

APPENDIX C
BOTANICAL SURVEY

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1.0 INTRODUCTION

This report documents the results of a botanical survey undertaken as part of the preparation of the Willow Pass Generating Station (WPGS) Application for Certification (AFC). Mirant Willow Pass LLC is proposing the construction and operation of a 550-megawatt generation facility, the WPGS, at the site of the existing Pittsburg Power Plant (PPP) facility owned and operated by Mirant Delta, LLC (Mirant Delta) in California.

To identify potential impacts on species that are protected under federal or state regulations (special-status plant species), Mirant Willow Pass commissioned a botanical survey of the eastern portion of the PPP site and the 5-mile offsite water pipelines alignment (the study area) that is proposed as part of the WPGS project. On May 7, 2008, URS conducted an initial site reconnaissance to identify potential areas of suitable habitat. As a result of these surveys, additional surveys of areas considered suitable habitat for special-status plant species were conducted by URS on May 21 and 28, 2008 and August 8, 2008 to coincide with the appropriate flowering periods for the relevant species.

2.0 METHODS

Prior to field reconnaissance, a list of special-status plants with potential to occur in the study area (Table 1) was compiled using historical records from the following data sources:

- U.S. Fish and Wildlife Service (USFWS), Sacramento Fish and Wildlife Office Endangered Species Lists: Federally listed species with historic range or current distribution within the Honker Bay and Antioch North U.S. Geological Survey (USGS) 7.5-minute quadrangles, accessed April 2008 (USFWS, 2008).
- California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDDB): Special-status species occurrence records from the Honker Bay, Antioch North and ten surrounding USGS quadrangles, accessed April 2008 (CDFG, 2008).
- California Native Plant Society (CNPS) Rare Plant Database: CNPS-listed plants within the Honker Bay, Antioch North and 10 surrounding USGS quadrangles accessed April 2008 (CNPS, 2008).

Each species on the list (Table 1) that could potentially occur in the study area was evaluated based on several factors, including the presence of suitable habitat within the study area, closest known occurrences of the species, and any other species-specific factors known to influence species distribution.

The results of the evaluation indicated that some special-status plant species typically found in wetlands/depressions and grasslands and ruderal habitats could potentially occur in the study area, and additional surveys were conducted for these species.

Species typical of vernal pools and seasonally-ponded depressions and potentially occurring in the study area included:

- Alkali milk-vetch (*Astragalus tener* var. *tener*)
- Heartscale (*Atriplex cordulata*)
- Brittlescale (*Atriplex depressa*)
- San Joaquin spearscale (*Atriplex joaquiniana*)
- Pappose tarplant (*Centromadia parryi* ssp. *parryi*)

- Dwarf downingia (*Downingia pusilla*)
- Legenere (*Legenere limosa*)
- Bearded popcorn-flower (*Plagiobothrys hystriculus*)

Species typical of ruderal/grassland habitat and potentially occurring in the study area included:

- Big tarplant (*Blepharizonia plumosa*)
- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)
- Pappose tarplant (*Centromadia parryi* ssp. *parryi*)
- Carquinez goldenbush (*Isocoma arguta*)

Surveys for these species were conducted in wetlands and other ecologically sensitive areas in early and late summer (May 21, May 28, and August 8) to identify these special-status species during their flowering period. The eastern portion of the PPP sites and the portion of the offsite water pipelines alignment adjacent to the Union Pacific Railroad were surveyed in May only. Additional surveys of these areas were not considered necessary due to the low potential for the occurrence of special-status species at these locations.

3.0 RESULTS

3.1 Habitat Types

During the May 7, 2008 site reconnaissance survey, the following habitat types were identified within the study area:

- seasonal wetland
- freshwater/brackish marsh
- open water
- riparian vegetation
- grassland/ruderal vegetation
- ruderal vegetation/bare ground
- landscaped/ornamental
- developed areas

Section 7.2.1 of the AFC provides a detailed description of these vegetation types and their locations within the study area. The locations of these areas are shown on Figure 7.2-2 of the AFC.

