

Public Review Draft

Federal or State Endangered or Threatened Species

Tiburon Paintbrush (*Castilleja affinis* ssp. *neglecta*). **Federal Listing Status: Endangered; State Listing Status: Threatened; CNPS List: 1B.2.** Tiburon paintbrush is a perennial, hemiparasitic herb in the figwort family (*Scrophulariaceae*) that blooms from April to June and dies back to a woody base in July and August. Because of its hemiparasitic nature, habitat suitability may depend on the presence of certain host plant populations. This subspecies has been observed to occur in serpentinite soils in valley and foothill grassland habitats (a CDFG-designated sensitive habitat) from 197 to 1,312 feet in elevation. The yellow flowers are primarily bee-pollinated (USFWS 1998b). Associated species include dwarf plantain and purple needlegrass.

Tiburon paintbrush is a California endemic with fewer than 10 known occurrences in four USGS 7.5-minute quadrangles in Marin, Napa, and Santa Clara counties (CNPS 2011). This relatively limited distribution is consistent with the conclusions reached in the *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* (USFWS 1998b), which states that the species historically was never widespread.

Two of the 10 known populations of Tiburon paintbrush are located in the Project Area, on southern Coyote Ridge, west of Anderson Reservoir. The largest population consists of approximately 1,000 individuals in the Kirby Canyon area of Coyote Ridge. Based on review of the specific environmental factors influencing the distribution of this species, including such items as elevation, soil type, slope, aspect, associate species, ecological condition, and proximity of documented populations to the current Project Area, habitat capable of supporting the Tiburon paintbrush likely also is present elsewhere in the Project Area. Suitable habitat includes serpentine bunchgrass grasslands, such as that elsewhere on Coyote Ridge as well as potentially in the Santa Teresa Hills. However, intensive surveys by SCVWD botanists of SCVWD canals on serpentine habitats in 2004 and 2008 did not detect this species, and there is a very low probability of its occurrence at Proposed Project work sites.

Coyote Ceanothus (*Ceanothus ferrisiae*). **Federal Listing Status: Endangered; State Listing Status: None; CNPS List: 1B.1.** Coyote ceanothus is an erect, stiffly branched evergreen shrub in the buckthorn family (*Rhamnaceae*) with small, dark green, shiny leaves. It blooms from January to May. This extremely rare species is distinguished from the common buckbrush (*Ceanothus cuneatus*) by the presence of short teeth along the margins of the leaves, tapered or rounded (not wedge-shaped) leaf bases, and wider seed capsules. The species has been observed to occur on serpentinite soils in chaparral, coastal scrub, and valley and foothill grasslands between 394 and 1,509 feet in elevation. Species commonly associated with Coyote ceanothus include foothill pine (*Pinus sabiniana*) and bigberry manzanita.

Four occurrences of Coyote ceanothus are in the Project Area. Three are located in the Anderson Dam and the Kirby Canyon area of southern Coyote Ridge, and the fourth is north of Morgan Hill near Llagas Avenue. According to the *Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area* (USFWS 1998b), little or no reproduction has been observed in known stands of this species, and remaining populations are composed of mature and senescent individuals only. However, SCVWD botanist J. Hillman has observed that after a

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fire on Pigeon Point above Anderson Dam in 2003, many thousands of individuals germinated and have established themselves.

Although the only known records of Coyote ceanothus from the Project Area are located in the Coyote Ridge/Anderson Reservoir areas and in Morgan Hill on the west side of the valley, complete surveys of suitable serpentine habitat in the Project Area have not been conducted. Similar serpentine soils as those that support the known populations likely occur in the Project Area in the Silver Creek area of northern Coyote Ridge and in the Santa Teresa Hills, and thus, serpentine bunchgrass grassland and mixed serpentine chaparral habitat in these areas also may support the species. However, intensive surveys by SCVWD botanists of SCVWD canals on serpentine habitats in 2004 and 2008 did not detect this species, and there is a very low probability of its occurrence at Proposed Project work sites.

Santa Clara Valley Dudleya (*Dudleya setchellii*). Federal Listing Status: Endangered; State Listing Status: None; CNPS List: 1B.1. Santa Clara Valley dudleya is a low-growing, succulent, perennial herb in the stonecrop family (*Crassulaceae*) that blooms during May and June, with a single plant often producing many flowering stems. Propagation occurs sexually via gravity/wind-dispersed seeds or vegetatively via rhizomes or horizontal stems. Individual plants may live more than 10 years. This dudleya is endemic to the ultramafic formations (serpentinite and peridotite) of the Santa Clara Valley, and is largely restricted to the serpentine areas surrounding Coyote Valley. Populations have been observed to occur on relatively barren rock outcrops and on serpentine balds within serpentine grasslands and cismontane woodlands from 197 to 1,493 feet in elevation. The species is characterized by a basal rosette of fleshy, glaucous leaves, which arise from a short, aboveground stem, and by ascending floral stems bearing pale yellow flowers. The roots of Santa Clara Valley dudleya can grow up to 12 inches long and typically extend into hairline fractures and rock crevices of serpentine outcrops. Associated species often include dwarf plantain, smooth lessingia (*Lessingia micradenia* var. *glabrata*), and both special-status jewel-flowers (*Streptanthus albidus* ssp. *albidus* and *S. albidus* ssp. *peramoenus*) (CNDDB 2011).

