APPENDIX B

BIOLOGICAL RESOURCES STUDIES

APPENDIX B-1

BIOLOGICAL CONSTRAINTS LETTER REPORT

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June 20, 2011

Mr. Ramil Parial
Water Resources Division
Department of Public Works
County of Los Angeles
900 South Fremont Avenue
Alhambra, California 91802-1460

VIA EMAIL AND U.S. MAIL
RPARIAL@dpw.lacounty.gov

Subject: Biological Constraints Survey for the Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project in Los Angeles County, California

Dear Mr. Parial:

This Letter Report presents the findings of a biological constraints survey for the Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project in unincorporated Los Angeles County, California. The study area for this survey consists of the proposed sediment removal area within the reservoir, the haul route downstream of Big Tujunga Dam, and the proposed fill areas within the existing Maple Canyon Sediment Placement Site (SPS) with a 100-foot buffer around these areas (Exhibit 1). Project limits were provided by the Los Angeles County Department of Public Works (LACDPW). The purpose of the survey was to evaluate existing biological resources and determine the potential for the occurrence of special status plant and wildlife species or other sensitive biological resources.

PROJECT DESCRIPTION AND LOCATION

The proposed project involves the dewatering of the Big Tujunga Reservoir and the removal of sediment to the nearby Maple Canyon SPS. Sediment from the reservoir will be placed on top of 10 acres of previously filled area and 22 previously undisturbed acres within the SPS. A maximum of 4,400,000 cubic yards of sediment would be removed from the reservoir, with excavation to the original cut template at 2,142.5 feet above mean sea level (msl) to achieve its original design capacity.

The study area extends approximately two river miles upstream and one river mile downstream of Big Tujunga Dam in Big Tujunga Canyon and includes Maple Canyon SPS. The study area is located on the southern edge of the San Gabriel Mountains, within the Angeles National Forest, and is located on the U.S. Geological Survey (USGS) Condor Peak 7.5-minute topographic quadrangle (Exhibit 2). The topography steeply slopes down into the canyon; elevations range from approximately 2,150 to 3,400 feet above msl. Soils in the study area consist of Trigo, granitic substratum-Modjeska families association (5 to 60 percent slopes), Rock outcrop-Chilao family-Haploxerolls, warm association (15 to 120 percent slopes), Typic Xerorthents, warm (55 to 90 percent slopes), and Olete-Kilburn-Etsel families complex (50 to 80 percent slopes) (Exhibit 3). Surrounding land uses include open space.

The *County of Los Angeles General Plan* designates Significant Ecological Areas (SEAs) as ecologically important or fragile land and water areas valuable as plant and animal communities. The study area is not located within any SEAs.

METHODS

BonTerra Consulting Senior Biologist Sam Stewart and Biologist/Regulatory Technician Allison Rudalevige conducted a general plant and wildlife survey within Maple Canyon SPS and areas downstream of the dam on April 14, 2011. Senior Botanist Robert Allen and Consulting Biologist Dave Bramlet conducted a general plant and wildlife survey upstream of the dam on April 20, 2011. Areas upstream of the dam were assessed with binoculars due to access limitations. The California Native Plant Society's (CNPS') Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2011) and the California Department of Fish and Game's (CDFG's) California Natural Diversity Database (CNDDB) (CDFG 2011) were reviewed prior to the survey to identify special status plants, wildlife, and habitats known to occur in the vicinity of the proposed project. Database searches included the USGS Sunland, Condor Peak, Chilao Flat, Burbank, Pasadena, and Mount Wilson 7.5-minute quadrangles.

All species observed were recorded in field notes. Plant species were identified in the field or collected for subsequent identification using keys in Hickman (1993) and Munz (1974). Taxonomy follows Hickman (1993) and current scientific data (e.g., scientific journals) for scientific and common names. Nomenclature for vegetation types generally follows that of *The Vegetation Classification and Mapping Program: List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2003).

Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic signs including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Taxonomy and nomenclature for wildlife generally follows Fisher and Case (1997) for amphibians and reptiles, American Ornithologists Union (1998) for birds, and Baker et al. (2003) for mammals.

SURVEY RESULTS

Vegetation Types

The following vegetation types and land covers were observed in the study area: chaparral (with chamise chaparral, scrub oak chaparral, and mixed chaparral subassociations), California annual grassland, willow riparian forest, coast live oak stands, open water, cliff, and developed. Many of these areas were burned in the 2009 Station Fire but are now recovering. Representative photographs of the study area are provided in Attachment A.

Chaparral

Chaparral vegetation is the most common vegetation type within the study area, occurring along most canyon slopes. This vegetation type is highly variable and has been delineated into various subassociations. The following subassociations were observed in the study area: (1) chamise chaparral; (2) scrub oak chaparral; and (3) mixed chaparral. Chamise chaparral occurs along most of the canyon slopes in the study area. This vegetation type has a relatively open canopy and is dominated by the large shrubs chamise (*Adenostoma fasciculatum*) and thick-leaf yerba santa (*Eriodictyon crassifolium*). Scrub oak chaparral occurs on the north-facing slopes in the Maple Canyon SPS. This vegetation type is dominated by scrub oak (*Quercus berberidifolia*) that was previously burned and is currently regrowing. The understory includes species such as California poppy (*Eschscholzia californica*), ripgut brome (*Bromus diandrus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). Mixed chaparral occurs on canyon slopes throughout the study area. These areas contain a mix of chaparral species and vegetative cover is sparser than in the chamise chaparral with more exposed rock and bare ground present. Most

of the slopes on which this vegetation type is found burned during the Station Fire and shrubs and trees are commonly sprouting from the base. This vegetation type is expected to be impacted during sediment placement activities within Maple Canyon.

California Annual Grassland

California annual grassland occurs between the switchbacks of the access roads near the entrance to the dam facilities and the Maple Canyon SPS. This area has been previously used to deposit sediment from the reservoir. This vegetation type is dominated by a variety of non-native grasses including ripgut brome, foxtail chess, and wild oat (*Avena* sp.). Some scattered California poppy, Spanish broom (*Spartium junceum*), scrub oak, and pine (*Pinus* sp.) are also present. It is difficult to assess the extent to which this vegetation type burned during the Station Fire as annual grasses resprout very quickly after fire. This vegetation type is expected to be impacted during sediment placement activities within Maple Canyon.

Disturbed Freshwater Seep

Disturbed freshwater seep occurs downstream of Big Tujunga Reservoir on the slope north of the canyon bottom. While there is an underlying native component of species such as chamise, thick-leaf yerba santa, cryptantha (*Cryptantha* sp.), and deerweed (*Acmispon glaber* [*Lotus scoparius*]), the area contains a large proportion of non-native species such as Mediterranean schismus (*Schismus barbatus*), fescue (*Festuca* sp. [*Vulpia* sp.]), foxtail chess, ripgut brome, wild oat, red-stemmed filaree (*Erodium cicutarium*), and tree tobacco (*Nicotiana glauca*). The extent to which this vegetation type burned during the Station Fire was difficult to determine during the field survey. No impacts are expected to this vegetation type as it is outside of the proposed excavation limits.

Willow Riparian Forest

Willow riparian forest occurs at the canyon bottom downstream of the dam. This vegetation type is dominated by a mix of arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*) with an understory containing tree tobacco, ripgut brome, and chaparral nightshade (*Solanum xanti*). A few scattered white alder (*Alnus rhombifolia*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) are also present. This vegetation type burned during the Station Fire and willow trees are re-sprouting from the base. No impacts are expected to this vegetation type as it is outside of the proposed excavation limits.

Coast Live Oak Stands

A few stands of coast live oak individuals occur in the study area. The stand along the access road between the Maple Canyon SPS and the remainder of the study area has an understory of chamise, yerba santa, Our Lord's candle (*Yucca whipplei*), black sage (*Salvia mellifera*), deerweed, and chaparral nightshade. The stand along the access road downstream of the dam contains a sparse understory of non-native grasses with much bare ground. No significant fire damage to oak trees was noted during the field survey. Vegetation along the proposed haul route is not expected to be impacted. Therefore no impacts are expected to this vegetation type.

Open Water

Open water occurs upstream of Big Tujunga Dam within the reservoir. Water levels were high at the time of the survey and made much of the canyon upstream of the dam inaccessible. Open water downstream of the dam that was flowing through the willow riparian forest is not included

in this category because of the willow canopy and relatively limited extent of open water. The open water category is expected to disappear as the reservoir is dewatered prior to the initiation of project activities. The sediment below this category will be removed from the reservoir area to restore its original capacity.

Cliff

Cliff faces occur on the steep slopes throughout the study area. These areas are rocky and largely unvegetated. No impacts are expected to this vegetation type as it occurs outside of the proposed sediment excavation limits.

Ornamental

Ornamental plantings along the existing roads include common oleander (*Nerium oleander*), gum (*Eucalyptus* sp.), pine, and coast live oak. Vegetation along the proposed haul route is not expected to be impacted. Therefore no impacts are expected to this vegetation type.

Developed

Developed areas occur throughout the lower portion of the study area. This consists of the dam facilities, access roads, debris piles, concrete canyon walls, and riprap.

Additionally, tributaries at the upper end of the Maple Canyon SPS contain small areas of burned riparian herb, sycamore woodland, and willow riparian scrub; however, these areas are just beginning to resprout and therefore are not separated into individual vegetation types. These areas will be reassessed during the project's jurisdictional delineation to determine if they are under the jurisdiction of the resource agencies.

Special Status Vegetation Types

Willow riparian forest is the only vegetation type observed within the study area that would be considered special status by the resource agencies. Because this vegetation type is associated with a streambed feature, a permit from the CDFG would be required prior to disturbing or removing it. Impacts to this vegetation type may also be considered significant under the California Environmental Quality Act (CEQA), and mitigation may be required.

Additionally, while the coast live oak stands within the study area may not warrant mitigation as a vegetation type (due to their scattered distribution and overall limited acreage), removal of these trees may be subject to regulation by the U.S. Forest Service and/or the County of Los Angeles Oak Tree Ordinance.

No impacts to either of these vegetation types are anticipated as they are found outside of the project's disturbance limits.

Special Status Plant and Wildlife Species

Plants or wildlife may be considered to have "special status" due to declining populations, vulnerability to habitat change, or restricted distributions. Certain special status species have been listed as Threatened or Endangered under the California and/or Federal Endangered Species Acts.

Special Status Plants

Several special status plant species are known to occur or have historically occurred in the vicinity of the study area. Four of these species are federally and/or State-listed Threatened or Endangered species: Braunton's milk-vetch (*Astragalus brauntonii*), Nevin's barberry (*Berberis nevinii*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), and slender-horned spineflower (*Dodecahema leptoceras*). Mount Gleason paintbrush (*Castilleja gleasonii*) is a State-listed Rare species. Of these species, potentially suitable habitat exists only for Nevin's barberry within the study area. Any impacts to this species, if present, would be considered significant.

In addition to species formally listed by the resource agencies, multiple species reported in the vicinity of the study area are CNPS List 1B and 2 plant species that may be considered constraints on development according to Section 15380 of the California Environmental Quality Act (CEQA). Potentially suitable habitat exists within the study area for slender mariposa lily (*Calochortus clavatus* var. *gracilis*), Plummer's mariposa lily (*Calochortus plummerae*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), California saw-grass (*Cladium californicum*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), California satintail (*Imperata brevifolia*), Davidson's bush-mallow (*Malacothamnus davidsonii*), California muhly (*Muhlenbergia californica*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Greata's aster (*Symphyotrichum greatae*), San Bernardino aster (*Symphyotrichum defoliatum*), and Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*). Impacts on these species would be considered potentially significant depending on the size of the population, if present, relative to populations in the region.

Several of the species listed above are also listed as sensitive species for the Angeles National Forest by the U.S. Forest Service. These include slender mariposa lily, Plummer's mariposa lily, Parry's spineflower, mesa horkelia, California satintail, San Bernardino aster, and Sonoran maiden fern. One species, fragrant pitcher plant (*Lepechinia fragrans*), is listed as a sensitive species by the U.S. Forest Service (USFS), but is not a CNPS List 1B or 2 species.

CNPS Lists 3 and 4 species are not considered project constraints, and typically impacts on these species are considered less than significant and do not require mitigation. A summary of special status plant species is provided in Table 1.

TABLE 1
SPECIAL STATUS PLANT SPECIES
KNOWN TO OCCUR IN THE PROJECT REGION

Species	Status [1]				Likelihood for Occurrence
	USFWS	CDFG	CNPS	USFS	
Astragalus brauntonii Braunton's milk-vetch	FE		List 1B	–	Not expected to occur; outside known range
Berberis nevinii Nevin's barberry	FE	CE	List 1B	–	May occur; potentially suitable habitat present
Calochortus clavatus var. *gracilis* slender mariposa lily	–	–	List 1B	FSS	May occur; potentially suitable habitat present
Calochortus plummerae Plummer's mariposa lily	–	–	List 1B	FSS	May occur; potentially suitable habitat present
Castilleja gleasonii Mount Gleason paintbrush	–	–	List 1B	–	May occur; potentially suitable habitat present
Chorizanthe parryi var. *fernandina* San Fernandino Valley spineflower	FC	CE	List 1B	–	Not expected to occur; outside known range

TABLE 1 (Continued)
SPECIAL STATUS PLANT SPECIES
KNOWN TO OCCUR IN THE PROJECT REGION

Species	Status [1]				Likelihood for Occurrence
	USFWS	CDFG	CNPS	USFS	
Chorizanthe parryi var. *parryi* Parry's spineflower	–	–	List 1B	FSS	May occur; potentially suitable habitat present
Cladium californicum California saw-grass	–	–	List 2	–	May occur; potentially suitable habitat present
Dodecahema leptoceras slender-horned spineflower	FE	CE	List 1B	–	Not expected to occur; no potentially suitable habitat present
Horkelia cuneata ssp. *puberula* mesa horkelia	–	–	List 1B	FSS	May occur; potentially suitable habitat present
Imperata brevifolia California satintail	–	–	List 2	FSS	May occur; potentially suitable habitat present
Lepechinia fragrans fragrant pitcher plant	–	–	–	FSS	May occur; potentially suitable habitat present
Malacothamnus davidsonii Davidson's bush-mallow	–	–	List 1B	–	May occur; potentially suitable habitat present
Pseudognaphalium leucocephalum white rabbit-tobacco	–	–	List 2	–	May occur; potentially suitable habitat present
Symphyotrichum greatae Greata's aster	–	–	List 1B	–	May occur; potentially suitable habitat present
Symphyotrichum defoliatum San Bernardino aster	–	–	List 1B	FSS	May occur; potentially suitable habitat present
Thelypteris puberula var. *sonorensis* Sonoran maiden fern	–	–	List 2	FSS	May occur; potentially suitable habitat present

Status Definitions [1]

Federal (USFWS)
FE Endangered
FT Threatened
FC Candidate

State (CDFG)
CE Endangered
CT Threatened

California Native Plant Society (CNPS)
1A Plants Presumed Extinct in California
1B Plants Rare, Threatened, or Endangered in California/Elsewhere
2 Plants Rare, Threatened, or Endangered in California But More Common Elsewhere
3 Plants About Which We Need More Information – A Review List
4 Plants of Limited Distribution – A Watch List

Special Status Wildlife

Several special status wildlife species are known to occur in the vicinity of the study area (CDFG 2011). Three of these species are federally and/or State-listed Threatened or Endangered species with potentially suitable habitat occurring within the study area: Santa Ana sucker (*Catostomus santaanae*), arroyo toad (*Anaxyrus californicus*), and Sierra Madre yellow-legged frog (*Rana muscosa*). Any impacts on these species, if present, would be considered significant. A fourth species, the American peregrine falcon (*Falco peregrinus anatum*), was recently delisted by the U.S. Fish and Wildlife Service (USFWS) and the State, but it is still considered a State Fully Protected species. Impacts on the American peregrine falcon would only be considered significant if they consisted of impacts on nesting birds or loss of individual birds.

In addition to species formally listed by the resource agencies, additional special status species may occur within the study area that may constrain project activities. Potentially suitable habitat for the following species exists within the survey area: silvery legless lizard (*Anniella pulchra pulchra*), pallid bat (*Antrozous pallidus*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), rosy boa (*Charina trivirgata*), black swift (*Cypseloides niger*), western pond turtle (*Emys marmorata*), western mastiff bat (*Eumops perotis californicus*), arroyo chub (*Gila orcuttii*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), western yellow bat (*Lasiurus xanthinus*), San Diego desert woodrat (*Neotoma lepida intermedia*), big free-tailed bat (*Nyctinomops macrotis*), southern grasshopper mouse (*Onychomys torridus ramona*), coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*, Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3), coast range newt (*Taricha torosa torosa*), and two-striped garter snake (*Thamnophis hammondii*). Impacts to these species would be considered potentially significant depending on the size of the population, if present, relative to populations in the region. A summary of special status wildlife species known to occur in the project region is provided in Table 2.

TABLE 2
SPECIAL STATUS WILDLIFE SPECIES
KNOWN TO OCCUR IN PROJECT REGION

Species	Status [1]			Likelihood for Occurrence
	USFWS	CDFG	USFS	
Fish				
Catostomus santaanae Santa Ana sucker	FT	CSC	FSS	May occur; potentially suitable habitat present
Gila orcuttii Arroyo chub	FSC	CSC	FSS	May occur; potentially suitable habitat present
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	FSC	CSC	FSS	May occur; potentially suitable habitat present
Amphibians				
Anaxyrus californicus Arroyo southwestern toad	FE	CSC	–	May occur; potentially suitable habitat present
Rana muscosa Sierra Madre yellow-legged frog	FE	CSC	FSS	May occur; potentially suitable habitat present
Taricha torosa torosa Coast Range newt	–	CSC	–	May occur; potentially suitable habitat present
Reptiles				
Anniella pulchra pulchra Silvery legless lizard	–	CSC	FSS	May occur; potentially suitable habitat present
Aspidoscelis tigris stejnegeri Coastal whiptail	–	SA	–	Observed; suitable habitat present
Charina trivirgata Rosy boa	FSC	–	FSS	May occur; potentially suitable habitat present
Emys marmorata Western pond turtle	FSC	CSC	FSS	May occur; potentially suitable habitat present
Phrynosoma blainvillii Coast (San Diego) horned lizard	FSC	CSC	FSS	May occur; potentially suitable habitat present
Thamnophis hammondii Two-striped garter snake	FSC	CSC	FSS	Observed; suitable habitat present
Birds				
Athene cunicularia Burrowing owl	–	CSC	–	Not expected to occur, no suitable habitat present.
Cypseloides niger Black swift	–	CSC	–	May occur; potentially suitable habitat present

TABLE 2 (Continued)
SPECIAL STATUS WILDLIFE SPECIES
KNOWN TO OCCUR IN PROJECT REGION

Species	Status [1]			Likelihood for Occurrence
	USFWS	CDFG	USFS	
Empidonax traillii extimus Southwestern willow flycatcher	FE	SE	FSS	Not expected to occur; no suitable habitat currently within study area due to recent fire
Falco peregrinus Peregrine falcon	–	CFP SCD	FSS	May occur; potentially suitable habitat present
Polioptila californica californica Coastal California gnatcatcher	FT	CSC	FSS	Not expected to occur, no suitable habitat present.
Vireo bellii pusillus Least Bell's vireo	FE	SE	FSS	Not expected to occur, no suitable habitat present, study area above elevational range
Mammals				
Antrozous pallidus Pallid bat	–	CSC	FSS	May occur; potentially suitable foraging habitat present
Eumops perotis californicus Western mastiff bat	–	CSC	–	May occur; potentially suitable foraging and roosting habitat present
Lasionycteris noctivagans Silver-haired bat	–	SA	–	May occur; potentially suitable foraging and roosting habitat present
Lasiurus cinereus Hoary bat	–	SA	–	May occur; potentially suitable foraging and roosting habitat present
Lasiurus xanthinus Western yellow bat	–	CSC	–	May occur; potentially suitable foraging and roosting habitat present
Lepus californicus bennettii San Diego black-tailed jackrabbit	–	CSC	–	Not expected to occur, no suitable habitat present.
Neotoma lepida intermedia San Diego desert woodrat	–	CSC	–	May occur; potentially suitable foraging habitat present
Nyctinomops macrotis Big free-tailed bat	–	CSC	–	May occur; potentially suitable foraging and roosting habitat present
Onychomys torridus ramona Southern grasshopper mouse	–	CSC	–	May occur; potentially suitable habitat present
Taxidea taxus American badger	–	CSC	–	Not expected to occur, no suitable habitat present.

Legend:

FEDERAL STATUS:

FE Federally Listed Endangered
FT Federally Listed Threatened
FC Federal Candidate
FSC Federal Species of Concern

FOREST SERVICE STATUS:

FSS Forest Service Sensitive Species

STATE STATUS:

SA Special Animal
SE State listed as endangered
ST State listed as threatened
SR State listed as rare
CSC California Department of Fish and Game Species of Concern
CFP California Fully Protected
SCD California (State) Candidate for Delisting

Note: Scientific and common names for wildlife species follow the most current list of Special Animals (July 2009) available from the California Department of Fish and Game (http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp).

Other Considerations

Much of the study area contains "Waters of the U.S." and "Waters of the State" that are under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the State Water Quality Control Board, and the CDFG. A delineation of jurisdictional resources is needed in order to obtain regulatory permits prior to performing any work within these areas.