3.2 Special-Status Species

Approximately 120 plant species were identified during site surveys (Table 2). None of the identified species are considered special-status plants by USFWS, CDFG, or CNPS. The most sensitive habitat identified in the immediate vicinity of the study area was a vernal pool immediately south of the Pittsburg-Antioch Highway and southwest of Arcy Lane that was dominated by folded downingia (*Downingia ornitissima*). The location of this feature is shown on AFC Figure 7.2-3. This vernal pool appeared to have been filled with soil at some time between May and August 2008. This feature could potentially contain special-status plants, but access to this parcel was not available at the time of the surveys. However, as the vernal pool is outside of the proposed water pipelines alignment and located to the south of the Pittsburg-Antioch Highway, it will not be affected by the construction of the water supply and discharge pipelines.

Additional habitat with the potential to support special-status plants was identified in wetland areas (i.e., Kirker Creek, Los Medanos Wasteway, and other scattered wetland depressions) at the east end of the water pipelines alignment. These areas are shown on Figure 7.2-3 of the AFC. In May, area of wetlands to the east of Arcy Lane were surveyed, but the Los Medanos Wasteway and wetlands west of Arcy Lane could not be accessed and were only observed at a distance. In August, access was granted to survey wetlands north of the Pittsburg-Antioch Highway and east and west of Arcy Lane, including the Los Medanos Wasteway. Access to property near Arcy Lane on the south side of the highway, including a portion of the Los Medanos Wasteway and an adjacent seasonally-ponded depression, was not obtained for any of the surveys. However, no impacts south of the highway are anticipated as a result of the construction of the water supply and discharge pipelines.

No special-status plants were identified in the vicinity of Arcy Lane and the Pittsburg-Antioch Highway during the surveys. Based on the high degree of disturbance in the area and the negative survey results for special-status plants, wetlands near the intersection of Arcy Lane and the Pittsburg-Antioch Highway are not considered likely to support special-status plant species.

Ruderal/grassland habitat along the railroad corridor was also identified as having some potential to support special-status plants. The water supply and discharge pipelines alignment was surveyed in May and no special-status plant species were identified. At the time of the August survey it was noted that the entire railroad corridor had been recently mowed. Due to the recent mowing no plants were in flower and therefore identifiable during the August survey; however, the tarplants and goldenbush species (see Section 2.0) that could have been present and identifiable during the August survey would likely also have been identifiable during the May survey. Given the high level of disturbance it is unlikely that any special-status plants occur in grassland and ruderal habitats along the water supply and discharge pipelines alignment.

Surveys revealed that no suitable habitat for special-status plant species occurs within the proposed WPGS site. This area is regularly mowed and treated with herbicide, contains little un-developed or un-paved ground, and lacks undisturbed vegetation.

4.0 CONCLUSIONS

It is not expected that any special-status plant species would be present within the study area. Based on the survey results and the high level of disturbance in the study area, no special-status plants are expected to be impacted as a result of the construction of the WPGS or offsite water supply and discharge pipelines.

5.0 REFERENCES CITED

CDFG (California Department of Fish and Game), 2008. California Natural Diversity Database (CNDDDB), Rarefind 3, Accessed April 2008.

CNPS (California Native Plants Society), 2008. Inventory of Rare and Endangered Plants of California (online edition, v7-06b). Sacramento, CA. <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>. February 2008.

