rockslides occurred and within the Project area. One individual of the sensitive species—ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) (CRPR 4.2) was also found just outside the Project area. Sensitive species and tree locations, including critical root zones (defined by the County of Santa Barbara as the dripline plus 6 feet [County of Santa Barbara 2020]) within the study area, are presented in Figures 4a-e, *Environmentally Sensitive Areas*.

Descriptions of these species are included below.

Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*) (CRPR 1B.2) is a perennial evergreen shrub that blooms between May and August. The shrub is known mostly from the Western Transverse Range in Ventura and Santa Barbara Counties. There is also a population known from Santa Catalina Island. This species generally occurs in chaparral, coastal sage scrub, and cismontane woodland at less than 3,280 feet in elevation. This species is threatened by development, road construction, and vehicles. The nearest California Natural Diversity Database (CNDDDB) record is from 1944 and overlaps the Project area. More recent records from 2007 showed this species located approximately 2.8 miles southwest of the Project.

The species was determined to occur within the Project area along road fringes in the sidecast areas and within coast live oak woodlands and chaparral (Figures 3a-e). Further, individuals were observed growing through areas where rockslides have occurred. These individuals seem to be recolonizing the slope and/or were individuals previously covered by debris but have been able to continue to survive and grow through the debris.

Plummer's baccharis (*Baccharis plummerae* ssp. *plummerae*) (CRPR 4.3): Plummer's baccharis is a perennial deciduous shrub that blooms from August through November. The shrub has a distribution that includes the Western Transverse Ranges of the California Floristic Province and can be found in cismontane woodland, coastal scrub, and chaparral. Its microhabitat tends to be brushy canyons, usually shaded north-facing slopes, and rocky substrates at elevations of 15 to 1,400 feet. There are several Consortium of California Herbaria occurrences within the immediate vicinity of the Project area, albeit from the 1940s and earlier. Although the survey occurred before the blooming period, plants could be distinguished from other co-occurring *Baccharis* species by the fine hairs along the stem, according to the Jepson eFlora treatment (Bogler 2012).

The species was determined to occur within the Project area. An individual was observed in each of the following areas: Creek Site 2, Creek Site 3, and Creek Site 4 (Figures 3a-e). Further, individuals were observed growing along the edges of the rockslide area and may potentially recolonize the debris.

Hubby's phacelia (*Phacelia hubbyi*) (CRPR 4.2) is an annual herb that blooms from April through July. This annual herb has a distribution that includes the Western Transverse Range of the California Floristic Province and can be found on generally open gravelly or rocky slopes in chaparral, coastal scrub, valley, and foothill grassland at less than 3,280 feet in elevation. The nearest record is from 1956 and is located 1.1 miles south of the Project area.

The species was determined to occur within the Project area. During the spring surveys, approximately 34 individuals were observed, typically on the gravelly areas along the road cuts of Tunnel Trail access road and Mission Canyon Catway (Figures 3a-e). The species was determined to occur within the Project area, often growing on berms and within the edge of rockslide areas.

Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*) (CRPR 2B.2): The impacts of rockslides were evident approximately 200 feet downstream from the Mission Creek Bridge. However, the fern habitat was identified approximately 200+ feet farther downstream beyond the rockslide. The first individual found closest to the impact area was over 450 feet east of the Project (downstream or south of the bridge), well outside of the impact areas. No impacts were observed within its habitat.

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) (CRPR 4.2) is a perennial bulbiferous herb that blooms between May and August and can be found throughout the central and southern coast of California. Its large, orange showy flowers lend themselves well to gardens, and it is threatened by horticultural collecting on the mainland, as well as by feral herbivores on the islands off the coast. It is typically found in openings within chaparral, coastal scrub, cismontane woodland, lower montane coniferous forest, or riparian forest.

This species was determined to occur within the Project vicinity but outside of the Project area. One individual was observed approximately 30 feet east of the Project area (the 100-foot buffer of the roadbed) during the June 24, 2020 survey downstream of Creek Site 4 (SWCA 2021).

Late-flowered mariposa lily (*Calochortus fimbriatus*) (CRPR 1B.3) is a perennial bulbiferous herb that blooms between June and August. It is known from the Coast Range within Monterey and San Luis Obispo Counties, and the Western Transverse Range within Santa Barbara and Ventura Counties. The species often occurs in dry, open coastal woodland habitat or chaparral between 890 and 5,400 feet in elevation. The species is threatened by grazing, development, road maintenance, and fire

suppression. The nearest CNDDDB record is from 1944 and was located approximately 0.5 mile northwest of the Project area. The nearest recent record, from 2011, is located approximately 1.7 miles to the north near East Camino Cielo.

Approximately 350 individuals of the species were recorded well outside of the Project area in an open, sunny area on a hilltop 1.36 miles away during the 2020 sensitive plant survey. Habitat within the Project area is not optimal; protocol rare plant surveys determined this species is absent from the Project area, with the nearest occurring 1.36 miles away.

Coastal sage scrub oak (*Quercus dumosa*) (CRPR 1B.1) is a perennial evergreen shrub that blooms between February and April, possibly into August. The shrub has a coastal distribution from Santa Barbara to San Diego County. The species occurs in sandy or clay loam soils in chaparral and coastal sage scrub at elevations of 50 to 2,100 feet. The species is threatened by development, fire suppression, and vegetation management. It is possibly threatened by hybridization with scrub oak (*Quercus berberidifolia*). The nearest CNDDDB record from 1944 is located approximately 0.7 mile south of the Project area, near the Santa Barbara Botanic Garden. A more recent record from 2015 shows this species located approximately 1.1 miles southeast of the Project near Rattlesnake Canyon Trail.

The species was determined to occur within the Project area. Approximately 20 individuals were observed, mostly on the Tunnel Trail access road.

1.2.5 Wildlife

Wildlife surveys included a special status³ wildlife assessment, nesting bird surveys and monitoring, protocol red-legged frog surveys, and a fisheries stream survey. As a result, seven special status wildlife species were determined to have the potential to occur in the Project area and were analyzed further (SWCA 2021). There is no USFWS-designated critical habitat within the Project area. High-quality nesting bird habitat exists throughout the Project area. April field surveys confirmed two of the special status wildlife species occur within the Project area: coast range newt (*Taricha torosa*) and two-striped gartersnake (*Thamnophis hammondi*). In addition, California whiptail (*Aspidoscelis tigris munda*) was observed within the Project area by an SCE biologist during a pedestrian survey on July 21, 2020.

Southern California Steelhead Trout (*Oncorhynchus mykiss*) Distinct Population Segment 10 (DPS); (Federally Endangered, State Candidate as Endangered): Southern California steelhead trout are found along the coast from San Diego County to Santa Barbara County and exhibit two distinct life patterns: resident inland Southern California steelhead trout and anadromous Southern California steelhead trout (steelhead trout, CalFish 2018). National Marine Fisheries Service (NMFS) designated Mission Creek the highest level of priority (Core 1) for Southern California steelhead trout (*Oncorhynchus mykiss*) recovery within the Southern California distinct population segment (DPS) (NMFS 2013). Southern California steelhead trout occur in cool, clear, well-oxygenated water, with spawning occurring in gravel-bottomed substrates, which are usually riffles or pool tails (National Oceanic and Atmospheric Administration Fisheries 2020; University of California, Davis 2020). Lower Mission Creek is considered the most viable stream for Southern California steelhead trout restoration within Santa Barbara County, and, although they are frequently spotted in the creek, they are unable to migrate further upstream and spawn due to

³ Special status species includes ESA- and CESA-listed species (threatened or endangered), fully protected, rare, and species of special concern.

significant anthropogenic barriers to migration (City of Santa Barbara 2021). Adult Southern California steelhead trout have been observed entering the Mission Creek Estuary (documented in 2001 and 2008), migrating upstream, and becoming restricted at Foothill Road, Passage Assessment Database (PAD) DS69.

Should Southern California steelhead trout migrate upstream of the artificial barriers, there are additional in-stream boulders located downstream of the Project area, which are too large to allow Southern California steelhead trout passage. The upper portions of the stream surveyed in April 2020 confirmed the presence of several existing natural and unnatural barriers (CDFW 2017) and can be categorized as follows:

- (1) Old Mission Dam to the Stone Dam (PAD⁴ ID 7922 - 7925), approximately 0.4 mile. Prior to this project, anadromous Southern California steelhead trout were blocked from migrating upstream by the Old Mission Dam, which has prevented migration into the upper stream for more than 200 years. Upstream of the Old Mission Dam are several other human-made structures that have created a complete, including the debris dam with a culvert (PAD ID 7923) and a small stone dam (PAD ID 7925). Although Stoecker (2002) identified the culverts as partially impassable, they may be completely impassable because when the water level is high enough for fish to pass through the culvert, the water velocity would be too great. These three human-made barriers prevent any migration of Southern California steelhead trout.
- (2) Stone dam to bedrock waterfall (PAD ID 7925 - 7927), approximately 0.3 mile. Just upstream of the stone dam is a completely impassable natural barrier, a waterfall. However, upstream of this barrier is an approximately 0.3-mile stretch with pools or potential habitat. It is within this stretch of creek that two resident *O. mykiss* were observed in July and August 2021 (CDFW 2021). It is also the best possible spawning location for any re-introduction efforts. It is possible that there is a remnant resident population of *O. mykiss* inhabiting this part of the creek that has been isolated from ocean access for 200 or more years due to the historic construction of the Old Mission Dam. No fish were observed upstream of Rattlesnake Creek during a complete snorkel and foot survey of upper Mission Creek in 2001 and 2002 (Stoecker 2002). During a survey of the creek in April 2020 by HELIX Environmental Planning, an unknown species of three- to five-inch-long fish was observed approximately 225 feet downstream of the location of a previous (unknown year) *O. mykiss* observation reported to CDFW.
- (3) Bedrock waterfall to Mission Creek bridge (PAD ID 7927 - 7631), approximately 0.4 mile. At least three impassable barriers (i.e., natural waterfalls) and fishless pools are between the December 2019 impact areas and the previous downstream fish observations. The impassable natural barriers in this stretch would further prevent Southern California steelhead trout from occurring in the impact areas. Even if re-introduction and spawning could occur upstream of the stone dam, these natural waterfalls present significant impediments for fish to utilize these areas upstream. Upstream of the Mission Creek bridge was identified as non-habitat by Stoecker (2002).

⁴ The Passage Assessment Database (PAD) is an ongoing map-based inventory of known and potential barriers to anadromous fish in California. <https://nrm.dfg.ca.gov/PAD/>.

Although Mission Creek has suitable fish habitat and provides localized passage for resident Southern California steelhead trout, it will remain unoccupied by anadromous Southern California steelhead trout without overcoming the impassable natural and human-made barriers. If fish are present in the upper reaches of Mission Creek, they may pass through the Project area to access downstream habitat and could potentially use the Project area, but may not occupy habitat within the Project area year-round.

CDFW monitoring and surveys (summer 2022 and July/August 2021) confirmed the presence of a resident population of *O. mykiss* downstream of the Project site, above the Santa Barbara Botanic Garden Dam, as described below. Surveys suggest these fish have existed historically in this watershed and are able to persist through the expression of a resident life history. CDFW surveys concluded the following:

*At the time these assessments were conducted, several areas of suitable *O. mykiss* habitat provided by perennial spring fed streamflow were present within various portions of Mission Creek. This suitable *O. mykiss* refugia habitat is one of the various factors that led NMFS to designate Mission Creek the highest level of priority (Core 1) for *O. mykiss* recovery within the southern California DPS (NMFS, 2011). Continued documented presence of *O. mykiss* within the watershed by CDFW, NMFS, and others demonstrates that Mission Creek continues to contain suitable *O. mykiss* habitat despite prolonged drought conditions. Returning anadromous Southern California steelhead trout have also been documented within Mission Creek as recently as 2016 (Capelli, 2016). In recent years, a single *O. mykiss* was observed within the portion of Mission Creek located directly below the location of the SCE incident on Tunnel Trail access road during snorkel and spawning surveys conducted in 2019 and 2020 (Evans, 2021). Additionally, two *O. mykiss* were observed on Mission Creek during snorkel surveys conducted between July 15 and August 2, 2021 (Evans, 2021). In Rattlesnake Creek, the primary tributary to Mission Creek, 16 *O. mykiss* were observed during a redd survey conducted on April 29, 2020 (Evans, 2021). Snorkel surveys conducted during the same time period in 2020 observed 18 *O. mykiss* in Rattlesnake Creek (Evans, 2021), (CDFW 2022a).*

Resident population(s) of *O. mykiss* are a conservation priority of CDFW and, therefore, have been considered in planning upstream activities of the Project.

Coast Range Newt (*Taricha torosa*) (California Species of Special Concern [SSC]): Coast range newt is a semi-aquatic amphibian endemic to California, typically found along the coast from Mendocino County to San Diego County. In Southern California, they are often found in drier habitats, including chaparral, oak woodland, and grassland. Throughout much of the year, terrestrial adults are generally inactive in subterranean refuges, typically rodent burrows, or beneath rocks and logs. Adults emerge during the wet weather and become aquatic during the breeding season, often remaining near the breeding habitat for several weeks. Breeding habitat for this species includes slow-moving streams, ponds, and reservoirs (Morey 2000, Nafis 2020).

Habitat was found to be suitable for coast range newt within the Project area, which has an overlapping CNDDDB occurrence from 1986. Coast range newt has been confirmed as present within Mission Creek. At least 15 individuals, including one gravid female, seven egg masses, and an active copulation, were encountered on April 21, 2020, during a resident *O. mykiss* survey downstream of Mission Creek Bridge.

Coast (Blainville's) Horned Lizard (*Phrynosoma blainvillii*) (SSC) Coast horned lizard is a diurnal, flat-bodied lizard found in grasslands, coniferous forests, woodlands, and chaparral. This species is most often found in open areas, with loose soil, often near ant hills or along roadways (Nafis 2020). Like all horned lizards, the coast horned lizard has a specialist diet, mostly consisting of native ants, which are often an indicator for the presence of horned lizards.

Although no anthills were observed during the field surveys, the roadways and trails are generally suitable for this species. Records for this species are as close as 2.5 miles to the southeast of the Project but are relatively old, with the most recent from 1993. Coast horned lizard is rarely encountered due to its behavior and cryptic coloration. This species is unlikely to occur along the fragmented suitable habitat located on the flatter, less vegetated areas, and the roadway and trails frequented by pedestrians.

Two-striped Gartersnake (*Thamnophis hammondi*) (SSC): Two-striped gartersnake is a highly aquatic species, occurring in ponds, creeks, and cattle tanks, especially in rocky habitats. Vegetation communities associated with this species range from oak woodland, willow, sparse coniferous forest, chaparral, and coastal sage scrub. The diet of two-striped gartersnake includes aquatic organisms, such as fish and their eggs, amphibians and their larvae, leeches, and earthworms (Nafis 2020). This species overwinters in small mammal burrows, crevices, or under rotting logs, and emerges in the spring to breed (Kucera 2000).

Habitat within Mission Creek is ideal for this species, and CNDDDB records show observations in 2013 within the creek. Two-striped gartersnake has been confirmed as present within Mission Creek. Two individuals were observed during a resident *O. mykiss* survey downstream of Mission Creek Bridge on April 21, 2020.

California Red-legged Frog (*Rana draytonii*) (Federally Threatened and SSC): The area surveyed did not contain the vegetation or water requirements needed to support California red-legged frog in the watershed. Habitat suitability for California red-legged frog consists of dense, shrubby riparian vegetation associated with deep, still, or slow-moving water (Jennings 1988; Nafis 2020). The vegetation most suited to California red-legged frogs is arroyo willow, cattails, and bulrushes (Jennings and Hayes 1989, 1994).

Ventura USFWS was consulted to determine whether a protocol-level survey was necessary. USFWS concluded that a focused survey was not appropriate as the Project area was too high in the watershed with no suitable habitat present, supporting SWCA's habitat assessment. California red-legged frog was determined to be absent within the Project area because the vegetation community that would provide habitat is the wrong type and too sparse; connectivity is poor, as the nearest occurrence is 3.5 miles away; and the USFWS concurs that there is a lack of habitat.

Southern Population of the Western Pond Turtle (*Actinemys marmorata pallida*) (Under Review by the USFWS for Listing as an Endangered or Threatened Species and SSC). Southern populations of the western pond turtle, hereafter referred to as southwestern pond turtle (pond turtle, SWPT), range from northern Baja California into central California. Pond turtle is typically found at elevations ranging from sea level to approximately 4,980 feet (Stebbins 2003). The pond turtle uses a wide variety of permanent and ephemeral aquatic habitats and may spend a significant amount of time in upland terrestrial habitats as well. Pond turtle aquatic habitats typically include permanent freshwater ponds, lakes,

marshes, streams, and rivers (Bury and Holland 1993; Rathbun et al. 1992; Bury and Germano 2008). It favors sites containing deep pools, with an abundance of basking sites, such as partially submerged logs or rocks, matted emergent vegetation, floating aquatic vegetation, or exposed shorelines. Undercut banks, root masses, and boulder piles provide underwater escape cover, especially for small hatchlings and smaller turtles that behave more cryptically and are more susceptible to predation (Bury and Holland 1993).

Terrestrial habitat requirements are variable throughout the range and may include basking, nesting, over-wintering, and aestivating habitat (USGS 2006). While emergent basking sites are preferred because they offer some protection from terrestrial predators and quick escapes to deep water, terrestrial basking sites are also utilized. Terrestrial basking sites include mud banks, rocks, logs, and root wads on the bank, and are never far from water. Nesting occurs terrestrially, usually in open low-slope areas with sparse vegetation consisting of grass and forbs. Nest locations can range from tens of feet to over 1300 feet perpendicular from the watercourse (USGS 2006). The nest site typically has good exposure to the sun and compact soil (Holland 1994, Reese 1996). Suitable nest habitat near aquatic environments may often be limited (Holland 1994).

In most areas, terrestrial overwintering habitat is also required (Reese 1996). However, overwintering can be aquatic or terrestrial (Holland 1994). Terrestrial overwintering site characteristics are highly variable, but the microsite usually includes a thick duff layer (Holland 1994). Terrestrial overwintering sites include a much broader array of vegetation structures than nest sites. Shrubby, open, and forested environments have all been used by pond turtles for overwintering (Rathbun et al. 1992, Holland 1994, Rathbun et al. 2002). Overwinter sites typically include terrestrial refugia (typically buried under two to four inches of leaf litter), burial in the substrate of aquatic habitats, or in undercut banks along streams (Rathbun et al. 1992, Holland 1994, Rathbun et al. 2002). Throughout their range, hatchling pond turtles overwinter in their natal nests (Holland 1994, Bury and Germano 2008). Pond turtles often emerge from their terrestrial refugia to bask and/or move to other locations during the winter (Holland 1994, Rathbun et al. 2002, Bury and Germano 2008).

Pond turtle is known to occur in suitable habitat throughout Santa Barbara County. Suitable upland nesting habitat (open habitat with sparse vegetation) is not present in the Project area. However, although pond turtle has not been observed in the Project area incidentally or during previous Project surveys, suitable aquatic habitat for dispersal and overwintering is present within the drainages in the Project area. As a result, this species is considered likely to occur in Mission Creek, primarily downstream of Mission Creek Bridge.

Ring-tailed Cat (*Bassariscus astutus*) (Fully Protected Species). Ring-tailed cat is a medium-sized nocturnal carnivore found in the raccoon family (Procyonidae). It ranges from the southern portion of Oregon to Mexico, and as far east as Kansas and Oklahoma in a wide range of habitats, including desert, chaparral, forest, and riparian habitats, often near rocky outcrops (Goldberg 2003). Ring-tailed cat generally uses hollow trees, logs, snags, and cavities in rocky areas for cover and is typically found no further than 0.6 mile from a permanent water source (Ahlborn 2005). Mission Creek appears to have some small permanent water features within 0.6 mile of the Project area. This species is highly elusive and rarely observed throughout its range, likely because of its nocturnal habits and solitary nature.

Data on population density and relative abundance among habitats are very limited and were last studied in California in the 1980s. The data suggest that ring-tailed cat populations are relatively low in

Santa Barbara County (Orloff 1980). According to the Lower Mission Creek Interim Report (U.S. Army Corps of Engineers 1987), ring-tailed cat has historically been recorded along Mission Creek prior to 1977. However, the report also shows negative results for the species during surveys in 1983 and 1987. Occurrence data for ring-tailed cat are not tracked in CNDDb; therefore, there are no records for the species within the Project vicinity. Other publicly available online resources, such as iNaturalist (2020), show sporadic observations throughout Southern California, but none are within Santa Barbara County.

In addition, the lack of observations may be due to existing disturbance in the area. Much of the Project is adjacent to developed areas, while the furthest portions are within one mile of development. The roads and trails within the Project area are subject to heavy pedestrian traffic on a daily basis. Recent research on ring-tailed cat and other carnivores in the southwest indicates that there is generally a negative association with roads and edge habitat (Baker 2016). The forest and other woodland habitat within the project area are suitable for the species to move through the area, and portions of Mission Creek are isolated from disturbance and may provide appropriate refuge, but they are assumed unlikely to occur or be encountered within the Project site based on their elusive behavior, the relatively small and scattered permanent water sources in the vicinity, and historic population data. The species is also strictly nocturnal and not encountered during daytime hours.

1.2.6 Soils

According to the Natural Resource Conservation Service (NRCS) Web Soil Survey of Santa Barbara County, California, South Coastal Part, one soil map unit was mapped within the Project area, Maymen-Rock outcrop (USDA, NRCS 2020a). Maymen-Rock outcrop complex, 50 to 75 percent slopes (MbH), primarily consists of somewhat excessively drained soils derived from shale and sandstone. Maymen soils are exclusively found on mountains with slopes ranging from 5 to 100 percent at elevations from 400 to 4,250 feet. A typical soil profile consists of brown gravelly sandy clay loam topsoil to approximately 10 inches. Below this, hard bedrock extends to approximately 15 inches in depth. This soil map unit is not included on the *National Hydric Soils List* (USDA, NRCS 2020b). No soil was collected from the site due to the access restrictions (safety concerns) down into the creek channel. Soils are anticipated to be similar to those identified in the soil survey.

1.2.7 Hydrology

The Project area is located within the Mission Creek Frontal Santa Barbara Channel watershed (Hydrologic Unit Code 180600130203), defined by Mission Creek and its tributaries. Mission Creek flows south along Tunnel Trail, parallel to Spyglass Ridge Road, and eventually to the Pacific Ocean at Stearns Wharf. Within the Project site, Mission Creek is classified as both Riverine habitat and Freshwater Forested/Shrub Wetland by the National Wetlands Inventory.

1.3 Mission Canyon in the Project Area

The slopes of Mission Canyon in this upper mountainous portion of the drainage are steep, and the width of the creek is relatively narrow. Vegetation occurs where the terrain allows and is composed of a shrub/herbaceous understory and an upper canopy dominated by California bay and sycamore. Much of the canyon along the Project area is steep, with portions composed of vertical exposed rockface escarpments. Where sidecast was deposited along some slopes, it is mostly loosely compacted and contains fractured rock material. The exposed rock face of the canyon is highly weathered, fractured,

and unstable due to steep slopes and natural erosive processes that provide the creek with its boulder, cobble, and gravel structure. The steepness of the drainage, the unstable condition of slope material, along with the continual erosional and hydrological forces, create an environment of steep, unstable mountainous terrain (J. Burton, personal communication September 30, 2021).

Mission Creek in the Project area is an intermittent waterway that has been impacted by current land use practices and drought and generally consists of a riffle-pool habitat sequence with occasional boulder cascades and waterfalls. Riffle-pool sequences are commonly found in mountain streams and provide particularly valuable habitat for fish and other wildlife (CWA 404(b)(1) Guidelines (40 CFR 230.45)). The rapid movement of water over a coarse substrate in riffles results in a rough flow, turbulent surface, and high dissolved oxygen levels in the water. The rocky creek bed in riffles provides protection from predators, sources of food deposition, and shelter. Riffles also provide bank (lateral) and/or bed (vertical) stability. The stability of beds and banks provided by a riffle habitat is important to reduce the potential for channel degradation following sidecast material removal. Once sidecast material is removed from areas where the deposition may have displaced native creek material, any impacted portions of the creek bed lacking cobbles and boulders could become vulnerable to erosional forces during creek flows and may benefit from the reestablishment of native creek material.

Pools are deeper areas of the creek associated with riffles and are an important component of Mission Creek, particularly in the upper reaches where creek flow is ephemeral. Pools are generally created by the vertical force of water falling over bedrock, boulders, or woody debris and forming a deeper indentation by scouring the creek bed, often to bedrock. Pools are characterized by a slower stream velocity, deeper water depths, smoother water surface, and a finer substrate. The water holding capacity of pools is often enhanced by the accumulation of large cobbles, boulders, woody material, and other streambed material along the downstream edges of the pools. With deeper water and slower flow velocity than other creek habitats, pools play an important role along Mission Creek, as they retain organic matter, provide shelter and protection from predators, provide areas of cooler water conditions, and retain water in ephemeral creeks after the flow has ceased. Pools retain water longer than other stream habitats and are an important source of water for native species in this reach of the stream.

2 Project Background

The unauthorized December 2019 work caused impacts to native vegetation communities, sensitive plant populations, native trees, sensitive wildlife, streambed, and Regulatory Areas, and additional indirect impacts to the Mission Canyon ecosystem. During grading activities, rock and spoils were displaced from hillside sections upslope and discharged beyond the road prism and downslope into Mission Creek and two unnamed tributaries (Road Areas 1 and 2) to Mission Creek. While smaller rocks and fine sediment material have settled on the slopes above the creek, larger rocks and additional fine material have settled in the creek and tributary bottoms (Attachment A, *Photos of Mission Creek Sidecast Areas*). Initial emergency actions for site stabilization were taken by SCE in December 2019 and January 2020, followed by more extensive emergency stabilization measures in February through March 2020. SCE subsequently implemented the Road Repair Project (August through November 2020), which reduced and reconfigured roadside berms in Road Areas 1 through 4, completed rock scaling to remove loose materials from exposed rock surfaces, and installed a rock drapery over the exposed rock wall located down the road from the bridge in Road Area 4 (“rock wall”). Impacted native trees in upland areas, and Road Areas 1 and 2, were remediated, and soil/rock material that had accumulated around

the base of the trees was redistributed (Road HRP, Helix 2020). The Mission Canyon Stream Habitat Restoration Project, as described in this HRMP, serves to address the environmental restoration of Mission Canyon through full sidecast removal and restoration of Mission Creek, Road Areas 1 and 2, and adjacent upland habitats.

Environmental assessments were not conducted prior to the December 2019 work; however, as described in this section, SCE conducted surveys in 2019, 2020, and 2021 to document impacts to biological resources and the surrounding environment from that work. The following sections describe estimated rock and sediment quantities, impacts to native habitats, sensitive plants, native trees, wildlife, and streams/Regulatory Areas resulting from the December 2019 work.

2.1 Estimated Rock and Sediment Quantities

Project engineers conducted remote surveys following the December 2019 work to provide a rough estimate of the quantity of material that was sidecast down the canyon slopes and into Mission Creek (MBI 2020). The estimated volumes of sidecast material were calculated using post-construction LiDAR survey (MBI, 2020) data collected between January and April 2020. The remotely collected data was used to determine two-dimensional surface areas of the sidecast deposits. Pre-construction topography data was not available to compare to post-construction topography, so the depths of sidecast deposits were estimated using photographs and visual observations of the site. Preliminary volume estimates of the sidecast deposits were calculated by multiplying the surface areas by the corresponding estimated depths.

To plan for the removal of sidecast deposits as part of this HRMP, SCE retained an environmental contractor specializing in environmental remediation. The contractor conducted a field verification in November 2020 to refine the volume estimates and evaluate the composition (proportion of rock and soil) of the sidecast deposits for increased accuracy within CDFW Regulatory Areas of Mission Creek and Road Areas 1 and 2 (American Integrated Services [AIS] 2020). The contractor verified each of the deposit areas within CDFW Regulatory Areas using maps and data provided by the previously conducted studies using remote detection methods (MBI 2020). Once the contractor identified the deposit areas within regulatory areas, the contractor directly inspected each location by accessing them on foot to observe and determine the existing grade and adjacent contours. The contractor then used a combination of a standard grading rod, engineers' tape, and laser to directly measure the dimensions of each deposit, based on the measured depths of the deposit materials and the surface areas. Once the dimensions of the deposits were established, the contractor's technicians used a small hand shovel to observe and determine the make-up of the sidecast materials present within each deposit. The technicians determined that the deposited materials were primarily made up of rock and loose soils that were sidecast downslope from the existing adjacent roadways in 2019. The contractor's field investigators estimated the composition of rock and soil for each deposit area within the Regulatory Areas of Mission Creek and Road Areas 1 and 2 based on the field observations. Upon verifying the field measurements and composite information for each deposit, the contractor used the field data to calculate the volume of each deposit (in cubic yards) to determine the volume of sidecast material that would need to be removed to match the adjacent existing grades. A third field survey was conducted in September 2021, using the same methodology, to collect sidecast volume and location data for the Sidecast 3 (SC 3) Rock Outliers location that was identified in late 2021 (EcoKai, personal communication, September 28, 2021).

Finally, on August 9 and 10, 2022, a supplemental sidecast survey was performed to collect detailed data on the distribution and composition of sidecast deposits in all upland areas (HELIX 2022). In this survey, depth measurements of the sidecast deposits were collected from 39 sample points across all sidecast areas. This data was instrumental in scoping sidecast removal methodologies (Section 3.1). SCE's environmental contractor used this data to calculate revised sidecast volume estimates in September 2022 following similar methods, as described above (AIS 2022).

Collectively, the refined volume estimates from November 2020, September 2021, and September 2022 are provided in Table 3, *Sidecast Rock, Boulders, and Sediments within Mission Canyon*, below. The data in Table 3 represents the best approximation, after multiple field visits, individual site inspections, and detailed data collection, of the volumes of sidecast material deposited by SCE's December 2019 work. The total estimated volume of sidecast material (rock, sediment, and debris) deposited within RWQCB and CDFW Regulator Areas was approximately 1,413.0 cubic yards, inclusive of the total estimated 135.4 cubic yards of sidecast material within USACE Regulatory Areas (Section 2.6). The total estimated volume of sidecast material (rock, sediment, and debris) deposited within upland areas was approximately 1,518.80 cubic yards (Section 2.2). Separately, approximately 600 cubic yards were subsequently used to construct roadside berms from the Gate Area through Road Area 9.

Table 3. Sidecast¹ Rock, Boulders, and Sediments within Mission Canyon

Site Location	Surface Area (sq. ft.) ²	Estimated Depth (ft) ³	Total Sidecast Volume (cubic yards) ³	Volume within USACE Regulatory Areas (cubic yards) ^{2,3}	Volume within RWQCB/CDFW Regulatory Areas (cubic yards) ^{2,3}
Creek Site 1	1,447.54	1.65	88.6	17.6	88.6
Creek Site 2	3,553.97	1.95	257.2	30.9	257.2
Creek Site 3	4,343.73	2.15	346.6	24.9	346.6
Creek Site 4	10,303.45	1.15	439.8	51.7	439.8
Creek Site 5	0	0.0	0.0	0.0	0.0
Creek Site 6	0	0.0	0.0	0.0	0.0
Creek Site 7	6,543.06	Variable	8.4 ⁴	8.4 ⁵	8.4 ⁴
Road Area 1	16,950.87	0.29	184.9	0.9	184.9
Road Area 2	4,044.39	0.47	70.5	0	70.5
SC 1	1,315.20	0.50	24.4	0.0	0.0
SC 2	4,439.44	0.43	71.1	0.0	0.0
SC 3	7,868.09	0.60	176.1	0.0	0.0
SC 3 Rock Outliers ⁴	3,308.75	Variable	17.0 ⁴	<1.0 ⁵	17.0 ⁴
SC 4	5,062.66	0.36	67.5	0.0	0.0
SC 5	6,275.73	0.69	161.2	0.0	0.0
SC 6	1,223.95	0.31	14.2	0.0	0.0
SC 7	2,112.77	0.40	31.4	0.0	0.0
SC 8	141.73	0.15	0.8	0.0	0.0
SC 9	380.20	0.14	2.1	0.0	0.0
SC 10	1,930.86	0.19	14.3	0.0	0.0
SC 11	4,823.73	0.25	44.8	0.0	0.0
SC 12	7,263.89	0.39	107.8	0.0	0.0
SC 13	2,759.72	0.49	51.2	0.0	0.0
SC 14	5,502.01	0.47	102.1	0.0	0.0

Site Location	Surface Area (sq. ft.) ²	Estimated Depth (ft) ³	Total Sidecast Volume (cubic yards) ³	Volume within USACE Regulatory Areas (cubic yards) ^{2,3}	Volume within RWQCB/CDFW Regulatory Areas (cubic yards) ^{2,3}
SC 15	353.64	0.50	6.6	0.0	0.0
SC 16	755.61	0.41	14.0	0.0	0.0
SC 17	474.37	0.48	8.4	0.0	0.0
SC 18	2,738.19	0.15	15.2	0.0	0.0
SC 19	2,313.10	0.06	5.6	0.0	0.0
Sidecast Total	108,230.65 (2.48 acres)		2,331.8	135.4	1,413.0
Berms			600	0.0	0.0
Grand Total (with Berms)			2,931.8	135.4	1,413.0

¹ For purposes of this assessment, “sidecast materials” excludes materials repurposed as building materials (e.g., for berms).

² HELIX 2022

³ AIS 2022

⁴ Areas SC 3 and Creek Site 7 were refined following ground-truthing surveys to define sidecast more accurately in this area. While the square footage of impacts changed, there was no change to overall sidecast volume. Updated estimate, EcoKai, personal communication, September 28, 2021, and HELIX 2022.

Sidecast accumulation in Creek Sites 1 through 4 accounts for the majority of impacts to Mission Creek, particularly within the streambed. A detailed description of the sidecast material in each of these locations is provided in the sections below.

2.1.1 Creek Site 1

Creek Site 1 occurs entirely upstream of the Tunnel Trail access road bridge over Mission Creek and contains an estimated 88.6 cubic yards of sidecast material (Table 3). Sidecast material occurs along the slopes on both sides of the creek, covering most of the slopes and creek banks from the bridge footings to approximately 15 feet (left bank) and approximately 70 feet (right bank) upstream. Some sidecast material has spilled over the banks and settled into the creek bed, where it is mixed with existing creek cobbles and boulders on both sides of the creek. The creek in this location consists of a series of channel pools separated by higher elevation areas of the creek bed containing exposed bedrock and/or large boulders. A bedrock sheet cascade occurs along the upper portion of Creek Site 1 and is followed by two channel pools.

2.1.2 Creek Site 2

Creek Site 2 begins immediately downstream of the Tunnel Trail access road bridge, with sidecast material covering most of the western slope of the canyon (right bank) from the bridge footing to approximately 60 feet downstream. Sidecast volume in this creek site is estimated at 257.2 cubic yards (Table 3). When the stream is flowing under the bridge, the water plunges approximately 13 feet over a waterfall immediately downstream of the bridge, creating a scour pool at the upstream portion of Creek Site 2.

The creek along Creek Site 2 contains native creek gravels, a mixture of pre-impact rock with sidecast rock, and bedrock rockface along the entire left bank through the impact site. The natural creek

morphology along the right bank through Creek Site 2 is mostly unknown due to the depth of sidecast material and the lack of pre-impact data or photographs.

2.1.3 Creek Site 3

The creek between Creek Sites 2 and 3 flows relatively straight in a southeasterly direction and curves slightly towards the south through Creek Site 3. The creek bed through this area is relatively flat and wider than through the other creek sites. The sidecast deposition area of Creek Site 3 extends from the top of the road downslope to the right bank of the creek and fans out laterally as it slides downhill so that the sidecast is more than twice the width at the creek as it is at the top of the slide. The sidecast volume at Creek Site 3 is estimated to be 346.6 cubic yards, with material covering the entirety of the creek's right bank but, with the exception of a few outliers, does not spill into the creek bed (Table 3). The creek bed through this site contains native gravels, cobbles, and boulders, with a few scattered sidecast rock outliers.

2.1.4 Creek Site 4

Creek Site 4 contains an estimated volume of 439.8 cubic yards of sidecast material (Table 3) and includes a steep slope of sidecast deposit that extends from the road to the left bank of the creek. Creek Site 4 is the furthest downstream of the four sites, and the creek in this area consists of flatwater habitat along the upstream portion and cascade habitat along the downstream portion of the site. The majority of the sidecast occurs along the western slope (right bank), with a portion of the slide having spilled over the creek bank and into the creek, with large boulders covering much of the cascade habitat.

2.1.5 Creek Site 7

Creek Site 7 occurs approximately 800 feet upstream of Creek Site 1 and the Tunnel Trail access road bridge over Mission Creek. This section of the creek can be defined as steep and rocky, with complex habitat units such as pools and riffles. Sidecast in this location can be defined as a few dozen scattered boulders, with a total volume of approximately 8.4 cubic yards (Table 3). Although most sidecast boulders are scattered outside and above the main creek channel along canyon slopes within the upland chaparral habitat, four individual boulder outliers (less than 24") were located within the creek channel. The limited nature of sidecast deposits in this area avoided complex habitat unit features within the creek, as noted above.

2.1.6 Road Areas 1 and 2

Road Areas 1 and 2 are both located within unnamed drainages west of Mission Creek and are ephemeral drainages that provide flows to Mission Creek during periods of rain. Vegetation associated with the riparian corridor in this area includes coast live oak and shrub species, such as laurel sumac, bush mallow (*Malacothamnus fasciculatus*), and ceanothus species (*Ceanothus* spp.). The majority of sidecast deposits occurring within Mission Creek and in the tributaries located at Road Areas 1 and 2 consist of a mixture of small and moderately sized rocks with finer soil material and scattered boulders and contain an estimated 255.4 cubic yards of sidecast material (Table 3).

2.1.7 Roadside Sidecast Areas

Roadside sidecast deposits (SC 1 – SC 19) are generally consistent and primarily support upland vegetation communities with woodland/forest habitats in north-facing slopes or natural drainage channels (see Section 2.2). Sidecast deposits occurring along Road Areas 1 through 4 consist of thin layers of finer soil material intermixed with rocks and scattered boulders accumulated along the base of vegetation. In these locations, the roadside berm has already been reconstructed and consists of compacted fines within the road prism. Sidecast deposits lie beyond the reconstructed berm and downslope. Sidecast deposits occurring along the roadside slopes of Road Areas 5 through 9 consist of rocks and boulders intermixed with the roadside berms and include sidecast deposits immediately downslope of the road. The total volume of roadside sidecast deposits within upland areas is estimated to be 918.8 cubic yards (Table 3)⁵.

2.1.8 Sidecast 3 Rock Outliers

On September 28, 2021, SCE’s fluvial geomorphologist and environmental remediation team conducted a survey of previously unmapped rock outliers at the terminus of SC 3, identified as Sidecast 3 Rock Outliers (Table 3). During the survey, the team identified sidecast rock outliers consisting of scattered boulders located at the base of a slope and an individual boulder settled immediately adjacent to Mission Creek, approximately 0.5 mile downstream of Creek Site 4. The total volume of these scattered boulders does not exceed 17 cubic yards of sidecast (Table 3). The area is located down a steep portion of the canyon, approximately 400 linear feet and 200 vertical feet downslope and east of the road, having an average slope of 77 percent. Sidecast 3 Rock Outliers occur at two primary locations: (1) within an upland terrace (16 cubic yards), and (2) within the floodplain terrace (less than 1.0 cubic yard), which only conveys creek flow during large storm events. No material was observed within the low-flow creek bed itself. In addition, a single coast live oak tree was damaged, presumably by the sidecast rockfall (Tree #254, Figure 4a). The tree was given a health assessment of moderate damage rating by an ISA-certified arborist who identified damage in several locations and a secondary trunk, which was broken from the main trunk.

2.2 Vegetation Communities

Biological survey data published in the Mission Creek Revised Biological Impact Assessment Report was used to estimate permanent and temporary impacts to vegetation communities resulting from the December 2019 work (SWCA 2021). Vegetation communities impacted as a result of the December 2019 work are described in Section 1.2 and listed in Table 4, *Impacts to Vegetation Communities Resulting from the December 2019 Work* (SWCA 2021).

In total, the December 2019 work impacted 3.51 acres of vegetation. The most prevalent, and thus most impacted, vegetation community within the Project area was Big pod ceanothus chaparral, with Holly leaf cherry – toyon – greenbark ceanothus chaparral Alliance, *Ceanothus spinosus* – *Ceanothus megacarpus* Association as the second most prevalent and second most impacted. Of the nine vegetation communities impacted, five are state sensitive natural communities. Vegetation

⁵ This value includes a nominal volume of sidecast in roadside features within CDFW Regulatory Areas.

communities impacted within CDFW/RWQCB regulated areas are listed in Table 5, *Impacts within Regulated CDFW/RWQCB areas by Vegetation Communities from December 2019 Work*.

Table 4. Impacts to Vegetation Communities Resulting from December 2019 Work

Vegetation Community	Permanent Berms (acres)	Rock Wall (acres)	Sidecast (acres)	Total (acres)
Big pod ceanothus chaparral Alliance	0.15	0.31	0.83	1.29
Big pod ceanothus chaparral Alliance, <i>Ceanothus megacarpus</i> - <i>Salvia mellifera</i> Association ¹	0.03	0.02	0.08	0.13
California bay forest and woodland Alliance ¹	0.01	0.00	0.08	0.09
Coast live oak woodland Alliance, <i>Quercus agrifolia</i> - <i>Umbellularia californica</i> Association ¹	0.03	0.00	0.63	0.66
Coast live oak woodland and forest Alliance	0.13	0.08	0.35	0.56
Coastal sage and Island scrub oak chaparral Alliance ¹	0.00	0.00	0.00	0.00
Developed	0.00	0.00	0.00	0.00
Hairy leaf - woolly leaf ceanothus chaparral Alliance, <i>Ceanothus oliganthus</i> Association ¹	0.03	0.00	0.02	0.05
Holly leaf cherry - toyon - greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> Association	0.01	0.00	0.02	0.03
Holly leaf cherry - toyon - greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> - <i>Ceanothus megacarpus</i> Association	0.11	0.12	0.47	0.70
Grand Total	0.50	0.53	2.48	3.51

¹ denotes a state sensitive natural community
 DATA SOURCE: SWCA 2021, HELIX 2021.

Table 5. Impacts within Regulated CDFW/RWQCB areas by Vegetation Communities from December 2019 Work

Vegetation Community	Permanent Berms	Rock Wall	Sidecast	Total (acres)
Big pod ceanothus chaparral Alliance	0.00	0.00	0.19	0.19
Big pod ceanothus chaparral Alliance, <i>Ceanothus megacarpus</i> - <i>Salvia mellifera</i> Association ¹	0.00	0.00	0.00	0.00
California bay forest and woodland Alliance ¹	0.00	0.00	0.08	0.08
Coast live oak woodland Alliance, <i>Quercus agrifolia</i> - <i>Umbellularia californica</i> Association ¹	0.00	0.00	0.44	0.44
Coast live oak woodland and forest Alliance	0.00	0.00	0.15	0.15
Developed	0.00	0.00	0.00	0.00

Vegetation Community	Permanent Berms	Rock Wall	Sidecast	Total (acres)
Hairy leaf - woolly leaf ceanothus chaparral Alliance, <i>Ceanothus oliganthus</i> Association ¹	0.00	0.00	0.00	0.00
Holly leaf cherry - toyon - greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> Association	0.00	0.00	0.01	0.01
Holly leaf cherry - toyon - greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> - <i>Ceanothus megacarpus</i> Association	0.00	0.00	0.14	0.14
Grand Total	0.00	0.00	1.01	1.01

DATA SOURCE: SWCA 2021. Please note: Acres are shown as rounded to the nearest hundredth decimal place, yet totals reflect sums of the unrounded numbers.

¹ denotes a state sensitive natural community.

2.3 Sensitive Plants

Each section below outlines the direct effects on each special status plant and its habitat known or suspected to be present in the Project areas described in the SWCA Mission Creek Revised Biological Impact Assessment Report (SWCA 2021).

Santa Barbara honeysuckle: Some individuals and suitable habitat of Santa Barbara honeysuckle were likely displaced along the western bank of Mission Creek, south of the bridge. Because these plants were located directly adjacent to the sidecasts, one can reasonably assume these plants were located within the sidecast areas along the western bank of Mission Creek prior to the road maintenance activities (SWCA 2021).

Plummer's baccharis: Given the large number of individuals growing on the rock walls within the Project area, it can be assumed that some individuals were removed as a result of the rock wall scraping (SWCA 2021). There are also individuals located on the downslope in areas where sidecasts affected the vegetation communities, likely crushing the shrubs. In some areas, there are locations where the rock face was cut away and the plant's root system was damaged, or parts of the plant were cut away. Similar to the Santa Barbara honeysuckle, some individuals and suitable habitat of Plummer's baccharis were likely displaced along the western bank of Mission Creek, south of the bridge (immediately upstream of Creek Site 1). Because these plants were located directly adjacent to the sidecasts, one can reasonably assume these plants were located within the sidecast areas along the western bank of Mission Creek prior to the road maintenance activities (SWCA 2021).

Hubby's phacelia: Hubby's phacelia was primarily found in areas that were not directly impacted by the road activities. However, several individuals were located adjacent to Road Areas 1 and 2 (SWCA 2021). Notably, it prefers the exposed margins of the historical roadcut, similar to Plummer's baccharis and Santa Barbara honeysuckle. Because this species is an annual herb, individuals had not yet germinated in December at the time of the impacts. However, the seed bank and suitable habitat were directly impacted during the scraping and sidecast events. In one case, an individual was documented during the summer survey growing out of a portion of the bank affected by the sidecast within Creek Site 4.

