

November 21, 2018

Ms. Veronica Mardis
Stormwater Engineering Division
County of Los Angeles, Department of Public Works
900 S. Fremont Ave.
Alhambra, CA 91803-1331

RE: *Vegetation Map Update for the Devil's Gate Reservoir Restoration Project, Los Angeles County, California*

Dear Ms. Mardis:

This purpose of this letter report is to provide the results of the 2018 vegetation mapping effort conducted by ECORP Consulting, Inc. for the County of Los Angeles Department of Public Works (LACDPW) Devil's Gate Reservoir Restoration Project (Project). The 2018 vegetation mapping effort was conducted to update the impacts on the vegetation communities that will occur as a result of the sediment removal project. The 2018 vegetation map is an update of the vegetation map created by ECORP in 2016 (ECORP 2016). The 2018 vegetation mapping effort was conducted only in the impact areas associated with the initial sediment removal area (ISRA) and access road construction. The 2018 vegetation mapping effort did not include any portions of the Project area outside of the impact areas, including the proposed mitigation sites. The vegetation remapping was conducted to comply with Mitigation Measure BIO-6 (MM-BIO-6) and Mitigation Measure BIO-8 (MM-BIO-8) of the Final Environmental Impact Report (ECORP 2017).

The vegetation communities were mapped on October 2-5, 2018, by ECORP biologists Carley Lancaster and Taylor Dee. Referencing aerial field maps, the biologists surveyed areas on foot to characterize and map the vegetation communities within the Project impact areas. The boundaries of the vegetation communities were delineated in the field using a sub-meter accuracy iSXblue Global Positioning System in conjunction with ESRI's Collector Application to create the updated vegetation map. Vegetation community type descriptions are described in detail below and follow the designations in *A Manual of California Vegetation*, 2nd Edition (Sawyer et al. 2009). Photographs were taken during the survey to provide visual representation of the various updates to the vegetation communities within the Project impact areas and are included as Attachment 1.

Vegetation community mapping was conducted in 2018 to verify the impact acreages of native vegetation communities existing within the Project impact areas and was focused on the California sagebrush – California buckwheat scrub (*Artemisia californica* - *Eriogonum fasciculatum* Shrubland Alliance), mulefat thickets (*Baccharis salicifolia* Shrubland Alliance), scale broom scrub (*Lepidospartum squamatum* Shrubland Alliance), coast live oak woodland (*Quercus agrifolia* Woodland Alliance), and black willow thickets (*Salix gooddingii* Woodland Alliance) communities.

The 2018 vegetation map (Figure 1) is the version used in the discussion of impacts to the native vegetation communities within the Project impact areas.

Descriptions of all the vegetation communities mapped within the Project impact areas during the 2018 survey are listed below.

***Salix gooddingii* Woodland Alliance – Black Willow Thickets**

A total of approximately 21.96 acres of undisturbed and disturbed *Salix gooddingii* Woodland Alliance, which is also referred to as black willow thickets, is present in the Project impact areas. This is a slight decrease from the 22.11 acres that were mapped during the survey conducted in 2016. The undisturbed forms of this alliance generally exhibit an understory comprised of native plant species or exhibit a very sparse and open understory with little or no plant species present. The areas considered undisturbed comprise approximately 7.64 acres or approximately 35 percent of all of the *Salix gooddingii* Woodland Alliances in the Project impact areas. The disturbed forms of this alliance support an understory of native plant species but also support varying percentages of nonnative and invasive plant species. The nonnative and invasive plants in the understory contribute to the degradation of the *Salix gooddingii* Woodland Alliance plant community because they easily out-compete the native plant species. The disturbed forms of this alliance comprise approximately 14.32 acres or 65 percent of all of the *Salix gooddingii* Woodland Alliances in the Project impact areas. The different forms of this alliance that occur within the Project impact areas are discussed in further detail below.

***Salix gooddingii* Woodland Alliance**

This alliance generally occurs between 0 and 500 meters (m) above mean sea level (amsl) on terraces along large rivers, in canyons, and along rocky floodplains of small, periodic streams, seeps and springs. In this alliance, black willow (*Salix gooddingii*) is dominant or co-dominant in the tree canopy with Fremont's cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), black elderberry (*Sambucus nigra*), and other trees. The shrub layer includes mulefat (*Baccharis salicifolia*), coyote bush (*B. pilularis*), and American dogwood (*Cornus sericea*). This form of *Salix gooddingii* Woodland Alliance, which is considered undisturbed, is dominated by native plant species and the distribution of nonnative plant species in the understory is low. Trees in this alliance are typically smaller than 30 m in height and form an open to continuous canopy. The shrub layer is open to continuous and the herb layer is variable. Within the Project impact areas, this alliance also variously displays an understory/sub-shrub layer co-dominated by perennial pepperweed (*Lepidium latifolium*) and poison hemlock (*Conium maculatum*), an understory seasonally dominated by rough cocklebur (*Xanthium strumarium*), a bare-ground understory on the margins of the main channel, and/or an understory of native annuals. The U.S. Fish and Wildlife Service (USFWS) Wetland Inventory (1996) national list recognizes black willow as a facultative wetland plant. This alliance occupies approximately 3.67 acres within the Project impact areas. This is a slight increase from the 3.34 acres that were mapped within the Project impact areas during the survey conducted in 2016. This alliance is primarily located along the central portion of the Project impact areas generally surrounding the areas of *Baccharis salicifolia* Shrubland Alliance and *Lepidium latifolium*-*Conium maculatum* Herbaceous Semi-Natural Alliance.