USFWS (U.S. Fish and Wildlife Service), 2008b. Species list for 7.5-minute topographic quadrangles: Honker Bay and Antioch North. April 2008.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Amsinckia grandiflora</i>	large-flowered fiddleneck	Federal: E State: E CNPS: 1B.1	Cismontane woodland; cismontane woodland, valley and foothill grassland; annual grassland in various soils. 275 to 550 m.	Low – Potential suitable habitat, but unexpected due to low elevation. Not observed during May rare plant surveys.
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	CNPS: 1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland.	Low – Potential suitable habitat. No occurrence in CNDDDB data file or in 5-mile map. Not identified during May rare plant surveys.
<i>Anomobryum julaceum</i>	slender silver moss	CNPS: 2.2	Broadleaved upland forest; broad-leafed upland forest, lower montane coniferous forest, north coast coniferous forest; moss which grows on damp rocks and soil; usually seen on roadcuts. 100 to 1,000 m.	None – No potential suitable habitat. Elevation too low.
<i>Arctostaphylos auriculata</i>	Mt. Diablo manzanita	CNPS: 1B.3	Chaparral; chaparral; in canyons and on slopes. On sandstone. 120 to 500 m.	None – No suitable habitat is present near the study area. Elevation is too low.
<i>Arctostaphylos manzanita</i> ssp. <i>laevigata</i>	Contra Costa manzanita	CNPS: 1B.2	Chaparral; chaparral; rocky slopes. 500 to 1,100 m.	None – No suitable habitat is present near the study area. Elevation is too low.
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	CNPS: 1B.2	Alkali playa; alkali playa, valley and foothill grassland, vernal pools; low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1 to 170 m.	Low – Suitable habitat is present in depressions with seasonal wetland vegetation and vernal pools near project. Not identified during surveys.
<i>Atriplex cordulata</i>	heartscale	CNPS: 1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland(sandy)/saline or alkaline. 1 to 375 m.	Low – Suitable habitat is present in depressions with seasonal wetland vegetation and vernal pools near project. Not identified during surveys. No occurrences from CNDDDB within 5 miles.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Atriplex depressa</i>	brittlescale	CNPS: 1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools/alkaline, clay. 1 to 320 m.	Low – Suitable habitat is present in depressions with seasonal wetland vegetation and vernal pools near project. Not identified during surveys.
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	CNPS: 1B.2	Chenopod scrub; chenopod scrub, alkali meadow, valley and foothill grassland; in seasonal alkali wetlands or alkali sink scrub with <i>Distichlis spicata</i> , frankenia, etc. 1 to 250 m.	Low – Suitable habitat is present in depressions with seasonal wetland vegetation and vernal pools near project. Not identified during surveys.
<i>Atriplex persistens</i>	vernal pool small-scale	CNPS: 1B.2	Vernal pools (alkaline). 10 to 115 m.	None – Not within 5 miles of the site, no information in CNDDDB file. Not identified during surveys.
<i>Blepharizonia plumosa</i>	big tarplant	CNPS: 1B.1	Valley and foothill grassland; valley and foothill grassland; dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 15 to 455 m.	Low – Limited suitable habitat occurs in ruderal/disturbed grassland areas. Associated species observed. Not identified during the May survey. Unable to identify during the August survey due to mowing.
<i>California macrophylla</i>	round-leaved filaree	CNPS: 1B.1	Cismontane woodland; cismontane woodland, valley and foothill grassland; clay soils. 15 to 1,200 m.	Low – Suitable habitat in disturbed grasslands and abandoned fields. Not identified during surveys.
<i>Calochortus pulchellus</i>	Mt. Diablo fairy-lantern	CNPS: 1B.2	Chaparral; chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; on wooded and brushy slopes. 200 to 800 m.	None – No suitable habitat is present near the study area. Elevation is too low.
<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	Butte County morning-glory	CNPS: 1B.2	Lower montane coniferous forest; lower montane coniferous forest; dry, mostly open slopes. 600 to 1,200 m.	None – No suitable habitat is present near the study area. Elevation is too low.
<i>Campanula exigua</i>	chaparral harebell	CNPS: 1B.2	Chaparral (rocky, usually serpentinite). 275 to 1,250 m.	None – No suitable habitat. Elevation is too low.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Centromadia parryi</i> ssp. <i>congdonii</i>	Congdon's tarplant	CNPS: 1B.2	Valley and foothill grassland(alkaline). 1 to 230 m.	Low – Potential to occur in grasslands near marshes/depressions. Associated species observed at site. No occurrences within 5 miles. Not identified during surveys.
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	CNPS: 1B.2	Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps(coastal salt), Valley and foothill grassland(vernally mesic)/often alkaline. 2 to 420 m.	Low – Potential to occur in depressions/swales. No occurrences within 5 miles. Low potential for occurrence in unsurveyed vernal pools and depressions with seasonal wetland vegetation.