Coastal sage scrub oak: In some areas above the road where the rock was removed, this action directly damaged the root system of the plants that had established above and along the rock face and left them vulnerable to desiccation and imminent erosion (SWCA 2021).

Sonoran maiden fern: The impacts of rockslides were evident approximately 200 feet downstream from the Mission Creek Bridge. However, the fern habitat was identified approximately 200+ feet farther downstream beyond the rockslide. The first individual found closest to the impact area was over 450 feet east of the Project (downstream or south of the bridge), well outside of the impact areas (SWCA 2021). No impacts were observed within its habitat.

White-veined monardella: This species was determined to be absent from the study area; thus, the road maintenance activities had no direct impacts on the species (SWCA 2021).

Ocellated Humboldt lily: The ocellated Humboldt lily is a summer-deciduous perennial bulbiferous herb, meaning that for a large part of its life cycle during the winter, it is entirely below ground in a sub-rhizomatous bulb form. When the road maintenance activities occurred, the lily would have been in this dormant stage without aboveground growth. However, it is likely some of these underground bulbs were displaced or damaged during the side-casts adjacent to where the one individual was observed. Suitable habitat for this species may also have been affected by road grading activities (SWCA 2021).

2.4 Native Trees

A comprehensive tree impact assessment was performed by an International Society of Arboriculture (ISA)-certified arborist to identify all trees impacted by the December 2019 work within the Project area (HELIX 2020b, HELIX 2020c). The summary tables below represent the results of this tree impact assessment by species, severity, and type of impact. Species and severity, both overall and specifically for trees only within CDFW Regulatory Areas, are represented in Table 6a, *Summary of Trees Impacted by Species and Severity*, and Table 6b, *Summary of Trees Impacted within Mission Creek CDFW Regulatory Areas by Species and Severity*, respectively. The severity of impacts to native trees ranges from minor to major damage, using the following severity classification, as observed by the monitoring arborist:

- **Minor impacts** are not expected to affect the health or viability of the tree in the short term (i.e., one to three years).
- **Moderate impacts** were more severe than minor impacts and may cause some reduction in the health or viability of the affected tree in less than one year, especially in the absence of remediation.
- **Major impacts** included complete loss of the tree, or loss of the tree's above-ground parts, while still allowing for the potential to resprout from the root crown.

The types of impacts to trees range from soil and rocks accumulated at the trunk and root zone to mechanical damage to limbs and trunk from machinery. No trees were determined to be a safety risk to the public or property.

Remediation of native trees in the upland areas and within Road Areas 1 and 2 are described in the Road HRP (HELIX 2020a), with individual tree details listed in Attachment B.1, *Trees Remediated in November 2020*. Remediation of native trees within CDFW Regulatory Areas of Mission Creek (Creek Sites 1 through 4) is included in this HRMP, with individual tree details listed in Attachment B.2, *CDFW Trees to be Remediated as Part of this HRMP*.

Table 6a. Summary of Impacted Trees by Species and Severity

Species	Minor	Moderate	Major	Total
Coast Live Oak	81	19 ¹	5	105 ¹
Bay Laurel	5	6	6	17
Western Sycamore	3	4	1	8
California Buckeye	0	1	0	1
TOTAL	89	30¹	12	131¹

¹ One additional Coast live oak tree was discovered in October 2021 with moderate impacts as a result of the sidecast in the Sidecast 3 Rock Outliers location, which is reflected in this table.

Table 6b. Summary of Impacted Trees within CDFW Regulatory Areas by Species and Severity

Species	Minor	Moderate	Major	Total
Coast Live Oak	12	4 ¹	2	18 ¹
Bay Laurel	4	6	4	14
Western Sycamore	2	4	1	7
TOTAL	18	14¹	7	39¹

NOTE: Table 6b is a subset of the trees listed in Table 6a.

¹ One additional Coast live oak tree was discovered in October 2021 with moderate impacts as a result of the sidecast in the Sidecast 3 Rock Outliers location, which is reflected in this table.

2.5 Sensitive Wildlife

Each section below outlines the direct effects on each sensitive wildlife species with habitat known or suspected present in the study area based on known species occurrences and daytime surveys. The descriptions that follow are derived from the studies by a biologist conducting the surveys and documentation of observations and findings. These findings are also summarized in the biological impacts report (SWCA 2021). Night surveys for sensitive species have not been conducted within the study area since species occurrences at night do not directly correlate with their presence within the worksite during the day.

Southern California Steelhead Trout (Federally Endangered, State Candidate as Endangered): In April 2022, the California Fish and Game Commission accepted for consideration a petition to list the Southern California steelhead trout (*O. mykiss*) as endangered under the California Endangered Species Act (CESA). This action commenced a one-year status review to be completed by CDFW, during which Southern California steelhead trout is protected as a candidate species (CDFW 2023). The candidate status for Southern California steelhead trout was not in effect at the time of the December 2019 work.

The Mission Creek Habitat Assessment Report prepared by CDFW concludes that the continued presence of resident Southern California steelhead trout within the watershed documented by CDFW, NMFS, and others demonstrates that Mission Creek continues to contain suitable habitat for resident *O. mykiss* despite prolonged drought conditions (CDFW 2022a). Contemporary surveys of the upper

portions of the stream confirmed the presence of several existing natural and unnatural fish passage barriers (CDFW 2022a, CDFW 2017, SWCA 2020). The upper portions of the stream that were surveyed in April 2020 confirmed the presence of several existing natural and unnatural barriers (CDFW 2017, SWCA 2020). However, fish habitat exists within the Project area and was impacted as a result of the December 2019 work. For these reasons, there is potential for a resident Southern California steelhead trout population to have been impacted by the December 2019 work; however, fish surveys within the 2019 impact area have been inconclusive. Full restoration of fish habitat on the Project site, including habitat features within the stream, is a primary goal of the Project.

Coast Range Newt (SSC): Due to the location and size of the population of coast range newts observed near the study area, direct impacts likely occurred in the form of mortality or injury by the crushing of individuals by the side-cast materials. This species incurred additional direct impacts by the loss of habitat due to the debris slides from the side-castings covering spans of stream habitat and preventing surface flow for 50 to 60 feet.

Southwestern Pond Turtle (Under Review by the USFWS for Listing as an Endangered or Threatened Species and California SSC): Southwestern pond turtle in the area are not expected to occur on the roads but would stay within drainages; therefore, direct impacts in the form of mortality or injury from the roadwork are unlikely to have occurred. Pond turtle would have been impacted by direct impacts by loss of dispersal and overwintering habitat due to the debris slides from the side-castings covering the spans of stream habitat and preventing surface flow (as discussed above for coast range newt).

Coast Horned Lizard (SSC): Widening of the roads and the creation of open spaces directly increased the foraging habitat for both species, and insignificantly reduced protective coverage where vegetation was impacted along the road areas. Road activities along the loose soils or the road edges may have had a low possibility of direct loss of coast horned lizard.

Two-striped Gartersnake (SSC): While the number of two-striped gartersnakes observed near the study area was low, there is a possibility the species would have been crushed as well. This species incurred additional direct impacts by the loss of habitat due to the debris slides from the side-castings, covering spans of stream habitat, and preventing surface flow for 50 to 60 feet. The grading, scraping, and movement of materials over the side of the canyon likely buried moderate- to high-quality natural habitat in the creek for two-striped gartersnakes, coast range newts, southwestern pond turtle, and other non-sensitive amphibians, if habitat conditions were similar.

Ring-tailed Cat (Fully Protected Species): There were no significant impacts to the species given the wide range and low density of the general species population and the unlikelihood of its frequent occurrence. If they were present within the study area at the time of the impacts, they would have experienced temporary noise disturbance and permanent impacts to foraging habitat due to the rock wall scraping and side-casts.

2.6 Impacts to Stream Resources

SCE conducted a delineation to determine the extent of road grading impacts to nearby aquatic resources associated with Mission Creek in Santa Barbara County, California (Rincon 2020, MBI 2021). The delineation was conducted to evaluate impacts to stream areas and woodland/forest resources that may have resulted from the December 2019 work. Impacts to these Regulatory Areas by the USACE

under Section 404 of the CWA and the RWQCB under Section 401 CWA and Porter-Cologne Water Quality Control Act, and by CDFW pursuant to Section 1600 of the Fish and Game Code. Rincon conducted field visits on January 3 and March 27, 2020, within a defined Study Area, during which four sidecast areas were identified where rock from the December 2019 work had spilled over into Regulatory Areas of the USACE, RWQCB, and/or CDFW. Similarly, MBI conducted a field visit on September 28, 2021, to identify potential areas within the Sidecast 3 Rock Outliers area, which had not been discovered until after the 2020 field visits.

Based on the regulatory delineations, and applying the volume estimate update, the deposits have resulted in impacts to approximately 2,221.4 square feet (0.06 acre) (135.4 cubic yards) of USACE regulatory areas and 43,772.51 square feet (1.01 acres) (1,413.0 cubic yards) regulated by the CCRWQCB and CDFW, within the study area (Rincon 2020; AIS 2020; MBI 2021; EcoKai, personal communication, September 28, 2021). At the time of the delineation, a large portion of the sidecast areas along Mission Creek had been treated with best management practices (BMPs), such as covering the slopes with jute netting or silt fencing installed at the toe of the slopes, to minimize additional sedimentation from further impacting nearby aquatic resources. The total footprint of impacts covers four main sidecast locations, which can be further subdivided into seven source point sidecast locations (Table 7, *Summary of Impacts to Regulatory Areas from the December 2019 Work*).

Table 7. Summary of Impacts to Regulatory Areas from the December 2019 Work

Project Site	State and Federal Regulatory Areas			
	USACE (non-wetland waters ¹)		RWQCB/CDFW	
	Square Feet	Volume (Cubic Yards)	Square Feet	Volume (Cubic Yards)
Site 1				
Road Area 1	89.4 (22.0 linear feet)	0.9	16,776.3 (211.3 linear feet)	184.9
Sidecast 3 Rock Outliers	39.2 (15.4 linear feet)	<1.0	3,213.9 (53.4 linear feet)	17
Subtotal	128.6 (37.4 linear feet)	1.9	19,990.2128 (264.7 linear feet)	201.9
Site 3				
Road Area 2	0	0	4,010.1 (139.9 linear feet)	70.5
Subtotal	0	0	4,010.1 (139.9 linear feet)	70.5
Site 4				
Creek Site 1	245.5 (25.8 linear feet)	17.6	1,304.1 (47.6 linear feet)	88.6
Creek Site 2	388.2 (75.1 linear feet)	30.9	3,427.3 (155.8 linear feet)	257.2
Creek Site 3	296.0 (70.0 linear feet)	24.9	4,137.3 (97.2 linear feet)	346.6
Creek Site 4	1076.2 (91.5 linear feet)	51.7	10,267.8 (167.1 linear feet)	439.8
Subtotal	2005.9 (262.4 linear feet)	125.1	19,136.5 (467.7 linear feet)	1,132.2

Project Site	State and Federal Regulatory Areas			
	USACE (non-wetland waters ¹)		RWQCB/CDFW	
	Square Feet	Volume (Cubic Yards)	Square Feet	Volume (Cubic Yards)
Site 5				
Creek Site 7	86.9 (21.5 linear feet)	8.4	86.9 (21.5 linear feet)	8.4
Subtotal	86.9 (21.5 linear feet)	8.4	86.5 (21.5 linear feet)	8.4
Road Areas 5-9				
Road Areas 5-9	0	-	923.0 (170.0 linear feet)	-
TOTAL	2,221.4 (321.3 linear feet) (0.06 acre)	135.4	43,772.51 (1,063.8 linear feet) (1.01 acres)	1,413.0

Please note: Acres are shown as rounded to the nearest hundredth decimal place, yet totals reflect sums of the unrounded numbers.

¹ Volumes and linear feet of the USACE (non-wetland waters) impacts are a subset of the RWQCB/CDFW impacts. The total impacts are not additive.

Notes: USACE (U.S. Army Corps of Engineers; RWQCB (Regional Water Quality Control Board); CDFW (California Department of Fish and Wildlife). LiDAR surveys were not completed at Creek Site 5 – these site calculations are based on site visit and aerial drone footage.

Source: Rincon 2020; AIS 2022; EcoKai, personal communication, September 28, 2021.

2.7 Beneficial Uses

The beneficial uses of Mission Creek, as identified in the RWQCB Central Coast Basin Plan, and impacts resulting from the December 2019 work to those beneficial uses are summarized below:

Municipal and Domestic Supply (MUN): No impacts to MUN have been noted as a result of the December 2019 work. The Project site is located in the upper watershed, and no supply sources are within the area.

Groundwater Recharge (GWR): No impact to GWR is noted as a result of the December 2019 work. The Project site is located within an intermittent system near the headwaters of the watershed. Groundwater recharge is limited in the Project site reaches due to lack of water as well as narrow drainage invert. The Project area is predominantly uplands.

Water Contact Recreation (REC-1): No impact to REC-1 uses is noted as a result of the December 2019 work. Although designated in the Project site reach, water direct contact is extremely limited due to the intermittent nature of the upstream reaches.

Non-contact Water Recreation (REC-2): The December 2019 work and associated side-cast materials temporarily impacted REC-2 beneficial uses. This includes impacts to predominately upland vegetation as well as visual impacts due to rock/soil deposition over plant species. These temporary impacts are visible along the unimproved road/trail that parallels the main Mission Creek drainage. Restoration activities described in this HRMP shall reduce impacts to REC-2 beneficial uses.

Wildlife Habitat (WILD): The December 2019 work and associated side-cast materials temporarily impacted WILD beneficial uses. Within woodland/forest areas, these impacts include the loss of terrestrial plants growing along the waterway. There is a loss of stream surface flow for approximately

50 to 60 feet, thereby affecting habitat for resident Southern California steelhead trout, coast range newt, two-striped gartersnake, other non-sensitive amphibians, as well as habitat for resident *O. mykiss*. Restoration activities described in this HRMP shall reduce impacts to WILD beneficial uses.

Cold Freshwater Habitat (COLD): The December 2019 work and associated side-cast materials may temporarily have impacted COLD beneficial uses. Although the drainage feature is intermittent, such impacts include impacts to wet season flows associated with recent rain events. Despite sidecast materials preventing surface flow for approximately 50 to 60 feet, the stream continues to flow freely through and underneath the sidecast material. Despite the loss of COLD habitat at the impact site, the material does not have observable impacts to COLD freshwater habitat downstream. Restoration activities described in this HRMP shall reduce impacts to COLD beneficial uses.

Warm Freshwater Habitat (WARM): The December 2019 work and associated side-cast materials may temporarily have impacted WARM beneficial uses. Although the drainage feature is intermittent, such impacts include impacts to wet season flows associated with recent events. Despite sidecast materials preventing surface flow for approximately 50 to 60 feet, the stream continues to flow freely through and underneath the sidecast material. Despite the loss of WARM habitat at the impact site, the material does not have observable impacts to WARM freshwater habitat downstream. Restoration activities described in this HRMP shall reduce impacts to WARM beneficial uses.

Migration of Aquatic Organisms (MIGR): No impacts to MIGR to anadromous fish are noted as a result of the December 2019 work. There is potential for resident Southern California steelhead trout to have been impacted by the December 2019 work, though fish surveys within the 2019 impact area have been inconclusive. Fish habitat does exist within the Project site and was impacted as a result of the December 2019 work. Full restoration of this habitat, including habitat features within the stream, is a primary goal of the Project. Temporary impacts from the December 2019 work to herpetofauna species may have impacted MIGR beneficial uses. The Project site is located within an intermittent system near the headwaters of the watershed; the drainage is not in a location where migration of aquatic species from freshwater to saltwater exists. Southern California steelhead trout are completely blocked off from entering the upper parts of Mission Creek (including the Project site) by the Old Mission dam, additional dams approximately one mile downstream, and several natural waterfalls, boulders, and historically downed trees within 0.5 mile downstream. Localized movement of newt and gartersnake may be temporarily impeded, given the presence of sidecast material.

Spawning, Reproduction, and/or Early Development (SPWN): No impacts to SPWN are noted as a result of the December 2019 work. Although spawning habitat exists downstream, this habitat is unable to be utilized by anadromous Southern California steelhead trout without significant impacts to cultural resources, continual re-introductions, and/or artificial assistance. There is potential for resident *O. mykiss* to have been impacted by the December 2019 work, though fish surveys within the 2019 impact area have been inconclusive. Fish habitat does exist within the Project site and was impacted as a result of the December 2019 work. Full restoration of this habitat, including habitat features within the stream, is a primary goal of the Project.

Rare, Threatened, or Endangered Species (RARE): No federal or state listed species were impacted as a result of the December 2019 work (see Section 2.5 for species listing under CESA). The sidecast materials likely resulted in the direct loss of coast range newts (CDFW Species of Special Concern), given the large number of newts observed in the stream on April 21, 2020. It is likely the sidecast material may have

crushed individuals. It is possible that the two-striped gartersnake (CDFW Species of Special Concern) could have also been crushed. Both species have lost habitat as a result of the sidecast material in the stream. In addition, two sensitive plants, Santa Barbara honeysuckle [CRPR 1B.2] and Plummer's baccharis [CRPR 4.3], were directly impacted by the loss of individuals and habitat due to removal of loose and protruding material on slopes along the road.

Estuarine Habitat (EST): No impacts to EST are noted as a result of the December 2019 work. The Project site is located within an intermittent system near the headwaters of the watershed; no estuarine habitat is within or near the Project site.

Freshwater Replenishment (FRSH): No impacts to FRSH are noted as a result of the December 2019 work. The Project site is located within an intermittent system near the headwaters of the watershed; natural or artificial maintenance of surface water quantity or quality is not present.

Commercial and Sport Fishing (COMM): No impacts to COMM are noted as a result of the December 2019 work. Areas within the Project site are not used for commercial or recreational activities tied to COMM.

3 Project Description

This chapter describes the Project and identifies goals, strategies, and activities proposed by SCE to restore the resources impacted by the December 2019 work. The Project is specifically designed for the full removal⁶ of sidecast rock and sediments deposited in Mission Creek and adjacent upland locations, to restore stream hydrology (e.g., pools and riffles) and habitat within the Project area to support native species use to levels that existed prior to the December 2019 work, and to stabilize creek banks and slopes. The Project will also restore impacted native vegetation habitats and promote the regrowth of chaparral and woodland/forest habitats, rehabilitate sensitive species populations within the Project site, restore aquatic habitat including pools and riffles, and remediate impacted trees within Mission Creek. Pre-Project activities will include a stream hydrology survey, seed collection, weed abatement, avoidance flagging of sensitive resources, and mobilizing equipment into approved staging and stockpiling locations. Restoration activities will begin with sidecast removal (Figures 6a-e, *Sidecast Removal Treatments*).

This chapter is divided into five main sections, which are all separate components of the Project: Section 3.1 details the methodologies for sidecast removal within different portions of the Project area; Section 3.2 identifies potential constraints that may be encountered during sidecast removal and how these constraints may be negotiated during installation to maximize removal and minimize environmental harm; Section 3.3 is an outline of the habitat restoration components that would follow sidecast removal; Section 3.4 details avoidance and minimization measures to be implemented during Project activities; and Section 3.5 lists responsible parties for Project activities.

⁶ Full removal, with noted constraints identified in Section 3.2 Constraints to Sidecast Removal

3.1 Sidecast Removal Methods

SCE’s sidecast removal methodologies for the Project were finalized through a comparative scoping analysis performed by SCE’s Project team in August 2022 (HELIX 2022). Through this iterative process, four methods to extract sidecast materials deposited during the December 2019 work were selected to achieve maximum extraction of sidecast material without causing harm to sensitive environmental resources, while maintaining a safe working environment and protecting public safety in the long term. Once removed, sidecast material will be transferred to an approved location where soil will be temporarily stockpiled, loaded into small-scale “bobtail” dump trucks, and transported along a designated route to be disposed of at a local landfill. Some sidecast material that had been deposited in upland areas may be processed and repurposed on-site to support berm reconstruction. See Section 3.2 Constraints to Sidecast Removal below for additional information on repurposed sidecast.

The primary method identified for sidecast removal is the combination of manual or hand removal, and removal using vacuum or guzzler trucks (Hand and Guzzler Removal technique). The benefits of this method include the low-level impact of using technicians to access steep slopes and environmentally sensitive areas and the high efficacy for extracting the sidecast using this methodology. The Hand and Guzzler Removal technique will be used in conjunction with machinery staged on the road to facilitate the removal of the larger rock. In addition to the Hand and Guzzler Removal technique, the Project comparative scoping analysis identified two additional low-impact removal techniques expected to result in the full removal of sidecast in locations away from the road where Guzzler Removal is not feasible. These removal techniques are Hand Removal and Helicopter Removal. A summary and map of the sidecast removal methods, and locations where those methods are employed, are listed in Table 8, *Project Sidecast Removal by Sidecast Deposit Location*, Figures 6a-e, and are also described below. Through the implementation of these combined removal methods, SCE believes that sidecast deposit removal will be maximized; therefore, SCE anticipates the full removal of all sidecast material remaining on the Project site, potentially excepting only minor areas where constraints to full removal may exist, as identified by SCE (see Section 3.2 below).

Table 8. Project Sidecast Removal by Sidecast Deposit Location

Sidecast Location	Method of Sidecast Removal
Roadside Sidecast Areas 1-2, 4-16	Excavator with Hand and Guzzler
Sidecast 3, Sidecast 3 Outliers	Helicopter Removal
Creek Sites 1-4, Road Areas 1-2	Forklift with Hand and Guzzler
Creek Site 7, Roadside Sidecast 17-19	Hand Rock Removal

Sidecast removal methods are described in the sections below, beginning at the Tunnel Trail access road gate (Road Gate Area), upslope to Road Area 9, and then Trail Road Area 2 (Figures 6a-e).

3.1.1 Roadside Sidecast Areas 1-2 and 4-6 - Excavator with Hand and Guzzler Removal

Sidecast deposits, occurring along Road Area Gate and up to Road Area 3 (except for Sidecast Area [SC] 3 discussed in Section 3.1.2), consist of thin layers of finer soil material intermixed with rocks and scattered boulders accumulated along the base of vegetation. These materials will be removed manually by technicians in combination with vacuum or guzzler trucks and a small excavator. This method will be performed on approximately 0.421 acre (18,316.99 sq. ft.) of sidecast deposits in SC 1 and SC 2, and SC 4 through SC 6 (see Table 3 and Figures 6a-e) and is expected to result in the full removal of the sidecast

material at these locations. All removed material will be transported to an approved staging location and, if not repurposed on-site, will be hauled off-site to an approved landfill.

The Construction Contractor will use guzzler trucks (large vacuum trucks) staged from the existing access road/trail adjacent to work areas to remove fine materials and rock approximately three inches in diameter or smaller. Manual manipulation of the hose will remove materials within the reach extent of the hose.

Rocks greater than three inches would be carried out by hand or loaded into rock sacks and removed using the excavator. Large rocks and boulders, greater than 24 inches in diameter, may be broken up into manageable pieces using sledgehammers, pickaxes, expansive rock breaking agent (e.g., expanding grout), or jackhammers and lifted by the excavator. The excavator may also be used to lift rocks bolted to a chain with shackles and position them onto the road for staging. All material will be transferred to an approved stockpile location where soils will be stockpiled and managed for load out into small-scale “bobtail” dump trucks, hauled off-site following a designated route, and disposed of at a local landfill.

As mentioned above, sidecast removal efforts will be staged on the road, supporting crews and guzzler operations downslope. As a result, there is potential for the work to damage the previously reconstructed berms in these areas. If the berms become damaged during these activities, berms will be repaired following the completion of the work as part of the implementation of this HRMP. Berm repair will be conducted using standard heavy equipment to rebuild and stabilize berms to specifications approved by Santa Barbara County.

Upon completion of sidecast removal, the contractor will finish affected slopes utilizing hand tools on slope faces and possibly by mechanized equipment at the accessible upper sections of the slope. Disturbed areas will then be hydroseeded with an approved mix, including tack and wood fiber to promote growth, and planted with container stock and cuttings, as appropriate (see Sections 6.4 to 6.7). A biodegradable netting product (i.e., jute) may be applied, depending on final soil conditions once slope faces have been revealed, in accordance with the Project’s Storm Water Pollution Prevention Plan (SWPPP). If used, netting will be installed in a way that does not trap or entangle wildlife.

3.1.2 Sidecast 03 and Sidecast 03 Rock Outliers – Helicopter Removal

In one area of sidecast deposit, SC 3 and SC 3 Outliers, located within Road Area 1 and covering approximately 0.257 acre (11,176.84 sq. ft., see Table 3 and Figures 6a-b), large boulders and smaller rock and soil material are positioned approximately 300 feet from the roadside with no footpath or road access. Due to these limitations, SCE proposes to remove the material using the Helicopter Removal method to relocate the material to an approved staging area. Various methods were evaluated to extract the material from this location. The Helicopter Removal method was selected as the least impactful to resources and is expected to remove all the sidecast material at this location.

This method includes the use of a helicopter, such as a light utility Bell 429, with a lift capacity of 1,500 to 2,000 pounds, fitted with enclosed baskets. The baskets can be covered with a safety net and lined to secure the rocks. Alternatively, the rocks can be placed into load bags and then loaded into the baskets. Rock will be broken manually using sledgehammers or, where necessary, may be drilled and injected with an expansive rock-breaking agent (e.g., expandable grout) to allow the rock to break into manageable pieces overnight. Rock will be transferred into rock sacks by ground crews and staged for

aerial operation to minimize flight time. The helicopter will hover approximately 100 to 150 feet in the air while ground crews fill the basket with rock sacks. Once the basket is full, the pilot will relocate the material to an approved staging location within the Project area. A landing zone and refueling location, such as the Santa Barbara Airport, must be located within 10 to 15 minutes of flight time from the Project area.

3.1.3 Creek Sites 1-4 and Road Areas 1-2 – Forklift with Hand and Guzzler

The majority of sidecast deposits occurring within Mission Creek, and in tributaries located at Creek Sites 1-4 and Road Areas 1 and 2, totaling approximately 0.933 acre (40,643.95 sq. ft.), consist of a mixture of small and moderately sized rocks with finer soil material and scattered boulders. These materials will be removed using the Hand and Guzzler Removal method described above (see Section 3.1.1) and in combination with a long-reach forklift to extract material (see Figures 6a-c). For large materials, technicians will manually break rocks and boulders into manageable pieces using sledgehammers, pickaxes, or, where necessary, drill and inject an expansive rock-breaking agent (e.g., expandable grout) to allow them to break into smaller pieces overnight. These rocks will then be manually loaded into baskets and lifted by a 12k reach forklift with a 24-foot length and 38-foot reach. The forklift would be positioned at designated staging areas or along existing access roads. The material will then be transported to an approved staging location, where it will be transferred to trucks and hauled off-site for disposal. This method is expected to result in the full removal of the sidecast material at these locations; however, potential constraints to the slopes within Creek Sites 2, 3, and 4 were noted by SCE, as described in Section 3.2 below.

Prior to sidecast removal in Creek Sites 1-4, K-rail barriers topped with chain-link fencing will be placed to prevent public access during construction. A guzzler truck will be staged in the roadbed with a flex hose connected to a six-inch hard pipe that will be anchored to the K-rail and placed along the slope face. The hard pipe will be connected by a cam-lock system to a second flex vacuum hose that will be deployed into the drainage and manually manipulated by operators. The full extent of the hard pipe is typically 25 to 30 feet, and the flex hose ranges from 20 to 125 feet, for a total range of approximately 45 to 155 feet. The fixed hard pipe will also provide tie-off points for operators to secure anchors for additional fall protection. The hard pipe assembly will then be broken down and reassembled to target another reach of the drainage. This process will continue until all material is removed.

3.1.3.1 Technical Implementation Plan

Prior to sidecast removal in Creek Sites 1-4, the fluvial morphology team will develop a Technical Implementation Plan (TIP). The purpose of the TIP is to provide an execution document to guide the process of sidecast removal and the restoration and repair of habitat features within impacted areas of Creek Sites 1-4. The TIP will also present protocols to achieve the goals of this HRMP while protecting and restoring the pre-impact natural stream topography, habitat, and function.

Within Creek Sites 1-4, several locations of heavy sediment deposition have been identified. Up to twelve transect locations within these areas are proposed for longitudinal and cross-section surveys, which would be conducted as part of the TIP. These transects are intended to provide a detailed accounting of pre-Project site conditions (see Section 8.3.1). These transects will be further studied as part of the information gathered to support the TIP.

The fluvial morphology team will follow the process and methods in the TIP to facilitate the removal of sidecast material in a manner that will minimize additional impacts to the creek bed and banks, minimize the unintentional removal of native creek material, and comply with all environmental regulatory permit requirements. Prior to sidecast removal, the fluvial morphology team will delineate the limits of each sidecast area, using flagging, or another eco-friendly method of demarcation, such as non-toxic, water-based paint, to assist in the removal activities of work crews. The fluvial morphology team will also identify and mark all cobble and boulder outliers that occur in contingency buffers beyond the limits of the main sidecast areas. Photo points will be determined prior to the work to provide pre- and post-removal photo documentation.

As sidecast removal begins, the construction operators will perform sidecast material removal under the direction and supervision of the fluvial morphology team to ensure that only sidecast material is removed. Particular attention will be given to areas where the sidecast meets pre-impact soils, such as along the edges of the sidecast, the interface where the sidecast meets native soil, and activities within the creek bed and banks. When removal activities approach pre-impact (original contour) surfaces, the fluvial morphology team will closely inspect the characteristics of the material before it is removed to ensure that it is not existing pre-impact material. The fluvial morphology team shall have the authority to stop work as needed to ensure that proper protocols are being implemented.

Current slope conditions at Creek Sites 1-4 range from approximately 3:1 to almost 1:1. When loose soils are removed, these stream bank slopes have the potential for additional slope sloughing. For these reasons, the construction approach described above may be adjusted to accommodate a change in site conditions in the interest of safety and efficacy. Upon the completion of restoration activities, all temporary facilities (i.e., K-rail barriers topped with chain-link fencing, etc.) will be removed and demobilized from the site.

Within Creek Sites 1-4, there are specific habitat design targets for pools and riffles, as described further in Section 3.3.2 (Stream Hydrology and Habitat Features).

3.1.4 Roadside Sidecast Areas 7-16 – Excavator with Hand and Guzzler Removal

Sidecast deposits occurring along the roadside slopes of Road Areas 5 through 9 consist of boulders and rocks intermixed with the roadside berms and deposits immediately downslope of the roadside. The sidecast in SC 7 through SC 16 (approximately 0.597 acre, 26,024.15 sq. ft.) located in Road Areas 5 through 9 (see Figures 6c and 6e) will be removed using a tracked excavator, as described in Section 3.1.1. This method is expected to be used for the full removal of the sidecast material at these locations, except as noted below.

In Road Areas 5-9, sidecast was deposited down slopes immediately adjacent to the road; some sidecast material was used to construct roadside berms. In these areas, sidecast materials will be removed, and roadside berms will be reconstructed, following the removal of sidecast in areas where the outer edges of the berms were built upon sidecast material. Using the Hand and Guzzler removal technique, small rocks and soil particles will be removed from slopes. For larger materials, the Project will use a tracked excavator staged in the road to pull sidecast from the berm and road shoulder into the roadbed. All material will be transported to an approved staging location. Sidecast materials will be sorted and processed using a rock crusher and other heavy equipment to generate suitable material to be repurposed for berm reconstruction. In Road Areas 5-9, where sidecast was not deposited down slopes

and, therefore, no removal is necessary, berms will be adjusted to align with the specifications approved by Santa Barbara County and tamped down and stabilized.

Potential constraints to the removal of sidecast material in Road Areas 6-9 were identified by SCE and described in Section 3.2 below.

3.1.5 Hand Rock Removal

Sidecast deposits at Creek Site 7 and SC 17-19, covering approximately 0.277 acre (12,068.73 sq. ft.), are located on Trail Road Area 2 (see Table 3 and Figure 6d) and consist of scattered rocks intermixed with existing vegetation. The sidecast rocks are dispersed within the mapped area and distinguishable from other naturally present rocks. These areas are only accessible by foot; however, the low volume and manageable size of the rocks allow for manual removal using the Jesusita Trail to access the sidecast areas. The Hand Rock Removal method was selected as the least impactful to resources and is expected to remove all sidecast material at this location.

This method employs technicians, using high incline rigging for fall protection, who will manually remove the sidecast rock and transfer it up the slope by hand. Large rocks will be broken into smaller manageable pieces using hand tools before removal. Smaller rock or rock fragments may be transferred into rock sacks for easier removal and carried out utilizing frame packs and manual means. Rock will be staged on the side of the roadway, where it will be collected using a small loader or comparable equipment and transported to an approved staging area where the material can be hauled away for disposal.

3.2 Constraints to Sidecast Removal

SCE's Project goal is the full removal of all sidecast material on the Project site at the time of construction. The Project's comparative scoping analysis and supplemental engineering surveys revealed potential constraints that could preclude the removal of some material in discrete areas to avoid undesirable conditions. However, it is anticipated that even with these constraints, there still would be nearly 100 percent removal. The identified constraints implicate safety considerations associated with access road width and slope stability. Any sidecast material that is unrecoverable during Project implementation and left in place due to infeasibility of removal shall be compensated for as described in Section 3.2.1.

In August 2022, SCE conducted a supplemental engineering assessment to review existing road conditions and distinct areas where the outer edges of the berms were built upon sidecast material that was placed at the edge of the roadway in 2019. The assessment was conducted to evaluate the potential impacts that could result from the full removal of sidecast materials. The assessment was based on information from the comparative scoping analysis and focused on Road Areas 5-9. A vehicle tracking analysis was performed using a model to determine the constraints (critical/pinch points) of the existing access road on the turning radius of SCE utility maintenance vehicles. For this analysis, an SCE Transmission Bucket Truck was used in the vehicle tracking model. The sidecast removal areas identified on Figures 5a-e were overlaid onto the vehicle tracking model results to identify any constraints. Access road elevational cross-sections were sampled at larger sidecast removal areas and key critical points. The critical points were identified in areas where SCE maintenance vehicles require multiple point turns to maneuver safely and areas where the full removal of the sidecast material has the

potential to narrow the road beyond the minimum width necessary to provide safe access for maintenance vehicles. SCE conducted a site visit to field-verify measurements based on the vehicle tracking model results and cross-sections using sidecast removal depths collected during the comparative scoping analysis.

The areas of potential constraints related to access road width are along slopes adjacent to five road bends within Road Areas 6 through 9 within sidecast areas SC 10, SC 11, SC 12, SC 14, and SC 15 (see Constraint Areas shown on Figures 6c and 6e). If SCE conducts full removal of sidecast material in these areas, it could have the potential to narrow the road width to below the tolerance levels necessary to provide safe access for utility or emergency vehicles.

Roadway berms for vehicle safety were erected during the December 2019 work. The majority of berms were built directly upon the preexisting road surface, while, in a minority of areas, berms were built upon sidecast material that was placed at the edge of the roadway in 2019. In order to remove the sidecast material beneath and supporting the outer edge of the berms in these locations, the berms and sidecast would need to be removed, and the berms would need to be reconstructed within the preexisting road prism, thereby narrowing the current width of the roadway in these locations. Therefore, in these five potential areas of constraint, the focus will be on the maximum removal of all sidecast material from the December 2019 work while not compromising safe access to SCE facilities. The decisions to fully remove or leave discrete areas of sidecast material in place to maintain safe road width will be determined in the field by the Resource Specialists (Section 3.5.3) as subsurface conditions are revealed during sidecast excavation. Post-construction documentation of any sidecast material left in place, with a justification for why leaving sidecast material in place was necessary to maintain safe road width, will be recorded and provided to regulatory agencies, as warranted, and compensated for as described in Section 3.2.1. While these constraint circumstances pertain to a small scope of the overall removal work, SCE will implement the construction process to monitor road width and maximize removal, where safe and feasible⁷.

SCE has also identified four areas with potential constraints related to slope stability within Creek Sites 2, 3, and 4 (see Constraint Areas shown on Figure 6c). These four areas occur along the upper slopes of the sidecast areas and outside of the streambanks of the creek. The steep slopes in these locations enhance the possibility that the complete removal of sidecast material could lead to localized surface instability and sloughing of the existing soils beneath, either during the removal process or during future rain events. Therefore, in these four potential areas of constraint, the focus will be on the maximum removal of all sidecast material from the December 2019 work while not creating an unstable slope. While constraint circumstances precluding full sidecast removal are not anticipated at these locations, SCE recognizes the possibility, and the fluvial morphology team will monitor the slopes during the construction process and maximize removal, where safe and feasible (see Section 3.1.3.1). Post-construction documentation of any sidecast material left in place, with justification for why leaving sidecast material in place was necessary to maintain stable slopes, will be recorded and provided to regulatory agencies, as warranted, and compensated for as described in Section 3.2.1.

⁷ "Feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Cal. Code Regs. Tit. 14, § 15364.

3.2.1 Mitigation for Unrecoverable Sidecast and Temporal Loss

Due to major rainstorm events that impacted the Project site in early 2023, the total volumes of sidecast material remaining on the Project site at the time of Project construction will likely be less than the estimated volumes recorded in Table 3. Representative photos of the effects of the major rainstorm events to the Project site are included as Attachment C, *Photographs of Mission Creek and the Project Area Following January 2023 Rainstorm Event*. Sidecast material that has moved outside the Project area due to 2023 rain events is no longer recoverable and will not be collected or removed as part of the Project.

The baseline condition used for the analysis of impacts under CEQA is the existing condition of the Project site at the time of Project initiation, which in this case is the impacted condition where the sidecast material is present within the Project site. However, an assessment of Project impacts relative to this baseline does not account for the temporal loss of stream function and natural habitat or the periodic transport of sidecast material downstream of the Project site in the intervening time between now and December 2019, when the unauthorized activities caused the material to be deposited into the Project site from the access road.

To account for a temporal loss of stream function and natural habitat and the periodic transport of sidecast material downstream, and to address any material that cannot be removed and left in place due to infeasibility of removal, the Project also includes the payment of funds by SCE in the amount of no less than 3:1 restoration for impacted acreage (1.01 acres). A minimum of \$700,000.00 shall be provided in an endowment to be used towards a future fish passage restoration project in Santa Barbara County.

3.3 Habitat Restoration Overview

This Chapter provides an overview of SCE's strategy to restore impacts to Mission Creek and associated tributaries, and meet the following goals:

- Full removal of all sidecast material⁸ (Section 3.3.1)
- Restore stream hydrology (e.g., pools and riffles) and habitat (Section 3.3.2)
- Stabilize creek banks and slopes (Section 3.3.3)
- Remediate impacted trees within Mission Creek (Section 3.3.4)
- Restore impacted woodland/forest habitat and upland chaparral habitats (Section 3.3.5)
- Rehabilitation of sensitive species populations within the Project area (Section 3.3.6)
- Enhance native habitat along Tunnel Trail Road by reseeding road cuts and conducting targeted weed abatement (Section 3.3.7)

⁸ Full removal, with noted constraints identified in Section 3.2 Constraints to Sidecast Removal

- Compensatory Mitigation for temporal losses and unrecoverable sidecast deposits (Section 3.2.1)

The habitat restoration described in this plan is intended to consist of three main phases: restoration, planning, and preparation (Sections 4 and 5); installation (Section 6); and the maintenance monitoring program (Sections 7 and 8). Figures 5a-e show areas subject to revegetation activities described in this HRMP. The following sections outline the Project strategy and approach to address each of the Project goals listed above.

3.3.1 Sidecast Removal

To achieve the goal of full removal of all sidecast material, SCE will implement the least invasive methodology described in Section 3.1 and through the implementation of the TIP (Section 3.1.3.1) to remove all rocks, coarse woody debris, and fine sediments determined to be sidecast deposits from the December 2019 work. Prior to removal, the sidecast material will be differentiated from non-sidecast material through careful inspection of individual geologic features to distinguish it from the native creek material that needs to remain intact and by comparing bed and bank continuity with upstream and downstream characteristics. This process further expands on the geologic makeup of the sidecast material, including the natural erosive features of the in-situ sandstone.

Following sidecast removal, any material unable to be removed will be subject to post-construction monitoring and adaptive management procedures as presented in Sections 8.2.5 and 8.3.4 of this HRMP. The volume of material estimated within the four areas of constraint along Creek Sites 1-4 constitutes approximately 10 percent of the total sidecast volume in Regulatory Areas. Any materials left in place will be evaluated in the TIP (Section 3.1.3.1) and compensated for as described in Section 3.2.1.

To allow for foot trails for crews to access sidecast piles and conduct removal operations safely within Road Areas 1 and 2 and Creek Sites 1-4, a small contingency disturbance buffer totaling 0.27 acre has been added to the disturbance footprint within RWQCB, CDFW, and USACE Regulatory Areas, of which 0.10 acre falls within waters of the U.S. The contingency disturbance areas are identified for each Sidecast removal Area in Table 9, *Project Areas within RWQCB, CDFW, and USACE Regulatory Areas*, below (Figures 5a-e). Disturbances within the contingency buffer will be minimized, and sensitive resources will be flagged for avoidance. Following Project activities, disturbance within the contingency buffer will be mapped and restored in accordance with this HRMP.

Table 9. Project Areas within RWQCB, CDFW, and USACE Regulatory Areas

Project Site	RWQCB/ CDFW (Acres)	USACE (Acres)
Road Area 1 Project Area	0.39	0.00
Road Area 1 Contingency	0.14	0.01
Sidecast 3 Rock Outliers Contingency	0.08	0.00
Road Area 2 Project Area	0.09	0.00
Road Area 2 Contingency	0.06	0.00
Mission Creek Project Area (Creek Sites 1-4)	0.44	0.04
Mission Creek Contingency (Creek Sites 1-4)	0.06	0.03
Mission Creek Site 7	0.00	0.00
Road Areas 5-9	0.01	0.00
Total Project Area	1.01	0.05

Project Site	RWQCB/ CDFW (Acres)	USACE (Acres)
Total Contingency	0.27	0.04
Grand Total	1.28	0.09

Please note: Acres are shown as rounded to the nearest hundredth decimal place, yet totals reflect sums of the unrounded numbers.

3.3.2 Stream Hydrology and Habitat Features

SCE recognizes resident population of southern California steelhead trout is a conservation priority of CDFW and was considered in planning upstream Project activities. One of the goals of the Project is to restore stream hydrology (e.g., pools and riffles) and habitat. To achieve this goal, the Project will remove sediment and debris from within the creek bed and impediments caused by sidecast and restore natural hydrology and in-stream habitat for fish passage within the Project site reach of the stream. Restoration of natural stream hydrology will also restore habitat for sensitive species such as two-striped gartersnake, coast range newt, and other amphibians and reptiles. Therefore, SCE will restore stream habitat within the Project site to support native fish use to levels that existed prior to the December 2019 work. Restoration of fish passage within the Project site would support potential creek-wide fish passage if the off-site barriers are ever removed by other means.

Fish habitats, including riffles, runs, and pools within reference streams of the Mission Canyon watershed (Mission Creek and Rattlesnake Creek), were assessed by CDFW Fisheries biologists in November 2022 (CDFW 2022a,b). CDFW considers these streams to be comparable to the Project area in their support of fish habitat unit densities and dimensions with a particular focus on pool habitat (reference reach data). Pool units provide refugia and rearing habitat necessary for fish survival during dry summer months when streamflow diminishes and surface streamflow ceases within sections of the creek. Pools also tend to collect food sources for fish, and downstream portions of pools (tail-outs) typically support fish spawning as they collect gravel substrates (CDFW 2022a). Restoration efforts within the stream channel, extending from the upstream extent of Creek Site 1 to the downstream extent of Creek Site 4, will be informed by CDFW’s reference reach data and guided by actual site conditions revealed as the sidecast is removed during Project construction.

In addition, a TIP will be developed prior to Project installation to guide decisions made in the field regarding the restoration of in-stream habitat and removal of stream impediments created by sidecast. The information provided in the TIP, including longitudinal survey data and cross-sections taken at various intervals and through habitat units (Figure 8b), will be used to guide restoration activities. Specifically, cross-sections through habitat units and topographical data from immediately upstream and downstream of the area to be restored will be used to design and implement restoration actions. If restoration of habitat features (e.g., riffles, runs, or pools) is deemed necessary, habitat unit-specific cross-section plans for the feature repair will be prepared and submitted to CDFW and the RWQCB for approval as part of the adaptive management process further described in Section 8.3.4. Included in the HRMP Attachment D, *Conceptual Creek Profiles and Cross Sections*, are example cross-section schematics for reference.

For the final stages of rock and sediment removal, the fluvial morphology team will be on-site to determine when sediment and rock removal activities have reached the natural stream channel bottom and identify the need for the use of non-sidecast material to restore in-stream habitat features. In addition, CDFW will have the opportunity to inspect these areas when sidecast removal is in the final stages, for concurrence.

3.3.3 Stabilize Stream Banks and Slopes

If it is determined that the creek banks have collapsed and/or been scoured by the sidecast deposits, it may be necessary to provide additional bank stabilization by hand-placing cobbles and boulders to secure the soil in place and prevent future occurrences of erosion. Bank stabilization features would be designed and submitted to CDFW and the RWQCB for approval, consistent with the adaptive management process, and incorporated into the Monitoring and Reporting Program described in Section 8 of this HRMP.