Location: N:\2014\2014-003.008 Devils Gate Sediment Removal Project\Vegetation\Map5\Vegetation_Ecom2018_V2.mxd (MAG)mguidry 10/31/2018

Figure 1. Vegetation Communities

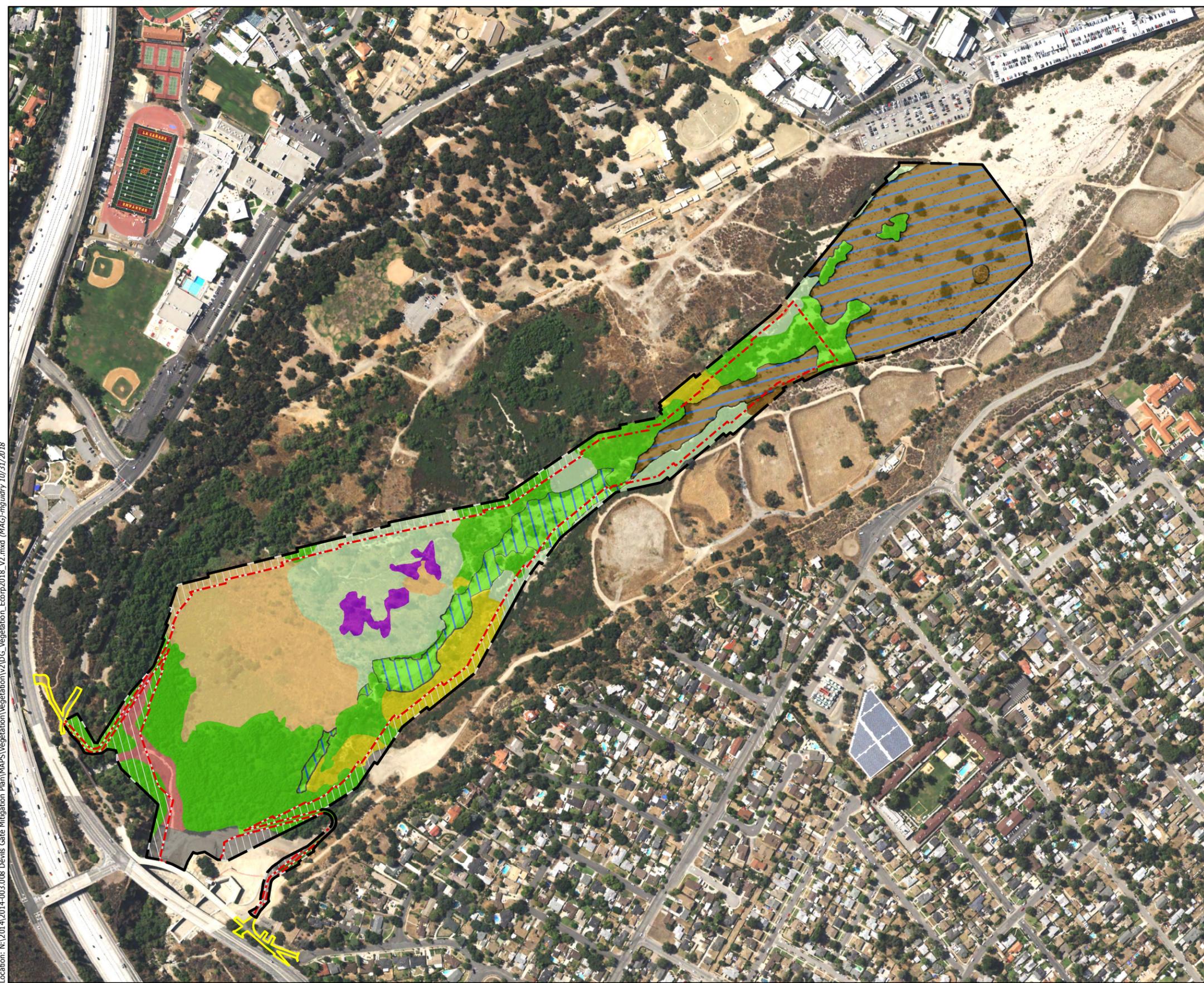
Map Features

-  Initial Sediment Removal Footprint ¹
-  Annual Maintenance Area ¹
-  Side Slopes ¹
-  Access Road ¹

Vegetation Name

-  Artemisia californica - Eriogonum fasciculatum Shrubland Alliance
-  Baccharis salicifolia Shrubland Alliance
-  Brassica nigra and other mustards Herbaceous Semi-Natural Alliance
-  Conium maculatum Herbaceous Semi-Natural Alliance
-  30% Lepidium latifolium Disturbed
-  Eucalyptus (globulus, camaldulensis) Woodland Semi-Natural Alliance
-  Landscaped
-  Lepidium latifolium-Conium maculatum Herbaceous Semi-Natural Alliance
-  Lepidospartum squamatum Shrubland Alliance
-  Lepidospartum squamatum Shrubland Alliance - Sparse
-  Quercus agrifolia Woodland Alliance
-  Salix gooddingii Woodland Alliance
-  Salix gooddingii Woodland Alliance - Sparse
-  Xanthium strumarium Herbaceous Alliance

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



***Salix gooddingii* Woodland Alliance – Sparse**

This is a variation of the *Salix gooddingii* Woodland Alliance in which the vegetation community exists as described in the unaltered description (see previous) but at a greatly diminished cover value. Within the Project impact areas, this alliance displays a sparse understory of native annuals on the borders and within the main channel. This alliance occupies approximately 3.97 acres within the Project impact areas and it is generally present along the active channel that conveys water from areas upstream through the reservoir to the dam. This is a slight decrease from the 4.15 acres that were mapped within the Project impact areas during the survey conducted in 2016. This vegetation community is bordered by *Baccharis salicifolia* Shrubland Alliance and *Conium maculatum* Herbaceous Semi-Natural Alliance -30% *Lepidium latifolium*.

Salix gooddingii* Woodland Alliance – Understory 20% *Lepidium latifolium*-*Xanthium strumarium

This form of *Salix gooddingii* Woodland Alliance is considered disturbed due to the presence of nonnative and invasive plant species in the understory. The native plant composition is similar to the description above for this alliance but the understory is dominated by approximately 20 percent cover of perennial pepperweed and rough cocklebur. Approximately 10.15 acres of *Salix gooddingii* Woodland Alliance containing approximately 20 percent cover of perennial pepperweed and rough cocklebur is present in the Project impact areas. This is a slight decrease from the 10.64 acres that were mapped within the Project impact areas during the survey conducted in 2016.

Salix gooddingii* Woodland Alliance – Understory 30% *Lepidium latifolium*-*Conium maculatum

This form of *Salix gooddingii* Woodland Alliance is also considered disturbed due to the presence of nonnative and invasive plant species in the understory. The native plant composition is similar to the description above for the *Salix gooddingii* Woodland Alliance but the understory is dominated by approximately 30 percent cover of perennial pepperweed and poison hemlock. Approximately 4.17 acres of *Salix gooddingii* Woodland Alliance containing approximately 30 percent cover of perennial pepperweed and poison hemlock is present in the Project impact areas. This is a slight increase from the 3.98 acres that were mapped within the Project impact areas during the survey conducted in 2016.