<i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>	Suisun thistle	Federal: E CNPS: 1B.1	Marshes and swamps(salt). 0 to 1 m.	Low – Potential for occurrence along Suisun Bay/New York Slough, outside of project impact area.
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	hispid bird's-beak	CNPS: 1B.1	Meadows and seeps, Playas, Valley and foothill grassland/alkaline. 1 to 155 m.	None– No occurrences within 5 miles. Potential habitat near Suisun Bay, but species typically found in brackish rather than fresh waters. No suitable habitat within the study area.
<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	soft bird's-beak	Federal: E State: R CNPS: 1B.2	Marsh and swamp; coastal salt marsh; in coastal salt marsh with <i>Distichlis</i> , <i>Slicornia</i> , <i>Frankenia</i> , etc. 0 to 3 m.	None – No occurrences within 5 miles. Potential habitat near Suisun Bay/New York Slough, but species typically found in brackish rather than fresh waters. No suitable habitat within the study area.
<i>Cordylanthus nidularis</i>	Mt. Diablo bird's beak	State: R CNPS: 1B.1	Chaparral; grassy or rocky areas within serpentine chaparral. One site known, 765 m.	None – Only known from one occurrence — elevation is too low.
<i>Cryptantha hooveri</i>	Hoover's cryptantha	CNPS: 1A	Valley and foothill grassland; valley and foothill grassland; in coarse sand. 9 to 150 m.	None – Potential habitat does occur in surrounding grasslands, but there are only three reported occurrences of this species. It is thought to be expatriated to Contra Costa County. Not identified during surveys.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Delphinium californicum</i> ssp. <i>Interius</i>	Hospital Canyon larkspur	CNPS: 1B.2	Chaparral (openings), Cismontane woodland (mesic). 230 to 1,095 m.	None – No suitable habitat. Elevation is too low.
<i>Didymodon norrisii</i>	Norris' beard moss	CNPS: 2.2	Cismontane woodland, Lower montane coniferous forest/intermittently mesic, rock. 600 to 1,973 m.	None – No suitable habitat. Elevation is too low.
<i>Downingia pusilla</i>	dwarf downingia	CNPS: 2.2	Valley and foothill grassland; valley and foothill grassland (mesic sites), vernal pools; vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1 to 485 m.	Low – Suitable habitat in vernal pool. Pool was not surveyed during May surveys due to lack of access.
<i>Eriastrum brandegeae</i>	Brandegee's eriastrum	CNPS: 1B.2	Chaparral, Cismontane woodland/volcanic, sandy. 305 to 1,030 m.	None – No suitable habitat. Elevation is too low.
<i>Eriogonum truncatum</i>	Mt. Diablo buckwheat	CNPS: 1B.1	Chaparral; chaparral, coastal scrub, valley and foothill grassland; dry, exposed clay or sandy substrates. 100 to 600 m.	None – Suitable habitat in grassland areas, but unexpected due to low elevation. Other known occurrences are at higher elevations on Mount Diablo. Not identified during surveys.
<i>Erysimum capitatum</i> var. <i>angustatum</i>	Contra Costa wallflower	Federal: E & critical habitat State: E CNPS: 1B.1	Interior dunes; inland dunes; stabilized dunes of sand and clay near Antioch along the San Joaquin River. 3 to 20 m.	None – No suitable habitat within study area.
<i>Eschscholzia rhombipetala</i>	diamond-petaled California poppy	CNPS: 1B.1	Valley and foothill grassland; valley and foothill grassland; alkaline, clay slopes and flats. 0 to 975 m.	None – Potential habitat, but occurrence is unlikely. The only reported nearby occurrence is from 1889 and is thought to be an expatriated specimen. Not identified during surveys.
<i>Fritillaria liliacea</i>	fragrant fritillary	CNPS: 1B.2	Coastal prairie; coastal scrub, valley and foothill grassland, coastal prairie; often on serpentine; various soils reported though usually clay, in grassland. 3 to 410 m.	None – No suitable habitat. No associated species observed. No serpentine or clay soils. No nearby occurrences.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Helianthella castanea</i>	Diablo helianthella	CNPS: 1B.2	Broadleaved upland forest; broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25 to 1,150 m.	None – No suitable habitat is present near the study area. Elevation may be too low.
<i>Hesperolinon breweri</i>	Brewer's western flax	CNPS: 1B.2	Chaparral; chaparral, cismontane woodland, valley and foothill grassland; often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30 to 885 m.	None – No serpentine habitat is present. Elevation may be too low.
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	CNPS: 2.2	Freshwater marsh; marshes and swamps (freshwater); moist, freshwater-soaked river banks and low peat islands in sloughs; in California, known from the delta watershed. 0 to 150 m.	None – There are some marsh areas to the north of the WPGS along the Suisun Bay/New York Slough, but no peat islands or sloughs in the vicinity. There are no nearby reports of this species.
<i>Isocoma arguta</i>	Carquinez goldenbush	CNPS: 1B.1	Valley and foothill grassland; valley and foothill grassland; alkaline soils, flats, lower hills. On low benches near drainages and on tops and sides of mounds in swale habitat. 1 to 20 m.	Low – Some habitat, but not ideal. All reported occurrences are from Solano County, and not near the study area. Not identified during surveys.