3.3.4 Native Tree Restoration/ Mitigation

The Project proposes to address native tree restoration/ mitigation by (1) completing remedial treatments to 30 impacted trees within Mission Creek; and (2) planting trees within Mission Creek and Road Areas 1 and 2 in upland habitat areas. Remedial treatments to impacted trees are necessary to prevent further damage and stimulate recovery. These remedial treatments include the removal of rocks/soil from the base of the tree, pruning, and cutting or trimming roots (Figures 5a-e). These activities are described in detail in Sections 6.1 and 6.2. Native tree remediation within the upland areas was completed in 2020, as a component of the Road Repair Project.

In addition to completing remedial treatments, the Project will mitigate impacted trees by establishing a minimum of 90 trees. This planting quantity will achieve a mitigation ratio of 5:1 for impacts to trees whose impacts are considered “major” and a ratio of 1:1 for trees whose impacts are considered “moderate” as defined in Section 2.4 of this HRMP. Within CDFW Regulatory Areas, the Project will plant 49 of the 90 trees to offset previous impacts to trees within CDFW Regulatory Areas (Table 6b). As a continuation of native tree restoration/mitigation in upland areas outside of the regulatory authority of CDFW, the Project will plant the remaining 41 trees within transitional woodland areas. Planting will be completed as a component of the native vegetation restoration described below. The number of trees planted as saplings may be adjusted based on the availability of materials; however, quantities will be retained. Between the planting in the Creek and upland areas, a total of 90 trees will be established within the Project area. Overplanting may be implemented to ensure mitigation quantities are achieved. Planted trees will be subject to the Success Criteria described in Section 8 of this HRMP. No trees will be removed as part of this Project.

3.3.5 Native Vegetation Restoration and Enhancement

Temporary⁹ impacts to native vegetation will be restored in both woodland/forest and upland chaparral habitats along Mission Creek as well as native habitat enhancement along Tunnel Trail Road (Section 3.37). Coast live oak woodland and California bay forest habitats are the dominant habitats within Mission Creek and Road Areas 1 and 2, while upland habitats are dominated by ceanothus chaparral and associated native plant communities. These areas will be restored through the application of a native seed mix and the planting of shrubs, trees, and cuttings, as described in Section 6 (Figures 7a-e, Restoration Areas). Restoration of woodland and forest habitats will focus on controlling erosion and restoration of forest canopy structure. Overall, non-native species cover within the woodland and forest habitats is low; however, efforts to control non-native species will be a component of the maintenance

⁹ Any impact on vegetation or habitat that does not result in permanent vegetation or habitat removal, such as areas of impact that are substantially restored to pre-impact conditions by hydroseeding or other measures.

program in these habitats. Creek Site 7 also supports woodland habitat; however, due to the steep and unstable slopes, efforts will focus on the application of seed mix and erosion control. Approximately 1.06 acres of woodland and forest habitats will be restored as part of the Project following sidecast removal, and an additional 0.07 acre of non-sidecast areas will be restored (Table 10, *Proposed Project Restoration by Vegetation Community*).

Table 10. Proposed Project Revegetation and Enhancement by Vegetation Community

Vegetation Community	Restoration of Sidecast Removal (Acres)	Restoration of non-sidecast (Acres) ²	Enhancement Reseeding Areas ³
Big pod ceanothus (<i>Ceanothus megacarpus</i>) chaparral Alliance	0.83	0.02	0.31
Big pod ceanothus chaparral Alliance, <i>Ceanothus megacarpus</i> – <i>Salvia mellifera</i> Association ¹	0.08	<0.00	0.02
California bay forest and woodland Alliance ¹	0.08	0	0
Coast live oak woodland Alliance, <i>Quercus agrifolia</i> – <i>Umbellularia californica</i> Association ¹	0.63	0	0
Coast live oak woodland and forest Alliance	0.35	0.07	0.08
Hairy leaf – woolly leaf ceanothus chaparral Alliance, <i>Ceanothus oliganthus</i> Association ¹	0.02	<0.01	0
Holly leaf cherry – toyon – greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> Association	0.02	0	0
Holly leaf cherry – toyon – greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> – <i>Ceanothus megacarpus</i> Association	0.47	0	0.12
Developed / disturbed	0	0.03	0.74
Subtotal for Woodland and Forest Habitats	1.06	0.07	0.08
Subtotal for Upland Habitats (excludes developed/disturbed)	1.42	0.02	0.45
Grand Total	2.48	0.12	1.27

DATA SOURCE: SWCA 2021. These values are approximate, actual acreage by vegetation community may vary.

Please note: Acres are shown as rounded to the nearest hundredth decimal place, yet totals reflect sums of the unrounded numbers.

¹ Denotes a state sensitive natural community.

² These areas are currently unvegetated. Small unvegetated areas were grouped with the adjacent vegetation community in the vegetation mapping survey.

³ A total of 1.27 acres will be reseeded to achieve 0.91 acres of Habitat Enhancement along Tunnel Trail Road as required by the County of Santa Barbara.

Upland chaparral habitats within the Project area are largely dominated by various species of ceanothus, with the presence of occasional oak trees as the canyon transitions to woodland habitats. Upland habitats occur along the Tunnel Trail access road and will be restored through the application of a native seed mix, container plantings, and the select use of acorns in transitional woodland areas. Native vegetation restoration of the other upland chaparral habitats will focus on erosion control and non-native species control during the maintenance period, specifically targeting mustards and other non-native perennial species. Species diversity and shrub canopy are expected to naturally recover with the effective control of non-native species and erosion to minimize soil disturbance; however, this will be evaluated and addressed as part of Adaptive Management (Sections 8.2.4 and 8.3.4) if recovery is not observed. Approximately 1.42 acres of upland habitats will be restored as part of the Project following

sidecast removal, and an additional 0.02 acre of upland habitats and 0.03 acre developed/ disturbed within non-sidecast areas will be restored (Table 10).

Woodland and upland revegetation activities are designed to meet the Project goal of restoring impacts to native vegetation (Figures 3a-e). Sensitive plants and native trees will be monitored for recovery as a component of the monitoring program for the respective habitats, as described in Section 8.1.5. Restored areas will be evaluated annually and compared to unimpacted native habitats in adjacent areas. Installation, materials, maintenance, monitoring, and reporting are described in the subsequent sections.

SCE will also restore an additional 0.12 acre of non-sidecast areas, which consist of staging areas that are currently unvegetated. Although these staging areas do not currently support native vegetation, they were grouped with the adjacent vegetation community identified during the vegetation mapping survey (SWCA 2021). Restoration of non-sidecast areas includes 0.07 acre of woodland and forest habitats, and 0.02 acre of upland habitats. The balance of 0.03 acre of non-sidecast restoration occurs within developed/disturbed areas (Table 10). In total, between the restoration of sidecast areas (2.48 acres) and the restoration of non-sidecast areas (0.12 acre), 2.60 acres of native habitat will be restored as part of this Project (Table 10). Restoration areas by vegetation community within CDFW/RWQCB regulated areas; non-regulated areas are reflected in Table 11, *Proposed Project Restoration and Enhancement Within CDFW Regulated Areas and Non-CDFW Regulated Areas by Vegetation Community*.

Table 11. Proposed Project Restoration and Enhancement Within CDFW Regulated Areas and Non-CDFW Regulated Areas by Vegetation Community

Vegetation Community	Restoration in Regulated (CDFW/RWQCB) Areas (Acres)	Restoration in Non-Regulated Areas (Acres)	Enhancement Reseeding Areas in Non-Regulated Areas (Acres) ²
Big pod ceanothus (<i>Ceanothus megacarpus</i>) chaparral Alliance	0.19	0.66	0.31
Big pod ceanothus chaparral Alliance, <i>Ceanothus megacarpus</i> – <i>Salvia mellifera</i> Association ¹	0	0.08	0.02
California bay forest and woodland Alliance ¹	0.08	0	0
Coast live oak woodland Alliance, <i>Quercus agrifolia</i> – <i>Umbellularia californica</i> Association ¹	0.44	0.19	0
Coast live oak woodland and forest Alliance	0.15	0.27	0.08
Hairy leaf – woolly leaf ceanothus chaparral Alliance, <i>Ceanothus oliganthus</i> Association ¹	0	0.02	0
Holly leaf cherry – toyon – greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> Association	0.01	0.01	0
Holly leaf cherry – toyon – greenbark ceanothus chaparral Alliance, <i>Ceanothus spinosus</i> – <i>Ceanothus megacarpus</i> Association	0.14	0.33	0.12

Vegetation Community	Restoration in Regulated (CDFW/RWQCB) Areas (Acres)	Restoration in Non-Regulated Areas (Acres)	Enhancement Reseeding Areas in Non-Regulated Areas (Acres) ²
Developed / disturbed	0	0.03	0.74
Subtotal for Woodland and Forest Habitats	<i>0.67</i>	<i>0.46</i>	<i>0.08</i>
Subtotal for Upland Habitats (excludes developed/disturbed)	<i>0.34</i>	<i>1.1</i>	<i>0.45</i>
Grand Total	1.01	1.59	1.27

DATA SOURCE: SWCA 2021. These values are approximate, actual acreage by vegetation community may vary.

Please note: Acres are shown as rounded to the nearest hundredth decimal place, yet totals reflect sums of the unrounded numbers.

¹ Denotes a state sensitive natural community.

² All enhancement areas are outside CDFW regulated areas.

3.3.6 Sensitive Species Rehabilitation

The Project will restore sensitive plants presumed to be directly impacted as a result of the December 2019 work. These sensitive species include Santa Barbara honeysuckle, Plummer’s baccharis, and Hubby’s phacelia (see Figures 3a-e). Seeds and cuttings from unimpacted sensitive plants will be collected as described in Section 4.8 and seeded/planted in plots within suitable habitat integrated into the Project site (Section 6.9). Plots will be monitored and maintained and subject to the Success Criteria, as described in Section 8 of this HRMP.

One individual of Oscillated Humboldt lily was identified outside of the Project site. There is no evidence of direct impacts to individuals, nor has habitat for the species within the Project site been confirmed. However, annual presence/absence surveys will be conducted as described in Section 8.1.5.

3.3.7 Tunnel Trail Road Habitat Enhancement

In total, the December 2019 work impacted 3.51 acres of native vegetation. The Stream Restoration Project will restore 2.6 acres of native vegetation, consisting of 2.48 acres of restoration within sidecast areas, and 0.12 acres of restoration within current staging areas. In addition, the Stream Restoration Project will enhance 0.91 acres of habitat by reseeding road cuts on the interior side of Tunnel Trail road and conducting two consecutive years of targeted weed abatement.

Road cut areas will be revegetated by hydroseed application methods consistent with this HRMP, using a seed mix approved by the County of Santa Barbara. Road cut areas for seed application have been selected based on the likelihood of sustaining vegetation. SCE will conduct qualitative assessments of enhancement areas until fifty percent of the 0.91 acre of seeded areas support twenty percent native vegetation cover. It is expected that some areas remain as exposed natural rock surfaces within the enhancement areas and still offer beneficial habitat connectivity. If, after three consecutive years of monitoring, criteria are not met, SCE will implement adaptive management measures consistent with the HRMP, including measures for poor germination, such that if no germination is observed within an area that exceeds 100 square feet in a single location, reseeding would occur. These rock face surfaces are naturally prone to rockslides and erosional processes. Therefore, if soils or rocks within seeded areas slide due to natural causes during the five-year monitoring period, a one-time reseeding of the slide

area or an area of comparable size would be completed. SCE will document the growth of seeded areas and report annual assessment results in annual monitoring reports.

Weed abatement efforts will target priority invasive species found within the Project area and listed in the Preliminary Invasive Species Survey Report prepared by the Santa Barbara Botanic Garden as part of the Mission Canyon Biodiversity Project (SBBG 2021). SCE will perform targeted weed abatement of mapped populations of Geraldton carnation weed (*Euphorbia terracina*), French broom (*Genista monspessulana*), fountain grass (*Cenchrus setaceus*), and castor bean (*Ricinus communis*) and fennel (*Foeniculum vulgare*) along the SCE access road within the Stream Restoration Project area, and achieve full removal of established populations within mapped areas, and maintain populations within mapped areas from becoming re-established (i.e., able to produce seed or propagules) during the treatment five-year monitoring period. Weed populations will be mapped, and the density of populations will be documented in annual monitoring reports. SCE will also work with the Santa Barbara Botanic Garden to inform any long-term control efforts performed by the Garden. These efforts will supplement the three consecutive years of site maintenance weeding performed by SCE starting in 2020 as a comprehensive effort to reduce invasive species and promote the re-establishment of native habitats disturbed by the 2019 incident.

Revegetation and weed abatement efforts are designed to promote the successful enhancement of native habitats to benefit the ecology of Mission Canyon. Collectively, the habitat restoration of 2.6 acres, the 0.91 acre of habitat enhancement, and three years of site maintenance weeding performed to date will result in a 1:1 impact-to-mitigation ratio and full compensation for 3.51 acres of impacts to native vegetation (Table 12, *December 2019 Native Habitat Impacts and Mitigation*).

Table 12. December 2019 Native Habitat Impacts and Mitigation

Proposed Mitigation Acres		December 2019 Impact Acres	
Restoration of sidecast	2.48	Sidecast areas	2.48
Restoration of non-sidecast	0.12	Permanent Berms	0.5
Habitat Enhancement (reseed rock slopes and targeted weed abatement) ¹	0.91	Rock Wall	0.53
Total Restoration and Enhancement	3.51	Total Habitat Impacts	3.51

¹ A total of 1.27 acres will be reseeded to achieve 0.91 acres of Habitat Enhancement required by the County of Santa Barbara

Additional temporary impacts could occur during sidecast removal efforts within contingency buffers of Road Areas 1 and 2 and Creek Sites 1-4, as described in Section 3.3.1. These temporary impacts will not exceed 0.27 acre, as listed in Tables 2 and 9. Upon project completion, all contingency buffer impacts will be restored concurrently with other restoration efforts through seeding and/or planting as described in this HRMP.

3.3.8 Staging and Storage Areas

Approximately 0.99 acre of developed/disturbed areas have been identified for use as staging, parking, and material storage areas throughout the Project area (Figures 5a-e). These areas are largely limited to compacted roadside and shoulders. However, if native vegetation was removed to support the Road Repair Project, completed by SCE in November 2020, or is removed to support this Project, these areas will be restored in accordance with this HRMP and be subject to ongoing monitoring and maintenance

(Figures 7a-e). Five of these staging areas, previously used for SCE's Road Repair Project completed in 2020, as well as an additional area located at the south end of the intersection of Tunnel Trail Road and Mission Canyon Catway within Road Area 5 between SC 7 and SC 8 previously disturbed by an unknown party (non-SCE related), will be restored to native habitats following Project construction.

3.4 Avoidance and Minimization Efforts

The Avoidance and Protective Measures (APMs) that would be followed during Project-related activities and, in many instances, are phase-specific. The habitat restoration described in this HRMP is intended to consist of three main phases: restoration installation planning and site preparation (Sections 4 and 5), installation (Section 6), and maintenance and monitoring program (Sections 7 and 8). Each of the APMs will be implemented in a particular phase or phases, as indicated below. For simplicity, Phase 1 is the timeframe for restoration planning and site preparation; Phase 2 is the installation and construction of the restoration program; and Phase 3 is the maintenance and monitoring program.

3.4.1 General Environmental Requirements

APM-ENV-1 Tailboard Briefing: A tailboard briefing will be conducted every day prior to the start of work to communicate safety and environmental requirements for the planned work activities and stop-work protocols. (Timing: Phases 1, 2, and 3).

APM-ENV-2 Approved Work Areas: All ground disturbance, vehicles, and equipment must remain in approved work areas, including approved access routes and work areas defined in the Project scope. Approved work areas include the following: sediment and rock disposal removal areas; stream, bank, and slope stabilization areas; upland sidecast removal areas; native tree restoration and mitigation areas; native vegetation restoration areas; berm stabilization areas; construction areas; staging and storage areas; and contingency buffer areas. (Timing: Phases 1, 2, and 3).

APM-ENV-3 Delineation of Work Areas: To minimize temporary impacts to native habitats adjacent to Project areas, flagging and/or temporary fencing will be installed during Site Preparation Activities and prior to Habitat Restoration Installation. Global Positioning System (GPS) coordinates of the areas shall also be taken. The limits of disturbance, including the upstream, downstream, and lateral extents on either side of any stream adjacent to the Project impact footprint, will be clearly defined. Monitoring personnel (biological and wetlands) will review the limits of disturbance during Site Preparation Activities and prior to materials/equipment mobilization and Habitat Restoration Installation. Approved limits of staging and stockpiling areas will be clearly defined. Sensitive resources will be flagged for impact minimization and avoidance. (Timing: Phases 1, 2, and 3).

APM-ENV-4 Worker Environmental Awareness Program (WEAP): During Site Preparation Activities and prior to materials/equipment mobilization and Habitat Restoration Installation, a Worker Environmental Awareness Program (WEAP) will be developed. All workers on the Project site must receive WEAP training prior to beginning work on the Project. The WEAP training will identify the biological monitors who have stop-work authority and will describe how the action would be implemented in a situation where work must be halted. (Timing: Phases 1, 2, and 3). In addition, all construction personnel will receive the following:

Instruction on the individual responsibilities under the Clean Water Act, the Project SWPPP, site-specific BMPs, and the location of Safety Data Sheets for the Project.

Instructions to notify the supervisor and regional spill response coordinator if a hazardous materials spill or leak from equipment occurs, or upon the discovery of soil or groundwater contamination.

Instructions and guidance on sensitive species and their habitat and specific measures to protect the species and their habitat during the implementation of the Project and what to do if the species is observed.

Instruction on ensuring all food scraps, wrappers, food containers, cans, bottles, and other trash from the Project area will be deposited in closed trash containers. Trash containers will be removed from the Project area as required and will not be permitted to overflow.

Upon completion of the WEAP training, all workers shall sign a form stating that they attended the training and understand all protection measures. These forms shall be filed at the worksite offices and be available to CDFW or other regulatory agencies upon request.

APM-ENV-5 Material Management: Any refuse material that needs to be hauled off-site will be taken to an SCE-approved disposal facility. (Timing: Phases 1 and 2).

APM-ENV-6 Secondary Containment: Vehicles/equipment/materials shall only be staged in areas approved by CDFW where the materials will not enter Regulatory Areas. Best Management Practices (e.g., oil drip pans, plastic sheeting) are required for any equipment or vehicles staged overnight. (Timing: Phases 1, 2, and 3).

APM-ENV-7 Spill Release/Prevention: Vehicles/equipment must be inspected for leaks (e.g., fuel, oil, hydraulic fluids, etc.) and repaired prior to work. Equipment fueling will be contained to the designated staging areas to contain spills, facilitate clean-up, and proper disposal. Spill kits/absorbent clean-up materials shall be available on-site and if used, disposed of properly. Spill response procedures will be included in the Project SWPPP. (Timing: Phase 1, 2, and 3).

APM-ENV-8 Environmentally Sensitive Areas (ESA): Adhere to avoidance and/or monitoring requirements within established ESAs, as prescribed by agency permits and authorizations applicable to the Project. ESAs include Regulatory Areas, critical root zones, and areas containing sensitive plant species. (Timing: Phases 1, 2, and 3).

APM-ENV-9 Material and Equipment Storage: Project materials and equipment will only be stored on-site within staging and storage areas identified in the Project scope. (Timing: Phases 1, 2, and 3).

APM-ENV-10 Clean Work Areas: Project-generated trash will be contained in vehicles or secured receptacles and removed from the work site daily. (Timing: Phases 2 and 3).

APM-ENV-11 Weather Limitations: SCE shall monitor the National Weather Service (NWS) 72-hr forecast for the Project area and shall consider precipitation forecasts and potential increases in runoff and stream flow when planning Project activities. Project activities shall not occur if runoff from construction areas or exposed slopes is possible. Project activities shall cease, and the Project site work materials shall be removed or secured to avoid runoff prior to any substantial rain. Substantial rain is when the NWS has predicted a 50 percent or more chance of at least 0.5 inch of rain in 24 hours. SCE shall implement erosion control measures throughout all phases of operation where sediment runoff from exposed slopes threatens to enter a river, stream, or lake. Weather forecasts shall be documented and available to CDFW and RWQCB upon request (Timing: Phases 1, 2, and 3).

APM-ENV-12 Post-Storm Event Inspection: After any storm event, the QSP shall inspect all sites scheduled to begin or continue construction within the next 72 hours. Corrective action for erosion and sedimentation shall be taken as needed. NWS 72-hour weather forecasts shall be reviewed prior to the start of any Phase of the Project that may result in sediment runoff to the stream, and plans adjusted to meet this requirement. (Timing: Phases 1, 2 and 3).

APM-ENV-13 Night Work Restriction: Project activities shall be limited to the period of daylight hours to limit disturbances on wildlife activity. (Timing: Phases 1, 2, and 3).

3.4.2 Biological Resources Protection Measures

APM-BIO-1 Qualified Biologist: A Qualified Biologist, who is approved by CDFW, shall be on-site during all vegetation- and ground-disturbing activities to ensure all avoidance and minimization measures are implemented. The Qualified Biologist shall be knowledgeable and experienced in the biology and natural history of local fish and wildlife resources present at the Project site. The Qualified Biologist shall be familiar with the appropriate species survey methodology and USFWS and/or CDFW-accepted species-specific survey protocols, available here: <https://wildlife.ca.gov/conservation/survey-protocols>. The Qualified Biologist shall be authorized to stop any Project activities, if necessary, to protect fish and wildlife resources. (Timing: Phases 1, 2, and 3).

APM-BIO-2 Resource Specialists: All Resource Specialists referred to in the HRMP (Appendix A) and this IS/MND shall be approved by CDFW prior to the initiation of Project activities. These Resource Specialists shall be authorized to stop any Project activities, if necessary, to protect fish and wildlife resources. (Timing: Phases 1, 2, and 3).

APM-BIO-3 Daily Pre-Work Clearance Survey: Prior to work occurring for the day, a CDFW-approved Qualified Biologist shall conduct a survey of the work area and an appropriate buffer (based on the habitat and the nature of the proposed work) prior to the commencement of any work or Project-related activities. The purpose of the survey is to identify special-status species and other sensitive biological resources that may be impacted by the proposed work. If a sensitive resource is observed or determined to be likely to occur in the work area based on the results of the survey, the Qualified Biologist will develop resource- and site-specific avoidance measures to avoid adverse effects and shall submit these avoidance measures to CDFW for review and approval. (Timing: Phases 1 and 2).

APM-BIO-4 Injured/Trapped Wildlife: Prior to work occurring for the day, a CDFW-approved Qualified Biologist shall inspect the Project site for any injured or dead wildlife. In addition, a CDFW-approved Qualified Biologist shall also inspect construction material and equipment for any trapped wildlife. All

work areas will be secured and holes covered to prevent injury or wildlife entrapment. If any incidentally trapped wildlife is discovered, it shall be allowed to escape and leave the work area voluntarily (Timing: Phases 1 and 2).

APM-BIO-5 Avoid Drainages: All debris (i.e., spoils), vehicles and equipment, and construction materials will be kept from entering drainage features unless the drainage feature is actively being worked on or must be traversed to gain access to an active work area. (Timing: Phases 1, 2, and 3).

APM-BIO-6 Nesting Bird Monitoring: SCE is responsible for avoiding impacts to nesting birds any time birds are nesting on site. SCE shall ensure that impacts to nesting birds are avoided through the implementation of pre-work surveys, ongoing monitoring, and, if necessary, the establishment of minimization measures such as nesting bird buffers. No Project-related vegetation- or ground-disturbing activity shall be conducted during nesting bird season unless a Qualified Biologist completes nesting bird surveys prior to the start of Project-related activities. Nesting bird season is typically February 1 through September 15 for most bird species and between January 1 through September 15 for raptors. During nesting bird season, pre-work nesting bird surveys shall be conducted by a Qualified Biologist within three days prior to the initiation of Project activities, as well as daily before work activities begin. If the Project site is inactive for one week, nesting bird surveys shall be repeated. Results of pre-work surveys shall be provided to CDFW at least one business day prior to the commencement of Project activities. SCE may also propose an alternative plan for the avoidance of nesting birds for CDFW concurrence based on Project-specific, site-specific, and species-specific information. SCE shall implement the following: (Timing: Phases 1, 2, and 3).

The Qualified Biologist shall have experience with the following: identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (e.g., Ralph et al. 1993) and USFWS and/or CDFW-accepted species-specific survey protocols, available here: <https://wildlife.ca.gov/conservation/survey-protocols>; nesting surveying techniques, recognizing breeding and nesting behaviors, locating nests and breeding territories, and identifying nesting stages and nest success (e.g., Martin and Geupel 1993); determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

Pre-work surveys shall be conducted by the Qualified Biologist at the appropriate time of day/night, during appropriate weather conditions. Surveys shall encompass all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the Project area; density and complexity of the habitat; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected is complete and accurate. Pre-work surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors). If a nest is suspected, but not confirmed, the Qualified Biologist shall establish a disturbance-free buffer until additional surveys can be completed, or until the location can be inferred based on observations. The Qualified Biologist shall not risk failure of the nest to determine the exact location or status and will make every effort to limit the nest to potential predation as a result of the survey/monitoring efforts (e.g., limit number of surveyors, limit time spent at/near the nest, scan the site for potential nest predators before approaching, immediately depart nest area if indicators of stress or agitation are displayed). If a nest is observed but thought to be inactive, the

Qualified Biologist shall monitor the nest for one hour (four hours for raptors during the non-breeding season) prior to approaching the nest to determine its status. The Qualified Biologist shall use their best professional judgement regarding the monitoring period and whether approaching the nest is appropriate.

When an active nest is confirmed, the Qualified Biologist shall implement a default 300-foot minimum avoidance buffer for all common passerine birds and a 500-foot minimum avoidance buffer for all special-status passerine and raptor species. CDFW may consider variances from these buffers when there is a compelling biological or ecological reason to do so, such as when the Work Area would be concealed from a nest site by topography. The breeding habitat/nest site shall be fenced and/or flagged in all directions. The buffer shall be delineated to ensure that its location is known by all persons working within the vicinity but shall not be marked in such a manner that it attracts predators. Once the buffer is established, the Qualified Biologist shall document baseline behavior, stage of reproduction, and existing site conditions, including vertical and horizontal distances from proposed work areas, visual or acoustic barriers, and existing level of disturbance. The Qualified Biologist shall monitor the nest at the onset of Project activities, and at the onset of any changes in Project activities (e.g., increase in number or type of equipment, change in equipment usage, etc.) to determine the efficacy of the buffer. If the Qualified Biologist determines that Project activities may be causing an adverse reaction, the Qualified Biologist shall adjust the buffer accordingly. The nesting bird area shall not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the Project.

The Qualified Biologist shall be on site daily to monitor all existing nests and the efficacy of established buffers and to document any new nesting occurrences. The Qualified Biologist shall document the status of all existing nests, including the stage of reproduction and the expected fledge date. If a nest is suspected to have been abandoned or failed, the Qualified Biologist shall monitor the nest for a minimum of one hour (four hours for raptors), uninterrupted, during favorable field conditions. If no activity is observed during that time, the Qualified Biologist may approach the nest to assess the status. If nesting birds are detected within Project Site(s) during Project implementation and construction, SCE shall notify CDFW immediately in writing.

SCE, under the direction of the Qualified Biologist, may also take steps to discourage nesting on the Project site, including moving equipment and materials daily, covering material with tarps or fabric, and securing all open pipes and construction materials. The Qualified Biologist shall ensure that none of the deterrent materials pose an entanglement risk to birds or other species. The Qualified Biologist shall include a detailed account of any steps taken to discourage nesting within the Project site in the summary reports.

Observations of breeding/nesting threatened or endangered bird species during surveys shall be reported immediately to CDFW. The Qualified Biologist shall be responsible for providing summary reports regarding the nesting species identified on-site, the discovery of any new nests, the status/outcome of any previously identified nest, buffer distances established for each nest, and any adjustments made to established buffers. If Project activities result in the abandonment of, or damage to a nest, SCE shall notify CDFW within 24 hours of detection.

APM-BIO-7 Special Status Herpetofauna Species: Pre-work surveys for special status herpetofauna species such as coast range newt, two-striped gartersnake, coast horned lizard, and coastal whiptail shall be conducted by a Qualified Biologist 14 days and 24 hours before the start of vegetation- or ground-disturbing activities. Separate and species-specific surveys shall be conducted at the appropriate time and with the appropriate methodology to determine if any special status herpetofauna species are present within the Project area. Surveys shall incorporate appropriate methods to detect these species, including individuals that could be concealed in burrows, beneath leaf litter, or in loose soil prior to any Project-related activities in areas that have or may have the potential to support these species. Should any special status herpetofauna be found during pre-work surveys in an identified work area, the Qualified Biologist shall delay all Project ground-disturbing or vegetation-disturbing activities until the species has left the work area voluntarily. SCE shall notify CDFW of the discovery of any special status herpetofauna immediately, and work shall not commence or resume (whichever applies) until CDFW provides written authorization. The results of these surveys shall be provided to CDFW, along with copies of all field notes, prior to the start of Habitat Restoration Installation. (Timing: Phase 2).

APM-BIO-8 Tree Protection: A tree protection plan will be prepared by a certified arborist and implemented throughout this Project (HELIX 2020b). (Timing: Phases 1 and 2). Specifically, tree protection measures include:

A minimum four-foot-tall, brightly colored, synthetic fence shall be installed around the critical root zone (defined by the County of Santa Barbara as the dripline plus six feet; County of Santa Barbara 2020) to delineate the boundary of the ESA. Fencing shall remain in place until all Construction Activities and Restoration Installation Activities have ceased.

No digging, trenching, compaction, or other soil disturbance shall be allowed in the fenced area.

The storage of construction equipment or hazardous materials such as gasoline, oil, or other toxic chemicals shall not be allowed in or adjacent to the fenced area.

All stockpiled soil will be placed outside of any critical root zone unless specifically authorized by CDFW. Specific authorization will include locations of critical root zone encroachment, the volume of material, and the timing for stockpile storage.

Grade changes shall be avoided near fenced areas.

Designated roads and parking areas shall be established. All construction personnel shall be restricted to driving and parking in designated areas. Prolonged discharge (idling) of exhaust from construction vehicles and equipment shall not be allowed near the critical root zone.

All work shall be performed under the direction of a Certified Arborist.

A monitoring biologist will regularly inspect fencing and document any encroachments to native tree critical root zones and corresponding corrective measures for incorporation in the post-construction compliance report. Work around trees will be overseen by a qualified arborist to ensure trees are adequately protected, and no additional impacts occur.

APM-BIO-9 Restoration of Disturbance to Native Vegetation or Sensitive Plants: Following Project activities, any disturbance to native vegetation communities or sensitive plants resulting from Proposed Project activities, will be mapped and restored in accordance with the HRMP. (Timing: Phases 2 and 3)

APM-BIO-10 ESA Flagging and Monitoring: Prior to materials/equipment mobilization and Habitat Restoration Installation, the hydrologic monitor will flag regulated areas that will need to be avoided or monitored as part of the installation. Throughout work activities, the hydrologic monitor will ensure the protection of the adjacent Regulatory resources. (Timing: Phases 1 and 2).

APM-BIO-11 Collection of Rare Plant Propagules: During the appropriate season, seed, bulbs, or cuttings of sensitive plant species within the Work Area that have the potential to be impacted or cannot be avoided, may be collected for restoration purposes in accordance with the HRMP (Section 4.8). In this instance, SCE will notify CDFW prior to impacting rare plants to allow adequate time to salvage the plants. Species targeted for cutting collection include Plummer’s baccharis, while seed of Santa Barbara honeysuckle may be collected. Collection practices will follow industry standards for extraction, potting, storage, and care prior to transplanting. (Timing: Phases 1, 2, and 3).

APM-BIO-12 Change in Seed Lists or Plant Lists: Changes to seed or plant lists will be submitted to SCE, SCE’s Restoration ecologist, for review and approval prior to application. (Timing: Phases 1, 2, and 3).

APM-BIO-13 Species-Specific Rehabilitation: Three sensitive plant species—Santa Barbara honeysuckle, Plummer’s baccharis, and Hubby’s phacelia—are known to occur within the Project area and will be incorporated into the revegetation program of the HRMP (Sections 6-9)(Appendix A) as part of the Project work. (Timing: Phases 2-3).

APM-BIO-14 Adaptive Management Herbicide Use: Any use of herbicide will be prescriptive, targeted to control particularly noxious weeds such as carnation spurge (*Euphorbia terracina*), fountain grass (*Pennisetum setaceum*), and French broom (*Genista monspessulana*). Targeted herbicide application to mustard (*Brassica* spp., or *Hirschfeldia* spp.) in sidecast areas away from public access may also be considered an adaptive management tool. Herbicide application would not be applied during wind conditions with gusts above 5 mph or within 24 hours of a rain event. All applications would be completed in compliance with EPA, state, and local regulations by licensed applicators. The County and City will be consulted prior to herbicide use, and pesticide use reports will be submitted to CDFW and the California Department of Pesticide Regulation database. (Timing: Phase 3).

3.4.3 Erosion and Sediment Control Measures

APM-EC-1 Erosion and Sediment Control: The Proposed Project will implement erosion and sedimentation controls, both during Project activities and during the establishment of the native vegetation, to reduce potential hydrological impacts regarding erosion. Temporary stabilization measures are methods and materials that are implemented in the short-term to stabilize soil and sediment flow prior to Project actions (e.g., filter fabric, silt fencing, straw wattles). Long-term stabilization measures are installed to promote the stabilization of stream banks and slopes and may include approved soil binders, hydromulch, or rolled erosion control products (e.g., coir matting). Erosion control measures will be accompanied by sediment controls, typically burlap-wrapped fiber rolls or biodegradable gravel bags. All BMPs will be biodegradable, weed-free, and plastic-free, and made of material that prevents wildlife from becoming trapped. Fiber rolls or erosion control mesh shall be made

of loose-weave mesh that is not fused at the intersections of the weave, such as jute, coconut (coir) fiber, or other fibers without welded weaves. Non-welded weaves reduce entanglement risks to wildlife by allowing animals to push through the weave, which expands when spread. These temporary features include the application of stabilizing soil binders to disturbed areas, which will locally stabilize soils to impede point source erosion and sheet flow.

Temporary stabilization measures typically require intermittent maintenance to ensure proper functionality by removing accumulated sediments from behind the stabilization device. A SWPPP will be prepared and implemented to address the short-term stabilization of soils and water flows within the Proposed Project area. (Timing: Phases 1, 2, and 3).

APM-EC-2 Sediment and Runoff Control: Removed sidecast shall not be placed in areas where it might likely be washed into the stream or inundated by high flows prior to storm events. Removed sidecast shall not be placed where it is likely to have a negative impact on emergent native vegetation or native trees. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion. (Timing: Phase 2).

APM-EC3-3 Contaminated Site Water: Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a flowing stream, dry ephemeral stream, or storm drains. Such water shall be settled, filtered, or otherwise treated prior to discharge back into the water body. (Timing: Phases 1, 2, and 3).

APM-EC-4 Inspection of Project Equipment: The Qualified Biologist shall inspect all vehicles, tools, waders, and boots, and other Project-related equipment and remove all visible soil/mud, plant materials, and animal remnants prior to entering and exiting the Project site. (Timing: Phases 1, 2, and 3).

3.4.4 Invasive Weed Species Control

APM-INV-1 Clean Vehicles and Equipment: All vehicles and any ground- or vegetation-disturbing equipment/tools must be cleaned and free of mud, soil, and plant material prior to entering the Project site. Cleaning can be done through car washes, compressed air, pressure washers, brushes, or similar equipment. All vehicles will be inspected prior to coming on site, and a record of wash/inspection time, date, location of where the equipment was cleaned, and the distance to the work site, will be maintained. (Timing: Phases 1, 2, and 3).

APM-INV-2 Weed-Free Materials: All Best Management Practice (BMP) materials will be weed-free, plastic-free, and fully biodegradable. All specifications in the Project SWPPP will be implemented on-site. (Timing: Phases 1, 2, and 3).

3.4.5 Hydrology and Water Quality

APM-HYD-1 Storm Water Pollution Prevention Plan: A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the Project to address all Project-related activities, equipment, and materials that have the potential to affect water quality during Project implementation. The SWPPP would identify the sources of pollutants that may affect the quality of storm water and include BMPs such as sediment

control, erosion control, construction materials, and waste management, to control the pollutants, as well as other non-storm water BMPs. All construction site BMPs would be designed to control and minimize the effects of construction and construction related activities, material, and pollutants on the watershed. A Qualified SWPPP Practitioner and/or delegated monitor will inspect the site per California Construction General Permit (CGP) requirements. As the Project progresses, the SWPPP will be modified and amended to reflect modifications to storm water control measures as construction conditions change. Storm water controls for this Project include BMPs that will be installed to reduce or eliminate pollutants from entering Mission Creek and associated sensitive habitats. All BMPs will be weed free, plastic free, and fully biodegradable, and will be made of material that prevents wildlife from becoming trapped. Mulch will have no invasive seeds, plant material, or plastic. Hydroseeding shall be done with native seeds only, including grasses. The SWPPP must be kept on site and amended to reflect the current site conditions until final stabilization and termination requirements are met. If field circumstances do not allow the SWPPP to remain on-site, then the QSP will retain the hardcopy SWPPP, which will be made available upon request to state or municipal inspectors. (Timing: Phases 1, 2, and 3).

3.4.6 Air Quality and Fugitive Dust Control

APM-AQ-1 Air Quality and Fugitive Dust Control: During Habitat Restoration Installation, standard BMPs would be implemented to minimize dust consistent with the dust control requirements of the County's Grading Ordinance (Section 14-23) and Santa Barbara County Air Pollution Control District (SBCAPCD) Rule 345. These measures require maintenance of mobile and other construction equipment, watering exposed surfaces to prevent dust from leaving the site, creating a crust after each day's activities cease, covering stockpiles when required (e.g., non-active, prior to onset of precipitation, etc.), watering all haul roads daily, and limiting speeds on unpaved roads to 15 miles per hour. All temporary areas of ground disturbance would be treated (e.g., with water or dust suppressant) to prevent visible emissions of dust. (Timing: Phase 2).

3.4.7 Cultural and Paleontological Resources

APM-CUL-1 Qualified Archaeologist. Prior to initiating any Project-related ground-disturbing activities, SCE shall retain a Qualified Archaeologist. A Qualified Archaeologist is defined as one who meets the Secretary of the Interior's (SOI) Standards for professional archeology and those defined for a Principal Investigator by the Society for California Archaeology (SCA). The qualifications shall be presented as part of a resume for at least one primary point of contact who will act in capacity as the Qualified Archaeologist but also other key staff who may serve in this role. The resume shall demonstrate their SOI and SCA qualifications and shall be subject to approval by the County. The Qualified Archaeologist shall provide the services of an on-site representative known as an Archaeological Monitor.

Ground-disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the Project site. (Timing: Phases 1 and 2)

APM-CUL-2 Cultural and Tribal Cultural Resources Monitoring and Unanticipated Discovery Plan. Prior to initiating any Project-related ground-disturbing activities, a Cultural and Tribal Cultural Resources Monitoring and Unanticipated Discovery Plan (Monitoring Plan) shall be prepared by the Qualified Archaeologist and submitted to SCE, CDFW, and the County. The Monitoring Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section

15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1. The Monitoring Plan will outline the roles and responsibilities of the Tribal Monitors and Archaeological Monitors as well as monitoring and resource discovery and treatment methods. It will identify the resources that will require protection and the work activities that will require monitoring. It will also define the construction worker training program. (Timing: Phase 1).

APM-CUL-3 Worker Training. The Qualified Archaeologist or a designee working under their direction (e.g., the Archaeological Monitor) shall provide training to on-site Project personnel who are responsible for overseeing ground-disturbing activities (i.e., a foreman or site supervisor) and any machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities at the Project site. The training shall brief the crew(s) on the regulatory compliance requirements and measures that must be adhered to during ground-disturbing activities for the protection of archaeological resources. As an element of the worker training, the Qualified Archaeologist or their designee shall advise the construction crews on proper procedures to follow if an unanticipated archaeological resource, including human remains, is discovered during Project implementation, including the authority of a Tribal Monitor and an Archaeological Monitor to temporarily halt or redirect work away from such a discovery. Workers shall be shown examples of the types of archaeological resources that would require notification of the archaeologist, if encountered. The workers shall be provided with contact information for the Qualified Archaeologist and their designee(s) as part of a brief hand-out summarizing the critical components of the training. Once the ground-disturbing activities have commenced, the need for additional or supplemental worker trainings shall be determined by the Qualified Archaeologist based upon consultation with Project personnel. Within five days of completing each training, a list of those in attendance shall be provided by the Qualified Archaeologist to a point of contact designated by SCE. (Timing: Phases 1 and 2).

APM-CUL-4 Archaeological Resources/Human Remains Discovered: Throughout the duration of all ground-disturbing activities, tribal monitors and an archaeologist shall be present at all times to observe and catalog any cultural resources that could be impacted by the Project, unless otherwise advised by tribal monitor. If archaeological resources (Native American or historical artifacts), fossils, or human remains are encountered, work will be stopped. Tribal monitors, archaeologist(s), and SCE's cultural resource specialist have the authority to stop work at any time to protect archaeological resources, fossils, or human remains. The tribal monitors, archaeologist(s), and SCE's cultural resource specialist must give their unified approval for work to recommence after a stop work event (Timing: Phases 1 and 2).

APM-CUL-5 Archaeological Monitoring. At least one Archaeological Monitor working under the direction of the Qualified Archaeologist shall be present to implement the Monitoring Plan. During tree planting within SBA-2722H, the Archaeological Monitor should directly observe tree planting within the portion of the API within the site boundary and provide direction on the locations of tree installation to avoid any historical refuse that may be present on the surface. The Archaeological Monitor shall also be present for the establishment of the laydown yard to ensure that its boundaries avoid known archaeological resources. The use of Archaeological Monitors to ensure the avoidance of significant impacts to historical resources in conjunction with other activities and to ensure an appropriate response to unanticipated discoveries shall be done in accordance with the Monitoring Plan. (Timing: Phases 1 and 2).

APM-GEO-1: Paleontological Resources Monitoring and Mitigation Plan. A qualified Project Paleontologist will be retained to prepare and implement a paleontological resources monitoring and mitigation plan (PRMMP). This plan will address specifics of monitoring and mitigation, including but not limited to preconstruction meeting attendance requirements, monitoring methods and procedures, monitoring staff qualifications, worker training, unanticipated discovery protocols, notification procedures, fossil salvage or sampling requirements, final reporting, and accessioning of any discovered paleontological resources into a recognized repository such as a museum, should fossils be found. The plan will comply with the recommendations of the SVP (2010). The Project Paleontologist will also prepare a report of the findings of the monitoring plan after Habitat Restoration Installation is completed (Timing: Phases 1 and 2)

APM-GEO-2: WEAP Training. The Project Paleontologist will develop a Worker’s Environmental Awareness Program (WEAP) to be incorporated into the general WEAP training for the construction crew on the legal requirements for preserving fossil resources as well as procedures to follow in the event of a fossil discovery. This training program will be given to the crew before ground-disturbing work commences and will be given to new workers upon onboarding. (Timing: Phases 1 and 2).

APM-GEO-3: Paleontological Monitoring. Certain ground-disturbing activities used for sidecast removal will require initial full-time paleontological monitoring. Monitoring should be conducted by a paleontological monitor, who meets the standards of the SVP (2010) under the supervision of the Project Paleontologist. The Project Paleontologist may periodically inspect Construction Activities to adjust the level of monitoring in response to subsurface conditions. Monitoring can be reduced to part-time or ceased entirely if determined adequate by the Project Paleontologist. The monitor will have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors will record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

For both the Hand and Guzzler Removal method and the Hand Rock Removal method, initial full-time paleontological monitoring shall occur during manual (hand) removal of sidecast clasts greater than three inches in diameter, as well as during manual breakage of large rocks and boulders greater than 24 inches in diameter by sledgehammers, pickaxes, expansive rock breaking agents, or jackhammers prior to removal by excavators. In instances where high incline fall protection for technicians removing the sidecast is required for the safe removal of the sidecast material (such as in the Hand Rock Removal method), the paleontological monitor shall inspect the sidecast clasts for significant fossils from along the road or from an accessible safe location. In locations where Helicopter Removal is necessary to remove sidecast material, paleontological monitoring is not required; however, at the discretion of the Project Paleontologist, the paleontological monitor may inspect stockpiles of soil removed by the Hand and Guzzler Removal method, the Hand Rock Removal method, or the Helicopter Removal method prior to being hauled away for disposal. Sidecast clasts less than or equal to three inches in diameter and/or sidecast material subject to guzzler vacuum truck removal do not require paleontological monitoring. (Timing: Phases 1 and 2).

APM-GEO-4: Fossil Discovery and Salvage. In the event of a fossil discovery, whether by the paleontological monitor or a member of the construction crew, all work will cease in a 15-m (50-foot) radius of the find while the Project Paleontologist assesses the significance of the fossil and documents its discovery. Should the fossil be determined significant, it will be salvaged following the procedures

and guidelines of the SVP (2010) and in consultation with the Natural History Museum of Los Angeles County (LACM). Recovered fossils will be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility. The most likely repository is the LACM. (Timing: Phases 1 and 2).