***Baccharis salicifolia* Shrubland Alliance – Mulefat Thickets**

A total of approximately 10.11 acres of undisturbed and disturbed *Baccharis salicifolia* Shrubland Alliance, which is also referred to as mulefat thickets, is present in the Project impact areas. This is a slight decrease from the 11.41 acres that were mapped within the Project impact areas during the survey conducted in 2016. This alliance occurs in two general forms in the Project impact areas, including one with little or no understory of other plant species and the other with varying percentages of nonnative and invasive plant species in the understory. The areas where the *Baccharis salicifolia* Shrubland Alliance contains little to no understory comprise approximately 0.63 acres or 6 percent of all of the *Baccharis salicifolia* Shrubland Alliances in the Project impact areas. The disturbed forms of this alliance exhibit a codominance of nonnative and invasive plant species. The nonnative and invasive plants in the understory contribute to the degradation of the *Baccharis salicifolia* Shrubland Alliance plant community because they easily out-compete the native plant species. The disturbed forms of this alliance comprise approximately 9.48 acres

or 94 percent of all of the *Baccharis salicifolia* Shrubland Alliances in the Project impact areas. The different forms of this alliance that occur within the Project impact areas are discussed in further detail below.

***Baccharis salicifolia* Shrubland Alliance – No Understory**

This alliance generally occurs between 0 and 1,250 m amsl in mixed alluvium soils in canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels. In this alliance, mulefat is dominant or may be co-dominant with other shrub species including California sagebrush (*Artemisia californica*), tree tobacco (*Nicotiana glauca*), arrow weed (*Pluchea sericea*), sandbar willow (*Salix exigua*), arroyo willow, laurel sumac (*Malosma laurina*), and black elderberry. Additionally, emergent trees including California sycamore (*Platanus racemosa*), Fremont's cottonwood, oak (*Quercus* spp.), and willow (*Salix* spp.) may also be present in low cover. Shrubs are typically less than 5 m tall and the canopy is continuous with two tiers at 2 m and 5 m. In addition, the herbaceous layer is usually thin. The USFWS Wetland Inventory national list recognizes *Baccharis salicifolia* as a facultative wetland plant. Approximately 0.63 acres of *Baccharis salicifolia* Shrubland Alliance is present in the Project impact areas. This is a slight decrease from the 0.76 acre that was mapped within the Project impact areas during the survey conducted in 2016. This alliance is primarily located in the central portion of the Project impact areas and is generally surrounded by *Salix gooddingii* Woodland Alliance.

Baccharis salicifolia* Shrubland Alliance – 20% *Conium maculatum*-*Lepidium latifolium

Within the Project impact areas, this variation of the *Baccharis salicifolia* Shrubland Alliance also supports the native plant species discussed for the undisturbed form of the alliance, but it displays an understory/sub-shrub layer co-dominated by approximately 20 percent poison hemlock and perennial pepperweed. Approximately 1.32 acres of this form of disturbed *Baccharis salicifolia* Shrubland Alliance is present in the Project impact areas. This is a slight increase from the 0.32 acre that was mapped within the Project impact areas during the survey conducted in 2016.

Baccharis salicifolia* Shrubland Alliance – 30% *Conium maculatum*-*Lepidium latifolium

Within the Project impact areas, this variation of the *Baccharis salicifolia* Shrubland Alliance also supports the native plant species discussed for the undisturbed form of the alliance, but it displays an understory/sub-shrub layer co-dominated by approximately 30 percent poison hemlock and perennial pepperweed. Approximately 0.60 acre of this form of disturbed *Baccharis salicifolia* Shrubland Alliance is present in the Project impact areas. This is a slight decrease from the 0.68 acre that was mapped within the Project impact areas during the survey conducted in 2016.

Baccharis salicifolia* Shrubland Alliance – 40% *Conium maculatum*-*Lepidium latifolium

Within the Project impact areas, this variation of the *Baccharis salicifolia* Shrubland Alliance also supports the native plant species discussed for the undisturbed form of the alliance, but it displays an understory/sub-shrub layer co-dominated by approximately 40 percent poison hemlock and perennial pepperweed. Approximately 7.56 acres of this form of disturbed *Baccharis salicifolia* Shrubland Alliance is present in the Project impact areas. This is a slight decrease from the 9.65 acres that were mapped within the Project impact areas during the survey conducted in 2016.

***Lepidospartum squamatum* Shrubland Alliance – Scalebroom Scrub**

A total of approximately 14.63 acres of *Lepidospartum squamatum* Shrubland Alliance is present in two forms in the Project impact areas. This is a slight increase from the 14.50 acres that were mapped within the Project impact areas during the survey conducted in 2016. The two forms include a dense and more mature form that is present on the banks of the upstream portion of the Project impact areas and the other is a sparser form that occurs in the active wash. The denser form occupies approximately 0.49 acre 3 percent of the total area covered by this alliance and the sparser form covers approximately 14.14 acres or 97 percent of the total area covered by this alliance. The different forms of this alliance that occur within the Project impact areas are discussed in further detail below.

***Lepidospartum Squamatum* Shrubland Alliance**

This alliance is generally found between 50 and 1,500 m amsl in intermittently or rarely flooded, low gradient alluvial deposits along streams, washes and fans. In this alliance scalebroom (*Lepidospartum squamatum*) is dominant, or co-dominant, or conspicuous in the shrub canopy in association with burrobrush (*Ambrosia salsola*), California sagebrush, mulefat, brittlebush (*Encelia farinosa*), yerba santa (*Eriodictyon* sp.), laurel sumac, California buckwheat (*Eriogonum fasciculatum*), sugar bush (*Rhus ovata*), poison oak (*Toxicodendron diversilobum*), and other shrubs. The shrubs in this alliance are typically less than 2 m in height and some emergent taller plants may be present at low cover including California sycamore, *Populus* spp., and black elderberry. The herbaceous layer varies and may be grassy. This alliance within the Project impact areas may be considered equivalent to a Riversidean Alluvial Fan Sage Scrub described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Approximately 0.49 acres of *Lepidospartum squamatum* Shrubland Alliance is present within the Project impact areas. This is a slight increase from the 0.18 acre that was mapped within the Project impact areas during the survey conducted in 2016. This alliance is located along the banks of the channel in the northeastern portion of the Project impact areas and is generally surrounded by the *Brassica nigra* and other mustards Herbaceous Semi-Natural Alliance, *Baccharis salicifolia* Shrubland Alliance, *Salix gooddingii* Woodland Alliance, and *Artemisia californica* - *Eriogonum fasciculatum* Shrubland Alliance.