This Santa Clara County endemic is documented in seven USGS 7.5-minute quadrangles, all in the area from southern San Jose south to San Martin (USFWS 1998b, CNPS 2011). Numerous documented occurrences are in the Project Area. In 2000, H. T. Harvey & Associates (2000) conducted a county-wide assessment of the occurrence of Santa Clara Valley dudleya, and since then, additional occurrences have been identified by SCVWD staff (unpublished data) and others (CNDDB 2011). Numerous documented occurrences of Santa Clara Valley dudleya are in the Project Area. These are on rock outcrops in serpentine habitat near Chesbro and Calero reservoirs, in numerous locations along Coyote Ridge from the Silver Creek Hills south to the Kirby Canyon area, on Communications Hill, near Monterey Road/Senter Road, in the upper Llagas Creek watershed, and in the Santa Teresa Hills. During SCVWD's 2004 and 2008 surveys of SMP channels within serpentine soils, the species was documented along the Coyote Alamitos Canal (two populations totaling 41 plants in 2004 and one population of 1350 plants in 2008), the Almaden Calero Canal (one population of 75 plants in 2004 and 160 plants in 2008), and the Coyote Canal Extension (five populations totaling 791 plants in 2004 and six populations totaling 978 plants in 2008), within the SCVWD canal easement.

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Serpentine soils similar to those that support the known populations occur in the Project Area throughout much of Coyote Ridge, on Tulare Hill, and in the Santa Teresa Hills, and thus, some potential exists that serpentine bunchgrass grassland and mixed serpentine chaparral habitat virtually anywhere in the Project Area may support the species.

Metcalf Canyon Jewel-flower (*Streptanthus albidus* ssp. *albidus*). **Federal Listing Status: Endangered; State Listing Status: None; CNPS List: 1B.1.** Metcalf Canyon jewel-flower is an annual herb in the mustard family (*Brassicaceae*) that blooms from April to July. It grows on serpentine soils in valley and foothill grassland habitat. It has been observed at elevations from 148 to 2,625 feet and can often be found on road cuts. Associated species include bird's foot lotus (*Lotus humistratus*), dwarf plantain, and Santa Clara Valley dudleya.

Metcalf Canyon jewel-flower is documented from seven USGS 7.5-minute quadrangles in Santa Clara County. The species can be locally abundant, but its range is extremely limited. It is known from fewer than 20 occurrences (CNPS 2011). Fourteen extant records of Metcalf Canyon jewel-flower are in Santa Clara County and in the Project Area (CNDDDB 2011). The Consortium of California Herbaria (2011) lists seven records, all of which are from Santa Clara County, including records from the Silver Creek Hills of northern Coyote Ridge and from Communications Hill. Another large population is found on the southern boundary of the Project Area in Metcalf Canyon. During SCVWD's 2004 survey of SMP channels within serpentine habitat, one population (27 plants) of this species was documented along the Coyote Canal Extension, within the SCVWD canal easement. This population numbered 1088 plants during the 2008 survey. The species also has been reported west of Monterey Highway near Tulare Hill (CNDDDB 2011), and it thus may occur along the Coyote Alamitos Canal as well. Only the closely related most beautiful jewel-flower, not Metcalf Canyon jewelflower, has been reported in the vicinity of the Almaden Calero Canal. Nevertheless, within the Project Area, serpentine bunchgrass grassland habitat along the length of Coyote Ridge, on Tulare Hill, in the Santa Teresa Hills, and in the San Vicente area west of Calero Reservoir (including areas along the Almaden Calero Canal) provide potential habitat for this species. Thus, some potential exists that it would occur in locations in or near Proposed Project work sites, where it has not been previously recorded.

California Native Plant Society-Listed Species

Franciscan Onion (*Allium peninsulare* var. *franciscanum*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Franciscan onion is a bulbiferous herb in the lily family (*Liliaceae*) that blooms from May to June. It often occurs on serpentine soils or on clay or volcanic soils in cismontane woodland and valley and foothill grassland habitats at elevations from 171 to 984 feet (CNPS 2011). The CNDDDB (2011) lists the species as occurring in mixed hardwood forest habitat with California bay, California buckeye, and coast live oak on volcanic substrates in shade to part sun among large cobbles.

Franciscan onion occurs in 10 USGS 7.5-minute quadrangles within Mendocino, Santa Clara, San Mateo, and Sonoma counties. No CNDDDB records exist for this variety in the Project Area. The Consortium of California Herbaria (2011) lists two records of the variety in the mountains northwest of the Project Area, off Page Mill Road along its length to Black Mountain.

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A known population is located along Page Mill Road from Palo Alto to the Los Altos Hills. It is possible that the species also is present elsewhere in the Project Area, as suitable habitat is present in the Santa Teresa and Almaden Hills, west of Calero Reservoir, east of Anderson Reservoir, near Llagas Creek, and within oak woodland habitats on clay soils and serpentine soils in the foothills of the Project Area.

Bent-flowered Fiddleneck (*Amsinckia lunaris*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Bent-flowered fiddleneck is an annual herb in the forget-me-not family (*Boraginaceae*) that blooms from March to June. This species has been observed to occur in cismontane woodland, coastal bluff scrub, and valley and foothill grassland habitat at elevations of 10 to 1,640 feet (CNPS 2011). The CNDDDB (2011) describes the species as occurring in grassland habitat with encroaching scrub and associated species such as whitehead mule ears (*Wyethia helenioides*) and cream cups.

Bent-flowered fiddleneck occurs in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo counties. It is known from fewer than 35 occurrences in the North and Central Coast Ranges, many of which have not been observed in recent years (CNPS 2011). The CNDDDB contains no records of bent-flowered fiddleneck within the Project Area, although one 1998 record exists, located approximately 1.1 miles north of Mt. Hamilton Road on Kinkaid Road above 1,000 feet in elevation.

Based on review of the specific environmental factors influencing the distribution of this species, portions of the Project Area likely contain habitat capable of supporting the bent-flowered fiddleneck. Suitable habitat is present below 1,000 feet elevation in chaparral and oak woodland habitats, particularly in the foothills of the Diablo Range.