<i>Juglans hindsii</i>	Northern California black walnut	CNPS: 1B.1	Riparian forest; riparian forest, riparian woodland. Few extant native stands remain; widely naturalized; deep alluvial soil associated with a creek or stream. 0 to 395 m.	None – No suitable habitat is present near the study area identified during surveys.
<i>Lasthenia conjugens</i>	Contra Costa goldfields	Federal: E CNPS: 1B.1	Cismontane woodland; valley and foothill grassland, vernal pools, cismontane woodland. Extirpated from most of its range; extremely endangered; vernal pools, swales, low depressions, in open grassy areas. 1 to 445 m.	Low – Potential suitable habitat in vernal pools and disturbed grasslands. Habitat is not ideal and highly disturbed. Occurrence in Antioch North thought to be expatriated. Not identified during surveys.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule pea	CNPS: 1B.2	Freshwater marsh; freshwater and brackish marshes; often found with <i>Typha</i> , <i>Aster lentus</i> , <i>Rosa californica</i> , <i>Juncus</i> spp., <i>Scirpus</i> , etc. Usually on marsh and slough edges.	None – Potential to occur in marsh habitat along the Suisun Bay/New York Slough, but not near study area.
<i>Legenere limosa</i>	legenere	CNPS: 1B.1	Vernal pools. 1 to 880 m.	Low – Potential to occur in vernal pool, which was not surveyed due to lack of access.
<i>Lessingia hololeuca</i>	woolly-headed lessingia	CNPS: 3	Broad-leaved upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/clay, serpentinite. 15 to 305 m.	None – No suitable habitat. No serpentinite.
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	State: R CNPS: 1B.1	Freshwater marsh; freshwater and brackish marshes, riparian scrub; tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0 to 10 m.	None – Potential to occur in marsh habitat along the Suisun Bay/New York Slough, but not in study area.
<i>Limosella subulata</i>	Delta mudwort	CNPS: 2.1	Brackish marsh; riparian scrub, freshwater marsh, brackish marsh. Probably the rarest of the suite of delta rare plants; usually on mud banks of the delta in marshy or scrubby riparian associations; often with <i>Lilaeopsis masonii</i> . 0 to 3 m.	None – Potential to occur in marsh habitat along the Suisun Bay/New York Slough, but not in study area.
<i>Madia radiata</i>	showy madia	CNPS: 1B.1	Chenopod scrub; valley and foothill grassland, cismontane woodland, chenopod scrub; mostly on adobe clay in grassland or among shrubs. 25 to 1,125 m.	None – Suitable habitat in disturbed grassland areas. However, presence is unlikely as there are only three records from 1938 and 1941. Not identified in surveys.
<i>Malacothamnus hallii</i>	Hall's bush-mallow	CNPS: 1B.2	Chaparral, coastal scrub. 10 to 760 m.	None – No potential habitat.
<i>Micropus amphibolus</i>	Mt. Diablo cottonweed	CNPS: 3.2	Broad-leaved upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky. 45 to 825 m.	None – No potential habitat. Elevation is too low.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Monardella villosa</i> ssp. <i>globosa</i>	robust monardella	CNPS: 1B.2	Broad-leafed upland forest(openings), Chaparral(openings), Cismontane woodland, Coastal scrub, Valley and foothill grassland. 100 to 915 m.	None – No potential habitat. Elevation is too low.
<i>Neostapfia colusana</i>	Colusa grass	Federal: T CNPS: 1B.1	Vernal pools. Usually in large, or deep vernal pool bottoms; adobe soils. 5 to 110 m.	None – No suitable habitat. No nearby occurrence records.
<i>Oenothera deltoides</i> ssp. <i>howellii</i>	Antioch Dunes evening-primrose	Federal: E & critical habitat State: E CNPS: 1B.1	Interior dunes; remnant river bluffs and sand dunes east of Antioch. 0 to 30 m.	None – No potential habitat in study area.
<i>Phacelia phacelioides</i>	Mt. Diablo phacelia	CNPS: 1B.2	Chaparral, Cismontane woodland/rocky. 500 to 1,370 m.	None – No suitable habitat. Elevation is too low.
<i>Plagiobothrys hystriculus</i>	bearded popcorn-flower	CNPS: 1B.1	Valley and foothill grassland(mesic), Vernal pools margins/often vernal swales. 0 to 52 m.	Low – Potential to occur in vernal pool, the channelized portion of Kirker Creek, and Los Medanos Wasteway, which were not surveyed during May due to lack of access. Not identified in surveys.
<i>Potamogeton zosteriformis</i>	eel-grass pondweed	CNPS: 2.2	Marsh and swamp; marshes and swamps; ponds, lakes, streams. 0 to 1,860 m.	Low – Potential habitat does occur in the study area, but there are no nearby known occurrences.
<i>Sanicula saxatilis</i>	rock sanicle	State: R CNPS 1B.2	Broad-leafed upland forest, Chaparral, Valley and foothill grassland/rocky. 620 to 1,175 m.	None– No suitable habitat. Elevation is too low.
<i>Senecio aphanactis</i>	chaparral ragwort	CNPS 2.2	Cismontane woodland; cismontane woodland, coastal scrub; drying alkaline flats. 20 to 575 m.	Low – No suitable habitat is present near the study area. Elevation is too low.
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	most beautiful jewel-flower	CNPS 1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland/serpentinite. 94 to 1,000 m.	None – No suitable habitat is present near the study area. Elevation is too low.
<i>Streptanthus hispidus</i>	Mt. Diablo jewel-flower	CNPS 1B.2	Chaparral, Valley and foothill grassland/rocky. 365 to 1,200 m.	None – No suitable habitat is present near the study area. Elevation is too low.