***Lepidospartum squamatum* Shrubland Alliance - Sparse**

This is a variation of the *Lepidospartum squamatum* Shrubland Alliance in which the vegetation community exists as described in the unaltered description (see previous) but at a greatly diminished cover value. This community refers to the upstream regions of the riparian corridor where the channel widens and vegetation occurs as single individuals of different taxa or small islands of associated taxa spaced throughout the corridor. The species present tend to be species associated with seasonal water channels and range from medium-sized shrubs (e.g. scale broom) to full-size cottonwoods (*Populus* spp.) and willows. While both woodland and shrub species are present, herbaceous species are almost totally lacking. A canopy is lacking except for within the islands of cottonwoods and/or willows. Approximately 14.14 acres of Sparse *Lepidospartum squamatum* Shrubland Alliance is present in the Project impact areas. This is a slight decrease from the 14.32 acres that were mapped within the Project impact areas during the survey conducted in 2016. This alliance variation occupies the open wash in the upstream portion of the Project impact areas.

***Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance – California Sagebrush-California Buckwheat Scrub**

A total of approximately 0.22 acre of undisturbed and disturbed *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance, which is also referred to as California sagebrush-California buckwheat scrub, is present in the Project impact areas. This is a slight increase from the 0.10 acre that was mapped within the Project impact areas during the survey conducted in 2016. The undisturbed form of this alliance generally exhibits an understory comprised of native plant species. The areas considered undisturbed comprise approximately 0.09 acre or 41 percent of all of the *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliances in the Project impact areas. The disturbed forms of this alliance support an understory of native plant species but also support varying percentages of nonnative and invasive plant species. The nonnative and invasive plants in the understory contribute to the degradation of the *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance plant community because they easily out-compete the native plant species. The disturbed forms of this alliance comprise approximately 0.13 acres or 59 percent of all of the *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliances in the Project impact areas. The different forms of this alliance that occur within the Project impact areas are discussed in further detail below.

***Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance**

This alliance is generally found between 250 and 950 m amsl in alluvial or colluvial soils on slopes that are usually steep, south facing, and are rarely flooded or in low-gradient deposits along streams. California sagebrush and California buckwheat are co-dominant in the shrub canopy with each species having 30 to 60 percent relative cover. Associated species include chamise (*Adenostoma fasciculatum*), laurel sumac, California ephedra (*Ephedra californica*), lemonade berry (*Rhus integrifolia*), white sage (*Salvia apiana*), and other shrubs present at low cover. The canopy is intermittent to continuous and may be two-tiered with the upper layer less than 5 m and most shrubs less than 2 m. The herbaceous layer varies both seasonally and annually. Approximately 0.09 acre of *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance is present in the Project impact areas and is primarily located along the northwestern edge of the Project impact areas with a small patch also located in the southwest portion of the site, adjacent to Oak Grove Drive. This alliance was not mapped within the Project impact areas during the survey conducted in 2016. This alliance is generally bordered by *Lepidospartum squamatum* Shrubland Alliance and *Baccharis salicifolia* Shrubland Alliance.

Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance – 20% *Lepidium latifolium

This form of *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance is considered disturbed due to the presence of invasive plant species in the understory. The native plant composition is similar to the description above for this alliance but the understory is dominated by approximately 20 percent cover of perennial pepperweed. Approximately 0.03 acre of *Artemisia californica*-*Eriogonum fasciculatum* Shrubland Alliance containing approximately 20 percent cover of perennial pepperweed is present in the Project impact areas. This alliance was not mapped within the Project impact areas during the survey conducted in 2016.

Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance – 30% *Lepidium latifolium

This form of *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance is considered disturbed due to the presence of invasive plant species in the understory. The native plant composition is similar to the description above for this alliance but the understory is dominated by approximately 30 percent cover of perennial pepperweed. Approximately 0.10 acres of *Artemisia californica-Eriogonum fasciculatum* Shrubland Alliance containing approximately 30 percent cover of perennial pepperweed is present in the Project impact areas. There was no change in cover noted for this community during the survey conducted in 2018.

***Quercus agrifolia* Woodland Alliance - Coast Live Oak Woodland**

This alliance generally occurs between 0 and 1,200 m amsl in habitats with deep, loamy, or sandy soils with a high amount of organic matter and on alluvial terraces, canyon bottoms, stream banks, slopes, and flats. In this alliance, coast live oak (*Quercus agrifolia*) is dominant or may be co-dominant in association with other trees including bigleaf maple (*Acer macrophyllum*), boxelder (*A. negundo*), California sycamore, Fremont's cottonwood, blue oak (*Quercus douglasii*), valley oak (*Q. lobata*), black oak (*Q. kelloggii*), and arroyo willow. The canopy is open to continuous with trees being less than 30 m tall. A sparse to intermittent shrub layer may be present as well as a sparse to grassy herbaceous layer. Within the Project impact areas, this alliance also variously displays a disturbed bare-ground understory associated with recreational use within the Park, an understory of nonnative grasses and forbs, and/or escaped horticultural cultivars. Approximately 0.18 acre of *Quercus agrifolia* Woodland Alliance is present within the Project impact areas. This is a slight decrease from the 0.30 acre that was mapped within the Project impact areas during the survey conducted in 2016. This alliance is primarily located along the western side in Oak Grove Park and along the eastern and southern sides along the base of the hills below the residential development and north of Oak Grove Road. This alliance generally occurs in the more upland portions of the Project impact areas.

Conium maculatum* Herbaceous Semi-Natural Alliance – 30 % *Lepidium latifolium

This alliance generally occurs between 0 and 1,000 m amsl and is found in all topography types including wetlands. The USFWS Wetland Inventory (1996) national list recognizes poison hemlock as a wetland indicator plant. In this alliance, poison hemlock, sweet fennel (*Foeniculum vulgare*), or another nonnative invasive plants of the family *Apiaceae* are dominant or co-dominant. Other nonnative plants are also present in the herbaceous layer and emergent trees and shrubs may be present at low cover. This alliance is dominated by nonnative, invasive plants. The canopy in this alliance is open to continuous with an herb layer generally less than 2 m tall. Approximately 3.71 acres of *Conium maculatum* Herbaceous Semi-Natural Alliance is present within the Project impact areas and approximately 30 percent of the areas covered by this alliance support an understory dominated by perennial pepperweed. This is a slight decrease from the 4.15 acres that were mapped within the Project impact areas during the survey conducted in 2016. This alliance is present in small patches within the Project impact areas adjacent to areas containing *Baccharis salicifolia* Shrubland Alliance and *Salix gooddingii* Woodland Alliance.