Anderson's Manzanita (*Arctostaphylos andersonii*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Anderson's manzanita is an evergreen shrub in the heath family (*Ericaceae*) that blooms from November to April. It has been observed to occur in openings and along the edges of broadleafed upland forest, chaparral, and North Coast coniferous forest habitats at elevations of 197 to 2,395 feet. It may be confused with other species of manzanita merged with it as varieties.

Anderson's manzanita occurs in Santa Clara, Santa Cruz, and San Mateo counties. Eight documented populations in Santa Clara County occur above 1,000 feet in elevation, and are, therefore, outside of the Project Area. Potential habitat occurs in chaparral and forest openings at the upper edges of the Project Area, such as around Lexington Reservoir and Guadalupe Reservoir.

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Brittlescale (*Atriplex depressa*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Brittlescale is an annual herb in the goosefoot family (*Chenopodiaceae*) that blooms from April to October. The species grows in relatively barren areas with alkaline clay soils within chenopod scrub, meadows and seeps, playas, vernal pools, valley and foothill grassland, and occasionally in riparian marshes (CNPS 2011). It has been observed to occur at elevations from 3 to 1,050 feet (CNPS 2011). *Atriplex* species are somewhat tolerant of disturbance. Associate species include alkaline-adapted, seasonal wetland species such as bush seepweed (*Suaeda moquinii*), common tarweed (*Centromadia pungens*), and more common alkaline tolerant grasses such as Italian wild-rye.

Brittlescale occurs in the Warm Springs Area of Fremont in Alameda County, approximately 1.5 miles north of the Project Area, in alkaline depressional habitats very similar to those found in the lands immediately south of the San Jose/Santa Clara Water Pollution Control Plant (WPCP) in Alviso, as well as in Arzino Ranch to the southwest of the WPCP. As suitable habitat is present in the Project Area and nearby populations may provide a potential seed source, the species may occur in the Project Area near Alviso in alkaline seasonal wetlands south and southwest of the WPCP.

Big-scale Balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Big-scale balsamroot is a perennial herb belonging to the sunflower family (*Asteraceae*) that blooms from March to June. This plant has been observed to occur in chaparral, cismontane woodland, and valley and foothill grasslands, sometimes on serpentine, at elevations between 295 and 4,593 feet (Hickman 1993, CNPS 2011). CNDDDB (2011) describes the species as occurring locally on serpentine substrate in California annual grassland habitat on northwest facing slopes of 50 percent. Associated species include phacelia (*Phacelia* spp.), California beeplant, and Ithuriel's spear (*Triteleia laxa*).

Big-scale balsamroot is reported from Alameda, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Solano, Sonoma, and Tehama counties (CNPS 2011). One record exists of big-scale balsamroot in the Project Area, 0.85 mile southeast of the Capitol Expressway and Highway 101 interchange, but it has been extirpated because of development (CNDDDB 2011). Another record, believed to be extant, occurs at the north end of the Silver Creek Hills adjacent to development.

Many of the key habitat characteristics believed to be responsible for influencing the distribution of this species are present elsewhere in the Project Area as well. Suitable habitat includes serpentine bunchgrass grassland, mixed serpentine chaparral, and oak woodland habitat types on Coyote Ridge, the Santa Teresa Hills, Communications Hill, near the Anderson Reservoir, and near Alum Rock. However, SCVWD surveys for special-status plants along all creeks and canals mapped on serpentine soils in 2004 and 2008 did not detect any occurrences of big-scale balsamroot. Therefore, this species is not expected to occur in or very near any Proposed Project work sites.

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Round-leaved Filaree (*Erodium macrophyllum*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.1.** Round-leaved filaree is an annual herb in the geranium family (*Geraniaceae*) that blooms from March to May. This species has been observed to occur on clay soils in valley and foothill grassland, and open cismontane woodland habitats at elevations from 49 to 3,937 feet.

Round-leaved filaree occurs in 92 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Lassen, Los Angeles, Merced, Monterey, Napa, Riverside, Santa Barbara, San Benito, Santa Clara, San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Tehama, Ventura, and Yolo counties, and in habitats from Oregon to Baja California. Many collections of the species are historical (CNPS 2011).

One historical record (1955) of round-leaved filaree is listed in the CNDDDB (2011) as occurring in the Project Area in the Silver Creek Hills. Additional suitable habitat for the species occurs on clay soils in California annual grassland and oak woodland habitats such as those in the Santa Teresa and Almaden Hills.

Pink Creamsacs (*Castilleja rubicundula* ssp. *rubicundula*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Pink creamsacs is an annual herb in the figwort family (*Scrophulariaceae*) that blooms from April to June. This subspecies grows on serpentinite soils in openings in chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland habitats. It has been observed to occur from 66 to 2,953 feet in elevation.

This California endemic occurs in 20 USGS 7.5-minute quadrangles in Butte, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta counties (CNPS 2011). One CNDDDB record exists of pink creamsacs occurring in the Project Area, north of Tar Creek approximately 5.4 miles south of Gilroy within the Santa Cruz Mountains.

Based on review of the specific environmental factors influencing the distribution of this species, habitat capable of supporting pink creamsacs likely is present elsewhere in the Project Area as well. Suitable habitat is present on serpentinite-derived soils, such as those on Coyote Ridge, within the Santa Teresa Hills, on Communications Hill, and near Alum Rock. Because not all of the serpentine soils have been mapped in the county, suitable habitat also could be found in portions of the eastern foothills of the Project Area. However, SCVWD surveys for special-status plants along all creeks and canals mapped on serpentine soils in 2004 and 2008 did not detect any occurrences of pink creamsacs. Therefore, this species is not expected to occur in or very near any Proposed Project work sites.