The Migratory Bird Treaty Act (MBTA) protects the nests of all native bird species, including common species such as mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), and house finch (*Carpodacus mexicanus*). Nesting birds have potential to occur in vegetation throughout the study area.

BIOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

The following is a list of recommendations to ensure that the project is consistent with regulations protecting biological resources.

1. There is potential for several special status plant species to occur on the project site. Focused surveys to determine the presence/absence of special status plant species are recommended.

2. Potentially suitable habitat exists for three State and/or federally listed wildlife species: Santa Ana sucker, arroyo toad, and Sierra Madre yellow-legged frog. Focused surveys for these species are recommended to determine if they are present within the study area.

3. Potentially suitable habitat exists for several other special status species, including black swift, peregrine falcon, arroyo chub, Santa Ana speckled dace, silvery legless lizard, coastal whiptail, rosy boa, western pond turtle, coast (San Diego) horned lizard, two-striped garter snake, pallid bat, western mastiff bat, silver-haired bat, hoary bat, western yellow bat, big free-tailed bat, San Diego desert woodrat, and southern grasshopper mouse. The possible presence of these species is not a constraint to project activities, though avoidance/minimization measures may be required.

4. A delineation of jurisdictional resources is recommended to initiate the regulatory permitting process.

5. If oak trees will be removed or disturbed, a permit from the County of Los Angeles and/or USFS may be required.

6. Any vegetation removal activities should be planned outside of the nesting season for birds (generally March 15 through September 15) to ensure compliance with the MBTA. Nesting surveys would be needed prior to vegetation removal within the nesting season, and any active nests would require a buffer that may seriously constrain project activities.

Please contact David Hughes at (626) 351-2000 with any questions related to this report.

Sincerely,

BONTERRA CONSULTING

Ann M. Johnston
Principal, Biological Services

David T. Hughes
Project Manager

Attachment: A – Site Photographs
B – Plant and Wildlife Compendia

cc: Valerie de la Cruz, Water Resources Division
Crystal Franco P.E., Water Resources Division

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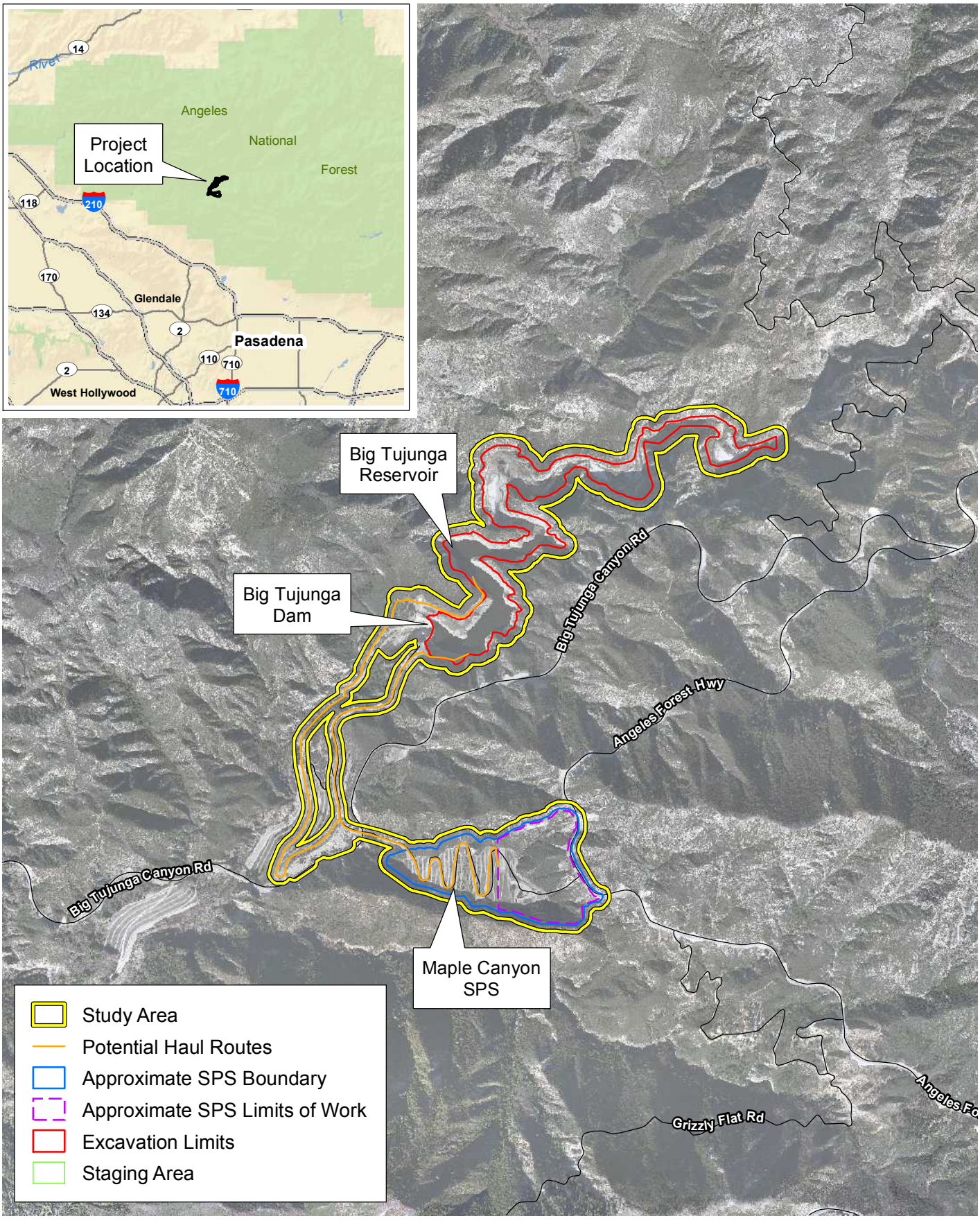

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Project Location

Exhibit 1

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

N W E S

2,000 1,000 0 2,000 Feet

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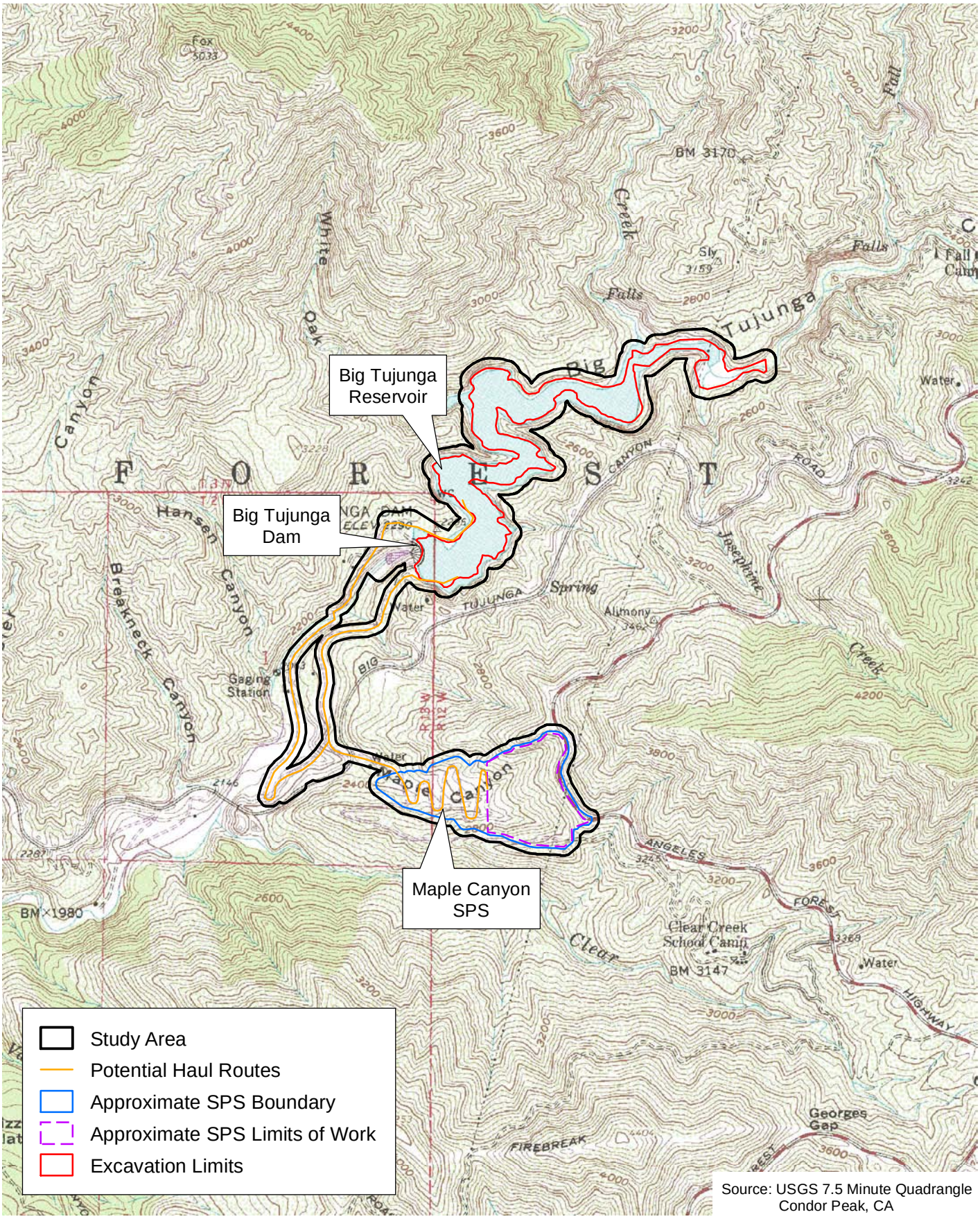

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U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

N W E S

2,000 1,000 0 2,000 Feet

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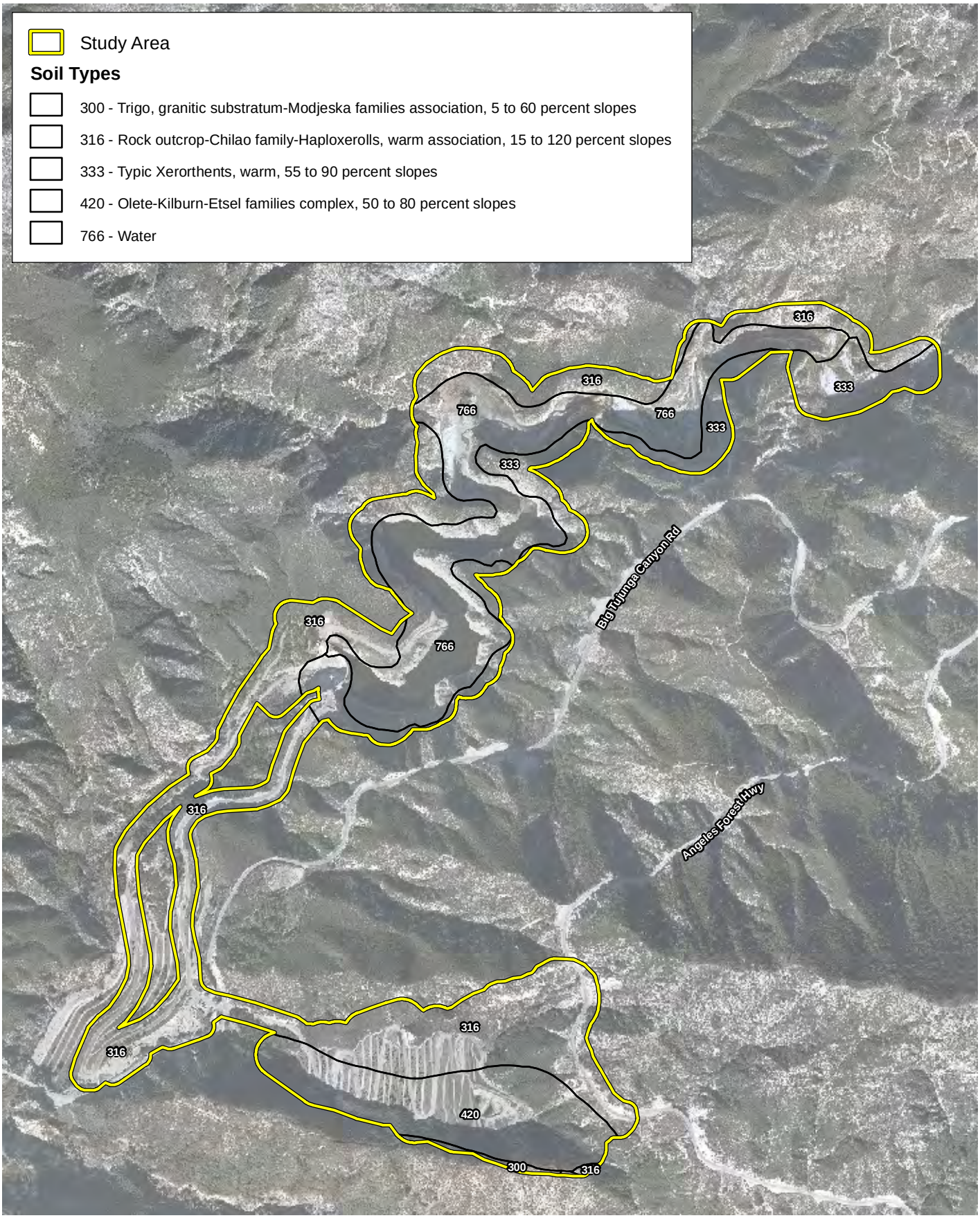

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Soil Types

Exhibit 3

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

N W E S

1,200 600 0 1,200 Feet

BonTerra CONSULTING

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ATTACHMENT A

SITE PHOTOGRAPHS



Chamise chaparral vegetation on the slopes near Big Tujunga Dam facing north. Note burn damage to tree at right from Station Fire.



Scrub oak chaparral on the slopes in the Maple Canyon Sediment Placement Site facing east. Note re-sprouting shrubs after Station Fire damage.

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Site Photographs

Attachment A-1

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

BonTerra CONSULTING



California annual grassland in the Maple Canyon Sediment Placement Site facing north.



Willow riparian forest below Big Tujunga Dam facing north. Willow trees are re-sprouting after being burned by Station Fire.

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Site Photographs

Attachment A-2

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

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Pine trees along existing haul route. Note fire damage to trees at left.



Overview of Big Tujunga reservoir.

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Site Photographs

Attachment A-3

Big Tujunga Dam and Reservoir Post-Fire Sediment Removal Project

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ATTACHMENT B

PLANT AND WILDLIFE COMPENDIA

PLANT COMPENDIUM

"The following compendium is based on a reconnaissance-level survey and should be considered preliminary. Comprehensive plant and wildlife compendia will be provided with focused survey reports"

Species	
***PTERIDOPHYTES* - FERNS AND ALLIES**	
GYMNOSPERMS	
PINACEAE - PINE FAMILY	
Pinus sp.	pine
***ANGIOSPERMAE* - FLOWERING PLANTS**	
DICOTYLEDONES	
ANACARDIACEAE - SUMAC FAMILY	
Malosma laurina	laurel sumac
APOCYNACEAE - DOGBANE FAMILY	
*Nerium oleander**	common oleander
BETULACEAE - BIRCH FAMILY	
Alnus rhombifolia	white alder
BORAGINACEAE - BORAGE FAMILY	
Cryptantha sp.	cryptantha
Emmenanthe penduliflora	whispering bells
Eriodictyon crassifolium	thick-leaf yerba santa
Phacelia minor	wild canterbury-bell
CUCURBITACEAE - GOURD FAMILY	
Marah macrocarpus	chilicothe
ERICACEAE - HEATH FAMILY	
Arctostaphylos sp.	manzanita
FABACEAE (LEGUMINOSAE) - LEGUME FAMILY	
Acmispon glaber [Lotus scoparius]	deerweed
*Spartium junceum**	Spanish broom
FAGACEAE - OAK / BEECH FAMILY	
Quercus agrifolia	coast live oak
Quercus berberidifolia	scrub oak / California scrub oak
GERANIACEAE - GERANIUM FAMILY	
*Erodium cicutarium**	red-stemmed filaree
LAMIACEAE (LABIATAE) - MINT FAMILY	
Salvia mellifera	black sage
MYRTACEAE - MYRTLE FAMILY	
Eucalyptus sp.*	gum
PAPAVERACEAE - POPPY FAMILY	
Dendromecon rigida	bush poppy
Eschscholzia californica	California poppy
POLYGONACEAE - BUCKWHEAT FAMILY	
Eriogonum fasciculatum	California buckwheat
ROSACEAE - ROSE FAMILY	
Adenostoma fasciculatum	chamise
Cercocarpus betuloides var. betuloides	birch-leaf mountain-mahogany

PLANT COMPENDIUM (Continued)

Species	
SALICACEAE - WILLOW FAMILY	
Populus fremontii ssp. *fremontii*	Fremont cottonwood
Salix gooddingii	Goodding's black willow
Salix lasiolepis	arroyo willow
SOLANACEAE - NIGHTSHADE FAMILY	
*Nicotiana glauca**	tree tobacco
Solanum xanti	chaparral nightshade
***MONOCOTYLEDONES* - MONOCOTS**	
AGAVACEAE - CENTURY PLANT FAMILY	
Hesperoyucca whipplei [Yucca whipplei]	Our Lord's candle
POACEAE [GRAMINEAE] - GRASS FAMILY	
Avena spp.*	wild oat
*Bromus diandrus**	ripgut grass
Bromus madritensis ssp. *rubens**	foxtail chess
*Festuca sp. [Vulpia sp.]**	fescue
*Piptatherum miliaceum**	smilo grass / millett ricegrass
*Schismus barbatus**	Mediterranean schismus
* non-native species	

WILDLIFE COMPENDIUM

"The following compendium is based on a reconnaissance-level survey and should be considered preliminary. Comprehensive plant and wildlife compendia will be provided with focused survey reports"

Species	
Birds	
ANATIDAE - WATERFOWL	
Anas platyrhynchos	mallard
FALCONIDAE - FALCONS	
Falco sparverius	American kestrel
APODIDAE - SWIFTS	
Aeronautes saxatalis	white-throated swift
TROCHILIDAE - HUMMINGBIRDS	
Calypte costae	Costa's hummingbird
TYRANNIDAE - TYRANT FLYCATCHERS	
Empidonax difficilis	Pacific-slope flycatcher
Sayornis nigricans	black phoebe
Myiarchus cinerascens	ash-throated flycatcher
VIREONIDAE - VIREOS	
Vireo cassinii	Cassin's vireo
CORVIDAE - CROWS & JAYS	
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven
HIRUNDINIDAE - SWALLOWS	
Stelgidopteryx serripennis	northern rough-winged swallow
Petrochelidon pyrrhonota	cliff swallow
PARIDAE - TITMICE	
Baeolophus inornatus	oak titmouse
AEGITHALIDAE - BUSHTITS	
Psaltriparus minimus	bushtit
TROGLODYTIDAE - WRENS	
Thryomanes bewickii	Bewick's wren
PARULIDAE - WARBLERS	
Oreothlypis [*Vermivora*] *celata*	orange-crowned warbler
Dendroica petechia	yellow warbler
Dendroica coronata	yellow-rumped warbler
Dendroica nigrescens	black-throated gray warbler
Wilsonia pusilla	Wilson's warbler
EMBERIZIDAE - SPARROWS & JUNCOS	
Pipilo maculatus	spotted towhee
Melozone [*Pipilo*] *crissalis*	California towhee
Melospiza melodia	song sparrow
Junco hyemalis	dark-eyed junco

WILDLIFE COMPENDIUM (Continued)

Species	
CARDINALIDAE - CARDINALS & ALLIES	
Pheucticus melanocephalus	black-headed grosbeak
Passerina amoena	lazuli bunting
ICTERIDAE - BLACKBIRDS	
Molothrus ater	brown-headed cowbird
Icterus bullockii	Bullock's oriole
FRINGILLIDAE - FINCHES	
Carpodacus mexicanus	house finch
Spinus [Carduelis] psaltria	lesser goldfinch
Mammals	
CANIDAE - WOLVES & FOXES	
Urocyon cinereoargenteus	gray fox
MUSTELIDAE - WEASELS, SKUNKS & OTTERS	
Mephitis mephitis	striped skunk
CERVIDAE - DEER	
Odocoileus hemionus	mule deer

APPENDIX B-2

JURISDICTIONAL DELINEATION REPORT

Jurisdictional Delineation Report

Big Tujunga Reservoir Sediment Removal Project
Los Angeles County, California

Prepared for

Los Angeles County Department of Public Works
Water Resources Division
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December 2020

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H Map of CDFW Jurisdictional Waters
I Nationwide Permit Summary

EXECUTIVE SUMMARY

The purpose of this report is to provide baseline data concerning the type and extent of jurisdictional resources for the Big Tujunga Reservoir Sediment Removal Project located in Los Angeles County, California. Jurisdictional resources considered for this report include wetlands and non-wetland "waters of the U.S." regulated by the U.S. Army Corps of Engineers (USACE); "waters of the State" regulated by the Regional Water Quality Control Board (RWQCB); and the bed, bank, and channel of all lakes, rivers, and/or streams (and associated riparian vegetation), as regulated by the California Department of Fish and Wildlife (CDFW).