***Lepidium latifolium* – *Conium maculatum* Semi-Natural Herbaceous Stand – Poison Hemlock – Perennial Pepperweed Patches (Unofficial Alliance)**

This alliance is not listed in *A Manual of California Vegetation*, 2nd Edition. Rather, it is an amalgam of two nonnative alliances from the manual, *Lepidium latifolium* Semi-Natural Herbaceous Stands and *Conium maculatum-Foeniculum vulgare* Semi-Natural Herbaceous Stands. This unofficial alliance was identified to best describe the areas where perennial pepperweed and poison hemlock are co-dominant in the Project impact areas and it refers to that site only. Both perennial pepperweed and poison hemlock are considered wetland indicator species by the USFWS. A low cover of emergent trees, eucalyptus trees, and shrubs also occur within this alliance, as well as other invasive annuals. Approximately 10.56 acres of this alliance is present within the Project impact areas. This is a slight decrease from the 11.12 acres that were mapped within the Project impact areas during the survey conducted in 2016. This combination land cover type occurs in both the upland and riparian corridor topographies on site and is concentrated in the central and western portions of the site where it is surrounded by *Salix gooddingii* Woodland and *Baccharis salicifolia* Shrubland alliances.

***Xanthium strumarium* Herbaceous Alliance – Cocklebur patches (Unofficial Alliance)**

This alliance is not listed in *A Manual of California Vegetation*, 2nd Edition. It is a modification of the existing alliance from that reference called *Persicaria lapathifolia* - *Xanthium strumarium* Provisional Herbaceous Alliance. The official alliance is characterized by rough cocklebur or other knotweed species being dominant or co-dominant in the herbaceous layer with other herbaceous species including Devil's beggartick (*Bidens frondosa*), five angled dodder (*Cuscutta pentagona*), barnyard grass (*Echinochloa* spp.), and common spikerush (*Ecleocharis marostachya*). The unofficial *Xanthium strumarium* Herbaceous Alliance occurs in areas in the Project impact areas where rough cocklebur seasonally dominates and it refers to this site only. This unofficial alliance occupies approximately 1.24 acres along the frequently flooded stream terraces closest to the dam where the soils are typically clay-rich or silty. This is a slight decrease from the 1.50 acres that were mapped within the Project impact areas during the survey conducted in 2016.

***Eucalyptus (globulus, camaldulensis)* Woodland Semi-Natural Alliance – Eucalyptus groves**

This alliance generally occurs between 0 and 300 m amsl and is typically planted as trees, groves, and windbreaks and may become naturalized in uplands and along stream courses. In this alliance, red gum (*Eucalyptus camaldulensis*), blue gum (*E. globulus*), or other gum tree is dominant in the tree canopy. The canopy in this alliance is intermittent to continuous with trees typically less than 50 m tall. The shrub layer and herbaceous layer are typically sparse to intermittent. Approximately 1.11 acres of *Eucalyptus (globulus, camaldulensis)* Woodland Semi-Natural Alliance is present in the Project impact areas. This is a slight increase from the 0.07 acre that was mapped within the Project impact areas during the survey conducted in 2016. This alliance occurs in a small patch in the southern portion of the Project impact areas near the dam and in a small patch near the center of the sediment removal area. Nonnative grasses and forbs dominate the understory and the surrounding habitat is classified as disturbed. Eucalyptus trees are also

common throughout the portions of the Project impact areas but not in stands that would classify as an alliance.

DISTURBED

The disturbed land cover type refers to areas where human activities have altered the environmental conditions in such a way that the natural vegetation community has been extirpated and the area is now bare of vegetation or supports a community of nonnative or ruderal plant species. Approximately 2.31 acres within the Project impact areas were classified as the disturbed land cover type. This is a slight decrease from the 3.29 acres that were mapped within the Project impact areas during the survey conducted in 2016. This land cover type exists in the more highly disturbed habitats in the sediment removal area and in the paved and dirt roads and trails.

PROJECT IMPACTS

The total area where the vegetation was mapped in 2018 encompassed approximately 66.03 acres and included both the temporary and permanent impact areas associated with the initial sediment removal, the side slopes, the annual maintenance footprint, and access road construction. This is a slight decrease from the 68.55 acres that were mapped within the Project impact areas during the survey conducted in 2016. Table 1 lists the acres of temporary and permanent impacts to each of the vegetation communities and land cover types in the Project impact areas.

Table 1. Existing Vegetation Communities and Impacts (2018)					
Vegetation Community	Perm. Impacts	Access Roads (Perm. Impacts)	Temp. Impacts	Side Slopes (Temp. Impacts)	Total Impacts
RIPARIAN					
<i>Salix gooddingii</i> Woodland Alliance TOTAL	16.77	0.00	2.13	3.06	21.96
<i>Salix gooddingii</i> Woodland Alliance	1.46	0.00	1.41	0.80	3.67
<i>Salix gooddingii</i> Woodland Alliance - Sparse	3.63	0.00	0.03	0.31	3.97
<i>Salix gooddingii</i> Woodland Alliance- Understory 20% <i>Lepidium latifolium</i> - <i>Xanthium strumarium</i>	8.77	0.00	0.00	1.38	10.15
<i>Salix gooddingii</i> Woodland Alliance- Understory 30% <i>Lepidium latifolium</i> - <i>Conium maculatum</i>	2.91	0.00	0.69	0.57	4.17
<i>Baccharis salicifolia</i> Shrubland Alliance TOTAL	8.02	0.00	0.89	1.20	10.11
<i>Baccharis salicifolia</i> Shrubland Alliance-No Understory	0.22	0.00	0.41	0.00	0.63
<i>Baccharis salicifolia</i> Shrubland Alliance-20% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	0.76	0.00	0.48	0.08	1.32
<i>Baccharis salicifolia</i> Shrubland Alliance-30% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	0.44	0.00	0.00	0.16	0.60
<i>Baccharis salicifolia</i> Shrubland Alliance-40% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	6.60	0.00	0.00	0.96	7.56
TOTAL RIPARIAN	24.79	0.00	3.02	4.26	32.07
FLOODPLAIN					
<i>Lepidospartum squamatum</i> Shrubland Alliance TOTAL	1.97	0.00	12.66	0.00	14.63
<i>Lepidospartum squamatum</i> Shrubland Alliance	0.02	0.00	0.47	0.00	0.49
<i>Lepidospartum squamatum</i> Shrubland Alliance (Sparse)	1.95	0.00	12.19	0.00	14.14
TOTAL FLOODPLAIN	1.97	0.00	12.66	0.00	14.63
TOTAL RIPARIAN/FLOODPLAIN	26.76	0.00	15.68	4.26	46.70
NATIVE UPLAND					
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.00	0.09	0.00	0.00	0.09