Table 1
Special-Status Plant Species Reported Within a 10-Mile Radius¹ and Potential for Occurrence (Continued)

Scientific Name	Common Name	Special Status	Habitat	Probability of Occurrence Within Project Vicinity
<i>Symphotrichum lentum</i>	Suisun Marsh aster	CNPS 1B.2	Brackish marsh; marshes and swamps (brackish and freshwater); most often seen along sloughs with <i>Phragmites</i> , <i>Scirpus</i> , blackberry, <i>Typha</i> , etc., 0 to 3 m.	None – No potential habitat in study area.
<i>Triquetrella californica</i>	coastal triquetrella	CNPS 1B.2	Coastal bluff scrub, coastal scrub. Moss growing on soil. 10 to 100 m.	None – No suitable habitat in study area.
<i>Tropidocarpum capparideum</i>	caper-fruited tropidocarpum	CNPS 1B.1	Valley and foothill grassland; valley and foothill grassland; alkaline clay. 0 to 455 m.	None – Thought to be extinct. Last known record from 1957. Occurrences near study area from 1889 and 1896.
<i>Viburnum ellipticum</i>	oval-leaved viburnum	CNPS: 2.3	chaparral, cismontane woodland, lower montane coniferous forest. 215 to 1,400 m.	None – No suitable habitat is present near the study area. Elevation is too low.