The limits of non-wetland "waters of the U.S." and "waters of the State" were identified by the presence of an ordinary high water mark (OHWM). Features in the survey area that are considered "waters of the U.S." reflect the definition provided in the Navigable Water Protection Rule that was published on April 21, 2020 and became effective on June 22, 2020. Wetland features were identified based on the USACE's three-parameter approach in which wetlands are defined by the presence of hydrophytic vegetation, hydric soils, and presence of wetland hydrology indicators. The limits of CDFW jurisdictional waters were identified as either the top of bank or the outer dripline of riparian vegetation.

The jurisdictional delineation work was performed by Psomas Regulatory Specialist David Hughes and Environmental Planner Daria Sarraf on May 31 and June 20, 2017. Based on the results of the jurisdictional delineation field work, it was determined that the total amount of jurisdictional resources in the survey area and proposed impacts are as follows:

USACE Jurisdictional "waters of the U.S."

- **Total Existing**: 0.00 acre of wetlands and 70.65 acres of non-wetland "waters of the U.S."
- **Total Impacts:** 1.33 acre of permanent impacts; 46.63 acre of temporary impacts

RWQCB Jurisdictional "waters of the State"

- **Total Existing**: 0.00 acre of wetlands and 70.65 acres of non-wetland "waters of the U.S."
- **Total Impacts:** 2.38 acre of permanent impacts; 46.63 acre of temporary impacts

CDFW Jurisdictional Streambeds and Riparian Habitat

- **Total Existing**: 93.11 acres
- **Total Impacts:** 3.23 acre of permanent impacts; 47.47 acre of temporary impacts

1.0 INTRODUCTION

This Jurisdictional Delineation Report (report) was prepared for the Los Angeles County Department of Public Works, Water Resources Division to provide baseline data concerning the type and extent of resources under the jurisdiction of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the Los Angeles Regional Water Quality Control Board (RWQCB) for the Big Tujunga Reservoir Sediment Removal Project (hereinafter referred to as "the proposed project"). This Jurisdictional Delineation Report is based on the jurisdictional delineation surveys performed on May 31 and June 20, 2017. Jurisdictional delineation surveys were previously conducted for this project site on September 28 and October 27, 2011.

1.1 PROJECT LOCATION

The proposed project is located in Big Tujunga Canyon in unincorporated Los Angeles County, within the boundaries of the Angeles National Forest (Exhibit 1). It is located on the U.S. Geological Survey's (USGS') Condor Peak 7.5-minute quadrangle of the San Bernardino Meridian at Township 3 North, Range 12 West, Section 31; Township 2 North, Range 12 West, Section 6; and Township 2 North, Range 13 West, Section 1 (Exhibit 2).

The study area for this jurisdictional delineation includes Big Tujunga Reservoir (which extends approximately two river miles upstream of Big Tujunga Dam), Big Tujunga Canyon Creek (which flows into the reservoir), the plunge pool immediately downstream of Big Tujunga Dam, Big Tujunga Wash (located downstream of the plunge pool for approximately one mile), and the Maple Canyon Sediment Placement Site (SPS) (Exhibit 3). Josephine Canyon Creek, White Oak Canyon Creek, and Fox Canyon Creek are smaller creeks that feed into Big Tujunga Reservoir, but only small portions of these creeks are within the survey area. The topography steeply slopes down into Big Tujunga Canyon; elevations range from approximately 2,150 to 3,400 feet above mean sea level (msl).

1.2 PROJECT DESCRIPTION

The proposed project involves the dewatering of the Big Tujunga Reservoir and the removal of sediment from the reservoir to the nearby Maple Canyon SPS.

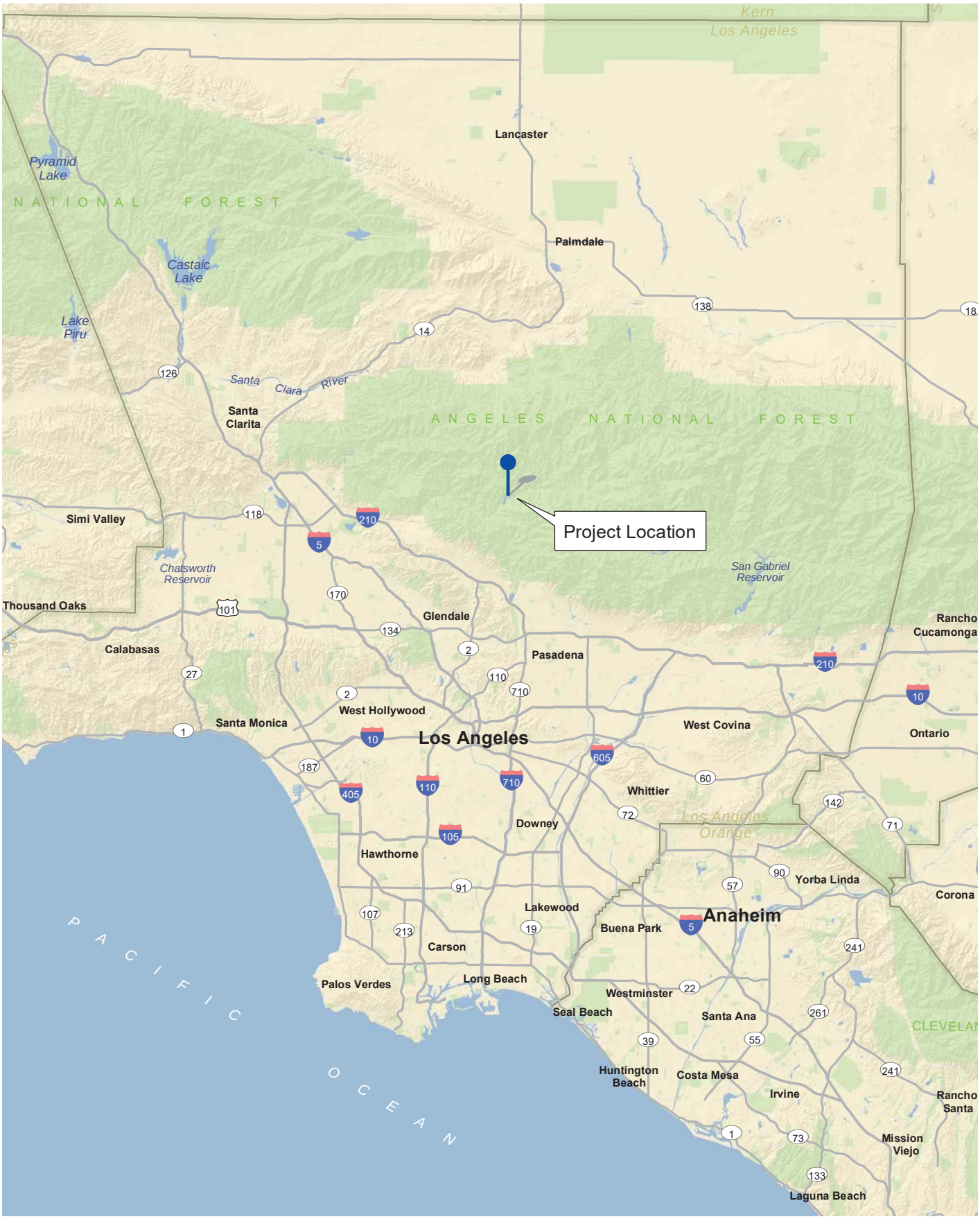
1.3 REGULATORY AUTHORITY

This section summarizes the federal and State agencies' regulatory jurisdiction over activities that have a potential to impact jurisdictional resources. A detailed explanation of each agency's regulatory authority is provided in Attachment A.

1.3.1 U.S. Army Corps of Engineers

The USACE Regulatory Branch regulates activities that discharge dredged or fill materials into "waters of the U.S." (WOTUS) under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Its authority applies to all WOTUS where the material (1) replaces any portion of a WOTUS with dry land or (2) changes the bottom elevation of any portion of any WOTUS. Activities that result in fill or dredge of WOTUS require a permit from the USACE.

Under the Navigable Waters Protection Rule published on April 21, 2020, WOTUS include the following categories: (1) territorial seas and Traditional Navigable Waterways (TNWs); (2) perennial and intermittent tributaries of jurisdictional waters; (3) lakes, ponds, and impoundments



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Regional Location

Exhibit 1

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

N W E S

10 5 0 10 Miles

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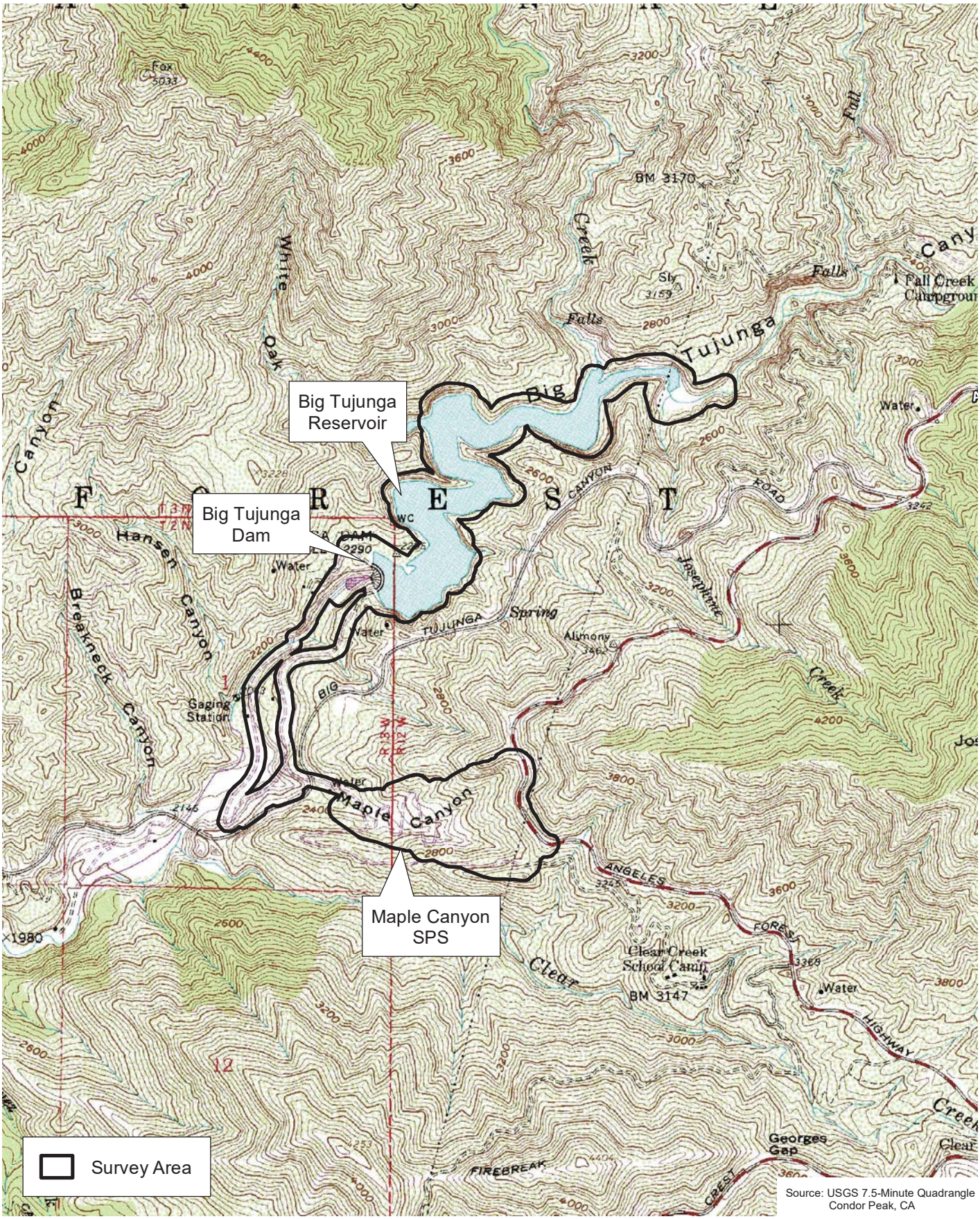

Source: USGS 7.5-Minute Quadrangle
Condor Peak, CA

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U.S. Geological Survey 7.5-Minute Quadrangle

Exhibit 2

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

N W E S

2,000 1,000 0 2,000 Feet

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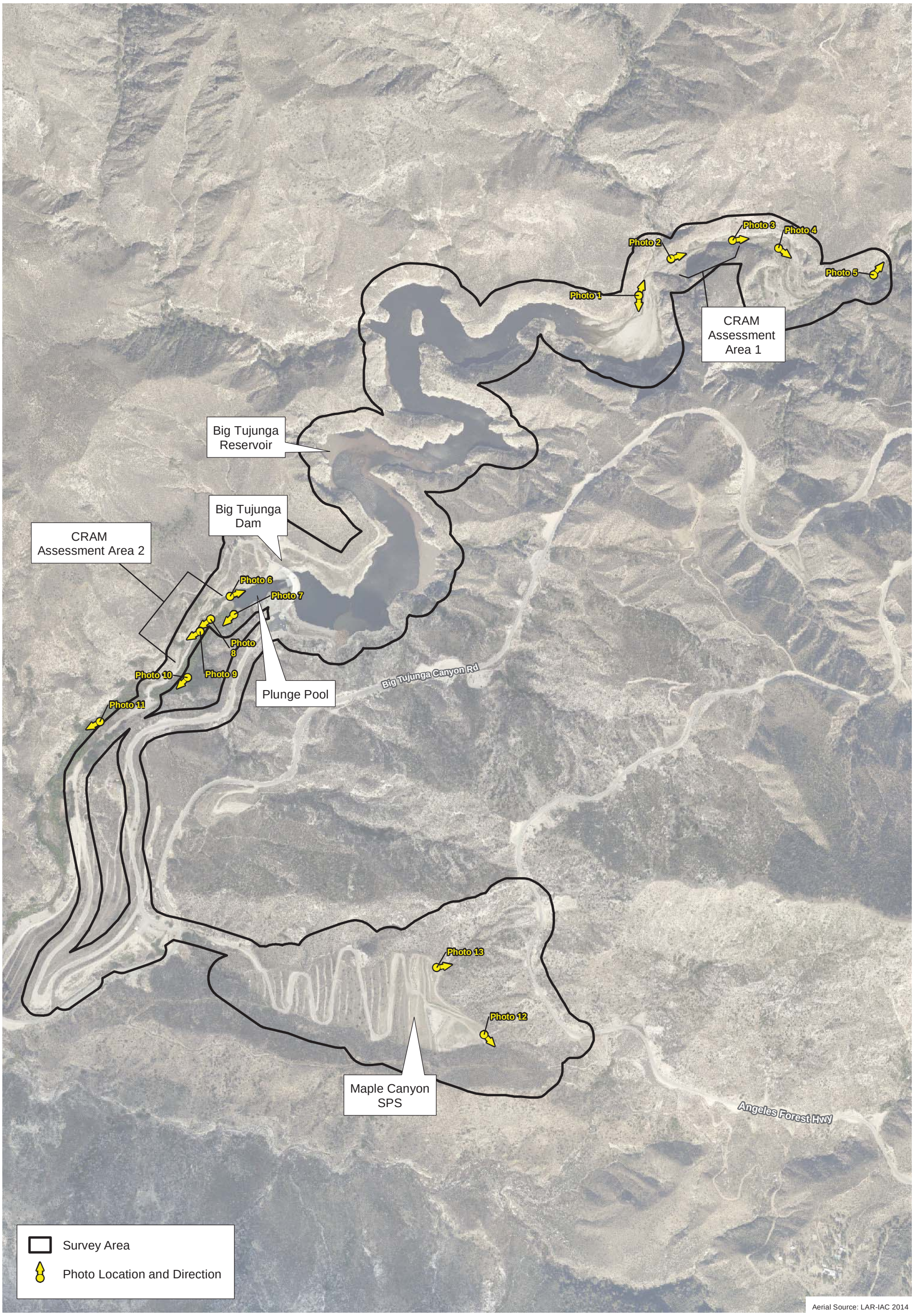

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Project Location

Exhibit 3

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

N W E S

800 400 0 800 Feet

PSOMAS

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that contribute surface water flow to a jurisdictional water in a typical year; and (4) wetlands that are adjacent to non-wetland jurisdictional waters.

1.3.2 Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB), in conjunction with the nine RWQCBs, is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The SWRCB's and RWQCBs' jurisdictions extend to all "waters of the State" and to all WOTUS, including wetlands (isolated and non-isolated).

1.3.3 California Department of Fish and Wildlife

The CDFW regulates activities that may affect rivers, streams, and lakes pursuant to the *California Fish and Game Code* (§§1600–1616). According to Section 1602 of the *California Fish and Game Code,* the CDFW has jurisdictional authority over any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

2.0 METHODS

The three-parameter approach used to identify USACE wetlands is summarized in Sections 2.1 through 2.3; literature reviewed for the preparation of the delineation is outlined in Section 2.4; the California Rapid Assessment Method (CRAM) functional assessment is discussed in Section 2.5; and the field delineation is outlined in Section 2.6.

2.1 VEGETATION

Hydrophytic vegetation (or hydrophytes) is defined as any macrophytic plant that "grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats" (Environmental Laboratory 1987). Specifically, these plant species have specialized morphological, physiological, or other adaptations for surviving in permanently saturated to periodically saturated soils where oxygen levels are very low or the soils are anaerobic. Lichvar and Gillrich (2011) provide the following technical definitions of wetland plant indicator status categories:

- **Obligate Wetland (OBL):** These wetland-dependent plants (herbaceous or woody) require standing water or seasonally saturated soils (14 or more consecutive days) near the surface to assure adequate growth, development, and reproduction and to maintain healthy populations. These plants consist of four types:
    - *submerged:* plants that conduct virtually all of their growth and reproductive activity under water.
    - *floating:* plants that grow with leaves and most often their vegetative and reproductive organs floating on the water surface.
    - *floating-leaved:* plants that are rooted in sediment but also have leaves that float on the water surface.
    - *emergent:* herbaceous and woody plants that grow with their bases submerged and rooted in inundated sediment or seasonally saturated soil and their upper portions, including most of the vegetative and reproductive organs, growing above the water level.
- **Facultative Wetlands (FACW):** These plants depend on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats for assuring optimal growth, development, and reproduction and for maintaining healthy populations. These plants often grow in geomorphic locations where water saturates soils or floods the soil surface at least seasonally.
- **Facultative (FAC):** These plants can occur in wetlands or non-wetlands. They can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology (e.g., shade tolerance, soil hydrogen potential [pH], and elevation) and they have a wide tolerance of soil moisture conditions.
- **Facultative Upland (FACU):** These plants are not wetland dependent. They can grow on hydric and seasonally saturated soils, but they develop optimal growth and healthy populations on predominantly drier or more mesic sites. Unlike FAC plants, these plants are non-wetland plants by habitat preference.

- **Obligate Upland (UPL):** These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

The USACE—as part of an interagency effort with the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA NRCS)—has approved a National Wetland Plant List (NWPL) that provides the current indicator status for plant species. The NWPL is used to determine whether the hydrophytic vegetation parameter is met when conducting wetland determinations under the CWA. The NWPL is also intended to be used for wetland restoration, establishment, and enhancement projects. This report utilized the indicator statuses for the Arid West Supplement portion of the NWPL.

The following are three procedures for determining hydrophytic vegetation: Indicator 1, "Dominance Test", using the "50/20 Rule"; Indicator 2, "Prevalence Index"; or Indicator 3, "Morphological Adaptation", as identified in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Hydrophytic vegetation is present if any indicator is satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

Dominance Test: Vegetative cover is estimated and is ranked according to its dominance. Dominant species are the most abundant species for each stratum of the community (i.e., tree, sapling/shrub, herb, or woody vine) that individually or collectively amount to 50 percent of the total coverage of vegetation plus any other species that, by itself, accounts for 20 percent of the total vegetation cover (also known as the "50/20 Rule"). These species are recorded on the "Wetland Determination Data Form – Arid West Region" (see Attachment B). The wetlands indicator status of each species is also recorded on the data forms based on the *National List of Plant Species that Occur in Wetlands* (Reed 1988). If greater than 50 percent of the dominant species across all strata are OBL, FACW, or FAC species, the criterion for wetland vegetation is considered to be met.

Prevalence Index: The prevalence index considers all plant species in a community, not just the dominant ones. The prevalence index is the average of the wetland indicator status of all plant species in a sampling plot. Each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and is weighted by the species' abundance (percent cover). Hydrophytic vegetation is present if the prevalence index is 3.0 or less.

Morphological Adaptation: Morphological adaptations, such as adventitious roots (i.e., roots that take advantage of the wet conditions) and shallow root systems must be observed on more than 50 percent of the individuals of a FACU species for the hydrophytic vegetation wetland criterion to be met.

2.2 SOILS

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation (USDA NRCS 2017a). It should be noted that hydric soils created under artificial conditions of flooding and inundation sufficient for the establishment of hydrophytic vegetation would also meet this hydric soils indicator.