Vegetation Community	Perm. Impacts	Access Roads (Perm. Impacts)	Temp. Impacts	Side Slopes (Temp. Impacts)	Total Impacts
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance-20% <i>Lepidium latifolium</i>	0.00	0.00	0.03	0.00	0.03
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance-30% <i>Lepidium latifolium</i>	0.01	0.00	0.09	0.00	0.10
<i>Quercus agrifolia</i> Alliance	0.06	0.05	0.00	0.07	0.18
TOTAL NATIVE UPLAND	0.07	0.14	0.12	0.07	0.40
NONNATIVE/OTHER					
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance -30% <i>Lepidium latifolium</i>	2.53	0.00	0.31	0.87	3.71
<i>Lepidium latifolium</i> – <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance	9.84	0.00	0.00	0.72	10.56
<i>Xanthium strumarium</i> Herbaceous Alliance (Unofficial Alliance)	0.67	0.00	0.00	0.57	1.24
<i>Eucalyptus (globulus, camaldulensis)</i> Woodland Semi-Natural Alliance	1.11	0.00	0.00	0.00	1.11
Disturbed (Barren/Trails/IMP Area)	1.08	0.33	0.06	0.84	0.40
TOTAL NONNATIVE/OTHER	15.23	0.33	0.37	3.00	17.02
TOTAL	42.06	0.47	16.17	7.33	66.03

Table 2 lists the comparison in the impacts between the 2016 and 2018 vegetation mapping efforts. The differences between the acres of impacts between the 2016 and 2018 mapping efforts are related to changes in the vegetation communities over time and minor adjustments in the Project's impact boundaries. In addition, the impact acreages calculated in 2016 did not include the access roads but the impacts associated with the access roads are included in the 2018 totals.

Vegetation Community	2016			2018		
	Perm. Impacts*	Temp. Impacts and Side Slopes	Total Impacts	Perm. Impacts and Access Roads	Temp. Impacts and Side Slopes	Total Impacts
RIPARIAN						
<i>Salix gooddingii</i> Woodland Alliance TOTAL	16.27	5.84	22.11	16.77	5.19	21.96
<i>Salix gooddingii</i> Woodland Alliance	2.45	0.89	3.34	1.46	2.21	3.67
<i>Salix gooddingii</i> Woodland Alliance - Sparse	3.50	0.65	4.15	3.63	0.34	3.97
<i>Salix gooddingii</i> Woodland Alliance-Understory 20% <i>Lepidium latifolium</i> - <i>Xanthium strumarium</i>	7.96	2.68	10.64	8.77	1.38	10.15
<i>Salix gooddingii</i> Woodland Alliance-Understory 30% <i>Lepidium latifolium</i> - <i>Conium maculatum</i>	2.36	1.62	3.98	2.91	1.26	4.17
<i>Baccharis salicifolia</i> Shrubland Alliance TOTAL	8.03	3.38	11.41	8.02	2.09	10.11
<i>Baccharis salicifolia</i> Shrubland Alliance-No Understory	0.37	0.39	0.76	0.22	0.41	0.63
<i>Baccharis salicifolia</i> Shrubland Alliance-20% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	0.01	0.31	0.32	0.76	0.56	1.32
<i>Baccharis salicifolia</i> Shrubland Alliance-30% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	0.49	0.19	0.68	0.44	0.16	0.60

Table 2. 2016 – 2018 Vegetation Communities Impacts Comparison						
Vegetation Community	2016			2018		
	Perm. Impacts*	Temp. Impacts and Side Slopes	Total Impacts	Perm. Impacts and Access Roads	Temp. Impacts and Side Slopes	Total Impacts
<i>Baccharis salicifolia</i> Shrubland Alliance-40% <i>Conium maculatum</i> - <i>Lepidium latifolium</i>	7.16	2.49	9.65	6.60	0.96	7.56
TOTAL RIPARIAN	24.30	9.22	33.52	24.79	7.28	32.07
FLOODPLAIN						
<i>Lepidospartum squamatum</i> Shrubland Alliance TOTAL	1.82	12.68	14.50	1.97	12.66	14.63
<i>Lepidospartum squamatum</i> Shrubland Alliance	0.00	0.18	0.18	0.02	0.47	0.49
<i>Lepidospartum squamatum</i> Shrubland Alliance (Sparse)	1.82	12.50	14.32	1.95	12.19	14.14
TOTAL FLOODPLAIN	1.82	12.68	14.50	1.97	12.66	14.63
TOTAL RIPARIAN/FLOODPLAIN	26.12	21.90	48.02	26.76	19.94	46.70
NATIVE UPLAND						
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance	0.00	0.00	0.00	0.09	0.00	0.09
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance-20% <i>Lepidium latifolium</i>	0.00	0.00	0.00	0.00	0.03	0.03
<i>Artemisia californica</i> – <i>Eriogonum fasciculatum</i> Shrubland Alliance-30% <i>Lepidium latifolium</i>	0.02	0.08	0.10	0.01	0.09	0.10
<i>Quercus agrifolia</i> Alliance	0.03	0.27	0.30	0.11	0.07	0.18
TOTAL NATIVE UPLAND	0.05	0.35	0.40	0.21	0.19	0.40
NONNATIVE/OTHER						
<i>Conium maculatum</i> Herbaceous Semi-Natural Alliance -30% <i>Lepidium latifolium</i>	2.45	1.7	4.15	2.53	1.18	3.71
<i>Lepidium latifolium</i> – <i>Conium maculatum</i> Herbaceous Semi-Natural Alliance	9.88	1.24	11.12	9.84	0.72	10.56
<i>Xanthium strumarium</i> Herbaceous Alliance (Unofficial Alliance)	1.00	0.5	1.50	0.67	0.57	1.24
<i>Eucalyptus (globulus, camaldulensis)</i> Woodland Semi-Natural Alliance	0.00	0.07	0.07	1.11	0.00	1.11
Disturbed (Barren/Trails/IMP Area)	1.33	1.96	3.29	1.41	0.90	2.31
TOTAL OTHER	14.66	5.47	20.13	15.56	3.37	18.93
TOTAL	40.83	27.72	68.55	42.53	23.50	66.03

* Access road construction impacts were not taken into account during the 2016 survey.