Notes:

¹ This includes the WPGS site, onsite linears, construction laydown and parking areas, and offsite water pipeline alignment

Special-status abbreviations: T = Threatened, E = Endangered, R = Rare, N = None, SSC = Species of Special Concern, BCC = Bird of Conservation Concern; CNPS List (First number): 1 = Plants rare, threatened or endangered in California and elsewhere, 2 = Plants rare, threatened, or endangered in California, but more common elsewhere, 3 = More information about the plant is needed before a determination can be made; CNPS Threat Code Rankings (decimal): 1 = Seriously endangered in California, 2 = Fairly endangered in California, 3 = Not very endangered in California.

Table 2
Plant Species Observed in the Study Area by Habitat

Scientific Name	Common Name	Seasonal Wetland	Freshwater/brackish Marsh	Riparian	Grassland/ruderal	Landscaped/ornamental
<i>Acacia melanoxylon</i>	blackwood acacia					X
<i>Acacia</i> sp. (possibly <i>A. verticillata</i>)	star acacia					X
<i>Agrostis</i> sp.	bent grass	X				
<i>Ailanthus altissima</i>	tree of heaven				X	
<i>Amsinkia</i> sp. (likely <i>A. manzeisii</i>)	fiddleneck				X	
<i>Arctostaphylos</i> sp.	manzanita					X
<i>Artemisia californica</i>	California sagebrush				X	
<i>Asclepias fascicularis</i>	narrow leaf milkweed				X	
<i>Atriplex</i> sp. (likely <i>A. semibaccata</i>)	Australian saltbrush				X	
<i>Atriplex</i> sp. (likely <i>Atriplex argentea</i>)	silverscale	X			X	
<i>Atriplex triangularis</i>	fat hen	X			X	
<i>Avena barbata</i>	slender wild oats				X	
<i>Avena fatua</i>	common wild oats				X	
<i>Baccharis pilularis</i>	coyote brush				X	X
<i>Baccharis salicifolia</i>	mulefat	X				
<i>Brassica nigra</i>	black mustard	X				
<i>Brassica rapa</i>	field mustard				X	
<i>Bromus diandrus</i>	ripgut brome				X	
<i>Bromus madritensis</i>	foxtail brome	X				
<i>Callistemon citrinus</i>	crimson bottlebrush				X	X
<i>Callistemon rigidus</i>	river bottlebrush					X
<i>Campsis radicans</i>	trumpet creeper				X	
<i>Carduus pycnocephalus</i>	Italian thistle				X	
<i>Carex</i> sp.	sedge	X				
<i>Centaurea solstitialis</i>	yellow star thistle				X	
<i>Chamaesyce serpyllifolia</i>	thyme leafed spurge	X			X	
<i>Chenopodium</i> sp. (possibly <i>C. berlandieri</i>)	goosefoot	X			X	
<i>Cirsium vulgare</i>	bull thistle	X				
<i>Convolvulus arvensis</i>	bindweed				X	

**Table 2
Plant Species Observed in the Study Area by Habitat (Continued)**

Scientific Name	Common Name	Seasonal Wetland	Freshwater/brackish Marsh	Riparian	Grassland/ruderal	Landscaped/ornamental
<i>Conzya</i> sp.	horseweed				X	
<i>Cortaderia jubata</i>	pampas grass		X			
<i>Crepis</i> sp.	hawksbeard				X	
<i>Cynara cardunculus</i>	artichoke thistle				X	
<i>Cyperus eragrostis</i>	tall flatsedge	X				
<i>Cyperus</i> sp.	flatsedge	X				
<i>Dactylis glomerata</i>	orchard grass				X	
<i>Datura wrightii</i>	jimsonweed				X	
<i>Deschampsia</i> sp.	hairgrass	X				
<i>Digitaria sanguinalis</i>	hairy crabgrass				X	
<i>Distichlis spicata</i>	saltgrass	X			X	
<i>Downingia ornitissima</i>	folded downingia	X				
<i>Echinochloa crus-galli</i>	barnyard grass				X	
<i>Eleocharis</i> sp.	spikerush	X				
<i>Elymus glaucus</i>	blue wildrye				X	
<i>Epilobium</i> sp.	willowherb	X				
<i>Epilobium brachycarpum</i>	annual fireweed				X	
<i>Eremocarpus setigerus</i>	turkey mullien				X	
<i>Erodium botrys</i>	broadleaf filaree				X	
<i>Erodium cicutarium</i>	redstem filaree				X	
<i>Eschscholzia californica</i>	California poppy	X				
<i>Foeniculum vulgare</i>	fennel				X	
<i>Fraxinus latifolia</i>	Oregon ash	X	X			
<i>Gnaphalium luteo-album</i>	everlasting cudweed	X				
<i>Gnaphalium stramineum</i>	small flowered cudweed	X				
<i>Grindelia camporum</i> ssp. <i>camporum</i>	Great Valley gumplant				X	
<i>Heliotropium europaeum</i>	European heliotrope	X				
<i>Hemizonia</i> sp.	tarplant				X	
<i>Hirschfeldia incana</i>	short pod mustard				X	

Table 2
Plant Species Observed in the Study Area by Habitat (Continued)