The soil conditions are verified by digging test pits along each transect to a depth of at least 20 inches (except where a restrictive layer occurs in areas containing hard pan, cobble, or solid rock). It should be noted that, at some sites, it may be necessary to make exploratory soil test pits up to 40 inches in depth to more accurately document and understand the variability in soil properties and hydrologic relationships on the site. Soil test pit locations are usually dug within the drainage invert or at the edge of a drainage course in vegetated areas. Soil extracted from each soil test pit is then examined for texture and color using the standard plates within the Munsell Soil Color Chart (1994) and recorded on the Data Form. The Munsell Soil Color Chart aids in designating soils by color labels based on gradations of three simple variables: hue, value, and chroma. Any indicators of hydric soils such as redoximorphic features (i.e., areas where iron is reduced under anaerobic conditions and oxidized following a return to aerobic conditions); buried organic matter; organic streaking; reduced soil conditions; gleyed (i.e., soils having a characteristic bluish-gray or greenish-gray in color) or low-chroma soils; or sulfuric odor are also recorded on the Data Form. If hydric soils are found, progressive pits are dug along the transect moving laterally away from the active channel area until hydric soil features are no longer present within the top 20 inches of the soil.

2.3 HYDROLOGY

Wetlands hydrology is represented by either (1) all of the hydrological elements or characteristics of areas permanently or periodically inundated or (2) areas containing soils that are saturated for a sufficient duration of time to create hydric soils suitable for the establishment of plant species that are typically adapted to anaerobic soil conditions. The presence of wetland hydrology is evaluated at each intersect by recording the extent of observed surface flows, the depth of inundation, the depth to saturated soils, and the depth to free water in soil test pits. In instances where stream flow is divided into multiple channels with intervening sandbars, the entire area between the channels is considered within the OHWM. Therefore, an area containing these features would meet the indicator requirements for wetland hydrology.

2.4 LITERATURE REVIEW

Prior to conducting the delineation and during the course of report preparation, Psomas reviewed the following documents to identify areas that may fall under agency jurisdiction: the USGS' Condor Peak 7.5-minute quadrangle map; color aerial photography provided by Google Earth; soil data provided by the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA NRCS 2017a); the National Hydric Soils List (USDA NRCS 2017b); the National Wetlands Inventory's Wetland Mapper (USFWS 2017); and the Water Quality Control Plan for the Los Angeles Region (Los Angeles RWQCB 1994).

2.5 CALIFORNIA RAPID ASSESSMENT METHOD

CRAM is a wetland monitoring tool that was developed in response to a monitoring framework recommended by the USEPA (2006) to help States meet monitoring requirements stated in the CWA. Personnel from the USACE, the CDFW, and the RWQCB (among other agencies) participated in the development of CRAM, which these agencies accept as an assessment tool.

A CRAM analysis was conducted concurrently with the jurisdictional delineation field studies. Surveys were conducted in accordance with the *California Rapid Assessment Method (CRAM) for Wetlands and Riparian Areas (Version 6.0)* (CWMW 2013). The CRAM analysis for Riverine

Wetlands[1] was used to establish and score two Assessment Areas (AAs) in the survey area: one in the upper reservoir area and another in Big Tujunga Wash below Big Tujunga Dam.

The AA is the fundamental unit of evaluation for CRAM analysis. The length of each AA is between 100 and 200 meters and depends on the bankfull width of each streambed. The AA width is defined as the outer canopy of vegetation that overhangs the channel, where present.

Information recorded for the AA includes (1) percentage of the AA that was surrounded by a buffer and the condition of the buffer; (2) number of plant layers in the AA; (3) number of codominant species and invasive species; and (4) cross-sectional measurements to determine hydrologic connectivity to adjacent areas. Qualitative factors that were assessed include (1) degree of plant zonation; (2) vertical plant structure; (3) buffer condition; and (4) complexity of the channel's bank features. Worksheets that identified different structural patches and the degree of channel stability were also filled out for use in the assessment. Aerial photos of the site were later analyzed to determine the site's overall landscape connectivity, buffer width, and water sources.

Individual scores are obtained by "choosing the best-fit set of narrative descriptions of observable conditions ranging from the worst commonly observed [D] to the best achievable [A] for the type of wetland being assessed" (CWMW 2013). Each description has a fixed numerical value. This information was used to assess four primary attributes that are equally weighted: (1) Buffer and Landscape Context; (2) Hydrology; (3) Physical Structure; and (4) Biotic Structure. Table 1 provides a description of these attributes and their associated metrics. The attribute score is calculated by first adding the values of the chosen narrative descriptions for the attribute's component metrics, and then converting the sum into a percentage of the maximum possible score for the attribute. The overall CRAM score is the average of the final attribute scores.

CRAM scores for each of the 4 attributes range from 25 to 100. CRAM scores provide an assessment of the level of the various functions and services provided by an aquatic system. The score is a relative measurement to indicate how an individual site compares to the best achievable conditions for that wetland type in the State. It is assumed that the same scores for different wetlands of the same type represent the same overall condition and functional capacity. Therefore, these scores may be used to track the progress of restoration efforts over time; to compare impacted sites to their in-kind mitigation sites; or to compare an individual wetland to the status and trends in ambient condition of its wetland type.

[1] CRAM uses the definition of a wetland provided by the National Wetland Inventory (NWI) of the USFWS: "Wetlands are lands transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is not a soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin et al. 1979).

TABLE 1
DESCRIPTION OF CRAM ATTRIBUTES AND METRICS

Attribute	Metric		Description
Buffer and Landscape Context	Stream Corridor Continuity		Measures continuity along the stream corridor for wildlife movement; non-buffer land types are identified 500 meters upstream and downstream of Assessment Area.
	Buffer Condition		Combination of the three sub-metric scores described below.
	Sub-metrics	Percent of Assessment Area with Buffer	Measures percentage of Assessment Area perimeter that contains land cover types that provide a buffer.
		Average Buffer Width	Measures the average width of identified buffer land types around Assessment Area.
		Buffer Condition	Qualitatively evaluates buffer condition.
Hydrology	Water Source		Qualitatively evaluates impacts to the extent, duration, and frequency of saturated or ponded conditions .
	Channel Stability		Qualitatively evaluates channel equilibrium, degradation, or aggradation.
	Hydrologic Connectivity		Measures the entrenchment of the channel to determine the ability for water to inundate adjacent upland areas.
Physical Structure	Structural Patch Richness		Measures the diversity of physical riparian features that may potentially provide habitat for aquatic species (e.g., vegetated islands, pools, riffles).
	Topographic Complexity		Qualitatively evaluates the micro- and macro-topographic relief and variety of elevations.
Biotic Structure	Plant Community Composition		Average of the three sub-metric scores described below.
	Sub-metrics	Number of Plant Layers	Identifies of number of plant strata.
		Number of Co-dominant Species	Identifies the number of co-dominant plant species based on visual estimation.
		Percent Invasion	Measures the percent of invasive plant species among the co-dominant species identified above.
	Horizontal Interspersion		Qualitatively evaluates the variety and distribution of plant associations.
	Vertical Biotic Structure		Assesses the degree of overlap among plant strata.

Source: CWMW 2013.

2.6 JURISDICTIONAL DELINEATION

In September 2008, the USACE issued the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* This regional supplement is designed for use with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Both the 1987 Wetlands Manual and the Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of "waters of the U.S." and wetland resources. A three-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. Wetlands generally include swamps, marshes, bogs, and similar areas. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within the three parameters. However, problem areas may periodically or permanently lack certain indicators due to seasonal or annual variability of the nature of the soils or plant species on site. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement. Non-wetland WOTUS are delineated based on the limits of the ordinary high water mark (OHWM), which can be determined by a number of factors including erosion, the deposition of vegetation or debris, and changes in vegetation.

It should be noted that the RWQCB shares USACE jurisdiction unless isolated conditions are present. If isolated waters conditions are present, the RWQCB takes jurisdiction using the USACE's definition of the OHWM and/or the three-parameter wetlands methodology pursuant to the 1987 Wetlands Manual. The CDFW's jurisdiction is defined as the top of the bank to the top of the bank of the stream, channel, or basin or to the outer limit of riparian vegetation located within or immediately adjacent to the river, stream, creek, pond, or lake or other impoundment.

The analysis contained in this report uses the results of a field survey conducted by Psomas Regulatory Specialist David Hughes and Environmental Planner Daria Sarraf on May 31, 2017, and Mr. Hughes on June 20, 2017. Jurisdictional features were delineated using a 1 inch equals 100 feet (1″ = 100′) scale aerial photograph. Jurisdictional features were delineated as a drainage polygon with corresponding width measurements. A preliminary assessment of the presence of wetland WOTUS was made based on vegetation and hydrology; if potential wetlands were observed, test pits were dug to analyze soil and to confirm the presence or absence of wetlands. Information on the OHWM was recorded on the Arid West Ephemeral and Intermittent Streams OHWM Datasheet (Attachment C). The field survey included the collection of vegetation, soils, and hydrologic data from 15 sampling points in the survey area; this information was recorded on Wetland Determination Data Forms (Attachment B). Representative photographs of the survey area are included in Attachment D.

3.0 EXISTING CONDITIONS

The overall hydrological, soil, and habitat conditions that exist at the project site are described in Sections 3.1 through 3.3 to provide additional context to the determination of jurisdictional resources described in Section 4. The results of the CRAM evaluation of the on-site riparian conditions is provided in Section 3.4.

3.1 HYDROLOGY

Upper Big Tujunga Creek is a perennially flowing stream with a watershed that is entirely in the Angeles National Forest so that its flows are entirely dependent on natural precipitation. This hydrology presumably would have been true historically for the downstream portions of the study area. However, natural stream flows and the process of sediment transport have been disrupted by the construction of Big Tujunga Dam. The presence of the dam largely prevents transport of sandy sediment from the upper portions of the study area to the lower portions, so that sediment steadily accumulates above the dam.

Water is released through the dam during typical years, though the rate of water that is released is highly variable. At the time of the field surveys for this report, the amount of water released from Big Tujunga Dam was 5.7 cubic feet per second (cfs) (Villegas 2017), which was recently reduced from 9.9 cfs. However, the peak release rate in February 2017 was approximately 200 cfs. Therefore, these higher flows likely scour sand and silt from the streambed areas below the dam and the presence of the dam prevents replenishment of this material. Seasonally high flows also likely scour much of the understory habitat. Willow saplings were commonly seen knocked over in the streambed as evidence of the previous high flow rates released through the dam.

There are two areas immediately downstream of the plunge pool in which water is seeping from the canyon wall and encouraging the establishment of various herbaceous and grass species that are often associated with wetland conditions. No obvious flowing water was observed, but the soil was saturated and water is ponding on the compacted adjacent dirt road.

In the Maple Canyon SPS area, the watershed is limited to the canyon area itself. The streambeds in this area are ephemeral and dominated by chaparral habitat. Flowing water is assumed to be infrequent and minimal. Conditions overall are very dry. Two debris/desilting basins occur at the bottom of the canyon.

3.2 VEGETATION

The uppermost portion of the Big Tujunga Reservoir area and the Upper Big Tujunga Creek are dominated by willow riparian forest and willow riparian scrub habitat. The areas that are furthest upstream contain the most mature habitat with larger trees and dense and diverse understory. These areas have moderately large arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Fremont cottonwood (*Populus fremontii*), and white alder (*Alnus rhombifolia*) trees that are approximately three to eight inches in trunk diameter. Further downstream where habitat is inundated more frequently, the willow vegetation is mostly shrubby with arroyo willow and red willow saplings approximately ½ to 2 inches in trunk diameter. Habitat conditions generally become more sparse until reaching the open water portion of the Big Tujunga Reservoir.

Downstream of the dam, habitat conditions are fairly uniform in Big Tujunga Wash with habitat dominated by young arroyo and red willows. Understory habitat is very sparse, generally consisting of species that quickly establish such as crofton weed (*Ageratina adenophora*) and broad-leaved cattails (*Typha latifolia*). These understory conditions are consistent with the hydrological regime of the area, in which high rates of water discharge through the dam in the

winter likely scour understory vegetation, and weedy species such as crofton weed are the first species to re-colonize the area in the spring and summer.

Vegetation associated with the two seeps described above generally consists of crofton weed, broad-leaved cattails, barnyard grass (*Echinochloa crus-galli*), Mexican sprangletop (*Leptochloa fusca* ssp. *uninervia*), rabbitsfoot grass (*Polypogon monspeliensis*), and smilo grass (*Stipa miliaceum*).

Vegetation in the Maple Canyon SPS area mostly consists of chamise chaparral and scrub oak chaparral. Much of the area consists of sediment that has been transported there and revegetated.

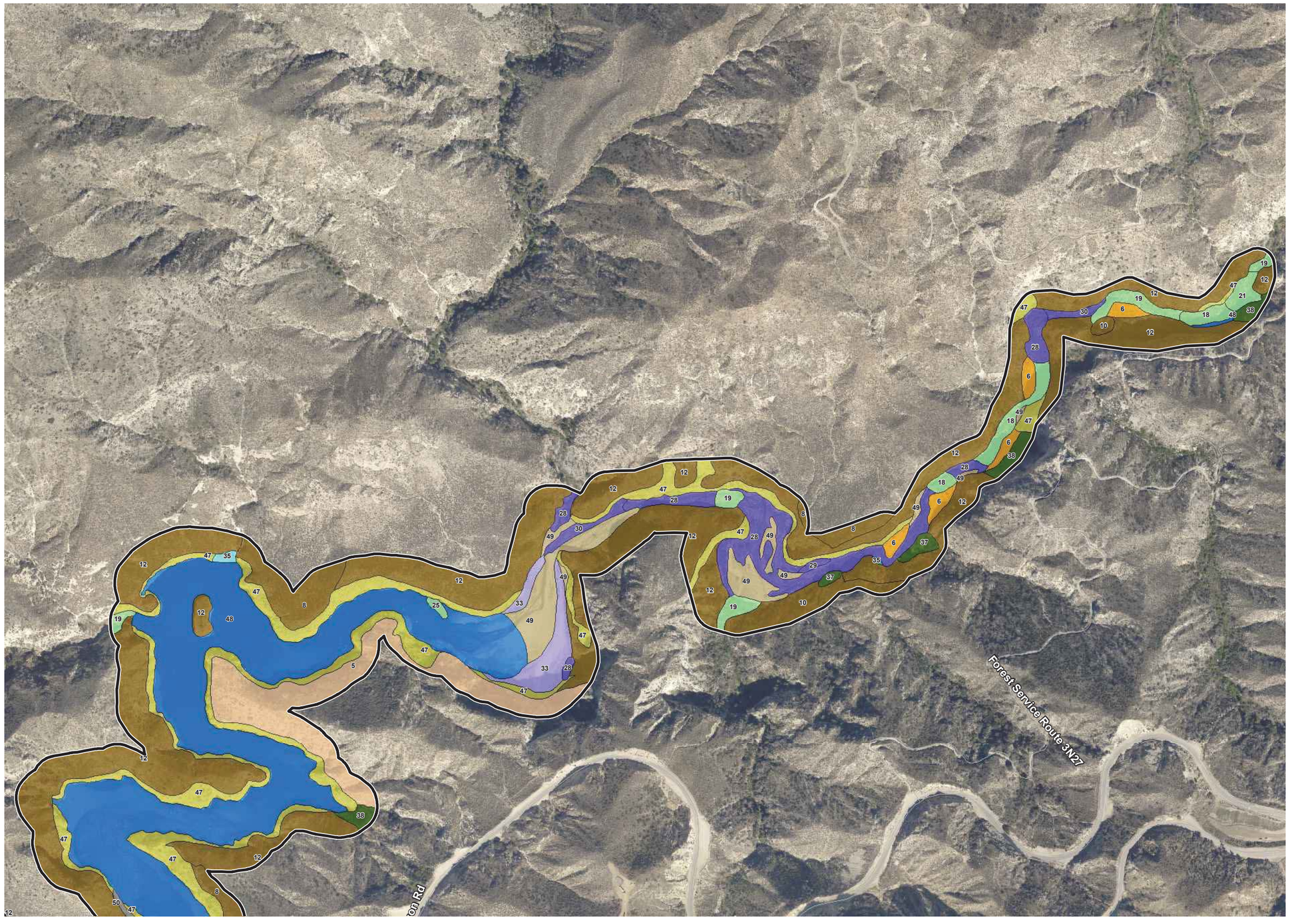
Vegetation throughout the project area was mapped during special status botanical surveys in 2011 and updated in 2017 (Psomas 2017a) (Exhibit 4). The following vegetation types and land covers were observed in the project area: California buckwheat scrub, disturbed California buckwheat scrub, laurel sumac scrub, scale broom scrub, thick leaf yerba santa scrub, chamise chaparral, chamise chaparral–thick leaf yerba santa scrub, scrub oak chaparral, hoary leaf ceanothus chaparral, birch leaf mountain mahogany chaparral, white alder grove–California sycamore woodland, white alder grove–willow thicket, California sycamore woodland–red willow thicket, black willow thicket, arroyo willow thicket, sandbar willow thicket, mulefat thicket, annual brome grassland, Russian thistle field, smartweed-cocklebur patch, freshwater seep, disturbed freshwater seep, coast live oak woodland, bigcone Douglas fir–canyon live oak forest, native planting, non-native planting, cliff, open water, dry wash, disturbed, and developed/ornamental.

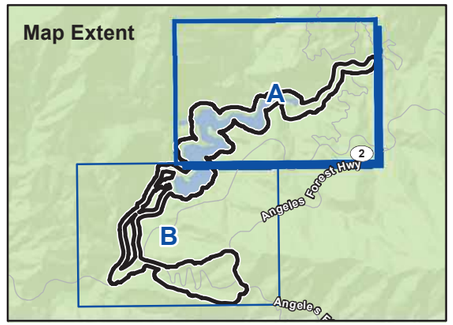
3.3 SOILS

As stated above, upstream of the dam, soils in the riparian areas generally consist of very deep sand, the result of ongoing sediment accumulation. Downstream of the dam, high stream flows scour sand and silt from the stream bottoms, and the dam prevents new sediment from reaching these areas. As a result, the stream bottom downstream of the dam consists of large rock. Broad-leaved cattails are establishing in pockets of the streambed where water velocity has slowed; the dense roots of this species capture the minimal sediment that is suspended in the water that is released through the dam.

3.4 CALIFORNIA RAPID ASSESSMENT METHOD

Two AAs were established in the survey area to evaluate site conditions. CRAM scores associated with jurisdictional resources were generally very high, which reflects the dense riparian habitat and the natural setting in which the streambed resources occur. The streambed area in the upper reservoir area received a score of 78.5 and the streambed below the Big Tujunga Dam received a score of 75.4. CRAM scores provide an assessment of the level of the various functions and services provided by an aquatic system. As described in Section 2.5, scores for each of the 4 attributes can range from a minimum of 25 to a maximum of 100, with the final score represented as an average of the 4 attribute scores. The final scores for the two AAs are fairly high, a reflection of their mostly natural condition. A summary of the results of the CRAM evaluation is provided in Table 2. The CRAM datasheets for each AA are provided in Attachment E. A summary of field conditions that determined the CRAM scores for each attribute is provided below.