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Congdon's Tarplant (*Hemizonia parryi* ssp. *congdonii*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Congdon's tarplant is an annual herb in the composite family (*Asteraceae*) that has a variable blooming period extending from June through November. It occurs in valley and foothill grasslands, particularly those with alkaline substrates, and in slumps or disturbed areas where water collects in lower elevation wetlands below approximately 760 feet. The subspecies tolerates disturbance and often occurs in disked fields with non-native, California annual grassland habitat with Harding grass (*Phalaris paradoxa*) and alkali mallow (*Malvella leprosa*).

Congdon's tarplant occurs in Alameda, Contra Costa, San Mateo, Monterey, San Luis Obispo, and Santa Clara counties, and it is presumed extirpated from its historical range in Solano and Santa Cruz counties (CNPS 2011). Several records of Congdon's tarplant are listed in the CNDDDB (2011) as occurring near or in the Project Area. A population identified in 2002 is in Sunnyvale Baylands Park northeast of the junction of SR 237 and the Lawrence Expressway in Sunnyvale. Another population occurs in the Project Area near Alviso, located north of SR 237 and east of North 1st Street in a field bounded by Grand Avenue, Wilson Way, Nortech Parkway, and Disk Drive (LSA Associates 1999). One historical reference is found from the Project Area in eastern San Jose, observed in 1908, but the habitat in that location no longer exists. In addition, the species has recently been detected at Mission College in Santa Clara (West Valley – Mission Community College District 2009). A population is located approximately 1.5 miles northeast of the Project Area in the Warm Springs District of Fremont in Alameda County.

Aside from the recent record near Alviso, the species may be present in other locations where suitable habitat exists in the Project Area. This would be in disturbed California annual grassland habitat (with alkaline substrates), particularly near seasonal wetland, brackish marsh, and muted tidal marsh habitat in the northern portion of the Project Area.

Mt. Hamilton Thistle (*Cirsium fontinale* var. *campylon*). **Federal Listing Status: Species of Concern; State Listing Status: None; CNPS List: 1B.2.** Mt. Hamilton thistle is an erect, pale green, wooly perennial plant in the sunflower family (*Asteraceae*) that blooms from April to October, producing nodding white to pinkish flowering heads with spiny, reflexed flower bracts. Mt. Hamilton thistle is associated with seeps and streams, within chaparral, cismontane woodland, and valley and foothill grassland habitats on serpentine soils from 328 to 2,920 feet elevation. Some special-status plants that may occur near Mt. Hamilton thistle on similar soils, although not in moist areas, include the Santa Clara Valley dudleya and the Metcalf Canyon jewel-flower. Mt. Hamilton thistle occurs in stands of a few plants to several thousand plants, almost always in seasonal or perennial wetlands.

The range of Mt. Hamilton thistle includes 10 USGS 7.5-minute quadrangles in Santa Clara, Alameda, and Stanislaus counties. Twenty-five records are in the Project Area. Clusters of populations occur in the serpentine seeps and swales along the eastern and southwestern foothills of the Project Area. It is found in the Calero/Almaden Canal, Coyote Canal, Coyote Canal Extension, Silver Creek, Metcalf Canyon, Anderson Dam spillway, Coyote Creek tributaries, springs east of Coyote Creek, drainages between Kirby Canyon landfill, and Coyote Creek golf course, drainage near Almaden Research Center, north Calero Reservoir in a tributary to Arroyo Creek, and others. The species was detected on the Almaden Calero

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Canal and the Coyote Canal during SCVWD's 2004 survey and on the Coyote Canal and Coyote Canal Extension in 2008. Suitable habitat elsewhere in the Project Area includes mesic serpentine habitats such as seeps and swales. Known serpentine habitat occurs elsewhere on Coyote Ridge and in the Santa Teresa Hills as well.

Santa Clara Red Ribbons (*Clarkia concinna* ssp. *automixa*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 4.3.** Santa Clara red ribbons is an annual herb in the evening-primrose family (*Onagraceae*) that blooms from May to June, and rarely as early as April or as late as July, depending on the microsite and annual climactic conditions. This species occurs in chaparral and cismontane woodland habitats in San Francisco Bay Area foothills at an elevational range of approximately 295 to 4,950 feet (CNPS 2011). The species has been observed growing on steep, rocky slopes surrounded by mixed evergreen forest near drainages. Commonly associated species include white fairy lantern (*Calochortus albus*) and yellow stonecrop (*Sedum spathulifolium*).

This species has a very small endemic range and is known to occur only in Alameda and Santa Clara counties (CNPS 2011), although older records exist from surrounding counties such as Santa Cruz, and herbarium records indicate some populations occurring in the northern Coast Ranges (Consortium of California Herbaria 2010). Seventeen records of Santa Clara red ribbons are listed in Santa Clara County. The majority of these occurrences are above the 1,000 feet elevation contour. Three records are below 1,000 feet in elevation and within the Project Area. One was mapped just east of Alum Rock in 1922, and another was mapped in 1907 at Alma Soda Spring West of Lexington Reservoir. The third record was from 1985 near Stevens Creek Road and Redwood Gulch Road, west of Saratoga. Suitable chaparral and oak woodland habitat occurs elsewhere in the Project Area along slopes and drainages at higher elevations in the Diablo Range and Santa Cruz Mountains.

San Francisco Collinsia (*Collinsia multicolor*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** San Francisco collinsia is an annual herb in the figwort family (*Scrophulariaceae*) that blooms from March to May (CNPS 2011). It has been observed to occur on serpentine soils in closed-cone coniferous forest and coastal scrub habitats at elevations from 98 to 820 feet. The CNDDDB (2011) states that the species occurs in coastal scrub habitat on decomposed shale/mudstone mixed with humus in closed-cone coniferous forest habitat near coast live oak woodland habitat. Associated species include plectritis (*Plectritis* spp.), woodland star (*Lithophragma* spp.), fringe pod (*Thysanocarpus* spp.), and shooting star (*Dodecatheon hendersonii*). The San Francisco collinsia is considered a covered species by the draft Habitat Plan (ICF Jones & Stokes 2010).