APM-GEO-5: Paleontological Monitoring Documentation. Upon conclusion of ground-disturbing activities, the qualified Project Paleontologist overseeing paleontological monitoring shall prepare a final Paleontological Resources Monitoring Report (PRMR) that documents the paleontological monitoring efforts for the Project and describes any paleontological resource discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the PRMR and any associated data pertinent to the curated specimen(s) shall be submitted to the designated repository. A copy of the final PRMR shall be filed with the County. (Timing: Phase 2)

3.4.8 Tribal Cultural Resources

APM-TCR-1 Local Tribal Representative. Prior to initiating any Project-related ground-disturbing activities within the Project Area of Potential Impact (API), SCE shall retain a representative(s) of a Native American tribe(s) that has/have been actively engaged in consultation on this Project during the environmental review process as a Tribal Representative. The Tribal Representative(s) shall provide the services of an on-site representative known as a Tribal Monitor.

Ground-disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the Project site. (Timing: Phase 1).

APM-TCR-2 Tribal Monitoring. At least one Tribal Monitor under the direction of the Tribal Representative shall be present to implement the Monitoring Plan. The Tribal Monitor shall have the authority to temporarily halt or redirect Construction Activities and/or Restoration Installation Activities when potential tribal cultural resources as defined in Public Resources Code Section 21074(a) are encountered, as determined by the Tribal Representative. The Tribal Monitor shall complete a written log documenting the Monitor's observations during Construction Activities and Restoration Installation Activities, which shall be submitted to the Qualified Archaeologist on a monthly basis and included in the Monitoring Report. (Timing: Phase 2).

3.4.9 Noise

APM-NOI-1 Construction Hours: Project-related activities that generate noise will be limited to weekdays and Saturdays between 8:00 a.m. and 5:00 p.m., unless other hours are approved by the County. Night work will not be performed. Project-related activities that do not generate noise or impact surrounding residents will be limited to weekdays and Saturdays between 7:00 a.m. and 6:00 p.m., unless other hours are approved by the County. Project helicopter use will be limited to weekdays between 8:00 a.m. and 5:00 p.m. (Timing: Phases 1, 2, and 3).

3.4.10 Recreation

APM-REC-1 Trail Access Plan: SCE shall prepare a Trail Access Plan that maximizes trail access during Project implementation to the maximum extent feasible and safe for Project personnel and the public. The plan will specify which Project-related activities are anticipated to require full or partial trail closure. The plan will also describe strategies, methods, and tools SCE may utilize to safely maximize public access, including access controls and communication of scheduled closures to the public. Plan Requirements and Timing: The Trail Access Plan shall be submitted to the County for review and approval prior to LUP issuance. The Trail Access Plan may be combined as part of another Project plan (such as the Parking and Trail Closure Plan) requiring County review and approval. Monitoring: Santa Barbara County permit compliance staff will verify the implementation of the approved Trail Access Plan through site inspections as needed during Project implementation. (Timing: Phases 1,2, and 3).

3.4.11 Fire Hazard

APM-HAZ-1: Fire Prevention and Emergency Response Plan: 30 days prior to the start of any Project-related activities (e.g., prior to the use of vehicles or mechanical equipment on site), SCE, in coordination with its contractors, shall prepare a Fire Prevention and Emergency Response Plan for review and approval by Santa Barbara County Fire Department (SBCFD) that includes, but would not be limited to, the following information along with provisions to be implemented during Project implementation (Timing: Phase 1):

- Responsibilities of the SCE, its contractor(s) (including fire watch services contractor) and SBCFD with respect to fire prevention and inspection of work areas
- On-site personnel in charge of overseeing Fire Prevention and Emergency Response Plan implementation
- Information on where Construction Activities, staging/storage, Habitat Restoration Activities, and monitoring activities will occur
- Traffic control requirements and approvals from Santa Barbara County
- Emergency communication, response, and reporting procedures
- Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arresters, and hot work restrictions
- Construction staff and equipment that can be used for fighting fire
- Worker training for fire prevention, initial attack firefighting, and fire reporting
- Identification of fire suppression equipment to be maintained in work areas and staging areas
- Emergency measures for construction curtailment
- Provisions for fire/emergency services access if roadway blockage occurs during construction
- Designated cleared, maintained worker parking and construction staging areas; no parking or Project activities in non-designated areas
- Prohibition of smoking and open fires at the Project site during the Project, with a copy of the notification to all contractors regarding prohibiting smoking and burning to be provided to SBCFD

- Assurances that all internal-combustion construction equipment are equipped with appropriate spark arresters and that fire extinguishers are immediately available and maintained in readiness for use at all times
- Presence of a fire watch with appropriate firefighting equipment available at the Project site at all times when welding or other spark-generating activities are taking place; prohibition of spark-producing activities (such as welding and metal cutting) when sustained winds exceed limits set forth by SBCFD
- Appropriate hot work permits/approvals (for activities such as welding and metal cutting) to be obtained from SBCFD
- Curtailment of all Project activities in the event of a fire or when fuel and weather conditions get into the “very high” and “extreme” ranges (Red Flag Warning), as determined by the National Weather Service
- Red Flag Warning restrictions for maintenance work
- Other information as required by the California Department of Forestry and Fire Protection (CAL FIRE) and SBCFD, as applicable.

3.4.12 Traffic

APM-TR-1: Traffic Management Plan. SCE shall implement an approved Traffic Management Plan (TMP) for use by all contractors and Project personnel that must include, but not be limited to, the following:

- Use of approved haul routes.
- Caution signs and/or flagmen to regulate traffic where necessary and to maintain a safe transportation corridor during mobilization, construction, and demobilization.
- Provide construction notice and schedule to emergency providers and the residential community located south of the Project site and along the proposed haul route a minimum of 15 days in advance of Project activities.
- Specify and enforce 15 miles per hour as the maximum vehicle speed limit to minimize risk of wildlife collisions and fugitive dust.
- Provide signage and barriers used for temporary closure of recreational trails during construction.

The TMP shall be submitted to Santa Barbara County for review and approval at least 30 days prior to the start of Project construction. (Timing: Phases 1 and 2).

3.5 Habitat Restoration Plan Roles and Responsibilities

SCE will execute this HRMP with the leadership of SCE’s restoration experts supported by a Lead Restoration Ecologist, a team of resource specialists, a construction contractor, and a restoration installation/maintenance contractor. The roles and responsibilities of this team are outlined in detail below.

3.5.1 Responsible Parties

Southern California Edison is the owner/operator and will be responsible for financing the installation and monitoring the mitigation effort.

3.5.2 Lead Restoration Ecologist

Overall supervision of the installation, maintenance, and monitoring of the mitigation effort will be the responsibility of a primary Lead Restoration ecologist (Restoration ecologist) with extensive stream restoration experience supported primarily by a hydrologic engineer and fisheries biologist. The Lead Restoration ecologist, along with the hydrologic engineer, will be responsible for collecting stream information and developing typical plans as described in Section 4.3. The Restoration ecologist will monitor the efforts of the installation and maintenance contractors throughout the performance period. Specific tasks of this role include educating participants regarding mitigation goals and requirements through the WEAP, directly overseeing site preparation, seeding, weeding, and maintenance, conducting monitoring, and preparing reports. The Restoration ecologist will ensure that the installation and maintenance contractor does not inadvertently impact environmentally sensitive areas to be avoided. When necessary, the Restoration ecologist will provide SCE and contractors with a written monitoring memo, including a list of items in need of attention. The Restoration ecologist will prepare and submit annual reports to SCE, the City and County of Santa Barbara, and regulatory agencies each year to document the site trajectory toward achieving success criteria and performance standards.

3.5.3 Resource Specialists

Resource specialists will support the Project and be managed by the Restoration ecologist. These specialists and their areas of expertise may include, but are not limited to:

- Site Preparation – botanist, wildlife and nesting bird biologist, arborist, hydrologic engineer
- Tree Remediation – arborist
- In-stream habitat construction – hydrologic engineer, fisheries biologist, herpetologist, fluvial morphology team (consisting of stream restoration ecologists, fluvial morphologist, and stream hydrologist)
- Native planting and seeding – botanists
- Monitoring – fisheries biologist, botanist, Restoration ecologist, wetlands monitor, Qualified SWPPP practitioner

Resource specialists will be incorporated into project components as their area of specialty requires. For example, during the boulder and sediment removal phase of the Project, the Restoration ecologist and resource specialists will work closely with contractor personnel to determine the extent of material removal and proper reuse of material that has been deemed infeasible for removal. The Restoration ecologist will coordinate between disciplines to ensure that decisions made in the field reflect the goals of this HRMP. Similarly, at critical points in the material removal process, the hydrologic engineer and

the fisheries expert will support the Restoration ecologist. In this manner, the team will coordinate monitoring activities to produce a Project that most closely matches the intent of this HRMP.

3.5.4 Construction Contractor

The construction contractor will be responsible for the initial removal of the sidecast material, stabilization of slopes and creek areas, and post-construction erosion control installation.

3.5.5 Installation / Maintenance Contractor

The installation contractor will be responsible for site preparation, initial non-native plant removal and treatment, and the installation of native plantings and seed under the direction of the Restoration ecologist. SCE will retain a maintenance contractor for the maintenance period. The maintenance contractor will have prior knowledge regarding the maintenance of native forest and oak woodland habitats and be familiar with native and non-native plants. The maintenance contractor will be responsible for implementing maintenance activities during the maintenance and monitoring period. Maintenance activities may include: providing supplemental watering, weed control, plant replacement, supplemental seeding, and trash removal. These activities are described in further detail in Section 7 of this HRMP. The maintenance contractor will perform checklist items in a timely manner, as directed by the Restoration ecologist.

4 Installation Planning

This Chapter provides an overview of the pre-Project planning efforts to restore impacts to Mission Creek and associated tributaries, as well as the upland areas of Mission Canyon that were impacted by the December 2019 work. Installation planning will include the following steps:

- CEQA and environmental permitting;
- Environmental surveys;
- Restoration plans;
- Installation schedule;
- Pre-construction meeting;
- Delineation limits of work;
- Plant/seed orders; and
- Collection of sensitive plant propagules.

The activities and sequencing associated with Project restoration are summarized in Table 13, *Restoration and Revegetation Sequence for HRMP*, below. Specifics of each activity are provided throughout this HRMP.

Table 13. Restoration Sequence for HRMP

Restoration/Revegetation Treatment	Timing
Environmental Surveys	Completed as prior to Project activities
Procure seed/ plant materials	Concurrent with Project activities
Sensitive plant/seed salvage/collection	Prior to Project activities
Rock, boulder, sediment removal/ stream restoration/ berm remediation	Project activities
Tree Damage Remediation	During site preparation / rock and sediment removal
BMP Installation/ Stream bank stabilization	Prior to planting and seeding
Planting and seeding	Fall/ Winter
Monitoring	Spring/ Fall
Installation Photo Documentation and Reporting	Post-installation
Remedial measures (as necessary)	As needed

4.1 CEQA and Environmental Permitting

Activities discussed in this HRMP will be subject to CEQA evaluation, as well as permitting through the USACE, CDFW, RWQCB, and the County of Santa Barbara. Coordination with the regulatory agencies and stakeholders throughout the permitting and CEQA review period is an integral component of the installation planning process.

4.2 Environmental Surveys

Following the December 2019 work, SCE conducted a series of Environmental Impact Assessments. These data, reported in Section 1.2, included assessments of native vegetation communities, sensitive plants, wildlife, native trees, and regulatory areas. These data have been used to not only define the impacts associated with the December 2019 work but also to define the extent to which restoration is needed. In addition, stream cross-section and hydrologic feature data were collected in fall 2020 and will be included in the restoration plans described in Section 4.3. This data set will further aid in the development of a detailed restoration strategy, which will fulfill the Project goals.

4.3 Restoration Plans

Figures 6a-e depict the sidecast removal areas. Figures 7a-e depict the restoration treatments. Additionally, prior to commencing restoration activities, SCE will prepare a TIP (Section 3.1.3.1). The purpose of the TIP is to provide an execution document to guide the process of sidecast removal and the restoration and repair of habitat features within impacted areas of Mission Creek (see Section 3.1). The TIP also presents protocols to achieve the HRMP restoration goals while protecting and restoring the existing natural stream topography, habitat, and function. Protocols and restoration guidance will be based, in part, on information gathered during TIP creation. This information will include habitat unit-specific sidecast characterization, as well as longitudinal and cross-section transect data (Section 8.3.1). Transect data will illustrate current thalweg elevations extending upstream and downstream of the Project, beginning approximately ten times the bankfull channel width upstream of Creek Site #1, and ending approximately three bankfull channel widths below Control Site #2. The longitudinal profile will record survey thalweg elevations at pre-established habitat units and other geomorphic features, which may be important to the restoration process.

4.4 Installation Schedule

It is anticipated that Project activities will begin following Project permitting and finalization of this HRMP. The planned sequence of restoration and revegetation events is listed in Table 13 above. It is anticipated that work may begin as early as fall 2023. As Project work occurs within the creek and associated banks, it is essential that all sidecast removal, and associated habitat restoration and stabilization activities, occur under dry conditions to ensure work can be completed safely. Depending on the start date of specific Project activities, appropriate biological surveys would be performed, with avoidance measures established for species that are detected. To avoid take of nesting birds, nesting bird surveys would be performed (typically from February 1 through September 15, and for raptors from January 15 to September 15), as necessary. Cutting installation and hydroseeding will be implemented prior to the rainfall season. If Project activities are completed in a season not suitable for planting and seeding (i.e., summer), installation of these components would be postponed until an appropriate season as determined by the Restoration ecologist. It is not anticipated that a hydromulch or tackifier is needed prior to hydroseeding for stabilization, except possibly in the upland sidecast areas.

4.5 Pre-Construction Meeting

Prior to the initiation of mitigation activities, a meeting will be held with SCE, the contractor, and the Restoration ecologist. Topics that will be addressed at this meeting include, but are not limited to, (1) safety; (2) timing constraints for mitigation activities; (3) identifying sensitive areas and a strategy for avoidance; (4) defining site access routes and restrictions; (5) defining staging areas; (6) scheduling activities described in this HRMP; and (7) the overall Project goal.

4.6 Delineating Limits of Work

To minimize temporary impacts to native habitats adjacent to mitigation areas, flagging and/or temporary fencing will be installed prior to mitigation installation. GPS coordinates of the areas shall also be taken. The Restoration ecologist will inspect the mitigation site boundaries to ensure they accurately reflect those approved by Project permits. Photographic monitoring stations will also be established by the Restoration ecologist within each mitigation area once the limits of work are delineated and prior to mitigation installation in order to document pre-installation, post-installation, and site progression during the maintenance and monitoring period.

4.7 Plant/Seed Orders

It is critical that local native seed and local native coast live oak tree acorns be collected/ordered as early as possible to acquire enough plant and seed material for installation. Native nursery-grown oak trees shall be propagated from acorns collected from nearby sources (e.g., the Mission Creek watershed or a regional floristic province). The Restoration ecologist must approve the source used for acorn collection prior to propagation. In addition to direct planting of oak trees, container stock (liners or one-gallon size) of bay laurel, willow species, mule fat, and Plummer's baccharis may be installed in appropriate locations to support restoration efforts. Plummer's baccharis, willows, and mule fat may be installed as cuttings if the hydrologic conditions of the planting locations support a cutting methodology (Sections 6.6 and 6.7).

While native vegetation restoration within upland habitats will focus on erosion and weed control through seeding and container stock planting, container species will consist of those verified to occur within restored habitats on-site, having seed origin consistent with the guidance below.

Seeding as a practice for restoring disturbed areas surrounded by high-quality habitat has been proven as an effective means for habitat recovery. For this reason, seeding is the preferred methodology for habitat recovery within this Project area. The Jepson Manual divides California into three separate Floristic Provinces, which are further subdivided into 35 ecologically distinct bioregions (Jepson Herbarium, U.C. Berkley 2020). Based on guidance from the Santa Barbara Botanic Garden (SBBG), restoration seed shall be sourced from the same ecoregion as the impact area. Following this guidance, seed will be obtained from seed supply vendors with material sourced from the south coast (SCo) ecoregion. Seed is selected based on the availability of regionally appropriate sources based on the guidance above, as well as ecological function. Restoration “workhorse” species, such as early successional subshrubs and grasses, are selected for the stabilization and weed suppression functions. Additional shrub species are also included to reintroduce diversity in the structure of the recovering habitat. The existing surrounding habitat is healthy, and a healthy seed bank is present. Seeding for restoration purposes is prescribed to support stabilization and weed suppression and to stimulate recovery of the areas disturbed by the sidecast activities. A separate seed mix will be applied to wetland/ woodland/ forest habitat and upland sidecast areas that will be restored. Seed mixes for these two areas will be developed from species known to occur within Mission Canyon.

In consultation with SBBG, seed application mixes and application rates have been developed. While the Restoration ecologist will have the ability to adjust the seed mix based on material availability, the final mix will include at least ten species, with variations to support the successional phases of habitat development. Species in the final mix will include native species previously identified on site and listed in Attachment E, *Mission Creek Floral Compendium* (Appendix A of the Biological Impact Assessment Report, SWCA 2021). Only native species will be used in revegetation efforts. The only exception to this stipulation that species on the final species list originate from Appendix C would be the addition of either California brome (*Bromus carinatus*) or plantain (*Plantago insularis*) for initial erosion control purposes. The final seed mix will be based on the number of Pure Live Seeds (PLS)/feet (ft)², with the application rate ranging from 20 to 60 PLS/ft², targeting the higher density of seed. Purity and germination rates will be provided by the seed supplier (e.g., all seed mixtures will be certified “weed-free”). A preliminary list of species to be seeded, their application rate, PLS data, and PLS/ft² for both riparian and upland habitats are proposed in Tables 14a, *Riparian Seed Mix and Application Rate*, and 14b, *Upland Seed Mix and Application Rate*. All seed will be furnished in sealed standard containers with industry labeling. Final seed mixes applied to each revegetation area will be documented in an as-built report (Section 8.4.1).

Seed that has become wet, moldy, or otherwise damaged in transit or in storage will not be used and will be rejected and removed from the site. If enough seed cannot be collected/obtained for a species or vegetation community, seed will be substituted with seed of a comparable species or applied later when seed becomes available. Nursery-grown container plants, including shrub and tree species, will also be propagated for planting in specific restoration areas (Section 6.5). A list of species that may be propagated, and their associated habitat, is included in Table 15, *Container Plant Species for Restoration Planting Areas*. All container plants will be furnished weed and pest-free, and the final planting of species and their locations will be documented in an as-built report (Section 8.4.1).

Changes to seed or plant lists will be submitted to SCE’s Restoration ecologist for review and approval prior to application.

Table 14a. Riparian Seed Mix and Application Rate

<i>Botanical Name</i>	Common Name	PLS (%) ¹	Application Rate/acre (Lbs. PLS)	Live Seeds per square foot ¹
<i>Artemisia douglasiana</i>	Mugwort	5%	0.25	1.15
<i>Bromus carinatus</i>	California brome	80%	10.00	13.77
<i>Diplacus longiflorus</i>	Bush monkeyflower	1%	0.20	0.46
<i>Elymus condensatus</i>	Giant wild rye	53%	2.00	4.14
<i>Eulobus californicus</i>	California evening primrose	45%	0.25	4.91
<i>Phacelia cicutaria</i>	Caterpillar phacelia	76%	0.50	3.93
<i>Plantago insularis</i>	Plantain	75%	10.00	43.04
<i>Salvia spathacea</i>	Hummingbird sage	45%	0.25	0.26
<i>Scrophularia californica</i>	California figwort	71%	0.15	4.89
TOTAL			23.6	76.55

¹ Information provided by S&S Seeds, Carpinteria, Ca.

Table 14b. Upland Seed Mix and Application Rate

<i>Botanical Name</i>	Common Name	PLS (%) ¹	Application Rate/acre (Lbs. PLS)	Live Seeds per square foot ¹
<i>Artemisia californica</i>	California sagebrush	8%	0.25	3.13
<i>Bromus carinatus</i>	California brome	80%	10.00	12.50
<i>Eriodictyon crassifolium</i>	Thick-leaved yerba santa	16%	0.50	3.13
<i>Eriophyllum confertiflorum</i>	Golden yarrow	15%	1.00	6.67
<i>Eucrypta chrysanthemifolia</i>	Common eucrypta	28%	0.25	0.89
<i>Galium angustifolium</i>	Narrow leaved bedstraw	12%	0.50	4.17
<i>Keckiella cordifolia</i>	Heart leaved keckiella	8%	0.15	1.88
<i>Lupinus bicolor</i>	Pygmy lupine	78%	6.00	7.69
<i>Leymus condensatus</i>	Giant wild rye	70%	1.50	5.85
<i>Melica imperfecta</i>	Coast range melic	54%	4.00	7.41
<i>Phacelia cicutaria</i>	Caterpillar phacelia	76%	0.50	0.66
<i>Plantago insularis</i>	Plantain	75%	10.00	13.33
<i>Pseudognaphalium californicum</i>	California everlasting	3%	0.15	5.00
<i>Solanum xanti</i>	Chaparral nightshade	27%	1.00	3.70
<i>Venegasia carpesioides</i>	Canyon-sunflower	9%	0.10	1.11
TOTAL			35.9	77.12

¹ Information provided by S&S Seeds, Carpinteria, Ca.

Table 15. Container Plant Species for Restoration Planting Areas

<i>Botanical Name</i>	<i>Common Name</i>	<i>Associated Habitat</i>
<i>Arctostaphylos glandulosa</i>	Eastwood manzanita	CC
<i>Adenostoma fasciculatum</i>	Chamise	CC
<i>Baccharis pilularis</i>	Coyote bush	CSW
<i>Baccharis plummerae</i> ssp. <i>plummerae</i>	Plummer’s baccharis	CLOW,
<i>Ceanothus megacarpus</i> var. <i>megacarpus</i>	Big pod ceanothus	CC, HTCG
<i>Ceanothus spinosus</i>	Greenbark ceanothus	CLOW, CBW, HTCG
<i>Cercocarpus betuloides</i>	Birch-leaved mountain mahogany	CC
<i>Eriodictyon crassifolium</i>	Thick-leaved yerba santa	CC
<i>Heteromeles arbutifolia</i>	Toyon	CLOW, CBW, CC, HTCG
<i>Leymus condensatus</i>	Giant wild rye	CSW, CLOW, CSW, CC, HTGC
<i>Lonicera subspicata</i> var. <i>subspicata</i>	Santa Barbara honeysuckle	CLOW, CC, HTCG
<i>Malosma laurina</i>	Laurel sumac	CLOW, CC, HTCG
<i>Platanus racemosa</i>	Western sycamore	CSW, CLOW
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-leaved cherry	CLOW, CC, HTCG
<i>Quercus agrifolia</i>	Coast live oak	CLOW, CSW
<i>Ribes malvaceum</i>	Chaparral currant	CLOW
<i>Salvia spathacea</i>	Hummingbird sage	CSW, CLOW
<i>Sambucus nigra</i>	Blue elderberry	CSW, CLOW, HTCG
<i>Umbellularia californica</i>	California bay laurel	CLOW, CSW
<i>Venegasia carpesioides</i>	Canyon sunflower	CSW, CLOW

Key to Habitat Codes

CSW – California Sycamore Woodlands

CLOW – Coast Live Oak Woodlands

CSW – California Bay Woodland

CC – Chamise Chaparral and Ceanothus Chaparral

HTGC – Holly leaf cherry – Toyon – Greenbark ceanothus Chaparral

4.8 Collection of Sensitive Plant Material

During the appropriate season, seed, bulbs, or cuttings of three sensitive plant species presumed to have been directly impacted by the December 2019 work will be collected for restoration purposes (Figures 3a-e). In this instance, SCE will notify CDFW prior to impacting sensitive plants to allow adequate time for salvaging the plants and/or seed. Species targeted for cutting collection include Plummer’s baccharis. Species targeted for collection of seed include Plummer’s baccharis, Santa Barbara honeysuckle, and Hubby’s phacelia. Collection practices will follow industry standards for extraction, potting, storage, and care prior to transplanting. Species specific information for collections is included below.

Santa Barbara honeysuckle: Seed will be collected from localized individuals prioritizing collection from individuals not impacted by the December 2019 work. Seed collection shall occur at the time of seed maturity for the honeysuckle, generally during July through August, although timing may vary based on seasonal rainfall and the elevation of source plants. When Santa Barbara honeysuckle is fruiting, this species produces berries that will ripen during summer. When fruiting bodies are observed on plants, populations will be monitored since they can ripen quickly and be consumed by animals. When berries

are ready to collect, they will become a translucent orange-to-red color. Upon collection, berries will be placed into paper bags and then dried, acid-cleaned, and later seeded when conditions are favorable (fall). Collection volume will be approximately 0.25 pound, and no more than 20 percent of seed will be collected from a single plant. Once collected, seed shall be stored in a clean, dry environment, free from high humidity and excessive heat.

Plummer's baccharis: Plummer's baccharis can be spread vegetatively through cuttings and seed dispersal. Cutting collections should follow those methods described in Section 6.6, and the collection of propagules will be conducted with appropriate authorization from CDFW and the City of Santa Barbara. For seed harvesting, seed will be collected from localized individuals prioritizing the collection from individuals not impacted by the December 2019 work. *B. plummerae* is usually in bloom from mid-May to the first heat spell of July. Mature seeds have been observed and collected in early July (Stephen Steward, pers obs., 2000). Like all other Baccharis seeds, *B. plummerae* is short-lived, and viability decreases rapidly within a few days of ripening (Stephen Steward, pers obs., 2000). For this reason, hand broadcast of seeds into target locations should follow immediately after collection. Collection volume will be approximately one pound, and no more than 20 percent of seed will be collected from a single plant.

Hubby's phacelia: Hubby's phacelia is an annual herbaceous species from the Boraginaceae (Borage) family. This plant flowers from late March through May, with seeds that mature from late May into early July (S. Steward, pers. comm., October 7, 2021). The seeds appear hairy along a curled rachis, or cyme, with bell-shaped flowers. Although little information is available on Hubby's phacelia seed, species within the borage family are similar for seed collection and subsequent use. In general, phacelias have mature seeds when they are light to medium brown in color and have a hard consistency. All the seeds on a plant will mature within a relatively short timeframe, beginning with the flowers closest to the base of the inflorescence. Therefore, once the middle section of seeds has matured, the entire inflorescence can be collected. With this approach, it is possible that early maturing seeds will already have become dispersed before the seeds have been collected, while others have not fully matured (CSU Stanislaus 2021). Collection volume will be approximately 0.2 pound, and no more than 20 percent of seed will be collected from a single plant.

5 Site Preparation

Site preparation includes Project activities that will occur prior to the installation of restoration activities. Typically, these activities involve preparing a site for seeding or planting, removing weeds and trash, or installing devices to protect the surrounding areas from unintended damage during installation activities. This section describes Project activities, which are intended to occur just prior to the restoration installation (Section 6).

5.1 Staging Areas

Staging areas are needed to support Project activities, including but not limited to vehicle parking, equipment staging, and/or material processing and storage, etc. These areas, identified in Figures 5a-e, have been selected to coincide with existing road shoulders and pullouts or disturbed areas to eliminate impacts to native vegetation and trees. To minimize disturbance, SCE proposes to use staging areas previously approved for use for the Mission Canyon Road Repair Project in 2020. It is not anticipated

that any staging area will require native brush removal or grading, and any non-native vegetation present will be removed prior to use.

Some staging areas may be used to temporarily stockpile sidecast material removed from the stream or tributaries as part of the Project. Woody debris may also temporarily be stockpiled and staged for chipping and subsequent removal from the site. All stockpiles associated with the Project are temporary in nature for the purposes of staging prior to transport and disposal. Stockpiles will be regularly loaded and transported to manage the material accumulation in the limited workspace. The stockpiled soil will be hauled off-site.

An SWPPP will be prepared and implemented to address the short-term stabilization of soils and include the management of stockpiles. Soil stockpiles will be maintained with appropriate BMPs and will be weeded during maintenance activities for the duration the stockpiles are in place. Stabilization measures may include approved soil binders, hydromulch, burlap-wrapped fiber rolls, or biodegradable gravel bags. Stockpiles will be managed to control fugitive dust. All BMPs shall be biodegradable, weed-free, and plastic-free.

Stockpile and staging areas will be rehabilitated back to pre-construction conditions. The staging locations are primarily limited to compacted road shoulder and turnouts and will consist of the existing roadbed. SCE will ensure all trash/debris and materials are removed; BMPs will be removed upon close out of the SWPPP. If native vegetation was removed to support SCE's Road Repair Project completed in November 2020, or removed to support this Project, SCE will restore these areas in accordance with the HRMP.

5.2 Weed and Woody Debris Removal

Weeds and woody debris within the work areas will be removed prior to Project activities. Woody debris generated during December 2019 work has accumulated downslope and within Regulatory Areas. To remove materials and equipment, hand crews will haul the material up to the road where it can be chipped and hauled away.

In addition, weedy biomass will be removed from the Project areas, separate from the woody debris collection, and not commingled. As weedy biomass is cut, it will be bagged and hauled off-site, with the precaution of removing as many weed seed heads as possible.

5.3 Removal of Trash

All restoration and revegetation sites shall be free from trash and debris. SCE will remove all Project-related trash and debris from every restoration site prior to installation and throughout the maintenance and monitoring period. SCE shall not be responsible for non-SCE-generated trash.

5.4 Soil Preparation

If necessary, restoration areas outside of the creek will be prepared for seeding to establish a beneficial seeding and planting bed. If hydromulch, erosion blankets, or weeds are present, they will be removed or broken up prior to seeding to ensure good seed-to-soil contact. Soil loosening can be achieved by

roughening the soil using hand tools such as rakes. The soil will be loosened generally to a depth of one to four inches, unless otherwise specified. The surface will be left rough-textured.

5.5 Erosion Control

Prior to Project remediation activities, a SWPPP will be prepared, covering the entire Project footprint. The SWPPP is intended to provide a toolbox of erosion control devices and management practices, which will help to stabilize the impacted slopes and minimize erosion, sedimentation, and water turbidity downstream. Pursuant to the SWPPP, BMPs will be installed and will likely include, but not be limited to, fiber rolls, gravel bags, silt fences, a hydroseed tackifier, and other BMPs. The SWPPP will remain effective until the threat of erosion or sedimentation has subsided, and the Project area has stabilized.

SCE will maintain erosion control BMPs within restoration sites in compliance with SWPPP requirements. To prevent sediment from leaving the restoration areas or rills from forming on the creek banks, SCE will ensure that appropriate remedial measures are in place during restoration installation through SWPPP closeout. This may include hydroseeding and/or the installation of erosion control measures, such as silt fencing, straw or coir wattles, and jute netting. SCE will integrate SWPPP treatments with restoration site preparation.

6 Habitat Restoration Installation

Restoration installation will be carried out under the direction of the Restoration ecologist and supported by a stream fluvial morphology team (consisting of a stream restoration ecologist, a fluvial morphologist, and a stream hydrologist), as well as botanists, arborists, and wildlife biologists. Following site preparation described in Section 5, the installation will be completed in 10 steps: (1) removal of sidecast from regulatory and upland areas; (2) tree remediation through the removal of sidecast material; (3) restoration of stream hydrology and function, (4) slope stabilization; (5) hydroseeding; (6) planting; (7) cutting collection; (8) cutting installation; (9) post-planting watering; and (10) species-specific rehabilitation. While step 1 is described in detail in Section 3.1, steps 2 through 10 are described separately below.

6.1 Remedial Activities to Native Trees

Trees that were impacted as a result of the December 2019 work have been described in Section 2.4 and consist of trees occurring in both upland and CDFW Regulatory Areas. Remedial measures to impacted trees within the upland sidecast areas and Road Areas 1 and 2 were completed in November 2020, as prescribed in the Road HRP (Table from Road HRP included as Attachment B.1). The remaining previously impacted trees are within CDFW Regulatory Areas and will be remediated concurrently with other activities described in this HRMP (Table 16, *Summary of Trees Remediated as a Result of December 2019 Work*, Attachment B.2).

Table 16. Summary of Trees Remediated as a Result of December 2019 Work

Description	Trees within Areas Subject to the Regulatory Authority of CDFW	Trees in Upland Habitats	Total Number of Trees
Trees Impacted in 2019	39 ¹	92	131 ¹
Trees Remediated in 2020 Road HRP	9	85 ²	94 ²
Trees Remediated in this HRMP	30 ¹	0	30 ¹

¹ One additional coast live oak tree was discovered in October 2021 within CDFW regulatory areas as a result of the sidecast in the Sidecast 3 Rock Outliers location that is not reflected in this table.

² Four additional trees received remedial actions beyond what was originally planned and seven trees previously identified for remedial activities did not receive any treatments for various reasons; both items are omitted from this table.

The following prescriptions are for trees within Mission Creek’s USACE, CDFW, and RWQCB Regulatory Areas that will be remediated through the implementation of this HRMP. Remedial measures have been proposed in conjunction with the Tree Impact Assessment Report (HELIX 2020b, HELIX 2020c, Figures 5a-e). During the time of the tree assessment, corrective measures were noted for each tree, which would aid in the recovery and/or survival of that individual. The categories used for this assessment and their approximate criteria are defined below:

Remove Rocks/Soil: Tree has a buildup of rocks and/or soil around the base or root crown of the tree. Remove rocks and/or soil to allow the tree to recover under the direction of an arborist.

Prune: Tree has limb(s) and/or branches that are irregularly cut and have been removed. Prune limb(s) and/or branches to a clean cut under the direction of an arborist.

Trim/Cover Roots: Activity has left exposed and damaged roots. Under the direction of an arborist, roots will be cleanly trimmed and/or soil replaced to ensure roots remain buried.

The Tables are included as Attachment B.1 and Attachment B.2

The most common recommended remediation for impacts was to remove soil and rocks from the root zone and root crown (Table 17, *Summary of Recommended Remediation to Trees within CDFW Regulatory Areas of Mission Creek*).

Table 17. Summary of Recommended Remediation to Trees within CDFW Regulatory Areas of Mission Creek

Species	Trees with Recommended Remedial Actions	Leave as Snag	Remove Rocks/Soil	Prune	Trim/Cover Roots
Coast live oak	18 ¹	0	14 ¹	8 ¹	0
Bay laurel	14	2	13	3	1
Western sycamore	7	0	7	2	0
STREAM TOTAL	39¹	2	34¹	13¹	1

Note: A single individual may receive more than one treatment.

¹ One additional Coast live oak tree was discovered in October 2021 within areas subject to the regulatory authority of CDFW in the Sidecast 3 Outliers location and is included in this table.

No trees identified in the Level 1 survey within the Project area were determined to be a potential hazard to public users of the roads and trails in the Project area; therefore, no Level 2 tree risk assessment was conducted.

6.2 Stream Hydrologic Restoration

CDFW reference reach data suggest that restored habitat in the Project site may support a pool density of 9.33 pool habitat units per 500 feet. Reference pool structure was approximately 17 feet in length and 9.1 feet in width, with a mean depth of 1.2 feet. The maximum pool depth occurred within the main scour and reached a depth of at least 2 feet, while pool tail-outs had an overall tapering of depth until the downstream extent of the pool. Primary features of reference pools include a main scour point and pool tail-outs that consist of an overall tapering of depth toward the downstream extent of the pool; however, flatwater and riffle habitats provide biologically important habitat complexity throughout the channel. As inferred from the mean composition between both reference reaches, the restored site may include approximately nine flatwaters and 13 riffles. Reference reach data suggest boulders (substrate with a diameter greater than 10 inches) will be the primary substrate present throughout the restoration reach and intermixed with gravel and cobble substrates (CDFW 2022b).

Based on detailed geomorphological data of the Project site collected in 2021, it is believed that the site currently contains stream features that could support fish, similar to the CDFW reference reach data. Restoration of stream habitat will be informed by CDFW's reference reach data and guided by actual site conditions revealed as the sidecast is removed during Project construction.

Following the removal of sidecast materials, fish habitat units within the Project site will be manually restored to conditions existing prior to the December 2019 work, in dimensions allowable by the existing terrain, while considering constraints specific to the Project site. Attempting to artificially create pool habitat, or other habitat type where it did not previously exist, could potentially destabilize and disturb the creek bed and banks, causing increased erosion and undercutting of bed materials.

After restoration activities are complete, SCE will collect data on the condition of restored pools, including pool dimensions, pool tail-out substrate, instream cover, and detailed geomorphological cross-sections. The results will be evaluated along with CDFW to verify acceptance of the final condition. If additional restoration to stream hydrology or habitat features is needed, plans would be developed for CDFW and the RWQCB approval through the Adaptive Management Program process (Section 8.3.4). Upon approval, SCE will implement the plans under the direction of the fluvial morphology team.

6.3 Slope Stabilization

If necessary, temporary impact areas outside of the creek bed that are disturbed by Project activities may be compacted to stabilize the soil and restore the area to a natural appearance. Exceptions will be made to accommodate public safety, protection of property, and preservation of stream integrity. If necessary, compaction shall occur at the cessation of disposal removal activities as part of final stabilization. Any area recontoured that previously contained native plant materials would become part of this restoration program, including seeding and maintenance activities (see Sections 6.4 and 7).

The natural bed and banks of the impacted portions of the creek will be recontoured to their pre-impact topography following the removal of materials. Prior to material removal, the banks of the creek within

unimpacted areas upstream and downstream of the impacted areas will be delineated with flagging. By identifying the natural topography of the creek, both directly upstream and downstream of each impact area, along with identification of natural creek bed and bank features within the impacted areas, the pre-impact topography of each impacted creek section will be re-established and contoured to pre-impact conditions. Additional discussion of the identification of pre-impact creek bed and banks will be provided in the TIP.

As the rocks, boulders, and sediments are removed, the fluvial morphology team and other qualified resource experts will evaluate the long-term stability of the creek and adjacent slopes. Should long-term stream bank stabilization be determined as necessary (beyond standard stormwater BMPs), the stream habitat adaptive management process described in Section 8.3.4 will be used to engage regulatory agencies in a prescribed repair or stabilization treatment. The purpose of bank stability measures would be to address potential erosion or scouring of the stream bank, and to preserve the stream hydrologic (habitat) features that existed prior to the December 2019 work.

6.4 Seeding Methods

A separate seed mix will be applied to wetland/woodland/forest and upland sidecast areas that will be restored (Tables 14a-b). Seeding will be completed following specific Project activities described in Sections 6.1 through 6.3. When the restoration seed mixture is applied, the soil surface will first be prepared by removing any weeds or mulch on the soil surface to ensure good seed-to-soil contact. Seeding will be conducted generally from September through February to take advantage of natural rainfall. An appropriate seed mix will be applied via hydroseeding (Section 6.4.1). More than one seeding event may be completed. If determined necessary, supplemental water may be added to the seeded areas to encourage germination and soil stabilization. Supplemental seeding may be hand-broadcast.

6.4.1 Hydroseeding

The Project areas will be seeded using a two-stage hydroseed application method completed in consecutive steps. In stage 1, the seed mix (25 pounds per acre) will be mixed with approximately 500 pounds per acre of long-strand wood fiber, a colorant, 150 pounds per acre of binder, increased as necessary according to slope, and sufficient water to allow the mix to be applied evenly over the seeded area (Figures 5a-e). All hydroseeding mixing will be performed in a clean tank free from residual seed. The hydroseeder will be equipped with a continuous agitation and recirculation system to produce a uniform slurry and have the capacity to apply this slurry at a uniform and continuous rate.

For stage 2 of hydroseeding, an application of hydrosラリー will comply with the manufacturer's recommendations. The designated areas will be sprayed with the slurry in a sweeping motion from multiple directions and in an arced stream until a uniform coat is achieved, with no slumping or shadowing as the material is spread at the recommended rate. The seed slurry will be applied within one hour of preparation, as the viability of the seed could be compromised. A typical rate of application in California is approximately 1,500 to 2,000 pounds per acre of wood fiber mulch and a plant-based tackifier for the hydromulch method (Newton and Claassen, 2003). As the seeding will function to stabilize soil in addition to revegetate natural habitats, the restoration contractor may adjust the specific rate of application on a site-by-site basis in consultation with the SWPPP consultant.

6.4.2 Oak Acorn Planting

The primary planting method for mitigation trees will be container plant installation (Section 6.5). Oak acorns may be planted to supplement mitigation tree planting by container. Oak acorn planting will occur prior to or in conjunction with seeding activities whenever feasible. Acorns will be collected from local sources (within Project and adjacent areas) and planted as freshly collected seeds. Acorn planting sites will be prepared by shoveling the top 10 to 12 inches of topsoil from a one-foot diameter planting site and breaking the soil, where necessary, into fine particles to prepare a seed bed. A total of four acorns will be turned on their sides and planted within each hole approximately six inches apart at a depth of two inches. The planting holes will be backfilled with native soil, and then covered with bark mulch, approximately three inches deep and no less than three feet in diameter. Following planting, an 18" tall and 12" diameter chicken wire cage will be secured around the planted acorns to discourage predation of the acorns and to protect seedlings once germinated. The cage will be secured on-grade using jute staples or stakes. Alternatively, acorns may be planted in tree tubes.

6.5 Plant Installation

Trees will be planted throughout the areas being revegetated. Tree species will include those species impacted by sidecast, including coast live oak, bay laurel, and California sycamore. Placement of the tree plantings will be determined by the Restoration ecologist, based on the hydrologic needs of the species, local soil, and topographic conditions, existing canopy cover, and accessibility for maintenance purposes. In general, all tree plantings will occur in woodland and woodland transitional areas, as determined by the Restoration ecologist. All tree plantings will be monitored, with tree health assessments performed annually (Section 2.4).

Container planting will occur prior to seeding activities unless such material is unavailable at the appropriate time for seeding. Any plants supplied to the Project will be required to undergo screening for phytophthora pathogens prior to transportation to the site¹⁰. Upon arrival, a plant inspection will be completed, and any plants exhibiting visual evidence of weeds, pests, improperly sized, or in poor health, will be returned. Container plants will be installed in areas determined to be feasible and appropriate by the Restoration ecologist and SCE. During transport from the nursery or storage facility to the planting site, the plant material will be handled carefully, such as the plants shall not be dropped, tossed, or otherwise "roughly handled." Upon plant delivery, container plants shall be stored in a designated temporary storage location within a developed or disturbed area approved by SCE. The Restoration ecologist is responsible for recommendations relative to protection from herbivory, vandalism, or theft, as well as maintenance (watering) of the plants while they are in temporary storage.

Plants will typically be installed within openings of the restoration areas on four-to-eight-foot centers for shrub species, with closer spacing for bunch grasses, and wider spacing for larger shrubs or trees (although final spacing may vary upon container size used and species to be planted). The Restoration ecologist will supervise and approve the layout of all container plants so that spacing and composition are appropriate. All container and tree plants shall be planted in accordance with the following specifications:

¹⁰ SCE will take necessary preventative steps but does not accept liability of plant disease (e.g., phytophthora) outbreaks as the source of pathogens is not reliably verifiable and can include numerous other sources not associated with SCE activity.

- Plants shall be planted with the roots untangled, and sides scarified to promote new root development; roots shall be protected from weather exposure during planting.
- Planting holes shall be augured and be no more than 1.5 times the diameter and 2 times the depth of the container species to be planted.
- Planting holes shall be backfilled 25 percent with excavated native soil, filled with water, and allowed to drain completely prior to planting. Container plants must never be installed in planting holes with standing water; all water shall be allowed to settle and infiltrate through the soil prior to plant installation.
- Plantings shall be set in well-drained planting holes with the crown of the root ball approximately half an inch above the backfilled soil. The soil around the planting shall be tamped down sufficiently to eliminate any air pockets in the soil.
- A basin around the planting shall be constructed by creating a berm above the existing grade, approximately 24 inches in diameter around the planting. Planting basins may be smaller on steep slopes.

Native oak and container trees shall be deep-watered for a period of no less than 48 hours before transplanting. Watering basins shall be established around each tree, and soil slightly compacted by foot to ensure proper root/soil contact. No amendment is necessary for the installation, but the Restoration ecologist may choose to supply amendments containing B vitamins to help prevent transplant shock and promote root growth.

Some planted container stock and all native oak trees may require protection against herbivory. Herbivore barriers made of chicken wire, or similar material, will prevent herbivores from chewing through the barrier. Barriers will be a minimum of two feet above-ground. The herbivory cages shall be inspected during each maintenance visit and removed when it has been determined by the Restoration ecologist that herbivory will no longer compromise the health and establishment of the plantings. Herbivory caging will be removed before it hinders plant development and growth. If the Restoration ecologist determines that there is a potential threat of subterranean root damage by small mammals, wire cages constructed of chicken wire may be installed into planting holes prior to planting. If used, subterranean cages will not be removed.

Each planting shall be sufficiently watered after installation so that water reaches the lower roots. Planting of cuttings will occur prior to seeding activities when feasible. The Restoration ecologist will inspect and verify that all cuttings have been prepared properly prior to planting.

6.6 Cutting Collection

Cuttings of shrub and tree species will be prepared to assist with the restoration of native canopy within restoration areas. Cuttings will be collected locally and prepared according to the following specifications. Cuttings shall be harvested from the existing plants under the direction and supervision of the Restoration ecologist. Cuttings shall be harvested in the winter months once the plants have entered dormancy and deciduous species have dropped leaves. This harvesting time falls outside the bird nesting season (February through August, January through June for raptors). After harvesting,

cuttings will be immediately soaked in water for select woodland/forest species (e.g., *Salix* spp.). Collection of sensitive plant propagules (i.e., Plummer's baccharis) will be conducted with appropriate authorization from CDFW and the City of Santa Barbara.

The assortment of cutting species will be adjusted in the field by the Restoration ecologist to replicate the existing adjacent habitat. These guidelines apply to the collection of cutting materials:

- Collect cuttings from healthy plants that are in a dormant state (woodland/forest species).
- Collection shall not exceed 25 percent in a single area, and no more than 25 percent of an individual plant shall be removed.
- Cuttings will be 36 to 48 inches in length and should range from 0.5 to 1.0 inch in diameter.
- Each cutting shall be cut one end square above a leaf bud (top) and then cut the other end at a 45-degree angle (bottom).
- Trim any stems or leaves flush with the cutting.