Approximately 42.53 acres of native and nonnative vegetation and disturbed areas will be permanently affected by the Project, which includes approximately 0.47 acre of access road impacts and the annual maintenance footprint which is approximately 42.06 acres. Temporary impacts will occur to approximately 23.50 acres, which includes approximately 16.17 acres of temporary impact areas that will be revegetated following the completion of the initial sediment removal and approximately 7.33 acres of side slopes along the edges of the annual maintenance footprint that will also be revegetated. Differences between the impacts calculated in 2016 and 2018 can be attributed to the slight difference in the impact area boundary, the inclusion of the access roads in the 2018 calculations, and the differences in the native and nonnative vegetation cover and composition over the two-year span between mapping efforts. The sections below summarize the impacts to the native and nonnative vegetation.

Riparian Vegetation

The total acreage of riparian vegetation that will be permanently affected by the Project (annual maintenance footprint and access roads) is 24.79 acres. This is a slight increase from the 24.30 acres of riparian vegetation that were mapped within the Project impact areas (permanent) during the survey conducted in 2016. The mapped riparian vegetation that will be permanently affected by the project includes areas vegetated with the various *Salix gooddingii* Woodland Alliances and areas vegetated with the various *Baccharis salicifolia* Shrubland Alliances. The acreage for the areas vegetated with the various *Salix gooddingii* Woodland Alliances that will be permanently affected by the Project increased slightly from 16.27 acres mapped in 2016 to 16.77 acres mapped in 2018. The acreage for the areas vegetated with various *Baccharis salicifolia* Shrubland Alliances that will be permanently affected by the Project decreased slightly from 8.03 acres mapped in 2016 to 8.02 acres mapped in 2018. The permanent impacts to the *Salix gooddingii* Woodland Alliances includes approximately 5.09 acres of the undisturbed and sparse alliances and approximately 11.68 acres of the disturbed alliances containing 20 to 30 percent cover of nonnative and invasive plant species. The permanent impacts to the *Baccharis salicifolia* Shrubland Alliances includes approximately 0.22 acre of undisturbed and approximately 7.80 acres of disturbed alliances containing 20 to 40 percent cover of nonnative and invasive plant species. The permanent impact to undisturbed riparian vegetation is approximately 5.31 acres and the permanent impact to disturbed riparian vegetation is approximately 19.48 acres.

The total acreage of riparian vegetation that will be temporarily affected by the Project (temporary impact areas and side slopes) is 7.28 acres. This is a slight decrease from the 9.22 acres of riparian vegetation that were mapped within the Project impact areas (temporary) during the survey conducted in 2016. The mapped vegetation that will be temporarily affected by the Project includes areas vegetated with the various *Salix gooddingii* Woodland Alliances and areas vegetated with the various *Baccharis salicifolia* Shrubland Alliances. The acreage for the areas vegetated with the various *Salix gooddingii* Woodland Alliances that will be temporarily affected by the Project decreased slightly from 5.84 acres mapped in 2016 to 5.19 acres mapped in 2018. The acreage for the areas vegetated with various *Baccharis salicifolia* Shrubland Alliances that will be temporarily affected by the Project decreased slightly from 3.38 acres mapped in 2016 to 2.09 acres mapped in 2018. The temporary impacts to the *Salix gooddingii* Woodland Alliances includes approximately 2.55 acre of the undisturbed and sparse alliances and approximately 2.64 acre of the disturbed alliances containing 20 to 30 percent cover of nonnative and invasive plant species. The temporary impacts to the *Baccharis salicifolia* Shrubland Alliances includes approximately 0.41 acre of undisturbed and approximately 1.68 acres of disturbed alliances containing 20 to 40 percent cover of nonnative and invasive plant species. The temporary impact to undisturbed riparian vegetation is approximately 2.96 acres and the temporary impact to disturbed riparian vegetation is approximately 4.32 acres.

Floodplain Vegetation

The total acreage of floodplain vegetation permanently affected by the Project (annual maintenance footprint and access roads) is 1.97 acres, all of which are considered undisturbed and/or sparse *Lepidospartum squamatum* Shrubland Alliances. This is a slight increase from the 1.82 acres of floodplain vegetation that were mapped within the Project impact areas (permanent) during the survey conducted in 2016.

The total acreage of floodplain vegetation temporarily affected by the Project (temporary impact areas and side slopes) is 12.66 acres, all of which are considered undisturbed and/or sparse *Lepidospartum squamatum* Shrubland Alliances. This is a slight decrease from the 12.68 acres of floodplain vegetation that were mapped within the Project impact areas (temporary) during the survey conducted in 2016.

Native Upland

The total acreage of native upland vegetation that will be permanently affected by the Project (annual maintenance footprint and access roads) is 0.21 acre. This is a slight increase from the 0.05 acre of native upland vegetation that was mapped within the Project impact areas (permanent) during the survey conducted in 2016. The mapped native upland vegetation that will be permanently affected by the Project includes areas vegetated with the undisturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance, the disturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance containing 30 percent cover of nonnative and invasive plant species, and the undisturbed *Quercus agrifolia* Alliance. The acreage for the areas vegetated with the undisturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance that will be permanently affected by the Project was found to be approximately 0.09 acre during the 2018 mapping effort. This alliance was not mapped during the 2016 mapping effort which appears to be the result of the access road impacts being excluded from the 2016 mapping effort. The acreage for the areas vegetated with the disturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance containing 30 percent cover of nonnative and invasive plant species that will be permanently affected by the Project decreased slightly from 0.02 acres mapped in 2016 to 0.01 acres mapped in 2018. The acreage for the areas vegetated with the undisturbed *Quercus agrifolia* Alliance that will be permanently affected by the Project increased slightly from 0.03 acre mapped in 2016 to 0.11 acre mapped in 2018.