San Francisco collinsia is documented from 10 USGS 7.5-minute quadrangles in Monterey, Santa Clara, Santa Cruz, San Francisco, and San Mateo counties. There is one confirmed extant occurrence in Santa Clara County—a new population of the species was identified by SCVWD botanist J. Hillman in 2009 near the shoreline of Anderson Reservoir. Two older occurrences exist that are possibly not extant (Edenvale and Almaden Quicksilver). The Edenvale area is currently developed, and this occurrence may be extirpated, but focused surveys around Edenvale are planned for 2011 to verify the existence of this occurrence (J. Hillman pers comm.). SCVWD surveys for special-status plants along all creeks and canals mapped on serpentine soils in the Project Area in 2004 and 2008 did not detect any

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occurrences of San Francisco collinsia. However, the majority of occurrences are not located on serpentine soils. Thus, some potential exists for the species to occur in or near Proposed Project work sites, either on serpentine or non-serpentine soils.

Hospital Canyon Larkspur (*Delphinium californicum* ssp. *interius*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Hospital Canyon larkspur inhabits a small endemic range covering the mid- and upper elevations of the inner Coast Ranges along the San Francisco Bay Area and south towards Mount Hamilton. Records exist from Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin, and Stanislaus counties (CNPS 2011). The species is found in chaparral and cismontane woodland habitats at elevations of approximately 760 to 3,615 feet. CNDDDB records indicate that microhabitat conditions for the species are wet, boggy meadows, openings in chaparral, and canyons. Hospital Canyon larkspur is a perennial herb in the buttercup (*Ranunculaceae*) family and blooms from April to June.

Hospital Canyon larkspur inhabits a small endemic range covering the mid-and upper elevations of the inner Coast Ranges along the San Francisco Bay Area and south towards Mount Hamilton. It is found in seven counties within this range, including Santa Clara. The CNDDDB (2011) documents three occurrences in Santa Clara County over 1,000 feet in elevation, outside of the Project Area. However, potential habitat exists in the Project Area in canyons, openings in chaparral, and wet boggy meadows, in the foothills of the Diablo Range above 760 feet in elevation, and the species potentially can occur in the Project Area.

Western Leatherwood (*Dirca occidentalis*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Western leatherwood is a deciduous shrub in the mezereum family (*Thymelaeaceae*) that blooms from January to April, and sometimes as late as May. It is endemic to California, and is the only species in its family found in the state. This shrub has been observed to occur in mesic broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland habitats from 164 to 1,296 feet in elevation. Road maintenance may affect the species; however, populations also generally are declining because of low reproductive rates (CNPS 2011).

Western leatherwood has been documented in 19 USGS 7.5-minute quadrangles in Santa Clara, Alameda, Contra Costa, Marin, San Mateo, and Sonoma counties. Santa Clara County is at the southern edge of its range. Four documented populations are in the Project Area, primarily located in the northwestern corner of the county in the foothills near Palo Alto, including Los Trancos Creek, Palo Alto Foothills Park, and Permanente Creek near Mountain View. Beyond these documented occurrences, other potential habitat occurs in the foothills of the Santa Cruz Mountains in mesic sites, or brushy slopes in mixed evergreen and foothill woodland communities north of Highway 17.

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Hoover's Button Celery (*Eryngium aristulatum* var. *hooveri*) Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.1. Hoover's button celery is an annual or perennial herb in the umbellifer (*Apiaceae*) family that blooms in July. It has been observed to occur in vernal pool habitats from 10 to 148 feet in elevation. This California endemic is documented in nine USGS 7.5-minute quadrangles in Alameda, San Benito, Santa Clara, San Diego, and San Luis Obispo counties (CNPS 2011). Associate species include calicoflower (*Downingia* spp.), woolly marbles (*Psilocarphus* spp.), and popcorn flower (*Plagiobothrys* spp.).

Six historical records of Hoover's button celery are in the Project Area. Five of these are thought to have been extirpated by development. Many of these historical occurrences (from 1902) were located in roadside ditches in the Project Area west of Alviso or in nearby baylands. One extant occurrence is located in the vicinity of San Felipe Lake near the southeastern border of the County. Another extant population occurs just north of the Project Area in the Warm Springs Area in Alameda County, in a disturbed alkaline wetland habitat very similar to those found southwest of the WPCP. Therefore, because suitable habitat occurs in the Project Area and nearby populations may provide a potential seed source, this species may still occur in alkaline-influenced or clayey depressional wetlands or possibly even agricultural ditches in the northern reaches of the Project Area near Alviso.

Fragrant Fritillary (*Fritillaria liliacea*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Fragrant fritillary is a bulbiferous herb in the lily family (*Liliaceae*) that blooms from February through April. It has been observed to occur in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland habitats, often on areas with serpentine substrates at elevations of 10 to 1,345 feet (CNPS 2011). The fragrant fritillary prefers relatively open grassland habitats underlain with heavy clay soils derived from serpentine bedrock in Santa Clara County. Some commonly associated species are purple needlegrass, pine bluegrass (*Poa scabrella*), Santa Clara Valley dudleya, and Metcalf Canyon jewel-flower.

The species' range extends through Santa Clara, Alameda, Contra Costa, Monterey, Marin, San Benito, San Francisco, San Mateo, Solano, and Sonoma counties. Six records of fragrant fritillary are listed in the CNDDDB (2011) as occurring within the Project Area. These are typically located on serpentine soils near the town of Evergreen in the Silver Creek Hills, north of Alum Rock, Metcalfe Canyon, Calero County Park, and Almaden/Quicksilver Park. Potential habitat in the Project Area includes serpentine or clay soils with bunchgrass grassland habitat and oak woodland habitat, such as those in the Silver Creek area; Santa Teresa Hills;; near Calero, Chesbro, and Anderson Reservoirs;; and on Communications Hill. However, SCVWD surveys for special-status plants along all creeks and canals mapped on serpentine soils in 2004 and 2008 did not detect any occurrences of fragrant fritillary. Therefore, this species is not expected to occur in or very near any Proposed Project work sites.