Scientific Name	Common Name	Seasonal Wetland	Freshwater/brackish Marsh	Riparian	Grassland/ruderal	Landscaped/ornamental
<i>Hordeum murinum</i>	foxtail barley				X	
<i>Juglans californica</i>	California black walnut					X
<i>Juncus balticus</i>	Baltic rush		X			
<i>Lactuca serriola</i>	prickly lettuce				X	
<i>Lepidium latifolium</i>	broadleaf pepperweed		X		X	
<i>Leymus triticoides</i>	creeping wildrye	X			X	
<i>Lithrum hysopifolium</i>	loosestrife	X				
<i>Lolium perenne</i>	perennial rye grass				X	
<i>Lolium temulentum</i>	Darnel ryegrass				X	
<i>Lotus corniculatus</i>	bird's foot trefoil	X				
<i>Lupinus</i> sp. (likely <i>L. albus</i>)	lupine				X	
<i>Malva parviflora</i>	cheeseweed				X	
<i>Malva</i> sp. (possibly <i>M. leprosa</i>)	mallow				X	
<i>Malvella leprosa</i>	alkali mallow	X			X	
<i>Medicago polymorpha</i>	bur clover				X	
<i>Melilotus</i> sp.	sweet clover				X	
<i>Mentha spicata</i>	spearmint	X				
<i>Mimosa</i> sp.	mimosa				X	
<i>Nassella</i> sp.	needlegrass				X	
<i>Nerium oleander</i>	oleander					X
<i>Oenanthe sarmentosa</i>	water parsley	X				
<i>Panicum</i> sp. (likely <i>P. capillare</i>)	witchgrass				X	
<i>Paspalum dilatatum</i>	Dallis grass	X				
<i>Phalaris aquatica</i>	Harding grass	X				
<i>Phalaris</i> sp.	canarygrass	X				
<i>Phragmites australis</i>	common reed	X	X			
<i>Phytolacca americana</i>	pokeweed				X	
<i>Picris echioides</i>	bristly oxtongue	X	X	X	X	

Table 2
Plant Species Observed in the Study Area by Habitat (Continued)

Scientific Name	Common Name	Seasonal Wetland	Freshwater/brackish Marsh	Riparian	Grassland/ruderal	Landscaped/ornamental
<i>Pinus</i> sp.	pine					X
<i>Pittosporum</i> sp.	pittosporum					X
<i>Poa</i> sp.	bluegrass	X				
<i>Polygonum</i> spp.	knotweed	X				
<i>Polypogon</i> sp.	beard grass				X	
<i>Polypogon interruptis</i>	ditch beard grass	X				
<i>Polypogon monspeliensis</i>	rabbit's foot grass	X				
<i>Populus balsamifera</i> spp. <i>trichocarpa</i>	cottonwood	X		X		
<i>Prunus</i> sp.	fruit tree					X
<i>Quercus agrifolia</i>	coast live oak				X	X
<i>Raphanus sativus</i>	wild radish				X	
<i>Rhamnus californica</i>	California coffeeberry					X
<i>Rubus discolor</i>	Himalayan blackberry				X	
<i>Rumex crispus</i>	curly dock	X			X	
<i>Salicornia virginica</i>	pickleweed	X				
<i>Salix exigua</i>	sandbar willow			X		
<i>Salix laevigata</i>	red willow			X	X	
<i>Salsola kali</i>	Russian thistle				X	
<i>Schinus molle</i>	Peruvian peppertree					X
<i>Schoenoplectus pungens</i>	common threesquare	X				
<i>Scirpus acutus</i>	common tule	X				
<i>Scirpus californicus</i>	California bulrush		X			
<i>Silybum marianum</i>	milk thistle				X	
<i>Solanum sarrachoides</i>	nightshade				X	
<i>Solidago</i> sp.	goldenrod				X	
<i>Sonchus oleraceus</i>	common sowthistle				X	
<i>Sorghum halepensis</i>	Johnson grass				X	
<i>Stipitatus micranthus</i>	slender popcorn flower	X				
<i>Symphoricarpos albus</i>	snowberry			X		X

Table 2
Plant Species Observed in the Study Area by Habitat (Continued)

Scientific Name	Common Name	Seasonal Wetland	Freshwater/brackish Marsh	Riparian	Grassland/ruderal	Landscaped/ornamental
<i>Torilis arvensis</i>	hedge parsley	X				
<i>Tribulus terrestris</i>	cowtrop				X	
<i>Trifolium hirtum</i>	rose clover				X	
<i>Typha angustifolia</i>	narrow leaf cattail	X	X			
<i>Vicia villosa</i> ssp. <i>villosa</i>	hairy vetch				X	
<i>Washingtonia filifera</i>	fan palm				X	X
<i>Xanthium strumarium</i>	rough cocklebur	X			X	