Survey Area

Vegetation Types and Other Areas

- Sage Scrub
  - 5 : Laurel Sumac Scrub
- Alluvial Scrub
  - 6 : Scale Broom Scrub
- Chaparral
  - 8 : Chamise Chaparral
  - 10 : Scrub Oak Chaparral
  - 12 : Birch Leaf Mountain Mahogany Chaparral
- Riparian Forest
  - 18 : White Alder Grove–California Sycamore Woodland
  - 19 : White Alder Grove–Willow Thicket
  - 21 : California Sycamore Woodland–Red Willow Thicket
  - 25 : Black Willow Thicket
- Riparian Scrub
  - 28 : Arroyo Willow Thicket
  - 29 : Sandbar Willow Thicket
  - 30 : Mulefat Thicket
- Riparian Herb
  - 33 : Smartweed–Cocklebur Patch
- Seep
  - 35 : Freshwater Seep
- Forest/Woodland
  - 37 : Coast Live Oak Woodland
  - 38 : Bigcone Douglas Fir–Canyon Live Oak Forest
- Cliff/Rock
  - 47 : Cliff
- Open Water
  - 48 : Open Water
- Alluvium
  - 49 : Dry Wash
- Other Landcover
  - 50 : Disturbed

*Open water boundaries observed in October 2017, though variable throughout year.
Aerial Source: LAR-IAC 2014

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Existing Vegetation

Exhibit 4A

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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600 300 0 600 Feet

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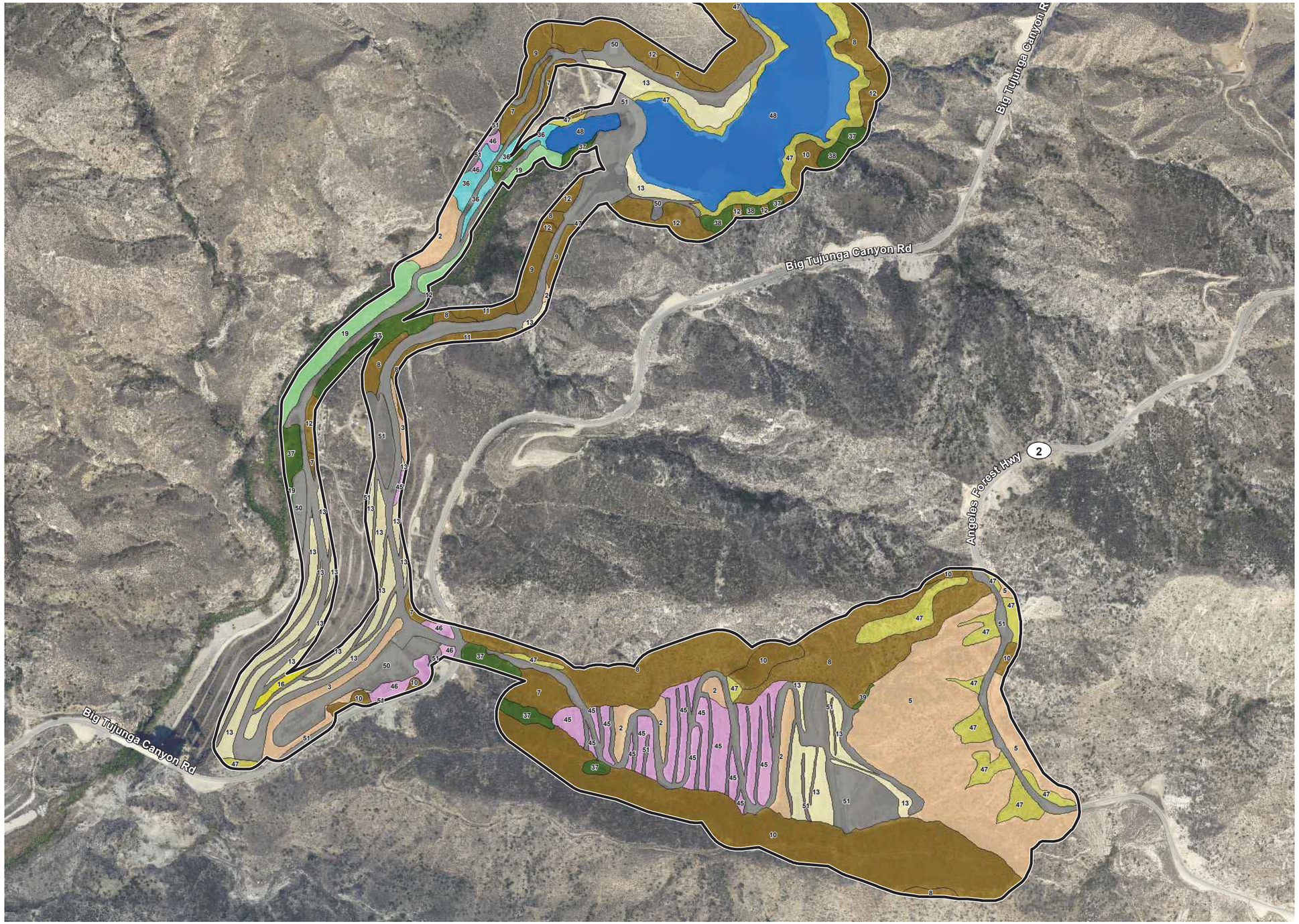

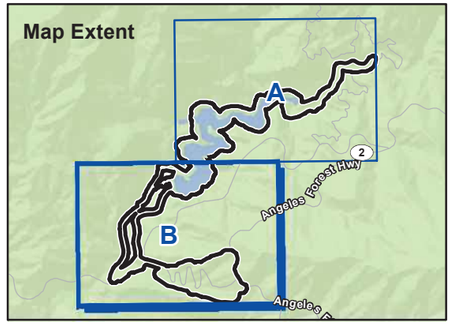

Survey Area

Vegetation Types and Other Areas

- Sage Scrub
  - 2 : California Buckwheat Scrub
  - 3 : Disturbed California Buckwheat Scrub
  - 5 : Laurel Sumac Scrub
- Chaparral
  - 7 : Thick Leaf Yerba Santa Scrub
  - 8 : Chamise Chaparral
  - 9 : Chamise Chaparral–Thick Leaf Yerba Santa Scrub
  - 10 : Scrub Oak Chaparral
  - 11 : Hoary Leaf Ceanothus Chaparral
  - 12 : Birch Leaf Mountain Mahogany Chaparral
- Grassland
  - 13 : Annual Brome Grassland
- Ruderal
  - 16 : Russian Thistle Field
- Riparian Forest
  - 19 : White Alder Grove–Willow Thicket
- Seep
  - 36 : Disturbed Freshwater Seep
- Forest/Woodland
  - 37 : Coast Live Oak Woodland
  - 38 : Bigcone Douglas Fir–Canyon Live Oak Forest
  - 39 : California Sycamore Woodland
- Ornamental Plantings
  - 45 : Native Planting
  - 46 : Non-native Planting
- Cliff/Rock
  - 47 : Cliff
- Open Water
  - 48 : Open Water
- Other Landcover
  - 50 : Disturbed
  - 51 : Developed/Ornamental

*Open water boundaries observed in October 2017, though variable throughout year.
Aerial Source: LAR-IAC 2014

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Existing Vegetation

Exhibit 4B

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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Feet

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TABLE 2
SUMMARY OF CRAM SCORES

Attribute	Metric	Score	
		AA1 (Upstream)	**AA2 (Downstream)**
Buffer and Landscape Context	Landscape Connectivity	A (12)	D (3)
	Buffer Condition (sub-metrics below)		
	Percentage of Assessment Area Perimeter with Buffer	A (12)	A (12)
	Average Buffer Width	A (12)	C (6)
	Buffer Condition	A (12)	A (12)
	Attribute Score	**100.0**	**54.5**
Hydrology	Water Source	A (12)	C (6)
	Hydroperiod/Channel Stability	C (6)	B (9)
	Hydrologic Connectivity	A (12)	A (12)
	Attribute Score	**83.3**	**75.0**
Physical Structure	Structural Patch Richness	C (6)	A (12)
	Topographic Complexity	C (6)	A (12)
	Attribute Score	**50.0**	**100.0**
Biotic Structure	Plant Community (sub-metrics below)		
	Number of Plant Layers	A (12)	A (12)
	Number of Co-dominant Species	A (12)	B (9)
	Percent of Co-dominant Species Known to be Invasive	B (9)	A (12)
	Horizontal Interspersion/Plant Zonation	C (6)	C (6)
	Vertical Biotic Structure	A (12)	B (9)
	Attribute Score	**80.6**	**72.2**
	Overall AA Score	***78.5***	***75.4***

AA: Assessment Area

Note: Scores are shown as the letter grade given to each metric with the corresponding numeric score in parentheses.
AA1 is located in the upper portion of Big Tujunga Reservoir; AA2 is located in Big Tujunga Wash below Big Tujunga Dam.

3.4.1 Buffer and Landscape Context Attribute

Scores for the metrics in this attribute are generally high throughout the survey area. Both AAs are surrounded by high quality buffer areas, though the score for buffer width was somewhat lower for the downstream AA due to the presence of various access roads. The principal difference between the two AAs is that the downstream AA was located within 500 meters of Big Tujunga Dam, which presents a significant impediment to connectivity, where the upstream AA was more than 500 meters from the dam.

3.4.2 Hydrology Attribute

The metrics in this attribute generally received high scores. The hydrology of the upstream AA is entirely affected by natural precipitation as the watershed is within the Angeles National Forest. As a result, the water source metric received a score of 'A'. On the other hand, the hydrology of the downstream AA is completely dependent on releases from the dam, so that the water source metric received a score of 'C'. As discussed above, the presence of the dam prevents sediment from being naturally transported from upper portions of the streambed to lower portions, which has affected the scores for Hydroperiod/Channel Stability. Therefore, there is significant aggradation (sediment accumulation) in the upstream AA (resulting in a score of 'C') and there is moderate degradation (scour) in the downstream AA (resulting in a score of 'B'). The Hydrological

Connectivity metric is a measure of the ability for water to escape the low-flow channel and affect adjacent areas. This score is based on the ratio of the width and depth of the channel; both the upstream and downstream AAs received an 'A' score indicating that the low-flow channels are hydrologically connected to the adjacent areas.

3.4.3 Physical Structure Attribute

The upstream AA received scores of 'C' for both the Structural Patch Richness metric and the Topographic Complexity metric, while the downstream metric received 'A' scores for both metrics. Eight structural patches (as listed in the CRAM forms in Attachment E) were observed in the downstream AA while five structural patches were observed in the upstream AA. The difference in the Topographic Complexity scores between the two AAs is largely the result of disruption of sediment transport caused by the dam. The upstream AA has significant amounts of accumulated sediment, which has led to stream banks with a single sandy bench. The stream banks of the downstream AA are much rockier and have more than one bench with significant micro-topography.

3.4.4 Biotic Structure Attribute

Both AAs received high scores for this attribute due to the dense nature of the riparian habitat in the upstream and downstream portions of the project area. The downstream AA is subject to intense scour when water released from the dam reaches rates of up to 200 cfs. As discussed above, this has led to poorly developed midstory and understory strata in areas downstream of Big Tujunga Dam, while habitat in the upper reservoir area has dense midstory and understory vegetation. These differences are not well represented in the habitat scores (e.g., Number of Plant Layers, Number of Co-dominant Species), because the threshold for determining the presence of a habitat layer is low (five percent of the total AA) and a dominant species is one that occupies ten percent relative cover of that habitat layer. So, though the downstream AA has sparse midstory and understory vegetation, there is little difference in the scores between the upstream and downstream AAs. However, the difference in the habitat strata is documented in the Vertical Biotic Structure metric. Because there is significant overlap among three habitat layers in the upstream AA, that area received a score of 'A'. The downstream AA had only moderate overlap among two layers, so that it received a score of 'B'.

4.0 RESULTS

A description of the literature review results is provided in Section 4.1, and a detailed analysis of each regulatory agency's jurisdiction is provided in Section 4.2.

4.1 LITERATURE REVIEW

USGS Topographic Quadrangle. The USGS quadrangle maps show geological formations and their characteristics; they describe the physical settings of an area through topographic contour lines and other major surface features. These features include lakes, streams, rivers, buildings, roadways, landmarks, and other features that may fall under the jurisdiction of one or more regulatory agencies. In addition, the USGS maps provide topographic information that is useful in determining elevations, latitude and longitude, and Universal Transverse Mercator (UTM) Grid coordinates for a survey area.

The project site is shown on the USGS Condor Peak 7.5-minute quadrangle map (Exhibit 2). Big Tujunga Canyon Creek and Big Tujunga Reservoir are identified on this map along with three blueline streams that drain into Big Tujunga Reservoir: Josephine Canyon Creek, White Oak Canyon Creek, and Fox Canyon Creek.

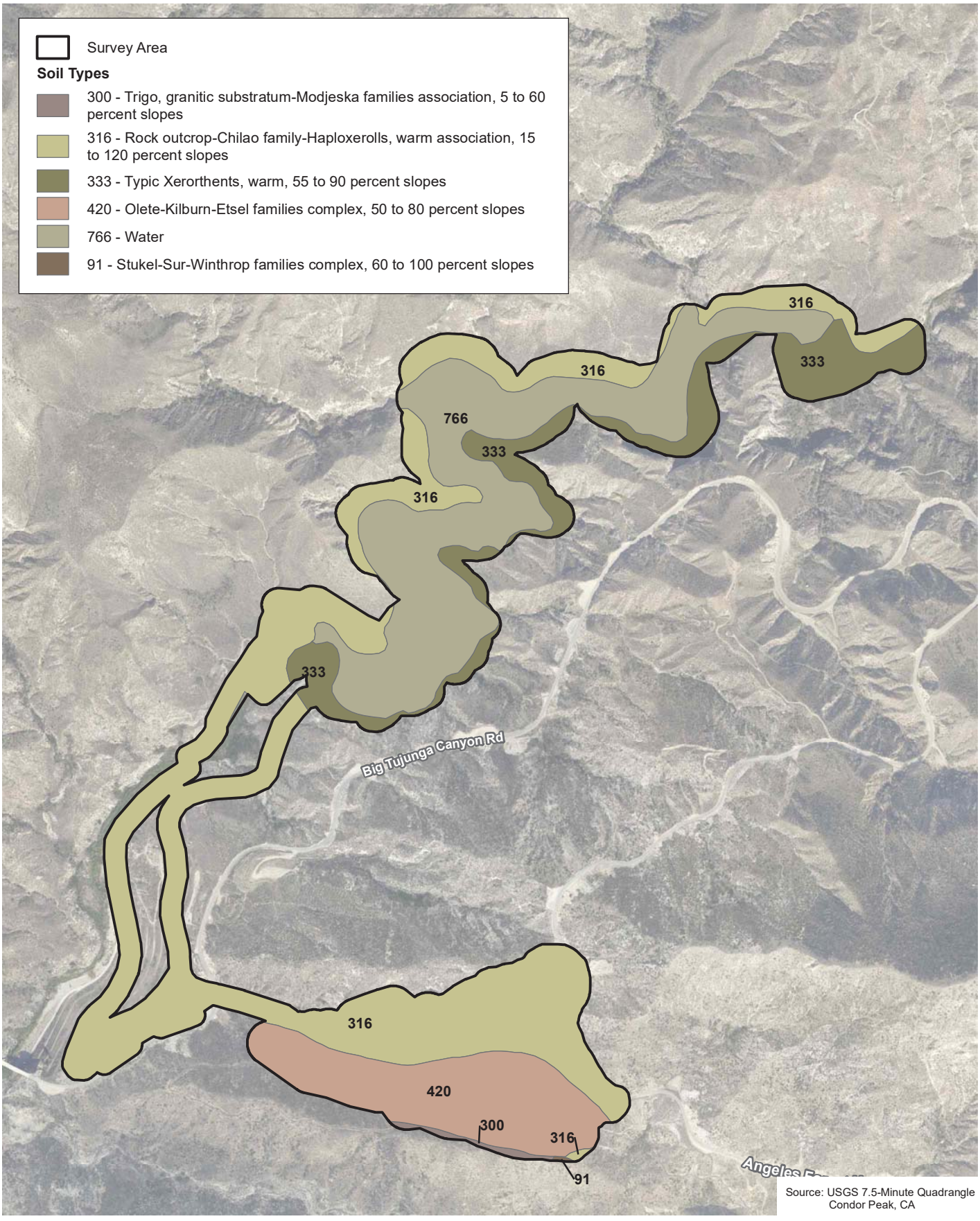
Color Aerial Photography. Psomas reviewed an existing color aerial photograph prior to conducting the field delineation to identify the extent of any drainages/waterbodies and riparian vegetation occurring in the survey area.

Big Tujunga Canyon Creek, Big Tujunga Reservoir, Big Tujunga Wash, Josephine Canyon Creek, White Oak Canyon Creek, Fox Canyon Creek, and associated vegetation are visible on the aerial photograph (Exhibit 3). Surface water is visible in Google Earth aerial images taken at multiples times, including April 2017, April 2015, and May 2013.

U.S. Department of Agriculture, Natural Resources Conservation Service. The presence of hydric soils is one of the chief indicators of jurisdictional wetlands. Psomas reviewed the USDA's soil data for the survey area (USDA NRCS 2006).

Soils on the project site are shown on Exhibit 5 and consist of Trigo, granitic substratum-Modjeska families association (5 to 60 percent slopes); Rock outcrop-Chilao family-Haploxerolls, warm association (15 to 120 percent slopes); Typic Xerorthents, warm (55 to 90 percent slopes); Olete-Kilburn-Etsel families complex (50 to 80 percent slopes); and Stukel-Sur-Winthrop families complex (60 to 100 percent slopes). No soils mapped on the project site are listed as "hydric" on the National Hydric Soils List (USDA NRCS 2017b). Available descriptions of the soil series mapped on the project site are provided in Attachment F of this report.

U.S. Fish and Wildlife Service, National Wetlands Inventory. The NWI Wetland Mapper shows wetland resources available from the Wetlands Spatial Data Layer of the National Spatial Data Infrastructure. This resource provides the classification of known wetlands following the Classification of Wetlands and Deepwater Habitats of the United States (FGDC 2013). This classification system is arranged in a hierarchy of (1) Systems that share the influence of similar hydrologic, geomorphologic, chemical, or biological factors (i.e., Marine Estuarine, Riverine, Lacustrine, and Palustrine); (2) Subsystems (i.e., Subtidal and Intertidal; Tidal, Lower Perennial, Upper Perennial, and Intermittent; or Littoral and Limnetic); (3) Classes, which are based on substrate material and flooding regime or on vegetative life forms; (4) Subclasses; and (5) Dominance Types, which are named for the dominant plant or wildlife forms. In addition, there are modifying terms applied to Classes or Subclasses.



Source: USGS 7.5-Minute Quadrangle
Condor Peak, CA

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Soil Types

Exhibit 5

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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Resources on the project site upstream of Big Tujunga Dam are mapped as L1UBK, L2USK, R3USC, R5UBF, PFOA, and PFOC. Resources downstream of Big Tujunga Dam are mapped as PEM1C and R4SBC. The lower portion of the Maple Canyon SPS is shown as PFOC (Exhibit 6). The descriptions for mapped wetland resources are provided in Attachment F of this report.

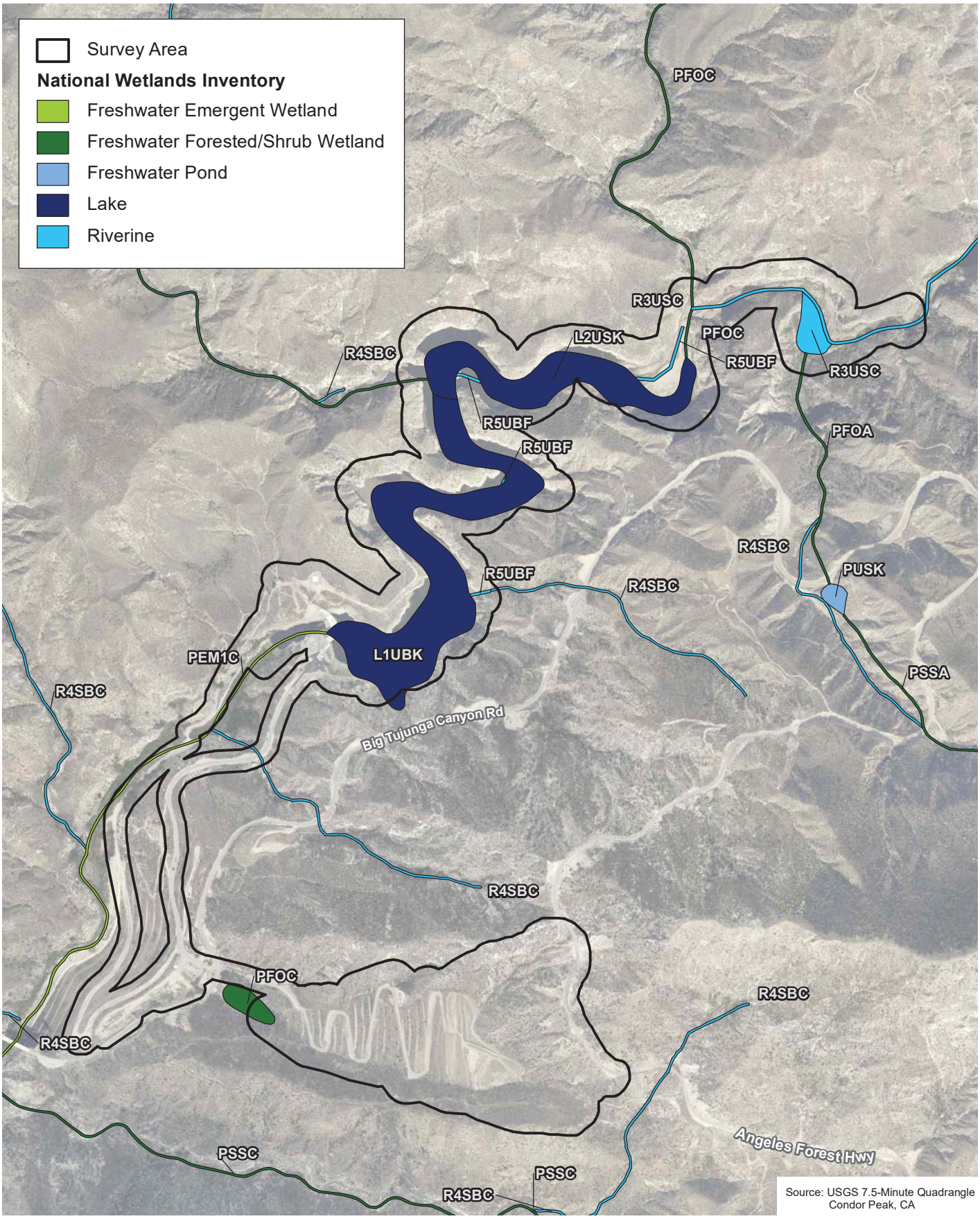
Regional Water Quality Control Plans. There are nine RWQCBs in California. The survey area is located in RWQCB Region 4, the Los Angeles Region. The Los Angeles RWQCB has adopted a Water Quality Control Plan (or "Basin Plan") for the coastal watersheds of Los Angeles and Ventura Counties. The Basin Plan contains goals and policies, descriptions of conditions, and proposed solutions to surface and groundwater issues. The Basin Plan also establishes water quality standards for surface and groundwater resources and includes beneficial uses and levels of water quality that must be met and maintained to protect these uses. These water quality standards are implemented through various regulatory permits pursuant to the CWA, specifically Section 401 for Water Quality Certifications and Section 402 for Report of Waste Discharge (ROWD) permits.