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Loma Prieta Hoita (*Hoita strobilina*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.1. Loma Prieta hoita is a perennial herb in the legume family (*Fabaceae*) that blooms from May to October. It typically grows in mesic areas with serpentinite features in chaparral, cismontane woodlands, and riparian woodlands at elevations between 98 and 2,822 feet (CNPS 2011). Commonly associated trees and shrubs include big leaf maple, mountain mahogany (*Cercocarpus betuloides*), and California foothill pine. Some special-status plants also associated with Loma Prieta hoita include Mt. Hamilton thistle, smooth lessingia, and robust monardella (*Monardella villosa* ssp. *globosa*). It often occurs in the understory of coast live oak woodland and forest.

Loma Prieta hoita occurs in 12 USGS 7.5-minute quadrangles in Santa Clara, Contra Costa, and Santa Cruz counties, and is believed to be extirpated from Alameda County. Thirteen recorded occurrences of Loma Prieta Hoita are in the Project Area, found primarily in the Santa Cruz Mountains from Saratoga to Gilroy although it also occurs in the Diablo Range near Coyote Ridge. Suitable habitat for the species occurs in mesic, serpentine-influenced areas of coast live oak woodland and forest habitat, including riparian areas, in the Project Area, such as the Santa Teresa Hills and along Coyote Ridge. This species is known to occur along several streams in Santa Clara County, and it could potentially occur in Proposed Project work sites as well.

Satan's Goldenbush (*Isocoma menziesii* var. *diabólica*). Federal Listing Status: None; State Listing Status: None; CNPS List: 4.2. Satan's goldenbush is a California endemic, perennial shrub in the sunflower family (*Asteraceae*) that blooms from August to October. This variety has been observed to occur in cismontane woodland habitats, specifically open slopes and cliffs in foothill woodland habitat, from 49 to 1,312 feet in elevation. Associated species include naked buckwheat, yerba santa, and shrub live oak (*Quercus turbinella*) (Corelli and Chandik 1996).

Satan's goldenbush is a CNPS list 4.2 species included for analysis based on its limited geographic range. It is documented only in Santa Clara and San Benito counties (CNPS 2011). The Consortium of California Herbaria (2011) lists three occurrences in Santa Clara County, all in Milpitas. Habitats known to support this species share many characteristics with some of the relatively undisturbed habitats in the Project Area. Suitable habitat includes oak woodlands, such as those in the Santa Teresa Hills, the Almaden Hills, and on Coyote Ridge.

Woolly-headed Lessingia (*Lessingia hololeuca*). Federal Listing Status: None; State Listing Status: None; CNPS List: 3. Woolly-headed lessingia is an annual herb in the sunflower family (*Asteraceae*) that blooms from June to October. This species has been observed to occur in clay and serpentinite soils in broadleaved upland forest, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitats from 49 to 1,000 feet.

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Woolly-headed lessingia is a California endemic that is documented in 27 USGS 7.5-minute quadrangles in Alameda, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo counties. The species is under consideration to be moved to CNPS List 4, but more study is needed to verify its range (CNPS 2011). Grazing may threaten the species (CNPS 2011).

The Consortium of California Herbaria (2011) has three documented occurrences of woolly-headed lessingia in Santa Clara County, located in the foothills around Los Gatos, and near Gilroy. Suitable habitat is present in the Project Area on serpentine and clay soils in the foothills of both the Santa Cruz Mountains and the Diablo Range. However, SCVWD surveys for special-status plants along all creeks and canals mapped on serpentine soils in 2004 and 2008 did not detect any occurrences of woolly-headed lessingia. Therefore, this species is not expected to occur in or very near any Proposed Project work sites.

Smooth Lessingia (*Lessingia micradenia* var. *glabrata*). **Federal Listing Status: Species of Concern; State Listing Status: None; CNPS List: 1B.2.** Smooth lessingia is an erect annual herb in the sunflower family (*Asteraceae*). This species is a delicate, many-branched plant with thread-like leaves along the stem and small, white-to-lavender flowers that bloom from July through November. Smooth lessingia has been observed to occur in areas approximately 400 to 1,400 feet in elevation and it is endemic to serpentine outcrops in Santa Clara County. Most populations are associated with open oak woodland and chaparral, and it is sometimes found on roadsides and growing in SCVWD access roads adjacent to canals. On Coyote Ridge, however, populations are found in both serpentine grassland and various shrub associations, as well as on the edges of wetlands (CNPS 2011). Commonly associated species include big berry manzanita, California sagebrush, and toyon. Santa Clara Valley dudleya and the most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*) also are known to occur with smooth lessingia.

Twenty-seven documented occurrences of smooth lessingia are in the Project Area (CNDDDB 2011, CNPS 2011). These are scattered throughout the central and southern foothills of the Santa Cruz Mountains and the Diablo Range in Santa Clara County. Most of these occurrences are on slopes with serpentine soils such as the Santa Teresa Hills and south along Coyote Ridge, Llagas Creek, Almaden Reservoir and Almaden Quicksilver County Park, Chesbro Reservoir, Anderson Reservoir, and Calero Reservoir. Smooth lessingia also was observed on the Almaden Calero Canal, Coyote Alamitos Canal, Coyote Canal, and Coyote Canal Extension during SCVWD's 2004 and 2008 surveys. Additionally, suitable serpentine rock outcrop habitat occurs on roadsides and rocky slopes throughout these locations and the south central foothills of the Project Area.

Showy Golden Madia (*Madia radiata*). **Federal Listing Status: None; State Listing Status: Rare; CNPS List: 1B.1.** Showy golden madia is an annual herb in the sunflower family (*Asteraceae*) that blooms from March to May. This species has been observed to occur in cismontane woodland and valley and foothill grassland habitats from 82 to 2,953 feet in elevation. The historical range of this California endemic includes 34 USGS 7.5-minute quadrangles in Contra Costa, Fresno, Kings, Kern, Monterey, Santa Barbara, San Benito, San Joaquin, San Luis Obispo, and Stanislaus counties. It now only occurs in 20 USGS

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7.5-minute quadrangles in Fresno, Kern, San Benito, San Luis Obispo, and Stanislaus counties. Grazing and non-native plants threaten the species (CNPS 2011).

One documented occurrence of showy golden madia is in Santa Clara County above 1,000 feet in elevation, outside the Project Area. However, potential habitat exists in the foothills of both the Santa Cruz Mountains and the Diablo Range particularly on adobe clay soils, and the species potentially can occur in the Project Area.

Davidson's Bush-mallow (*Malacothamnus davidsonii*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Davidson's bush mallow is a deciduous shrub in the mallow family (*Malvaceae*) that blooms from June to January. This species typically occurs on sandy washes and flats in coastal scrub, cismontane woodland, riparian woodland, and chaparral communities (CNPS 2011), and it is generally associated with disturbance (Hickman 1993). Associated species include California sagebrush, sticky snakeroot (*Ageratina adenophora*), and mulefat.

Davidson's bush mallow occurs in disjunct populations in 21 USGS 7.5-minute quadrangles in Santa Clara, Los Angeles, Monterey, San Luis Obispo, and San Mateo counties at elevations of 600 to 2,800 feet (CNPS 2011). No records of the species in the Project Area are listed in the CNDDDB (2011). The Consortium of California Herbaria (2011) lists three records of the species collected from Santa Clara County in Los Altos and near Stanford. The record near Stanford, though, was previously thought to be arcuate bush mallow. Even though this species has not been reported as occurring in the Project Area, based on a review of the specific environmental factors influencing the distribution of this species, habitat capable of supporting the bush mallow likely occurs in the Project Area. Suitable habitat exists within chaparral, riparian, and oak woodland habitat in the Project Area in sandy washes and flats of streams and dams draining the foothills of the Santa Cruz Mountains and Diablo Range.

Hall's Bush-mallow (*Malacothamnus hallii*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Hall's bush-mallow is an evergreen shrub in the mallow family (*Malvaceae*) that blooms from May to September, and sometimes in October. This shrub has been observed to occur in chaparral and coastal scrub habitats from 33 to 2,493 feet in elevation. It is primarily found in mixed northern chaparral and chamise chaparral in grassy openings. Germination is fire-dependent. Associated species include chamise, California sagebrush, sticky monkey-flower and purple needlegrass.

Hall's bush-mallow is a California endemic documented in 19 USGS 7.5-minute quadrangles in Santa Clara, Contra Costa, Mendocino, Merced, San Mateo, and Stanislaus counties. Twenty records of Hall's bush-mallow from Santa Clara County are listed in the CNDDDB (2011), 15 of these are in the Project Area, under 1,000 feet in elevation. Most occurrences are within the Santa Teresa Hills, Coyote Ridge, Anderson Dam County Park, near Almaden Reservoir, near Calero Reservoir and at the Santa Teresa County Park. Four populations totaling 55 individuals of Hall's bush-mallow were observed on the Coyote Canal Extension during SCVWD's 2004 and 2008 botanical surveys. Additionally, potential chaparral habitat for Hall's bush-mallow in the Project Area may occur in the foothills of the Santa Cruz Mountains and the Diablo Range.

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Oregon Meconella (*Meconella oregana*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.1.** Oregon meconella is an annual herb in the poppy family (*Papaveraceae*) that blooms from March to April. This plant has been observed to occur in coastal prairie and coastal scrub communities at elevations between 820 and 2,034 feet (CNPS 2011). Oregon meconella is known to occur in Contra Costa and Santa Clara counties in California, as well as Oregon and Washington. The species is known in California from only five occurrences, which are threatened by alteration of fire regimes (CNPS 2011).

One 2005 occurrence of Oregon meconella within Santa Clara County is at 2,100 feet elevation, outside of the Project Area. This is located near the summit of Mt. Hamilton in open-moist habitat. Potential habitat occurs toward the upper elevations of the Project Area in the Diablo Range.

Mount Diablo Cottonweed (*Micropus amphibolus*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 3.2.** Mount Diablo cottonweed is an annual member of the sunflower family (*Asteraceae*) that blooms from March through May. It occurs on bare, grassy, or rocky slopes in broadleaved upland forest, chaparral, cismontane woodland, and valley and foothill grassland (Hickman 1993, CNPS 2011). It is found over a wide elevation range, with populations recorded from approximately 145 to 2,725 feet.

The range of Mount Diablo cottonweed includes Santa Clara, Alameda, Contra Costa, Colusa, Lake, Monterey, Marin, Napa, Santa Barbara, Santa Cruz, Solano, and Sonoma counties. The Consortium of California Herbaria (2011) lists one record of the species collected in Santa Clara County near Mayfield, west of Campbell in the Project Area. Despite the lack of records for this species, after consideration of the species habitat preferences and environmental conditions present on several habitats in the Project Area, suitable habitat for the species likely occurs. Areas of potential occurrence include chaparral, California annual grassland, and oak woodland habitats within the foothills of the Diablo Range and the Santa Cruz Mountains.