Cuttings soaked in water should be harvested and soaked for no less than 7 days and no more than 14 days prior to planting.

6.7 Cuttings Installation

Cuttings will be planted at the appropriate time for each species. For example, cuttings from woodland/forest tree species will be obtained, prepared, and planted when trees are dormant. Cuttings may be provided with supplemental water following planting as specified by the Restoration ecologist until the cuttings show signs of growth and/or establishment. Cuttings will be planted with similar density and composition as the adjacent habitat. The Restoration ecologist will supervise the layout of all cuttings so that the spacing and composition are appropriate. After initial preparations as discussed above, cuttings shall be installed following these specifications:

- Cuttings shall be planted in holes approximately two inches in diameter; all planting holes shall have vertical sides.
- Each hole shall then be partially backfilled with excavated soil material and then saturated with water; this step shall be repeated until the hole is at least half backfilled.
- Once the water has been absorbed into the soil, a cutting shall be inserted into the hole with the angled end in the ground. The cutting shall be installed so two-thirds of the cutting length is below ground (minimum of 18-inch planted length), with at least three leaf bud scars above the surface of the soil.
- The hole shall then be backfilled completely with excavated material and distributed evenly around the cutting; the backfill shall then be tamped down sufficiently to eliminate air pockets.

- After installation, the cutting will be soaked at least twice to fully saturate the soil down to the base of the cutting; this will assist with settling the cutting.

6.8 Post-Planting Watering

Upon completion of tree and shrub planting, each planting will be watered to saturate the soil and promote the settling of the soil and planting into the planting basin. It is expected that each plant will receive at least one to two gallons of water during this watering event, depending on the size of the container plant and soil conditions at the time of watering. Watering into each plant basin will ensure that water saturates the planted root zone and settles the soil around the plant. If the soil subsides within the planting basin substantially, more native soil may be added to the planting basin. All temporary irrigation systems will be designed to prevent entrapment by wildlife. Watering of the restoration plantings will be gradually reduced as the plantings become established and mature and will be discontinued at least two years prior to final acceptance and approval of the restoration site. Under prolonged extreme hot and/or dry weather conditions during the dry season, supplemental watering may be applied to prevent loss; however, such watering shall not be continuous and must be discontinued once the plantings have recovered. It is expected that mitigation trees will require watering through Year 3 at gradually reduced intervals.

Restoration watering methods will vary but will typically consist of one of the following:

- **Hand watering:** Plants and cuttings may be watered by a water tank mounted in the back of a truck, water buffalo, or water truck, with each plant being hand-watered with a hose using a hose connected to a water truck or water storage tank. Water shall be applied using a shower head-type nozzle capable of providing low-pressure application to prevent erosion or damage to the plantings and planting basins.
- **Seasonal planting:** Some areas may be planted or seeded within a hydrologic zone and time of year to take advantage of seasonal rains and may not require regular watering.
- **Above-ground irrigation system:** Plants or cuttings may be watered using a temporary irrigation system connected to a water truck or water storage tank. The typical irrigation system may consist of a network of main, and possibly lateral lines (PVC pipe or flexible drip tubing), if necessary, and will remain on-site for a minimum of three years.
- **Deep pipe watering:** Plants may be watered using a deep pipe irrigation system connected to a water truck or water storage tank. Vertical plastic pipes with holes drilled in them at different depths (typically 2 inches in width and 14 inches in depth) may be inserted next to container plants to allow irrigation water into the deep root zone. This improves water delivery to the plants' roots and minimizes water evaporation and weed growth. A cap or screen shall be placed over the top of the pipe to discourage wildlife and debris from entering. The deep pipe irrigation system shall remain on-site for a minimum of three years. Species-Specific Rehabilitation.

As described in Section 2.3 of this HRMP, three sensitive plant species are presumed to have been directly impacted due to the December 2019 work. These species include Santa Barbara honeysuckle, Plummer's baccharis, and Hubby's phacelia. In addition, the Santa Barbara honeysuckle and Plummer's baccharis have the potential to occur within the sidecast areas subject to removal through the

implementation of this HRMP. Therefore, the collection of seed or cuttings of these species will be completed during the appropriate season for the target species, as described in Section 4.8, and subsequently planted within suitable habitat nearby existing populations mapped within the Project area. Out-planted sensitive plant plots will be integrated within existing restoration areas of the Project and recorded using sub-meter GPS data and discretely marked in the field for monitoring.

The number and size of plots will vary by species but will be a minimum of one-square-meter plot per species. Species-specific methods for planting and seeding will follow restoration practices suitable for these sensitive plants and that have been found to be previously successful. In addition, SCE will consult with the Santa Barbara Botanic Garden, or other botanical experts, and CDFW when beneficial for propagation success.

Sowing of sensitive species seeds will be done by hand broadcasting seed into specific plots, as determined by the Restoration ecologist. The plots will first be cleared of senesced plant materials to ensure good seed-to-soil contact and then be lightly raked into the soil surface once applied. Specific measures for the application of each sensitive species are included below.

Santa Barbara honeysuckle: Seed will be collected as described in Section 4.8. At the onset of winter rains, seeds may be hand broadcast into plots located outside of the road prism, which are suitable for germination and establishment, as determined by the Restoration ecologist. Alternatively, seed may be used to propagate individuals for planting into plots. Individuals of Santa Barbara honeysuckle that have the potential to be impacted or that cannot be successfully avoided may be salvaged from within the construction areas prior to activities (Section 4.8). Transplanting of Santa Barbara honeysuckle that has been salvaged would follow methods described in Section 6.5.

Plummer's baccharis: Seed will be collected as described in Section 4.8. Like all other *Baccharis* seeds, *B. plummerae* is short-lived, and viability decreases rapidly within a few days of ripening (pers. obs. 2000 – ZSSD). For this reason, seeds will be hand broadcast into revegetation areas immediately following collection and into locations as determined by the Restoration ecologist. Cuttings from *Plummer's baccharis* may be installed similarly to the methods described in Section 6.7.

Hubby's phacelia: Seed will be collected as described in Section 4.8. At the onset of winter rains, seeds may be hand broadcast into plots located outside of the road prism, which are suitable for germination and establishment, as determined by the Restoration ecologist.

7 Maintenance Program

A maintenance program is necessary to identify and resolve maintenance issues in a timely manner to promote the successful establishment of the planted and seeded areas. This Section describes various maintenance activities that may be completed as part of the Maintenance Program. The Maintenance Program will be supplemented by the Monitoring and Reporting and Adaptive Management Programs, as discussed in Sections 8.2.5 and 8.3.4.

7.1 Maintenance Activities

The maintenance activities implemented during the program will include weed control, tree/shrub replacement, supplemental seeding, and any remedial measures deemed necessary for the success of

the mitigation program. Maintenance activities will be performed by the maintenance contractor or Project proponent and directed by the Restoration ecologist. An anticipated maintenance and maintenance monitoring (Section 8.1.3) schedule is presented in Table 18, *Maintenance and Monitoring Schedule*.

Table 18. Maintenance and Maintenance Monitoring Schedule¹

Task	Years 1	Years 2-5
Weed Maintenance	As needed	Min. 2 visits annually
Maintenance Monitoring	Quarterly (March, June, Sept., Dec.)	Concurrent w/ weeding
Supplemental Watering	As needed (Yrs. 1 and 2)	NA
Shrub and Tree Replacement	Spring or Fall (Yrs. 1 and 2)	NA
Protection from Herbivory	As needed	NA
Trash Removal	Twice Annually	
Erosion Control ²	Monthly	As needed
Opportunistic Supplemental Seeding	Spring or Fall	Spring or Fall

¹ This schedule is only a guideline; monitoring will be performed as necessary, as determined by the Restoration ecologist.

² Monthly Monitoring during Year 1 would only apply to the active rainy season (October through April). Monitoring may occur regardless of frequency following a significant rain event of 1 inch or more as measured within a 24-hour period.

7.2 Weed Maintenance

Following the removal of rocks, boulders, and sediments and installation activities, all treated areas (including both seeded Regulatory Areas and non-seeded upland sidecast areas, [Figures 7a-e]) will be weeded over the long-term monitoring and maintenance period, with a minimum of two weeding events occurring each maintenance year. Upland sidecast stabilization areas will follow a similar schedule. Weed abatement within the sidecast areas of Mission Canyon occurs over slopes ranging from 1:1 to 3:1 and requires specialized crews skilled in fall protection. The work is considered hazardous and has a high safety risk. Weed abatement may be conducted more frequently as prescribed by the Restoration ecologist following careful evaluation of the safety risk associated with the weed abatement activities. Weeding activities will be timed appropriately to remove biomass and seed heads during the peak growing season and prior to seed maturity. Targeted weed species include weeds that are already present within the region, such as mustards (*Brassica* spp.), thistles (*Centaurea* spp.), and non-native grasses. The maintenance of non-native grasses will be secondary to the maintenance of more invasive forb species, and will only become a focus if grasses threaten to preclude the establishment of planned native habitat.

Prior to each weeding event, a biologist will delineate work areas and flag sensitive species and resources for avoidance. In most locations, weeds will be removed through the use of line trimmers, hula hoes, and rakes, while some areas may require hand removal where native and sensitive species are present. All weed biomass cut or pulled will be removed from the Project site.

7.3 Supplemental Watering

Watering may be conducted through the methods described in Section 6.8. The supplemental watering for oaks should include deep watering cycles to encourage deep root growth and facilitate oak tree

establishment. All supplemental watering will be conducted under the direction of the Restoration ecologist and will be discontinued once it is determined that target shrubs and trees have successfully established. While plantings from container stock or transplanted cuttings will be watered until the plants have become established, seeded areas and sensitive plant species seeded plots will not be subject to supplemental watering.

7.4 Shrub and Tree Replacement

Planted trees and shrubs may be replaced at the direction of the Restoration ecologist as needed to meet the goals of this HRMP. The contractor will be responsible for replacing any dead or diseased plants. Timing of plant replacement will be at the discretion of the Restoration ecologist, and usually be completed within 90 days, although it may be longer if the replacement would yield a higher success if completed during a specific time of year, as directed by the Restoration ecologist.

7.5 Protection from Herbivory

Herbivory protection will be provided for acorn plantings and selected tree plantings. Plant protectors, such as tree tubes or herbivory cages, may be used with other plantings to minimize herbivory, as needed, at the Restoration ecologist's direction. Deer fencing may also be used to protect specific areas or patches of installed container stock, at the discretion of the Restoration ecologist.

7.6 Trash Removal

The restoration areas will be kept free of trash and debris and will be checked by maintenance personnel according to the maintenance schedule. Trash and debris are defined as any artificial material not natural to Mission Canyon.

7.7 Erosion Control

Straw wattles, compost socks, silt fencing, or similar materials will be installed on the slopes of the restoration areas, as needed, to minimize erosion and prevent the sedimentation of the streambed. Any erosion control materials shall be weed-free. Erosion control will be removed after sufficient vegetation has established to prevent erosion. Within the stream, monitoring would be completed monthly during the active rainy season of the first year (October through April). Monitoring may occur regardless of the frequency following a significant rain event of one inch or more, as measured within a 24-hour period.

7.8 Opportunistic Supplemental Seeding

Seed from native species that are ready for harvest at the time of maintenance visits will be collected by hand crews and opportunistically seeded into the revegetation areas. Focused seeding events may occur in underperforming areas and for sensitive species, which occur within the Project area if they are not showing signs of a recovering population. The Restoration ecologist will oversee all opportunistic seeding events to ensure sensitive resources are avoided, and seeds are at a mature stage for collection and distribution.

8 Monitoring and Reporting Program

Monitoring of the Project will be conducted throughout the restoration process to ensure Project goals are met. Both stream and upland habitats will be monitored, and while many of the techniques and processes used for monitoring are consistent between different habitats, this report also includes stream-specific monitoring actions to provide data relative to the stability and physical health of Mission Creek. Generally, the Project’s monitoring and reporting program is categorized as follows: (1) Project-wide monitoring activities, (2) upland habitat monitoring, and (3) stream habitat monitoring. Project-wide monitoring includes activities that will encompass the entirety of the Project work area, while the upland and stream monitoring activities will build upon the Project-wide activities to focus on attributes unique to those areas.

These categories are further distinguished between Success Monitoring and Qualitative/Functional Monitoring. Data collected for “success” monitoring assessments will be used to determine whether the Project’s success criteria and standards are met. Qualitative/Functional monitoring assessments are for informational purposes and will not be used to measure the success of the Project.

The various monitoring components, with their timing and frequency of occurrence, are listed in Table 19, *Mission Creek Monitoring Program*.

Table 19. Mission Creek Monitoring Program¹

Category	Survey Description/ Section Reference	Frequency	Timeframe	Total Number of events ²
Project-wide Qualitative Monitoring	Installation Monitoring/ 8.1.1	During installation only	Daily	TBD
	Photographic Monitoring/ 8.1.2	Pre, Post, LTM (Annually)	Spring	7
	Maintenance Monitoring/ 8.1.3	Refer to Table 18	As Needed	12
	LiDAR Imagery/ 8.1.4	LTM (Years 1 and 5)	Anytime	2
Project-wide Success Monitoring	Sensitive plant Surveys/ 8.1.5 and 8.3.2.5	Post, LTM (Annually)	Spring	7
	Mitigation Tree Surveys/ 8.1.6 and 8.3.2.5	Post, LTM (Year 1 Quarterly, Years 2-5 Twice Annually)	Spring	13
Upland and Stream Habitat Success Monitoring	Vegetative Cover Surveys/ 8.2.1 and 8.3.2.1	Post, LTM (Annually)	Spring	6
Stream Functional Monitoring	CRAM/ 8.3.1.1	Pre, Post, LTM (Year 5)	Spring	3
	Stream Hydrology Surveys/ 8.3.1.2	Pre, Post, LTM (Years 3 and 5) ³	Summer	4
	Fish Habitat Surveys/ 8.3.1.3	Pre, Post, LTM (Years 3 and 5) ³	Summer	4

Category	Survey Description/ Section Reference	Frequency	Timeframe	Total Number of events ²
Stream Success Monitoring	Wildlife Use Surveys/ 8.3.2.2	Post, LTM (Annually)	Spring	6
	Integrity of Stream Bed and Fish Habitat/ 8.3.2.3	Pre, Post, LTM (Years 3 and 5) ³	Summer	3
	Fish Passage Surveys/ 8.3.2.4	Pre, Post, LTM (Years 3 and 5) ³	Summer	4

Pre – Pre-Project Data; **Post** – Post Project Installation; **LTM** – Long-Term Maintenance Period (Minimum of five years).

- ¹ This schedule may be adjusted by the Restoration ecologist where necessary to accommodate safety conditions of the Project site, or seasonal fluctuations and changes in optimal data collection windows.
- ² Total number estimates five years, however monitoring will be extended until success criteria is met for the resource evaluated.
- ³ Surveys will be completed in year three and year five; however, measurements will be collected annually if there is evidence of physical changes to the creek bed more than what is occurring immediately upstream and downstream of the Project. More frequent sampling may also be completed following unusual site conditions, such as extreme weather events, or as a means of assessing the effects of adaptive management strategies.

8.1 Project-Wide Monitoring

8.1.1 Installation Monitoring

A Restoration ecologist will monitor the installation process on a daily basis while activities are occurring, including site preparation, initial non-native plant removal and/or treatment, and the installation of coast live oak trees/container plants or cuttings and seed material. The Restoration ecologist will inspect and approve all plant/seed material to ensure it is healthy and meets Project specifications prior to installation. The Restoration ecologist shall inspect and authorize each phase of work before the next phase may begin. This information will be used later to track the changes in vegetation resulting from site restoration.

8.1.2 Photographic Monitoring

Photographic documentation will be used to track the progression of the site restoration through documenting pre-Project, post-Project, and annual technical monitoring events. Pre-Project and post-Project photos will be reported in the As-Built Report to demonstrate “before” and “after” conditions following the implementation of the Project, and annually in the spring thereafter. Prior to initiating Project activities, permanent photo monitoring stations will be established. The photo locations will be permanently marked in the field using rebar or other markers, documented using GPS, and mapped on an aerial photo base. Photo direction of all photos will be noted, and photos from each photo point will be photographed in the same direction during each monitoring session.

8.1.3 Maintenance Monitoring

Regular maintenance monitoring is necessary to evaluate the need and effectiveness of maintenance activities. Maintenance monitoring may be scheduled separately and may also be conducted concurrently with scheduled maintenance activities (Section 7). Maintenance monitoring will include assessments of seed germination, the effectiveness of invasive plant species control, evidence of

erosion, soil moisture, signs of plant stress, herbivory levels in planted or seeded areas, removal of trash, evidence of anthropogenic disturbance, and other factors that may adversely affect habitat restoration success. Maintenance monitoring assessments may prompt recommendations for maintenance activities that will be implemented on-site, if possible, or otherwise be completed during a subsequent scheduled maintenance activity. The Restoration ecologist will monitor maintenance activities during the maintenance period according to the schedule in Table 18 and Table 19. Maintenance monitoring visits will be conducted a minimum of quarterly (generally in March, June, September, and December) during Year 1, and twice annually in Years 2 through 5, or until success criteria are met and the minimum monitoring period is met.

More frequent inspections may be necessary as warranted to promote habitat development. Monitoring memos noting any issues will be provided, as necessary, to the installation/maintenance contractors and Project proponent.

8.1.4 LiDAR Imagery

Following Project implementation and after the last monitoring year, LiDAR (Light Detection and Ranging) imagery will be collected from the entire Project site. LiDAR is a remote sensing method used to examine the ground surface topography and the vegetation height and densities across the Project site. By collecting LiDAR imagery on two separate occasions during the Long-term monitoring period, changes in surface topography, and vegetation heights and densities may be compared and analyzed.

8.1.5 Sensitive Plant Species Monitoring and Success Criteria

Sensitive plant monitoring of planted/seeded Santa Barbara honeysuckle, Plummer's baccharis, and Hubby's phacelia plots will be conducted annually, concurrent with ongoing monitoring events, and timed appropriately for positive identification of the sensitive plants. Assessments will include estimates of the number of individuals per location and the approximate percentage of flowering individuals. Monitoring visits will also record any need for remedial seeding/planting or maintenance. Sensitive plant restoration will be considered successful when at least 75 percent of the planted plots for the sensitive plant species are successfully established, and show three consecutive years of survivorship at the plots within the monitoring period. Results of sensitive species monitoring will be included in the annual reports.

For the Ocellated Humboldt lily, annual presence/absence surveys will be conducted each year, for five consecutive years, following sidecast removal activities. These annual surveys may be terminated earlier than five years if the species is observed in the location previously observed, thereby indicating that the individual had not been adversely impacted by December 2019 work or sidecast removal activities. If additional individuals are observed, they will be mapped and included in the annual report.

8.1.6 Tree Monitoring

Tree health assessments of planted trees will be performed at a minimum of quarterly during the first and second year, and twice annually each year thereafter, for a minimum of five years of monitoring. Health assessments will be conducted on each planted tree by an ISA-certified arborist and include an evaluation of overall tree health, including an inspection for disease, stress, or pest infection. Each tree will be rated using the Tree Health Rating System in Table 20, *Tree Health Rating System*, and reported

in annual reports. These data will also be used to inform decisions and planning of maintenance actions as needed to address tree health concerns. During installation, native trees may be over-planted in order to allow for a contingency loss of the total amount planted and still achieve the mitigation requirements.

A minimum of 90 trees (49 of which must be within CDFW Regulatory Areas and 41 must be within upland transitional habitats jurisdiction of the County of Santa Barbara) with good or excellent health assessments shall be successfully established at the end of the five-year monitoring period to result in the fulfillment of the replacement of impacted trees at the ratios specified in the Native Tree Restoration/Mitigation section (Section 3.3.4) of this HRMP.

Trees remediated as part of either the Road HRP or this HRMP will also be monitored temporally, in conjunction with the assessment described above for newly planted individuals. Trees will be assessed according to the Tree Health Rating System. Results of the annual assessment will be compared to tree condition data collected immediately following impacts. If the assessment rating of remediated trees decreases from the initial assessments, corrective maintenance activities (watering, trimming) may be conducted. If a remediated tree dies as a result of factors attributable to December 2019 work within the five-year monitoring period, additional planting will be conducted to mitigate the loss.

Table 20. Tree Health Rating System

Rating	Description
Excellent	A healthy and vigorous tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation.
Good	A healthy and vigorous tree with minor visible signs of stress, disease, or pest infestation.
Fair	Although healthy in overall appearance there is an abnormal amount of stress or disease and/or pest infestation.
Poor	This tree is characterized by exhibiting a greater degree of stress, disease and/or pest infestation than normal and appears to be in a state of rapid decline.
Dead	This tree exhibits no signs of life whatsoever.

Source: City of Santa Clarita (1990)

8.2 Upland Habitat Monitoring

8.2.1 Annual Technical Monitoring

Concurrent with maintenance monitoring visits (Section 8.1.3), the Restoration ecologist will conduct an annual technical monitoring visit for the upland revegetation areas in the spring of each year during the maintenance period. The purpose of the annual technical monitoring will be to gather qualitative monitoring data on the overall health of the Project site, identify maintenance needs, and make observations of general growth trends; in conjunction, it will also include quantitative success surveys of vegetation cover, mitigation tree health and survivorship assessments and sensitive plant counts. The timing of these assessments shall correspond with the peak of the vegetation growth in the target habitat for that year. The exact timing of the visits will depend on the site and weather conditions. Technical monitoring of the upland areas will be both qualitative (visual) and quantitative (relevé data collection, Section 8.2.2) sampling within the Project site.

The qualitative monitoring of upland areas will include:

- a complete list of plant and animal species observed;
- plant health assessments;
- observations of general growth patterns and trends;
- tree health assessments;
- non-native plant species growth;
- evaluation for evidence of erosion; and
- trash, or other issues maintenance needs.

The quantitative success surveys will consist of:

- relevé sampling of the Project sites;
- relevé sampling of reference sites;
- sensitive plant counts and reproductive estimates; and
- survivorship of native tree and shrub plantings.

Quantitative monitoring methods are described in more detail below.

8.2.2 Vegetation Cover Surveys

The California Native Plant Society (CNPS) relevé sampling protocol will be used to quantitatively monitor native and non-native vegetation cover of the mitigation sites (CNPS 2000). The relevé method of sampling relies on ocular estimates of plant cover, rather than on counts of the “hits” of a particular species along a transect line. Relevé sampling is adaptable to unique site conditions and constraints and can be used on varying plant communities. At least one relevé sampling plot within each road area being restored will be sampled, and the sampling plot site will be submitted to CDFW for review and approval in advance of sampling. Multiple relevé plots within each road area may occur when there are multiple adjacent reference vegetation communities, with at least one plot per adjacent vegetation community. Sampling plots will be non-random and utilize the same plot site each year throughout the monitoring period until the success criteria has been met. Relevés with the same vegetation community will have the same plot size. Cover determinations will be made using ocular estimates over circular sample plots, with a 30-meter [98-ft] diameter placed within sidecast areas in which restoration is implemented. Quantitative monitoring methods are based on the CNPS Vegetation Rapid Assessment Protocol, which indicates shrub plots should be 400 square meters [4306 square feet]. For smaller sites, multiple plots of reduced size (15 or 20 meters [49 or 66 feet] in diameter) may be used, or the entire site may be sampled as an individual plot.

At the time of the first annual technical monitoring event, the reference sites will be monitored for comparative purposes using the same CNPS relevé sampling protocol. The reference sites sampled will be of similar vegetation community, slope, and aspect as the restoration areas being restored. Each reference site will be a mature stand of vegetation. Each restored vegetation community association will

have at least one reference site representing the target vegetation community and native and non-native species cover. Reference site plots will be non-random and will be submitted to CDFW for review and approval in advance of sampling. The same reference site plots will be utilized each year throughout the monitoring period until the success criteria has been met.

8.2.3 Upland Habitat Success Standards

Upland-habitat restoration sites will be monitored for a minimum of five years and will be determined successful when the following Upland Habitat Restoration Success Criteria are attained at each upland habitat restoration site. If success is not achieved at the end of the maintenance period, monitoring will continue until success criteria are achieved. The Restoration ecologist may recommend one or more upland adaptive management measures (Section 8.2.5) in order to meet success criteria. Upland Habitat Success Criteria are as follows:

Vegetative Cover:

- Achieve 85 percent of native species cover, relative to the reference site with the same vegetation community association. Native species cover assessments of the restoration site shall be separated into vegetative vertical strata layers (tree, shrub, grass/ forb), and each layer shall be compared to the reference site to ensure the restoration site mimics the conditions of the reference site;
- The restoration sites shall be without supplemental irrigation for a minimum of two years; and
- Show equal or less non-native cover than the reference site with the same vegetation community association. Invasive species cover shall not exceed ten percent with the exception of zero percent woody invasive species such as fig tree (*Ficus* spp.), Arundo (*Arundo donax*), tree of heaven (*Ailanthus altissima*), and castor Bean.

Mitigation Tree:

- The restoration sites shall have 100 percent survival of the mitigation requirement of 41 trees within upland or transitional areas regulated by the County of Santa Barbara at the end of the five-year monitoring period (see Section 8.1.6)
- Trees shall be without supplemental irrigation for a minimum of two years; and
- Trees must be successfully established by showing increased growth and with good or excellent health assessments at the end of the monitoring period (see Section 8.1.6).
- Monitoring will continue beyond the five-year period until success criteria are met;

Sensitive Plant:

- Sensitive plant restoration will be considered successful when at least 75 percent of the planted plots for the sensitive plant species are successfully established and show three consecutive years of survivorship at the plots within the monitoring period (see Section 8.1.5).

8.2.4 Upland Habitat Adaptive Management

In addition to monitoring upland revegetation areas for erosion relative to the Project SWPPP, monitoring will focus on vegetation establishment and non-native species cover, relative to a reference site. Upland adaptive management and contingency measures may be implemented if there are significant changes to the revegetated areas, if there is a failure to establish, or if goals presented in this HRMP are not on-track to be met within the maintenance and monitoring period. As needed, SCE will implement adaptive management measures to facilitate the establishment of the native habitat. Where conditions do not reflect desired trends towards establishment or stabilization, restoration areas may require remedial measures such as supplemental watering, reseeding, planting in select areas, controlling invasive plant species, additional stabilization measures (e.g., erosion control devices), and/or regulating human and/or wildlife access to the restoration site. Upland Habitat Adaptive Management will be implemented with ongoing and frequent engagement with relevant agencies. Agencies will be notified and consulted prior to the implementation of the Adaptive Management Activity listed in Table 21, *Upland Habitat Adaptive Management Triggers and Actions for Upland Habitats*, below.

SCE will evaluate the effectiveness of restoration treatments during the monitoring year. Findings and recommendations included in each Annual Report will be submitted to the regulatory agencies for review and comment prior to implementing adaptive measures.

Table 21. Upland Habitat Adaptive Management Triggers and Actions for Upland Habitats

Potential Challenge	Trigger	Adaptive Management Activity
Poor germination of applied seed	No germination in seeded area exceeds 100 square feet in a single location.	Area will be reseeded with alternate species or species that have been establishing successfully within adjacent areas. Consider planting container stock.
Slope erosion, formation of rills	Formation of rills and/or gullies along work area slopes where depth of rills is greater than 4 inches deep.	Monitor and identify if there is a point source of erosion. Make repairs to point source location(s) to prevent future rilling. Fill rills on slope to a natural contour. Hydroslurry and replant/reseed, as necessary.
Non-Native Invasive Species	Dominance of non-native species, or new non-native species, occur within work area is greater than the ambient level of non-native species in surrounding undisturbed habitat.	If continuing invasions occur, efforts to find the source population shall be made. Increased application of weed control measures prior to flowering and seed set should aid in attaining control. New non-native species that do not occur in the surrounding areas shall be eradicated. If continued manual weeding is not productive at abating problematic non-native invasive plants, chemical spot treatment using a glyphosate-based or comparable herbicide, may be

Potential Challenge	Trigger	Adaptive Management Activity
		implemented as a component of an integrated non-native invasive plant management approach in addition to mechanical and manual removal. Chemical applications would be limited to non-public use areas (e.g., habitat areas along steep slopes), where mechanical or manual methods are found to be either ineffective or have the potential to cause damage to recovering habitats.
Poor Soil Conditions	Planted vegetation and seeds not growing for unspecified reasons. Non-native species not growing in the same area.	If selected plants do not tolerate certain areas of soil, the seed palette shall be changed to include species that are more tolerant. Opportunistic seeding may be implemented. Perform a soil test and remedy any soil deficiencies with amendments. If lack of vegetation does not lead to erosion or unstable conditions, consider cessation of planting and seeding.
Excessive Predation by Herbivores	Greater than 20 percent of planted vegetation is being heavily browsed by wildlife to the extent that the browsed plants may not survive herbivory pressure.	Plant cages shall be added to establishing woody plants if herbivory is severe. Additional cuttings may give herbivores more to browse upon, lessening herbivory impacts to individual plants identified for restoration.
Anthropogenic disturbance	Repeated (documented over multiple maintenance assessments) foot, bicycle, or domestic animal disturbance, trash deposits, or disruption to recovering vegetation.	Installation of signs, fencing or other exclusion devices to discourage anthropogenic disturbance. If exclusion efforts are not successful and repeated disturbance occurs, consider excluding the area from success criteria.
Wildfire	Wildfire burns through work area.	If a wildfire occurs, the Restoration ecologist will evaluate the extent of restoration effort necessary for habitat recovery. Modification of the monitoring program and success criteria may be necessary and appropriate. Such modifications would be determined in consultation with relevant agencies.
Success Criteria	Non-attainment of success criteria despite evidence of continuous improvement and desirable Project site conditions.	Evaluation of suitability or effectiveness of success criteria may be adjusted if the site continues to indicate favorable conditions; however, controls may not be suitable comparison. Data collection from alternative control sites may be expanded. Success criteria may be adjusted in consultation with regulatory agencies.

8.3 Stream Habitat Monitoring

Stream and fish habitat survey data from the Project area were collected in August 2020, following the December 2019 impacts, and prior to winter 2020/2021 storm events. Further data were collected during the summer of 2021, the totality of which will be presented in the TIP, as it applies to the re-establishment of creek habitat features. These data, as presented in the TIP, will be used to identify pre-Project conditions of the Project site and the non-impacted control sites downstream. Data collected from each control fish habitat unit are presented in Table 22, *Detail of Control Site Pool Habitat Dimensions, Substrate Compositions, and Instream Cover in Mission Creek on August 25 and 26, 2020*.

Table 22. Detail of Control Site Pool Habitat Dimensions, Substrate Compositions, and Instream Cover in Mission Creek on August 25 and 26, 2020

Control Site	Level IV Habitat Type	Pool Dimensions Max Depth (ft)						Sidecast sediment origin (%)					(% of total cover)				
		Length (m)	Max Width (m)	Bank -full	Water Depth	1/2 L Water Depth (ft)	1/2 R Water Depth (ft)	Sand	Gravel	Cobble	Boulder	Bedrock/Concrete	Tree Canopy	OH Veg	Bedrock Boulder Edge	Under-cut Bank	Wood
1	PLP	5	5.5	3.04	2.12	Bedrock	Bedrock	5	75	2	3	15	50	40	10	--	--
2	SPBo	8	4.5	2.4	0	Dry	Dry	30	40	10	5	20	70	2	5	--	--

SPBo = Lateral Scour Pool – Boulder Formed

PLP = Plunge Pool

Following Project installation, and during the long-term monitoring phase, a series of scientific surveys consistent with the methodologies of pre-Project surveys will be conducted and used to measure the progress of the restored stream habitat. Data collection at these intervals (pre-Project, post-installation, and during the long-term monitoring period), will provide comprehensive habitat-based data points that will be useful in deriving meaningful trends and evaluating the progress of habitat restoration and improvements in stream function (functional lift). These habitat-based data points will also be used to determine the attainment of specified success criteria (Section 8.3.3). Survey findings and trends analysis will be included in the Annual Monitoring Report (Section 8.4.2). A list of surveys and their frequency is presented in Table 19. The stream monitoring program is organized into two categories: (1) stream functional monitoring (informational), and (2) success monitoring.

- (1) Stream functional monitoring includes the collection of qualitative and quantitative data during the long-term monitoring program to identify and analyze trends of fish habitat restoration and functional lift. Stream functional monitoring data include California Rapid Assessment Method (CRAM) surveys (Section 8.3.1.1, Collins and Stein 2018). , stream hydrologic surveys (Section 8.3.1.2), fish habitat surveys (Section 8.3.1.3), and wildlife surveys (Section 8.3.2.4). Stream functional monitoring data is collected for informational purposes and will not be used to determine the success of the Project.

- (2) Success monitoring includes the collection of quantitative and “semi-quantitative” data specifically targeted to measure the restoration of temporary impacts and achievement of Project goals. Success monitoring data includes measurements of vegetation cover (Section 8.3.2.1), measurements of the integrity of stream bed and habitat features (Section 8.3.2.2), and surveys to verify the absence of fish passage impediments (Section 8.3.2.3). Surveys for sensitive plants and mitigation trees (Section 8.3.2.4) will also be conducted within the stream habitat restoration areas.

8.3.1 Stream Functional Monitoring

8.3.1.1 CRAM

CRAM is a scientifically defensible rapid assessment method for monitoring the conditions of wetlands and streams throughout California. This quantitative sampling method is designed for assessing ambient conditions within watersheds, regions, and throughout the State. The condition of the Project site will be assessed through the evaluation of a series of attributes, which include:

- (1) Buffer and Landscape Context – examines the conditions surrounding the stream, including the conditions in the immediate buffer context as well as the stream corridor within distances up to 500 meters [1640 feet] upstream and downstream of the Assessment Area (AA).
- (2) Hydrology- assesses the water source, channel stability, and hydrologic connectivity of the stream.
- (3) Physical Structure- examines the AA based on structural patch richness and topographic complexity. Structural patch richness defines the number and types of physical surfaces or features that provide habitat within the AA. Common patch types include organic debris, large woody debris, riffles and rapids, and standing snags, among many others.
- (4) Biotic Structure- assesses the overall vegetative structural diversity of the AA, based on the presence of multiple plant layers, the number of co-dominant plant species within the defined plant layers, the percentage of co-dominant species that are native, the horizontal interspersion of plant zones, and the vertical overlap of plant layers.

CRAM will be conducted by trained practitioners and will provide CRAM scores for various areas associated with the stream restoration. Three sets of CRAM scores will be obtained at the pre-Project, post-installation, and long-term monitoring phases. Each set of CRAM assessments will include scores from four Assessment Areas (AAs), listed below and in Figure 8a, *CRAM Assessment Sites*:

- AA 1: Downstream Mission Creek
- AA 2: Control Site along Mission Creek, above AA 1
- AA 3: Adjoins Creek Site 3
- AA 4: Control Site downstream of AA 3

A discussion highlighting the CRAM score and observations will be added to the annual reports as these data will support the evaluation of trends and functional lift of the stream system.

8.3.1.2 Stream Hydrology Survey Methods

Stream surveys will consist of two primary components to assess the conditions of the stream: (1) a series of cross-sections in the stream and (2) a longitudinal profile survey. Within Creek Sites 1 through 4, several locations of heavy sediment deposition have been identified. Up to 12 transect locations within this area are proposed for the cross-section surveys, and a longitudinal profile survey will be performed along the thalweg through the creek sites. These transects are intended to provide a detailed description of pre-Project site conditions and will be repeated post-installation and during the long-term monitoring phases. Data collection will be conducted at the same survey locations for each survey event (Figure 8a-b) and assessed, both within the Project site and control sites.

Both qualitative and quantitative metrics collected at each survey location will include:

- Evaluation and measurements of the physical stream properties, including bankfull and thalweg heights, and of the integrity of instream features to identify evidence of erosion, scouring, or sediment deposition;
- Assessment of changes to adjacent slope stability (erosional features such as rills, gullies, and slope-slip or loss of bank vegetation);
- Stream flow measurements (flow velocity at fixed monitoring stations); and
- Sediment level markers at fixed locations.

The longitudinal creek assessment and cross-sections will be completed in years three and five; however, measurements will be collected annually if there is evidence of physical changes to the creek bed more than what is occurring immediately upstream and downstream of the Project. More frequent sampling may also be completed following unusual site conditions, such as extreme weather events, or as a means of assessing the effects of adaptive management strategies.

8.3.1.3 Fish Habitat Surveys

When a disturbance to a stream occurs that involves sediment input and transport (e.g., erosion, sidecast input), pool habitats can be diminished by sediment aggradation (deposition), and spawning gravels may become embedded. Fish habitat surveys provide a mechanism to analyze the restoration of fish habitat within the Project site. A fish habitat survey will be completed prior to Project installation to provide a detailed description of pre-Project site conditions and will be repeated post-installation and during the long-term monitoring phases. The fish habitat survey will focus on pool and riffle habitats, from which a series of measurements will be collected. These include measurements of length, width, and depth of all wetted areas within each pool habitat unit and an evaluation of the percentage of substrate types (silt, sand, gravel, cobble, boulder, and bedrock). Depositional data will be collected only from pool habitats. Channel bankfull (two-year storm event) will be determined, and pool depths will be measured at that point. Bankfull height will be determined using identifying characteristics such as water lines, changes in sediment composition, and locations of permanent vegetation and estimated by line-of-sight and by running a leveled measure tape to a stadia rod. Bankfull height will be used as a

depth measurement for pools (it is expected that Mission Creek will be dry during the surveys. It will also be used to measure pools that are too deep to measure safely and accurately.

All fish habitat units within the Project site will be surveyed. In addition, two specific locations downstream have been identified for ongoing data collection; one data point includes a plunge pool approximately 2,600 linear feet downstream of the Project (Control Site #1), while the second includes a boulder-controlled scour pool occurring approximately 350 linear feet downstream of the Project (Control Site #2), (See Table 22, Figures 8b-c, *Mission Creek Transect Locations and Control Sites*). These locations were selected because of the potential similarity to habitat features that could occur in the Project site, and that previous survey data showed these habitat features as unimpacted by the December 2019 work.

Both qualitative and quantitative metrics collected at each habitat unit will include:

- Habitat feature (e.g., pools, riffles) dimensions
- Substrate composition (including tail-out substrates); differentiate sidecast material where distinguishable
- Vegetation cover present over habitat units

Fish habitat units (e.g., pools and riffles) are a generally homogeneous length of stream that is classified by channel bed form, flow characteristics, and water surface slope. The surveys will follow the California Department of Fish and Wildlife Salmonid Habitat Restoration Manual, Fourth Edition (CDFW 2010), which provides habitat unit typing protocols to distinguish stream habitats.

During the long-term monitoring period, fish habitat surveys will be completed in Year 3 and Year 5; however, measurements will be collected annually if there is evidence of physical changes to the creek bed more than what is occurring immediately upstream and downstream of the Project. More frequent sampling may also be completed following unusual site conditions, such as extreme weather events, or as a means of assessing the effects of adaptive management strategies.

8.3.1.4 Wildlife Use Surveys

Restoration of wildlife habitat elements for impacted wildlife species (i.e., resident *O. mykiss*, two-striped gartersnake, coastal whiptail, coast horned lizard, and coast range newt) will be achieved through the successful installation of the Project. These actions include the removal of sidecast materials and restoration of fish habitat units, slope stabilization, and planting and seeding native vegetation. To evaluate wildlife use following Project installation, annual wildlife surveys will be conducted, and species observed will be documented and reported in annual reports.

8.3.2 Stream Success Monitoring

8.3.2.1 Vegetation Cover Surveys

Vegetation cover (native and non-native) will be measured annually using the CNPS relevé sampling protocol described in Section 8.2.2. Vegetation cover data will be collected from the impacted sections of the stream in Creek Sites 1-4 (excluding bank full areas). Cover determinations will be made using

ocular estimates over circular sample plots, with a 30-meter (98-foot) diameter placed within sidecast areas. For smaller sites, multiple plots of reduced size (15 or 20 meters [49 or 66 feet] in diameter) may be used, or the entire sidecast area may be sampled as an individual plot.

Reference sites for vegetation cover will be located on unimpacted stream banks within the Project area and will be provided to CDFW and the RWQCB for review and approval prior to restoration implementation. Vegetation cover values for reference sites will be collected using the same protocols in the first year of sampling (Year 1). After each annual monitoring event, native and non-native cover values of the restored areas will be compared to reference site values to assess restoration progress. These survey data will be used to determine Project success through the attainment of Stream Habitat Success Standards Category 1 (Section 8.3.3 below).

8.3.2.2 Integrity of Stream Bed and Fish Habitat Features

Increases in thalweg depth (the lowest line of elevation within the stream) and changes in width/depth ratio (W/D) can be indications of erosion and scouring of the stream bed or changes in flow characteristics within a fish habitat feature. The W/D ratio is defined as the ratio of the bankfull surface width to the mean depth of the bankfull channel. The W/D ratio characterizes the distribution of energy within a channel and the ability of various discharges occurring within the channel to move sediment (Rosgen 1996).

The creek channel thalweg depth, channel width/depth ratio (W/D), and fish habitat unit measurements (e.g., pools, riffles) will be collected from detailed geomorphological cross-sections at established, repeatable locations in the Project site and at Control Sites (Figure 8 b-c). These data will be measured post-installation to establish a baseline, and again during the long-term monitoring period. After each long-term monitoring event, channel and fish habitat unit measurements will be compared to baseline conditions. These survey data will be used to determine Project success through the attainment of Stream Habitat Success Standards Category 3 (Section 8.3.3 below).

8.3.2.3 Fish Passage Surveys

Fish passage through stream portions occurring within the Project site will be assessed in conjunction with stream hydrology and fish habitat surveys described above (Sections 8.3.1.2 and 8.3.1.3, respectively). Specifically, surveyors will evaluate the stream for the presence of impediments to fish passage resulting from the sidecast. Any sidecast material causing an impediment to fish passage (i.e., excessive jump heights between habitat units, prohibitive water velocity, lack of water depth, etc.) noted during the surveys will be mapped, and plans for restoration actions will be developed for CDFW and the RWQCB approval through the Adaptive Management process Section 8.3.4). Upon approval, SCE will implement the plans under the direction of the fluvial morphology team. These survey data will be used to determine Project success through the attainment of Stream Habitat Success Standards Category 4 (Section 8.3.3 below).

8.3.2.4 Mitigation Tree and Sensitive Plant Surveys

Mitigation trees and sensitive plants will be planted and/or seeded within Creek Sites 1-4 as a component of the stream habitat restoration. Surveys for sensitive plants and mitigation tree monitoring will be performed annually, as described in Sections 8.1.5 and 8.1.6 of this HRMP. Results of sensitive plant surveys and mitigation tree monitoring will be included in the annual reports. These

survey data will be used to determine Project success through the attainment of Stream Habitat Success Standards Category 5 and 6, respectively (Section 8.3.3 below).

8.3.3 Stream Habitat Success Standards

The objective of the Project is the full removal of all sidecast material¹¹ from the Project site and the restoration of impacted habitat within the Project site, including Mission Creek stream habitat, such that it may support native fish use to levels that existed prior to the December 2019 work. Successful restoration of the impacted sections of Mission Creek and achievement of this Project objective will be evaluated through the attainment of standards designed to measure the recovery of resources impacted by the December 2019 work. Restoration sites will be monitored for a minimum of five years. The stream restoration component of the Project will be determined successful when all five of the following categories of Stream Habitat Success Standards are attained. Stream Habitat Success Standards are as follows:

Category 1 Vegetation Cover:

- Achieve 85 percent of native species cover, relative to the reference site with the same vegetation community association. Native species cover assessments shall be separated into vegetative vertical strata layers (tree, shrub, grass/ forb), and each layer shall be compared to the reference site to ensure the restoration site mimics the conditions of the reference site.
- Restoration sites shall be without supplemental irrigation for a minimum of two years.
- Show equal or less non-native cover than the reference site with the same vegetation community association. Invasive species cover shall not exceed ten percent with the exception of zero percent woody invasive species such as fig tree, Arundo, tree of heaven, and castor bean.

Category 2 Stream Erosion and Stream Hydrology: changes in mean thalweg depth or in mean channel W/D ratio as measured in cross-sections and fish habitat feature measurements do not differ from baseline conditions by greater than 20 percent (Figure 8a-b) as compared to changes in similar habitat types at established reference sites.

Category 3 Stream Flow and Fish Passage: stream flow within the stream is uninterrupted with the absence of stream impediments resulting from the sidecast.

Category 4 Mitigation Tree:

- The restoration sites shall have 100 percent survival of the mitigation requirement of 49 trees within CDFW and the RWQCB Regulated Areas at the end of the five-year monitoring period (see Section 8.1.6).
- Trees shall be without supplemental irrigation for a minimum of two years (see Section 8.1.6).

¹¹ For purposes of this assessment, “sidecast materials” excludes materials repurposed as building materials (e.g., for berms).

- Trees Project-wide must be successfully established by showing increased growth and having good or excellent health assessments at the end of the monitoring period (see Section 8.1.6).