The Basin Plan indicates that the project site is located within the Los Angeles-San Gabriel River Hydrologic Unit, the San Fernando Hydrologic Area Split, and the Tujunga Hydrologic Subarea (HSA). The Basin Plan provides Water Quality Objectives for the Tujunga HSA as summarized in Table 3.

TABLE 3
WATER QUALITY OBJECTIVES FOR THE
TUJUNGA HYDROLOGIC SUBAREA

Water Quality Objectives (mg/L)					
Total Dissolved Solids	**Sulfate**	**Chloride**	**Boron**	**Nitrogen**	**Sodium Adsorption Ratio**
350	50	20	*	*	*
mg/L: milligrams per liter; * site-specific objectives have not been determined.					
Source: RWQCB 1994.					

Beneficial uses are defined in the Porter-Cologne Act as those uses of water that are necessary for tangible and intangible economic, social, and environmental benefits. The Basin Plan identifies a number of existing or potential beneficial uses for waters in the survey area: Municipal and Domestic Water Supply (MUN); Groundwater Recharge (GWR); Warm Fresh Water Habitat (WARM); Cold Fresh Water Habitat (COLD); Wildlife Habitat (WILD); Rare, Threatened or Endangered Species (RARE) waters; Spawning, Reproduction, or Early Development of Aquatic Organisms (SPWN); Potential Presence of Wetlands (WET); Water Contact Reservation (REC-1); and Non-contact Water Recreation (REC-2) (Table 4).Possible effects to these existing and potential beneficial uses would need to be addressed as part of the request for a CWA Section 401 Water Quality Certification for this project. Descriptions of the beneficial uses applicable to waters in the survey area are provided in Attachment F of this report along with the project's anticipated impact to these beneficial uses.



Source: USGS 7.5-Minute Quadrangle
Condor Peak, CA

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National Wetlands Inventory

Exhibit 6

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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TABLE 4
SUMMARY OF BENEFICIAL USES

Feature	Beneficial Uses									
	MUN	**GWR**	**WARM**	**COLD**	**WILD**	**RARE**	**SPWN**	**WET**	**REC1**	**REC2**
Big Tujunga Wash (Hanson Dam to Big Tujunga Reservoir) WBD 180701050105	P	E	E	E	E	E	E	E	E	E
Big Tujunga Reservoir WBD 180701050103	P	E	E	P	E	E	E	–	P	E
Big Tujunga Canyon Creek (Above Big Tujunga Reservoir) WBD 180701050105	P	E	E	E	E	E	E	E	E	E

WBD: Watershed Boundary Dataset; MUN: Municipal Water Supply; GWR: Ground Water Recharge; WARM: Warm Freshwater Habitat; COLD: Cold Freshwater Habitat; WILD: Wildlife Habitat; RARE: Rare, Threatened, or Endangered Species; SPWN: Spawning, Reproduction, and/or Early Development; WET: Wetland Habitat; REC1: Limited Water Contact Recreation; REC2: Non-Contact Water Recreation;

E: Existing Beneficial Use; P: Potential Beneficial Use

Source: Los Angeles RWQCB 1994.

4.2 JURISDICTIONAL ANALYSIS

As described in Attachment A, the USACE asserts jurisdiction over WOTUS, which include the following waters: (1) territorial seas and TNWs; (2) perennial and intermittent tributaries of jurisdictional waters; (3) lakes, ponds, and impoundments that contribute surface water flow to a jurisdictional water in a typical year; and (4) wetlands that are adjacent to non-wetland jurisdictional waters.

This section provides analysis to determine whether waters in the project area are considered under the jurisdiction of the USACE based on the definitions provided above. As described in Section 2.0, wetlands are determined by documenting the presence of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology.

The RWQCB shares jurisdiction with the USACE, but the RWQCB also asserts jurisdiction over other features that are considered non-jurisdictional by the USACE. Examples include unless isolated waters (waters without a clear connection to a TNW) are present. The CDFW asserts jurisdiction over the bed and bank of lake and streambed features as well as associated riparian vegetation.

4.2.1 "Waters of the U.S." Determination

Big Tujunga Canyon Creek flows into Big Tujunga Reservoir. Water is released through Big Tujunga Dam in a typical year and flows into Big Tujunga Wash, which reaches Hansen Flood Control Basin. Flows that are discharged through Hansen Dam travel through Tujunga Wash, which conveys flows to the Los Angeles River, which ultimately flows into the Pacific Ocean in the City of Long Beach. The project site is approximately 62 river miles and 37 aerial miles from the Pacific Ocean. Due to the clear connection to the Los Angeles River and the Pacific Ocean, waters in the survey area would be considered to be a tributary to a TNW. However, drainage features that do not have intermittent or perennial flows (i.e., ephemeral) are specifically excluded from the definition of WOTUS. Ephemeral drainage features in the survey area that are excluded from USACE jurisdiction include all drainages mapped in the Maple Canyon SPS and ephemeral tributaries to Big Tujunga Wash.

Limits of "Waters of the U.S."

The limits of non-wetland WOTUS were defined by the presence of the OHWM. Evidence of an OHWM for the drainage consists of sediment deposits along hardened banks and scour marks in other portions of drainage. Arid West Ephemeral and Intermittent Streams OHWM Datasheets were completed for areas showing evidence of an OHWM (see Attachment C). Based on the field observations and data collected, approximately 70.65 acres of non-wetland WOTUS occur within the project site. This consists of 62.79 acres within Big Tujunga Reservoir/Upper Big Tujunga Creek, 1.45 acres within the plunge pool immediately downstream of Big Tujunga Dam, and 6.41 acres within Big Tujunga Wash to the Big Tujunga Canyon Road overpass (See Table 5). The Maple Canyon SPS area contains only ephemeral drainages that are not considered WOTUS. The extent of WOTUS on the project site is shown on Exhibit 7. These resources are also provided in Attachment G at a lower scale on multiple maps.

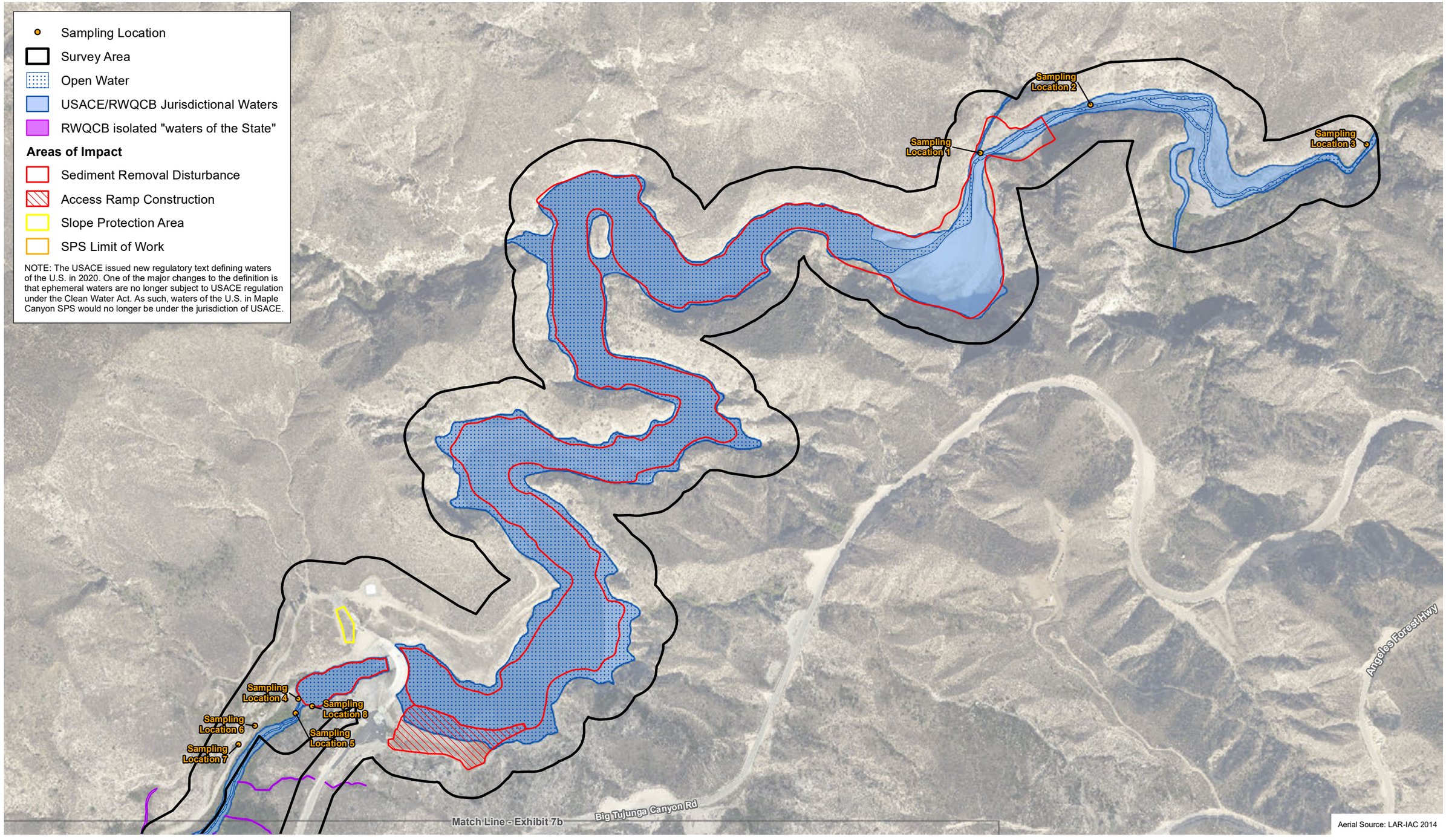
TABLE 5
USACE JURISDICTIONAL "WATERS OF THE U.S."
IN THE SURVEY AREA

Project Areas	USACE/RWQCB "waters of the U.S."		
	Non-Wetland Waters (acres)	Wetlands (acres)	Total (acres)
Big Tujunga Reservoir/Upper Big Tujunga Creek[a]	62.79	0.00	62.79
Plunge Pool	1.45	0.00	1.45
Big Tujunga Wash	6.41	0.00	6.41
Maple Canyon Sediment Placement Site	0.00	0.00	0.00
Total	**70.65**	**0.00**	**70.65**

[a] Big Tujunga Reservoir and Upper Big Tujunga Creek are combined as there is no clear boundary between these features.
[b] The Maple Canyon area contains only ephemeral drainages that are not considered "waters of the U.S.".

Wetlands Determination

A total of 15 sampling locations were assessed for the presence of hydrophytic vegetation, hydric soils, and wetland hydrology to determine the presence of wetlands on the project site (Table 6; Attachment B). These sampling locations are shown in Exhibit 7.



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USACE/RWQCB Jurisdictional Waters

Exhibit 7a

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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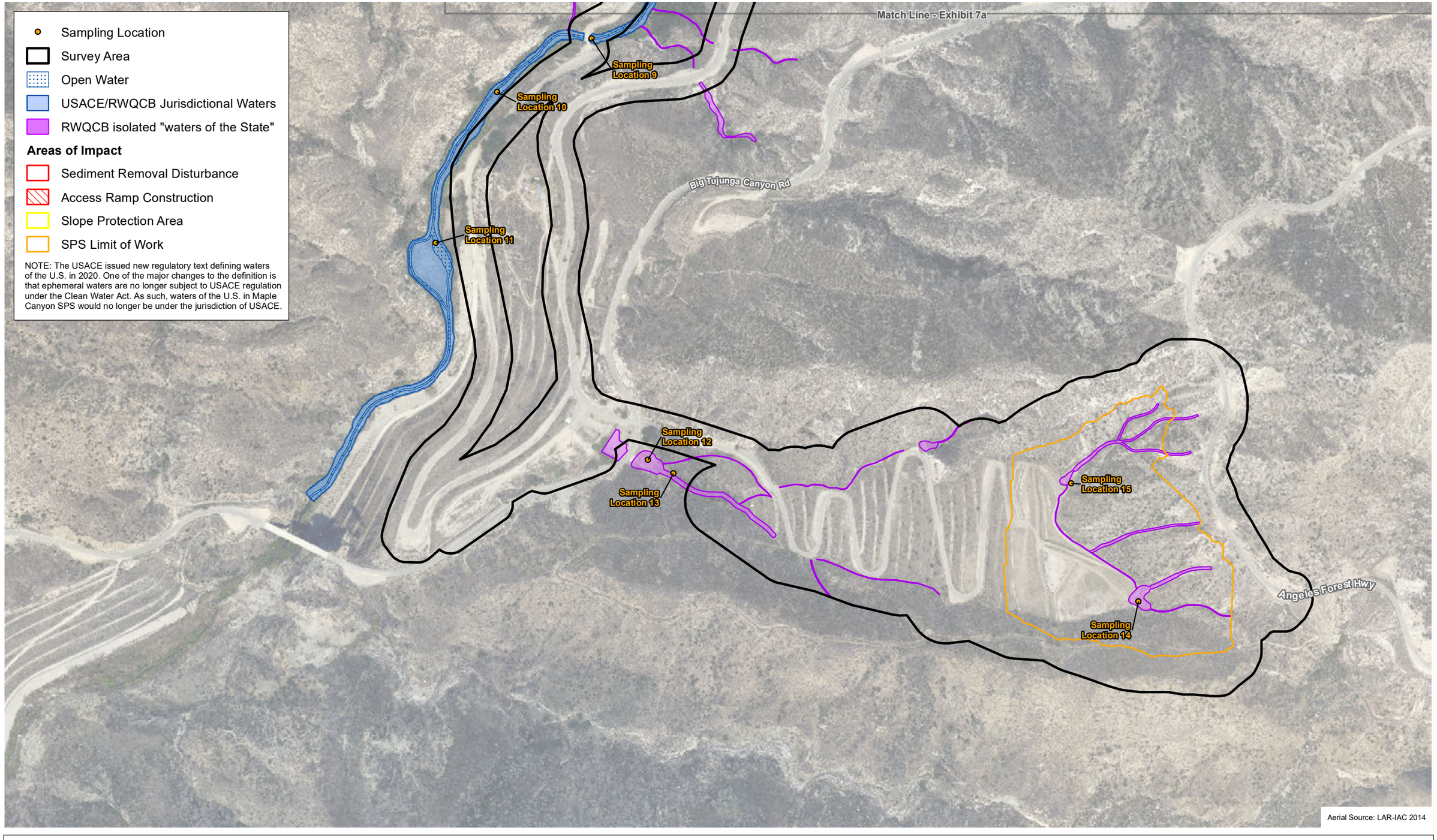

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USACE/RWQCB Jurisdictional Waters

Exhibit 7b

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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TABLE 6
SUMMARY OF SAMPLING POINT DATA

Sampling Location	Dominance Test Result*	Prevalence Index Result	Hydrophytic Vegetation Present	Hydric Soil Indicators	Wetland Hydrology Indicators	Wetland Conditions Present
1	100%	2.0	Yes	None	A2, A3	No
2	100%	1.7	Yes	None	A2, A3	No
3	100%	1.8	Yes	None	A1, A2, A3	No
4	100%	1.8	Yes	None	A2, A3	No
5	67%	2.4	Yes	None	A1, A2, A3	No
6	100%	1.9	Yes	None	A1, A2, A3	No
7	100%	1.9	Yes	None	A3	No
8	100%	1.4	Yes	None	A1	No
9	100%	1.6	Yes	None	A1	No
10	75%	1.8	Yes	None	A1	No
11	100%	1.9	Yes	None	A1	No
12	33%	4.4	No	None	B2, B10	No
13	33%	2.8	Yes	None	A2, A3	No
14	0%	5.0	No	None	B2, B10	No
15	0%	5.0	No	None	B2, B10	No

* Percent of dominant species that are OBL, FACW, or FAC.

Wetland Hydrology Indicators
A1 Surface Water
A2 High Water Table
A3 Saturation
B2 Sediment Deposits
B10 Drainage Patterns

Vegetation

Vegetation was assessed in areas at or below the OHWM; areas containing OBL and/or FACW species were specifically targeted for analysis. As described in Section 3.2, vegetation in Upper Big Tujunga Creek, the upper portion of Big Tujunga Reservoir, and along Big Tujunga Wash is dominated by willow scrub and willow riparian forest habitat with broad-leaved cattails occurring in pockets of slower-moving water. As a result, the hydrophytic vegetation criterion was met throughout these areas. Maple Canyon SPS is generally dominated by chamise chaparral and scrub oak chaparral. The various basins at the upper and lower limits of the canyon are also dominated by upland vegetation. As a result, the hydrophytic vegetation criterion was met in only one location at the Maple Canyon SPS.

Soils

As discussed in Section 3.1, the presence of Big Tujunga Dam has a significant effect on the streambed soil conditions. Upstream of the dam, deep sand has accumulated while downstream of the dam, sand and silt is scoured from the streambed during high flows, and the dam generally prevents sediment transport to downstream areas. Sampling locations 1 through 3 are located in the upper portion of Big Tujunga Reservoir; soils in these areas consist of deep sand with no hydric soil indicators.

Sampling locations 4, 5, and 8, 9, 10, and 11 are located along the edge of the plunge pool and in Big Tujunga Wash downstream of the dam. Soils at these locations consist of a thin layer (approximately one to five inches thick) of organic matter (plant roots, generally that of broad-

leaved cattail) combined with sandy sediment that has been trapped by these roots. Though these soils have a significant component of organic material, the amount of decomposition is low. The organic component has many roots and fibers and are therefore considered to be fibric (peat) rather than sapric (muck). The hydric soil indicator that most closely aligns with this description is sandy mucky mineral (S1 on the Wetland Data Forms in Attachment B). This hydric soil indicator requires sapric material to an accumulated depth of at least two inches. It is possible that sapric soil conditions may develop over time as more organic matter accumulates in these areas, but it is likely that seasonal high flows downstream of the dam scour the cattails and the associated trapped sediment so that these soils do not have time to develop into sapric conditions. As a result, hydric soils are not considered to be present at these locations.

Sampling locations 6 and 7 are associated with areas that are saturated from water seeping from the canyon walls near the plunge pool. The soil conditions are similar to the description of the above-described sampling locations. A layer of sandy silt with a significant organic component was observed to a depth of four inches. Below this soil was a restrictive layer of rock. These areas are outside the OHWM for Big Tujunga Wash, and it does not appear that high flow releases from the dam would scour these areas as they would in the stream. However, as with the above-described sampling locations, the organic matter appears to be fibric and not sapric so that the soil does not meet the criteria to be considered sandy mucky mineral. Therefore, the soil at these locations are not considered to be hydric.

Conditions in the Maple Canyon SPS are significantly drier than along Big Tujunga Canyon Creek and Big Tujunga Wash. Sandy soils to a depth of several inches were encountered with no hydric soil indicators.

Hydrology

All 15 sampling points exhibit at least 1 indicator of wetland hydrology (e.g., surface water, high water table, saturation, sediment deposits, and/or drainage patterns). Therefore, the wetland hydrology criterion was met throughout the project area.

Results

Most of the sampling locations contained hydrophytic vegetation, and all of the locations had indicators of wetland hydrology. However due to lack of hydric soil indicators at the sampling locations, no wetland conditions are deemed to be present on the project site.

4.2.2 Regional Water Quality Control Board Jurisdiction

The RWQCB asserts jurisdiction over all WOTUS so that their jurisdiction generally matches that of the USACE. The RWQCB also takes jurisdiction over several types of drainage features that fall outside the USACE's jurisdiction. These include ephemeral drainages that occur in the Maple Canyon SPS and ephemeral tributaries to Big Tujunga Wash. Approximately 73.57 acres (including 62.79 acres within Big Tujunga Reservoir/Upper Big Tujunga Creek, 1.45 acres within the plunge pool, 6.85 acres within Big Tujunga Wash, and 2.48 acres within and adjacent to the Maple Canyon SPS) would be considered WOTUS based on the presence of an OHWM and connectivity to a TNW; therefore, it would be considered jurisdictional by the RWQCB. The extent of RWQCB jurisdictional areas is shown in Exhibit 7 and is summarized above in Table 7.

TABLE 7
RWQCB JURISDICTIONAL "WATERS OF THE STATE"
IN THE SURVEY AREA

Project Areas	USACE/RWQCB "waters of the U.S."		
	Non-Wetland Waters (acres)	Wetlands (acres)	Total (acres)
Big Tujunga Reservoir/Upper Big Tujunga Creek*	62.79	0.00	62.79
Plunge Pool	1.45	0.00	1.45
Big Tujunga Wash	6.85	0.00	6.85
Maple Canyon Sediment Placement Site	2.48	0.00	2.48
Total	**73.57**	**0.00**	**73.57**

* Big Tujunga Reservoir and Upper Big Tujunga Creek are combined as there is no clear boundary between these features.