Robust Monardella (*Monardella villosa* ssp. *globosa*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Robust monardella is a perennial, rhizomatous herb in the mint family (*Lamiaceae*) that blooms from June through July, and sometimes into August. It occurs in openings in broadleaf upland forests and chaparral, open oak woodlands, coastal scrub, and valley and foothill grasslands, and is found at mid elevations from approximately 330 to 3,020 feet. Associated species include California buckeye, California sagebrush, toyon, and various oaks, including coast live oak.

Robust monardella's range includes Santa Clara, Alameda, Contra Costa, Humboldt, Lake, Mendocino, Napa, Santa Cruz, San Mateo, and Sonoma counties (CNPS 2011). Ten records of robust monardella are listed in the CNDDDB (2011) as occurring in Santa Clara County. Of these, five are below the 1,000-foot elevation contour and within the Project Area. These are located around the Almaden Quicksilver Park, near Lexington Reservoir, and the Rancho San Antonio Open Space Preserve. Based on review of specific environmental factors influencing the distribution of this species, other habitat capable of supporting robust monardella likely occurs in the Project Area. Suitable habitat includes chaparral, oak

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woodland, and California annual grassland habitats in the foothills of the Santa Cruz Mountains and the Diablo Range.

Hooked Popcorn-flower (*Plagiobothrys uncinatus*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Hooked popcorn-flower is an annual herb in the borage family (*Boraginaceae*) that can bloom from April to May (CNPS 2011). This California endemic occurs in valley and foothill grasslands, cismontane woodlands, and chaparral habitats at elevations of approximately 990 to 2,510 feet. In chaparral, hooked popcorn-flower requires sandy soils; and across all habitat types, it is often associated with canyon slopes (Hickman 1993, CNPS 2011). It is found in 18 USGS 7.5-minute quadrangles in Monterey, San Benito, Santa Clara, San Luis Obispo, and Stanislaus counties. However, more study is required in the Gabilan and Santa Lucia ranges to determine the true rarity and endangerment status of this species (CNPS 2011).

In Santa Clara County, two historically documented populations from 1935 and 1963 are considered extant. These populations are both documented at elevations over 1,000 feet, and are found near Mt. Hamilton in the Diablo Range. Because the lower limit of hooked popcorn flower's elevation range is 990 feet, the likelihood of its occurrence in the Project Area is very low, and it potentially occurs only toward the edge of the Project Area in the upper foothills of the Diablo Range.

Most Beautiful Jewel-flower (*Streptanthus albidus* ssp. *peramoenus*). Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2. Most beautiful jewel-flower is an annual herb in the mustard family (*Brassicaceae*) that can bloom from March to October, but usually blooms between April and September. This subspecies is indigenous to thin, rocky serpentine (Montara series) soils and serpentinite rock outcrops. Its germination and growth is greatly enhanced by disturbances such as wildfire and exposure of bare soil/bedrock resulting from road cuts. It occurs in chaparral, cismontane woodland, and valley and foothill grassland habitats at elevations from approximately 308 to 3,281 feet. It has been found along road cuts and in access roads along SCVWD's canal system. Associated species include purple needlegrass and dwarf plantain. This subspecies also occurs with the Santa Clara Valley dudleya and smooth lessingia.

The known range of this California endemic is restricted to 29 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Monterey, Santa Clara, and San Luis Obispo, and Santa Barbara counties. The taxonomic status of the species is under debate (USFWS 1998b). The range of the species is disjunct, with one range centered at the inner coast along San Francisco Bay, and the other in the outer coast in San Luis Obispo and Santa Barbara counties. Further project work is needed to determine if the southern range represents a different species, which would indicate that the northern variety has a more tightly restricted, endemic range than previously thought (CNPS 2011).

Twenty-six records of most beautiful jewel-flower are listed in the CNDDB (2011) as occurring in the Project Area. Most of these occurrences are scattered within the Almaden Quicksilver County Park, around Coyote Peak and the Calero Reservoir, and in the Santa Teresa Hills. Records also exist from the northwest flank of Tulare Hill, along Silver Creek Road, and along Coyote Ridge west of Anderson Reservoir to Kirby Canyon. The Consortium

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of California Herbaria (Consortium of California Herbaria 2010) lists seven specimens of the species collected from Santa Clara County in the Santa Teresa Hills, by the Lexington Reservoir, and near Morgan Hill. Most beautiful jewel-flower was observed on the Almaden Calero Canal and Coyote Canal during SCVWD's 2004 and 2008 botanical surveys. Suitable habitat exists for the species in serpentine soils throughout the foothills of the Project Area.

Saline Clover (*Trifolium depauperatum* var. *hydrophilum*). **Federal Listing Status: None; State Listing Status: None; CNPS List: 1B.2.** Saline clover is an annual herb in the legume family (Fabaceae) that has been observed to occur in mesic, alkaline, or saline sites in valley and foothill grassland habitat, in vernal pool habitat, or in marshes and swamps at elevations from 0 to 984 feet. Hickman (1993) specifically indicates that the species occurs in coastal salt marshes as well as inland marshes. The blooming period extends from April through June, although in salt marshes the species may flower slightly later than seen in alkaline grassland areas. The range of this species has been reduced to remaining alkaline grasslands in Alameda, Colusa, San Mateo, Monterey, Napa, San Luis Obispo, San Benito, Santa Clara, Solano, Sonoma, and Santa Cruz counties. The species is documented from 22 USGS 7.5-minute quadrangles. Many occurrences of the species have likely been extirpated; the species is threatened by development, trampling, road construction, and vehicles (CNPS 2011).

One recorded occurrence is near the southern border of the County between Millers Canal and the Pajaro River. This species may occur in the Project Area in alkaline, mesic soils such as vernal pools, marshes and swamps, or grasslands, and it could possibly occur either near the Pajaro River or in the Alviso area.