The total acreage of native upland vegetation that will be temporarily affected by the Project (temporary impact areas and side slopes) is 0.19 acre. This is a slight decrease from the 0.35 acre of native upland vegetation that was mapped within the Project impact areas (temporary) during the survey conducted in 2016. The mapped native upland vegetation that will be temporarily affected by the project includes areas vegetated with the disturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance containing 20 to 30 percent cover of nonnative and invasive plant species and the undisturbed *Quercus agrifolia* Alliance. The acreage for the areas vegetated with the disturbed *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance containing 20 percent cover of nonnative and invasive plant species that will be temporarily affected by the Project was found to be approximately 0.03 acre during the 2018 mapping effort. This alliance was not mapped during the 2016 mapping effort which appears to be the result of the access road impacts being excluded from the 2016 mapping effort. The acreage for the areas vegetated with the *Artemesia californica* – *Eriogonum fasciculatum* Shrubland Alliance containing 30 percent cover of nonnative and invasive plant species that will be temporarily affected by the Project increased slightly from 0.08 acre mapped in 2016 to 0.09 acre mapped in 2018. The acreage for the areas vegetated with the undisturbed *Quercus agrifolia* Alliance that will be temporarily affected by the Project decreased slightly from 0.27 acre mapped in 2016 to 0.07 acre mapped in 2018.

Nonnative and Other Land Cover Types

The total acreage of nonnative and other land cover types that will be permanently affected by the Project (annual maintenance footprint and access roads) is 15.56 acres. This is a slight increase from the 14.66 acres of nonnative and other land cover types that were mapped within the Project impact areas (permanent) during the survey conducted in 2016. The mapped nonnative and other land cover types that will be permanently affected by the Project include *Conium maculatum* Herbaceous Semi-Natural Alliance with 30 percent perennial pepperweed, *Lepidium latifolium* – *Conium maculatum* Herbaceous Semi-Natural Alliance, *Xanthium strumarium* Herbaceous Alliance, *Eucalyptus (globulus, camaldulensis)* Woodland Semi-Natural Alliance, and the Disturbed land cover type. The acreage for the areas vegetated with the *Conium maculatum* Herbaceous Semi-Natural Alliance with 30 percent perennial pepperweed that will be permanently affected by the Project increased slightly from 2.45 acres mapped in 2016 to 2.53 acres mapped in 2018. The acreage for the areas vegetated with the *Lepidium latifolium* – *Conium maculatum* Herbaceous Semi-Natural Alliance that will be permanently affected by the Project decreased slightly from 9.88 acres mapped in 2016 to 9.84 acres mapped in 2018. The acreage for the areas vegetated with the *Xanthium strumarium* Herbaceous Alliance that will be permanently affected by the Project decreased slightly from 1.00 acre mapped in 2016 to 0.67 acre mapped in 2018. The acreage for the areas vegetated with the *Eucalyptus (globulus, camaldulensis)* Woodland Semi-Natural Alliance that will be permanently affected by the Project was found to be approximately 1.11 acres during the 2018 mapping effort. This alliance was not mapped during the 2016 mapping effort which appears to be the result of the access road impacts being excluded from the 2016 mapping effort. The acreage for the areas vegetated with the Disturbed land cover type that will be permanently affected by the Project increased slightly from 1.33 acres mapped in 2016 to 1.41 acres mapped in 2018.

The total acreage of nonnative and other land cover types that will be temporarily affected by the Project (temporary impact areas and side slopes) is 3.37 acres. This is a slight decrease from the 5.47 acres of nonnative and other land cover types that were mapped within the Project impact areas (temporary) during the survey conducted in 2016. The mapped nonnative and other land cover types that will be temporarily affected by the Project include *Conium maculatum* Herbaceous Semi-Natural Alliance with 30 percent perennial pepperweed, *Lepidium latifolium* – *Conium maculatum* Herbaceous Semi-Natural Alliance, *Xanthium strumarium* Herbaceous Alliance, and the Disturbed land cover type. The acreage for the areas vegetated with the *Conium maculatum* Herbaceous Semi-Natural Alliance with 30 percent perennial pepperweed that will be temporarily affected by the Project decreased slightly from 1.70 acres mapped in 2016 to 1.18 acres mapped in 2018. The acreage for the areas vegetated with the *Lepidium latifolium* – *Conium maculatum* Herbaceous Semi-Natural Alliance that will be temporarily affected by the Project decreased slightly from 1.24 acres mapped in 2016 to 0.72 acre mapped in 2018. The acreage for the areas vegetated with the *Xanthium strumarium* Herbaceous Alliance that will be temporarily affected by the Project increased slightly from 0.50 acre mapped in 2016 to 0.57 acre mapped in 2018. The acreage for the areas vegetated with the Disturbed land cover type that will be temporarily affected by the Project decreased slightly from 1.96 acres mapped in 2016 to 0.90 acre mapped in 2018.

The updated vegetation mapping was completed as a requirement of mitigation measures MM BIO-6 and MMBIO-8 in the Recirculated Final EIR for the Project to provide current information regarding the locations of where the various vegetation communities are located and to update the impacts of the

Project on vegetation communities. If you have any questions or comments regarding the content of this letter report, please contact me at (714) 648-0630.

Sincerely,

A handwritten signature in blue ink that reads "Mari Quillman". The signature is written in a cursive, flowing style.

Mari Quillman
Principal Biological Resources Program Manager

LITERATURE CITED

Chambers Group, Inc. 2014. Development of a Detailed Vegetation Map for the Devil's Gate Sediment Removal Project. Unpublished report submitted to Los Angeles County Department of Public Works Flood Control District, Water Resources Division.

ECORP Consulting, Inc. 2017. Devil's Gate Reservoir Sediment Removal and Management Project Recirculated Portions of Final Environmental Impact Report.

ECORP Consulting, Inc. 2016. Vegetation Map Update for the Devil's Gate Reservoir Sediment Removal and Management Project, Los Angeles County, California.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. In: California Department of Fish and Game, The Resources Agency, editor. Sacramento, CA. p. 156.

Sawyer J.O, T. Keeler-Wolf, J.M. Evens. 2009. A Manual of California Vegetation, 2nd Edition. Sacramento, CA: California Native Plant Society.



ATTACHMENT 1

Representative Vegetation Community Photos



Photo 1. *Lepidospartum squamatum* Shrubland Alliance



Photo 2. *Brassica nigra* and other mustards Herbaceous Semi-Natural Alliance in the foreground, *Quercus agrifolia* Alliance in the background



Photo 3. *Baccharis salicifolia* Shrubland Alliance



Photo 4. *Salix gooddingii* Woodland Alliance – Understory 20% *Lepidium latifolium*-*Xanthium strumarium*



Photo 5. *Eucalyptus (globulus, camaldulensis)* Woodland Semi-Natural Alliance



Photo 6. *Conium maculatum* Herbaceous Semi-Natural Alliance – 30 % *Lepidium latifolium*



Photo 7. *Xanthium strumarium* Herbaceous Alliance



Photo 8. Developed Roads Included in Ares Mapped as Disturbed