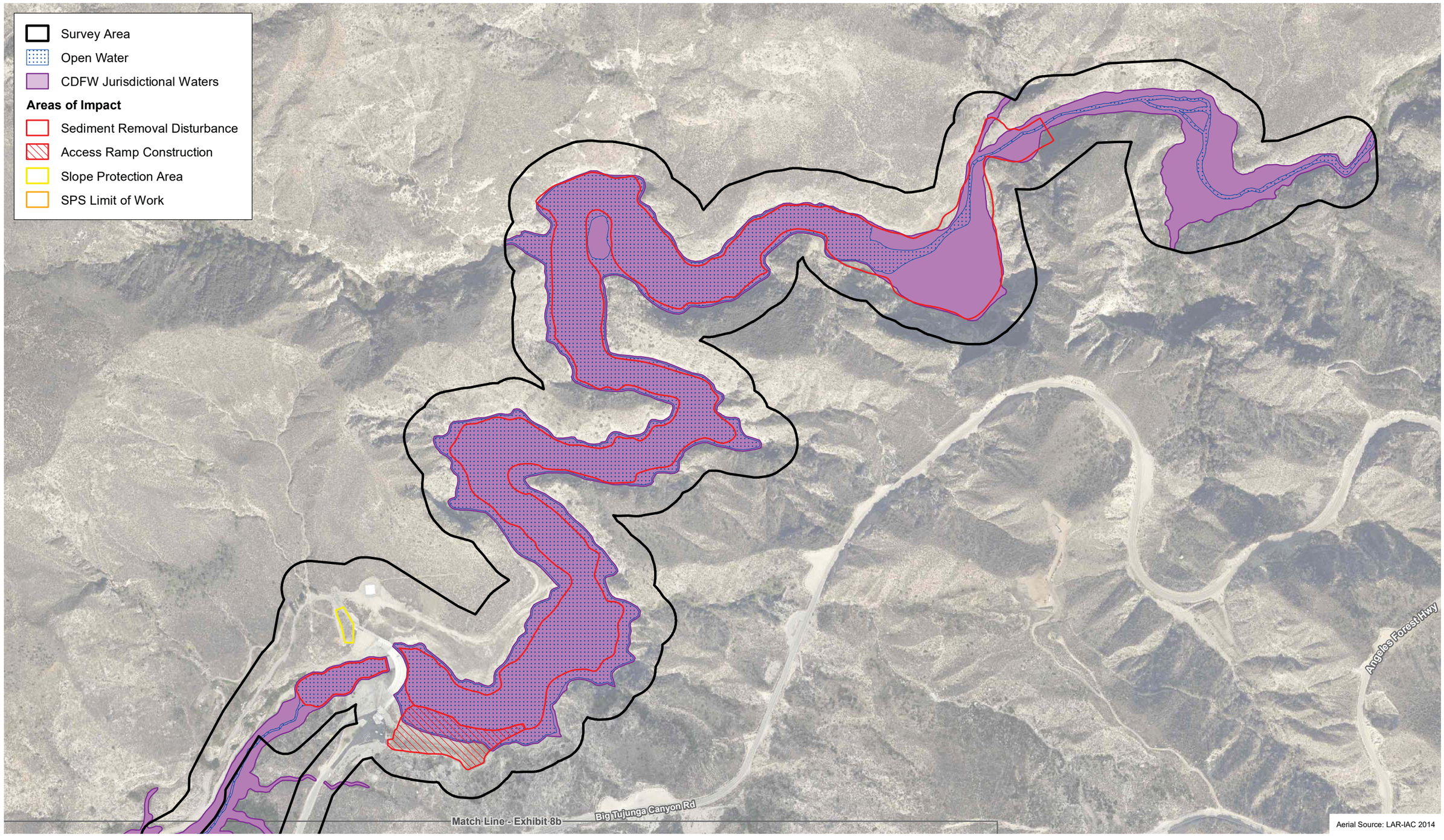
4.2.3 California Department of Fish and Wildlife Jurisdiction

The limits of CDFW jurisdiction within the drainages extend from the top of the bank to the top of the bank and to the outer dripline in areas containing riparian vegetation. Based on field observations and data collection, a total of 93.11 acres of resources under CDFW jurisdiction pursuant to Section 1602 of the *California Fish and Game Code* are located within the project site as summarized in Table 8. This consists of 71.03 acres within Big Tujunga Reservoir/Upper Big Tujunga Creek, 1.75 acres within the plunge pool, 14.35 acres within Big Tujunga Wash to the point where it reaches the Big Tujunga Canyon Road overpass, and 5.98 acres within and adjacent to the Maple Canyon SPS. The extent of CDFW jurisdictional waters is shown on Exhibit 8. These resources are also provided in Attachment H at a lower scale on multiple maps.

TABLE 8
CDFW JURISDICTIONAL WATERS ON THE PROJECT SITE

Project Areas	CDFW Jurisdictional Waters (acres)
Big Tujunga Reservoir/Upper Big Tujunga Creek*	71.03
Plunge Pool	1.75
Big Tujunga Wash	14.35
Maple Canyon Sediment Placement Site	5.98
Total	**93.11**

* Big Tujunga Reservoir and Upper Big Tujunga Creek are combined as there is no clear boundary between these features.



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CDFW Jurisdictional Waters

Exhibit 8a

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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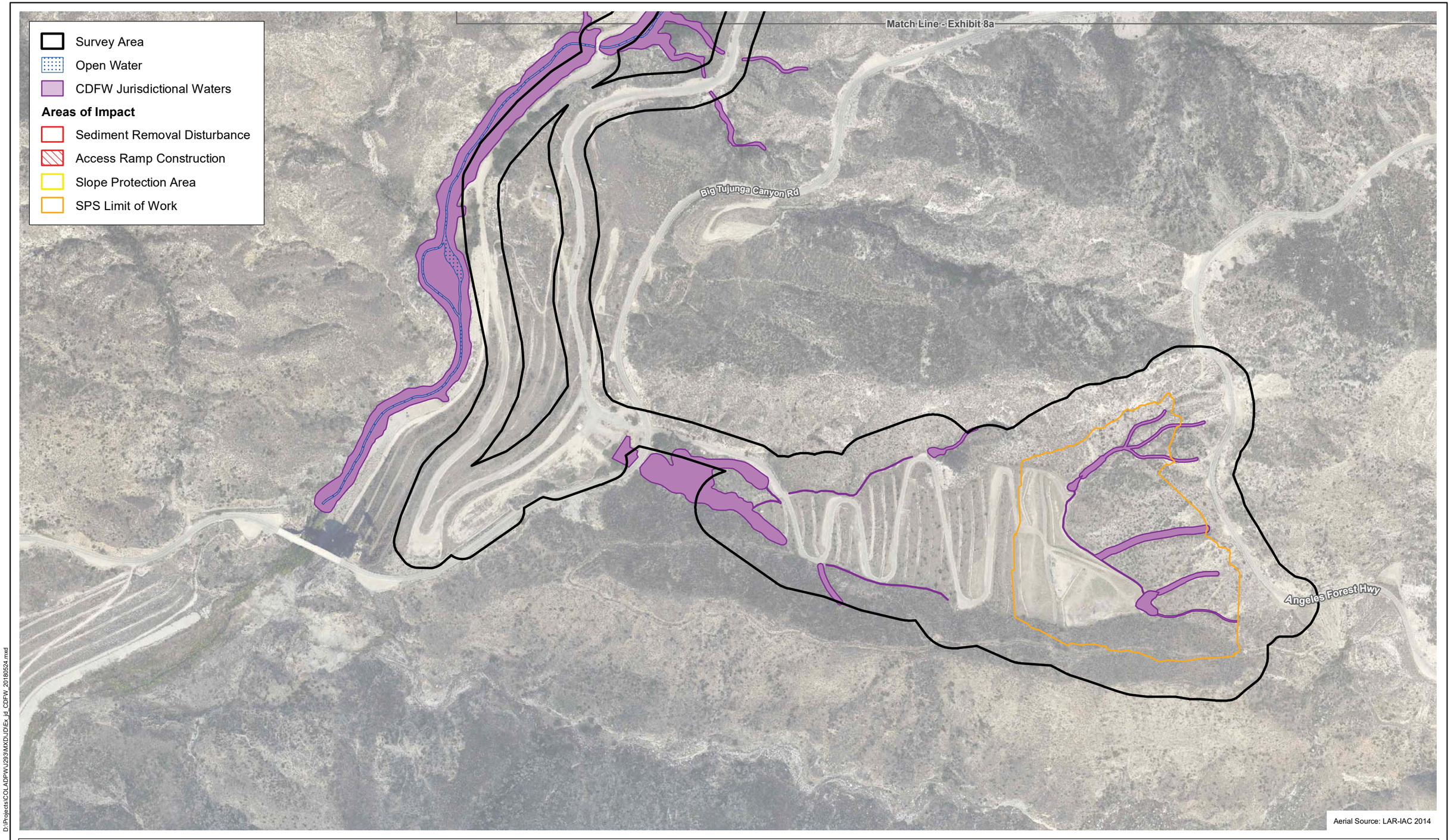

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CDFW Jurisdictional Waters

Exhibit 8b

Jurisdictional Delineation Report for the Big Tujunga Reservoir Sediment Removal Project

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5.0 IMPACT ANALYSIS

Impacts to jurisdictional resources are largely expected to result from the removal of sediment from Big Tujunga Reservoir and placement of sediment in the Maple Canyon SPS. Removal of sediment is assumed to be considered a temporary impact on jurisdictional waters by the resource agencies, while discharging sediment in jurisdictional waters in the Maple Canyon SPS would be considered a permanent impact. Transport of construction equipment is expected to occur on existing roads downstream of Big Tujunga Dam. While jurisdictional waters are located adjacent to these roads, no impacts are expected from project activities.

Table 9 provides a summary of impacts to USACE, RWQCB, and CDFW jurisdictional waters that would result from proposed project activities.

TABLE 9
IMPACTS TO JURISDICTIONAL WATERS

Jurisdictional Types	Impact Type	Project Areas (acres)				Total
		Big Tujunga Reservoir/Upper Big Tujunga Creek	Plunge Pool	Big Tujunga Wash[a] (downstream of Dam)	Maple Canyon SPS[b]	
USACE non-wetland "waters of the U.S."	Total Existing in Survey Area	62.79	1.45	6.41	0.00	70.65
	Proposed Permanent Impact	1.33	0.00	0.00	0.00	1.33
	Proposed Temporary Impact	45.18	1.45	0.00	0.00	46.63
RWQCB non-wetland "waters of the State"	Total Existing in Survey Area	62.79	1.45	6.85	2.48	73.57
	Proposed Permanent Impact	1.33	0.00	0.00	1.05	2.38
	Proposed Temporary Impact	45.18	1.45	0.00	0.00	46.63
CDFW Jurisdictional Waters	Total Existing in Survey Area	71.03	1.75	14.35	0.00	93.11
	Proposed Permanent Impact	1.43	0.00	0.00	1.80	3.23
	Proposed Temporary Impact	46.02	1.45	0.00	0.00	47.47

USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife; SPS: Sediment Placement Site

[a] Approximately 0.28 acre of USACE/RWQCB and 0.70 acre of CDFW jurisdictional waters in Big Tujunga Wash occur along the haul routes downstream of Big Tujunga Dam. No impacts are expected to occur to these resources from project activities

[b] Drainage features in the Maple Canyon SPS are ephemeral and do not meet the definition of "waters of the U.S."

6.0 REGULATORY APPROVAL PROCESS

6.1 REGULATORY PERMIT REQUIREMENTS

This section summarizes the various permits, agreements, and certifications that are expected to be required prior to initiation of proposed project activities that involve impacts to jurisdictional waters.

- USACE Section 404 Permit
- RWQCB Section 401 Water Quality Certification
- CDFW Section 1602 Notification of Lake or Streambed Alteration

It should be noted that all regulatory permit applications can be processed concurrently. The USACE permit would be issued subject to the receipt of the RWQCB's Section 401 Water Quality Certification.

6.1.1 U.S. Army Corps of Engineers

Prior to construction in WOTUS, a Section 404 permit from the USACE is required. Regulatory authorization in the form of a Nationwide Permit (NWP) or regional permit is provided for certain categories of activities. If the NWP conditions cannot be met, an Individual Permit (IP) will be required.

The proposed project would likely fall under NWP 3 (Maintenance), which authorizes (1) the repair, rehabilitation, and replacement of previously authorized, currently serviceable structures; (2) discharges associated with removal of accumulated sediments and debris in the vicinity of existing structures; and (3) temporary structures, fills, and work necessary to conduct maintenance activities. A preconstruction notification is required for sediment removal. Since sediment removal would occur more than 200 feet from Big Tujunga Dam, the project exceeds the limits for the Nationwide Permit Program. Therefore, the USACE would need to consult with the USFWS to acquire a waiver from that agency that would allow issuance of the NWP. If the USFWS does not issue a waiver, the project would require issuance of an Individual Permit. A description of NWP 3 is provided in Attachment I.

Issuance of the USACE Section 404 permit would be contingent upon the approval of a Section 401 Water Quality Certification from the Los Angeles RWQCB. The RWQCB requires certification of the proposed project's California Environmental Quality Act (CEQA) documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the proposed project's CEQA document to satisfy its own CEQA-compliance requirements.

6.1.2 Regional Water Quality Control Board

As noted above, issuance of the USACE Section 404 permit would be contingent upon the approval of a Section 401 Water Quality Certification from the Los Angeles RWQCB. The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. The notification/application for a CWA Section 401 Water Quality Certification must also address compliance with the Basin Plan. Please note that the application would also require the payment of an application fee, which would be based on project impacts.

6.1.3 California Department of Fish and Wildlife

Prior to construction, Notification of a Lake or Streambed Alteration (LSA) must be submitted to the CDFW that describes any proposed streambed alteration contemplated by the proposed project. If an LSA Agreement is required, the CDFW may want to conduct an on-site inspection.

In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., Mitigated Negative Declaration) should be included in the submittal, consistent with CEQA requirements. The CDFW will not deem the application to be complete until the application fees have been paid and the agency is provided with a certified CEQA document and a signed copy of the receipt of County Clerk filing fees for the Notice of Determination (NOD).

6.2 RECOMMENDATIONS

Based on the conclusions of this Jurisdictional Delineation Report, the following recommendations are identified:

1. A pre-application meeting should be scheduled with USACE, CDFW, and RWQCB staff to discuss site conditions; the proposed project; biological and jurisdictional resources and impacts to these resources resulting from the proposed project; proposed minimization measures and the mitigation program to offset these impacts; and the regulatory permit process, including the decision to prepare and submit an Approved Jurisdictional Determination or a Preliminary Jurisdictional Determination. The USACE is expected to approve a Preliminary Jurisdictional Determination as the appropriate jurisdictional determination given the extent of proposed project impacts and the length of project construction.
2. The following should be prepared and processed: a USACE Section 404 Permit; an RWQCB Section 401 Water Quality Certification; a CDFW Section 1602 Notification of LSA; and the appropriate jurisdictional determination form approved by the USACE.

7.0 REFERENCES

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ATTACHMENT A

SUMMARY OF REGULATORY AUTHORITY

REGULATORY AUTHORITY

This attachment summarizes the regulatory authority of the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW) over activities that have potential to impact jurisdictional resources.

U.S. Army Corps of Engineers

The USACE Regulatory Branch regulates activities that discharge dredged or fill materials into "waters of the U.S." (WOTUS) under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all WOTUS where the material (1) replaces any portion of WOTUS with dry land or (2) changes the bottom elevation of any portion of any WOTUS. These fill materials would include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters.

Waters of the United States

On April 21, 2020, the United States Environmental Protection Agency (USEPA) and the USACE published in the *Federal Register* the Navigable Waters Protection Rule (NWPR) which revised the definition of WOTUS. The NWPR subsequently became effective on June 22, 2020.

The NWPR narrows the definition of WOTUS that are subject to USACE jurisdiction through two rules: the Step One rule, issued on October 22, 2019, which reestablished USACE regulations that were in place prior to the 2015 Waters of the United States Rule, and the Step Two rule, published on April 21, 2020, which narrows federal jurisdiction so that WOTUS must demonstrate a direct connection to a Traditional Navigable Waterway (TNW).

Under the NWPR, four categories of waters are considered WOTUS:

1. Territorial seas and TNWs;
2. Tributaries of jurisdictional waters;
3. Lakes, ponds, and impoundments that contribute surface water flow to a jurisdictional water in a typical year; and
4. Wetlands adjacent to non-wetland jurisdictional waters.

Under the rule, a wetland is considered "adjacent" if it:

1. Abuts (i.e., touches a side or corner of) another non-wetland jurisdictional water;
2. Is inundated by flooding from another non-wetland jurisdictional water at least once in a typical year;
3. Is physically separated from a non-wetland jurisdictional water by a natural berm, bank, dune, or similar natural feature without regard to whether there is a specific hydrological surface connection in a typical year; or
4. Is physically separated from a non-wetland jurisdictional water by an artificial structure like a road, dike, or barrier as long as the structure allows for a direct hydrologic surface connection between the wetland and the other jurisdictional water at least once in a typical year. This connection can be through a gate or culvert or even by water overtopping a road.

The NWPR also identifies waters specifically excluded from consideration as WOTUS. The twelve categories of non-jurisdictional waters include:

1. All waters not covered by the four categories of WOTUS discussed above;

2. Groundwater;
3. Ephemeral features;
4. Storm water runoff and overland sheet flow;
5. All ditches not considered tributaries;
6. Prior converted cropland;
7. Artificially irrigated areas;
8. Certain artificial lakes and ponds;
9. Water-filled depressions or pits excavated in connection with mining or construction or to obtain fill, sand, or gravel;
10. Certain storm water control features;
11. Groundwater recharge, water reuse, and wastewater recycling structures; and
12. Wastewater treatment systems.

The NWPR was drafted to incorporate direction that the U.S. Supreme Court provided via three decisions that provided context and guidance in determining the appropriate scope of WOTUS. In *United States v. Riverside Bayview Homes* (1985), the Court upheld the inclusion of adjacent wetlands in the regulatory definition of WOTUS. In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* ("SWANCC", issued in 2001), the Court held that the use of "isolated" non-navigable intrastate ponds by migratory birds was not, by itself, sufficient basis for the exercise of federal regulatory authority under the CWA. In *Rapanos v. United States* ("Rapanos", 2006)[1], a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions, finding that certain wetlands constituted WOTUS under the CWA. In his plurality opinion, Justice Scalia argued that WOTUS should not include channels through which water flows intermittently or ephemerally or channels that periodically provide drainage for rainfall. He also stated that a wetland may not be considered "adjacent to" remote WOTUS based on a mere hydrologic connection. Justice Kennedy authored a separate concurring opinion concluding that wetlands are WOTUS if they, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as "navigable". Lacking a majority opinion, regulatory jurisdiction under the CWA existed over a water body if either the plurality's or Justice Kennedy's "significant nexus" standard was satisfied.

Ordinary High Water Mark

The landward limit of tidal WOTUS is the high-tide line. In non-tidal waters where adjacent wetlands are absent, the lateral limits of USACE jurisdiction extend to the ordinary high water mark (OHWM).[2] The OHWM is defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas".[3] When wetlands are present, the lateral limits of USACE jurisdiction extend beyond the OHWM to the limits of the adjacent wetlands.[4]

Wetlands

A wetland is a subset of jurisdictional waters and is defined by the USACE and the USEPA as "those areas that are inundated or saturated by surface or groundwater at a frequency and

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1 Consolidated cases: *Rapanos v. United States* and *Carabell v. United States* refer to the U.S. Supreme Court's decision concerning USACE jurisdiction over "waters of the U.S." under the CWA.

2 U.S. Army Corps of Engineers (USACE). 2005 (December 7). Regulatory Guidance Letter. Ordinary High Water Mark Identification. Washington, D.C.: USACE.

3 *Code of Federal Regulations* (CFR), Title 33, §328.3(e)

4 USACE 2005

duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions".[5] Wetlands generally include swamps, marshes, bogs, and areas containing similar features.

The definition and methods for identifying wetland resources can be found in the USACE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*,[6] a supplement to the 1987 *Corps of Engineers Wetlands Delineation Manual*.[7] Both the 1987 Wetlands Manual and the 2008 Arid West Supplement to the manual provide technical methods and guidelines for determining the presence of wetland WOTUS. Pursuant to these manuals, a three-parameter approach is used to identify wetlands and requires evidence of wetland hydrology, hydrophytic vegetation, and hydric soils. In order to be considered a wetland, an area must exhibit one or more indicators of all three of these parameters. However, problem areas may periodically or permanently lack certain indicators for reasons such as seasonal or annual variability of rainfall, vegetation, and other factors. Atypical wetlands lack certain indicators due to recent human activities or natural events. Guidance for determining the presence of wetlands in these situations is presented in the regional supplement.

Section 404 Permit

Except as specified in Section 323.4 of the CFR, impacts to WOTUS require a Section 404 Permit. Permit authorization may be in the form of (1) a "general permit" authorizing a category of activities in a specific geographical region or nationwide or (2) an "individual permit" (IP) following a review of an individual application form (to be obtained from the district office having jurisdiction over the waters in which the activity is proposed to be located).

Regulatory authorization in the form of a Nationwide Permit (NWP) is provided for certain categories of activities such as repair, rehabilitation, or replacement of a structure or fill which was previously authorized; utility line placement; or bank stabilization. The current set of NWPs became effective on March 19, 2017 and will expire on March 18, 2022. NWPs authorize only those activities with minimal adverse effects on the aquatic environment and are valid only if the conditions applicable to the permits are met or waivers to these conditions are provided in writing from the USACE. Please note that waivers may require consultation with affected federal and State agencies, which can be a lengthy process with no mandated processing time frames. Certain activities do not require submission of an application form, but may require a separate notification. If the NWP conditions cannot be met, an IP will be required. WOTUS temporarily filled, flooded, excavated, or drained but restored to pre-construction contours and elevations after construction are not included in the measurement of loss of WOTUS. The appropriate permit authorization will be based on the amount of impacts to WOTUS, as determined by the USACE. There is no filing fee for the Section 404 Permit.