Category 5 Sensitive Plants: Sensitive plant restoration will be considered successful when at least 75 percent of the planted plots for the sensitive plant species are successfully established and show three consecutive years of survivorship at the plots within the monitoring period (see Section 8.1.5)

8.3.4 Stream Habitat Adaptive Management

Adaptive management within the creek bed can be separated into two distinct phases: adaptive management during sidecast removal and adaptive management post-Project. The fluvial morphology team and fisheries biologists will be integral to the stream adaptive management process throughout the Project, beginning with sidecast removal, and continuing through the monitoring phase. Adaptive management during sidecast removal will allow for iterative decision-making, following the process, as described in Section 6.1 progresses. As described above, data has been collected on multiple occasions through LiDAR and physical surveys, to characterize the current condition of the creek bed as well as provide insight as to the pre-impact condition. The summary of this data has been used to guide typical cross-section figures (Attachment D), which will be presented more fully in the TIP, to guide any adaptive management activities following the sidecast removal. The process for approval of adaptive management during sidecast removal activities will be as follows:

- (1) Sidecast is removed, and the habitat unit is assessed for structural stability and consistency with projected pre-impact conditions.
- (2) If additional actions are needed beyond sidecast removal, such as repair to stream pool or riffle (habitat) features, or installation of bank stabilization armament, site-specific cross-section plans with details of the restoration/re-establishment of the instream geomorphological habitat units for this section will be compiled to describe additional activities.
- (3) Cross-section plans will then be provided to CDFW and the RWQCB for review and approval within 15 working days of submittal.
- (4) CDFW/RWQCB-approved adaptive management actions will be implemented, and post-Project conditions will be documented.

Post-Project adaptive management will focus on the extended period of monitoring, which spans from the completion of Project installation until such time as when success criteria have been met. The table below provides a list of potential Project challenges which may occur during this period, the point at which adaptive management considerations would be “triggered”, as well as the potential adaptive management action(s) (Table 23, *Stream Habitat Adaptive Management Triggers and Actions*). The framework of this outline relies heavily on adaptive management assessment and incremental action at appropriate times during the maintenance and monitoring period. The Stream Habitat Adaptive Management Program will be implemented with ongoing and frequent engagement with relevant agencies. Agencies will be notified and consulted prior to the implementation of the Adaptive Management Activity listed in Table 23 below.

Post-Project adaptive management will rely upon monitoring monthly during the wet season and following storm events to evaluate changes listed in the table below. It is important to note that some of the monitoring locations within the creek are remote and require foot access up the stream, creating potentially hazardous conditions for survey crews during wet conditions. In these instances, monitoring will be subject to a safety assessment and may be cancelled or postponed due to unsafe field conditions.

Table 23. Stream Habitat Adaptive Management Triggers and Actions

Potential Challenge	Trigger	Adaptive Management Activity
Loss of instream habitat features (i.e., riffles, runs, pools) that previously existed	In-stream (habitat) features such as pools no longer exist, runs are devoid of fines and cobble, stream is unstable and large scouring events occur within work area.	Redistribute in-stream habitat features to reduce feature loss. Monitor. Take corrective action again, if necessary, and repeat cycle. As feature loss is controlled, evaluate opportunities for further redistribution of in-stream habitat features to reestablish habitat features relative to type and frequency present immediately post-Project.
Excessive scouring, erosion, and sedimentation (stream hydrology)	More than 20 percent of the fines, cobble, and sediments are lost within a stream segment.	Redistribute in-stream habitat features to limit detrimental forces. Monitor. Take corrective action again, if necessary, and repeat cycle.
Bank erosion	Any portion of stream bank within the work area where greater than 1 cubic yard of surface soils is lost as a result of concentrated stream forces along the channel bank.	Monitor and determine cause of bank erosion. Reposition rock, boulders, or impediments to divert stream flow forces away from location of erosion. Monitor. Take corrective action again, if necessary, and repeat cycle.
Excessive scouring, erosion, and sedimentation (Vegetation management)	More than 20 percent of planted vegetation in any area is lost due to scour events.	Scouring is a naturally occurring event within creek and riverbeds. If a scour event occurs, the area shall be monitored and managed for non-native invasive plant species. Supplemental seeding and cutting installation should be evaluated but may not be warranted following a large scour event.
Head cutting	Any erosion occurring within drainages of the work area that is greater than 6 inches in height perpendicular to the flow direction of Mission Creek.	Monitor and determine the cause of head cutting before repairs are made. Consider bioengineering solutions to stabilize head cut. Monitor. Take corrective action again, if necessary, and repeat cycle.
High Plant Mortality or Poor Germination	Mortality of more than 20 percent of planted vegetation in any area is lost for unspecified reasons, not as a result of scour. Non-native species growing profusely in same area.	Unsuccessful cuttings or poorly germinating seeds will be replaced with additional cuttings and opportunistic seeding of species that have higher establishment rates in surrounding areas to meet specified performance standards.

Potential Challenge	Trigger	Adaptive Management Activity
Slope erosion, formation of rills	Formation of rills and/or gullies along work area slopes where depth of rills is greater than 4 inches deep.	Monitor and identify if there is a point source of erosion. Make repairs to point source location(s) to prevent future rilling. Fill rills on slope to a natural contour. Hydroslurry and Replant/reseed, as necessary.
Non-Native Invasive Species	Dominance of non-native species within work area is greater than ambient level of non-native species in surrounding undisturbed habitat.	If continuing invasions occur, efforts to find the source population shall be made. Increased application of non-native invasive plant control measures prior to flowering and seed set should aid in attaining control.
Poor Soil Conditions	Planted vegetation and seeds not growing for unspecified reason. Non-native species not growing in same area.	If selected plants do not tolerate certain areas of soil, the seed palette shall be changed to include native, local species that are more tolerant. Alternatively, soil tests may be performed to identify any localized soil deficiencies and then added as an amendment during future plantings. Opportunistic seeding may be implemented. If lack of vegetation does not lead to erosion or unstable conditions, consider cessation of planting and seeding.
Excessive Predation by Herbivores	Greater than 20 percent of planted vegetation is being heavily browsed by wildlife to the extent where browsed plants may not survive herbivory pressure.	Plant cages shall be added to establishing woody plants if herbivory is severe. Additional cuttings may give herbivores more to browse upon, lessening herbivory impacts to individual plants identified for restoration.
Wildfire	Wildfire burns through work area.	If a wildfire occurs, the restoration biologist will evaluate the extent of revegetation effort necessary for habitat recovery. Modification of the monitoring program and success criteria may be necessary and appropriate. Such modifications would be determined in consultation with relevant agencies.
Water Flow	Blockage of water flow that would preclude species ability to move up and downstream outside of the stream habitat features which were present prior to sidecast.	Material causing blockage may be moved or redistributed to alleviate reduced water flow situation.
Success Criteria	Non-attainment of success criteria despite evidence of continuous improvement and desirable Project site conditions.	Evaluation of suitability or effectiveness of success criteria may be adjusted if the site continues to indicate favorable conditions, however controls may not be suitable comparison. Data collection from alternative control sites may be expanded. Success criteria may be adjusted in consultation with regulatory agencies.

8.4 Reporting

8.4.1 As-Built Reporting

Following the completion of all site preparation and installation activities described above, photographs will be taken at the established photo points (Section 8.1.2). High-resolution aerial imagery (drones) may also be used for photo documentation. In addition, the final planting/seeded areas and final configuration of the stream will be mapped, and removal materials and areas will be quantified. An As-Built Report will be prepared and submitted to the City and County of Santa Barbara and other regulatory agencies within 90 calendar days of completing installation. The As-Built Report will document the compliance of permits during Project activities and the completed Project activities, including the installation dates, quantities and locations of plant materials used, locations of bank stabilization and in-stream habitat features installed, post-construction stream habitat mapping, and a photographic record. The report will note any deviations from the proposed plan and the actions taken to address these deviations.

8.4.2 Annual Reporting

An annual assessment report will be prepared for the City and County of Santa Barbara and regulatory permitting agencies each year to document the Project site's trajectory toward achieving success criteria and performance standards. These reports will be submitted annually for the duration of the monitoring period and are contingent upon meeting success criteria thereafter. The report will include documentation of all upland and stream monitoring and survey data described in this HRMP, trends for the data collected, year-to-year comparisons, and any changes to tree health and sensitive plant populations as a result of Project activities. Remedial actions for both trees and sensitive plants will be prescribed in the report.

9 Completion of Mitigation

9.1 Notification of Completion

Agency approval of the Project, or independent components of the Project, will be identified in the annual reports, as appropriate. SCE will submit close-out requests seeking agency approval pursuant to each agency's approval mechanism. For any Project component seeking agency approval, confirmation from the agencies will be requested.

9.2 Confirmation

When the Project meets success criteria, as identified in this HRMP, the Project will be considered a success. If success standards are not achieved, the maintenance and monitoring program will be extended one year at a time until the standards are met. Specific adaptive management measures (Sections 8.2.5 [upland] and 8.3.4 [stream]) will be used during any such extension as determined in coordination with the approving agencies, as appropriate. Monitoring extensions will be done only for areas that fail to meet the final success criteria. This process will continue until final success standards are attained or until the approving agencies determine that other mitigation measures are appropriate.

If requested, a site visit may be conducted with the responsible agencies to verify site conditions, and Project closeout will include a sign-off process for each individual Project permit.

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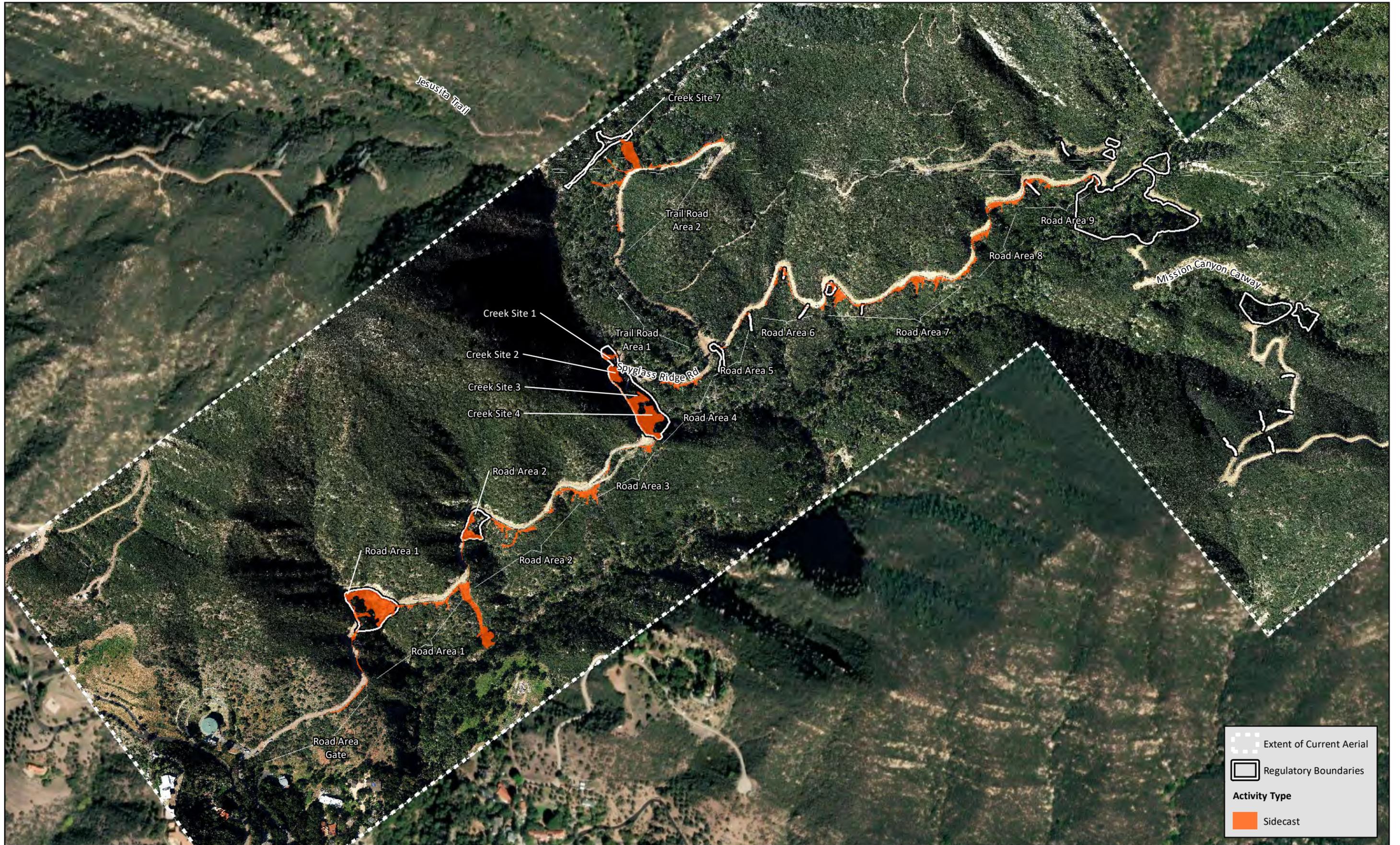
Figures

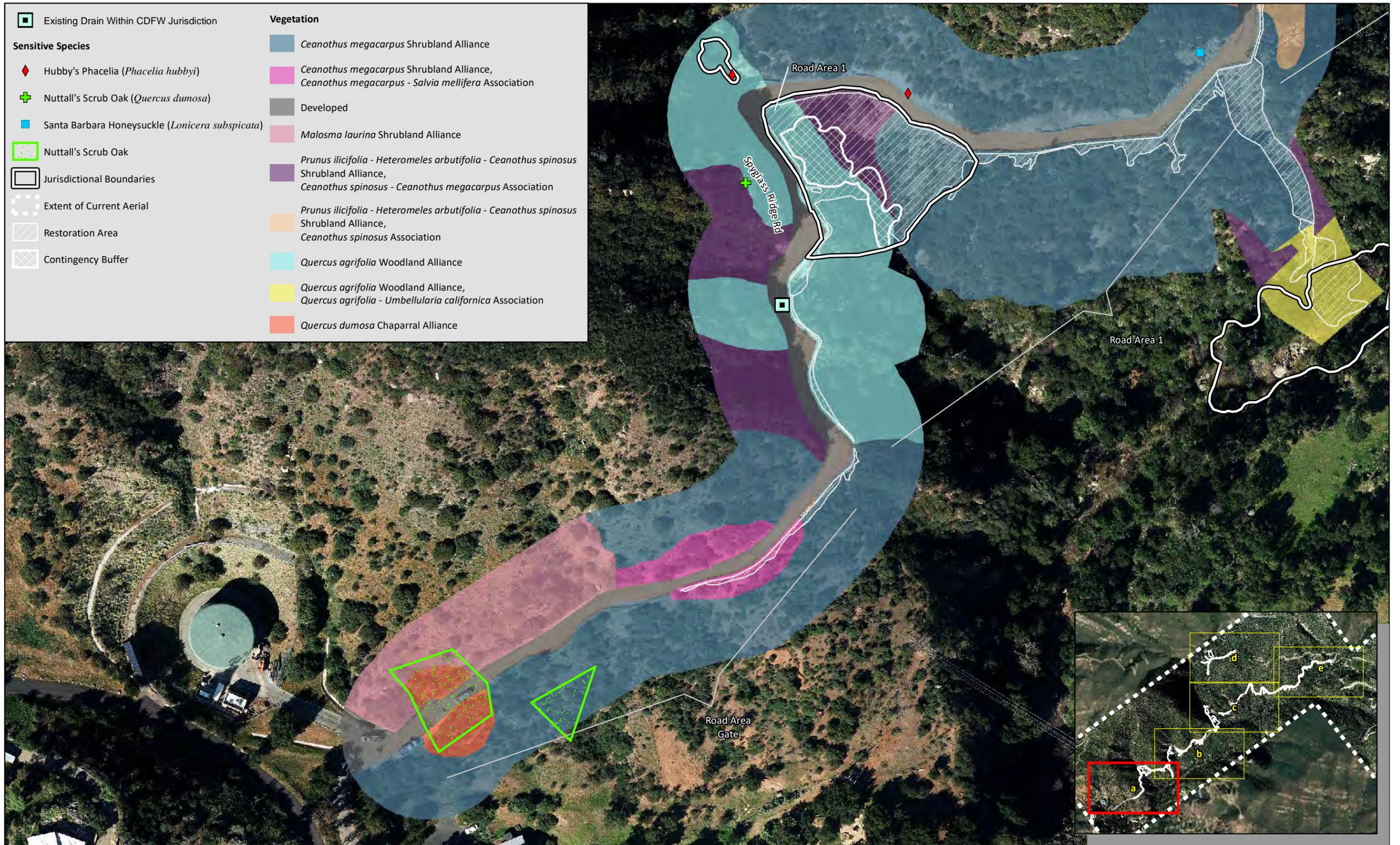


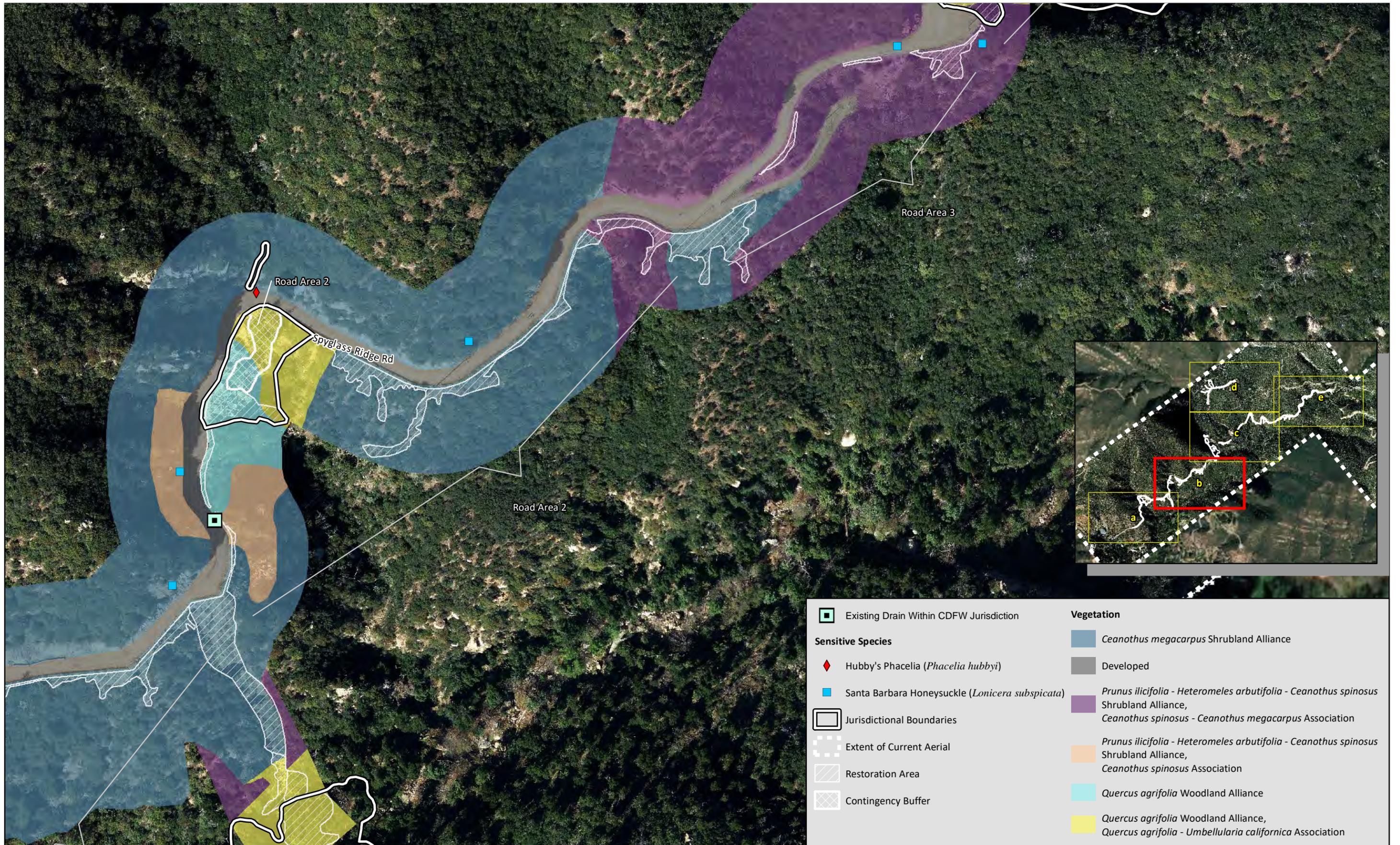
MISSION CREEK HABITAT RESTORATION PLAN
Regional Location

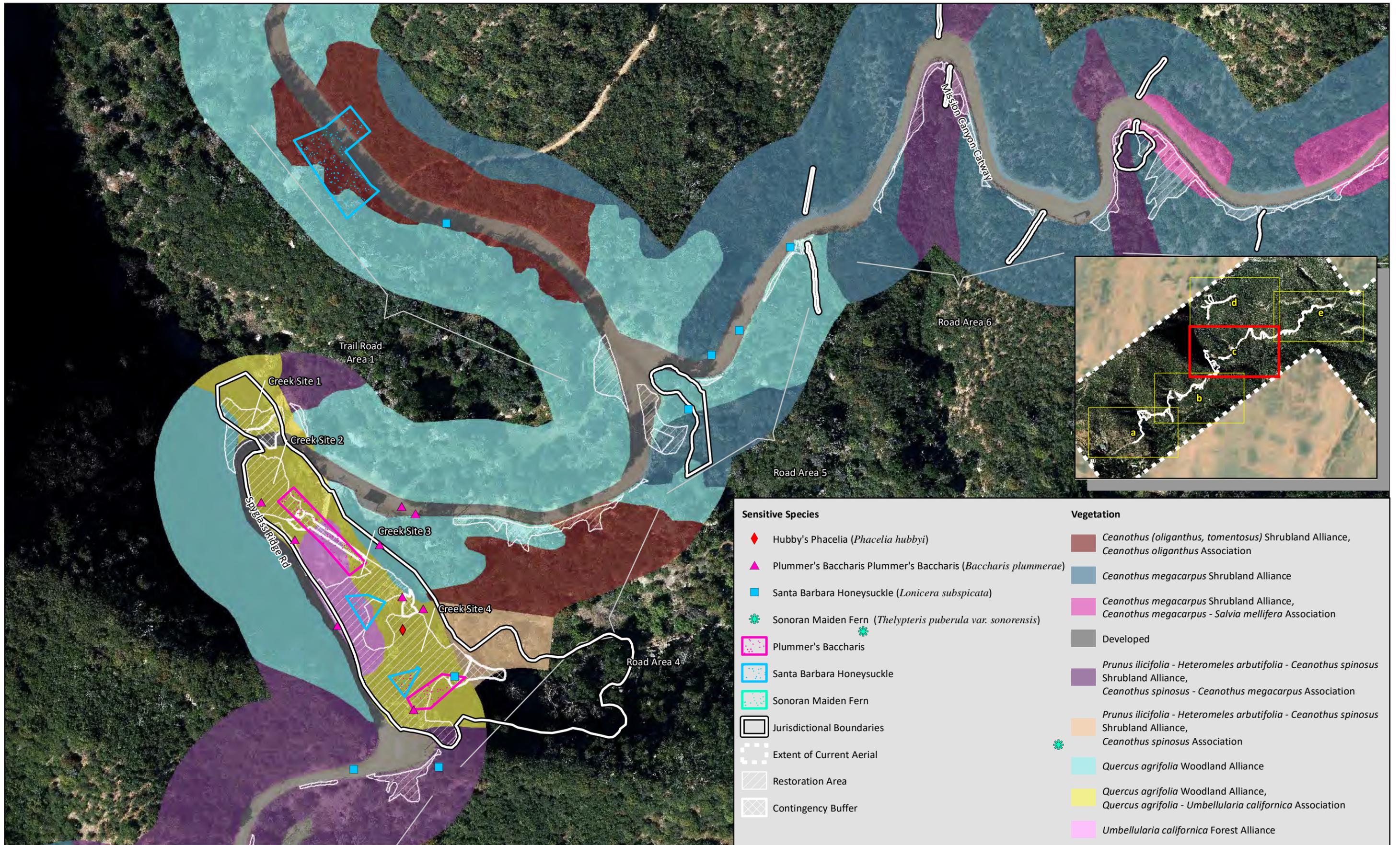
Figure 1

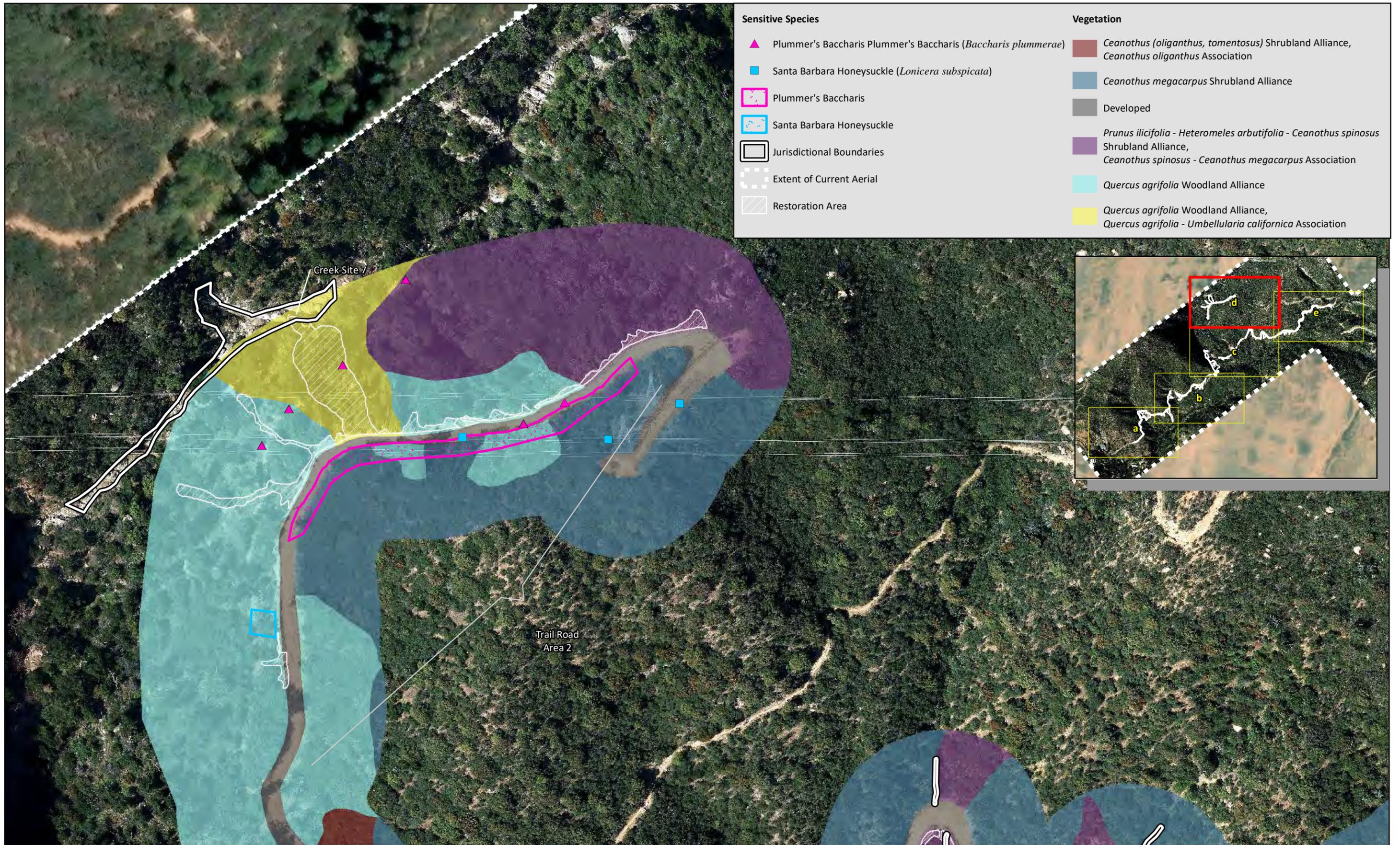


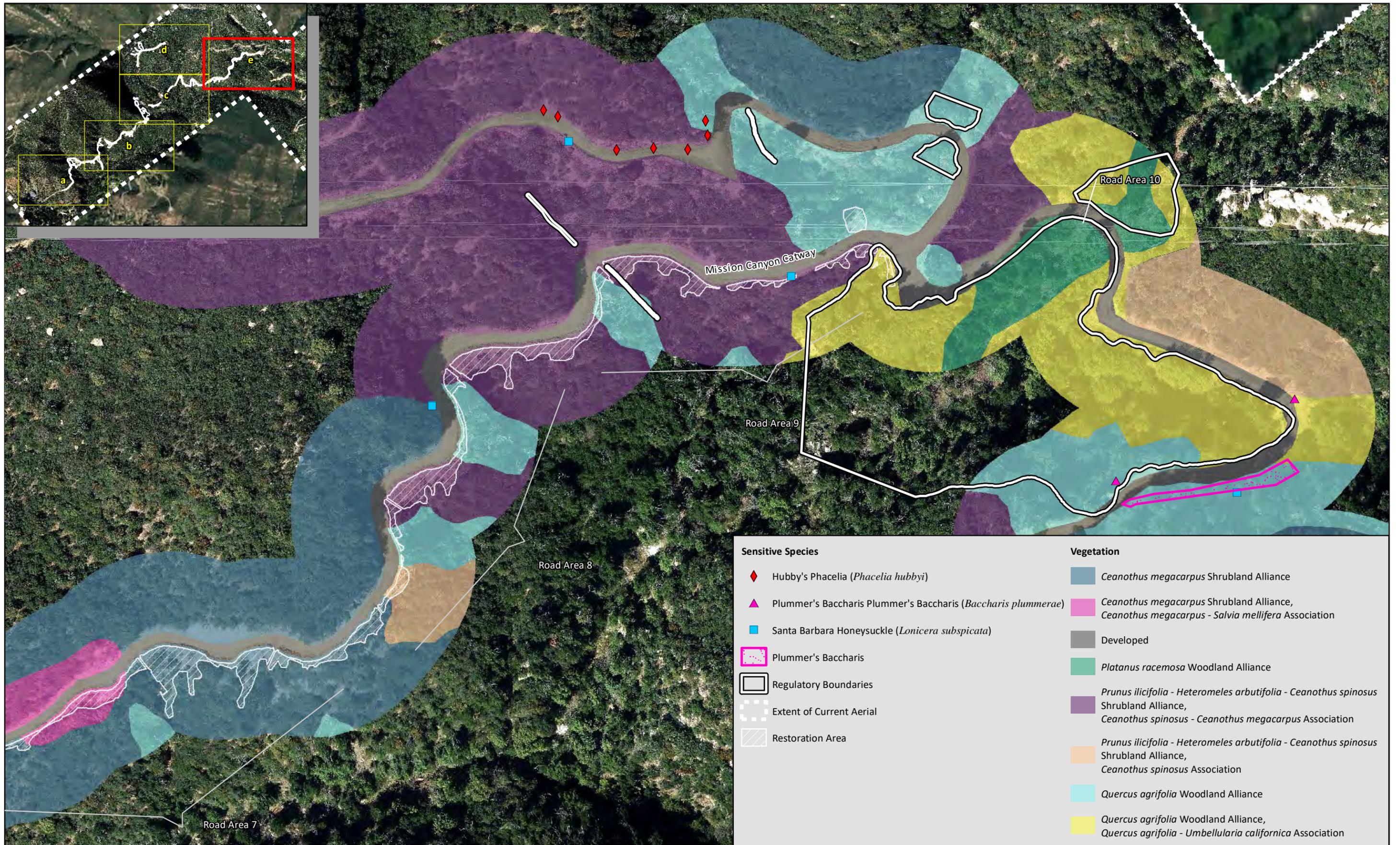




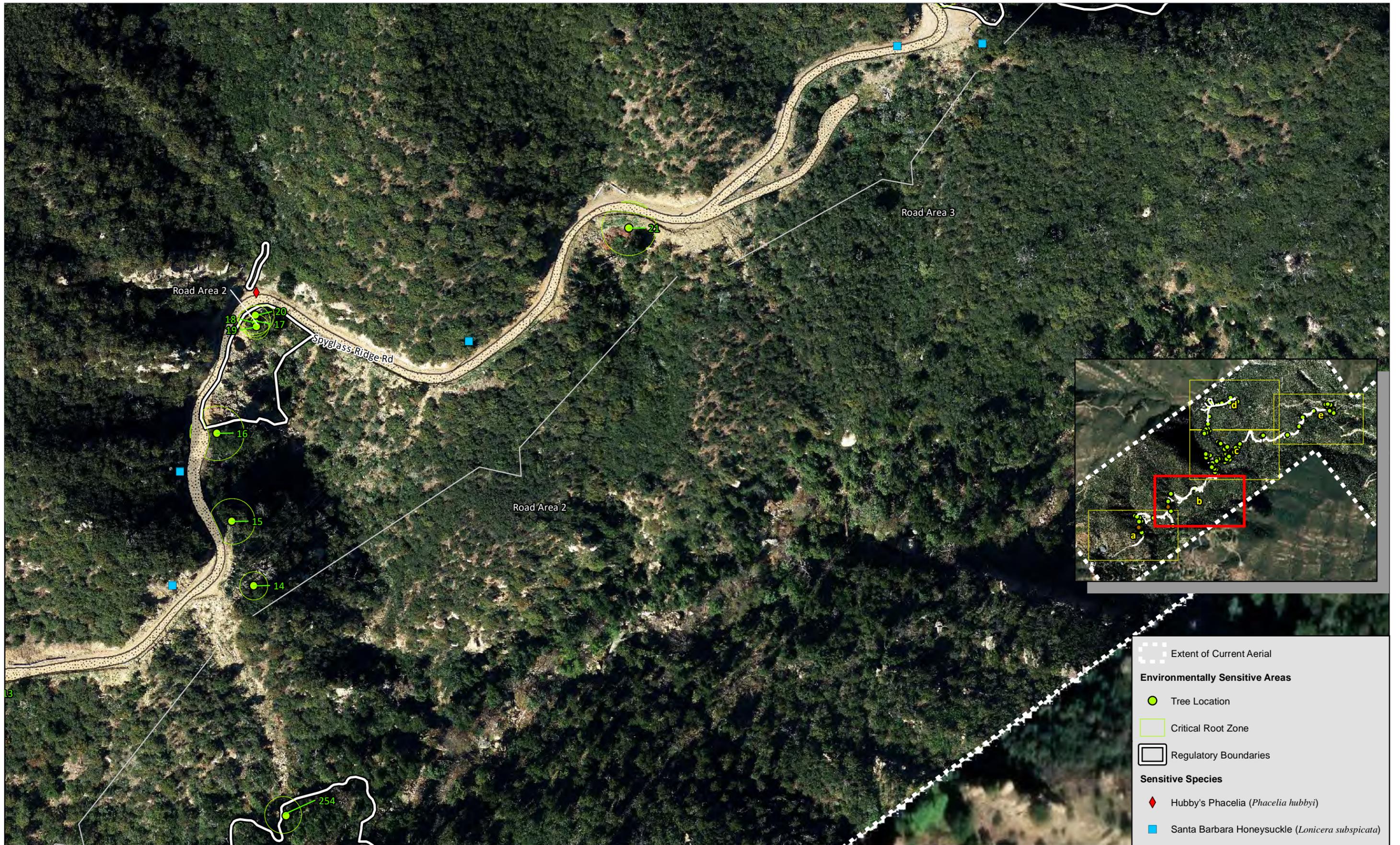












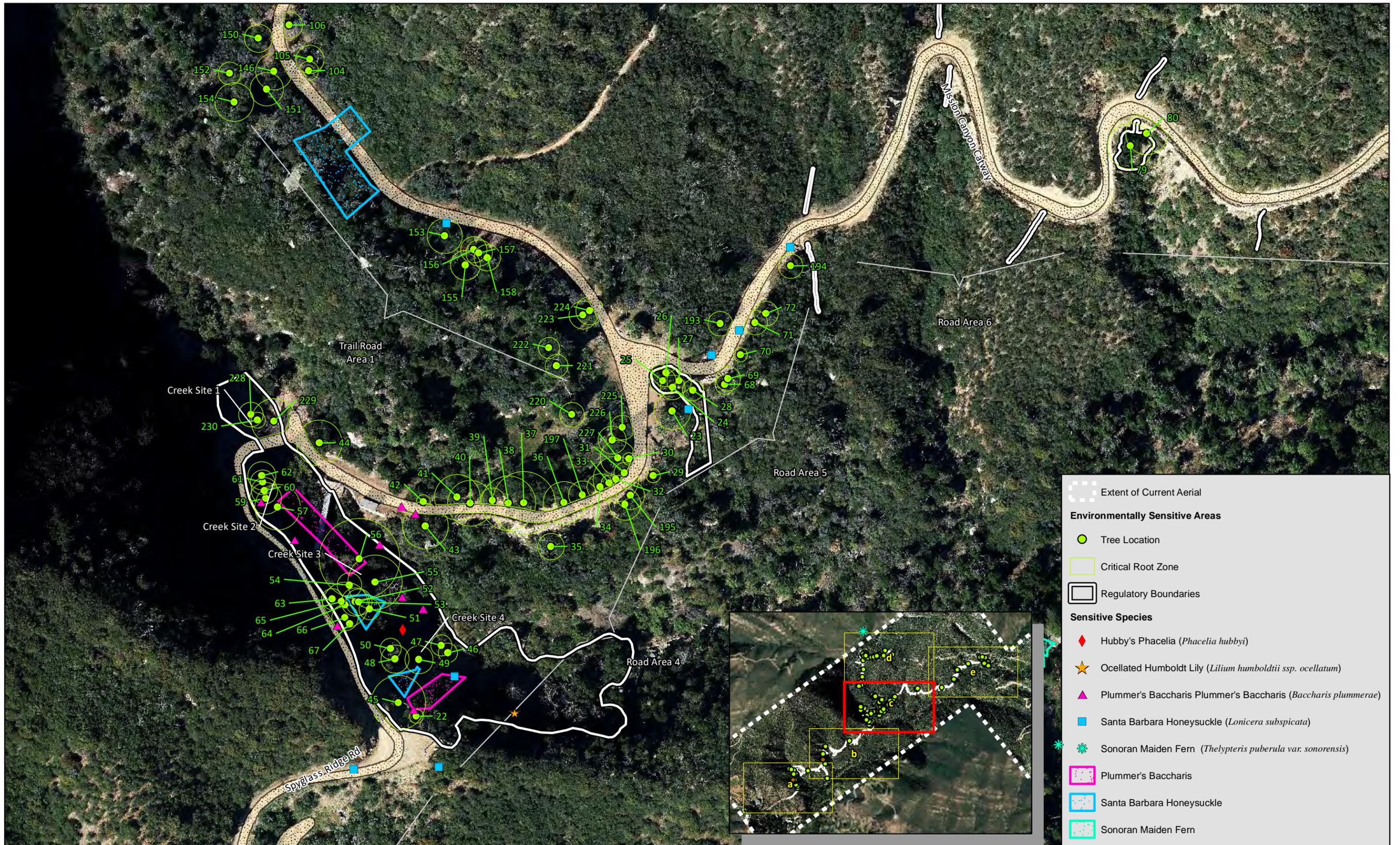
Extent of Current Aerial

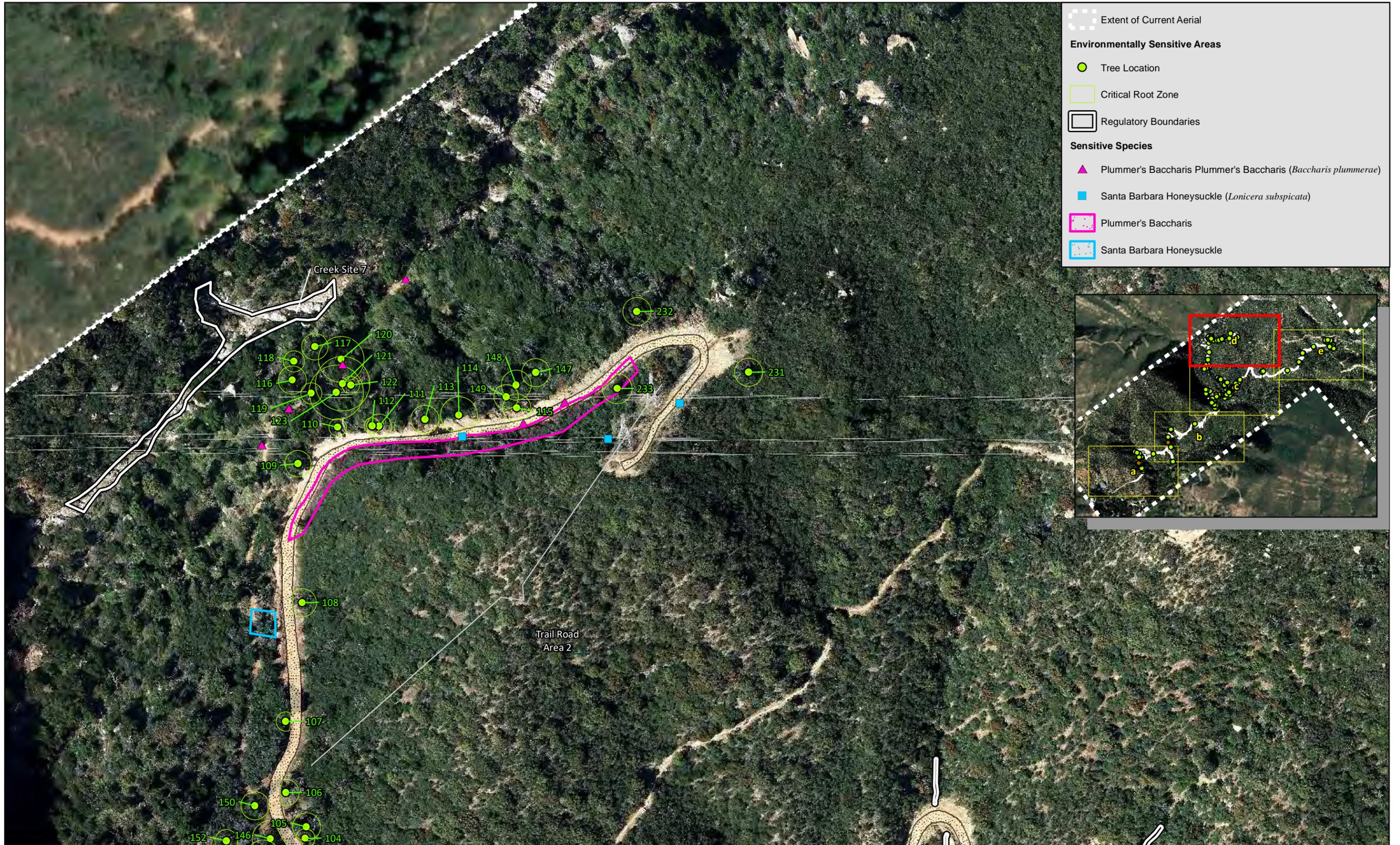
Environmentally Sensitive Areas

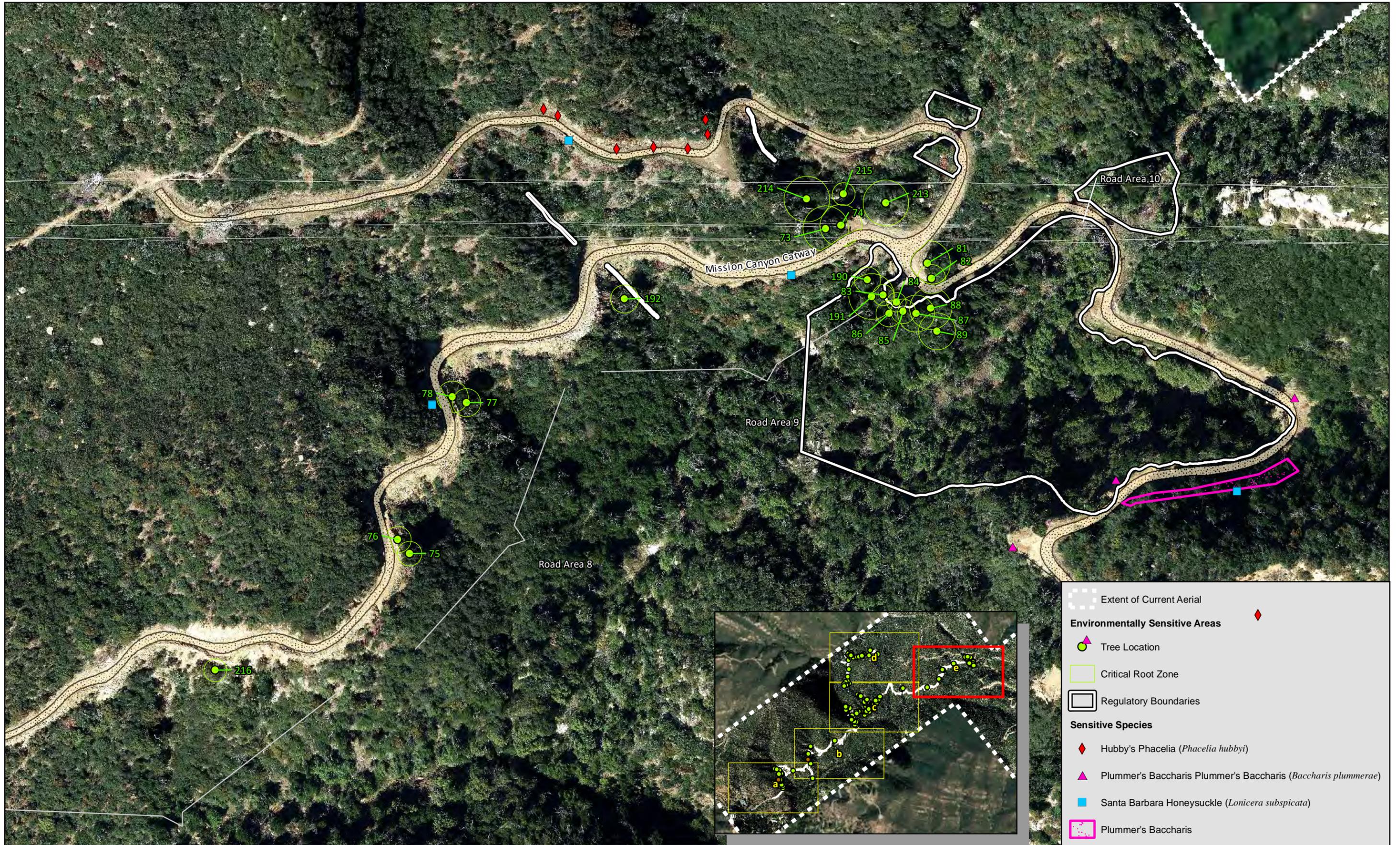
- Tree Location
- Critical Root Zone
- Regulatory Boundaries

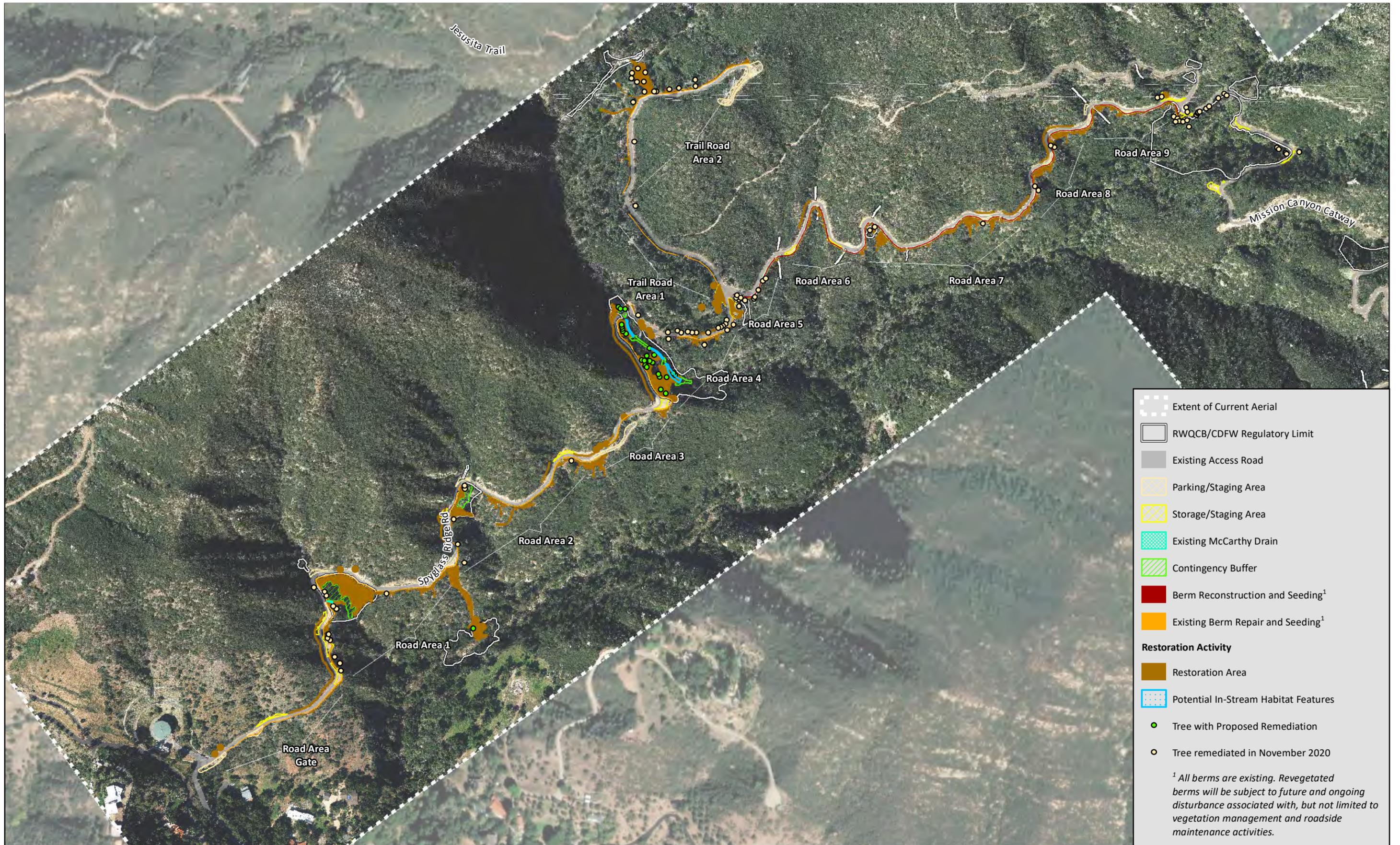
Sensitive Species

- Hubby's Phacelia (*Phacelia hubbyi*)
- Santa Barbara Honeysuckle (*Lonicera subspicata*)









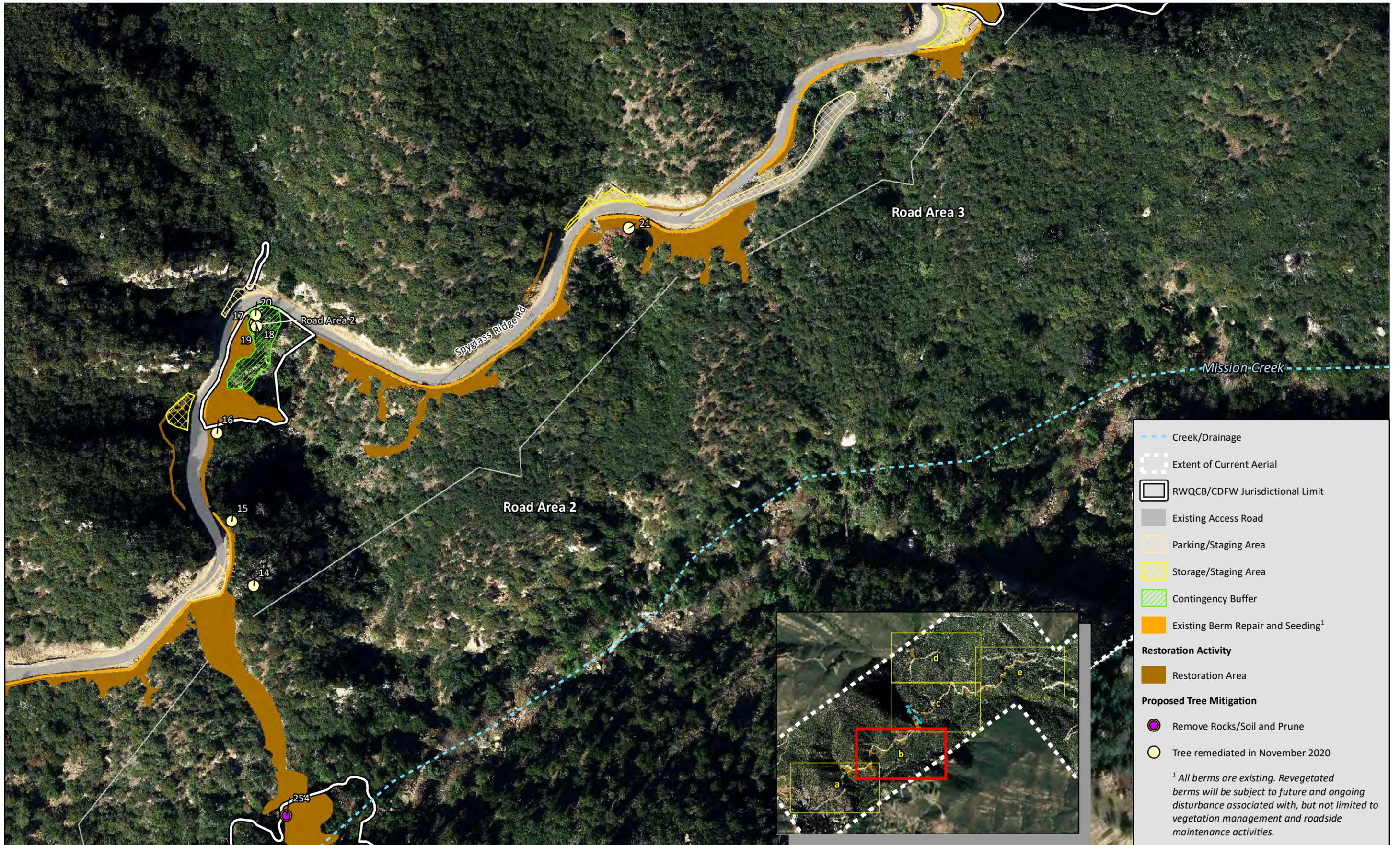
Extent of Current Aerial
 RWQCB/CDFW Regulatory Limit
 Existing Access Road
 Parking/Staging Area
 Storage/Staging Area
 Existing McCarthy Drain
 Contingency Buffer
 Berm Reconstruction and Seeding¹
 Existing Berm Repair and Seeding¹

Restoration Activity

Restoration Area
 Potential In-Stream Habitat Features
 Tree with Proposed Remediation
 Tree remediated in November 2020

¹ All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to, vegetation management and roadside maintenance activities.

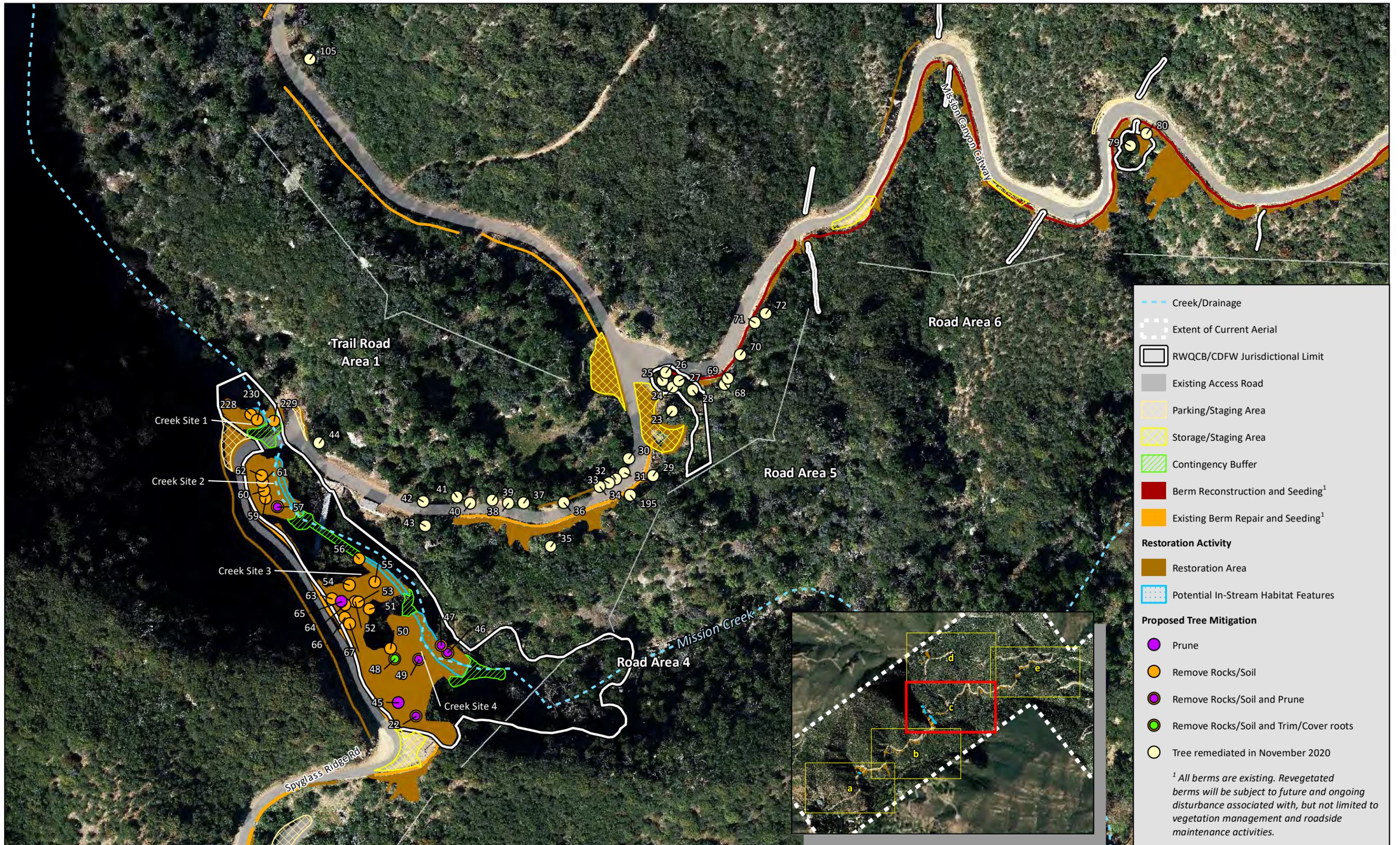




- - - Creek/Drainage
- Extent of Current Aerial
- RWQCB/CDFW Jurisdictional Limit
- Existing Access Road
- Parking/Staging Area
- Storage/Staging Area
- Contingency Buffer
- Existing Berm Repair and Seeding¹
- Restoration Activity**
- Restoration Area
- Proposed Tree Mitigation**
- Remove Rocks/Soil and Prune
- Tree remediated in November 2020

¹ All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to, vegetation management and roadside maintenance activities.

Figure 5b



- - - - - Creek/Drainage
 - - - - - Extent of Current Aerial
 [White Outline] RWQCB/CDFW Jurisdictional Limit
 [Grey] Existing Access Road
 [Yellow] Parking/Staging Area
 [Orange] Storage/Staging Area
 [Green] Contingency Buffer
 [Red] Berm Reconstruction and Seeding¹
 [Orange] Existing Berm Repair and Seeding¹

Restoration Activity

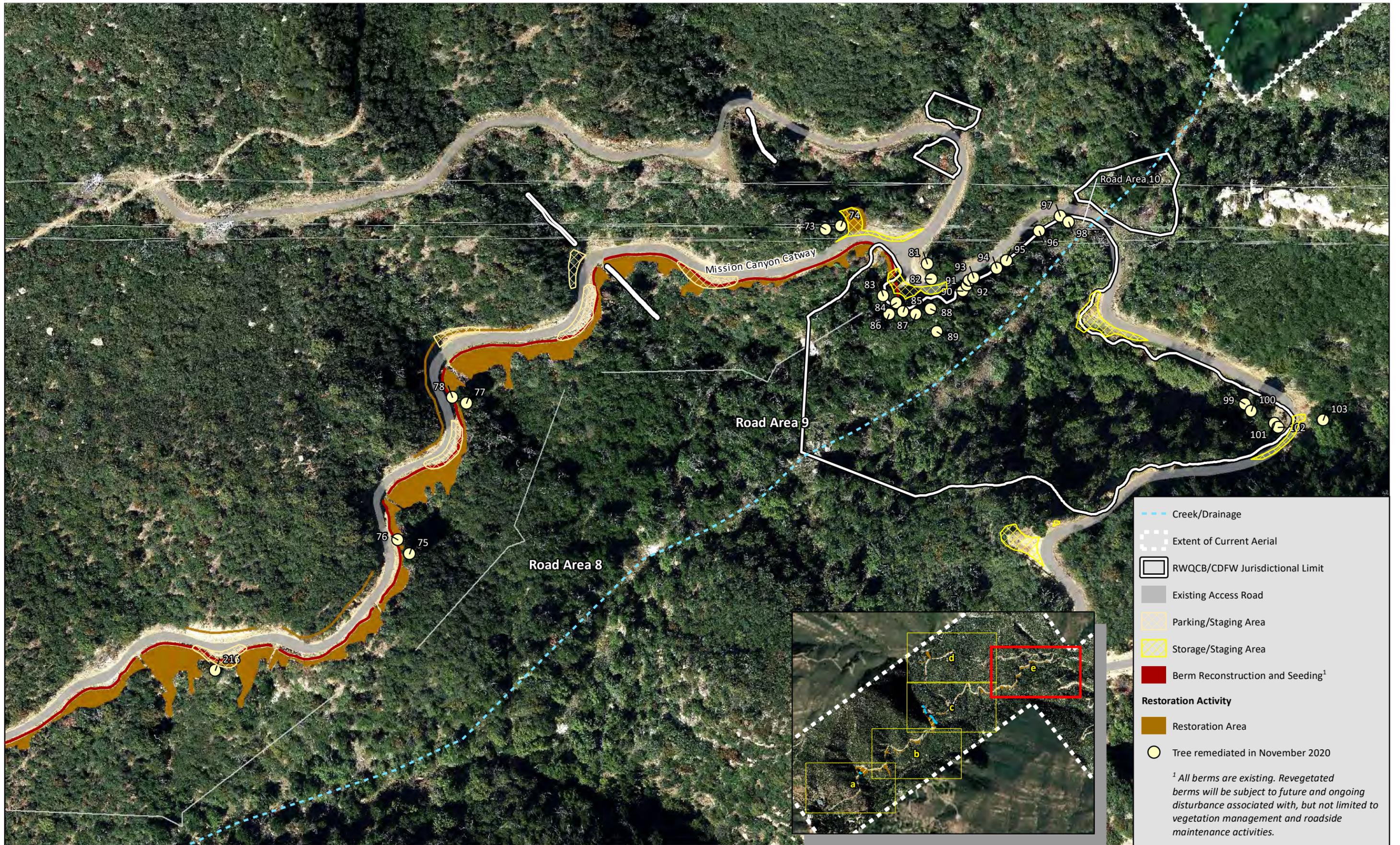
[Brown] Restoration Area
 [Blue Dotted] Potential In-Stream Habitat Features

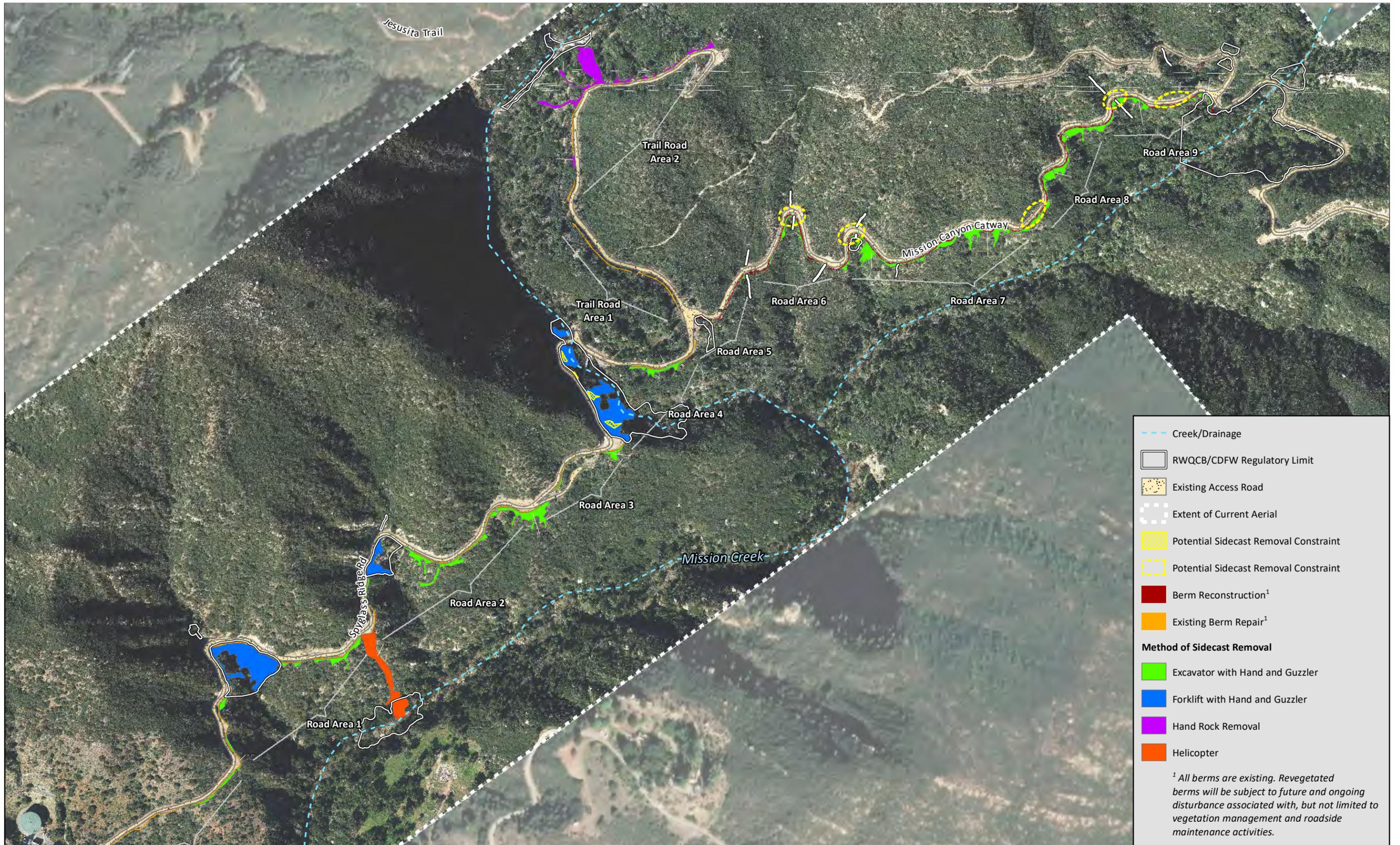
Proposed Tree Mitigation

- [Purple Circle] Prune
- [Orange Circle] Remove Rocks/Soil
- [Purple Circle with Orange] Remove Rocks/Soil and Prune
- [Green Circle with Orange] Remove Rocks/Soil and Trim/Cover roots
- [Yellow Circle] Tree remediated in November 2020

¹ All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to, vegetation management and roadside maintenance activities.





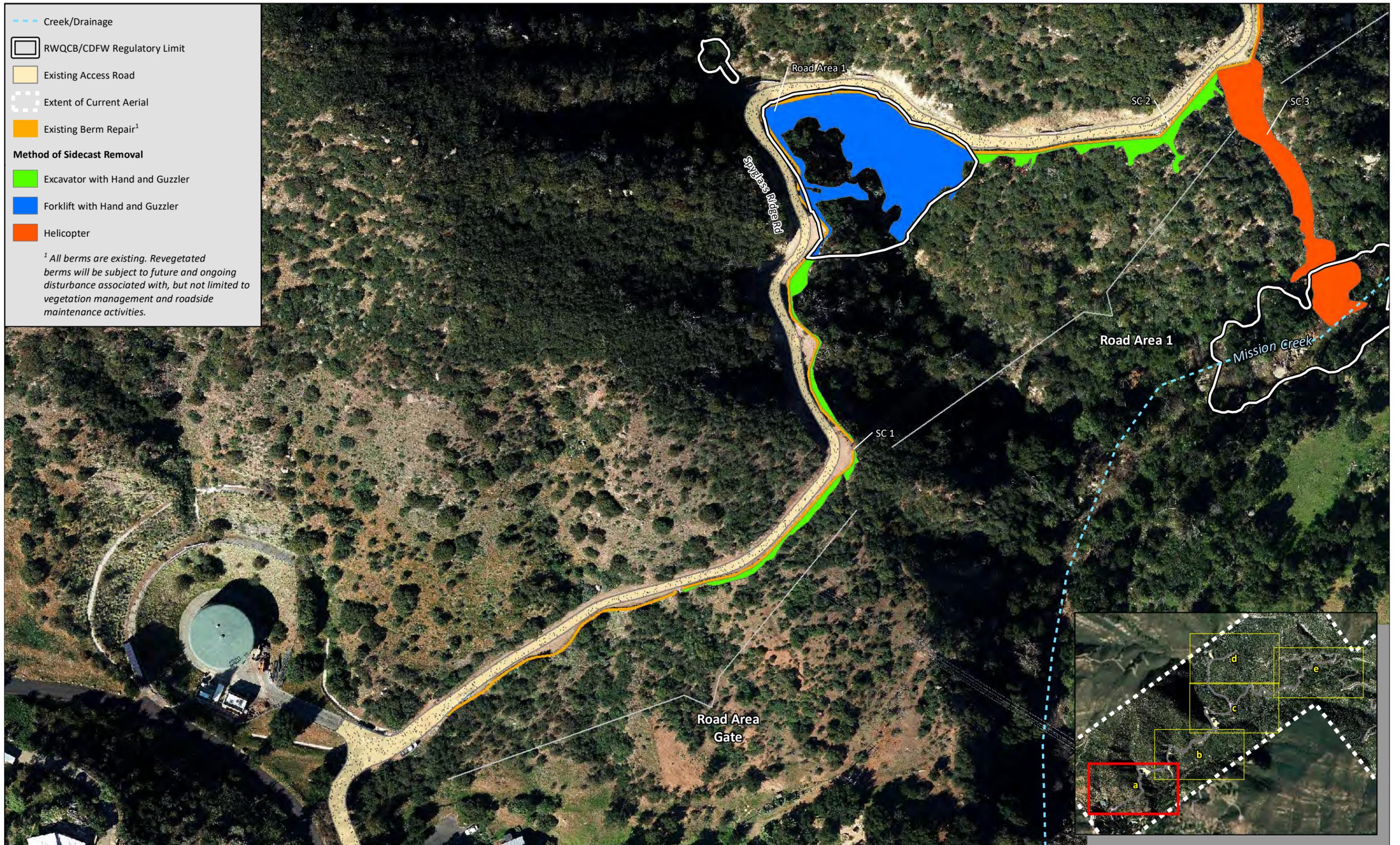


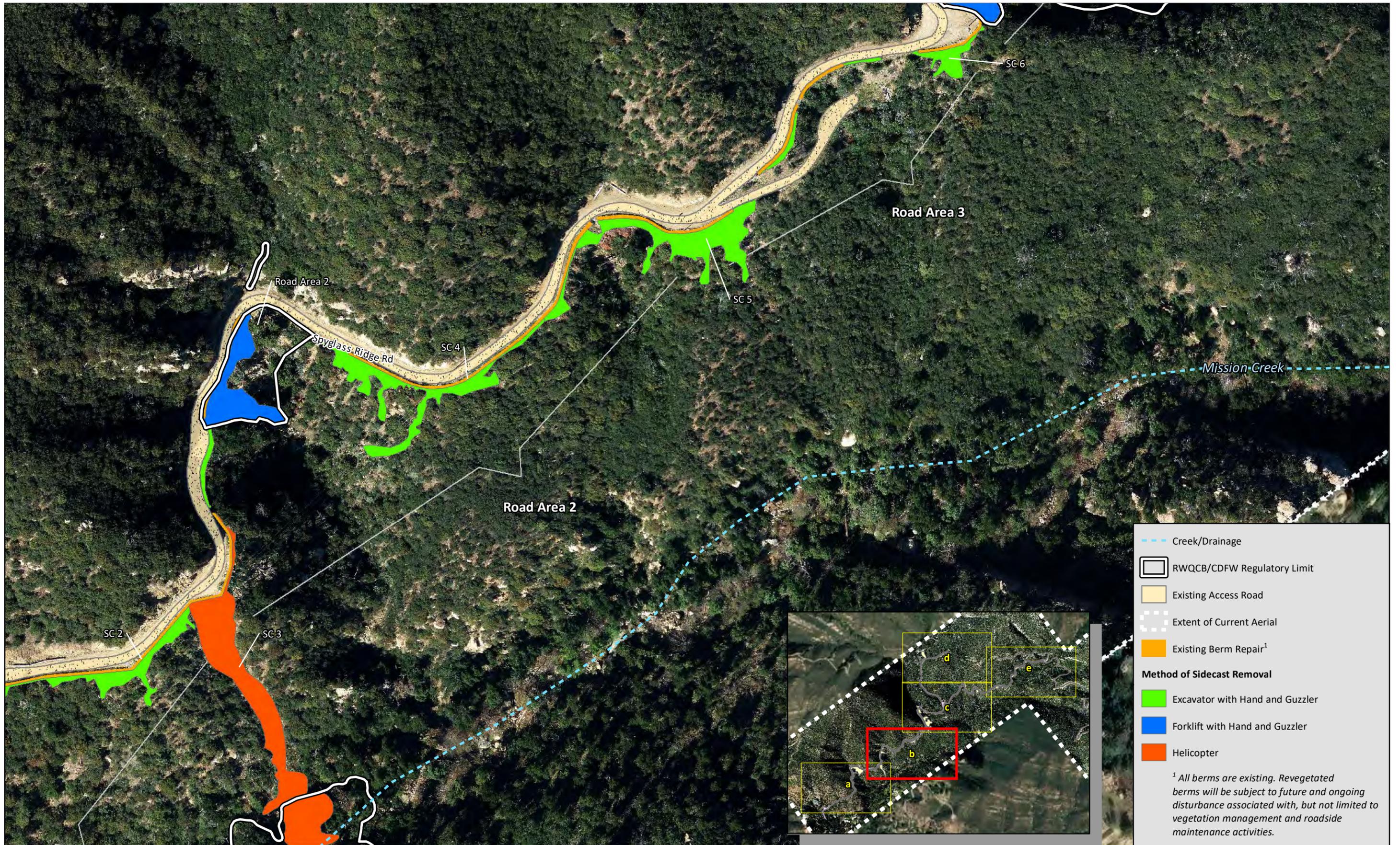
- - - Creek/Drainage
- RWQCB/CDFW Regulatory Limit
- Existing Access Road
- Extent of Current Aerial
- Potential Sidecast Removal Constraint
- Potential Sidecast Removal Constraint
- Berm Reconstruction¹
- Existing Berm Repair¹

Method of Sidecast Removal

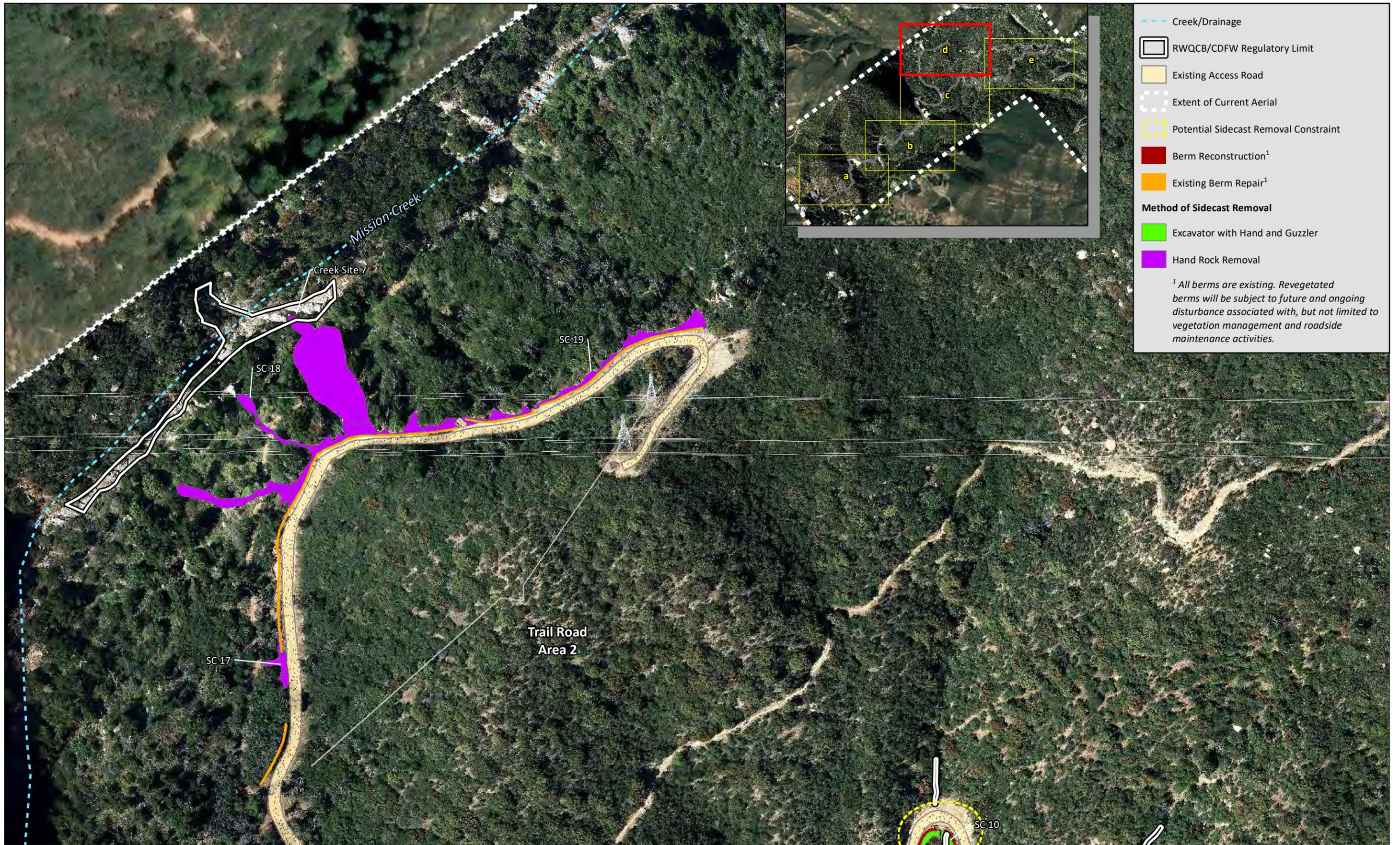
- Excavator with Hand and Guzzler
- Forklift with Hand and Guzzler
- Hand Rock Removal
- Helicopter

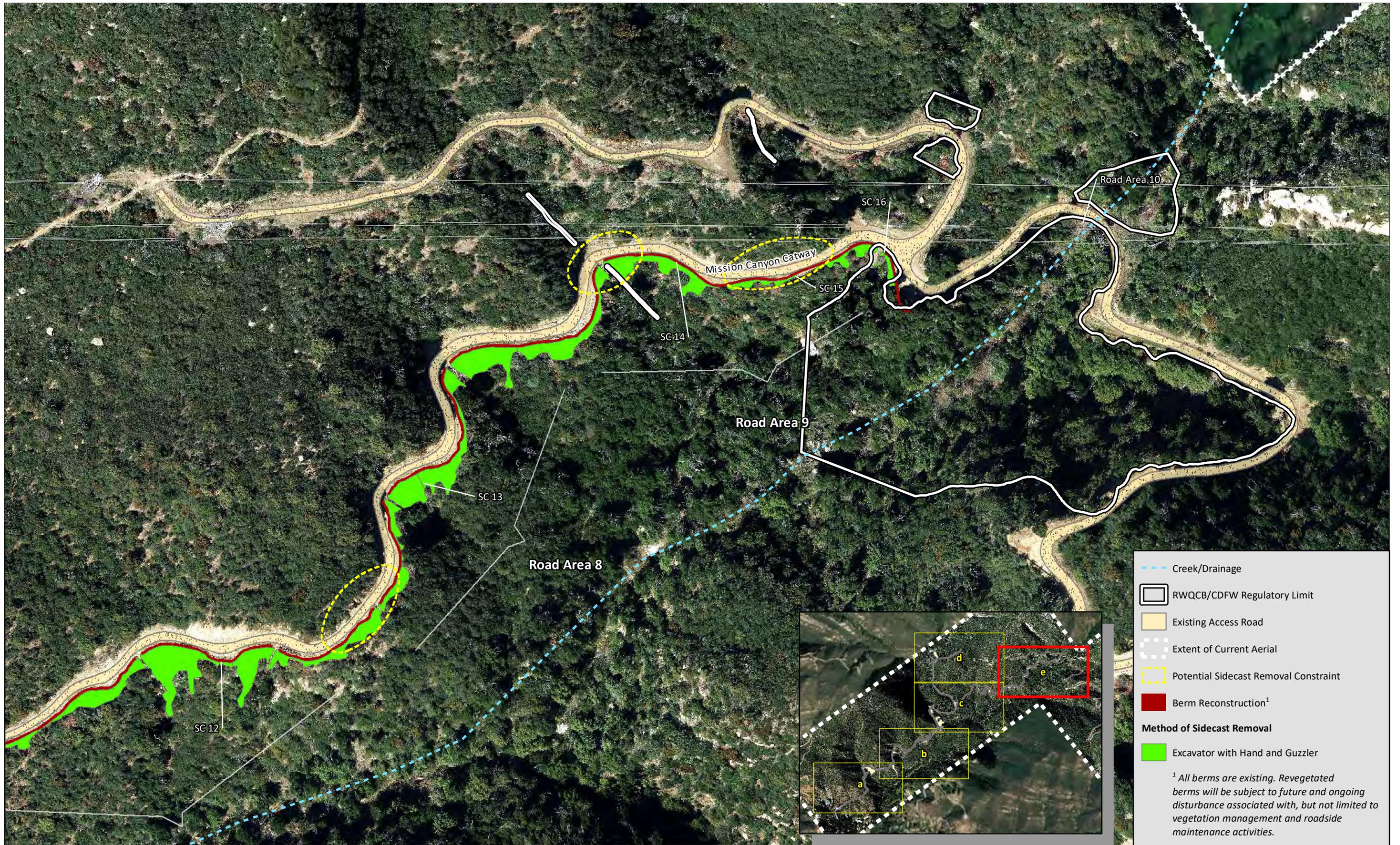
¹ All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.

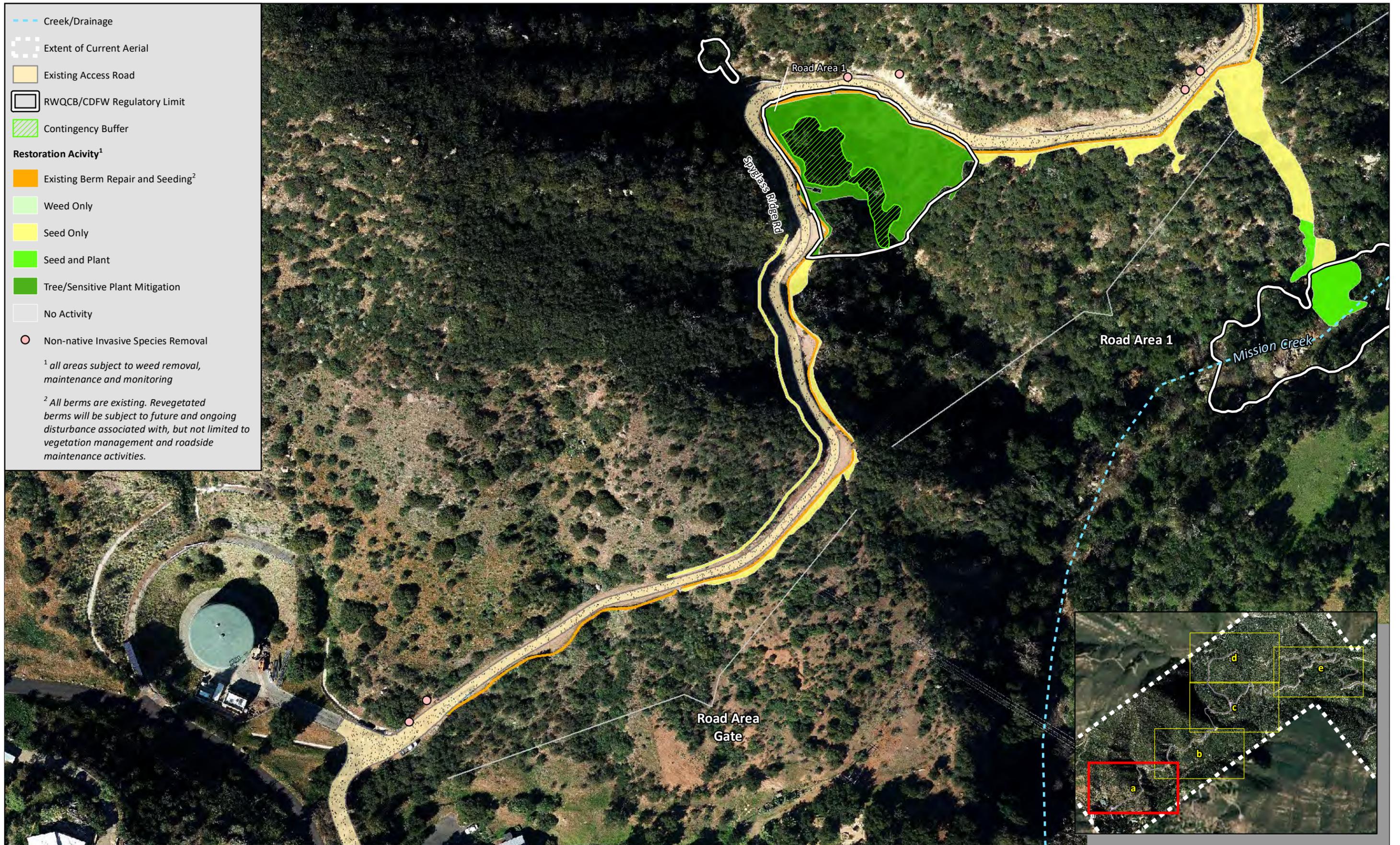


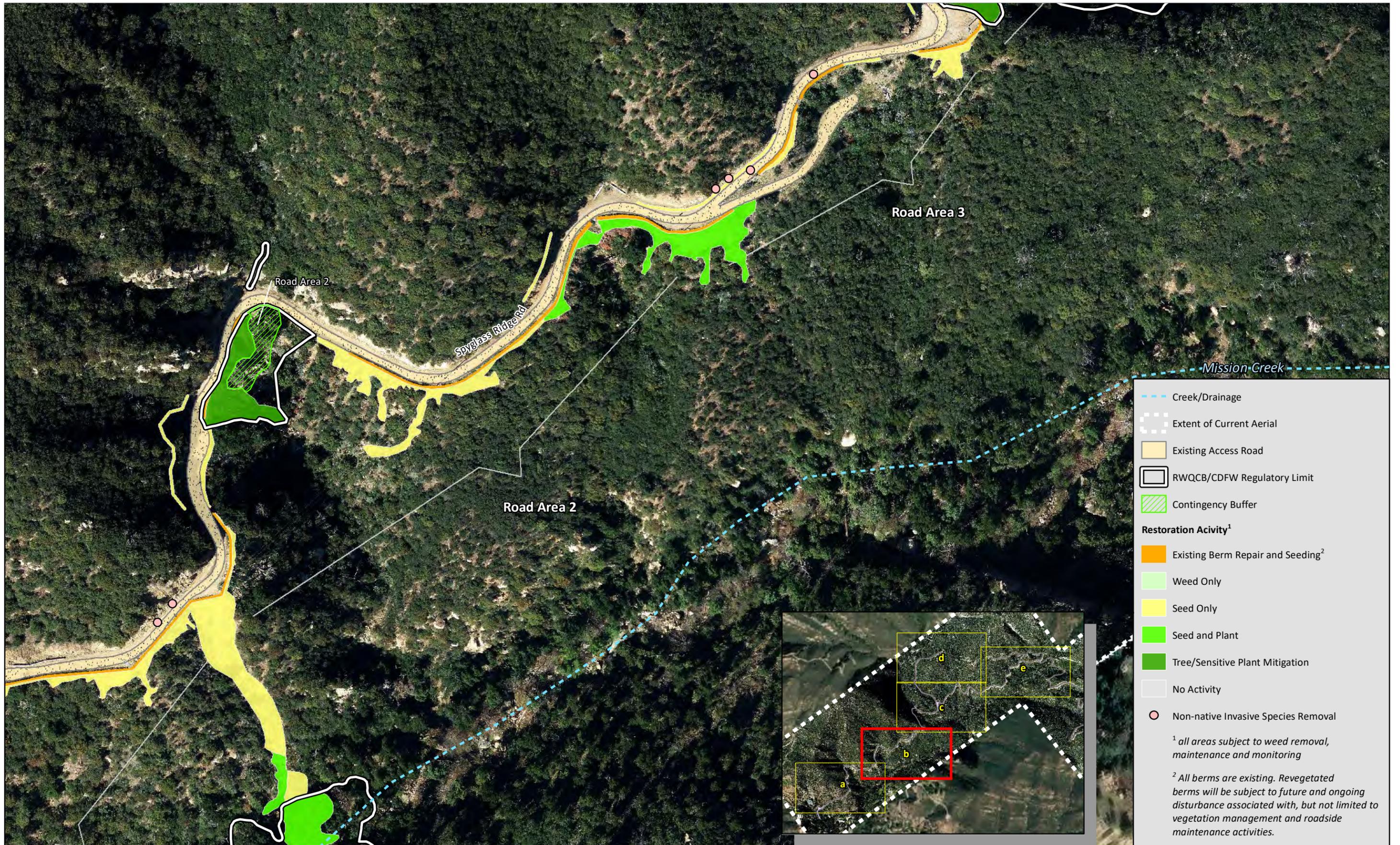








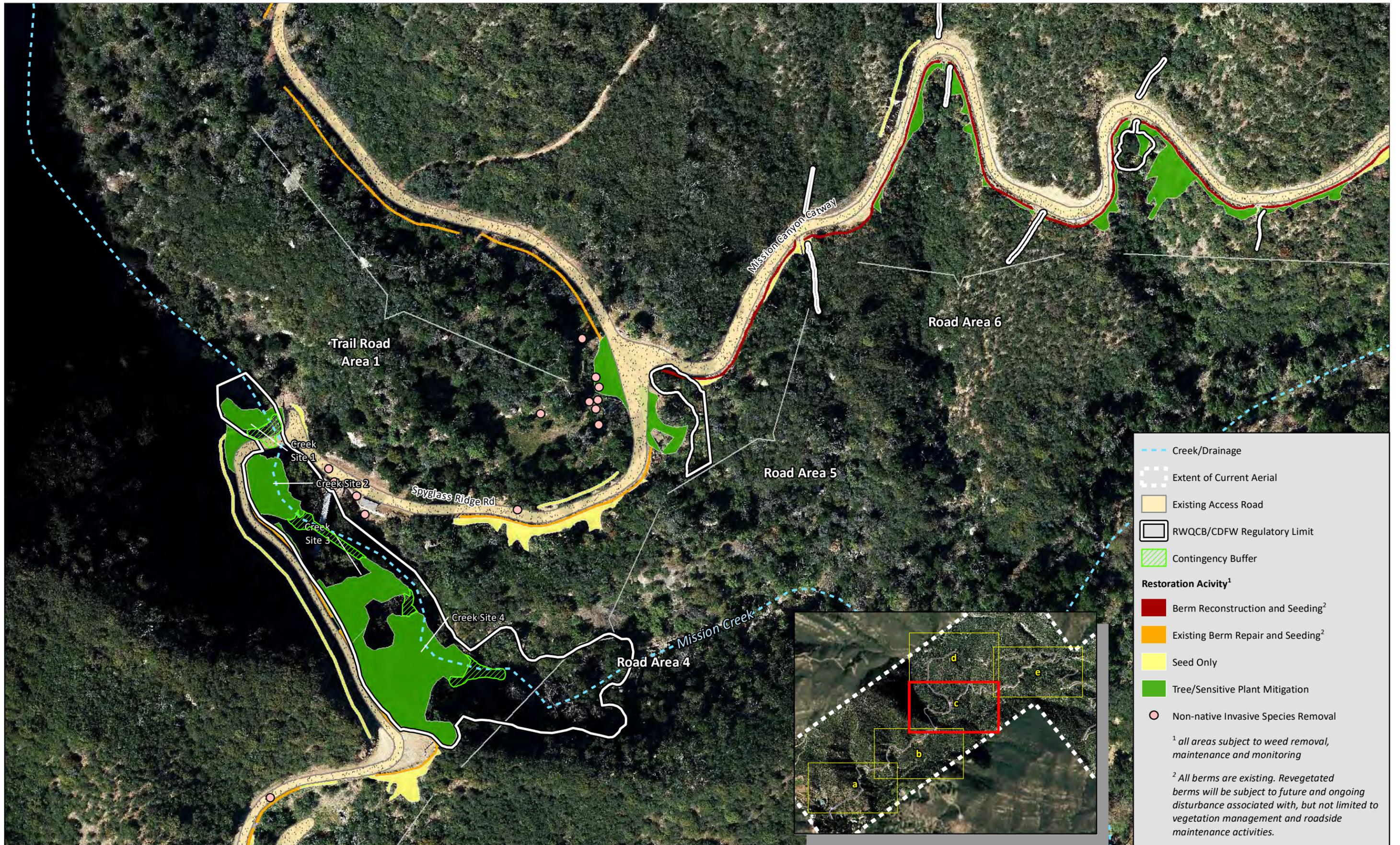




- - - - - Creek/Drainage
 - - - - - Extent of Current Aerial
 Existing Access Road
 RWQCB/CDFW Regulatory Limit
 Contingency Buffer
Restoration Activity¹
 Existing Berm Repair and Seeding²
 Weed Only
 Seed Only
 Seed and Plant
 Tree/Sensitive Plant Mitigation
 No Activity
 Non-native Invasive Species Removal

¹ all areas subject to weed removal, maintenance and monitoring
² All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.

Figure 7b



--- Creek/Drainage
 Extent of Current Aerial
 Existing Access Road
 RWQCB/CDFW Regulatory Limit
 Contingency Buffer

Restoration Activity¹

- Berm Reconstruction and Seeding²
- Existing Berm Repair and Seeding²
- Seed Only
- Tree/Sensitive Plant Mitigation

○ Non-native Invasive Species Removal

¹ all areas subject to weed removal, maintenance and monitoring

² All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.



¹ all areas subject to weed removal, maintenance and monitoring

² All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.



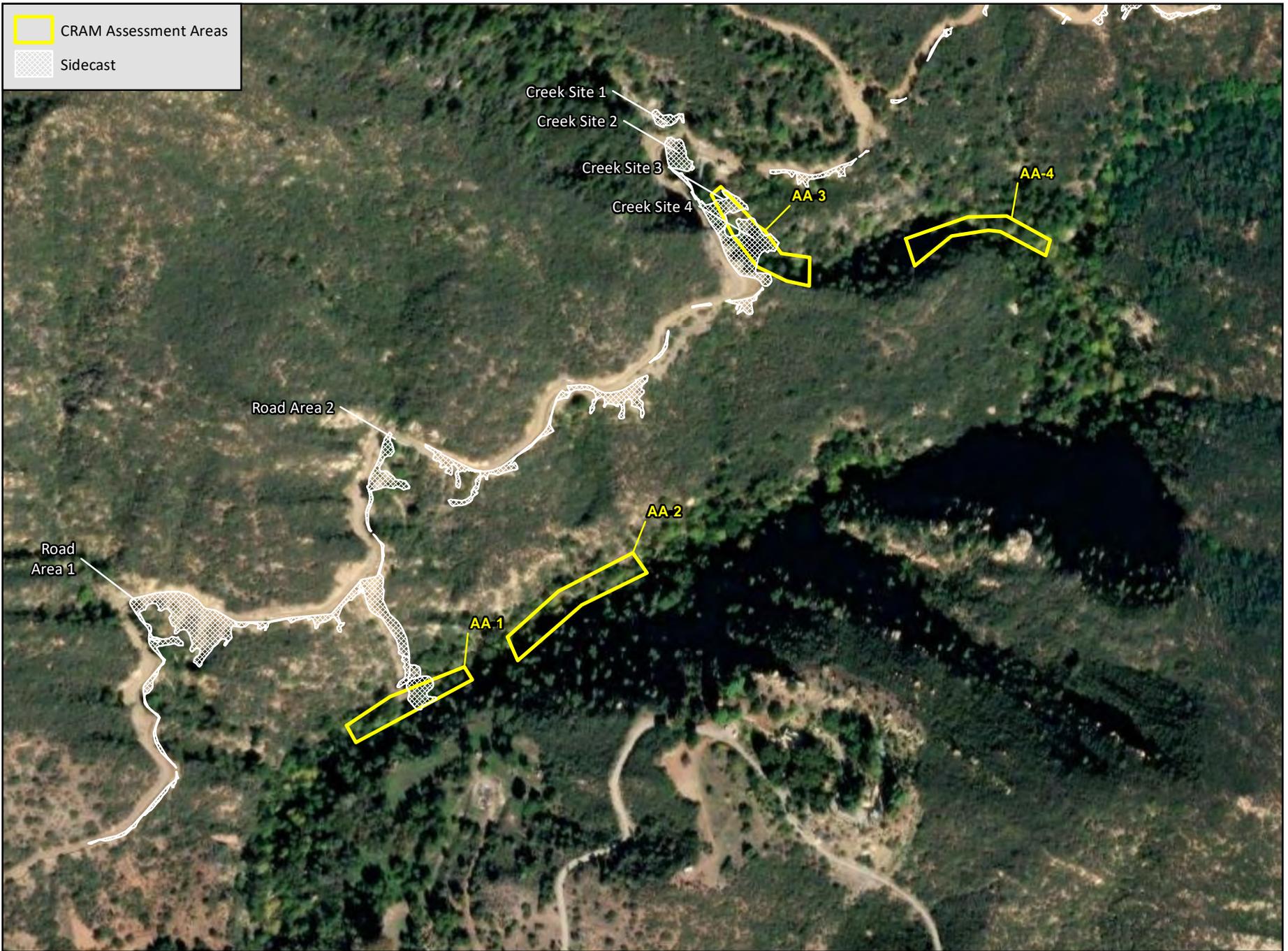
- - - Creek/Drainage
 Extent of Current Aerial
 Existing Access Road
 RWQCB/CDFW Regulatory Limit

Restoration Activity¹

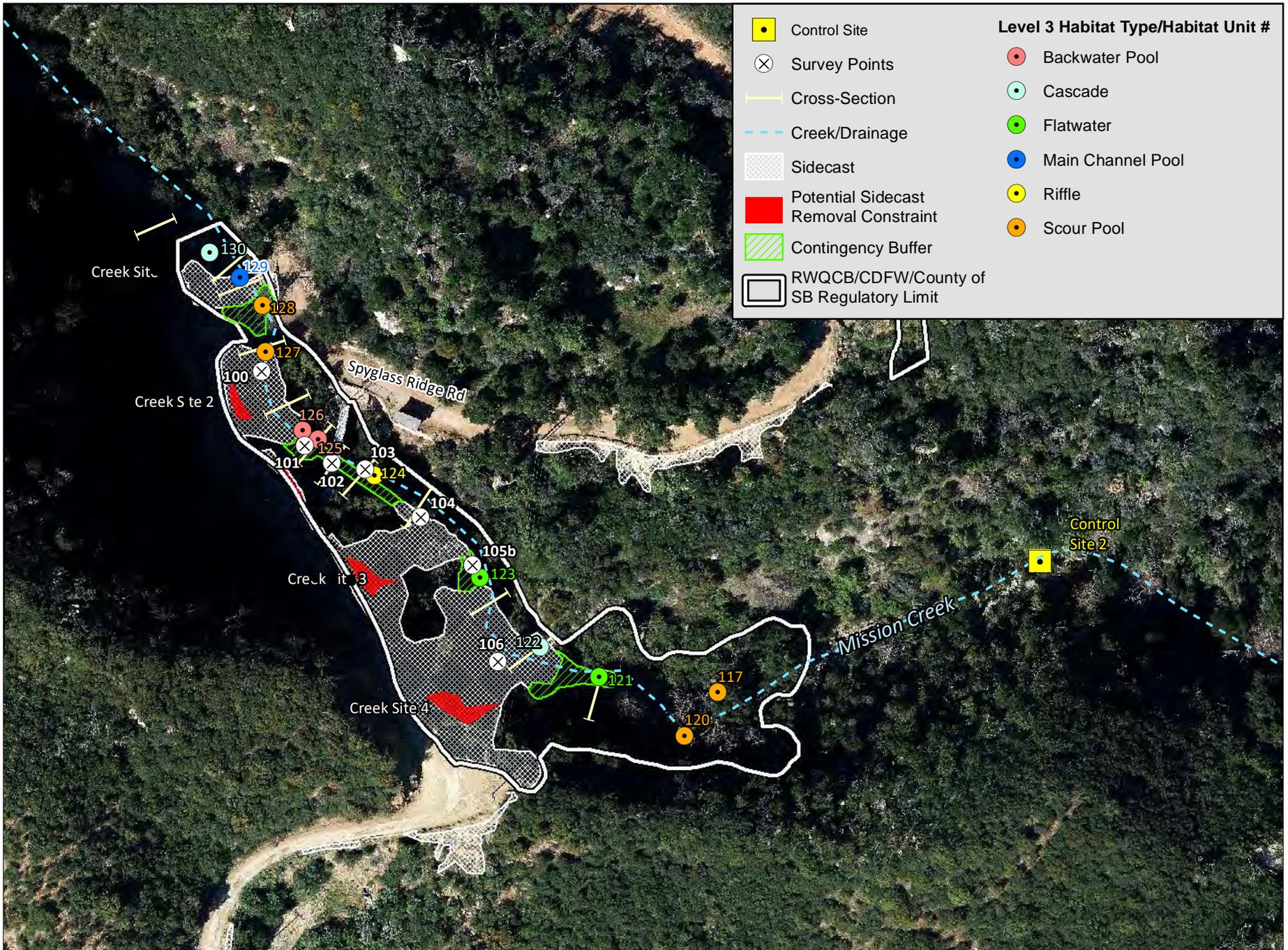
- Berm Reconstruction and Seeding²
- Weed Only
- Seed Only
- Seed and Plant
- Tree/Sensitive Plant Mitigation
- No Activity

¹ all areas subject to weed removal, maintenance and monitoring

² All berms are existing. Revegetated berms will be subject to future and ongoing disturbance associated with, but not limited to vegetation management and roadside maintenance activities.







MISSION CANYON STREAM HABITAT RESTORATION PROJECT

Mission Creek Transect Locations and Control Sites

Attachment A

Photographs of Mission Creek
Sidecast Areas



Photo 1. Example of sidecast in Mission Creek.



Photo 2. Looking upstream at Creek Site 2 in Mission Creek.

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Photographs of Mission Creek Sidecast Areas



Photo 3. Looking downstream in Mission Creek from Creek Site 2.



Photo 4. Looking downstream in Mission Creek at Creek Site 3.

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Photographs of Mission Creek Sidecast Areas



Photo 5. Looking upstream in Mission Creek at Creek Site 4.



Photo 6. Looking up from Mission Creek toward the road at Creek Site 4.

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Photographs of Mission Creek Sidecast Areas



Photo 7. View into Mission Creek from the road at Creek Site 4.



Photo 8. View into Mission Creek from the road at Creek Site 3.

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Photographs of Mission Creek Sidecast Areas



Photo 9. Erosion control matting and silt fence at Creek Site 2.



Photo 10. Erosion control matting and silt fence at Creek Site 1.

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Photographs of Mission Creek Sidecast Areas

Attachment B.1

Trees Remediated in November 2020

Attachment B.1. Trees Remediated in November 2020

TREE ID No.	Species	DBH (in.)	Dripline (feet)	Estimated Height (Feet)	Impact Severity	Impact Type				Remedial Measure				Location	
						Undetermined Source	Mechanical Damage	Rocks and Boulders Damage	Soil Impacts	Leave as Snag	Prune	Trim/Cover Roots	Remove Rock/Soil	Lat	Long
1	coast live oak	18	12	25	Minor Damage			1	1				1	-119.7110568	34.46592359
2	coast live oak	14	10	14	Minor Damage				1				1	-119.7110533	34.46594928
3	coast live oak	16	8	15	Minor Damage			1	1		1		1	-119.7110336	34.46605019
4	coast live oak	12	9	25	Minor Damage			1	1				1	-119.7111501	34.46626174
5	coast live oak	19	15	20	Minor Damage			1	1				1	-119.7111683	34.46626377
6	coast live oak	14	9	18	Minor Damage				1				1	-119.711248	34.46625645
8	coast live oak	14	10	25	Minor Damage			1	1				1	-119.7111877	34.46669838
9	coast live oak	26	20	35	Moderate Damage		1		1		1		1	-119.7112266	34.46669806
10	coast live oak	13	15	18	Minor Damage			1	1				1	-119.711227	34.46675077
11	coast live oak	48	25	35	Minor Damage		1	1	1		1		1	-119.7113454	34.46678256
12	coast live oak	12	25	25	Minor Damage		1							-119.7114107	34.46684186
13	coast live oak	6	5	12	Minor Damage		1	1	1				1	-119.7103201	34.4668083
14	coast live oak	28	10	30	Moderate Damage		1	1	1		1		1	-119.7094044	34.46711998
15	coast live oak	28	20	30	Minor Damage		1	1	1				1	-119.7095515	34.46732541
16	coast live oak	24	25	50	Minor Damage				1				1	-119.7096008	34.46762396
17	bay laurel	20	12	40	Major Damage		1	1	1		1		1	-119.7094175	34.46794856
18	bay laurel	18	0	0	Major Damage		1	1		1	1			-119.709414	34.46794302
19	bay laurel	16	8	15	Major Damage		1	1	1	1			1	-119.7094104	34.46792991
20	bay laurel	30	15	40	Moderate Damage		1	1					1	-119.7094144	34.46796626
21	coast live oak	26	25	40	Minor Damage				1				1	-119.7079788	34.46822197
23	coast live oak	19	15	35	Minor Damage				1				1	-119.7057805	34.47011591
24	coast live oak	16	8	25	Minor Damage				1				1	-119.7058393	34.47010991
25	coast live oak	11	9	20	Minor Damage			1	1				1	-119.7058723	34.47014837
26	coast live oak	13	10	25	Minor Damage		1	1	1	1			1	-119.7058736	34.47009979
27	coast live oak	17	8	25	Minor Damage			1	1				1	-119.7058472	34.47009575
28	coast live oak	23	6	12	Minor Damage			1	1				1	-119.7058605	34.47003565
29	coast live oak	7	2	6	Minor Damage				1				1	-119.7059291	34.46979865
30	coast live oak	4	1	7	Moderate Damage	1	1				1	1		-119.7060293	34.46982087
31	coast live oak	30	6	25	Minor Damage			1	1				1	-119.7059994	34.46976253
32	coast live oak	28	20	40	Minor Damage		1		1		1		1	-119.7060346	34.46972712
33	coast live oak	8	3	12	Minor Damage	1	1					1		-119.706071	34.46977838
34	Other	12	9	25	Moderate Damage	1	1					1		-119.7060806	34.46976624
35	coast live oak	19	9	35	Minor Damage			1	1				1	-119.7062752	34.46960789
36	coast live oak	20	18	25	Moderate Damage	1	1					1		-119.7062381	34.46968009
37	coast live oak	22	30	40	Moderate Damage	1	1					1		-119.7063747	34.46967334
38	coast live oak	16	25	30	Moderate Damage	1	1					1		-119.7064342	34.46968417
39	coast live oak	8	8	25	Minor Damage		1	1	1			1		-119.7064972	34.46967904
40	coast live oak	16	20	25	Minor Damage		1					1		-119.7065787	34.46968228
41	coast live oak	8	20	20	Minor Damage	1						1		-119.706626	34.46967107
42	coast live oak	18	2	8	Major Damage		1				1			-119.7067228	34.46969603
43	coast live oak	23	20	25	Minor Damage				1				1	-119.7067748	34.4696473
44	coast live oak	50	20	25	Minor Damage	1					1			-119.7071286	34.46994525
68	coast live oak	17	5	20	Minor Damage			1	1				1	-119.7056682	34.47009146
69	coast live oak	26	8	9	Moderate Damage		1	1	1		1		1	-119.7056496	34.47014391
70	coast live oak	4	2	8	Moderate Damage		1		1		1		1	-119.7055726	34.47018776
71	coast live oak	36	8	25	Major Damage		1		1		1		1	-119.7055197	34.47032528
72	coast live oak	18	8	25	Minor Damage				1				1	-119.7055296	34.4703319
73	coast live oak	40	20	20	Minor Damage	1						1		-119.7003219	34.47235547
74	coast live oak	32	18	40	Moderate Damage		1			1		1		-119.7003103	34.47240905

TREE ID No.	Species	DBH (in.)	Dripline (feet)	Estimated Height (Feet)	Impact Severity	Impact Type				Remedial Measure				Location	
						Undetermined Source	Mechanical Damage	Rocks and Boulders Damage	Soil Impacts	Leave as Snag	Prune	Trim/Cover Roots	Remove Rock/Soil	Lat	Long
75	coast live oak	30	8	25	Moderate Damage		1		1		1		1	-119.7017593	34.4718434
76	coast live oak	19	9	35	Minor Damage				1				1	-119.7017107	34.47181494
77	coast live oak	16	10	25	Minor Damage				1		1		1	-119.7019252	34.47135765
78	coast live oak	36	12	35	Minor Damage			1	1				1	-119.7019141	34.47135261
79	coast live oak	15	20	30	Minor Damage			1	1				1	-119.7041005	34.47087339
80	coast live oak	22	18	30	Minor Damage			1					1	-119.704109	34.47088664
81	coast live oak	70	20	25	Minor Damage	1						1		-119.6999432	34.47222604
82	coast live oak	34	10	25	Minor Damage	1						1		-119.6999045	34.47219692
83	coast live oak	15	6	30	Minor Damage			1	1				1	-119.7001016	34.47214061
84	coast live oak	15	5	12	Minor Damage				1				1	-119.7000262	34.47210854
85	coast live oak	23	8	30	Minor Damage				1				1	-119.7000391	34.47210398
86	coast live oak	14	9	35	Minor Damage				1				1	-119.7000656	34.47207003
87	coast live oak	43	15	30	Minor Damage		1		1		1		1	-119.699971	34.47210503
88	coast live oak	40	18	35	Moderate Damage		1		1		1		1	-119.6999316	34.47208573
89	coast live oak	23	15	40	Minor Damage				1				1	-119.6998962	34.47203029
90	coast live oak	24	9	12	Minor Damage				1				1	-119.6998018	34.47214543
91	coast live oak	17	4	12	Minor Damage				1				1	-119.6997798	34.47217062
92	coast live oak	32	20	40	Minor Damage				1				1	-119.6997554	34.47221048
93	coast live oak	18	45	45	Minor Damage		1		1				1	-119.6997448	34.47217957
94	coast live oak	19	25	35	Minor Damage		1		1		1		1	-119.6996893	34.47223494
95	coast live oak	48	25	35	Minor Damage				1				1	-119.6996239	34.4722626
98	western sycamore	25	15	35	Minor Damage			1	1				1	-119.6994046	34.47238138
99	coast live oak	36	10	35	Minor Damage				1				1	-119.6986937	34.47183174
100	coast live oak	4	3	12	Minor Damage			1	1				1	-119.6986792	34.47186488
101	bay laurel	4	3	15	Major Damage	1		1	1	1				-119.6986471	34.47175679
102	bay laurel	4	2	15	Minor Damage		1	1	1		1		1	-119.6986082	34.47174883
103	coast live oak	13	6	20	Minor Damage				1				1	-119.698428	34.47177407
104	coast live oak	5	5	20	Minor Damage		1							-119.707221	34.47099434
105	coast live oak	20	10	30	Minor Damage				1				1	-119.7072692	34.4710884
106	coast live oak	16	9	40	Minor Damage		1							-119.707349	34.47118776
107	coast live oak	16	5	20	Moderate Damage		1							-119.7073022	34.47179254
108	coast live oak	28	10	35	Minor Damage		1				1			-119.70731	34.47145168
109	coast live oak	19	9	20	Minor Damage		1		1		1		1	-119.7072786	34.47215709
110	coast live oak	15	4	12	Moderate Damage	1	1				1			-119.707098	34.47226517
111	coast live oak	15	8	20	Minor Damage				1				1	-119.7070113	34.47232367
112	coast live oak	9	3	18	Minor Damage				1				1	-119.7070419	34.47226604
113	coast live oak	20	10	20	Minor Damage				1				1	-119.7068052	34.47236742
114	coast live oak	22	15	20	Minor Damage				1				1	-119.7067456	34.47240204
115	coast live oak	24	10	20	Minor Damage				1				1	-119.7064497	34.47235091
116	coast live oak	14	10	40	Minor Damage			1	1				1	-119.7072599	34.47244244
117	coast live oak	6	9	8	Moderate Damage			1	1				1	-119.7072951	34.4725559
118	coast live oak	8	6	15	Minor Damage			1					1	-119.7072543	34.47257721
119	bay laurel	5	6	12	Major Damage			1					1	-119.7073386	34.47258522
120	coast live oak	20	20	45	Minor Damage			1	1				1	-119.7071633	34.47253942
121	coast live oak	31	25	45	Minor Damage			1						-119.7070989	34.47244917
122	coast live oak	6	4	10	Moderate Damage			1						-119.7070894	34.4724499
123	coast live oak	27	25	30	Minor Damage				1				1	-119.7071365	34.47244085
132	coast live oak	14	7	25	Minor Damage						1			-119.6962873	34.4691813
148	coast live oak	18	11	22	Minor Damage			1					1	-119.7064362	34.4724503
195	coast live oak	21	10	17	Minor Damage			1				1	1	-119.7059605	34.46971046

TREE ID No.	Species	DBH (in.)	Dripline (feet)	Estimated Height (Feet)	Impact Severity	Impact Type				Remedial Measure				Location	
						Undetermined Source	Mechanical Damage	Rocks and Boulders Damage	Soil Impacts	Leave as Snag	Prune	Trim/Cover Roots	Remove Rock/Soil	Lat	Long
197	coast live oak	17	10	18	Moderate Damage		1							-119.706142	34.46970927
216	coast live oak	0	7	12	Minor Damage			1				1		-119.7025945	34.47092741

Shaded grey cell indicates no remedial activity was performed.

Highlighted cell indicated tree was within CDFW Jurisdictional Areas (Road Area 1 and Road Area 2).

Attachment B.2

CDFW Trees to be Remediated as
Part of the HRMP

Attachment B.2 CDFW Trees to be Remediated as part of the Creek HRMP

TREE ID No.	Species	DBH (in.)	Dripline (feet)	Estimated Height (Feet)	Impact Severity	Impact Type				Remedial Measure				Location	
						Undetermined Source	Mechanical Damage	Rocks and Boulders Damage	Soil Impacts	Leave as Snag	Prune	Trim/Cover Roots	Remove Rock/Soil	Lat	Long
22	coast live oak	7	2	9	Major Damage		1	1	1		1		1	-119.7070189	34.46923048
45	coast live oak	25	25	30	Minor Damage			1			1			-119.7067935	34.4690293
46	western sycamore	7	5	30	Moderate Damage			1			1		1	-119.7066905	34.46921129
47	western sycamore	6	6	15	Moderate Damage			1			1		1	-119.7066886	34.46924639
48	bay laurel	11	10	15	Moderate Damage			1	1			1	1	-119.7068102	34.46919841
49	bay laurel	14	10	18	Moderate Damage			1	1		1		1	-119.7067918	34.46922427
50	coast live oak	7	6	15	Minor Damage			1	1				1	-119.7068498	34.46922705
51	bay laurel	12	6	30	Moderate Damage			1	1				1	-119.7069534	34.46934557
52	bay laurel	12	10	30	Minor Damage			1	1				1	-119.7070079	34.46936709
53	bay laurel	10	9	12	Moderate Damage			1	1				1	-119.7069947	34.46936694
54	coast live oak	9	8	35	Minor Damage			1					1	-119.7070313	34.4694197
55	western sycamore	32	25	60	Minor Damage			1	1				1	-119.7069569	34.46942592
56	coast live oak	18	40	45	Minor Damage			1	1				1	-119.7069951	34.46950221
57	coast live oak	10	20	12	Minor Damage			1	1		1		1	-119.7073326	34.46969086
58	coast live oak	31	30	30	Minor Damage			1						-119.7074218	34.46968923
59	coast live oak	5	12	12	Moderate Damage			1					1	-119.7073195	34.46977849
60	coast live oak	6	9	25	Minor Damage			1	1				1	-119.7073847	34.46973694
61	bay laurel	4	8	15	Moderate Damage	1			1				1	-119.7073625	34.46972737
62	bay laurel	9	10	30	Minor Damage			1	1				1	-119.70737	34.46975718
63	bay laurel	8	6	40	Minor Damage			1	1				1	-119.7070959	34.46937488
64	coast live oak	12	20	40	Minor Damage		1		1				1	-119.7070458	34.46935737
65	coast live oak	11	0	0	Major Damage		1	1			1			-119.7070606	34.46934772
66	bay laurel	11	9	20	Minor Damage		1	1					1	-119.7070781	34.46932272
67	bay laurel	8	0	0	Major Damage		1		1				1	-119.7070715	34.46931239
96	western sycamore	6	0	0	Major Damage		1						1	-119.6995148	34.47235077
97	coast live oak	26	20	35	Moderate Damage		1	1	1		1		1	-119.6994367	34.47239895
228	western sycamore	0	8	24	Minor Damage			1	1				1	-119.7074029	34.46994337
229	western sycamore	17	20	30	Moderate Damage			1	1				1	-119.7073147	34.46992293
230	western sycamore	6	3	15	Moderate Damage			1	1				1	-119.7073774	34.46992615

Attachment C

Photographs of Mission Creek and
the Project Area Following January
2023 Rainstorm Event



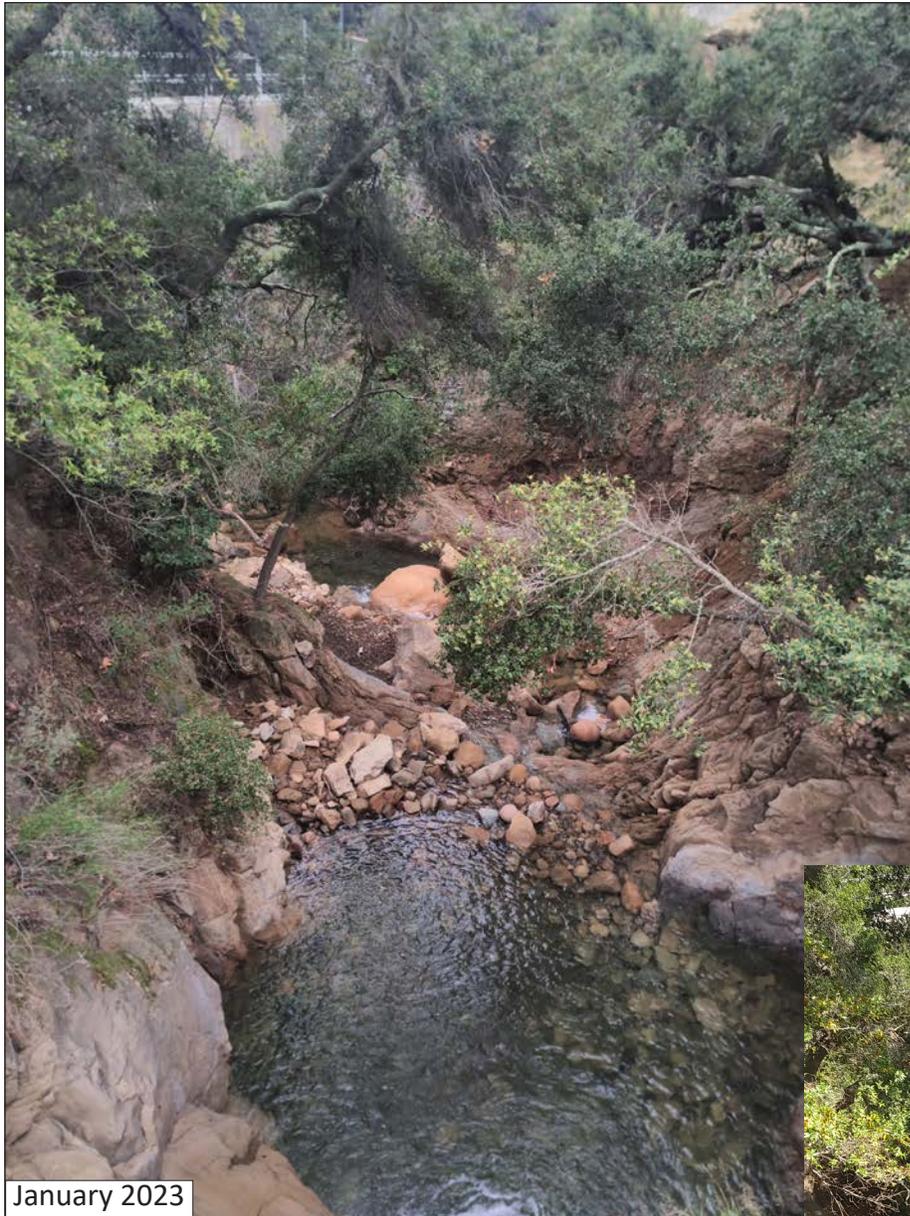
January 2023



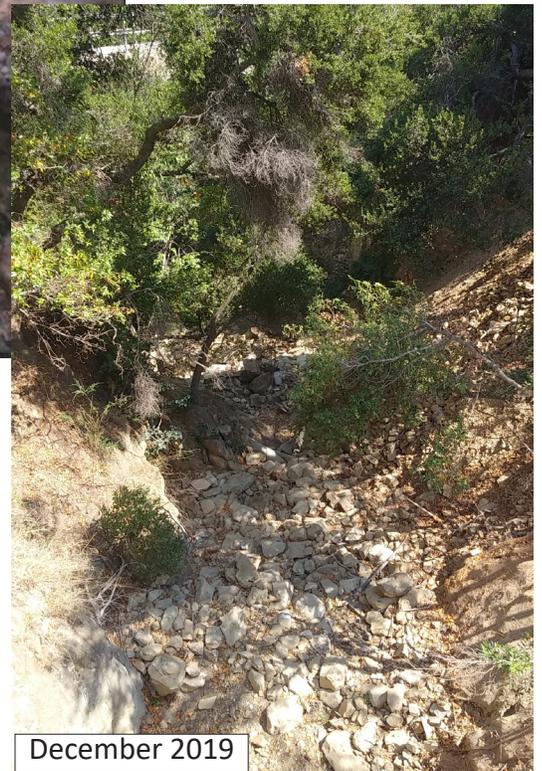
December 2019

Photograph 1a-b. Creek Site 2, Mission Creek plunge Pool below bridge.

G:\PROJECTS\150CalEdison_01606\EDS-01_10_MissionCreek\Reports\Creek_HRP\Attachment C. Storm Photos



January 2023



December 2019

Photograph 2a-b. Creek Sites 2 and 3 Mission Creek pool and riffle habitat below bridge.

G:\PROJECTS\SoCalEdison_01606\EDS-01_10_MissionCreek\Reports\Creek_HRP\Attachment C Storm Photos



Photograph 3. Spyglass Ridge Road Area 1 with slope failure, looking north.

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January 2023



December 2019

Photograph 4a-b. Spyglass Ridge Road Area 1 slope failure, looking south.

G:\PROJECTS\ISoCalEdison_01606\EDS-01_10_MissionCreek\Reports\Creek_HRP\Attachment C Storm Photos



Photograph 5. Spyglass Ridge Road Area 2 with slope failure, looking south.

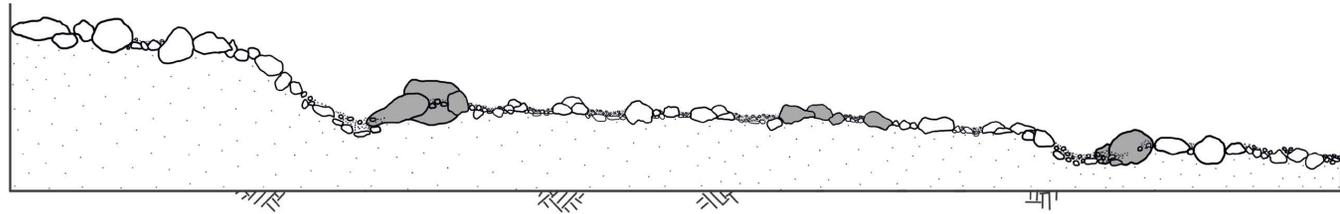
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Attachment D

Conceptual Creek Profiles and Cross Sections

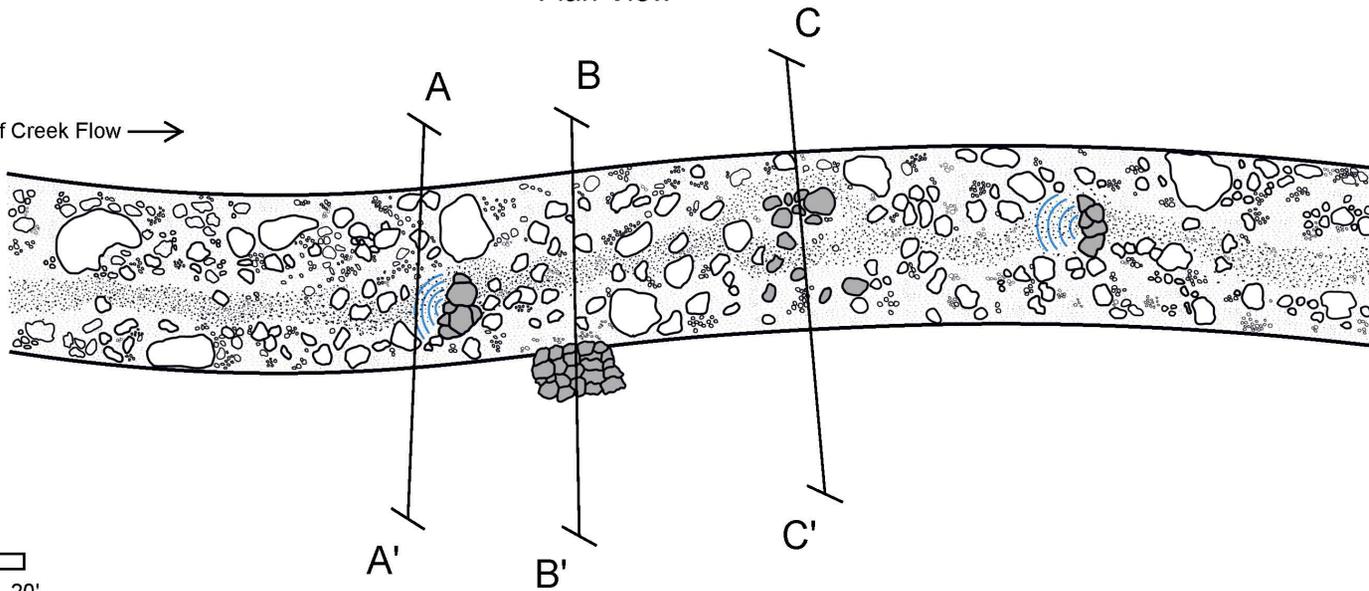
Longitudinal Profile

Direction of Creek Flow →

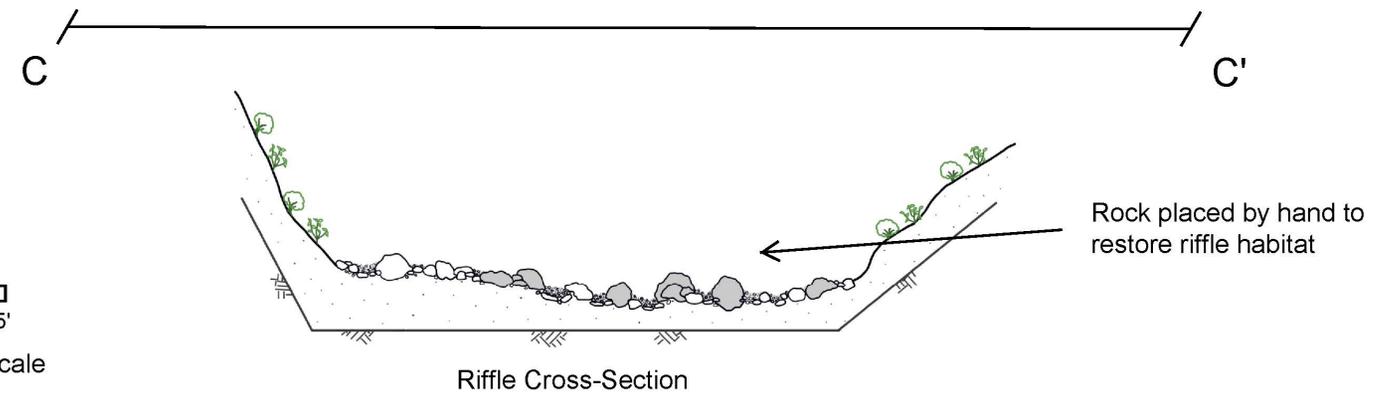
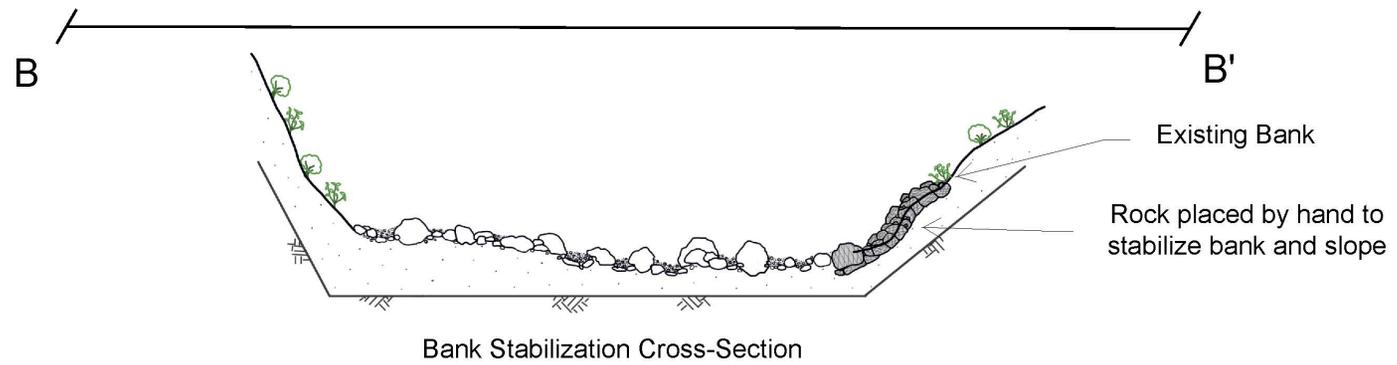
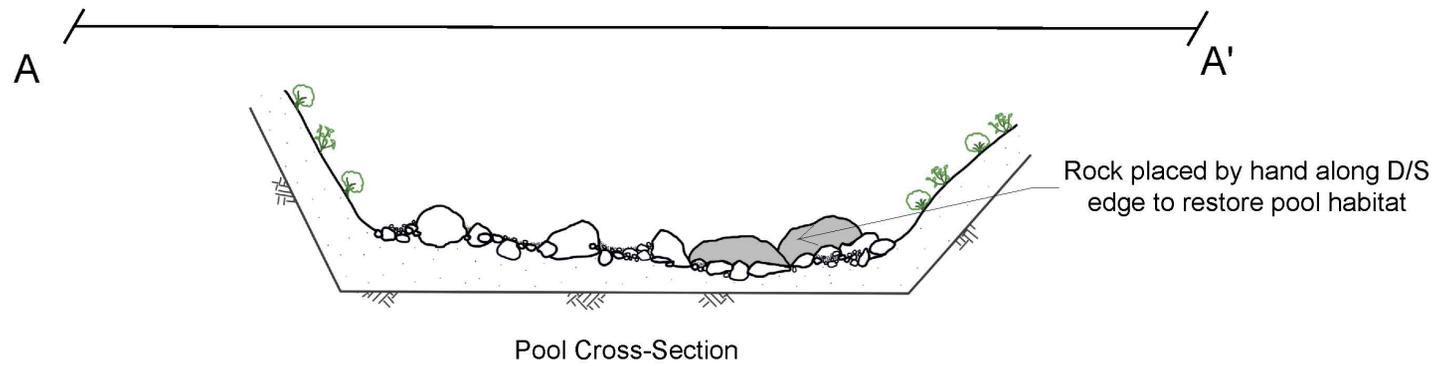


Plan View

Direction of Creek Flow →



10' 20'
Approximate Scale



0' 5'

Approximate Scale

Attachment E

Mission Creek Floral Compendium

Attachment E. Mission Creek Floral Compendium

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
ADOXACEAE	MUSKROOT FAMILY
<i>Sambucus nigra</i> subsp. <i>caerulea</i>	blue elderberry
ANACARDIACEAE	SUMAC OR CASHEW FAMILY
<i>Toxicodendron diversilobum</i>	poison oak
ASTERACEAE	SUNFLOWER FAMILY
<i>Artemisia californica</i>	California sagebrush
<i>Artemisia douglasiana</i>	mugwort
<i>Cirsium occidentale</i> var. <i>californicum</i>	cobweb thistle
<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	long-stem golden-yarrow
<i>Malacothrix saxatilis</i>	cliff malacothrix
<i>Pseudognaphalium californicum</i>	California everlasting
<i>Pseudognaphalium</i> sp.	cudweed
<i>Uropappus lindleyi</i>	silver puff
<i>Venegasia carpesioides</i>	canyon-sunflower
BORAGINACEAE	BORAGE FAMILY
<i>Eriodictyon crassifolium</i>	thick-leaved yerba santa
<i>Eucrypta chrysanthemifolia</i> var. <i>chrysanthemifolia</i>	common eucrypta
<i>Phacelia cicutaria</i>	caterpillar phacelia
<i>Phacelia</i> sp.	phacelia
<i>Phacelia viscida</i> var. <i>albiflora</i>	sticky phacelia
<i>Pholistoma auritum</i> var. <i>auritum</i>	fiesta flower
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
<i>Symphoricarpos mollis</i>	creeping snowberry
CUCURBITACEAE	GOURD FAMILY
<i>Marah macrocarpa</i>	wild cucumber
FABACEAE	LEGUME FAMILY
<i>Lupinus bicolor</i>	miniature lupine
LAMIACEAE	MINT FAMILY
<i>Salvia spathacea</i>	hummingbird sage
<i>Stachys bullata</i>	California hedge-nettle
MONTIACEAE	MINER'S LETTUCE FAMILY
<i>Claytonia perfoliata</i>	Miner's lettuce
ONAGRACEAE	EVENING PRIMROSE FAMILY
<i>Eulobus californicus</i>	California evening primrose
OROBANCHACEAE	BROOM-RAPE FAMILY
<i>Castilleja foliolosa</i>	woolly Indian paintbrush

Attachment E. Mission Creek Floral Compendium

PHRYMACEAE	LOPSEED FAMILY
<i>Diplacus aurantiacus</i>	sticky monkeyflower
<i>Diplacus longiflorus</i>	bush monkeyflower
PLANTAGINACEAE	PLANTAIN FAMILY
<i>Keckiella cordifolia</i>	heart leaved keckiella
RUBIACEAE	MADDER FAMILY
<i>Galium angustifolium</i>	narrow-leaved bedstraw
<i>Galium porrigens</i> var. <i>porrigens</i>	climbing/oval-leaf bedstraw
SCROPHULARIACEAE	FIGWORT FAMILY
<i>Scrophularia californica</i>	California figwort
SOLANACEAE	NIGHTSHADE FAMILY
<i>Solanum douglasii</i>	Douglas' nightshade
<i>Solanum xanti</i>	chaparral nightshade
STYRACACEAE	STORAX FAMILY
<i>Styrax redivivus</i>	snowdrop bush
ANGIOSPERMS (MONOCOTS)	
POACEAE	GRASS FAMILY
<i>Elymus condensatus</i>	giant wild rye
<i>Melica imperfecta</i>	coast range melic
THEMIDACEAE	BRODIAEA FAMILY
<i>Dichelostemma capitatum</i>	blue dicks