Approximately three or four months are typically required to process a routine permit application; large or complex activities may take longer to process. When a permit application is received, it will be assigned an identification number and reviewed for completeness by the District Engineer. If an application is incomplete, additional information will be requested within 15 days of receipt of the application. If an application is complete, the District Engineer will issue a public notice within 15 days unless specifically exempted by provisions of the CFR. Public comments will be accepted no more than 30 days but not less than 15 days from the date of public notice; these will become part of the administrative record of the application. Generally, the District Engineer

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5 33 CFR §328.3(b)

6 USACE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. (J.S. Wakeley, R.W. Lichvar, and C.V. Noble, Eds.). Vicksburg, MS: U.S. Army Engineer Research and Development Center.

7 Environmental Laboratory. 1987. Cor*ps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1)*. Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.

will decide on the application no later than 60 days after receipt of the completed application. Additional permit situations may increase the permit processing time (e.g., projects involving a Section 401 Water Quality Certification, a coastal zone management consistency analysis, historic properties, a federal agency, and/or Endangered species). The Project Applicant will be given time, not to exceed 30 days, to respond to requests of the District Engineer.

On January 31, 2007, the USACE published a memorandum clarifying the Interim Guidance for Amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) implementing regulations.[8] The Interim Guidance applies to all Department of the Army requests for authorization/verification, including Individual Permits (IPs, i.e., standard permits and letters of permission) and all Regional General Permits (RGPs) and Nationwide Permits (NWPs). The State or Tribal Historic Preservation Officer (SHPO/THPO) has 30 days to respond to a determination that a proposed activity, which otherwise qualifies for an NWP or an RGP, has no effect or no adverse effect on a historic property. If the SHPO/THPO does not respond within 30 days of notification, the Los Angeles District may proceed with verification. If the SHPO/THPO disagrees with the District's determination, the District may work with the SHPO/THPO to resolve the disagreement or request an opinion from the ACHP. The USACE will submit the Draft Jurisdictional Delineation Report to the SHPO/THPO for review prior to initiating the actual regulatory process.

Please note that, if the USACE determines that the drainages/waterbodies are jurisdictional and would be impacted by project implementation, the Applicant will be required to obtain a CWA Section 401 Water Quality Certification from the RWQCB before the USACE will issue the Section 404 Permit. If the USACE determines that the impacted drainage/waterbody is not jurisdictional, the Applicant will be required to obtain RWQCB authorization under the provisions of a Report of Waste Discharge (ROWD).

Jurisdictional Determinations

Pursuant to USACE Regulatory Guidance Letter (RGL) 08-02 (dated June 26, 2008), the USACE can issue two types of jurisdictional determinations to implement Section 404 of the CWA: Approved Jurisdictional Determinations and Preliminary Jurisdictional Determinations.[9] An Approved Jurisdictional Determination is an official USACE determination that jurisdictional WOTUS, "Navigable Waters of the U.S.", or both are either present or absent on a site. An Approved Jurisdictional Determination also identifies the precise limits of jurisdictional waters on a project site.

The USACE will provide an Approved Jurisdictional Determination when (1) an Applicant requests an official jurisdictional determination; (2) an Applicant contests jurisdiction over a particular water body or wetland; or (3) when the USACE determines that jurisdiction does not exist over a particular water body or wetland. The Approved Jurisdictional Determination then becomes the USACE's official determination that can then be relied upon over a five-year period to request regulatory authorization as part of the permit application.

In addition, an Applicant may decline to request an Approved Jurisdictional Determination and instead obtain a USACE IP or General Permit Authorization based on a Preliminary Jurisdictional Determination or, in certain circumstances (e.g., authorizations by non-reporting nationwide general permits), with no Jurisdictional Determination.

[8] USACE. 2007 (January 31). Memorandum: Interim Guidance for Amendments to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) Implementing Regulations. Washington, D.C.: USACE.

[9] USACE. 2008b (June 26). Regulatory Guidance Letter. Jurisdictional Determinations. Washington, D.C.: USACE.

Preliminary Jurisdictional Determinations are non-binding, advisory in nature, and may not be appealed. They indicate that there may be WOTUS on a project site. An Applicant may elect to use a Preliminary Jurisdictional Determination to voluntarily waive or set aside questions regarding CWA jurisdiction over a site, usually in the interest of expediting the permitting process. The USACE will determine what form of Jurisdictional Determination is appropriate for a particular project site.

The USACE Regulatory Branch Offices will coordinate with the USEPA Regional Office and USACE Headquarters (HQ), as outlined in its January 28, 2008, memorandum entitled "Process for Coordinating Jurisdictional Determinations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the *Rapanos* and *SWANCC* Supreme Court Decisions".[10] The guidance provided in this memorandum is quoted as follows:

1. Effective immediately, unless and until paragraph 5(b) of the June 5, 2007, Rapanos guidance coordination memorandum is modified by a joint memorandum from Army and EPA, we will follow these procedures:
    a. For jurisdictional determinations involving significant nexus determinations, USACE districts will send copies of draft jurisdictional delineations via e-mail to appropriate EPA regional offices. The EPA regional office will have 15 calendar days to decide whether to take the draft jurisdictional delineation as a special case under the January 19, 1989, "Memorandum of Agreement Between the Department of the Army and the USEPA Concerning the Determination of the Section 404 Program and the Application of the Exceptions under Section 404(f) of the Clean Water Act." If the EPA regional office does not respond to the district within 15 days, the district will finalize the jurisdictional determination.
    b. For jurisdictional determinations involving isolated waters determinations, the agencies will continue to follow the procedure in paragraph 5(b) of June 5, 2007, coordination memorandum, until a new coordination memorandum is signed by USACE and EPA. (In accordance with paragraph 6 of the June 5, 2007, coordination memorandum, this is a 21-day timeline that can only be changed through a joint memorandum between agencies).
2. Approved JDs are not required for non-reporting NWPs, unless the project proponent specifically requests an approved JD. For proposed activities that may qualify for authorization under a State Programmatic General Permit (SPGP) or RGP, an approved JD is not required unless requested by the project proponent.
3. The USACE will continue to work with EPA to resolve the JDs involving significant nexus and isolated waters determinations that are currently in the elevation process.
4. USACE districts will continue posting completed Approved JD Forms on their web pages.

[10] USACE. 2008c (January 28). *Memorandum for Commander, Major Subordinate Commands and District Commands. Process for Coordinating Jurisdictional Determinations Conducted Pursuant to Section 404 of the Clean Water Act in Light of the Rapanos and SWANCC Supreme Court Decisions.* Washington, D.C.: USACE.

Regional Water Quality Control Board

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "waters of the State" and to all WOTUS, including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance that an activity which may result in discharge to navigable waters will not violate water quality standards. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives that can be found in each of the nine RWQCBs' Basin Plans.

The Porter-Cologne Act provides the State with very broad authority to regulate "waters of the State" (which are defined as any surface water or groundwater, including saline waters). The Porter-Cologne Act has become an important tool in the post-SWANCC (Solid Waste Agency of Northern Cook Counties vs. Unites States Army Corps of Engineers) and Rapanos era with respect to the State's authority over isolated waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file an ROWD when there is no federal nexus, such as under Section 404(b)(1) of the CWA. Although "waste" is partially defined as any waste substance associated with human habitation, the RWQCB interprets this to include fill discharge into water bodies.

Section 401 Water Quality Certification

Issuance of the USACE Section 404 Permit would be contingent upon the approval of a Section 401 Water Quality Certification from the RWQCB. Also, the RWQCB requires certification of the project's California Environmental Quality Act (CEQA) documentation before it will approve the Section 401 Water Quality Certification or ROWD. The RWQCB, as a responsible agency, will use the project's CEQA document to satisfy its own CEQA-compliance requirements.

Upon acceptance of a complete permit application, the RWQCB has between 60 days and 1 year to make a decision regarding the permit request. This is compliant with USACE regulations, which indicate that the RWQCB has 60 days from the date of receipt of a completed application that requests water quality certification to make a decision.[11] The RWQCB has the option of issuing a "Denial Without Prejudice", which does not mean that the request is denied, but that it requires more information in order to make a decision. This effectively stops the processing clock until this information is provided.

The RWQCB is required under the *California Code of Regulations* (CCR) to have a "minimum 21 day public comment period" before any action can be taken on the Section 401 application.[12] This period closes when the RWQCB acts on the application. Since projects often change or are revised during the Section 401 permit process, the comment period can remain open. The public comment period starts as soon as an application has been received. Generally, the RWQCB Section 401, USACE Section 404, and CDFW Section 1602 permit applications are submitted at the same time. However, the RWQCB Section 401 Water Quality Certification may take longer to process than the other two applications.

[11] 33 CFR §325.2(b)(1)(ii)
[12] 23 CCR §3858(a)

The RWQCB requires the Applicant to address urban storm water runoff during and after construction in the form of Best Management Practices (BMPs). These BMPs are intended to address the treatment of pollutants carried by storm water runoff and are required in all complete applications. The notification/application for a CWA Section 401 Water Quality Certification must also address compliance with the Basin Plan. Please note that filing an application would also require the payment of an application fee which would be based on project impacts. The fee schedule calculator is available at http://www.waterboards.ca.gov/santaana/water_issues/programs/401_certification/index.shtml.

California Department of Fish and Wildlife

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the *California Fish and Game Code*.[13] Activities of State and local agencies as well as public utilities that are project proponents are regulated by the CDFW under Section 1602 of the *California Fish and Game Code.* This section regulates any work that will (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. Section 1602 of the *California Fish and Game Code* applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW takes jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or in the vicinity of a river, stream, lake or within or in the vicinity of tributaries to a river, stream, or lake. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

Section 1602 Lake or Streambed Alteration Agreement

The CDFW enters into a Lake or Streambed Alteration (LSA) Agreement with a project proponent in order to ensure protection of wildlife and habitat values and acreages.

Prior to construction, a Notification of an LSA must be submitted to the CDFW that describes any proposed lake or streambed alteration that would occur with implementation of a project. The Notification of an LSA must address the initial construction and long-term operation and maintenance of any structures (such as a culvert or a desilting basin) included in the project design that are located within any river, stream, or lake and that may require periodic maintenance. In addition to the formal application materials and the fee, a copy of the appropriate environmental document (e.g., a Mitigated Negative Declaration) should be included in the submittal, consistent with CEQA requirements. The complete notification package must be submitted to the CDFW regional office that services the county where the activity will take place. This notification will serve as the basis for the CDFW's issuance of a Section 1602 LSA Agreement. Note that notification is not required before beginning emergency work, but the CDFW must be notified in writing within 14 days after beginning the work.

[13] See §§1600–1616.

After receiving Notification of an LSA Agreement, the CDFW will determine whether an LSA Agreement will be required for the proposed activity. An LSA Agreement will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an LSA Agreement is required, the CDFW may want to conduct an on-site inspection.

If the CDFW does not respond in writing concerning the completeness of the Notification within 30 days of its submittal, the Notification automatically becomes complete. If the CDFW does not submit a draft LSA Agreement to the Applicant within 60 days of the determination of a completed Notification package, the CDFW will issue a letter that either (1) identifies the final date to transmit a draft LSA Agreement or (2) indicates that an LSA Agreement was not required. The CDFW will also indicate that it was unable to meet this mandated compliance date and that, by law, the Applicant is authorized to complete the project without an LSA Agreement as long as the Applicant constructs the project as proposed and complies with all avoidance, minimization, and mitigation measures described in the submitted Notification package. Please note that, if the project requires revisions to the design or project construction, the CDFW may require submittal of a new Notification/application with an additional 90-day permit process.

If determined to be necessary, the CDFW will prepare a draft LSA Agreement, which will include standard measures to protect fish and wildlife resources during project construction and during ongoing operation and maintenance of any project element that occurs within a CDFW jurisdictional area. The draft Agreement must be transmitted to the Applicant within 60 calendar days of the CDFW's determination that the notification is complete. It should be noted that the 60-day timeframe might not apply to long-range agreements.

Following receipt of a draft LSA Agreement from the CDFW, the Applicant has 30 calendar days to notify the CDFW concerning the acceptability of the proposed terms, conditions, and measures. If the Applicant agrees with these terms, conditions and measures, the Agreement must be signed and returned to the CDFW. The Agreement becomes final once the CDFW executes it and an LSA Agreement is issued. Please note that all application fees must be paid and the final certified CEQA documentation must be provided prior to the CDFW's execution of the Agreement.

ATTACHMENT B

WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 1

Investigator(s): David Hughes Section, Township, Range: Section 31, Township 3N, Range 12W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.301505° Long: -118.176941° Datum: NAD 83

Soil Map Unit Name: open water NWI classification: L1UBK

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix lasiolepis	80	Y	FACW
2. Populus fremontii	5	N	FACW
3. Salix exigua	5	N	FACW
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 90	x 2 =	180
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 90 (A)		180 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

This portion of reservoir was recently flooded. Vegetation is still developing.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 5/2	100					sand	accumulated sediment

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): 15"

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 10"

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 2

Investigator(s): David Hughes Section, Township, Range: Section 31, Township 3N, Range 12W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.302197° Long: -118.174357° Datum: NAD 83

Soil Map Unit Name: open water NWI classification: L1UBK

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix lasiolepis	10	Y	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Mimulus guttatus	10	Y	OBL
2. Cyperus eragrostis	5	N	FACW
3. Typha latifolia	15	Y	OBL
4. Melilotus indica	5	N	FACU
5.			
6.			
7.			
8.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	15	x 2 =	30
FAC species		x 3 =	
FACU species	5	x 4 =	20
UPL species		x 5 =	
Column Totals:	45 (A)		75 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 12"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): adjacent

Water Table Present? Yes ✓ No ____ Depth (inches): 4"

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 3

Investigator(s): David Hughes Section, Township, Range: Section 31, Township 3N, Range 12W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.301143° Long: -118.171316° Datum: NAD 83

Soil Map Unit Name: open water NWI classification: L1UBK

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	40	Y	FACW
2.			
3.			
4.			
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis salicifolia	40	Y	FAC
2. Salix laevigata	20	Y	FACW
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha latifolia	80	Y	OBL
2. Xanthium strumarum	10	N	FAC
3. Veronica anagalis-aquatica	2	N	OBL
4.			
5.			
6.			
7.			
8.			
	92	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	82	x 1 =	82
FACW species	60	x 2 =	120
FAC species	40	x 3 =	120
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	182 (A)		322 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks:

Sampling location is in the densest portion of a patch of cattails.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 5/2	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 9"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 4

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.293416° Long: -118.189267° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	20	Y	FACW
2.			
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix laevigata	60	Y	FACW
2. Salix lasiolepis	30	Y	FACW
3.			
4.			
5.			
	90	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha latifolia	60	Y	OBL
2. Ageratina adenophora	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	110	x 2 =	220
FAC species		x 3 =	
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	180 (A)		320 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

cattails occur in a band approximately 10-12 feet wide around plunge pool edge

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					fibric	fibric organic material

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 5"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ✓ No ____ Depth (inches): 2"

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0"

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 5

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.292949° Long: -118.189237° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

site is in the channel as it leaves the plunge pool and transitions to willow riparian habitat

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laevigata	80	Y	FACW
2.			
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha latifolia	30	Y	OBL
2. Ageratina adenophora	50	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	80	x 2 =	160
FAC species		x 3 =	
FACU species	50	x 4 =	200
UPL species		x 5 =	
Column Totals:	160 (A)		390 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1	100					fibric	
1-5	10YR 3/1	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 5"

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

Wetland Hydrology Present? Yes _____ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 6

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.292861° Long: -118.190092° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

site is associated with a seep from canyon wall

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix gooddingii	25	Y	FACW
2.			
3.			
4.			
	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis salicifolia	25	Y	FAC
2.			
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Echinochloa crus-galli	60	Y	FACW
2. Typha latifolia	35	Y	OBL
3. Veronica anagalis-aquatica	5	N	OBL
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	85	x 2 =	170
FAC species	25	x 3 =	75
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	150 (A)		285 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					fibric	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 4"

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: May 31, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 7

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.292557° Long: -118.190364° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

site is a seep; water is draining slowing from the canyon wall

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Typha latifolia	40	Y	OBL
2. Echinochloa crus-galli	30	Y	FAC
3. Polypogon monspeliensis	30	Y	FACW
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	30	x 2 =	60
FAC species	30	x 3 =	90
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					fibric	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 4"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 8

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.293154° Long: -118.189051° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	10	Y	FACW
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Typha latifolia	90	Y	OBL
2. Ageratina adenophora	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	10	x 2 =	20
FAC species		x 3 =	
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	110 (A)		150 (B)

Prevalence Index = B/A = 1.4

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					fibric	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 4"

Hydric Soil Present? Yes _____ No ✓

Remarks:

fibric organic soil consisting of cattail roots and sediment on top of rocky streambottom

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 9

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.290968° Long: -118.191685° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	30	Y	FACW
2.			
3.			
4.			
	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Typha latifolia	40	Y	OBL
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Urtica dioica	20	Y	FAC
2. Nasturtium officinale	10	Y	OBL
3. Veronica anagalis-aquatica	10	Y	OBL
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	30	x 2 =	60
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	110 (A)		180 (B)

Prevalence Index = B/A = 1.6

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 2"

Hydric Soil Present? Yes _____ No ✓

Remarks:

stream bottom composed of rock, very little sand present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 0

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 10

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.290072° Long: -118.193554° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	50	Y	FACW
2. Alnus rhombifolia	25	Y	FACW
3.			
4.			
	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Typha latifolia	50	Y	OBL
2.			
3.			
4.			
5.			
	50	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Ageratina adenophora	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	75	x 2 =	150
FAC species		x 3 =	
FACU species	10	x 4 =	40
UPL species		x 5 =	
Column Totals:	135 (A)		240 (B)

Prevalence Index = B/A = 1.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					fibric	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 3"

Hydric Soil Present? Yes ____ No ✓

Remarks:

partially decomposed cattail root material on top of rock

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 11

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.287855° Long: -118.194474° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	30	Y	FACW
2. Salix laevigata	30	Y	FACW
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix laevigata	40	Y	FACW
2.			
3.			
4.			
5.			
	40	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Polypogon monspeliensis	50	Y	FACW
2. Nasturtium officinale	30	Y	OBL
3. Urtica dioica	20	Y	FAC
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	150	x 2 =	300
FAC species	20	x 3 =	60
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	200 (A)		390 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					fibric	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 5"

Hydric Soil Present? Yes ____ No ✓

Remarks:

partially decomposed fibric organic layer on top of rock

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

lower-gradient portion of creek, where water slows down and spreads out

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site - Maple Cyn SPS City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 12

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): basin Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.284593° Long: -118.190673° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

sampling location is in a debris basin at bottom of canyon

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Baccharis salicifolia	10	Y	FAC
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Ambrosia acanthicarpa	15	Y	UPL
2. Avena sp.	10	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 10	x 3 =	30
FACU species	x 4 =	
UPL species 25	x 5 =	125
Column Totals: 35 (A)		155 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site-Maple Cyn SPS City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 13

Investigator(s): David Hughes Section, Township, Range: Section 1, Township 2N, Range 13W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.284312° Long: -118.190124° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	70	Y	FACW
2.			
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Salix lasiolepis	60	Y	FACW
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: _____)			
1. Epilobium canum	30	Y	UPL
2. Stipa miliaceum	20	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	50	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 130	x 2 = 260
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species 50	x 5 = 250
Column Totals: 180 (A)	510 (B)

Prevalence Index = B/A = 2.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: rock

Depth (inches): 8"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ✓ No ____ Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site-Maple Cyn SPS City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 14

Investigator(s): David Hughes Section, Township, Range: Section 6, Township 2N, Range 12W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.282543° Long: -118.181721° Datum: NAD 83

Soil Map Unit Name: Olete-Kilburn-Etsel families complex NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Eriogonum fasciculatum	30	Y	UPL
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	40	Y	UPL
2. Stipa miliaceum	30	Y	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species 100	x 5 = 500
Column Totals: 100 (A)	500 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 6"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Tujunga Dam Project Site-Maple Cyn SPS City/County: Unincorporated Los Angeles Sampling Date: June 20, 2017

Applicant/Owner: Los Angeles County Department of Public Works State: CA Sampling Point: 15

Investigator(s): David Hughes Section, Township, Range: Section 6, Township 2N, Range 12W

Landform (hillslope, terrace, etc.): Canyon Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): Mediterranean California Lat: 34.284341° Long: -118.183089° Datum: NAD 83

Soil Map Unit Name: Chilao family-Haploxerolls NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No _____
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Eriogonum fasciculatum	25	Y	UPL
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: _____)			
1. Bromus diandrus	60	Y	UPL
2. Avena sp.	10	N	UPL
3. Salsola tragus	10	N	UPL
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species 105	x 5 = 525
Column Totals: 105 (A)	525 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2						sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan

Depth (inches): 5"

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: